

MONITOUCH

Reference Manual [2]



V10 / V9 series

Record of Revisions

Reference numbers are shown at the bottom left corner on the back cover of each manual.

Printing Date	Reference No.	Revised Contents
June, 2014	1066NE0	First edition
April, 2015	1066NE1	Second edition <ul style="list-style-type: none"> • Chapter 1 Added video/RGB display • Chapter 4 Added filtering (sorting), searching for the operation log viewer and operation log, LogToCsv • Chapter 6 Data transfer service and changed server example for data transfer service • Chapter 12 Ladder transfer, 3-way communication • Chapter 13 PDF viewer • Chapter 14 String table function • Partial modifications • Revisions for new print
November, 2015	1066NE2	Third edition <ul style="list-style-type: none"> • Chapter 8 Storage Device: Added [Store HDCOPY Macro in JPEG Format] • Chapter 12 Ladder Transfer: Added flow control to "LadderComOp" • Chapter 13 PDF Viewer: Switch "Function: PDF Viewer Display" • Chapter 15 Video Player • Partial modifications
March, 2017	1066NE3	Fourth edition <ul style="list-style-type: none"> • Chapter 1 RGB display: GUR-00, GUR-10, and GUR-11 optional units High-speed mode, display priority • Chapter 6 Data transfer viewer • Chapter 6 Data transfer service: Folder/file transfer by device memory specification, filter function • Chapter 6 Remote desktop • Chapter 7 Enlarging and scrolling screens: Coordinates by device memory specification • Chapter 10 Tags: Importing Siemens TIA project files • Front and back covers revised • Partial modifications
May, 2019	1066NE4	Fifth edition <ul style="list-style-type: none"> • Chapter 1 Changes to RGB input and adjustment screens • Chapter 5 Security: Added descriptions of conditions • Chapter 6 E-mail notification/Data transfer service: Added descriptions on attachment files • Chapter 9 Added descriptions of font types • Chapter 10 Tags: Added versions that support importing of Siemens TIA project files • Chapter 12 Ladder Transfer: Added manufacturer Telemecanique • Partial modifications
June, 2019	1066NE4a	Correction of errors
November, 2019	1066NE5	Sixth edition <ul style="list-style-type: none"> • Chapter 1 Added USB camera display • Partial modifications
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Printing Date	Reference No.	Revised Contents
May, 2021	1066NE7	<p>Eighth edition</p> <ul style="list-style-type: none"> • Chapter 1 <ul style="list-style-type: none"> - RGB input: Added touch switch driver "DMT-DD" (Windows 10 supported) - USB camera: Snapshot, information output device memory - Network camera: Free size designation of display area • Chapter 4 Operation log • Chapter 6 <ul style="list-style-type: none"> - MES: Stand-alone configuration - E-mail notification: STARTTLS encryption - VNC server: Simple Remote • Chapter 9 Language changeover: Support of 32 languages • Chapter 10 Tag: Operation and scaling, tag database edit window, location of use • Chapter 13 PDF viewer: Pinch-to-zoom (V9 Advanced capacitive type) • Chapter 15 Video player: Switching storage • Chapter 16 Picture viewer • Partial modifications
November, 2021	1066NE8	<p>Ninth edition</p> <ul style="list-style-type: none"> • Chapter 1 <ul style="list-style-type: none"> - USB camera: Portrait orientation - Network camera: Rotating snapshots before saving • Chapter 6 <ul style="list-style-type: none"> - Data transfer service: Information output device memory - FTP server: Error codes • Partial modifications
June, 2022	1066NE9	<p>Tenth edition</p> <ul style="list-style-type: none"> • Chapter 10 Siemens TIA project file import: Supported versions added • Chapter 13 PDF Viewer: Folder path specification • Partial modifications
May, 2023	1066NE10	<p>Eleventh edition</p> <ul style="list-style-type: none"> • V10 series added • Chapter 1 USB camera: Free size designation of display area • Chapter 6 E-mail notification: V10 TLS 1.3/1.2, V9 TLS 1.2 • Chapter 15 Video player: Previous frame/Next frame • Partial modifications

Preface

Thank you for selecting the MONITOUCH V10/V9 series.

For correct setup of the V10/V9 series, you are requested to read through this manual to understand more about the product.

For details on other operating procedures for the V10/V9 series, refer to the following related manuals.

Manual Name	Contents	Reference No.
V10/V9 Series Reference Manual 1	Explains the functions and operation of the V10/V9 series.	1065NE
V10/V9 Series Reference Manual 2		1066NE
V10/V9 Series Setup Manual	Explains the installation procedure of V-SFT version 6, the creation process of simple screen programs as well as how to transfer a created screen program using V-SFT version 6.	1067NE
V10 Series Unit Operation / Local Mode / Error Screen Manual	Explains the operating procedures, Local mode screens, and error list for the V10 series.	1093NE
V9 Series Troubleshooting/Maintenance Manual	Explains the operating procedures, Local mode screens, and error list for the V9 series.	1068NE
V10/V9 Series Training Manual Beginner's Guide	Explains the screen creation process for the V9 series using V-SFT version 6 with examples.	1069NE
V10/V9 Series Training Manual Practical Guide		1070NE
V10/V9/X1 Series Macro Reference	Provides an overview of macros of V-SFT version 6 and explains macro editor operations and macro command descriptions in detail.	1071NE
V10/V9 Series Operation Manual	Explains the configuration of V-SFT version 6, the editing process of each part and limitations regarding operation in detail.	1072NE
V10/V9 Series Connection Manual 1	Explains the connection and communication parameters for the V10/V9 series and controllers in detail.	2210NE
V10/V9 Series Connection Manual 2		2211NE
V10/V9 Series Connection Manual 3		2212NE
V10 Series Hardware Specifications	Explains hardware specifications and precautions when handling the V10 series.	2025NE
V9 Series Hardware Specifications	Explains hardware specifications and precautions when handling the V9 series.	2023NE


For details on devices including PLCs, inverters, and temperature controllers, refer to the manual for each device.


Notes:


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2. The information in this manual is subject to change without prior notice.
3. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and other countries.
4. All other company names or product names are trademarks or registered trademarks of their respective holders.
5. This manual is intended to give accurate information about MONITOUCH hardware. If you have any questions, please contact your local distributor.

Notes on Safe Usage of MONITOUCH

In this manual, you will find various notes categorized under the following levels with the signal words "DANGER" and "CAUTION".

 **DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and could cause property damage.

Note that there is a possibility that items listed with  **CAUTION** may have serious ramifications.

DANGER

- Never use the output signal of the V10/V9 series for operations that may threaten human life or damage the system, such as signals used in case of emergency. Design the system so that it can cope with a touch switch malfunction. A touch switch malfunction may result in machine accidents or damage.
- Turn off the power supply when you set up the unit, connect new cables, or perform maintenance or inspections. Otherwise, electrical shock or damage may occur.
- Never touch any terminals while the power is on. Otherwise, electrical shock may occur.
- Always close the terminal covers before turning the power on and operating the unit. Otherwise, electrical shock may occur.
- The liquid crystal in the LCD panel is a hazardous substance. If the LCD panel is damaged, do not ingest the leaked liquid crystal. If leaked liquid crystal makes contact with skin or clothing, wash it away with soap and water.
- Never disassemble, recharge, deform by pressure, short-circuit, or reverse the polarity of the lithium battery, nor dispose of the lithium battery in fire. Failure to follow these conditions will lead to explosion or ignition.
- Never use a lithium battery that is deformed, leaking, or shows any other signs of abnormality. Failure to follow these conditions will lead to explosion or ignition.
- Switches on the screen are operable even when the screen has become dark due to a faulty backlight or when the backlight has reached the end of its service life. If the screen is dark and hard to see, do not touch the screen. Otherwise, unintended operations may occur resulting in machine accidents or damage.
- Tighten the mounting screws on the fixtures of the V10/V9 series uniformly to the specified torque indicated below. Excessive tightening may cause deformation, breakage, or malfunction of the touch switch, which may result in damage to the machine or an accident. Insufficient tightening may cause the unit to fall down, short-circuit, or malfunction
 - V1015, V1010, V1008, V9 series: 5.31 lbf-in (0.6 N·m)
 - V1012: 7.97 lbf-in (0.9 N·m)

CAUTION

- Check the appearance of the unit when it is unpacked. Do not use the unit if any damage or deformation is found. Failure to do so may lead to fire, damage, or malfunction.
- For use in a facility or as part of a system related to nuclear energy, aerospace, medical, traffic equipment, or mobile installations, please consult your local sales representative.
- Operate (or store) the V10/V9 series under the conditions indicated in this manual and related manuals. Failure to do so could cause fire, malfunction, physical damage or deterioration.
- Observe the following environmental restrictions on use and storage of the unit. Otherwise, fire or damage to the unit may result.
 - Avoid locations where there is a possibility that water, corrosive gas, flammable gas, solvents, grinding fluids, or cutting oil can come into contact with the unit.
 - Avoid high temperatures, high humidity, and outside weather conditions, such as wind, rain, or direct sunlight.
 - Avoid locations where excessive dust, salt, and metallic particles are present.
 - Avoid installing the unit in a location where vibrations or physical shocks may be transmitted.
- Protective functions may not function properly if a device is not used as specified by the manufacturer.
- Equipment must be correctly mounted so that the main terminal of the V10/V9 series will not be touched inadvertently. Otherwise, an accident or electric shock may occur.
- Check periodically that terminal screws on the power supply terminal block and fixtures are firmly tightened. Loosened screws or nuts may result in fire or malfunction.
- Tighten the terminal screws on the power supply terminal block of the V10/V9 series uniformly to the specified torque indicated below. Improper tightening of screws may result in fire, malfunction, or other serious trouble.
 - V10 series: 7.1 lbf-in (0.8 N·m)
 - V9 series: 7.1 to 8.8 lbf-in (0.8 to 1.0 N·m)
- The V10/V9 series has a glass screen. Do not drop or give physical shock to the unit. Otherwise, the screen may be damaged.
- Correctly connect cables to the terminals of the V10/V9 series in accordance with the specified voltage and wattage. Overvoltage, overwattage, or incorrect cable connection could cause fire, malfunction, or damage to the unit.

CAUTION

- Always ground the V10/V9 series. The FG terminal must be used exclusively for the V10/V9 series with the level of grounding resistance less than 100 Ω . Otherwise, you may sustain an electric shock, a fire may occur, MONITOUCH may not recognize touch operations, and malfunctions may occur.
- Prevent any conductive particles from entering the V10/V9 series unit. Failure to do so may lead to fire, damage, or malfunction.
- After wiring is finished, remove the paper used as a dust cover before starting operation of the V10/V9 series. Operation with the dust cover attached may result in accidents, fire, malfunction, or other trouble.
- Do not attempt to repair, disassemble, or modify the V10/V9 series unit yourself. Contact Hakko Electronics or the designated contractor for repairs.
- Do not repair, disassemble, or modify the V10/V9 series unit. Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repair, disassembly, or modification of the unit that was performed by an unauthorized person.
- Do not use sharp-pointed tools to press touch switches. Doing so may damage the display unit.
- Only technicians are authorized to set up the unit, connect cables, and perform maintenance and inspection.
- Lithium batteries contain combustible material such as lithium and organic solvents. Mishandling may cause heat, explosion, or ignition resulting in fire or injury. Read the related manuals carefully and correctly handle the lithium battery as instructed.
- Take safety precautions during operations such as changing settings when the unit is running, forced output, and starting and stopping the unit. Any misoperations may cause unexpected machine movement, resulting in machine accidents or damage.
- In facilities where the failure of the V10/V9 series could lead to accidents that threaten human life or other serious damage, be sure that such facilities are equipped with adequate safeguards.
- When disposing of the V10/V9 series unit, it must be treated as industrial waste.
- Before touching the V10/V9 series unit, discharge static electricity from your body by touching grounded metal. Excessive static electricity may cause malfunction or trouble.
- Insert an SD card into the unit in the same orientation as pictured on the unit. Failure to do so may damage the SD card or the slot on the unit.
- The SD card access LED flashes red when the SD card is being accessed. Never remove the SD card or turn off power to the unit while the LED is flashing. Doing so may destroy the data on the SD card. Check that the LED has turned off before removing the SD card or turning off the power to the unit.
- Be sure to remove the protective sheet that is attached to the touch panel surface at delivery before use. If used with the protective sheet attached, MONITOUCH may not recognize touch operations or malfunctions may occur.
- When using V10 series and an analog resistive-film type V9 series unit, do not touch two positions on the screen at the same time. If two or more positions are pressed at the same time, the switch located between the pressed positions may be activated.
- When using a capacitive V9 series unit, take note of the following cautions.
 - Use a Class 2 power supply for a 24-VDC unit. If an unstable power supply is used, MONITOUCH may not recognize touch operations or malfunctions may occur.
 - Capacitive touch panel types support two-point touch operations. If a third point is touched, the touch operation will be cancelled.
 - Capacitive touch panel types are prone to the influence of conductive material. Do not place conductive material such as metals near the touch panel surface and do not use the panel if it is wet. Otherwise, malfunctions may occur.

[General Notes]

- Never bundle control cables or input/output cables with high-voltage and large-current carrying cables such as power supply cables. Keep control cables and input/output cables at least 200 mm away from high-voltage and large-current carrying cables. Otherwise, malfunction may occur due to noise.
- When using the V10/V9 series in an environment where a source of high-frequency noise is present, it is recommended that the FG shielded cable (communication cable) be grounded at each end. However, when communication is unstable, select between grounding one or both ends, as permitted by the usage environment.
- Be sure to plug connectors and sockets of the V10/V9 series in the correct orientation. Failure to do so may lead to damage or malfunction.
- If a LAN cable is inserted into the MJ1 or MJ2 connector, the device on the other end may be damaged. Check the connector names on the unit and insert cables into the correct connectors.
- Do not use thinners for cleaning because it may discolor the V10/V9 series unit surface. Use commercially available alcohol.
- Clean the display area using a soft cloth to avoid scratching the surface.
- If a data receive error occurs when the V10/V9 series unit and a counterpart unit (PLC, temperature controller, etc.) are started at the same time, read the manual of the counterpart unit to correctly resolve the error.
- Avoid discharging static electricity on the mounting panel of the V10/V9 series. Discharging static electricity on the mounting panel may cause malfunction to occur due to noise.
- The V10/V9 series is identified as a class-A product in industrial environments. In the case of use in a domestic environment, the unit is likely to cause electromagnetic interference. Preventive measures should thereby be taken appropriately.
- The signal ground (SG) and frame ground (FG) are connected inside the V9150 series unit. Take care when designing systems.
- The V10/V9 series is equipped with a battery that contains lithium metal and therefore observance of transport regulations is necessary. Hakko Electronics ships V10/V9 series units packed in accordance with transport regulations. If there is a need to transport a V10/V9 series unit after it is once unpacked, transport the unit in accordance with the IATA Dangerous Goods Regulations, International Maritime Dangerous Goods (IMDG) Code, and transport regulations of the countries concerned. Ask your forwarding agent for details of transport regulations.

[Notes on the LCD]

Note that the following conditions may occur under normal circumstances.

- Avoid prolonged display of any fixed pattern. Due to the characteristic of liquid crystal displays, an afterimage may occur. If prolonged display of a fixed pattern is expected, use the backlight auto OFF function.
- The response time, brightness, and colors of the V10/V9 series unit may be affected by the ambient temperature.
- Tiny spots (dark or luminescent) may appear on the display due to the characteristics of liquid crystal.
- Unevenness in brightness and flickering may occur depending on the screen display pattern due to the characteristics of liquid crystal.
- There are variations in brightness and color between units.
- Display colors may vary depending on the viewing angle because a converging lens is used in the backlight unit.

[Notes on Capacitive V9 Series]

- Touch panel operability may not be optimal if used with dry fingers or skin. In such a case, use a capacitive stylus pen.
- Periodically clean the touch panel surface for optimum touch operations.

When cleaning, take note of the following points.

<When cleaning>

- The panel surface is made of glass. Be sure to clean the surface gently with a cloth or sponge. Otherwise, you may scratch or damage the glass.
- Take care not to let cleaning detergent seep into the touch panel unit.
Do not directly apply or spray cleaning detergent on the panel surface.

[Notes on Wireless LAN]

For details regarding supported wireless LAN standards, radio law certifications, and countries where wireless LAN can be used, refer to the "About Wireless LAN on V10 Series" / "About Wireless LAN on V9 Advanced Model" / "About Wireless LAN on V9 Standard Model" manual provided with the V10/V9 series unit at delivery.

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1 Image Display

- 1.1 Video/RGB Display
- 1.2 USB Camera Display
- 1.3 JPEG Display
- 1.4 Network Camera

1.1 Video/RGB Display

1.1.1 Overview

Video Display

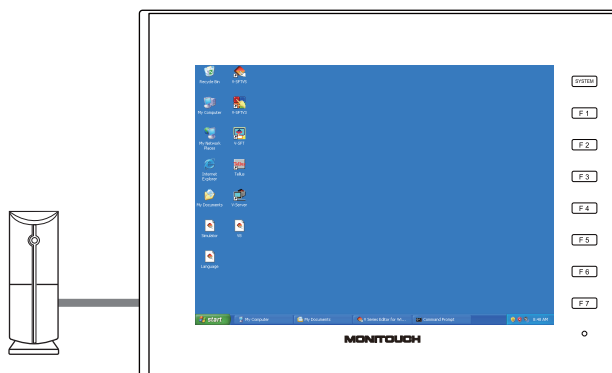
- NTSC, NTSC Square Pixel, and PAL signal images can be displayed.
By using the optional GUR-00, GUR-04, or GUR-10 unit, a video screen can be shown by simply placing and setting a video/RGB display part.



- By using the optional GUR-00 or GUR-10 unit, video display from multiple channels can be shown simultaneously on a single screen.

RGB Input Display

- RGB input images can be displayed.
By using the optional GUR-01, GUR-10, or GUR-11 unit, an RGB screen can be shown by simply placing and setting a video/RGB display part.



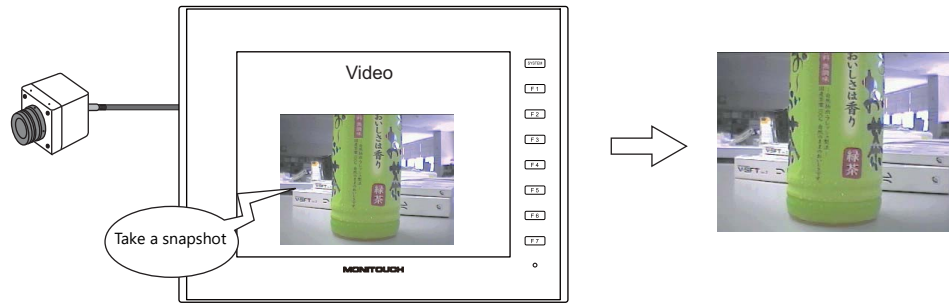
- By using the optional GUR-10 unit, video display and RGB display from multiple channels can be shown simultaneously on a single screen. The GUR-11 unit can show two channels of RGB display on a single screen.

Compared to a single channel, simultaneously showing multiple channels slows the display speed slightly.

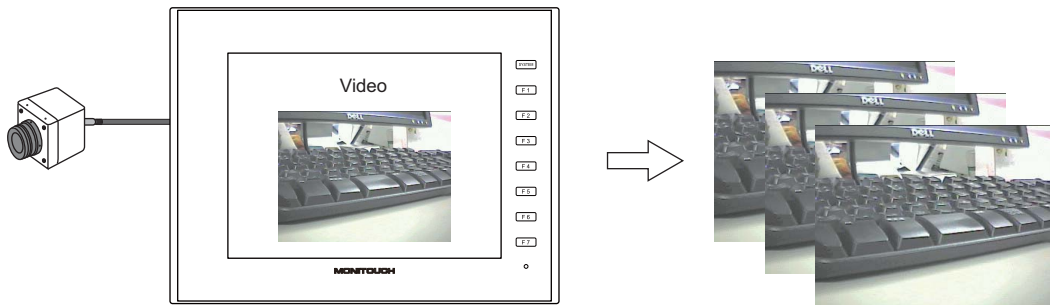
Snapshot Function

The currently displayed video/RGB screen can be saved to a storage device as a JPEG file. Double-tap on the displayed video/RGB screen or execute a snapshot macro command. There are three snapshot types.

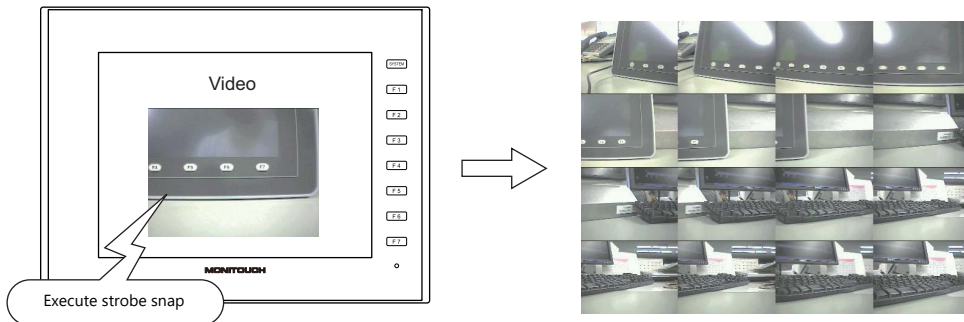
- Single Snap
One snapshot of the currently displayed video/RGB image is taken.
Execute the background SNAP macro command to take a snapshot even when the video/RGB screen is not displayed. For details, refer to the Macro Reference Manual.



- Periodical Snap
The currently displayed video/RGB image is captured continuously at regular intervals.



- Strobe Snap
A total of 16 screenshots of the currently displayed video/RGB screen are taken in succession by continuous shooting.

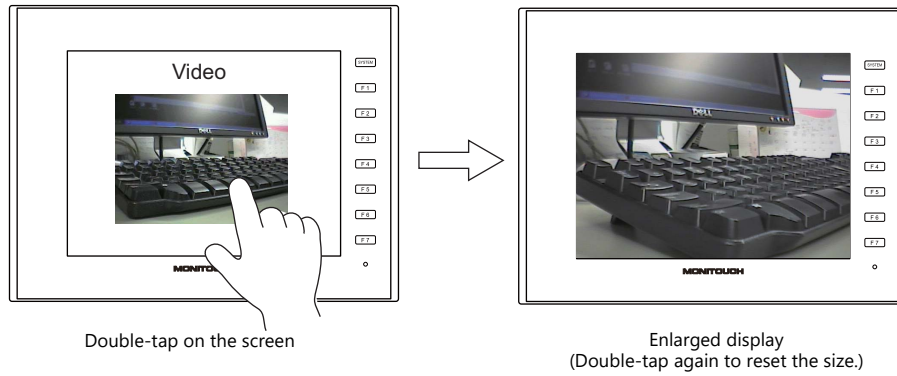


JPEG Display

- Snapshot images saved to a storage device can be displayed on the screen using a JPEG display item.
👉 For details, refer to ["1.3 JPEG Display" page 1-48](#).

Operation by Double-tapping

- The operation that is performed when the displayed video image is tapped can be set.



1.1.2 Specifications

Applicable Models

Model	Optional Unit	Video Input	RGB Input	V9 Series Unit Version
V910xiWRLD V910xiWLD V9150iX V9150iXD V9120iS V9120iSD V9100iS V9100iSD V9080iSD	GUR-01	-	1CH	Program Ver. 1.070 or later OS Ver. 1.50 or later
	GUR-04	1CH	-	
	GUR-00	4CH	-	Program Ver. 1.210 or later OS Ver. 2.40 or later
	GUR-10	2CH	1CH	
	GUR-11	-	2CH	
		-		

Video/RGB Input Specifications

Item	Specifications	
	Video Input	RGB Input
Type	Composite video signal	Analog RGB
Input Signal	NTSC NTSC Square Pixel PAL	Analog straight polarity 0.5 V to 1.0 Vp-p (75 Ω terminating resistance)
Operation Mode	NTSC ITU-R BT. 601 NTSC Square Pixel PAL ITU-R BT. 601	-
Sampling Frequency	13.5 MHz	-
Display Size	(Refer to the following "Display Size" section.)	
Colors	GUR-00, GUR-04, GUR-10, GUR-11	16,777,216 colors 256-level grayscale High-speed mode: 65,536 colors 64-level grayscale *
	GUR-01	- 65,536 colors 64-level grayscale
External Connection	BNC co-axial connector	D-sub 15-pin (mini)

* Only when using the optional GUR-10 or GUR-11 unit.

 For details, refer to "Video/RGB Settings" page 1-10.

Display Size

Video and RGB images are displayed on a placed display area. However, the displayed image may vary depending on the input signal size, the size that can be displayed on the V9 series unit, and the size of the display area placed on the screen.

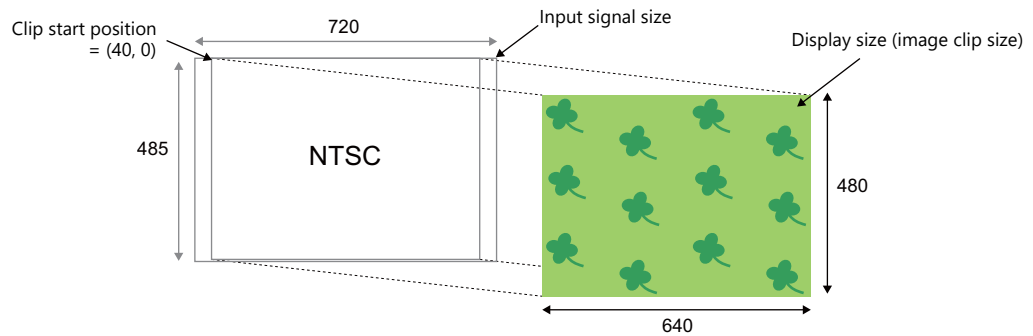
Display sizes

Input Signal	Input Signal Size		Display Size (= image clip size)	Clip Start Position *	
Video	NTSC ITU-R BT. 601	720 × 485	640 × 480	(40, 0)	
	NTSC Square Pixel	640 × 485	640 × 480	(0, 0)	
	PAL TU-R BT. 601	720 × 578	720 × 578	(0, 0)	
RGB Input	VESA	640 × 480	60 Hz	640 × 480	(0, 0)
			72 Hz		
			75 Hz		
			85 Hz		
	800 × 600	800 × 600	56 Hz	800 × 600	(0, 0)
			60 Hz		
			72 Hz		
			75 Hz		
1024 × 768	1024 × 768	60 Hz	1024 × 768	(0, 0)	

* If the display size is smaller than the input signal size, the area that is to be displayed on the V9 series unit can be adjusted by adjusting the image clip start position on the V9 series unit. For details, refer to "Clip start position" page 1-5.

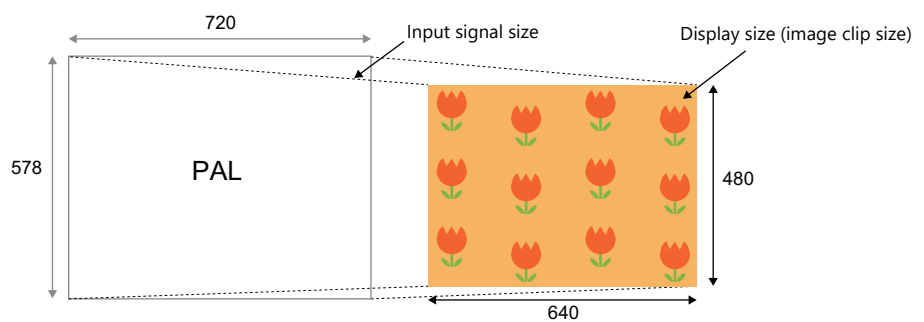
- NTSC ITU-R BT. 601

An image clipped to the display size from the input signal size is displayed. Therefore, the captured image is smaller than the actual video image. The start position for capturing (the clip start position) can be adjusted.



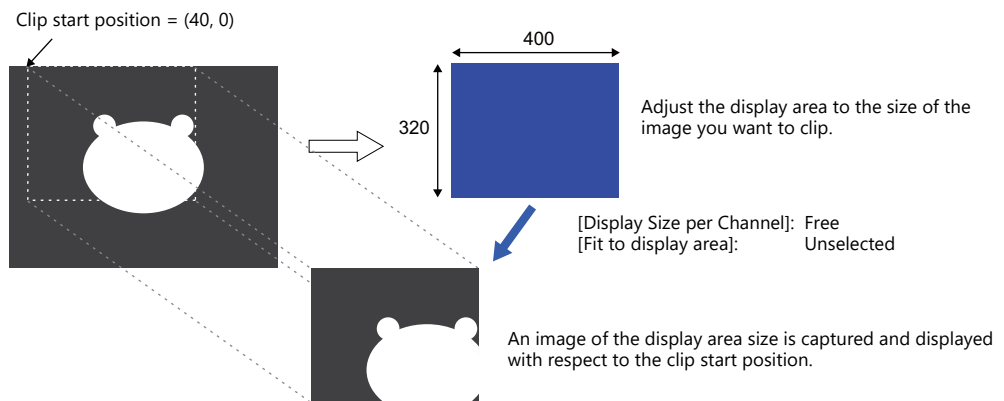
- PAL ITU-R BT. 601

The input signal image is scaled down to fit the display size and displayed.

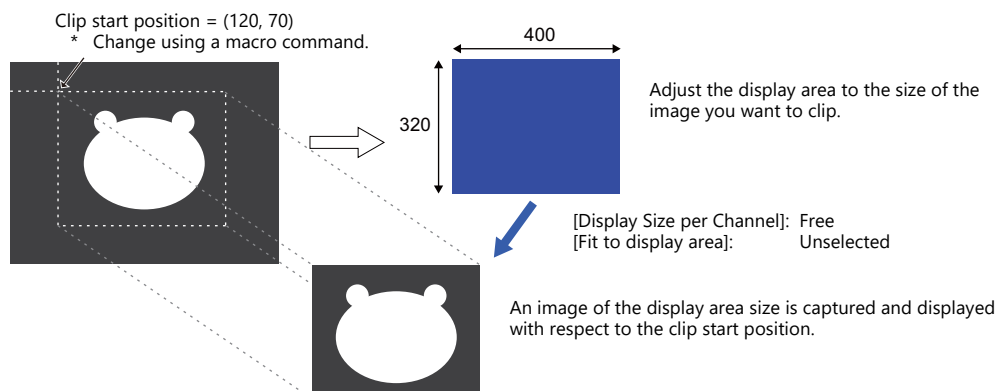


Clip start position

If the image is displayed at the default clip start position when the display area is smaller than the display size, the image may not fit within the display area or may not be centered.

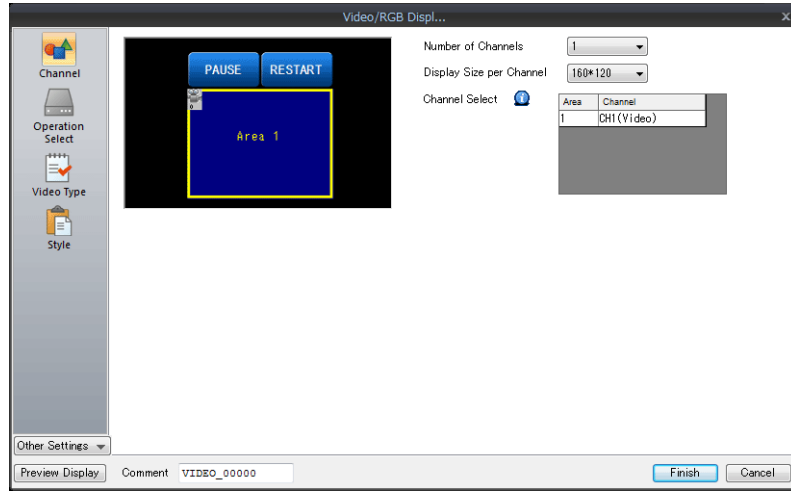


To show a certain portion of the video/RGB image in the display area (at the clip size), change the default clip start position and adjust the size of the display area part. Use the "CLIP_POS" macro command to adjust the clip start position.



1.1.3 Detailed Settings

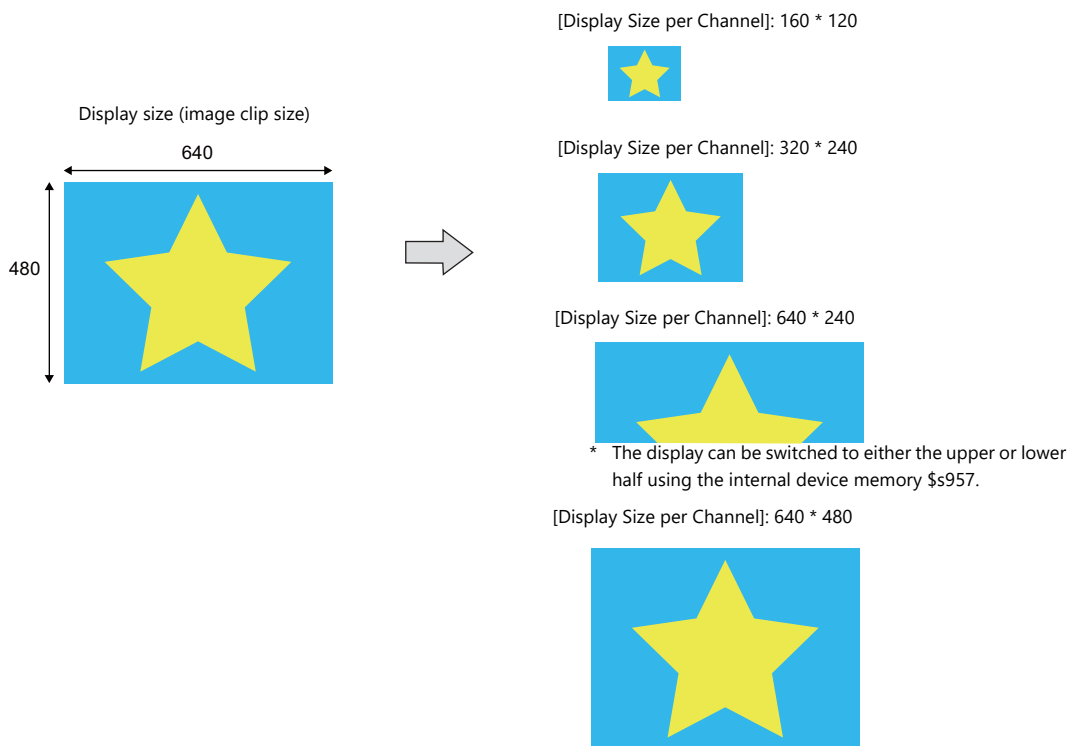
Channel



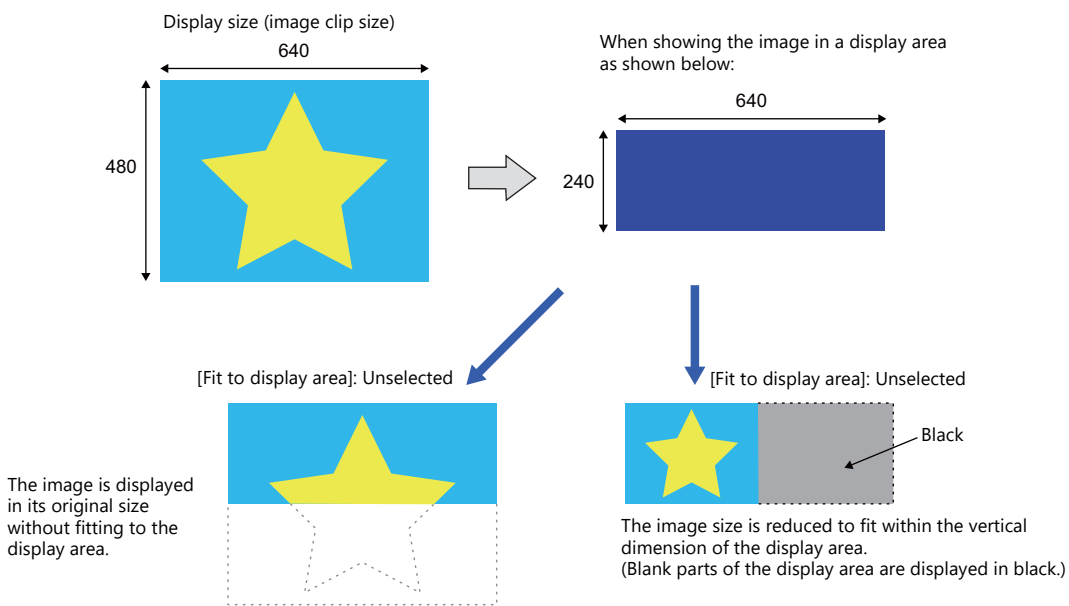
Item	Description												
Number of Channels	1, 2, 4 Specify the number of channels to be displayed simultaneously on the display area part.												
Display Size per Channel *1	Free, 160*120, 320*240, 640*480, 640*240 Specify the display size for one channel. When [Free] is selected, the display size can be set as required. When the display size is [640*240], the display can be switched to either the upper or lower half using the internal device memory \$s957. The available size setting range depends on the number of display channels. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Number of Channels</th> <th>Size</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Free, 160*120, 320*240, 640*480, 640*240</td> </tr> <tr> <td>2</td> <td>Free, 160*120, 320*240, 640*240</td> </tr> <tr> <td>4</td> <td>Free, 160*120, 320*240</td> </tr> </tbody> </table>	Number of Channels	Size	1	Free, 160*120, 320*240, 640*480, 640*240	2	Free, 160*120, 320*240, 640*240	4	Free, 160*120, 320*240				
Number of Channels	Size												
1	Free, 160*120, 320*240, 640*480, 640*240												
2	Free, 160*120, 320*240, 640*240												
4	Free, 160*120, 320*240												
Fit to display area *1	This setting is available when [Display Size per Channel] is set to [Free]. Unselected The video/RGB screen is displayed according to the setting made for [Display Size per Channel]. Selected The video/RGB screen is automatically scaled to fit within the "Y" size of the placed display area part. *2 For details, refer to "Display example" page 1-7.												
Channel Select	Area 1 Area 2 Area 3 Area 4 Specify the channel to be displayed in each video/RGB display area part. CH1 to 4 (Video)/CH5, 6 (RGB) The optional units and channel number assignments are shown below. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>GUR-04</p> <p>1</p> </div> <div style="text-align: center;"> <p>GUR-00</p> <p>4 3 2 1</p> </div> <div style="text-align: center;"> <p>GUR-10</p> <p>5 2 1</p> </div> <div style="text-align: center;"> <p>GUR-01</p> <p>5</p> </div> <div style="text-align: center;"> <p>GUR-11</p> <p>5 6</p> </div> <table border="1" style="margin-left: auto; margin-right: 0; border-collapse: collapse;"> <tbody> <tr><td>1</td><td>CH1 (Video)</td></tr> <tr><td>2</td><td>CH2 (Video)</td></tr> <tr><td>3</td><td>CH3 (Video)</td></tr> <tr><td>4</td><td>CH4 (Video)</td></tr> <tr><td>5</td><td>CH5 (RGB)</td></tr> <tr><td>6</td><td>CH6 (RGB)</td></tr> </tbody> </table> </div>	1	CH1 (Video)	2	CH2 (Video)	3	CH3 (Video)	4	CH4 (Video)	5	CH5 (RGB)	6	CH6 (RGB)
1	CH1 (Video)												
2	CH2 (Video)												
3	CH3 (Video)												
4	CH4 (Video)												
5	CH5 (RGB)												
6	CH6 (RGB)												

*1 Display example

- [Display Size per Channel]: 160 * 120, 320 * 240, 640 * 480, 640 * 240
The image size is reduced to fit the display area.



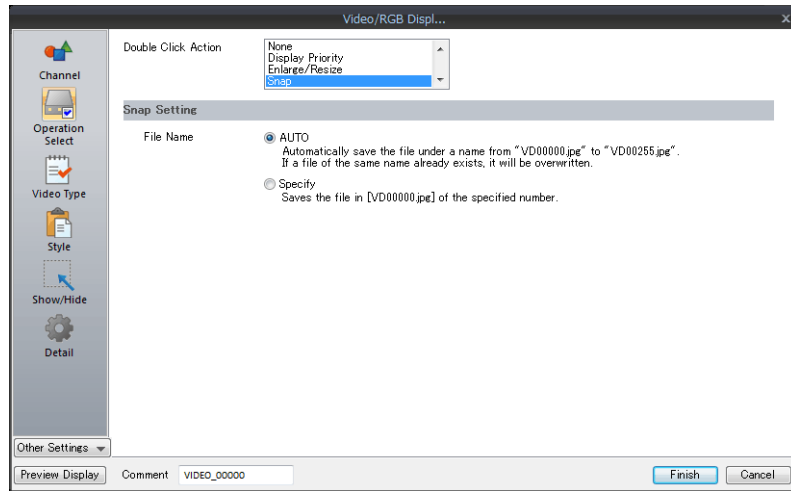
- [Display Size per Channel]: Free



- * To change the display size during video/RGB display, use the [Enlarge] display function (fixed to 640 × 480 dots) or use a video overlap display part. For details on video overlap display parts, refer to "1.1.8 Video Overlap Displays" page 1-27.
- *2 The image is rounded to the following multiples for the display area. Fractions are displayed in black.
 - Landscape: Round to the nearest multiple of 16 (width) and 8 (height).
 - Portrait: Round to the nearest multiple of 8 (width) and 16 (height).

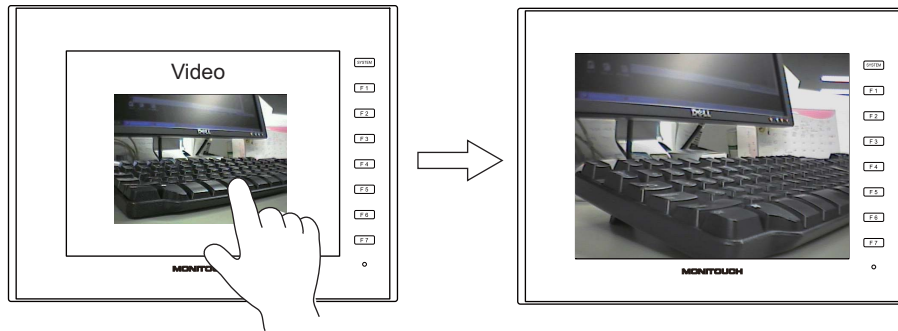
Operation Select

Select the action to be performed by a double-tap operation on the area.



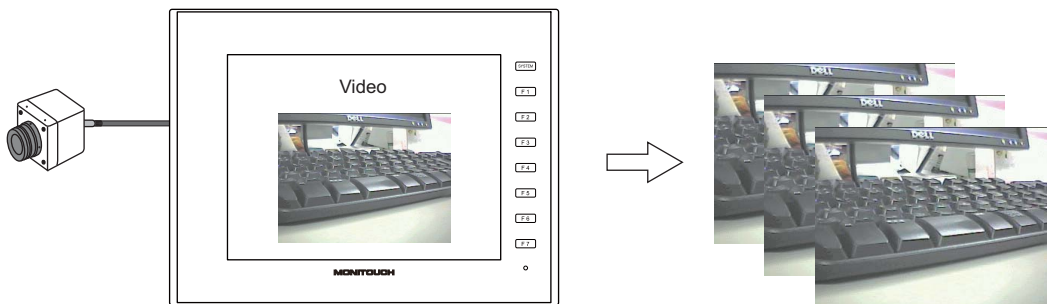
Item	Description
None	No action
Display Priority	When placing multiple display areas (parts) on a single screen, the double-tapped area is prioritized for display.
Enlarge/Resize ^{*1}	Enlarge the display size to 640 × 480 dots and reset to the original display size.
Snap	Take a snapshot of the displayed image and save as a JPEG. Save location ^{*4} : (storage device)\EXT0000\SNAP
File Name	Set the name of the file. AUTO (0 to 255): Save using sequential numbers from "VD00000.jpg". Set the action to perform when the maximum number of snapshots is reached using [Snap Setting] under "Video Type" page 1-10. Specify (0 to 32767): Save using the specified file number. If the specified file already exists, it is overwritten. ^{*5}
Periodical Snap ^{*2}	Take snapshots of the displayed image at the set interval and save each image as a JPEG. Save location ^{*4} : (storage device)\EXT0000\SNAP
Total Time	Specify the duration for taking periodical snapshots. 1 to 180 sec
Intervals	Specify the time interval between taking each snapshot. 1 to 255 sec
File Name	Set the name of the file. AUTO (0 to 255): Save using sequential numbers from "VD00000.jpg". Set the action to perform when the maximum number of snapshots is reached using [Snap Setting] under "Video Type" page 1-10. Specify (0 to 32767): Save using the specified file number. If the specified file already exists, it is overwritten. ^{*5}
Strobe Snap ^{*3}	Take screenshots of the displayed image in succession by continuous shooting Take 16 snapshots (160 × 120 dot resolution) and save as one JPEG file (640 × 480 dots). Save location ^{*4} : storage device\EXT0000\SNAP The JPEG file is displayed once the individual snapshots are all taken. By double-tapping again, the display is reset to the original video/RGB display. When taking strobe snapshots, other operations or macro commands are not possible.
Strobe Speed	Specify the speed for taking strobe snapshots. 100 ms to 25.5 sec
File Name	Set the name of the file. AUTO (0 to 255): Save using sequential numbers from "VD00000.jpg". Set the action to perform when the maximum number of snapshots is reached using [Snap Setting] under "Video Type" page 1-10. Specify (0 to 32767): Save using the specified file number. If the specified file already exists, it is overwritten. ^{*5}
Superimpose (Single Click)	Displays an overlap for the video menu. An overlap can be registered by pressing the [Register] button. Configure this setting according to the blend value located at [Screen Setting] → [Screen Setting] → [Others] → [Overlap Transparency Setting] for each screen.

*1 Enlarge/Resize



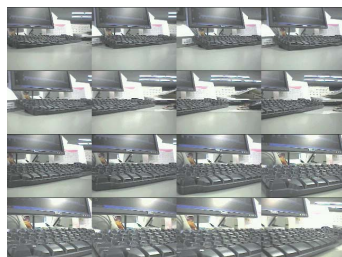
*2 Periodical Snap

When set as [Total Duration: 10 sec] and [Interval: 5 sec], three snapshot files are saved.



*3 Strobe Snap

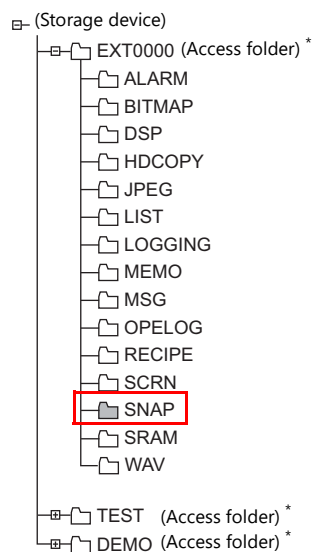
When set as [Strobe Speed: 1 sec], images for a duration of 16 seconds are taken and saved as one file.



Order of strobe snapshots

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

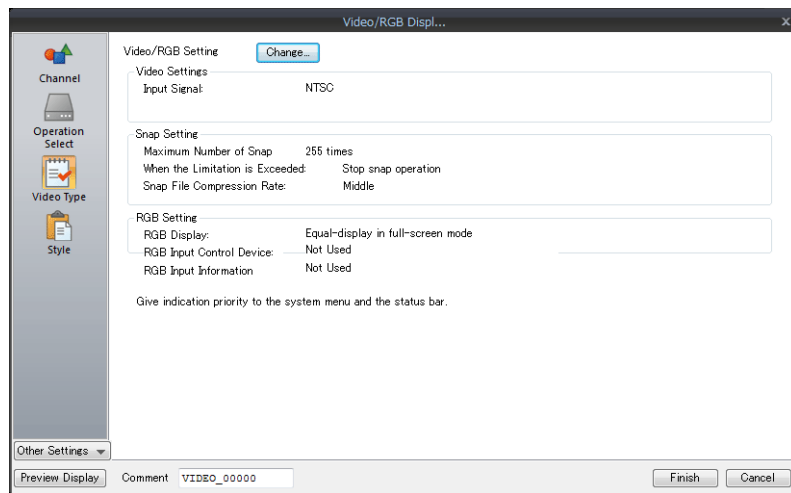
*4 Save location



* Access folders can be given any name for each screen program data file.

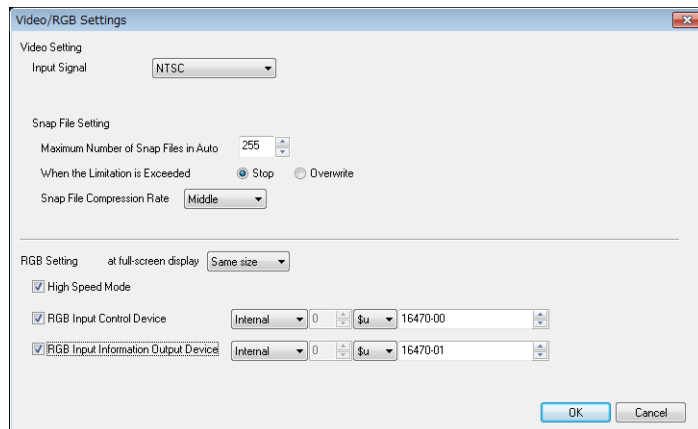
*5 When a screen program contains both the [AUTO] and [Specify] snap settings, specify a number in the range of 256 to 32767 to prevent the files of [Specify] from being overwritten with those of [AUTO]. When [AUTO] is selected, the number of the last snapshot is stored in system device memory \$s932.

Video Type



Item	Description
Video/RGB Setting	Displays the [Video/RGB Setting] configurations. Any changes to settings can be made from the [Change] button.

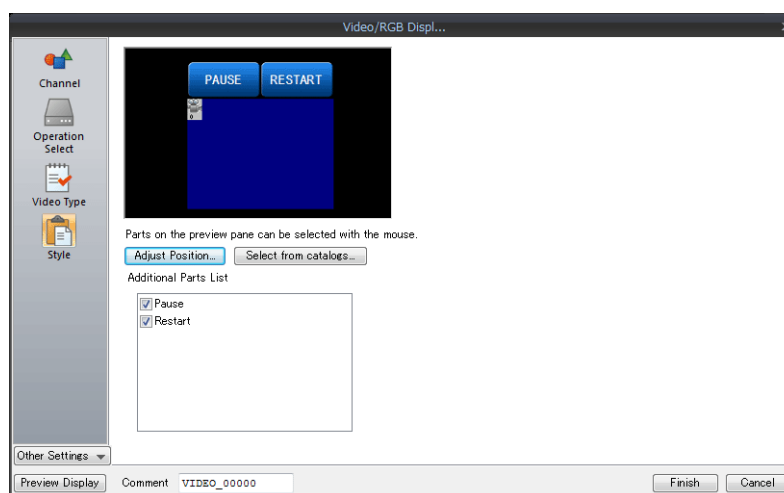
Video/RGB Settings



Item	Description
Video Setting	Input Signal Select the video input signal. NTSC NTSC Square Pixel PAL
Snap File Setting	Maximum Number of Snap Files in Auto Specify the number of times to automatically save snapshot files. 1 to 255
	When the Limitation is Exceeded Specify the action to perform when the maximum number of snapshots ([Maximum Number of Snap Files in Auto]) is exceeded. [Stop]: When the maximum number of snapshots has been taken, snapshot taking stops. [Overwrite]: When the maximum number of snapshots has been taken, new snapshots are saved by overwriting from the first file.
	Snap File Compression Rate Specify the compression rate for snapshot files. [High]: File size is small but image quality is lowered. [Middle]: File size and image quality are at a medium level. [Low]: File size increases with improved image quality.

Item	Description									
RGB Setting	<p>at full-screen</p> <p>Specify the action to perform when the screen size is larger than the input size. [Same size]: The input image is displayed in its original size. [Enlarge]: The input image is enlarged and displayed to fit the screen size.</p>									
High Speed Mode (GUR-10 and GUR-11 only)	<p>Select the RGB input display colors and drawing speed. When this checkbox is selected, RGB display uses 65,536 colors. (Default: selected)</p> <table border="1"> <thead> <tr> <th>Number of Channels per Screen</th> <th>Selected</th> <th>Unselected</th> </tr> </thead> <tbody> <tr> <td>1 channel</td> <td>65,536 colors (high-speed mode enabled)</td> <td>16,777,216 colors</td> </tr> <tr> <td>2 or more channels</td> <td>16,777,216 colors *</td> <td>16,777,216 colors</td> </tr> </tbody> </table> <p>* Disabled when displaying two or more channels, even if the checkbox is selected.</p>	Number of Channels per Screen	Selected	Unselected	1 channel	65,536 colors (high-speed mode enabled)	16,777,216 colors	2 or more channels	16,777,216 colors *	16,777,216 colors
Number of Channels per Screen	Selected	Unselected								
1 channel	65,536 colors (high-speed mode enabled)	16,777,216 colors								
2 or more channels	16,777,216 colors *	16,777,216 colors								
RGB Input Control Device	<p>An RGB input screen can be displayed without using a video/RGB display part. It can be displayed on any screen. On: Display Off: Not displayed</p>									
RGB Input Information Output Device	<p>The current display status of the RGB input is output to the specified device memory. On: Display Off: Not displayed</p>									

Style



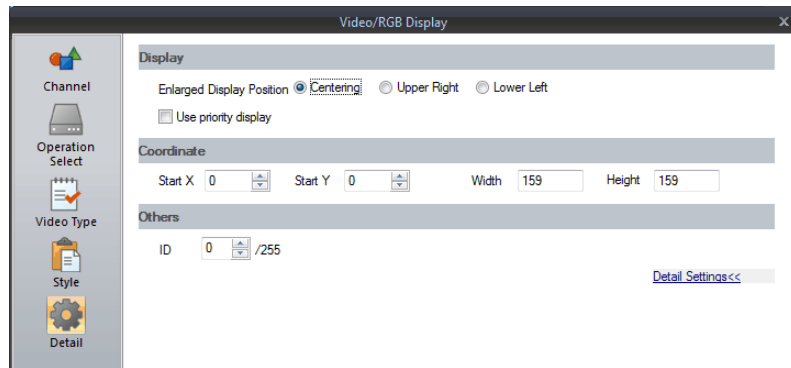
Item	Description
Additional Parts List	Select an operation switch.
Pause	The video display is paused as a still image.
Restart	The paused state of the video display is cleared.
Adjust Position	Display the window for adjusting the placement position of each part. Part size can also be changed.
Select from catalogs	Set the part design from the catalog.
Parts Design	Set the design and color of parts.
Edit Selected Parts	Configure the part selected in the [Additional Parts List] or preview pane.

Show/Hide

Set the show and hide settings of graphic items.

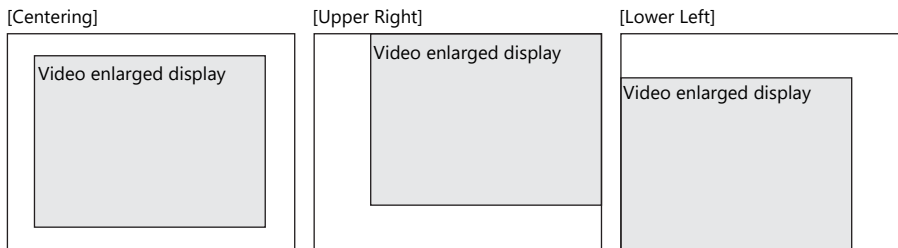
 For details, refer to "14 Item Show/Hide Function" in the Reference Manual 1.

Detail



Item		Description
Display	Enlarged Display Position *	Centering, Upper Right, Lower Left Specify the display position of the video when it is enlarged by double-tapping or by the ZOOM macro command. Enlarged size: 640 × 480 dots
	Use priority display	When placing multiple display areas (parts) on a single screen, the set area is prioritized for display. If no checkbox of any area is selected, the area placed in the foreground is prioritized for display. Only one part can be specified per screen.
Coordinate	Start X/Start Y	Specify the coordinates of the display area.
	Width/Height	Set the size of the display area.
Others	ID	Set an ID number.

* Enlarged Display Position

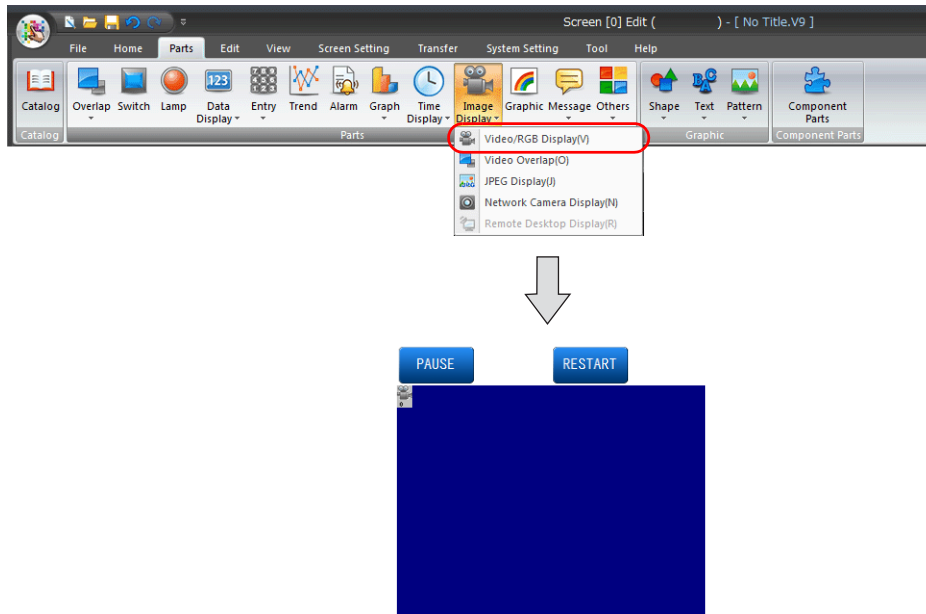



1.1.4 Video Display

Display Method

Using a video/RGB display part


Click [Parts] → [Image Display] → [Video/RGB Display] and place a part.



 For details on the settings, refer to ["1.1.3 Detailed Settings" page 1-6](#).

Using a video overlap display part

When intending to change the display size of the video while it is displayed, use a video overlap display part.

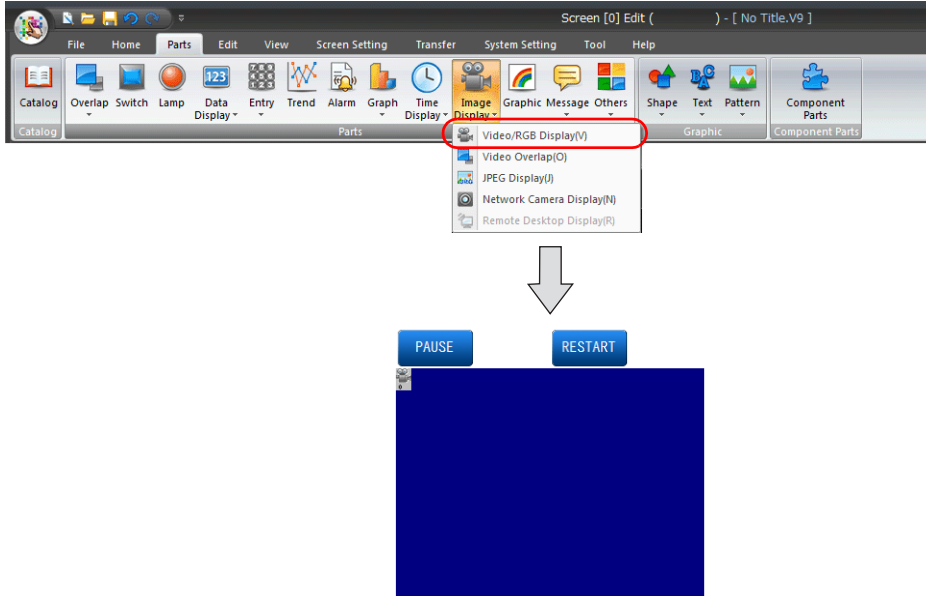
 For details on video overlap display parts, refer to ["1.1.8 Video Overlap Displays" page 1-27](#).

1.1.5 RGB Input Signal Display

Display Method

Using a video/RGB display part (displaying within the display area)

Click [Parts] → [Image Display] → [Video/RGB Display] and place a part.



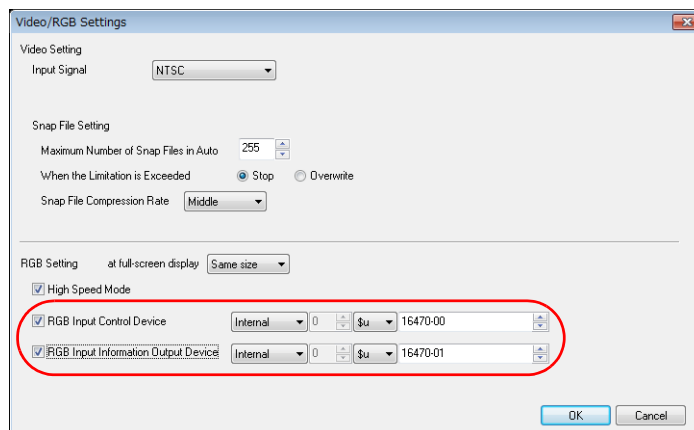
For details on the settings, refer to "1.1.3 Detailed Settings" page 1-6.

Using an RGB input control device memory (displaying the RGB input signal on the entire screen)

An RGB input screen can be displayed without using a video/RGB display part.

When the bit is turned ON, the RGB input screen is displayed regardless of what screen is currently displayed.

- Location of settings: [System Setting] → [Unit Setting] → [Video/RGB]
 - [1] (ON level): RGB input screen is displayed.
 - [0] (OFF level): RUN mode screen is displayed.



* The RGB input information output device memory stores the current display status of the RGB input screen.

Using a macro command (displaying the RGB input signal on the entire screen)

Switch to the RGB input screen using the "SYS (SET_RGB)" macro command.
For details, refer to the Macro Reference Manual.

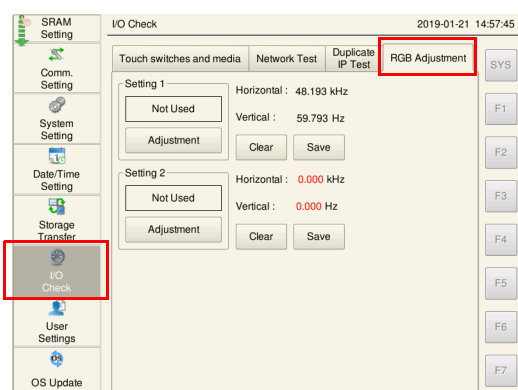
Switching RGB input parameters

As adjustment parameters for RGB input signals, [Setting 1] and [Setting 2] can be configured. If the frequencies configured for [Setting 1] and [Setting 2] differ, the V9 series unit will automatically recognize and switch to either [Setting 1] or [Setting 2]. If the frequencies do not change, the [Setting 1] adjustment parameters are used. If the frequencies do not change but the adjustment parameters differ, switch between [Setting 1] and [Setting 2] using a macro command. Use the "SYS (CHG_RGB)" macro command to switch the RGB input parameters. For details, refer to the Macro Reference Manual.

RGB Adjustment

Check the frequencies and adjust the display position in the [I/O Check] → [RGB Adjustment] tab window in Local mode on the V9 series unit.

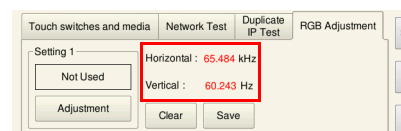
If two types of output frequencies are used, configure both [Setting 1] and [Setting 2]. If only one type is used, configure either [Setting 1] or [Setting 2].



The measured frequencies are displayed.

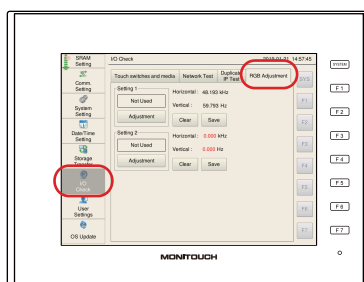
Black value: RGB display available
Red value: RGB display unavailable

Red values are frequencies that are not supported by the V9 series and cannot be used for display. In this case, change the output frequencies of the counterpart unit.

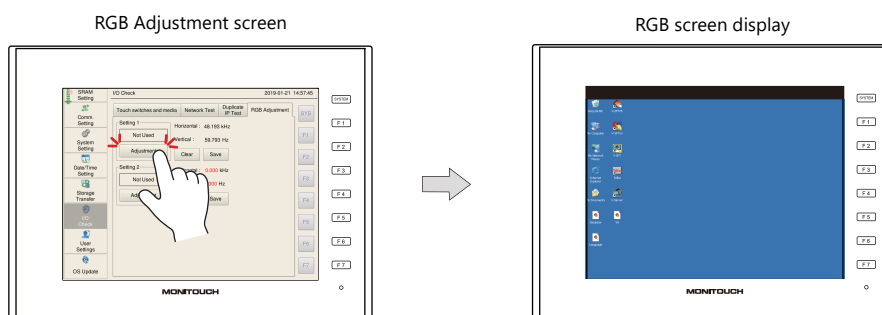


The procedure for adjusting the Windows screen with [Setting 1] is described below.

1. Display the Windows screen on the computer.
2. Switch to Local mode on the V9 series unit and make adjustments in the [I/O Check] → [RGB Adjustment] tab window.
3. Check that the frequencies for [Setting 1] are shown in black. If shown in red, the frequencies are not supported by the V9 series and cannot be used for display. In this case, change the output frequencies of the counterpart unit.



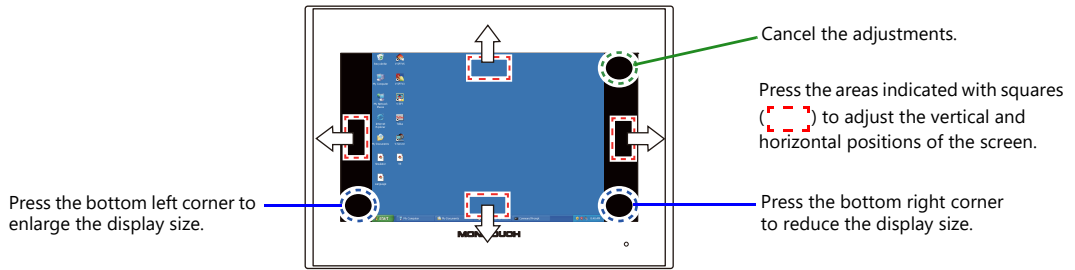
4. Press the [Adjustment] switch for [Setting 1] to switch to an RGB display of the Windows screen.



5. With a Windows screen displayed, adjust the display position and size.

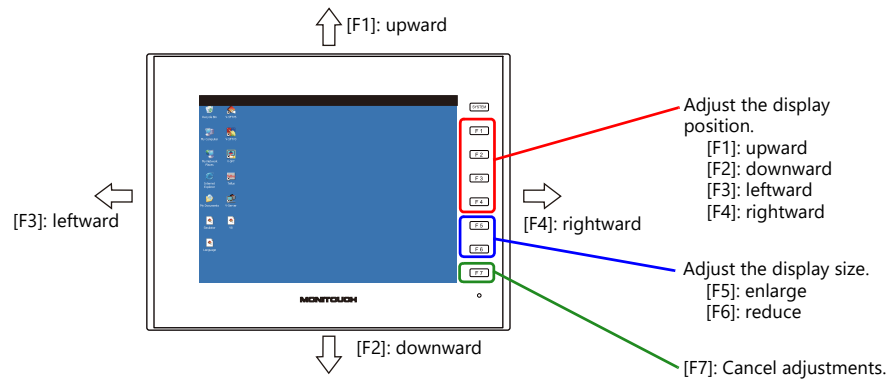
- V9 Advanced models

Press the top, bottom, left, and right sides of the screen to adjust.



- V9 Standard models

Adjust using the function switches.



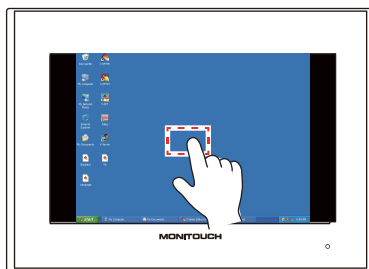
6. Finishing position adjustment

When the position has been adjusted, display the RGB Adjustment screen again. The [Used] lamp for [Setting 1] lights up.

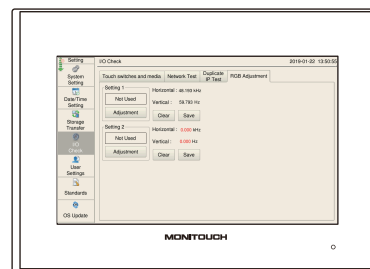
- V9 Advanced models

Press the center of the screen to finish adjustment.

Adjustment of screen display position is completed



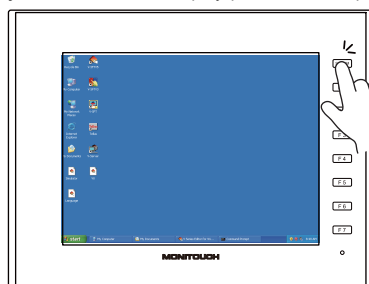
RGB Adjustment screen



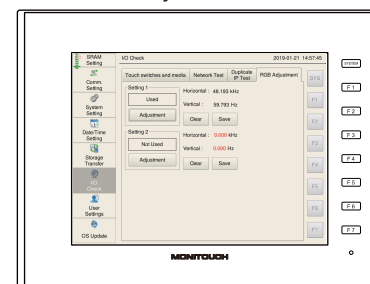
- V9 Standard models

Press the [SYSTEM] switch to finish adjustment.

Adjustment of screen display position is completed

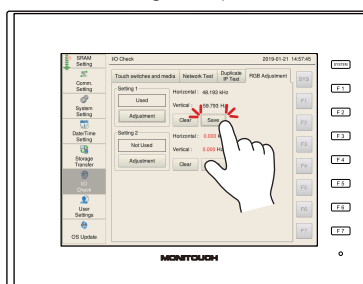


RGB Adjustment screen



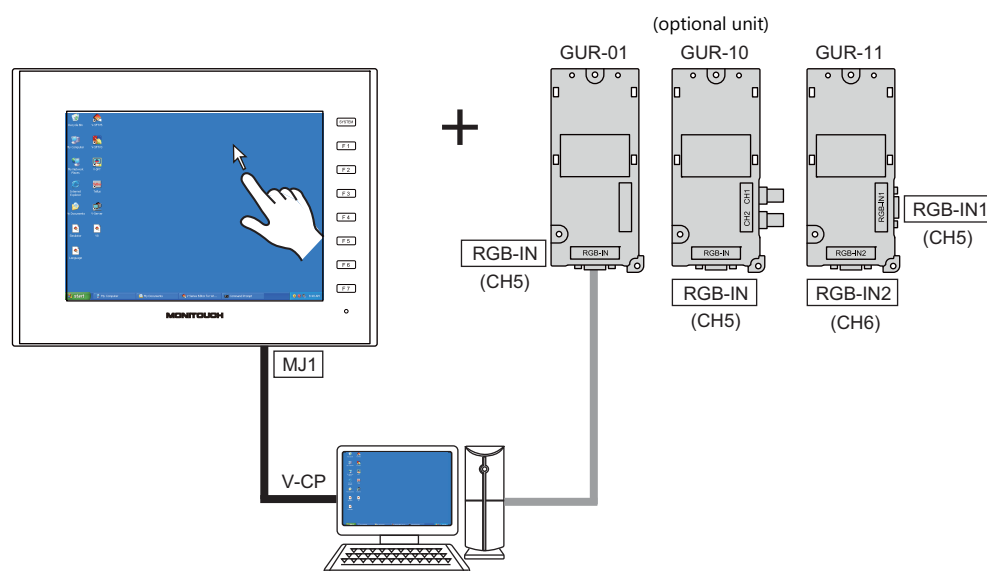
- Press the [Save] switch to save the settings. Settings are stored in the flash ROM, so they will be retained even when the power is turned off and on again.

Setting is completed



Touch Switch Emulation

- Using this function, the Windows screen displayed on the V9 series unit can be operated by touch operations without using a mouse. This function is available regardless of the display size.
- Connect the computer to the modular jack (MJ1 or MJ2) on the V9 series unit.



Touch panel driver

Manufacturer	Type	Version	Applicable OS
GUNZE	TPDD	3.00	Windows 7(32bit) / Vista(32bit) / XP
DMC	DMT-DD	2.05	Windows 10(32bit/64bit)
		2.11	
		2.14	Windows 11(64bit) / Windows 10(32bit/64bit)

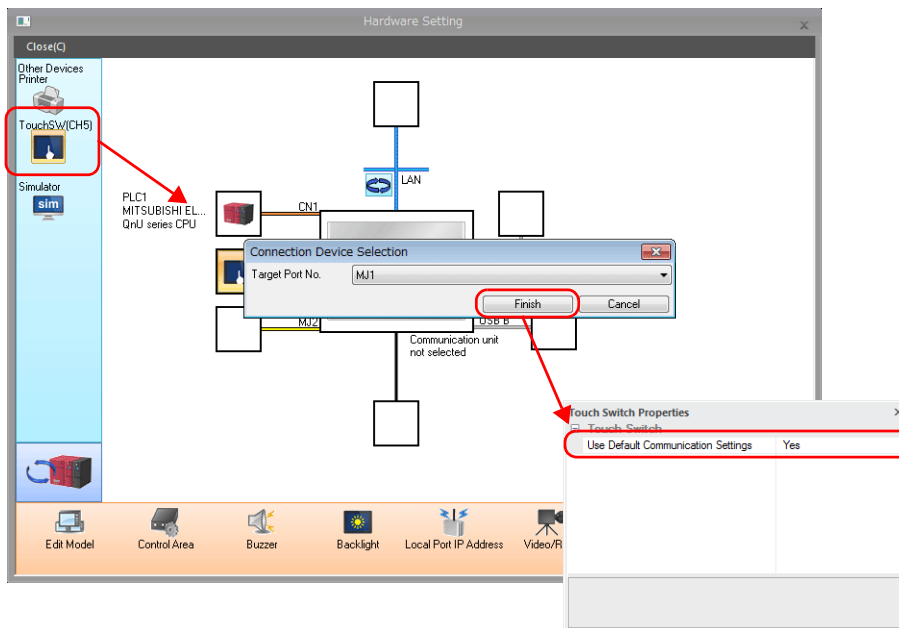
Limitations

- DOS application software which run on the MS-DOS prompt window cannot be operated by touch operations.
- A PS/2 compatible mouse can be used in combination with touch operations. However, some pointing devices such as those provided on laptop computers may not.
- The DMC touch panel driver "DMT-DD" may not be recognized depending on the manufacturer and model of the USB-to-serial converter.
 - Models with which operation is confirmed by Hakko Electronics

Manufacturer	Model
BUFFALO	BSUSRC06 SRC06USB


V-SFT settings

1. Double-click on [Hardware Setting] → [TouchSW(CH5)] and set the [Target Port No.] on V-SFT.
2. Click [Finish] to display the [Touch Switch Properties] window.
Set [Use Default Communication Settings] to [Yes].



Item		Description
Connection Device Selection	Target Port No.	Select the port to connect the computer. The selected port is used to send the output touch switch coordinates to the computer. MJ1/MJ2
Touch Switch Properties	Use Default Communication Settings	Select [Yes].

*** Install the touch panel driver on the computer to be connected to the V9 series unit.
For the installation procedure, refer to the installation manual provided by the manufacturer.**

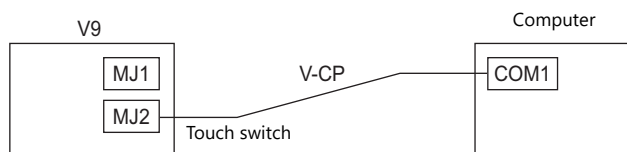
 For details on the touch panel driver, refer to [page 1-17](#).

Touch switch emulation setting example

This section describes the procedure for adding the touch switch emulation function in an RGB input environment.

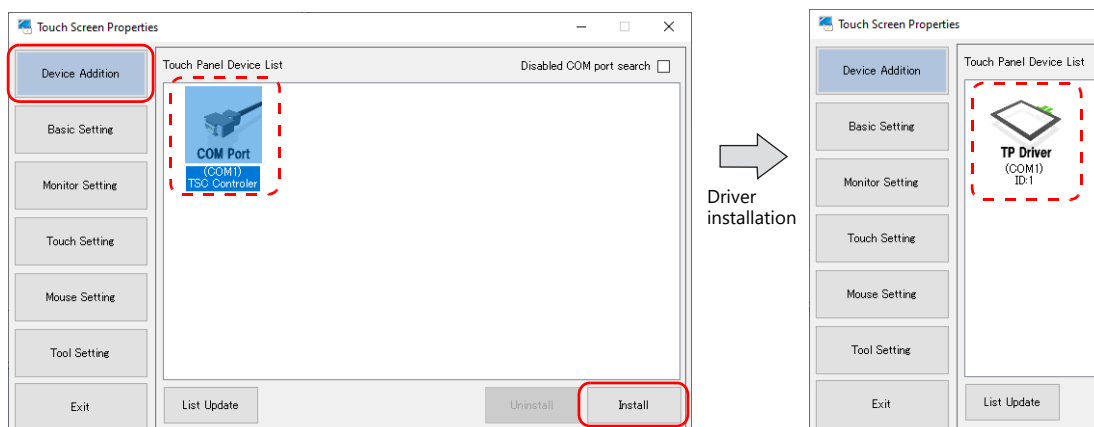
<Settings on the V9 series unit>

1. Switch the V9 series unit to an RGB input screen (a Windows screen is displayed).
2. Start V-SFT and open the file currently transferred to the V9 series unit.
3. Click on [System Setting] → [Hardware Setting] → [TouchSW(CH5)] and set the [Target Port No.] to [MJ2].
4. Click [Finish] to display the [Touch Switch Properties] window.
Set [Use Default Communication Settings] to [Yes].
5. Save the file and transfer it to the V9 series unit.
6. The V9 series unit switches to RUN mode. Switch to an RGB input screen (a Windows screen is displayed).
7. To perform touch switch emulation, connect the COM1 communication port of the computer and MJ2 (for touch switch operation) of the V9 series unit using a V-CP cable (refer to item 5 in "Notes" described later).



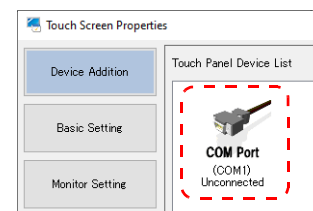
<Settings on the computer>

- For the DMC touch panel driver "DMT-DD" (Windows 10 supported)
 - 1) Switch the V9 series unit to an RGB input screen.
 - 2) Download the "DMT-DD" touch panel driver for Windows 10 (32-bit/64-bit) from DMC's download web page and extract the files to a drive on the computer.
Install the driver according to the DMC manual included in the folder.
 - 3) Start DMT-DD from the shortcut created on the desktop or from the start menu.
 - 4) Select [COM Port (COMx) TSC Controller] at [Device Addition] → [Touch Panel Device List] and then click [Install].
When the driver is successfully installed, the name changes to [TP Driver (COMx) ID:x].



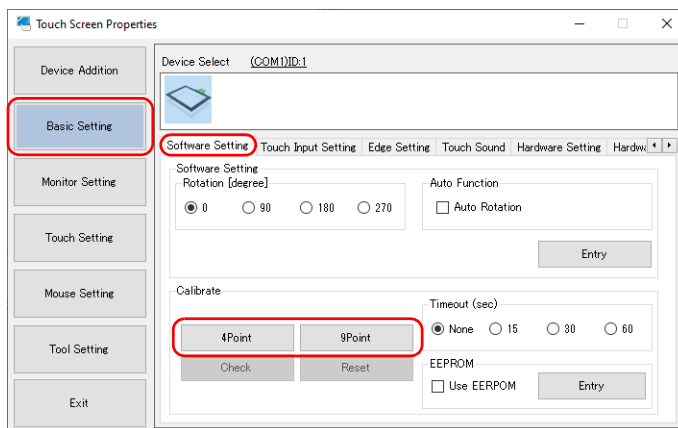
If [COM Port (COMx) Unconnected] is indicated, the V9 series unit is not recognized. Check the following.

- Check that the V9 series unit is switched to an RGB input screen.
- Check that a V-CP cable is used for connection.
- If using a USB serial converter, check operation with a different manufacturer or model.
(Refer to "Models with which operation is confirmed by Hakko Electronics" [page 1-17](#).)

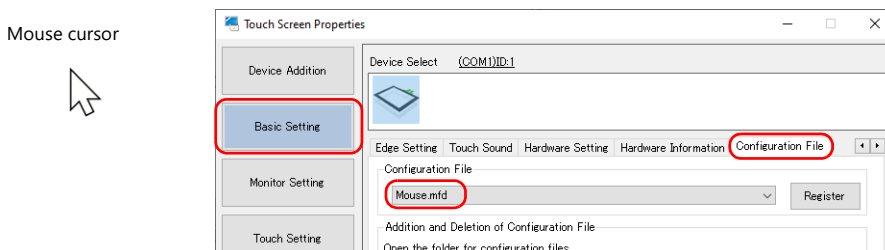


- 5) Reboot the computer.

- 6) Start DMT-DD. At [Basic Setting] → [Software Setting] → [Calibrate], select [4Point] or [9Point] and perform calibration using the RGB input screen on the V9 series unit. (Refer to item 3 in “Notes” described below.)



- 7) To display the mouse cursor on the RGB input screen of the V9 series unit, select “Mouse.mfd” from the pull-down menu at [Basic Setting] → [Configuration File].



This completes the necessary settings.

- For the Gunze touch panel driver “TPDD”
 - 1) Switch the V9 series unit to an RGB input screen.
 - 2) Download the “TPDD” touch panel driver from Gunze’s download web page and extract the files to a drive on the computer. Double-click the included “setup.exe” file.
 - 3) Proceed through the windows as follows: [Welcome TPDD] → [Select Language] (select “ENGLISH”) → [Select Controller] (select “4/8 Wire-Type Touch Panel”) → [Select Clone File] (leave deselected) → [License Agreement] → [Select Folder] → [Installing TPDD] (click [Finish] after installation).
 - 4) Reboot the computer.
 - 5) Make TPDD settings.

After rebooting the computer, click the start button and open the [Touch Panel Device Properties] window from [Programs] → [Gunze TPDD] → [Adjust Setting].
 - 6) Click the [Device] tab in the [Touch Panel Device Properties] window and click the [Add] button.
 - 7) The [New Pointer Device] window is displayed. Select “Gunze AHL, Serial” and select “COM1” for [Select COM port]. Then click [Next].
 - 8) The [New Pointer Device] window is displayed. Select “Whole Desktop” and click [OK].
 - 9) When the [Touch Panel Device Properties] window is displayed again, click the [Apply] button and then the [Calibrate] button.
 - 10) The calibration program starts up. Configure calibration settings (refer to item 3 in “Notes” described below). This completes the necessary settings.

Notes

1. It is not possible to switch to Local mode when a Windows screen is displayed on the V9 series unit.
2. When installing the TPDD touch panel driver, select "Auto Detect" for [Serial Setting]. When "Auto Detect" is selected, the COM port, address, and IRQ of the computer connected to the V9 series unit are automatically detected and set. Therefore, the V9 series unit must be connected with the computer with a V-CP cable in RUN mode before starting up the computer.
Note that the following communication settings are fixed: [Baud Rate: 9600BPS], [Parity: None], [Data Length: 8-Bit], [Stop Bit: 1-Bit].
3. Correct the touch operation points and mouse cursor display position using the calibration software. Precisely touch the "×" mark displayed in order from the top left corner of the screen. Be sure to touch all marks. If calibration does not end successfully, perform again. Otherwise touch operations are not possible.
4. If the display size is changed in Local mode, always display the RGB input screen and then start the calibration software. Then correct the touch operation points and mouse cursor display position.
5. Once the touch panel driver is installed, the set serial port cannot be used for other applications unless the driver is uninstalled (for TPDD, the port can also be freed by changing the setting for [Adjustment Setting]).
6. For details of the [Adjustment Setting] window of TPDD, refer to the Gunze help menu. For details of DMT-DD, refer to the manual provided by DMC. (Normally, default settings can be used.)
7. Display an RGB input screen on the V9 series unit before starting the computer. If the V9 series unit is in Local mode, the COM port will not be recognized.

1.1.6 Macro Commands

Macro commands can be used for operations and color adjustment of video/RGB displays.

Default Video Display Settings

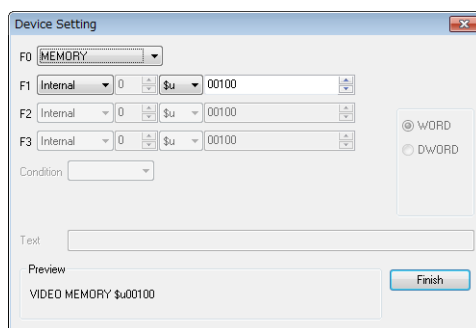
When no macro command is used, the video screen is displayed under the default settings.

Item	Type	Default Value
Brightness	0 (dark) to 31 (bright)	16
Contrast	0 (weak) to 31 (strong)	16
Color intensity	0 (light) to 31 (dark)	16

Video/RGB Display Macro Commands

The "VIDEO2" type macro commands are available for video/RGB display parts.

- ☞ "VIDEO" macro commands are available only for video overlap displays. For details, refer to "1.1.8 Video Overlap Displays" page 1-27.



Command selection

Name	Auxiliary Settings
	Description
SNAP	Channel: [Auto], [CH1 to 6] File No.: [AUTO], [No. designation (0 to 32767)] Executes a "single snap" in the background. When using a storage device, the method for saving snapshot images can be specified.
STROBE	Channel: [Auto], [CH1 to 6] File No.: [AUTO], [No. designation (0 to 32767)] Executes a "strobe snap". When using a storage device, the method for saving snapshot images can be specified. This command is ignored if a video/RGB image is not displayed on the screen.
RE_SIZE	Resets the size of the video/RGB display that was enlarged by double-tapping on the display item or using the ZOOM macro command, or the video display that was enlarged by taking a strobe snapshot. An enlarged display size can be reset by double-tapping on it without executing this command.
ZOOM	Channel: [Auto], [CH1 to 6] Position: [Centering], [Upper Right], [Lower Left] Enlarges the video/RGB screen to 640 × 480 dots. If this command is executed continuously, the previous operation is automatically cleared.
BRIGHT	Channel: [Auto], [CH1 to 4] Brightness: 0 to 31 Adjusts the brightness of the video image (not available for RGB images).
CONTRAST	Channel: [Auto], [CH1 to 4] Contrast: 0 to 31 Adjusts the contrast of the video image (not available for RGB images).
COLOR	Channel: [Auto], [CH1 to 4] Color: 0 to 31 Adjusts the color of the video image (not available for RGB images).
VIDEOINF	Channel: [Auto], [CH1 to 6] Video/RGB display status: [SAVE], [DEFAULT] Saves the current state of the video/RGB display or resets to the default settings. When [SAVE] is selected, the current video display state is saved so that even if a power failure occurs, the video/RGB image can be displayed in the same state as before. When [DEFAULT] is selected, the display state is reset to default.

Name	Auxiliary Settings	
	Description	
PAUSE	Channel: [Auto], [CH1 to 6]	Pauses the video/RGB display of the specified channel. The size cannot be changed while paused.
RESTART	Channel: [Auto], [CH1 to 6]	The video/RGB display that was paused with the PAUSE command is released.
DELETE	File No.: 0 to 32767	Deletes a JPEG file (filename: VDxxxx.jpg) that was saved to a storage device by a snapshot function.
SNAP_SEQ	Channel: [Auto], [CH1 to 6] Start/stop: 0 = stop, 1 = start	Starts or stops periodical snap.
CLIP_POS	Channel: [Auto], [CH1 to 6] Clip Start Position: X coordinate, Y coordinate	Changes the clip start position.
CLIP_SIZE	Channel: [Auto], [CH1 to 6] Image clip size change: Width, Height	Changes the image clip size.
MODE	Channel: [All], [CH1 to 4] Display field: odd- and even-numbered fields, odd-numbered fields	Sets the operation mode.



For details, refer to the Macro Reference Manual.

Specification by device memory: Video2 MEMORY F1

- Available device memory

	Internal Device Memory	PLC Device Memory	Constant	Memory Card	Indirect Designation
F1	○				

- F1 details

n	Command No.
n + 1	CH No./File No.
n + 2	Setting value

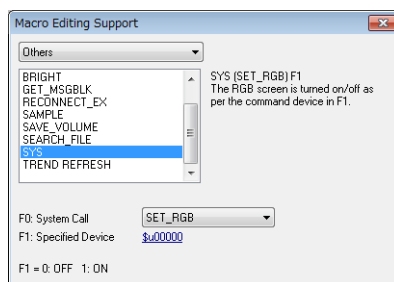
n Command Name	n + 1 Command No.	n + 2 CH No./File No.	Setting Value
SNAP	0	1 to 6 (CH), -1 (AUTO)	0 to 32767 (File No.) / -1 (AUTO)
STROBE	1	1 to 6 (CH), -1 (AUTO)	0 to 32767 (File No.) / -1 (AUTO)
RE_SIZE	2		
ZOOM	3	1 to 6 (CH), -1 (AUTO)	0 to 2 (Centering, Upper Right, Lower Left: for SVGA only)
BRIGHT	4	1 to 4 (CH)	0 to 31
CONTRAST	5	1 to 4 (CH)	0 to 31
COLOR	6	1 to 4 (CH)	0 to 31
VIDEO_INF	7	1 to 6 (CH)	0 : SAVE, 1 : DEFAULT
PAUSE	8	1 to 6 (CH), -1 (AUTO)	
RESTART	9	1 to 6 (CH), -1 (AUTO)	
DELETE	10	0 to 32767 (File No.)	
SNAP (background)	11	1 to 6 (CH)	0 to 32767 (File No.) / -1 (AUTO) (n + 3) 0: 160 * 120, 1: 320 * 240 2: 640 * 480, 3: 640 * 240
SNAP_SEQ	12	1 to 6 (CH), -1 (AUTO)	0: stop, 1: start
CLIP_POS	13	1 to 6 (CH), -1 (AUTO)	0 and up (up to the maximum screen resolution)
CLIP_SIZE	14	1 to 6 (CH), -1 (AUTO)	1 and up (up to the maximum screen resolution)
MODE	15	1 to 4 (CH), -1 (All)	(n + 3) 0: odd- and even-numbered fields, 1: odd-numbered fields

- [AUTO] setting
When setting a macro, [AUTO] can be selected for the channel number (CH) and file number.
- When the channel number is set to [AUTO]:
[SNAP] [STROBE] [ZOOM] [BRIGHT] [CONTRAST] [COLOR] [VIDEOINF] [PAUSE] [RESTART] [SNAP_SEQ] [CLIP_POS] [CLIP_SIZE]
 - *1 During "ZOOM", the relevant channel number is automatically set.
 - *2 When a channel with a high display priority is shown, the relevant channel number is automatically set.
 - *3 When neither *1 or *2 is applicable, it depends on the number of displayed channels.
If multiple channels are displayed, the above commands are not executed.
- When the file number is set to [AUTO]:
[SNAP] [STROBE]
When no file exists, the command creates files starting from No. 0. When there are existing files, the command creates files starting from the number incremented from the largest file number (not exceeding the number set for [Maximum Number of Snap Files in Auto]).
When the maximum number is reached, the operation taken depends on the [When the Limitation is Exceeded] setting. If set to [Stop], the command stops, but if set to [Overwrite], the command starts creating files from No. 0.

 For details on [Maximum Number of Snap Files in Auto] and [When the Limitation is Exceeded], refer to [page 1-10](#).

RGB Macro Commands

The macro commands that are available only for video/RGB display parts that are displaying RGB input are "SYS (SET_RGB)" and "SYS (RGB_CHG)".



SYS (SET_RGB) F1

- Available device memory

	Internal Device Memory	PLC Device Memory	Constant	Memory Card	Indirect Designation
F1	○				

- F1 details

F1 Value	F1 + 1 Value	Operation
0	-	Clears the RGB screen.
1	-	Displays the RGB screen.
2	File number (0 to 32767, -1 [AUTO])	Displays the RGB screen and takes a snapshot.
3	File number (0 to 32767)	Delete the JPEG file of a snapshot.
4 to 7	Reserved for system	-
8	CH No.5, 6	Specifies the channel number to be displayed or not displayed, or the channel number for touch switch emulation.


SYS (RGB_CHG) F1

- Available device memory

	Internal Device Memory	PLC Device Memory	Constant	Memory Card	Indirect Designation
F1	○				

- F1 details

F1 Value	F1 + 1 Value	Operation
0	Setting 1	Sets the clip start position with the value of [Setting 1].
1	Setting 2	Sets the clip start position with the value of [Setting 2].

 For details, refer to the Macro Reference Manual.

1.1.7 System Device Memory (\$s)

The video display state is output to system device memory (\$s).

Address	Description		Type																																
910	Video	CH1 Brightness																																	
911	Video	CH1 Contrast																																	
912	Video	CH1 Color intensity																																	
913	Video	CH1 Operation mode (GUR-00/GUR-10)																																	
	MSB LSB <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">Reserved for system (set to "0")</p> <p style="text-align: right;">0: Odd/even-numbered fields 1: Odd-numbered field</p>		15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																				
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																				
915	Video	CH2 Brightness																																	
916	Video	CH2 Contrast																																	
917	Video	CH2 Color intensity																																	
918	Video	CH2 Operation mode (GUR-00/GUR-10), see \$s913																																	
920	Video	CH3 Brightness	← V																																
921	Video	CH3 Contrast																																	
922	Video	CH3 Color intensity																																	
923	Video	CH3 Operation mode (GUR-00), see \$s913																																	
925	Video	CH4 Brightness																																	
926	Video	CH4 Contrast																																	
927	Video	CH4 Color intensity																																	
928	Video	CH4 Operation mode (GUR-00), see \$s913																																	
930	Video	Status																																	
	MSB LSB <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td> </tr> </table> <p style="text-align: center;">Reserved for system</p> <p style="text-align: center;">1: Video board error</p> <p style="text-align: center;">Reserved for system</p> <p style="text-align: center;">1: Display error</p> <p style="text-align: center;">1: Snapshot error</p> <p style="text-align: right;">1: Taking a snapshot 1: Maximum snapshot files 1: Displaying input image</p>		15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00		0	0	0	0	0	0	0			0	0	0				
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																				
	0	0	0	0	0	0	0			0	0	0																							
931	Snapshot function	Composition of superimpose screen 0: Video/RGB display only 1: Video/RGB display + superimposing (transparency setting blend value: enabled)	→ V																																
932	Automatic	Stores the snapshot file number.																																	
934		Stores the channel number (1 to 4) corresponding to the location touched in the display area. Default: 1																																	
935	Video	Brightness of the selected video area	← V																																
936	Video	Contrast of the selected video area																																	
937	Video	Color intensity of the selected video area																																	
957	Video	Display change (640 × 240 dots only) The display can be switched to either the upper or lower half.																																	
	MSB LSB <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: center;">Not used</p> <p style="text-align: center;">0: Upper half display 1: Lower half display</p> <p style="text-align: right;">CH4 CH3 CH2 CH1</p>		15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0					→ V
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																				
0	0	0	0	0	0	0	0	0	0	0	0																								
961	Video	Standard size setting (for V9150iX only) Specify with the initial macro. The display area size is set to 640 × 480.																																	
	MSB LSB <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td> </tr> </table> <p style="text-align: center;">Not used</p> <p style="text-align: right;">00: 640 × 480 01: 800 × 600 10: 1024 × 768</p>		15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0			→ V
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																				
0	0	0	0	0	0	0	0	0	0	0	0	0	0																						

1 Image Display

Address	Description	Type
962	Number of periodic snapshots executed Cleared to 0 when taking of snapshots starts.	← V
966	Video Current clip start position (X coordinate at the top left corner)	
967	Video Current clip start position (Y coordinate at the top left corner)	
968	Video Current image clip size (width)	
969	Video Current image clip size (height)	
970	RGN IN Limit on number of snapshot executions using "SET_RGB" macro Setting value: 0 to 255	→ V
971	RGB IN Processing to perform when the number of snapshot executions exceeds the limit specified with \$s970 0: Stop 1: Overwrite	

1.1.8 Video Overlap Displays

When intending to change the display size of the video while it is displayed, use a video overlap display part.

Location of Settings

- [System Setting] → [Unit Setting] → [Video/RGB] → [Video/RGB Settings] window
- [Parts] → [Image Display] → [Video Overlap]

Settings Window



For details on [Operation Select] and [Video Type] settings, refer to [“1.1.3 Detailed Settings” page 1-6](#). This section describes the settings which are different from those of a video/RGB display part.

Menu	Item	Description
Channel	Number of Channels	This is fixed to “1”.
	Channel Select	Specify the video channel to be displayed. CH1 to 4 (Video) Switching with a macro is also possible. For details, refer to “Changing default settings” page 1-28 .
Detail	Coordinate	Specify the video display position. The video display is displayed with its upper left corner aligned to these coordinates.
	Overlap ID	Specify the overlap area (ID 0 to 9) to where a video display is to be called.

Video Display Settings (Macro Commands)

The size and color of the video display can be specified using video macro commands. When no macro command is used, the video display is displayed according to default settings. When a macro command is executed, the macro command takes priority.

Default video display settings

The default settings are shown below.

Item	Type	Default Value
Size	160 × 120, 320 × 240, 640 × 480, 640 × 240	320 × 240
Display channel	CH1, CH2, CH3, CH4	1 (CH)
Brightness	0 (dark) to 255 (bright)	183
Contrast	0 (weak) to 255 (strong)	48
Color intensity	0 (light) to 255 (dark)	1

The video display state is output to internal system device memory (\$\$).

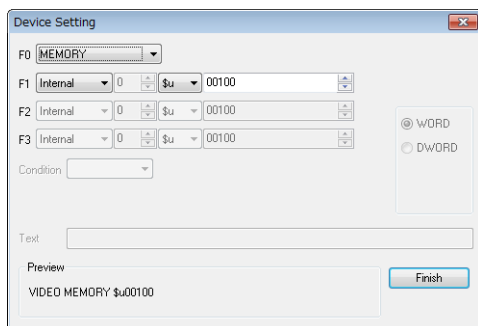
The output is as shown below.

Address	Description
\$\$s170	Channel No.
\$\$s171	Dither (fixed to 1 (yes))
\$\$s172	Brightness
\$\$s173	Contrast
\$\$s174	Color intensity

Changing default settings

Settings can be changed using macro commands. The size, channel number, brightness, contrast and color intensity of the video display can be set.

Select the "Video" macro command. The following window is displayed.



- Command selection

Command Name	Description
SIZE	(160 × 120, 320 × 240, 640 × 480, 640 × 240) Specifies the video window size.
SEL_CH	(1 to 4) Specify the channel number of the input port.
BRIGHT	(0 to 255) Specify the brightness of the video image.
CONTRAST	(0 to 255) Specify the contrast of the video image.
COLOR	(0 to 255) Specify the color intensity of the video image.
VIDEO_INF	(SAVE, DEFAULT) Save the current state of the video display or reset to the default settings. When [SAVE] is selected, the current video display state is saved so that even if a power failure occurs, the video image can be displayed in the same state as before. When [DEFAULT] is selected, the display state is reset to default. The V9 series unit may stop for a second when this command is executed.

- Example

Channel No.: 1 (CH1)

Size: 640 × 480 dots

The macro commands to change to these conditions is as follows:

Video SEL_CH 1 → CH1 selection

Video SIZE 640 × 480 → Size selection

Video_INF SAVE → Saving the state to device memory

- Specification by device memory: Video MEMORY F1

n	Command No.
n + 1	Setting Value

Command Name	Command No.	Setting Value
SIZE	0	0: 160 × 120, 1: 320 × 240, 2: 640 × 480, 3: 640 × 240
SEL_CH	1	1 to 4
BRIGHT	3	0 to 255
CONTRAST	4	0 to 255
COLOR	5	0 to 255
VIDEO_INF	6	0: SAVE, 1: DEFAULT

- Example

Channel No.: 1 (CH1)

Size: 640 * 480 dots

The macro commands to change to these conditions with the "Video MEMORY" macro command set as [F1: \$u00100] is as follows:

Selecting channel number 1

\$u00100=1(W) → Command (SEL_CH) selection

\$u00101=1 (W) → 1CH selection

Video MEMORY \$u00100 → Command execution

Changing the window size

\$u00100=0(W) → Command (SIZE) selection

\$u00101=2 (W) → 640 * 480 dots selection

Video MEMORY \$u00100 → Command execution

Saving in memory

\$u00100=6(W) → Command (Video_INF) selection

\$u00101=0(W) → SAVE selection

Video MEMORY \$u00100 → Command execution

Show/Hide Video Overlap Displays

A video overlap display can be shown or hidden by the following three methods.

Method		Details	Refer to
Internal command	Switch	Function: Overlap Display	Subsequent explanation
	Macro	OVL_P_SHOW OVL_P_POS	Macro Reference Manual
External command	Control device memory	0: Hide, 1: Show	Subsequent explanation


Internal command

- Switches

Switches can be used to show and hide video overlap displays.

The following switches can be used.

Operation	Switch Function	Auxiliary Settings
Show	Overlap Display	Overlap ID 0 to 9 Action = ON
		Overlap ID 0 to 9 Action = ALT
Hide	Overlap Display	Overlap ID 0 to 9 Action = OFF
		Overlap ID 0 to 9 Action = ALT


 For details on switch settings, refer to the Reference Manual 1.

- Macro commands

A macro command can be used to show and hide video overlap displays.

Use the "OVL_P_SHOW" macro command.

The display position can be specified as well (using the "OVL_P_POS" macro command).

 For details, refer to the Macro Reference Manual.

External command

Commands from the [Control Device] can be used to show and hide video overlap displays. *

* Bit ON/OFF recognition

The method used for bit status recognition differs depending on the setting of [Display Overlap during bit ON] on the [General Settings] tab accessible by clicking [System Setting] → [Unit Setting] → [General Setting].

- Unselected

The change (edge) from 0 to 1 or 1 to 0 is used to recognize the bit status.

- Selected

Level recognition is used to determine the bit status.

For example, an overlap display is shown on the screen using an external command, the screen is switched to another screen, and then the first screen is displayed again. In this case, the overlap display that corresponds to the bit being turned ON appears on the screen.

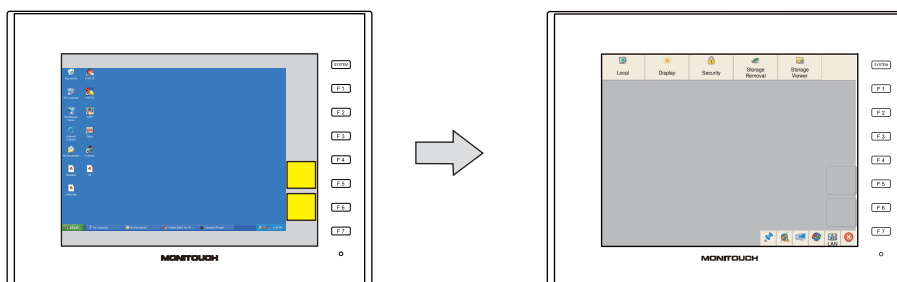
Notes on showing an overlap display using a control device memory

A switch set as [Function: Overlap Display = OFF] can be used to hide the overlap display.

Using this type of switch hides the overlap display with the bit of the control device memory still turned ON. To show the overlap display again, the bit needs to be turned OFF and ON again.

1.1.9 Notes

- If the system menu, status bar or communication error display (only [Comm. Error handling: Continue]) overlaps with a video/RGB input display area, if the screen is scrolled, the video/RGB input display is hidden.

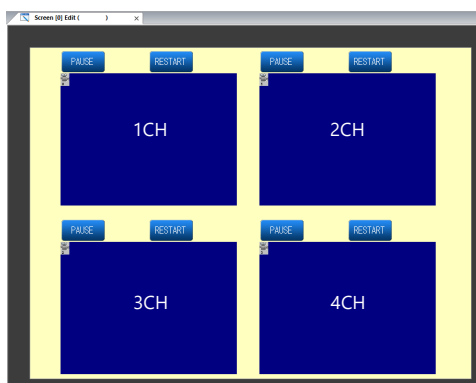


* When the screen is scrolled, the display area turns black.

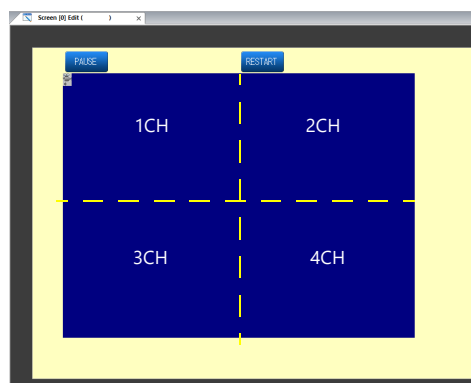
- When an RGB input screen is displayed using RGB input control device memory or a "SYS (SET_RGB)" macro command, the system menu, status bar, and communication error display (only [Comm. Error handling: Continue]) cannot be displayed.
- Other items cannot be displayed on a video/RGB display. Video/RGB displays are shown in the foreground of the screen.
- When displaying an overlap over a video/RGB display, select the [Validate superimpose when displaying over the video/RGB image (V8 compatible)] checkbox in the general settings.
To make the overlapping area transparent, also add the following settings.
 - [Overlap] → [Style] → [Make display area transparent] checkbox: Unselected
 - [Overlap] → [Style] → [Color]: Black
 - [Overlap] → [Detail] → [Transparency Display] checkbox: Selected, [Blend]: 255
- If the size of the video/RGB display is smaller than the display area, the margins of the display area are displayed in the display area color.
- When an RGB input screen is displayed but there is no RGB input signal (such as when the cable is not connected), the RGB input screen is displayed black.
- Zooming in/out and scrolling using pinch-in and pinch-out gestures is not supported. (V9 Advanced, capacitive)
- When displaying multiple channels simultaneously, the display speed is faster when a single part is used with multiple display channels, instead of using multiple parts.

Example: Video display of channels 1 to 4

Placing four parts on the screen and displaying a channel on each part
Size: 320*240 dots each



Placing one part on the screen and displaying channels 1 to 4
Size: 640*480 dots



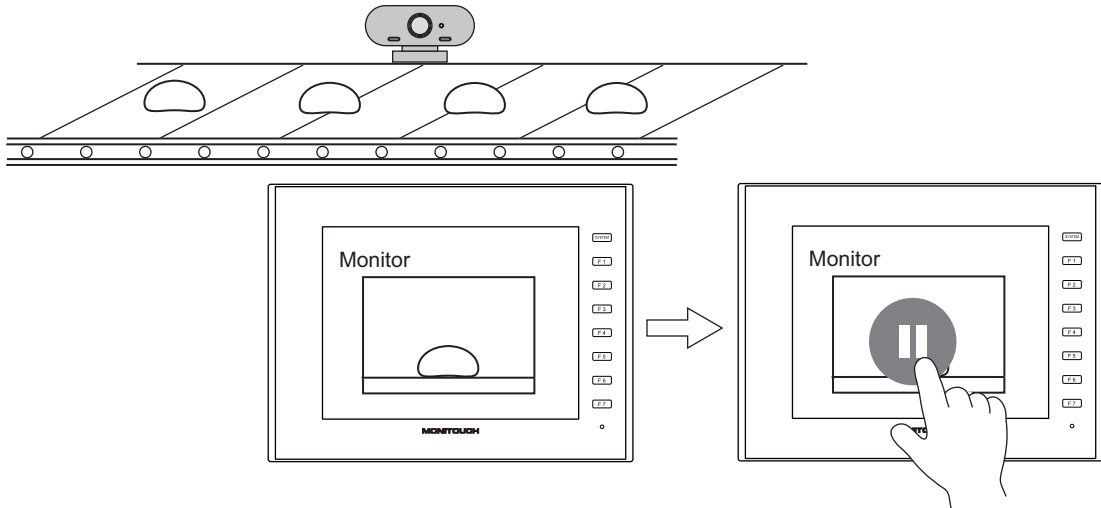
Display speed is faster than the method on the left.

1.2 USB Camera Display

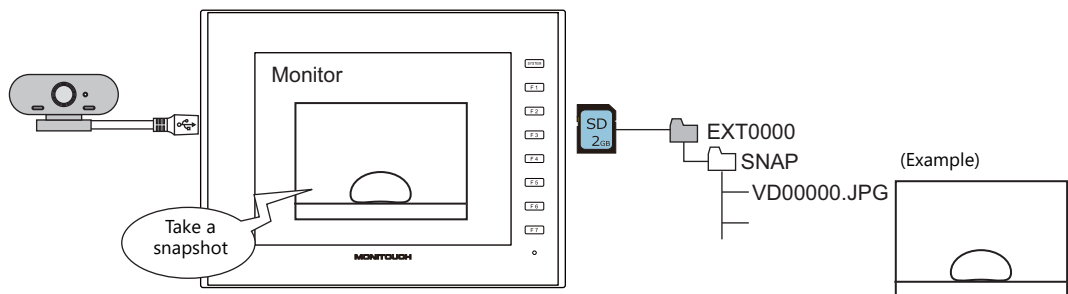
1.2.1 Overview

Real Time Display

- Camera video can be displayed on the V10/V9 series unit by connecting a USB camera. Video playback can be paused and resumed using a switch function or by double-tapping the display area.



- A snapshot can be taken from the currently displayed camera video. (in JPEG format) To take a snapshot, either double-tap the display area or run the "USBCAM" macro command. (Refer to [page 1-44.](#)) A snapshot can also be taken during video recording without interrupting the recording.

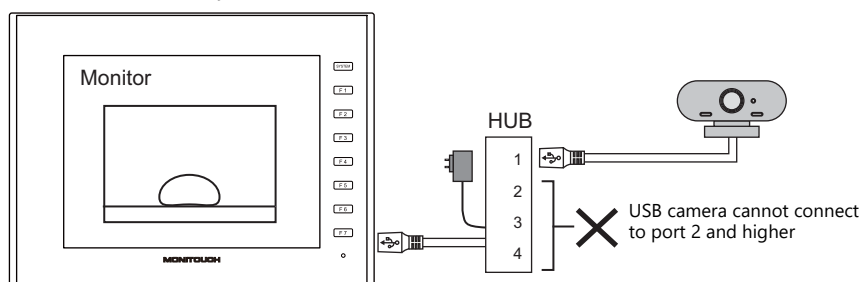


- USB camera resolution and V10/V9 series unit display

USB Camera Resolution	Display Size	Display on V10/V9 Series Unit
320 × 240	160 × 120	Reduced display
	320 × 240	Actual size
	640 × 480 / 800 × 600 / 1024 × 768	Enlarged display
	Free	Depends on display size ^{*1}
640 × 480	160 × 120 / 320 × 240	Reduced display
	640 × 480	Actual size
	800 × 600 / 1024 × 768	Enlarged display
	Free	Depends on display size ^{*1}

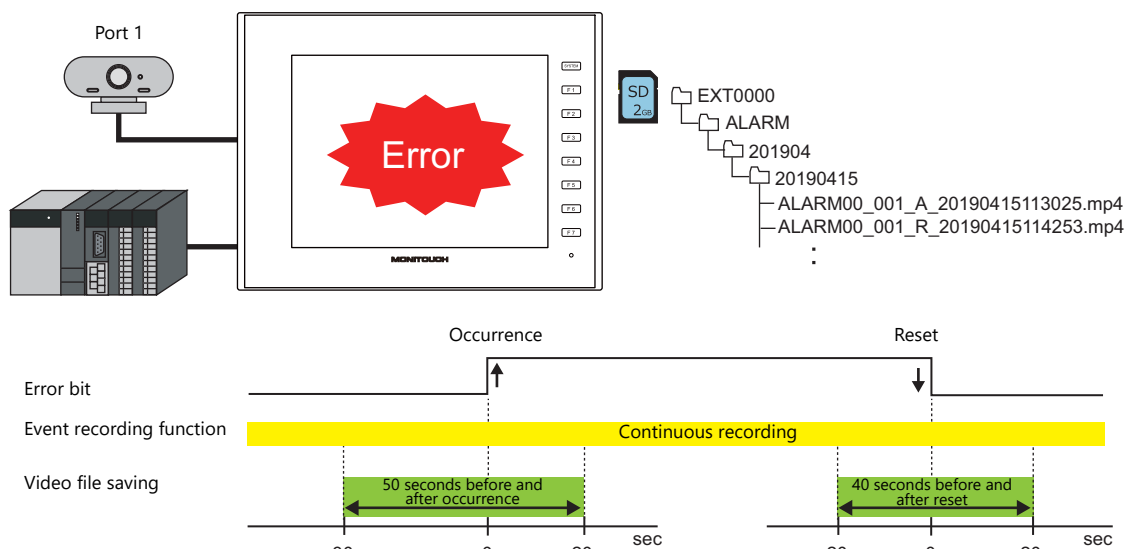
*1 For details, refer to "Port" page 1-40.

- When using a USB camera, always use a USB hub with an external power supply. Also, always use port 1 of the USB hub. The camera feed will not be displayed if the camera is connected to a port other than port 1.



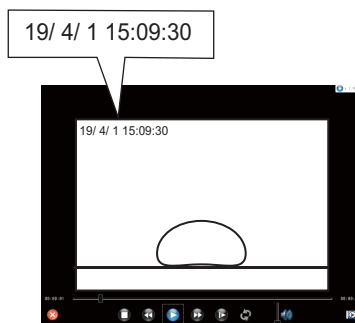
Video Recording (Event Recording Function)

- Video can be saved to a video file (extension: .mp4) upon error occurrence and reset by using the alarm function.
- The event recording function allows video to be recorded continuously regardless of whether alarms occur. Video can be saved immediately after an error occurrence and reset, which facilitates cause analysis.
If the event recording function is not used, video is saved immediately after an error occurrence and reset.
- Video files of up to 180 seconds (up to 90 seconds before and 90 seconds afterwards) can be saved.
- A timestamp can be added to the video file. However, note that the frame rate will suffer due to the superimposition processing of the timestamp.




Play

- Saved video files can be played using the video player.*
- The date and time of saving can be checked during playback of timestamped files.



* When the event recording function is used, video is recorded continuously during RUN mode and the video player is unavailable. In order to use the video player, stop recording video by using the "USBCAM_REC STOP" macro command or switch to Local mode and then play back a video file.

 For details on the video player, refer to "15.1 Video Player".

1.2.2 Specification

Applicable Models

Model	V9 Series Unit Version	Port Used	Number of USB Camera Connections
V10	Program Ver. 1.000 or later OS Ver. 1.00 or later	USB-A*2	1 with USB hub
V9 Advanced (analog switch) *1 V9 Standard V9 Lite	Landscape Program Ver. 2.000 or later OS Ver. 3.60 or later		
	Portrait (Left 90° / Right 90°) Program Ver. 2.400 or later OS Ver. 3.60 or later		

*1 V9 Advanced (capacitive type switch: V9101iW/V9071iW) is not supported.

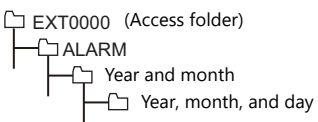
*2 V10 series supports USB3.0 (V9: USB2.0).

USB Camera/USB Hub Specifications

Item	Specification	Remarks	
USB camera	Interface	USB3.0, USB2.0	
	Communication standard	UVC (USB Video Class) support	
	Resolution	320 × 240 640 × 480	USB cameras that do not support 320 × 240 or 640 × 480 resolutions cannot be connected.
	Frame rate	Max. 30 FPS	
	Output format	RAW	
USB HUB *	Interface	USB3.0, USB2.0	A camera connected to port 1 of the USB hub is recognized. Ports 2 and higher cannot be used.
	Power supply	External power supply support	
USB cable	Cable length	USB 3.0 standard: Max. 3 m USB 2.0 standard: Max. 5 m CE standard: Max. 3 m	

* In some cases, operation cannot be guaranteed on the V10/V9 series unit due to insufficient power supply to the USB camera. For this reason, always used a USB hub with an external power supply.

V10/V9 Video Recording Specifications

Item	With Event Recording Function	Without Event Recording Function
File type	MPEG-4 (extension: .mp4)	
Resolution	320 × 240, 640 × 480	
File size *1	320 × 240: Approx. 5.4 MB/180 seconds, 640 × 480: Approx. 36 MB/180 seconds	
Max. duration of video recording	90 seconds *2	180 seconds
Storage destination	Drive *3	Drive selected at [System Setting] → [Other] → [Storage Setting] → [Storage Connection Target].
	Storage target folder	Dated folders in ALARM folder 
	File Name	ALARMxx_nnn_XX_YYYYMMDDHHMMSS.mp4 xx: Block number nnn: Alarm number XX: A = occurrence, R = reset, AR = occurrence and reset YYYYMMDDHHMMSS: Year, month, day, hour, minutes, seconds
Sound	None	

*1 File sizes differ depending on the camera and recorded video.

*2 In the following cases, video is recorded to a single file. This means that there are cases when the duration of video recording is extended. However, note that since the maximum duration of video recording is 180 seconds, video recording ends upon reaching 180 seconds.

- When both occurrence and resetting are set, the end of video recording for occurrence overlaps with the start time of video recording for resetting (filename set to date and time of occurrence).
- Multiple alarms occur at once (filename is set to the first date and time of occurrence).

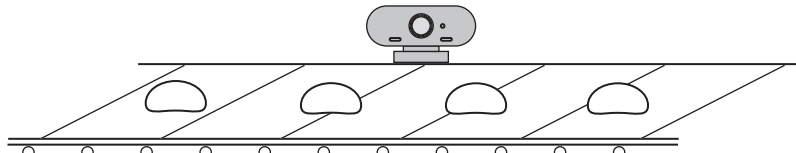
*3 If the storage device is full, operation is performed according to the setting of [Delete folders from the oldest when the remaining storage space is less than 100 MByte.] at [System Setting] → [Unit Setting] → [General Setting].

1.2.3 Setting Example

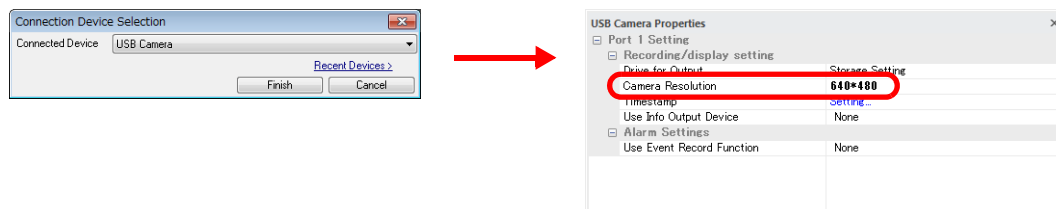
Real Time Display

Display 640×480 video from the USB camera connected to port 1 on a screen of size 640×480 .

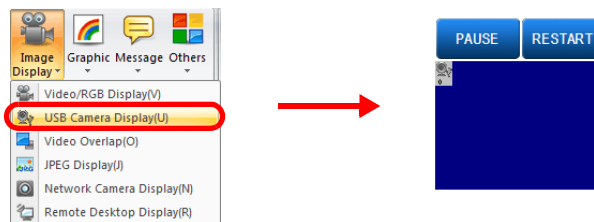
Port 1



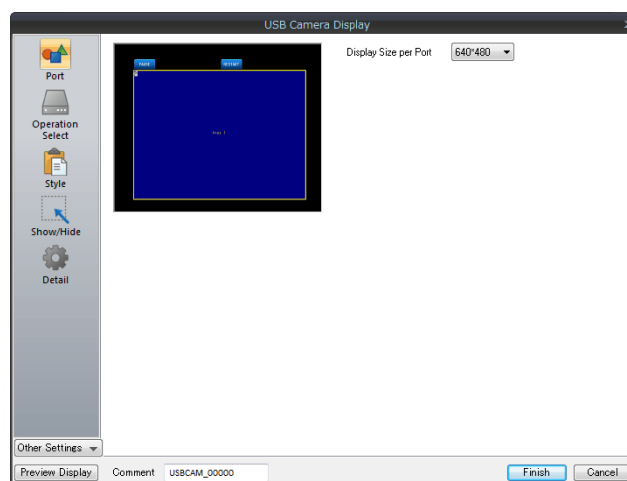
1. Select [System Setting] → [Hardware Setting] → [Other Devices] → [USB Camera].
2. Select " 640×480 " for [Camera Resolution] in the [USB Camera Properties] window.



3. Close the [Hardware Setting] window.
4. Click [Parts] → [Image Display] → [USB Camera Display] and place a USB camera display part on the screen.



5. Set [USB Camera Display] → [Port] → [Display Size per Port] to " 640×480 ".

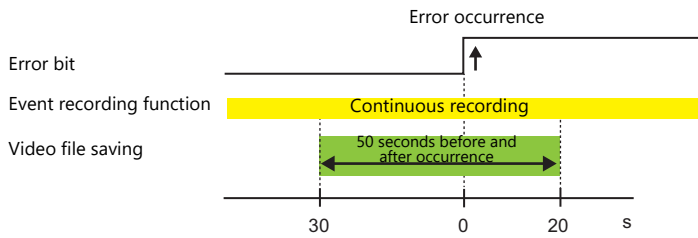
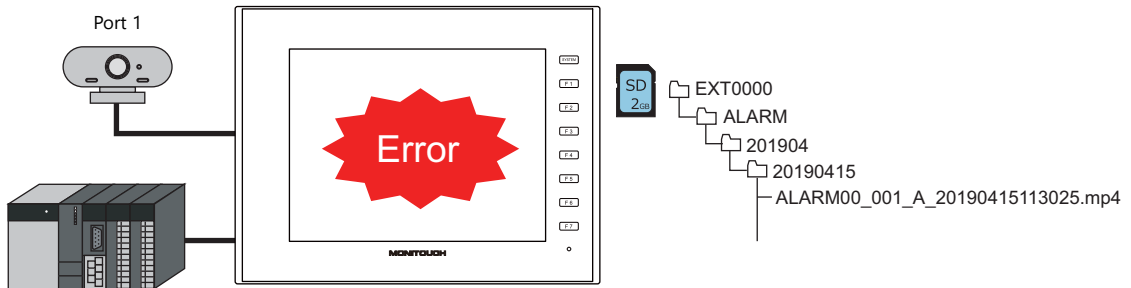


This completes the configuration of settings. Always connect the USB camera to port 1 of the USB hub.

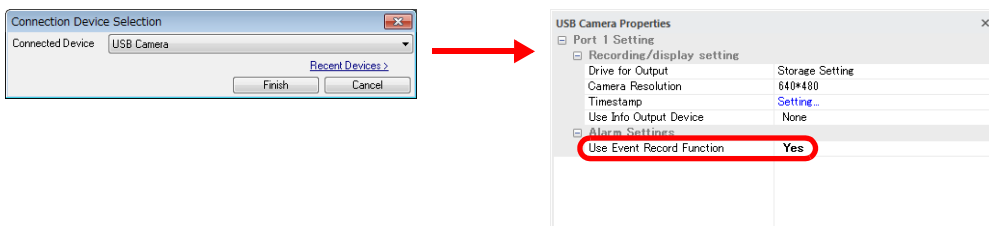
Recording: Event Recording Function

Record video (640 × 480) when an alarm occurs and save the video to the SD card.

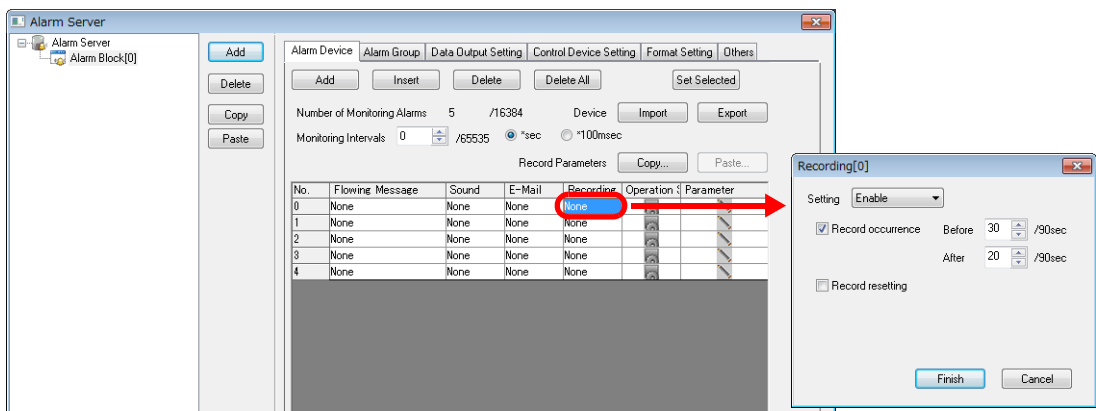
- Immediately before occurrence: 30 seconds
- Immediately after occurrence: 20 seconds



1. Select [System Setting] → [Hardware Setting] → [Other Devices] → [USB Camera].
2. Configure the settings under [Port 1 Setting] in the [USB Camera Properties] window.
 Camera Resolution: 640 × 480
 Use Event Record Function: Yes



3. Close the [Hardware Setting] window.
4. Select "Built-in Socket" for [Storage Connection Target] at [System Setting] → [Other] → [Storage Setting].
5. Configure the video recording settings at [System Setting] → [Alarm Server].
 Record occurrence, Before: 30 seconds, After: 20 seconds



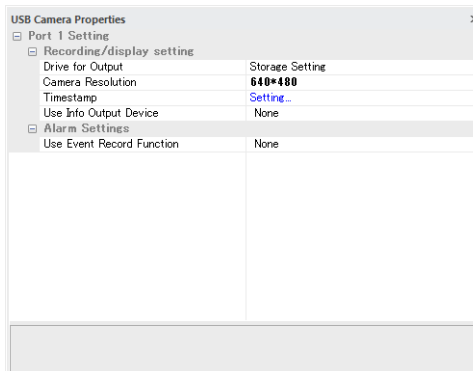
The necessary settings have been completed.

- For details on alarm server video recording settings, refer to "1.2.6 Alarm Server (Recording)".
- For details on other alarm server settings, refer to the Reference Manual 1.

1.2.4 Hardware Settings

Configure the settings at [System Setting] → [Hardware Setting] → [Other Devices] → [USB Camera].

USB Camera Properties

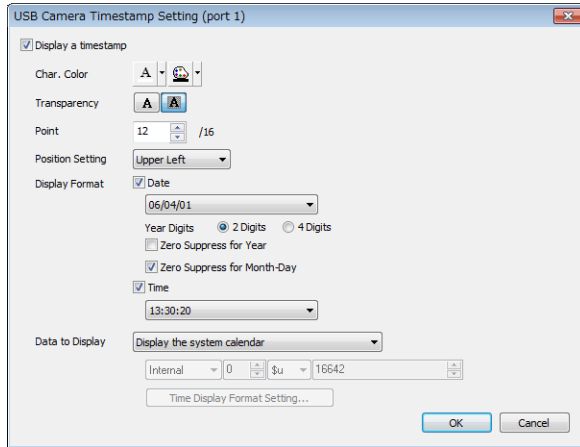


Item		Description
Recording/display setting	Drive for Output	Set the destination for storing video files. Storage Setting Video files are saved on the drive selected at [System Setting] → [Other] → [Storage Setting] → [Storage Connection Target].
	Camera Resolution	Set the resolution of the USB camera. 320 × 240 640 × 480
	Timestamp	Set the timestamp settings. A timestamp is added to the video so that the date and time of the video recording is superimposed on the video when the video file is played back. The system font is used for the timestamp. Refer to page 1-38
	Use Info Output Device	Store the camera status. Refer to page 1-39 .
Alarm Settings	Use Event Record Function	Select to use this function in conjunction with the alarm function when recording video immediately before an error occurrence and immediately before resetting an error. Alarm server recording settings must also be configured. In RUN mode, video is recorded continuously regardless of whether alarms occur.

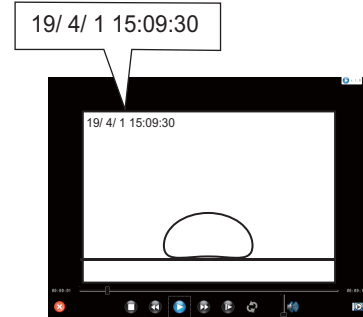
Timestamp

Save the date and time of the video recording together with the video. A timestamp will be shown on the video during video file playback.

Note that the frame rate will suffer due to the superimposition processing of the timestamp.



Video player



Item		Description
Character properties	Char. Color Transparency Point (8 to 16)	Set character properties. Point is displayed for fonts other than bitmap.
Position Setting		Set the display position of the timestamp. Upper Left, Top, Upper Right, Lower Left, Bottom, Lower Right
Display Format	Date Year Digits Zero Suppress for Year Zero Suppress for Month-Day	Select this checkbox to display the date. Set the date display format.
	Time	Select this checkbox to display the time. Set the time display format.
Data to Display	Display the system calendar	Display the date and time of the system calendar.
	Display the value of the designated device Time Display Format Setting	Display a user-formatted calendar. Display the consecutive values from the specified device memory address as the calendar.

Information output device

The status of the camera and event recording function is stored.

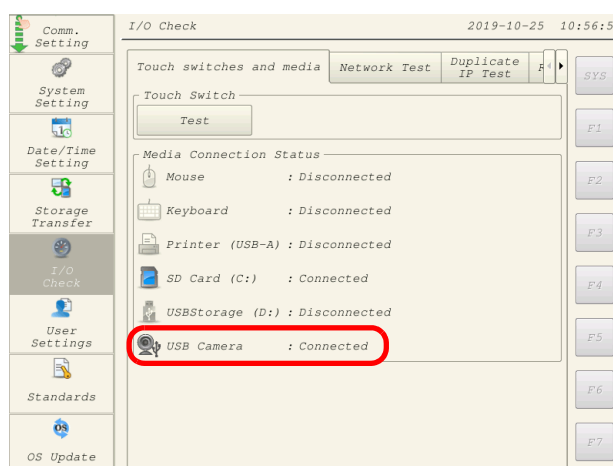
The value for bits 0, 1, 2 and 4 is stored at the following timings.

- When processing for recording video occurs
- When a screen containing a USB camera display part is displayed

The value for bit 5 (setting status of event recording function) is stored when the V10/V9 series unit starts up and when the unit switches from Local mode to RUN mode.

Device Memory	Description																																																
n	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="8">MSB</th> <th colspan="8">LSB</th> </tr> <tr> <th>15</th><th>14</th><th>13</th><th>12</th><th>11</th><th>10</th><th>09</th><th>08</th><th>07</th><th>06</th><th>05</th><th>04</th><th>03</th><th>02</th><th>01</th><th>00</th> </tr> </thead> <tbody> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td>0</td><td></td><td></td><td></td> </tr> </tbody> </table> <p>Reserved for system</p> <p>Setting status of event recording function 0: Not set 1: Set</p> <p>Status of event recording function 0: Functioning 1: Stopped</p> <p>Reserved for system</p> <p>Connection status of USB camera * 0: Disconnected 1: Connected</p> <p>1: Video file creation in progress 1: Error occurrence</p>	MSB								LSB								15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0			0			
MSB								LSB																																									
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																		
0	0	0	0	0	0	0	0	0	0			0																																					
n+1	Reserved for system																																																

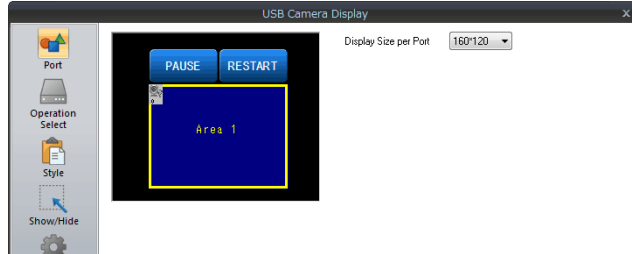
* The connected state of the USB camera can also be checked in the [I/O Check] window in Local mode.



1.2.5 USB Camera

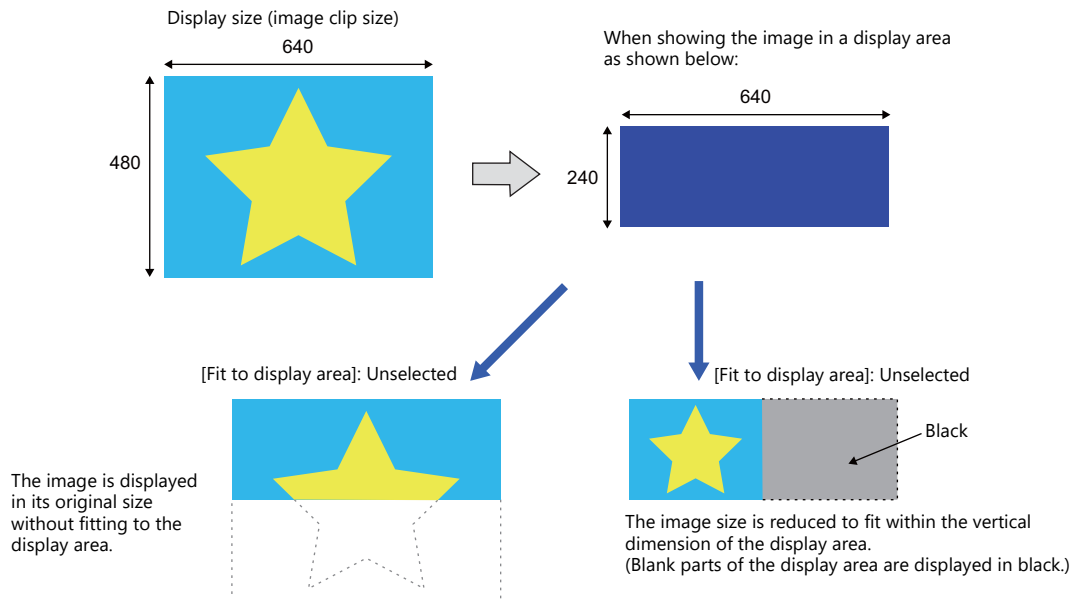
This item is used to display USB camera video in real time.

Port



Item	Description																					
Display Size per Port 160*120 320*240 640*480 800*600 1024*768	<p>Select a display size. Enlarged/actual size/reduced display is achieved depending on the combination with the [Hardware Setting] → [USB Camera Properties] → [Camera Resolution] setting.</p> <table border="1"> <thead> <tr> <th>Camera Resolution</th> <th>Display Size</th> <th>Display on V10/V9 Series Unit</th> </tr> </thead> <tbody> <tr> <td rowspan="4">320 × 240</td> <td>Free*1</td> <td>Depends on the setting</td> </tr> <tr> <td>160*120</td> <td>Reduced display</td> </tr> <tr> <td>320*240</td> <td>Actual size</td> </tr> <tr> <td>640*480 / 800*600 / 1024*768</td> <td>Enlarged display</td> </tr> <tr> <td rowspan="4">640 × 480</td> <td>Free*1</td> <td>Depends on the setting</td> </tr> <tr> <td>160*120 / 320*240</td> <td>Reduced display</td> </tr> <tr> <td>640*480</td> <td>Actual size</td> </tr> <tr> <td>800*600 / 1024*768</td> <td>Enlarged display</td> </tr> </tbody> </table>	Camera Resolution	Display Size	Display on V10/V9 Series Unit	320 × 240	Free*1	Depends on the setting	160*120	Reduced display	320*240	Actual size	640*480 / 800*600 / 1024*768	Enlarged display	640 × 480	Free*1	Depends on the setting	160*120 / 320*240	Reduced display	640*480	Actual size	800*600 / 1024*768	Enlarged display
Camera Resolution	Display Size	Display on V10/V9 Series Unit																				
320 × 240	Free*1	Depends on the setting																				
	160*120	Reduced display																				
	320*240	Actual size																				
	640*480 / 800*600 / 1024*768	Enlarged display																				
640 × 480	Free*1	Depends on the setting																				
	160*120 / 320*240	Reduced display																				
	640*480	Actual size																				
	800*600 / 1024*768	Enlarged display																				
Fit to display area *1	<p>This setting is available when [Display Size per Channel] is set to [Free].</p> <p>Unselected Blank parts of the display area are displayed in black.</p> <p>Selected The camera screen is automatically scaled to fit within the “Y” size of the placed display area part. *2</p>																					

*1 [Display Size per Port]: Free

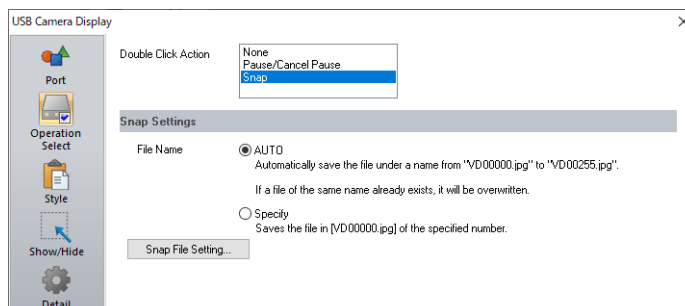


*2 The image is rounded to the following multiples for the display area. Fractions are displayed in black.

- Landscape: Round to the nearest multiple of 16 (width) and 8 (height).
- Portrait: Round to the nearest multiple of 8 (width) and 16 (height).

Operation Select

Select the action to be performed by a double-tap operation on the area. This operation does not affect video recording in progress.

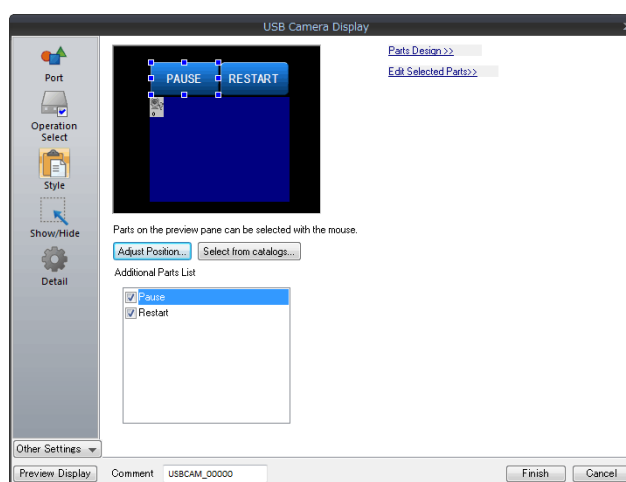


Item	Description
None	No action.
Pause/Cancel Pause	Pause and resume video playback.
Snap Settings	Take a snapshot of the displayed video and save as a JPEG file. ^{*1} Save location: (storage device)\EXT0000\SNAP
File Name	Set the name of the file. AUTO (0 to 255): Save using sequential numbers from "VD00000.jpg". Set the action to perform when the maximum number of snapshots is reached from [Snap File Setting]. Specify (0 to 32767): Save using the specified file number. If the specified file number already exists, it is overwritten. ^{*2}
Snap File Setting	Configure snapshot file settings.

*1 A timestamp is not added. A snapshot can be taken only while recording video.

*2 When a screen program contains both the [AUTO] and [Specify] snap settings, specify a number in the range of 256 to 32767 to prevent the files of [Specify] from being overwritten with those of [AUTO]. When [AUTO] is selected, the number of the last snapshot is stored in system device memory \$932.

Style



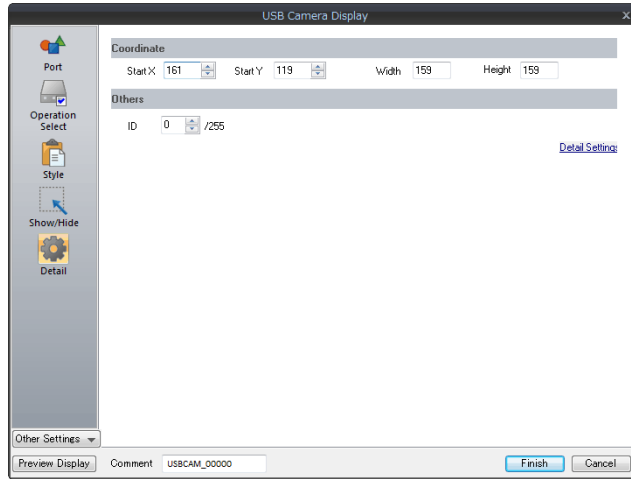
Item	Description
Additional Parts List	Select an operation switch.
Pause	Pause the camera video as a still image.
Restart	Resume the camera video from the still image.
Adjust Position	Display the window for adjusting the placement position of each part. Part size can also be changed.
Select from catalogs	Set the part design from the catalog.
Parts Design	Change the part design and settings selected in the [Additional Parts List] or preview pane.
Edit Selected Parts	

Show/Hide

Set the show and hide settings of the USB camera part.

 For details, refer to "14 Item Show/Hide Function" in the Reference Manual 1.

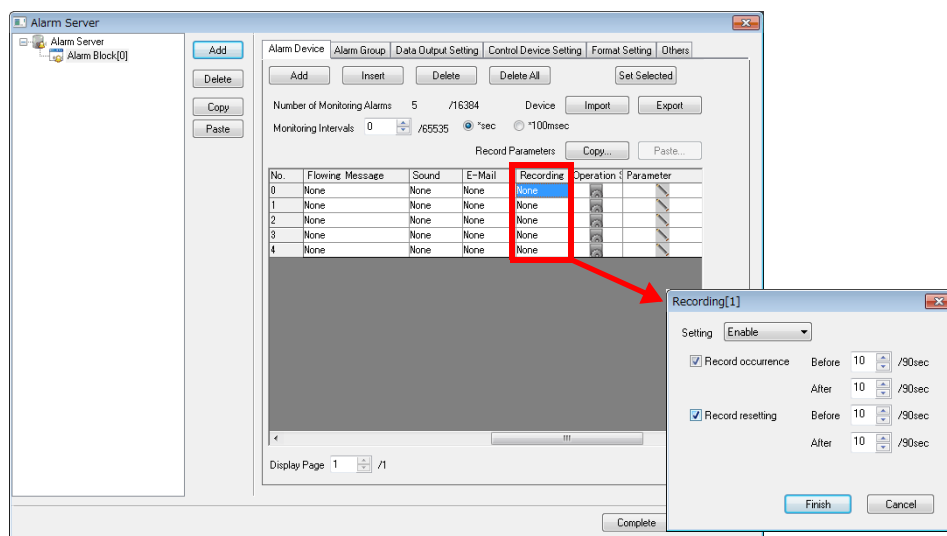
Detail



Item		Description
Coordinate	Start X/Start Y	Set the part coordinates.
	Width/Height	Set the part size.
Others	ID	Set an ID number.

1.2.6 Alarm Server (Recording)

Configure an alarm server in conjunction with the alarm function when recording video when an alarm occurs and when resetting an alarm.



Item	Description
Setting	Enabled
Record occurrence Before *1 After	Select this checkbox to record video when an alarm occurs. Set the duration of video recording immediately before and immediately after an alarm occurs. A total of 180 seconds of video can be saved. *2 0 to 90 sec
Record resetting Before *1 After	Select this checkbox to record video when an alarm is reset. Set the duration of video recording immediately before and immediately after an alarm is reset. A total of 180 seconds of video can be saved. *2 0 to 90 sec

*1 This setting is only available when "Yes" is selected for [Use Event Record Function] at [System Setting] → [Hardware Setting] → [USB Camera Properties].

Since video is recorded continuously in RUN mode, the video player is unavailable.

In order to use the video player, stop recording video by using the "USBCAM_REC STOP" macro command or switch to Local mode and then play back a video file.

*2 In the following cases, video is recorded to a single file. This means that there are cases when the duration of video recording is extended. However, note that since the maximum duration of video recording is 180 seconds, video recording ends upon reaching 180 seconds.

- When both occurrence and resetting are set, the end of video recording for occurrence overlaps with the start time of video recording for resetting.
- Multiple alarms occur at once.

1.2.7 Macros

Command list

Category	Command Name	Mnemonic	Description
USB Camera	USBCAM_REC	USBCAM REC START	Event recording function - start
		USBCAM REC STOP	Event recording function - stop
	USBCAM	USBCAM SNAP F1 F2	Single snapshot
		USBCAM CLIP_POS F1 F2 F3	Change the clip start position: X/Y coordinate
		USBCAM CLIP_SIZE F1 F2 F3	Change the image clip size: width, height
		USBCAM MEMORY F1	Device memory designation <ul style="list-style-type: none"> F1=4 Single snapshot F1=8 Change the clip start position: X coordinate, Y coordinate F1=9 Change the image clip size: width, height

Macro Commands

USBCAM_REC START

Function: Event recording function start

Supplementary information

- If an error during execution occurs, \$s1061=-1 is stored. The value at the address is not updated even when the execution of the macro is normally complete after that. Therefore, resetting the value of \$s1061 to zero is recommended before macro execution.

USBCAM_REC STOP

Function: Event recording function stop

Supplementary information

- While the recording file is being saved, the file saving is terminated. A file shorter than the set time is created.
- The real-time display will not display anything.
- If an error during execution occurs, \$s1061=-1 is stored. The value at the address is not updated even when the execution of the macro is normally complete after that. Therefore, resetting the value of \$s1061 to zero is recommended before macro execution.

USBCAM SNAP F1 F2

Function: Single snapshot

This macro command is used to save a snapshot of video from the port number specified in [F1] to a storage device using the file number specified in [F2].

Range

	Value
F0	SNAP
F1	1: Port 1 (fixed)
F2	00000 to 32767: Number designation Auto *

* The number of a file created under the "Auto" setting is stored in \$s932. If there are no files on the storage device, files are numbered by incrementing, starting from "0". If there are files in the storage device, files are numbered by incrementing the existing largest file number. When the incremented value reaches [Maximum Number of Snap Files in Auto] in the [Video/RGB Setting] window, the subsequent action depends on the option selected for [When the Limitation is Exceeded]. With [Stop] selected, any further execution of the macro command is invalid. With [Overwrite] selected, the incremented value will be reset to "0" and the files will be overwritten.

Operation example

- Saving a snapshot as "VD00005.JPG" to the "SNAP" folder on the storage device
USBCAM SNAP PORT 1 VD00005

Supplementary information

- The macro command is valid when USB camera video is displayed (real-time display) and a storage device is connected to the V10/V9 series unit. It is not possible to take a snapshot as a background operation.
- A timestamp is not added. A snapshot can be taken only while recording video.
- Bit 0 of \$s930 turns ON while taking a snapshot.
- If an error occurs during macro command execution, "-1" is stored in \$s1061. This value is not updated even if the macro command ends successfully afterwards. It is therefore recommended to store "0" in \$s1061 before executing the macro command.

USBCAM CLIP_POS F1 F2 F3

Function: Change the clip start position

This macro command is used to change the coordinates for starting clipping (clip start position) of the image of the port specified in [F1] (Port 1 fixed) according to [F2] and [F3].

Device memory used

	Internal	PLC 1 to 8	Constant
F1	○		

○: Setting enabled (indirect designation disabled) ◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	CLIP_POS
F1	1: Port 1 (fixed)
F2	0 to 639: Starting X coordinate
F3	0 to 479: Starting Y coordinate

Operation example

- Change the clip start position coordinates to (100, 150)
USBCAM CLIP_POS Port 1 100 150

Supplementary information

- Only the [Initial Macro] can work.
- Valid only for [Display Size per Port: Free].

USBCAM CLIP_SIZE F1 F2 F3

Function: Change the image clip size

This macro command is used to change the size for clipping (image clip size) the image of the port specified in [F1] (Port 1 fixed) according to [F2] and [F3].

Device memory used

	Internal	PLC 1 to 8	Constant
F1	○		

○: Setting enabled (indirect designation disabled) ◎: Setting enabled (indirect designation enabled)

Range

	Value
F0	CLIP_SIZE
F1	1: Port 1 (fixed)
F2	1 to 640: Width
F3	1 to 480: Height

Operation example

- Change the clip start position coordinates to (100, 150) and the image clip size to 400 x 300 dots
USBCAM CLIP_POS Port 1 100 150
USBCAM CLIP_SIZE Port 1 400 300

Supplementary information

- Only the [Initial Macro] can work.
- Valid only for [Display Size per Port: Free].

USBCAM MEMORY F1 (Device Memory Designation)

Function: Single snapshot / Change the clip start position / Change the clip start position

This macro command is used to set the operation for camera image at the port specified in [F1+1] (Port 1 fixed) with [F1].

Range

	Value
F0	MEMORY
F1	4: SNAP 8: CLIP_POS 9: CLIP_SIZE
F1+1	1: Port 1 (fixed)
F1+2 and after	Depends on the setting of [F1]



For details, refer to Macro Reference Manual.

1.2.8 System Device Memory (\$s)

The snapshot function status for the USB camera is output to system device memory (\$s).

Address	Description	Type																																
930	Snapshot function status output MSB LSB <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td> </tr> </table> Reserved for system 1: Taking a snapshot 1: Maximum snapshot files	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0			← V
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0																					
932	Automatic Stores the snapshot file number.	← V																																
966	Current clip start position (X coordinate at the top left corner)	← V																																
967	Current clip start position (Y coordinate at the top left corner)	← V																																
968	Current image clip size (width)	← V																																
969	Current image clip size (height)	← V																																
1752	Stores the port number corresponding to the display area that was tapped.	← V																																

1.2.9 Notes

Real time display

- Only one USB camera item can be placed per screen. If two or more are placed, they will not function correctly. Take this into account when placing on screen libraries and overlaps.
- A USB camera item cannot be placed on the same screen as a video/RGB item or video overlap.
- If a USB camera item is placed on an overlap, the overlap's [Transparency Setting] value becomes invalid.
- When there is no signal or a signal is lost during display, the display area becomes hidden (the background becomes visible).
- When an overlap is displayed over a USB camera item, select the [Validate superimpose when displaying over the video/RGB image (V8 compatible)] checkbox in the general settings.
To make the overlapping area transparent, also add the following settings.
 - [Overlap] → [Style] → [Make display area transparent] checkbox: Selected
 - [Overlap] → [Detail] → [Transparency Display] → [Blend]: 255
- The USB camera display becomes hidden (the background becomes visible) when the following items overlap with the display area of the USB camera.
System menu, status bar, communication error display (only [Comm. Error handling: Continue]), screen scrolling
- When printing a hard copy, a USB camera image is also output.
- USB camera video cannot be displayed via RGB output (GUR-02) or on VNC viewer screens.
- During USB camera display, the RGB full screen and video overlap displays cannot be displayed correctly. The USB camera cannot be displayed correctly even by hiding the RGB full screen and video overlap displays.
- Video with significant changes in the image may be affected by flickering; however, this does not affect the video recording.
- A timestamp is not added to snapshot files.

Recording

- When the event recording function is selected, video is recorded continuously in RUN mode.
USBCAM_REC macro command is used for pausing/restarting recording. The event recording function will not work if left stopped. Make sure to restart recording.
- With the event recording function selected, saving of video starts if an alarm is occurring when Local mode is switched to the RUN mode. However, note that no video recording data is saved in Local mode.
- Displaying the Local mode screen during video recording stops video recording.
- When using the event recording function, screen changes may be slower. Also, since video is not recorded during a screen change, the duration of video recording may differ from the set duration.
When switching screens, it is recommended to stop the event recording function with the USBCAM_REC command and restart after switching screens.
- If alarms occur consecutively, there are instances when video files are not created. Set video recording for important alarms.
- Adding a timestamp display will slow down screen display.
- Depending on the timing of an alarm and processing for recording, recording may start up to 0.03 seconds earlier than the set time.
In such a case, the timestamp is earlier than the set time by one second.

Playing videos

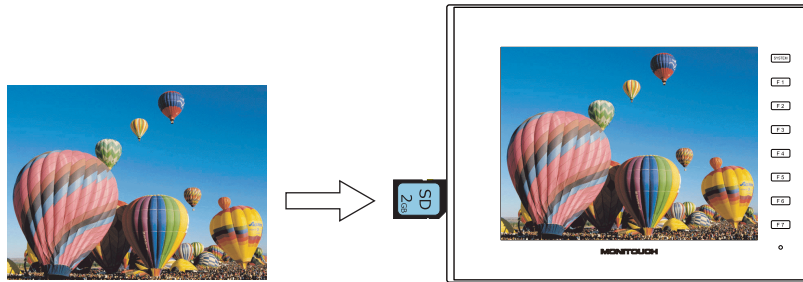
- When the event recording function is used, video is recorded continuously during RUN mode and the video player is unavailable.
In order to use the video player, stop recording video by using the "USBCAM_REC STOP" macro command or switch to Local mode and then play back a video file.
- Video files are saved to the "ALARM" folder of the drive specified at [System Setting] → [Other] → [Storage Setting] → [Storage Connection Target].
The video player accesses the "VIDEO" folder of the drive specified at [Video Player Settings] → [Storage Connection]. To play back a video file, switch to the "ALARM" folder using the video player.

1.3 JPEG Display

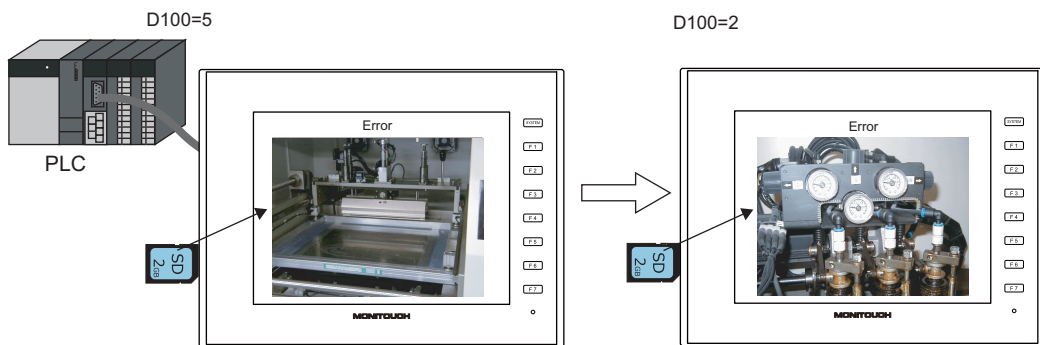
1.3.1 Overview

JPEG File Display

- Display JPEG files saved to a storage device.
- JPEG files with a resolution up to 1024 × 768 can be displayed.
Note that when changing [Screen Size] for the display size setting using the [Scroll] function, the set resolution can also be displayed.

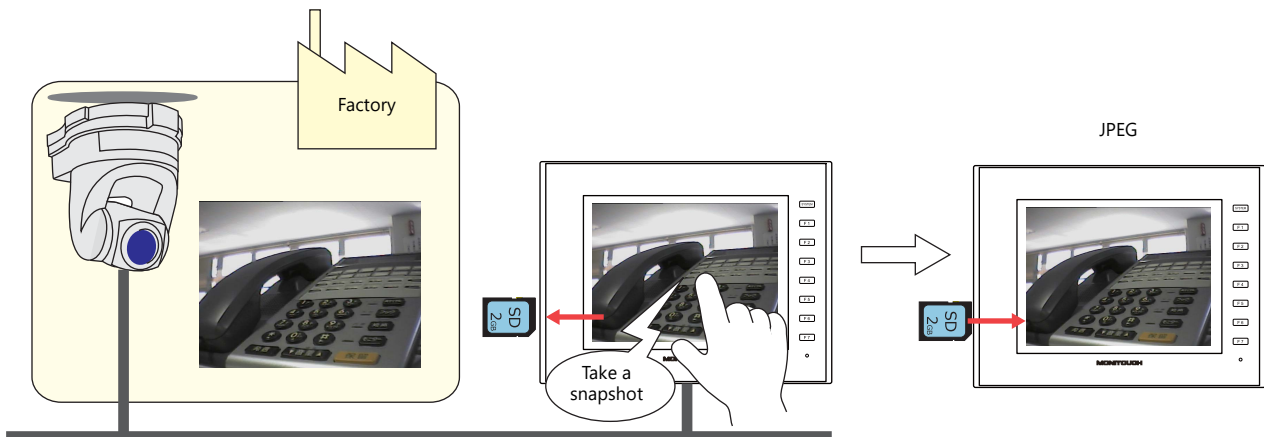


- There are three ways to load JPEG files.
 - Filename specification
 - File number specification (fixed)
 - File number specification (PLC device memory)



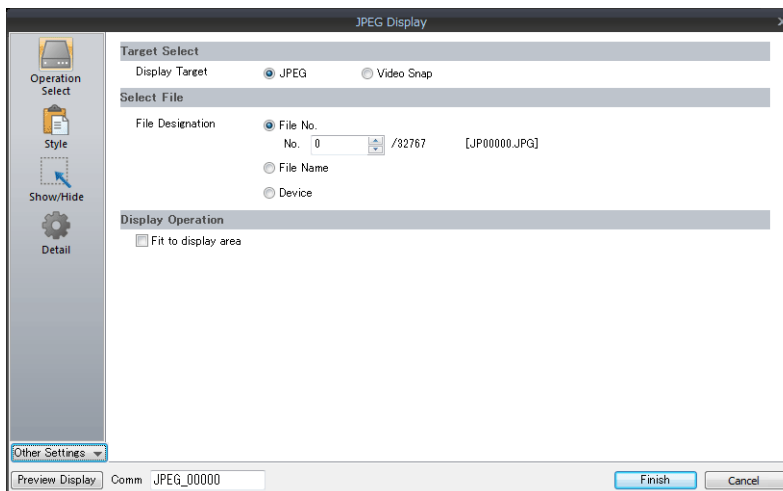
Network Camera Image Display

- Display network camera snapshot images saved to a storage device.
- Two methods of specifying a file number and designating a file number from the PLC are available.



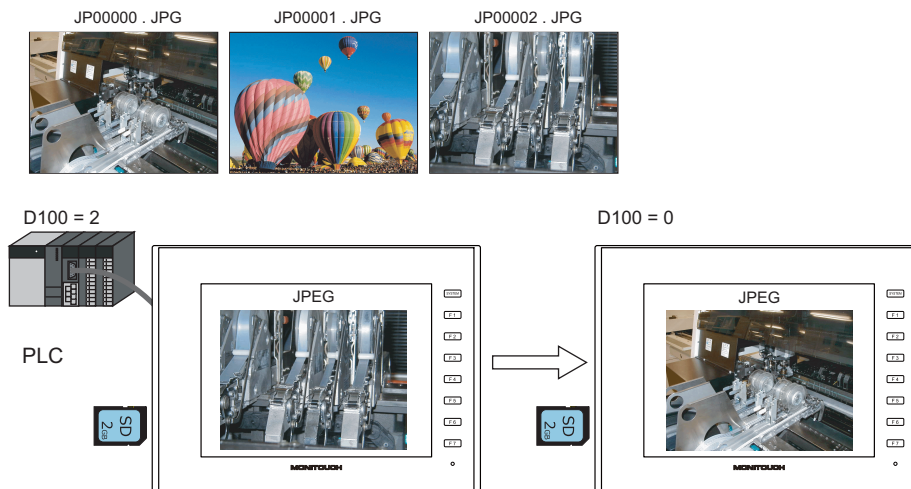
1.3.2 Detailed Settings

Operation Select



Item	Description									
Target Select	Select a display target.									
JPEG	Display a JPEG file prepared in advance. Filename: JPxxxx.jpg (xxxx: 00000 to 32767) Any filename (maximum of 64 one-byte numerals or uppercase alphabetic characters)									
Video Snap	Display a video snapshot image. Filename: VDxxxx.jpg (xxxx: 00000 to 32767)									
Select File	Select the file specification method.									
File No.	Specify the "xxxx" part of "JPxxxx.jpg" or "VDxxxx.jpg" with a file number from 0 to 32767.									
File Name	Specify a filename. Maximum of 64 one-byte numerals or uppercase alphabetic characters									
Device *1	Set the device memory address that specifies the "xxxx" part of "JPxxxx.jpg" or "VDxxxx.jpg" with a file number from 0 to 32767. This allows the JPEG file to be changed in RUN mode.									
Display Operation	Fit to display area *2 Unselected: Actual size Selected: Automatically enlarge or reduce the display according to the size of the display area. The level of display detail can be specified at \$s1008 when enlarging or reducing the display.									
	<table border="1"> <thead> <tr> <th>\$s1008</th> <th>Detail</th> <th>Speed</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Coarse</td> <td>Fast</td> </tr> <tr> <td>1</td> <td>Fine</td> <td>Slow</td> </tr> </tbody> </table>	\$s1008	Detail	Speed	0	Coarse	Fast	1	Fine	Slow
\$s1008	Detail	Speed								
0	Coarse	Fast								
1	Fine	Slow								

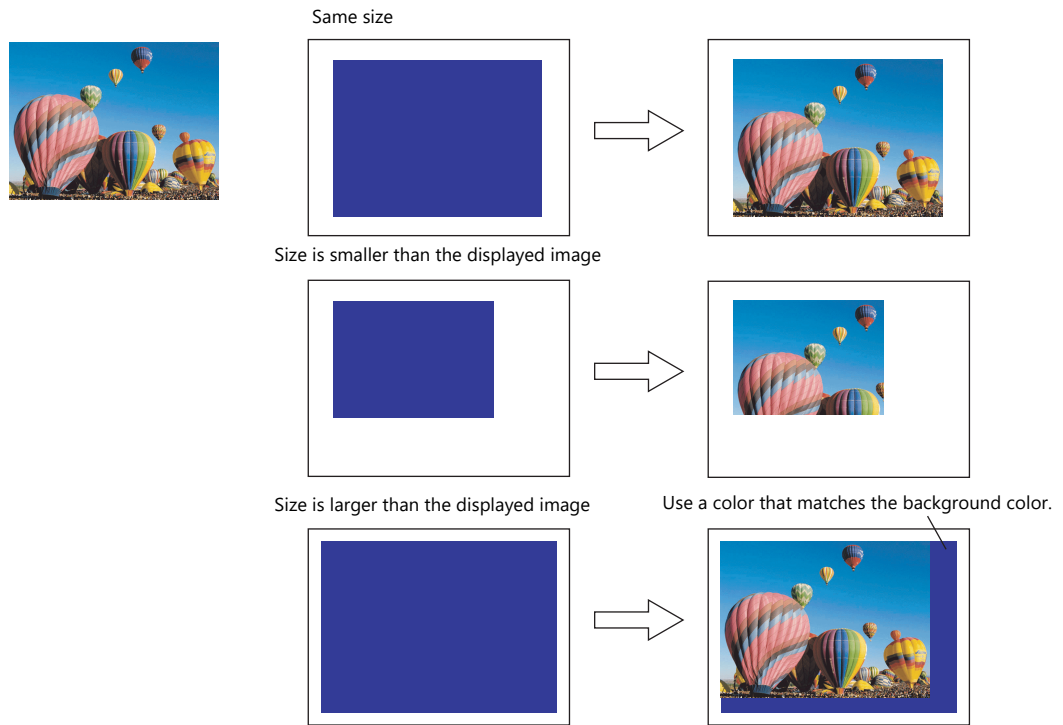
*1 Display example



*2 Display example

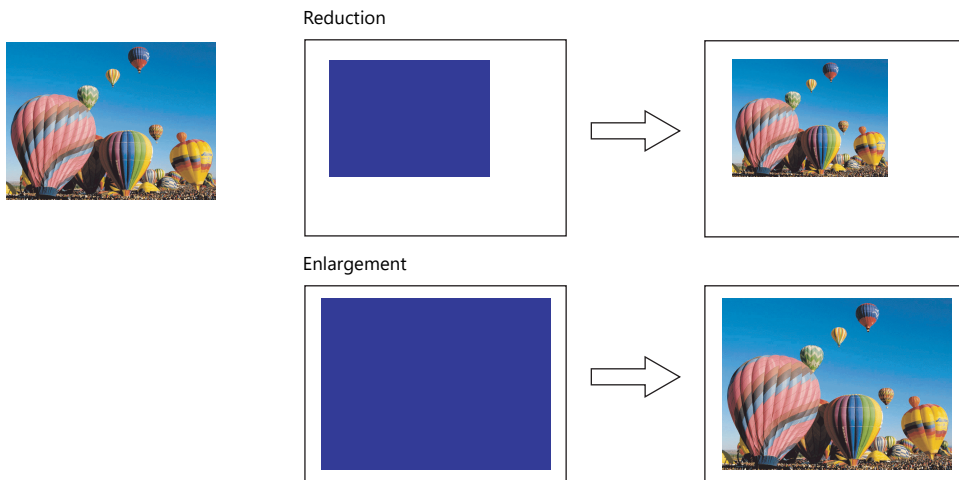
- Checkbox: unselected

The image is displayed at its original size with respect to the top left corner of the display area. If the JPEG image is larger than the display area, the part of the image outside the display area is not shown. Note that the color of the display area is visible when the JPEG image is smaller than the display area. It is recommended that users match the display area color with the background color of the image.

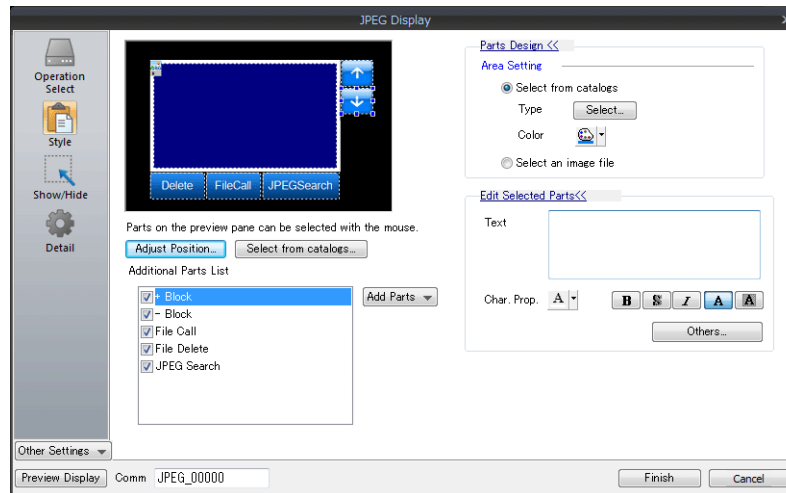


- Checkbox: selected

The image is enlarged or reduced with respect to the top left corner of the display area. The image is enlarged or reduced using the same factor for width and length.



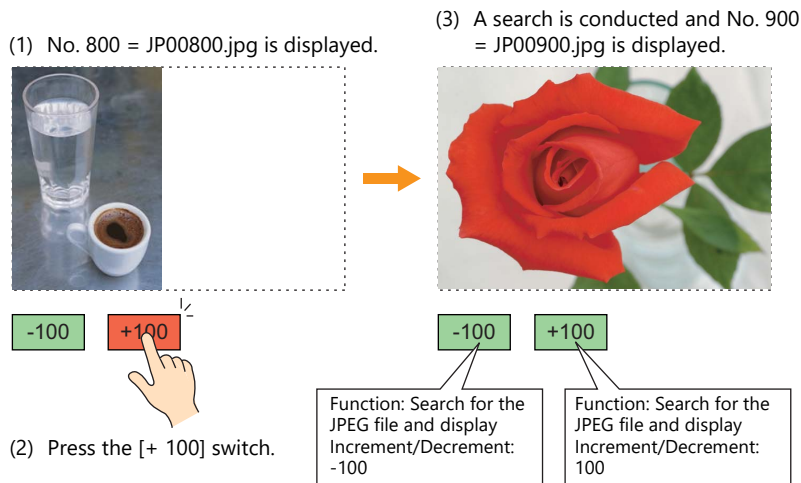
Style



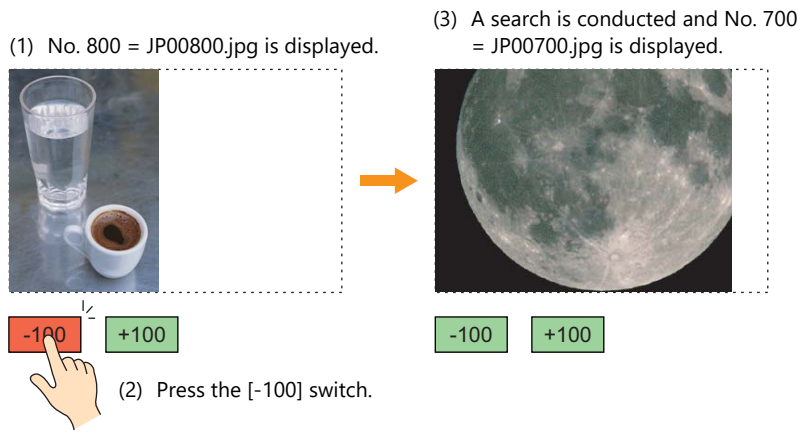
Item	Description	Target file
Additional Parts List	Displays a list of JPEG display switches. Parts can be added to the list using the [Add Parts] button.	
+ Block	Display the JPEG file corresponding to the next file number.	JPxxxx.jpg
- Block	Display the JPEG file corresponding to the previous file number.	VDxxxx.jpg
File Call	Load the JPEG file corresponding to the specified file number.	
File Delete	Delete the JPEG file that is currently displayed.	VDxxxx.jpg
JPEG Search	Set an increment or decrement value to use to search for and display a JPEG file *1.	JPxxxx.jpg VDxxxx.jpg
Adjust Position	Displays the window for adjusting the placement position of each part. The size of parts can also be changed.	
Select from catalogs	Set the part design from the catalog.	
Parts Design	Set the design and color of parts.	
Edit Selected Parts	Configure the part selected in the [Additional Parts List] or preview pane.	

*1 Display example

- When the [+100] switch is pressed while file No. 800 is displayed, a search is conducted for file No. 900 or later and the file is displayed. When a search has been conducted to No. 32767, it is continued moving back to No. 0.



- When the [-100] switch is pressed while file No. 800 is displayed, a search is conducted for file No. 700 or prior and the file is displayed. When a search has been conducted to No. 0, it is continued moving back to No. 32767.

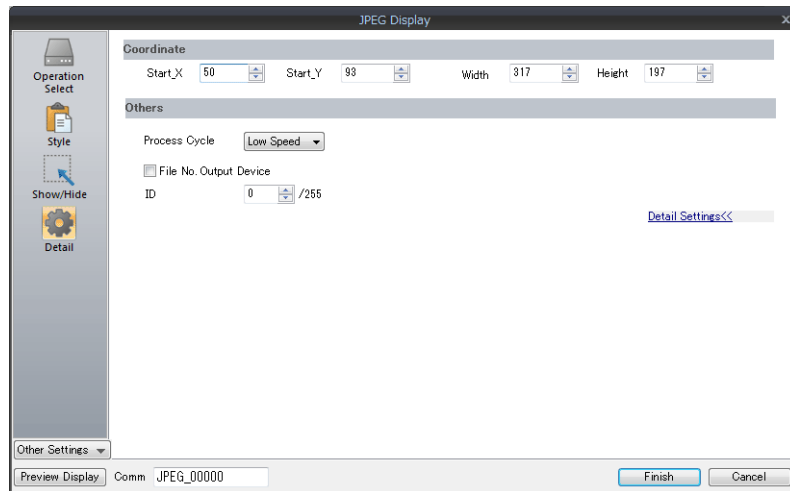


Show/Hide

Set the show and hide settings of graphic items.

- ☞ For details, refer to "14 Item Shown/Hide Function" in the Reference Manual 1.

Detail



Item	Description	
Coordinate	Start X/Start Y	Set the placement position and size of the display area.
	Width/Height *1	
Others	Process Cycle	Set the cycle for the V10/V9 series to read PLC data.
	File No. Output Device	Output the file number of the currently displayed image.
	ID	Set an ID number.

1.3.3 JPEG File Location

The JPEG display function loads and displays the files in the following location.

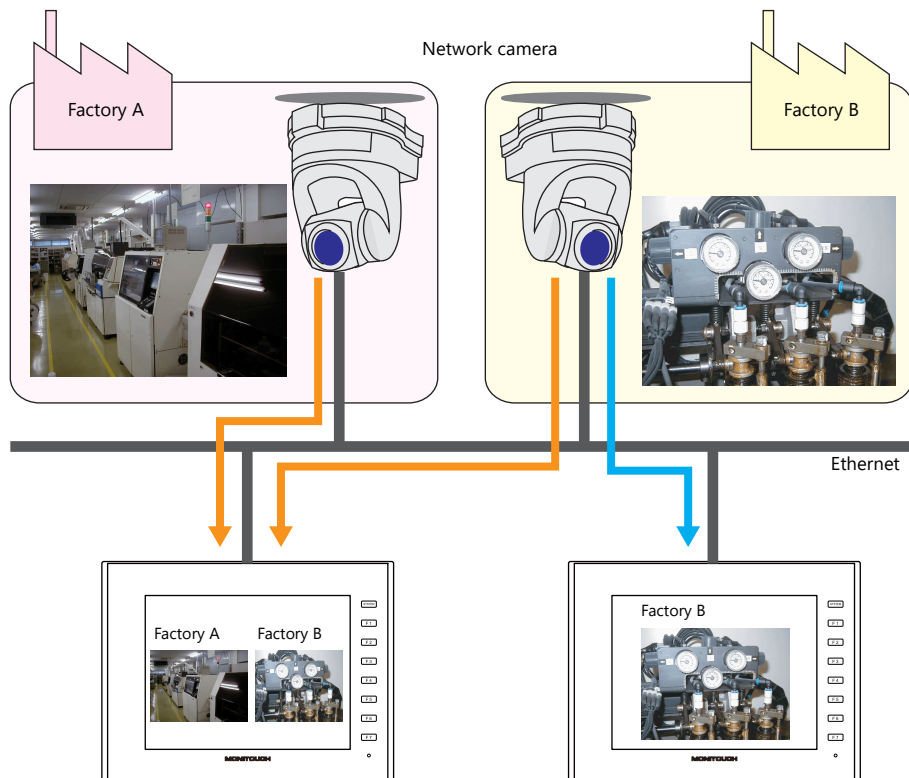
Display Target	Filenames	File Location
JPEG	JPxxxxx.jpg (xxxxx: 00000 - 32767) xxxxxxx.jpg (maximum of 64 one-byte numerals or uppercase alphabetic characters)	(access folder)\JPEG folder
Video Snap	VDxxxxx.jpg (xxxxx: 00000 - 32767)	(access folder)\SNAP folder

1.4 Network Camera

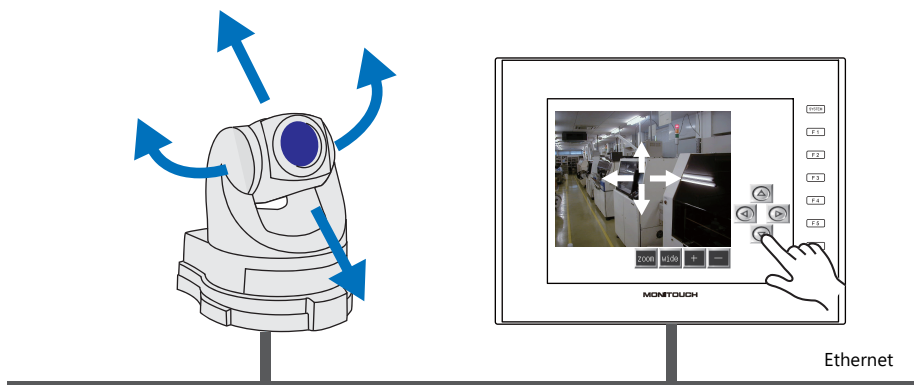
1.4.1 Overview

- Images from network cameras can be displayed on the V10/V9 series unit. All V10/V9 series models support this function because cameras are connected using an Ethernet connection.
- Up to four camera images can be displayed simultaneously using both the screen and overlaps. When a fifth camera image is displayed, the display of the oldest area in the placement order is stopped.

Example: Monitoring the conditions in the factory



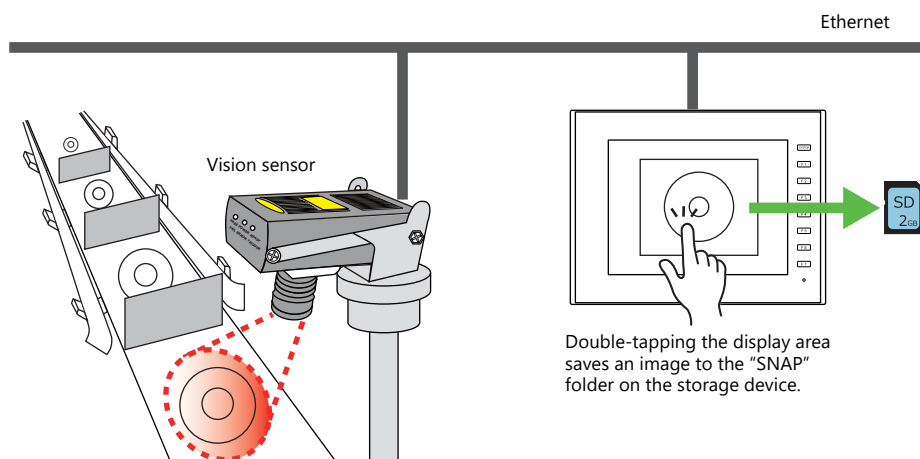
- Camera operation
Using a command device memory or an operation switch on the screen allows network cameras to be easily controlled from a remote location.



Note that some network cameras cannot be controlled remotely. See the specifications of your network camera.

- Snapshot function

The currently displayed image can be saved to a storage device as a JPEG file when the bit of a command device memory changes to ON or by double-tapping the display area.



1.4.2 System Requirements

Applicable Models

MONITOUCH Models	Connection Port	Remarks
V10/V9	LAN (built-in)	Not available with LAN2, WLAN, or CUR-03

Available Network Cameras or Sensors

Manufacturer		Type	Protocol
Axis		MOTION-JPEG (video)	HTTP protocol communication (TCP/IP)
Panasonic	BB series BL series		
BANNER	PresencePLUS P4 OMNI	Bitmap (still image) *1	Dedicated protocol

*1 No image is displayed upon initial connection.

To display an image, sensor memory P110000-00 (Trigger) must be change from "0" to "1" (leading edge). When accessing sensor memory from the V10/V9 series unit, select [System Setting] → [Hardware Setting] → [Maker: BANNER].

1.4.3 Required Settings

V-SFT Settings

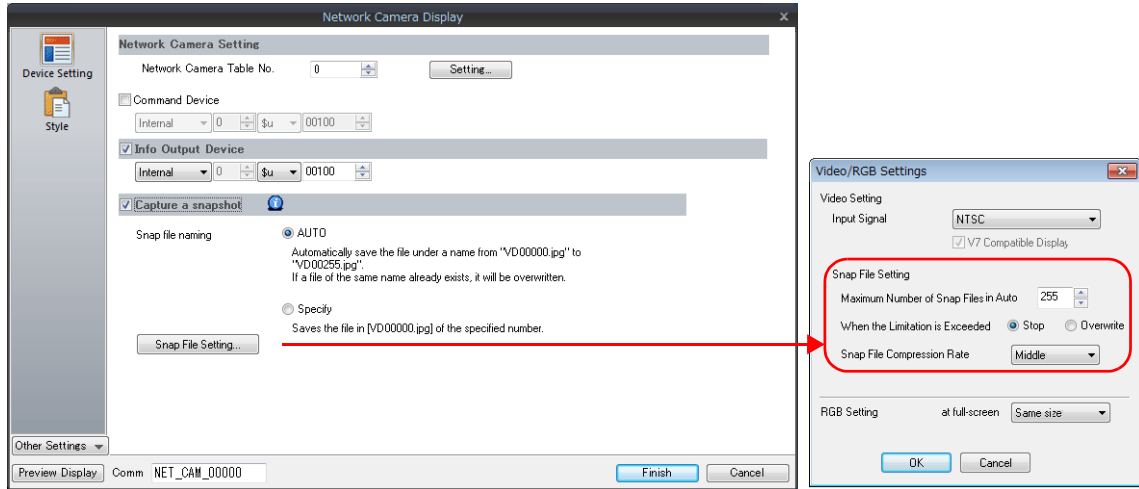
- Settings in network camera display items → ["1.4.4 Detailed Settings" page 1-56](#)

Network Camera Settings

- AXIS models → ["1.4.5 AXIS Settings" page 1-60](#)
- Panasonic models → ["1.4.6 Panasonic \(Example: BB-HCM580\)" page 1-69](#)
- BANNER models → ["1.4.7 BANNER \(Example: PresencePLUS P4 OMNI\)" page 1-79](#)

1.4.4 Detailed Settings

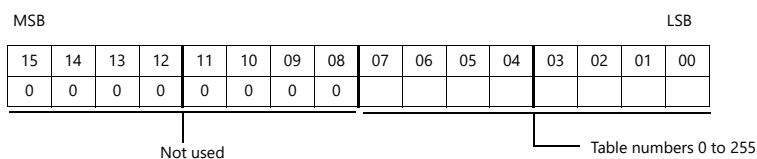
Device Setting



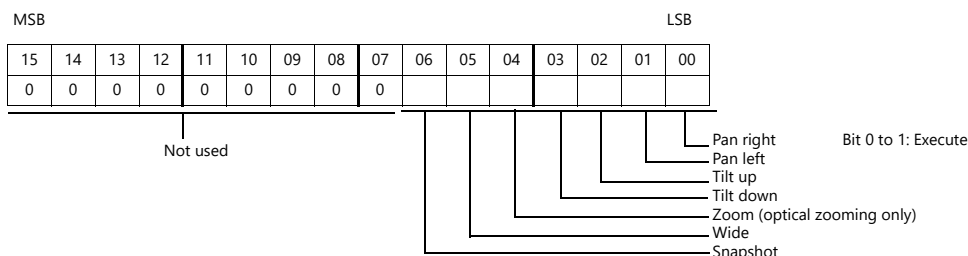
Item	Description																	
Network Camera Setting	Select the network camera specification method.																	
Network Camera Table No.	Select one registered camera in the table. One camera is always displayed.																	
Command Device *1	Select one registered camera in the table using a value stored in a device memory. Three words are used. This method allows switching between multiple camera images. In addition, camera operation can be controlled using a value stored in a device memory.																	
	<table border="1"> <thead> <tr> <th>Memory</th> <th>Description</th> <th>Applicable Models</th> </tr> </thead> <tbody> <tr> <td>n</td> <td>Table number specification</td> <td>AXIS, Panasonic, BANNER</td> </tr> <tr> <td>n+1</td> <td>Camera operation</td> <td>AXIS, Panasonic, BANNER (snapshot only)</td> </tr> <tr> <td>n+2</td> <td>Operation input</td> <td>AXIS</td> </tr> </tbody> </table>	Memory	Description	Applicable Models	n	Table number specification	AXIS, Panasonic, BANNER	n+1	Camera operation	AXIS, Panasonic, BANNER (snapshot only)	n+2	Operation input	AXIS					
Memory	Description	Applicable Models																
n	Table number specification	AXIS, Panasonic, BANNER																
n+1	Camera operation	AXIS, Panasonic, BANNER (snapshot only)																
n+2	Operation input	AXIS																
Setting	Display the [Network Camera Table Setting] screen to perform camera registration. Refer to page 1-58 .																	
Info Output Device	Output the state of the network camera. Four words are used.																	
	<table border="1"> <thead> <tr> <th>Memory</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td rowspan="4">n</td> <td>Bit 0</td> <td>Connected state 0: Connected 1: Disconnected</td> </tr> <tr> <td>Bit 1</td> <td>Pan angle state 0: Normal 1: Abnormal</td> </tr> <tr> <td>Bit 2</td> <td>Tilt angle state 0: Normal 1: Abnormal</td> </tr> <tr> <td>Bit 3</td> <td>Zoom state 0: Normal 1: Abnormal</td> </tr> <tr> <td>n+1</td> <td>Camera pan angle</td> </tr> <tr> <td>n+2</td> <td>Camera tilt angle</td> </tr> <tr> <td>n+3</td> <td>Zoom position</td> </tr> </tbody> </table>	Memory	Description	n	Bit 0	Connected state 0: Connected 1: Disconnected	Bit 1	Pan angle state 0: Normal 1: Abnormal	Bit 2	Tilt angle state 0: Normal 1: Abnormal	Bit 3	Zoom state 0: Normal 1: Abnormal	n+1	Camera pan angle	n+2	Camera tilt angle	n+3	Zoom position
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	Bit 3	Zoom state 0: Normal 1: Abnormal																
n+1	Camera pan angle																	
n+2	Camera tilt angle																	
n+3	Zoom position																	
Capture a snapshot *2 *3 *4	Save the displayed image as a JPEG file by double-tapping on the display area. Save location: (storage device)\EX0000\SNAP																	
Snap file naming	Set the filename to use when saving a snapshot. AUTO (0 to 255): Save using sequential numbers from "VD00000.jpg". Set the action to perform when the maximum number of snapshots is reached using [Snap File Setting]. Specify (0 to 32767) Save using the specified file number. If the specified file already exists, it is overwritten.																	
Snap File Setting	Configure snapshot file settings.																	

*1 Command device memory

- n: Table number specification



- n+1: Camera operation

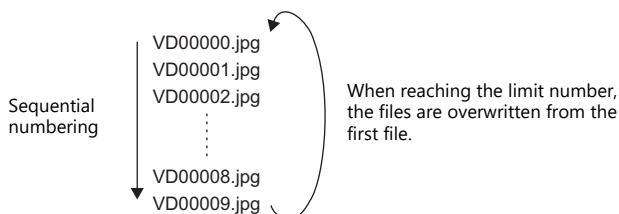


- n+2: Operation input (AXIS only)

Memory	Operation	Setting Value	Remarks
n+2	Up/down/left/right	Angle: -18000 to 18000 (±180 degrees)	Effective to the first decimal place
	Zoom in/zoom out	Magnification: 0 or higher	Depends on the maximum value in the camera specifications.
	Snapshot	Not used	Rotation direction can be specified using \$s976. (Refer to *4.)

*2 Setting Examples

- When [Snap file naming] is "AUTO", [Maximum Number of Saves] is "10", and [Action when Limitation is Exceeded] is "Overwrite" Snapshot files ranging from "VD00000.jpg" to "VD00009.jpg" are created in sequence. When the file "VD00009.jpg" is created, the previous files will be overwritten from "VD00000.jpg".



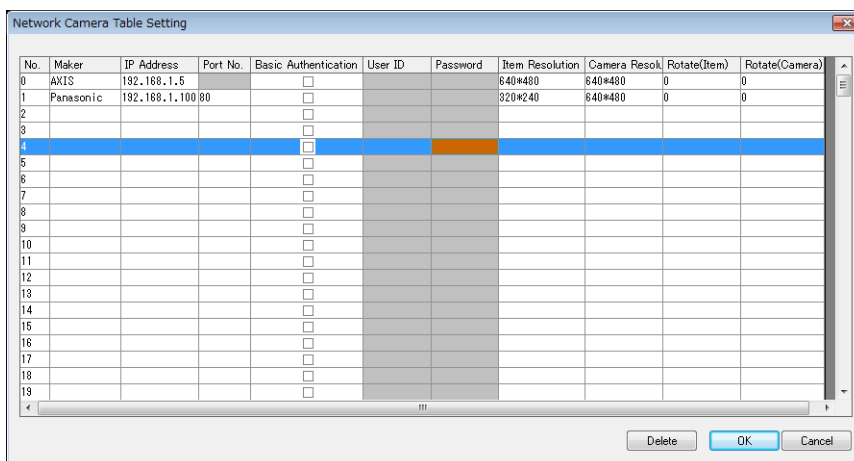
- When [Snap file naming] is "Specify" and [No. to Assign to Filename] is "30" The file "VD00030.jpg" is created and always overwritten.
- *3 When a screen program contains both the [AUTO] and [Specify] snap settings, specify a number in the range of 256 to 32767 to prevent the files of [Specify] from being overwritten with those of [AUTO]. When [AUTO] is selected, the number of the last snapshot is stored in system device memory \$s932.
- *4 Snapshots can be rotated using system device memory (\$s976) and then saved.

\$s976	Rotation Direction
0	0°
1	Clockwise by 90°
2	180°
3	Counterclockwise by 90°

* If any value other than the above is specified, the snapshot will be saved with 0° rotation.

Network camera table settings

Register the IP address, port number, and other information regarding network cameras.



Item	Description									
Maker	Select the manufacturer of the network camera. AXIS, Panasonic, BANNER									
IP Address ^{*1}	Specify the IP address of the network camera.									
Port No.	Specify the port number of the network camera. 1 - 65535									
	<table border="1"> <thead> <tr> <th>Maker</th> <th>Default</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Panasonic</td> <td>80</td> <td></td> </tr> <tr> <td>BANNER</td> <td>20000</td> <td>Sensor range: 20000 to 20009</td> </tr> </tbody> </table>	Maker	Default	Remarks	Panasonic	80		BANNER	20000	Sensor range: 20000 to 20009
Maker	Default	Remarks								
Panasonic	80									
BANNER	20000	Sensor range: 20000 to 20009								
Basic Authentication ^{*2}	Select this checkbox to use basic authentication for the network camera. This enables user ID and password settings. For details, refer to your network camera settings.									
User ID	Enter the user name and password registered in the network camera settings. For details, refer to your network camera settings.									
Password										
Item Resolution	Set the size of the display area. The specified area size is automatically updated to the screen. 160*120, 192*144 ^{*3} , 320*240, 640*480, Specify ^{*4} The display area is automatically enlarged or reduced on the V10/V9 series unit when a resolution that differs from [Camera Resolution] is selected.									
Camera Resolution	Set the output resolution of the network camera. To improve performance, set a lower resolution.									
Rotate (Item)	Rotate the display area on the V10/V9 series unit.									
Rotate (Camera) ^{*5}	Set the rotation angle of the image output from the network camera. Select an angle appropriate for the mounting orientation of the network camera. 0, 90, 180, 270									

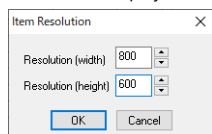
*1 For details on setting IP addresses, refer to the user's manual of the network camera.

Manufacturer	Model	Remarks
Axis	214PTZ	Use AXIS's dedicated tool when changing the default IP address. Default: 192.168.0.90
Panasonic	BB-HCM580	Use the CD-ROM provided with the network camera when changing the default IP address. Default: Automatic setup
BANNER	PresencePLUS P4 OMNI	

*2 BANNER: No configuration required

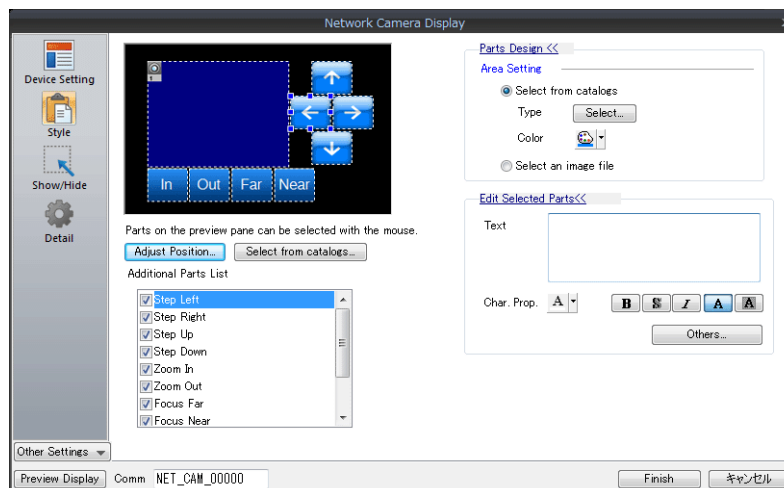
*3 BANNER: Selection not possible

*4 The size of the display area can be set as required. This cannot be selected for a BANNER camera.



*5 Panasonic, BANNER: Cannot set to 90, 270

Style



Item	Description
Additional Parts List	Select an operation switch. *1 *2
Step Left	Pan the camera left.
Step Right	Pan the camera right.
Step Up	Tilt the camera up.
Step Down	Tilt the camera down.
Zoom In *3	Zoom in on the camera image.
Zoom Out *3	Zoom out of the camera image.
Focus Far	Focus the camera on a distant point.
Focus Near	Focus the camera on a nearby point.
Pause	Pause video display.
Restart	Resume video display.
Parts Design	Set the design and color of parts.
Edit Selected Parts	Configure the part selected in the [Additional Parts List] or preview pane.
Adjust Position	Displays the window for adjusting the placement position of each part. The size of parts can also be changed.

*1 Note that some network cameras cannot be controlled remotely. See your network camera specifications. (No BANNER products support these functions.)

*2 If the [Delay] → [ON repeat] setting is configured in the switch settings window, the function performed by the switch is repeated while the switch is held down.

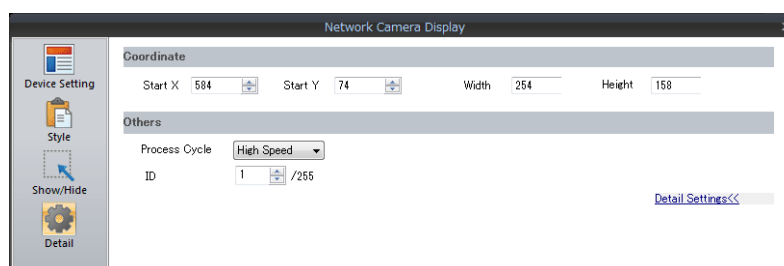
*3 Optical zooming only. Digital zooming is not supported.

Show/Hide

Set the show and hide settings of JPEG display items.

 Refer to "14 Item Show/Hide Function" in the Reference Manual 1.

Detail



Item	Description	
Coordinate	Start X/Start Y	Specify the coordinates of the display area.
Other	Process Cycle	Set the cycle that the V10/V9 series unit accesses the camera.
	ID	Set an ID number.

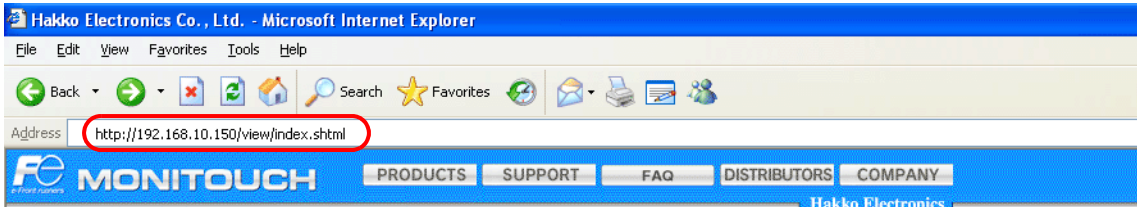
1.4.5 AXIS Settings

Access from the Computer (Example: AXIS 214PTZ)

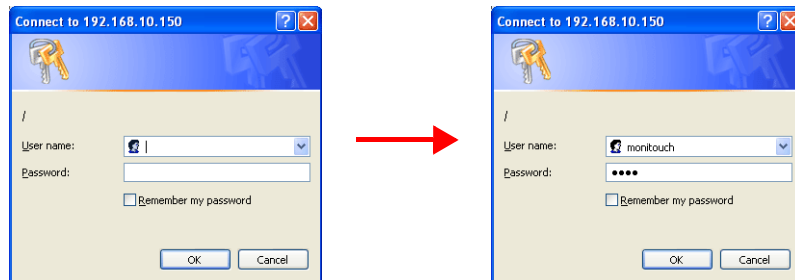
1. Start up Microsoft Internet Explorer on your computer.
2. Enter the IP address of the network camera in the address field.

http://xxx.xxx.xxx.xxx

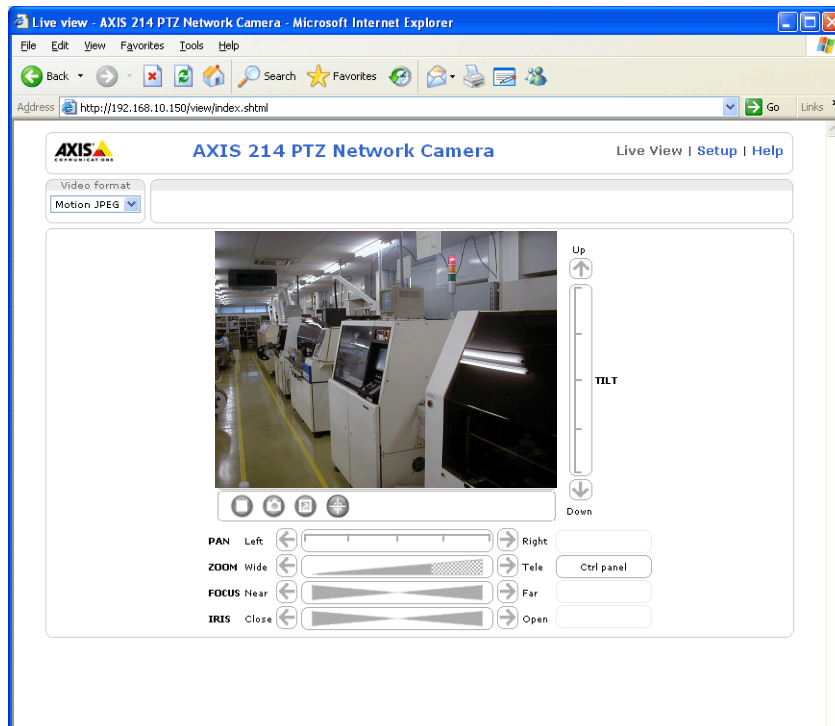
└── Network camera IP address



3. The following dialog is displayed when using basic authentication. Enter a registered user name and password, and click the [OK] button.
If basic authentication is not used, proceed to step 4.
For details on basic authentication, refer to [page 1-62](#).



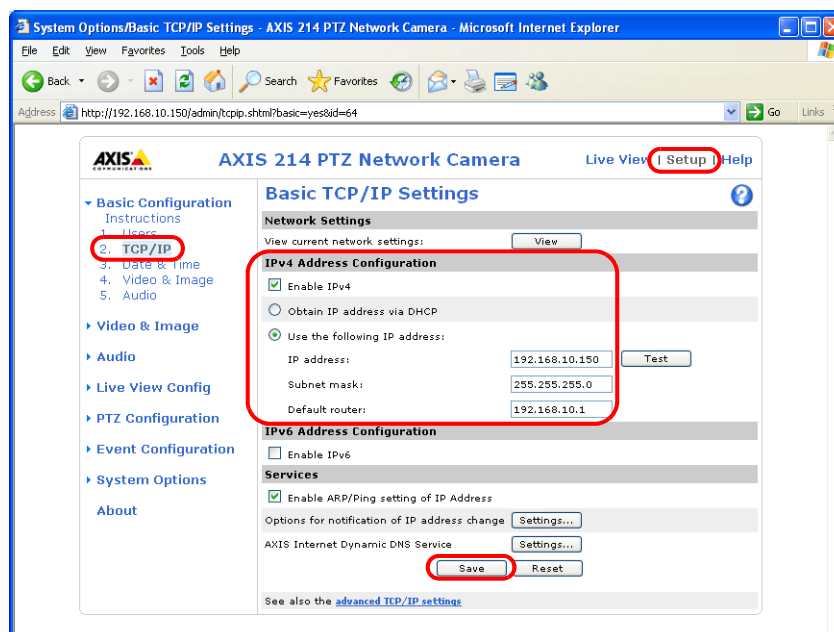
4. The [Live view] window is displayed.



Network Camera Settings

Checking and changing the IP address

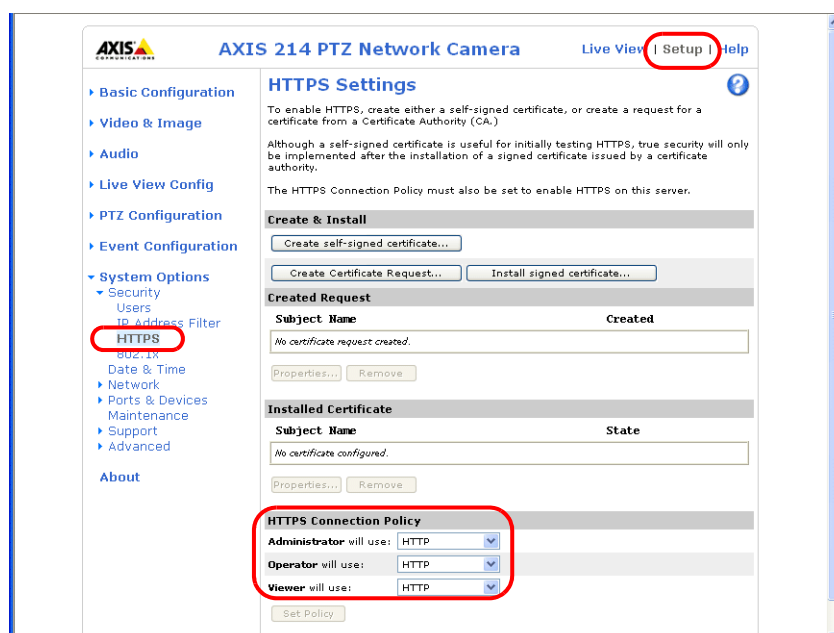
1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of "Access from the Computer (Example: AXIS 214PTZ)" page 1-60. Enter a user name and password.
2. On the menu on the left of the screen, click [Basic Configuration Instructions] → [2. TCP/IP].
3. Check and change the network camera IP address, subnet mask, and gateway settings as required.



4. Click the [Save] button to save any changes.

HTTP settings

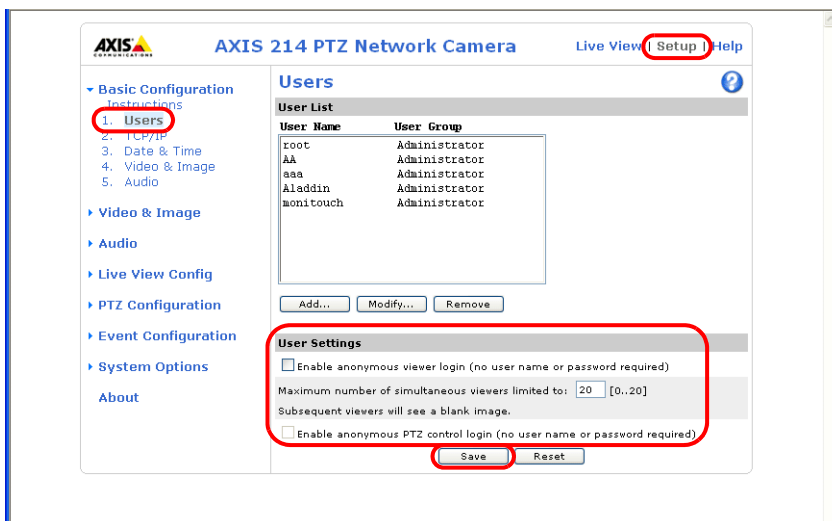
1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of "Access from the Computer (Example: AXIS 214PTZ)" page 1-60. Enter a user name and password.
2. On the menu on the left of the screen, click [System Options] → [Security] → [HTTPS].
3. Select "HTTP" for the options under [HTTPS Connection Policy]. ("HTTP" is selected as default.)



Basic authentication settings

Basic authentication is provided to permit or prohibit access from guest users.
Use basic authentication to prohibit access from guest users.

1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of “Access from the Computer (Example: AXIS 214PTZ)” page 1-60. Enter a user name and password.
2. On the menu on the left of the screen, click [Basic Configuration Instructions] → [Users].
3. If the checkmarks are not selected for the options under [User Settings], basic authentication is required for the network camera.



- * When using basic authentication, make the following settings in the V-SFT software. As shown below, select the [Basic Authentication] checkbox and enter a registered user ID and password in the [Network Camera Table Setting] window. For details on registered user names and passwords, refer to “Checking and registering user names and passwords” page 1-63.

Network Camera Table Setting

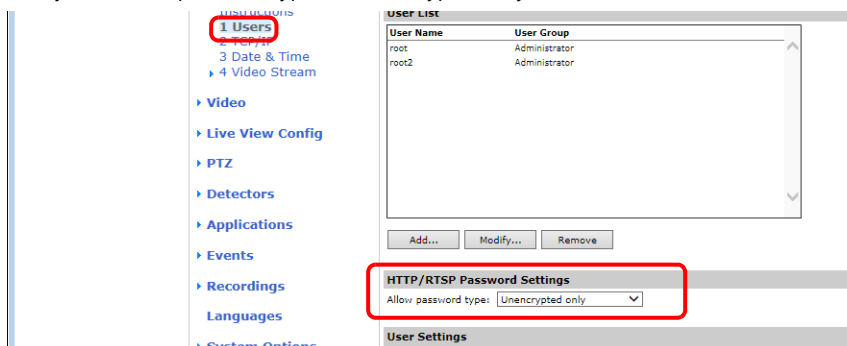
No.	Maker	IP Address	Port No.	Basic Authentica	User ID	Password	Item Resolution	Camera Resolution	Rotate(Item)	Rotate(Camera)
0	AXIS	192.168.1.5		<input checked="" type="checkbox"/>	monitouch	*****	40*40	640*480	0	0
1				<input type="checkbox"/>						
2				<input type="checkbox"/>						
3				<input type="checkbox"/>						
4				<input type="checkbox"/>						
5				<input type="checkbox"/>						
6				<input type="checkbox"/>						
7				<input type="checkbox"/>						
8				<input type="checkbox"/>						
9				<input type="checkbox"/>						
10				<input type="checkbox"/>						
11				<input type="checkbox"/>						
12				<input type="checkbox"/>						
13				<input type="checkbox"/>						
14				<input type="checkbox"/>						
15				<input type="checkbox"/>						
16				<input type="checkbox"/>						
17				<input type="checkbox"/>						
18				<input type="checkbox"/>						
19				<input type="checkbox"/>						

Buttons: Delete, OK, Cancel

4. If basic authentication is not necessary, select the [Enable anonymous viewer login (no user name or password required)] checkbox under [User Settings] and click the [Save] button.
 - * When performing camera lens operations from the V10/V9 series unit or PLC, select the [Enable anonymous PTZ control login (no user name or password required)] checkbox and click the [Save] button. For details, refer to “[Operating the Camera Lens from the V10/V9 Series Unit](#)” page 1-64.

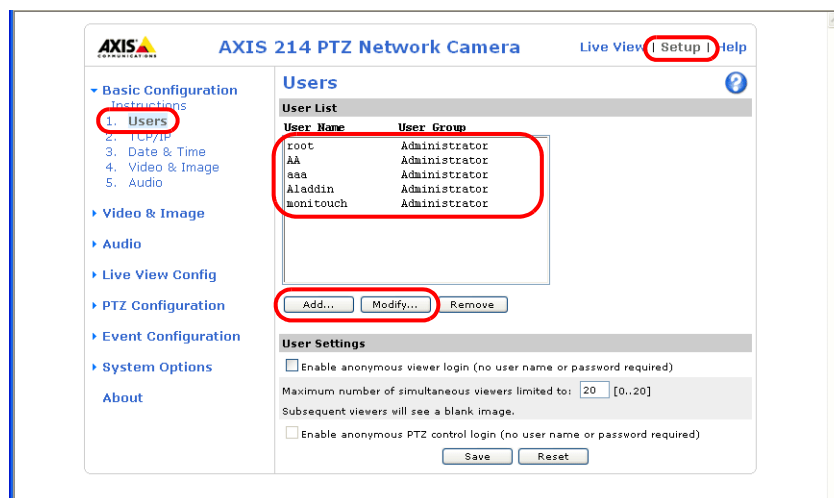


There may be a [HTTP/RTSP Password Settings] setting depending on the type of camera. Always set [Allow password type] to “Unencrypted only”.

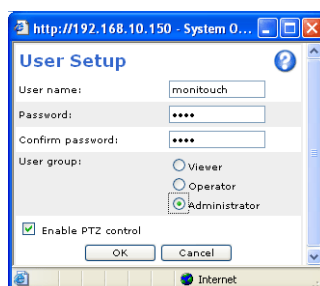


Checking and registering user names and passwords

1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of “[Access from the Computer](#)” page 1-69. Enter a user name and password.
2. On the menu on the left of the screen, click [Basic Configuration Instructions] → [Users].
3. If users have been registered, they are displayed under [User List].
4. To add a new user, click the [Add...] button. To modify an existing user, click the [Modify...] button.



5. The [User Setup] window is displayed. Enter the desired name for [User name] and enter the same password for [Password] and [Confirm password].



Check [Administrator] for [User group].

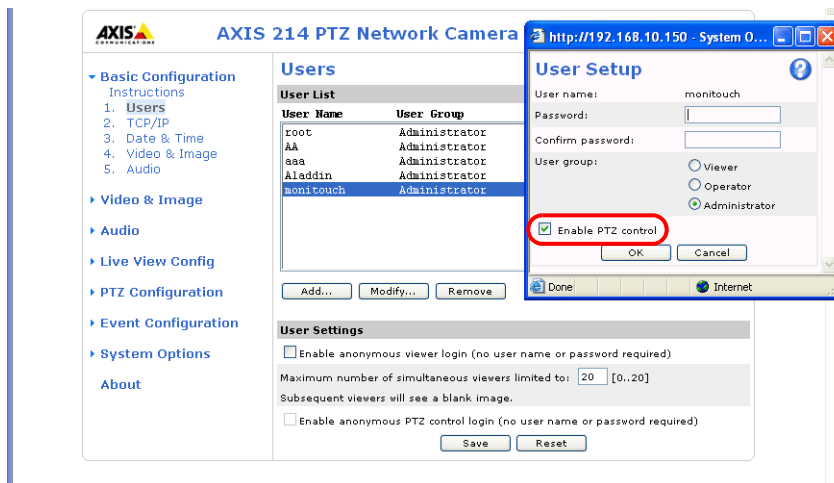
6. Click [OK] to accept the settings.

Operating the Camera Lens from the V10/V9 Series Unit

The camera lens can be operated using switches and command device memory addresses on the V10/V9 series unit.

With basic authentication

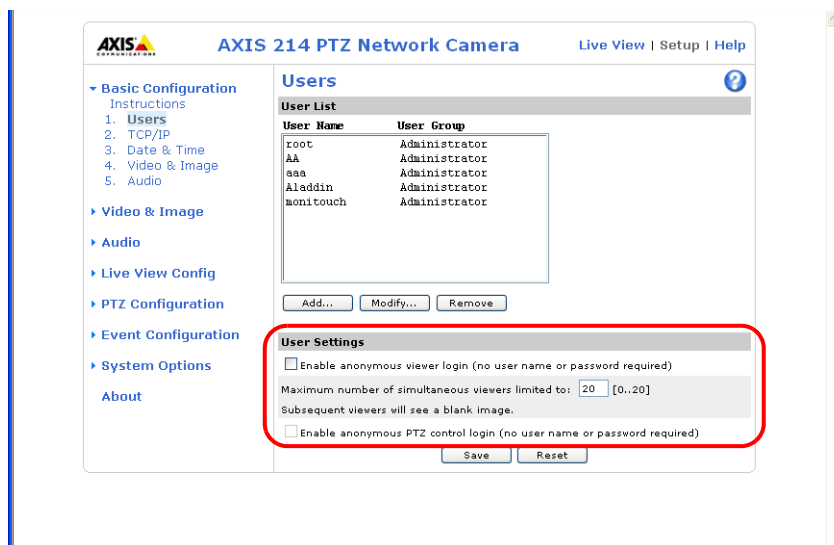
Display the [User Setup] window* and select the [Enable PTZ control] checkbox.



* For details on how to display the [User Setup] window, refer to [“Checking and registering user names and passwords” page 1-63.](#)

Without basic authentication

Display the [Users] window*. Select both checkboxes under [User Settings] and click the [Save] button.



* For details on how to display the [Users] window, refer to [“Basic authentication settings” page 1-62.](#)

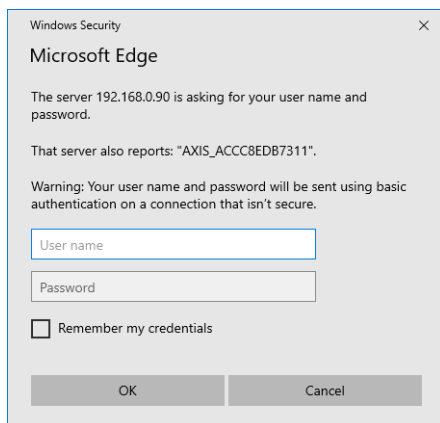
How to access a camera from a computer (Example: AXIS P1435-LE)

1. Open your PC's web browser.
2. Enter the IP address of the network camera into the address bar.

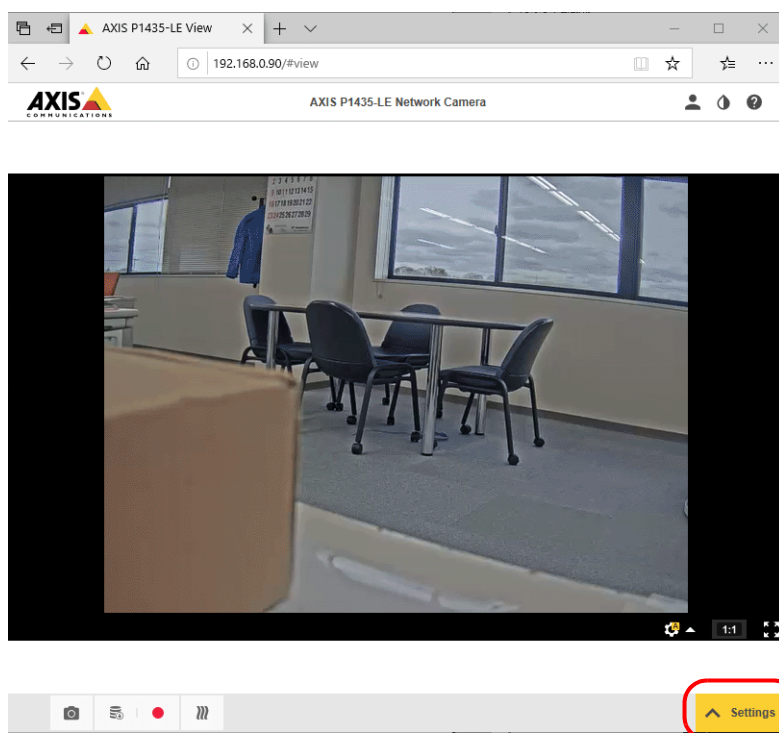
http://xxx.xxx.xxx.xxx

Network camera IP address

3. The following dialog appears. Enter the username and password then click [OK].



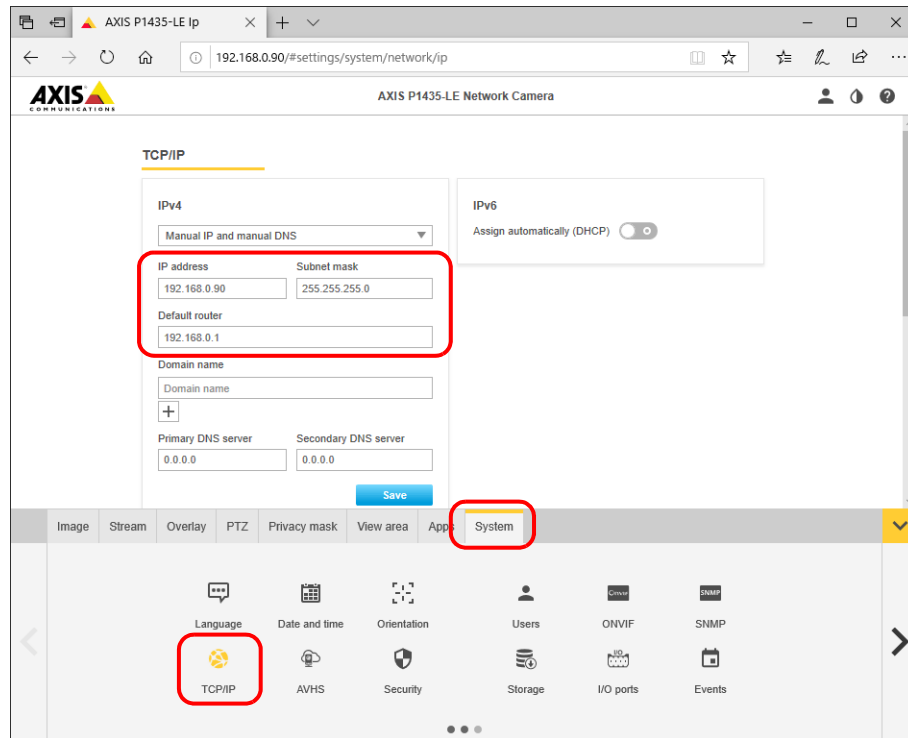
4. The [Live View] page opens. Click [Settings] to start configuration.



Network Camera Settings

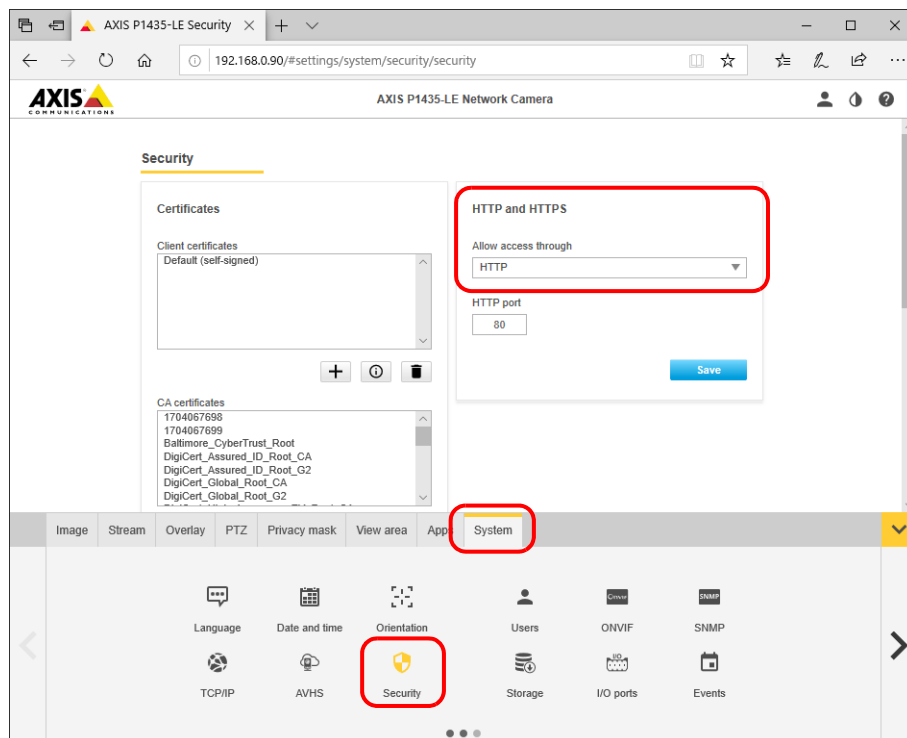
IP address settings

Go to [SYSTEM] → [TCP/IP] to set the IP address, subnet mask, and default router.



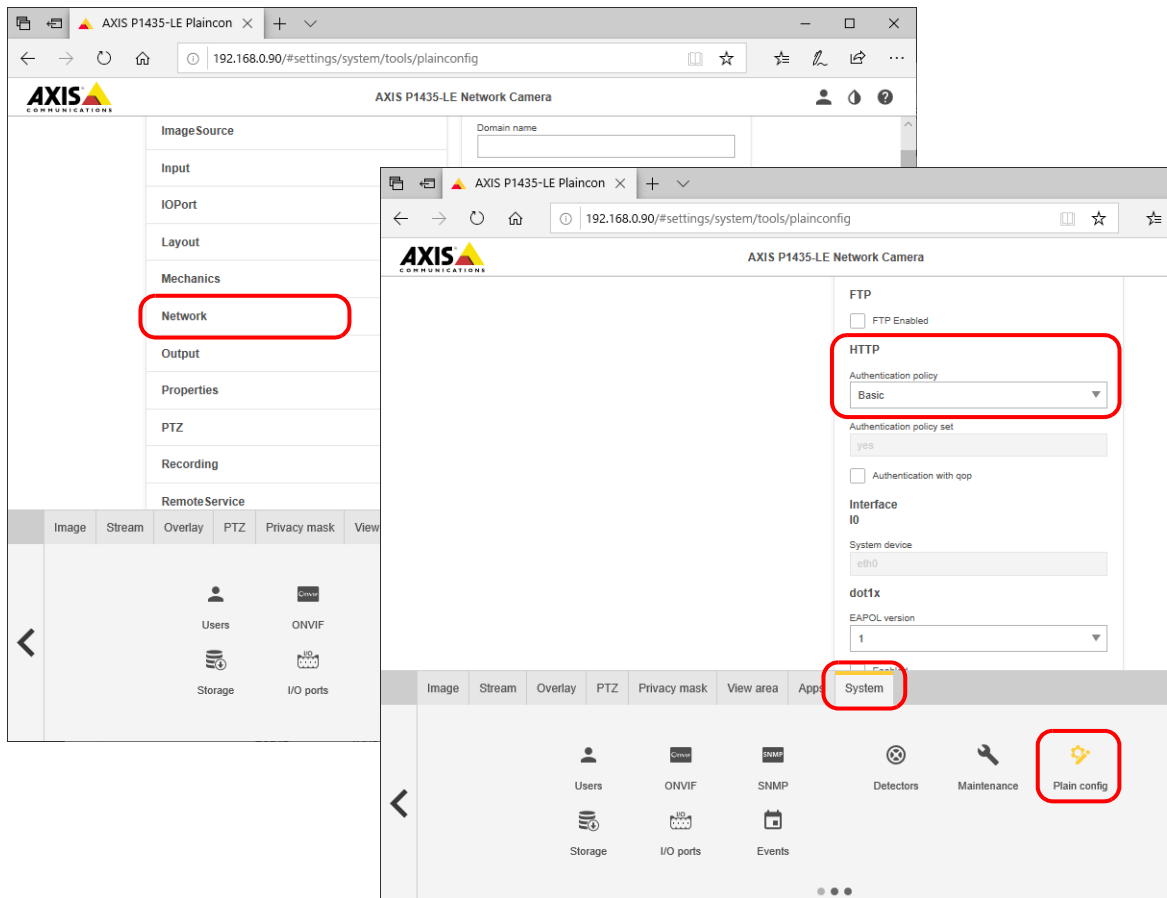
Security settings

Go to [SYSTEM] → [Security] → [HTTP and HTTPS] and select the "HTTP" option.

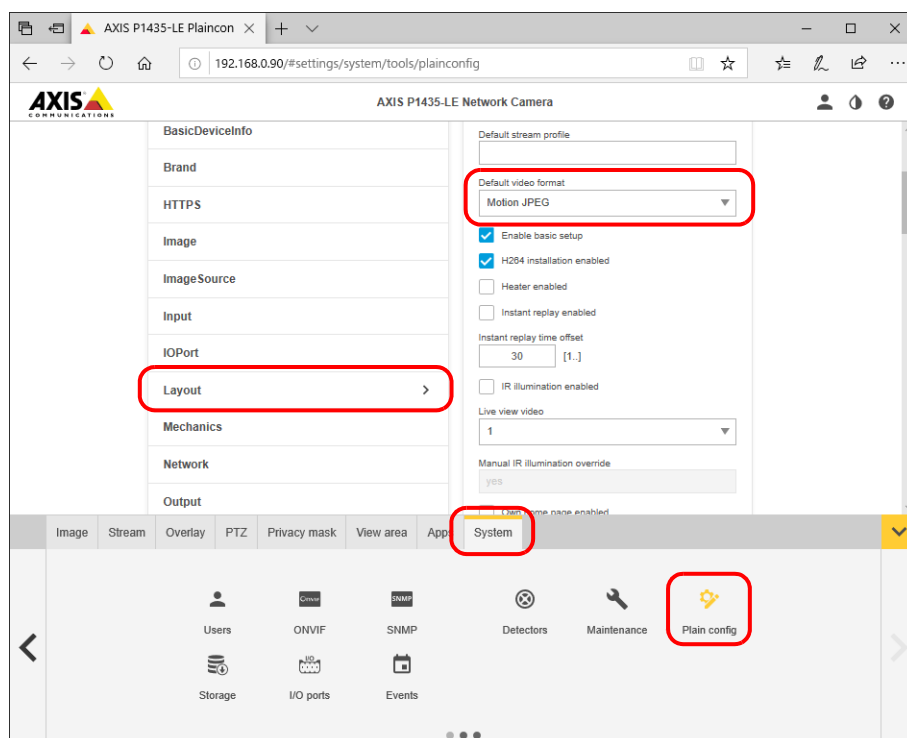


Plain Config

1. Go to [SYSTEM] → [Plain config] → [Network] → [HTTP] and select the “Basic” option.

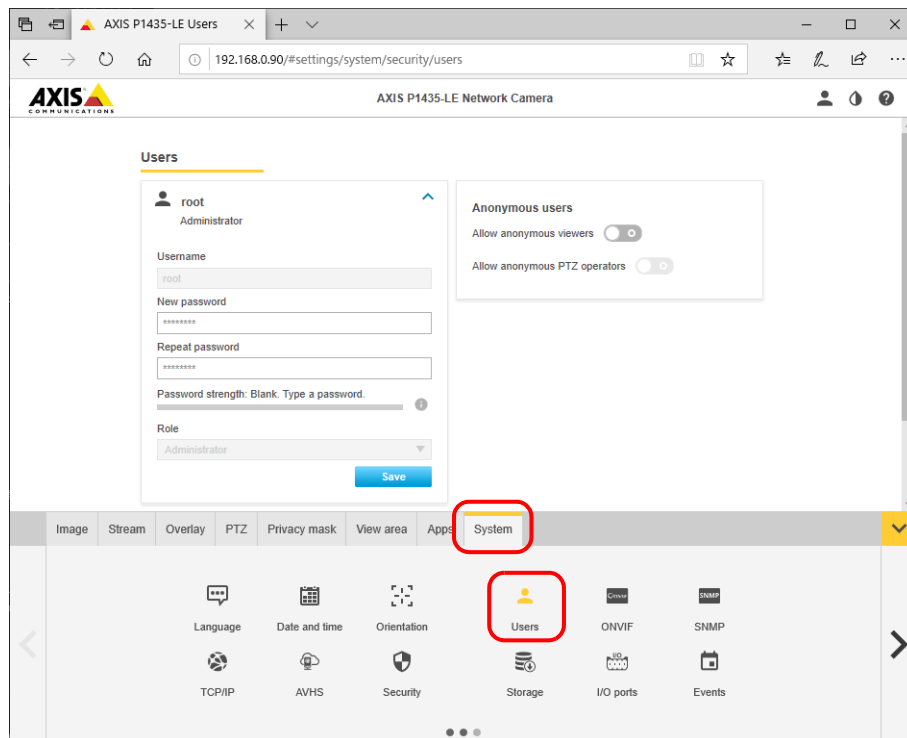


2. Go to [SYSTEM] → [Plain config] → [Layout] → [Default video format] and select the “Motion JPEG” option.

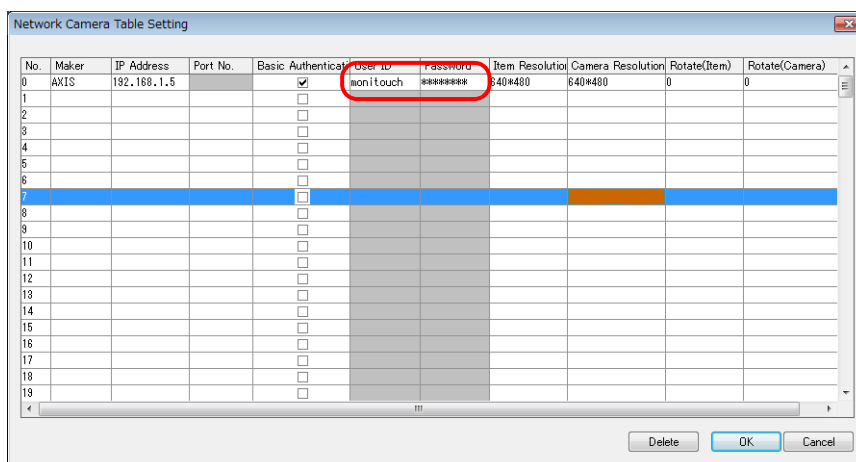


Username and password settings

- Go to [SYSTEM] → [Users] to create a user. [Role] must be set to [Administrator].

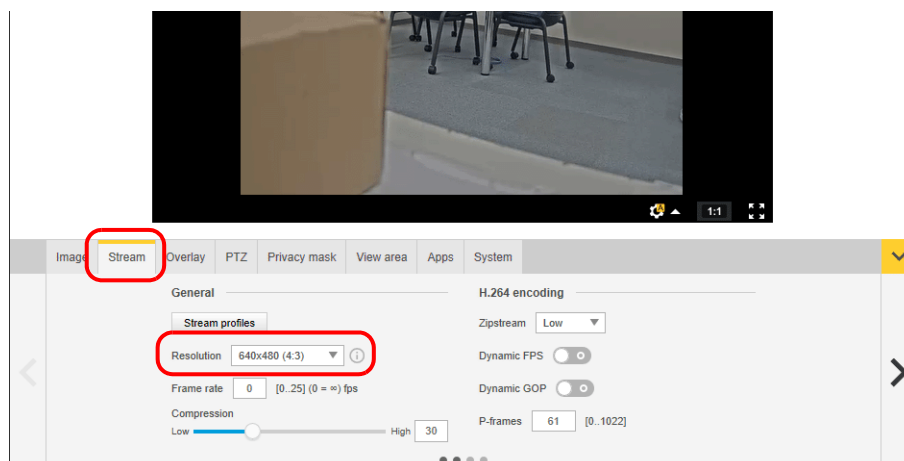


- * On the V-SFT, go to [Network Camera Table Setting] and check [Basic Authentication] then enter the username and password that you created.



Resolution settings

Go to [Stream] and set the [Resolution] option.



1.4.6 Panasonic (Example: BB-HCM580)

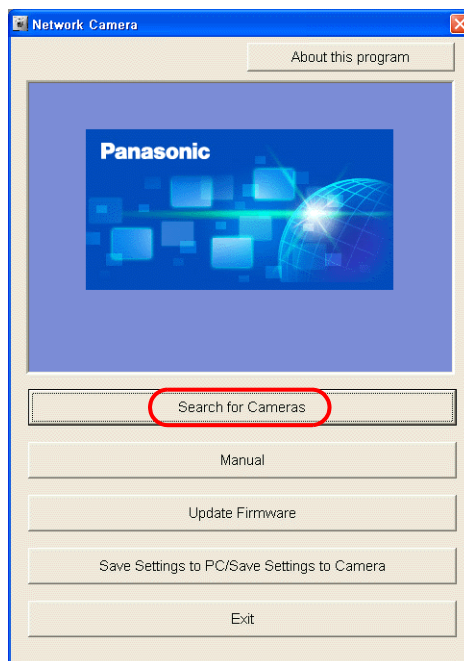
Access from the Computer

This network camera can be accessed from a computer using the CD-ROM included with the network camera or via a web browser.

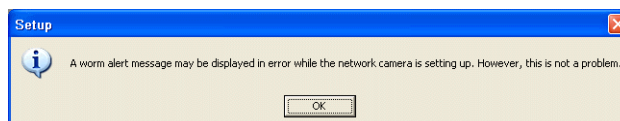
* Select the method using the CD-ROM when setting up the network camera for the first time.

CD-ROM

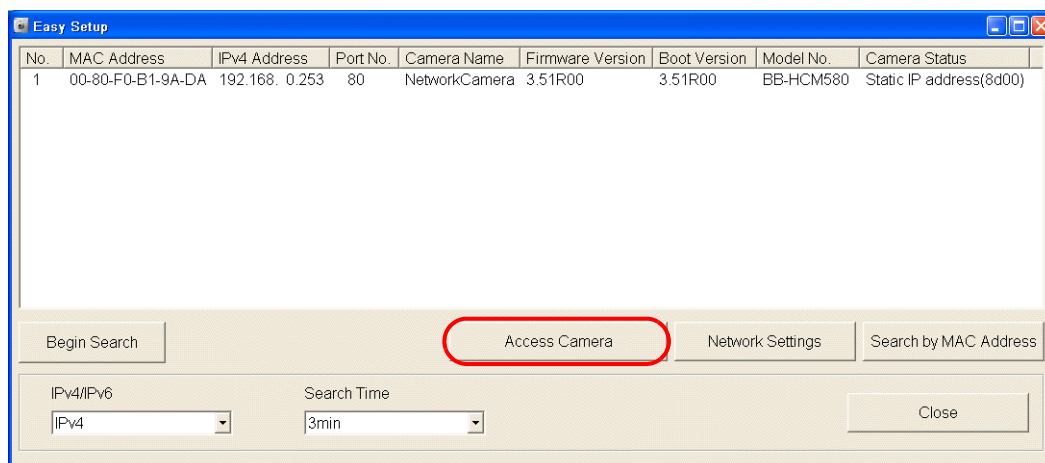
1. Load the CD-ROM included with the network camera into your computer.
2. The [Network Camera] window is displayed. Click [Search for Cameras] to search for the network camera connected to the computer.



3. If the following message appears, click [OK].



4. When the target network camera is found, information regarding the network camera, such as MAC address and IP address, is displayed in the [Easy Setup] window. Click [Access Camera] *.

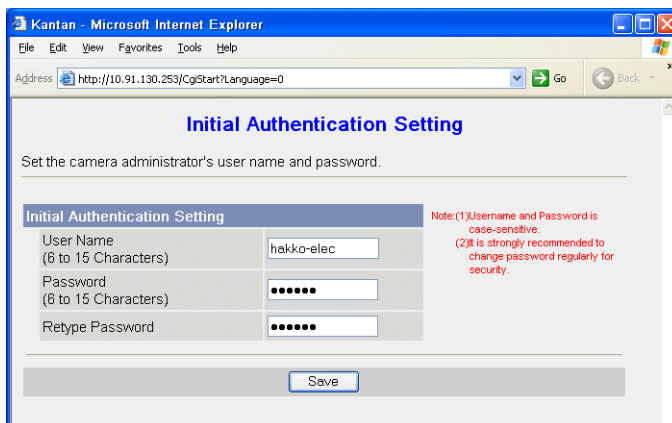


* If the IP address of the network camera does not exist in the network group of the computer, click the [Network Settings] button. In the window to be displayed, change the IP address of the network camera so that it belongs to the network group of the computer.

5. When connecting a factory-default network camera to your computer, the [Initial Authentication Setting] screen appears. Register a user name and password for the administrator. (If a user is already registered, proceed to step 6.) For details, refer to the user's manual of the network camera.



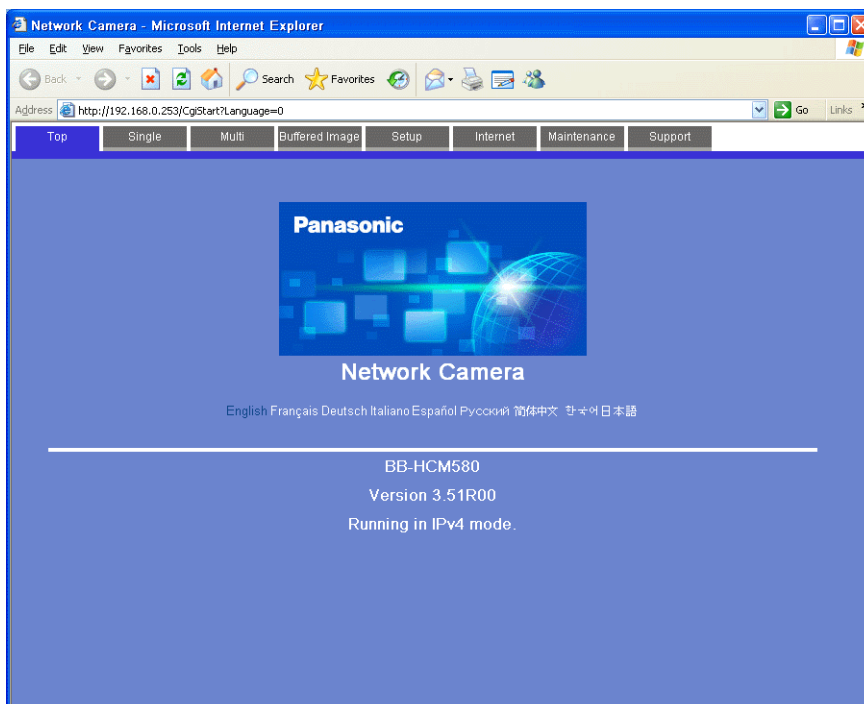
The password registered in this step is required for access to the network camera. Take appropriate measures to avoid forgetting the password.



6. The authentication dialog box is displayed. Enter an administrator-level user name and password and click [OK].
 - * When [Permit access from guest users] is checked on the [Administrator] page, the [Top] tab window is displayed. Click the [Login] tab. For details, refer to "Authentication settings" page 1-73.



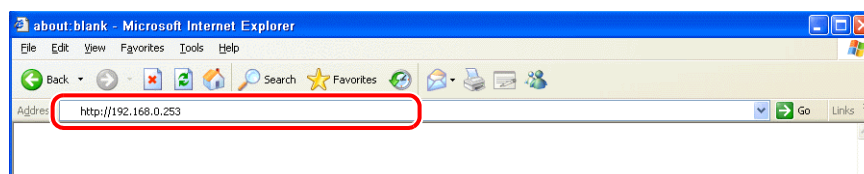
7. The [Top] tab window is displayed. (This tab window is displayed when login authentication is performed with an administrator-level user name and password. When a general or guest user logs in, the menus in the displayed tab window vary slightly.)



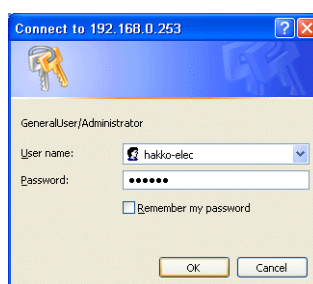
Web browser (Microsoft Internet Explorer)

1. Start up Microsoft Internet Explorer on your computer.
2. Enter the IP address and port number of the network camera in the address field.
 - * When using the factory-default port number of 80, the entry of the port number may be omitted.

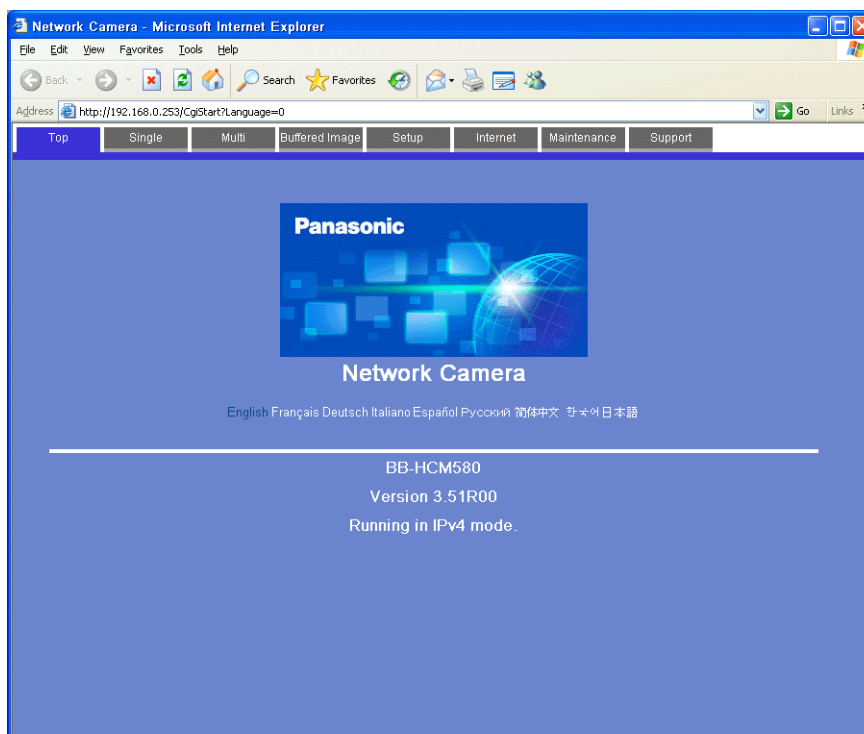
http://xxx.xxx.xxx.xxx:Port number/
 └──────────────────┬──────────────────
 Network camera IP address



3. The authentication dialog box is displayed. Enter an administrator-level user name and password and click [OK].
 - * When [Permit access from guest users] is checked on the [Administrator] page, the [Top] tab window is displayed. Click the [Login] tab. For details, refer to "Authentication settings" page 1-73.



4. The [Top] tab window is displayed.
 (This tab window is displayed when login authentication is performed with an administrator-level user name and password. When a general or guest user logs in, the menus in the displayed tab window vary slightly.)

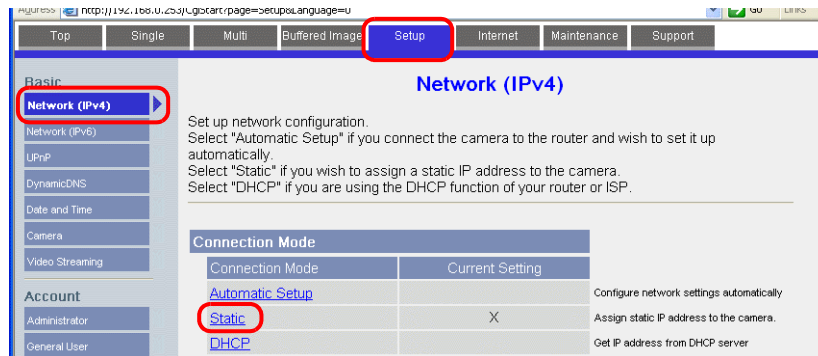


Network Camera Settings

Checking and changing the IP address

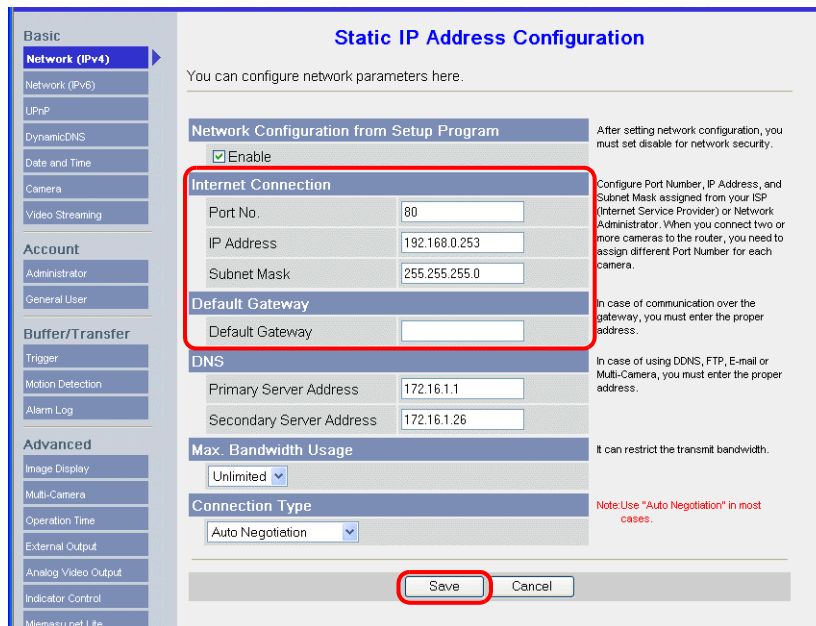
* Login with an administrator-level user name and password is required to proceed to the following tab window settings.

1. Click the [Setup] tab.
2. Check that [Network (IPv4)] is selected in the [Basic] menu at the left of the window. Next, go to the [Connection Mode] area and click [Static].



3. Configure the network camera port number*, IP address, subnet mask, and gateway settings.

* The default port number is 80. Enter a port number between 1 and 65535.

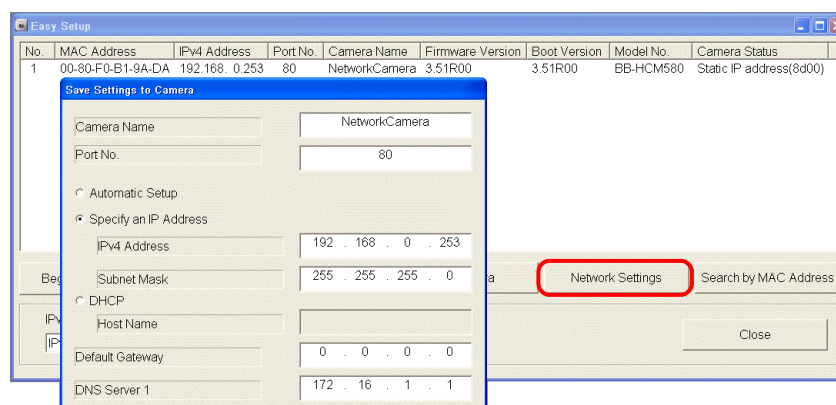


* Also enter the port number for [Port No.] in the [Network Camera Table Settings] window in V-SFT. Refer to page 1-58.

No.	Maker	IP Address	Port No.	Basic Authenticali	User ID	Password	Item Resolution	Camera Resolution	Rotate(Item)	Rotate(Camera)
0	Panasonic	192.168.1.10	80	<input type="checkbox"/>			640*480	640*480	0	0
1				<input type="checkbox"/>						
2				<input type="checkbox"/>						
3				<input type="checkbox"/>						
4				<input type="checkbox"/>						
5				<input type="checkbox"/>						
6				<input type="checkbox"/>						
7				<input type="checkbox"/>						
8				<input type="checkbox"/>						
9				<input type="checkbox"/>						
10				<input type="checkbox"/>						
11				<input type="checkbox"/>						
12				<input type="checkbox"/>						
13				<input type="checkbox"/>						
14				<input type="checkbox"/>						
15				<input type="checkbox"/>						
16				<input type="checkbox"/>						
17				<input type="checkbox"/>						
18				<input type="checkbox"/>						
19				<input type="checkbox"/>						

4. Click [Save] to save the settings made in the previous steps.

The IP address can be checked or changed using the CD-ROM included with network camera or via the [Network Settings] button in the [Easy Setup] window.



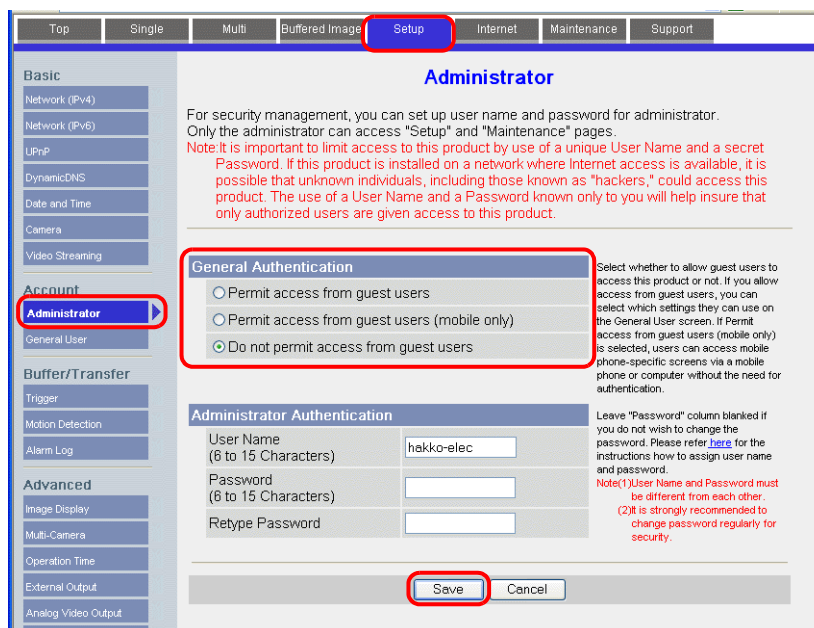
Authentication settings

Authentication settings are provided to permit or prohibit access from guest users.

These settings disallow access to guest users.

* **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

1. Click the [Setup] tab.
2. Click [Administrator] at the left of the screen.
3. In the [General Authentication] area, select either [Permit access from guest users] or [Do not permit access from guest users].



Permit access from guest users	This option allows anyone to access the network camera without a registered user name and password.
Do not permit access from guest users	Whenever access to the network camera is attempted, the authentication dialog box appears. Access is granted to the network camera by entering a registered user name and password.

- * When the [Do not permit access from guest users] checkbox is selected, configure the following settings in the V-SFT software. As shown below, select the [Basic Authentication] checkbox and enter a registered user ID and password in the [Network Camera Table Setting] window. For details on registered user names and passwords, refer to [“Checking and Registering User Names and Passwords” page 1-77](#).

No.	Maker	IP Address	Port No.	Basic Authentication	User ID	Password	Item Resolution	Camera Resolution	Rotate(Item)	Rotate(Camera)
0	Panasonic	192.168.1.100	80	<input checked="" type="checkbox"/>	monitouch	*****	40*480	640*480	0	0
1				<input type="checkbox"/>						
2				<input type="checkbox"/>						
3				<input type="checkbox"/>						
4				<input type="checkbox"/>						
5				<input type="checkbox"/>						
6				<input type="checkbox"/>						
7				<input type="checkbox"/>						
8				<input type="checkbox"/>						
9				<input type="checkbox"/>						

4. Click [Save] to save the settings made in the previous steps.

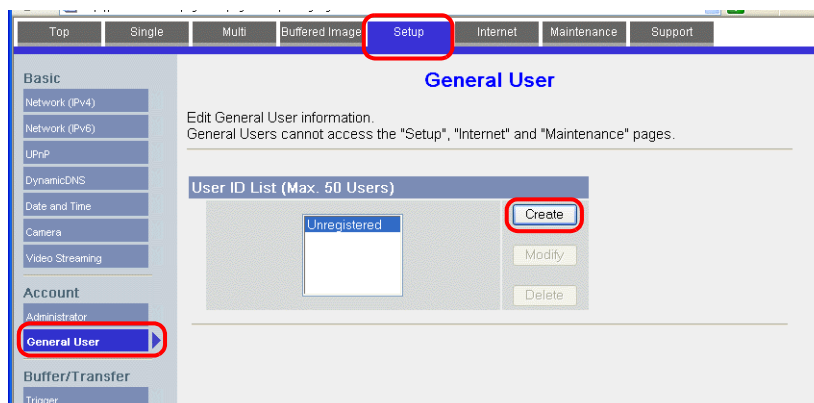
Registering and changing the settings of general users

When users other than the administrator need access to the network camera, general user registration is required.

- * **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

New general user registration

1. Click the [Setup] tab.
2. Click [General User] on the left of the screen.
3. Click [Create].



4. The [New General User Registration] page is displayed. Configure the settings as specified below.



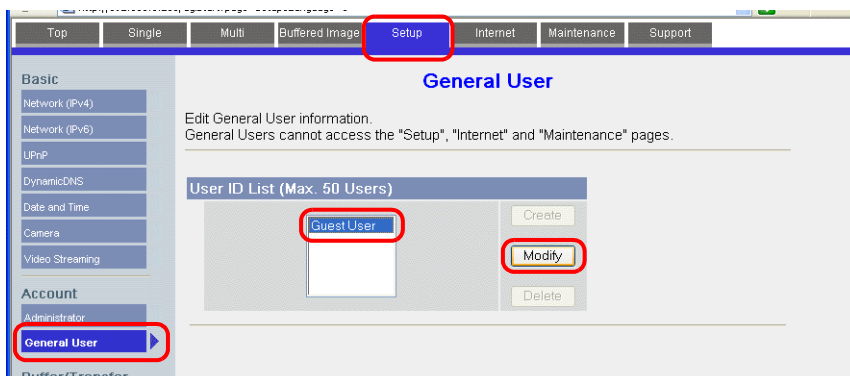
The password registered in this step is required for access to the network camera. Take appropriate measures to avoid forgetting the password.

5. Click [Save] to save the settings made in the previous steps.

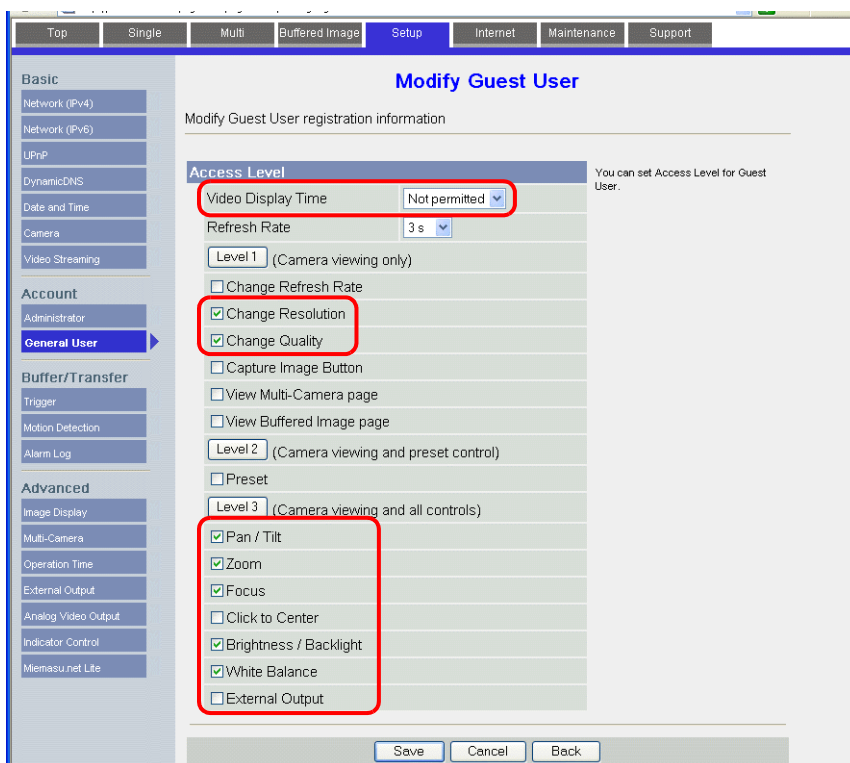
Changing guest user settings

The following settings can be configured when the [Permit access from guest users] checkbox is selected. Configure the functions available when the network camera is accessed without authentication with a user name and password in the following tab window.

1. Click the [Setup] tab.
2. Click [General User] on the left of the screen.
3. Check that [Guest User] is selected and then click [Modify].



4. The [Modify Guest User] page is displayed. Configure the settings as specified below.



5. Click [Save] to save the settings made in the previous steps.

Checking and Registering User Names and Passwords



When a password has already been registered, the [Password] field is blanked out. Take sufficient care when managing passwords. If you forget the password, a password newly registered is usable for authentication.

In a case when the [Do not permit access from guest users] checkbox is selected in the [General Authentication] area, the user name and password registered for the administrator or a general user in the network camera setting tab window must be set in the V-SFT software.

For details on the authentication settings, refer to "Authentication settings" page 1-73.

* **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

Administrator

1. Click the [Setup] tab.
2. Click [Administrator] at the left of the screen.
3. Check the settings in the [Input User Name and Password] area.
4. If any changes are made to these fields, click [Save] to save the changes.

The screenshot shows the 'Administrator' settings page. The 'Setup' tab is selected. On the left sidebar, 'Administrator' is highlighted. The main content area is titled 'Administrator' and contains the following sections:

- General Authentication:** Three radio buttons: 'Permit access from guest users', 'Permit access from guest users (mobile only)', and 'Do not permit access from guest users' (which is selected).
- Administrator Authentication:** Three input fields: 'User Name (6 to 15 Characters)' with the value 'hakko-elec', 'Password (6 to 15 Characters)', and 'Retype Password'.

Buttons for 'Save' and 'Cancel' are at the bottom. A red box highlights the 'Administrator Authentication' section. A red box also highlights the 'Administrator' option in the left sidebar.

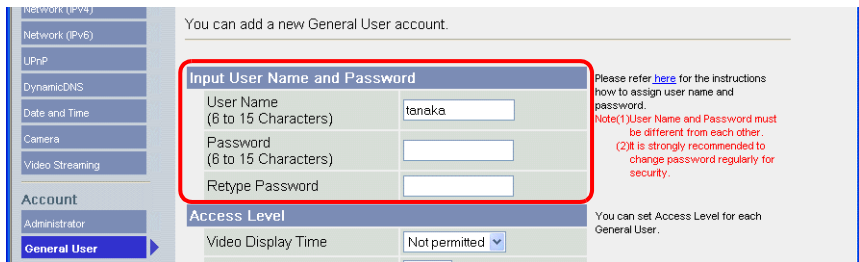
General users

1. Click the [Setup] tab.
2. Click [General User] on the left of the screen.
3. Select the target user name from the [User ID List].
4. Click [Modify].

The screenshot shows the 'General User' settings page. The 'Setup' tab is selected. On the left sidebar, 'General User' is highlighted. The main content area is titled 'General User' and contains the following sections:

- User ID List (Max. 50 Users):** A table with two rows: 'tanaka' and 'yamada'. A red box highlights this table.
- Buttons:** 'Create', 'Modify', and 'Delete' buttons are located to the right of the table. The 'Modify' button is circled in red.

5. Check the settings in the [Input User Name and Password] area.

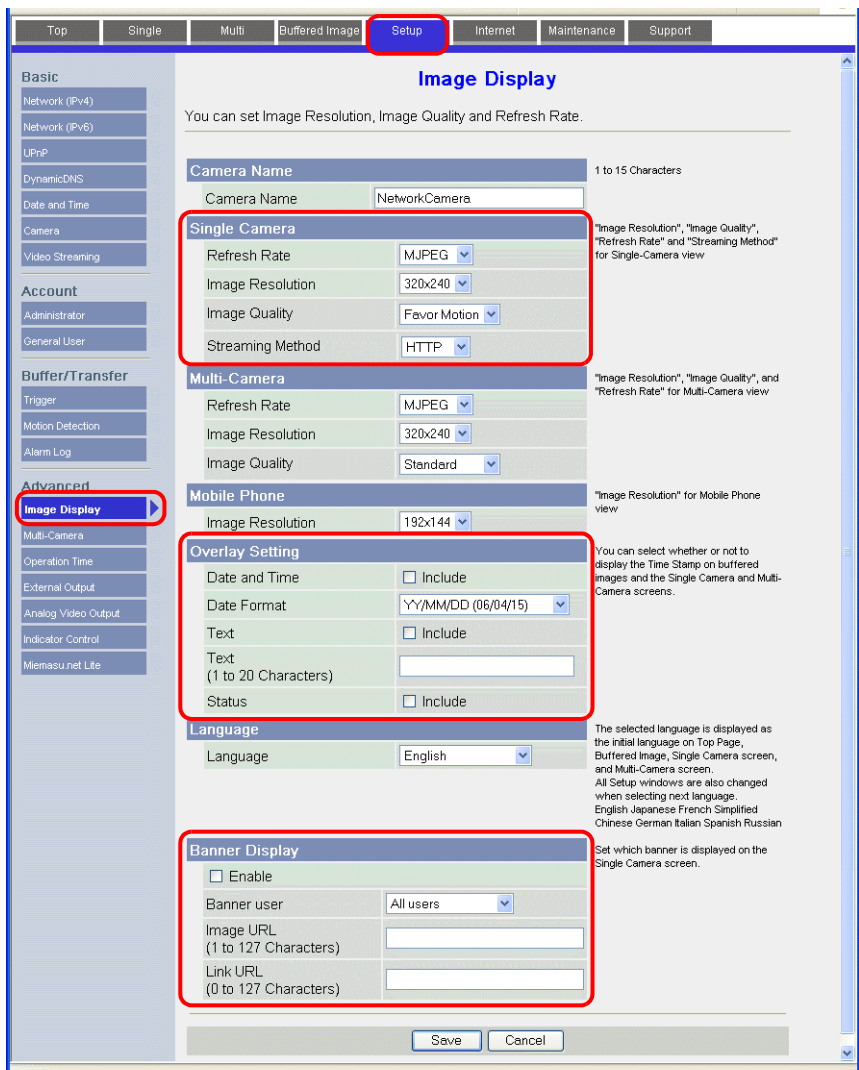


6. If any changes are made to these fields, click [Save] to save the changes.

Image Display Settings

* **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

1. Click the [Setup] tab.
 2. Click [Image Display] at the left of the screen.
 3. Configure the settings as specified below.
- * Note that these settings will be overwritten while the V10/V9 series unit is communicating with the network camera. Because overwriting is likely to be time-consuming, it is recommended to configure these settings in advance.



4. Click [Save] to save the settings made in the previous steps.

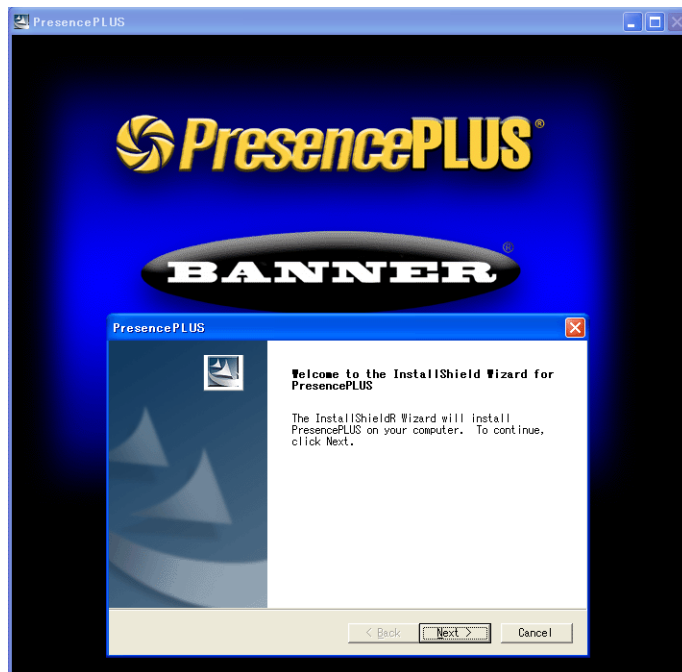
1.4.7 BANNER (Example: PresencePLUS P4 OMNI)

Access from the Computer

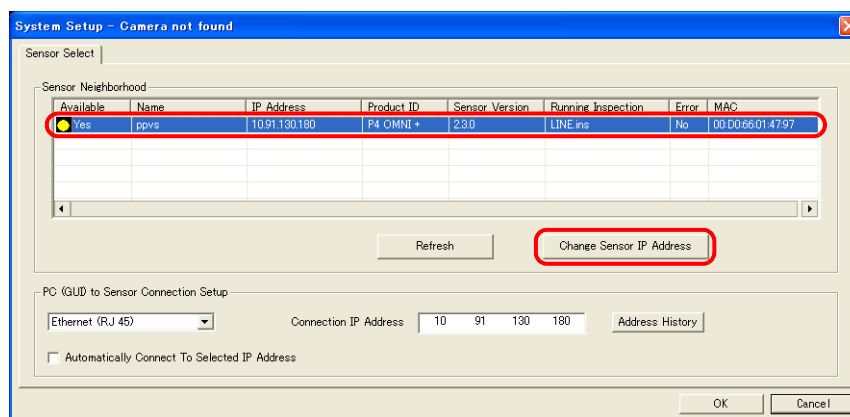
When accessing a sensor from a computer, use the "PresencePLUS" dedicated sensor software.

The CD-ROM provided with the sensor includes this software. Load the CD-ROM into the computer and install the software.

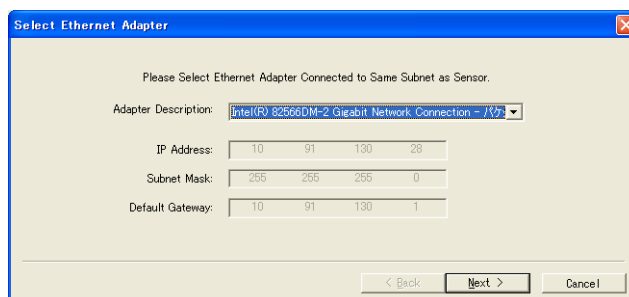
For details on the installation procedure, refer to the manual issued by BANNER.



1. Start the "PresencePLUS" software.
2. The [System Setup] window is displayed. When a connected sensor is found, the information on the sensor, including IP address and MAC address, appears in the window. Select the desired sensor listed under [Sensor Neighborhood] with the cursor and click [Change Sensor IP Address].



3. The [Select Ethernet Adapter] window is displayed. Select the Ethernet adapter of the computer and click [Next].



- The [Set Sensor IP Address] window is displayed. Change the sensor's IP address and subnet mask settings as necessary and click [Finish].



The sensor is reset in this step.

* Make sure that the computer network group and the sensor IP address are on the same network.

- Click [OK] in the [System Setup] window to close the window.
- When a connection between the computer and the sensor is established, the monitor screen is displayed on the computer.



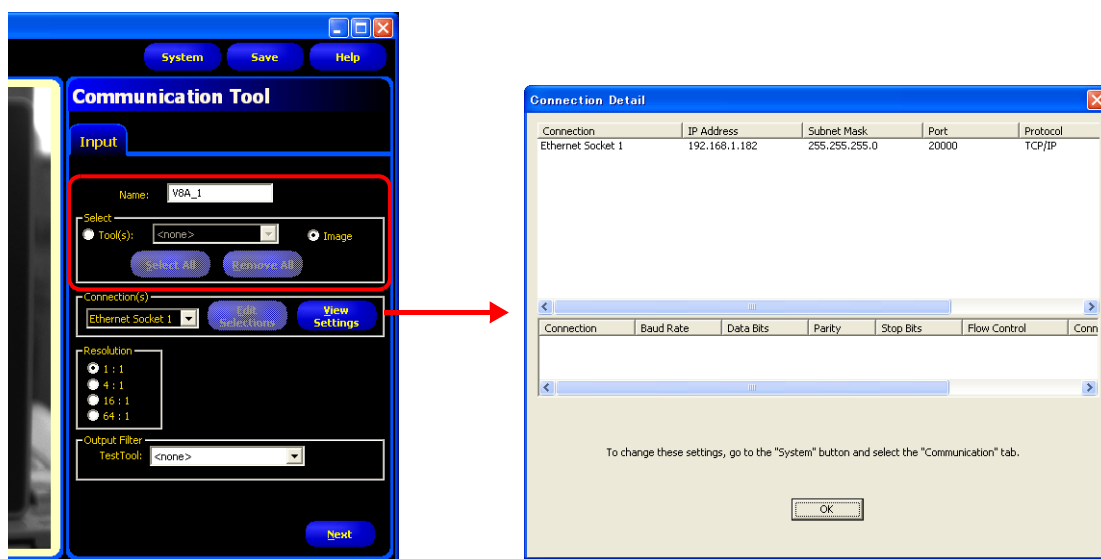
Sensor Settings

Port number setting

1. Click the [Tools] menu button.
2. Click the [Analysis] tab → [Communication].



3. The [Communication Tool] menu opens. Enter an arbitrary name for [Name] and select [Image] under [Select].



4. In the [Connection(s)] section, select an Ethernet socket number. The sensor port number corresponding to the selected socket number is used for connection with V10/V9 series unit.
To see more information on each Ethernet socket number, display the [Connection Detail] window by clicking [View Settings].

Socket No.	Port No. (Fixed)
Ethernet socket 1	20000
Ethernet socket 2	20001
Ethernet socket 3	20002
Ethernet socket 4	20003
Ethernet socket 5	20004
Ethernet socket 6	20005
Ethernet socket 7	20006
Ethernet socket 8	20007
Ethernet socket 9	20008
Ethernet socket 10	20009

* The sensor port number corresponding to each Ethernet socket number is fixed.

- In the [Resolution] section, select the size of the image to be displayed on the V10/V9 series unit.

Resolution	Description *
1:1	Display at actual size (640 × 480 pixels)
4:1	Display at a half of the size (320 × 240 pixels) of the width and height of 1:1 resolution
16:1	Display at a quarter of the size (160 × 120 pixels) of the width and height of 1:1 resolution
64:1	Display at an eighth of the size (80 × 60 pixels) of the width and height of 1:1 resolution

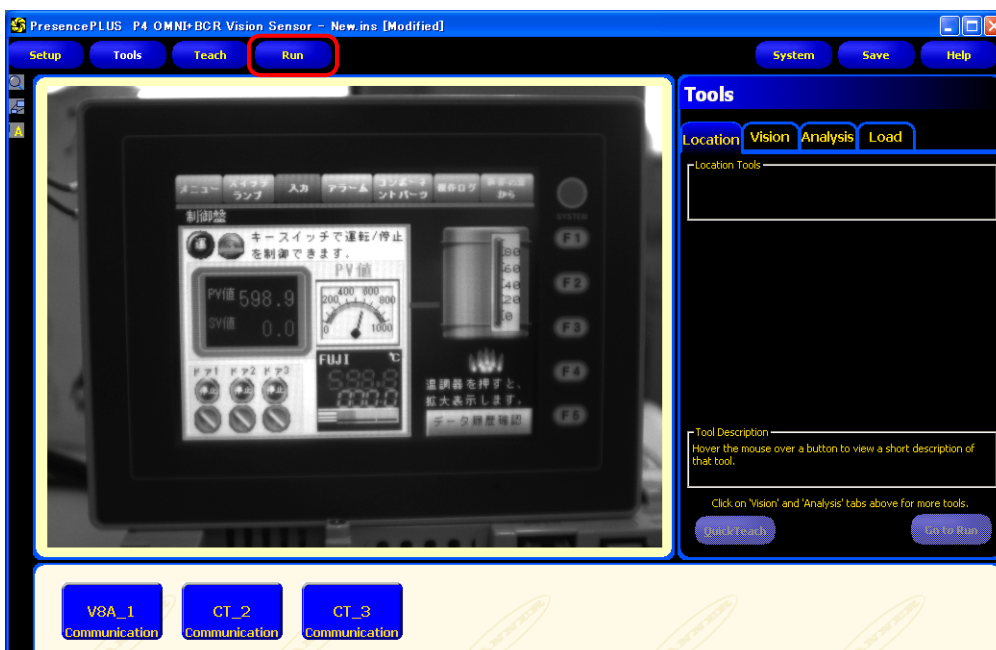
* The size of images captured with the sensor is based on 640 x 480 pixels (default). When changing the size, refer to the manual issued by BANNER.

- Click [Next] to exit the menu.

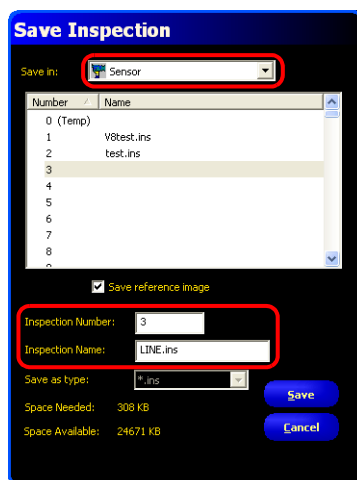
* Repeat steps 2 to 5 when connecting multiple V10/V9 series units. (Maximum of 10 sensors.) Only one V10/V9 series unit can be connected per sensor port number.

RUN

- Click the [Run] menu button.

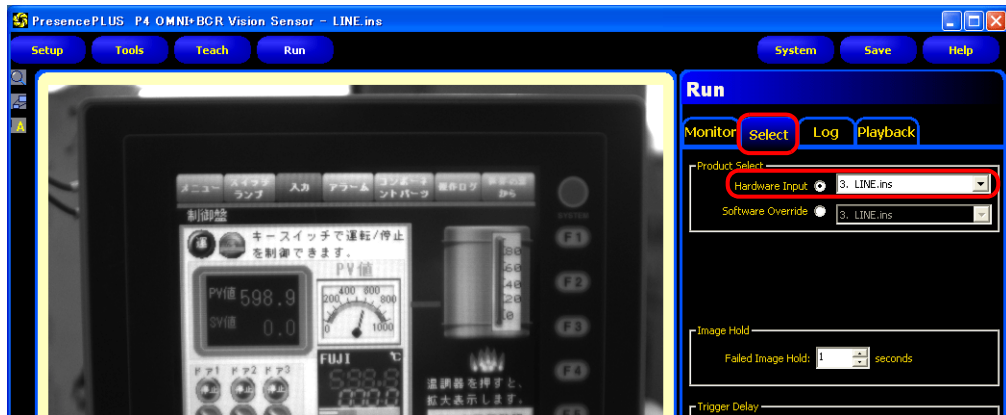


- The [Save Inspection] window is displayed. Select "Sensor" for [Save in]. Enter an [Inspection Number] and [Inspection Name] for registration and click [Save].



Example
 Inspection Number: 3
 Inspection Name: LINE.ins

- Click the [Select] tab in the [Run] menu, go to [Hardware Input], and select the name that was entered for [Inspection Name] in step 2.



- Click the [Monitor] tab → [Start].

The settings in the [Run] menu are complete.

1.4.8 System Device Memory (\$s)

Snapshots taken with a network camera can be rotated using system device memory (\$s) and then saved.

Address	Description	Type
976	Rotation of snapshots 0: 0° 1: Clockwise by 90° 2: 180° 3: Counterclockwise by 90°	→ V

* If any value other than the above is specified, the snapshot will be saved with 0° rotation.

1.4.9 Restrictions

All Manufacturers

- Up to four camera images can be displayed simultaneously using both the screen and overlaps. When a fifth camera image is displayed, the display of the oldest area in the placement order is stopped.
- The resolution of snapshot files saved on the V10/V9 series unit depends on the [Snap Setting] setting in the network camera display settings window.

AXIS

- The focus and brightness of images displayed by a network camera are automatically adjusted.
- The display size and rotation of images on the V10/V9 series unit differs depending on the combination of network camera and the basic authentication settings in V-SFT.
- Only optical zooming is possible for zoom operations from the V10/V9 series unit. Digital zooming is not supported.

Basic Authentication Settings		V10/V9 Series Unit Display
Network Camera	V-SFT Network Camera Table Settings	
Not configured	Not configured	The previously configured size and rotation settings take effect for the display of images captured with the network camera.
	Configured	The configured size and rotation settings take effect for the display of images captured with the network camera.
Configured	Not configured	Camera display is hidden.
	Configured	The configured size and rotation settings take effect for the display of images captured with the network camera.

Panasonic

- The focus and brightness of images displayed by a network camera are automatically adjusted.
- The display size and rotation of images on the V10/V9 series unit differs depending on the combination of network camera and the authentication settings in V-SFT.
- Only optical zooming is possible for zoom operations from the V10/V9 series unit. Digital zooming is not supported.

Authentication Settings		V10/V9 Series Unit Display
Network Camera	V-SFT Network Camera Table Settings	
Not configured	Not configured	The configured size and rotation settings take effect for the display of images captured with the network camera.
	Configured	
Configured	Not configured	Camera display is hidden.
	Configured	The configured size and rotation settings take effect for the display of images captured with the network camera.

BANNER

- Focus and brightness of sensor images are not automatically adjusted. Sensors do not support these automatic adjustments.

2 Sound

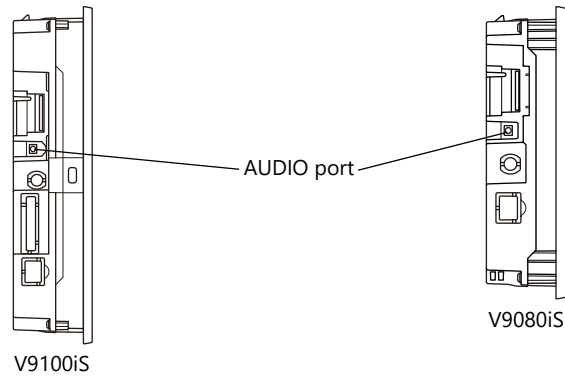
2.1 Overview

2.1.1 Before Use

Applicable Models

Only the V9 Advanced (V910xiW) and V10/V9 Standard models support the audio playback function. These models have a built-in stereo mini jack port (AUDIO) for audio playback.

Example:



Audio Specifications

Item		Specifications
External Connection Terminal		φ3.5-mm stereo mini jack
Max. Output Voltage		2.1 Vrms (0 db)
Connected Amplifier		Input impedance of 1 kΩ or more
Playable Files	Sound Synthesis	PCM (WAV file)
	Sampling Frequency	8 KHz / 16 KHz / 32 KHz / 44.1 KHz / 48 KHz / 96 KHz / 192 KHz
	Quantization Bit	8 bit / 16 bit / 24 bit
	Audio Source	Monaural / Stereo
Volume Control		8 levels (The volume can be changed in 3-dB steps from -21 dB to 0 dB using macro commands.) Default: -6 dB

Preparation

Prepare the following items to use the audio playback function.

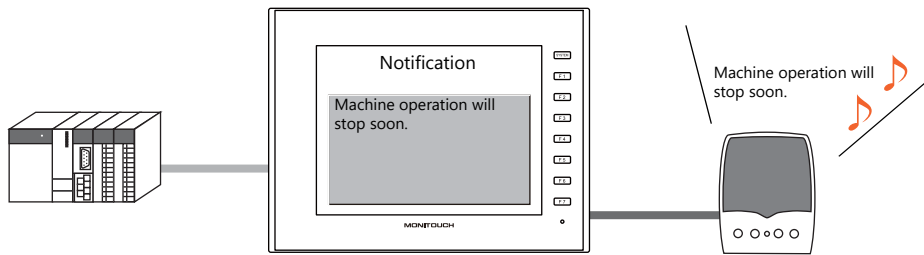
- V10/V9 series unit
- Connected amplifier and external speaker
- Audio file (WAV)

2.1.2 Overview

Audio files can be played over the connected external speaker using the V10/V9 series unit by turning bits ON and OFF.

The functions that can play audio are listed below.

- Local playback: Settings are required for each screen.
 - Audio item
 - Animation
- Global playback: Settings apply to the entire file.
 - Alarm Server



It is possible to play an audio file of the message displayed on the screen through the speaker by recording an audio file version of the message in advance.

2.2 Playing Audio Using Sound Parts

2.2.1 Setting Examples

Prepare the following audio files.

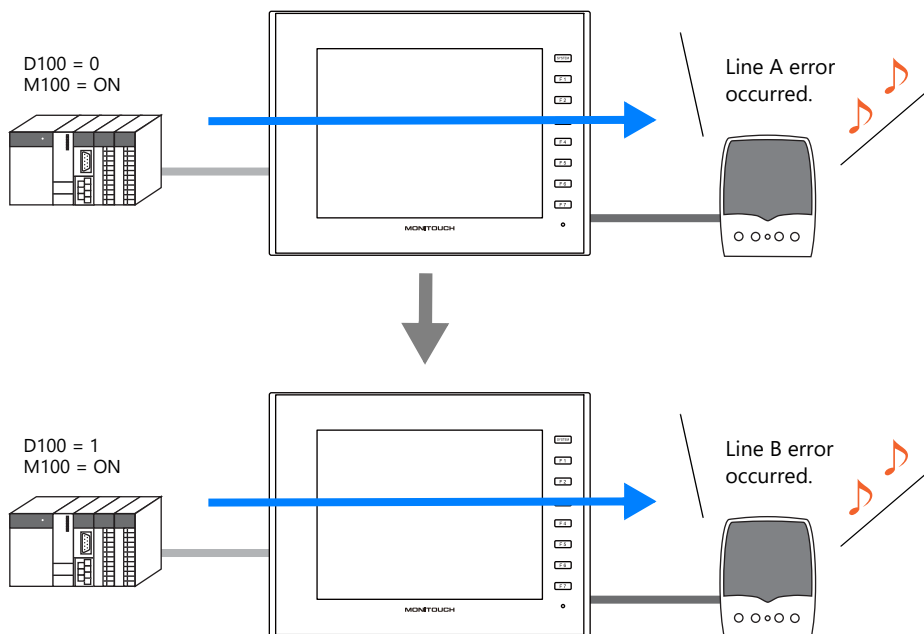
File	Description
WA0000.WAV	Line A
WA0001.WAV	Line B
WA0002.WAV	error
WA0003.WAV	occurred.
WA0004.WAV	recovered.

Configure the following settings using the above files.

Item	Description			
File Select	Play Order	0	Display Method	Device memory address: D100
		1	Display Method	File No. 2
		2	Display Method	File No. 3
Play	Monitoring Device	M100		

2.2.2 Conceptual Operation

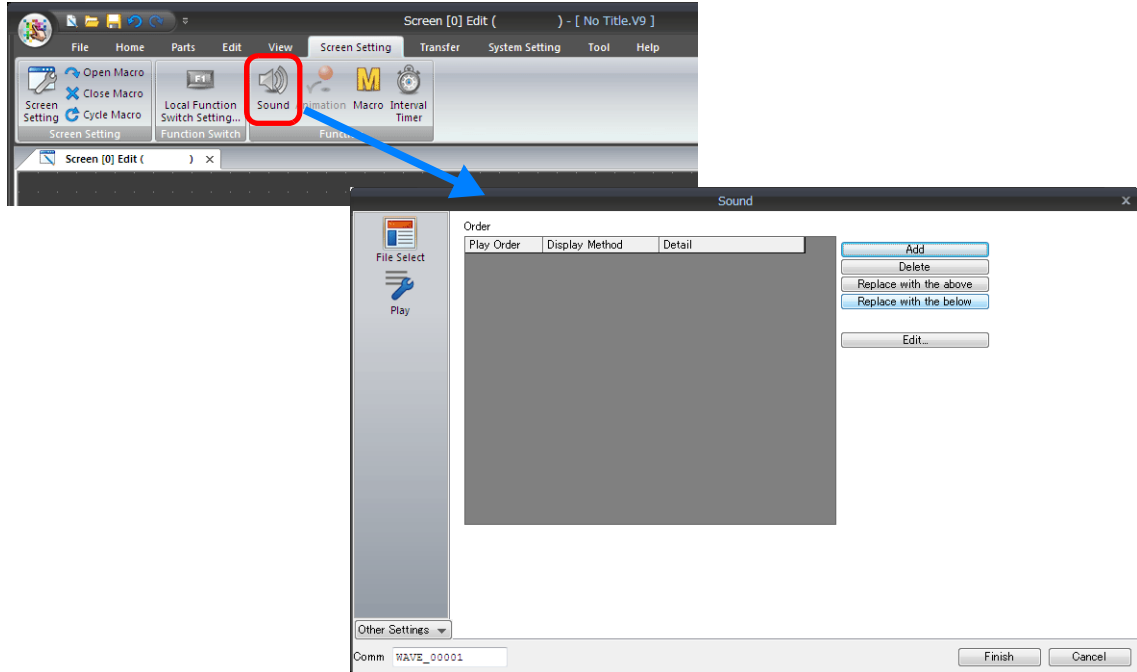
Operation is performed in the following manner when the unit is running with the above settings.



2.3 Detailed Settings

2.3.1 Sound Part

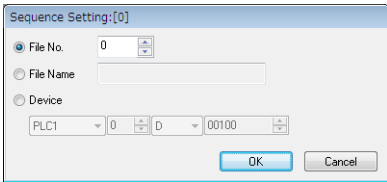
Click the [Screen Setting] menu → the [Sound] button.
The [Sound] settings window is displayed.



File Select

Click the [Add] button to add audio to the list under [Order].

Item	Description
Play Order *1	This is the order in which audio files are played.
Specification Method	Select the audio file specification method.
File No.	Specify the audio file to be played using a number. The format of audio filenames that can be specified for [File No.] is shown below. No files in any other name format can be played. WA xxxx .WAV (xxxx: 0000 to 1023: audio file number)
File Name	Specify the filename of the audio file to be played. The format of audio filenames that can be specified for [File Name] is shown below. No files in any other name format can be played. xxxxxxx .WAV (xxxxxxx: maximum of 64 one-byte numerals or uppercase alphabetic characters) * Filename specification is only available when the audio file is stored on a storage device.
Device	Select this option to switch between audio files for playback during RUN mode. Specify the device memory address where the audio file number is stored. The format of audio filenames that can be read using a device memory address is shown below. No files in any other name format can be played. WA xxxx .WAV (xxxx: 0000 to 1023: audio file number) * When "Device" is selected, always include the audio file in the screen program file. For details on including files, refer to "Methods for Storing Audio Files" page 2-7.
Detail	Information corresponding to the method selected for [Display Method] is displayed.
Play WAV File	This button is only available when "File No." is selected for [Display Method]. Press this button to play the selected file on the PC.
Add	Click to add an entry to the list.
Delete	Select an entry number to delete and click this button to delete the selected entry from the list.
Replace with the above/Replace with the below	Select an entry in the list and click the desired button to change the order of the entry in the list.

Item	Description
Edit	<p>Select an entry in the list and click this button to configure the [Specification Method] settings. The window shown below is displayed.</p> 

*1 For details on the order of audio file playback, refer to "2.5.1 Audio File Playback Priority" page 2-10.

Play

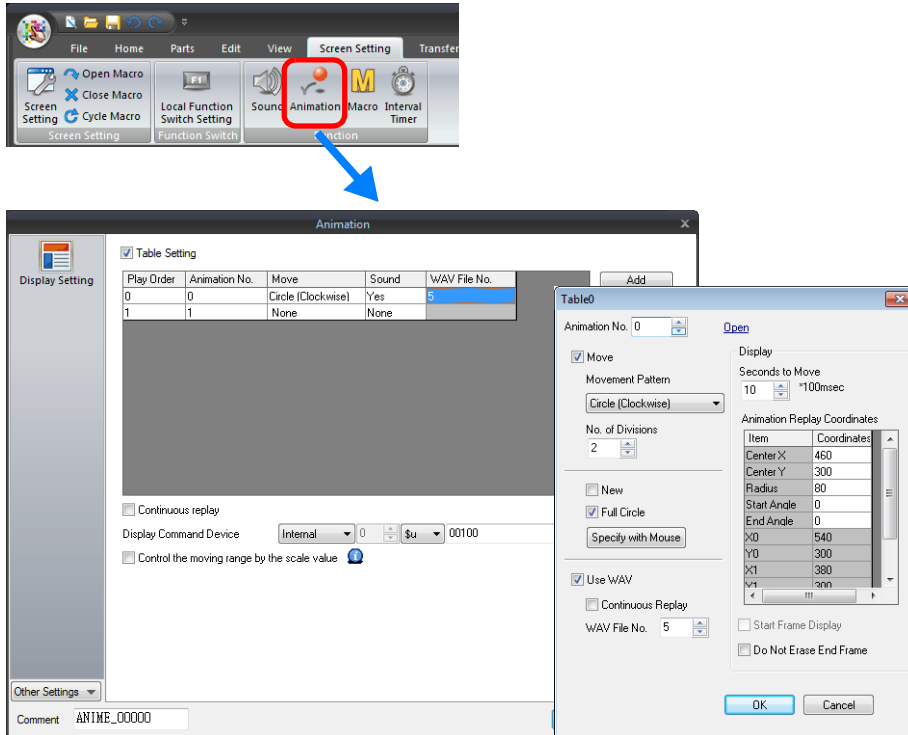
Item	Description
Monitoring Device	<p>Specify the bit memory address to use to play/stop the audio file set in the [File Select] settings (refer to the previous page).</p> <p>Play: [0] → [1] Stop: [1] → [0] (stops even while the file is playing.)</p>
Repeat playback	Select this checkbox to play the audio file repeatedly.
Priority (0 to 511)	When multiple audio items are placed on the screen, set the priority for playing for each item. When multiple bits are set to ON simultaneously, the audio file with the higher priority is played. However, if an audio file linked to an alarm server starts playing, the audio item will stop playing because the alarm server audio has a higher priority.

Detail

Item	Description
Process Cycle	Set a cycle for the V10/V9 series to read the PLC data while it is communicating with the PLC.
ID	Set the ID. For details on IDs, refer to the Operation Manual.

2.3.2 Animation

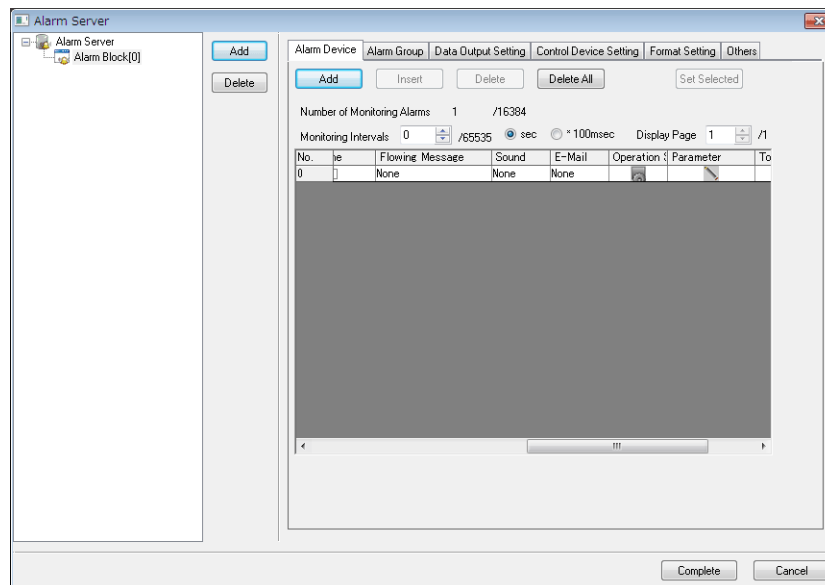
Click the [Screen Setting] → [Animation] button.
The [Animation] settings window is displayed.



For details on linking audio files, refer to "11.2 Animation" in Reference Manual 1.

2.3.3 Alarm Server

Click the [System Setting] → the [Alarm Server] button.
The [Alarm Server] settings window is displayed.



For details on linking audio files, refer to "8 Alarm" in the Reference Manual 1.

2.4 Methods for Storing Audio Files

Audio files can be handled by either of the following two methods. Settings in the screen program and the location for storing audio files differ between these methods.

- Method 1: Including audio files in the screen program file
- Method 2: Storing audio files on a storage device of the V10/V9 series unit

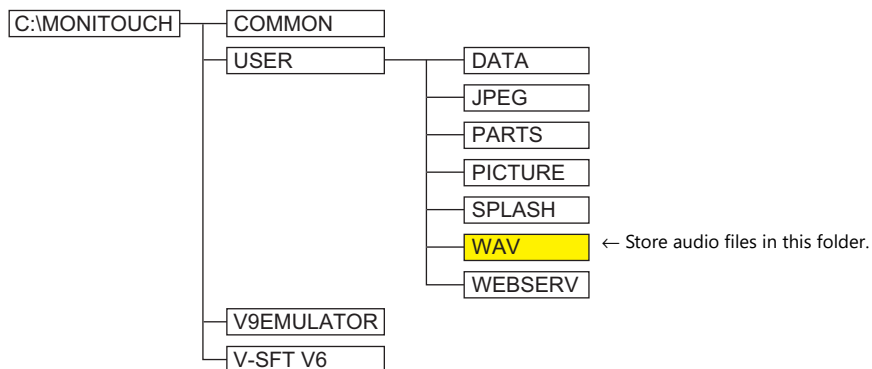
Including Audio Files in the Screen Program File

PC for editing a screen program

Save the audio files for use to the "WAV" folder in the "USER" folder, which is located in the "MONITOUCH" folder on the drive to which V-SFT version 6 is installed.

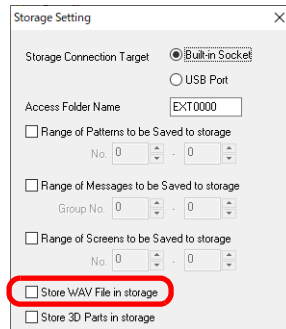
Audio files are transferred as part of the screen program when the screen program is transferred to the unit.

- * Note that the space available for the screen program will decrease by the space consumed by audio files that are included.

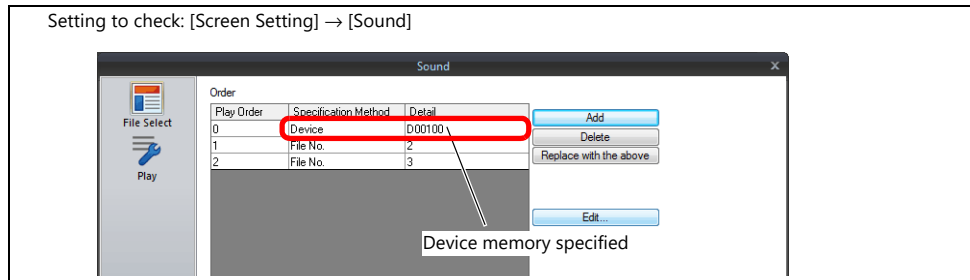
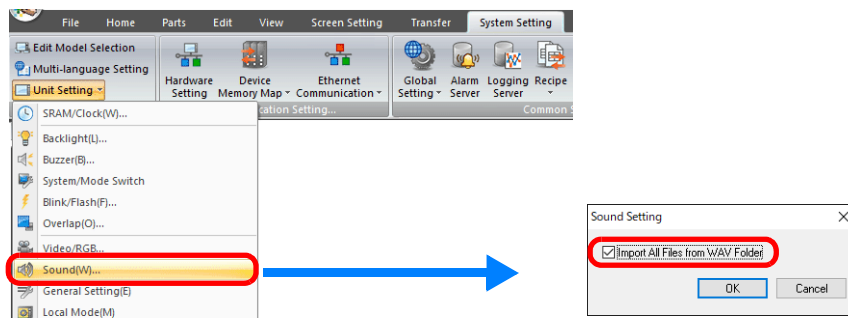




- Deselect the [Store WAV File in storage] checkbox at [System Setting] → [Other] → [Storage Setting]. If the checkbox is selected, audio files cannot be included in the screen program file.



- If an audio file number is specified using a device memory address, be sure to select the [System Setting] → [Unit Setting] → [Sound] → [Import All Files from WAV folder] checkbox. All WAV files in the “WAV” folder will be transferred to the V10/V9 series unit when the screen program is transferred.

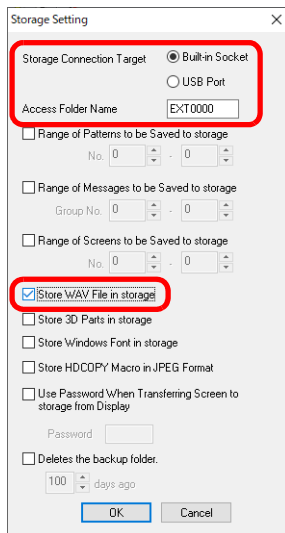


Storing Audio Files on a Storage Device of the V10/V9 Series Unit

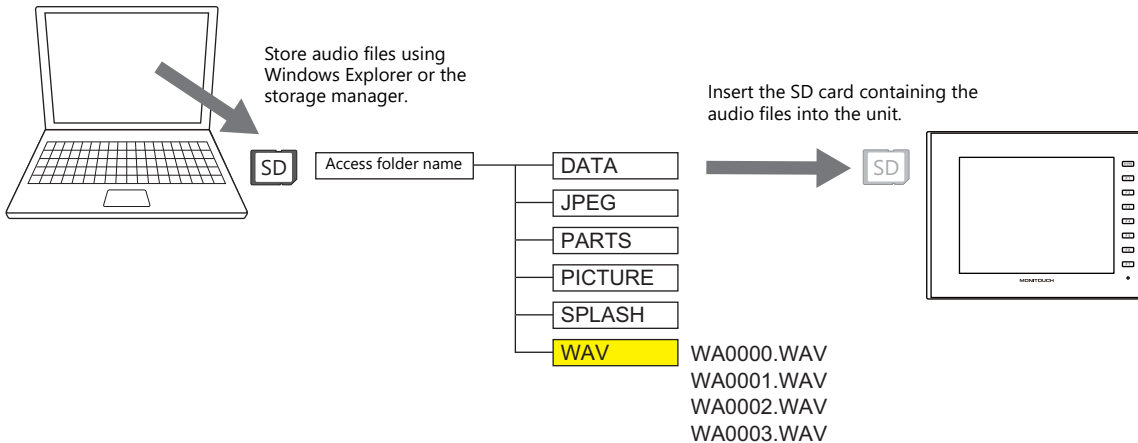
Store audio files on a storage device of the V10/V9 series unit.

V-SFT-6

- [System Setting] → [Other] → [Storage Setting]
Select which storage device of the V10/V9 series unit to use and also select the [Store WAV File in storage] checkbox.



- If settings are configured for audio files to be stored on a storage device, audio files are not automatically stored when the screen program is transferred. Use either Windows Explorer or the storage manager function to store the audio files on a storage device. For details, refer to "8.3.8 Storing Audio (WAV) Files" page 8-22 in "8 Storage Device".



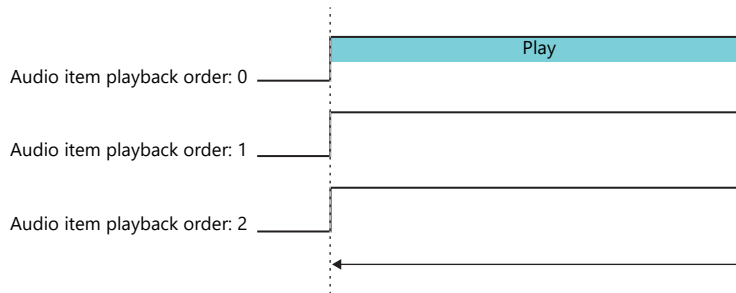
2.5 Notes

2.5.1 Audio File Playback Priority

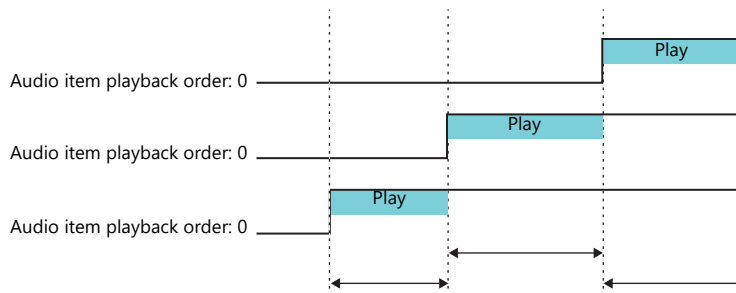
The following describes the playback priority for audio files.

Order of File Playback According to Audio Item

The order of playback can be set for each audio item. If the bits of all items turn ON at the same time, the item with the lowest order number is played.



If items have the same order number, the file of the item whose bit turned ON last is played.



Order of File Playback According to Part Type

Audio playback for audio items and animation is regarded as local playback.

If an alarm server causes global playback of an audio file during local playback, the audio of the alarm server takes priority and local playback stops.

2.6 System Device Memory

Sound information is output to internal device memory (\$s).

- \$s1000
This device memory address stores the number of seconds until the currently playing WAV file will finished playing.
- \$s1001
This device memory address stores the adjusted volume value of channel L.
- \$s1002
This device memory address stores the adjusted volume value of channel R.

MEMO



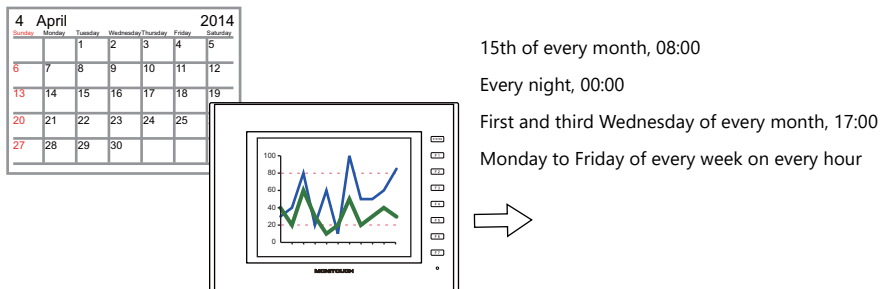
3 Scheduler

3.1 Overview

3.1.1 Scheduler

The scheduler function executes specific operations at the specified times. Operations include turning bits ON/OFF, writing data, and macro execution, and up to 64 schedules can be registered. Registered schedules can be checked in a list.

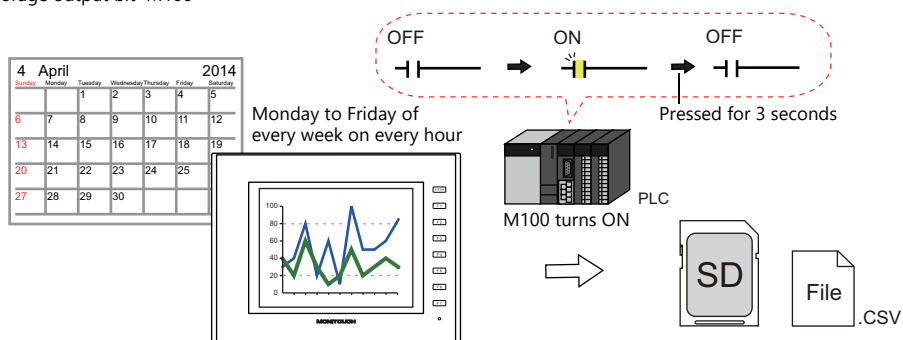
- Schedules can be executed according to a specified date and time or day of the week.



For setting examples, refer to [“3.2.1 Trigger Settings”](#) page 3-3.

- CSV output from a logging server can be easily executed using the scheduler function.

Example: Storage output bit M100



For setting examples, refer to [“3.2.2 Operation Settings”](#) page 3-8.

- Schedules can be executed at any time by setting an operation time to a device memory address.

For setting examples, refer to [“Designation: Device”](#) page 3-7.

- An interlock can be set to a schedule to control execution permission using bit status.

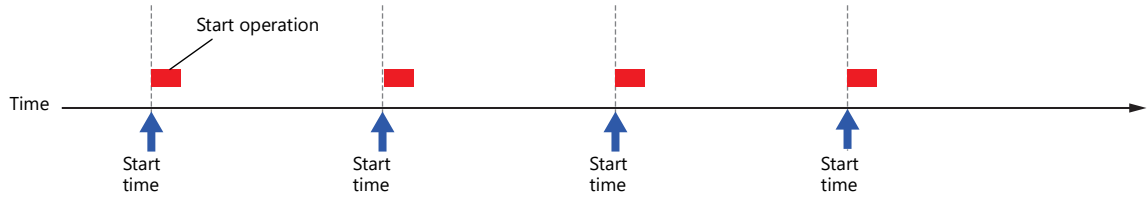
For details, refer to [“Others”](#) page 3-15.

3.1.2 Operation Specifications

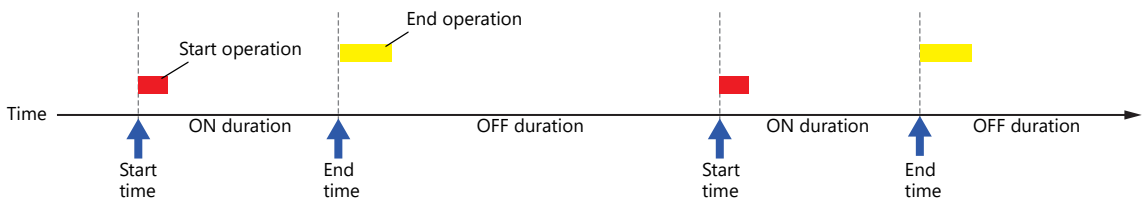
Execution Timing (Trigger)

There are two types of execution timings that can be specified: start time, and start time and end time.

- Start
Perform operation once at start time.



- Start and end
Perform an operation once at the start time and another operation at the end time.



Operation Item

- Bit output
- Word writing
- Macros

3.2 Setting Example

3.2.1 Trigger Settings

Specification Method: Direct

Set the operation time of the schedule to the screen program.

There are two general methods for setting the operation time: date specification and day of the week specification.

Date specification

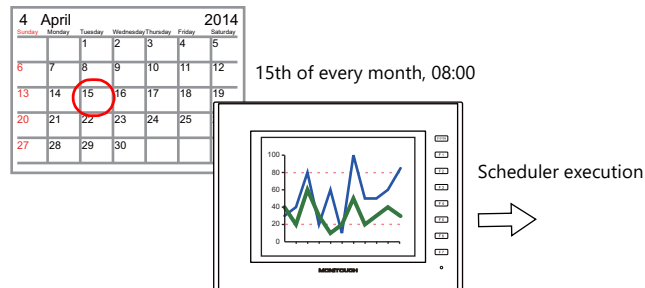
- "Execution Every Month with Date Specifications" page 3-3 (Example: Execution on the 15th of every month at 08:00)
- "Execution Every Day with Time Specifications" page 3-4 (Example: Execution every night at 00:00)

Day of the week specification

- "Execution Every Month with Day of the Week Specifications" page 3-5 (Example: Execution on the first and third Wednesday of every month at 17:00)
- "Execution Every Week with Day of the Week Specifications" page 3-6 (Example: Execution at every hour, Monday to Friday of every week)

Execution Every Month with Date Specifications

This section explains the setting procedure for execution on the 15th of every month at 08:00.



1. Click [System Setting] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: 15th of every month
 Time: 08:00

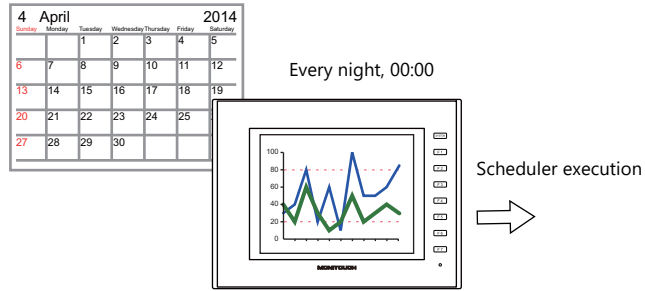
This completes the necessary settings.

Operation settings are described next.

For operation setting examples, refer to "3.2.2 Operation Settings" page 3-8.

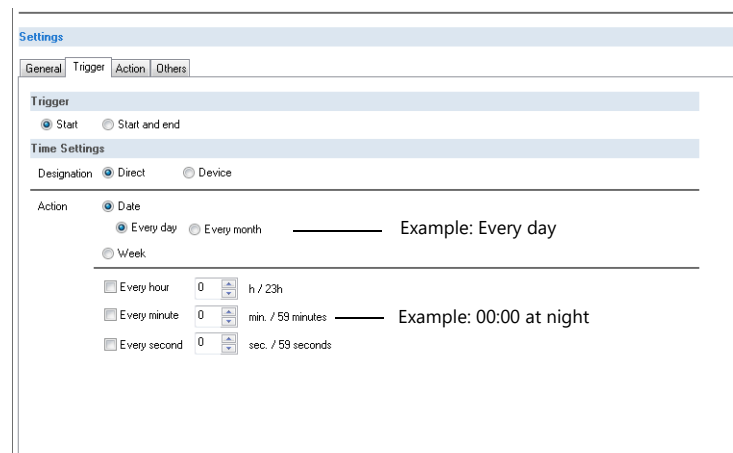
Execution Every Day with Time Specifications

This section explains the setting procedure for execution on every night at 00:00.



1. Click [System Setting] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: Every day
 Time: 0 hour, 0 minutes, 0 seconds

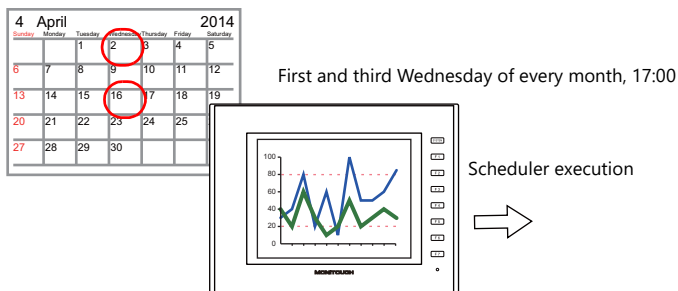


This completes the necessary settings.
 Operation settings are described next.

For operation setting examples, refer to “3.2.2 Operation Settings” page 3-8.

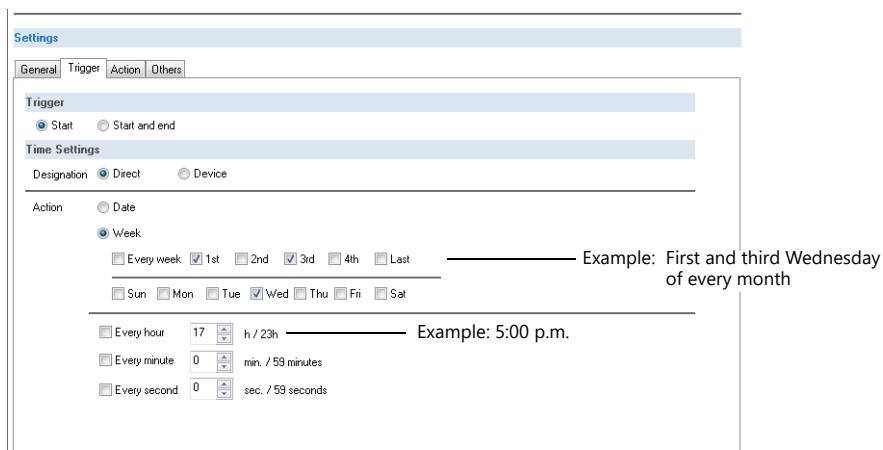
Execution Every Month with Day of the Week Specifications

This section explains the setting procedure for execution on the first and third Wednesday of every month at 17:00.



1. Click [System Setting] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: First and third Wednesday of every month
 Time: 17:00

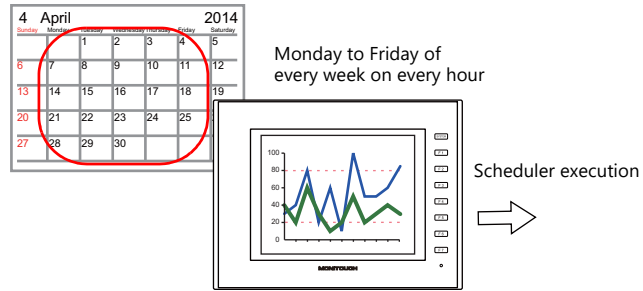


This completes the necessary settings.
 Operation settings are described next.

For operation setting examples, refer to "3.2.2 Operation Settings" page 3-8.

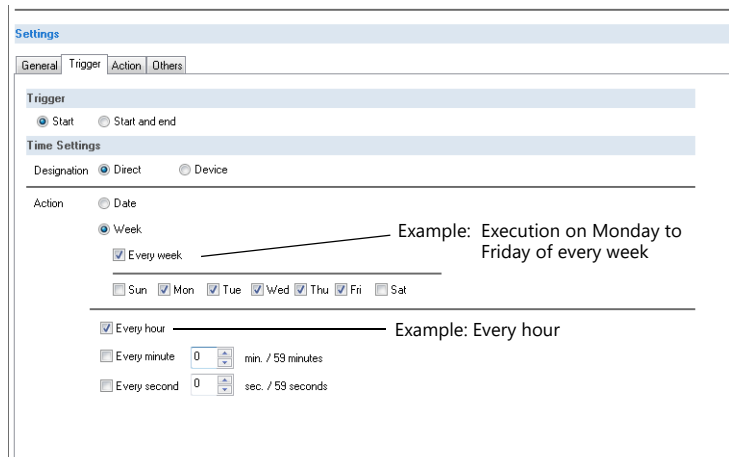
Execution Every Week with Day of the Week Specifications

This section explains the setting procedure for execution on Monday to Friday of every week on every hour.



1. Click [System Setting] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: Monday to Friday of every week
 Time: [Every hour] checkbox selected



This completes the necessary settings.
 Operation settings are described next.

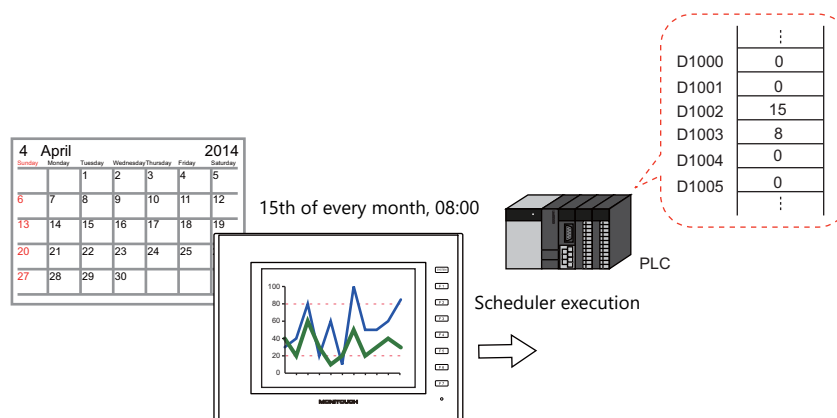
For operation setting examples, refer to “3.2.2 Operation Settings” page 3-8.

Designation: Device

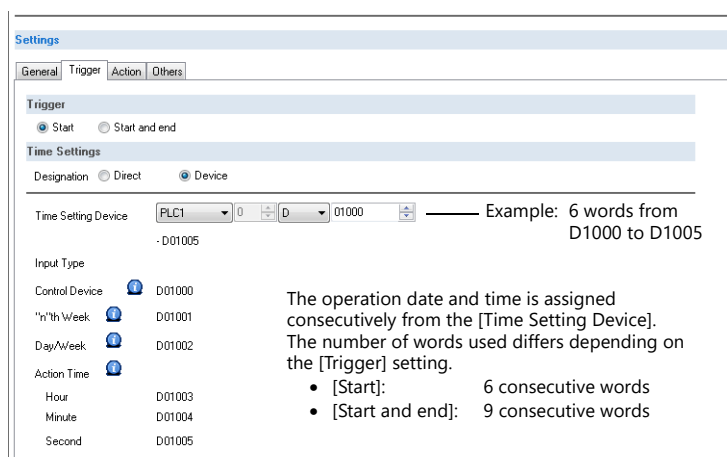
Set the operation time of the schedule to the screen program using a device memory address. (The date and time are set to all devices memory address.)

The date and time is specified and the schedule is executed in RUN mode.

The setting procedure is described below.



1. Click [System Setting] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.



☞ For details, refer to “Designation: Device” page 3-12.

This completes the necessary settings.
Operation settings are described next.

☞ For operation setting examples, refer to “3.2.2 Operation Settings” page 3-8.

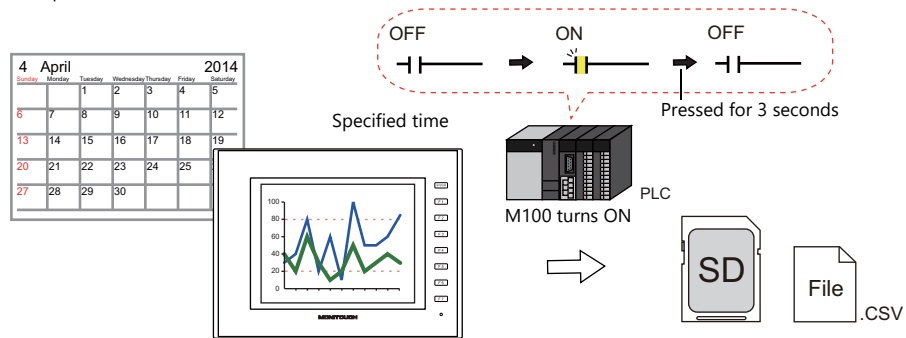
The schedule is started by setting the operation time to [Time Setting Device] on MONITOUCH.

☞ For details on the time specification method, see “3.4 Example of Date and Time Specification by Device Memory (Designation: Device)” page 3-16.

3.2.2 Operation Settings

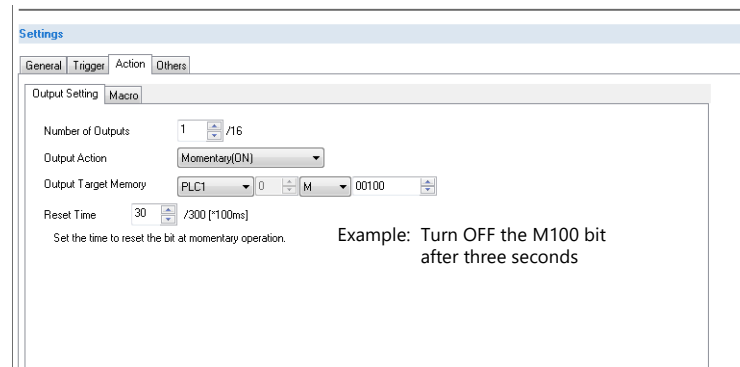
This section explains the setting procedure for turning ON the M100 bit at the specified time. The M100 bit is turned OFF after three seconds.

Example: CSV output bit M100



1. Set "1" for [Number of Outputs] under [Action] → [Output Setting] in the schedule.
2. Configure the operation settings as shown below.

Output Action: Momentary (ON)
 Output Target Memory: M100
 Reset Time: 30 * 100 ms (3 seconds)



This completes the necessary settings.

3.3 Detailed Settings

Location of settings: [System Setting] → [Scheduler].

Schedule List

The screenshot shows the Scheduler interface. At the top, it says "The specified action is executed at the specified time." Below this is the "Schedule List" section, which contains a table with the following data:

No.	Schedule Name	Trigger	Action(Start)	Action(End)	Other Settings
0	SCHEDULE_00	15Day 8:00:00	Output device Count : 1 Macro : None	None	Yes
1	SCHEDULE_01	Every day 0:00:00	Output device Count : 2 Macro : None	None	Yes
2	SCHEDULE_02	Every weekMonday Every weekTuesday Every weekWednesday Every weekThursday	Macro : Yes	None	Yes
3	SCHEDULE_03	Time Setting Device : D01000	Output device Count : 1 Macro : Yes	None	Yes

Below the table is a "Settings" section with tabs for "General", "Trigger", "Action", and "Others". The "General" tab is selected, and the "Schedule Name" field contains "SCHEDULE_00".

An annotation "List of currently registered schedules" points to the "Schedule List" table.

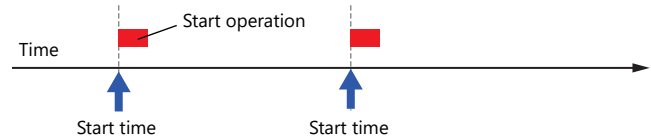
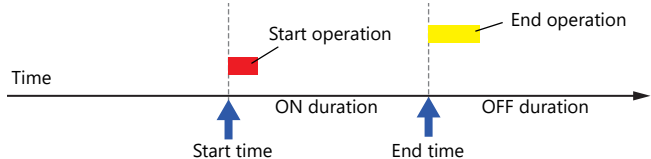
Item	Description
New	Create a new schedule. A maximum of 64 schedules can be registered.
Delete	Delete the selected schedule.
Preview	Currently registered schedules can be checked in a list. Schedules registered with component parts are shown with an asterisk (*) on the left of [No.].

General

The screenshot shows the "Settings" section of the Scheduler interface, specifically the "General" tab. The "Schedule Name" field contains "SCHEDULE_00".

Item	Description
Schedule Name	Register the schedule name. 256 characters maximum

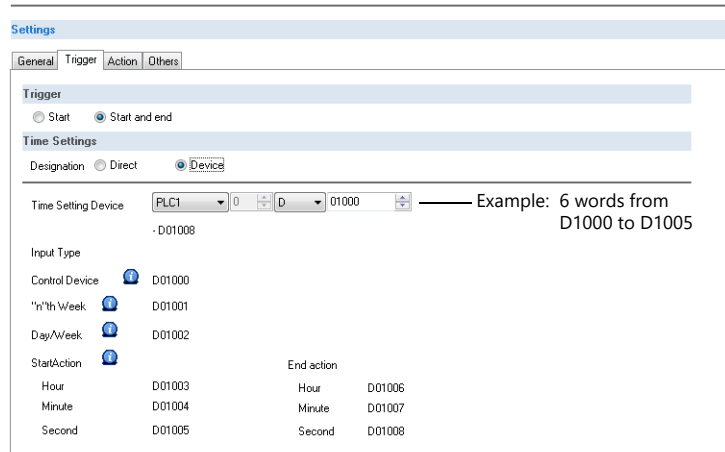
Trigger

Item	Description
Trigger	<p>Start Perform operation once at the start time.</p>  <p>Start and end Perform the start operation at the start time and the end operation at the end time.</p> 
Designation	<p>Direct Set a specific date and time.</p> <p>Device Set the entire date and time using device memory.</p>

Designation: Direct

Item	Description																																																	
Action	Date Every day Execute every day. Every month, x day Execute on the specified day.																																																	
Week	Every week Execute every week. 1st, 2nd, 3rd, 4th, Last Execute on the specified day of the week (Sunday to Saturday) on the specified week. The first week at the start of each month corresponds to [1st]. Multiple checkboxes can be selected. <table border="1"> <thead> <tr> <th>Sun</th> <th>Mon</th> <th>Tue</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> <th>Sat</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> </tr> <tr> <td>17</td> <td>18</td> <td>19</td> <td>20</td> <td>21</td> <td>22</td> <td>23</td> </tr> <tr> <td>24</td> <td>25</td> <td>26</td> <td>27</td> <td>28</td> <td>29</td> <td>30</td> </tr> <tr> <td>31</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p> 1st 1st to 7th 2nd 8th to 14th 3rd 15th to 21st 4th 22nd to 28th Last 25th to 31st Monday 25th corresponds to both 4th and Last </p> <p> Fridays in this month 1st 1st 2nd 8th 3rd 15th 4th 22nd Last 29th </p>	Sun	Mon	Tue	Wed	Thu	Fri	Sat						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
Sun	Mon	Tue	Wed	Thu	Fri	Sat																																												
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10	11	12	13	14	15	16																																												
17	18	19	20	21	22	23																																												
24	25	26	27	28	29	30																																												
31																																																		
Hour, minutes, and seconds	Specify the execution time of the schedule.																																																	

Designation: Device



Item	Description
Time Setting Device	Specify the device memory address to use to set the time. The time is assigned consecutively starting from this address. The number of words used differs depending on the [Trigger] setting. <ul style="list-style-type: none"> • [Start]: 6 consecutive words (n to n+5) • [Start and end]: 9 consecutive words (n to n+8)
Input Type	Select the code to use when reading data from the PLC device memory. BCD, DEC, FLOAT

Details of Time Setting Device

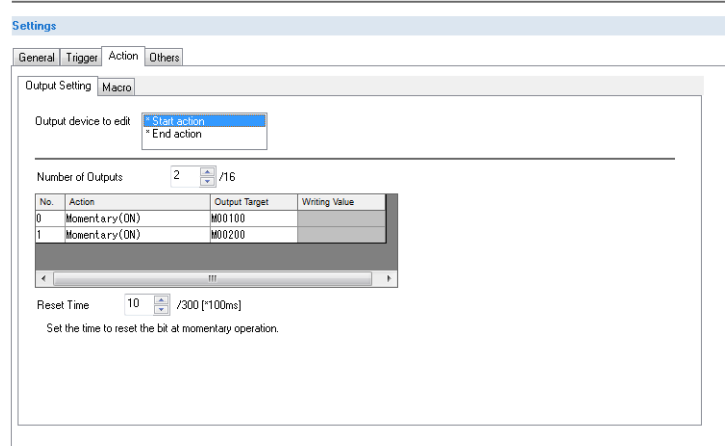
Device Memory	Description																																															
Control Device	<table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="11">MSB</td> <td colspan="4">LSB</td> </tr> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: center;">Not used (always set to "0")</p> <p style="text-align: right;"> 0 → 1: Confirm 1: Every second 0: Second can be specified 1: Every minute 0: Minute can be specified 1: Every hour 0: Hour can be specified </p>	MSB											LSB				15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0						
	MSB											LSB																																				
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																
	0	0	0	0	0	0	0	0	0	0																																						
	Bit 0	Contents control device memory addresses n to n + 8 are determined by a 0 → 1 change in bit status and then the settings take effect. * When this bit is 1 at startup, the settings take effect.																																														
Action Bit 5	Specify a date or day of the week.																																															
Bit 4	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>Every month, date, time</td> <td>0</td> <td>0</td> </tr> <tr> <td>Every day, time</td> <td>0</td> <td>1</td> </tr> <tr> <td>xth week, day of the week, time</td> <td>1</td> <td>0</td> </tr> <tr> <td>Every week, day of the week, time</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	Date Setting	05	04	Every month, date, time	0	0	Every day, time	0	1	xth week, day of the week, time	1	0	Every week, day of the week, time	1	1																																
Date Setting	05	04																																														
Every month, date, time	0	0																																														
Every day, time	0	1																																														
xth week, day of the week, time	1	0																																														
Every week, day of the week, time	1	1																																														
Bits 1 to 3	When executing every hour, minute, or second, the corresponding bit is set to 1. When a bit is 0, the time is specified with n+3 to n+8.																																															

Device Memory		Description																																																																																							
"n"th Week	n+1	<p>Specify when control device memory n is set to the following.</p> <table border="1"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>xth week, day of the week, time</td> <td>1</td> <td>0</td> </tr> </tbody> </table> <p>When setting the ordinal week number of a day of the week, the corresponding bit is set to 1. Multiple selections can be made.</p> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: right;"> 1: Last 1: 4th 1: 3rd 1: 2nd 1: 1st </p> <table border="1"> <thead> <tr> <th>Sun</th><th>Mon</th><th>Tue</th><th>Wed</th><th>Thu</th><th>Fri</th><th>Sat</th> </tr> </thead> <tbody> <tr> <td></td><td></td><td></td><td></td><td></td><td>1</td><td>2</td> </tr> <tr> <td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> <tr> <td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td> </tr> <tr> <td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td> </tr> <tr> <td>31</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p> 1st 1st to 7th 2nd 8th to 14th 3rd 15th to 21st 4th 22nd to 28th Last 25th to 31st </p> <p>Monday 25th corresponds to both 4th and Last</p> <p>Fridays in this month 1st 1st 2nd 8th 3rd 15th 4th 22nd Last 29th</p>	Date Setting	05	04	xth week, day of the week, time	1	0	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0						Sun	Mon	Tue	Wed	Thu	Fri	Sat						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
Date Setting	05	04																																																																																							
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31																																																																																									
Day/Week	n+2	<p>The setting differs depending on the status of bits 4 and 5 of the control device memory.</p> <ul style="list-style-type: none"> Date specification Set control device memory n to the following value. <table border="1"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>Every month, date, time</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>- 1 to 31: Date - 99: Last day of each month</p> <ul style="list-style-type: none"> Day of the week specification Multiple days of the week can also be set. Set control device memory n to the following value. <table border="1"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>xth week, day of the week, time</td> <td>1</td> <td>0</td> </tr> <tr> <td>Every week, day of the week, time</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: right;"> 1: Saturday 1: Friday 1: Thursday 1: Wednesday 1: Tuesday 1: Monday 1: Sunday </p>	Date Setting	05	04	Every month, date, time	0	0	Date Setting	05	04	xth week, day of the week, time	1	0	Every week, day of the week, time	1	1	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0																																															
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15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																																																										
0	0	0	0	0	0	0	0	0																																																																																	
Start Action: Hour	n+3	Used when bit 3 of the control device memory is 0 (hour specifiable). 0 to 23																																																																																							
Start Action: Minute	n+4	Used when bit 2 of the control device memory is 0 (minute specifiable). 0 to 59																																																																																							
Start Action: Second	n+5	Used when bit 1 of the control device memory is 0 (second specifiable). 0 to 59																																																																																							
End Action: Hour	n+6	Used when bit 3 of the control device memory is 0 (hour specifiable). 0 to 23																																																																																							
End Action: Minute	n+7	Used when bit 2 of the control device memory is 0 (minute specifiable). 0 to 59																																																																																							
End Action: Second	n+8	Used when bit 1 of the control device memory is 0 (second specifiable). 0 to 59																																																																																							



Action

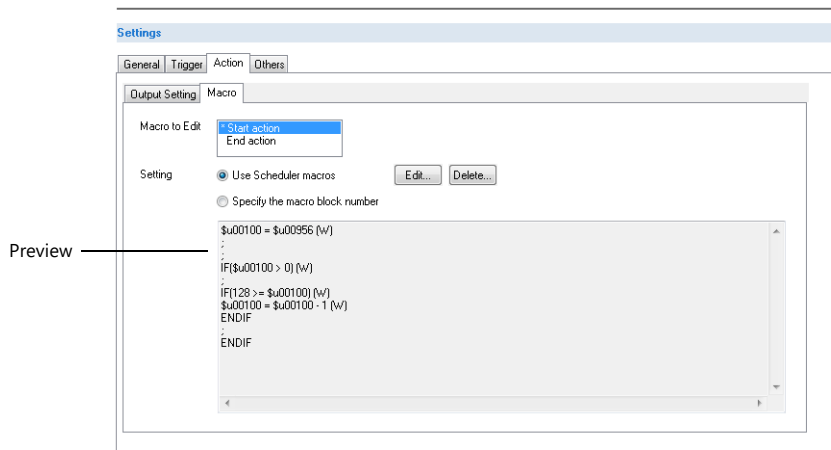
Output Setting



Item	Description
Output device to edit	This setting is available when [Start and end] is selected for [Trigger]. Select the operation for the start time and end time.
Number of Outputs	Set the number of bits to output. 1 to 16
Output Target	Specify the output device memory address.
Action	<p>Momentary (ON) *</p> <p>Turn the bit ON, and then turn it OFF after the time set for [Reset Time] elapses. [Reset time]: 1 to 300, units: 100 ms</p> <p>Momentary (OFF) *</p> <p>Turn the bit OFF, and then turn it ON after the time set for [Reset Time] elapses. [Reset time]: 1 to 300, units: 100 ms</p> <p>Set</p> <p>Turn the bit ON.</p> <p>Reset</p> <p>Turn the bit OFF.</p> <p>Alternate</p> <p>Alternate the bit between ON and OFF.</p> <p>Writing in Words</p> <p>Write the data value to the device memory. Set the data length of the value for writing using [Data Length]. 1-Word/2-Words (real numbers use 2 words)</p>

* When [Momentary] is set multiple times, [Reset Time] is used for all instances.

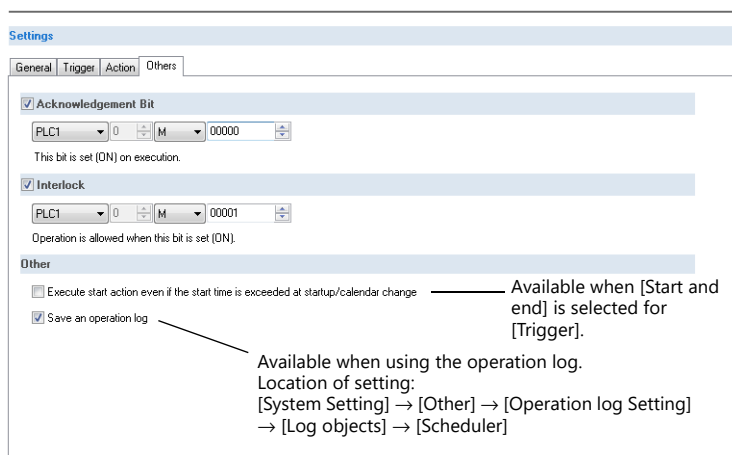
Macro



Item	Description
Macro to Edit	This setting is available when [Start and end] is selected for [Trigger]. Select the operation for the start time and end time. If settings exist, an asterisk (*) is shown.
Use Scheduler macros	Register a macro for execution using [Edit]. All macros can be deleted at once using [Delete].
Specify the macro block number	Select the macro block number using the pull-down menu. The selected macro block number can be edited using [Edit].
Preview	Displays the details of the currently selected macro.

For details on macros, refer to the Macro Reference Manual.

Others



Item	Description
Acknowledgment Bit	This bit changes to 1 when the schedule is executed.
Interlock	Control the execution permission of the start operation. 1: Permitted 0: Prohibited * Even if the interlock bit changes to 0 (prohibited) during schedule operation, the end operation is performed.
Execute start operation even if the start time is exceeded at startup/calendar change	This setting is available when [Start and end] is selected for [Trigger]. Set the operation to perform when the time after startup or a calendar change is within the start/end time range (ON time). Selected The start operation is performed. No operation is performed if the end time is reached but the next start time is not (OFF time). When [Device] is selected for [Time Settings], the start operation is performed only when bit 0 (acknowledgment) of control device memory n is ON. Unselected The start and end operations are not performed. Operations are performed from the next start time.
Save an operation log	This setting is available when the [Scheduler] checkbox is selected at [System Setting] → [Other] → [Operation log Setting] → [Log objects]. Save a log of schedule execution.

3.4 Example of Date and Time Specification by Device Memory (Designation: Device)

If the schedule operation time is set to a device memory address, the schedule will start at the time specified in the device memory.

This section explains the command method with an example where the time setting device memory is D1000.

There are two general methods for setting the operation time: date specification and day of the week specification.

Date specification

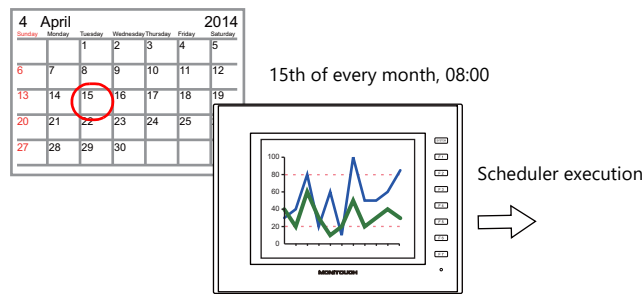
- "Execution Every Month with Date Specifications" page 3-16 (Example: Execution on the 15th of every month at 08:00)
- "Execution Every Day with Time Specifications" page 3-17 (Example: Execution every night at 00:00)

Day of the week specification

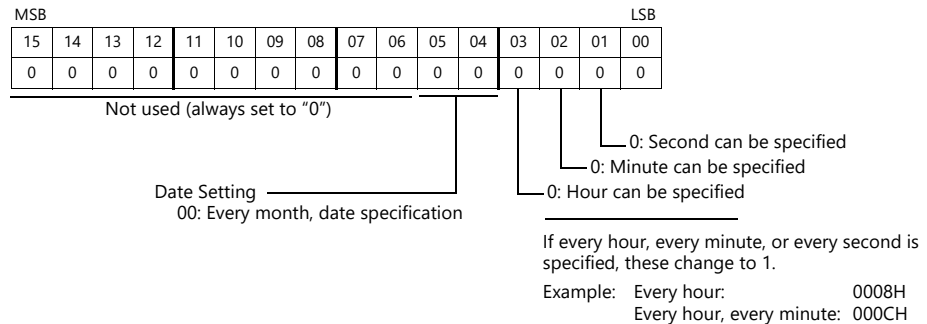
- "Execution Every Month with Day of the Week Specifications" page 3-18 (Example: Execution on the first and third Wednesday of every month at 17:00)
- "Execution Every Week with Day of the Week Specifications" page 3-19 (Example: Execution at every hour, Monday to Friday of every week)

Execution Every Month with Date Specifications

This section explains the setting procedure for execution on the 15th of every month at 08:00.



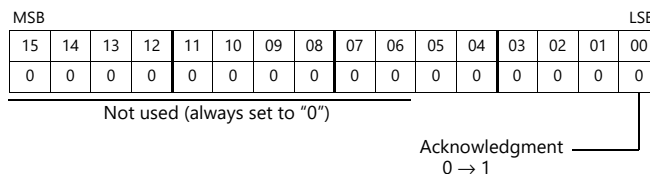
1. Set address D1000 to 0H.



2. Specify "15" for the date in address D1002.
3. Specify the start time in addresses D1003 to D1005.

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	8	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

4. Change bit 0 of address D1000 from 0 to 1.

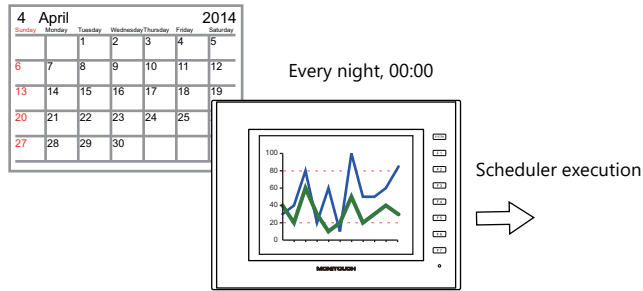


This completes the necessary settings.

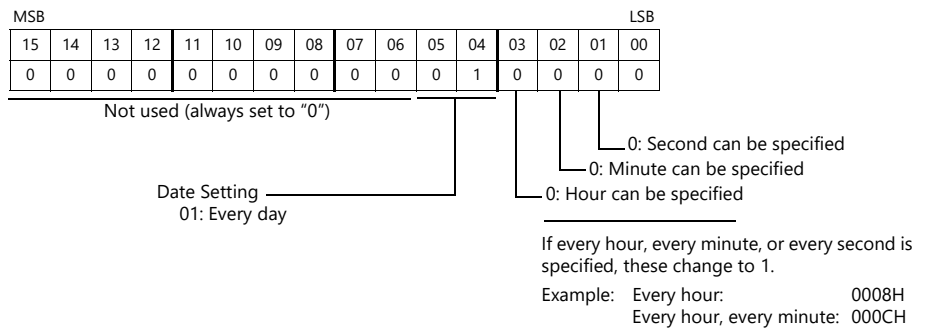
The scheduled operation is performed at the specified time. Perform steps 1 to 4 to change the settings.

Execution Every Day with Time Specifications

This section explains the setting procedure for execution on every night at 00:00.



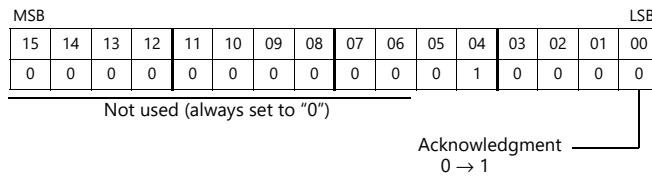
1. Set address D1000 to 10H.



2. Specify the start time in addresses D1003 to D1005.
(When [Start and end] is selected on the [Trigger] tab window, specify the end time in addresses D1006 to D1008.)

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	0	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

3. Change bit 0 of address D1000 from 0 to 1.

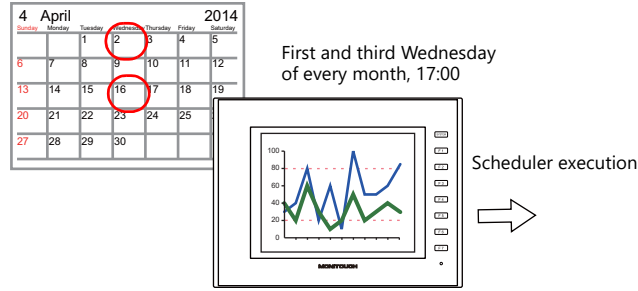


This completes the necessary settings.

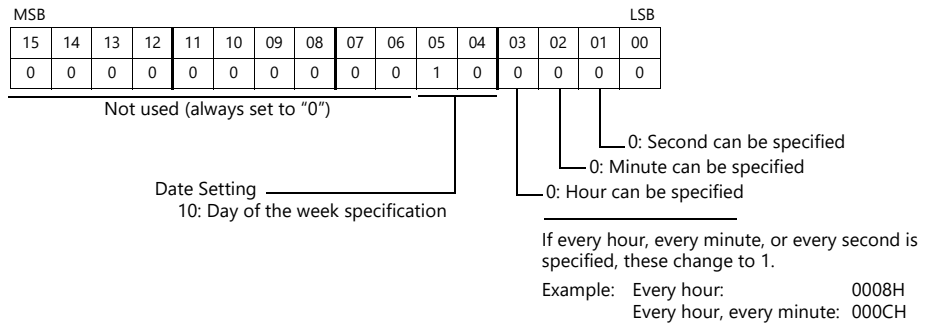
The scheduled operation is performed at the specified time. Perform steps 1 to 3 to change the settings.

Execution Every Month with Day of the Week Specifications

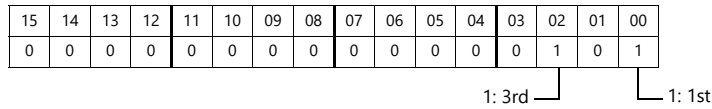
This section explains the setting procedure for execution on the first and third Wednesday of every month at 17:00.



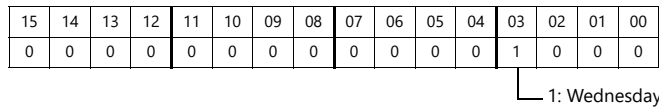
1. Set address D1000 to 20H.



2. Specify 5H for address D1001 so that execution occurs on the first and third weeks.



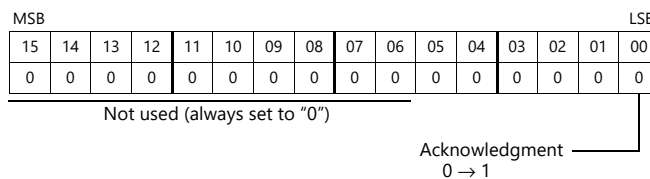
3. Specify 8H for Wednesday in address D1002.



4. Specify the start time in addresses D1003 to D1005.
(When [Start and end] is selected on the [Trigger] tab window, specify the end time in addresses D1006 to D1008.)

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	17	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

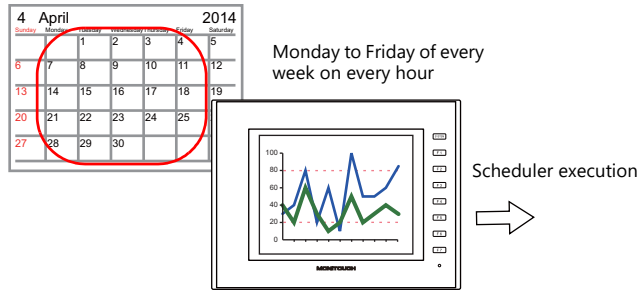
5. Change bit 0 of address D1000 from 0 to 1.



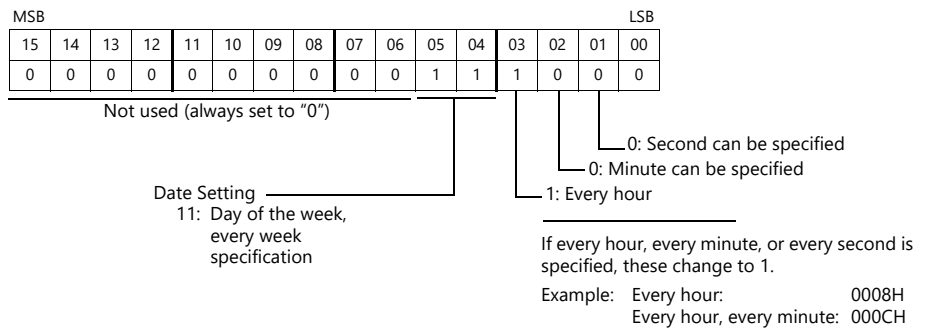
This completes the necessary settings.
The scheduled operation is performed at the specified time. Perform steps 1 to 5 to change the settings.

Execution Every Week with Day of the Week Specifications

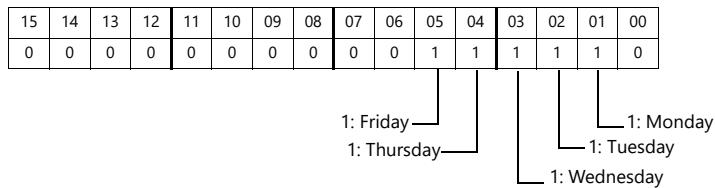
This section explains the setting procedure for execution on Monday to Friday of every week on every hour.



1. Set address D1000 to 38H.



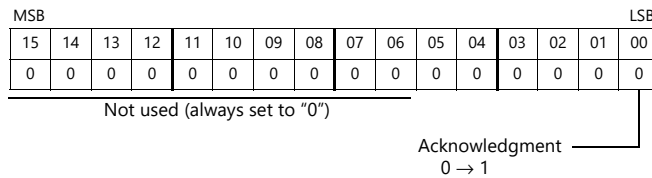
2. Specify 3EH for Monday to Friday in address D1002.



3. Specify the start time in addresses D1003 to D1005.

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	-	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

4. Change bit 0 of address D1000 from 0 to 1.



This completes the necessary settings.

The scheduled operation is performed at the specified time. Perform steps 1 to 4 to change the settings.

3.5 System Device Memory (\$s)

The following describes the system device memory associated with the scheduler function.

Device Memory	Description
\$s1650	After specifying device memory addresses n to n + 8 for operation time, the result is output when bit 0 (acknowledgment bit) of control device memory n changes from 0 to 1. When an invalid value is specified, the bit is 1. 1: Error 0: Normal Example: Invalid values include 40th day, 100 seconds etc. * When a valid time is set, the bit is 0.
\$s1651	
\$s1652	
\$s1653	

1: Error
0: Normal

\$s1650	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Schedule number
\$s1651	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	← Schedule number
\$s1652	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	← Schedule number
\$s1653	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	← Schedule number

3.6 Notes

Date and Time Settings

- The start time and end time cannot be set to the same value.
- When specifying a date, operation is not performed if the date does not exist in the particular month.
 - Example:
When the 31st is specified, operation is not performed for February, April, June, September, or November. In this case, operation at the end of the month can be performed by selecting "Last day".
- Specify the end time within 24 hours of the start time. If the end time is before the start time, the end time will be set on the next day.
 - Example:
When set as for "every day, start time: 23:00, end time: 01:00", operation starts from 23:00 on the first day and ends at 01:00 on the second day, and starts from 23:00 on the second day and ends at 01:00 on the third day, etc.

Changing the Built-in Calendar


- If the time is corrected backward due to a date change (automatic correction), the scheduler is only executed once. If the time is corrected forward, the number of schedules that were skipped are executed.
- If the time is corrected using the following method, schedule operations are performed based on the corrected time.
 - Execute the calendar reading bit (location of setting: [System Setting] → [Hardware Setting] → [Control Area])
 - SYS (SET_CLND) macro command
 - SYS (SET_SYS_CLND) macro command

If the time is corrected backward, operation differs depending on the setting of [Execute start action even if the start time is exceeded at startup/calendar change].

 For details, refer to "Others" page 3-15.

Using a Time Setting Device Memory (Designation: Device)

- Operation continues unaffected if the time setting device is changed (acknowledgment bit: 0 → 1) during scheduled operation. Subsequent operations are performed at the changed time after the current operation is complete.
- If the time setting device memory is changed after a start operation completes, the end operation is not performed. The subsequent start operation is performed at the changed time.

 For details on the acknowledgment bit, refer to "Designation: Device" page 3-12.

Other

If multiple schedule times (start or end times) overlap, operations start in order from the lowest schedule number.

If the scheduled time of a subsequent operation is reached during execution of an operation within the same schedule number, the subsequent operation is not executed until the current operation is complete. Therefore, the subsequent operation is delayed.

MEMO



4 Operation Log

4.1 Overview

4.1.1 Operation Log

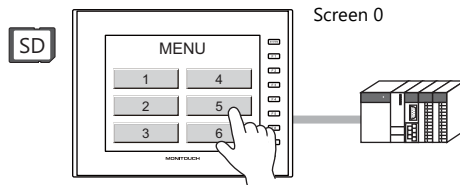
Operation Overview

The operation log function stores screen operation history records (operation logs) in the SRAM area. When the SRAM area becomes full, logs can be output to an SD card.

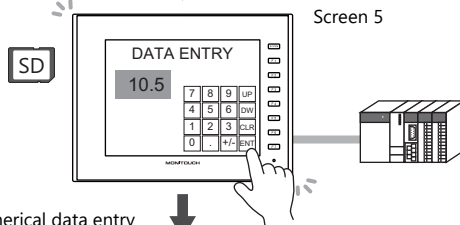
In the event of an error, these stored logs allow previous operations to be examined in order to determine the cause of the error. Also, when used in conjunction with the security function, operator names can also be recorded.

Remote operation using the VNC server function enables users to record the username of the VNC user and MAC address of the terminal device.

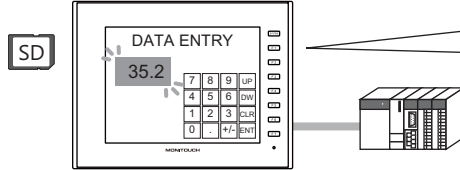
- 1 Power ON



- 2 Screen changeover



- 3 Numerical data entry



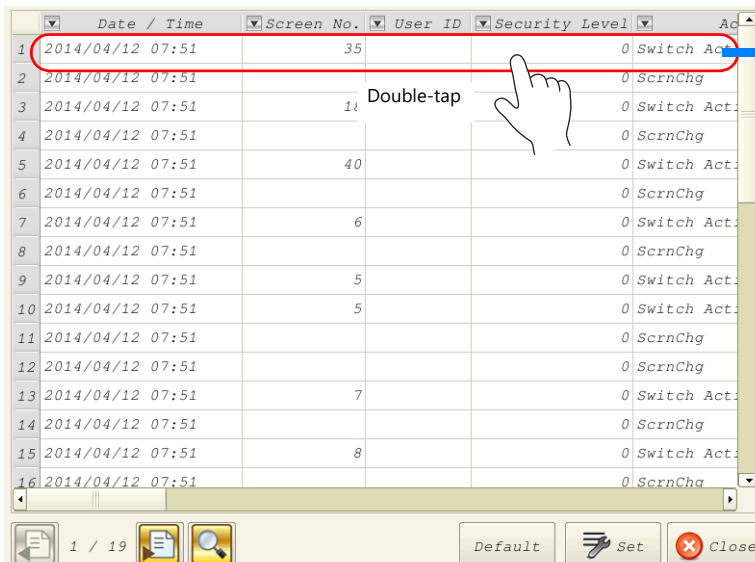
SRAM

1	20140601085506	Start
2	20140601090320	Screen change Entry screen 05
3	20140601090510	Update of the displayed 5 data items Numerical data display DEC 10.5 35.2

Operation Log Viewer

Operation history records (operation logs) stored in the SRAM area can be displayed on MONITOUCH using the operation log viewer.

The details of operations that were performed when an error occurred can be easily examined in order to determine the cause of the error.

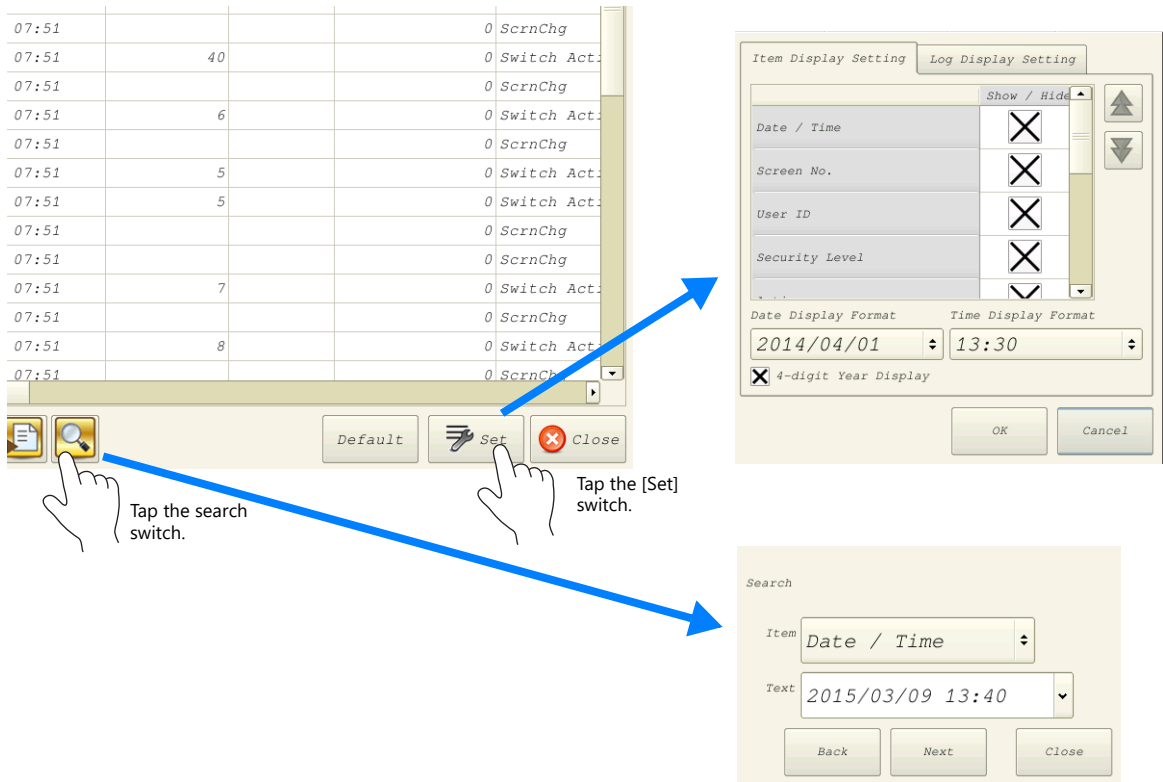


2014/04/12 07:51
 Screen No. : 35
 User ID :
 Security Level : 0
 Action : Switch Action
 Function : Screen
 Comment :
 SW_00000
 Display Format :
 Value (Before) :
 Value (After) :

Close

Log details are displayed.

Use the [Set] switch in the log viewer screen to show/hide items, set the number of characters, and change the date/time format. Use the search switch to select and search for items.

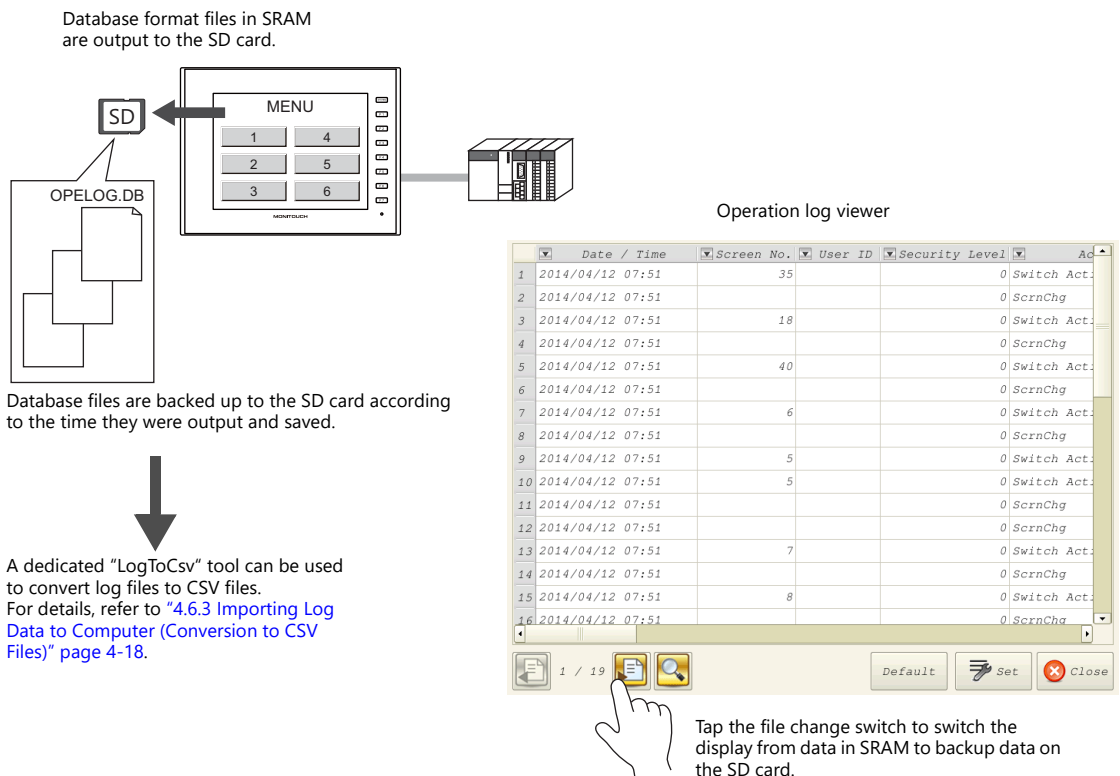


For details on the log viewer, refer to "4.5 Operation Log Viewer" page 4-12.

Log Storage

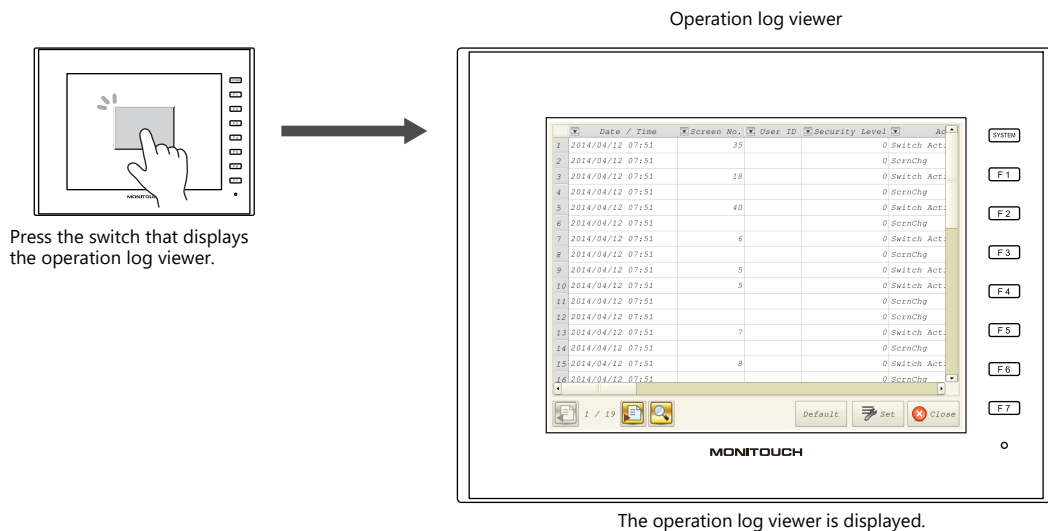
When the SRAM area becomes full, logs are written to an SD card. In addition to the logs stored in the SRAM area, the log files output to an SD card can also be displayed in the log viewer.

Log files written to an SD card are database format files. A dedicated tool "LogToCsv" will be available to convert such log files to CSV files so their contents can be viewed.



4.2 Using the Operation Log Viewer

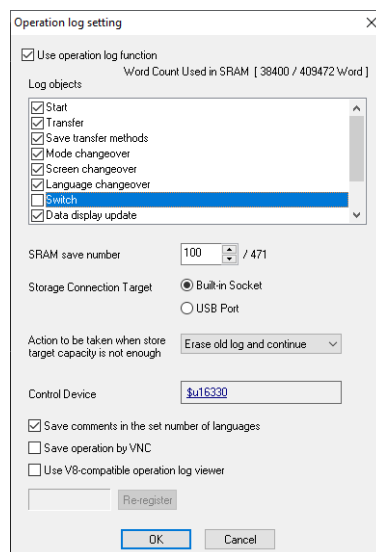
4.2.1 Conceptual Operation



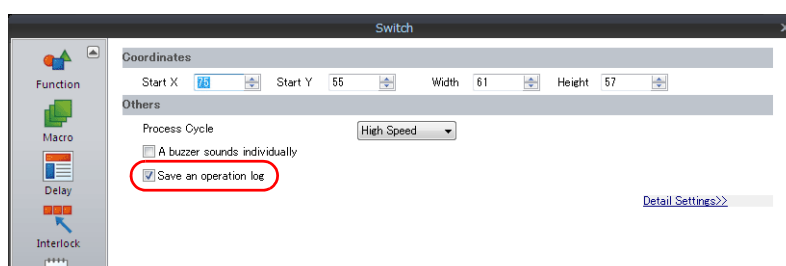
4.2.2 Setting Procedure

Configuring the Operation Log

1. Click [System Setting] → [Other] → [Operation log Setting]. The [Operation log setting] window is displayed.
2. Select the [Use operation log function] checkbox and select the checkboxes of the relevant items under [Log objects].



3. Set the number of logs to save in SRAM with [SRAM save number].
 4. Select the how to connect the SD card with [Storage Connection Target].
 5. Set any other relevant settings and then click [OK].
- * When [Switch] or [Data display update] are selected under [Log objects], the [Save an operation log] checkbox must be selected in the settings window of switches, numerical data displays, and character displays targeted for logging.



Operation Log Viewer Settings

1. Place a switch for displaying the operation log viewer.
2. Select [Operation Log Viewer Display] in the [Function] settings.

This completes the necessary settings. The screen program can be transferred to MONITOUCH.

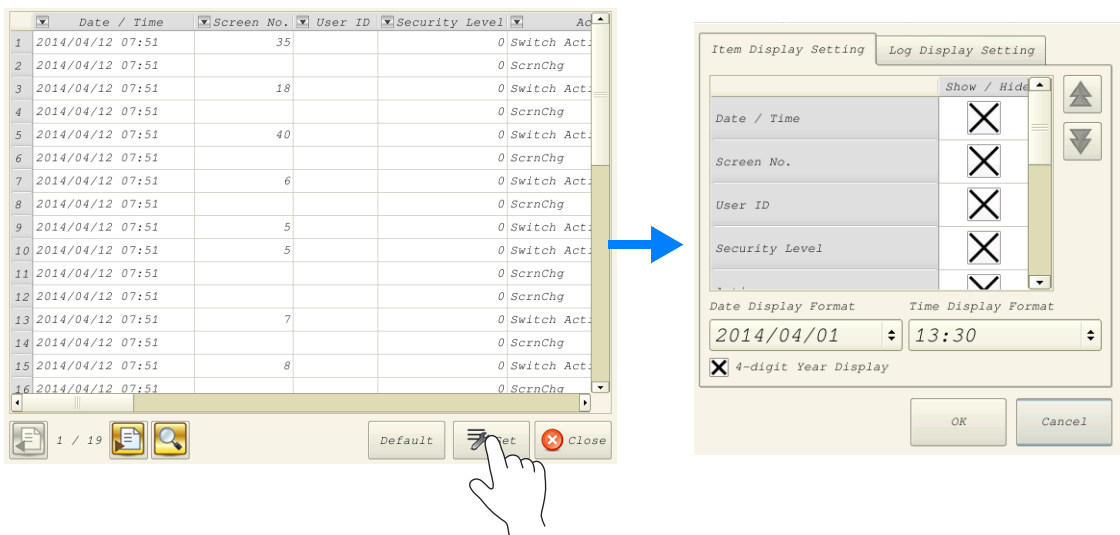
4.2.3 Operating Procedure

Displaying the Operation Log Viewer

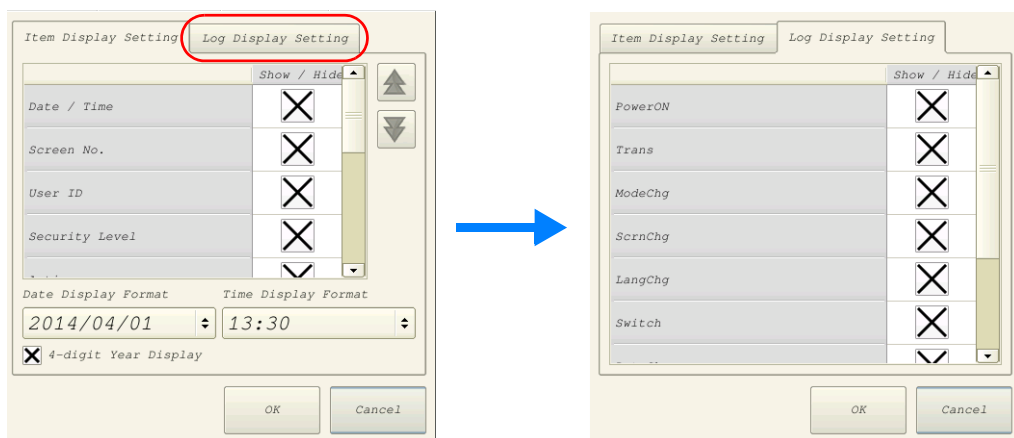
1. Display the screen that contains the switch configured above on MONITOUCH.
2. Press the switch to display the operation log viewer.
 - * The operation log viewer can be displayed in both RUN mode and Local mode.

Settings Menu

1. Press the [Set] switch. The window shown below is displayed.



2. Change the order of titles, hide unnecessary display items, and change the date and time format as desired.
3. To hide log items, switch to the [Log Display Settings] tab window.



For details on other log viewer settings, refer to "4.5 Operation Log Viewer" page 4-12.

4.3 Applicable Items

4.3.1 Applicable Items and Saving

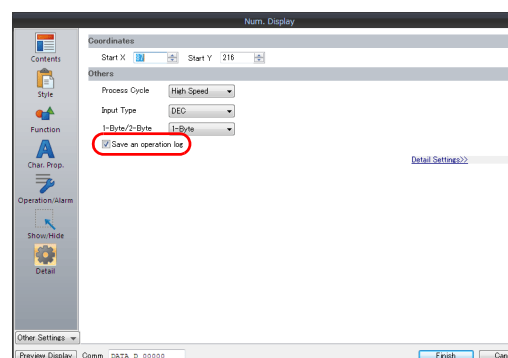
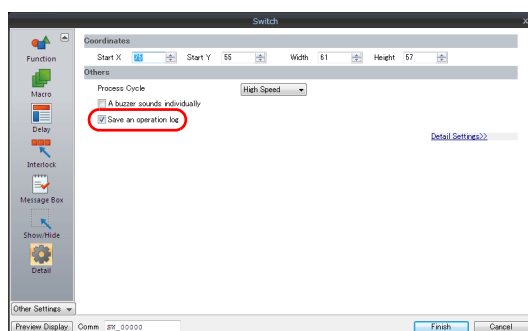
Applicable Items and Timing of Saving

The table below shows the items that can be saved to operation logs and when saving to SRAM takes place.

Items	Timing of Saving																
Start	When power is turned ON																
Transfer	When transferring a screen program or the I/F driver ^{*1}																
Transfer method	When transferring a screen program or the I/F driver ^{*1} * Valid when [Transfer] is selected as a logging item.																
Mode changeover	When changing between RUN mode and local mode																
Screen changeover	When changing between screens																
Language changeover	When changing between languages																
Switch	When a switch with any of the following functions is pressed. ^{*2} <table border="1"> <thead> <tr> <th colspan="2">With output device memory</th> <th>Momentary, Set, Reset, Alternate, Momentary W, Word Operation</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Function</td> <td>Standard</td> <td>Screen, overlap display, multi-overlap display, reset, card formatting, card removal, language changeover</td> </tr> <tr> <td>Entry</td> <td>Delete (alarms only)</td> </tr> <tr> <td>Card</td> <td>Card formatting, transfer from card to PLC, transfer from PLC to card</td> </tr> <tr> <td>Digital switch</td> <td>Digital switch +, digital switch –</td> </tr> <tr> <td>JPEG</td> <td>File deletion</td> </tr> <tr> <td>Security</td> <td>Login/Logout</td> </tr> </tbody> </table>	With output device memory		Momentary, Set, Reset, Alternate, Momentary W, Word Operation	Function	Standard	Screen, overlap display, multi-overlap display, reset, card formatting, card removal, language changeover	Entry	Delete (alarms only)	Card	Card formatting, transfer from card to PLC, transfer from PLC to card	Digital switch	Digital switch +, digital switch –	JPEG	File deletion	Security	Login/Logout
With output device memory		Momentary, Set, Reset, Alternate, Momentary W, Word Operation															
Function	Standard	Screen, overlap display, multi-overlap display, reset, card formatting, card removal, language changeover															
	Entry	Delete (alarms only)															
	Card	Card formatting, transfer from card to PLC, transfer from PLC to card															
	Digital switch	Digital switch +, digital switch –															
	JPEG	File deletion															
	Security	Login/Logout															
Data display update ^{*2 *3}	When updating numerical data/character displays in entry mode (Write/↓/↑ keys)																
Log destruction	When newly storing log data after clearing the SRAM area due to the reasons below: <ul style="list-style-type: none"> SRAM data corruption Failure to output to SD card 																
Scheduler	When the scheduler starts or ends																

*1 Logging does not take place when transferring system programs of MONITOUCH.

*2 Logs can be saved for switches, numerical data displays, and character displays when the [Save an operation log] checkbox is selected in the [Detail] settings of the item's settings window. (Default: selected)



*3 Table data display is not supported.

Saved Items (Titles)

The following item types are saved.

Saved Item (Title)	Description	Max. No. of Characters (Bytes)
Log No.	-	-
Date/Time	Date/time of log acquisition	-
Screen No.	Screen number (0 to 9999)	-
User ID	User ID registered in security settings	8
Security Level	Security level (0 to 15)	-
Transfer method	Transfer source device (PC, SD card or USB flash drive)	3
VNC user	The username of the VNC client	16
MAC address	The MAC address of the VNC client	6
Action	(Differs depending on the log item. For details on the saved content for each item, refer to the sections below.)	-
Function	(Differs depending on the log item. For details on the saved content for each item, refer to the sections below.)	-
Comment	Comments on screens and parts	32
Display Format	Display format of numerical data displays	-
Value (Before)	Value before change	-
Value (After)	Value after change	-

Start

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	-	-	-	○	-	-	-	-	-

Details of items are as follows:

Action	Start
--------	-------

Transfer

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	○	-	-	○	○	-	-	-	-

Details of items are as follows:

Transfer method	Transfer source device (PC, SD card or USB flash drive)
Action	Transfer
Function	Screen program
	Driver, expansion program

Mode Changeover

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	-	-	-	○	○	-	-	-	-

Details of items are as follows:

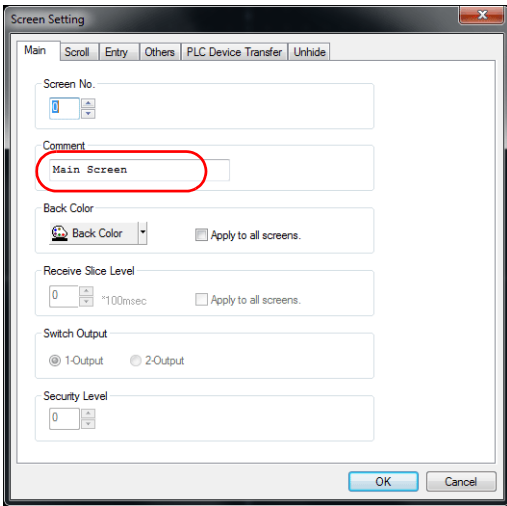
Action	Mode changeover
Function	Change to RUN mode
	Change to Local mode

Screen Changeover

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	○	○	-	○*	○*	○	-	○	-	○	○

* Only when [Switch function: Screen Change-over] is executed. SYS(SET_SCRN) command of ON/OFF macro is not supported.

Details of items are as follows:

Action	Screen changeover
Comment	The comment entered in the [Screen Setting] → [Screen Setting] window is stored. When no comment is entered, the [Comment] field is blank. 
Value (Before)	Stores the screen number before changeover.
Value (After)	Stores the screen number after changeover.

Language Changeover

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	○	○	-	○*	○*	○	-	-	-	○	○

* Only when [Switch function: Language change-over] is executed. SYS(CHG_LANG) command of ON/OFF macro is not supported.


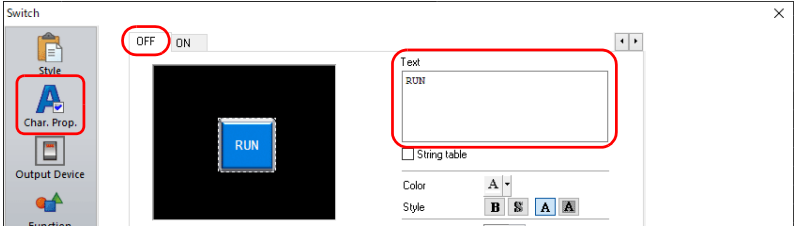
Details of items are as follows:

Action	Language changeover
Value (Before)	Stores the language number before changeover.
Value (After)	Stores the language number after changeover.

Switch

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	○	○	○	-	○	○	○	○	○	-	-	-

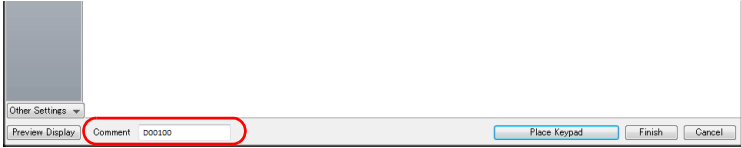
Details of items are as follows:

Action	Switch operations (Mom)/(Set)/(Rst)/(Alt)/(Word)/(Sample)/(Alm)
Function	Screen Overlap display/multi-overlap display Word Operation Reset Card formatting/card removal Language changeover DELETE Transfer from card to PLC / transfer from PLC to card Digital switch +, digital switch - File deletion Login/Logout
Comment	Outputs the comment in the switch settings window. Data displays/switch comments can be batch changed into device memory notation by clicking [Tool] → [Other] → [Convert item comment to device notation].  <p>If the [Comment] field is blank, the text entered on the [Char. Prop.] → [OFF] tab is output.</p> 

Data Display Update

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	○	○	○	-	○	○	○	○	○	○	○	○

Details of items are as follows:

Action	Data Display Update
Function	Numerical display Character display
Comment	Outputs the comment in the numerical data display and character display settings window. Data displays/switch comments can be batch changed into device memory notation by clicking [Tool] → [Other] → [Convert item comment to device notation]. 

Log Destruction

A log is saved when the SRAM area is cleared and newly saving logs because of SRAM data corruption or failure to output to the SD card. The log contains the data items below.

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	-	-	-	○	-	-	-	-	-

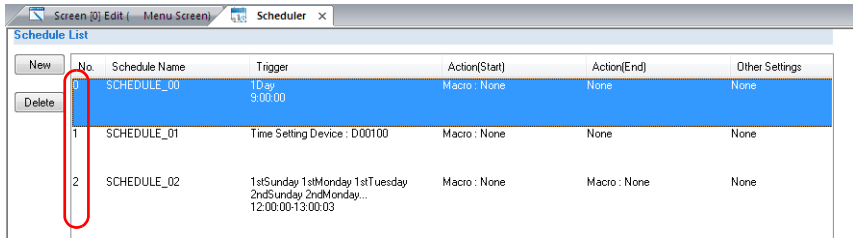
Details of items are as follows:

Action	Log destruction
--------	-----------------

Scheduler

Date/Time	Screen No.	User ID	Security Level	Transfer Method	VNC user	MAC address	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	-	-	-	○	○	○	-	-	-

Details of items are as follows:

Action	Scheduler
Function	Start operation End operation
Comment	The schedule number (0 to 63) is stored. 

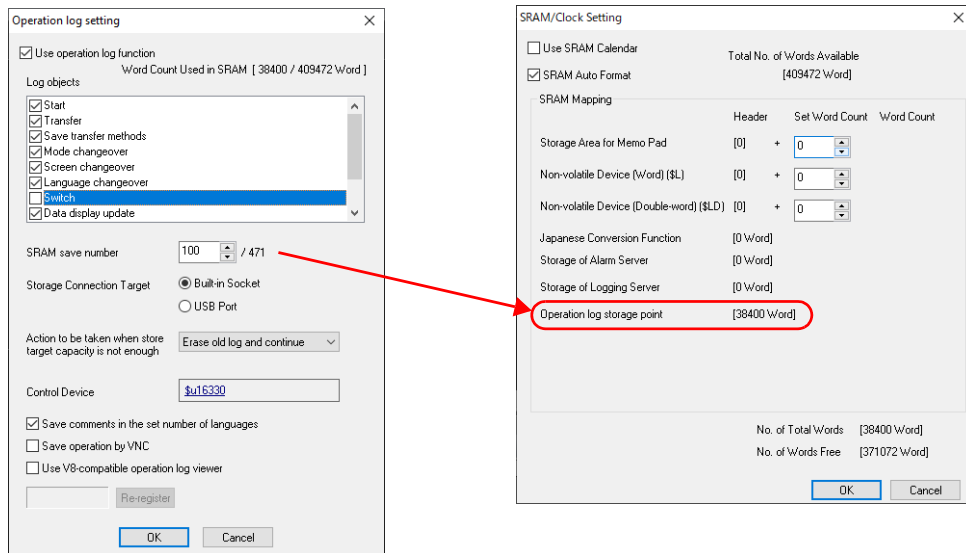
4.4 Detailed Settings

Operation Log Settings

Select the [Use operation log function] to enable the following items.

Item	Description
Log objects	Select the checkboxes of the items to save to operation logs. For details, refer to "4.3 Applicable Items" page 4-5.
SRAM save number *1 *2	Set the number of logs to be stored in the SRAM area.
Storage Connection Target	Select how to connect the SD card, to which operation logs will be output.
Action to be taken when store target capacity is not enough	Select the action to take when the SD card is full.
Control Device *3	Set the device memory for outputting log data to the SD card.
Save comments in the set number of languages *1	This setting is available when using the multi-language function and saving items displayed under [Log objects] that support comments. When selected, comments are saved to logs even in multi-language mode (when displaying a language other than the primary language). When using "LogToCsv.exe", comments can be output to CSV file in the selected language. For details, refer to "4.6.3 Importing Log Data to Computer (Conversion to CSV Files)" page 4-18.
Save operation by VNC	Select this option to differentiate operation logs for VNC clients. The log includes VNC username and MAC address.
Use V8-compatible operation log viewer	This checkbox is selected automatically when converting from a V8 series screen program.

*1 The required amount of SRAM is automatically secured based on the [SRAM save number] setting.



*2 The maximum value of the [SRAM save number] setting differs depending on whether or not the [Save transfer methods] checkbox is selected and the number of languages set in the screen program. Refer to the chart shown below.

Number of Languages	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Maximum Number of Logs [Save transfer methods] deselected	512	512	512	437	379	332	300	271	247	228	211	197	185	174	164	155
[Save transfer methods] selected	471	471	471	402	349	305	276	249	227	210	194	181	170	160	151	143

*3 Control Device

Control device memory	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Reserved for system Bit for card output

- Bit 0: bit for output to card
SRAM log data is output to the card when the bit state changes from 0 to 1.

- *4 Compatible with V9 series OS V3.90 and SYSTEM V2.100. A new log file is created when the settings are changed.

Operation log viewer

	Date / Time	User ID	Security Level	VNC User	MAC Address	
1	2020/05/27 12:03		0			Switch Action
2	2020/05/27 12:03		0			ScrnChg
3	2020/05/27 12:04		0	vnc	D8:9E:F3:35:F6:...	Switch Action

Blank cells are the operation log operated through the V10/V9 or a USB mouse.

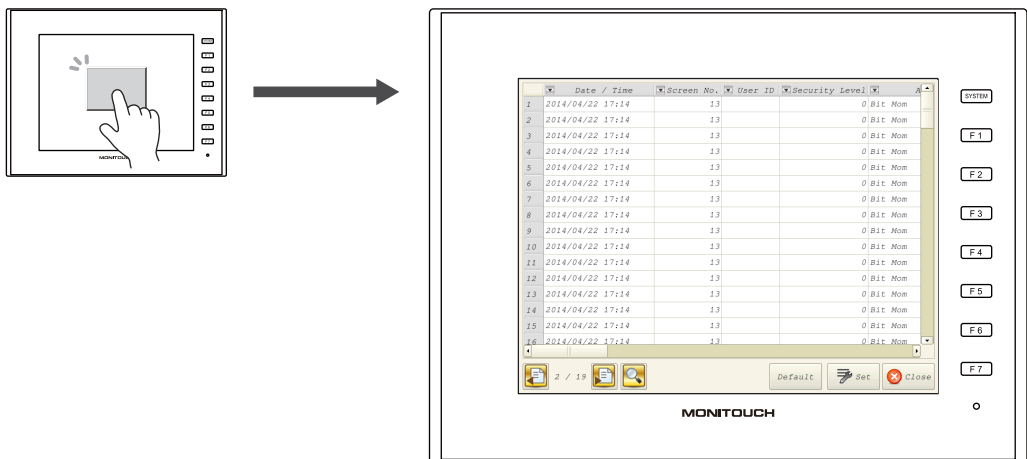
4.5 Operation Log Viewer

4.5.1 Display Method

The operation log viewer can be displayed in both RUN mode and Local mode.

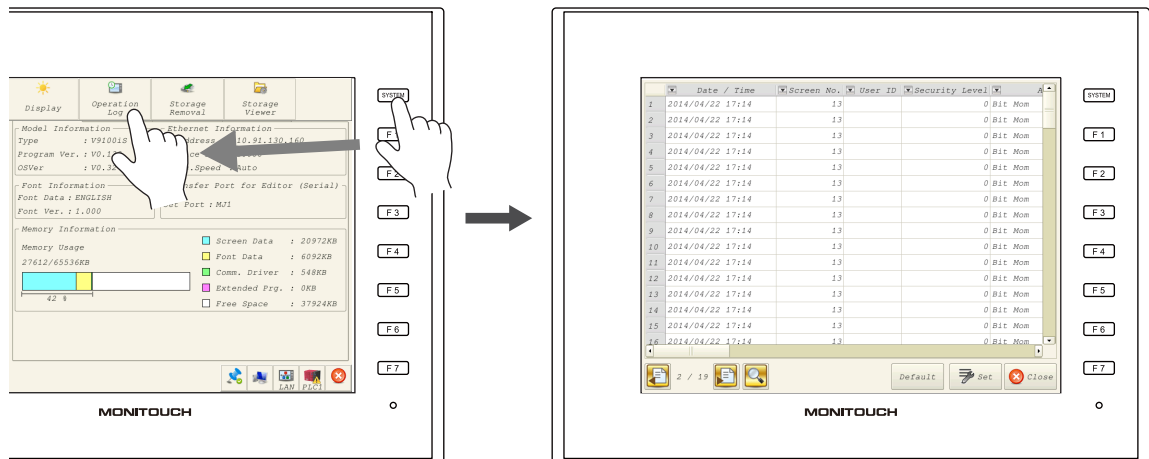
RUN Mode

Press a switch configured with [Operation Log Viewer Display] for [Function] to display the operation log viewer.



Local Mode

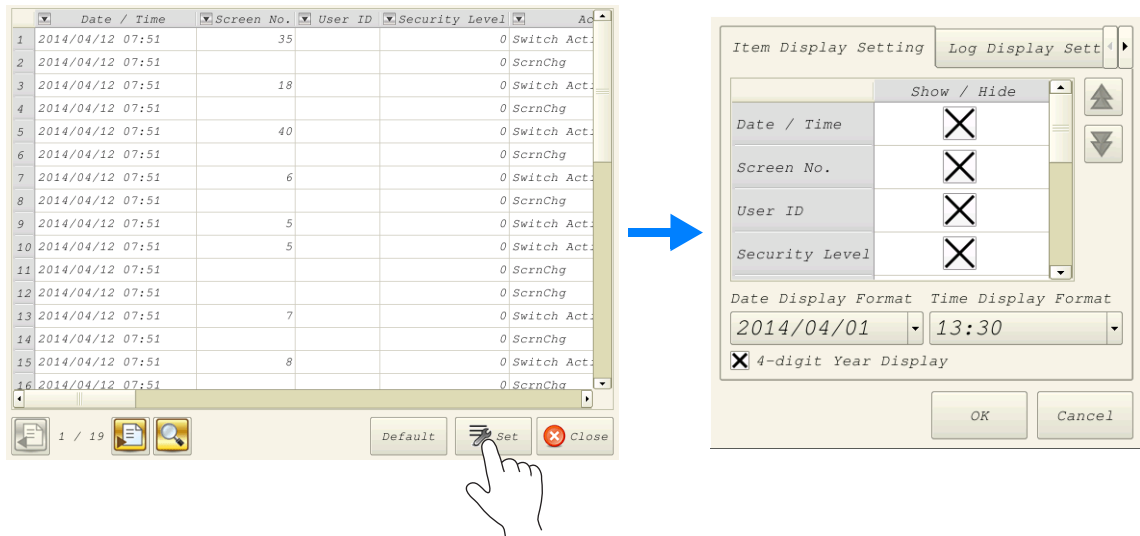
Press the [SYSTEM] button to display the system menu.
Tap the [Operation Log] switch to display the operation log viewer.



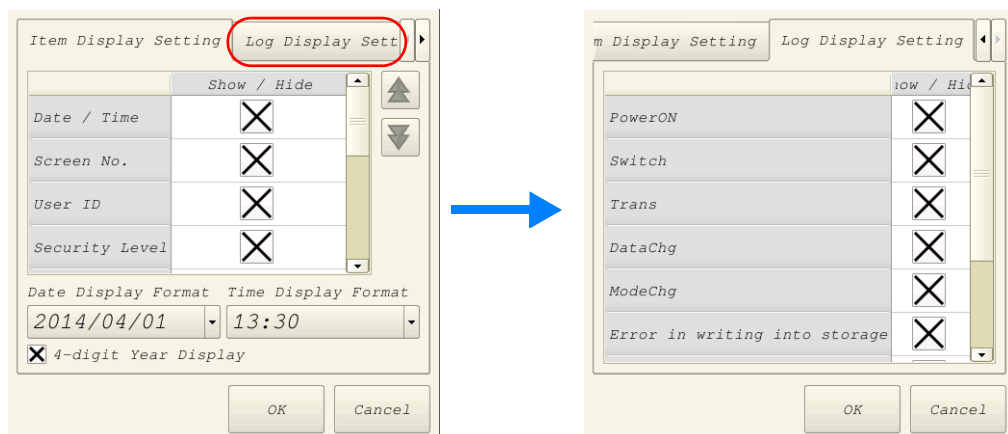
4.5.2 Function

Showing/Hiding Items

Tap the [Set] switch in the operation log viewer. The settings window shown below is displayed.



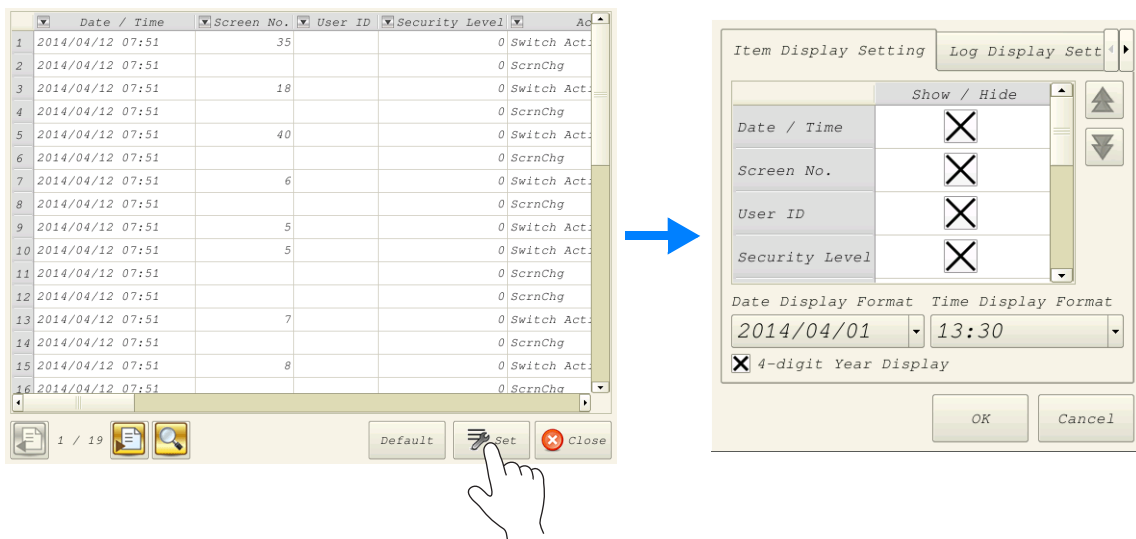
Select the [Log Display Setting] tab to check a list of items that can be displayed in the operation log viewer. Deselect the checkbox of items to hide and click [OK] to only display items with a selected checkbox.



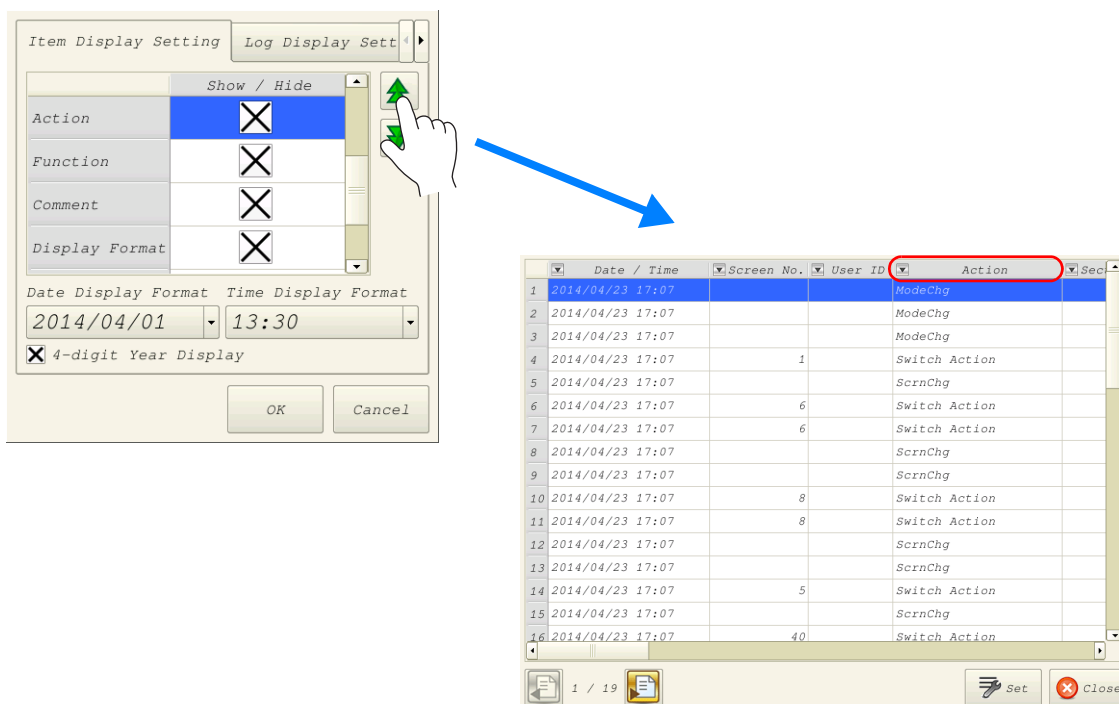
The settings made in this window are stored in SRAM and therefore are retained even if the power is turned off and on.

Changing Order of Display

Tap the [Set] switch in the operation log viewer. The settings window shown below is displayed.



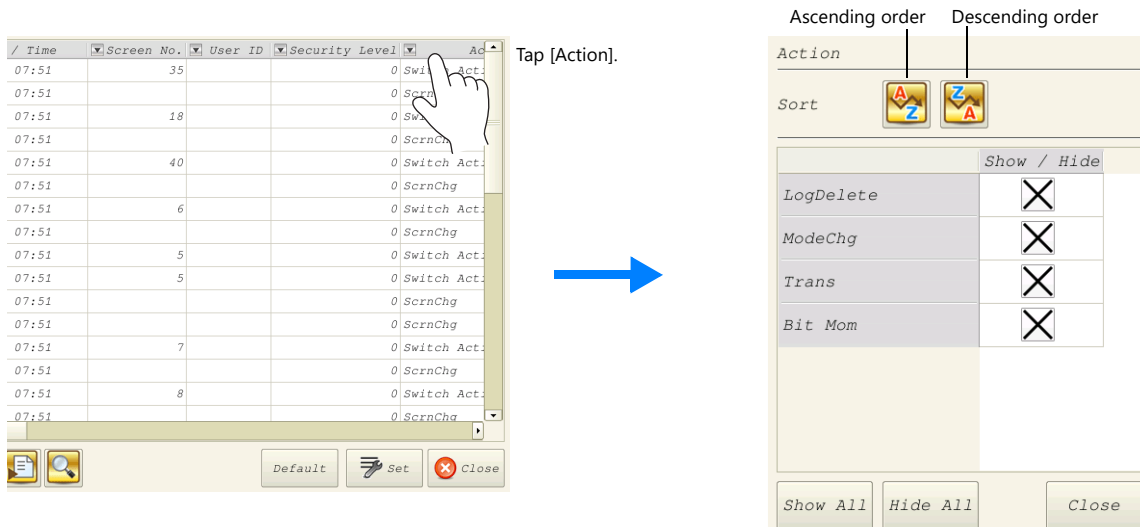
Select the title to move on the [Item Display Setting] tab window and press the [↑] or [↓] switch. The display order changes accordingly. Items are displayed in this order on the operation log viewer of MONITOUCH



The settings made in this window are stored in SRAM and therefore are retained even if the power is turned off and on.

Filter

Tap an item in the title bar of the operation log viewer. The following filter window is displayed.



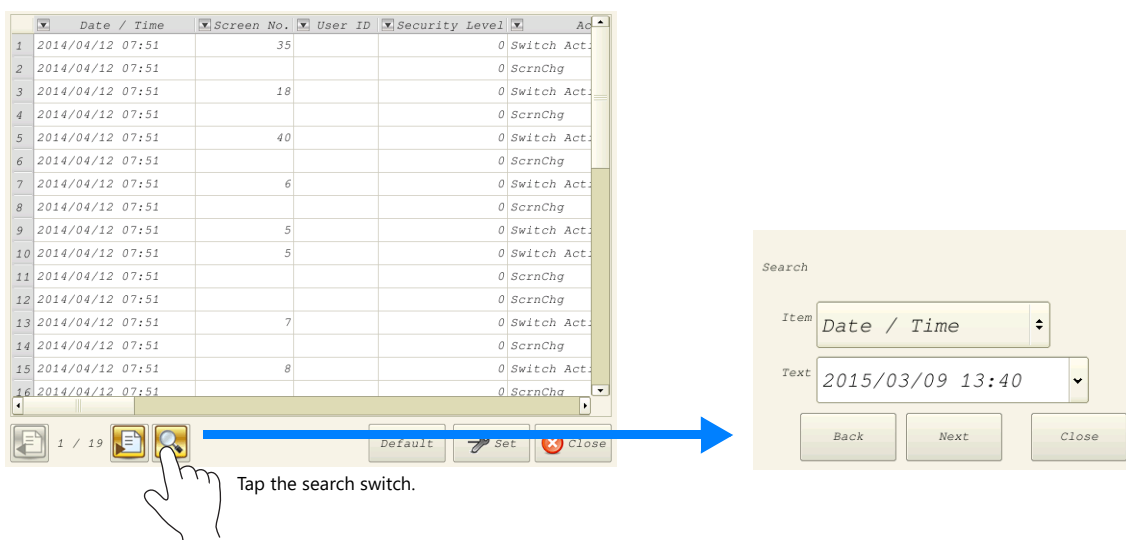
Sort the display using the ascending and descending order switches.

If there are items you wish to hide, deselect the relevant checkbox and click [Close] to only display items with a selected checkbox.

To restore the default display settings, tap the [Default] switch or the file change switch, or close and open the operation log viewer.

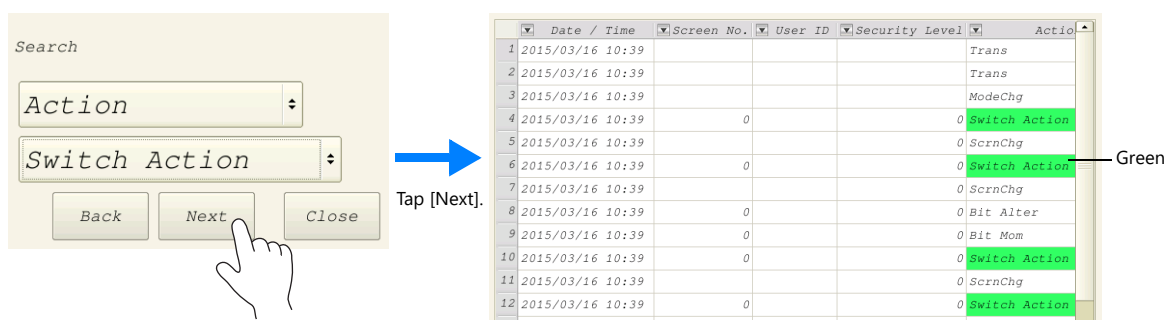
Search

Tap the search switch in the operation log viewer. The following search window is displayed.



Select the item and text to search for and tap [Next]. Cells that match the search are highlighted in green on the viewer.

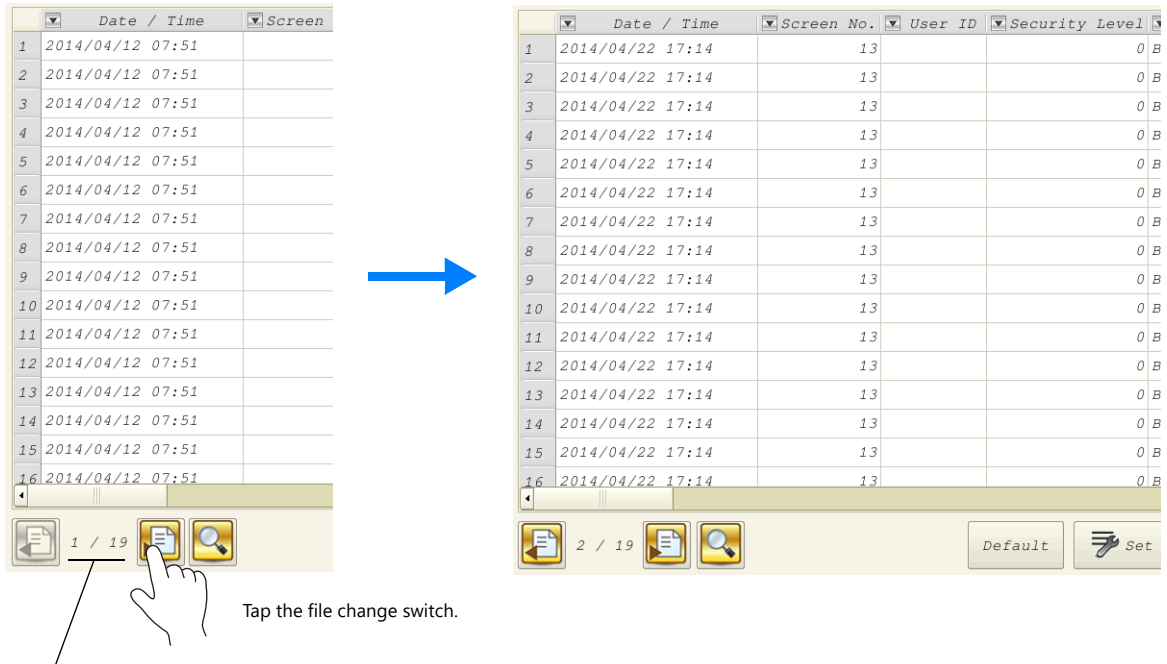
To clear the highlighted display, tap the [Default] switch or the file change switch, or close and open the operation log viewer.



* The currently displayed items of the current file are searched. Hidden items are excluded.

Changing Between Log Files

Tap the file change switch in the operation log viewer. This switches the display between the log database file in SRAM and the log database file on the SD card.



* When the indicator shows "1/n", this means that the log in SRAM is being displayed.

4.5.3 Note

Display Priority

The operation log viewer is displayed on the screen with the same priority as the system menu. This means it is displayed on top of other items.

Language of the Operation Log Viewer

The display language of the operation log viewer depends on the display language of Local mode.

In addition to Japanese, the operation log viewer can be displayed in English, Chinese (Traditional), Chinese (Simplified), and Korean.

▼	▼ 日期 / 时间	▼ 屏幕号	▼ 用户名	▼ 安全等级	▼ 动作	▼ 功
1	2014/04/23 17:07				模式切换	到RUN
2	2014/04/23 17:07				模式切换	到本地
3	2014/04/23 17:07				模式切换	到RUN
4	2014/04/23 17:07	1		0	开关动作	屏幕
5	2014/04/23 17:07			0	屏幕切换	
6	2014/04/23 17:07	6		0	开关动作	屏幕
7	2014/04/23 17:07	6		0	开关动作	屏幕
8	2014/04/23 17:07			0	屏幕切换	
9	2014/04/23 17:07			0	屏幕切换	
10	2014/04/23 17:07	8		0	开关动作	屏幕
11	2014/04/23 17:07	8		0	开关动作	屏幕
12	2014/04/23 17:07			0	屏幕切换	
13	2014/04/23 17:07			0	屏幕切换	
14	2014/04/23 17:07	5		0	开关动作	屏幕
15	2014/04/23 17:07			0	屏幕切换	
16	2014/04/23 17:07	40		0	开关动作	屏幕

4.6 Log Data

4.6.1 Output Timing

Log data is first output to SRAM. Subsequent log data in SRAM may be output to external media (SD card) depending on the condition of SRAM. This section explains the timing of output.

Output to SRAM

For information on the output timing of each item, refer to ["Applicable Items and Timing of Saving" page 4-5](#).

Output to SD Card

Log data in SRAM is output to the SD card at the following timings.

- When the area defined by [SRAM save number] in the [Operation log setting] window is full
- When the "card output bit" defined for [Control Device] in the [Operation log setting] window turns ON
- When a switch with [Storage Removal] set for [Function] is pressed
- When the setting of [SRAM save number] in the [Operation log setting] window is changed
- When the setting of [Interface Language] in the [Font Setting] window for the screen program is changed

4.6.2 Details of Output (File Type)

Output to SRAM

The following file format is output to SRAM.

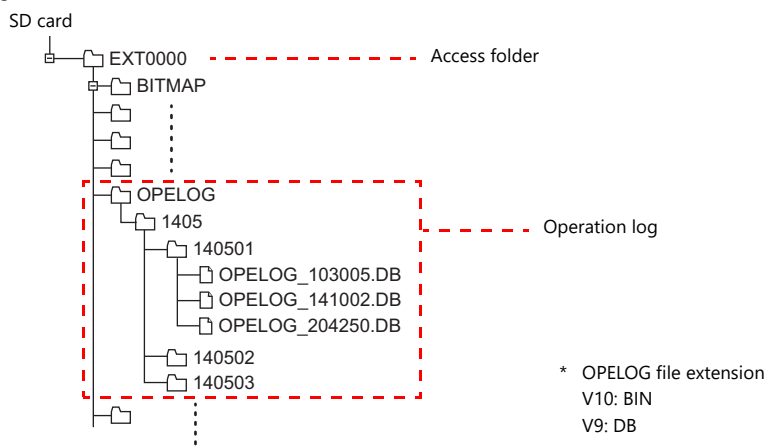
Model	File Name	Remarks
V10	OPELOG.BIN	Binary file
V9	OPELOG.DB	Database file

Output to SD Card

The directory and file type when outputting to an SD card is as follows.

Storage Destination	File Name
Access folder\OPELOG\YYMM\YYMMDD	OPELOG_hhmmss.DB
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> Year and month </div> <div style="text-align: center;"> Year, month, and day </div> </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> Hour, minutes, and seconds </div> <div style="text-align: center;"> V10: BIN V9: DB </div> </div>

e.g. V9



4.6.3 Importing Log Data to Computer (Conversion to CSV Files)

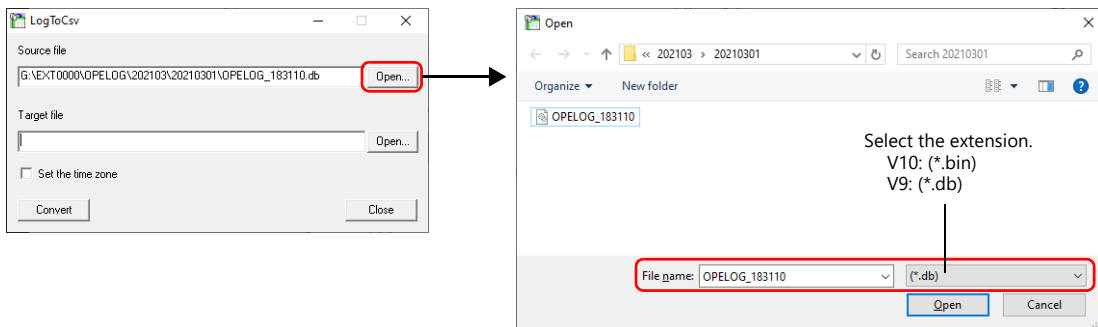
A log file output to a storage device can be converted to a CSV file for viewing using the dedicated "LogToCsv" tool. "LogToCsv.exe" is installed when V-SFT version 6 (Ver. 6.0.8.0 or later) is installed. If the version of your V-SFT version 6 is an earlier one, download "LogToCsv.exe" from Hakko Electronics' website and install.

File Conversion Procedure

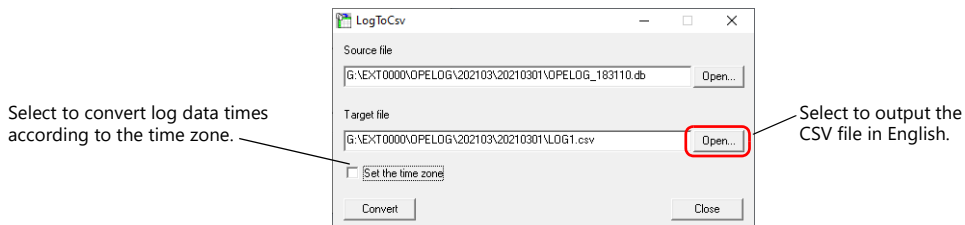
1. Click the start button and start "LogToCsv" from [All Programs] → [V-SFTV6].



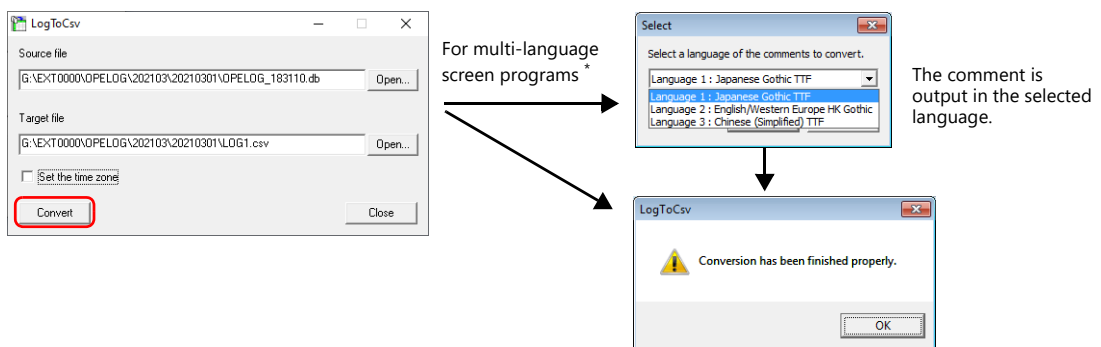
2. Click the [Open] button for [Source file] and select the log file to convert.



3. Click the [Open] button for [Target file] and specify the location for storing the CSV file and the filename.



4. Click the [Convert] button. A conversion complete message is displayed and the CSV file is output to the specified location.



* To display the language selection window for comments, select the [Save comments in the set number of languages] checkbox at [System Setting] → [Other] → [Operation log Setting]. For details, refer to "4.4 Detailed Settings" page 4-10.

5. Open the CSV file.

1	A	B	C	D	E	F	G	H	I	J	K	L
No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val	
2	1	2014/7/23	1:28:53	-		0 ScrnChg	-					
3	2	2014/7/23	1:28:56	2		0 Bit Mom	-	SW_00012		-	-	
4	3	2014/7/23	1:28:57	2		0 Bit Mom	-	SW_00012		-	-	
5	4	2014/7/23	1:28:58	2		0 Switch	Word Operation	SW_00000		-	-	
6	5	2014/7/23	1:29:06	-	-	ModeChg	To Local			-	-	
7	6	2014/7/23	1:29:13	-	-	ModeChg	To Run			-	-	
8	7	2014/7/23	1:29:15	0		0 Switch	Screen	SW_00000		-	-	
9	8	2014/7/23	1:29:15	-		0 ScrnChg	-			0	1	
10	9	2014/7/23	1:29:20	-		0 ScrnChg	-			1	0	
11	10	2014/7/23	1:29:22	0		0 Switch	Screen	SW_00000		-	-	
12	11	2014/7/23	1:29:22	-		0 ScrnChg	-			0	2	
13	12	2014/7/23	1:29:28	2		0 Switch	Screen	SW_00000		-	-	
14	13	2014/7/23	1:29:28	-		0 ScrnChg	-			2	0	
15	14	2014/7/23	1:29:29	0		0 Switch	Screen	SW_00000		-	-	
16	15	2014/7/23	1:29:30	-		0 ScrnChg	-			0	2	
17	16	2014/7/23	1:32:21	2		0 Bit Mom	-	SW_00012		-	-	
18	17	2014/7/23	1:32:36	2		0 Bit Mom	-	SW_00012		-	-	
19	18	2014/7/23	1:32:37	2		0 Bit Mom	-	SW_00012		-	-	
20	19	2014/7/23	1:32:37	2		0 Bit Mom	-	SW_00012		-	-	
21	20	2014/7/23	1:32:39	2		0 Bit Mom	-	SW_00012		-	-	
22	21	2014/7/23	1:32:39	2		0 Bit Mom	-	SW_00012		-	-	
23	22	2014/7/23	1:32:40	2		0 Bit Mom	-	SW_00012		-	-	
24	23	2014/7/23	1:32:41	2		0 Bit Mom	-	SW_00012		-	-	
25	24	2014/7/23	1:32:44	2		0 Switch	Word Operation	SW_00000		-	-	
26	25	2014/7/23	1:32:54	2		0 Bit Mom	-	SW_00012		-	-	
27	26	2014/7/23	1:32:55	2		0 Bit Mom	-	SW_00012		-	-	
28	27	2014/7/23	1:32:55	2		0 Switch	Word Operation	SW_00000		-	-	
29	28	2014/7/23	1:32:55	2		0 Bit Mom	-	SW_00012		-	-	

For multi-language screen programs, comments are output in the selected language.

* The text is not Unicode. Check the text in an OS environment of the relevant language.

4.7 System Device Memory

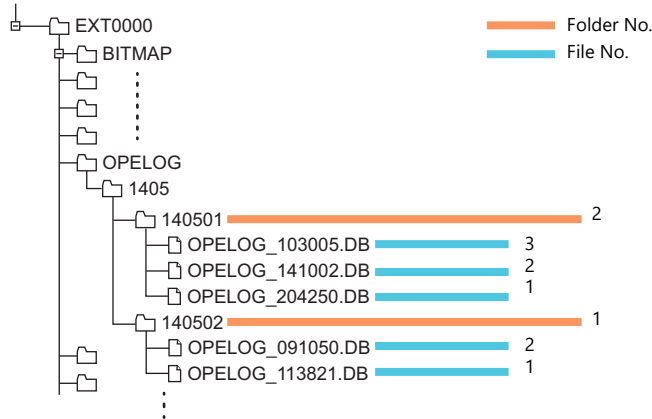
The following describes the system device memory associated with the operation log viewer.

Addresses	Description	Remarks
\$s1365	File number of currently displayed log data	← V
\$s1366	Log folder number being displayed	

- * When the log data in SRAM is displayed, 0 is stored at both addresses \$s1365 and \$s1366.
- When a log file on a SD card is displayed, the files and folders stored on the SD card are numbered sequentially, starting at 1, from the file with the most recent datestamp.
- The following illustrates the numbering of files and folders.

e.g. V9

SD card



* OPELOG file extension
V10: BIN
V9: DB

5 Security

5.1 Overview

Security

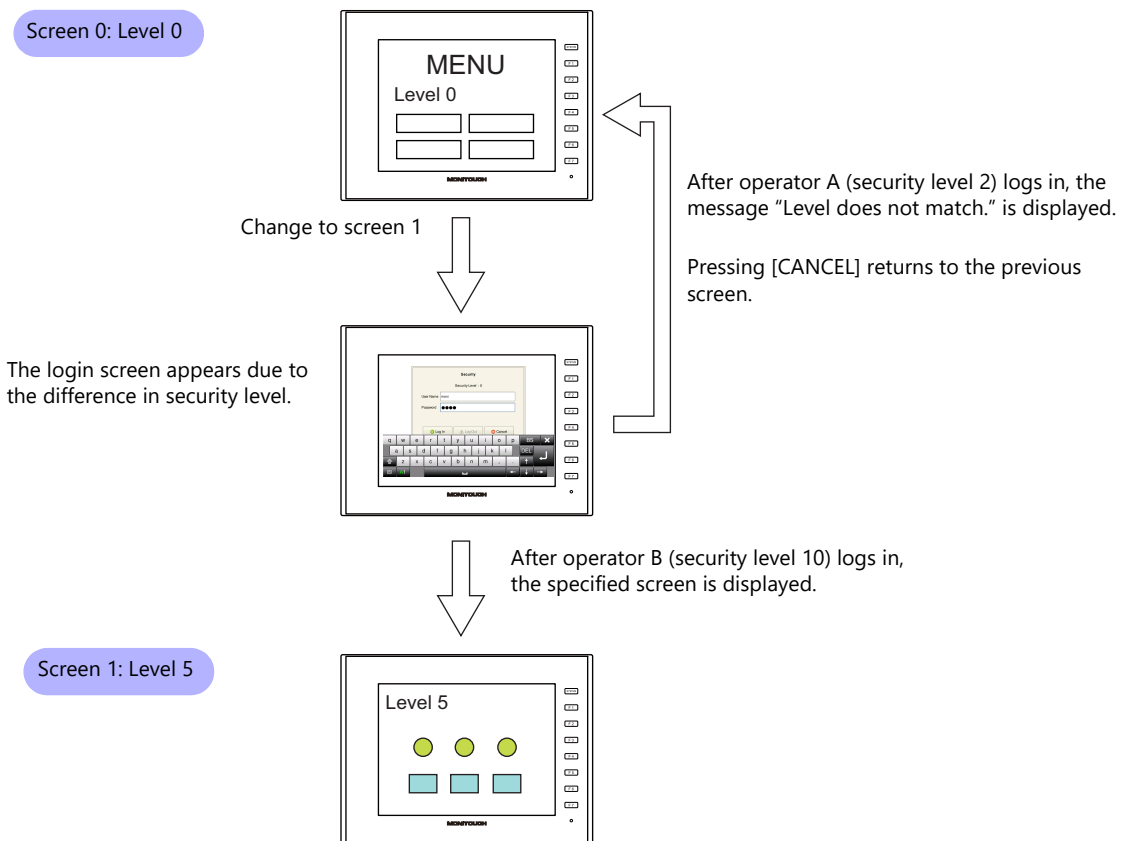
Registering user IDs and passwords at the required security levels in advance enables operators to control the display and operation of screens in accordance with their corresponding security level.

* Security levels are set on a scale from 0 to 15.

Security Level	Priority	Description
0	Low ↓	Screen display and operation permitted at level 0 (no security)
1		Screen display and operation permitted at levels 0 and 1
:		:
15	High	Screen display and operation permitted at all levels from 0 through 15

Screen Security Levels

A security level can be set for each screen. An attempt to switch to a higher-security screen will automatically display the login screen. The target screen can be displayed by entering a user ID and password at a level equivalent to or higher than the level required for the target screen.

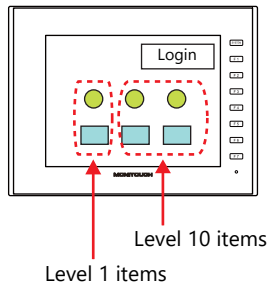


👉 For details on the location of settings, refer to [“Screen Settings” page 5-6](#).

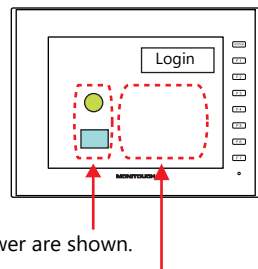
Item Security Levels

Security levels can be set for each item on the screen, such as switches and data displays. Once security levels are specified for screen items, these items can be shown or hidden based on the security level selected when an operator logs into the system. Also, switches can be configured with an interlock setting.

Showing/Hiding Items

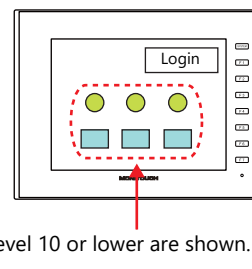


Operator A
Security level 2



Items at level 2 or lower are shown.
Items at level 3 or higher are hidden.

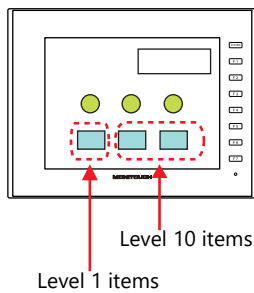
Operator B
Security level 10



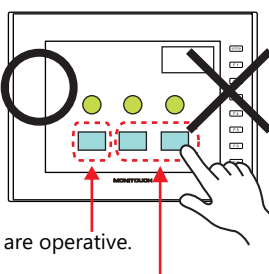
Items at level 10 or lower are shown.

For details on the location of settings, refer to “[Show/Hide] Settings in the Settings Window of Each Part” page 5-7.

Prohibiting Switch Operations

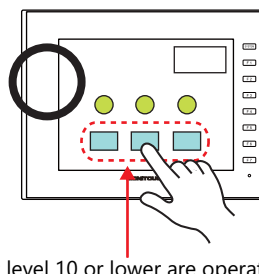


Operator A
Security level 2



Items at level 2 or lower are operative.
Items at level 3 or higher are inoperative.

Operator B
Security level 10

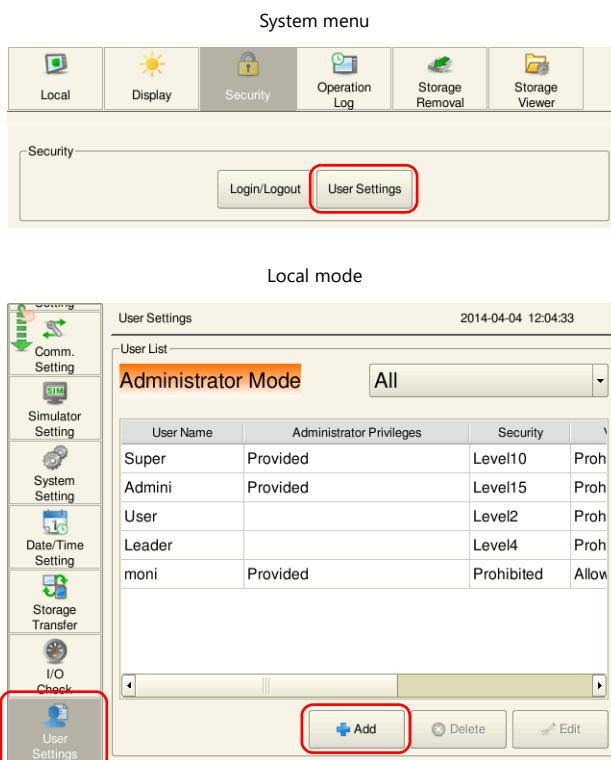


Items at level 10 or lower are operative.

For details on the location of settings, refer to “[Interlock] Settings in the [Switch] Settings Window” page 5-7.

User ID and Password Registration

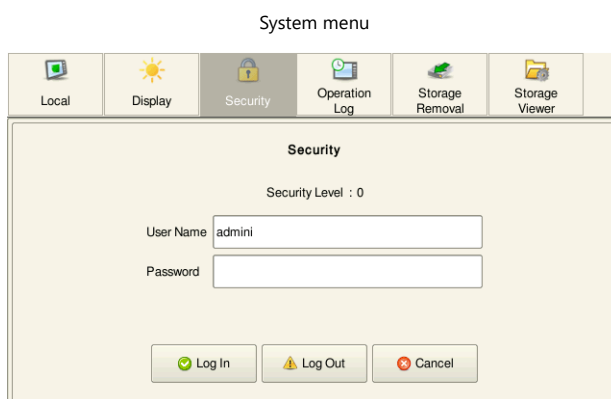
User IDs and passwords can be set to screen programs in advance, but can also be added from the system menu of MONITOUCH (or in Local mode). The system offers the flexibility to add new users in situations where sudden changes are required on the factory floor.




* Only users with administrator privileges can register, edit, and delete user accounts.

Login/Logout

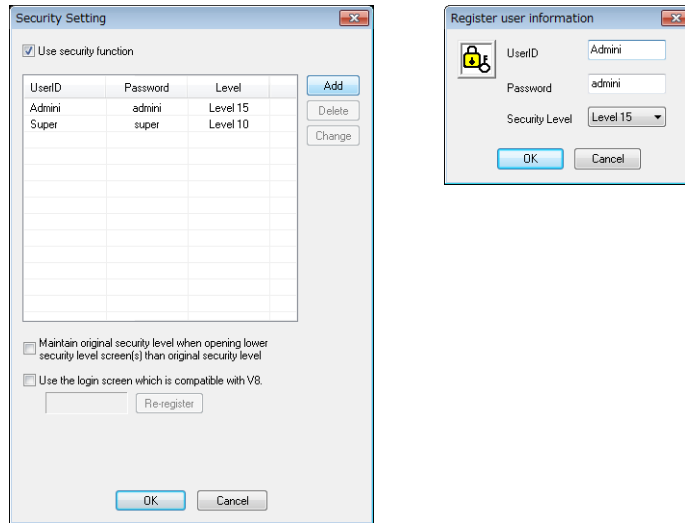
The security level can be changed by logging in or out with the screen that is automatically displayed when a screen change occurs as well as from the system menu or a switch.



 For details, refer to ["5.4 Login/Logout" page 5-8.](#)

5.2 Security Settings

Location of settings: [System Setting] → [Other] → [Security Setting].



Item	Description
Use security function	Select this checkbox to use the security function.
UserID * ¹ Password Level	Register user IDs, passwords, and security levels using the [Add], [Delete], and [Change] buttons. A maximum of 64 users can be registered. Use eight or less one-byte alphanumeric characters. Input is case-sensitive. * The same user ID cannot be registered more than once. However, the same password can be registered for different user IDs. All users registered to the screen program are granted administrator privileges.
Maintain original security level when opening lower security level screen(s) than original security level * ²	Select the operation to perform when a screen change occurs. Unselected When switching to a screen with a lower security level, the currently valid security level is also lowered to the level of the target screen. When switching to a higher-security screen next, the operator is prompted to enter a password. Selected The same security level is maintained until the level is changed when another user logs in with a different security level or when the user logs out.
Use the login screen which is compatible with V8.	When changing from a V8 series screen program, select this checkbox to use the same login screen as the V8 series.

*1 User IDs and passwords can be registered from the system menu (or in Local mode). Only users with administrator privileges can register, edit, and delete user accounts. While users without administrator privileges can view a list of all users registered in a screen program, editing and deletion is prohibited.



The currently logged in administrator user's account can be deleted. After deletion, the screen returns to the administrator authentication screen. Other administrators' accounts cannot be deleted.

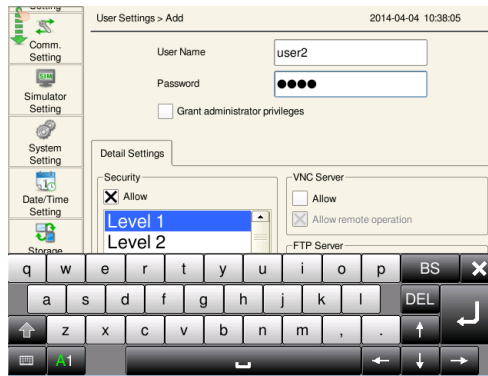
- System menu → [Security] → [User Settings] → enter administrator user ID and password



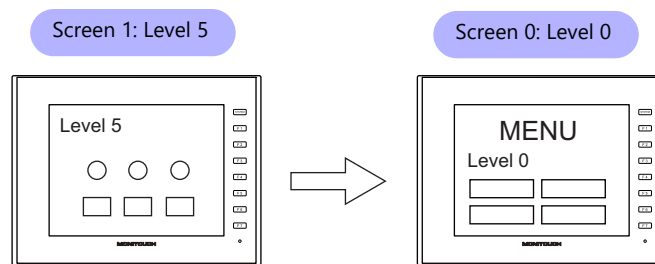
- Local mode → [User Settings] → [Administrator Authentication] → enter administrator user ID and password



User registration screen



*2 When the currently displayed screen is switched to a lower-security screen, the security level may be maintained or automatically lowered, depending on the selected option.



- Level lowered

Security level 5

Security level 0

* The operator must log in again in order to switch to a higher-security screen.

- Level maintained

Security level 5

Security level 5

* The security level is maintained until a login or logout is performed.

5.3 Security Level Settings

The security level can be set at the following three locations. The setting procedure at each location is different.

- Screen settings (page 5-6)
- [Show/Hide] settings in the settings window of each part (page 5-7)
- [Interlock] settings in the [Switch] settings window (page 5-7)

Screen Settings

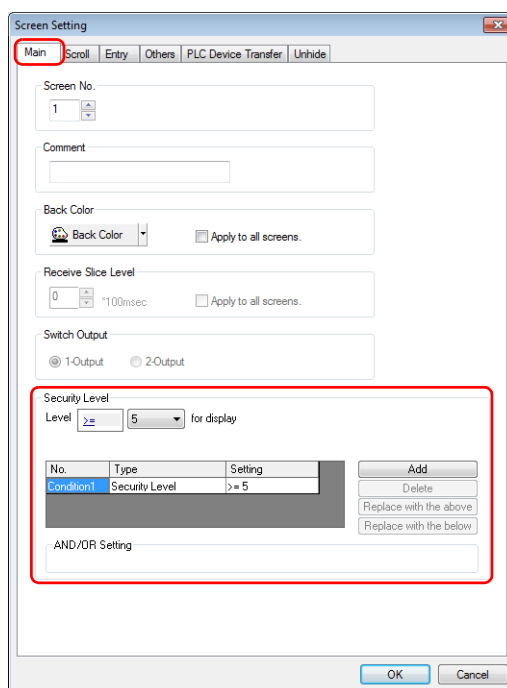
Screen switching can be prohibited according to security level.

Location of settings

[Screen Setting] → [Screen Setting] → [Main] tab window → [Security Level] setting

Security level: 0 to 15

Conditions: =, ≥ (up to five AND or OR operators can be selected)



[Show/Hide] Settings in the Settings Window of Each Part

Screen items can be shown or hidden according to their security level.

Applicable items

The following items can be configured with security level settings.

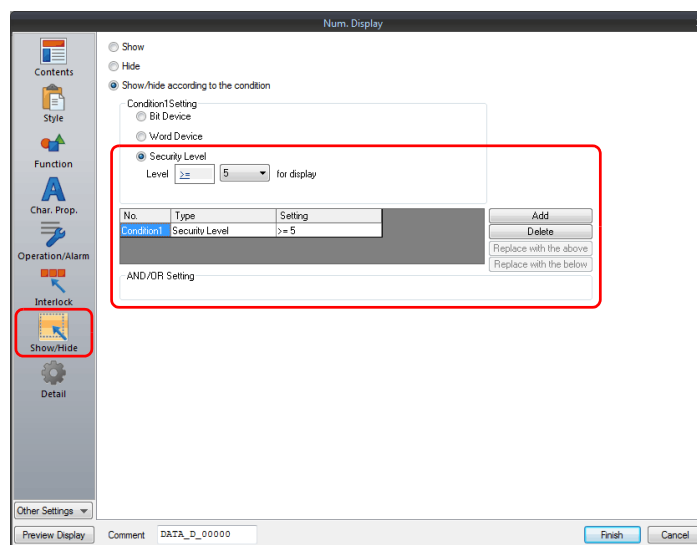
- Switches, lamps
- Numerical data displays, character displays, message displays (excluding table data displays)
- Graphs, statistical graphs, closed area graphs
- Linked parts
- Grouped items (including graphic items)

Location of settings

In the setting window of each part, set the security level at [Show/Hide] → [Show/Hide according to the condition] → [Security Level].

Security level: 0 to 15

Conditions: =, ≥ (up to five AND or OR operators can be selected)



[Interlock] Settings in the [Switch] Settings Window

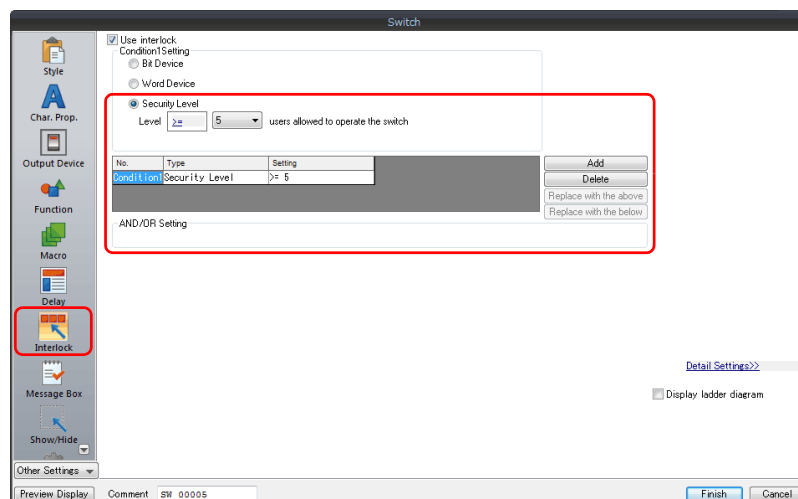
The operation of switches can be prohibited according to their security level.

Location of settings

In the switch settings window, set the security level at [Interlock] → [Security Level].

Security level: 0 to 15

Conditions: =, ≥ (up to five AND or OR operators can be selected)



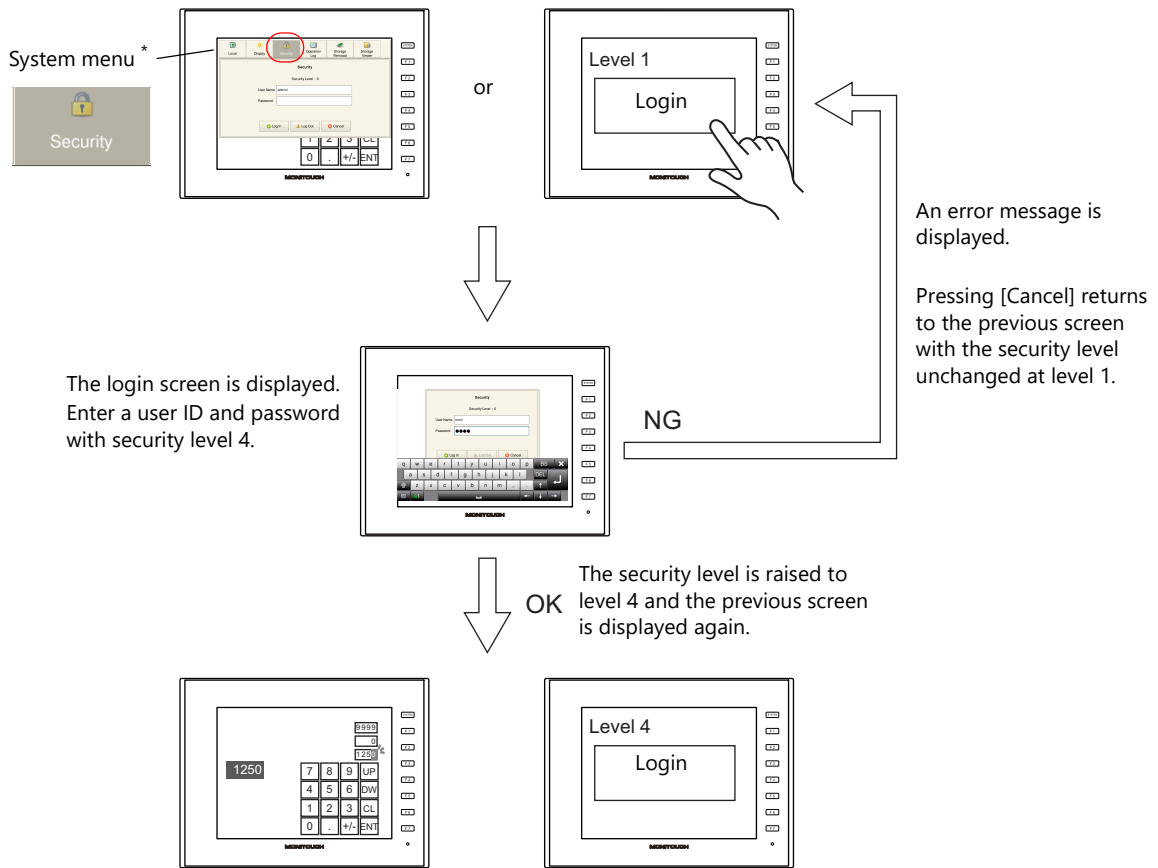
5.4 Login/Logout

The security level can be changed by logging in or out with the screen that is automatically displayed when a screen change occurs as well as from the system menu or a switch.

Login

The security level can be changed using a switch with [Log In] set for [Function] or from the system menu.

Press the [Login] switch.



* The system menu is displayed by pressing the [SYSTEM] function switch.

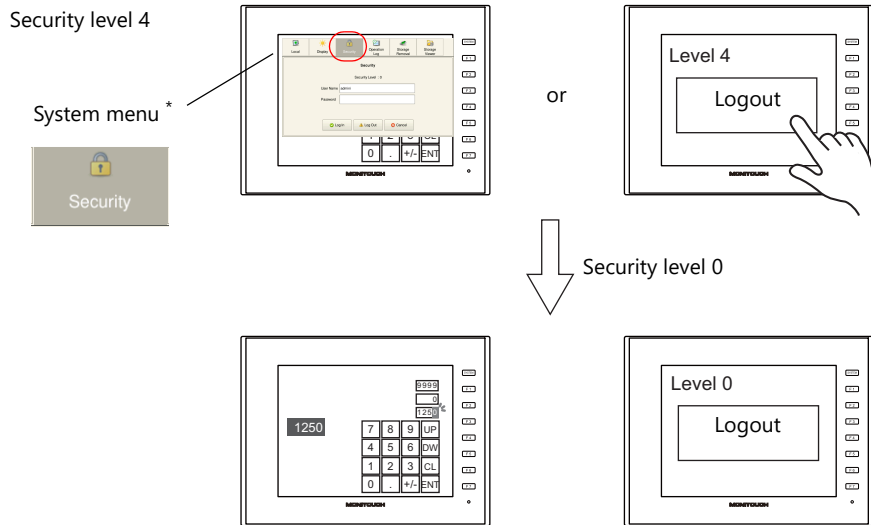


Login is prohibited for users with a security level lower than that of the currently displayed screen. Any login attempt yields the error message "Level does not match."

Logout

The security level is set to zero (0) when a switch with [Log Out] set for [Function] is pressed.

Press the [Login] switch.



When a logout is executed, the security level is set to zero (0).

* The system menu is displayed by pressing the [SYSTEM] function switch.

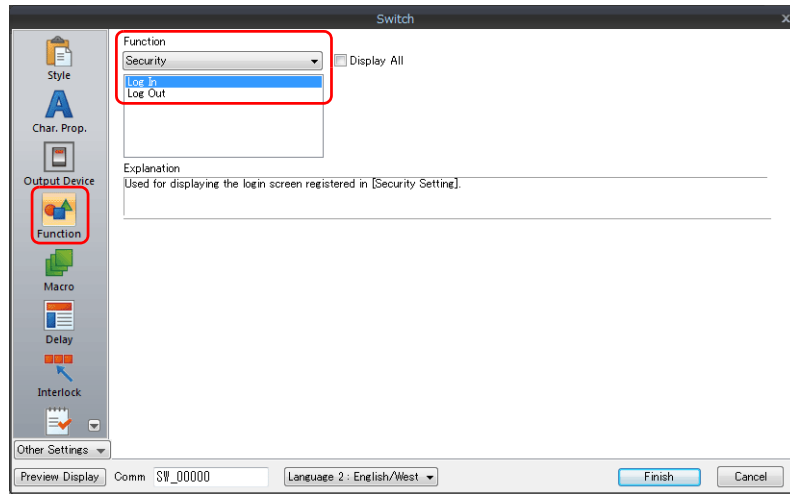


The screen does not change after logging out. When logging out on a low security level screen or using a switch, use in conjunction with the SET_SCRN macro (for screen number change) to change the screen when a user logs out.

Location of Settings

Switch

Configure the following settings at [Parts] → [Switch] → [Function].



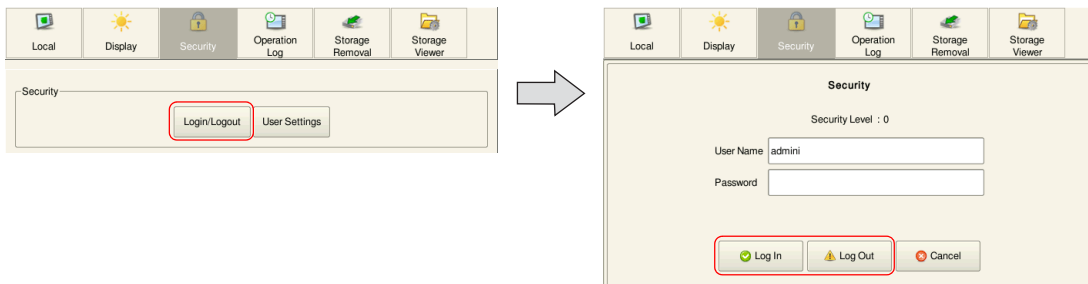
Item	Description
Function	<p>Log In Display the login screen.</p> <p>Log Out Change the security level to zero (0).</p>



The screen does not change after logging out. When logging out on a low security level screen or using a switch, use in conjunction with the SET_SCRN macro (for screen number change) to change the screen when a user logs out.

System Menu

There are no settings in particular.



5.5 System Device Memory (\$s)

The following system device memory are associated with the security function.

Device Memory	Description
\$s1360	Stores the user ID of the operator who is currently logged into the system.
\$s1361	
\$s1362	
\$s1363	
\$s1364	

MEMO



6 Ethernet Communication Function

- 6.1 Preface
- 6.2 V10/V9 Series Unit IP Address Settings
- 6.3 Screen Program Transfer
- 6.4 PLC Communication
- 6.5 Transferring Data Between V10/V9 Series Units (Macro)
- 6.6 DLL Communication
- 6.7 MES Interface Function
- 6.8 E-mail Notification
- 6.9 FTP Server
- 6.10 VNC Server
- 6.11 Data Transfer Service

6.12 Remote Desktop

6.1 Preface

6.1.1 List of Functions

The V10/V9 series features the following Ethernet functions.

An IP address for the V10/V9 series unit must be configured in order to use the Ethernet functions. Refer to [“6.2 V10/V9 Series Unit IP Address Settings”](#) page 6-2.

Other settings differ depending on the function to be used.

Function		V10/V9				Refer to
		LAN	LAN2	WLAN	CUR-03	
Screen program transfer		○	○	○	○	“6.3 Screen Program Transfer”
Simulator		○	×	×	×	Operation Manual
PLC communication *1	TCP/IP	○	○	×	×	Connection Manual
	UDP/IP	○	○	×	○	
Ladder transfer		○	○	×	×	“12 Ladder Transfer”
Macro *2	ERead/EWRITE	○	○	○	○	Macro Reference Manual
	SEND	○	○	○	○	
	MES	○	○	○	○	“6.7 MES Interface Function” Macro Reference Manual
DLL communication	HKEthn20.dll *3	○	○	○	○	DLL Function Specifications
	VCFAcs.dll	○	○	○	○	
FTP server		○	○	○	×	“6.9 FTP Server”
E-Mail		○	○	○	×	“6.8 E-mail Notification”
Network camera		○	×	×	×	“1.4 Network Camera”
VNC server		○	○	○	×	“6.10 VNC Server”
Data transfer service Data transfer viewer		○	○	○	×	“6.11 Data Transfer Service”
Network printer	EPSON ESC/P-R HP HPLIP	○	○	○	×	Reference Manual 1 16 Printing
Remote desktop		○	○	○	×	“6.12 Remote Desktop”
VPN remote access service Cloud data service		○	○	○	×	Web Machine Interface Manual

*1 For details on selecting TCP/IP and UDP/IP for PLC communication, refer to the Connection Manual.

*2 The network table settings must be configured in the screen program settings.

*3 When using the SEND command, the network table settings must be configured in the screen program settings.

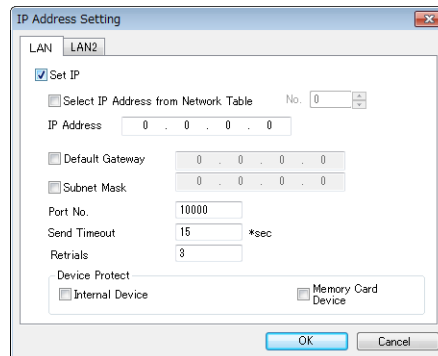
6.2 V10/V9 Series Unit IP Address Settings

An IP address for the V10/V9 series unit must be configured in order to use the Ethernet functions. There are two ways to configure the IP address of the V10/V9 series unit: setting using the V-SFT editor or setting using Local mode on the unit.

6.2.1 Setting Using the V-SFT Editor

Set the IP address in the screen program.

1. Select [System Setting] → [Ethernet Communication] → [Local Port Address]. The [IP Address Setting] window is displayed.
2. Select the [Set IP] checkbox and configure each setting.



Item	Description
Select IP Address from Network Table	This setting is available when the IP address of the V10/V9 series unit has been registered in the network table. Select a network table number from 0 to 255 to set the IP address.
IP Address *	Set the IP address for the V10/V9 series unit.
Default Gateway *	Set the default gateway.
Subnet Mask *	Set the subnet mask. When this checkbox is not selected, the subnet mask is automatically assigned based on the first byte of the IP address. When the IP address is "172.16.200.185", "255.255.0.0" is set. When IP address is "192.168.1.185", "255.255.255.0" is set.
Port No. *	Set a port number (1024 to 65535). (except for "8001")
Send Timeout	Set a timeout period for transmitting macro commands EREAD, EWRITE, SEND, MES, or Ethernet DLL functions.
Retrials	0 to 255 Set the number of retries to be performed when a timeout occurs.
Device Protect Internal Device Memory Card Device	Select these checkboxes to write-protect the corresponding device memory from PCs or other stations.

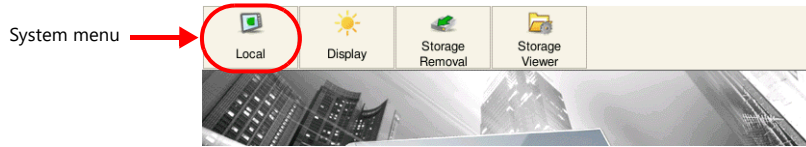
* For details on these settings, refer to [page 6-6](#).

3. Click [OK].
4. Transfer the screen program to the V10/V9 series unit.
5. Check the IP address in Local mode on the V10/V9 series unit.

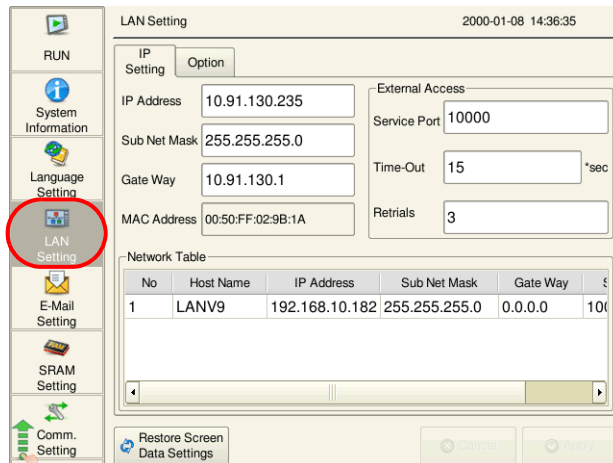
6.2.2 Setting Using Local Mode on the Unit

Set the IP address in Local mode on the V10/V9 series unit.

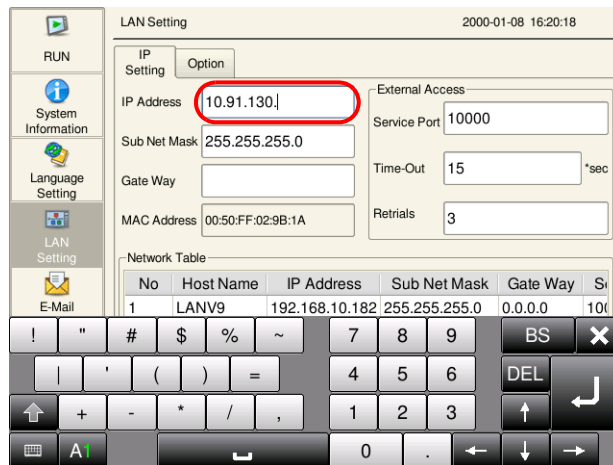
1. Press the [SYSTEM] switch on the unit to display the system menu at the top of the screen.



2. Press the [Local] switch on the system menu. The Local mode screen is displayed on the unit.
3. Press the [LAN Setting] switch in the left side of the screen to display the [IP Setting] tab window. When using LAN2 or WLAN, the corresponding IP settings are displayed.



4. Tap an item to change its setting if necessary.
 - [IP Setting]



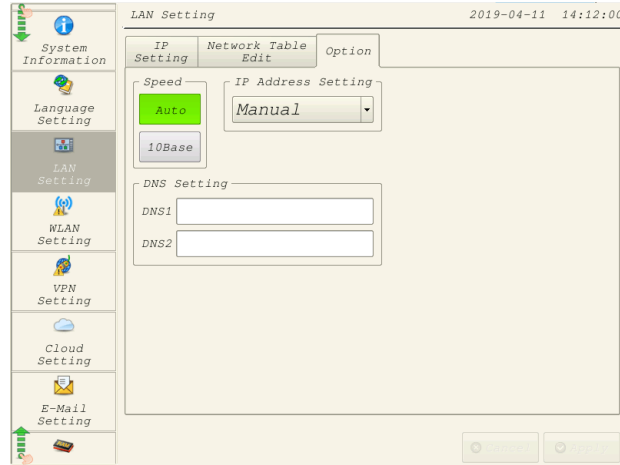
Item	Description	
IP Address *1 *2	Set the IP address of the V10/V9 series unit.	
Sub Net Mask *1 *2	Set the subnet mask.	
Gate Way *1 *2 *3	Set the gateway. Always set a gateway when sending e-mail notifications.	
External Access	Service Port *1	Set a port number (1024 to 65535). (except for "8001")
	Time-Out	Set a timeout period for transmitting macro commands EREAD, EWRITE, SEND, MES, or Ethernet DLL functions.
	Retrials	0 to 255 Set the number of retries to be performed when a timeout occurs.

*1 For details on these settings, refer to [page 6-6](#).

*2 This cannot be changed when [Auto (DHCP)] is set on the [Option] tab window.

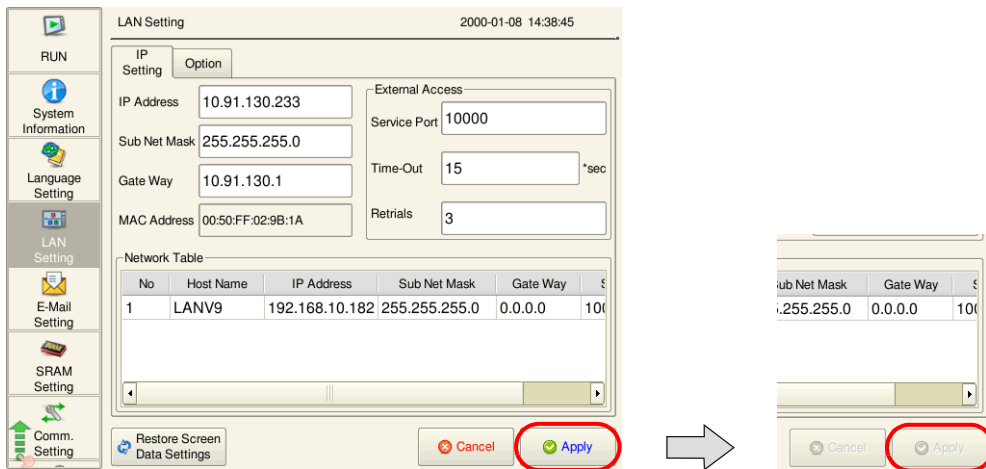
*3 Set a gateway for only one of the following: [LAN Setting]/[LAN2 Setting]/[WLAN Setting]/[LAN Unit Setting]. If multiple gateways are set, the Ethernet communication will not function correctly.

- [Option]

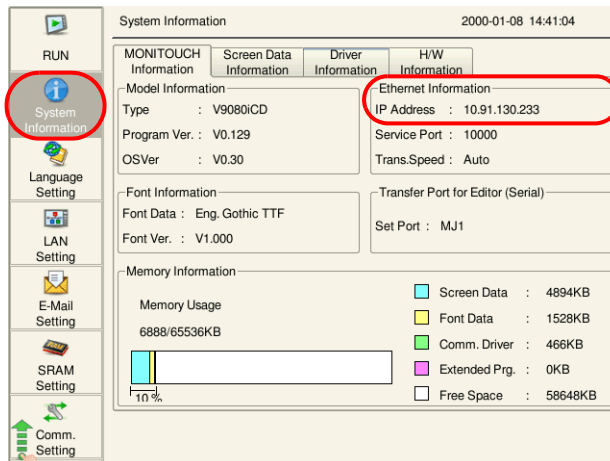


Item	Description
Speed	Select a baud rate. Auto: Auto-Negotiation 10Base: Fix to 10Base-T
IP Address Setting	Select the method for setting the IP address, subnet mask, gateway, and DNS. Manual: Set on the [IP Setting] tab window. Auto (DHCP): Automatically acquire the information necessary to establish an internet connection from a DHCP server.
DNS Setting	Set the DNS. Always set [DNS1] when [Sending Mail Server (SMTP)] is selected on the [E-Mail Setting] window. The DNS is also set automatically when "Auto (DHCP)" is set for [IP Address Setting].

- Press the [Apply] switch at the bottom right of the screen to accept the settings. When the changes are accepted, the [Apply] switch is disabled.



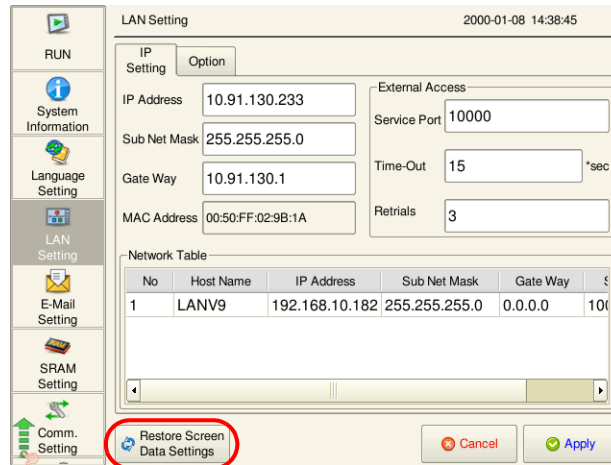
- Check the IP address in Local mode under [System Information] → [Ethernet Information].



Restoring the screen program settings

There is a [Restore Screen Data Settings] switch at the bottom of the [LAN Setting] screen.

Press this switch to disable the settings, such as IP address, configured in local mode and restore the settings of the screen program.



The screenshot shows the LAN Setting screen with the following fields and values:

No	Host Name	IP Address	Sub Net Mask	Gate Way	Service Port	Time-Out	Retrials
1	LANV9	192.168.10.182	255.255.255.0	0.0.0.0	10000	15	3

The 'Restore Screen Data Settings' button is circled in red at the bottom left of the screen.

6.2.3 Ethernet Terminology

IP Address

This address is used for recognizing each node on the Ethernet network and must be unique.

An IP address is 32-bit data that consists of a network address and a host address, and is classified as A to C depending on the network size.

Class A	0	Network address (7 bits)	Host address (24 bits)
Class B	10	Network address (14 bits)	Host address (16 bits)
Class C	110	Network address (21 bits)	Host address (8 bits)

Notation

Data consisting of 32 bits is divided into four segments in decimal notation and each segment is delimited with a period.

Example: The following class C IP address is represented as "192.128.1.50".

11000000 10000000 00000001 00110010

Unusable IP addresses

- "0" is specified for the first byte, e.g. 0.x.x.x
- "127" is specified for the first byte (which is reserved as the loop back address), e.g. 127.x.x.x
- "224" or more is specified for the first byte (which is reserved for multi-casting or experiments), e.g. 224.x.x.x
- The host address consists of only "0" or "255" (broadcast address), e.g. 128.0.255.255, 192.168.1.0

Port No.

Multiple applications run on each node and communications are carried out for each application between the nodes. Consequently, it is necessary to have a means to identify the application that data should be transferred to. The port number works as this identifier. While the range of port numbers is 0 to 65535, the lower port numbers of 0 to 1024 are generally reserved for other uses. When assigning port numbers, use numbers higher than 1024.

V10/V9 port numbers

The following port numbers are used on the V10/V9 series unit. When changing any port number, select an unused number from the range of 1024 to 65535.

Port No.	Setting Range	Function	Location of Settings
20	Fixed	FTP server	-
21			
502	502, 1024 - 65535	Modbus slave (TCP/IP)	-
1024 - 1025	1024 - 65534	Ladder transfer via Ethernet	[System Setting] → [Hardware Setting] → [Ladder Transfer]
1969	1024 - 65535	Network camera (BANNER)	-
5900	Fixed	VNC server	-
8001	Fixed	Screen program transfer *1	Screen program transfer *1
8020	1024 - 65535	Simulator (Ethernet)	-
8050	1024 - 65535	Remote desktop window display	[System Setting] → [Other] → [Remote Desktop Table Setting] → [Local Port No.]
10000	1024 - 65535	Ethernet macros ERead, EWRITE, SEND, MES	Set in the editor "Setting Using the V-SFT Editor" page 6-2
		Ethernet DLL functions HKETn20.DLL VCFAcs.DLL	Set on the unit "Setting Using Local Mode on the Unit" page 6-3
10001 - 10008	1024 - 65535	8-way communication	[System Setting] → [Hardware Setting] → [PLC Properties] → [Communication Setting] → [Port No.]
10021 - 10028	1024 - 65535	8-way communication	MITSUBISHI ELECTRIC L series (built-in Ethernet) connections only A port number that is 20 higher than the port number set at [System Setting] → [Hardware Setting] → [PLC Properties] → [Communication Setting] → [Port No.] is secured automatically.
50000 - 50002	1024 - 65535	Network camera (AXIS/Panasonic)	-
64000	1024 - 65535	Multi-link2 (Ethernet), 1:n multi-link2 (Ethernet)	[System Setting] → [Hardware Setting] → [PLC Properties] → [Multi-link2 (Ethernet)]

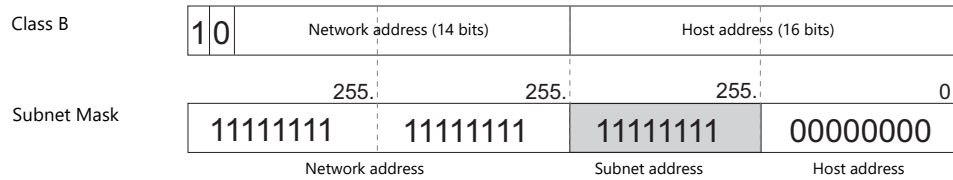
*1 When transferring screen programs over the Internet, specify the router port number in the [Transfer] window of the V-SFT software.

Default Gateway

A gateway and a router are used for communication between different networks. The IP address of the gateway (router) should be set to communicate with the node(s) on other networks.

Subnet Mask

A subnet mask is used for dividing one network address into multiple networks (subnets). A subnet is assigned by specifying a part of the host address in the IP address as the subnet address.

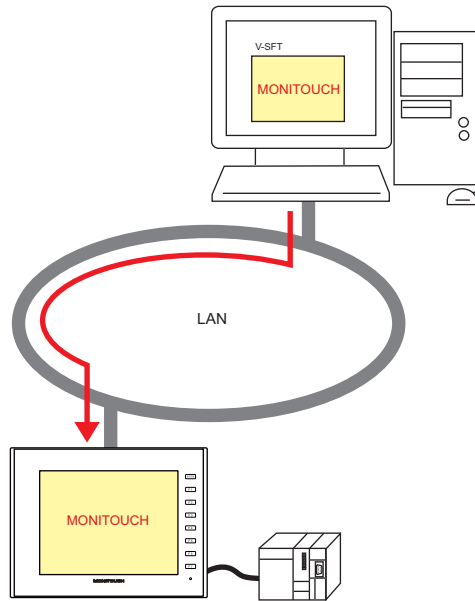


Unusable subnet masks

- When all bits are set to "0", e.g. 0.0.0.0
- When all bits are set to "1", e.g. 255.255.255.255

6.3 Screen Program Transfer

Screen programs can be uploaded and downloaded using Ethernet communication.



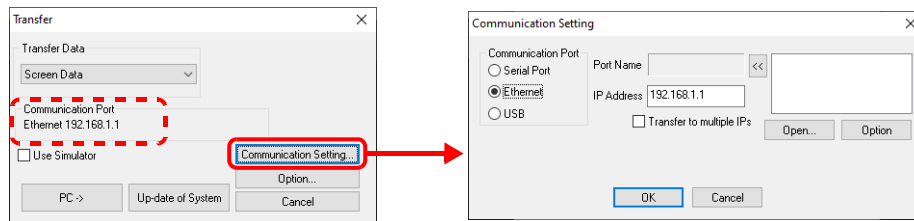
6.3.1 Transfer Procedure

Downloading (PC → V10/V9)

1. Click [Transfer] → [Download]. The [Transfer] menu is displayed.



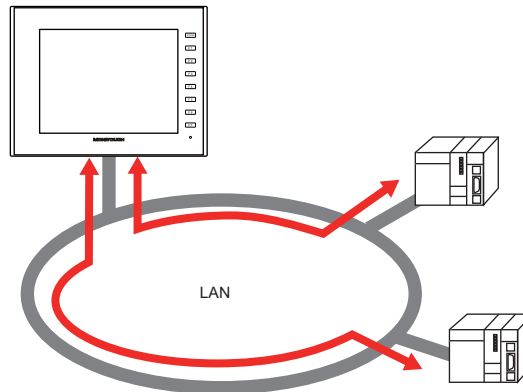
2. Select [Screen Data] for [Transfer Data].
3. Check the [Communication Port] setting.
 - If Ethernet is set and the IP address is correct, proceed to the next step.
 - If [Serial Port] or [USB] is set, click the [Communication Setting] button and select [Ethernet] under [Communication Port].



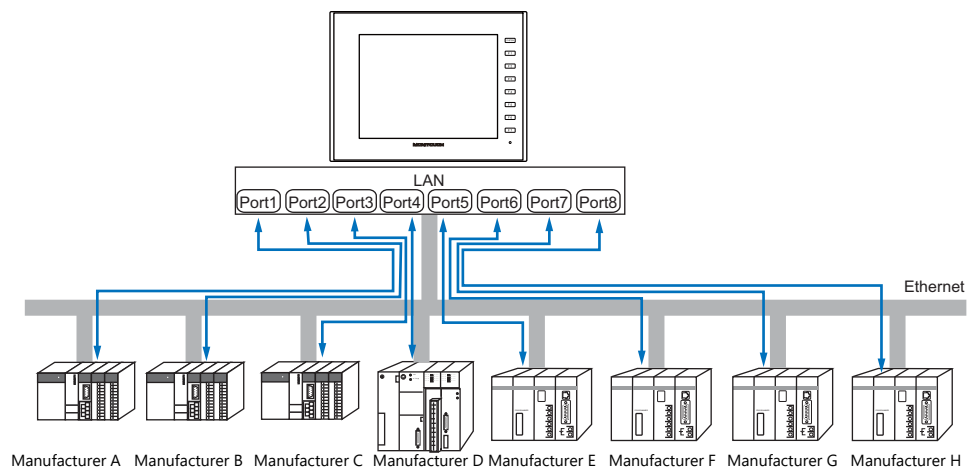
4. Click [PC →] to start the transfer.

6.4 PLC Communication

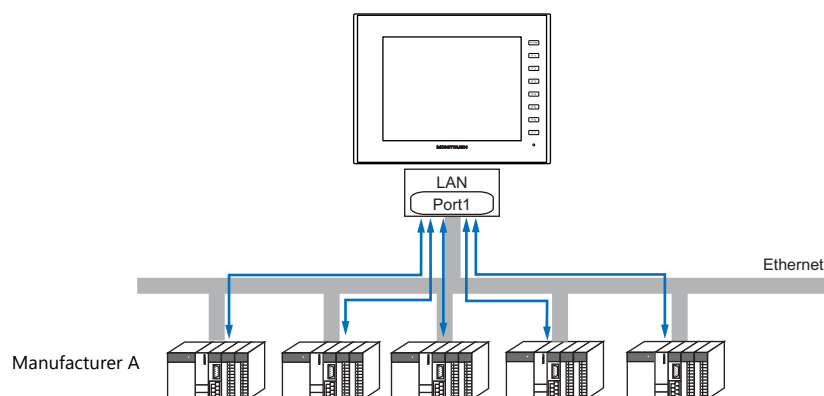
- High-speed communication with the Ethernet port of the PLC can be performed at 1000 Mbps (V10 only), 100 Mbps or 10 Mbps.



- The V10/V9 series unit can open up to eight ports for communication, which means that the unit can simultaneously communicate with up to eight types of PLCs.



- When multiple PLCs of the same model are connected, a single port on the V10/V9 series unit can be used to perform 1:n communication with these PLCs.



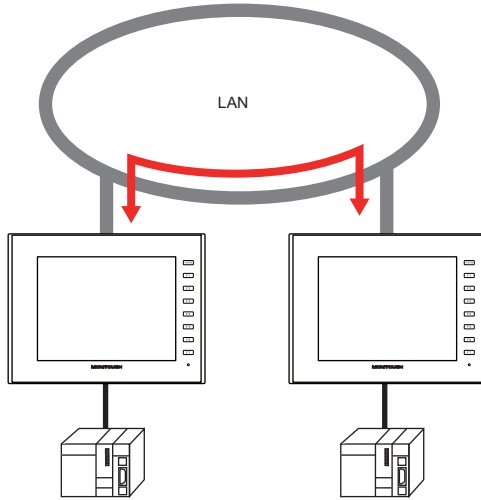
For details on PLC communication, refer to the Connection Manual.



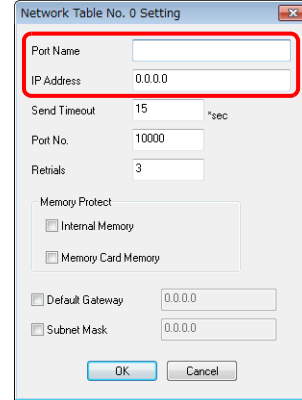
For details on LAN ports available with the V10/V9 series, refer to ["6.1.1 List of Functions" page 6-1](#).

6.5 Transferring Data Between V10/V9 Series Units (Macro)

- Communication can be performed and data shared between V10/V9 series units on the same LAN using the "EREAD" and "EWRITE" macro commands.



- Network table editing
Register the IP address of the counterpart unit.



For details on macros, refer to the Macro Reference Manual.

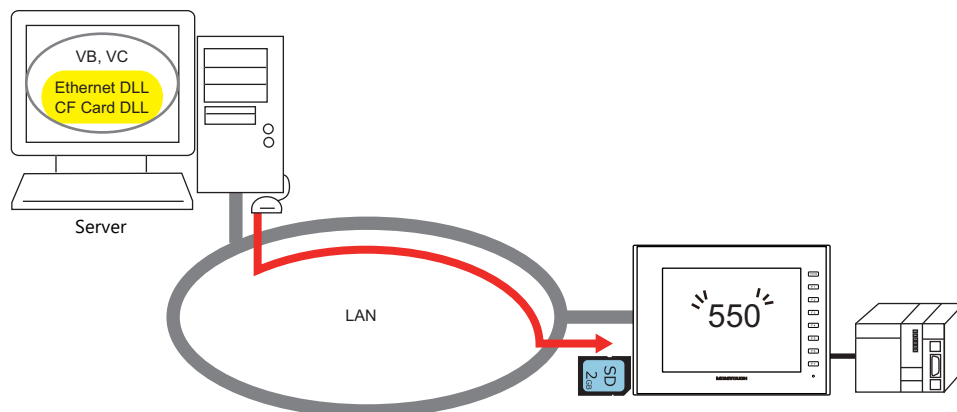
- Network table
Register the IP address of the counterpart unit in the [Network Table Edit] window in order to specify the destination using a macro.
Click [System Setting] → [Ethernet Communication] → [Network Table].

For details on LAN ports available with the V10/V9 series, refer to "6.1.1 List of Functions" page 6-1.

6.6 DLL Communication

- Ethernet access functions (that support UDP/IP) for executing device memory read and write operations with respect to V10/V9 series units from a server and CF card access functions for executing read and write file operations on a storage device are provided.

By creating an application on a server using an environment such as Visual C++ 6.0 and Visual Basic, data can be collected from V10/V9 series units and transferred to the server.



For details on DLL functions, refer to the V Series DLL Function Specifications.

For details on LAN ports available with the V10/V9 series, refer to "6.1.1 List of Functions" page 6-1.

6.7 MES Interface Function

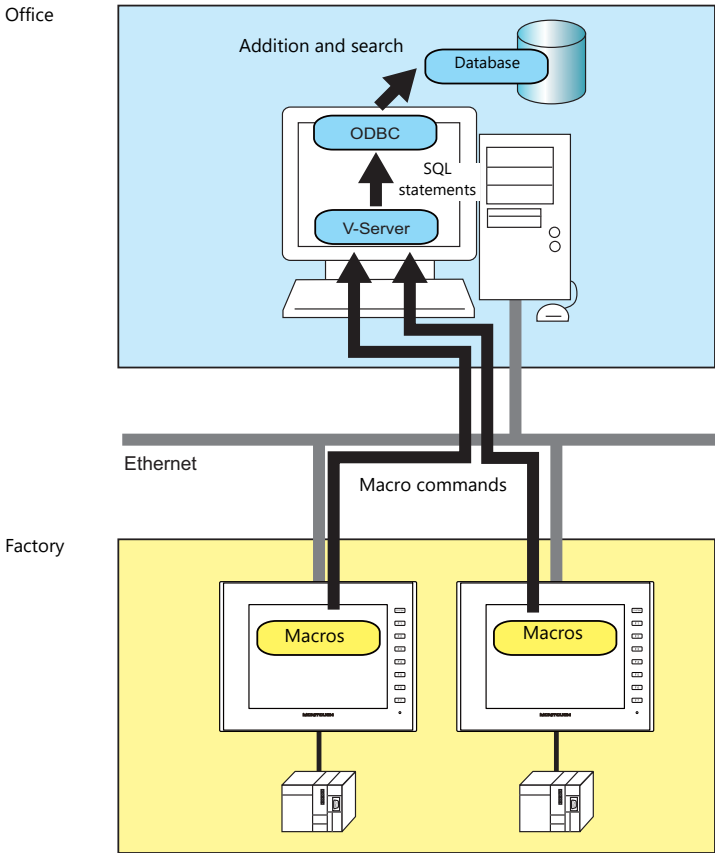
6.7.1 Overview

- The V10/V9 series supports the MES interface function.

MES: Manufacturing Execution System

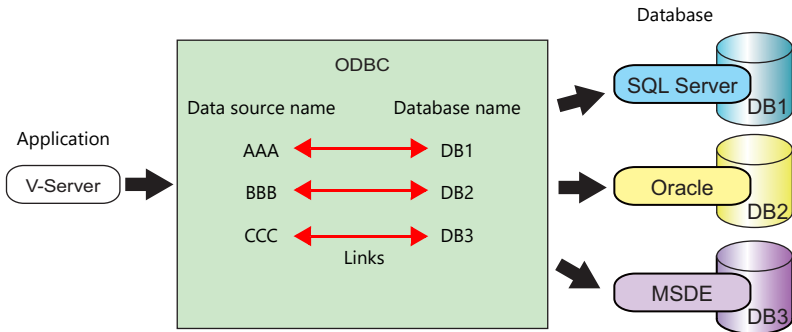
MES provides information necessary to optimize production activities (such as quality, yield, time of delivery, and cost) throughout processes from order receipt until product completion. Based on real-time information obtained from the manufacturing floor, MES serves as a bridge linking management and production, for the purpose of improving management in manufacturing.

- The MES interface function enables the V10/V9 series to add, search, and delete data on databases. Production control from a PC in the office is made simple by using real-time production information transmitted from the factory to the database.
- The V10/V9 series sends commands to V-Server on the PC connected via Ethernet. V-Server sends the commands as SQL statements to ODBC, and ODBC accesses the database.

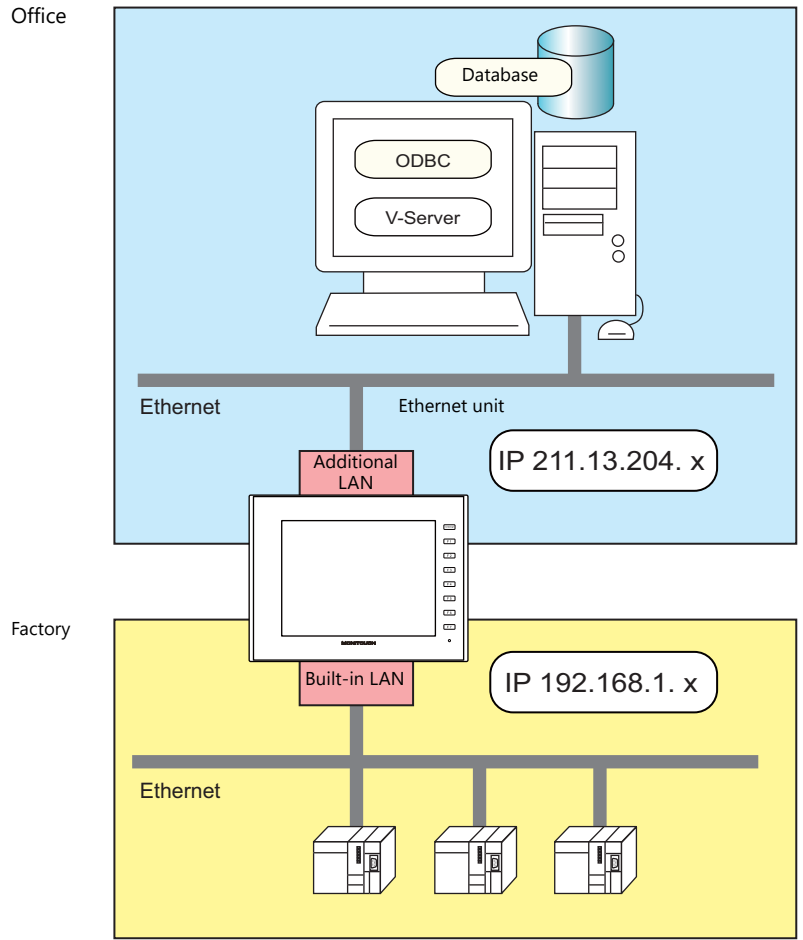


ODBC: Open DataBase Connectivity

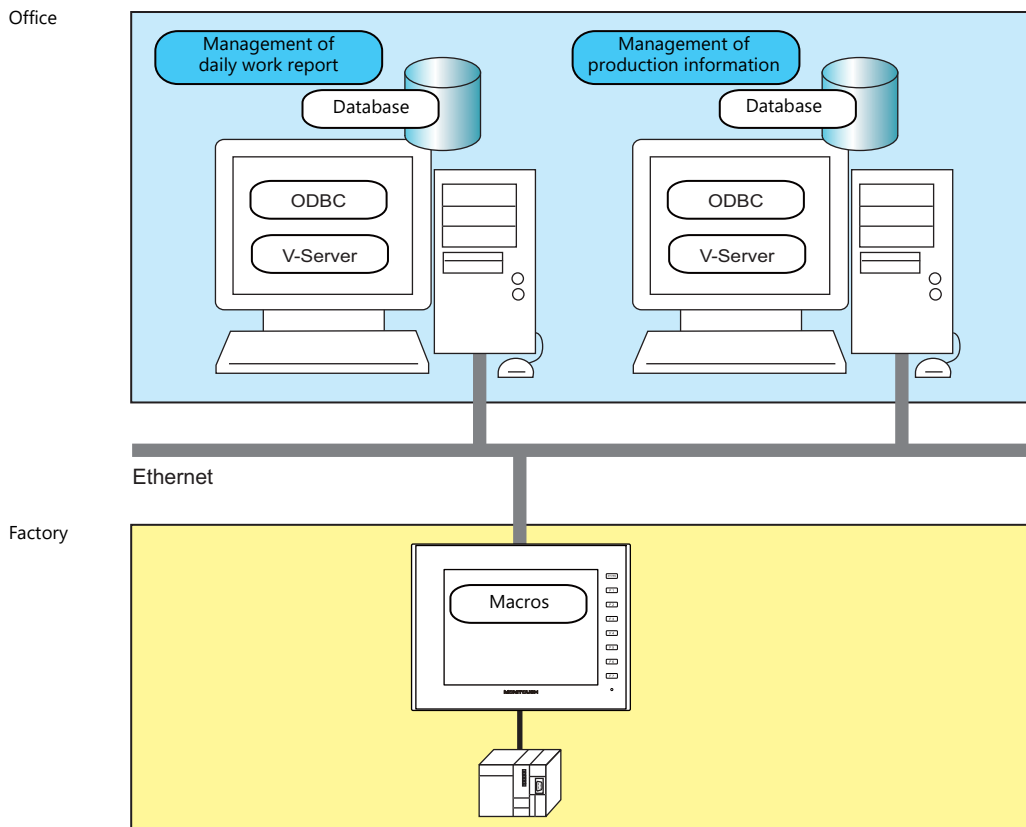
ODBC is the interface between an application (V-Server) and the database. Because ODBC accommodates the differences in specifications between databases, users only need to create programs based on the ODBC-specified procedure in order to access those databases.



- By using LAN2 (additional)/WLAN (wireless)/optional unit, multiple IP addresses can be set for the V10/V9 series so that different networks can be established respectively in the factory and office. System configuration is therefore made simple in the existing facilities.



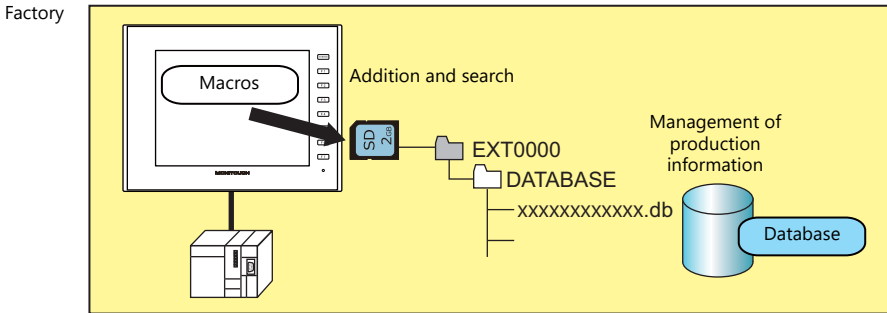
- Separate management through multiple V-Servers is enabled.



- Stand-alone MES
The MES interface function can be used with a single V10/V9 series unit. Since the function runs on the V10/V9 series unit itself, there is no need for V-Server, ODBC, or Ethernet.
By creating a database on the storage device connected to the V10/V9 series unit, it is possible to add, search, and delete records in the database directly from the V10/V9 series unit.
Create a database file (extension: .db) using the "MES WRITE" macro command.

Stand-alone

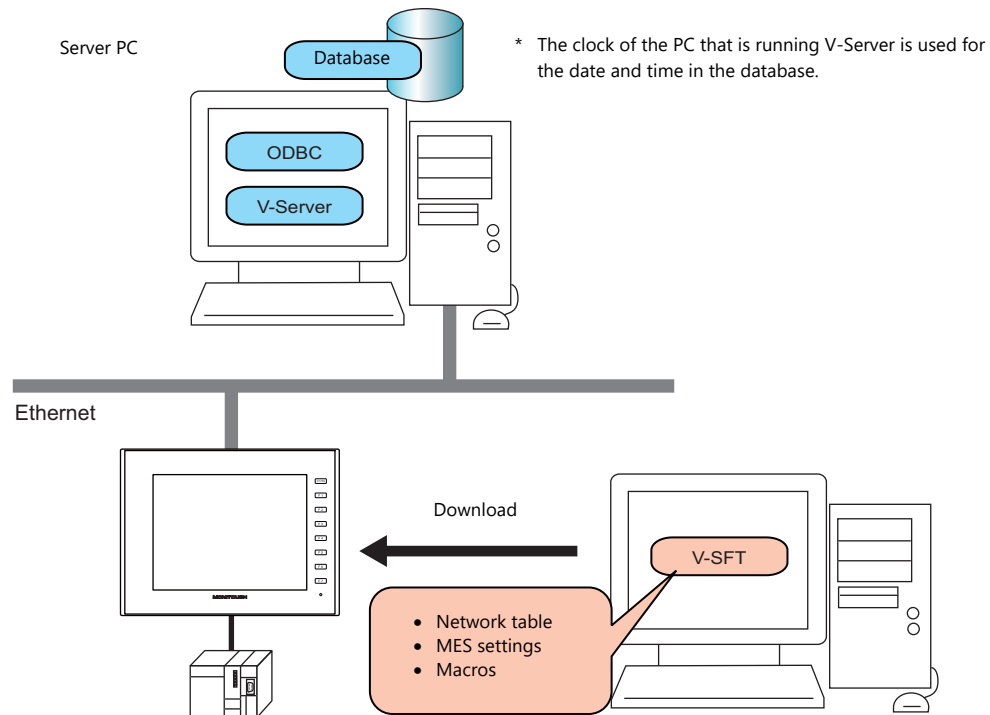
An environment in which a computer or information device operates alone without connecting to or depending on a network, other devices, and software



6.7.2 System Configuration

There are two system configurations for using the MES interface. Configure the necessary settings as described below.

Using a PC as a Server



Required Settings

V10/V9

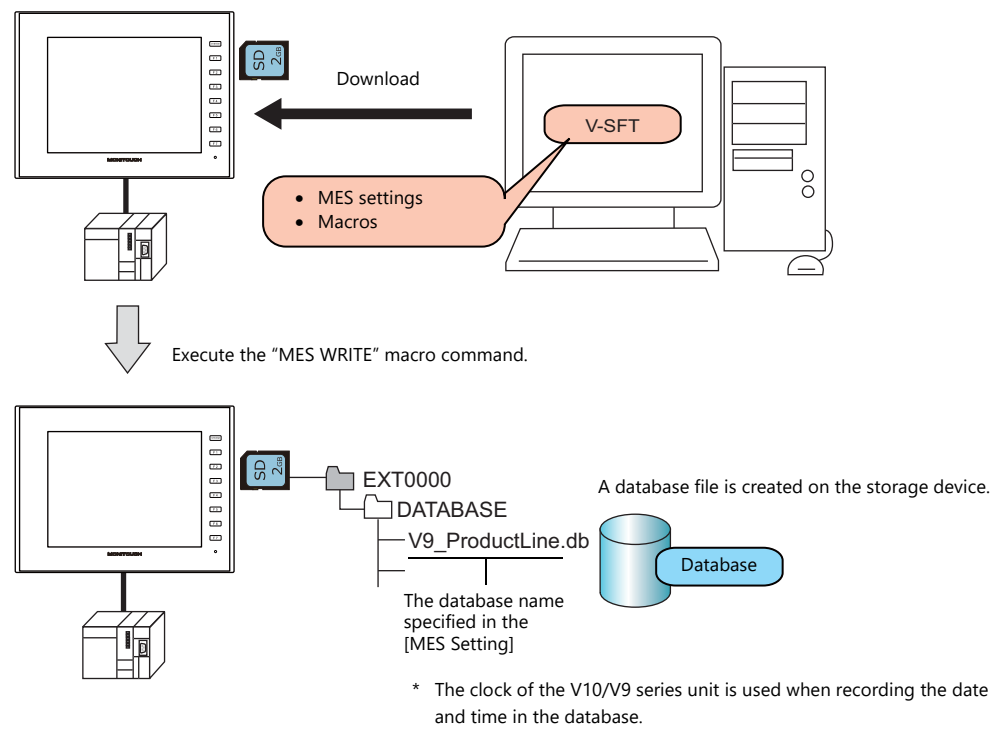
Configure the required settings for the V10/V9 series in the screen program.

1. Network table editing ([page 6-16](#))
2. IP address settings for the V10/V9 series unit ([page 6-2](#))
3. MES setting ([page 6-17](#))
4. Macro programming ([page 6-21](#))

Server PC

1. V-Server installation ([page 6-30](#))
2. Database installation and table creation ([page 6-31](#))
3. ODBC settings ([page 6-44](#))

Stand-Alone Configuration (Using a Storage Device)



Required Settings

V10/V9

Configure the required settings for the V10/V9 series in the screen program.

1. MES setting ([page 6-17](#))
2. Macro programming ([page 6-21](#))

Storage device

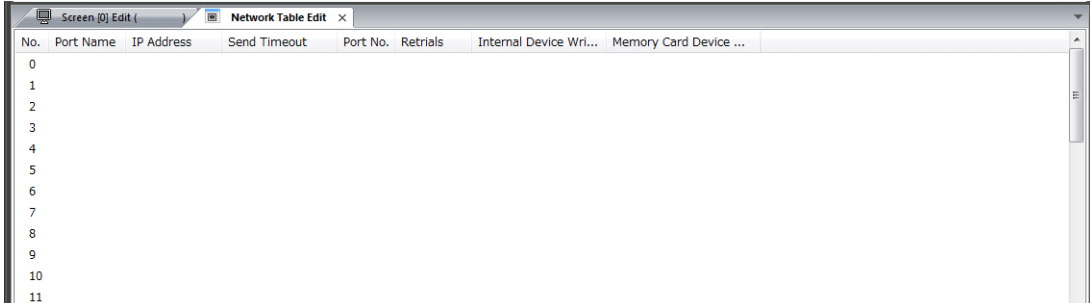
No settings are required.

6.7.3 V10/V9 Series Unit Settings

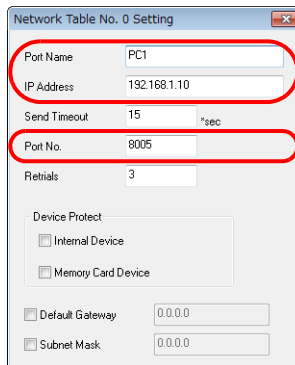
Network Table Editing

Register the IP address and port number of the PC installed with V-Server in the network table.

1. Click [System Setting] → [Ethernet Communication] → [Network Table]. The [Network Table Edit] window is displayed.



2. Double-click a number in the [No.] column to display the [Network Table Setting] window and configure the following settings.

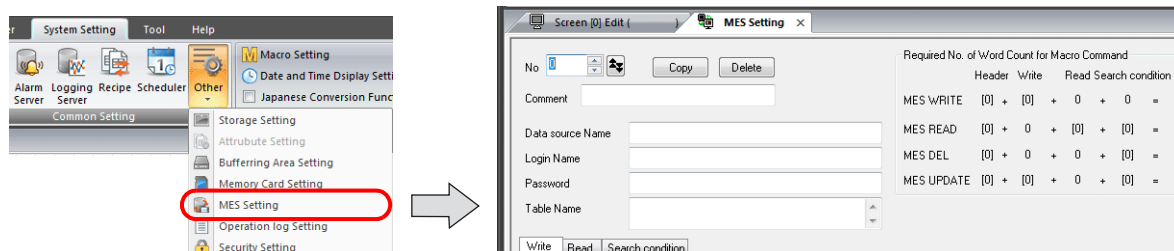


Item	Description
Port Name	Set the name of the PC.
IP Address	Set the IP address of the PC.
Port No.	<p>Specify the port number of V-Server. (Default: 8005) * The port number can be checked in V-Server software via [File] → [V-server Detail Setting] → [Port No.].</p>
Send Timeout Retrials Device Protect Default Gateway Subnet Mask	Setting these items is not required when registering the IP address of the PC.

3. Click [OK]. The settings are registered to the network table.
4. If multiple PCs are connected, perform the above registration steps for each PC.

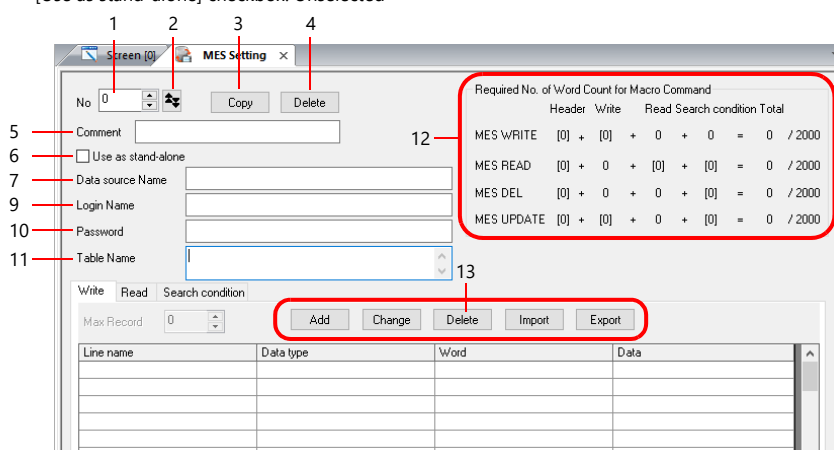
MES Settings

Click [System Setting] → [Other] → [MES Setting]. The [MES Setting] window is displayed.

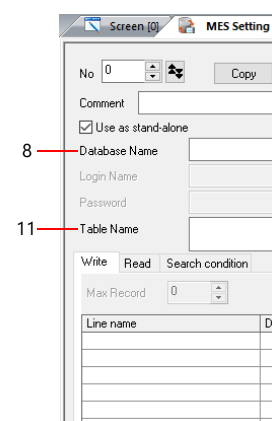


Common settings

- [Use as stand-alone] checkbox: Unselected



- [Use as stand-alone] checkbox: Selected



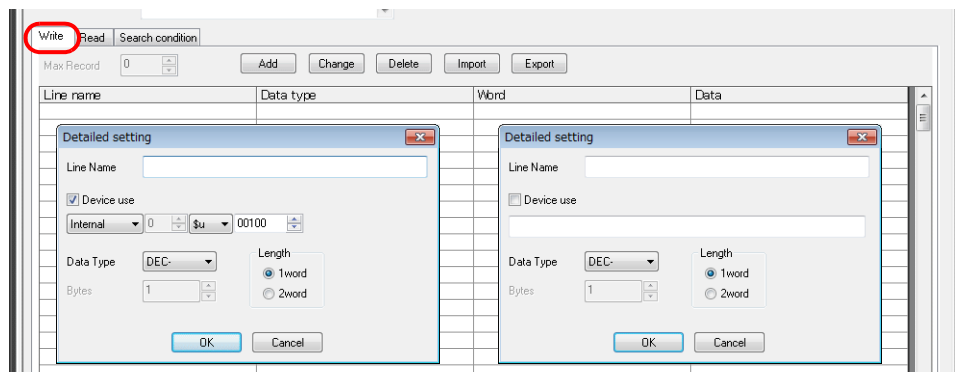
No	Item	Description
1	No.	Switch between MES setting numbers (0 to 255).
2	Skip Unregistered No.	Click this button to skip unregistered numbers when switching between MES setting numbers.
3	Copy	Copy data associated with the current MES settings to the specified destination.
4	Delete	Delete the current MES settings.
5	Comment	Enter a comment describing the MES settings. Maximum of 16 one-byte characters (8 two-byte characters.)
6	Use as stand-alone	A database file is created on a storage device connected to the V10/V9 series unit. Adding, searching, and deleting of database records is possible. File Name (database name).db (database name.db-journal * ¹) Storage location (output drive)\(access folder)\DATABASE * Set the output drive and access folder name at [System Setting] → [Other] → [Storage Setting]. Execute the "MES WRITE" macro command to create a database file. The clock of the V10/V9 series unit is used when recording the date and time in the database.
7	Data source Name	Specify the data source name of the database. 32 bytes maximum
8	Database Name	Specify the name of the database file to create on the storage device. Maximum of 32 bytes using one-byte alphanumeric characters (uppercase/lowercase) and underscore (_)
9	Login Name	Specify a login name used for accessing the database. 32 bytes maximum
10	Password	Specify a password used for accessing the database. 32 bytes maximum
11	Table Name	Specify the name of the table in the database. 128 bytes maximum

No	Item	Description																																										
12	Required No. of Word Count for Macro Command	<p>This area shows the number of words used for each macro command based on the current settings. A number of words more than the maximum of 2,000 is highlighted in red. Adjust the number of registrations, length of line names, and number of words so that 2,000 words are not exceeded.</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <table border="1"> <thead> <tr> <th colspan="7">Required No. of Word Count for Macro Command</th> </tr> <tr> <th></th> <th>Header</th> <th>Write</th> <th>Read</th> <th>Search condition</th> <th>Total</th> <th></th> </tr> </thead> <tbody> <tr> <td>MES WRITE</td> <td>[0]</td> <td>+ [0]</td> <td>+ 0</td> <td>+ 0</td> <td>= 0</td> <td>/ 2000</td> </tr> <tr> <td>MES READ</td> <td>[0]</td> <td>+ 0</td> <td>+ [0]</td> <td>+ [0]</td> <td>= 0</td> <td>/ 2000</td> </tr> <tr> <td>MES DEL</td> <td>[0]</td> <td>+ 0</td> <td>+ 0</td> <td>+ [0]</td> <td>= 0</td> <td>/ 2000</td> </tr> <tr> <td>MES UPDATE</td> <td>[0]</td> <td>+ [0]</td> <td>+ 0</td> <td>+ [0]</td> <td>= 0</td> <td>/ 2000</td> </tr> </tbody> </table> </div> <p>Words in total for each macro command</p> <p>Macro commands</p> <p>Number of words used for Write, Read and Search condition With []: Valid_ Without []: Invalid (always "0")</p>	Required No. of Word Count for Macro Command								Header	Write	Read	Search condition	Total		MES WRITE	[0]	+ [0]	+ 0	+ 0	= 0	/ 2000	MES READ	[0]	+ 0	+ [0]	+ [0]	= 0	/ 2000	MES DEL	[0]	+ 0	+ 0	+ [0]	= 0	/ 2000	MES UPDATE	[0]	+ [0]	+ 0	+ [0]	= 0	/ 2000
Required No. of Word Count for Macro Command																																												
	Header	Write	Read	Search condition	Total																																							
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MES READ	[0]	+ 0	+ [0]	+ [0]	= 0	/ 2000																																						
MES DEL	[0]	+ 0	+ 0	+ [0]	= 0	/ 2000																																						
MES UPDATE	[0]	+ [0]	+ 0	+ [0]	= 0	/ 2000																																						
13	Write Read Search condition	<table border="1"> <tr> <td>Add</td> <td>Display the [Detailed setting] window. Enter a line name as targeted for writing and the data type in this window. 256 maximum</td> </tr> <tr> <td>Change</td> <td>Display the [Detailed setting] window. Change the registered settings.</td> </tr> <tr> <td>Delete</td> <td>Delete the registered settings.</td> </tr> <tr> <td>Import</td> <td>Import a CSV file into the current MES settings.</td> </tr> <tr> <td>Export</td> <td>Export the current MES settings into an CSV file.</td> </tr> </table>	Add	Display the [Detailed setting] window. Enter a line name as targeted for writing and the data type in this window. 256 maximum	Change	Display the [Detailed setting] window. Change the registered settings.	Delete	Delete the registered settings.	Import	Import a CSV file into the current MES settings.	Export	Export the current MES settings into an CSV file.																																
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Delete	Delete the registered settings.																																											
Import	Import a CSV file into the current MES settings.																																											
Export	Export the current MES settings into an CSV file.																																											

*1 Temporary file created during data update.

[Write] tab window

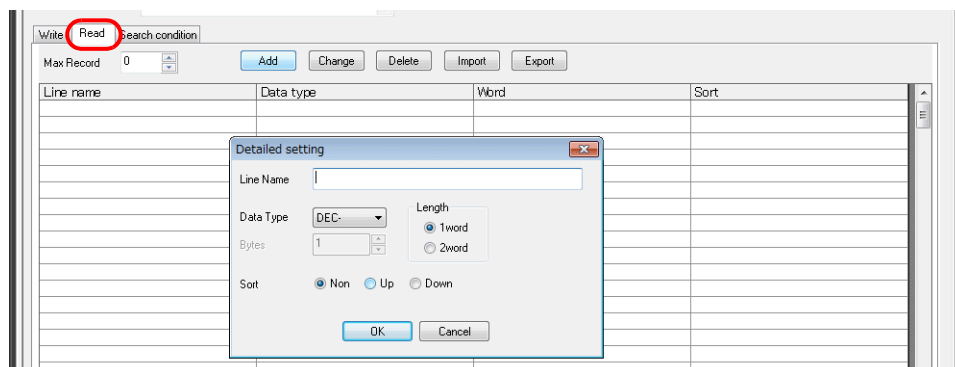
The [Write] tab window is used for adding data to the database.



Item	Description															
Line Name	Specify the name of the line to which you will add data. 128 bytes maximum * The line name must not begin with a one-byte numeral. * The following characters cannot be used: ~ - ! , { % } ^ ' & . (/) ` space															
Device use	Specify the data for writing. 256 bytes maximum <ul style="list-style-type: none"> With device memory specification: Set the device memory address to store the data for writing. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Device Memory</th> <th>Input Type</th> <th>Text Processing</th> </tr> </thead> <tbody> <tr> <td>PLC1 - PLC8</td> <td colspan="2">Depends on the input type of each PLC.</td> </tr> <tr> <td>Internal</td> <td>DEC</td> <td>LSB → MSB</td> </tr> </tbody> </table> Without device memory specification: Set a constant or fixed string of text. 	Device Memory	Input Type	Text Processing	PLC1 - PLC8	Depends on the input type of each PLC.		Internal	DEC	LSB → MSB						
Device Memory	Input Type	Text Processing														
PLC1 - PLC8	Depends on the input type of each PLC.															
Internal	DEC	LSB → MSB														
Data Type Length Bytes	Set the data type of the data for writing, data length, and number of bytes. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Data type</th> <th>Length</th> <th>Bytes</th> </tr> </thead> <tbody> <tr> <td>DEC-</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>CHAR</td> <td>128 word</td> <td>256 bytes maximum</td> </tr> <tr> <td>BCD</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>FLOAT</td> <td>2 word</td> <td>-</td> </tr> </tbody> </table>	Data type	Length	Bytes	DEC-	1 words/2 words	-	CHAR	128 word	256 bytes maximum	BCD	1 words/2 words	-	FLOAT	2 word	-
Data type	Length	Bytes														
DEC-	1 words/2 words	-														
CHAR	128 word	256 bytes maximum														
BCD	1 words/2 words	-														
FLOAT	2 word	-														

[Read] tab window

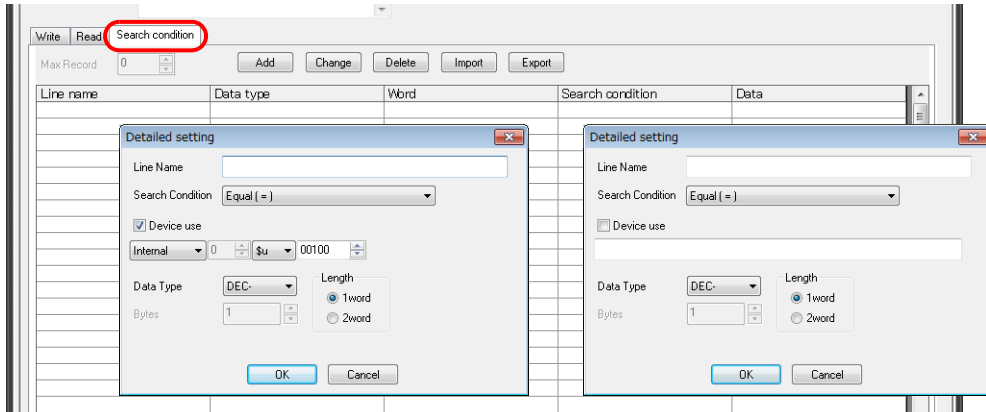
Configure settings for searching the database.



Item	Description															
Max Record	Specify the maximum number of records to display in the search results. 65536 maximum															
Line Name	Specify the line name targeted in searching. 128 bytes maximum * The line name must not begin with a one-byte numeral. * The following characters cannot be used: ~ - ! , { % } ^ ' & . (/) ` space															
Data Type Length Bytes	Specify the data type, data length, and number of bytes of the data targeted in searching. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Data type</th> <th>Length</th> <th>Bytes</th> </tr> </thead> <tbody> <tr> <td>DEC-</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>CHAR</td> <td>128 word</td> <td>256 bytes maximum</td> </tr> <tr> <td>BCD</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>FLOAT</td> <td>2 word</td> <td>-</td> </tr> </tbody> </table>	Data type	Length	Bytes	DEC-	1 words/2 words	-	CHAR	128 word	256 bytes maximum	BCD	1 words/2 words	-	FLOAT	2 word	-
Data type	Length	Bytes														
DEC-	1 words/2 words	-														
CHAR	128 word	256 bytes maximum														
BCD	1 words/2 words	-														
FLOAT	2 word	-														
Sort	Set an option for sorting the search results. Non / Up / Down															

[Search condition] tab window

Configure settings for searching the database. This tab is also used to delete data from the database.



Item	Description																		
Line Name	Specify the line name targeted in searching. 128 bytes maximum * The line name must not begin with a one-byte numeral. * The following characters cannot be used: ~ - ! , { % } ^ ' & . (/) ` space																		
Search Condition	Set the search conditions. When searching based on multiple conditions, use AND. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Search condition</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Equal (=)</td> <td></td> </tr> <tr> <td>Not equal (!=)</td> <td></td> </tr> <tr> <td>Big (> value)</td> <td></td> </tr> <tr> <td>Small (< value)</td> <td></td> </tr> <tr> <td>Upper (>= value)</td> <td></td> </tr> <tr> <td>Under (<= value)</td> <td></td> </tr> <tr> <td>Include character string</td> <td>Wildcard (%) usable Example: AA%: Text beginning with AA to be searched</td> </tr> <tr> <td>Update</td> <td>Extract records that do not match the data for searching from the specified line name. These records are then replaced as the data for searching.</td> </tr> </tbody> </table>	Search condition	Remarks	Equal (=)		Not equal (!=)		Big (> value)		Small (< value)		Upper (>= value)		Under (<= value)		Include character string	Wildcard (%) usable Example: AA%: Text beginning with AA to be searched	Update	Extract records that do not match the data for searching from the specified line name. These records are then replaced as the data for searching.
Search condition	Remarks																		
Equal (=)																			
Not equal (!=)																			
Big (> value)																			
Small (< value)																			
Upper (>= value)																			
Under (<= value)																			
Include character string	Wildcard (%) usable Example: AA%: Text beginning with AA to be searched																		
Update	Extract records that do not match the data for searching from the specified line name. These records are then replaced as the data for searching.																		
Device use	Specify the data targeted for searching. 256 bytes maximum <ul style="list-style-type: none"> With device memory specification: Set the device memory address to store the data for searching. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Device Memory</th> <th>Input Type</th> <th>Text Processing</th> </tr> </thead> <tbody> <tr> <td>PLC1 - PLC8</td> <td colspan="2">Depends on the input type of each PLC.</td> </tr> <tr> <td>Internal</td> <td>DEC</td> <td>LSB → MSB</td> </tr> </tbody> </table> Without device memory specification: Set a constant or fixed string of text. 	Device Memory	Input Type	Text Processing	PLC1 - PLC8	Depends on the input type of each PLC.		Internal	DEC	LSB → MSB									
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Data type	Length	Bytes																	
DEC-	1 words/2 words	-																	
CHAR	128 word	256 bytes maximum																	
BCD	1 words/2 words	-																	
FLOAT	2 word	-																	

Macros

The MES interface function uses the following five types of macros.

MES macro command list

Category	Command Name	Mnemonic	Description	Refer to
MES	MES	MES CHECK (F1, F2, F3)	V-server start check *	page 6-21
		MES WRITE (F1, F2, F3)	Adding data to the database	page 6-22
		MES READ (F1, F2, F3)	Searching the database	page 6-23
		MES DEL (F1, F2, F3)	Deleting data from the database	page 6-25
		MES UPDATE (F1, F2, F3)	Updating the database	page 6-26

* This command is not used when the [Use as stand-alone] checkbox is selected at [System Setting] → [Other] → [MES Setting].

MES CHECK (F1, F2, F3)

Function: V-server start check

This macro is used to check whether V-Server at the location specified in table No. [F2] is running. The returned value specified in [F3] is stored in the memory at the return address of [F1].

Device Memory Used

	Internal	PLC1 - 8	Constant
F1	⊙		
F2	○		○
F3	○		○

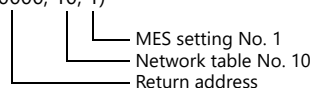
○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value
F0	MES CHECK
F1	Return address
F2	0 to 255: Network table number
F3	0 to 65535 (-32768 to 32767): Return value

Operation Example

MES CHECK (\$u0000, 10, 1)



The above macro checks whether V-Server is running on the PC registered to network table number 10. If V-Server is running, a return value of "1" is stored at the return address of \$u0000.

Supplementary information


- Execute the macro after setting a value other than the returned value at the return address.
- The execution type of the macro can be set using \$s514. For details, refer to [page 6-28](#).
When a macro command is executed, if "1" (other than "0") is set for \$s514 while V-Server is not running, no response is given from V-Server and the V10/V9 series unit will enter the standby state. It is recommended to execute this command when "0" is set for \$s514.
- The result of the macro execution is stored in the device memory address \$s515. For details, refer to [page 6-28](#).
- The returned value will not be placed at the [F1] return address immediately. Monitor the [F1] return address using an event timer macro, etc.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing database, the result and log data is not output to the V10/V9 series unit.
- This command is not used when the [Use as stand-alone] checkbox is selected at [System Setting] → [Other] → [MES Setting].
- Specify the Ethernet communication port at \$s512.
0: LAN (built-in)
1: Ethernet unit
2: LAN2 (built-in)
3: WLAN (wireless)

MES WRITE (F1, F2, F3)

Function: Adding data to the database

This macro command is used to add the data set on the [Write] tab window of MES setting No. [F3] to the database. The data is added at the location specified in table No. [F2] via V-Server. The result is stored at return address [F1].

When used in the stand-alone configuration, table No. [F2] is not used. If the database file is not found on the storage device, it is newly created.

 For a stand-alone configuration, the [Use as stand-alone] checkbox must be selected at [System Setting] → [Other] → [MES Setting]. For details on the stand-alone configuration, refer to [page 6-15](#).

Device memory used

	Internal	PLC 1 to 8	Constant	Remarks
F1	⊙			
F2	○		○	Invalid with stand-alone configuration
F3	○		○	

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

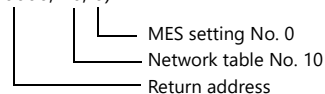
Range

	Value		Remarks
F0	MES WRITE		
F1	Return address	Return value 0: Successful completion -1: Ended in error	
F2	0 to 255: Network table No.		Invalid with stand-alone configuration
F3	0 to 255: MES setting No.		

Operation example

- PC used as server

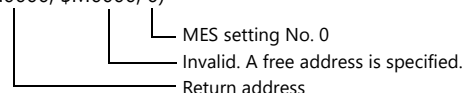
MES WRITE (\$u0000, 10, 0)



The above macro command adds data to the database of the PC specified in network table No. 10. The data to be added depends on the settings made for MES setting No. 0. When the data update is completed normally, a return value of "0" is stored at the return address \$u0000.

- Stand-alone configuration

MES WRITE (\$u0000, \$M0000, 0)



The above macro command adds a record to a database file on the storage device. The data to be added depends on the settings made for MES setting No. 0.

If a database is not found, it is newly created.

When writing of data is completed normally, a return value of "0" is stored at the return address \$u0000.

Supplementary information


- The execution type of the macro command can be set using \$s514. For details, refer to [page 6-28](#).
- The result of the macro execution is stored in the device memory address \$s515.
-40: The [Write] tab window setting is not made in the specified MES setting number, or there is a setting error. For details on other error numbers, refer to [page 6-28](#).
- On a stand-alone configuration, storage device related errors that occur while a macro command is being executed are stored in \$s1030 (built-in socket) and \$s1035 (USB port).
12: Storage device is write-prohibited or there is not enough free space.
16: Storage device is read-prohibited.
- The returned value will not be stored at return address [F1] immediately. Monitor return address [F1] using an event timer macro, etc.
- The primary key for V-Server must be set to the database table. ([page 6-41](#)) On a stand-alone configuration, the key is registered when a database is created using the "MES WRITE" macro command.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing the database, the result and log data are not output to the V10/V9 series unit.
- Specify the Ethernet communication port at \$s512.
0: LAN (built-in)
1: Ethernet unit
2: LAN2 (built-in)
3: WLAN (wireless)

MES READ (F1, F2, F3)

Function: Searching the database

This macro command is used to search the line data set on the [Read] tab window of MES setting No. [F3]. The search is performed using the search conditions set on the [Search condition] tab window at the location specified in table No. [F2] via V-Server. The result is stored in return address [F1].

When used in the stand-alone configuration, table No. [F2] is not used.

 For a stand-alone configuration, the [Use as stand-alone] checkbox must be selected at [System Setting] → [Other] → [MES Setting]. For details on the stand-alone configuration, refer to [page 6-15](#).

Device memory used

	Internal	PLC 1 to 8	Constant	Remarks
F1	⊙			
F2	○		○	Invalid with stand-alone configuration
F3	○		○	

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value	Remarks
F0	MES READ	
F1	Return address	
F2	0 to 255: Network table No.	Invalid with stand-alone configuration
F3	0 to 255: MES setting No.	

Return address

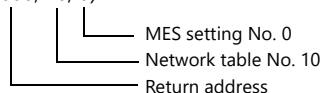
The following data is stored at the addresses starting from return address [F1].

Return address	Value
n	Execution result Successful completion: 0 Error: Other than 0
n + 1	Number of retrieved records The number of records that match the search conditions is stored. If no records are found, "0" is stored. The maximum number of records is set on the [Read] tab window in the MES settings.
n+2 -	Obtained data 1 The retrieved data is stored in the format specified on the [Read] tab window in the MES settings.
:	Obtained data 2
:	Obtained data 3
:	:
:	Obtained data m (maximum number of records)

Operation example

- PC used as server

MES READ (\$u0000, 10, 0)

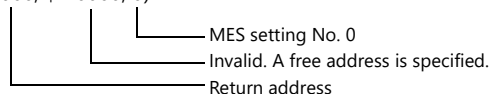


The above macro command searches the database on the PC specified in network table No. 10.

The search is performed according to the settings on the [Read] and [Search condition] tab windows of MES setting No. 0. When the search is completed successfully, a return value of "0" and the obtained data are stored at the addresses starting from the return address \$u0000.

- Stand-alone configuration (storage device)

MES READ (\$u0000, \$M0000, 0)



The above macro command searches the database data on the storage device.

The search is performed according to the settings on the [Read] and [Search condition] tab windows of MES setting No. 0.

When the search is completed successfully, a return value of "0" and the obtained data are stored at the addresses starting from the return address \$u0000.

Supplementary information

- The execution type of the macro command can be set using \$s514. For details, refer to [page 6-28](#).
- The result of the macro execution is stored in the device memory address \$s515.
 - 40: The [Read] tab window setting is not made in the specified MES setting number, or there is a setting error. For details on other error numbers, refer to [page 6-28](#).
- On a stand-alone configuration, storage device related errors that occur while a macro command is being executed are stored in \$s1030 (built-in socket) and \$s1035 (USB port).
 - 12: Storage device is write-prohibited or there is not enough free space.
 - 16: Storage device is read-prohibited.
- The returned value will not be stored at return address [F1] immediately. Monitor return address [F1] using an event timer macro, etc.
- If settings are not configured on the [Search condition] tab window for the specified MES setting number, all records are extracted as the results of the search.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing the database, the result and log data are not output to the V10/V9 series unit.
- Specify the Ethernet communication port at \$s512.
 - 0: LAN (built-in)
 - 1: Ethernet unit
 - 2: LAN2 (built-in)
 - 3: WLAN (wireless)

MES DEL (F1, F2, F3)

Function: Deleting records from the database

This macro command is used to search the database according to the settings on the [Search condition] tab window of MES setting No. [F3]. The search is performed at the location specified in table No. [F2] via V-Server. The records that match the conditions are deleted. The result is stored at return address [F1].

When used in the stand-alone configuration, table No. [F2] is not used.



For a stand-alone configuration, the [Use as stand-alone] checkbox must be selected at [System Setting] → [Other] → [MES Setting]. For details on the stand-alone configuration, refer to [page 6-15](#).

Device memory used

	Internal	PLC 1 to 8	Constant	Remarks
F1	⊙			
F2	○		○	Invalid with stand-alone configuration
F3	○		○	

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

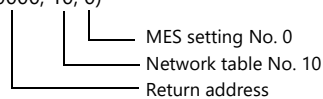
Range

	Value		Remarks
F0	MES DEL		
F1	Return address	Return value 0: Successful completion -1: Ended in error	
F2	0 to 255: Network table No.		Invalid with stand-alone configuration
F3	0 to 255: MES setting No.		

Operation example

- PC used as server

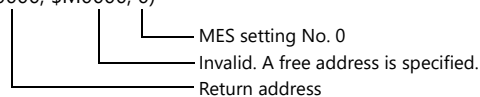
MES DEL (\$u0000, 10, 0)



The above macro command searches the database of the PC specified in network table No. 10 and deletes the retrieved data. The search is performed according to the settings on the [Search condition] tab window of MES setting No. 0. When the data is successfully deleted, a return value of "0" is stored at the return address \$u0000.

- Stand-alone configuration (storage device)

MES DEL (\$u0000, \$M0000, 0)



The above macro command searches the database data on the storage device and deletes the retrieved data. The search is performed according to the settings on the [Search condition] tab window of MES setting No. 0. When the data is successfully deleted, a return value of "0" is stored at the return address \$u0000.


Supplementary information

- The execution type of the macro command can be set using \$s514. For details, refer to [page 6-28](#).
- The result of the macro execution is stored in the device memory address \$s515.
 - 40: The [Search condition] tab window setting is not made in the specified MES setting number, or there is a setting error.
- For details on other error numbers, refer to [page 6-28](#).
- On a stand-alone configuration, storage device related errors that occur while a macro command is being executed are stored in \$s1030 (built-in socket) and \$s1035 (USB port).
 - 12: Storage device is write-prohibited or there is not enough free space.
 - 16: Storage device is read-prohibited.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing the database, the result and log data are not output to the V10/V9 series unit.
- Specify the Ethernet communication port at \$s512.
 - 0: LAN (built-in)
 - 1: Ethernet unit
 - 2: LAN2 (built-in)
 - 3: WLAN (wireless)

MES UPDATE (F1, F2, F3)

Function: Updating the database

This macro command is used to search and update the line data set on the [Write] tab window of MES setting No. [F3]. The search is performed according to the settings on the [Search condition] tab window at the location specified in table No. [F2] via V-Server, and then the database is updated. The result is stored at return address [F1].
When used in the stand-alone configuration, table No. [F2] is not used.

 For a stand-alone configuration, the [Use as stand-alone] checkbox must be selected at [System Setting] → [Other] → [MES Setting]. For details on the stand-alone configuration, refer to [page 6-15](#).

Device memory used

	Internal	PLC 1 to 8	Constant	Remarks
F1	⊙			
F2	○		○	Invalid with stand-alone configuration
F3	○		○	

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

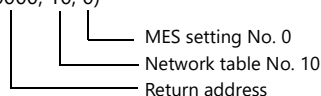
Range

	Value		Remarks
F0	MES UPDATE		
F1	Return address	Return value 0: Successful completion -1: Ended in error	
F2	0 to 255: Network table No.		Invalid with stand-alone configuration
F3	0 to 255: MES setting No.		

Operation example

- PC used as server

MES UPDATE (\$u0000, 10, 0)

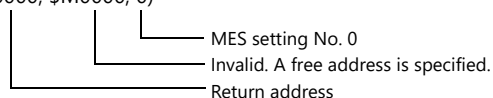


The above macro command searches the database on the PC specified in network table No. 10 and updates the database. The search is performed according to the settings on the [Write] and [Search condition] tab windows of MES setting No. 0.

When the data is successfully updated, a return value of "0" is stored at the return address \$u0000.

- Stand-alone configuration (storage device)

MES UPDATE (\$u0000, \$M0000, 0)



The above macro command searches and updates the database data on the storage device. The search is performed according to the settings on the [Write] and [Search condition] tab windows of MES setting No. 0. When the data is successfully updated, a return value of "0" is stored at the return address \$u0000.

Supplementary information

- The execution type of the macro command can be set using \$s514. For details, refer to [page 6-28](#).
- The result of the macro execution is stored in the device memory address \$s515.
 - 40: The [Write] or [Search condition] tab window setting is not made in the specified MES setting number, or there is a setting error.
 For details on other error numbers, refer to [page 6-28](#).
- On a stand-alone configuration, storage device related errors that occur while a macro command is being executed are stored in \$s1030 (built-in socket) and \$s1035 (USB port).
 - 12: Storage device is write-prohibited or there is not enough free space.
 - 16: Storage device is read-prohibited.
- The returned value will not be stored at return address [F1] immediately. Monitor return address [F1] using an event timer macro, etc.
- This macro command cannot be executed when "Update" is set on the [Search condition] tab window.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing the database, the result and log data are not output to the V10/V9 series unit.

- Specify the Ethernet communication port at \$s512.
 - 0: LAN (built-in)
 - 1: Ethernet unit
 - 2: LAN2 (built-in)
 - 3: WLAN (wireless)

System Device Memory (\$s)

The system device memory related to MES macro commands are shown below.

Address	Description	Remarks																																				
\$s512 ^{*1}	Ethernet port selection 0: LAN (built-in) 1: Ethernet unit 2: LAN2 (built-in) 3: WLAN (wireless)	→ V																																				
\$s514 ^{*2}	Macro command: Wait request <div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="text-align: center;">MSB</td> <td style="text-align: center;">15</td><td style="text-align: center;">14</td><td style="text-align: center;">13</td><td style="text-align: center;">12</td><td style="text-align: center;">11</td><td style="text-align: center;">10</td><td style="text-align: center;">09</td><td style="text-align: center;">08</td><td style="text-align: center;">07</td><td style="text-align: center;">06</td><td style="text-align: center;">05</td><td style="text-align: center;">04</td><td style="text-align: center;">03</td><td style="text-align: center;">02</td><td style="text-align: center;">01</td><td style="text-align: center;">00</td> <td style="text-align: center;">LSB</td> </tr> <tr> <td></td> <td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td> <td></td> </tr> </table> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Reserved for system (setting: 0)</p> </div> <div style="text-align: center;"> <p>Wait request 0: Disabled 1: Enabled</p> </div> </div> </div>	MSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	LSB		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		→ V
MSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	LSB																					
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																						
\$s515	Macro command: Wait request execution result	V →																																				

^{*1} Not used in a stand-alone configuration

^{*2} When requests for MES macro commands (30 maximum) accumulate in the V10/V9 series unit in a stand-alone configuration, the V10/V9 series unit operates while waiting regardless of the \$s514 value.

\$s514,515

These device memory addresses are related to MES macro commands and Ethernet macro commands (SEND/ERead/EWRITE).

The settings are applied to the port specified with \$s512.

- \$s514: This address is used to enable or disable the wait request for executing macro commands.
 - [0]: No wait
When executing macro commands, the next macro command is executed without waiting for the completion of the current command.
 - Other than [0]: With wait
When executing macro commands, the next macro command is put on hold until the current command is completed.
- * If accessing the same port on a single macro sheet, always specify a value other than "0" (with wait).
If "0" (no wait) is specified, macro commands issued afterward will not be accepted.
- \$s515: This address stores the macro command execution result.
When \$s514 is set to "0", the issuing of a macro command is stored. When \$s514 is set to "1", the response returned for the command is stored.

Code ^{*1}	Description	Solution	PC as Server	Stand-alone
0	Normal	-	○	○
200 to 2001	Communication error between a device targeted by a macro command and a connected device Target device <ul style="list-style-type: none"> • V10/V9: 801 (link down) • V8/TS2060i/V7/V6: 200 to 2001 	A communication error code is stored when the device targeted by a macro command and a device are connected via Ethernet. For error contents and solutions, refer to the connection manual of the target device.	○	-
-8	Communication unavailable Inaccessible	Check whether the counterpart unit is running normally.	○	-
-32	The specified table is not used.	Check the network table settings.	○	-
-34	The specified table is in use.	Check whether system device memory \$s514 is set. If it is not to be set, reduce the number of communications.	○	-
-40	Setting data error	<ul style="list-style-type: none"> • Check that [Write], [Read], and [Search condition] settings are configured for the specified MES setting number. • Check that the set data is correct. 	○	○
-51	Specified address error	<ul style="list-style-type: none"> • Check that the specified address is correct. • For a \$L address, check if the setting is made. 	○	○
-60	Database access error	<ul style="list-style-type: none"> • Check if there is enough free space on the storage device. ^{*2} • Check if the storage device to be accessed is connected. 	-	○

Code *1	Description	Solution	PC as Server	Stand-alone
-61	Error during SQL execution	<ul style="list-style-type: none"> Check that the [Table Name] setting is not left blank in the MES settings. Check that a schema name is not included in the table name. 	-	○
-62	Database not found	<ul style="list-style-type: none"> Check that the [Database Name] setting is not left blank in the MES settings. Check if the database file exists. If the file is not found, newly create by executing "MES WRITE". 	-	○
-63	Database in use	<ul style="list-style-type: none"> Check if the storage device to be accessed is write-prohibited. Check if the database file is corrupted. 	-	○
-64	Database format error	Check that the [Line name] contents and number of rows in the MES settings are the same as the column in the table that is referenced.	-	○
-65	Folder creation failure	<ul style="list-style-type: none"> If executing the "MES WRITE" macro command, check if the storage device to be accessed is full or write-prohibited. If executing a macro command other than "MES WRITE", check if the access folder exists in the storage device to access. Location to check: access folder\DATABASE\ 	-	○

- *1 Number of records (lower 10 digits) in the "VsPrimaryKey" database
Depending on when an error occurs, attempts to write a record will be counted even if they are not successful. Therefore, a subsequently written record may be numbered non-consecutively.

All successful

VsPrimaryKey	Total	Name
21030914055460800000000000	1000	Yama
21030914464214200000000001	250	Sato
21030914500612000000000002	123	Taki

An error has occurred

VsPrimaryKey	Total	Name
21030914055460800000000000	1000	Yama
21030914500612000000000002	123	Taki

The preceding "1" is missing.



For details on the "VsPrimaryKey" database, refer to [page 6-41](#).

- *2 The required free space is two times the allocation unit size (cluster size) of the storage device.
For example, if the allocation unit size is 32 kB, at least 64 kB of free space is necessary. If there is not enough free space, increase the capacity of the storage device or free up space on the storage device by deleting unnecessary files and folders. The "DEL_FILE" macro command can be used for deleting. For details, refer to the Macro Reference Manual.

6.7.4 V-Server

V-Server

Hakko Electronics V-Server is the software that enables accesses to databases.

Once V-Server is installed on a PC, no additional configuration is needed. The system requirements for V-Server are listed in the table below.

System requirements

Item	Description
Computer	PC/AT compatible computer running Windows
OS	Windows 11(64 bit)/ 10 (32 bit, 64 bit)/ 8.1 (32 bit, 64 bit)/ 8 (32 bit, 64 bit)/ 7 (32 bit, 64 bit)/ Vista (32 bit, 64 bit)/ XP/ XP64 Edition/ Server 2016/ Server 2012/ Server 2008 R2
CPU	Pentium 4, 1 GHz or higher
Memory	Min. 256 MB
Hard disk	At installation: 2.5 GB or more
Display resolution	XGA (1024 × 768) or higher, Display color: High color (16-bit) or higher
Database	SQL Server (Microsoft) MSDE (Microsoft) Oracle (Oracle Corporation)

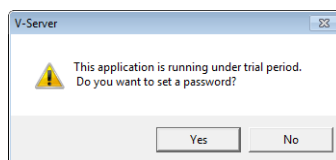
* Windows XP/XP64 Edition is not supported by TELLUS and V-Server Ver. 4.0.12.0 or later.

Installation

1. Download the V-Server software to your PC from the Hakko Electronics website at the following URL.
2. Install V-Server on the PC.
3. Start V-Server.

* The message that appears at start-up indicates that V-Server is usable for one hour.

To use V-Server without this limitation, please apply for a software license and obtain a password. For details, refer to the TELLUS and V-Server Manual.



6.7.5 Database

Types of Databases

The following databases can be used.

- SQL Server: Microsoft
- MSDE: Microsoft
- Oracle: Oracle Corporation

This manual describes an example of configuration using Microsoft SQL Server 2012 Express Edition.

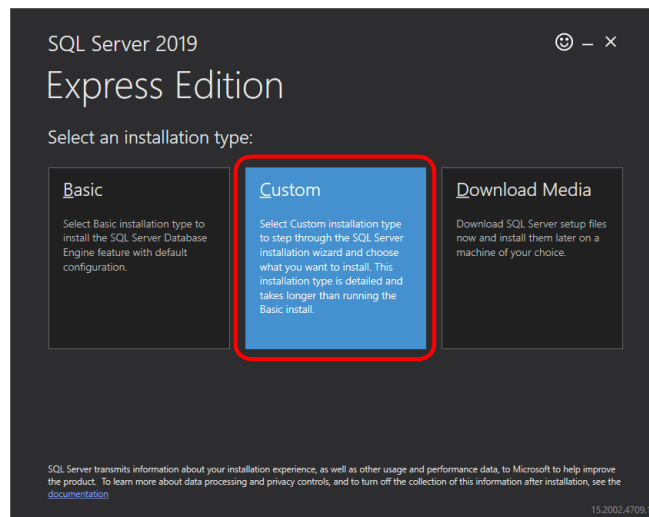
SQL Server 2012 Express Edition

This is a simplified version of SQL Server 2012. This software can be downloaded free of charge from Microsoft's website.

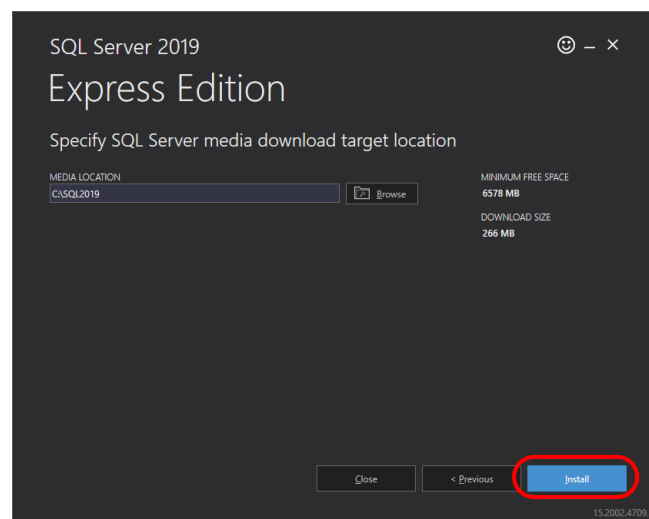
SQL Server 2019 Express Edition

Installation

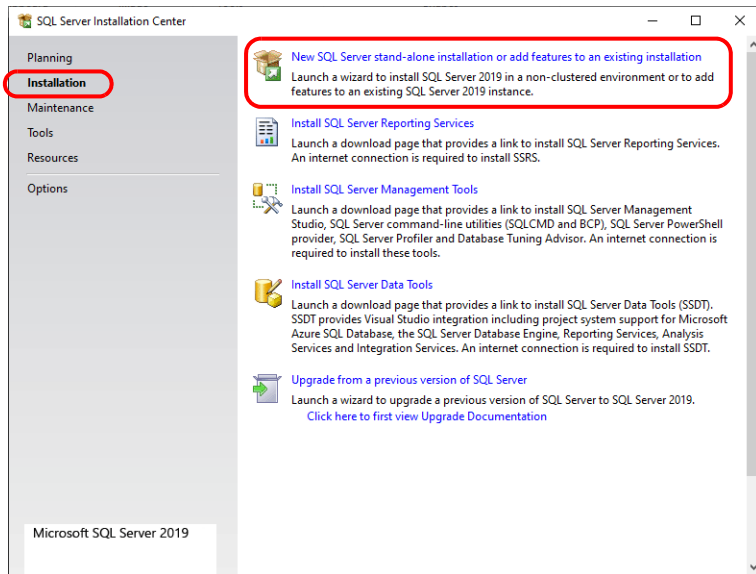
1. Download SQL Server 2019 Express Edition from Microsoft's website.
2. Double-click the downloaded executable file.
3. The following window is displayed. Select [Custom].



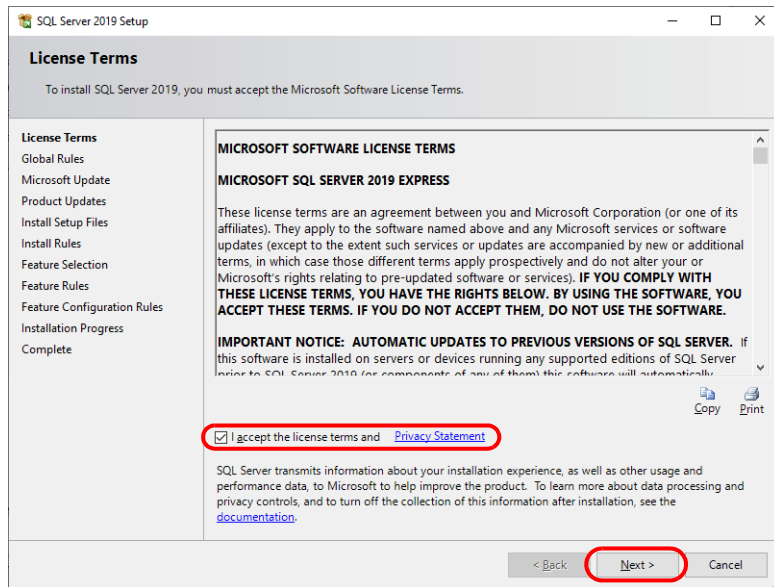
4. Specify the download target location and click [Install]. The installation package is downloaded.



- The [SQL Server Installation Center] window is displayed. Select [New SQL Server stand-alone installation or add features to an existing installation].

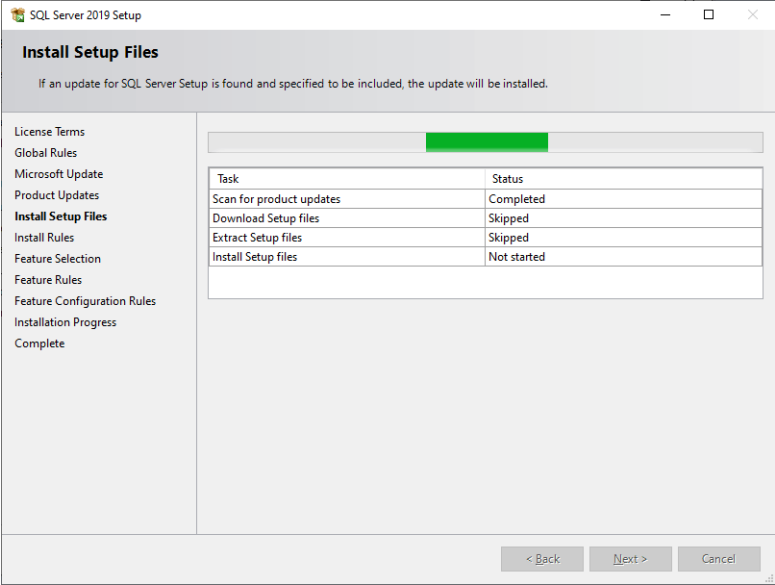


- The license terms are displayed. Select the [I accept the license terms and Privacy Statement] checkbox and click the [Next] button.

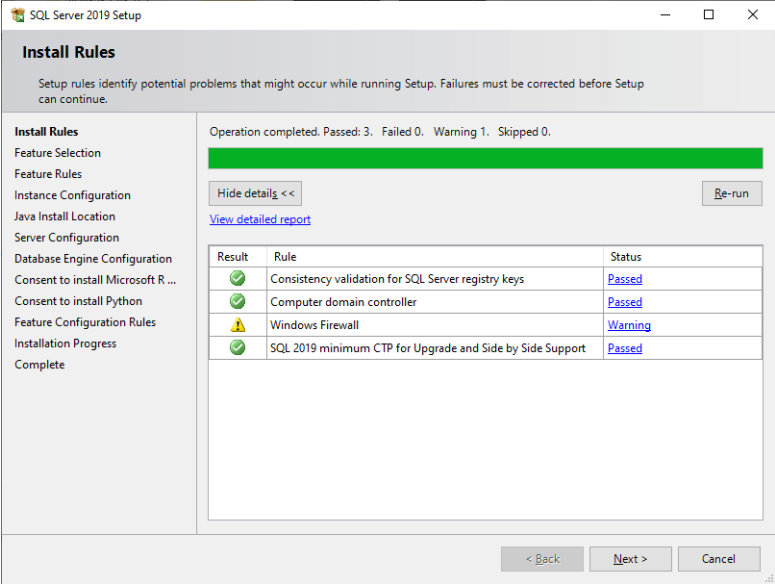


- The [Product Updates] window is displayed. Proceed by following the instructions.

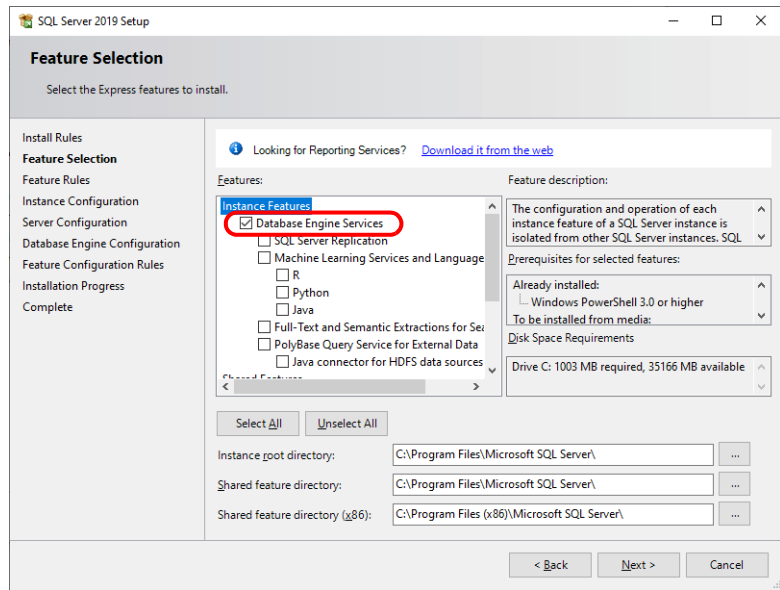
8. The [Install Setup Files] window is displayed and installation of setup files starts.



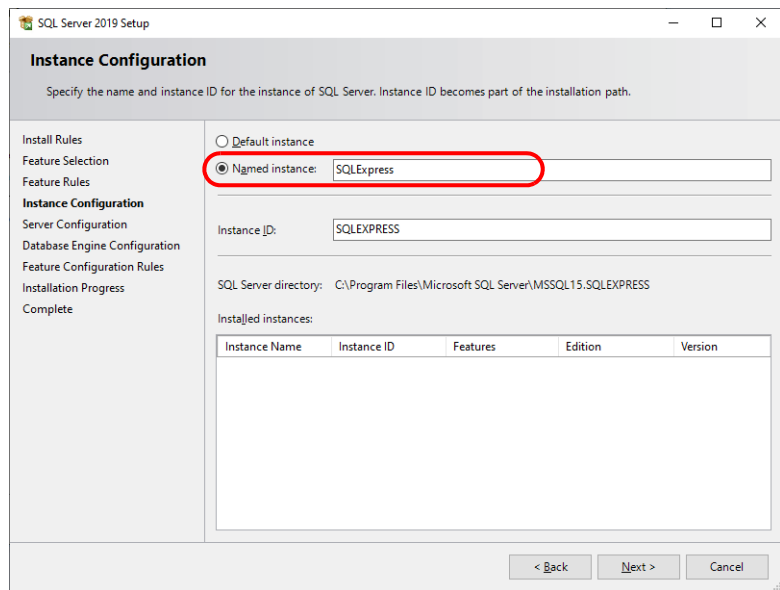
9. The [Install Rules] window is displayed. Proceed by following the instructions.



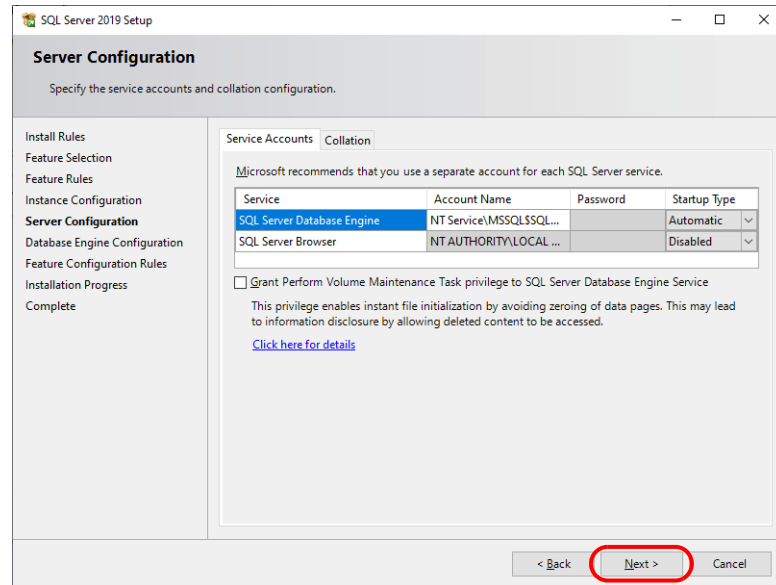
- The [Feature Selection] window is displayed. Select the [Database Engine Services] checkbox and proceed to the next screen.



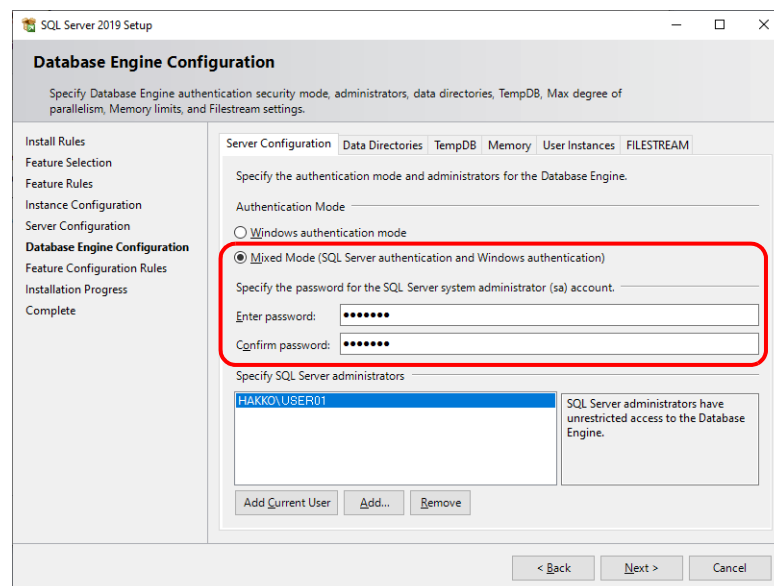
- The [Instance Configuration] window is displayed. Select the [Named instance] radio button and proceed to the next screen.



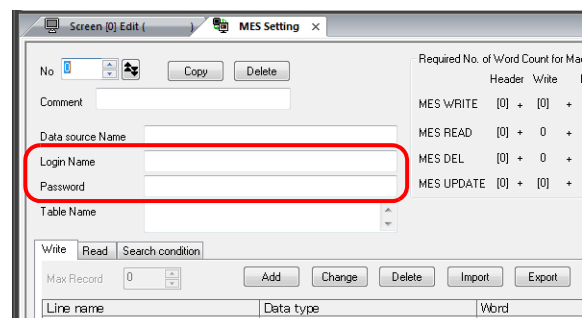
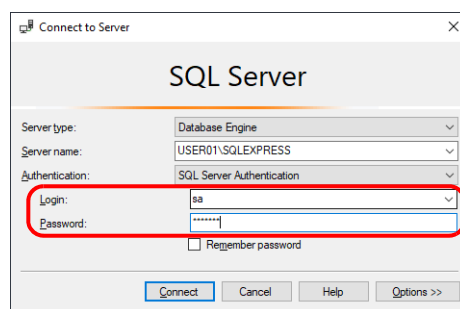
12. The [Server Configuration] window is displayed. Click the [Next] button.



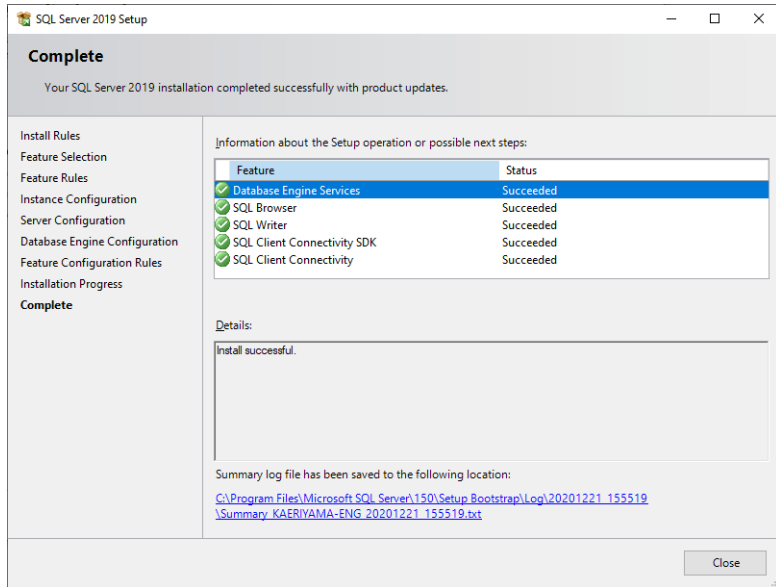
13. The [Database Engine Configuration] window is displayed. Select the [Mixed Mode] radio button and enter a password. Click the [Next] button to start installation.



The password is required when connecting to the database and configuring MES settings in the V-SFT editor. Take care managing your password and do not lose it.

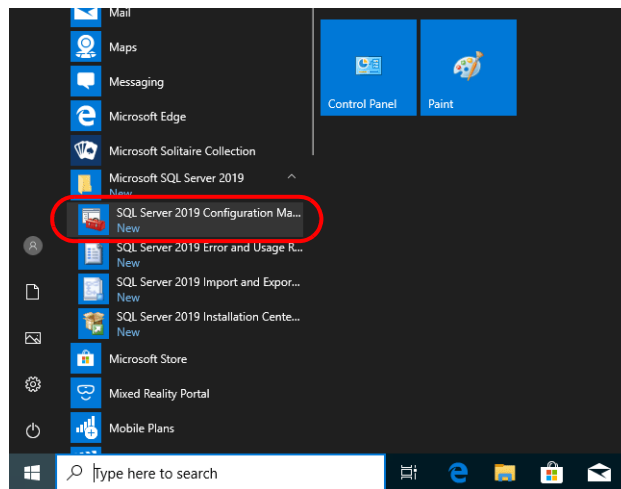


14. The [Complete] window is displayed when installation is finished. Click the [Close] button to exit.

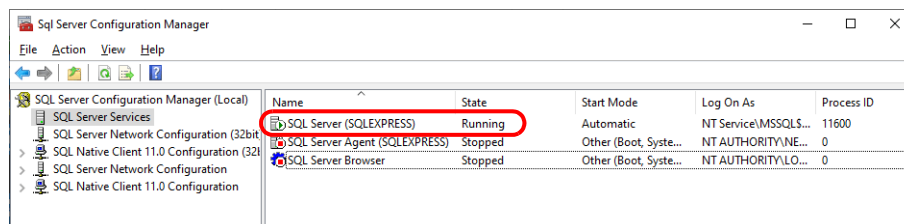


15. Restart the PC.

16. Click the Windows start menu icon → [Microsoft SQL Server 2019] → [SQL Server 2019 Configuration Manager].



17. SQL Server Configuration Manager starts. Check that SQL Server (SQL Express) is running.



This completes the installation procedure.

Creating an SQL Server Database

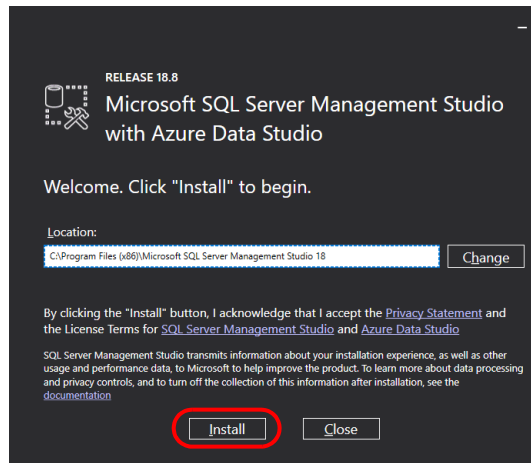
An SQL Server database can be created using Microsoft SQL Server Management Studio.

Microsoft SQL Server Management Studio: SSMS

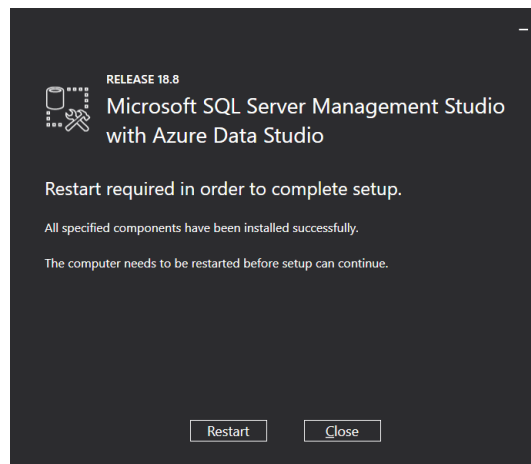
An easy-to-use, graphical management tool intended for management of SQL Server 2019 Express Edition

Installation

1. Download SQL Server Management Studio from Microsoft's website.
2. Double-click the downloaded file.
3. The following window is displayed. Click [Install] to start installation.



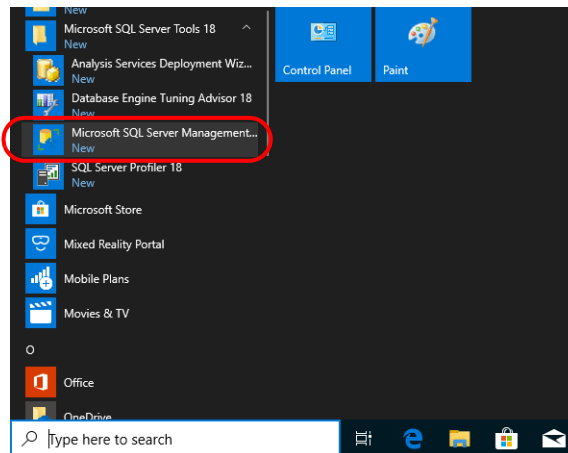
4. When installation is complete, the following window is displayed. Click [Restart].



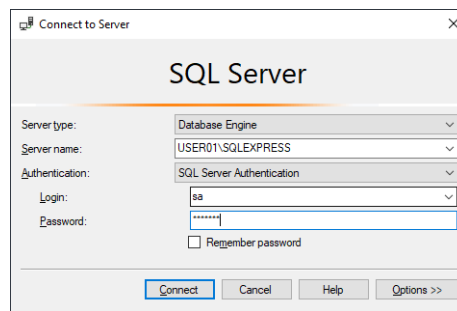
5. The PC reboots.
This completes the installation procedure.

Starting SQL Server Management Studio

1. Click the Windows start menu icon → [Microsoft SQL Server Tools 18] → [SQL Server Management Studio].

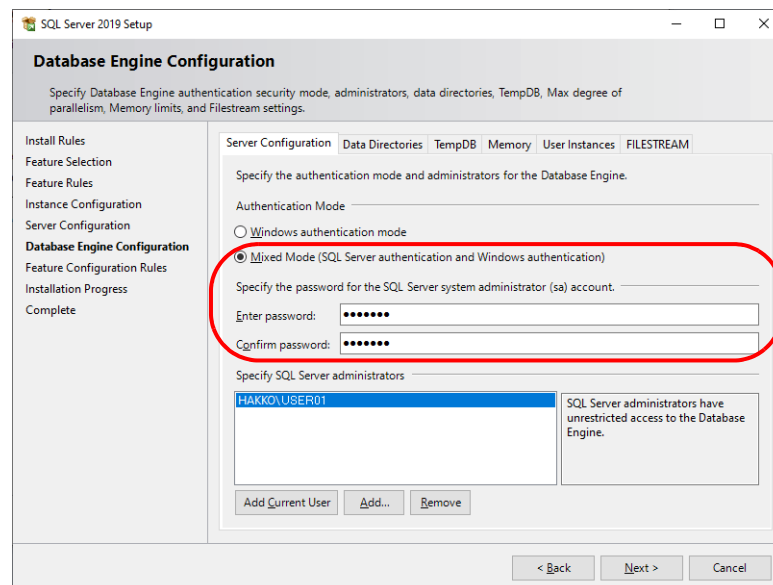


2. The [Connect to Server] window is displayed. Enter the required information and click [Connect].

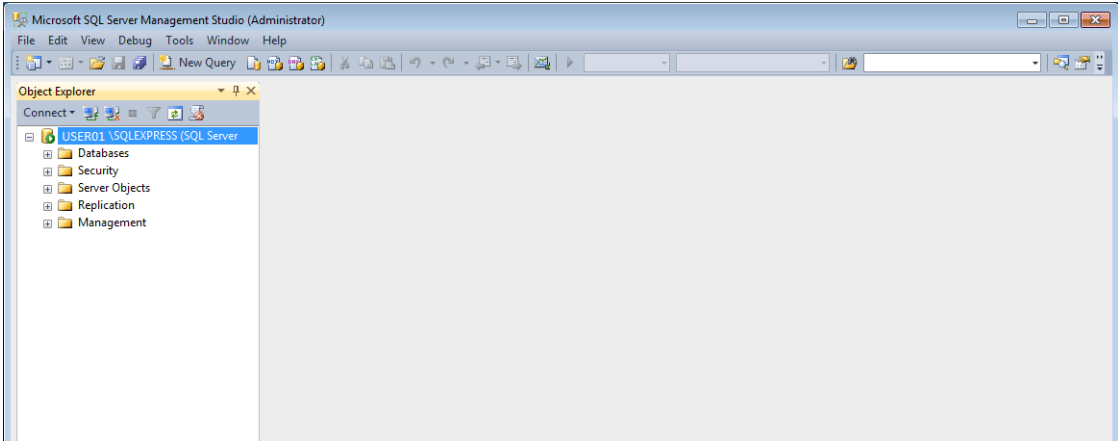


Item	Description
Server name	Select the server name of the SQL Server.
Authentication	Select "SQL Server Authentication".
Login	Enter a user name. The user name "sa" is entered in this example.
Password	Enter the password.

The password for "sa" was specified on the [Authentication Mode] window displayed during installation of SQL Server 2019 Express Edition (see [page 6-35](#)).

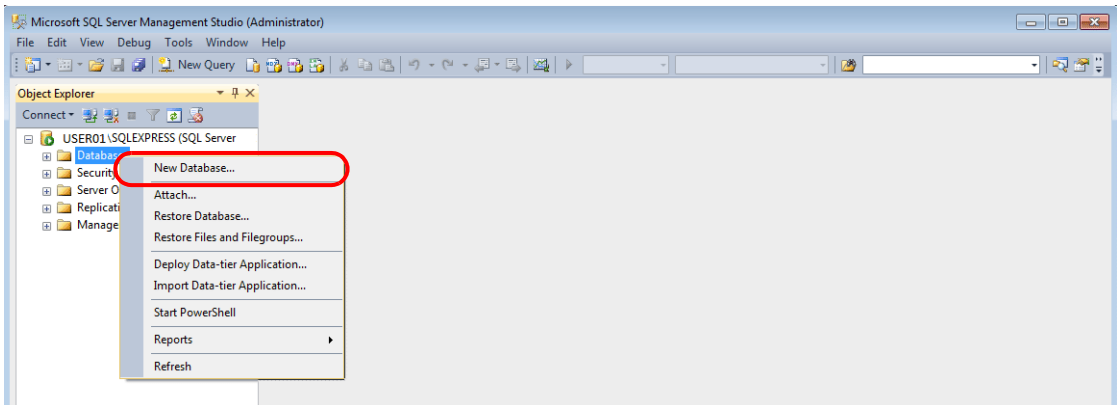


3. SQL Server Management Studio starts up.

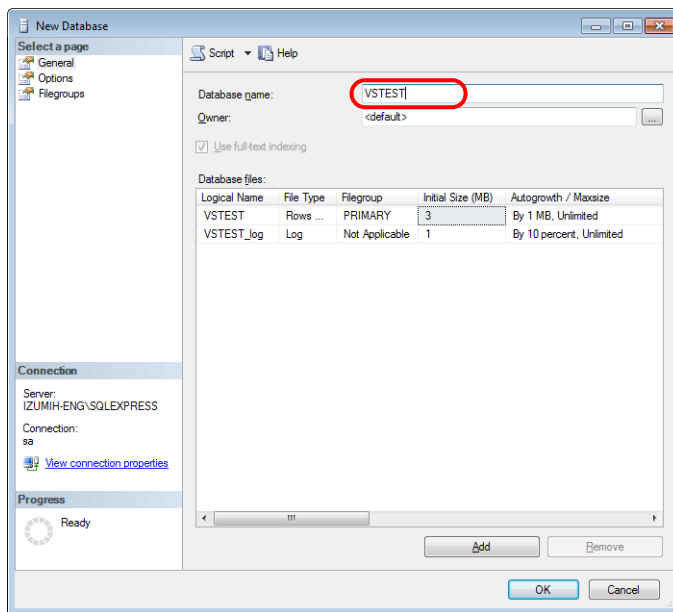


Creating a new database

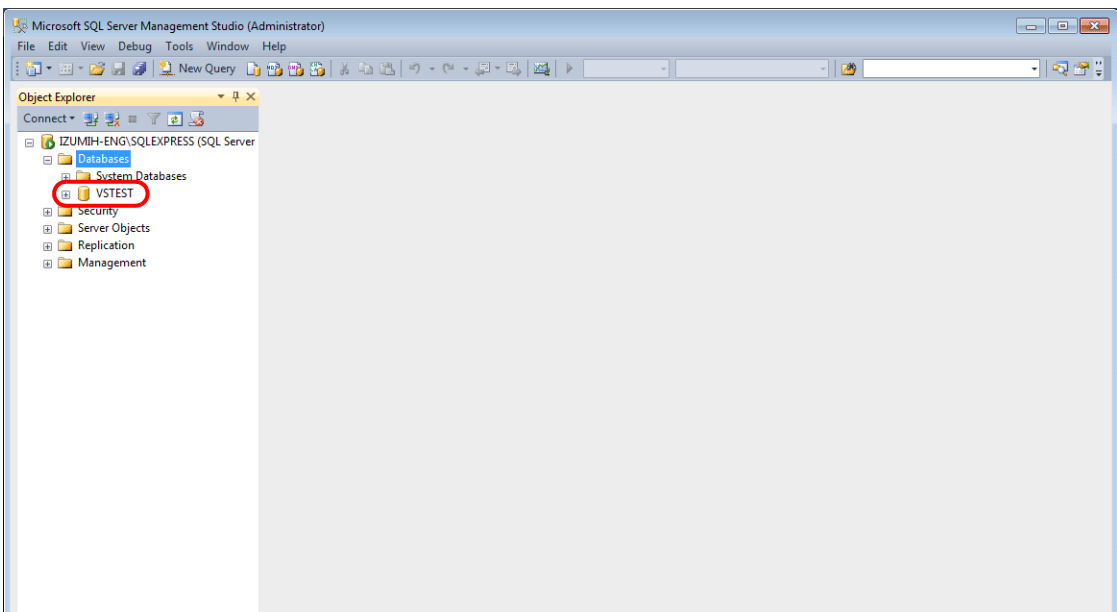
1. Select [Databases] and click [New Database] on the right-click menu.



2. The [New Database] window is displayed. Specify a database name and click the [OK] button.

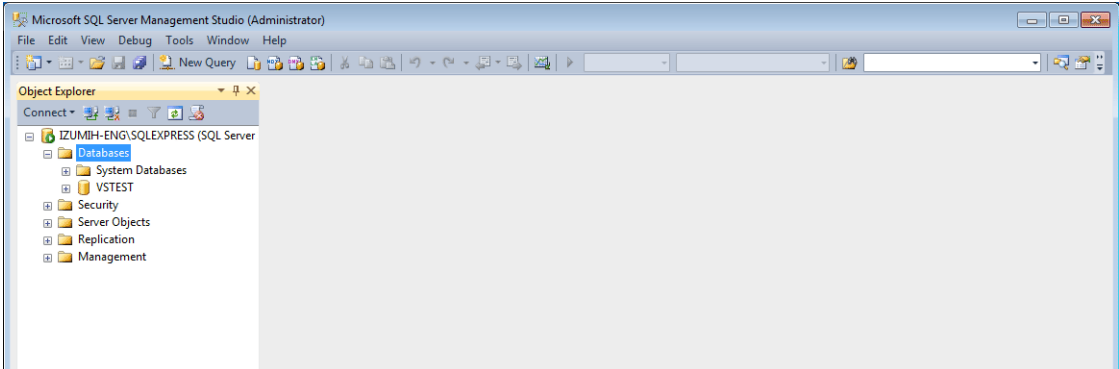


3. A new database is created.

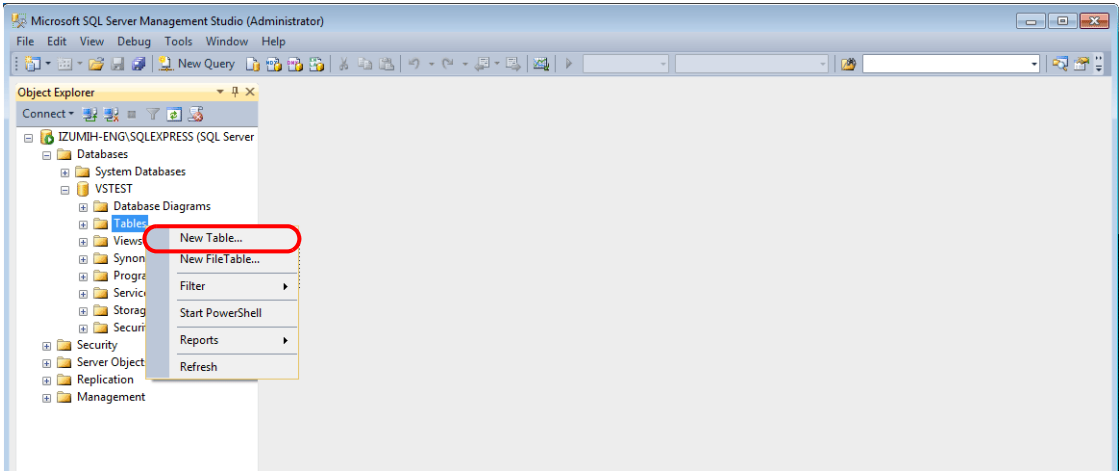


Creating a new table

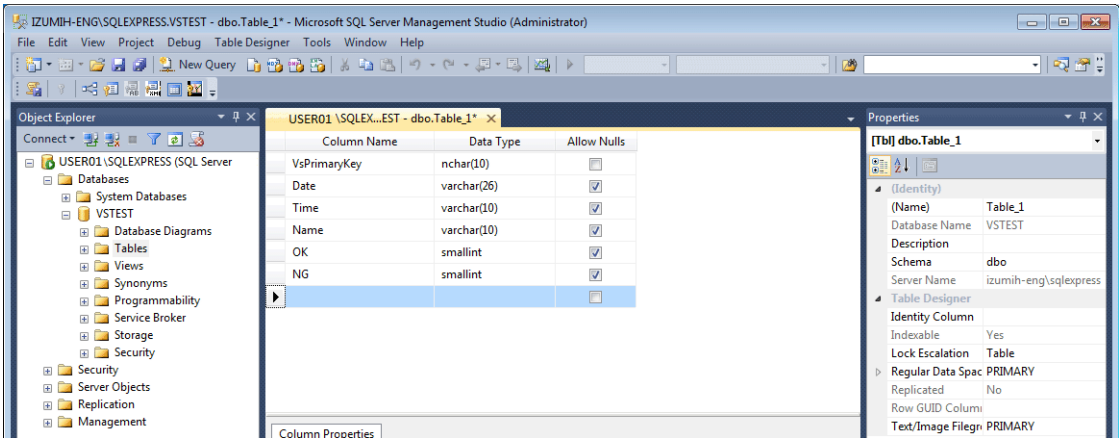
1. Start SQL Server Management Studio.



2. Select the database created in the previous section and click [New Table] on the right-click menu.



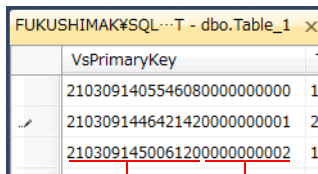
3. The table creation screen is displayed. Create a table by registering a line name and data type.



- Always set the primary key for V-Server for a database table to which data will be added.

Line Name	Data Type	Length	Allow Nulls	Primary Key
VsPrimaryKey	varchar	26 bytes or more	No	<input type="radio"/>

Example: Database results



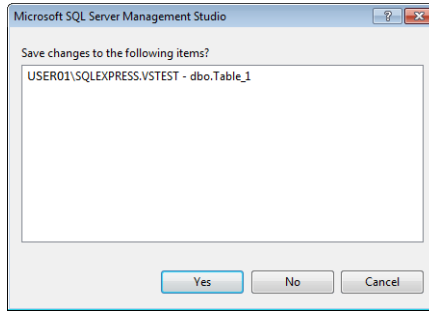
Upper 15 digits: Date and time (March 9, 2021, 14:50:6120)

- Lower 10 digits:
- Number of records from 0 to 9999999999 (first record is "0")
 - PC as server
 - Records are numbered consecutively starting from "0" when V-Server starts. The numbering is reset to "0" when V-Server is terminated. *
 - Stand-alone configuration (storage device)
 - Records are numbered consecutively starting from "0" when the V10/V9 series unit enters RUN mode. The numbering is reset to "0" when the V10/V9 series unit exits RUN mode. *
- * The numbering is also reset to "0" when the maximum number "9999999999" is reached.

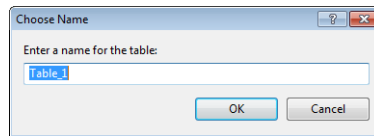
- The following data types can be used with the MES interface function. These correspond to the data types in the MES settings in V-SFT.

Database: Table				V-SFT: MES settings	
Line Name	Data Type	Length	Allow Nulls	Data type	Length
(Arbitrary)	smallint	1 word	Permitted	DEC-BCD	1 word
(Arbitrary)	int	2 word	Permitted		2 word
(Arbitrary)	Float	2 word	Permitted	FLOAT	2 word
(Arbitrary)	varchar	Arbitrary	Permitted	CHAR	256 bytes maximum

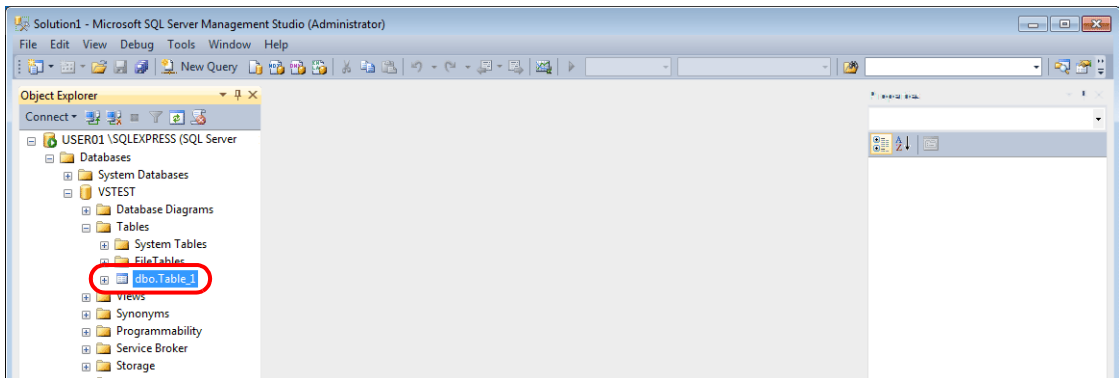
- When the table settings are complete, close the table. The confirmation dialog box is displayed. Click the [Yes] button.



- Enter a name and click the [OK] button.



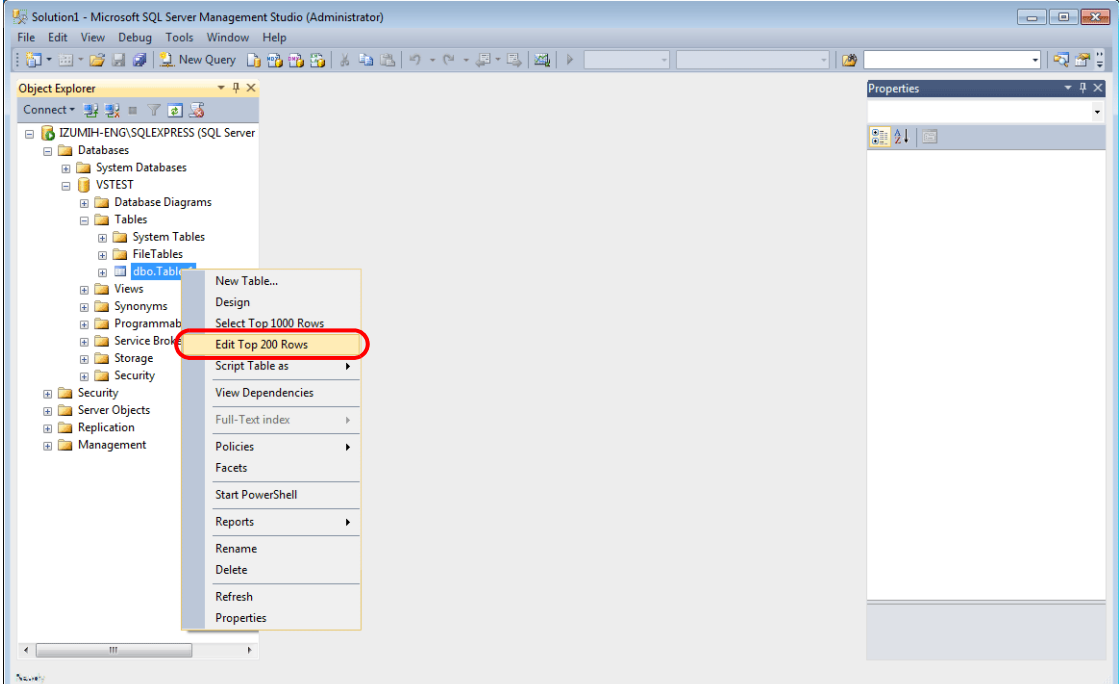
- The table is created.



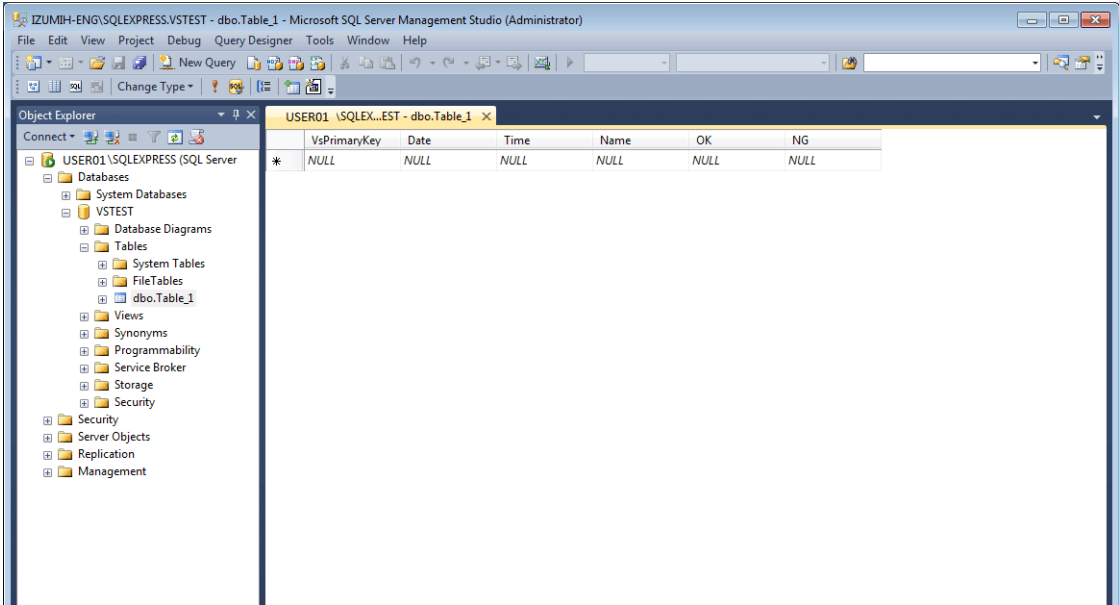
Opening a table

The data saved in the database can be checked according to the following procedure.

- 1. Select a table and click [Edit Top 200 Rows] on the right-click menu.



- 2. The table is opened. The line name registered when the table was created is displayed. Data is saved in each "NULL" field.



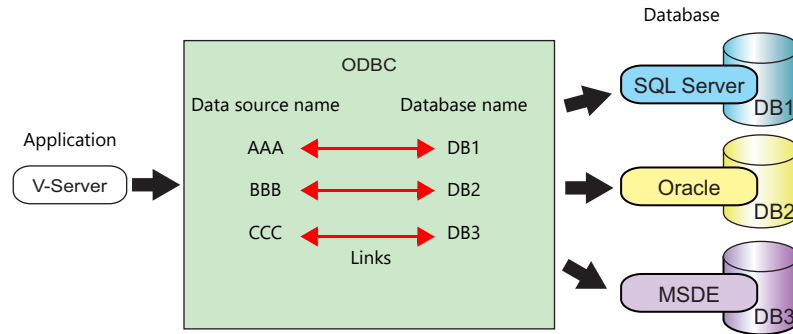
6.7.6 Data Source (ODBC) Settings

V-Server accesses the database via a data source (ODBC). Data source settings need to be configured to allow V-Server access to the database. This manual describes an example of configuration using Microsoft SQL Server 2012 Express Edition.

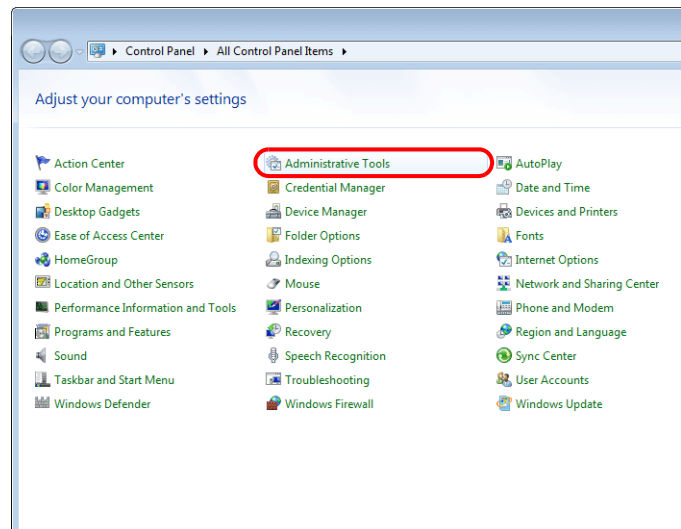
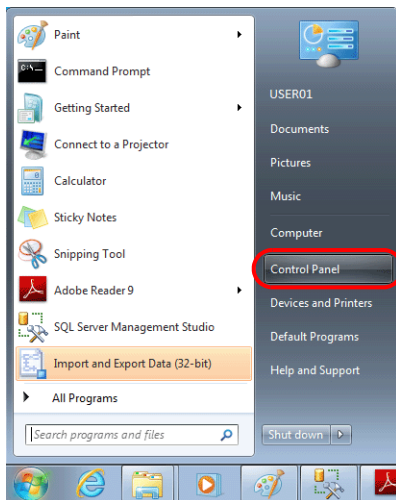
ODBC: Open DataBase Connectivity

ODBC is the interface between an application (V-Server) and the database.

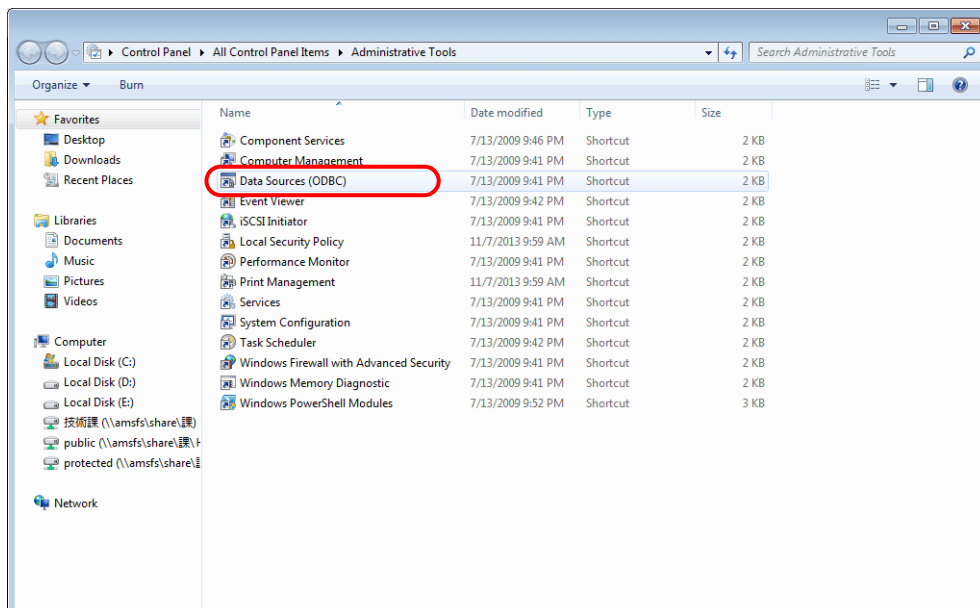
Because ODBC accommodates the differences in specifications between databases, users only need to create programs based on the ODBC-specified procedure in order to access those databases.



1. From the Windows [Start] menu, click [Control Panel] to display the Control Panel.
2. Click [Administrative Tools].



3. The [Administrative Tools] window is displayed. Double-click [Data Sources (ODBC)].

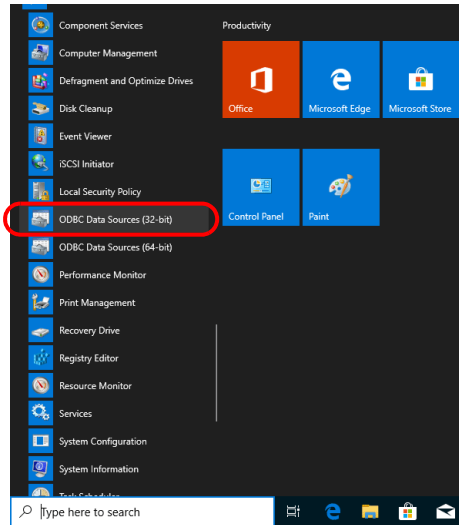




For 64-bit versions of Windows XP/Vista/7/8/10/11

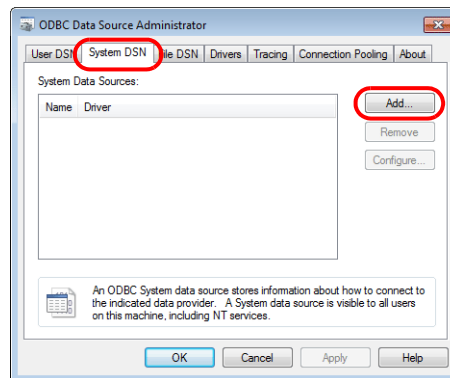
The 32-bit version of ODBC must be used because V-Server is a 32-bit application.

- For Windows 10
Click the Windows start menu icon → [Windows Administrative Tools] → [ODBC Data Sources (32-bit)].

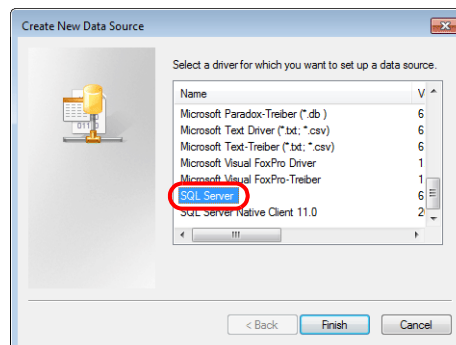


- For Windows XP/Vista/7/8
 - 1) From the Windows [Start] menu, click [Computer], double-click [Local Disk (C:)] → [Windows] → [SysWOW64].
 - 2) Double-click the "odbcad32" application. The 32-bit version of ODBC starts up.
 - 3) Press the [Ctrl] + [Shift] + [Esc] keys together to start Windows Task Manager and check which version of ODBC is running.
On the [Processes] tab, the 32-bit version is running if "odbcad32.exe *32" is shown in the list.

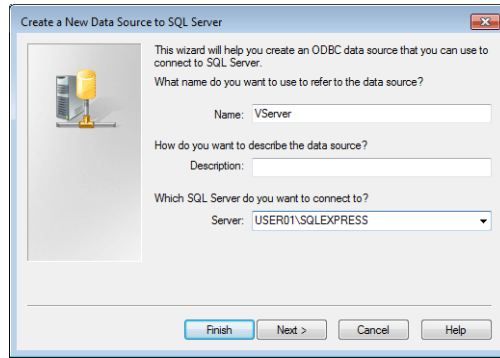
4. The [ODBC Data Source Administrator] window is displayed. Select the [System DSN] tab and click the [Add] button.



5. The [Create New Data Source] window is displayed. Select [SQL Server] and click the [Finish] button.

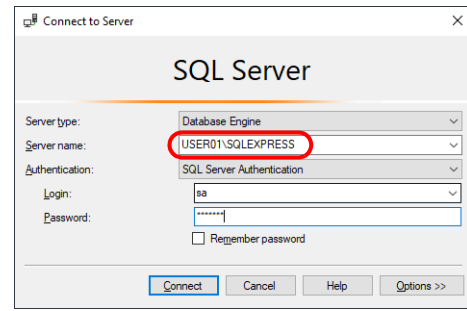
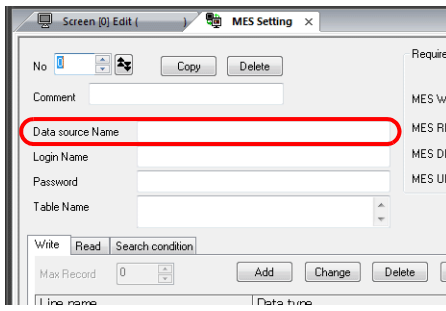


6. The following window is displayed. Configure the required settings and click the [Next] button.



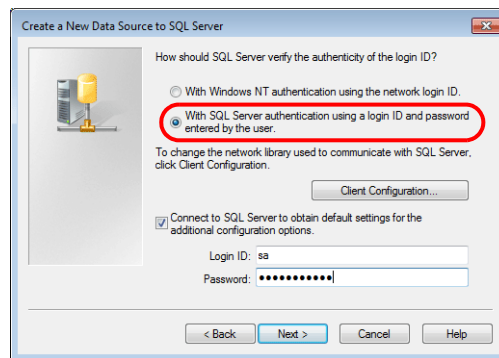
Item	Description
Name	Specify a data source name.
Server	Specify a SQL Server name.

- The data source name is used in the MES settings in V-SFT.
- The SQL Server name can be checked in SQL Server Management Studio.



7. The following window is displayed.

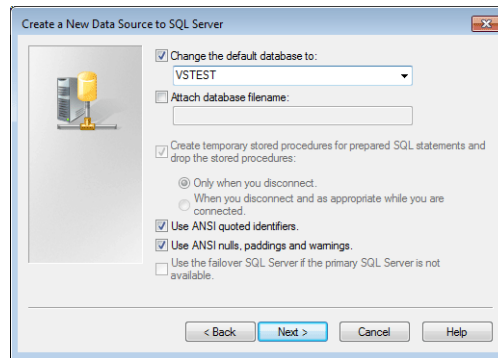
Select the [With SQL Server authentication using a login ID and password entered by the user] radio button and specify a login ID and password.



Item	Description
Login ID	Enter a login ID ("sa" in this example).
Password	Enter the password.

The login ID ("sa") and password were specified on the [Authentication Mode] window displayed during installation of SQL Server 2012 Express Edition (see [page 6-35](#)).

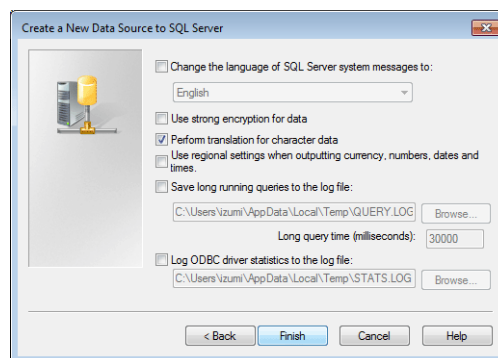
8. Click the [Next] button. The following window is displayed.



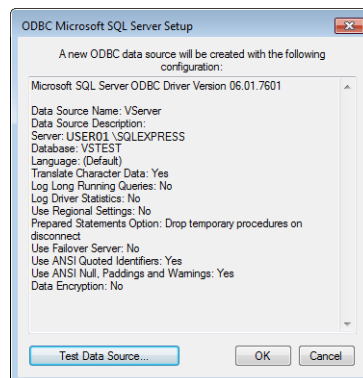
9. Select the [Change the default database to] checkbox and select a database.

Select the database created using Microsoft SQL Server Management Studio (see [page 6-40](#)).

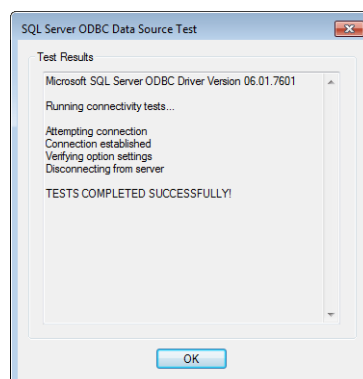
10. Click the [Next] button. The following window is displayed.



11. Click the [Finish] button. The following window is displayed.

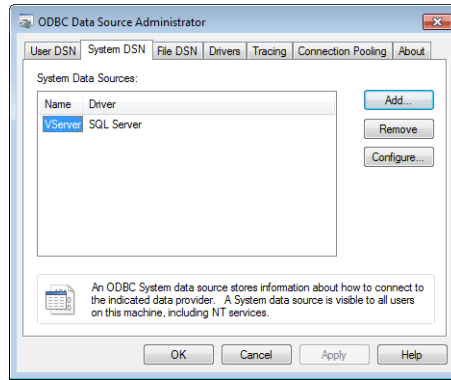


12. Click the [Test Data Source] button. When a connection has been successfully established, the following window is displayed.



13. Click [OK]. The previous screen reappears.

14. Click [OK]. The data source is registered.

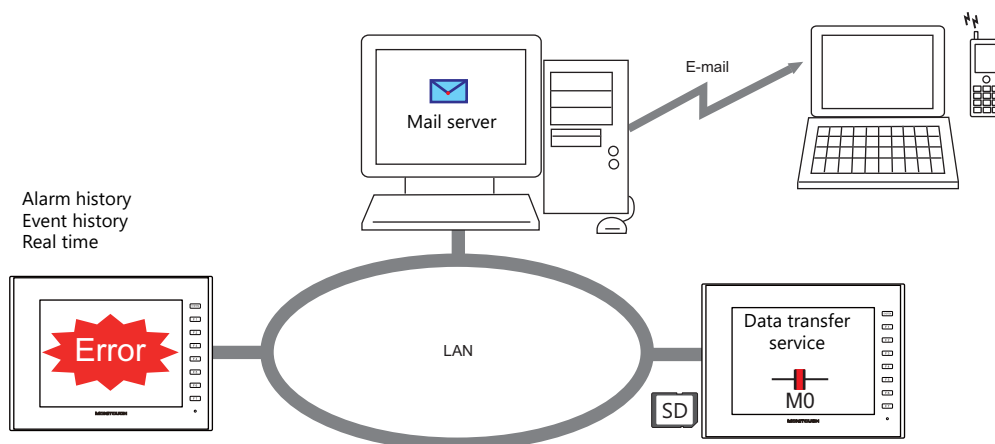


This completes the configuration of settings.

6.8 E-mail Notification

6.8.1 Overview

- Send e-mail notifications using the alarm function or data transfer service function.
- In the alarm function, e-mail notifications can be sent according to the ON/OFF status of alarm bits. If a problem occurs, you can be notified of the fault even at a remote location. A file can be attached to e-mail notifications when an alarm occurs.



- E-mail notifications with an attached file can be sent by executing the data transfer service.
- Encrypted communication using TLS 1.3/1.2 or STARTTLS is also supported.
 - *1 V9 supports only TLS.1.2 (OS Ver. 4.80 or later)
- When e-mail notifications are sent from multi-language screens by using the alarm function, notification messages are sent in all relevant languages.

For e-mail notifications with an attached file, "Attachment information" is added to the main body. The language of the "Attachment information" is the display language of the V10/V9 series unit.

Example of e-mail notification main body

```
2014/04/10 18:55:04 <ON>   A タンク異常発生
Apr/10/2014 18:55:04 <ON>  Tank A Error
2014/04/10 18:55:04 <ON>   A 罐 异常发生
2014/04/10 18:55:04 <ON>   A 罐 發生異常
2014/04/10 18:55:04 <ON>   탱크 A 예러
[Attachment information]
Record No.0 Record Name:Logging_CSV
File:3 File size:53KB
```

The record number and record name are added when using records set on the [Data Transfer Service] window.

- Supported items and ports used

Port	Item	Others
LAN LAN2 WLAN	Alarm history Event history Real time Data transfer service	<ul style="list-style-type: none"> • The mail server must reside on the LAN. • Gateway must be set on the V10/V9 series unit (multiple ports cannot be set at the same time). • Not available with CUR-03.

- Attachable files

File Extension (Both Uppercase and Lowercase)		Capacity
File used on V10/V9	Text	.txt, .csv
	Electronic document	.pdf
	Image	.jpg, .bmp, .png
	Video	.mp4
	Sound	.wav
	Binary	.bin
	Database	.db
Other *		.docx, .xlsx, .pptx, .html, .zip, .tar.gz

* Try any unlisted files in your usage environment.

6.8.2 Detailed Settings

To send e-mail notifications, IP address settings on the V10/V9 series unit and e-mail settings for registering the mail server and recipients of notification must be configured.

IP Address Settings

Decide on one port from LAN/LAN2/WLAN to set for use in sending e-mail notifications. In addition to IP address settings, default gateway settings are also required. When using [Sending Mail Server (SMTP)], DNS settings on the V10/V9 series unit are also required.

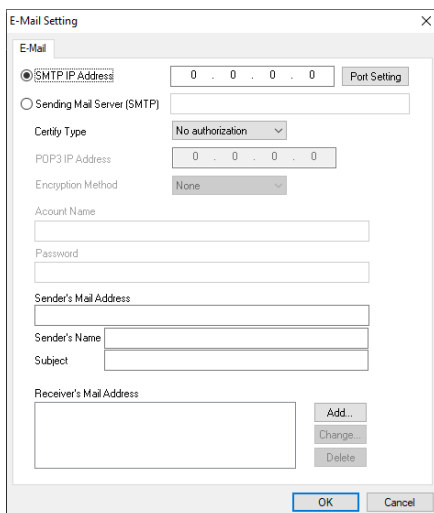
For information on IP address settings, refer to “V10/V9 Series Unit IP Address Settings” page 6-2.

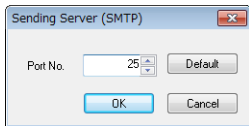
E-mail Settings

There are two ways to configure e-mail settings: using the V-SFT editor or using local mode on the V10/V9 series unit.

Setting using the V-SFT editor

[System Setting] → [Ethernet Communication] → [E-Mail]



Item	Description
Mail server	Set the mail server using an IP address or server name.
SMTP IP Address	Set the IP address of the mail server.
Sending Mail Server (SMTP)	Set the mail server name (within 255 one-byte alphanumeric characters and symbols) Setting of [DNS Setting] in Local mode on the V10/V9 series unit via [LAN Setting] / [LAN2 Setting] / [WLAN Setting] → [Option] is necessary.
Port Setting	Set the SMTP port number of the mail server. 0 to 65535 (default: 25)  Example: Port No. 465 for SSL/TLS communication Port No. 587 for STARTTLS communication
Certify Type	Set the authentication method in accordance with the specifications of the mail server. Select "SMTP-AUTH" when attaching a file.
No authorization	No authentication is performed.
POP before SMTP *1	Authentication is performed with the POP3 server. Configure the following settings. <ul style="list-style-type: none"> • POP3 IP Address • Account Name (63 one-byte characters or less) • Password (63 one-byte characters or less)
SMTP-AUTH *2 LOGIN PLAIN CRAM-MD5 DIGEST-MD5 *3	Authentication is performed with the SMTP server. Configure the following settings. <ul style="list-style-type: none"> • Encryption Method <ul style="list-style-type: none"> - None - SSL/TLS *4 - STARTTLS *4 • Account Name (within 63 one-byte characters) • Password (within 63 one-byte characters)

Item	Description
Sender's Mail Address	Set the sender's mail address. It is recommended to create a dedicated account for the V10/V9 on the mail server and to set its address here.
Sender's Name	Set the sender's name. A name consisting of both one- and two-byte characters is not valid. It is displayed in the "Sender" field in an incoming e-mail.
Subject	Set the subject. It is displayed in the "Subject" field in an incoming e-mail.
Receiver's Mail Address	8 maximum Register the recipient mail addresses. Register all mail addresses to receive notifications from the V10/V9 series unit. * When creating a screen program and the recipients of e-mail notification is yet to be determined, dummy recipients from numbers 0 to 8 can be used instead. The actual recipient addresses can be changed later on the V10/V9 series unit in the [E-Mail Setting] in Local mode.
Add	Register a new recipient address.
Change	Change a registered address.
Delete	Delete a registered address.

*1 POP before SMTP

POP before SMTP uses POP3 authentication that is performed when e-mail is received. SMTP permits the sending of e-mail from the authenticated IP address for a limited time.

Since authentication is disabled after a specific time has elapsed, authentication with POP3 will be required again.

In the case of authentication with POP3, a password is sent in plain text. POP before SMTP using APOP is also available. APOP allows a password to be sent in encrypted form. Note that the V10/V9 series only supports POP3.

*2 SMTP Authentication

Authentication is performed with the SMTP server. SMTP Authentication is classified into several authentication methods. The V10/V9 series supports LOGIN, PLAIN, CRAM-MD5, and DIGEST-MD5 methods.

Since the SMTP server automatically performs authentication according to the available method, users are not requested to make configurations.

<Automatic authentication steps>

1. Compliant with PLAIN?
2. Compliant with LOGIN?
3. Compliant with CRAM-MD5?
4. Compliant with DIGEST-MD5?
5. Authentication failure

About the authentication methods

- PLAIN
The PLAIN method sends user names and passwords in plain text (not in encrypted form).
- LOGIN
LOGIN is similar to PLAIN but it often sends information, such as USER xxxxx or PASS xxxxxx, separately (as performed with POP3). Because the standard specifications of LOGIN are not established, there are e-mail servers that use LOGIN in their own way.
- CRAM-MD5
With CRAM-MD5, the server sends an arbitrary character string (a challenge string) to the client. The client then performs a specific computing process called Message Digest 5 (MD5) by using the challenge string and password, and returns the result to the server. The server that receives the result also performs the same process. When both results match each other, the server judges that the client knows the correct password and grants authorization.
- DIGEST-MD5
DIGEST-MD5, an expanded version of CRAM-MD5, has an enhanced resistance to dictionary attacks and brute force attacks.

*3 Only "auth" mode is supported for "quality protection". It does not support "auth-int" and "auth-conf" modes.

*4 Verified mail servers that support TLS 1.2 compliant encrypted communication

Type	Mail Server	Encryption Method	Port	Mail Account (Domain)
Gmail	smtp.gmail.com	SSL/TLS	465	@gmail.com
		STARTTLS	587	
Microsoft365 outlook	smtp-mail.outlook.com smtp.office365.com	STARTTLS	587	@outlook.jp
yahoo	mail.yahoo.com	SSL/TLS	465	@yahoo.co.jp
BIGLOBE	mail.biglobe.ne.jp	SSL/TLS	465	@xxx.biglobe.ne.jp
OCN	smtp.ocn.ne.jp	SSL/TLS	465	@xxx.ocn.ne.jp

* If using Gmail, the following settings are required in the Google account security settings.

- 2-Step Verification: On
- Generate a password from [App passwords] by setting [Select app] to "Mail" and [Select device] to "Other", and then inputting a device name (example: V9).
Register the 16-digit password at [E-Mail Setting] → [Password] for the V10/V9 series unit.

Generated app password

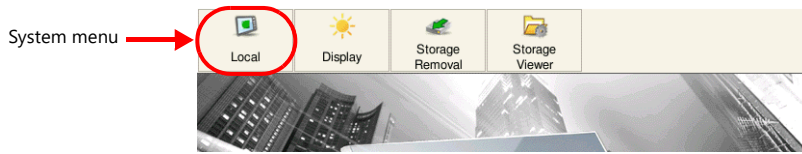
Your app password for your device

comk tufe wjsb nbtu

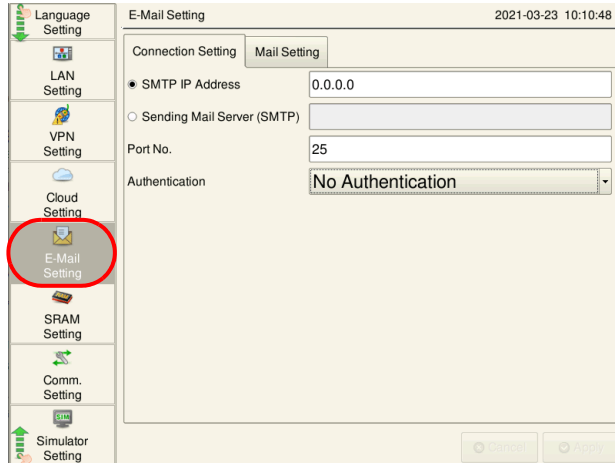
16 digits
Register at [E-Mail Setting] →
[Password] for the V10/V9 series
unit.

Setting using Local mode on the unit

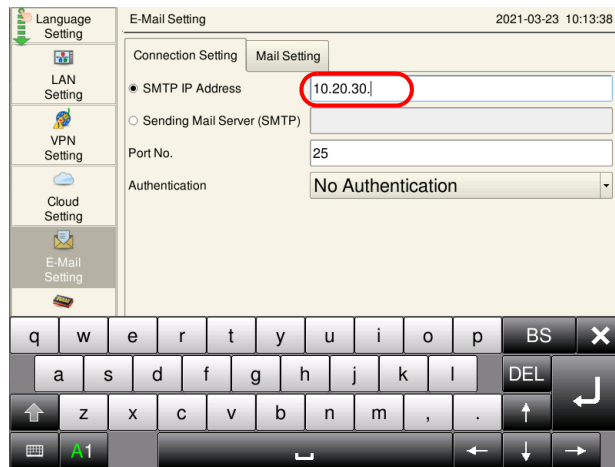
1. Press the [SYSTEM] switch on the unit to display the system menu at the top of the screen.



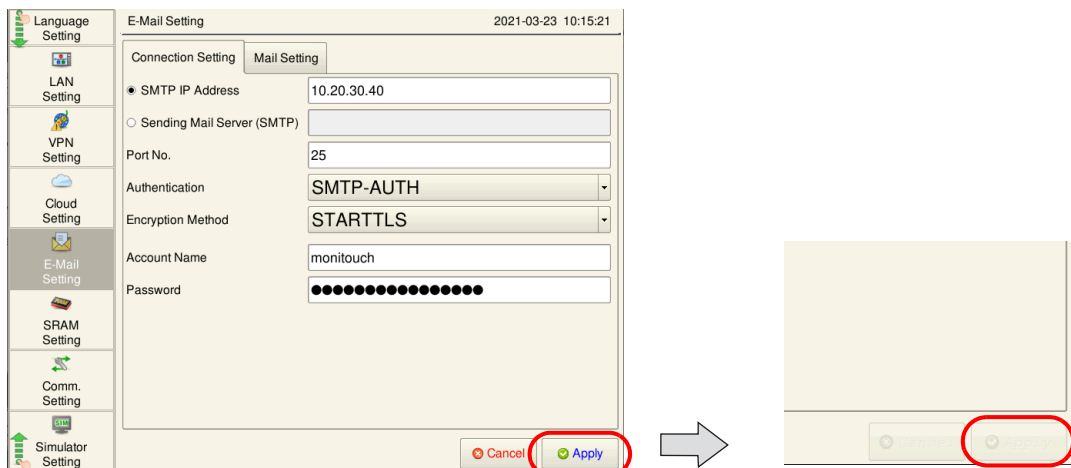
2. Press the [Local] switch on the system menu. The Local mode screen is displayed on the unit.
3. Press the [E-Mail Setting] switch on the left of the screen to display the [E-Mail Setting] screen.



4. Tap an item to change its setting if necessary.



5. Press the [Apply] switch at the bottom right of the screen to accept the settings. When the changes are accepted, the [Apply] switch is disabled.

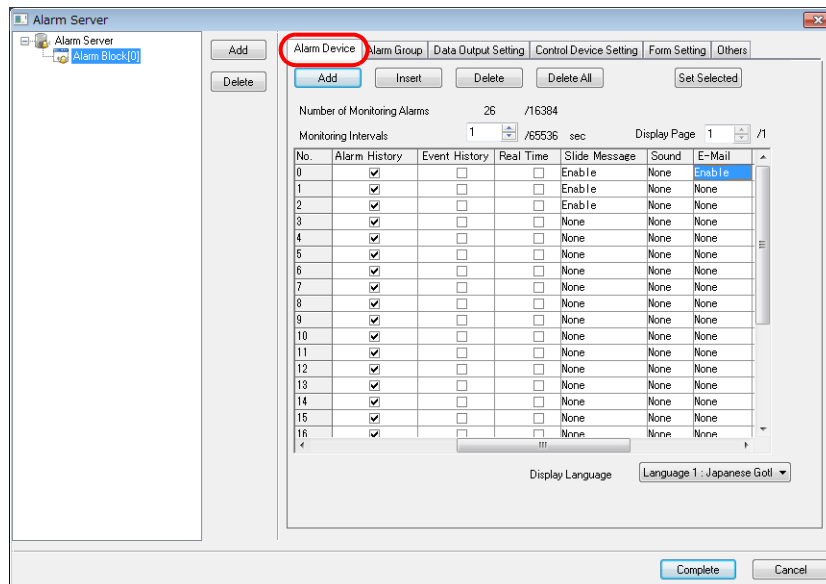


Alarm Server

If sending e-mail notifications linked to alarm bits, select the [E-mail Enable/None] setting and recipient e-mail addresses in the alarm server settings.

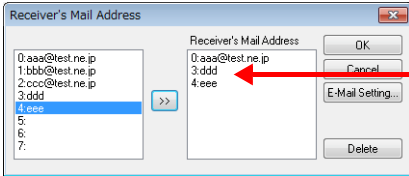
This section describes the settings required for sending e-mail notifications. For details on other settings, refer to "8 Alarm" in Reference Manual 1.

1. Click [System Setting] → [Alarm Server] → [Alarm Block] to display [Alarm Device].



2. Select "Enable" for [E-Mail] for the device memory to send e-mail notifications and configure the detailed settings.



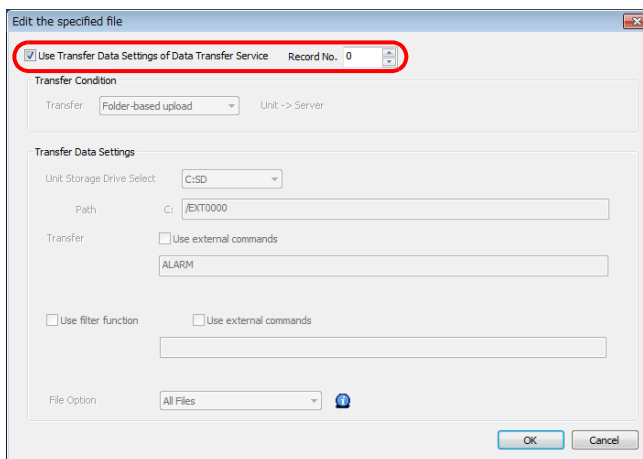
Item	Description
Send when the alarm occurs	Send an e-mail notification when an error occurs.
Attach the specified file	Select this checkbox to attach a file. Press the [Edit] button and select a file. For details, refer to File attachment settings.
Send when the alarm is reset	Send an e-mail notification when the system recovers from an error. A file cannot be attached.
Send to	Select the recipient e-mail addresses. 

* When creating a screen program and the recipients of e-mail notification is yet to be determined, dummy recipients from numbers 0 to 8 can be used instead. The actual recipient addresses can be changed later on the V10/V9 series unit in the [E-Mail Setting] in Local mode.

File attachment settings

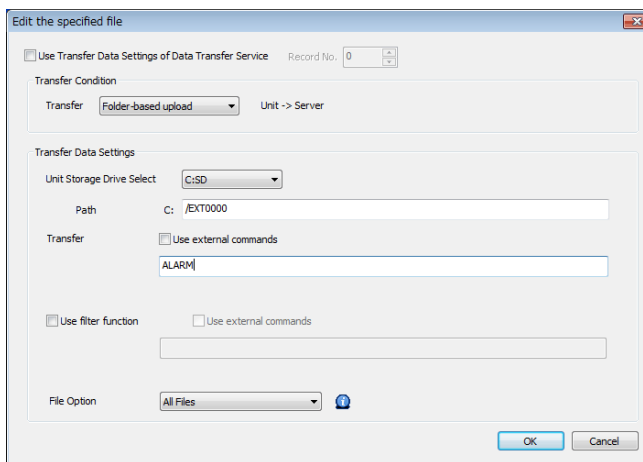
A file can be attached using the data transfer service or set individually using an alarm server.

- When using the data transfer service
Select [Use Transfer Data Settings of Data Transfer Service] and set a record number.



Item	Description
Use Transfer Data Settings of Data Transfer Service	Selected
Record No.	Set a record number registered in the [System Setting] → [Data transfer service] → [Data Transfer Service Settings] → [Record List].
Transfer Condition	Displays the settings of the specified record number.
Transfer Data Settings	

- When not using the data transfer service
Set the transfer condition and configure the transfer data settings.



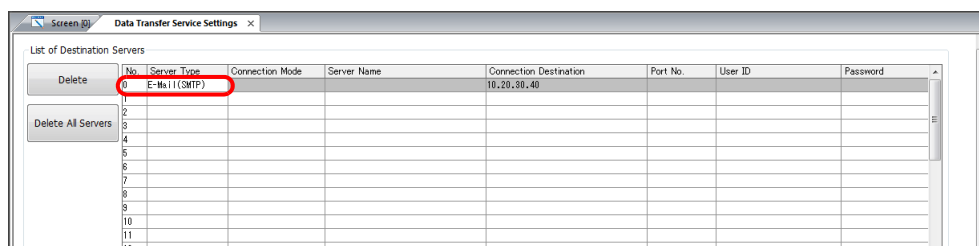
Item	Description
Use Transfer Data Settings of Data Transfer Service	Unselected
Transfer Condition	Transfer Select the data for transfer. ([Unit]: storage device of V10/V9 series unit) File-based upload (From unit to server) Folder-based upload (From unit to server)
Transfer Data Settings	Unit Storage Drive Select Select the storage device of the V10/V9 series unit. C: SD D: USB (USB flash drive etc.)
	Path Specify the path within the storage device of the V10/V9 series unit. Number of characters for a path: Within 255 one-byte characters (including "." and "/") *1 *2
	Transfer File Transfer Folder Specify the name of the file or folder for transfer. When specifying a file, specify the extension as well. For device memory specification, NULL (0) is the terminator. Within 256 one-byte alphanumeric characters *2 *3

Item	Description
Use filter function	This can be configured when the transfer mode is set to "Folder-based upload". The filter only targets files. Only the files that match the specified keyword are transferred. *4 Wildcards can be specified. *5 For device memory specification, NULL (0) is the terminator. Within 64 one-byte alphanumeric characters
File Option	This can be configured when the transfer mode is set to "Folder-based upload". All Files Latest File *6 Oldest File *6 One previous to latest file *6

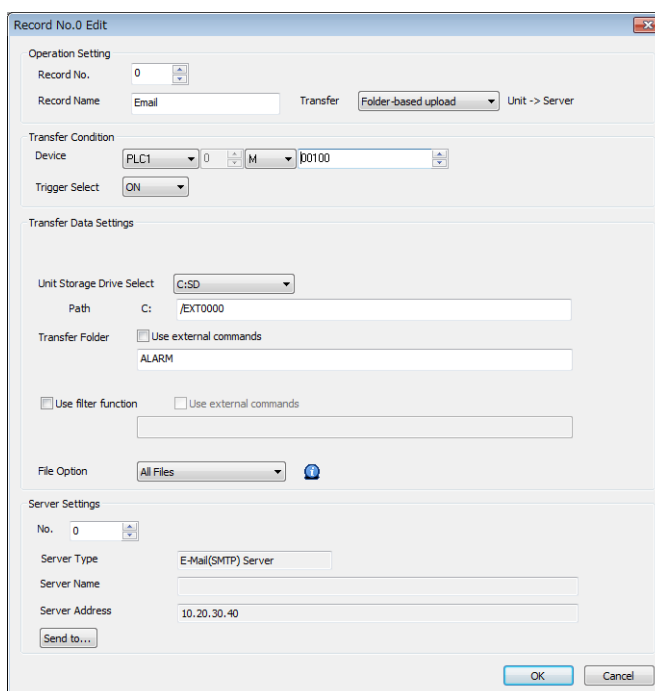
- *1 There is no path hierarchy limitation. However, note that there are some limitations as described below.
- The path delimiter is a slash "/". "\ " is not supported.
 - A delimiter at the end of the path is not required. However, if specifying a root directory, a delimiter is required.
 - Two-byte characters are not supported.
- *2 The total number of 1-byte characters in the path (server path when downloading) and the path set for the files and folders for transfer must not exceed 255.
- *3 The following limitations apply.
- Unsupported characters: \, ;, ", <, >, and |
 - Two-byte characters are not supported.
- *4 The following limitations apply.
- Unsupported characters: /, \, ;, ", <, >, and |
 - Two-byte characters are not supported.
- *5 Supported wildcards: *, ?, and []
- *6 If there are multiple files with the same timestamp, all files are attached.

Data Transfer Service

When sending e-mail notifications using the data transfer service, select "E-Mail (SMTP)" for [Server Type] under [Data Transfer Service Settings] → [List of Destination Servers]. The server name/connection IP address configured in the [E-Mail Setting] window are displayed.



In the [Record List], select the file to attach and server.



For details, refer to "6.11 Data Transfer Service" page 6-87.

6.8.3 System Device Memory (\$s)

Information on sent e-mail messages is output to system device memory (\$s).

\$s	Description															
\$s1005	If the V10/V9 series unit receives send requests continually, the number (0 to 16) of e-mail messages waiting to be sent is stored. The V10/V9 series can keep up to 16 e-mail messages. Any more than 16 messages are discarded.															
\$s1006	Stores error information on e-mail messages. <table border="1"> <thead> <tr> <th>Error No.</th> <th colspan="2">Cause</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Normal</td> <td>-</td> </tr> <tr> <td>1</td> <td>E-mail address error</td> <td>Incorrect recipient mail address</td> </tr> <tr> <td>6</td> <td>Network not connected</td> <td>Incorrect SMTP/POP3 server IP address SMTP server refusal Incorrect port number Incorrect SSL/TLS, STARTTLS settings Incorrect account name/password</td> </tr> <tr> <td>50</td> <td>SMTP transmission error</td> <td>Authentication method error Incorrect sender's mail address Connection lost</td> </tr> </tbody> </table>	Error No.	Cause		0	Normal	-	1	E-mail address error	Incorrect recipient mail address	6	Network not connected	Incorrect SMTP/POP3 server IP address SMTP server refusal Incorrect port number Incorrect SSL/TLS, STARTTLS settings Incorrect account name/password	50	SMTP transmission error	Authentication method error Incorrect sender's mail address Connection lost
Error No.	Cause															
0	Normal	-														
1	E-mail address error	Incorrect recipient mail address														
6	Network not connected	Incorrect SMTP/POP3 server IP address SMTP server refusal Incorrect port number Incorrect SSL/TLS, STARTTLS settings Incorrect account name/password														
50	SMTP transmission error	Authentication method error Incorrect sender's mail address Connection lost														

6.8.4 Notes

- The maximum size of file attachments on the V10/V9 series unit is 10 MB. However, depending on the settings/specifications of the mail server, the maximum file size may be less than 10 MB.
- FTP, cloud, and SMTP in the data transfer service cannot be used at the same time. These functions are processed one at a time in order.
- E-mail notifications cannot be sent in the data transfer viewer.
- File attachments can only be sent when "SMTP-AUTH" is selected for [Certify Type] in the [E-Mail Setting] window.
- Large attachment file sizes may cause temporary increases in processing load, delays in screen refreshes, and affect logging.
- If any files for attachment do not exist or could not be attached, "It failed to attach the specified file." is stated in the main body of the e-mail.

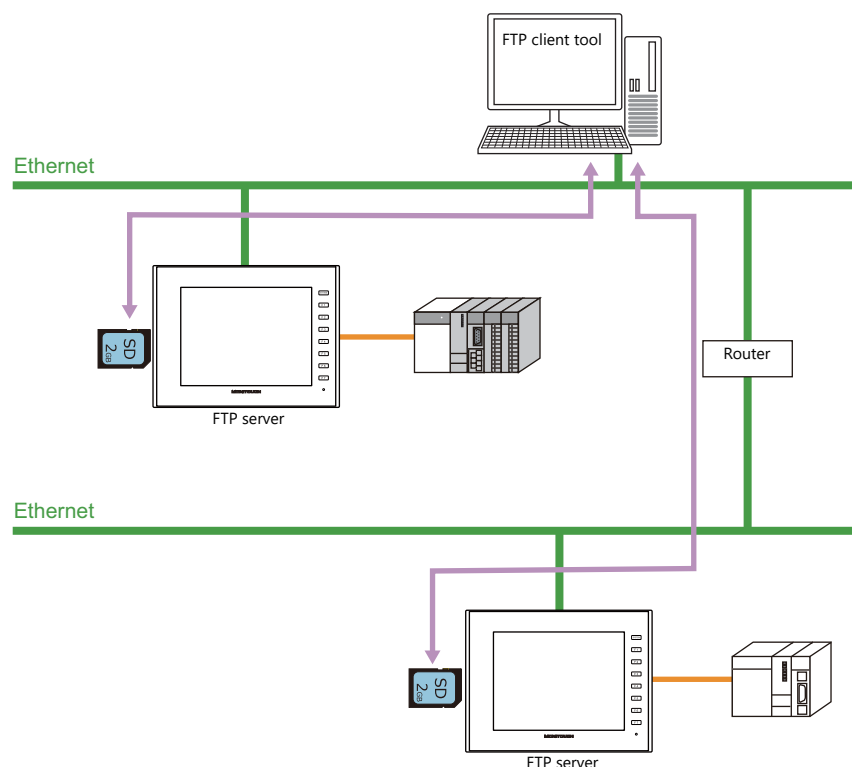
6.9 FTP Server

6.9.1 Overview

The V10/V9 series can serve as an FTP server.

An FTP client tool installed on the PC can be used to access a V10/V9 series unit over Ethernet and perform reading and writing data on a storage device inserted into the V10/V9 series.

A standard FTP tool included with Windows is available for reading, writing, and editing files on a storage device without the need for installing any special tool.



Applicable Models	Port	Other
V10 V9	LAN LAN2 WLAN	Storage Device

6.9.2 Specifications

Functional Capabilities

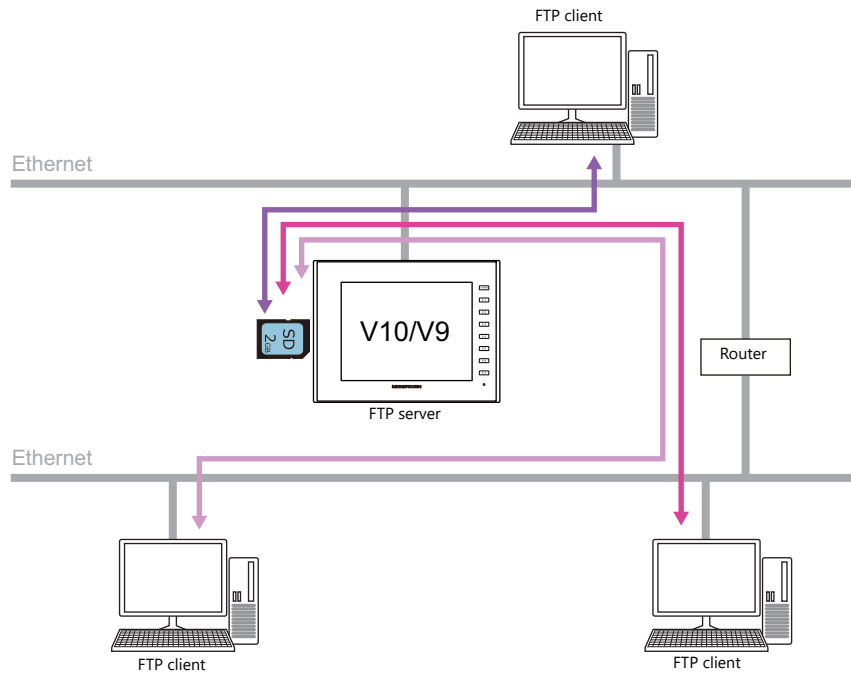
Item	Specifications	Location of Settings
Protocol	TCP/IP (Not available with CUR-03)	-
User Name	1 to 12 one-byte alphanumeric characters (case-sensitive)	Editor, Local mode ^{*1}
Password	1 to 8 one-byte alphanumeric characters (case-sensitive)	Editor, Local mode ^{*1}
Port number	20, 21	(Fixed)
No. of clients ^{*2}	Maximum of 3 clients	-
Input supervisory time	1 to 60 minutes (default: 15 minutes) ^{*3}	Editor, Local mode
File readout size	Unlimited (within the storage capacity)	-
File name	One-byte alphanumeric characters only	-
Requirement	Only operable in RUN mode (not operable in Local mode)	-

^{*1} Maximum of 16 characters when registering in Local mode.

However, a maximum of 8 characters for a name/password common with the security function.

*2 Clients (FTP clients)

This manual defines a client or FTP client as a PC that transmits commands for reading/writing data to an FTP server. A maximum of three client PCs can access a V10/V9 series unit.



*3 If no command is received from the FTP client within the time period specified for [Input Supervisory Period], the V10/V9 series unit automatically disconnects the client.

Compatible FTP Client Tools

Tools and Functions	Computer OS/Monitouch Series
Command Prompt (included with Windows as standard)	Windows XP SP3
ftp.exe (included with Windows as standard)	Windows 7
Windows Explorer (included with Windows as standard)	Windows 8
FFFTP (freeware)	Windows 8.1
	Windows 10
	Windows 11
Data transfer service	V10/V9 Series

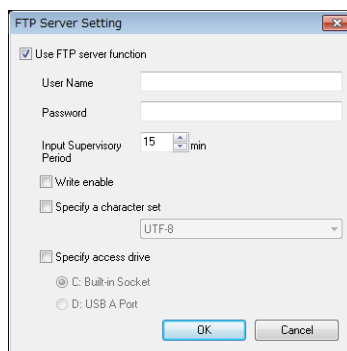
Supported FTP Commands

The following commands can be used with the FTP server on the V10/V9 series unit.

Command Name	Function	Refer to
cd	Changing the current directory	-
close	Closing the connection	-
dir	Displaying the file information	page 6-65
ls	Displaying folder and file names	page 6-65
put	Sending a file	page 6-66
get	Retrieving a file	page 6-66
delete	Deleting a file	page 6-67
rename	Renaming a file	page 6-67
pwd	Displaying the current folder name	-
mkdir	Creating a folder	page 6-67
rmdir	Deleting a folder	-
quit	Exit the FTP client tool after disconnecting the client.	page 6-64

6.9.3 Detailed Settings

Click [System Setting] → [Ethernet Communication] → [FTP Server]. The [FTP Server Setting] window is displayed.



Item	Description
Use FTP server function	Select this checkbox to use the FTP server function. The FTP server function is not available unless this checkbox is selected.
User Name	1 to 12 one-byte alphanumeric characters (case-sensitive)
Password	1 to 8 one-byte alphanumeric characters (case-sensitive)
Input Supervisory Period	1 to 60 minutes (default: 15 minutes) *
Write enable	Select this checkbox to allow the FTP client to write, delete, and edit files. When this checkbox is not selected, only file reading is possible. (Default: unselected)
Specify a character set	Select this checkbox to match with the character code used by the FTP client. Unselected: UTF-8
Specify access drive	Select this checkbox to set the drive for access by the FTP server. Unselected Match with the setting of [System Setting] → [Storage Setting] → [Storage Connection Target]. Selected C: Built-in Socket D: USB-A Port

* If no command is received from the FTP client within the time period specified for [Input Supervisory Period], the V10/V9 series unit automatically disconnects the client.

Registering user names and passwords

User names and passwords used by the FTP server function can also be registered in local mode on the V10/V9 series unit. This means FTP users can be added without a PC or the V-SFT version 6 software.

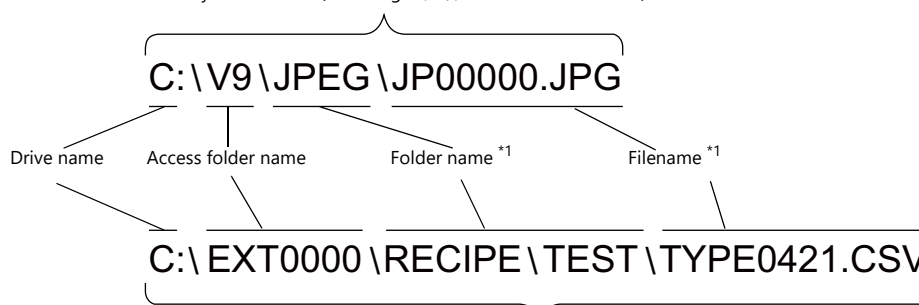
For details on operation in local mode, refer to the following manuals.

- V10 Series Unit Operation / Local Mode / Error Screen Manual
- V9 Series Troubleshooting/Maintenance Manual

6.9.4 Specifying File Paths

How to specify file paths

Maximum number of characters for a path:
255 one-byte characters (including ":", "\", and the file extension)



*1 Maximum number of characters for a filename: 194 one-byte characters

- Drive name
C: Inserted SD card
D: USB-A port (USB flash drive, etc.)

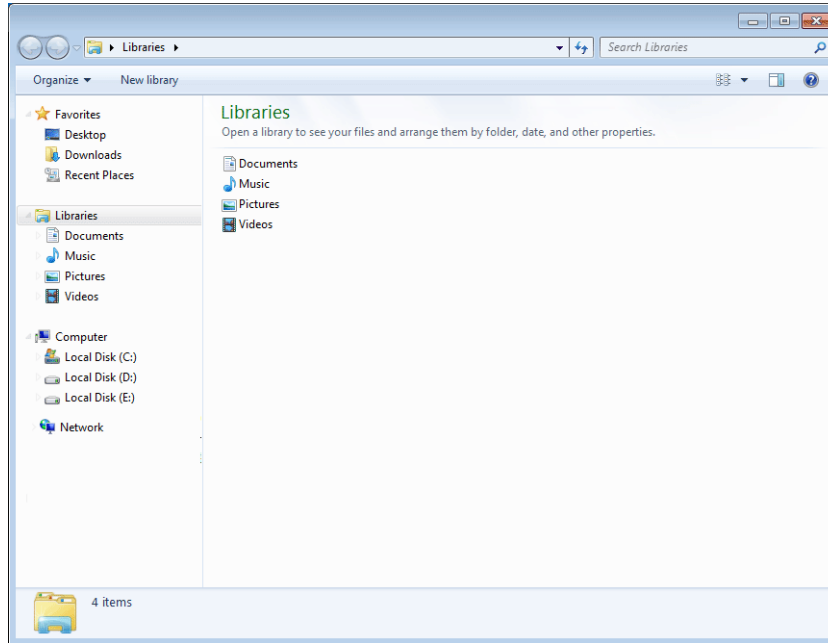
6.9.5 Login

This section explains the login procedure and how to operate the FTP tools.
Prepare the V10/V9 series unit as instructed below before starting.

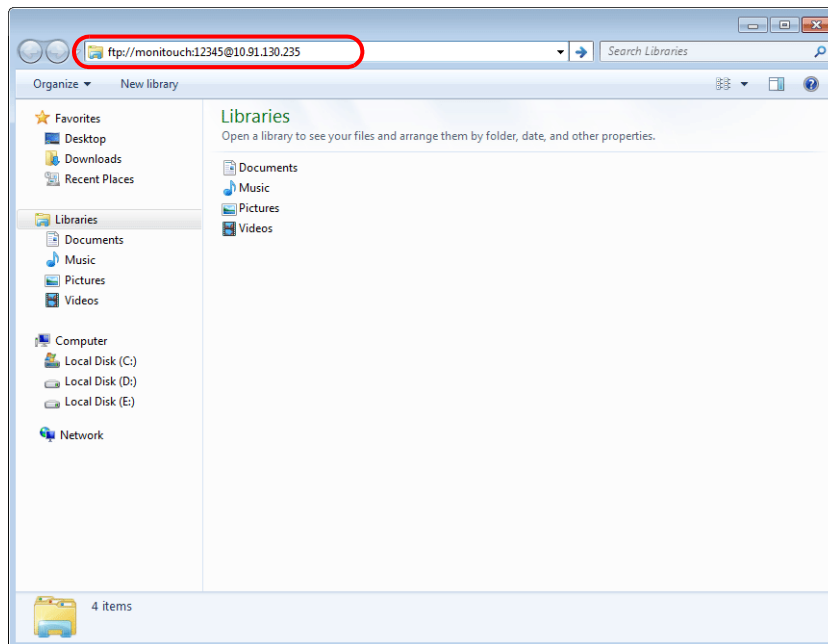
1. Transfer the screen program with configured FTP server settings to the V10/V9 series unit.
2. Connect your computer to the V10/V9 series unit via Ethernet.
3. Insert a storage device into the unit and set the unit to RUN mode.

Explorer (or Internet Explorer)

1. Start [Explorer].

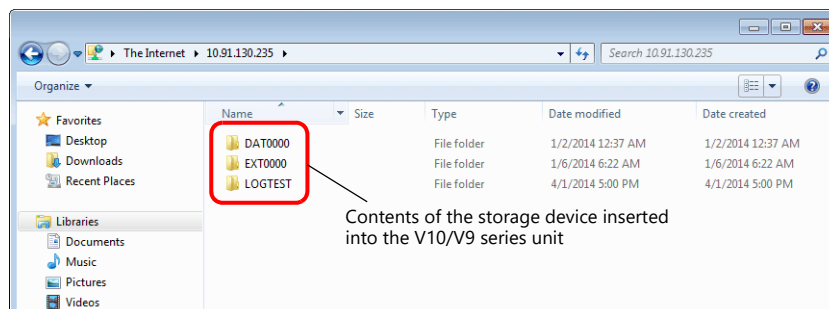


2. Enter the FTP command in the [Address] field.
Enter "ftp://user name:password@MONITOUCH IP address" and then press the [Enter] key.

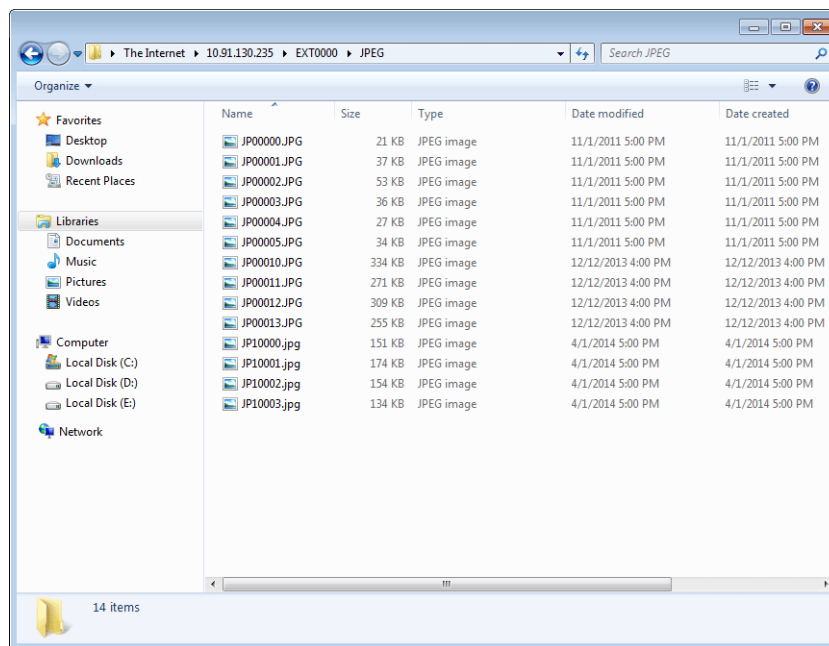


- * When using Explorer or Internet Explorer,
specify "ftp://user name:password@MONITOUCH IP address".
User authentication may not be successful if only "ftp://MONITOUCH IP address" is entered.

3. The Explorer window is displayed as follows. Login is complete.

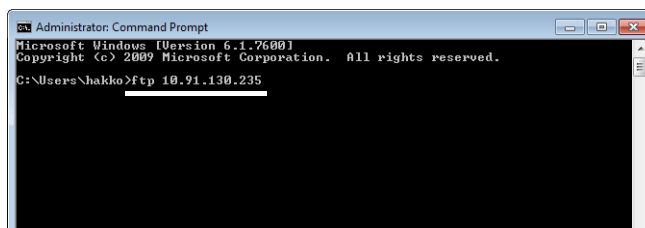


4. Explorer allows the contents of the storage device inserted into the V10/V9 series unit to be displayed.

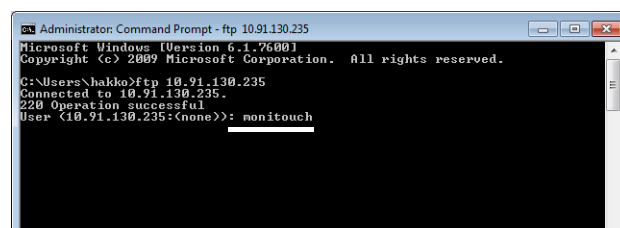


Command Prompt

- Click [Start] → [Programs] → [Accessories] → [Command Prompt].
A [Command Prompt] screen starts.
- Enter the FTP command.
Enter "ftp", a one-byte space, the IP address of the V10/V9 series unit, and then press the [Enter] key.



- The following message appears.
Enter the user name specified in the [FTP Server Setting] window of the screen program and then press the [Enter] key.



4. The following message appears.

Enter the password specified in the [FTP Server Setting] window of the screen program and then press the [Enter] key.
(The password is not shown on the screen.)

```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
_
```

5. The following message appears. This message indicates that login is complete.

```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
230 Operation successful
```

Causes of login failure

<When the operating system of the V9 series unit is version 4.20 or later>

If the entered password is incorrect, the following message is displayed.

```
Command Prompt - ftp 10.91.130.163
Microsoft Windows [Version 10.0.19042.1165]
(c) Microsoft Corporation. All rights reserved.

C:\Users\User>ftp 10.91.130.163
Connected to 10.91.130.163.
220 Operation successful
530 Login with USER and PASS
User (10.91.130.163:(none)): monitouch
331 Please specify the password
Password:
530 Not logged in.
Login failed.
ftp>
```

Input "user" and then press the [Enter] key. A message prompting to enter the user name is displayed.

Enter the user name specified in the [FTP Server Setting] window of the screen program and then press the [Enter] key.

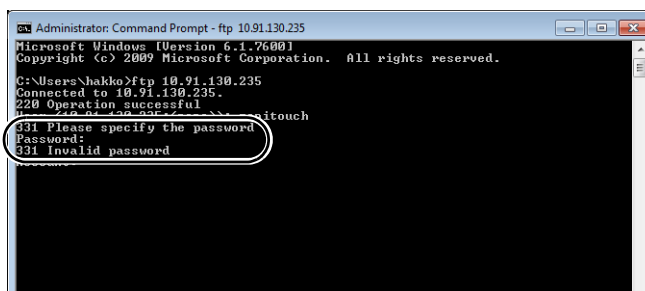
Once the message prompting entry of the password is displayed, enter the password specified in the [FTP Server Setting] window of the screen program and then press the [Enter] key. (The password is not shown on the screen.)

```
Command Prompt - ftp 10.91.130.163
Microsoft Windows [Version 10.0.19042.1165]
(c) Microsoft Corporation. All rights reserved.

C:\Users\User>ftp 10.91.130.163
Connected to 10.91.130.163.
220 Operation successful
530 Login with USER and PASS
User (10.91.130.163:(none)): monitouch
331 Please specify the password
Password:
530 Not logged in.
Login failed.
ftp> user
Username monitouch
331 Please specify the password
Password:
230 Operation successful
ftp>
```

Login is completed if the correct user name and password are entered.

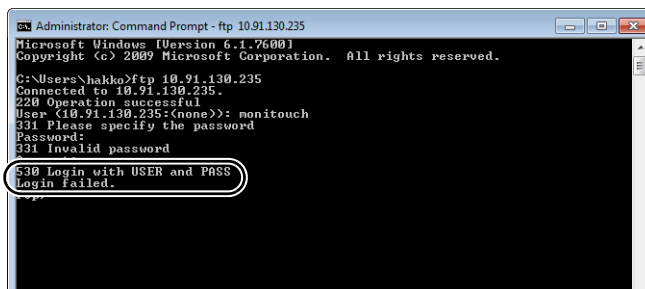
<When the operating system of the V9 series unit is version 4.10 or earlier>
If the wrong password is entered, the following message is displayed.



```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
331 Invalid password
```

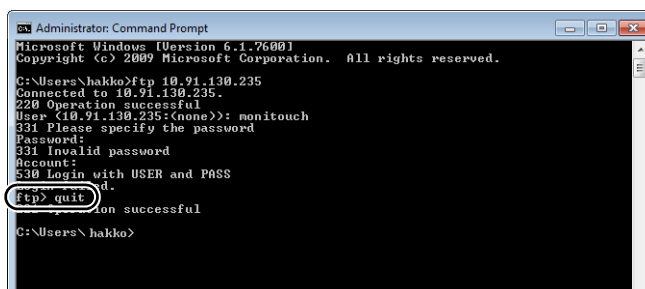
If correct commands are entered after the occurrence of an error, the error message will continue to be output.



```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
331 Invalid password
530 Login with USER and PASS
Login failed.
```

In order to proceed, execute the quit command to disconnect the client once and then enter the correct command.



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
331 Invalid password
Account:
530 Login with USER and PASS
Login failed.
ftp> quit
221 Connection successful

C:\Users\hakko>
```

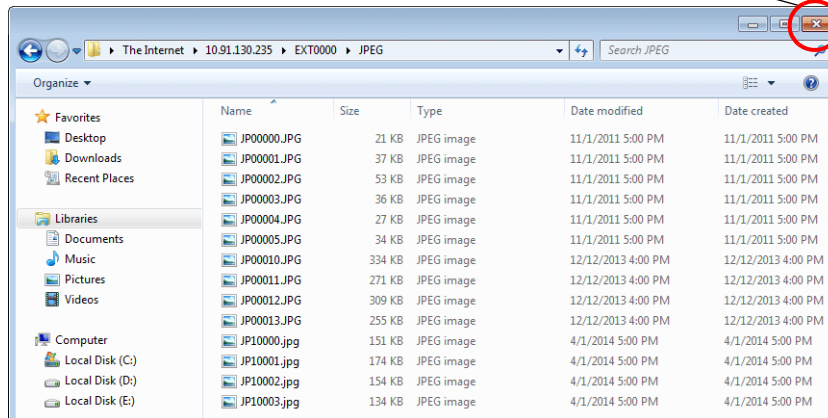

6.9.6 Log Out

This section explains the log out procedure and how to operate the FTP tools.

Explorer (or Internet Explorer)

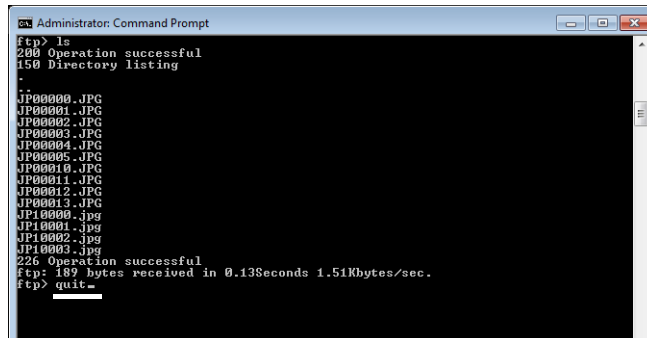
To log out when using Explorer, close the Explorer window.

Click the close button to log out.

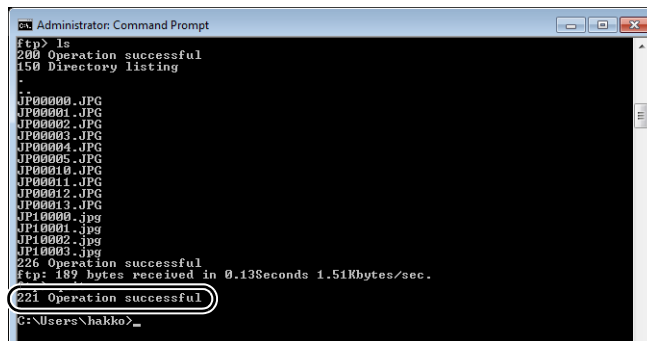


Command Prompt

1. With the client logged into the FTP server, enter "quit" and press the [Enter] key.



2. The following message appears. Logout is complete.



6.9.7 Operation Examples

This section provides examples of executing commands in the Command Prompt.

Displaying File and Folder Lists

“dir” command

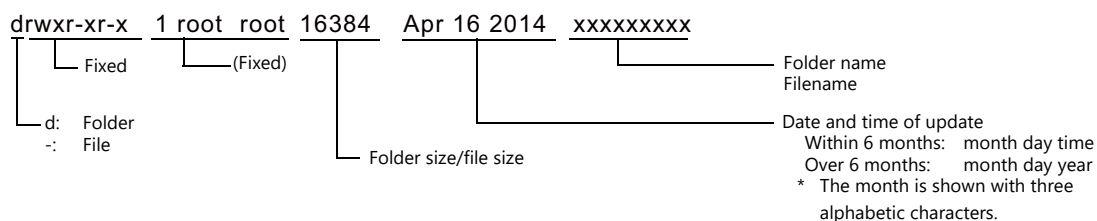
This command is used to display a list of file and folder information that includes properties, sizes, dates and times of update, and names of files and folders.

```

Administrator: Command Prompt - ftp 10.91.130.235
Password:
230 Operation successful
ftp> cd EXT0000
250 Operation successful
ftp> dir
200 Operation successful
150 Directory listing
total 256
drwxr-xr-x 8 root root 32768 Jan 6 14:22 .
drwxr-xr-x 7 root root 32768 Jan 1 1970 ..
drwxr-xr-x 4 root root 32768 May 10 2014 ALARM
drwxr-xr-x 2 root root 32768 Jan 6 12:15 DSP
drwxr-xr-x 2 root root 32768 Jan 6 14:27 HDCOPY
drwxr-xr-x 2 root root 32768 Apr 2 2014 JPEG
drwxr-xr-x 3 root root 32768 Jan 6 13:44 LOGGING
drwxr-xr-x 3 root root 32768 Jul 28 2000 RECIPE
226 Operation successful
ftp> cd jpeg
397 bytes received in 0.148Seconds 2.82Kbytes/sec.
250 Operation successful
ftp> dir
200 Operation successful
150 Directory listing
total 2272
drwxr-xr-x 2 root root 32768 Apr 2 2014 .
drwxr-xr-x 8 root root 32768 Jan 6 14:22 ..
-rwxr-xr-x 1 root root 21295 Nov 2 2011 JP00000.JPG
-rwxr-xr-x 1 root root 37686 Nov 2 2011 JP00001.JPG
-rwxr-xr-x 1 root root 53540 Nov 2 2011 JP00002.JPG
-rwxr-xr-x 1 root root 36160 Nov 2 2011 JP00003.JPG
-rwxr-xr-x 1 root root 27097 Nov 2 2011 JP00004.JPG
-rwxr-xr-x 1 root root 34119 Nov 2 2011 JP00005.JPG
-rwxr-xr-x 1 root root 34177 Dec 13 2013 JP00010.JPG
-rwxr-xr-x 1 root root 276552 Dec 13 2013 JP00011.JPG
-rwxr-xr-x 1 root root 315651 Dec 13 2013 JP00012.JPG
-rwxr-xr-x 1 root root 260167 Dec 13 2013 JP00013.JPG
-rwxr-xr-x 1 root root 153002 Apr 2 2014 JP10000.jpg
-rwxr-xr-x 1 root root 178051 Apr 2 2014 JP10001.jpg
-rwxr-xr-x 1 root root 157413 Apr 2 2014 JP10002.jpg
-rwxr-xr-x 1 root root 136628 Apr 2 2014 JP10003.jpg
226 Operation successful
ftp>
889 bytes received in 0.148Seconds 6.30Kbytes/sec.
ftp>

```

- List details



“ls” command

This command is used to display the names of files and folders.

```

Administrator: Command Prompt - ftp 10.91.130.235
ftp> ls
200 Operation successful
150 Directory listing
.
..
JP00000.JPG
JP00001.JPG
JP00002.JPG
JP00003.JPG
JP00004.JPG
JP00005.JPG
JP00010.JPG
JP00011.JPG
JP00012.JPG
JP00013.JPG
JP10000.jpg
JP10001.jpg
JP10002.jpg
JP10003.jpg
226 Operation successful
ftp>
169 bytes received in 0.13Seconds 1.51Kbytes/sec.
ftp>

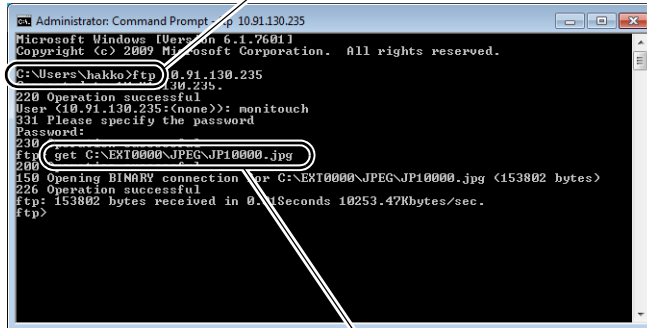
```

Reading and Writing Files

“get” command (reading)

This command is used to retrieve files from the storage device and transfer them to the PC. When using the Command Prompt, the file is transferred to the specified folder.

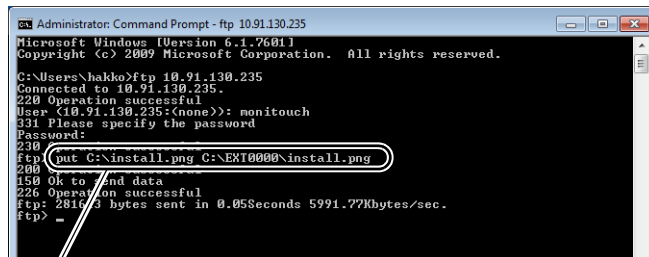
In this example, the file is transferred to this location.



“get” command:
get _ (file to be read)

“put” command (writing)

This command is used to send files from the PC to the storage device.



“put” command:
put _ (file on the PC (example: on drive C)) _ (file on the storage device (drive C))

Deleting a file

“delete” command

```

Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Nzumi>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): ftp
331 Please specify the password
Password:
230 Operation successful
ftp> put C:\install.png C:\EXT0000\install.png
200 Operation successful
150 OK to send data
226 Operation successful
ftp> delete C:\EXT0000\install.png
ftp>

```

Renaming a File/Folder

“rename” command

```

Administrator: Command Prompt - ftp 10.91.130.235
ftp> ls
200 Operation successful
150 Directory listing
.
JP00010.JPG
JP00011.JPG
JP00012.JPG
JP00013.JPG
226 Operation successful
ftp> rename C:\EXT0000\JPEG\JP00010.jpg C:\EXT0000\JPEG\JP00050.jpg
329
250 Operation successful
ftp> ls
200 Operation successful
150 Directory listing
.
JP00011.JPG
JP00012.JPG
JP00013.JPG
JP00050.JPG
226 Operation successful
ftp: 189 bytes received in 0.11Seconds 1.73Kbytes/sec.
ftp>

```

Creating a folder

“mkdir” command

```

Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

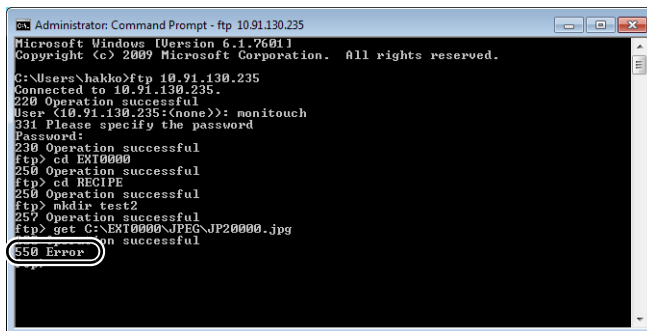
C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
230 Operation successful
ftp> cd EXT0000
230 Operation successful
ftp> cd RECIPE
230 Operation successful
ftp> mkdir test2
230 Operation successful
ftp> _

```

6.9.8 Error Display

If an error occurs when accessing the FTP server, the FTP client displays the error message.

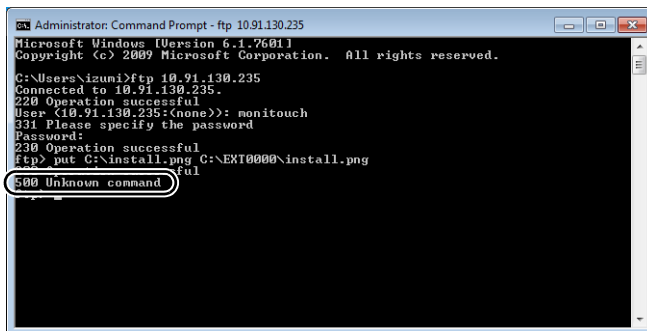
Example 1: When attempting to read a file that does not exist



```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
230 Operation successful
ftp> cd EXT0000
250 Operation successful
ftp> cd RECIPE
250 Operation successful
ftp> mkdir test2
257 Operation successful
ftp> get C:\EXT0000\JPEG\JP20000.jpg
ftp>
550 Error
```

Example 2: When attempting to write to a write-protected file



```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\izumi>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
230 Operation successful
ftp> put C:\install.png C:\EXT0000\install.png
500 Unknown command
```

6.9.9 Checking the Connection

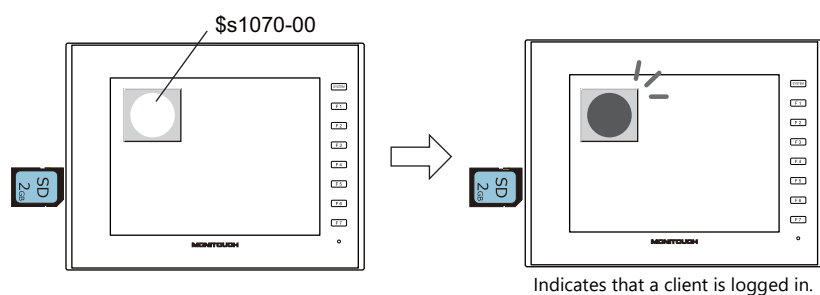
System Device Memory (\$s)

The following describes the system device memory associated with the FTP server.

Addresses	Description	Remarks																																
\$s1070	Storage of FTP information <div style="display: flex; justify-content: space-between;"> MSB LSB </div> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td> </tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>System reserved (setting: 0)</p> </div> <div style="text-align: center;"> <p>FTP client</p> <p>0: Command not being executed 1: Command being executed</p> </div> <div style="text-align: center;"> <p>FTP client</p> <p>0: Logged off 1: Logged in</p> </div> </div> <p>* If two or more FTP clients log in to the FTP server, the data stored in the system memory is based on the status of all these FTP clients. (Even if only one FTP client is executing a command, bit 1 is set to ON.)</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0			← V
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0																					
\$s1071	Number of FTP clients that are logged into the server (maximum of 3 clients)	← V																																
\$s1072	Forced disconnection of FTP connection <div style="display: flex; justify-content: space-between;"> MSB LSB </div> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td> </tr> </table> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>System reserved (setting: 0)</p> </div> <div style="text-align: center;"> <p>Connection to FTP client</p> <p>0 → 1: Forcibly disconnected</p> </div> </div>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		← V
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																				

Checking the Connection State

Create a lamp to which the internal device memory \$s1070-00 is assigned, and place it on the screen. A lit lamp indicates that a client is logged in, i.e. a connection is established.



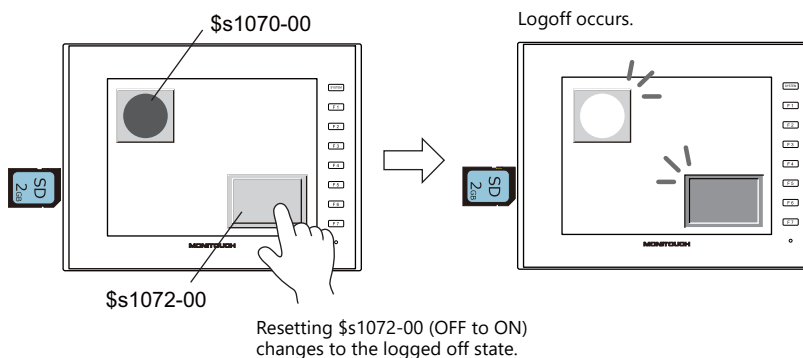
Closing the Connection

Automatic disconnection

If no command is received from the FTP client within the time period specified for [Input Supervisory Period] in the [FTP Server Setting] window (click [System Setting] → [Ethernet Communication] → [FTP Server]), the V10/V9 series unit automatically disconnects the client.

Manual disconnection from the V10/V9 series unit

The connection with the FTP client can be forcibly disconnected by resetting (OFF to ON) bit 0 of \$s1072 on the V10/V9 series unit.



Disconnection from FTP client

The FTP client is disconnected from the V10/V9 series unit when the FTP client logs out. For details, refer to [“6.9.6 Log Out” page 6-64](#).

6.9.10 Restrictions

Number of Simultaneous FTP Client Connections

A maximum of three FTP clients can be connected to one V10/V9 series unit at the same time.

Note that requests from multiple FTP clients cannot be processed at the same time. They are processed one by one. Therefore, while an FTP client is transferring a large-size file, another client cannot transfer a file and must wait until the current file transfer is completed.

File Property Changes

Changing file properties (such as changing write permissions) is prohibited.

6.9.11 Notes

Notes on FTP Server System Design

1. In the case when an FTP client writes a recipe file to the storage device inserted into the V10/V9 series unit, the recipe file from the FTP client and the recipe in operation on the V10/V9 series unit must be in the same format. In the case when a recipe file is written from a remote location, make sure that the same format is used at the target location in advance.
2. Before using an FTP client tool, read the provided documentation to understand the functions and operational procedures, and also conduct a trial operation. The V10/V9 series (FTP server) may not support some functions depending on the type of the FTP client tool used.

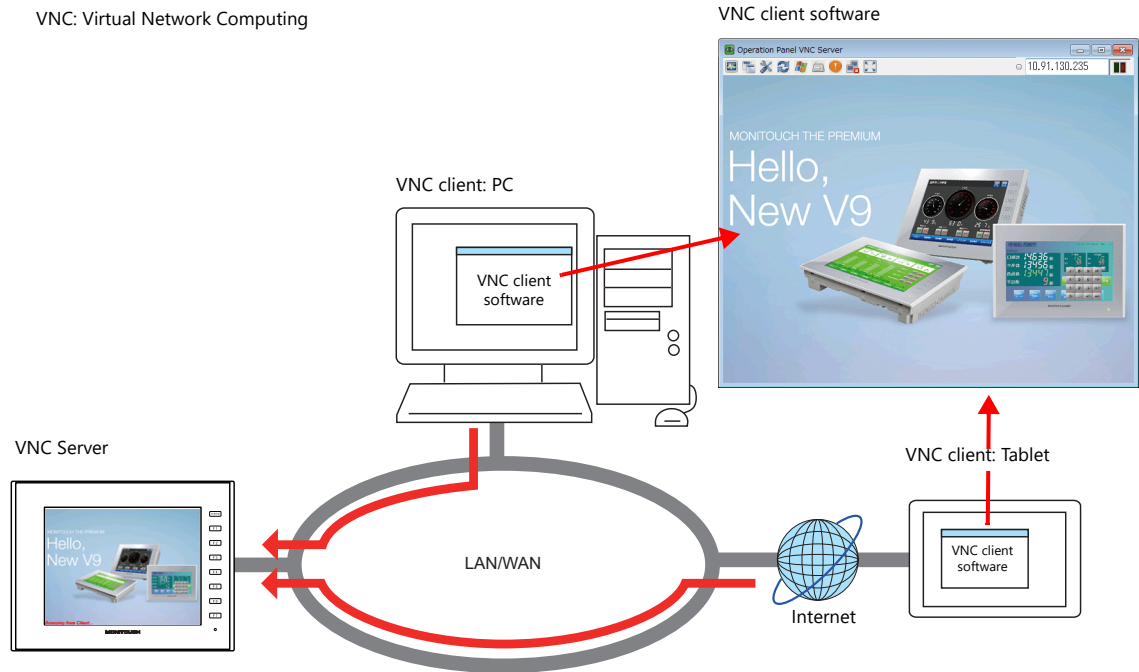
Notes on File Transfer

1. If no command is sent from the FTP client within the time period specified for [Input Supervisory Period] in the [FTP Server Setting] window, the connection between the FTP server and FTP client will be disconnected automatically.
2. While the V10/V9 series unit is communicating with the FTP client, changing the V10/V9 series unit to Local mode will disconnect them.
3. While the V10/V9 series unit is accessing a file, do not allow the FTP client to write to or delete the same file.
If the same file accessed by the V10/V9 series unit is written to or deleted, a malfunction will occur. Deleting a file from the storage device, even when the file is not being accessed by the V10/V9 series unit, will cause a file reading error the next time the V10/V9 series unit attempts to access the file.
Basically, do not execute the writing and deleting commands with respect to any files relevant to V10/V9 series unit operation.
4. When a file on the storage device has been overwritten via the FTP server, check that the data in the file is correct.
If writing to the file ends in an error, the file will be deleted from the storage device. In the event of such a deletion, repeat writing from the FTP client.
5. If the FTP client is down, wait until the time for [Input Supervisory Period] elapses and then retry login.
6. While the FTP client is accessing a file on the storage device inserted into the V10/V9 series unit, do not turn off power to the V10/V9 series unit. Doing so may corrupt data on the storage device.
7. If the V10/V9 series unit is reset or turned off while connected to an FTP client, the next action that the FTP client takes depends on the specifications of the FTP client tool.
With this in mind, select an FTP client tool that can detect when an FTP server goes down and can terminate safely in such a case.
8. Depending on the type of FTP client tool, there may be a timestamp mismatches between files on the storage device and the PC. If such a mismatch is found, check the configuration of the FTP client tool.

6.10 VNC Server

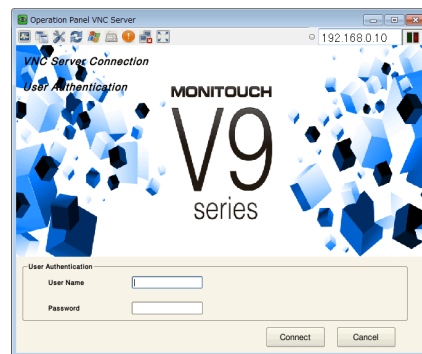
6.10.1 Overview

- The V10/V9 series unit supports the VNC server function. This means that the screen of the V10/V9 series unit can be monitored and remotely operated with ease from a PC on the network. Settings can also be configured to allow monitoring only.
- The V10/V9 series unit to be remotely operated is referred to as the "server" and the PC that performs remote operations is referred to as the "client".
In addition to PCs, smartphones and tablets can also be used as clients.



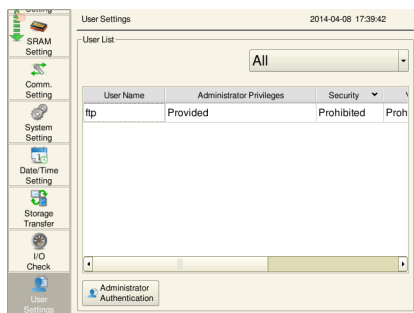
- Simultaneous access from multiple clients is prohibited. All connections are 1:1. The priority of the operation (earlier connection /later connection) when connection requests come from multiple clients is set by the screen program.
- VNC client software (VNC Viewer) must be installed.
- The V10/V9 series employs password authentication. When a client accesses a V10/V9 series unit, a user name and password must be entered.
 - * If the [Use the VNC server function without user authentication] checkbox at [System Setting] → [Unit Setting] → [General Setting] is selected in the screen program, the user authentication screen is not displayed. In this case, screen display is possible without entering a user name and password.

VNC client authentication screen

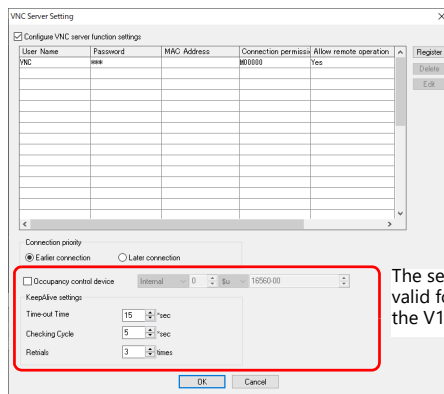


- There are two ways to register a VNC user: by using the V10/V9 or by configuring through a screen program. When VNC users are registered through both methods, either user names are available. If the same user name is registered using both ways, the one registered through a screen program has priority.
 - Registration from the V10/V9
The VNC server connection can be used by registering on the V10/V9 without setting screen program. Changing user information is possible from the V10/V9. It is useful for adding functionality to running equipment.
 - Registration from a screen program
If the specifications have been determined at the time of screen creation, the VNC server setting can be set in the screen program and used immediately after the screen transfer. Registration from the V10/V9 is not necessary. User information is changed by the screen program. The connected device can be fixed by registering the MAC address and permission/prohibition of remote operation can also be controlled during RUN mode.

V10/V9 [User Settings] screen

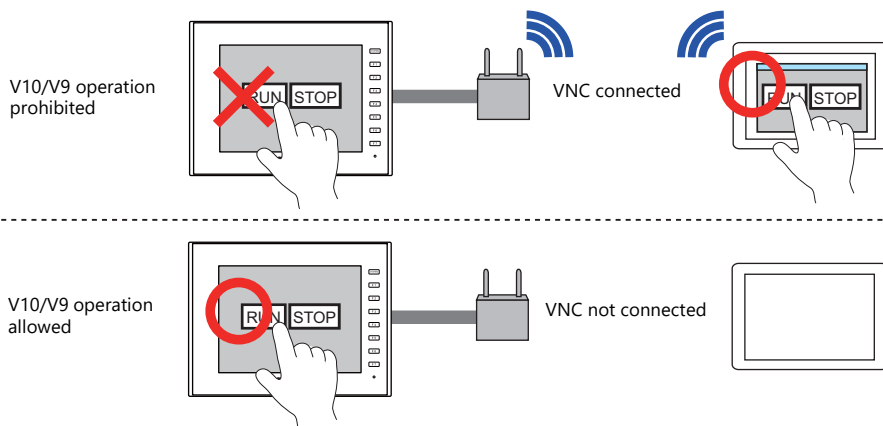


VNC server setting of the V10/V9 screen program

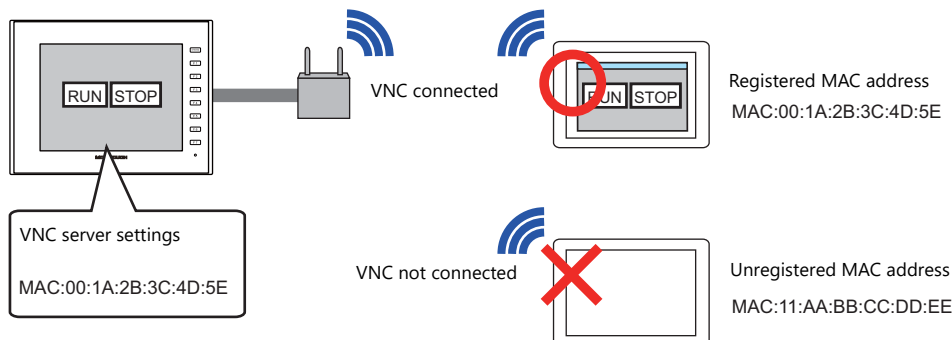


The settings in the box are valid for users registered on the V10/V9.

- When the VNC client is connected using [Occupancy control device], the VNC side occupies the operation and the operation of the V10/V9 (including SYSTEM/Function switches) can be prohibited.



- By registering the MAC address of the VNC client, the connected device is fixed and therefore security can be enhanced.



- Remote operations on the display of the V10/V9 series unit can be performed on all RUN, Local, and error screens.
- If a network camera is connected to the V10/V9 series unit, the network camera image can also be displayed on the VNC client.

6.10.2 Specifications

V10/V9 Series Unit (Server)

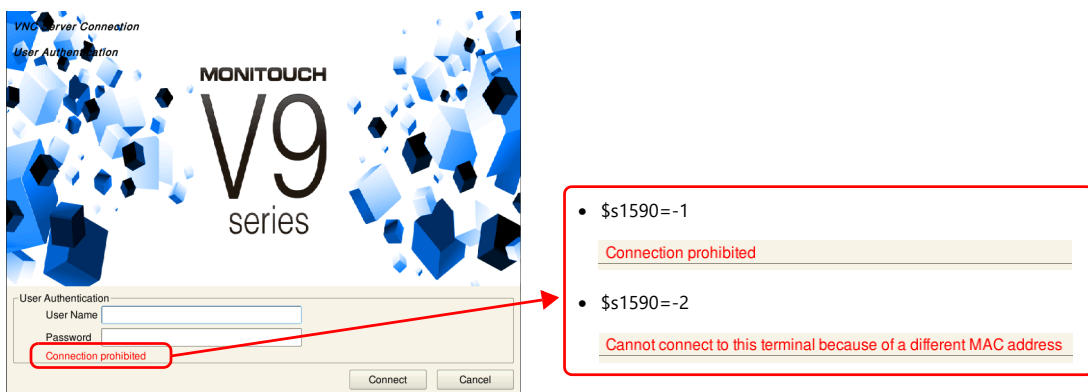
Item	Description	Remarks
Port used	LAN LAN2 WLAN	Not available with CUR-03.
Port number	5900	Fixed
Number of client connections	1	If the server receives connection requests from multiple clients, the V10/V9's behavior can be set by [VNC Server Setting] → [Connection priority]. When [Connection priority] is not set, the client that made a subsequent request has a priority to connect.
Authentication method	Password authentication	Authentication screen will not appear when [System Setting] → [Unit Setting] → [General Setting] → [Use the VNC server function without user authentication] is checked.
Number of registered users	V10/V9 unit: A maximum of 32 users Screen program: A maximum of 32 users	

System Devices

Connection status of the VNC client is stored.

Addresses	Description	Remarks
\$\$s1590	Details of the VNC client 0: Unconnected 1: Connected, monitor only 2: Connected, remote operation enabled 3: Connected, remote operation enabled (occupied: input from the V10/V9 unit disabled.) -1: Connection prohibited *1 -2: Connection prohibited due to MAC address control *1	← V
\$\$s1591 - 1598	User name of connected VNC client (16 bytes)	← V
\$\$s1674	VNC client connection status 0: Unconnected 1: Connected	← V

*1 An error message appears on the user authentication screen.



Restrictions

- The connection between the V10/V9 series unit and VNC client is 1:1.
- The following operations cannot be performed on the V10/V9 series unit when a VNC client is connected and permitted to perform remote operations.
 - Local mode → [System Setting] → [Buzzer Setting]
 - Local mode → [System Setting] → [Backlight Setting]
 - Local mode → [I/O Check] → [Touch switches and media] → [Test] → [Correct]
- The user authentication screen is displayed in the interface language of the V10/V9 series unit.
- The following functions cannot be displayed on the VNC client.
 - Video/RGB display
 - Video Player
 - USB camera (V9 only)

Status Bar

The connection state of VNC clients can be checked on the status bar. ^{*1}
 This status bar can also be used to forcibly disconnect VNC clients from the V10/V9 series unit. ^{*2}



*1 The status of the VNC client is also output to system device memory (\$s).

 ["System Devices" page 6-74](#)

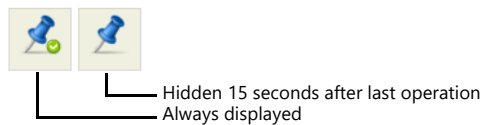
*2 When "automatic reconnect" is enabled in the settings of the VNC Viewer software, even if a forced disconnection is performed by the V10/V9 series unit, the user authentication screen is displayed and cannot be dismissed. In this case, close the VNC Viewer software and change the settings.

Status bar details

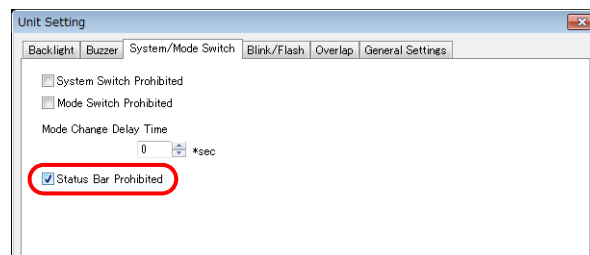
The status bar allows checking of VNC, LAN, and PLC communication states.

- Display method
Press the [SYSTEM] switch to display the status bar at the bottom right of the screen.
- Constant display
The status bar is automatically hidden after 15 seconds. Press the drawing pin icon to display the status bar at all times.

Drawing pin icon








- Prohibiting status bar usage
The status bar cannot be displayed in RUN mode when the [Status Bar Prohibited] checkbox is selected on the [System Setting] → [Unit Setting] → [Switch/Mode Switch] tab window. In this case, press the [SYSTEM] switch in Local mode to display the status bar.



For details, refer to the following manuals.

- V10 Series Unit Operation / Local Mode / Error Screen Manual
- V9 Series Troubleshooting/Maintenance Manual

6.10.3 Setting Procedure

1. User registration
 - Registration with the V10/V9
Local mode → [User Settings] and register "User Name" and "Password".
 ["Registration with the V10/V9" page 6-77](#)
 - Registration with a screen program
[System Setting] → [Ethernet Communication] → [VNC Server setting] and register "User Name" and "Password".
 ["Registration with Screen Program" page 6-80](#)
2. Connect the V10/V9 series unit and the VNC client device to the network.
For details on VNC client device settings, refer to the relevant device manual.
 ["V10/V9 Series Unit IP Address Settings" page 6-2](#)
3. VNC client settings
 - Install the VNC Viewer software.
 ["6.10.5 VNC Client Settings/Operations" page 6-81](#)
4. Start the VNC Viewer and perform remote monitoring and operation.
 ["Connecting to the VNC Server" page 6-81](#)

6.10.4 User Registration

There are two ways to register a VNC user: by using the V10/V9 or by configuring through a screen program. When VNC users are registered through both methods, either user names are available. If the same user name is registered using both ways, the one registered through a screen program is valid.

Item	V10/V9 unit [User Settings]	Screen program [VNC Server Setting]	Remarks
User Name	○	○	If the same username is registered, the one registered with a screen program has a priority.
Password	○	○	
MAC address	-	○	
Connection permission device	-	○	
Allow remote operation	○	○	
Remote operation prohibition device	-	○	Use this option to switch prohibiting/permitting remote operation during RUN mode.

Registration with the V10/V9

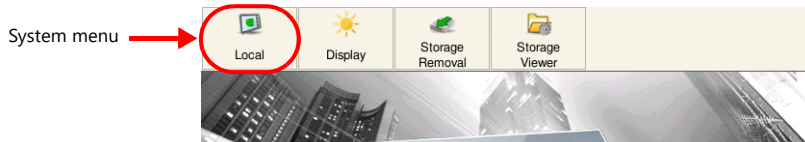
For user registration, go to [User settings] on the local screen.

- * This setting is not valid when [System Setting] → [Unit Setting] → [General Setting] → [User the VNC server function without user authentication] is checked.

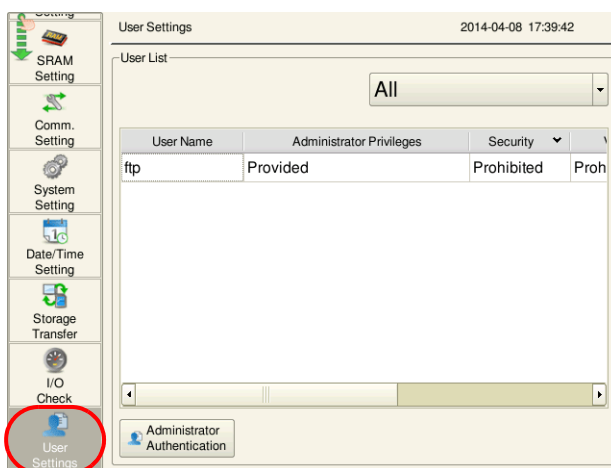
User Settings

Register the user name and password for accessing the VNC server on the [User Settings] screen in Local mode.

1. Press the [SYSTEM] switch on the unit to display the system menu at the top of the screen.



2. Press the [Local] switch on the system menu. The Local mode screen is displayed on the unit.
3. Press the [User Settings] menu icon to display the [User Settings] screen. A list of registered users is displayed.



- * This user settings screen is the same for [Security], [VNC Server], and [FTP Server].
Log in from the VNC Viewer using a user name and password that are allowed by the VNC server.



The user name can also be set in the screen program. The user set in the screen program always has administrator privileges and it cannot be edited or deleted on the [User Settings] screen of the V10/V9 series unit.

User Name	Administrator Privileges	Security	VNC Server	FTP Server	Registered in
user01	Provided	Level4	Prohibited	Prohibited	Screen Data
ftp	Provided	Prohibited	Prohibited	Allow	Screen Data
vnc	Provided	Prohibited	Allow(Operation)	Prohibited	Main unit

4. Press the [Administrator Authentication] switch. The password entry screen is displayed.

5. Enter an administrator-level user name and password. If the entries are correct, the user list in administrator mode is displayed. This mode allows adding, editing, and deletion operations.

User Name	Administrator Privileges	Security
ftp	Provided	Prohibited

6. Press the [+ Add] switch to display the add user screen. Configure the following settings.

Item	Description				
User Name	Register a user name. 16 one-byte alphanumeric characters A maximum of 8 characters for a user name common with the security function.				
Password	Register a password. 16 one-byte alphanumeric characters A maximum of 8 characters for a password common with the security function.				
Grant administrator privileges	Select whether to grant administrator privileges to the user. With privileges: Users can be added, edited, and deleted in the list. Without privileges: Users cannot be added, edited, or deleted in the list.				
VNC Server	<table border="1"> <tr> <td>Allow</td> <td>Allow access from VNC clients.</td> </tr> <tr> <td>Allow remote operation</td> <td>Allow operations from VNC clients. When remote operations are not allowed, only monitoring can be performed.</td> </tr> </table>	Allow	Allow access from VNC clients.	Allow remote operation	Allow operations from VNC clients. When remote operations are not allowed, only monitoring can be performed.
Allow	Allow access from VNC clients.				
Allow remote operation	Allow operations from VNC clients. When remote operations are not allowed, only monitoring can be performed.				

7. Press [OK] to complete registration. The display returns to the [User List (Administrator Mode)] screen.
8. Return to step 5 to perform another registration.
If registration is complete, switch to another screen using the relevant menu icon.

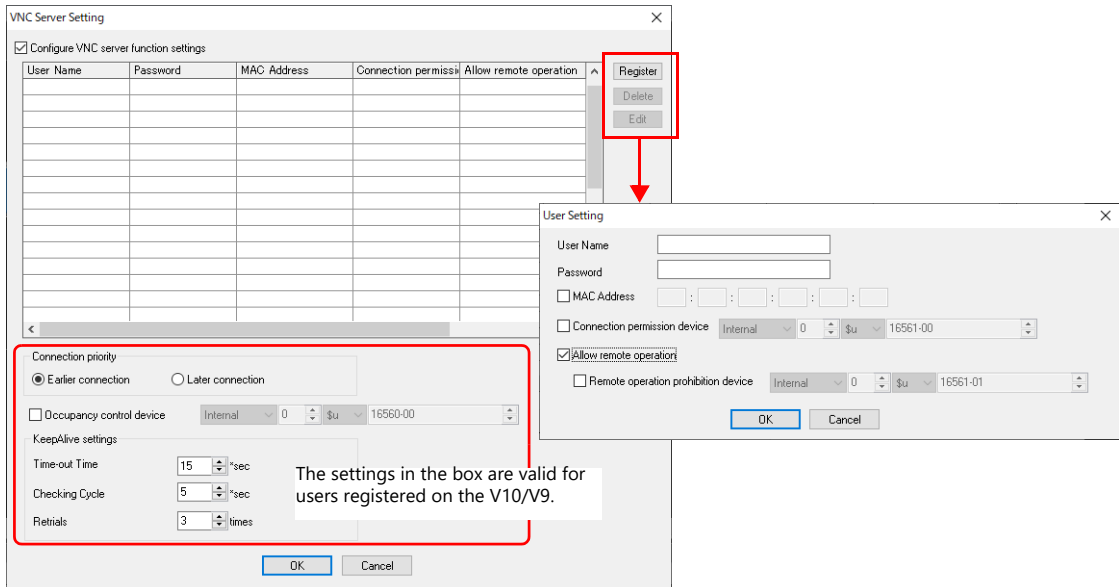
- For details on adding, deleting, and editing user accounts from the [User Settings] screen, refer to the following manuals.
- V10 Series Unit Operation / Local Mode / Error Screen Manual
 - V9 Series Troubleshooting/Maintenance Manual

Registration with Screen Program

You can register a user from [System Settings] → [Ethernet Settings] → [VNC Server Settings] in a screen program.

* Authentication screen will not appear when [System Setting] → [Unit Setting] → [General Setting] → [User the VNC server function without user authentication] is checked.

VNC Server Settings



Item	Description
Configure VNC server function settings ^{*1}	Check this option when you set the VNC server function in a screen program.
User settings	Up to 32 users can be registered.
User Name	Registers a use name. Up to 16 alphanumeric characters. ^{*2}
Password	Sets a password. Up to 16 alphanumeric characters. ^{*2}
MAC address	Select this option to register the MAC address of the device.
Connection permission device	Select this option to control permission/prohibition of the VNC connection OFF: connection prohibited ON: connection allowed
Allow remote operation	Select this option to allow remote operation during VNC connection.
Remote operation prohibition device	Select this option to control permission/prohibition of remote operation. To always allow remote operation, this setting is not required. OFF: operation prohibited ON: operation allowed
Connection priority	This option sets the priority when connection requests come from multiple clients. Earlier connection: This option continues current connection. Later connection: This option disconnects current connection and connect the client that made a subsequent request. ^{*3}
Occupancy control device	Select this option to occupy the operation in the VNC client. Connections of all the registered users are subject to this option. This option is not valid when VNC connection is not established. OFF: Not occupied (operation is possible for both the V10/V9 and the VNC client) ON: Occupied (the V10/V9 is monitor-only mode while the VNC client is operational)
KeepAlive settings	This option sets the connection check settings with the VNC client.
Time-out Time	This option sets the time to monitor response reception from a VNC client. If there is no response within the set time, it is retried. 1 - 32767 sec default: 5 sec
Checking Cycle	This option sets the interval at which VNC client connections are checked. 1 - 32767 sec default: 5 sec
Retrials	This option sets the number of retries after the timeout period. 1 - 127 times default: 3 times

*1 Compatible with OS V3.90 and SYSTEM V2.100.

*2 The following symbols are available. space ! " # \$ % & ' () * + , - . / : ; < > = ? @ [] \ ^ _ ' | ~

*3 If the setting on the VNC client is set to automatically reconnect when disconnected, the connection cannot be disconnected normally.

6.10.5 VNC Client Settings/Operations

VNC Viewer Software

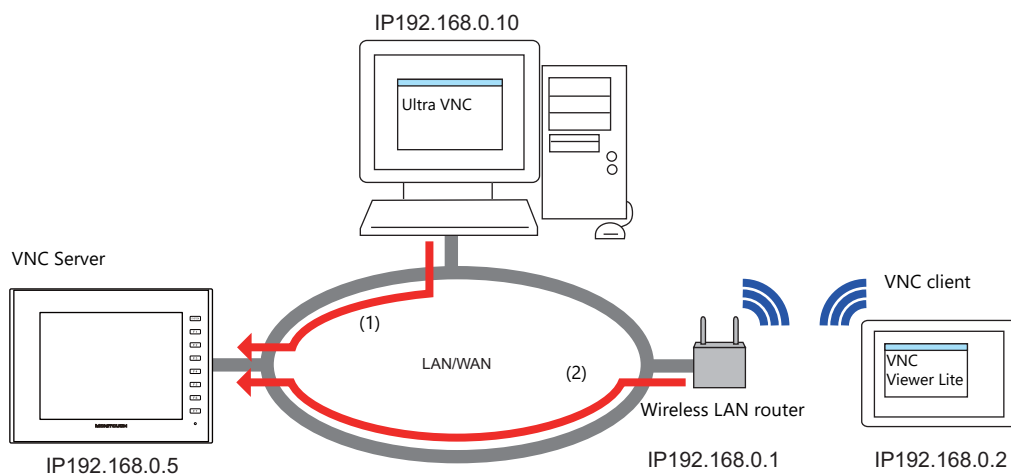
The VNC Viewer software must be installed on the VNC client in order to perform remote monitoring and operation of the V10/V9 series unit from the VNC client. Install this software in advance.

Software	OS	Remarks
Ultra VNC	Windows 2000 / XP / Server 2003 / Vista / 7 / 8	Free software
Tight VNC	Windows XP (32 bit)	
Simple Remote	Android / iOS 13.2 or later	Free software Hakko Electronics (dedicated to MONITOUCH)
RemoteToGo	Android	Free software
bVNC		
VNC Viewer	iOS	Free software
VNC Lite		
abtoVNC Viewer		
Jump Desktop		

- * For details on the system requirements of each software, visit the software's website. The method for obtaining the software differs depending on the client device. Obtain the software by referencing the specifications of the relevant device.
- * Communication may be unstable depending on the OS version of the client, VNC Viewer version, and operating environment. Always perform tests in the usage environment.

Connecting to the VNC Server

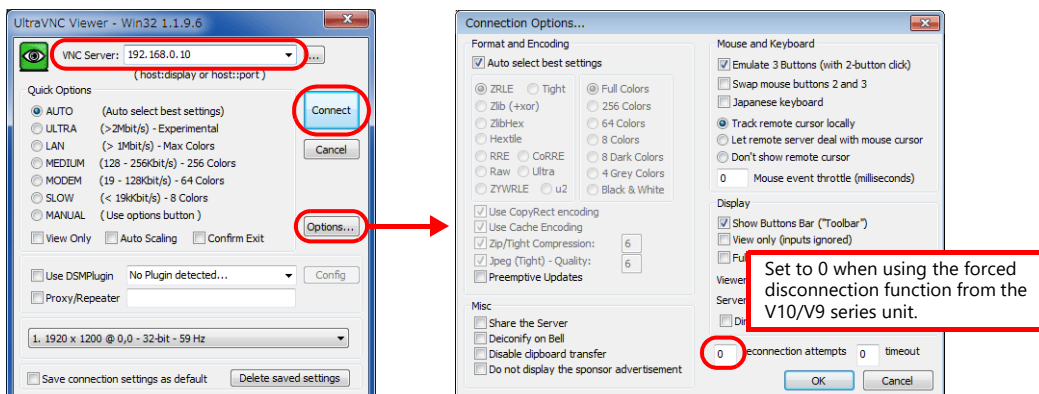
This section explains connecting to the VNC server with two examples: (1) connecting from a PC on the network using Ultra VNC, and (2) connecting from an Android tablet using VNC Viewer Lite.



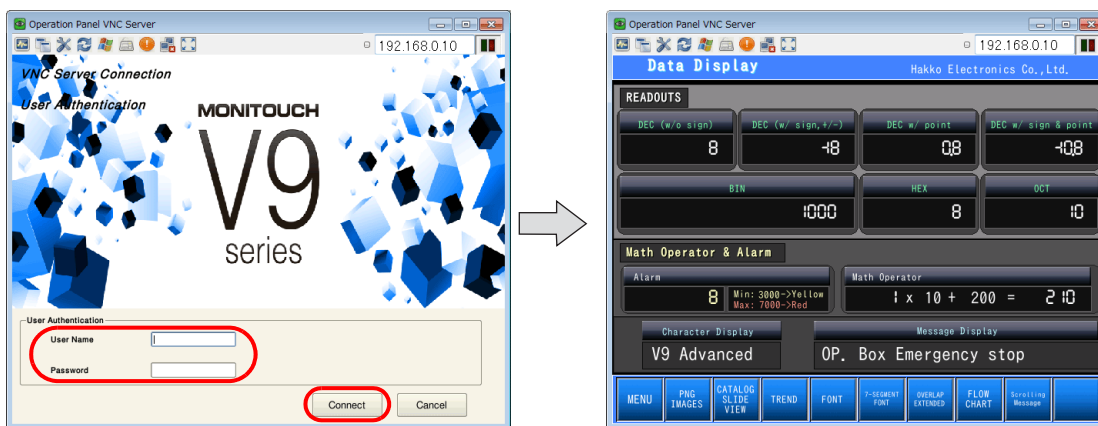
(1) Ultra VNC

Install Ultra VNC on the PC and connect the V10/V9 series unit and PC to the network in advance.

1. Start the Ultra VNC application via Windows Start menu → [UltraVNC] → [UltraVNC Viewer].
2. Enter the IP address of the V10/V9 series unit into the [VNC Server] field and click [Connect].



3. Enter a user name and password on the user authentication screen and click [Connect]. The VNC viewer screen is displayed.

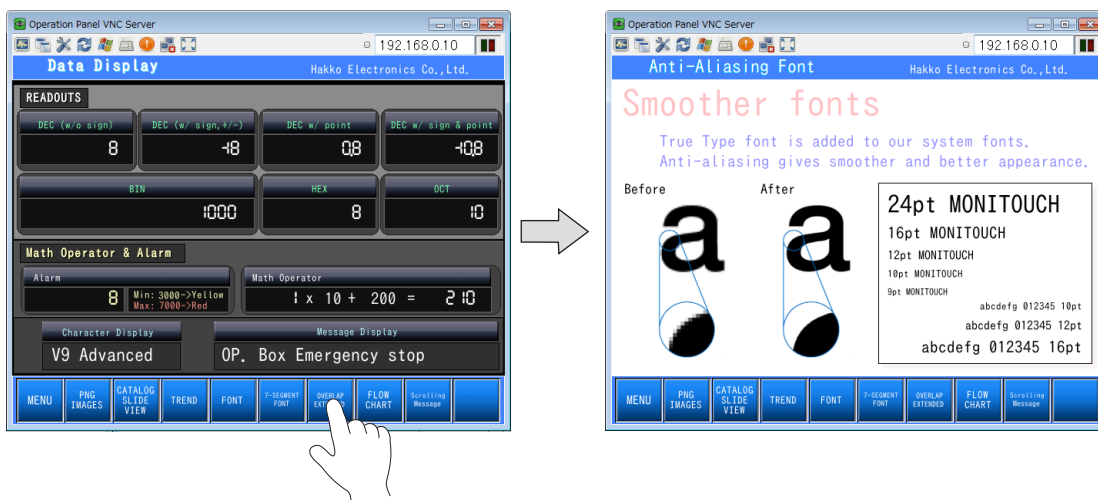


User authentication screen

If the [Use the VNC server function without user authentication] checkbox at [System Setting] → [Unit Setting] → [General Setting] is selected in the screen program, the user authentication screen is not displayed. In this case, screen display is possible without entering a user name and password.

4. Operating the VNC viewer screen will change the display on the V10/V9 series unit as well.

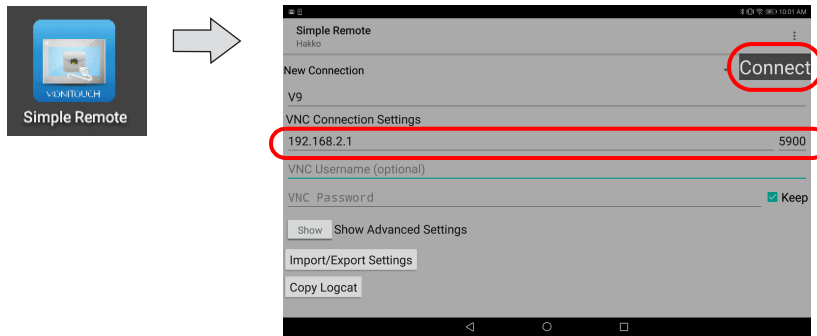
* If remote operations are not allowed, operations cannot be performed. The viewer screen changes to reflect operations performed on the V10/V9 series unit.



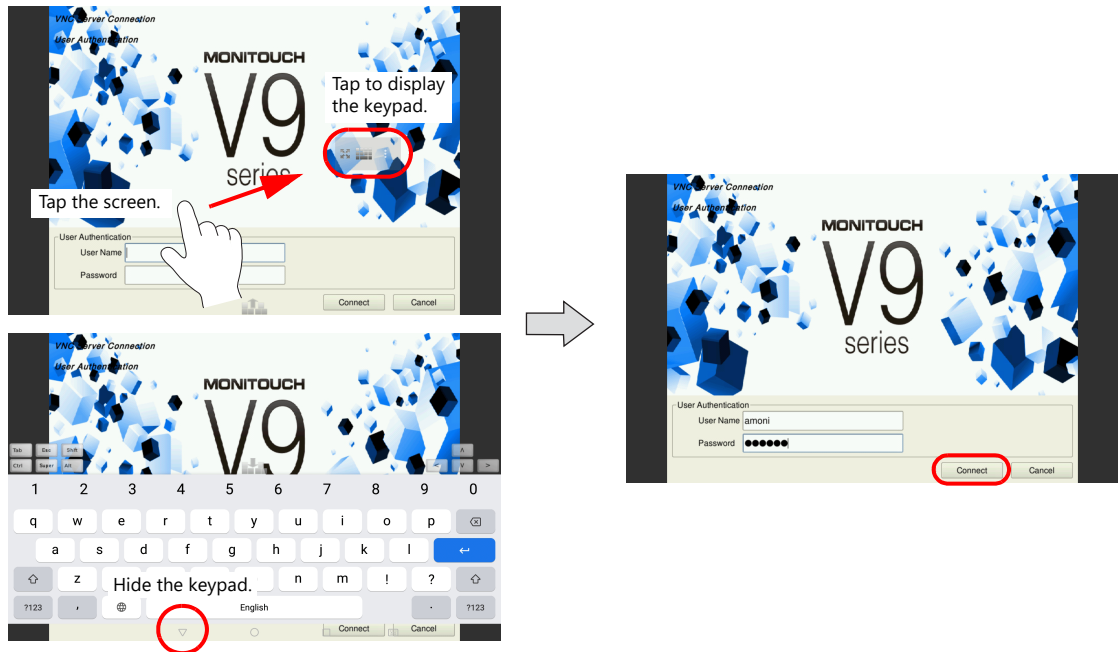
(2) Simple Remote

Install Simple Remote, configure Wi-Fi settings, and connect the V10/V9 series unit and tablet to the network.

1. Start Simple Remote.
2. Enter the IP address of the V10/V9 series unit and port No.5900 at [VNC Connection Settings].



3. Enter a user name and password on the user authentication screen and tap [Connect].

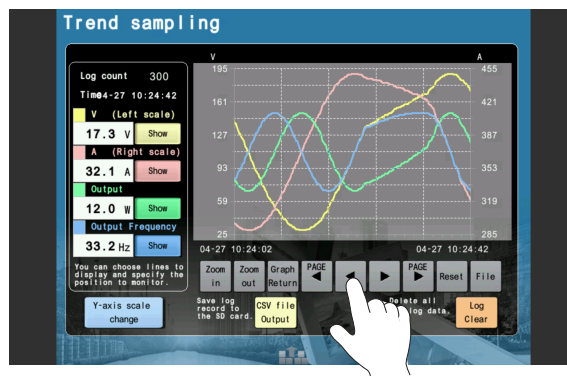


User authentication screen

If the [Use the VNC server function without user authentication] checkbox at [System Setting] → [Unit Setting] → [General Setting] is selected in the screen program, the user authentication screen is not displayed. In this case, screen display is possible without entering a user name and password.

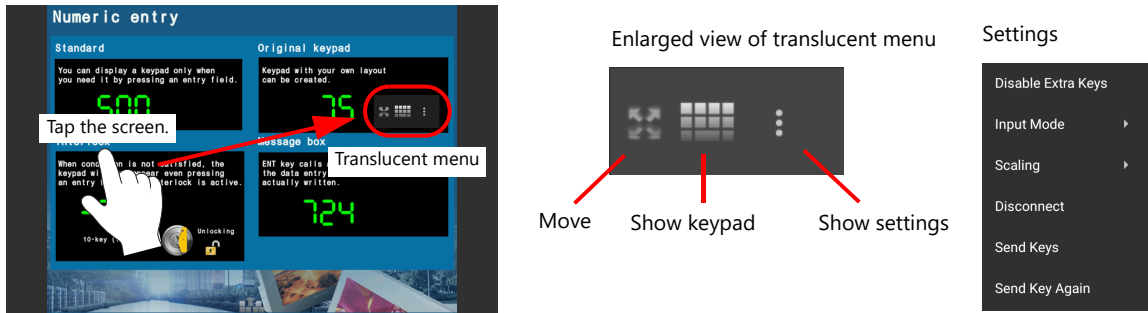
4. The VNC Viewer screen is displayed and monitoring/operating is possible.

* If remote operation is not allowed, operations cannot be performed. The viewer screen changes to reflect operations performed on the V10/V9 series unit.



Simple Remote operation menu

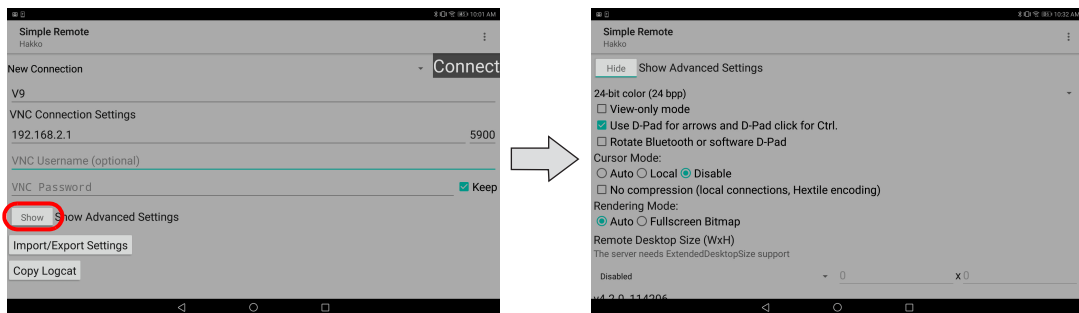
Tap the screen to display a translucent menu.
The main menu items are described below.



Item	Description	
Move	Drag the icon to move the translucent menu.	
Show keypad	Tap to show the keypad. To hide the keypad, tap the ▾ at the bottom of the tablet screen.	
Settings	Tap to display the settings menu.	
Input Mode	Direct, Swipe Pan	A tap gesture is the equivalent of clicking with a mouse and a swipe gesture pans the screen.
	Direct, Hold Pan	A tap gesture is the equivalent of clicking with a mouse and a press-and-hold gesture pans the screen. * Switches with an ON delay setting (turning ON after a set time) cannot be operated.
	Simulated Touchpad	A tap gesture is the equivalent of clicking with a mouse and a swipe gesture moves the mouse pointer. After moving the mouse pointer to the edge of the screen, swipe again to pan the screen.
	Single Handed	A tap gesture is the equivalent of clicking with a mouse and a swipe gesture pans the screen. A press-and-hold gesture shows a mode selection menu. Select left, center, or right dragging.
Scaling	Zoomable	The VNC screen is displayed so that pinch-to-zoom gestures can be used to zoom in or out on the screen.
	Fit to Screen	The VNC screen is displayed fitted and centered on the tablet screen. Zooming in/out is not possible.
	One to One	The screen is displayed with the same resolution as the MONITOUCH unit that is being monitored.
Disconnect	Disconnects the VNC.	
Send Keys	Allows operation of function switches. For details, refer to page 6-86 .	
Send Key Again	Sends the keys that were sent last time again.	

Advanced settings menu

View-only mode and mouse cursor show/hide settings can be made from the Simple Remote start screen.
Tap [Show].



Item	Description	
View-only mode	Select this checkbox to allow only monitoring. Remote operation is disabled.	
Cursor Mode	Auto	The mouse cursor is hidden.
	Local	The mouse cursor is displayed.

Keyboard Entry

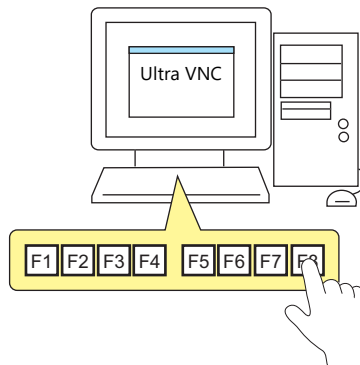
If remote operations are permitted from the VNC client, the following keyboard entry can be performed in addition to operations on the viewer screen.

- Entry screens: numerical and text entry
- Text boxes: numerical and text entry
- Function switch operation

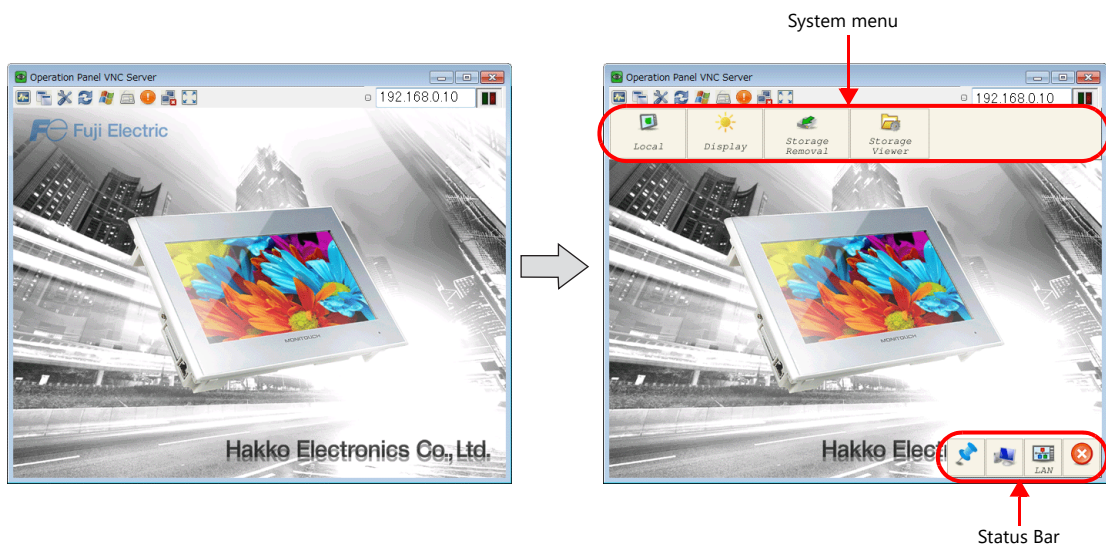
VNC Client Keyboard	V10/V9 Function Switch
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7
F8	SYSTEM

Operation example

- When using Ultra VNC
 - 1) With the remote screen displayed using Ultra VNC, press [F8] on the keyboard.

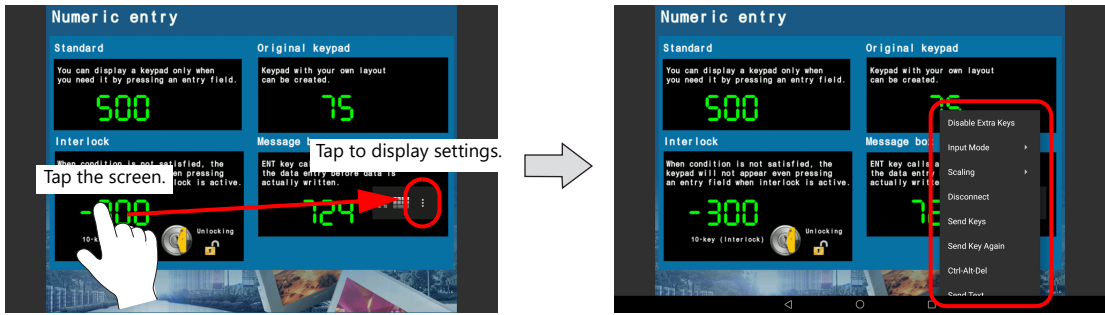


5. The system menu and the status bar are displayed.
This is the same operation as pressing the [SYSTEM] switch on the V10/V9 series unit.

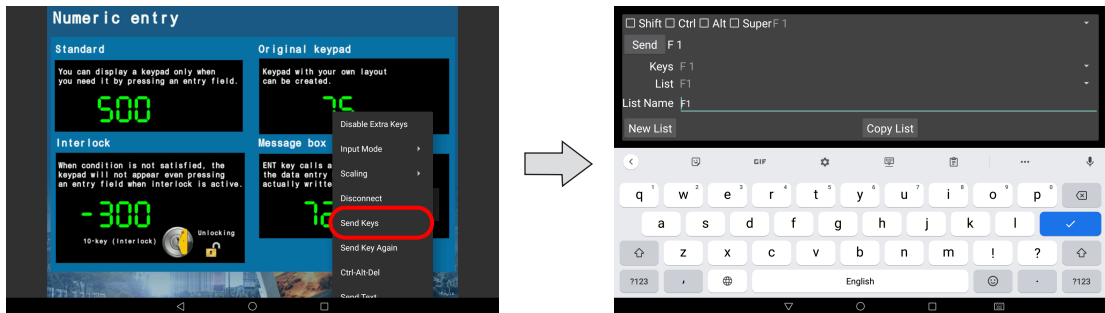


- When using Simple Remote

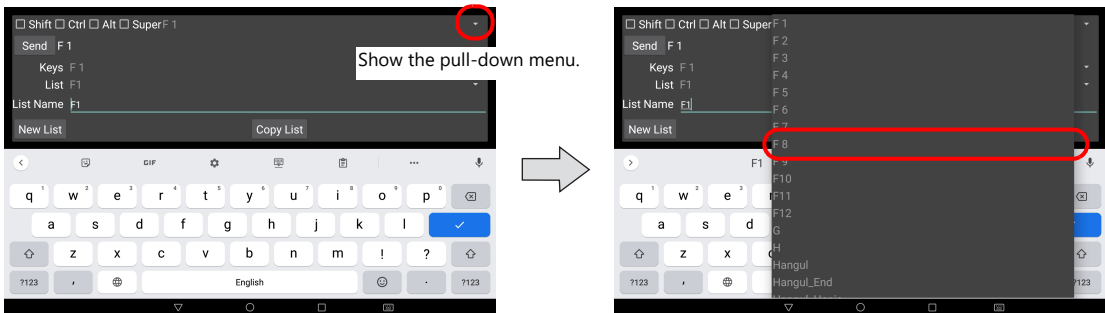
- 1) With the remote screen displayed using Simple Remote, tap the screen to display the translucent menu. Then tap the settings icon.



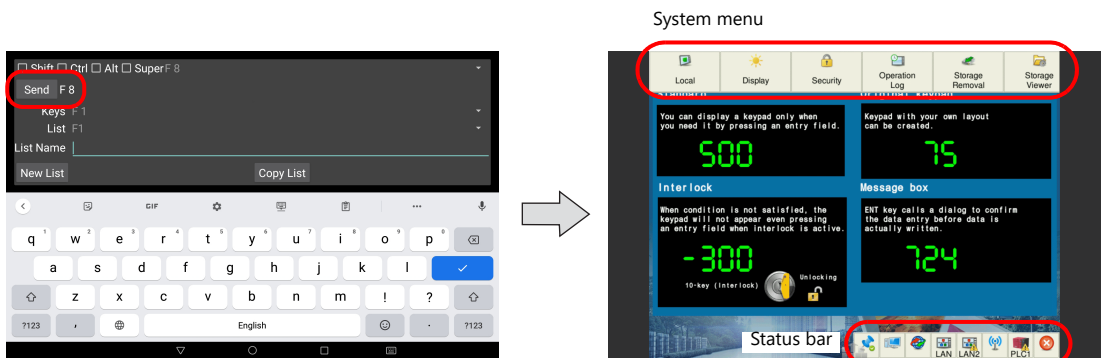
- 2) Tap [Send Keys] to display the following screen.



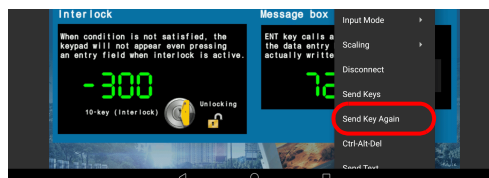
- 3) Tap the [▼] icon shown below and select [F8] from the pull-down menu.



- 4) Make sure that [F8] is selected and then tap [Send]. The system menu and the status bar are displayed.



The key that was sent last time can be sent again by tapping the settings icon → [Send Key Again] on the translucent menu.
This menu item is convenient when repeated operation is necessary.



6.11 Data Transfer Service

6.11.1 Overview

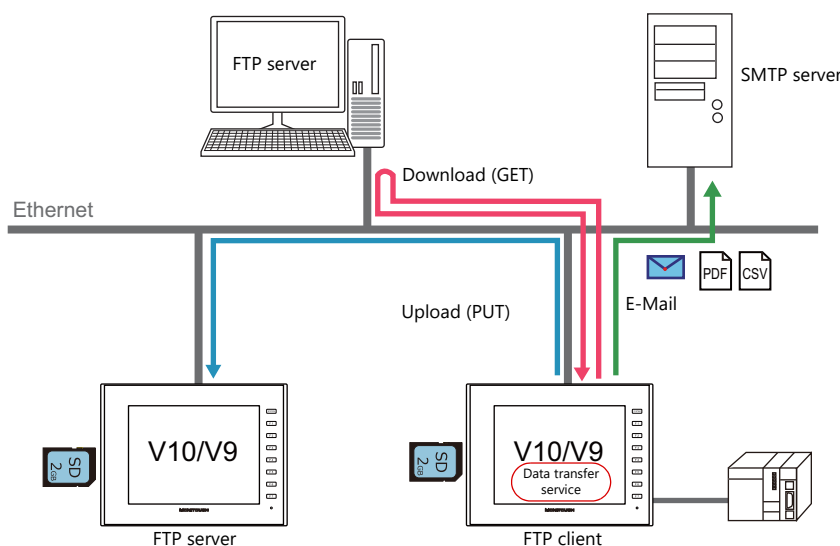
Data Transfer Service

This function is for uploading (PUT) files and folders saved to the storage device connected to a V10/V9 series unit, and downloading (GET) files from the server by accessing the server from the client V10/V9 series unit over Ethernet.

The V10/V9 series can serve as an FTP client.

If the mail server is on the network, files on a storage device can be sent with e-mail in conjunction with the e-mail sending function.

The maximum size of file attachments is 10 MB. However, do not exceed the maximum capacity of the mail server.



Since uploading and downloading is performed as a background operation, screen operations are available during the transfer.

Transfer Method

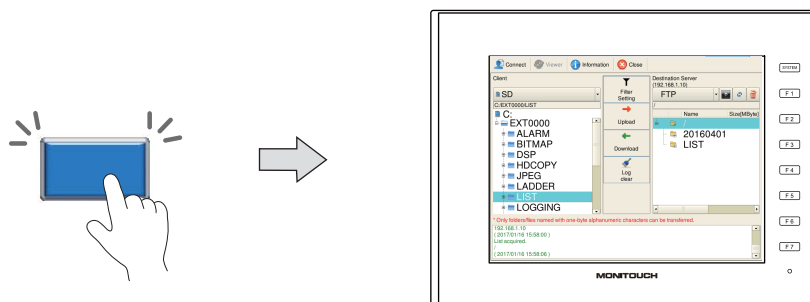
Data can be transferred by either using the data transfer viewer or by a command from a PLC.

Data transfer viewer

The viewer can be used to upload and download folders and files.

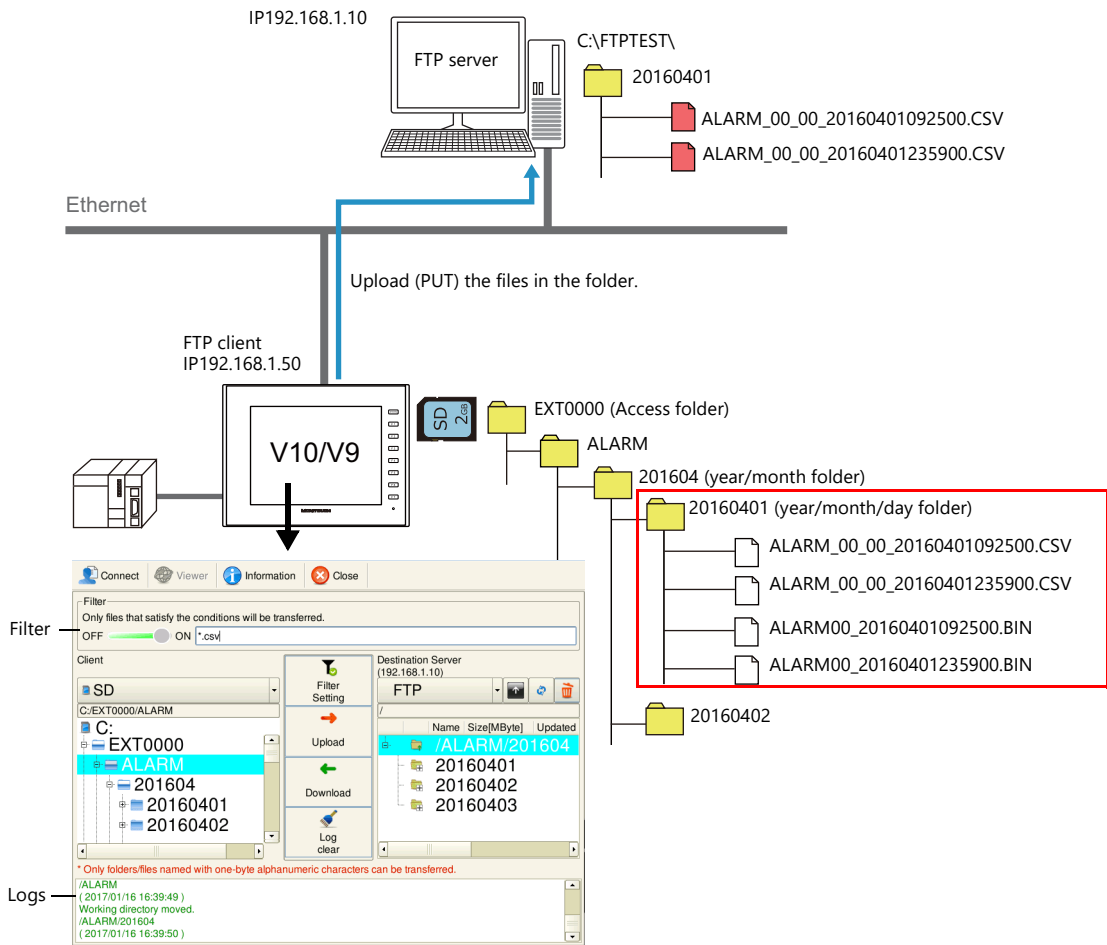
- Server registration can be performed in the viewer.
- Folders and files can be selected and transferred while viewing the latest information.
- The viewer can be displayed from the system menu, using a switch part, or by a command from a PLC.

Example: Display using a switch with [Function] set to [Data transfer viewer call]



 For details, refer to "6.11.7 Data Transfer Viewer" page 6-118.

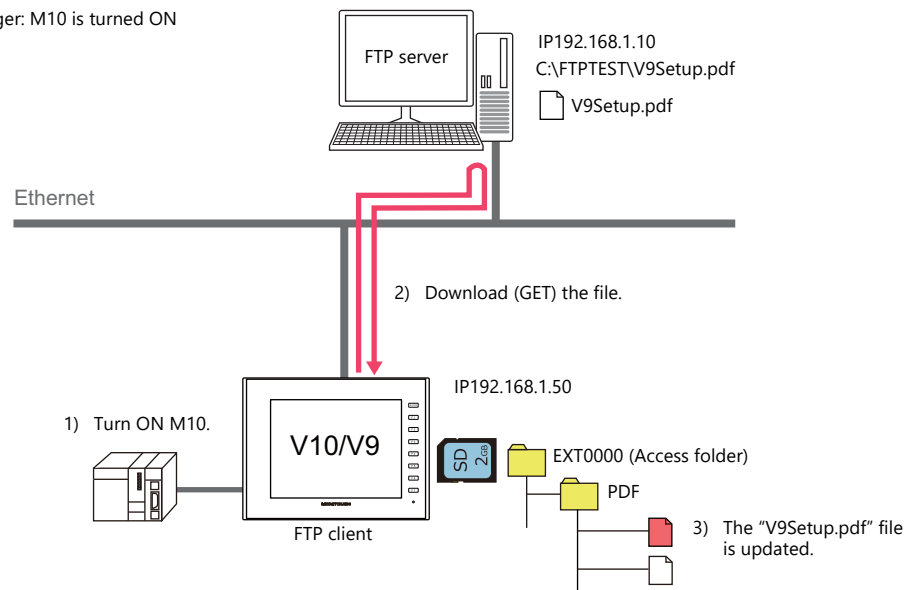
- The filter function can be used to, for example, only transfer CSV files (by specifying a wildcard) when multiple file types, such as CSV and BIN files, exist in a folder.
- The execution results can be checked in a log.



PLC command

Folders and files can be uploaded or downloaded at bit ON or OFF of the PLC.

Transfer execution trigger: M10 is turned ON



- The filter function can be used. Filter keywords can be specified using device memory addresses.
- The folders and files for transfer can be specified using device memory addresses.

6.11.2 Specifications

V10/V9 Client Specifications

Item	Specifications	Remarks
V10/V9 series	Available with built-in LAN ports (LAN, LAN2, WLAN)	Not available with CUR-03 communication unit.
Protocol	TCP/IP	
Number of simultaneous connections to server	1	Server connection is automatically established at transfer execution and automatically disconnected when complete.
Data size	Unlimited (within the storage capacity)	If data size is large, transfer will take time.
Number of data	Unlimited (within the storage capacity)	
Data hierarchy	No hierarchy limitaiton (Path: within 256 alphanumeric)	
Operational requirement	Data transfer viewer: Displayable and operable in both RUN and Local modes PLC command: Operable in RUN mode only	

Compatible FTP Servers

Tools and Functions	Equipment/OS
FTP server function	V10, V9, V8i series
Microsoft Internet Information Services (IIS)	OS: Windows 7, Windows 10

6.11.3 Setting Example: Transfer Using the Data Transfer Viewer

The following settings are required.

- Server settings
- Data transfer viewer call
- Client settings (V10/V9)

 For details, refer to ["6.11.7 Data Transfer Viewer"](#) page 6-118.

6.11.4 Setting Example: Transfer Using PLC Commands

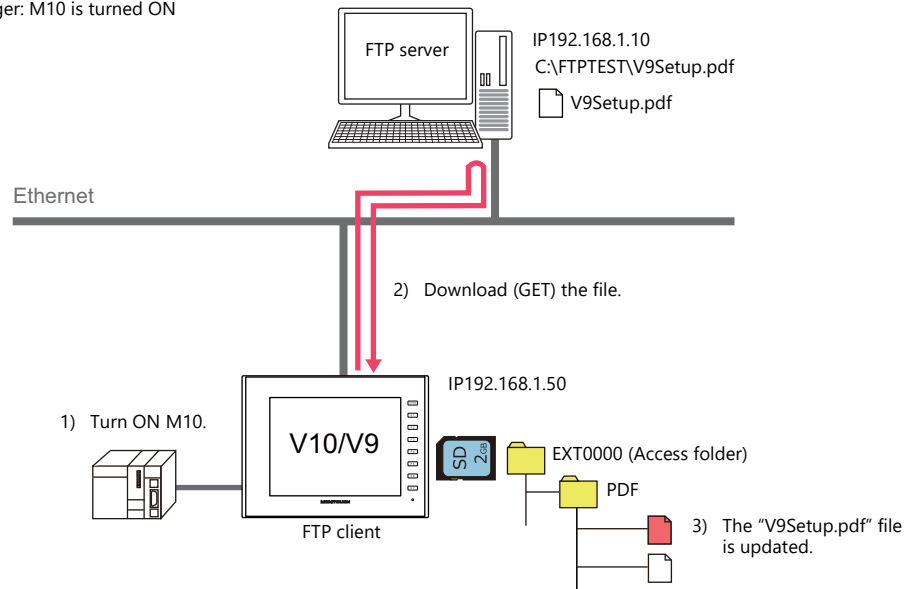
Setting Example 1: When the Server is a Computer

This section describes the settings for when the server is a computer.

File-based Transfer

The following is the procedure for updating the "V9Setup.pdf" file by downloading it (GET) from the server.

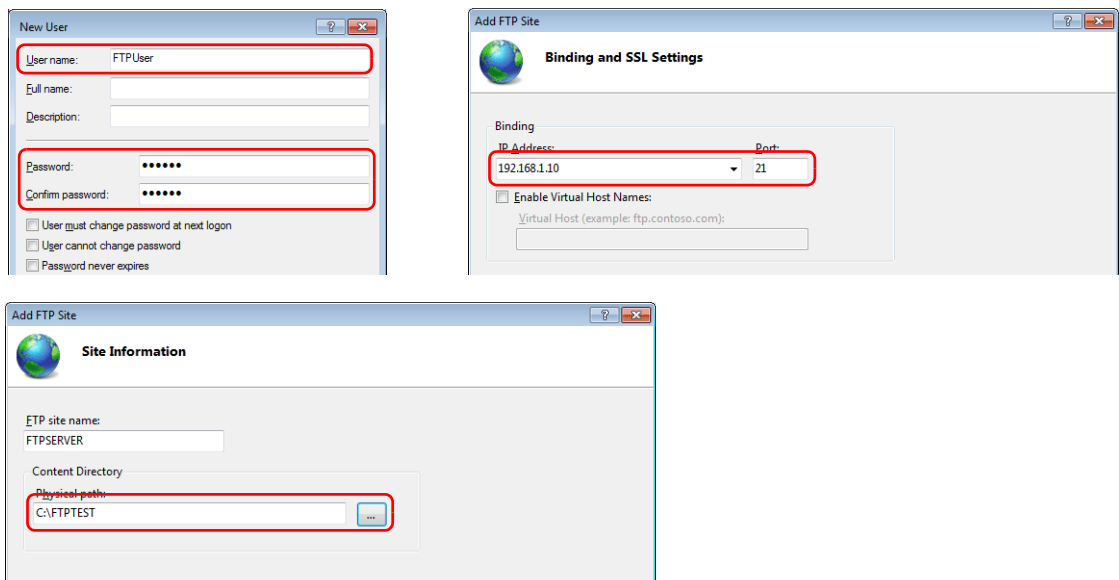
Transfer execution trigger: M10 is turned ON



Server settings

Refer to the manual of the tool to use.

Example: Microsoft Internet Information Services (IIS)

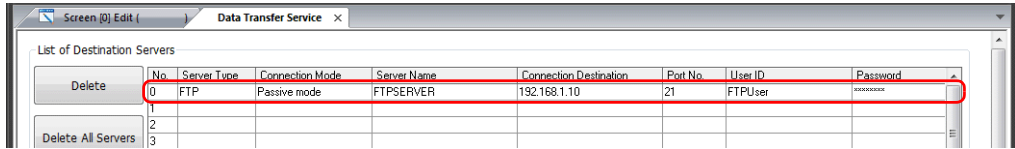


User name	FTPUser
Password	ftp123
IP Address	192.168.1.10
Port	21 (default)
Server directory	C:\FTPTEST

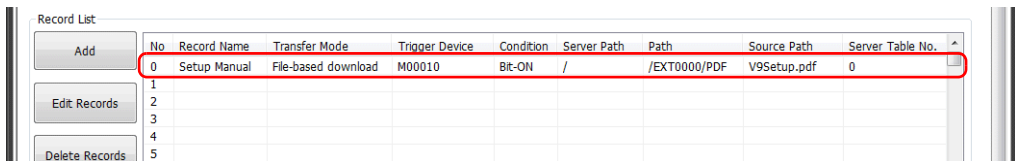
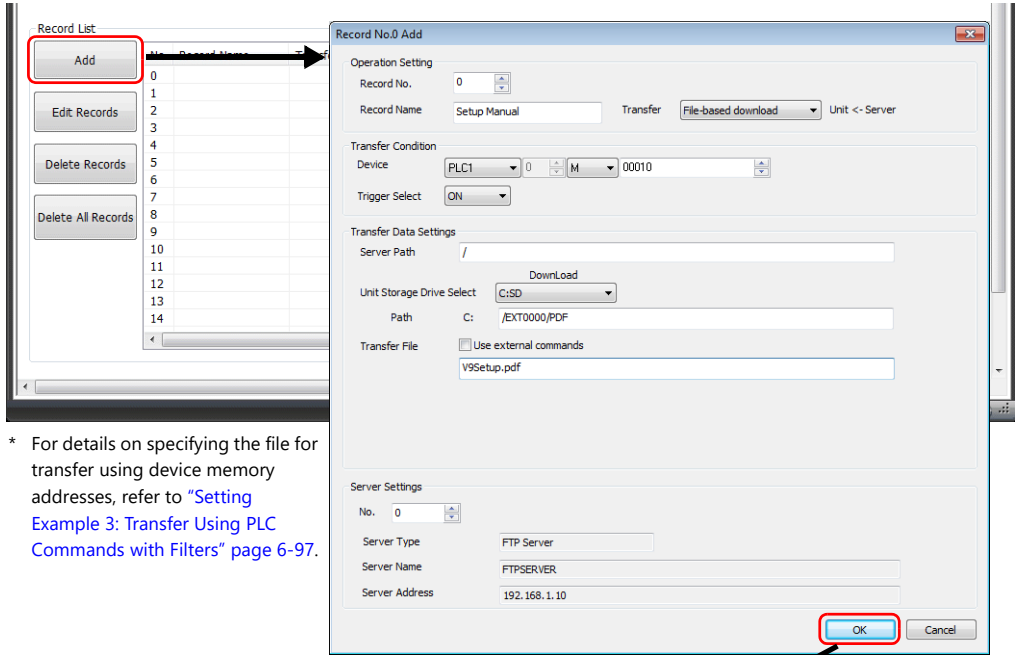
For details, refer to "Server: Computer etc." page 6-113.

Client settings (V10/V9)

1. Click [System Setting] → [Data transfer service] → [Data Transfer Service Settings] to display the [Data Transfer Service] tab window.
2. Configure the following settings.
Set the same values as the server settings for [Connection Destination] (IP address), [Port No.], [User ID] (user name) and [Password].



3. Configure the following settings.



4. Click [OK].

This completes the necessary settings.

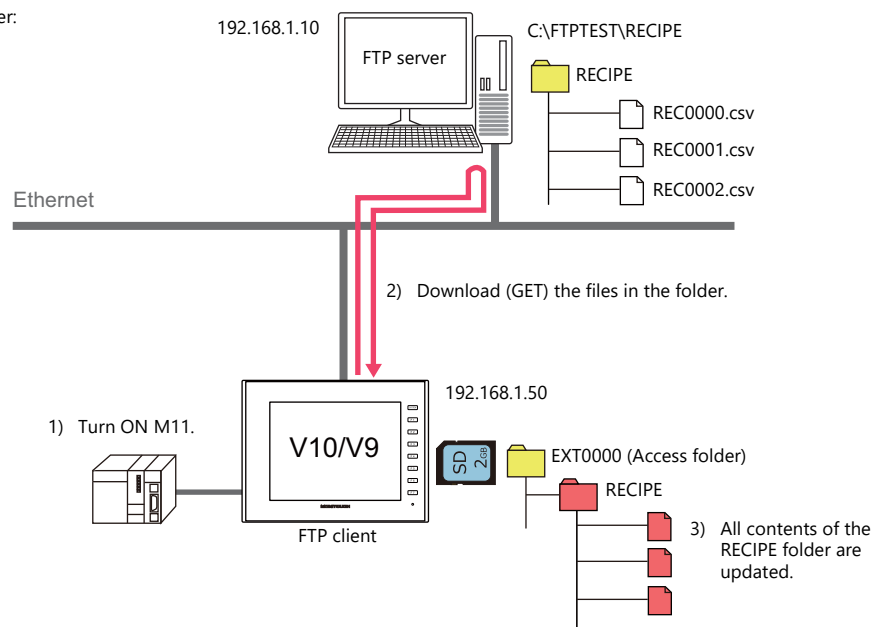
Unit operation

Downloading (GET) starts when the M10 bit turns ON.
The “V9Setup.pdf” in the V10/V9 series unit’s PDF folder is updated by overwriting.

Folder-based Transfer

The following is the procedure for updating the "RECIPE" folder by downloading (GET) it from the server.

Transfer execution trigger:
M11 is turned ON



Server settings

Refer to the manual of the tool to use.

Example: Microsoft Internet Information Services (IIS)

New User

User name: FTPUser

Full name:

Description:

Password: *****

Confirm password: *****

User must change password at next logon

User cannot change password

Password never expires

Add FTP Site

Binding and SSL Settings

Binding

IP Address: 192.168.1.10 Port: 21

Enable Virtual Host Names

Virtual Host (example: ftp.contoso.com):

Add FTP Site

Site Information

FTP site name: FTPSERVER

Content Directory

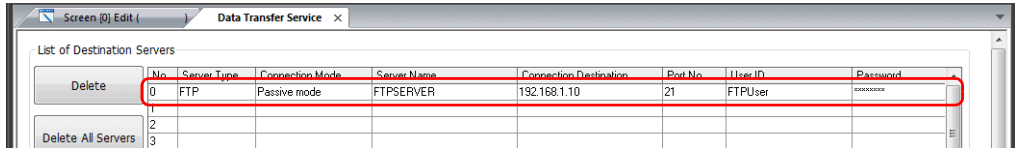
Physical path: C:\FTPTEST

User name	FTPUser
Password	ftp123
IP Address	192.168.1.10
Port	21 (default)
Server directory	C:\FTPTEST

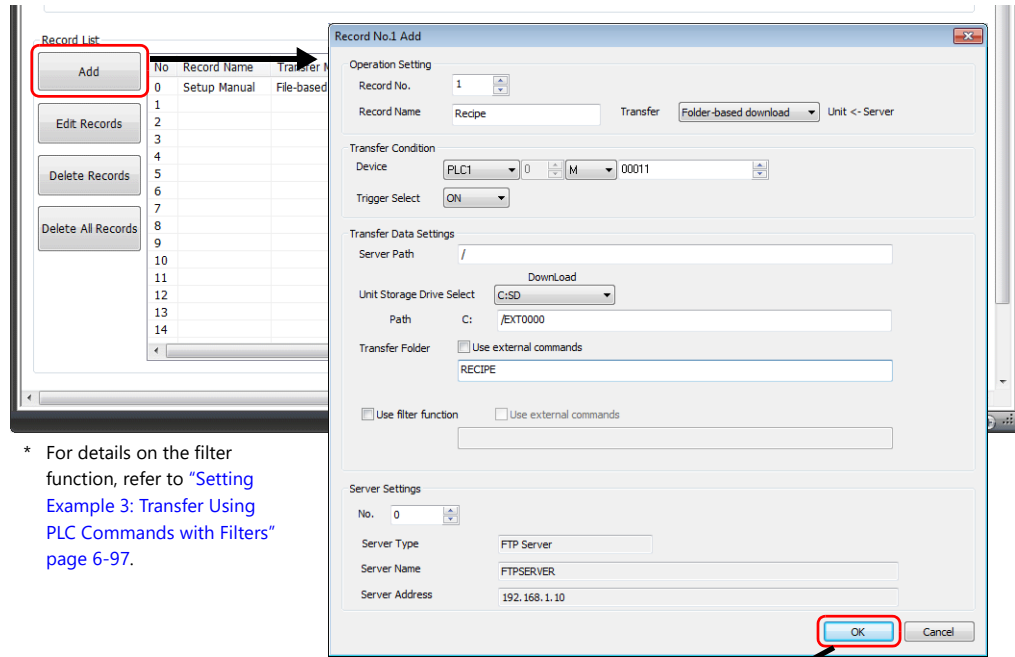
For details, refer to "Server: Computer etc." page 6-113.

Client settings (V10/V9)

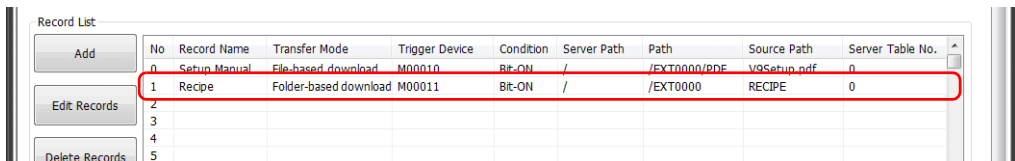
1. Click [System Setting] → [Data transfer service] → [Data Transfer Service Settings] to display the [Data Transfer Service] tab window.
2. Configure the following settings.
Set the same values as the server settings for [Connection Destination] (IP address), [Port No.], [User ID] (user name) and [Password].



3. Configure the following settings.



* For details on the filter function, refer to "Setting Example 3: Transfer Using PLC Commands with Filters" page 6-97.



4. Click [OK].

This completes the necessary settings.

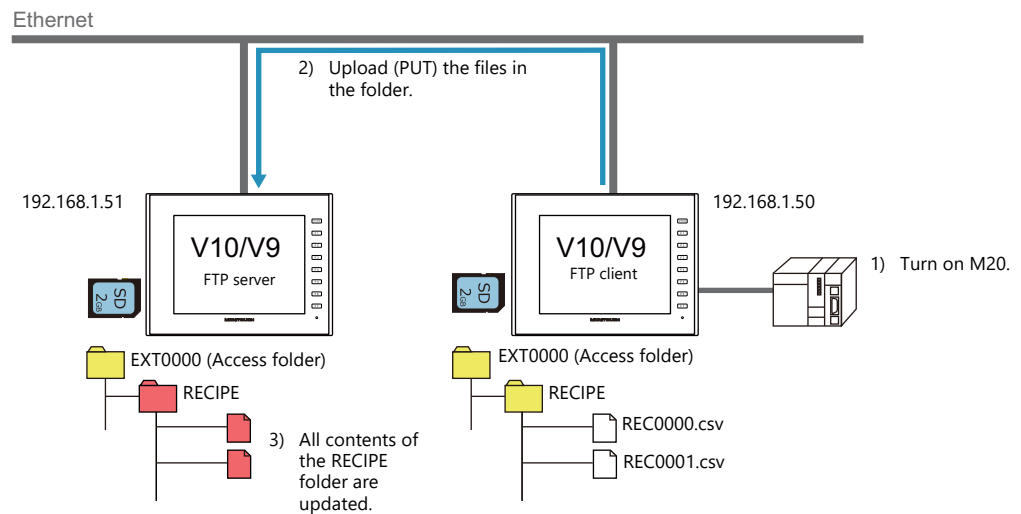
Unit operation

Downloading (GET) starts when the M11 bit turns ON.
The "RECIPE" folder in the V10/V9 series unit is updated by overwriting with the "RECIPE" folder on the server.

Setting Example 2: When Server is a V10/V9 Unit

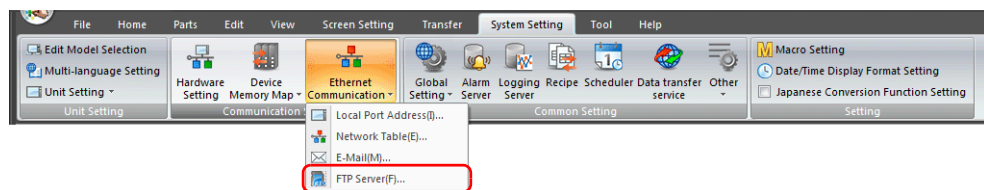
The following is the procedure for updating the "RECIPE" folder on the server by uploading (PUT) from an SD card.

Transfer execution trigger: M20 is turned ON

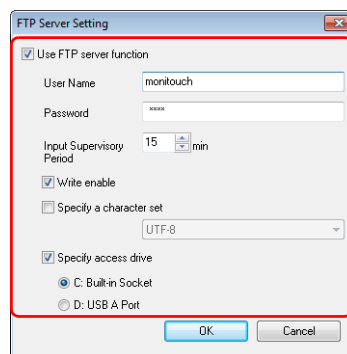


Server settings (V10/V9)

1. Click [System Setting] → [Ethernet Communication] → [FTP Server].



2. The [FTP Server Setting] window is displayed. Configure the following settings.



Use FTP server function ^{*1}	Selected
User name	monitouch ^{*2}
Password	9999 ^{*2}
Input Supervisory Period	15 min
Write enable	Selected
Specify access drive	Selected C: Built-in Socket

^{*1} For details on the FTP server function, refer to "6.9 FTP Server".

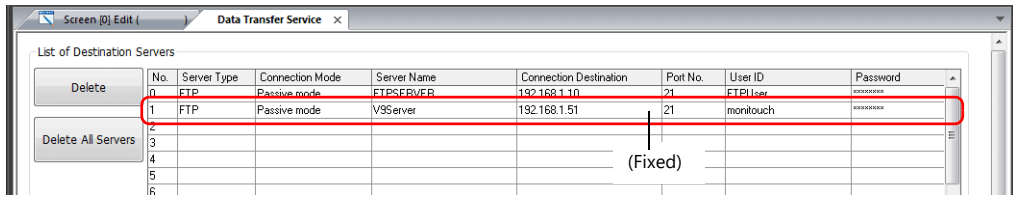
^{*2} User name and password registration

In addition to registration by computer or the V-SFT Ver. 6 screen configuration software, the user name and password used by the FTP server function can also be registered in Local mode on the V10/V9 series unit. For details, refer to the following manuals.

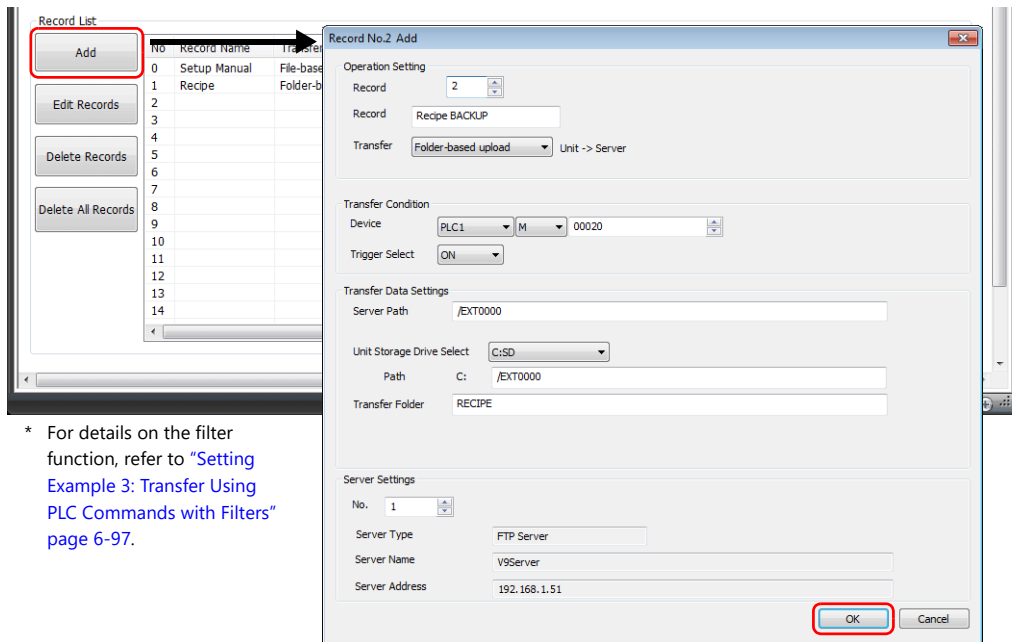
- V10 Series Unit Operation / Local Mode / Error Screen Manual
- V9 Series Troubleshooting/Maintenance Manual

Client settings (V10/V9)

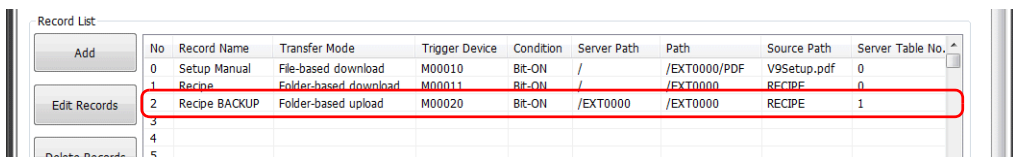
1. Click [System Setting] → [Data transfer service] → [Data Transfer Service Settings] to display the [Data Transfer Service] tab window.
2. Configure the following settings.
Set the same values as the server settings for [Connection Destination] (IP address), [User ID] (user name) and [Password]. Port number is fixed to 21.



3. Configure the following settings.



* For details on the filter function, refer to "Setting Example 3: Transfer Using PLC Commands with Filters" page 6-97.



4. Click [OK].

This completes the necessary settings.

Unit operation

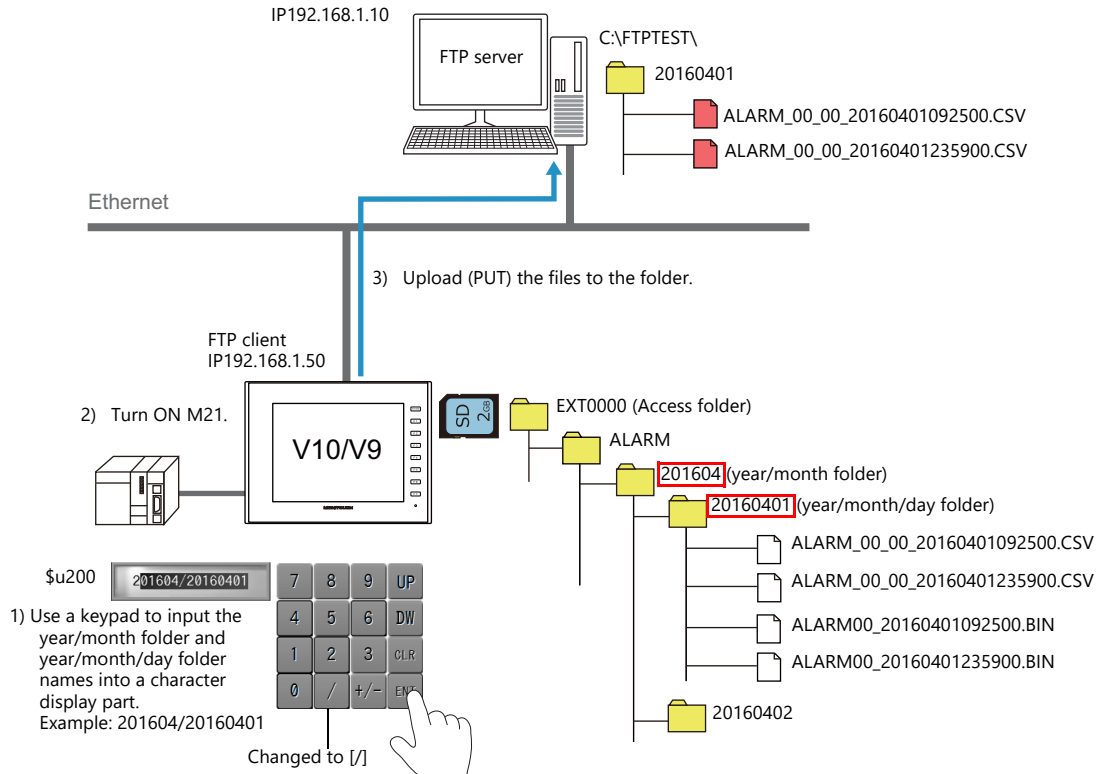
Uploading (PUT) starts when the M20 bit turns ON.
The entire "RECIPE" folder on the server's SD card is updated by overwriting.

* Existing files will be overwritten.

Setting Example 3: Transfer Using PLC Commands with Filters

This section describes the procedure for uploading (PUT) specified CSV files stored in a date folder within an alarm folder created as alarm history, to the server.

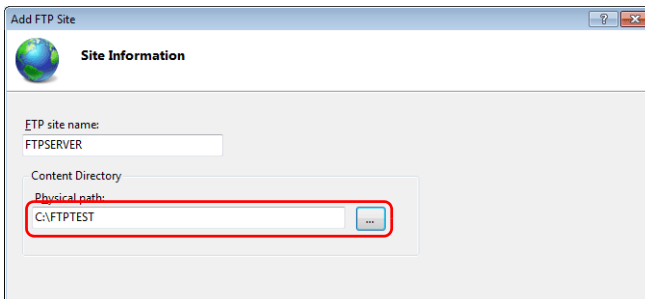
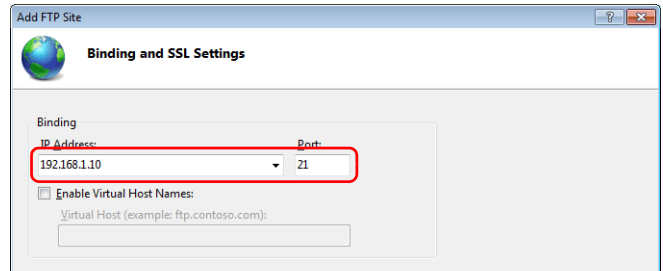
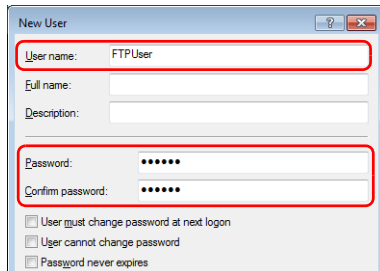
Transfer execution trigger: M21 is turned ON



Server settings

Refer to the manual of the tool to use.

Example: Microsoft Internet Information Services (IIS)

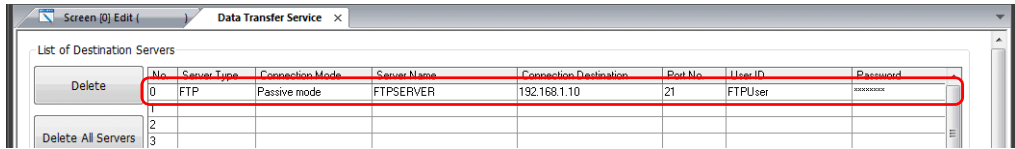


User name	FTPUser
Password	ftp123
IP Address	192.168.1.10
Port	21 (default)
Server directory	C:\FTPTEST

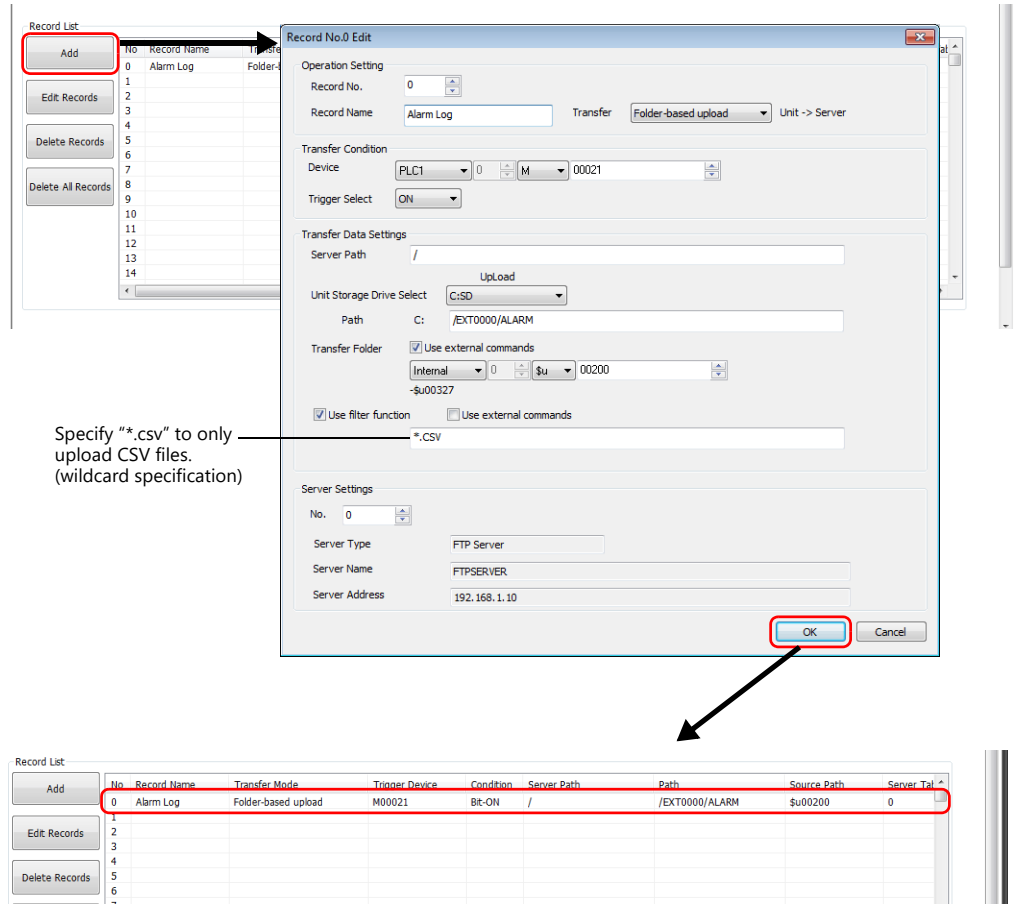
For details, refer to "Server: Computer etc." page 6-113.

Client settings (V10/V9)

1. Click [System Setting] → [Data transfer service] → [Data Transfer Service Settings] to display the [Data Transfer Service] tab window.
2. Configure the following settings.
Set the same values as the server settings for [Connection Destination] (IP address), [Port No.], [User ID] (user name) and [Password].



3. Configure the following settings.



4. Click [OK].

This completes the necessary settings.

Unit operation

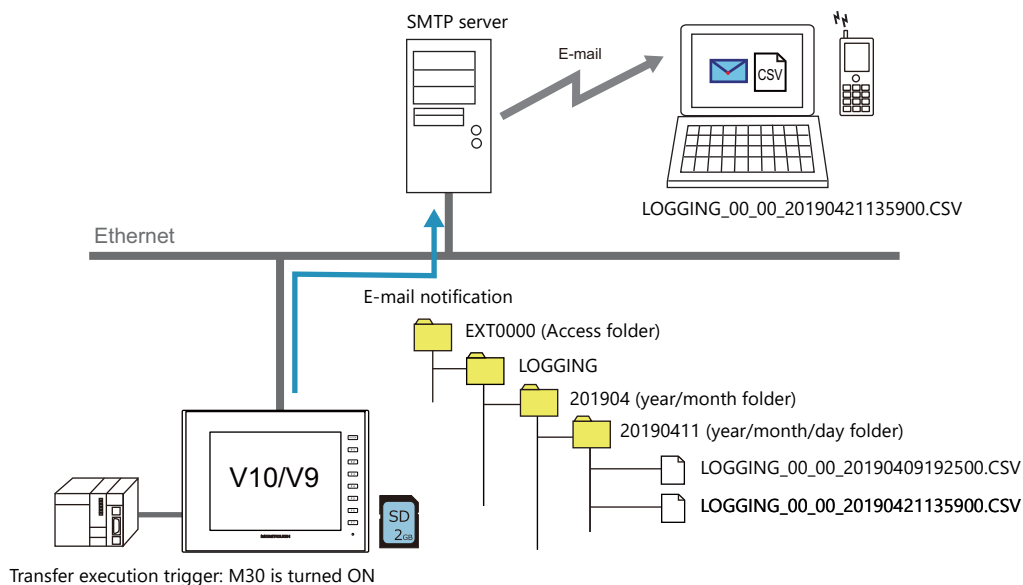
Uploading (PUT) starts when the M21 bit turns ON.

The specified date folder in the ALARM folder and the CSV files (not the BIN files) in that date folder are transferred to the server.

Files that match with the keyword specified as the filter are transferred maintaining their current path.
Files that do not match and folders that have no matching files are not transferred.

Setting Example 4: Sending E-mail

This section describes the procedure for sending the latest logging CSV file saved on a storage device using e-mail.



E-mail settings

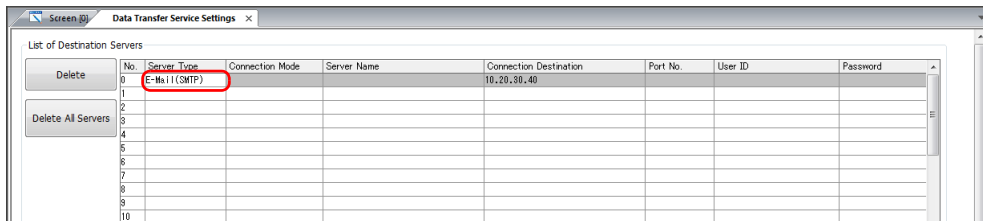
1. Select [System Setting] → [Ethernet Communication] → [E-Mail].
2. Configure the settings in the [E-Mail Setting] window.

SMTP IP Address	Set the IP address of the mail server or the server name.
Sending Mail Server (SMTP)	
Port Setting	Set the SMTP port number of the mail server. 0 to 65535 (default: 25)
Certify Type	Select "SMTP-AUTH". Configure the following settings. <ul style="list-style-type: none"> • Use SSL/TLS Communication • Account Name • Password
Sender's Mail Address	Set the sender's mail address.
Sender's Name	Set the sender's name. A name consisting of both one- and two-byte characters is not valid. It is displayed in the "Sender" field in an incoming e-mail.
Subject	This setting is disabled. The record name in the data transfer service settings is used for the subject.
Receiver's Mail Address	Register the recipient mail addresses.

For details, refer to "E-mail Notification" page 6-49.

Client settings (V10/V9)

1. Click [System Setting] → [Data transfer service] → [Data Transfer Service Settings] to display the [Data Transfer Service] tab window.
2. Select "E-Mail (SMTP)" for [Server Type]. The server name or SMTP address configured in the [E-Mail Setting] window are displayed.



3. Configure the record settings.

Select "Folder-based upload".

This is displayed in the "Subject" field of the outgoing e-mail.

Specify the execution device memory.

Configure the file attachment settings.

Select number of the E-Mail (SMTP) server under [Server Type].

Set the e-mail address of the recipient.

4. Click [OK].
This completes the necessary settings.

Unit operation

An e-mail notification is sent with the latest CSV file from the LOGGING folder attached when the M30 bit turns ON.

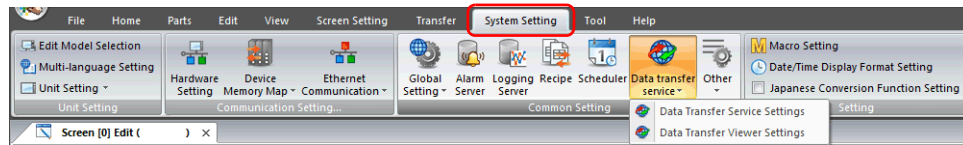
Example of e-mail notification

Sender: V9080	
Subject: Logging_CSV	
Main body:	
2019/04/01 17:04:33 <ON>	Timestamp Trigger (ON/OFF)
[Attachment information]	
Files: Size per file: 53 kB	No. of files File size (kB/MB)

For multi-language screens, the display language of "Attachment information" depends on the display language of the V10/V9 series unit.

6.11.5 Detailed Settings

Configure settings via [System Setting] → [Data transfer service].

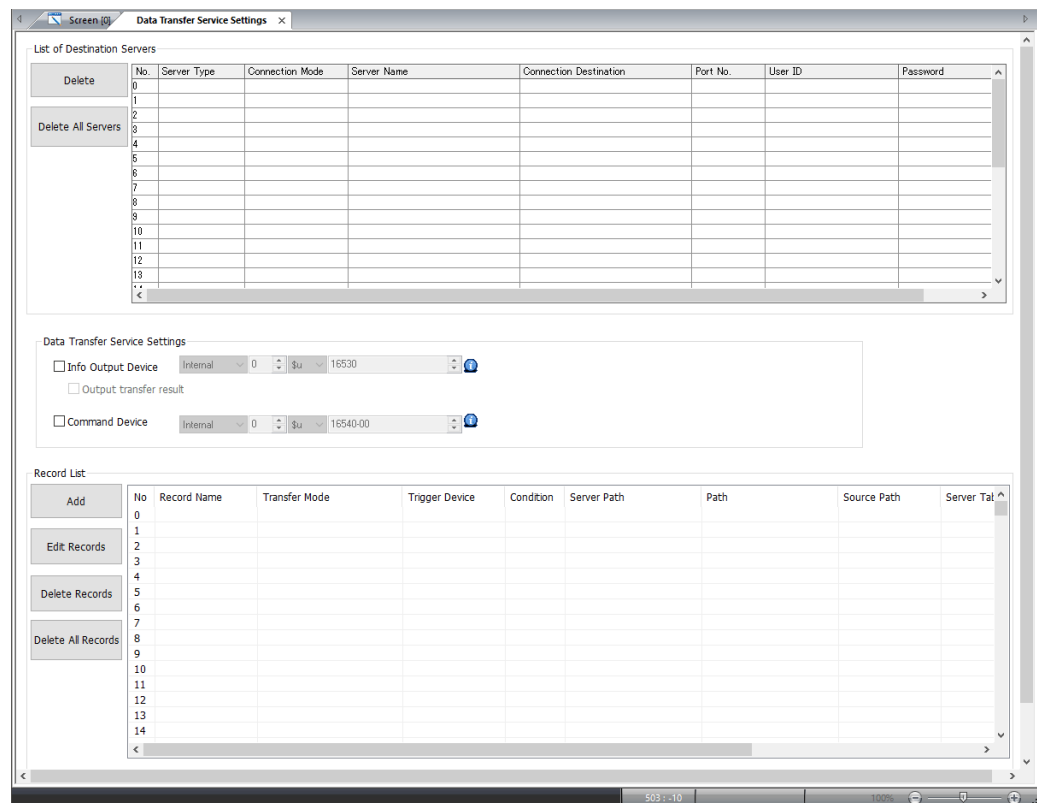
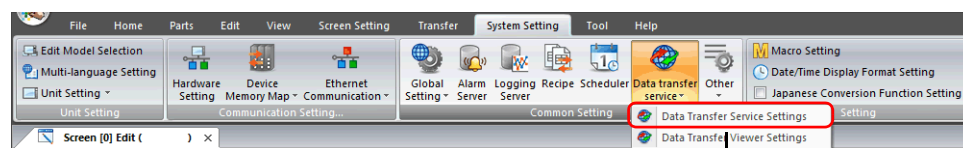


Data Transfer Service Settings

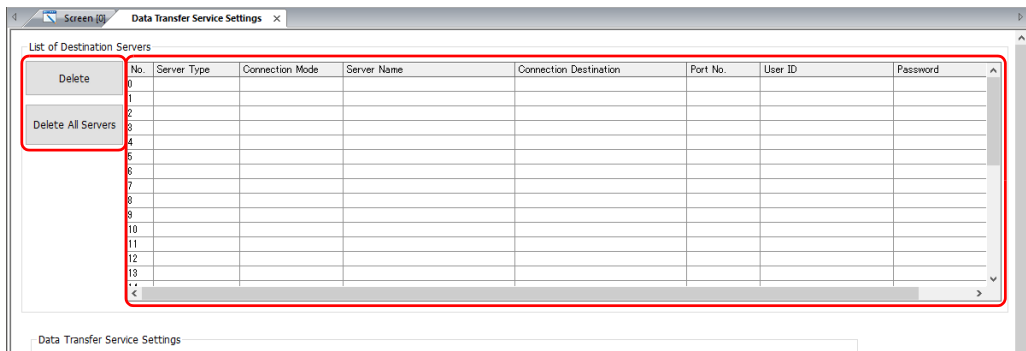
Always configure these settings when transferring using PLC commands. When transferring data using the data transfer viewer, although server settings can be configured directly on the V10/V9 series unit, you can also connect by registering servers in the following tab window and specifying the registered table number.

Click [System Setting] → [Data transfer service] → [Data Transfer Service Settings].

The [Data Transfer Service] tab window is displayed.



List of Destination Servers

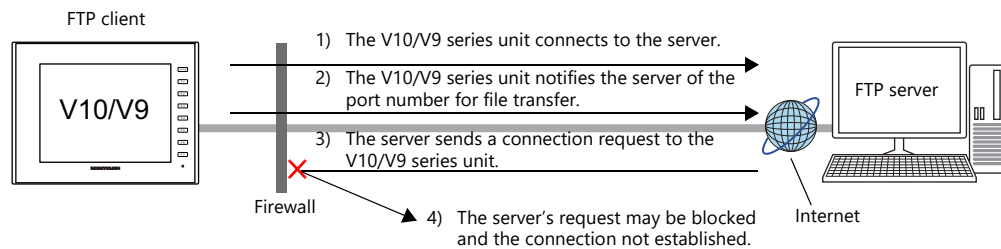


Item	Description	Remarks
Delete	Delete the selected server.	
Delete All Servers	Delete all registered servers.	
No.	Indicates the registration number of the server. No. 0 to 31	Connection possible by specifying a server registration number in the data transfer viewer.
Server Type	Specify the type of the server. FTP/Cloud/E-Mail (SMTP)	For details on cloud support, refer to the Web Machine Interface Manual. For details on e-mail, refer to "E-mail Notification" page 6-49.
Connection Mode *	Specify the connection mode. Active mode/Passive mode	The data transfer viewer is fixed to passive mode regardless of this setting.
Server Name	Specify the name of the server. Within 32 one-byte characters	
Connection Destination	Specify the IP address of the server.	Set same values as server's settings.
Port No.	Specify the control port number of the server. (Default: 21)	Set same values as server's settings.
User ID	Specify the user ID (user name). Within 16 one-byte characters	Set same values as server's settings.
Password	Specify the password. Within 16 one-byte alphanumeric characters	Set same values as server's settings.

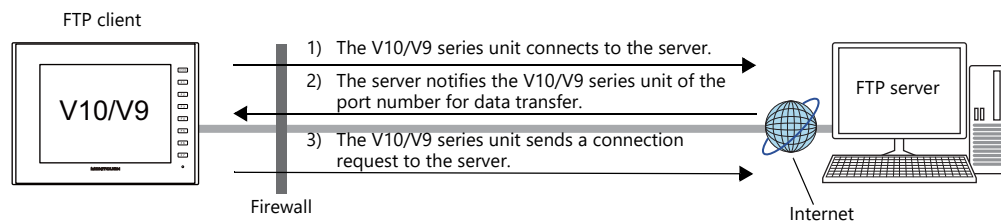
* Connection mode

Depending on the connection mode setting, the device that sends a connection request changes. When the FTP server is at an external location such as on the Internet, an external connection request may not be accepted due to the firewall's security policy. In this case, use the passive mode in which the V10/V9 series unit (client) sends the connection request.

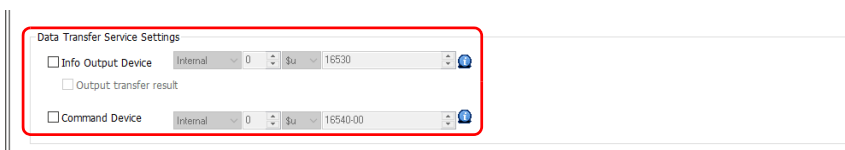
- Active mode



- Passive mode



Data Transfer Service Settings



Info output device

- When [Server Type] is "FTP" or "E-Mail (SMTP)"

Device Memory	Description																																	
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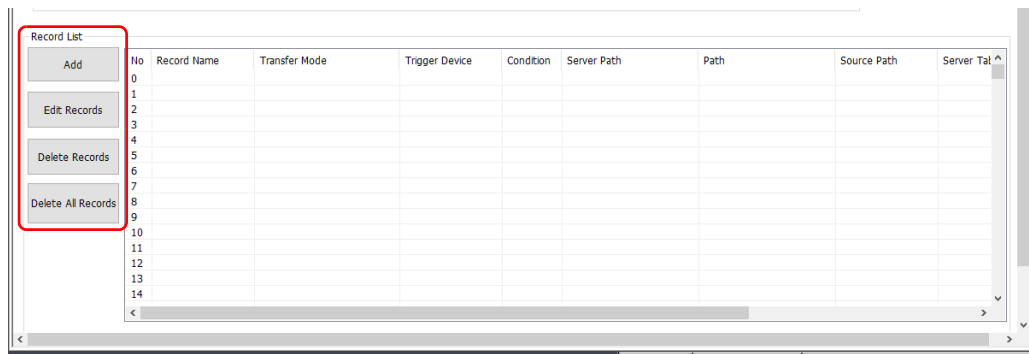
Command device

Device Memory	Description
n	Forcibly cancels the data transfer. ("E-Mail (SMTP)" for [Server Type] is not supported.) 1: Transfer cancellation

* Data transfer can also be cancelled from the status bar.

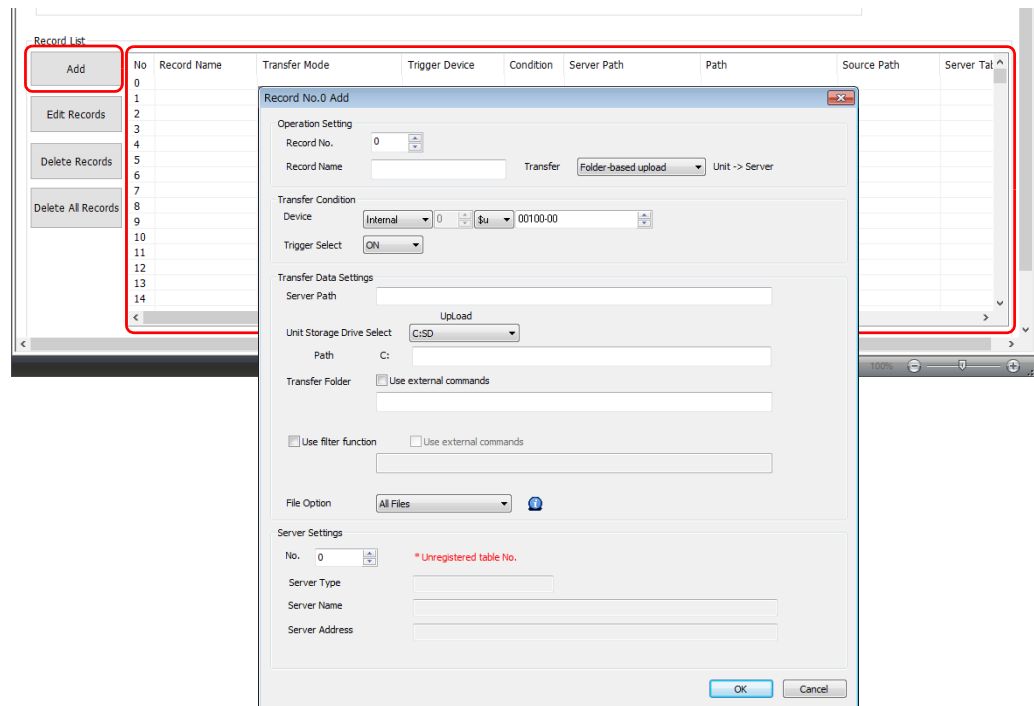
For details, refer to "Status Bar" page 6-129.

Record List



Item	Description
Add	Add a new record. For details, refer to "Record Editing Window".
Edit Records	Edit the currently selected record number. For details, refer to "Record Editing Window".
Delete Records	Delete the selected record.
Delete All Records	Delete all registered records.

Record editing window

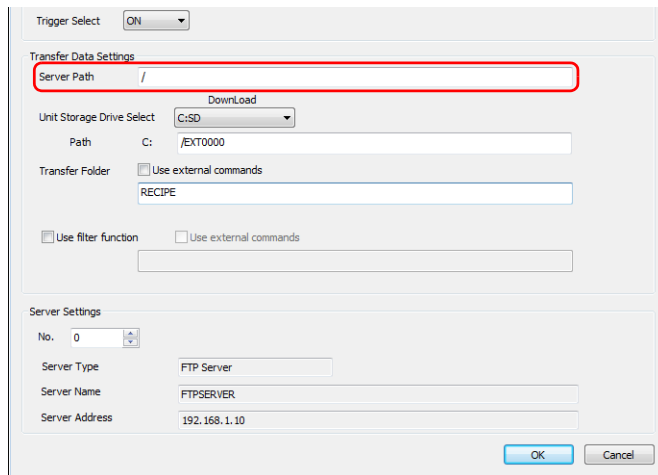


Item		Description
Operation Setting	Record No.	Select the record number for editing. No. 0 to 255
	Record Name	Register a record name. Within 32 one-byte alphanumeric characters
	Transfer	Select the data to transfer and the direction of the transfer. ([Unit]: storage device of V10/V9 series unit) File-based upload (From unit to server) Folder-based upload (From unit to server) File-based download (From server to unit) Folder-based download (From server to unit)
Transfer Condition	Device	Specify the device memory address that triggers the record.
	Trigger Select	Specify the bit operation (edge). *1 ON: Execute at OFF → ON. OFF: Execute at ON → OFF.

Item	Description
Transfer Data Settings	Server Path Specify the path of the server. Number of characters for a path: Within 255 one-byte characters (including ":" and "/") *2 *3
	Unit Storage Drive Select Select the storage device of the V10/V9 series unit. C: SD D: USB (USB flash drive etc.)
	Path Specify the path within the storage device of the V10/V9 series unit. Number of characters for a path: Within 255 one-byte characters (including ":" and "/") *2 *3
	Transfer File Transfer Folder Specify the name of the file or folder for transfer. When specifying a file, specify the extension as well. For device memory specification, NULL (0) is the terminator Within 256 one-byte alphanumeric characters *3 *4
	Transfer empty folders as well This can be selected when the transfer mode is set to "Folder-based download". When selected, empty folders will also be transferred.
	Use filter function *7 This checkbox can be selected when [Transfer] is set to "Folder-based upload" or "Folder-based download". The filter only targets files. Only the files that match the specified keyword are transferred. *5 Wildcards can be specified. *6 For device memory specification, NULL (0) is the terminator. Within 64 one-byte alphanumeric characters
	File Option This can be configured when the transfer mode is set to "Folder-based upload". Select the file for transfer in the transfer folder. All Files Latest File *8 Oldest File *8 One previous to latest file *8
Server Settings No.	Specify the number registered on the server list. No. 0 to 31

- *1 Level recognition is used to judge the bit status and thereby whether to start communication. For example, when [Trigger Select] is set to [ON], data transfer is executed when communication is started with the bit on the PLC in the ON status.
- *2 There is no path hierarchy limitation. However, note that there are some limitations as described below.
 - The path delimiter is a slash "/". "\" is not supported.
 - A delimiter at the end of the path is not required. However, if specifying a root directory, a delimiter is required.
 - Two-byte characters are not supported.

Example: Transferring to a root directory



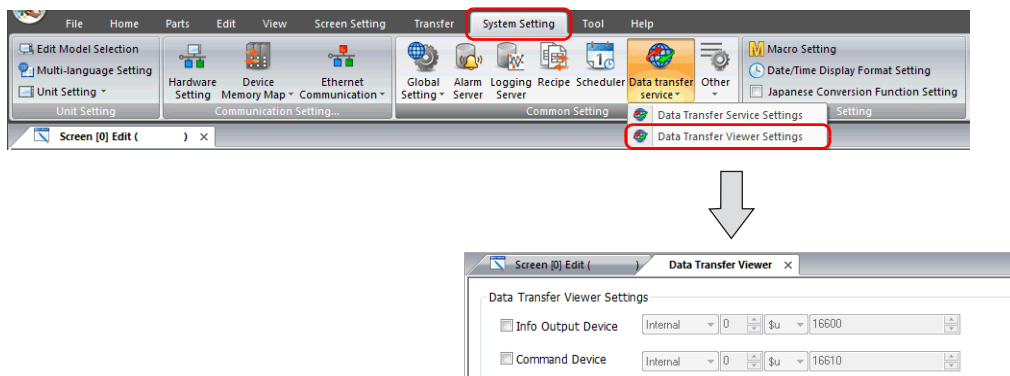
- *3 The total number of 1-byte characters in the path (server path when downloading) and the path set for the files and folders for transfer must not exceed 255.
- *4 The following limitations apply.
 - Unsupported characters: \ ; , < , > , and |
 - Two-byte characters are not supported.
- *5 The following limitations apply.
 - Unsupported characters: / \ ; , < , > , and |
 - Two-byte characters are not supported.
- *6 Supported wildcards: *, ?, and []
- *7 The filter function can also be used with the data transfer viewer.

For details on the operating method, refer to "Filter Function" page 6-124.

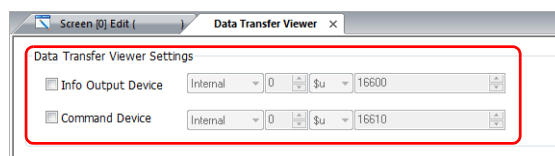
- *8 If there are multiple files with the same timestamp, all files are attached.

Data Transfer Viewer Settings

Click [System Setting] → [Data transfer service] → [Data Transfer Viewer Settings].
The [Data Transfer Viewer] tab window is displayed.



Data Transfer Viewer



Info output device

- When [Server Type] is "FTP" or "E-Mail (SMTP)"

Device Memory	Description																																																
	<p>Stores the display state of data transfer viewer and error information. For errors, the bit of the currently occurring error turns ON.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="8">MSB</th> <th colspan="8">LSB</th> </tr> <tr> <th>15</th><th>14</th><th>13</th><th>12</th><th>11</th><th>10</th><th>09</th><th>08</th><th>07</th><th>06</th><th>05</th><th>04</th><th>03</th><th>02</th><th>01</th><th>00</th> </tr> </thead> <tbody> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p> Display state of the data transfer viewer 0: Hide 1: Show </p> <p>Reserved for system (setting: 0)</p> <p> Definition error Closing error Directory creation error Download error Upload error Server authentication error Server connection error </p>	MSB								LSB								15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0		0	0							
MSB								LSB																																									
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																		
0	0	0	0	0	0		0	0																																									
	<table border="1" style="width: 100%;"> <thead> <tr> <th>Item</th> <th>Description</th> <th>Solution</th> </tr> </thead> <tbody> <tr> <td>Server connection error</td> <td>Timeout * The specified server does not exist.</td> <td>Check that the server to connect to exists. Check that the LAN cable is correctly connected.</td> </tr> <tr> <td>Server authentication error</td> <td>User ID and password settings are invalid.</td> <td>Check the ID and password you used for login.</td> </tr> <tr> <td>Upload error</td> <td>The specified file or folder does not exist.</td> <td>Check that the path of the data for transfer is correct.</td> </tr> <tr> <td>Download error</td> <td></td> <td>Check that the data for transfer exists.</td> </tr> <tr> <td>Directory creation error</td> <td>The specified data name does not exist.</td> <td>Check server settings. Check that the storage device is connected.</td> </tr> <tr> <td>Closing error</td> <td>Failed to establish connection with the server.</td> <td>Check that the LAN cable is correctly connected.</td> </tr> <tr> <td>Definition error</td> <td>An undefined error occurred.</td> <td>Check server settings.</td> </tr> </tbody> </table>	Item	Description	Solution	Server connection error	Timeout * The specified server does not exist.	Check that the server to connect to exists. Check that the LAN cable is correctly connected.	Server authentication error	User ID and password settings are invalid.	Check the ID and password you used for login.	Upload error	The specified file or folder does not exist.	Check that the path of the data for transfer is correct.	Download error		Check that the data for transfer exists.	Directory creation error	The specified data name does not exist.	Check server settings. Check that the storage device is connected.	Closing error	Failed to establish connection with the server.	Check that the LAN cable is correctly connected.	Definition error	An undefined error occurred.	Check server settings.																								
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	<p>* If a response is not received from the server for 15 seconds, the server will be disconnected.</p>																																																

Device Memory	Description		
n+1	Storage of error codes The most critical error code is stored. The next error code will not be saved until the cause of the stored error code is resolved.		
	Error Code	Description	Solution
	0	No error	-
	1	Timeout * The specified server does not exist.	Check that the server to connect to exists. Check that the LAN cable is correctly connected.
	2	User ID and password settings are invalid.	Check the ID and password you used for login.
	3	The save destination path, transfer source path, and transfer data name for upload are invalid.	Check that the transferred data exists and that the paths are correct. Check server settings. Check that the storage device is connected.
	4	The save destination path, transfer source path, and transfer data name for download are invalid.	
	5	The specified data name does not exist.	
	6	Cannot establish connection properly with the server.	Check that the LAN cable is correctly connected.
7	An undefined error occurred.	Check server settings.	
* If a response is not received from the server for 15 seconds, the server will be disconnected.			

• When [Server Type] is "Cloud"

Device Memory	Description																																		
n	Storage of the display state of the data transfer viewer and error information For errors, the bit of the currently occurring error turns ON.																																		
	<p>MSB</p> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td>0</td><td>0</td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p>LSB</p> <p>Reserved for system (setting: 0)</p> <p>Display state of the data transfer viewer 0: Hidden 1: Shown</p> <p>Internal error</p> <p>Directory creation error</p> <p>Download error</p> <p>Upload error</p> <p>Server authentication error</p> <p>Server connection error</p>			15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0		0	0		0					
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
	0	0	0	0	0	0		0	0		0																								
	Item	Description	Solution																																
	Server connection error	Timeout * The specified server does not exist.	Check that the server to connect to exists. Check that the LAN cable is correctly connected.																																
	Server authentication error	Domain and active ID settings are invalid.	Check the domain and active ID settings. Check that the domain and cloud data service license are not expired. Check that the domain and cloud data service license are registered.																																
	Upload error	The save destination path, transfer source path, and transfer data name for upload are invalid. Insufficient cloud server capacity	Check that the transferred data exists and that the paths are correct. Check server settings. Check that the storage device is connected. Check that there is enough space on the cloud server.																																
	Download error	The save destination path, transfer source path, and transfer data name for download are invalid.	Check that the transferred data exists and that the paths are correct. Check server settings.																																
	Directory creation error	The specified data name does not exist.	Check that the storage device is connected.																																
Internal error	A cloud internal error occurred.	Contact your local sales representative.																																	
* If a response is not received from the server for 15 seconds, the server will be disconnected.																																			

Device Memory	Description			
n+1	Storage of error codes The most critical error code is stored. The next error code will not be saved until the cause of the stored error code is resolved.			
	Error Code	Description	Solution	
	0	No error	-	
	1	Timeout * The specified server does not exist.	Check that the server to connect to exists. Check that a connection with the global network can be established. Check that the LAN cable is correctly connected.	
	2	Domain and active ID settings are invalid.	Check the domain and active ID settings. Check that the domain and cloud data service license are not expired. Check that the domain and cloud data service license are registered.	
	3	The save destination path, transfer source path, and transfer data name for upload are invalid. Insufficient cloud server capacity	Check that the transferred data exists and that the paths are correct. Check server settings. Check that the storage device is connected. Check that there is enough space on the cloud server.	
	4	The save destination path, transfer source path, and transfer data name for download are invalid.	Check that the transferred data exists and that the paths are correct. Check server settings. Check that the storage device is connected.	
	5	The specified data name does not exist.		
7	A cloud internal error occurred.	Contact your local sales representative.		
* If a response is not received from the server for 15 seconds, the server will be disconnected.				
n+2, n+3	Storage of error detail codes			
	Error Code			Description
	n	n+2	n+3	
	0	0	0	Normal
	Bit 0: ON	-1	-1	No response
	Bit 1: ON	310	0	Authentication failure
		320	0	Target domain not registered
		330	0	Expired license
	Bit 2: ON	6	125	File not specified or file size "0"
		9	0	Inaccessible folder specified
		20	131	Excessive data size
		80	122	Invalid folder path format
		80	123	Invalid filename format
		81	122	Invalid folder path length
		81	123	Invalid filename length
		9011	0	File system error
	Bit 3: ON	9	0	Inaccessible folder specified
		22	124	Folder does not exist.
		22	125	File does not exist
		80	122	Invalid folder path format
		80	123	Invalid filename format
		81	122	Invalid folder path length
		81	123	Invalid filename length
		9011	0	File system error
	Bit 4: ON	-1	-1	Storage device disconnection during download Downloading of empty folder attempted
	Bit 6: ON	7	0	Invalid request format
		90	0	Invalid request received
		91	0	Invalid request version
9010		0	Database error	
9019		0	Unexpected error	
82		132	Invalid upload type	

Command device memory

Device Memory	Description																																					
n	<p>Device memory allocation is as follows.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">MSB</td> <td style="text-align: center;">15</td> <td style="text-align: center;">14</td> <td style="text-align: center;">13</td> <td style="text-align: center;">12</td> <td style="text-align: center;">11</td> <td style="text-align: center;">10</td> <td style="text-align: center;">9</td> <td style="text-align: center;">8</td> <td style="text-align: center;">7</td> <td style="text-align: center;">6</td> <td style="text-align: center;">5</td> <td style="text-align: center;">4</td> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">LSB</td> </tr> <tr> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> </tr> </table> <p style="margin-left: 100px;">Reserved for system</p> <p style="margin-left: 300px;">Viewer ^{*1} ————</p> <p style="margin-left: 300px;">1 → 0 (edge): Hide</p> <p style="margin-left: 300px;">0 → 1 (edge): Show</p> <p style="margin-left: 600px;">1: Transfer cancellation ^{*2}</p>	MSB	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MSB	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB																					
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																					

*1 If the display bit is ON when entering RUN mode, the data transfer viewer is displayed.

*2 Data transfer can also be cancelled from the status bar.

For details, refer to ["Status Bar" page 6-129](#).

6.11.6 FTP Server Settings


The server must have an FTP server built up. Refer to the following.

Server: Computer etc.

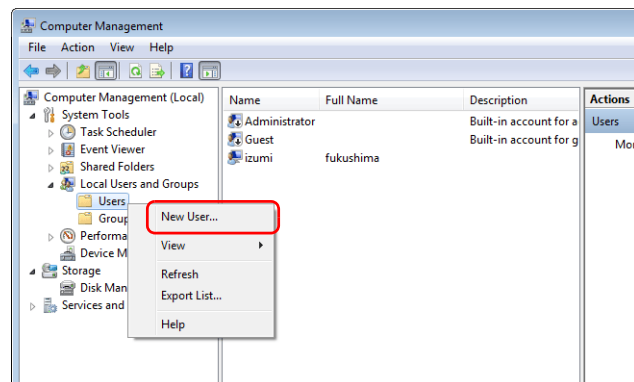
FTP server settings differ according to the FTP server to use and tools. Refer to respective manuals. This section describes the settings for Microsoft Internet Information Services (IIS) as an example.

Creating a User Account for Logging Onto FTP

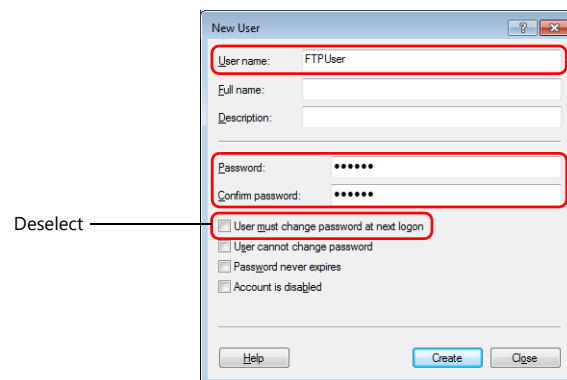
This procedure is for creating a new local user account.

-  This setting is not required if using an existent local user account. Install IIS.
For details, refer to ["IIS installation"](#) page 6-114.

1. Double-click [Computer Management] from [Control Panel] → [Administrative Tools].
2. Right-click on [Users] under [Local Users and Groups] and click on [New User].

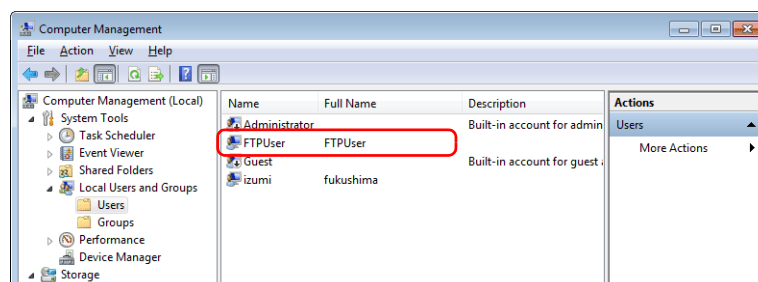


3. Enter a user name and password respectively. Deselect the [User must change password at next logon] checkbox and then click [Create].



* The user name and password are required for using the data transfer service function of V-SFT. Take care not to lose them.

4. Click [Close]. A new local user will be added.

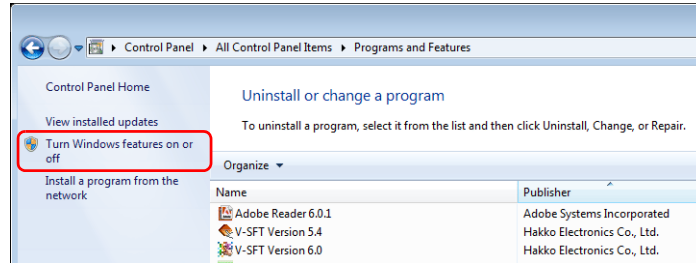


IIS Settings

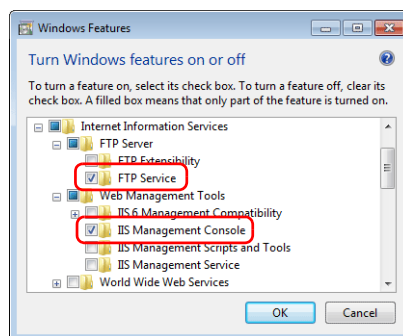
This section describes the installation procedure for IIS and FTP server settings.

IIS installation

1. Click on [Turn Windows features on or off] from [Control Panel] → [Programs and Features].

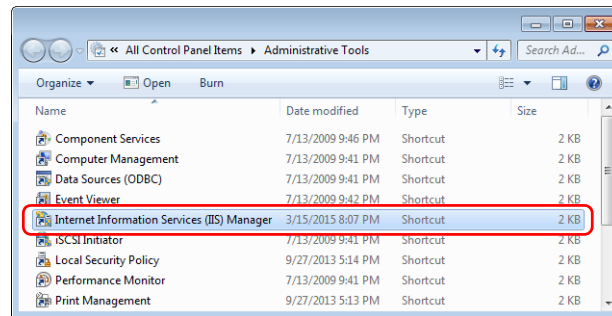


2. Select the [FTP Service] and [IIS Management Console] checkboxes under [Internet Information Services] and click [OK].

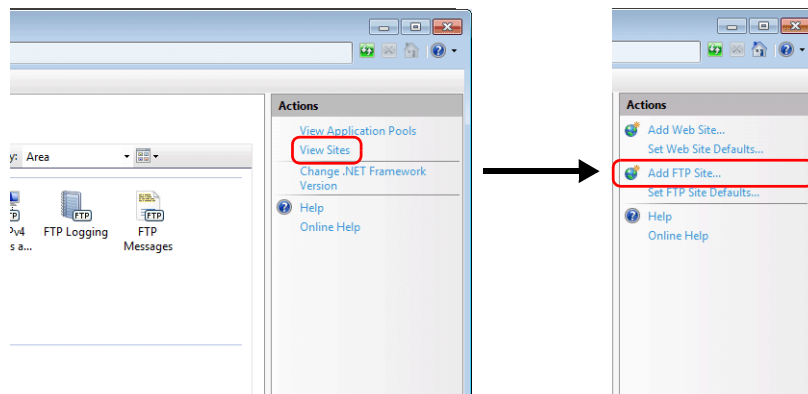


FTP server settings

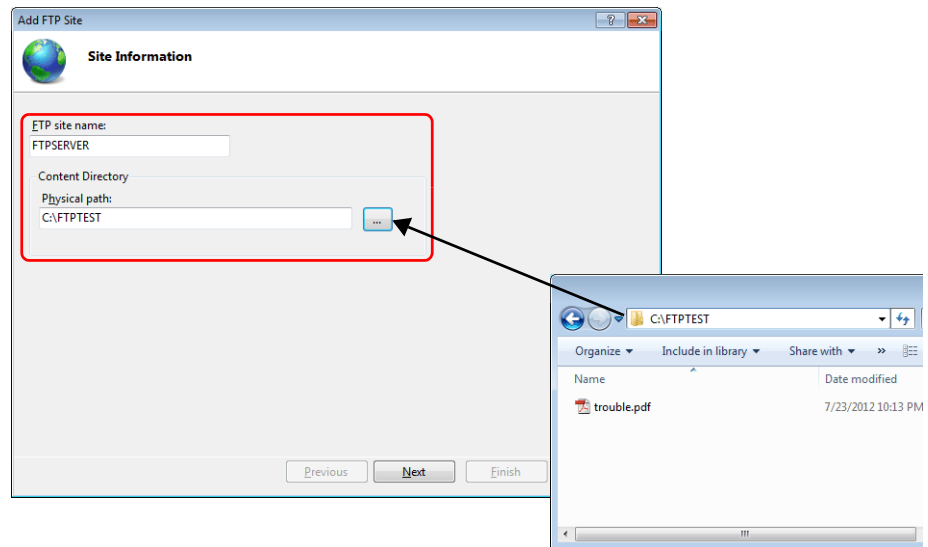
1. Double-click [Internet Information Services (IIS) Manager] from [Control Panel] → [Administrative Tools]. The Internet Information Services (IIS) Manager starts up.



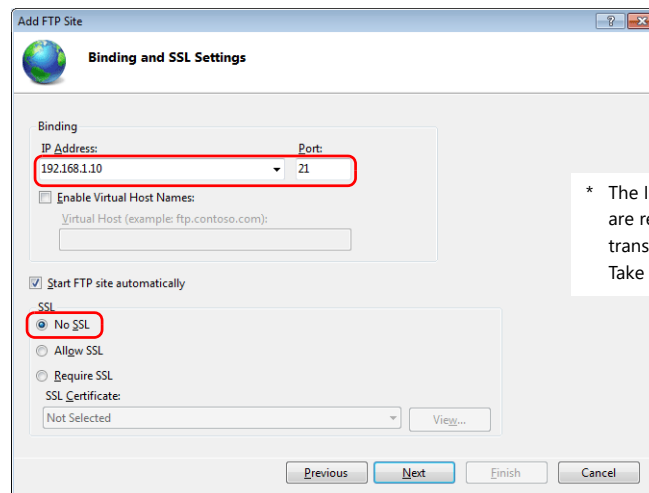
2. In the right pane of the window, click [View Sites] → [Add FTP Site].



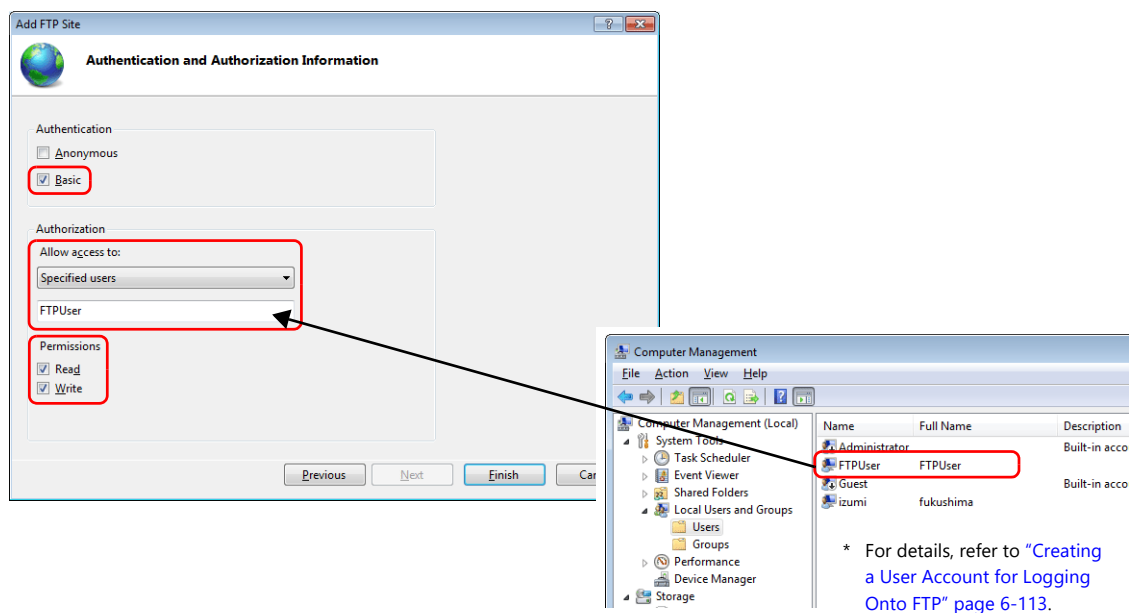
3. Fill in the [FTP site name] and [Content Directory] fields and click [Next].



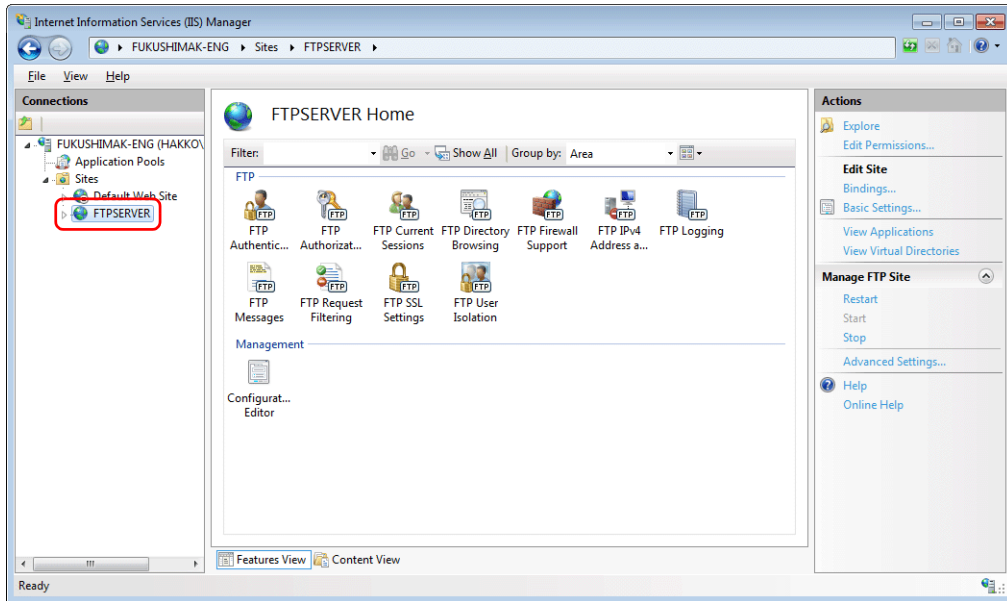
4. Select the IP address of your computer. Then select [No SSL] for [SSL] and click [Next].



5. Configure [Authentication] and [Authorization] as follows.
For [Allow access to], select [Specified users] and input the local user name for logging onto the FTP.



6. Click [Finish]. A new FTP server setting is added.



Checking FTP Server Logon

This section describes the procedure for checking if you can log onto the FTP server by using a Command Prompt window.

1. Click on [Command Prompt] from the computer's start menu → [All Programs] → [Accessories]. A command prompt window opens.
2. In the command prompt window, enter "ftp", a one-byte space, and the server's IP address in order and press the [Enter] key.

```

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Fukushima>ftp 192.168.1.10
  
```

3. Enter the user name for logging onto the FTP and press the [Enter] key.

```

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Fukushima>ftp 192.168.1.10
Connected to 192.168.1.10.
220 Microsoft FTP Service
User (192.168.1.10:(none)): FTPUser
  
```

* For details, refer to "Creating a User Account for Logging Onto FTP" page 6-113.

4. Enter the password for the user name entered in step 3 and press the [Enter] key.

```

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Fukushima>ftp 192.168.1.10
Connected to 192.168.1.10.
220 Microsoft FTP Service
User (192.168.1.10:(none)): FTPUser
331 Password required for FTPUser.
Password: ftp123
  
```

Example: ftp123

* Nothing is displayed and the cursor will not move during password entry.

Logon is successful when "230 User logged in." is displayed.

```

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Fukushima>ftp 192.168.1.10
Connected to 192.168.1.10.
220 Microsoft FTP Service
User (192.168.1.10:(none)): FTPUser
331 Password required for FTPUser.
Password:
230 User logged in.
ftp>
  
```

Connection successful



When logon doesn't succeed

- Settings for the IIS, user name and password may be incorrect. Check the settings.
- Firewall may be enabled. Disable firewall and perform the check again.

Server: V10/V9 Series Unit



For details on settings, refer to "Setting Example 2: When Server is a V10/V9 Unit" page 6-95.

6.11.7 Data Transfer Viewer

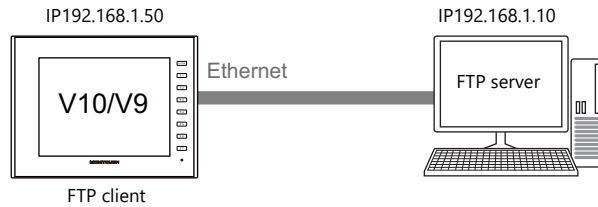
The viewer can be used to upload and download folders and files.

Setting Example

Server Settings

This section describes the settings for when the server is a computer or a V10/V9 series unit.

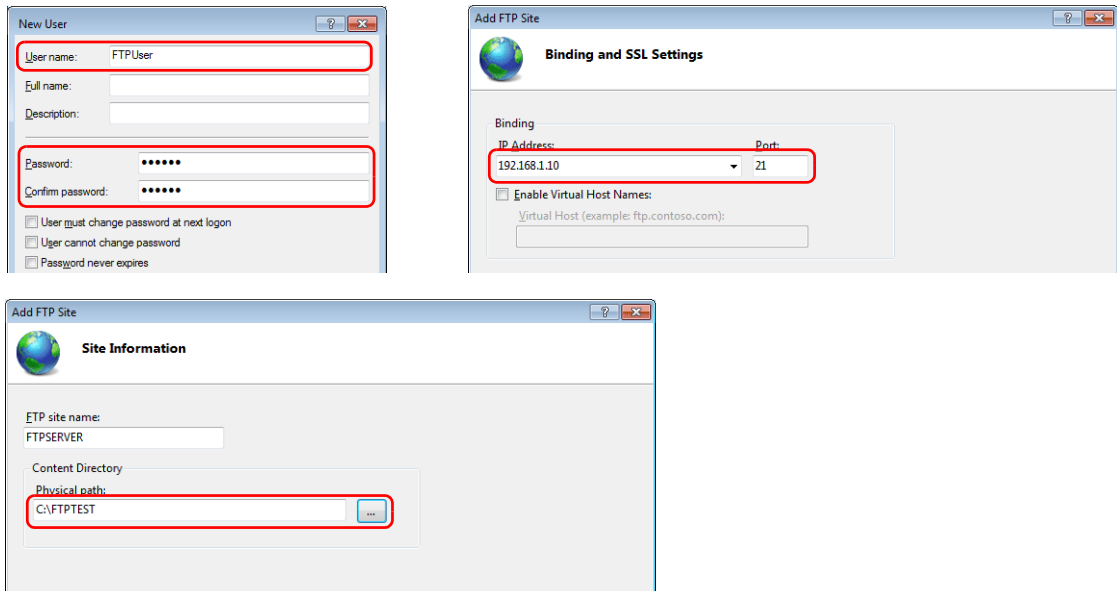
Example: When the server is a computer



When the server is a computer

Refer to the manual of the tool to use.

Example: Microsoft Internet Information Services (IIS)

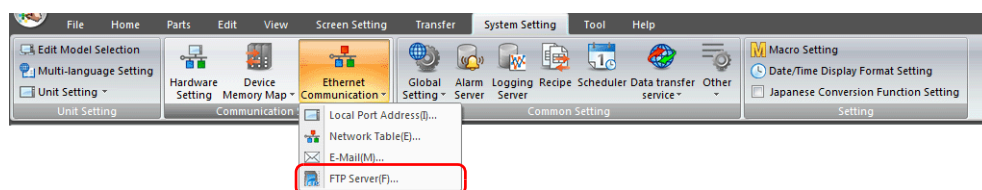


User name	FTPUser
Password	ftp123
IP Address	192.168.1.10
Port	21 (default)
Server directory	C:\FTPTEST

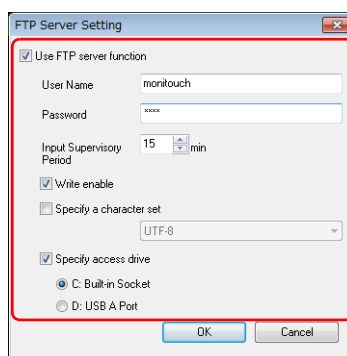
For details, refer to "Server: Computer etc." page 6-113.

When the server is a V10/V9 series unit

1. Click [System Setting] → [Ethernet Communication] → [FTP Server].



2. The [FTP Server Setting] window is displayed. Configure the following settings.



Use FTP server function *1	Selected
User Name	monitouch *2
Password	9999 *2
Input Supervisory Period	15 min
Write enable	Selected
Specify access drive	Selected C: Built-in Socket

*1 For details on the FTP server function, refer to "6.9 FTP Server".

*2 User name and password registration

In addition to registration by computer or the V-SFT Ver. 6 screen configuration software, the user name and password used by the FTP server function can also be registered in Local mode on the V10/V9 series unit. For details, refer to the following manuals.

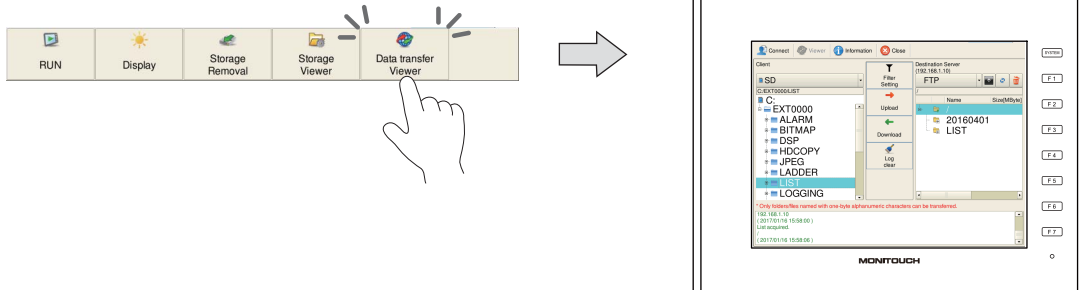
- V10 Series Unit Operation / Local Mode / Error Screen Manual
- V9 Series Troubleshooting/Maintenance Manual

Displaying the Viewer

The viewer can be displayed from the system menu, using a switch part, or by a command from a PLC.

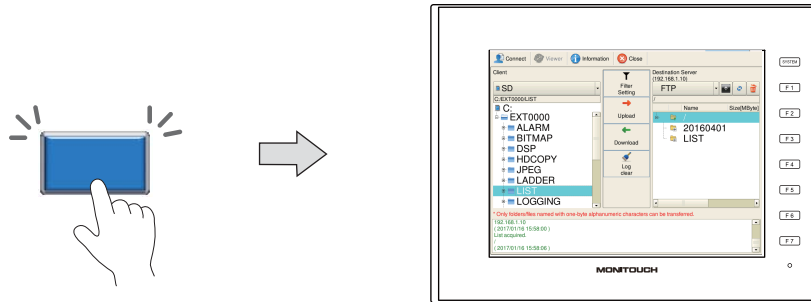
System menu

No settings are required.

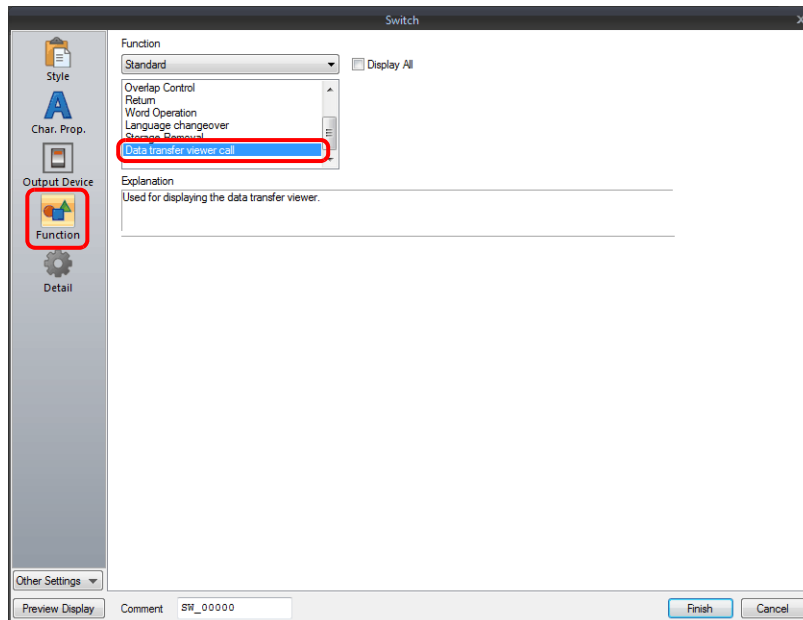


Switch

Display the data transfer viewer using a switch placed on the screen.



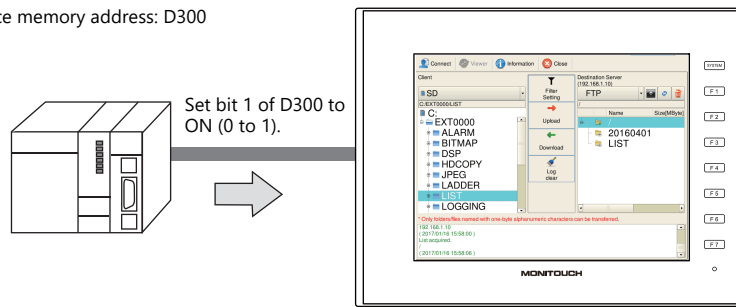
1. Place a switch from the [Parts] menu.
2. Select [Function] → [Standard] → [Data transfer viewer call].



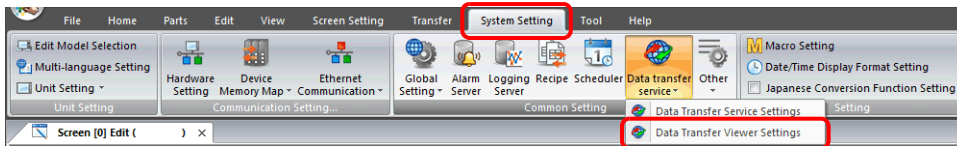
PLC Command

Display the data transfer viewer by a command from the PLC.

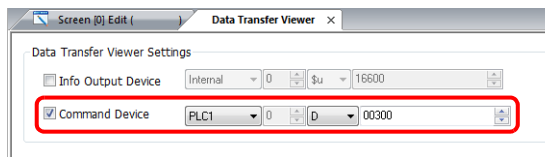
Command device memory address: D300



Click [System Setting] → [Data transfer service] → [Data Transfer Viewer Settings] and set the command device memory address.



Example: D300



Display using bit 1 of D300

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

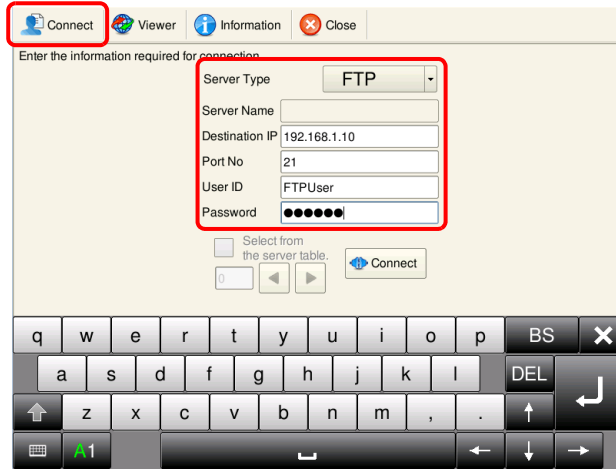
Reserved for system

Viewer
1 → 0 (edge): Hide
0 → 1 (edge): Show

1: Transfer cancellation

Client Settings (V10/V9)

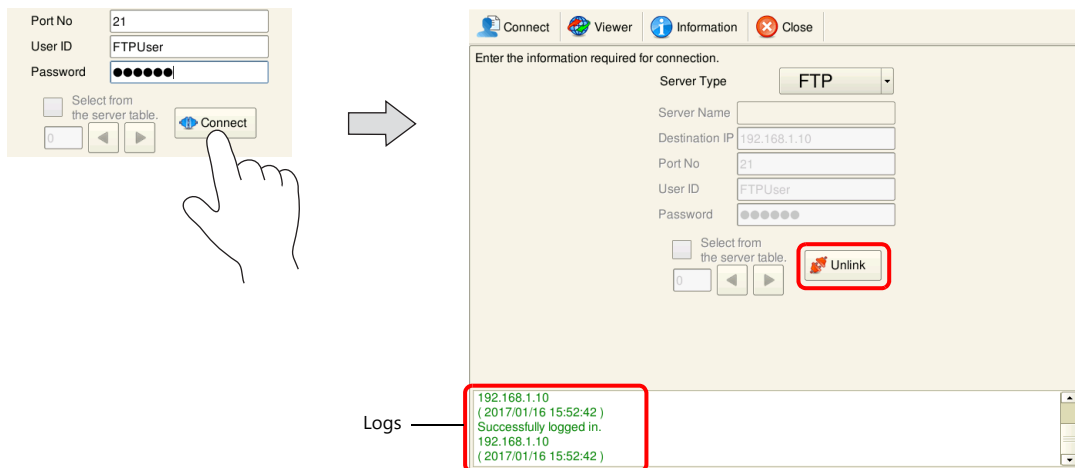
1. Display the data transfer viewer.
 - ☞ For details on the display method, refer to “Displaying the Viewer” page 6-120.
2. The following [Connect] menu is displayed first. Tap each setting to set the same values as the server settings for [Destination IP], [Port No], [User ID] and [Password].



By selecting the [Select from the server table] checkbox, a server can be specified by the table number it is registered in at [System Setting] → [Data transfer service] → [Data Transfer Service Settings] → [List of Destination Servers] in the screen program.

No.	Server Type	Connection Mode	Server Name	Connection Destination	Port No.	User ID	Password
0	FTP	Passive mode	FTPSERVER	192.168.1.10	21	FTPUser	*****
1							
2							
3							
4							

3. Tap the [Connect] button. If a connection is successfully established with the server, the log displays “Successfully logged in.” and the [Connect] button changes to an [Unlink] button.



If connection with the server fails, the log displays “Cannot find the specified server. Check the setting.” Check the Ethernet environment and settings and then tap [Connect] again.



This completes the necessary settings.

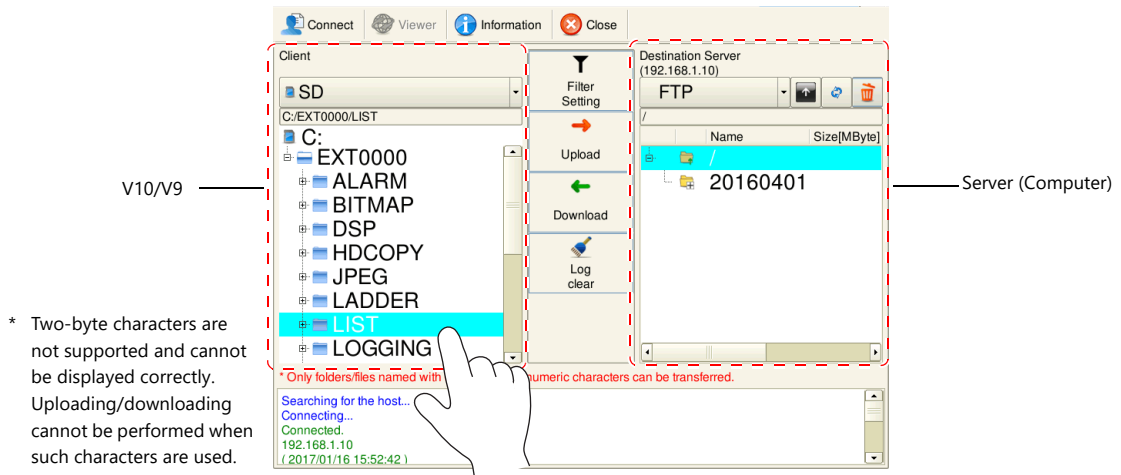
- ☞ For details on the operating method, refer to “Operation Example” page 6-123.

Operation Example

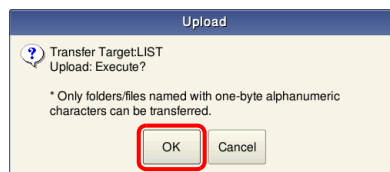
Uploading Folders

This section describes the procedure for uploading (PUT) the "LIST" folder on the client (V10/V9) to the server.

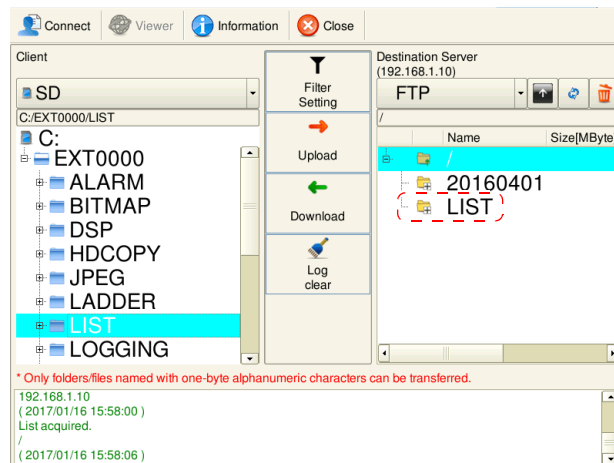
1. Display the data transfer viewer.
2. Select the "LIST" folder in the client (V10/V9) list.



3. Tap [Upload]. A confirmation dialog appears. Tap [OK].



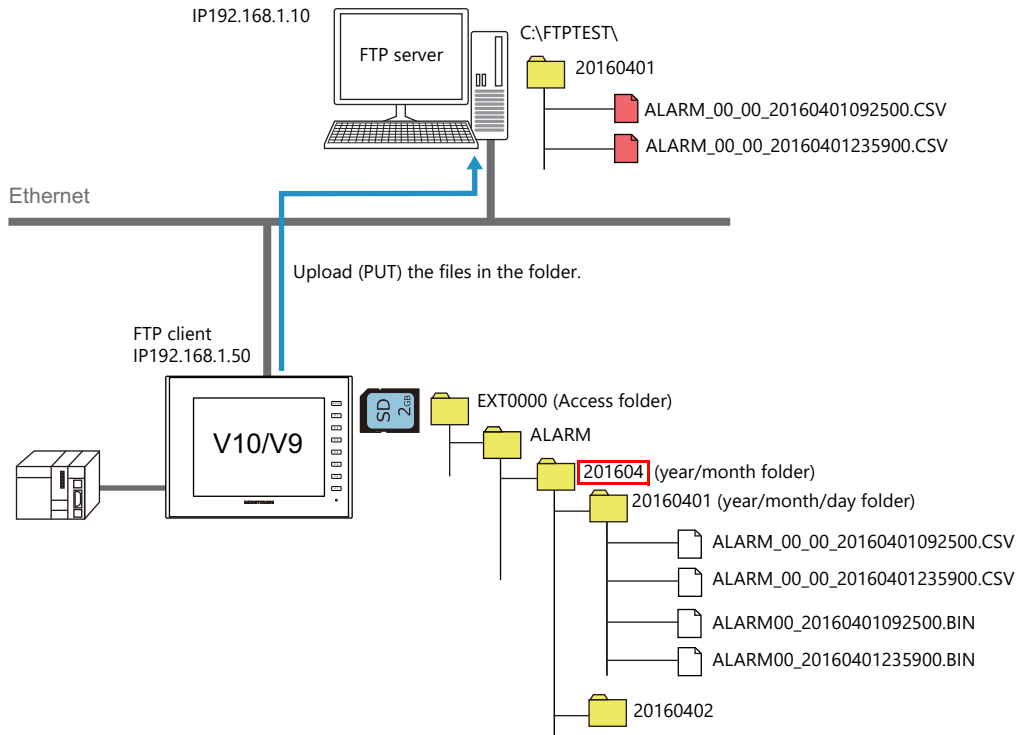
4. The "LIST" folder is uploaded to the server.



- * If the same folder name already exists, the folder will be overwritten.

Filter Function

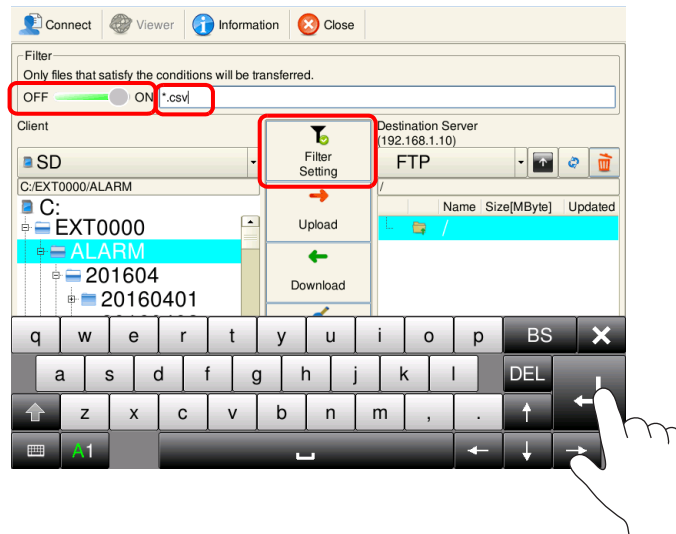
This section describes the procedure for uploading (PUT) only CSV files in the "ALARM" folder on the client (V10/V9) to the server.



1. Display the data transfer viewer.
2. Select the "ALARM" folder in the client (V10/V9) list.

* Two-byte characters are not supported and cannot be displayed correctly. Uploading/downloading cannot be performed when such characters are used.

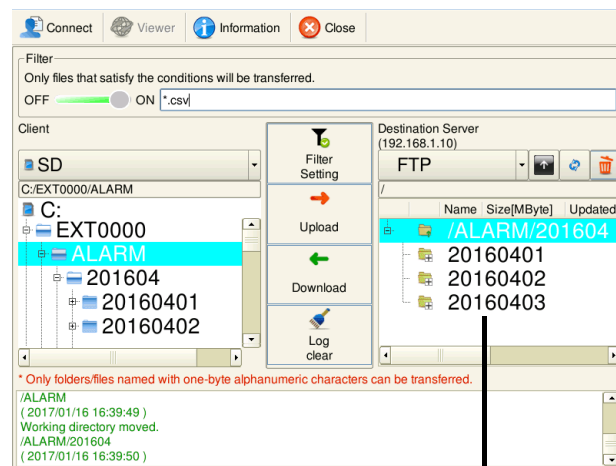
3. Tap [Filter Setting]. Set the filter menu switch to [ON] and input "*.csv".



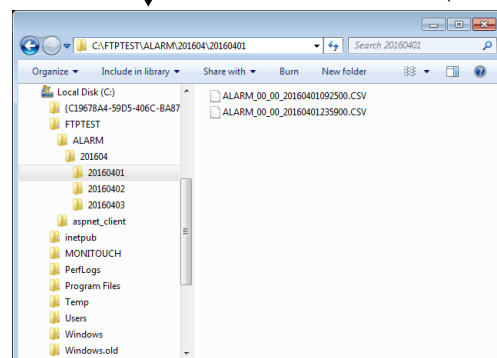
4. Tap [Upload]. A confirmation dialog appears. Tap [OK].



5. All CSV files in the "ALARM" folder are uploaded to the server.



On the server (computer)

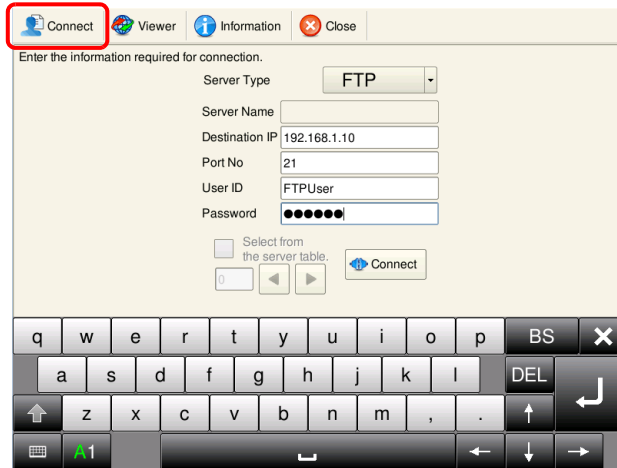


- * If the same folder name already exists, the folder will be overwritten.

Configuration of the Data Transfer Viewer



Connect



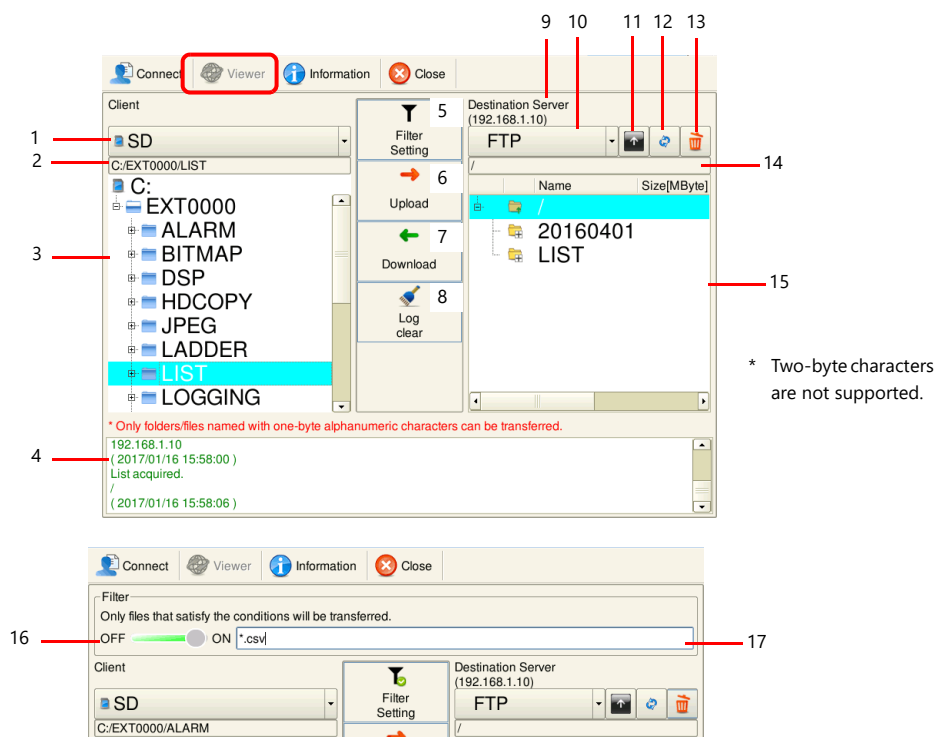
* The connection mode is fixed to passive mode.

Item	Description	Remarks
Server Type	FTP/Cloud *1	
Server Name *2	Displays the server name.	Only displayed when the [Select from the server table] checkbox is selected.
Destination IP *2	Specify the IP address of the server.	Set same values as server's settings.
Port No *2	Specify the control port number of the server. (Default: 21)	Set same values as server's settings.
User ID *2	Specify the user ID (user name). Within 16 one-byte characters	Set same values as server's settings.
Password *2	Specify the password. Within 16 one-byte alphanumeric characters	Set same values as server's settings.
Select from the server table	A server can be specified by the table number it is registered in at [System Setting] → [Data transfer service] → [Data Transfer Service Settings] → [List of Destination Servers] in the screen program.	
Connect/Unlink	Connect to and disconnect from the server.	

*1 For details on cloud support, refer to the Web Machine Interface Manual.

*2 The information registered in the specified table number is displayed when the [Select from the server table] checkbox is selected.

Viewer

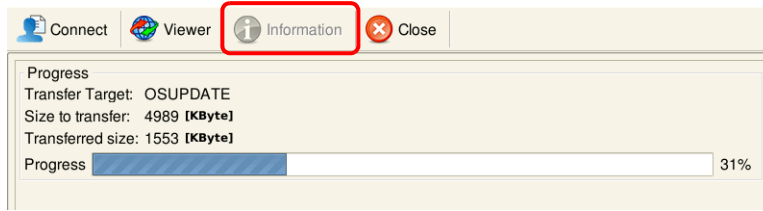


Item	Description	Remarks
1. Storage device selection	Select the storage device of the V10/V9 series unit (client).	Client setting
2. Path display	Displays the path corresponding to the cursor selection.	Client setting
3. File information	Displays the folders and files stored in the storage device specified at "1." Select the folder/file to be transferred.	Client setting
4. Log display	Displays the execution result of connection/disconnection and transfers. The message color differs depending on the result. Green: Success Blue: Connected/searching Red: Failed	For details, refer to "Log Display" page 6-128.
5. Filter setting	Displays the filter menu. A green check mark appears when the filter switch is [ON].	
6. Upload	Transfers the folder/file selected on the client to the path selected on the server.	
7. Download	Transfers the folder/file selected on the server to the path selected on the client.	
8. Log clear	Clears the log displayed at "4."	
9. Server IP address	Displays the IP address of the currently connected server.	Server setting
10. Server selection	FTP/Cloud *1	Server setting
11. Change directory	Move one level up in the hierarchy.	Server setting
12. Refresh directory	Refresh the directory to the latest state.	Server setting
13. Delete	Deletes the folder/file selected on the server.	Server setting
14. Path display	Displays the path corresponding to the cursor selection.	Server setting
15. File information	Displays the folders and files stored on the server specified at "11." Select the folder/file to be transferred.	Server setting
16. Filter switch	Select whether or not to use the filter function. Change the switch to [ON] to use the filter function.	
17. Filter keyword	The filter only targets files. Only the files that match the specified keyword are transferred. Wildcards can be specified. Within 64 one-byte alphanumeric characters	Supported wildcards: *, ?, and [] * Unsupported characters: /, \, ;, ", <, >, and * Two-byte characters are not supported.

*1 For details on cloud support, refer to the Web Machine Interface Manual.

Information

The folder/file currently being transferred and the progress of the data transfer are displayed.



* [Size to transfer], [Transferred size], and [Progress] are shown per file.

Close

Tapping this button closes the data transfer viewer. The data transfer viewer can be closed while uploading and downloading is in progress.



Log Display

The execution result of connection/disconnection and transfers is displayed in the area below the data transfer viewer. The message color differs depending on the result (green: success, blue: connected/searching, red: failed). If the result is failed (red), check the following.

Operation	Description	Solution
Connect	Login failed.	Check the ID and password you used for login.
	Cannot find the specified server. Check the setting.	Check that the IP address of the server specified on the [Connect] screen is correct.
	Information required for connection is not entered.	Check that the IP address and port number of the server are entered correctly on the [Connect] screen.
Directory change	Failed to move the working directory.	Check that the specified path exists on the server.
	Failed to acquire the list.	
Upload	[File] Uploading failed.	<ul style="list-style-type: none"> Check that there are no 2-byte character in the selected folder/file name. Check whether the specified data exists on the client. Check whether the path specified on the server exists. Check whether there is enough free space on the server. Check the server settings.
	[Folder] Uploading failed.	
Download	[File] Downloading failed.	<ul style="list-style-type: none"> Check that there are no 2-byte character in the selected folder/file name. Check whether the specified data exists on the server. Check whether the path specified on the client exists. Check whether there is enough free space on the client storage device. Check the server settings.
	[Folder] Downloading failed.	
Upload Download	No directory is selected on the server side.	Select a folder or file on the server.
	No directory is selected on the client side.	Select a folder or file on the client.
Delete	[File] Deletion failed.	<ul style="list-style-type: none"> Check whether the path specified on the server exists. Check the server settings.
	[Folder] Deletion failed.	
Transfer quitting	Failed to quit transferring.	Check the network environment.
Connection/upload/download/delete/refresh/directory change	Sending a request to the server. Try again later.	A folder/file is currently being transferred. Try again after transfer is complete.
Connected	Connection disconnected.	<ul style="list-style-type: none"> Check the server settings. Check the network environment. (When a request is sent to the server, the client automatically disconnects from the server if the request is not acknowledged within 15 seconds.)

6.11.8 Checking the Transfer Status

System Device Memory (\$s)

The following describes the system device memory.

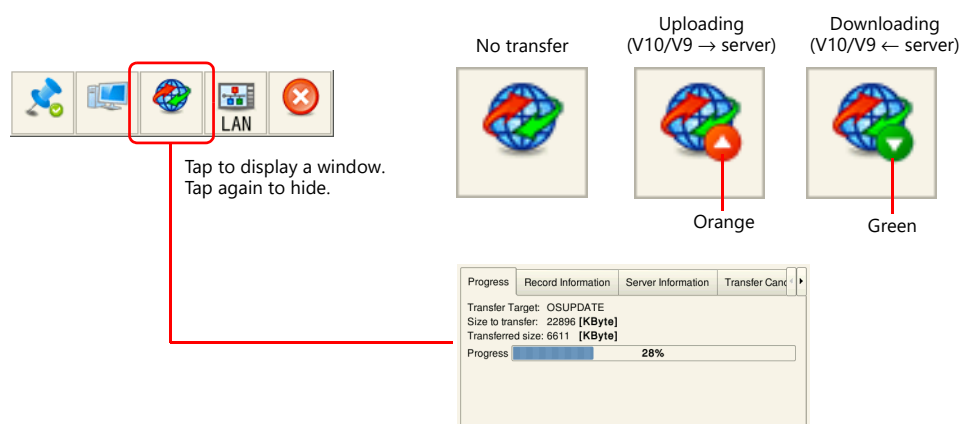
Address	Description	Remarks
\$s1690	Checking of FTP communication status 0: Not communicating 1: Upload (PUT) 2: Download (GET)	← V
\$s1691 *	Record number in execution (only when \$s1690 is set to 1 or 2)	← V
\$s1692 *	Server table number in execution (only when \$s1690 is set to 1 or 2)	← V

* "-1" is stored when the data transfer viewer during transfer.

Status Bar

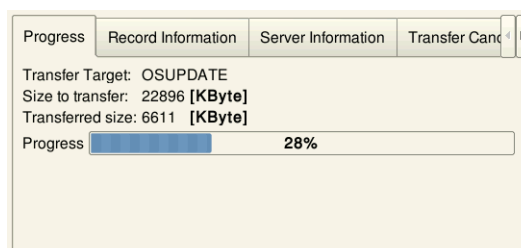
The status bar displays the current data transfer status.

Press the icon to check the progress of a transfer or the detailed information of the data for transfer. Cancellation of data transfer is also possible.



Progress

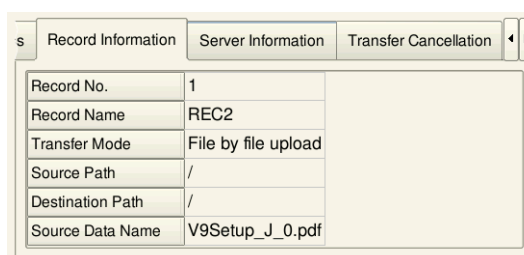
The file currently being transferred and the progress of the data transfer is displayed.



* [Size to transfer], [Transferred size], and [Progress] are shown per file.

Record information

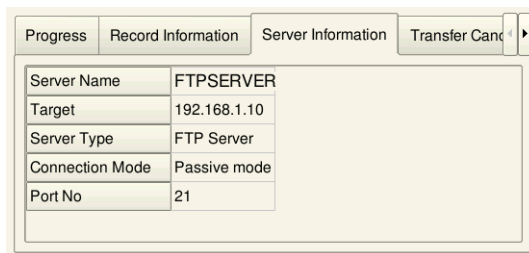
The record number of the current data transfer and its detailed information is displayed.



* [Record No.] and [Record Name] are not displayed when using the data transfer viewer.

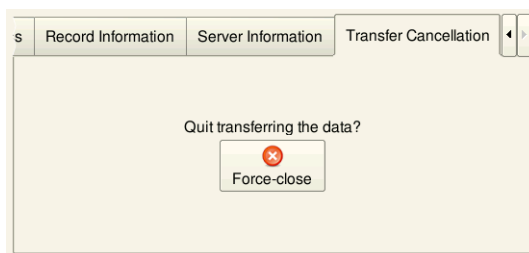
Server information

The information of the server with which the current data transfer is being executed is displayed.



Transfer cancellation

The data transfer is forcibly cancelled.



* **Data transfer can also be cancelled by a PLC bit command.**



For details, refer to ["Command device"](#) page 6-106 under "Data Transfer Service Settings."

For details, refer to ["Command device memory"](#) page 6-112 under "Data Transfer Viewer Settings."

6.11.9 Limitations

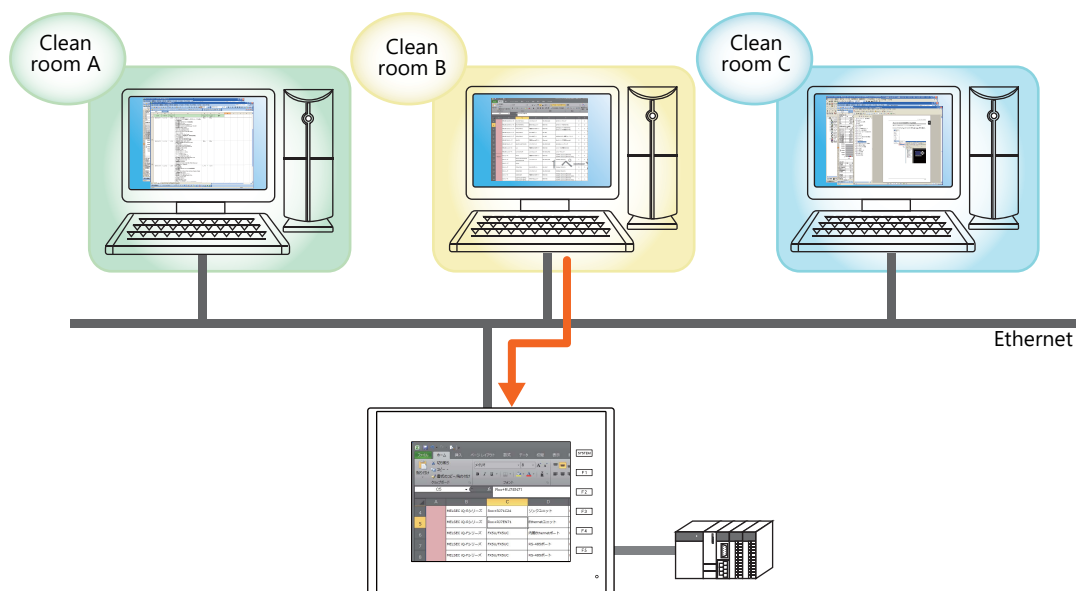
- Operation when the same data exists at the transfer destination:
 - Download (GET): Overwrite
 - Upload (PUT): Depends on server settings
- Files for which transfer was cancelled or failed to transfer are not saved at the transfer destination (when downloading only).
- When a transfer is cancelled or Ethernet communication is disconnected, all records currently in queue for transfer are cancelled.
- The Local mode screen cannot be displayed during data transfer.
- When a request (connection, upload, download, delete, refresh, or directory change) is sent to the server and it is not acknowledged within 15 seconds, processing is forcefully terminated and the client disconnects.

6.12 Remote Desktop

6.12.1 Overview

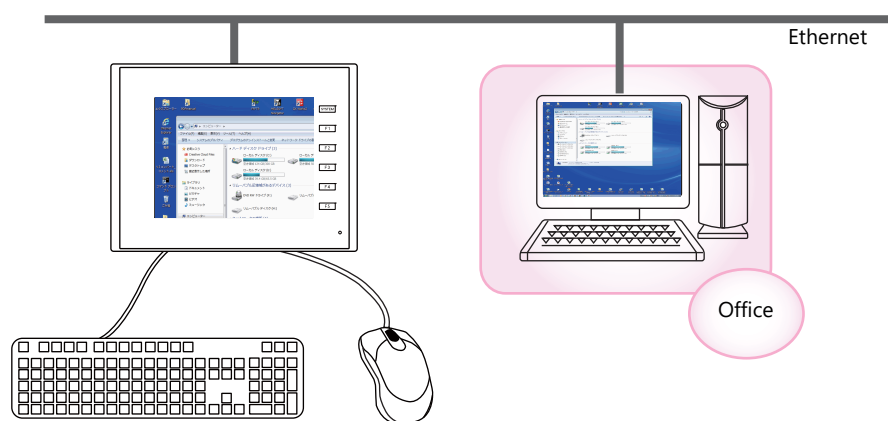
- The remote desktop window display function enables you to view remote computer screens on the V10/V9 series. This function serves the purpose of remote monitoring through a V10/V9 series unit connected to, for instance, a server (computer) that controls the entire production line or computers that are installed in a clean room where access is limited.

Example: Monitoring a server (computer) in clean room B



- It is also possible to operate the screens of remote computers from a V10/V9 series unit while you are using a mouse and keyboard connected to the V10/V9 series unit. You can easily enter data or read manuals through the V10/V9 series unit even if you are at the work site where it is difficult to bring a computer with you.

Example: Searching for documents on a computer in the office



 Refer to "6.12.6 Window Configuration and Operation" page 6-141

6.12.2 Specifications

V10/V9 Specifications

Item	Description	Remarks
Applicable Models	All V10/V9 series models	
Port used	LAN LAN2 WLAN	Not available with CUR-03
Display scrolling	Possible	Implemented using scroll bars. Swipe gestures are not supported.
Number of simultaneous computer connections	1	
USB mouse	Supported	The left-click button, right-click button, and wheel on USB mice are supported.
USB keyboard	Supported	
Computer screen rotation	Possible	0°, 90°, 270°
Full screen to minimized display	Possible	100% (actual) to 1/2, 1/3, and 1/4

Server (Computer)

Item	Description
OS	Windows 7/8/8.1/10
Protocol	TCP/IP

6.12.3 Required Settings

Server (computer) settings

- [Installing and Configuring UltraVNC page 6-133](#)

About VNC (Virtual Network Computing)

This software is developed by AT&T Laboratories Cambridge (U.K.) and designed to operate remote computer screens across a network.

V10/V9 series unit settings

No settings are required.

V-SFT settings

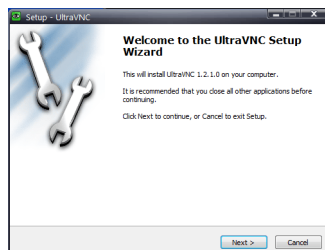
- [Remote Desktop Table Setting page 6-135](#)
- [Remote Desktop Window Display Procedure page 6-136](#) (three methods)
 - [Placement of a display area to show remote desktop window page 6-136](#)
 - [Switch to show/hide remote desktop window page 6-138](#)
 - [Showing/hiding using a macro command page 6-139](#)

6.12.4 Server (Computer) Settings

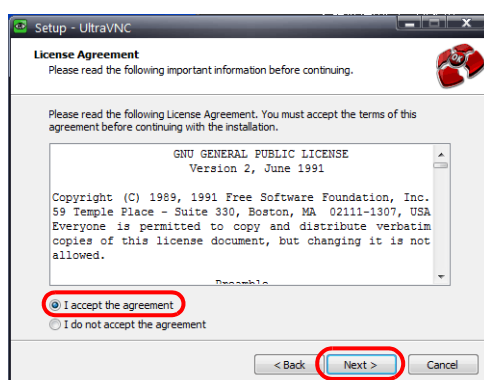
Installing and Configuring UltraVNC

This section describes the settings necessary for remote desktop window display using UltraVNC as an example.

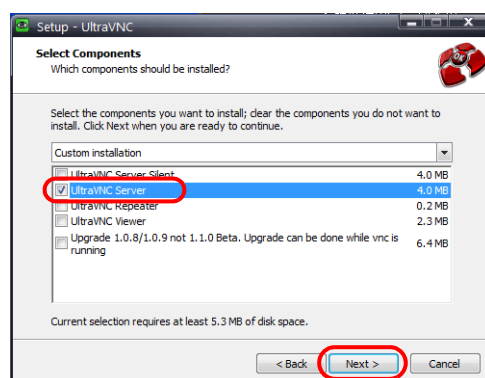
1. Access the following URL to download UltraVNC.
<https://www.uvnc.com/downloads/ultravnc.html>
2. Execute the downloaded file to start the installation process.



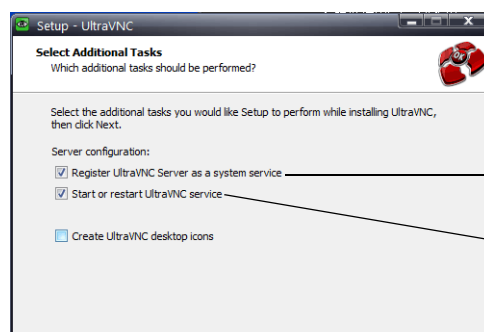
3. Read the license agreement and if you agree to the terms and conditions, select [I accept the agreement] option and click the [Next] button.



4. Check the information displayed in the window and then click the [Next] button.
5. Select the location to install UltraVNC using [Select Destination Location] and then click the [Next] button.
6. Select [UltraVNC Server] and then click the [Next] button.



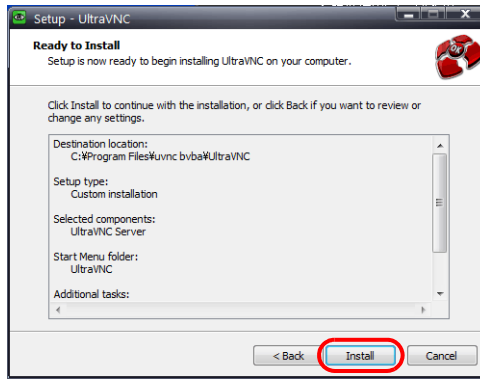
7. Specify the name and location to use for registering UltraVNC to the start menu and then click the [Next] button.
8. Select the following checkboxes and then click the [Next] button.



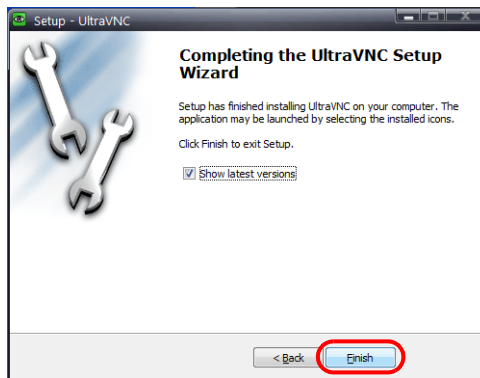
Select this checkbox to register UltraVNC Server as a Windows service.

Select this checkbox to start or restart the UltraVNC service upon completion of UltraVNC installation.

- Check the information displayed in the [Ready to Install] window and then click the [Install] button.





- Check the information displayed in the window and then click the [Next] button.
- Click the [Finish] button to complete the installation process. The UltraVNC icon is added to the taskbar of your computer.

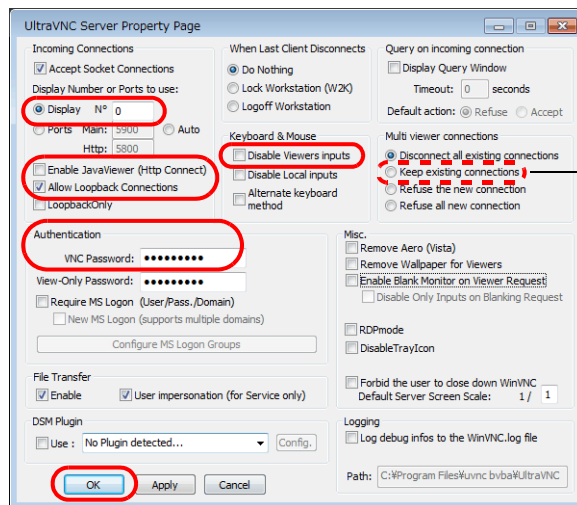


About the UltraVNC icon

UltraVNC must be running on the connected computer in order to display the remote desktop window. (Nothing is displayed if UltraVNC is not running.) The UltraVNC icon illuminates orange when a connection with a V10/V9 series unit is established.

UltraVNC running (green)	Connected to a V10/V9 series unit (orange)
	

- Right-click on the UltraVNC icon on the taskbar to display the right-click menu and select [Admin Properties]. Configure the following settings and click [OK].



* When establishing connections with multiple V10/V9 series units, select the [Multi viewer connections] → [Keep existing connections] checkbox.

About [VNC Password]
 The password set here must be entered in V-SFT when configuring the remote desktop table (refer to [Remote Desktop Table Setting page 6-135](#)).
 Take care not to lose your password.

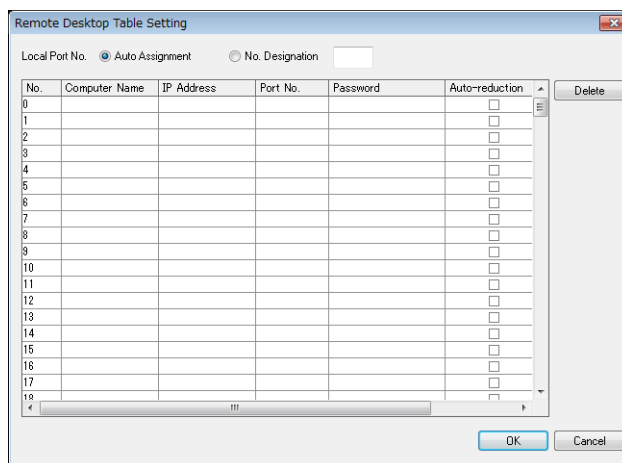
6.12.5 V-SFT Settings

Configure the remote desktop table settings and the display settings.

Remote Desktop Table Setting

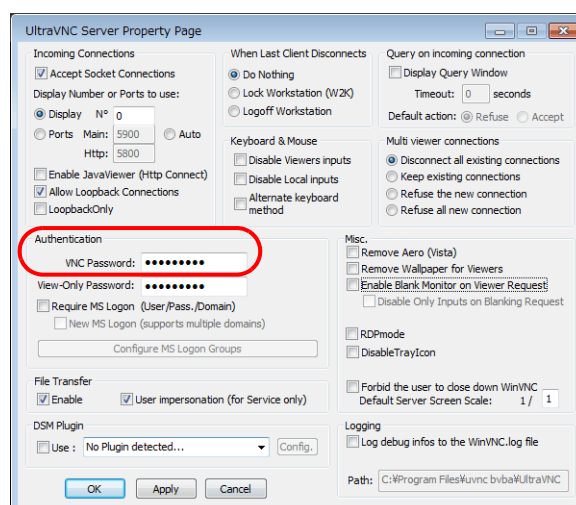
Register the computer (server) for connection.

Click [System Setting] → [Other] → [Remote Desktop Table Setting] to display the [Remote Desktop Table Setting] window.



Item	Description
Local Port No.	Select a local port number for the V10/V9 series unit. This port is used as the sending/receiving port for remote desktop window display. Automatic allocation: An unused port number on the V10/V9 series unit is allocated for VNC connections. Specified number: The specified port number is used. (default: 8050, range: 1024 to 65533)
Computer Name	Specify the name of the server (computer).
IP Address	Specify the IP address of the server (computer).
Port No.	Specify the port number of the server (computer). (UltraVNC default: 5900)
Password	Specify the password. Typing the password shows eight asterisks. (one-byte 254 alphanumeric maximum)
Auto-reduction	Select this checkbox to use the function that zooms out to show the entire computer screen.
PC resolution	When the [Auto-reduction] checkbox is selected, specify the resolution of the computer. (800*600, 1024*768, 1152*864, 1280*1024, 1600*1200, 1920*1080, specification (width: 800 to 1920, height: 600 to 1200))

Enter the password set in the [UltraVNC Server Property Page] window on the computer. (Refer to step 12 in "Installing and Configuring UltraVNC" page 6-133.)



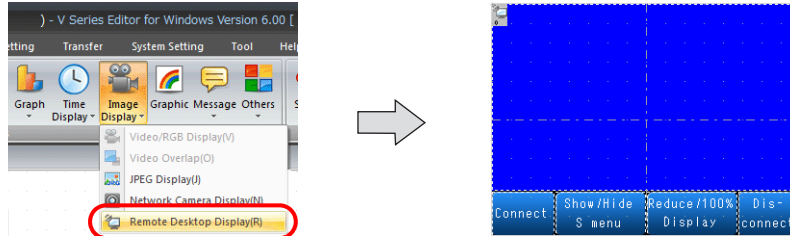
Remote Desktop Window Display Procedure

There are three ways to display a remote desktop window.

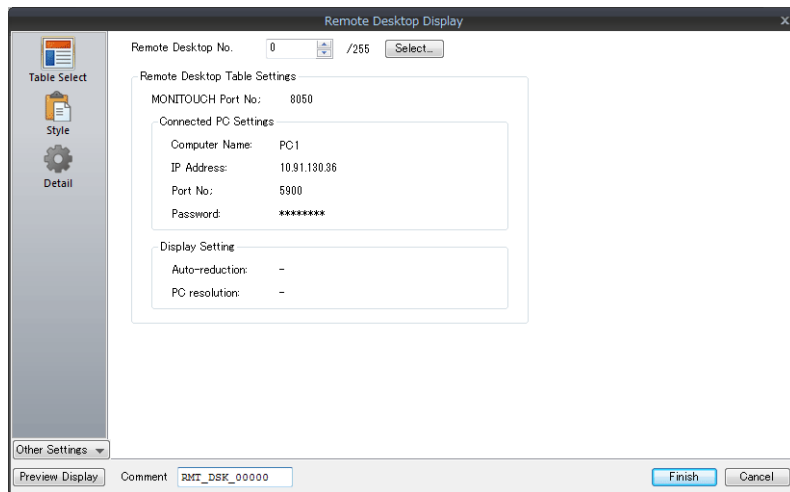
- Placement of a display area to show remote desktop window → [page 6-136](#)
- Switch to show/hide remote desktop window → [page 6-138](#)
- Showing/hiding using a macro command → [page 6-139](#)

Placement of a display area to show remote desktop window

A display area can be placed on a screen to display the remote desktop window of a connected server (computer). Click [Parts] → [Image Display] → [Remote Desktop Display] and place the part.

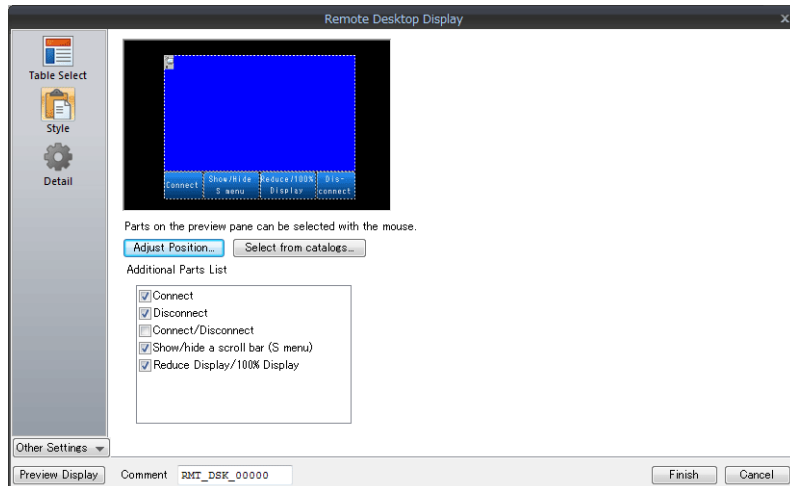


- Remote Desktop
- Table Select




Item	Description
Remote Desktop No.	Click the [Select] button to display the [Remote Desktop Table Setting] window. Specify the table number of the server (computer) that has been registered in the [Remote Desktop Table Setting] window.
Remote Desktop Table Settings	This area summarizes the remote desktop table settings.

- Style

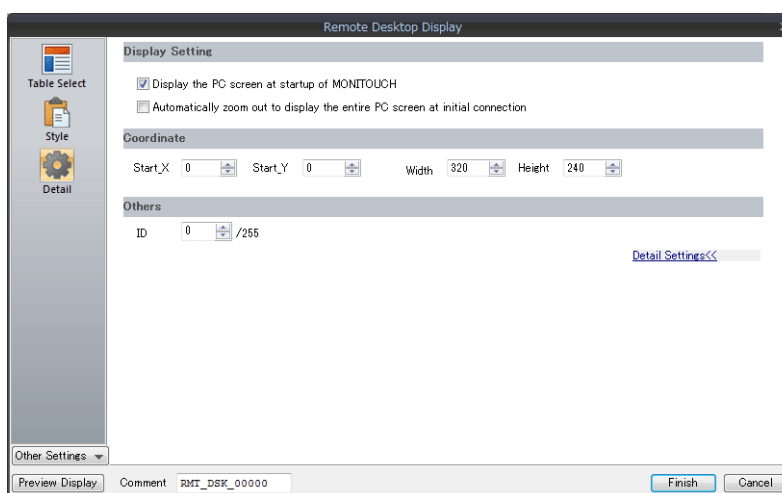


Item	Description
Additional Parts List	Displays a list of remote desktop-related parts. Selected: Displayed on MONITOUCH. Unselected: Not displayed on MONITOUCH.
Connect	Connect to the server (computer) and enable display of the remote desktop window.
Disconnect	Disconnect from the server (computer) and disable display of the remote desktop window.
Connect/Disconnect	Each press of this switch toggles between connecting to the server (computer) and enabling display of the remote desktop window and disconnecting from the server (computer) and disabling display of the remote desktop window.
Show/hide the scroll bar (S menu)	Each press of the switch provided with this function toggles between showing and hiding the scroll bars and S menu. However, this function is disabled when displaying the remote desktop window with auto-reduction.
Reduce Display/100% Display	Each press of this switch toggles between automatic size reduction and actual size display of the remote desktop window.
Adjust Position	Display the window for adjusting the placement position of each part. Part size can also be changed.
Select from catalogs	Set the part design from the catalog.
Parts Design	Set the design and color of the part selected in the [Additional Parts List] or preview pane.
Edit Selected Parts	Configure the part selected in the [Additional Parts List] or preview pane.

- Show/Hide
Configure the show/hide settings of the remote desktop display.

 For details, refer to Reference Manual 1.

- Detail



Item	Description	
Display Setting	Display the PC screen at startup of MONITOUCH	Display the screen of the connected server (computer) when the V10/V9 unit starts up. *1
	Automatically zoom out to display the entire PC screen at initial connection	Automatically zoom out to display the entire computer screen. *2 This option is only effective for the initial connection. From the second and subsequent connections, the computer screen is displayed at the actual size.
Coordinate	Start X/Start Y	Set the position of the display area using X and Y coordinates.
Others	ID (0 to 255)	Set the ID.

*1 When this checkbox is deselected, use a switch to display the remote desktop window.

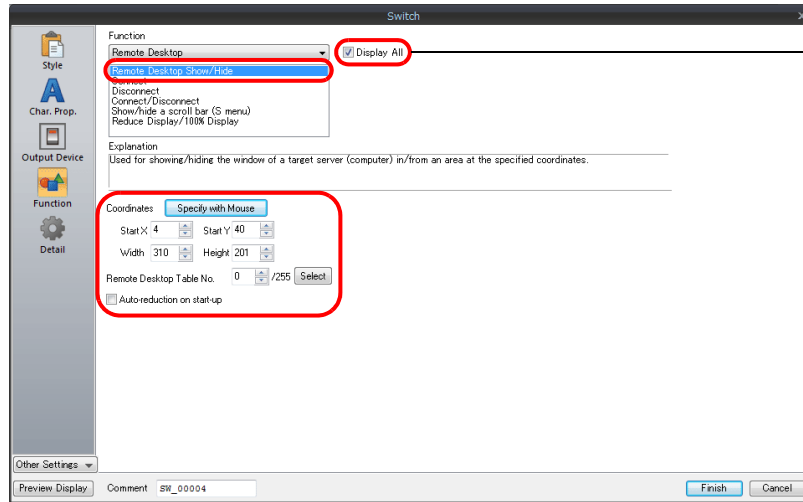
*2 The corresponding [Auto-reduction] checkbox in the [Remote Desktop Table Setting] window must be selected. For details, refer to "Remote Desktop Table Setting" [page 6-135](#).

Switch to show/hide remote desktop window

A switch can be placed on a screen to show or hide the remote desktop window of a connected server (computer) at the specified coordinates.

Set the switch function to [Remote Desktop Show/Hide].

* **Function switch setting is disabled.**



Select the [Display All] checkbox to enable selection of [Remote Desktop].

Switch Function/Auxiliary Setting Item	Description
Remote Desktop: Remote Desktop Show/Hide	Each press of this switch toggles between showing and hiding the remote desktop window. *1
Specify with Mouse	The mouse is used to specify the position where the remote desktop window is displayed.
Start X	Specify an X coordinate as the start point where the remote desktop window is displayed.
Start Y	Specify a Y coordinate as the start point where the remote desktop window is displayed.
Width	Specify the width of the area where the remote desktop window is displayed.
Height	Specify the height of the area where the remote desktop window is displayed.
Remote Desktop Table No.	Click [Select] to specify the table number of the server (computer) that has been registered in the [Remote Desktop Table Setting] window.
Auto-reduction on start-up	Automatically zoom out to display the entire computer screen. *2

*1 Use the REMOTEDT_CTL macro command to show/hide the scroll bars (S menu). For details, refer to "Showing/Hiding Using a Macro Command" [page 6-139](#).

*2 The corresponding [Auto-reduction] checkbox in the [Remote Desktop Table Setting] window must be selected. For details, refer to "Remote Desktop Table Setting" [page 6-135](#).

Showing/hiding using a macro command

Command list

Category	Mnemonic	Description	Refer to
Remote desktop	SET_REMOTEDT F0 F1	Show/hide	page 6-139
	REMOTEDT_CTL F0 F1 F2	Change the display	page 6-140

- SET_REMOTEDT F0 F1

Function: Showing/hiding the remote desktop window

This macro command is used to show/hide the remote desktop window of the computer (server) set to remote desktop table number [F1], which is specified in the [Remote Desktop Table Setting] window, according to the value specified for [F0].

Available device memory

	Internal	PLC 1 to 8	Constant
F0	○		
F1	○		○

○: Setting enabled (indirect designation disabled) ◎: Setting enabled (indirect designation enabled)

Range

	Value	Remarks
F0	0: Hide 1: Actual size 2: Actual size (based on specified coordinates) 3: Automatically reduced display 4: Automatically reduced display (based on specified coordinates)	
F0+1	X coordinate as the start point	Valid when F0 = 2 or 4
F0+2	Y coordinate as the start point	
F0+3	Width	
F0+4	Height	
F1	0 to 255: Remote desktop table number	

Operation example

Display in an area based on the specified coordinates (remote desktop table number 10)

\$u00100 = 2 (W) for same-sized display based on the specified coordinates

\$u00101 = 0 (W) for X coordinate as the start point

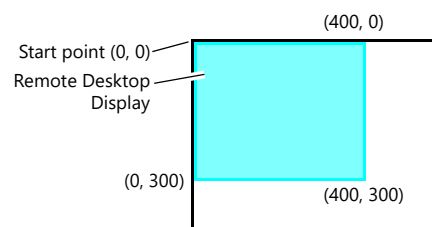
\$u00102 = 0 (W) for Y coordinate as the start point

\$u00103 = 400 (W) for width

\$u00104 = 300 (W) for height

SET_REMOTEDT \$u00100 10

Remote desktop table number 10



Supplementary information

- The SET_REMOTEDT macro command cannot be used unless the relevant settings are configured in the [Remote Desktop Table Setting] window. For details on configuration, refer to [page 6-135](#).
- This macro command is not usable as an initial macro.
- The result of macro execution is stored in \$s1063.

Code (DEC)	Description
0	Normal
-1	Execution error

• REMOTEDT_CTL F0 F1 F2

Function: Switching the display in the remote desktop window

This macro command is used to switch the display of the remote desktop window of the computer (server) set to remote desktop table number [F1], which is specified in the [Remote Desktop Table Setting] window, according to the value specified for [F0].

Available device memory

	Internal	PLC 1 to 8	Constant
F0	○		
F1	○		○
F2	○		○

○: Setting enabled (indirect designation disabled) ◎: Setting enabled (indirect designation enabled)

Range

	Value		
F0	0 : Computer screen reduction 1 : Computer screen rotation 2 : Show/hide scroll bars (S menu)		
F1	0 to 255: Remote desktop table number		
F2	(F0 = 0)	(F0 = 1)	(F0 = 2)
	0 : Actual size 1 : 1/4 2 : 1/9 3 : 1/16 4 : Auto-reduction	0 : 0° 1 : 90° 2 : 270°	0: Hide 1 : Always displayed 2 : Automatic*

* About the automatic setting

Resolution	Scroll Bars (S Menu)
Computer resolution > V10/V9 series resolution	Show
Computer resolution = V10/V9 series resolution	Hide
Computer resolution < V10/V9 series resolution	Hide

Operation example

Hiding the scroll bars (S menu) (remote desktop table number 10)

```

REMOTEDT_CTL 2 10 0
                |
                Remote desktop table number 10
    
```

Supplementary information

- The REMOTEDT_CTL macro command cannot be used unless the relevant settings are configured in the [Remote Desktop Table Setting] window. For details on configuration, refer to [page 6-135](#).
- The scroll bars (S menu) cannot be displayed when the auto-reduction function is used to display the computer screen.
- The result of macro execution is stored in \$s1063.

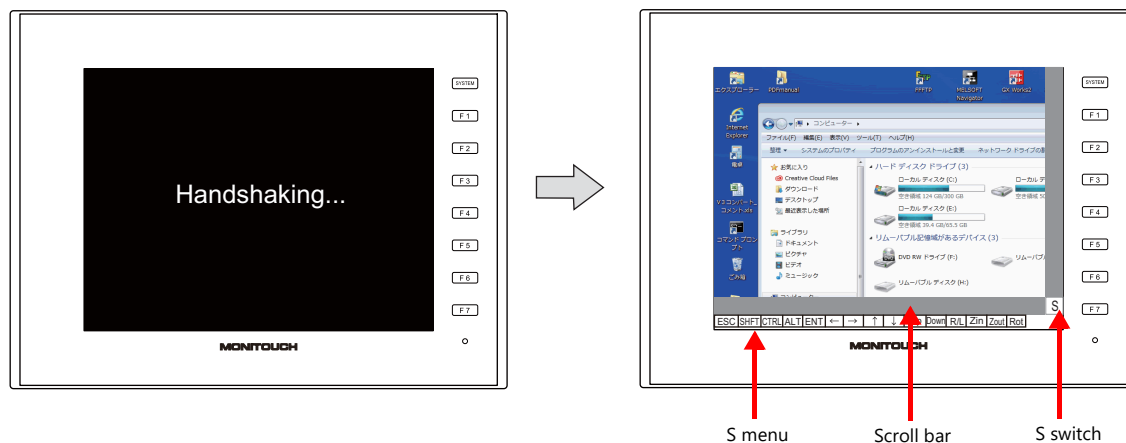
Code (DEC)	Description
0	Normal
-1	Execution error

6.12.6 Window Configuration and Operation

Window Configuration

When a connection is normally established between a V10/V9 series unit and the server (computer), the remote desktop window of the server is displayed on the V10/V9 series unit. When disconnecting, a [Disconnected.] screen is displayed briefly and then disappears.

Example: When the [Auto-reduction] checkbox is not selected



* The scroll bars (S menu) cannot be displayed while the auto-reduction function is used.

Scroll bar

If the resolution of the server (computer) is higher than that of the remote desktop window display area, hidden parts in the area can be displayed by scrolling either horizontally or vertically with the relevant scroll bar. Swipe gestures are not supported.

[S] switch

Pressing this switch shows or hides the [S] menu.

[S] menu

These are special switches for operating the remote desktop window. They are used to perform operations including rotating and reducing the size of the display.

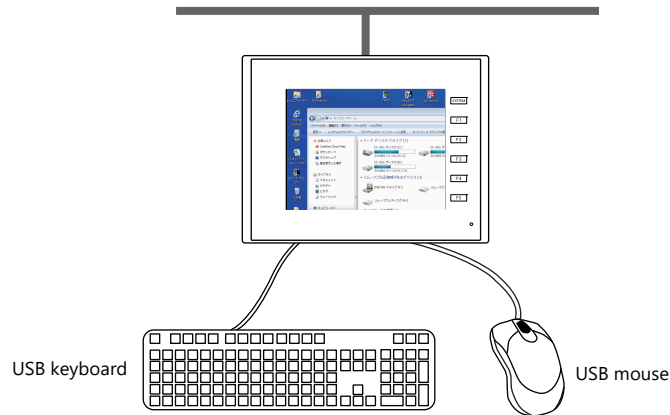


Item	Description
ESC	Esc key entry
SHFT	Shift key entry
CTRL	Ctrl key entry
ALT	Alt key entry
ENT	Enter key entry
←	← key entry
→	→ key entry
↑	↑ key entry

Item	Description
↓	↓ key entry
Up	Page-up key entry
Down	Page-down key entry
R/L	OFF: Equivalent to left-clicking the mouse ON: Equivalent to right-clicking the mouse
Zin	Window enlargement: 1/16 → 1/9 → 1/4 → 100% (actual)
Zout	Window reduction: 100% (actual) → 1/4 → 1/9 → 1/16
Rot	Window rotation: 0°, 90°, 270°

Operation Method

A remote desktop connected to the V10/V9 series is operative from the V10/V9 unit by touch screen operations and using a USB mouse and USB keyboard.



USB mouse

The left-click button, right-click button, and wheel on USB mice are supported.

USB keyboard

The keyboard language setting must be set in Local mode on the V10/V9 series unit via [Language Setting] → [Keyboard].

When no USB keyboard is used, the on-screen keyboard can be used instead.

The display method differs depending on the Windows version. Display the on-screen keyboard according to the procedure for the relevant Windows version.

Example: Windows 7

[Start] → [All Programs] → [Accessories] → [Ease of Access] → [On-Screen Keyboard]



6.12.7 System Device Memory

The following addresses in the system device memory are used to store the data regarding the table number (set in the [Remote Desktop Display Setting] window) of the remote desktop window currently displayed and whether connection with the remote desktop is established.

\$s	Description	Value
1380	Remote desktop window display Start-up status	0 : Hidden (disconnected) 1 : Shown (connected)
1381	Remote desktop window display Connection status	0 or greater: Remote desktop table number -1 : Disconnected -2 : Connection failure

6.12.8 Error

[Disconnected.] screen

If connection between the V10/V9 series and a server (computer) fails or is disconnected due to a cable disconnection or an error, the [Disconnected.] screen appears in place of the remote desktop window. Check the cable and server (computer) and attempt reconnection.

Error number

For details on error numbers that occur during data transfer, refer to the following manuals.

- V10 Series Unit Operation / Local Mode / Error Screen Manual
- V9 Series Troubleshooting/Maintenance Manual

6.12.9 Limitations

Display Limitations

- Remote desktop window display is only available on screens (screen library) and is unavailable for overlap libraries.
- Multiple remote desktop windows cannot be displayed at the same time. If multiple display areas are concurrently placed and the [Display the PC screen at startup of MONITOUCH] checkbox is selected, the display area placed first takes effect.
- While a remote desktop window is displayed, attempting to bring up another window on the same screen will disconnect the initial window and switch to the next window.
- While a remote desktop window is displayed, any change to the server (computer) resolution will forcibly disconnect the window.
- While a remote desktop window is displayed, you can turn it off via a method that is different from the method used to display the window, provided that the same remote desktop table number is specified. However, the [Disconnect] switch explained in "Placement of a display area to show remote desktop window" page 6-136 does not work to turn off the remote desktop window that was displayed by a switch or macro command.
- The remote desktop window is displayed on top of any items with which it overlaps.

However, the remote desktop window is displayed as a still screen or hidden when overlapped with certain items ^{*1}. The remote desktop window becomes operable when the relevant item is hidden.

*1 Applicable items: overlap display, scrolling message, navigation display (enlarging/scrolling), message box

Remote Desktop Window Display Method	Remote desktop	Remarks
Display area placement	Still screen	The display area, S menu, and scroll bars are inoperable.
Switch function	Display area is hidden	
Macro command	Display area is hidden	

- While a remote desktop window is displayed, any switches placed behind the window are invalid. (However, they become valid when the remote desktop window is hidden.)
- The display of a remote desktop window is always based on the upper left corner of the server (computer) screen as the start point.
- If a remote desktop window display area shows an image smaller than the area, the margin of the area turns black.
- When a remote desktop window is displayed in a display area, disconnecting it leaves the area in the color set in the V-SFT.
- When a remote desktop window is displayed by a switch or macro command, hiding it will clear the window as well as its display area.
- When a remote desktop window is initially displayed, the image is scaled to 100%.
- Once a remote desktop window is hidden, any settings made on the [S] menu will return to default.
- If disconnection is performed using a switch or macro, the screen is redrawn. Any displayed overlaps also disappear. (However, overlaps do not disappear if the [Display Overlap during bit ON] checkbox located at [System Setting] → [Unit Setting] → [General Setting] is selected.)
- While a remote desktop window is displayed, switching to Local mode disconnects the window.
- The scroll bars (S menu) cannot be displayed while the screen of a connected server (computer) is displayed using the auto-reduction function.
- For the V10/V9 series, the auto-reduction function is available in the range 800*600 (SVGA) to 1920*1080 (Full HD).
- The auto-reduction function adjusts the display of a computer screen to the display area of the remote desktop window on the V10/V9 series, provided that the width and the height of the display area is at the ratio of 4 to 3. (At a ratio other than this, a black margin will be left in the display area.)

Other Limitations

- The SET_REMOTEDT macro command for displaying the remote desktop window is not usable as an initial macro.
- When the remote desktop window display function and the touch switch emulation of the RGB display function are used at the same time, a USB mouse cannot be used for the remote desktop window.

MEMO



7 Convenient Functions

7.1 Enlarging and Scrolling Screens

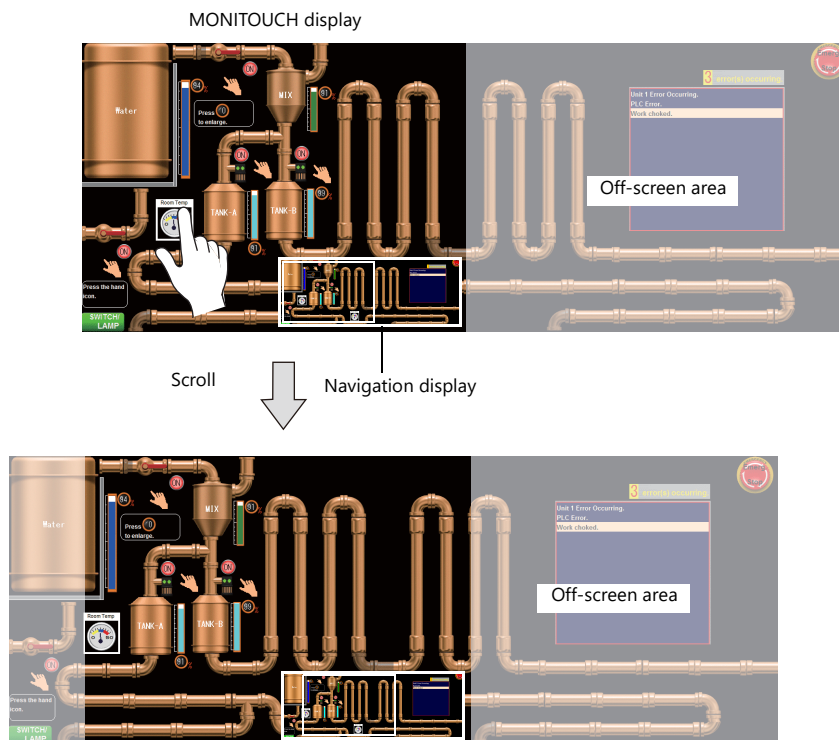
7.2 Splash Screen

7.1 Enlarging and Scrolling Screens

7.1.1 Overview

Enlarging the Screen Size

Screen sizes larger than the display size (resolution) of the V10/V9 series unit can be registered. When a display is partially off-screen, the display can be scrolled to display the off-screen content. A navigation display (a miniaturized display of the entire screen) is shown during scrolling to indicate the current display position.



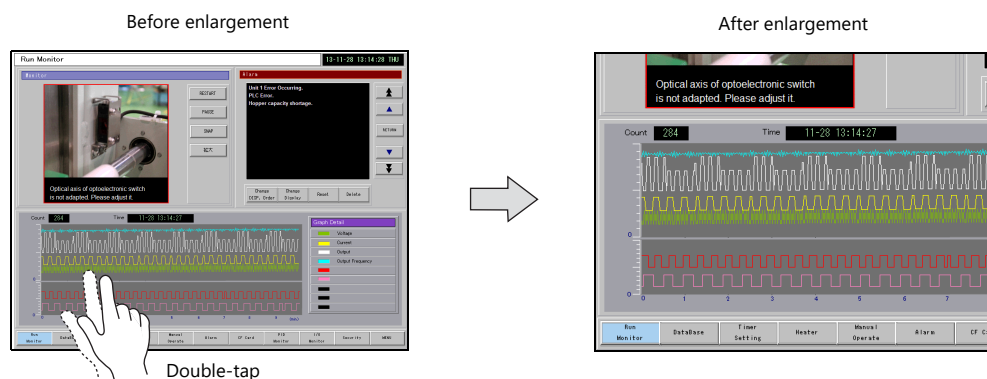
☞ For details on settings, refer to [“Enlarging the Screen Size”](#) page 7-2.

Location of Settings

- Screen
- Overlap

Enlarged Display

The display of the screen can be enlarged up to 200% by double-tapping on the screen. After enlarging the screen, the display can be scrolled to show off-screen content.



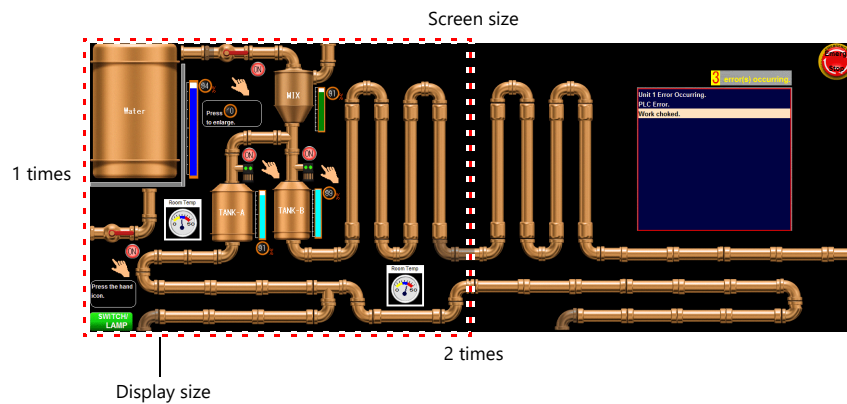
* After enlargement to the maximum magnification, the screen display returns to its original size.

☞ For details on settings, refer to [“Enlarged Display”](#) page 7-3.

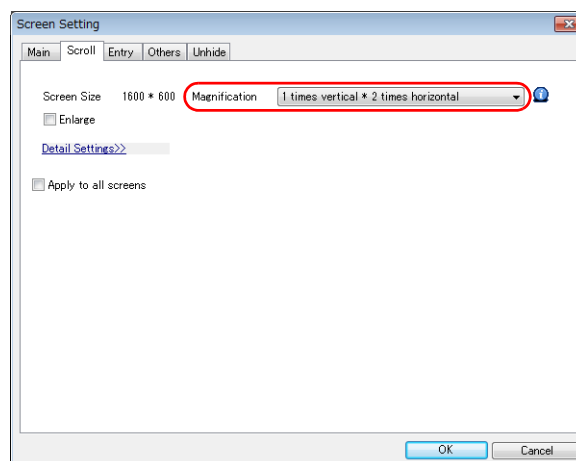
7.1.2 Setting Example

Enlarging the Screen Size

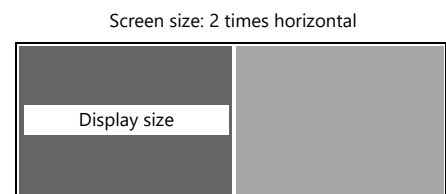
This section explains the settings used when displaying and scrolling a screen that is two times larger in horizontal direction than the display of the V10/V9 series unit.



1. Display the scrolling settings
 - For screens: [Screen Setting] → [Screen Setting] → [Scroll] tab window
 - For overlaps: Overlap setting window → [Scroll] settings
2. Set [Magnification] to "1 times vertical × 2 times horizontal".

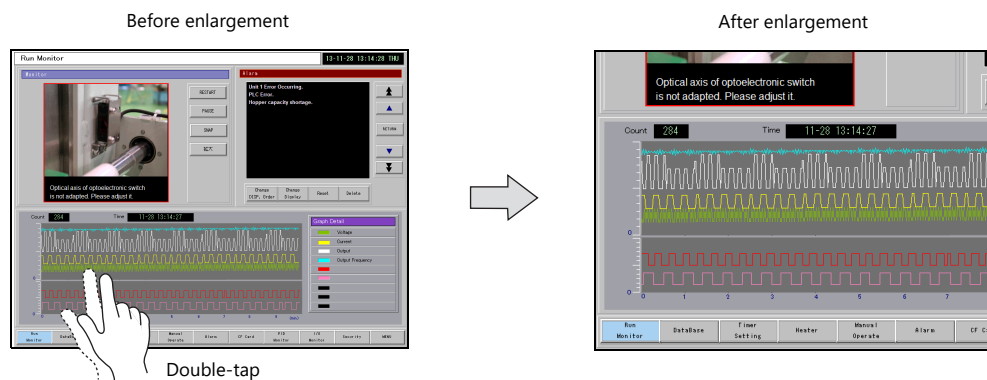


This completes the necessary settings.
The screen size is extended two fold in the horizontal direction.
Scrolling becomes available on the MONITOUCH.

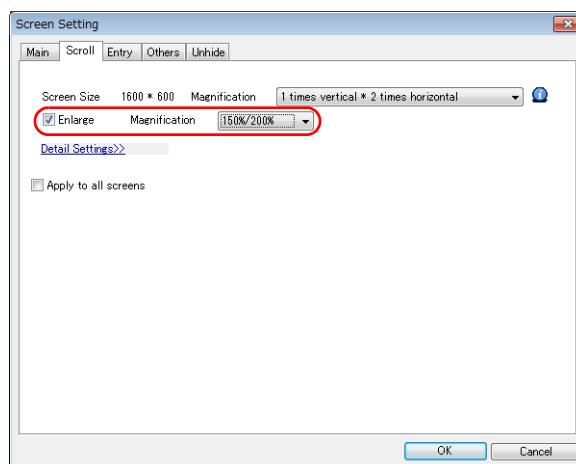


Enlarged Display

This section explains the settings for enlarging the display by double-tapping on the screen.



1. Display the [Screen Setting] → [Screen Setting] → [Scroll] tab window.
2. Select the [Enlarge] checkbox and set a magnification.



This completes the necessary settings.

The magnification switches through 150% → 200% → 100% each time the screen is double-tapped.



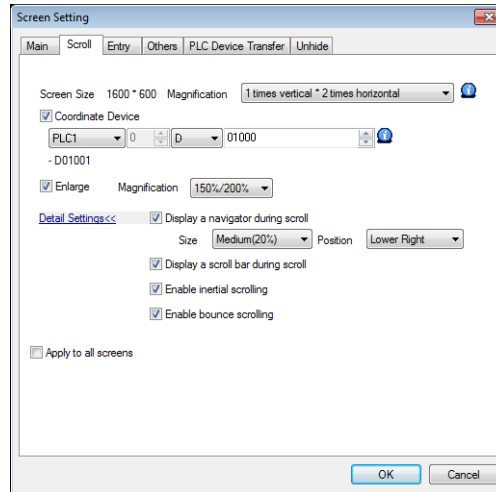
When the screen is enlarged, any overlaps displayed on the screen are not enlarged.

7.1.3 Detailed Settings

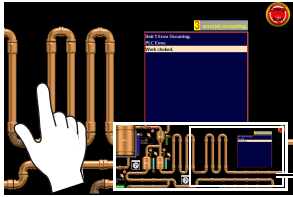
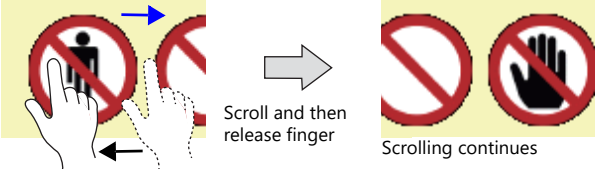
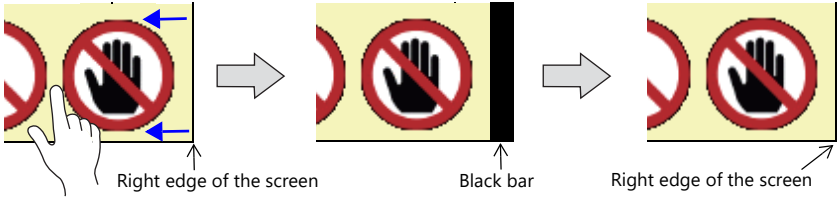
Screen

Location of settings: [Screen Setting] → [Screen Setting]

Scroll

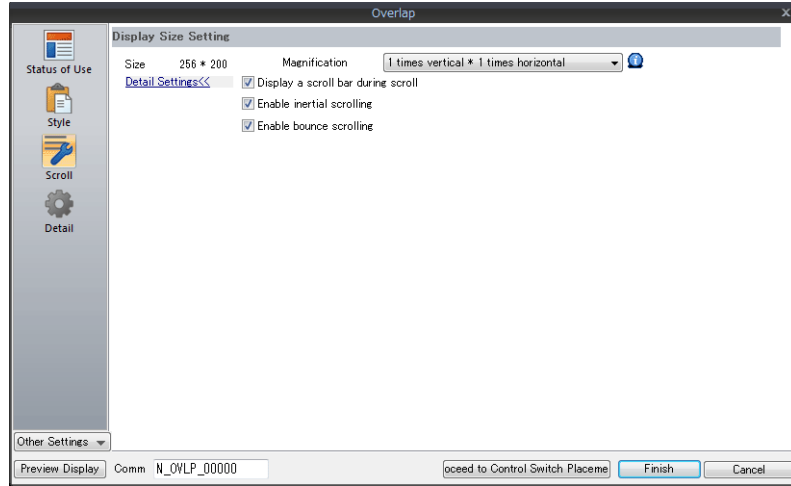


Item	Description
Screen Size	Displays the screen size.
Coordinate Device	<p>Stores the coordinates of the current display position (upper left). Two words are occupied consecutively. Unit: dots n: X coordinate n + 1: Y coordinate</p> <p>The display position can also be changed by specifying coordinates. However, if a value that exceeds the maximum value is specified, the screen is displayed at the maximum value and the maximum value is written to the coordinate device memory.</p> <p>Example: SVGA, 2 times vertical * 2 times horizontal</p> <ul style="list-style-type: none"> - When n = 400, n + 1 = 300 is specified (normal values) - When n = 2000, n + 1 = 3000 is specified (outside range) <div style="display: flex; justify-content: space-around;"> <div> </div> <div> </div> </div> <p>* 800 is written to "n" and 600 is written to "n + 1" in the coordinate device memory.</p>
Magnification	<p>Set the editing size of the screen.</p> <p>1 times vertical × 1 times horizontal / 1 times vertical × 2 times horizontal 1 times vertical × 3 times horizontal / 1 times vertical × 4 times horizontal 2 times vertical × 1 times horizontal / 2 times vertical × 2 times horizontal 3 times vertical × 1 times horizontal / 4 times vertical × 1 times horizontal</p> <p>Example: 1 times vertical × 4 times horizontal</p> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> V10/V9 unit resolution: 800 × 600 pixels <div style="border: 1px solid gray; padding: 2px; margin-left: 20px;">Screen size: 3200 × 600 pixels</div> </div>
Enlarge	<p>Double-tap on the screen to zoom in. The current magnification is output to \$s1641. If the enlargement setting is not selected, \$s1641 always stores "100".</p>

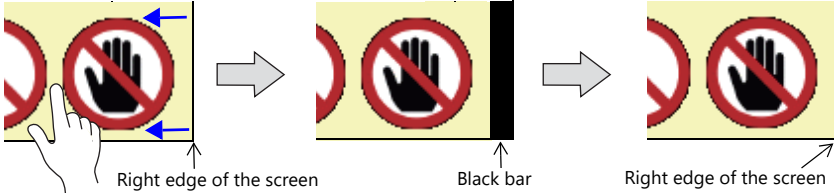
Item	Description
Display a navigator during scroll Size Position	Show a miniaturized display of the entire screen when scrolling.  Navigation display Current display position Set the size of the navigation window (as a percentage of the screen resolution of the V10/V9 series unit). Small (15%), Medium (20%), Large (25%) Set the display position of the navigation window. Lower Right, Lower Left, Upper Right, Upper Left
Display a scroll bar during scroll	Display a scroll bar at the right edge and bottom when scrolling. The scroll bar itself cannot be operated.
Enable inertial scrolling	Allow scrolling to continue after releasing your finger from the screen when scrolling. The speed of scrolling gradually decreases until it stops.  Scroll and then release finger Scrolling continues
Enable bounce scrolling	Scrolling will bounce to indicate that movement in the particular direction has reached its limit. A black bar is displayed momentarily.  Right edge of the screen Black bar Right edge of the screen
Apply to all screens	Apply the same settings to all screens.

Overlap

Scroll



Item	Description
<p>Size</p> <p>Coordinate Device</p>	<p>Displays the size of the overlap.</p> <p>Stores the coordinates of the current display position (upper left). Two words are occupied consecutively. Unit: dots n: X coordinate n + 1: Y coordinate</p> <p>The display position can also be changed by specifying coordinates. However, if a value that exceeds the maximum value is specified, the screen is displayed at the maximum value and the maximum value is written to the coordinate device memory.</p> <p>Example: SVGA, 2 times vertical * 2 times horizontal</p> <ul style="list-style-type: none"> - When n = 400, n + 1 = 300 is specified (normal values) - When n = 2000, n + 1 = 3000 is specified (outside range) <div style="display: flex; justify-content: space-around;"> <div> </div> <div> </div> </div> <p>* 800 is written to "n" and 600 is written to "n + 1" in the coordinate device memory.</p>
<p>Magnification</p>	<p>Set the editing size of the overlap.</p> <p>1 times vertical × 1 times horizontal / 1 times vertical × 2 times horizontal / 1 times vertical × 3 times horizontal / 1 times vertical × 4 times horizontal 2 times vertical × 1 times horizontal / 2 times vertical × 2 times horizontal / 3 times vertical × 1 times horizontal / 4 times vertical × 1 times horizontal</p> <p>Example: 1 times vertical × 4 times horizontal</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> </div> <div> </div> </div>
<p>Display a scroll bar during scroll</p>	<p>Display a scroll bar at the right edge and bottom when scrolling. The scroll bar itself cannot be operated.</p>
<p>Enable inertial scrolling</p>	<p>Allow scrolling to continue after releasing your finger from the screen when scrolling. The speed of scrolling gradually decreases until it stops.</p> <div style="text-align: center;"> <p>Scroll and then release finger</p> <p>Scrolling continues</p> </div>

Item	Description
Enable bounce scrolling	<p>Scrolling will bounce to indicate that movement in the particular direction has reached its limit. A black bar is displayed momentarily.</p>  <p>Right edge of the screen</p> <p>Black bar</p> <p>Right edge of the screen</p>

7.1.4 Notes

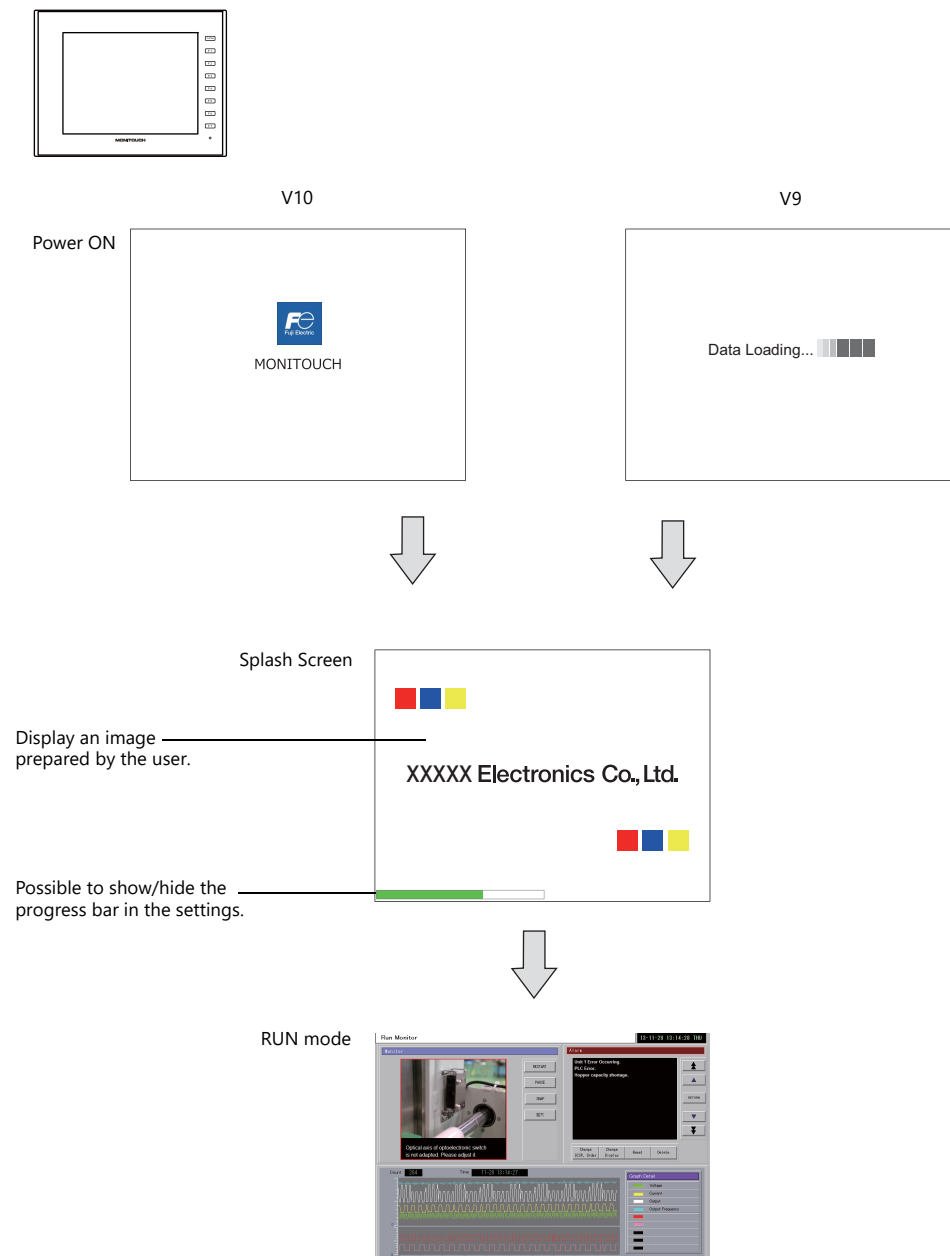
- Scrolling cannot be performed at locations where there are switches.
- Magnification defaults to 100% after changing screens or executing the "RESET_SCRN" macro command.
- Navigation items cannot be operated. In addition, items placed under the navigation window cannot be operated.
- Increasing the editing size does not change the number of items that can be placed on the screen.
- The display size of the V10/V9 series unit is the maximum editing size for patterns.
- When an overlap transition is in progress, screen enlargement and scrolling cannot be performed. In addition, if an overlap transition is initiated during screen enlargement or scrolling, the transition only starts after the enlargement or scrolling operation is finished.

7.2 Splash Screen

7.2.1 Overview

An image prepared by the user can be used as the splash screen which is displayed while the V10/V9 series unit is starting up. Images relevant to the usage environment, such as a company logo or precautions can be displayed. The set image will also be displayed when switching between RUN mode and Local mode.

Startup sequence



Splash Screen

A splash screen is an image displayed on a computer while software is starting up.

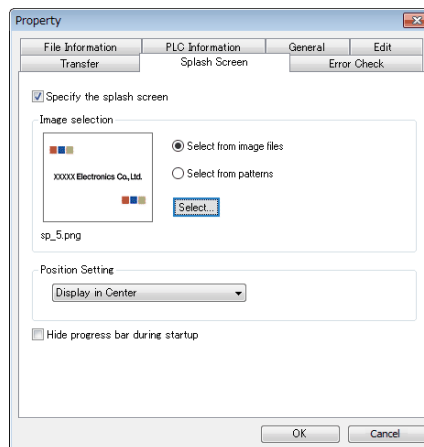
7.2.2 Setting Example

This section explains how to set the following image as the splash screen.

Filename: Splash.png



1. Prepare a PNG file, e.g. Splash.png
2. Select the [File] → [Property] → [Splash Screen] → [Specify the splash screen] checkbox.
3. Click [Select from image files] → [Select] and select the PNG file prepared in step 1.



The image is copied to the following location when selected.

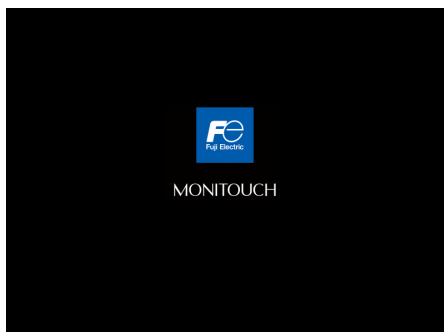
C:\MONITOUCH\User\Splash

4. Set the display position of the image under [Position Setting].

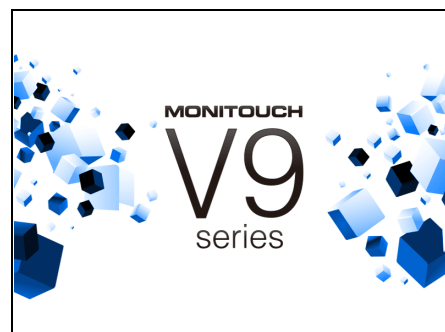
This completes the necessary settings.

The following image is displayed when the [Specify the splash screen] checkbox is not selected.

V10



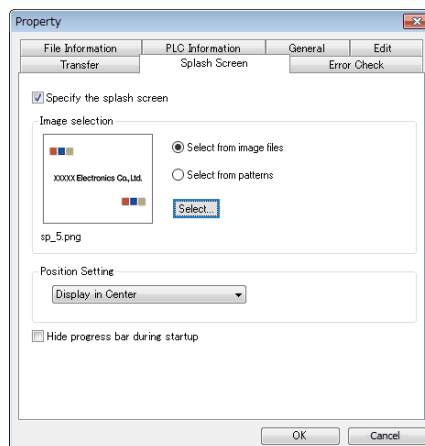
V9



7.2.3 Detailed Settings

Location of settings: [File] → [Property] → [Splash Screen]

Splash Screen



Item	Description
Specify the splash screen	Display a user-prepared image on the screen during startup.
Select from image files	Select a PNG file from the desired folder. File extension: png The selected png file is stored at the following location. C:\MONITOUCH\User\Splash
Select from patterns	Select a pattern registered in the screen program. Patterns are registered at [Home] → [Registration Item ▼] → [Pattern].
Position Setting	Specify the display position of the image. Fit to Screen/Fit to Width/Fit to Height/Display in Center
Hide progress bar during startup	Select this checkbox to hide the progress bar at the bottom of the screen.

7.2.4 Notes

- Any area outside the image is displayed in black.
- Patterns set to blink are displayed without blinking.
- When a PNG file is modified, it must be reselected from [Select from images] → [Select].
- If opening a screen program in which PNG files are selected on a different computer or reading the screen program from the V10/V9 series unit, the PNG file is stored at the following location. If a filename with the same name already exists, it is overwritten.

C:\MONITOUCH\User\Splash

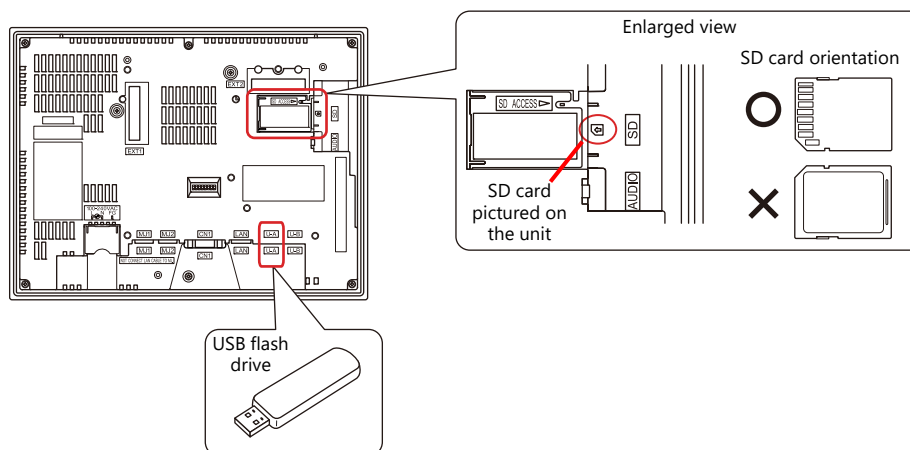
8 Storage Device

8.1 Overview

8.1.1 Connections

The SD card interface and USB-A port are provided on the V10/V9 series unit as standard features. Connecting commercially available SD cards and USB memory devices (referred to hereafter as storage devices) enables them to be used for a variety of functions including screen program transfer, saving of logging data, and saving of screenshot images.

Example: V9100iS rear



8.1.2 Storage Device Specifications

Specifications

The following storage devices can be used with the V10/V9 series.


Type	Capacity	File System	Connection Port	Remarks
SD card	Max. 2 GB	FAT, FAT32	Built-in SD card socket	
SDHC card	4 to 32 GB	FAT32		
SDXC card	64 GB to 2 TB	exFAT		V9 is not supported.
USB flash drive	Max. 32 GB	FAT, FAT32	USB-A	
CF card	Max. 32 GB		USB-A (Supported by using Hakko Electronics' CF card recorder "USB-CFRECC" (hardware version c or later) with V9 system program Ver. 1.430 and OS Ver. 2.90)	

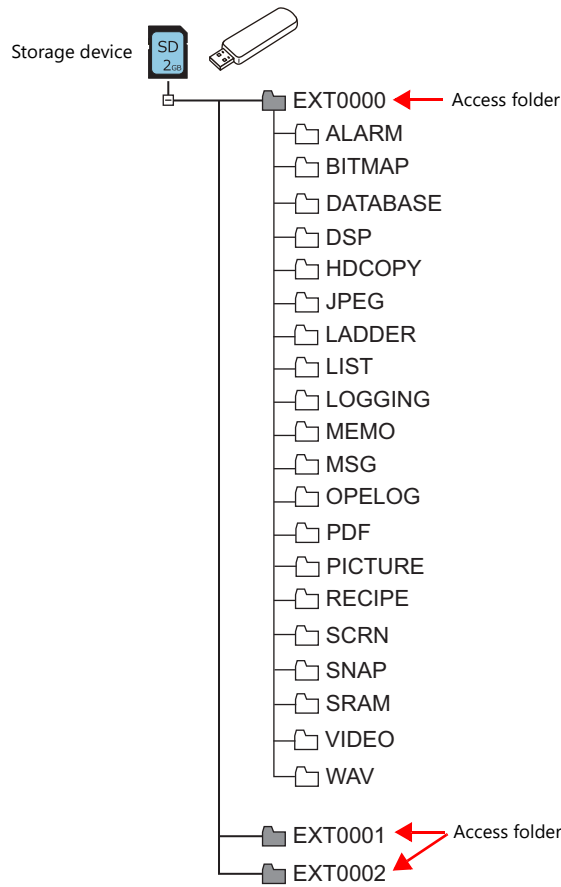
Notes on Handling Storage Devices

- When inserting an SD card into the unit, make sure to insert it in the correct orientation. Failure to do so may damage the SD card or the slot on the unit.
- The SD card access LED flashes red when the SD card is being accessed. Do not remove the SD card while the LED is flashing. Doing so may destroy data on the SD card.
- Always remove the SD card with [System Menu] → [Storage Removal] or with the [Storage Removal] switch.
- Do not turn off MONITOUCH during access to a storage device.
- Make a backup copy of storage devices at regular intervals.
- If a disk error occurs and data read/write operation is disabled, execute ScanDisk on Windows and try to restore the disk. If the disk cannot be restored, format the storage device. If you format the device, data on the device is completely lost. (For details on scanning the disk or Windows operations, refer to the Windows help information.)
- The number of write cycles for a storage device is limited. Consequently, frequent writing at short intervals may shorten the service life of storage devices. When using an SD card to save logging/alarm data, be aware of the logging time/monitoring frequency setting. Be sure to avoid constantly writing to an SD card with the CYCLE macro command.
- Note that the amount of the data to be written should not exceed the memory capacity of the storage device. In particular, when using functions to write data from the V10/V9 series unit to a storage device, such as backing up logging data, saving screen programs, saving screenshot images, or transferring recipe data, always consider the capacity limit of the storage device. Note that the amount of free space on a storage device can be checked with system device memory.
- If a screen program that uses storage device functions loaded onto the V10/V9 series unit, be sure to insert the relevant storage device before running the screen program.

8.2 Access Folders

8.2.1 Access Folders

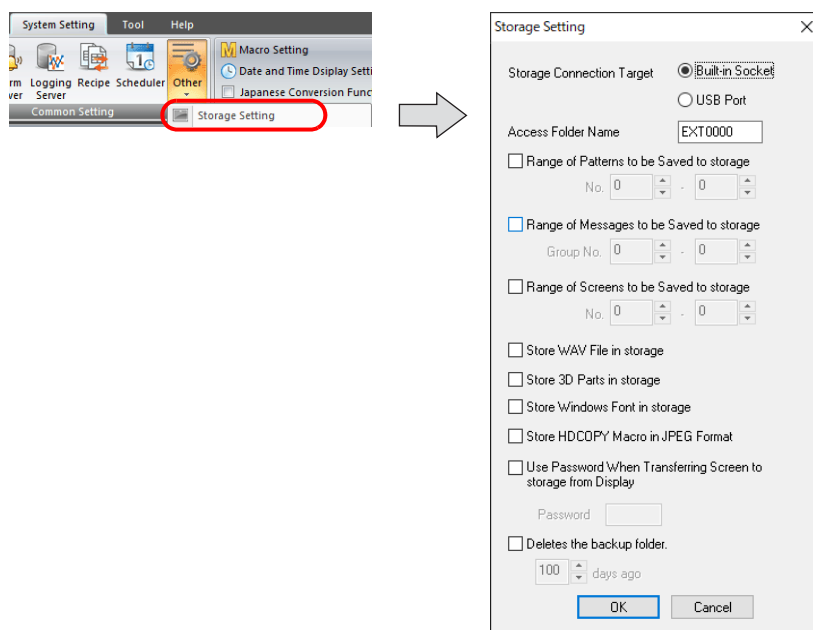
- Access folders are folders which are accessed regularly in RUN mode.
An access folder is created when a screen program is written using storage manager.
Access folders are also created when a formatted storage device is connected to MONITOUCH and a writing operation is executed.
- The access folder name is specified in the screen program.
Location of setting: [System Setting] → [Other] → [Storage Setting] → [Access Folder Name]
 "Storage Device Settings" page 8-3
- If creating access folders with names differing by each screen program, multiple screen programs can be saved in respective folders as long as there is sufficient capacity on the storage device.



8.2.2 Storage Device Settings

Settings including the storage connection target, access folder name, and other storage-related items are configured in the [Storage Setting] window.

[System Setting] → [Other] → [Storage Setting]



Item	Description
Storage Connection Target	Select the location of the storage device for access in RUN mode. Built-in Socket USB Port
Access Folder Name	Set a different folder name for each screen program. (default: EXT0000) One-byte characters: 64 characters or less (not case-sensitive) *1 Two-byte characters: 32 characters or less If the same folder name already exists, data will be overwritten.
Range of Patterns to be Saved to storage	Store pattern data on the storage device.
Range of Messages to be Saved to storage	Store messages on the storage device.
Range of Screens to be Saved to storage	Store screens on the storage device.
Store WAV File in storage	Store audio files on the storage device. * Not supported on V9 Lite models
Store 3D Parts in storage	Store images for 3D parts on the storage device.
Store Windows Font in storage	Store Windows fonts on the storage device.
Store HDCOPY Macro in JPEG Format	Set the file format for saving data to a storage device when using the "HDCOPY", "HDCOPY2", or "HDCOPY3" macro commands (with only filename specified and no extension specified *2). Unselected Save as a PNG file. Selected Save as a JPEG file.
Use Password When Transferring Screen to storage from Display	Password: Maximum of 6 one-byte alphanumeric characters A password can be set for when transferring data from MONITOUCH to storage on the [Storage Transfer] screen in Local mode. This setting is valid even if no password is set.
Deletes the backup folder *3	Deletes backup folders older than the set number of days from the V10/V9 series unit calendar. Setting range: 30 to 2,000 days Items to delete: - Items in the "LOGGING" folder for the logging server - Items in the "ALARM" folder for the alarm server - Items in the "LIST" folder for outputting datasheet PDFs

*1 These are recognized as uppercase characters. If inputting lowercase characters on the editor screen, they are converted into uppercase characters when [OK] is clicked, and are recognized as uppercase characters on MONITOUCH.

2 When using the "HDCOPY3" command with the extension specified in the filename as ".JPG" or "*.PNG", data is saved in the format specified in the macro.

*3 Old backup files can also be deleted by selecting the [Delete folders from the oldest if Storage is lacking in space for backup] and [Delete folders from the oldest when the remaining storage space is less than 100 MByte] checkboxes at [System Setting] → [Unit Setting] → [General Settings].

8.2.3 Folder Configuration

The following table lists the folder names and names of files in each folder.

Access folder (EXT0000)

Folder Name	Description	Filename	Transfer Direction	Refer to
ALARM	Alarm history	ALARM00.BIN - ALARM11.BIN * ¹ ALARM00.BIN-journal - ALARM11.BIN-journal * ² EVENT00.BIN - EVENT11.BIN * ¹ EVENT00.BIN-journal - EVENT11.BIN-journal * ² ALARM_aa_bb.CSV * ¹ (aa: Block No., bb: No.) (arbitrary filename).CSV * ¹ * ³ ALARMxx_nnn_XX_YYYYMMDDHHMMSS.mp4	V10/V9 ← storage device * ⁷ V10/V9 → storage device	page 8-27
BITMAP	Pattern data	BMP0000.BIN to BMP1023.BIN	V10/V9 ← storage device	page 8-19
DATABASE	MES database file (stand-alone configuration)	(arbitrary filename).db * ⁴	V10/V9 → storage device	page 8-29
DSP	Screen program	DSP0000.BIN	V10/V9 ← storage device V10/V9 → storage device	page 8-7
HDCOPY	Screenshot image	HD0000.PNG - HD9999.PNG HD000~yy.PNG - HD999~yy.PNG (arbitrary filename).PNG * ³	V10/V9 → storage device	page 8-28
JPEG	JPEG file	JP00000.JPG - JP32767.JPG (arbitrary filename).JPG * ³	V10/V9 ← storage device	page 8-23
LADDER	Ladder monitor files	Differs by PLC * ⁵	V10/V9 ← storage device V10/V9 → storage device	page 8-27
LIST	Data sheet PDF output	LISTxxxx.PDF * ⁶ (arbitrary filename)xxxx.PDF * ³ * ⁶ (xxxx: Top page number (only when overwriting is selected))	V10/V9 → storage device	page 8-29
LOGGING	Logging data	LOGGING00.BIN - LOGGING11.BIN * ¹ LOGGING00.BIN-journal LOGGING11.BIN-journal * ² LOGGING_aa_bb.CSV * ¹ (aa: Block No., bb: No.) (arbitrary filename).CSV * ¹ * ³	V10/V9 ← storage device * ⁷ V10/V9 → storage device	page 8-28
MEMO	Memo pad data	MEM0000.PNG - MEM0007.PNG	V10/V9 → storage device	page 8-30
MSG	Message file	MSGxxxxy.BIN MSGxxxxy.TXT	V10/V9 ← storage device	page 8-19 page 8-21
OPELOG	Operation log file	OPELOG_hhmmss.BIN (For V10) OPELOG_hhmmss.DB (For V9)	V10/V9 ← storage device V10/V9 → storage device	page 8-28
PDF	PDF file	PDF00000.pdf to PDF99999.pdf (arbitrary filename).pdf * ³	V10/V9 ← storage device V10/V9 → storage device	page 8-25
PICTURE	Image file	PICT00000.JPG to PICT99999.JPG (arbitrary filename).JPG * ³ PICT00000.PNG to PICT99999.PNG (arbitrary filename).PNG * ³ PICT00000.BMP to PICT99999.BMP (arbitrary filename).BMP * ³	V10/V9 ← storage device	page 8-24
RECIPE	Recipe data	REC0000.CSV - REC9999.CSV (arbitrary filename).CSV * ³ REC0000.BIN - REC9999.BIN (arbitrary filename).BIN * ³	V10/V9 ← storage device V10/V9 → storage device	page 8-27
SCRN	Header file	SCHEADER.BIN	V10/V9 ← storage device	page 8-19
	Screen file	SC0000.BIN to SC9999.BIN		
	Component parts (Macro blocks)	MCR0000.BIN to MCR1023.BIN		
	Component parts (messages)	MSG0000.BIN to MSG0011.BIN		
	3D part file	3D0001.BIN to 3D1023.BIN		
	Windows font file (for screen creation)	WFS0000.BIN to WFS4095.BIN		
	Windows font file (messages)	WFM0000.BIN to WFM4095.BIN		
SNAP	Snapshots from video/RGB display, network camera, and USB camera	VD00000.JPG to VD32767.JPG	V10/V9 → storage device	page 8-29

Folder Name	Description	Filename	Transfer Direction	Refer to
SRAM	SRAM backup data	SRM0000.BIN	V10/V9 ← storage device V10/V9 → storage device	page 8-30
VIDEO	Video playback file	MOV00000.mp4 to MOV99999.mp4 (arbitrary filename).mp4 ^{*3}	V10/V9 ← storage device	page 8-26
WAV	WAV files for audio output	WA0000.WAV - WA9999.WAV (arbitrary filename).WAV ^{*3}	V10/V9 ← storage device	page 8-22

*1 When saving to a backup folder, the year, month, day, hour, minutes, and seconds (_yyymmddhhmmss) are added to the end of the filename.

E.g.: ALARM00_20140320150040.BIN

*2 Temporary file during data update (V9 only)

*3 Filename: 64 or less one-byte uppercase alphanumeric characters or 32 or less two-byte characters

*4 Filename: 32 or less one-byte alphanumeric characters (two-byte characters invalid)

*5 For more information, refer to the Ladder Monitor Specifications manual.

*6 When a timestamp is added, the year, month, day, hour, minute, and second (_yyymmddhhmmss) are appended to the filename.

Example: LIST0000_20140320150040.PDF

*7 BIN files only

Automatic upload (DSPDEF)

Folder Name	Description	Filename	Transfer Direction	Refer to
DSP	File for automatic uploading	DSPDEF.bin	V10/V9 ← storage device	page 8-9
Other folders	Same as the access folder			

OS update (V10: OSUPDATE_100, V9: OSUPDATE)

Description	Filename	Transfer Direction	Refer to
OSUPDATE_100 File for updating the operating system for V10 series	fw.conf etc.	V10/V9 ← storage device	page 8-11 page 8-15
OSUPDATE File for updating the operating system for V9 series			

8.3 Function Descriptions

8.3.1 List of Functions

The following table lists the functions used by storage devices. For details, refer to the corresponding reference.

Function		Refer to
Saving and transferring screen programs		page 8-7
Automatically uploading screen programs		page 8-9
Manual OS updating		page 8-11
Automatic OS updating		page 8-15
Reduction of screen program data size	Storing pattern (bitmap) data	page 8-19
	Storing screen data	
	Storing 3D parts	
	Storing Windows fonts	
	Storing message data	
Storing audio (WAV) files		page 8-22, "2 Sound"
Storing JPEG data (JPEG display)		page 8-23, "1.3 JPEG Display"
Storing image files (picture viewer)		page 8-24, "16 Picture Viewer"
Storing PDF files		page 8-25, "13 PDF Viewer"
Recipe data		page 8-27, "15 Recipes" in Reference Manual 1
Saving alarm history		page 8-27, "8 Alarm" in Reference Manual 1
Saving logging data		page 8-28, "7 Trend" in Reference Manual 1
Operation logs		page 8-28, "4 Operation Log"
Saving screenshot images		page 8-28 , Macro Reference Manual
Storing snapshot images from a video/RGB display, network camera, and USB camera		page 8-29, "1.1 Video/RGB Display", "1.2 USB Camera Display", "1.4 Network Camera"
PDF output of data sheets		page 8-29 , 16.3 "Printing Data Sheets" in Reference Manual 1
Saving MES (stand-alone) database files		page 8-29, "6.7 MES Interface Function"
Memo pad data backup		page 8-30 , 13.1 "Memo Pad" in Reference Manual 1
SRAM data backup		page 8-30 , V10 Series Unit Operation / Local Mode / Error Screen Manual V9 Series Troubleshooting/Maintenance Manual

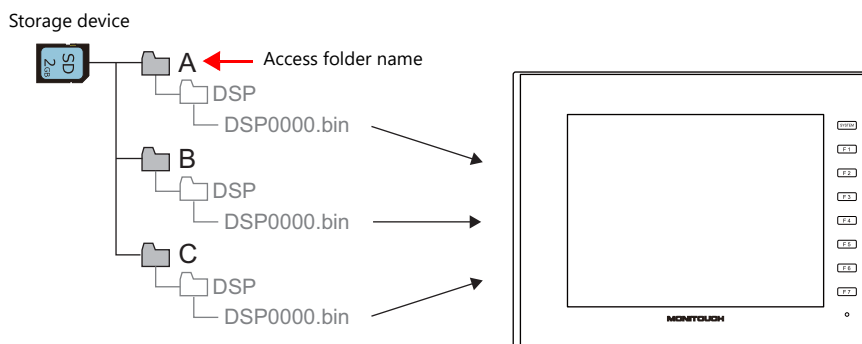
8.3.2 Screen Program Transfer

Screen programs can be transferred between the V10/V9 series unit and a storage device.

Because multiple screen programs can be saved on a storage device, the screen program for display can be switched as required.

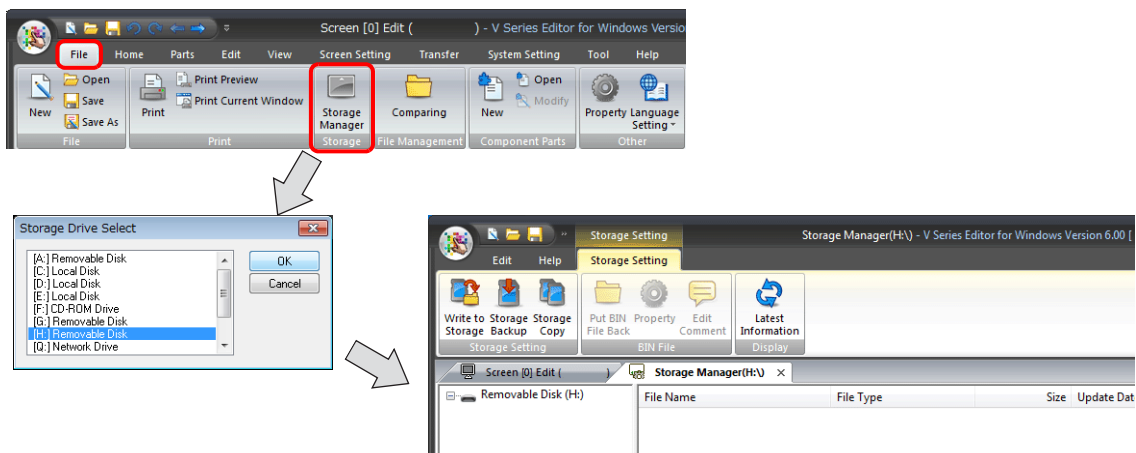
This section describes how to read and write data between a PC and a storage device. For details on reading and writing between a storage device and the V10/V9 series unit, refer to the following manuals.

- V10 Series Unit Operation / Local Mode / Error Screen Manual
- V9 Series Troubleshooting/Maintenance Manual



PC → Storage Device Writing

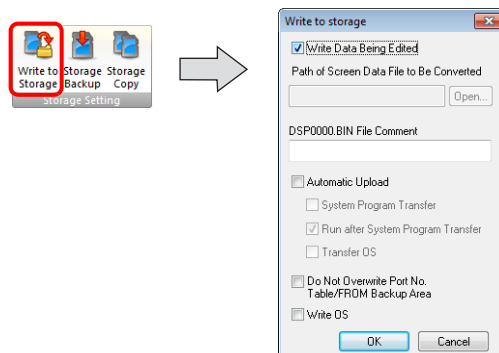
1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window ^{*1} is displayed.



*1 Storage manager

The storage manager is an application that facilitates writing of V10/V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to "8.4 Storage Manager" page 8-31.

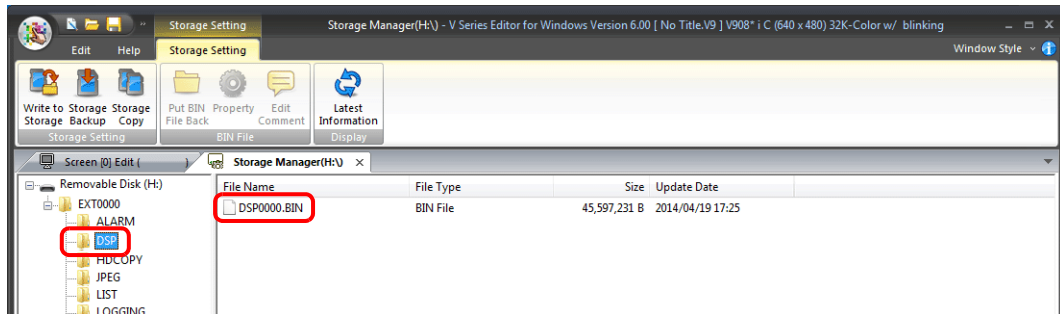
4. Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



Item	Description
Write Data Being Edited	Write the screen program that is open (being edited) in V-SFT.

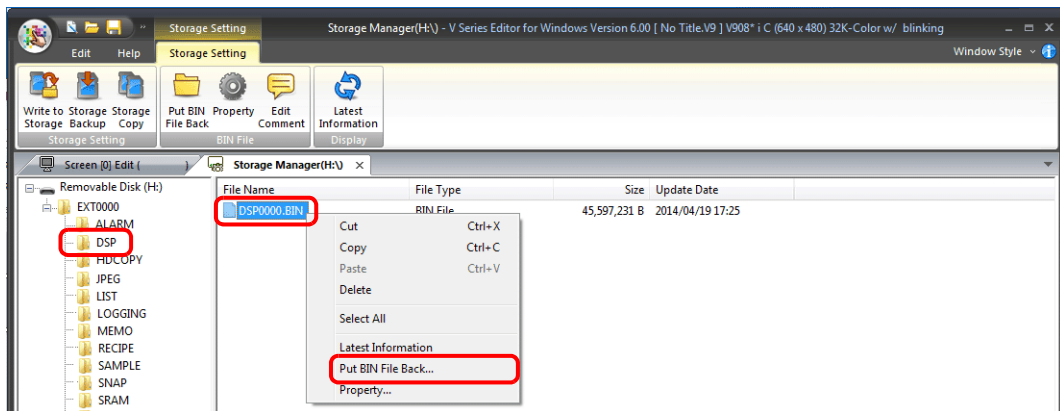
Item	Description
Path of Screen Data File to Be Converted	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V10)], [Screen Data File (*.V9)]
DSP0000.BIN File Comment	Add a comment to the screen program file (DSP0000.BIN) written to the storage device. This comment can be checked via the file's [Property] window.
Automatic Upload	(This is not for screen program transfer.)
Do Not Overwrite Port No. Table/FROM Backup Area	Select this checkbox to prevent existing values in the station number table or existing values in the FROM area from being changed when transferring a screen program from a storage device.

- When the settings are complete, click [OK]. A "DSP0000.BIN" file is saved to "(access folder)\DSP" on the storage device. The "DSP0000.BIN" file contains the screen program, system program, fonts, I/F driver etc.

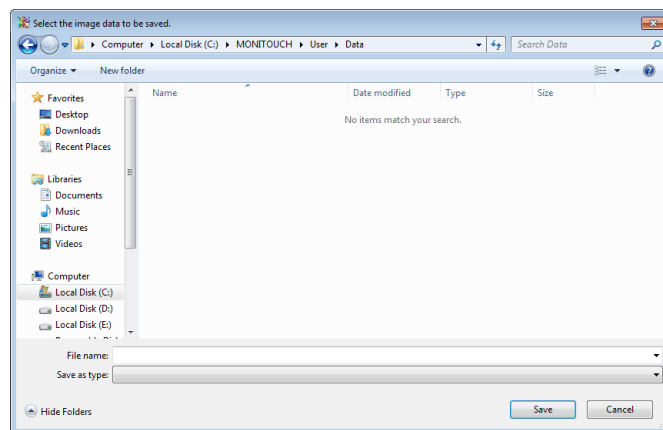


Storage Device → PC Reading

- Start V-SFT.
- Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
- Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window is displayed.
- Check that "DSP0000.BIN" exists in the "DSP" folder in the access folder, and select the file.
- Right-click on the file and select [Put BIN File Back].



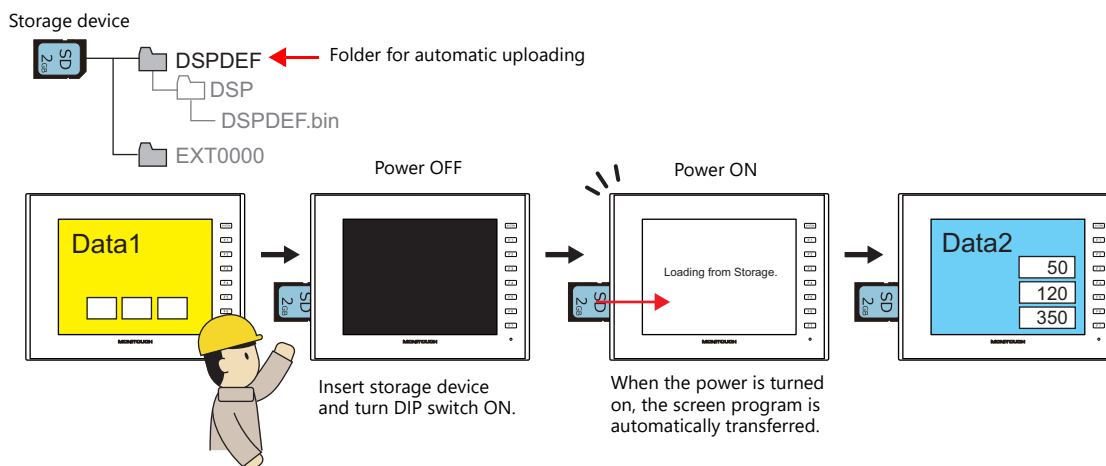
- The window shown below is displayed. Specify the folder to save in and the filename and click [Save].



8.3.3 Automatically Uploading Screen Programs

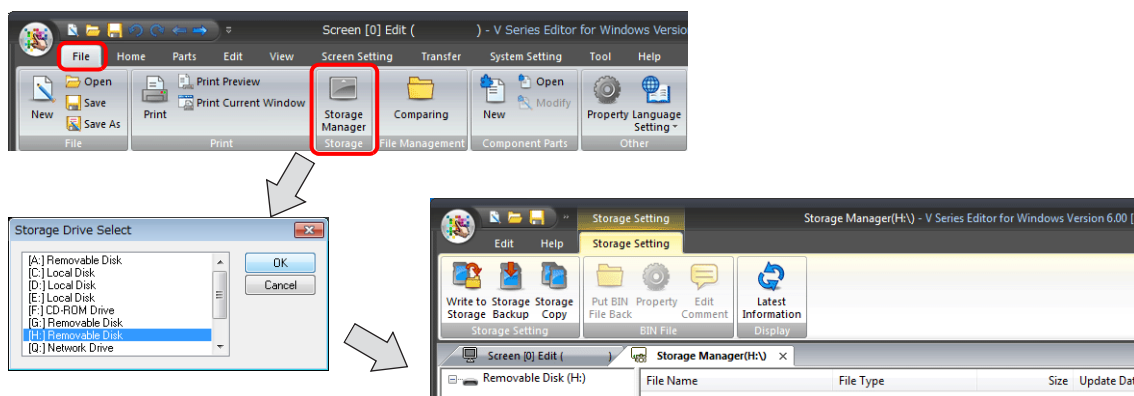
When a storage device is inserted and the power is turned on, the screen program is automatically uploaded. This allows the screen program to be easily updated without bothering the operator.

 For the recommended capacity of a storage device, refer to "8.1.2 Storage Device Specifications" page 8-1.



PC → Storage Device Writing

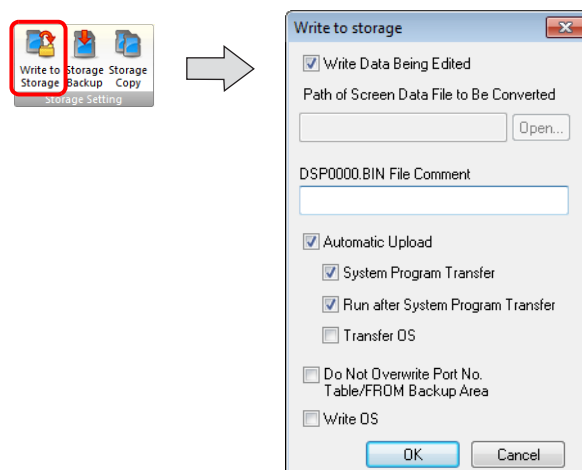
1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window ^{*1} is displayed.



*1 Storage manager

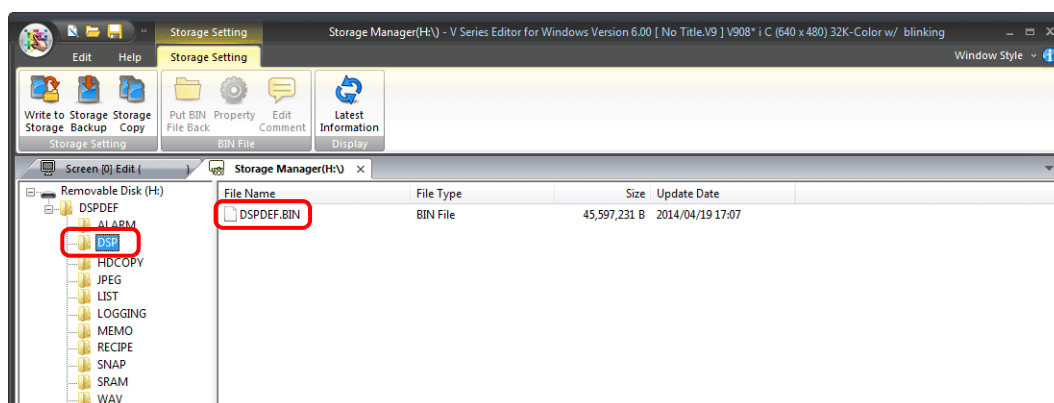
The storage manager is an application that facilitates writing of V10/V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to "8.4 Storage Manager" page 8-31.

4. Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



Item	Description
Write Data Being Edited	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V10)], [Screen Data File (*.V9)]
DSP0000.BIN File Comment	Add a comment to the screen program file (DSP0000.BIN) written to the storage device. This comment can be checked via the file's [Property] window.
Automatic Upload	Create an automatic upload file.
System Program Transfer	Select this checkbox when uploading system program files together with the screen program.
Run after System Program Transfer	Automatically switch MONITOUCH to RUN mode after automatic upload is complete.
Do Not Overwrite Port No. Table/FROM Backup Area	Select this checkbox to prevent existing values in the station number table or existing values in the FROM area from being changed when transferring a screen program from a storage device.

5. When the settings are complete, click [OK]. A "DSPDEF.BIN" file is saved to "DSPDEF\DSP". The "DSPDEF.BIN" file contains the screen program, system program, fonts, I/F driver etc.



Operation on the V10/V9 Series

After storing data on the storage device, import the data into the V10/V9 series unit according to the following procedure.

1. Turn off the V10/V9 series unit.
2. Set DIPSW1 on the V10/V9 series unit to ON.
3. Insert the storage device into the V10/V9 series unit.
4. Turn on power to the V10/V9 series unit. After a "Data Loading" message, a "Loading from Storage" message is displayed, and then the screen program saved to the storage device is written.

When transfer is complete, the RUN screen (or Local mode) is displayed automatically.

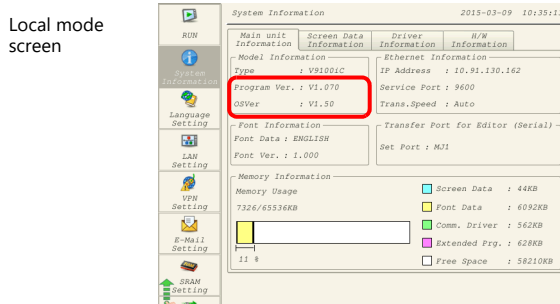
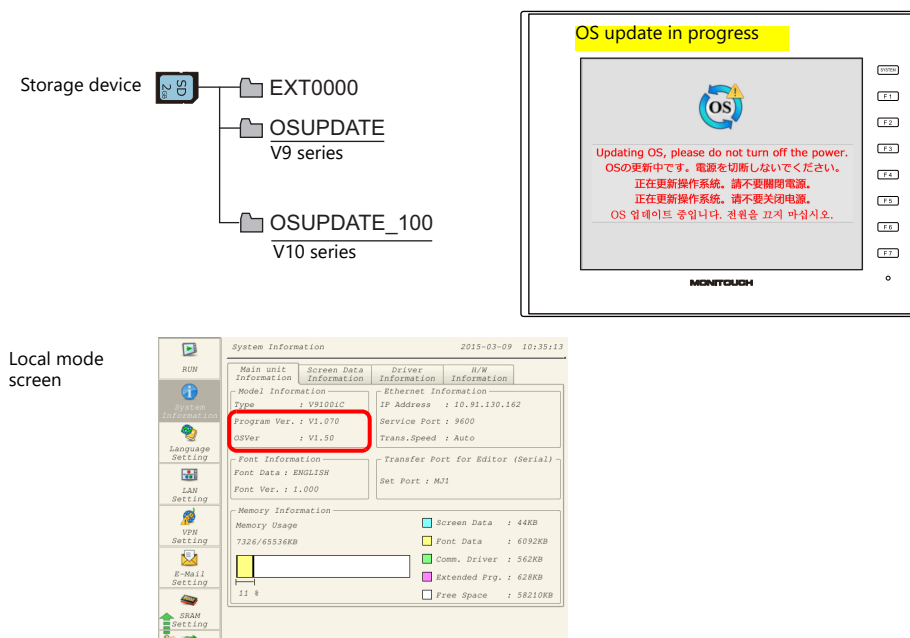
Notes on Write Operations

- When using the "DSPDEF" screen program for automatic uploading, only one type of data can be stored per storage device.
- If the storage device is removed after automatic uploading and the power is turned off and on again, the message "Insert Storage in V10 (or V9)." is displayed and the V10/V9 series unit does not start correctly. Insert the storage device or set DIPSW1 to OFF, and then turn the power off and back on.
- Once automatic uploading has been performed, the screen program that was written to the V10/V9 series unit (including I/F drivers, fonts, etc.) is overwritten by the screen program that was automatically uploaded. Note that even if the storage device is removed and DIPSW1 is set to OFF again, it is not possible to restore the state before to the upload.

8.3.4 Manually Updating the Operating System

This section describes the procedure for manually updating the operating system for operating the V10/V9 series unit. The operating system version can be checked from the System Information screen in Local mode on the V10/V9 series unit.

- ☞ For the recommended capacity of a storage device, refer to “8.1.2 Storage Device Specifications” page 8-1.

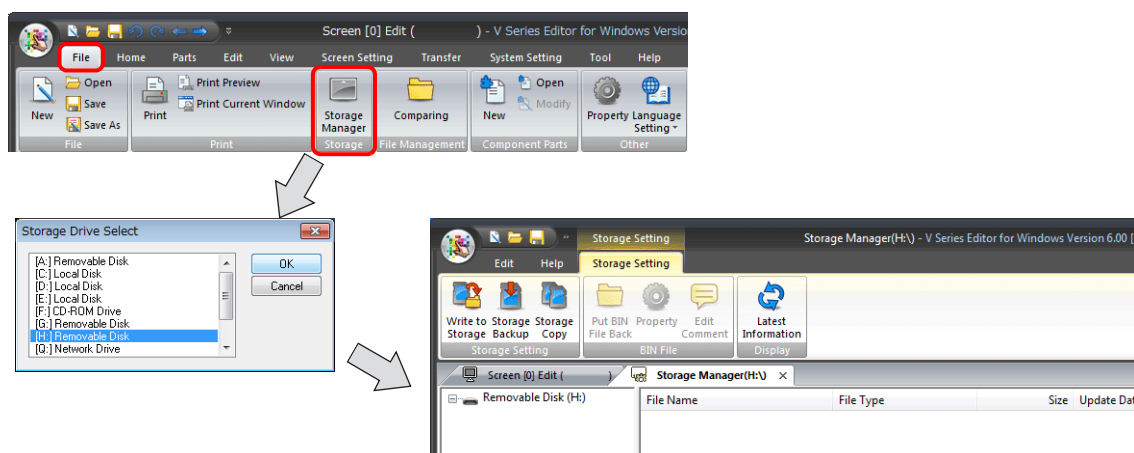


Notes

- Before updating the operating system, creating a backup of the screen program and other data such as SRAM data is recommended to guard against data loss.
- When the operating system is updated the system program is automatically updated as well.
- It takes approximately a few minutes to update the operating system. During the update, never turn off the power of the V10/V9 series unit or remove the storage device.
- When both an SD card and a USB flash drive are connected to the V10/V9 series unit, the SD card takes priority.
- Only one instance of the “OSUPDATE” folder for V9 or “OSUPDATE_100” folder for V10, which is used for updating the operating system, can be stored per storage device.

PC → Storage Device Writing

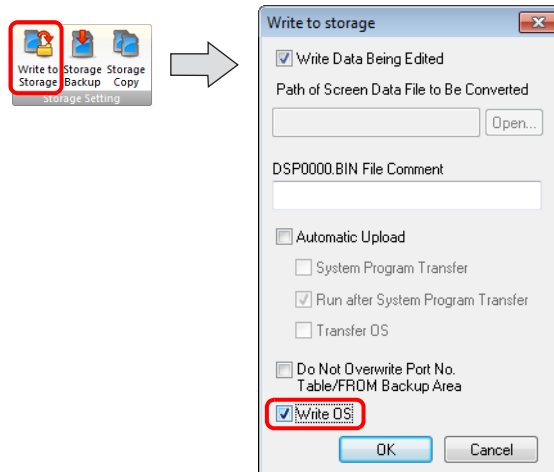
1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window ^{*1} is displayed.



*1 Storage manager

The storage manager is an application that facilitates writing of V10/V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to “8.4 Storage Manager” page 8-31.

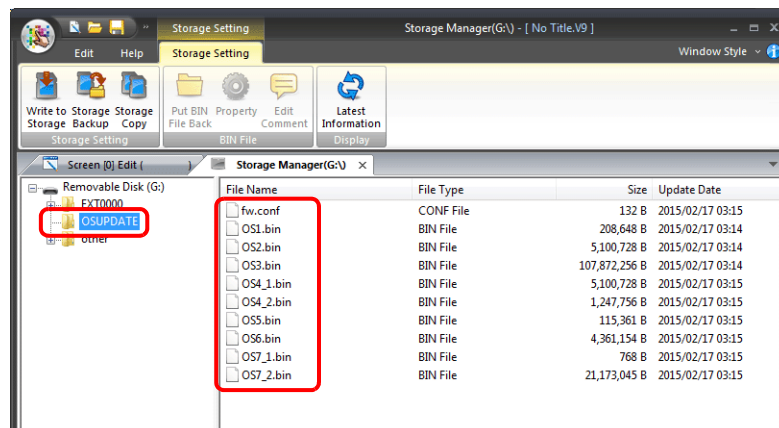
- Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



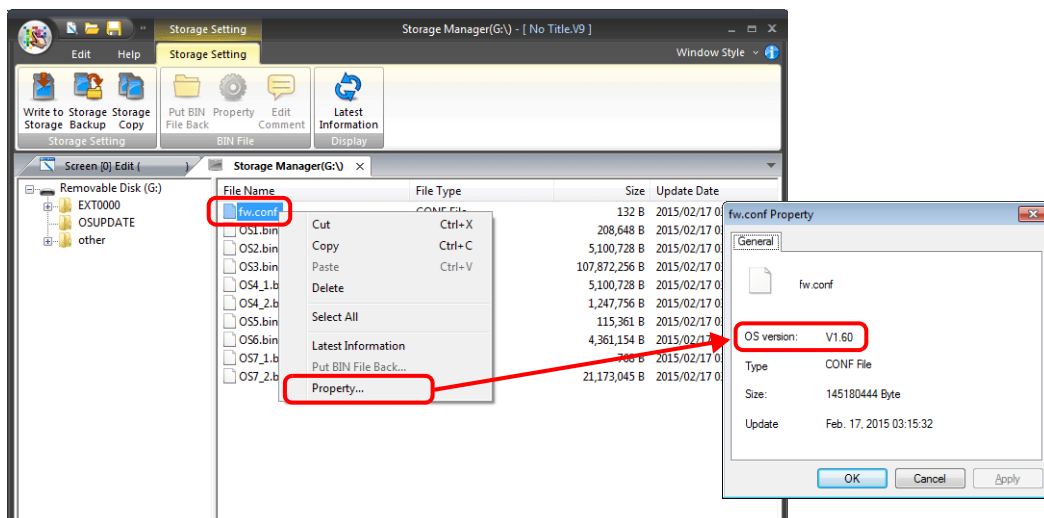
Item	Description
Write Data Being Edited *1	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted *1	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V10)], [Screen Data File (*.V9)]
Write OS	Select this checkbox to enable manual updating.

*1 Selection of a screen program is necessary. Operating system data can only be written together with a screen program.

- When the settings are complete, click [OK]. The following files are saved to the "OSUPDATE" folder.



Click on [Property] on the right-click menu of the "fw.conf" file to view the operating system version.

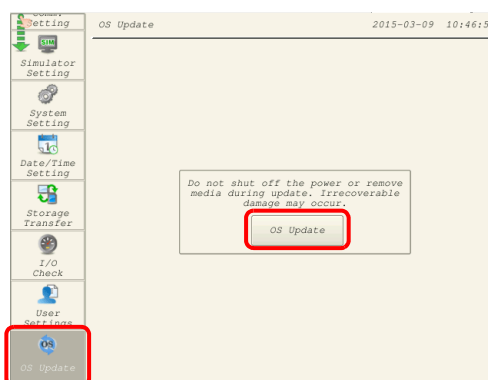


Operation on the V10/V9 Series

After writing the data on a storage device, update the operating system according to the following procedure.

1. Turn off the V10/V9 series unit.
2. Connect the storage device to the V10/V9 series unit and turn on power to the V10/V9 series unit.
3. Press the [SYSTEM] switch to display the system menu and then press the [Local] switch. The V10/V9 series unit switches to Local mode.
4. Check the [Program Ver.] and [OSVer] on the System Information screen.
5. Press the [OS Update] menu switch on the OS Update screen ^{*1}.

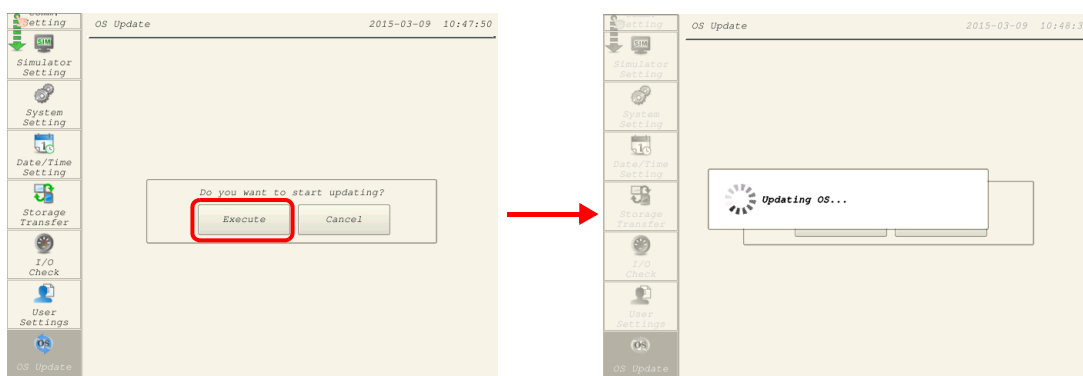
*1 The [OS Update] menu switch is displayed at the very bottom of the menu switches only when a storage device containing an "OSUPDATE" folder is connected.



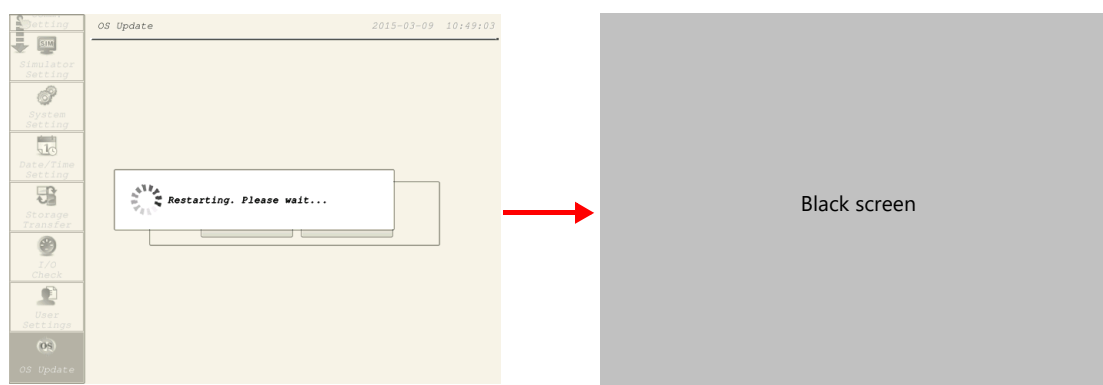
6. The following confirmation dialog appears. Press [Execute]. Updating of the operation system starts.



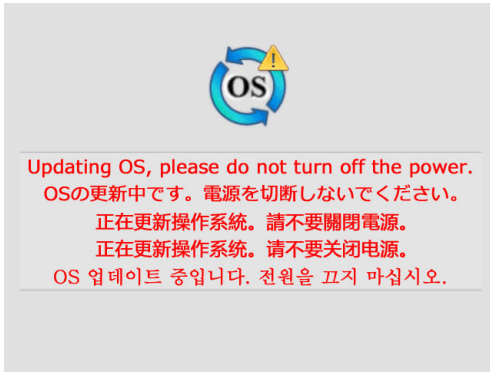
While the operating system is being updated, never turn off the power of the V10/V9 series unit or remove the storage device.



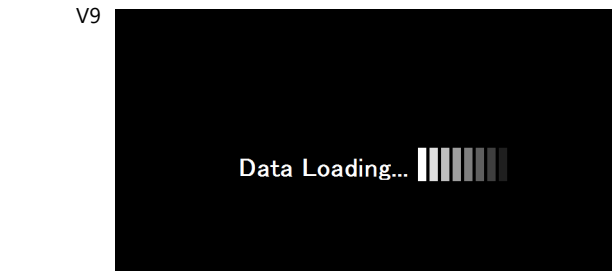
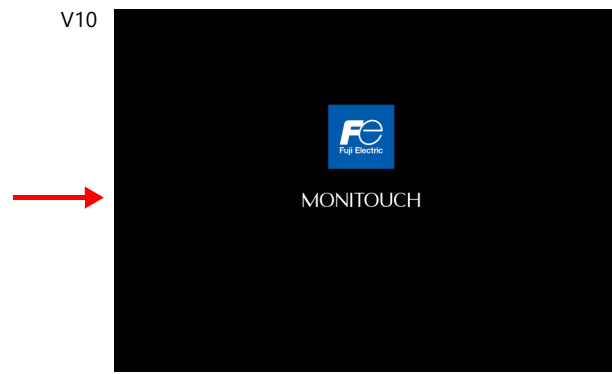
7. The V10/V9 series unit reboots and the screen will be black for a short while.



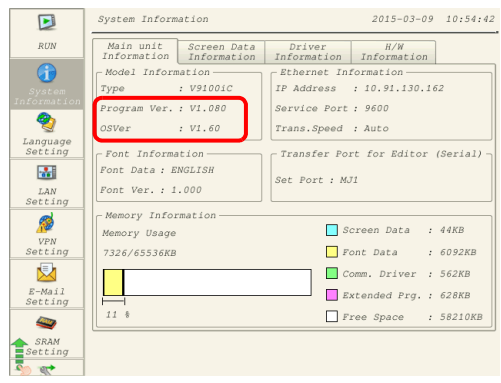
8. The following screen is displayed while the operating system is being updated.



9. When the update completes without any errors, the following screen is displayed and the V10/V9 series unit automatically reboots.



10. Press the [SYSTEM] switch and switch to Local mode from the displayed system menu. Check that the [Program Ver.] and [OSVer] have respectively been updated.

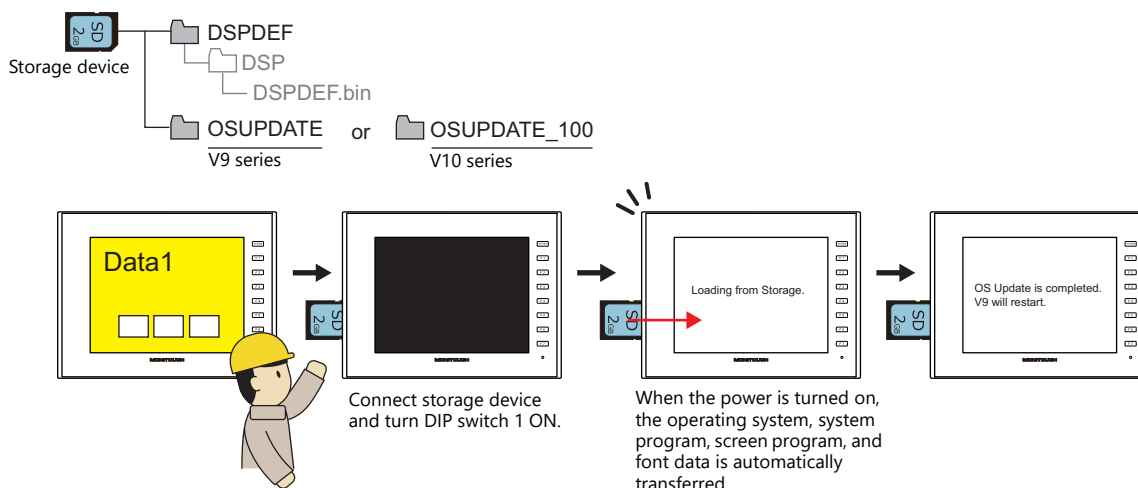


8.3.5 Automatically Updating the Operating System

This section describes the procedure for automatically updating the operating system for operating the V10/V9 series unit. The operating system and system program can be updated automatically by connecting a storage device to the V10/V9 series unit and turning the power on.

The operating system version can be checked from the System Information screen in Local mode on the V10/V9 series unit.

 For the recommended capacity of a storage device, refer to [“8.1.2 Storage Device Specifications” page 8-1](#).

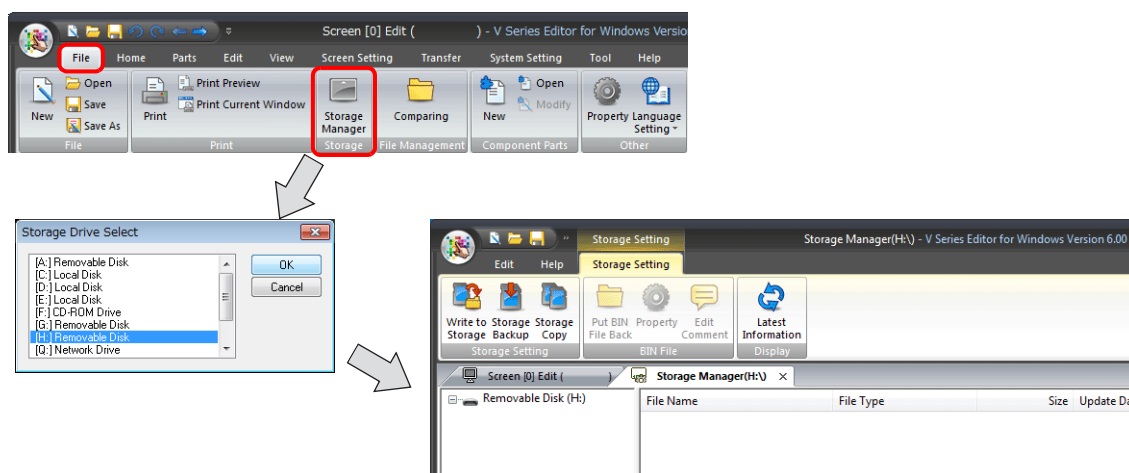


Notes

- Before updating the operating system, creating a backup of the screen program and other data such as SRAM data is recommended to guard against data loss.
- When the operating system is updated the system program is automatically updated as well.
- It takes approximately a few minutes to update the operating system. During the update, never turn off the power of the V10/V9 series unit or remove the storage device.
- When both an SD card and a USB flash drive are connected to the V10/V9 series unit, the SD card takes priority.
- If the storage device is removed with DIP switch 1 left ON after automatic updating and the power is turned off and on again, the message "Insert Storage in V10 (or V9)." is displayed and the V10/V9 series unit does not start correctly. If the storage device is left connected with DIP switch 1 left ON and the power is turned off and on again, automatic updating is performed again. Be sure to set DIP switch 1 to OFF after updating and then turn on the power.

PC → Storage Device Writing

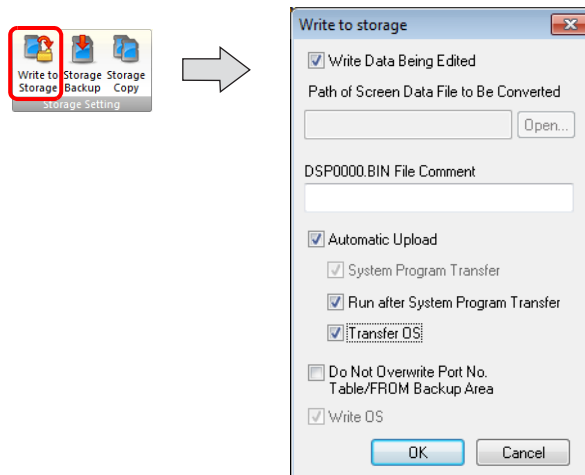
1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window ^{*1} is displayed.



*1 Storage manager

The storage manager is an application that facilitates writing of V10/V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to [“8.4 Storage Manager” page 8-31](#).

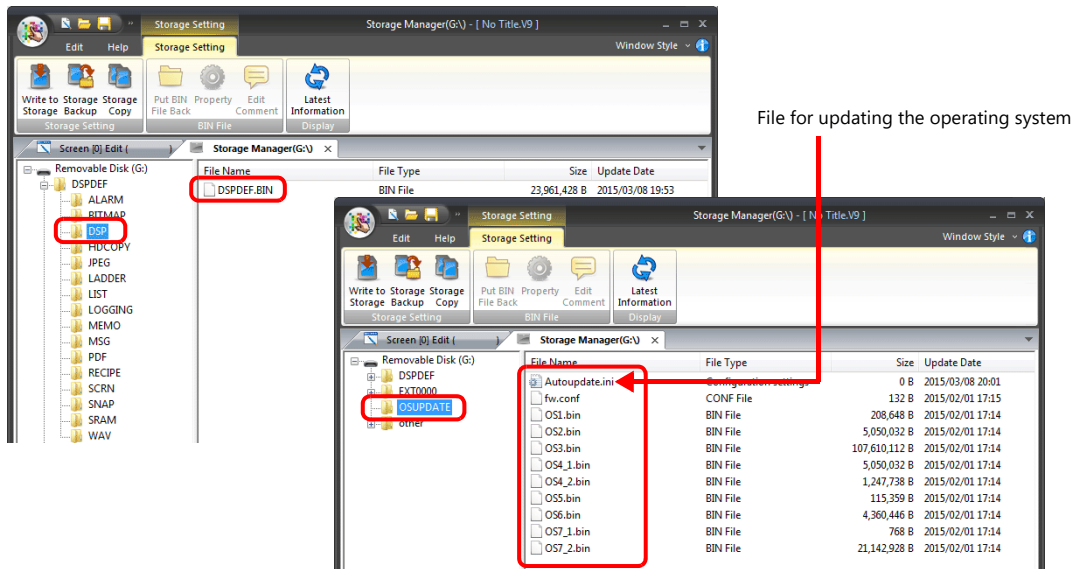
- Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



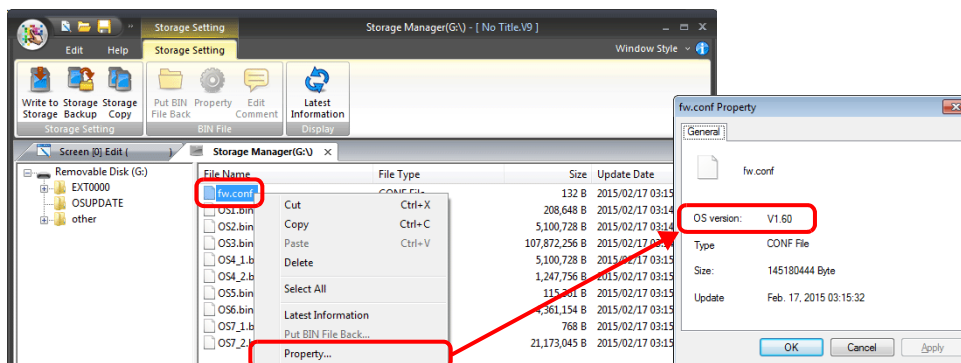
Item	Description
Write Data Being Edited *1	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted *1	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V10)], [Screen Data File (*.V9)]
Automatic Upload	Create an automatic upload file.
Transfer OS	Select this checkbox when transferring the operating system together with the screen program. The system program is transferred as well.

*1 Selection of a screen program is necessary. Operating system data can only be written together with a screen program.

- When the settings are complete, click [OK]. A "DSPDEF.BIN" file is saved to "DSPDEF\DSP". The "DSPDEF.BIN" file contains the screen program, system program, fonts, I/F driver etc. The following files are saved to the "OSUPDATE" folder.



Click on [Property] on the right-click menu of the "fw.conf" file to view the operating system version.



Operation on the V10/V9 Series

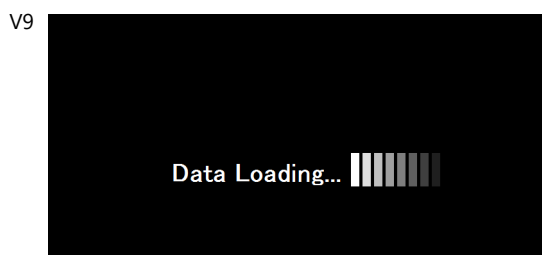
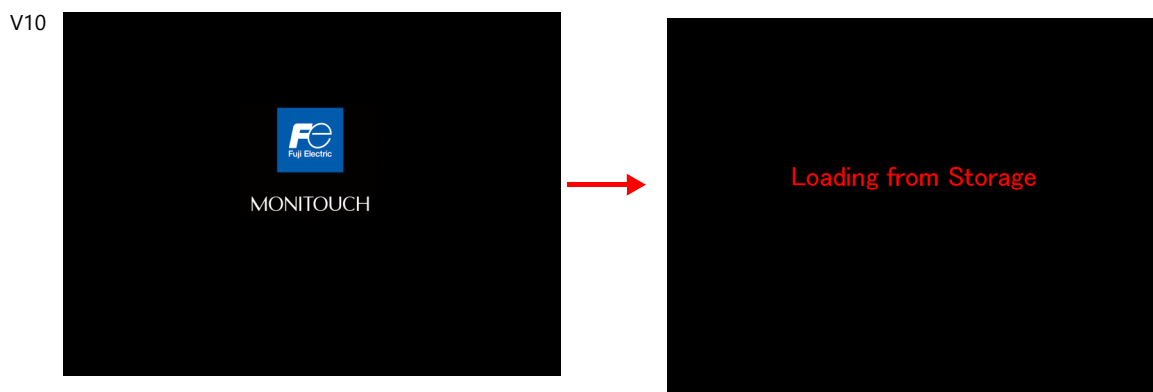
After writing the data on a storage device, update the operating system according to the following procedure.

1. Turn off the V10/V9 series unit.
2. Connect the storage device to the V10/V9 series unit.
3. Set DIPSW1 on the V10/V9 series unit to ON.
4. Turn on power to the V10/V9 series unit. The following message is displayed.

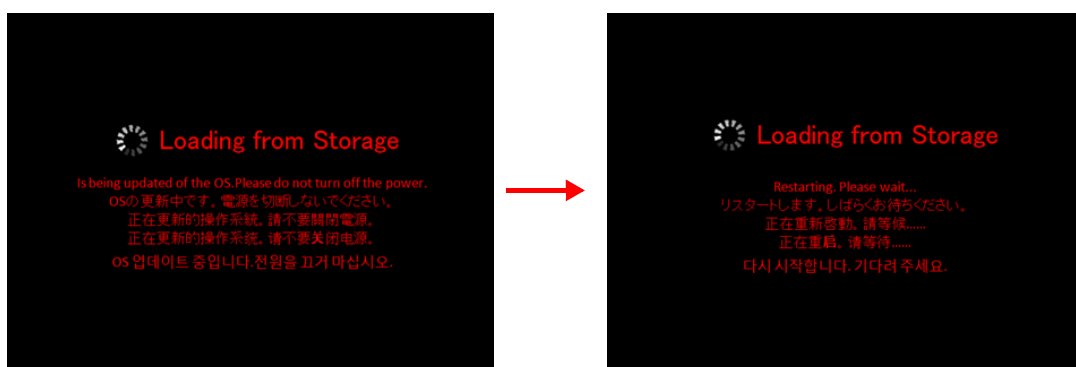
* The "Loading from Storage" message may be displayed.



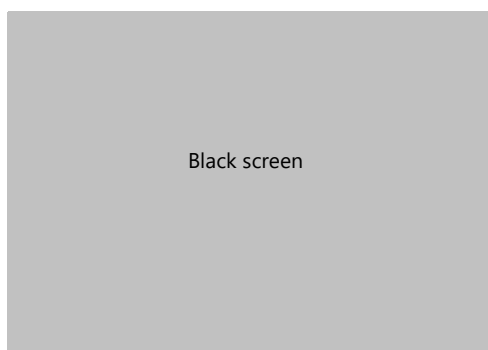
While update is in progress, never turn off the power of the V10/V9 series unit or remove the storage device.



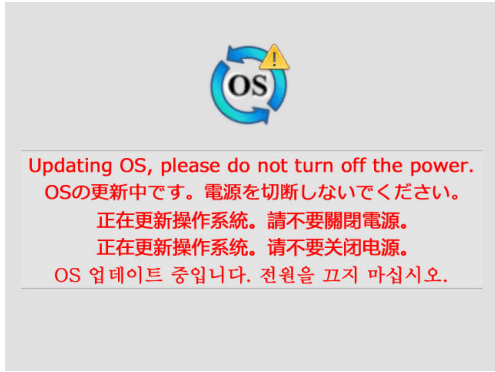
5. The following message appears.



6. The screen turns black for a short while.



7. The following screen is displayed while the operating system is being updated.



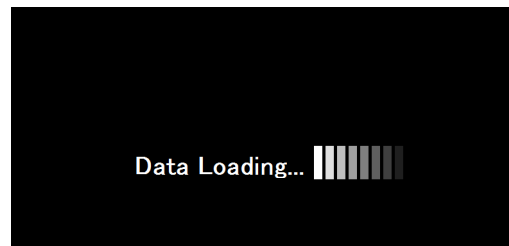
8. When the update completes without any errors, the following screen is displayed and the V10/V9 series unit automatically reboots.



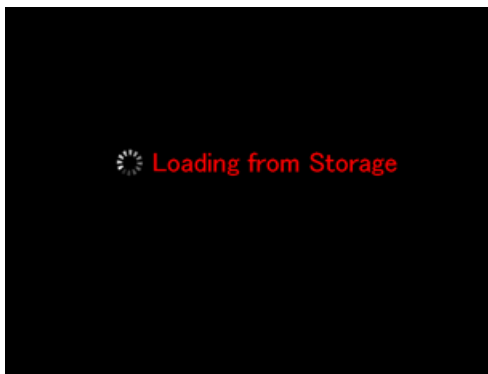
V10



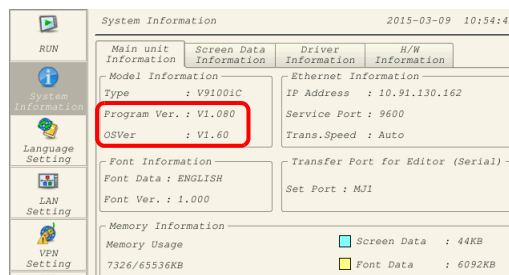
V9



9. The "Loading from Storage" message is displayed again, and then the screen program saved to the storage device is written. When transfer is complete, the V10/V9 series unit automatically switches to RUN mode.



10. Switch to Local mode from the system menu. Check that the [Program Ver.] and [OSVer] have respectively been updated.



8.3.6 Reducing Screen Program Data Size

Part of the screen program data, such as screens, patterns and messages, can be stored to a storage device. This can reduce the size of the actual screen program data.

- Pattern files (bitmap)
- Messages (BIN files, TXT files *1)
- Screens (Max. 4000)
- 3D parts
- Windows fonts

*1 Messages can be saved to a storage device as a BIN file or TXT file. For details on saving a TXT file, refer to "8.3.7 Storing Messages (TXT Files)" page 8-21.

File Storage Location and Filename

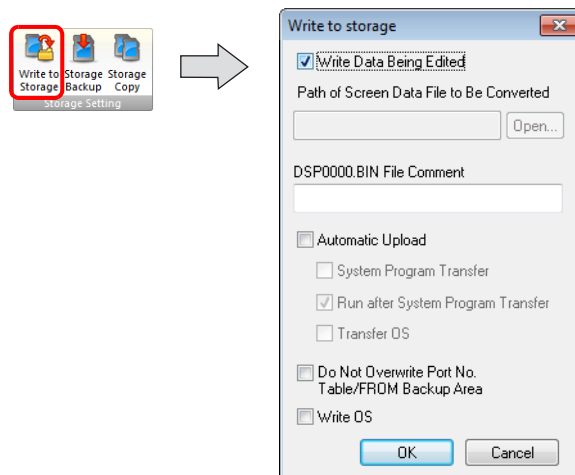
Item		Filename	Storage Location
Patterns		BMPxxxx.BIN (xxxx: 0000 to 1023)	(Access folder)\BITMAP
Messages (BIN)		MSGyyyy.BIN (xx: Language number 00 to 31) (yyy: Message group number 000 to 127)	(Access folder)\MSG
Screens 3D parts Windows fonts	Header	SCHEADER.BIN	(Access folder)\SCRN
Screens	-	SCxxxx.BIN (xxxx: 0 to 9999)	
	Component parts (macro blocks)	MCRxxxx.BIN (xxxx: 0 to 1023)	
	Component parts (alarm messages)	MSGxxxx.BIN (xxxx: 0 to 11)	
3D parts		3Dxxxx.BIN (xxxx: 0 to 1023)	
Windows fonts	Graphics	WFSxxxx.BIN (xxxx: 0 to 4095)	
	Messages	WFMxxxx.BIN (xxxx: 0 to 4095)	

PC → Storage Device Writing

1. Configure the following settings on the screen program in advance. Click [System Setting] → [Storage Setting]. The [Storage Setting] window is displayed.
2. Select the items to save to the storage device. When the settings are complete, click [OK] and save the screen program file.

3. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
4. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window is displayed.

5. Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed.



6. If the screen program is currently being edited, select the [Write Data Being Edited] checkbox.
If the screen program is not the one currently opened with V-SFT, deselect the [Write Data Being Edited] checkbox and select the relevant screen program from the [Open] button.
7. When the settings are complete, click [OK]. The file is saved to the access folder.

Operation on the V10/V9 Series

Connect a storage device to the V10/V9 series unit. When opening a screen program on the V10/V9 series unit, the storage device will automatically be referred to for showing the screen.

- If screen data is not stored correctly on the storage device or a storage device is not connected to the V10/V9 series unit, the V10/V9 series unit will operate as if there is no screen.
If calling a screen using a switch with [Screen Change-over] selected for [Function], a short intermittent beep will sound and the request will not be processed. If using a [Displaying Screen Device] from the PLC to specify a screen, the screen will not changeover. (If immediately after power-on, the screen with the smallest number will be displayed.)
- If 3D parts are not stored correctly on the storage device or the storage device is not connected to the V10/V9 series unit, 3D parts will not be displayed.
- If Windows fonts are not stored correctly on the storage device or the storage device is not connected to the V10/V9 series unit, Windows fonts will not be displayed.
- If patterns are not stored correctly on the storage device or the storage device is not connected to the V10/V9 series unit, patterns will not be displayed.
- When both BIN files (MSGxyyy.BIN) and TXT files (MSGxyyy.TXT) coexist in the "MSG" folder on the storage device, reference to TXT files takes priority.
- Screen data stored in a storage device takes longer to display than data stored in the MONITOUCH flash memory.

Notes on File Storage

- Up to 512 KB of screen data can be saved to a storage device per screen. The per screen data size can be viewed at [Tool] → [List of Memory Use]. However, the size of the screen data that was selected for storage at [System Setting] → [Other] → [Storage Setting] cannot be viewed on the [List of Memory Use] tab window. We recommend checking the data size before configuring [Storage Setting].
- For the restoration of the screen data in the "SCRN" folder to the original data file (.V10 or .V9), the "DSP0000.BIN" file in the "DSP" folder is required. However, if data information of "DSP0000.BIN" in the "DSP" folder and "SCHEADER.BIN" in the "SCRN" folder do not match, the compilation of files from these folders does not take place, and thus the screen program is created with screen data in the "SCRN" folder omitted. For details on the conversion procedure, refer to ["BIN File Conversion" page 8-33](#).

8.3.7 Storing Messages (TXT Files)

Messages (in TXT file format) can be stored on a storage device to reduce the size of the screen program. Since the messages are in TXT file format, they can be edited even without V-SFT.

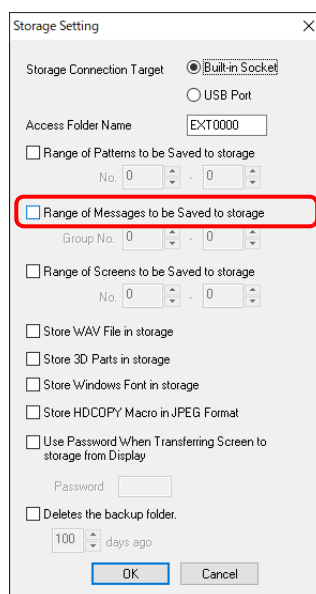
- * Message files can be stored in BIN and TXT file formats. For details on storing BIN files, refer to "8.3.6 Reducing Screen Program Data Size" page 8-19.

File Storage Location and Filename

Item	Filename	Storage Location
Messages (TXT format)	MSGxxxx.TXT (xx: Language number 00 to 31) (yyy: Message group number 000 to 127)	(Access folder)\MSG

PC → Storage Device Writing (For TXT Files)

1. Configure the following settings on the screen program in advance. Click [System Setting] → [Storage Setting]. The [Storage Setting] window is displayed.
2. Select the [Range of Messages to be Saved to storage] checkbox and specify the range of messages to be stored. When the settings are complete, click [OK] and save the screen program file.



3. Create files in TXT file format.
Filename: MSGxxxx.txt (xx: Language number 00 to 16, yyy: Message group number 000 to 127 *1)
- *1 TXT files must be created in accordance with the message group numbers specified in the [System Setting] → [Storage Setting] window.
Any TXT file with a number not within the specified range will not be recognized.
4. Save "MSGxxxx.TXT" files to the "MSG" folder under the access folder.

Operation on the V10/V9 Series

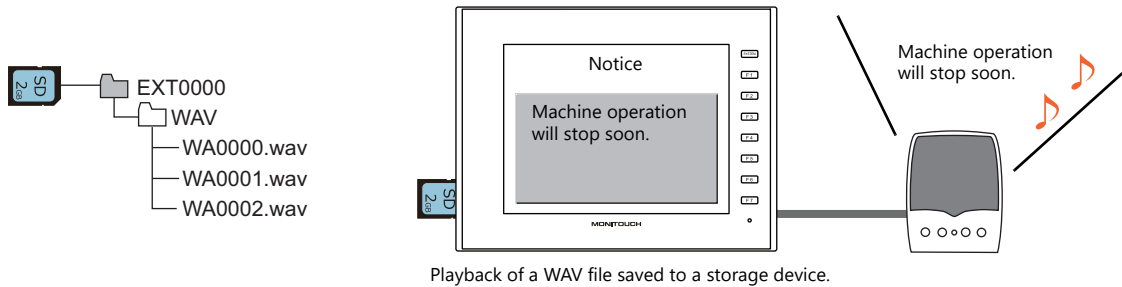
Connect the storage device to the V10/V9 series unit. When the screen program is displayed, the stored messages are displayed accordingly.

- * When both BIN files (MSGxxxx.BIN) and TXT files (MSGxxxx.TXT) coexist in the "MSG" folder on the storage device, reference to TXT files takes priority.

8.3.8 Storing Audio (WAV) Files

There are two methods for storing audio files used by the audio playback function: importing audio into the screen program or storing separately on a storage device.

The size of the screen program can be reduced by storing audio on a storage device.



WAV File Storage Location and Filename

Files* saved at the following location can be played.

Filename	Storage Location
WAxxxx.wav (xxxx: 0000 to 1023) xxxxxxx.wav (64 or less one-byte characters or 32 or less two-byte characters)	(Access folder)\WAV

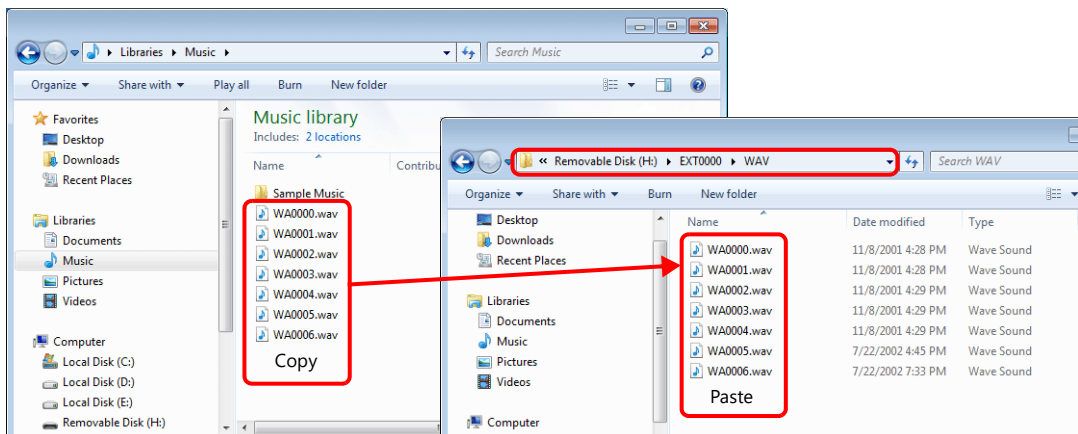
* For specifications of audio files that can be played, refer to "Audio Specifications" page 2-1.

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows explorer

1. Select the WAV file in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager

1. Store the WAV file to be used in "\\MONITOUCH\User\WAV" on the PC in advance.
2. Click [File] → [Storage Manager] and write to storage using [Write to Storage].

"8.4 Storage Manager" page 8-31

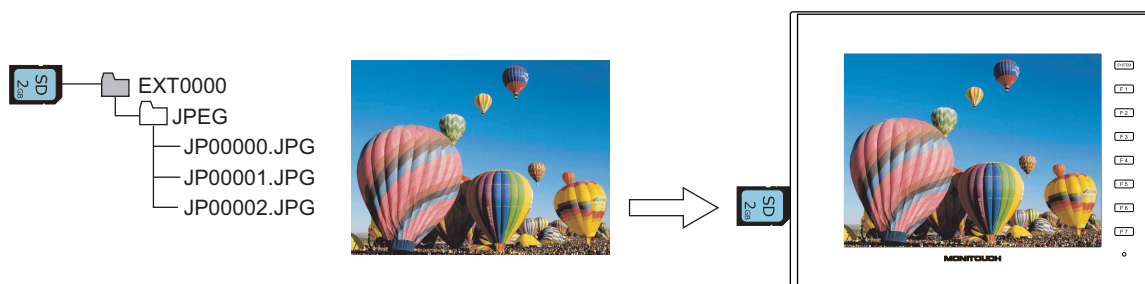
Operation on the V10/V9 Series

Insert the storage device into the V10/V9 series unit. Audio playback is available in RUN mode.

8.3.9 Storing JPEG Files (JPEG Display)

JPEG files can be displayed on the V10/V9 series unit. Always store JPEG files on a storage device.

 For details on JPEG display, refer to "1.3 JPEG Display".



Displaying a JPEG file stored on the storage device on the screen.

JPEG File Storage Location and Filename

Audio files are stored in the following location.

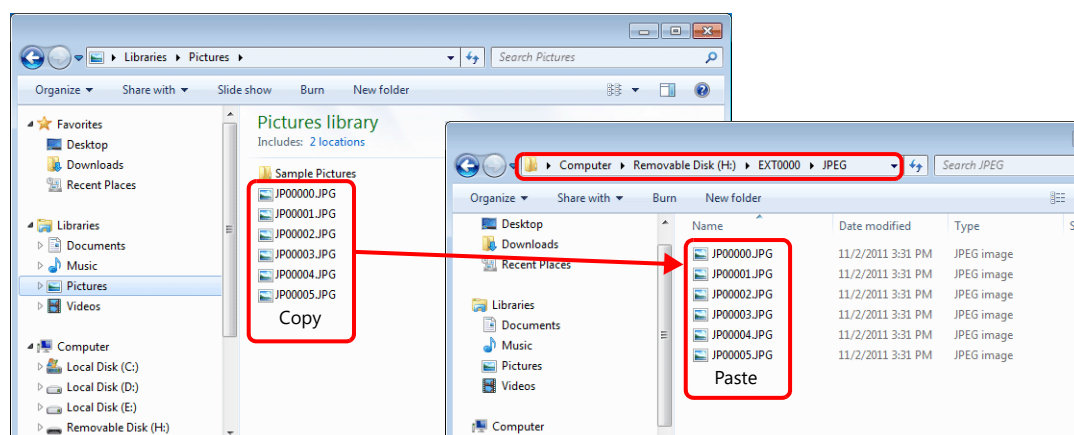
Filename	File Storage Location
JPxxxx.jpg (xxxxx: 00000 to 32767) xxxxxx.jpg (64 or less one-byte characters or 32 or less two-byte characters)	(Access folder)\JPEG

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows explorer

1. Select the JPEG file in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager

1. Store the JPEG file to be used in "\MONITOUCH\User\jpeg" on the PC in advance.
2. Click [File] → [Storage Manager] and write to storage using [Write to Storage].

 "8.4 Storage Manager" page 8-31

Operation on the V10/V9 Series

Insert the storage device into the V10/V9 series unit. The JPEG file on the storage device is displayed in RUN mode.

8.3.10 Storing Image Files (Picture Viewer)

Image files can be displayed on the V10/V9 series unit. JPEG, bitmap, and PNG format files can be displayed. Always store image files on a storage device.

For details on the picture viewer, refer to "16 Picture Viewer".

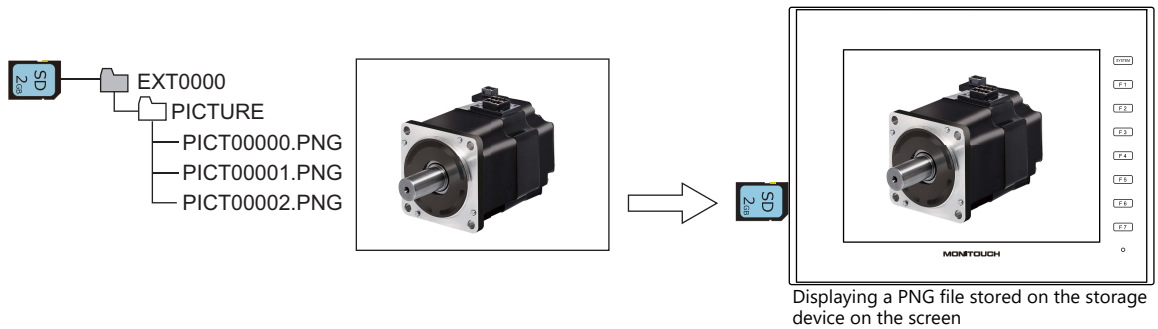


Image File Storage Location and Filename

Files are stored in the following location.

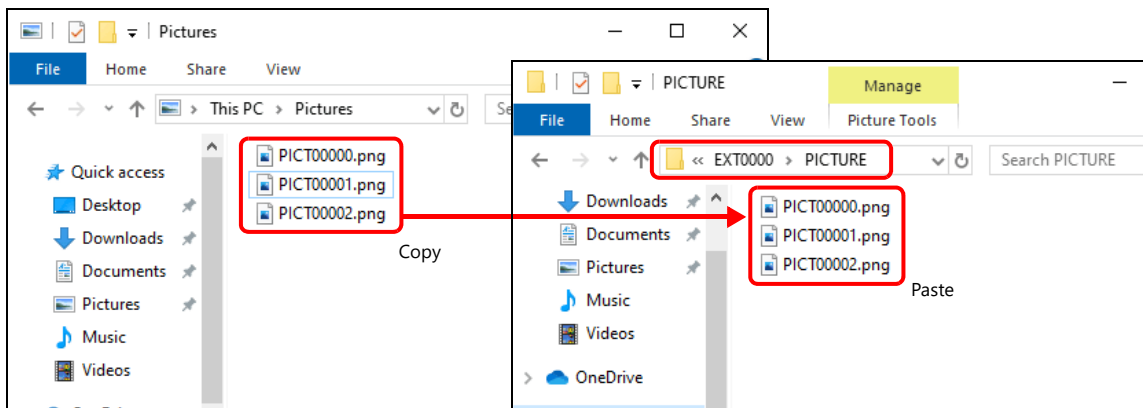
Filename	File Storage Location
PICTxxxx.JPG (xxxx: 00000 to 99999)	(Access folder)\PICTURE
PICTxxxx.PNG (xxxx: 00000 to 99999)	
PICTxxxx.BMP (xxxx: 00000 to 99999)	
Or any filename (64 or less one-byte characters or 32 or less two-byte characters)	

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows Explorer

1. Select the image file in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager

1. Store the image file to be used in "\MONITOUCH\User\PICTURE" on the PC in advance.
2. Click [File] → [Storage Manager] and write the selected files to the storage device using [Write to Storage].

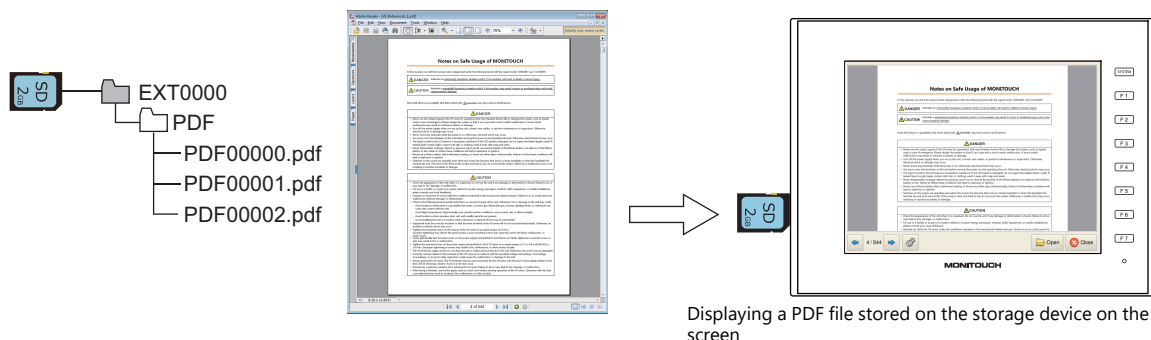
"8.4 Storage Manager" page 8-31

Operation on the V10/V9 Series

Connect the storage device to the V10/V9 series unit. The image files saved to the storage device are displayed on the screen using the picture viewer.

8.3.11 Storing PDF Files

PDF files can be displayed on the V10/V9 series unit. Always store PDF files on a storage device.



PDF File Storage Location and Filename

Files are stored in the following location.

Filename	File Storage Location
PDFxxxx.PDF (xxxx: 00000 to 99999) xxxxxxx.pdf (64 or less one-byte characters or 32 or less two-byte characters)	<ul style="list-style-type: none"> Storage location folder path* specified Any folder specified Storage location folder path* not specified (default) (Access folder)\PDF

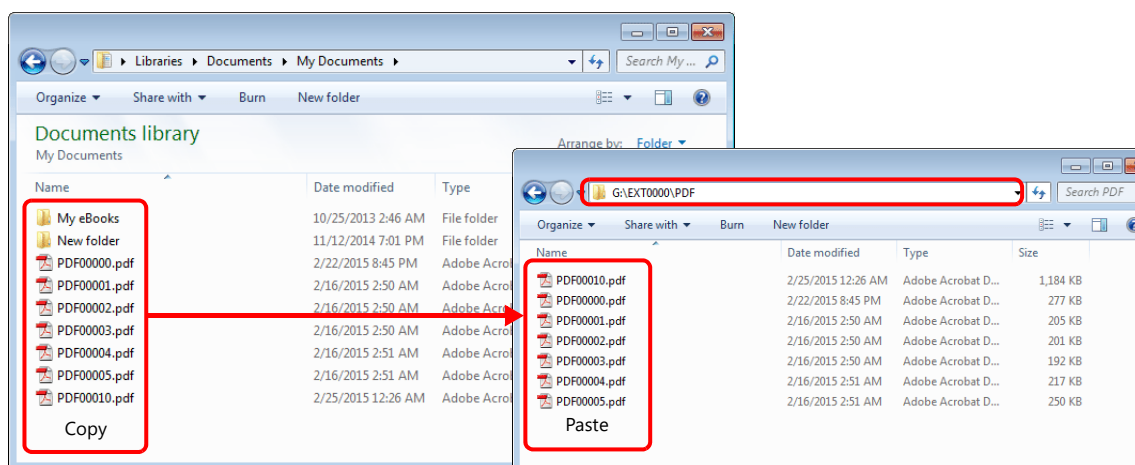
* For details on specifying the folder path, refer to "13.4 Detailed Settings" page 13-7 in "13 PDF Viewer".

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows explorer

1. Select PDF files in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager (only when storage location folder path is not specified)

1. Store the PDF files to be used in "\MONITOUCH\User\PDF" on the PC in advance.
2. Click [File] → [Storage Manager] and write the selected files to the storage device using [Write to Storage].

☞ "8.4 Storage Manager" page 8-31

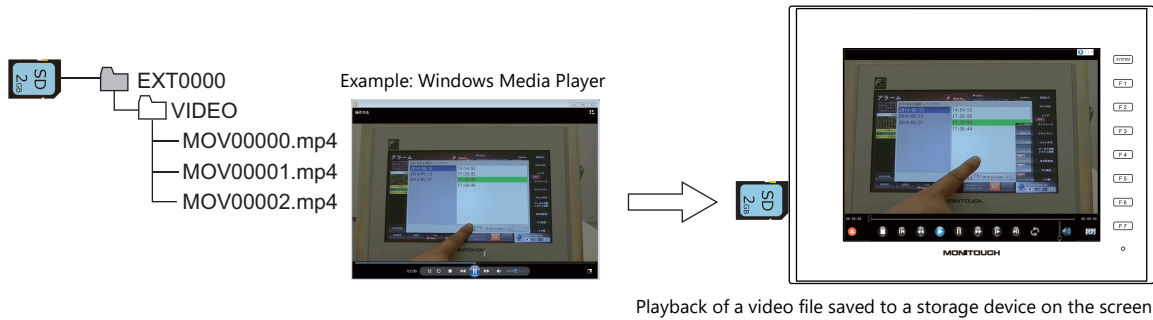
Operation on the V10/V9 Series

Connect the storage device to the V10/V9 series unit. The PDF files saved to the storage device are displayed on the screen using the PDF viewer.

☞ "13 PDF Viewer"

8.3.12 Storing Video Files

Videos can be displayed on the V10/V9 series unit. Always store video files on a storage device.



Video File Storage Location and Filename

Files are stored in the following location.

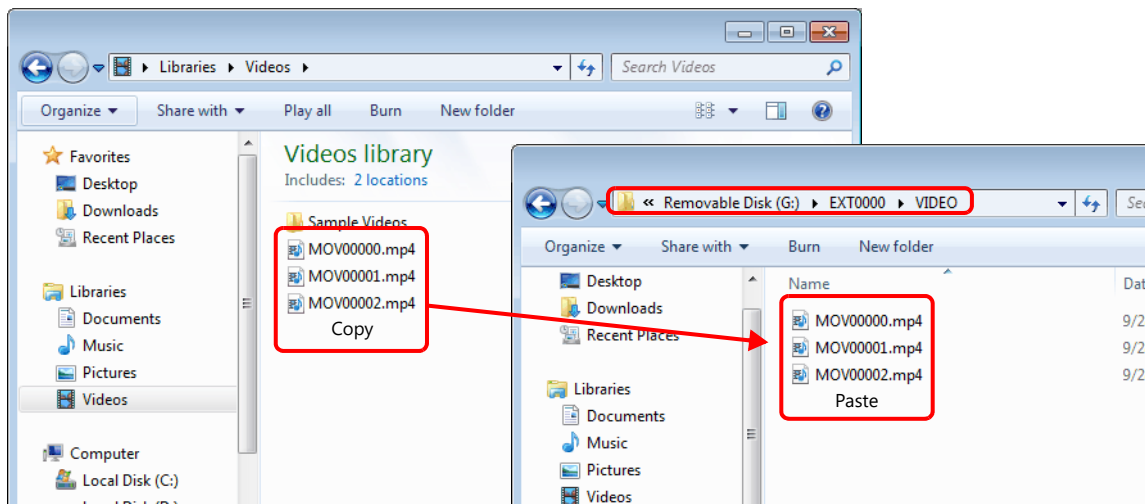
Filename	File Storage Location
MOVxxxx.mp4 (xxxx: 00000 to 99999)	(Access folder)\VIDEO
xxxxxx.mp4 (64 or less one-byte characters or 32 or less two-byte characters)	

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows explorer

1. Select the video files (*.mp4) in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager

1. Store the video files to be used in "\MONITOUCH\User\VIDEO" on the PC in advance.
2. Click [File] → [Storage Manager] and write the selected files to the storage device using [Write to Storage].

["8.4 Storage Manager" page 8-31](#)

Operation on the V10/V9 Series

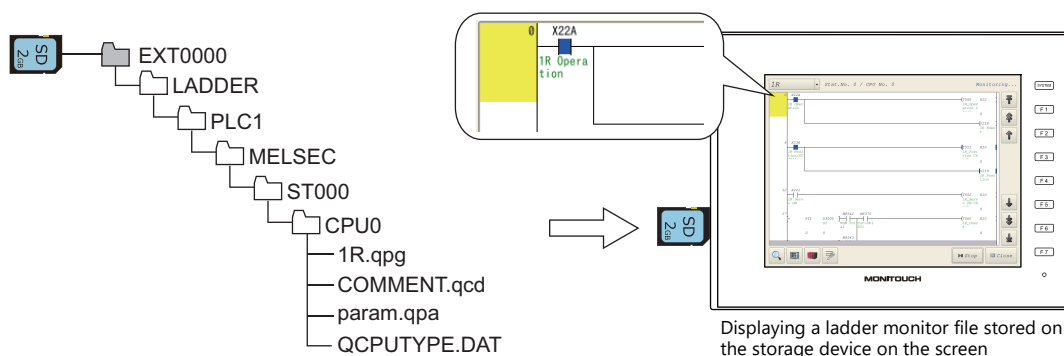
Connect the storage device to the V10/V9 series unit. The video files saved to the storage device are displayed on the screen using the video player.

["15.1 Video Player"](#)

8.3.13 Storing Ladder Monitor Files

PLC data (ladder monitor and I/O monitor) can be displayed on the V10/V9 series unit. Always store ladder monitor files on a storage device.

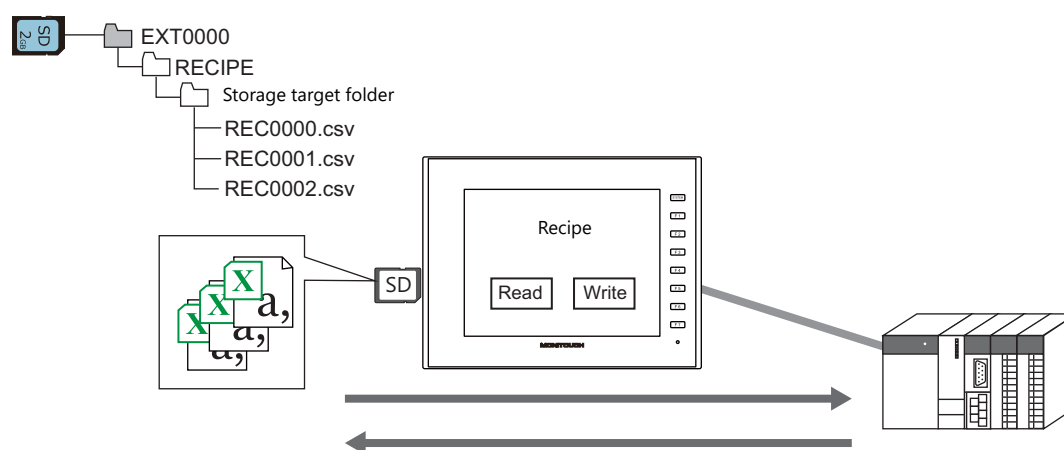
Example: Mitsubishi Electric PLC



☞ Refer to the Ladder Monitor Specifications manual.

8.3.14 Transferring Recipe Data

Recipe files (BIN/CSV) created on the PC can be stored on a storage device and read or written using a transfer command bit or a switch with [Recipe] set for [Function].



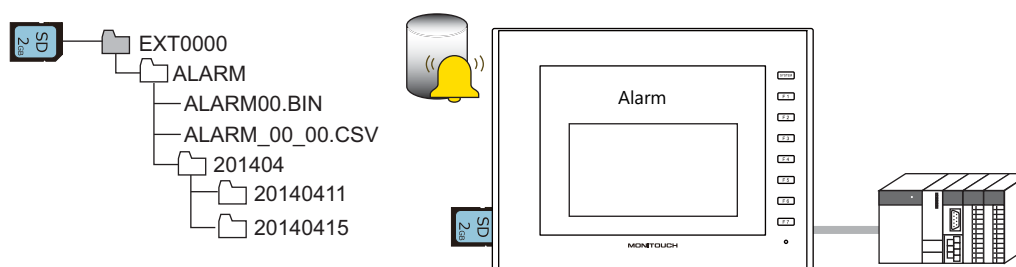
☞ Refer to "15 Recipes" in the Reference Manual 1.

8.3.15 Saving Alarm History

Alarm history and event history can be saved to a backup folder.

BIN files in the backup folder can be switched between for display on the V10/V9 series unit and CSV files can be readily checked and edited on a PC.

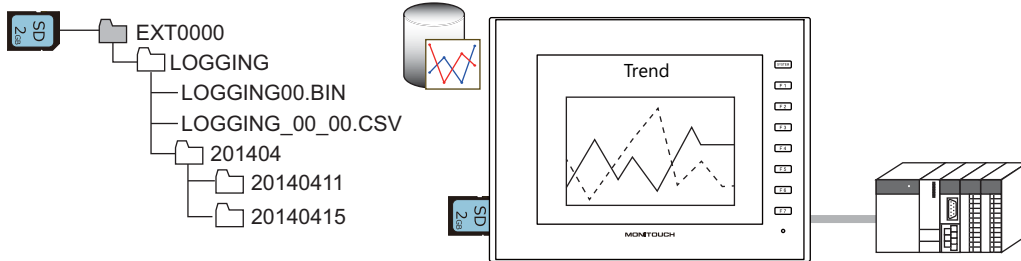
The storage targets for the latest history data and backup files can be divided over, for example, an SD card and a USB flash drive.



☞ Refer to "8 Alarm" in the Reference Manual 1.

8.3.16 Saving Logging Data

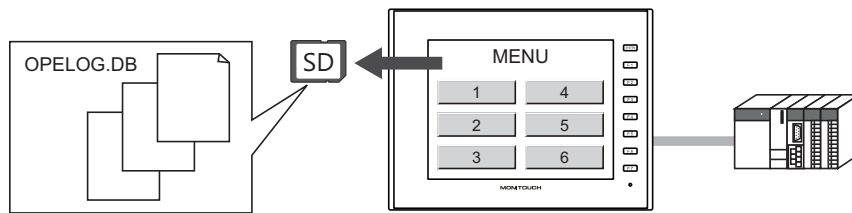
History data that contains numeric values and text can be saved to a backup folder. BIN files in the backup folder can be switched between for display on the V10/V9 series unit and CSV files can be readily checked and edited on a PC. The storage targets for the latest history data and backup files can be divided over, for example, an SD card and a USB flash drive.



☞ Refer to "7 Trends" in the Reference Manual 1.

8.3.17 Operation Logs

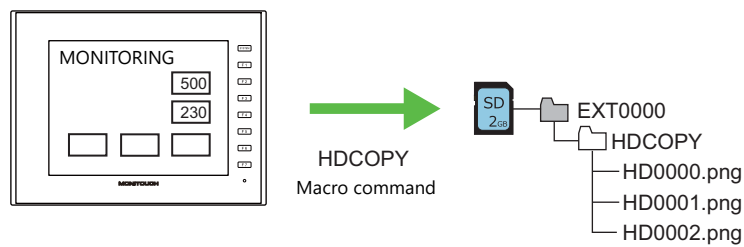
Screen operation history records (operation logs) can be output to a storage device. In the event of an error, these stored logs allow previous operations to be examined in order to determine the cause of the error.



☞ Refer to "4 Operation Log".

8.3.18 Saving Screenshot Images

Screenshot images can be saved to a storage device as PNG files using a macro command. When it is difficult to connect a printer on the factory floor, screenshot images can be saved to a storage device and printed later from a PC.

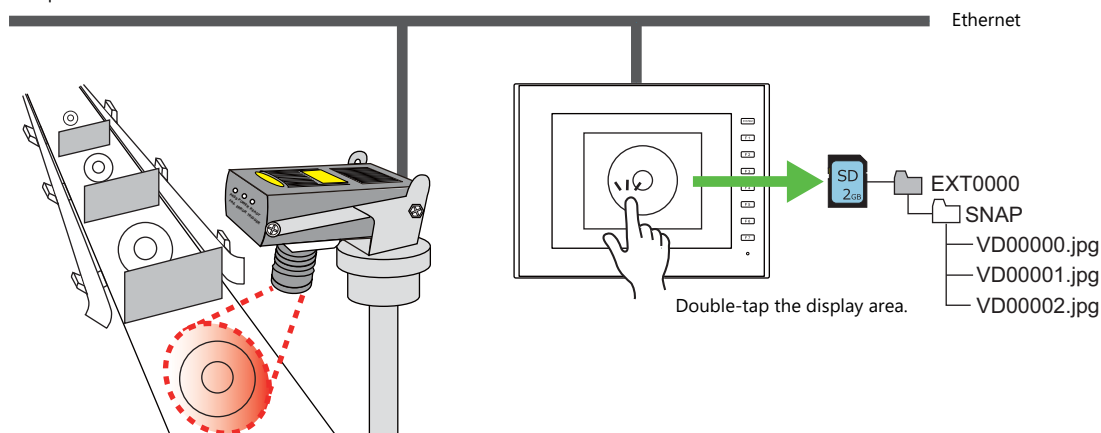


☞ Refer to the Macro Reference Manual.

8.3.19 Saving Video/RGB and Camera Images

The currently displayed image can be saved to a storage device as a JPEG file. (Snapshot function)
 Images can be saved from a video/RGB display, USB camera, and network camera. To save an image, double-tap the display area or execute a macro command (for a network camera, turn the command device memory bit ON).

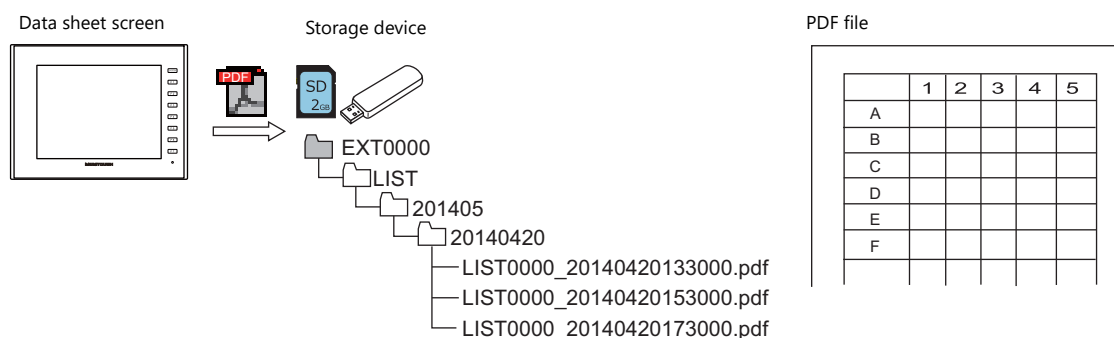
Example: Network camera



Refer to "1.1 Video/RGB Display", "1.2 USB Camera Display" and "1.4 Network Camera".

8.3.20 PDF Output of Data Sheets

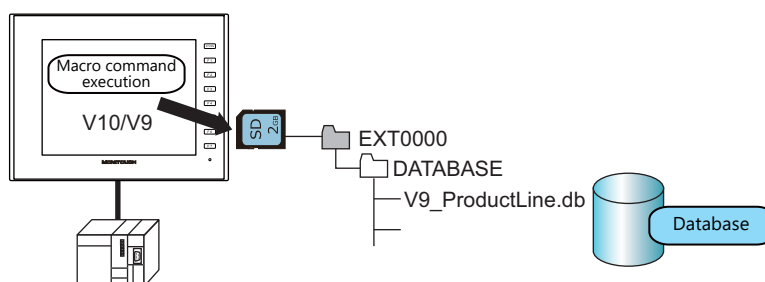
The current data of numerical data displays or character displays that are registered to a data sheet screen can be output as a PDF file to a storage device.



Refer to "16.3 Printing Data Sheets" in the Reference Manual 1.

8.3.21 Saving MES (Stand-Alone) Database Files

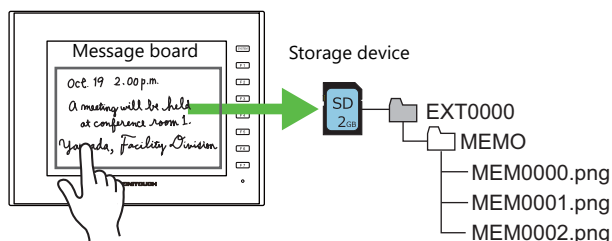
A database can be created on a storage device connected to the V10/V9 series unit. Adding, searching, and deleting of database records is possible without using a network. A production control system can be easily built using only the V10/V9 series unit.



Refer to "6.7 MES Interface Function".

8.3.22 Saving Memo Pad Data

Data from the memo pad function can be saved to a storage device as PNG files.



Refer to "13.1 Memo Pad" in the Reference Manual 1.

Memo Pad Data Storage Location and Filename

Filename	File Storage Location
MEMxxx.png (xxx: 0000 to 0007)	(Access folder)\MEMO

Operation on the V10/V9 Series

Insert the storage device into the V10/V9 series unit. When using the memo pad in RUN mode, the memo pad data is automatically stored on the storage device.

- * When the [Store Area for Memo Pad] checkbox is selected on the [SRAM/Clock Setting] screen on the [System Setting] menu, memo pad data is stored in SRAM even when a storage device is inserted into the V10/V9 series unit.

Timing of Saving

The timing of writing memo pad data to a storage device is as follows.

- When switching the memo pad display using a switch with [+ Block], [- Block], or [Block Call] set for [Function]
- When the screen is changed

8.3.23 SRAM Data Backup

A backup copy of SRAM data can be saved to a storage device to guard against a case in which data may be lost when replacing the SRAM battery.

- Refer to the following manuals.
- V10 Series Unit Operation / Local Mode / Error Screen Manual
 - V9 Series Troubleshooting/Maintenance Manual

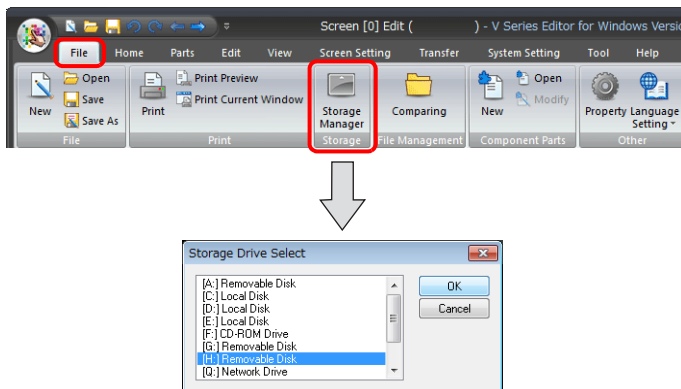
8.4 Storage Manager

The storage manager is an application that facilitates writing of data used by the V10/V9 series unit to a storage device, and importing of data from a storage device for conversion into other file formats.

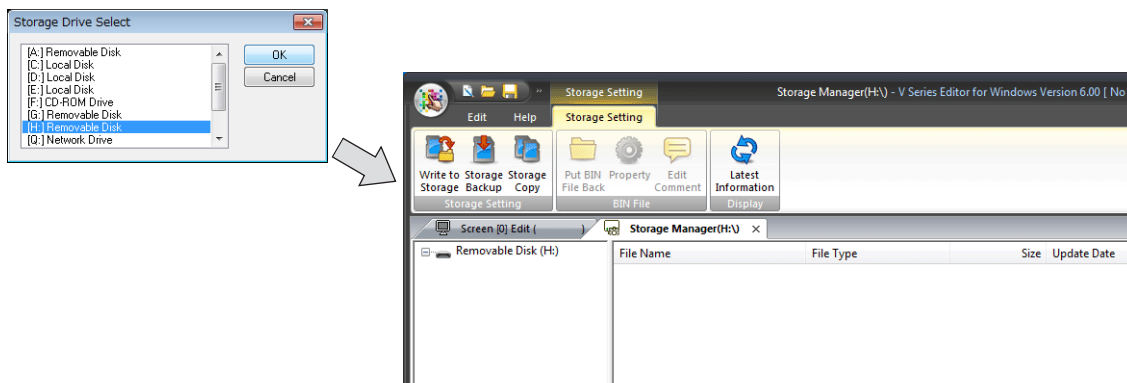
8.4.1 Starting and Ending

Starting

1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window shown below is displayed.

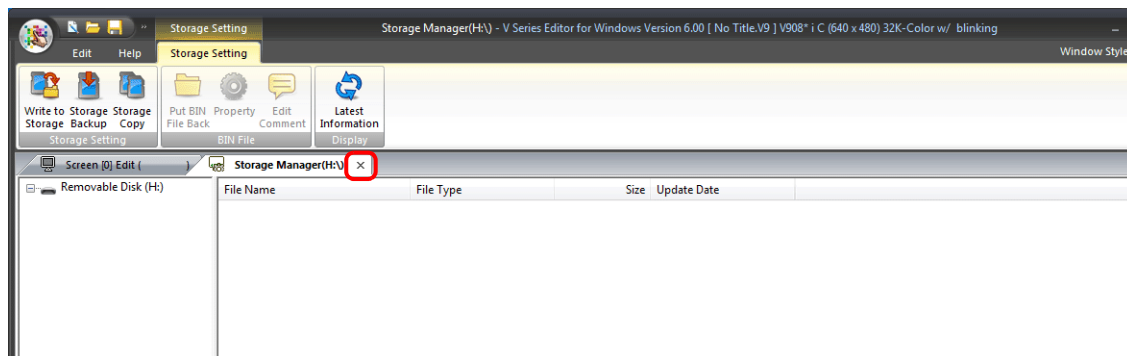


3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window is displayed.



Ending

1. Click the [X] button on the corner of the [Storage Manager] tab.



2. The screen editing window reappears.

8.4.2 Writing

The procedure for writing data to a storage device is explained below.

Always use the storage manager to write the data in the following table to a storage device. Other files can be copied using Windows Explorer.

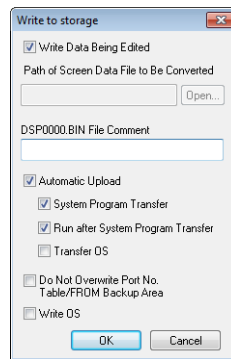
Data	Extension	Remarks
Screen program	.V10, .V9	
SRAM backup data	.RAM	
Text file	.TXT	

Writing Procedure

1. Click [Storage Setting] → [Write to Storage].



2. The [Write to storage] window is displayed.



Item	Description
Write Data Being Edited	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted	Select the data for writing to the storage device from the [Open] button. File extensions: [*.V10], [*.V9], [*.RAM], [*.TXT]
DSP0000.BIN File Comment	Add a comment to the screen program file (DSP0000.BIN). This comment can be checked via the file's [Property] window.
Automatic Upload	Create an automatic upload file.
System Program Transfer	Select this checkbox when uploading system program files together with the screen program.
Run after System Program Transfer	Automatically switch MONITOUCH to RUN mode after automatic upload is complete.
Transfer OS	Select to update the operating system automatically. Refer to "8.3.5 Automatically Updating the Operating System" page 8-15
Do Not Overwrite Port No. Table/FROM Backup Area *1 *2	Select this checkbox to prevent existing values in the station number table or existing values in the FROM area from being changed when transferring a screen program from a storage device.
Write OS	Select to update the operating system manually. Refer to "8.3.4 Manually Updating the Operating System" page 8-11

*1 Station number table

The station number of a counterpart device can be changed in RUN mode when connecting to the following models.

- PLC: Mitsubishi QnH (Q) series (Ethernet) (1 : n connection only)
- PLC: Mitsubishi QnA series (Ethernet) (1 : n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 (Ethernet Auto) (1 : n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 DNA (Ethernet) (1 : n connection only)
- Temperature controller: Fuji Electric F-MPC04P (loader)
- Temperature controller: Fuji Electric F-MPC04S (UM03)

*2 FROM backup area

The FROM backup area is where a backup copy of the data in the PLC or internal device memory can be stored. To retain the data, use the macro commands "FROM_RD" and "FROM_WR". For details on macros, refer to the Macro Reference Manual.

3. When the settings are complete, click [OK]. A BIN file is written to each of the folders under the access folder.

8.4.3 BIN Files

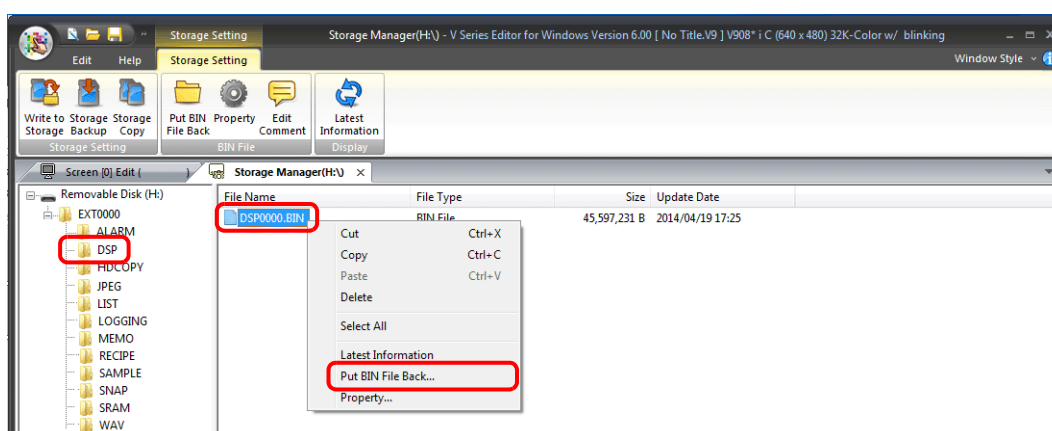
Files with the extension “.BIN” are stored under access folders. The storage manager can be used to convert BIN files and check file information.

File	Storage target folder	Extension After Conversion	File Type
DSP0000.BIN	DSP	.V10, .V9	Screen program
BMPxxxx.BIN	BITMAP	.BMP	Pattern file
MSGxyyy.BIN	MSG	.TXT	Message
SRM0000.BIN	SRAM	.RAM	Backup data in SRAM

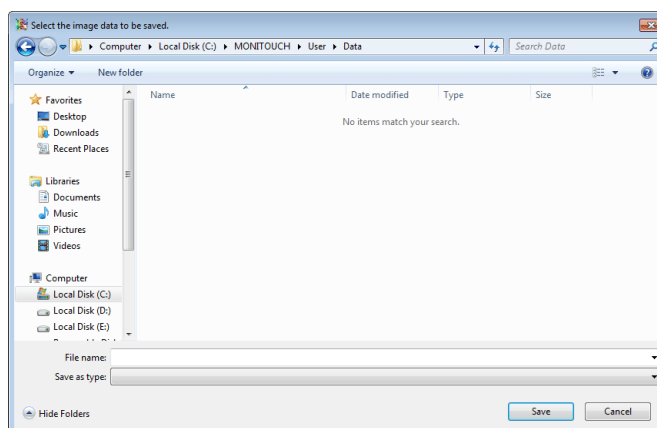
BIN File Conversion

All BIN files can be restored to their original state.

1. Select a file from an access folder.
2. Right-click on the file and select [Put BIN File Back].



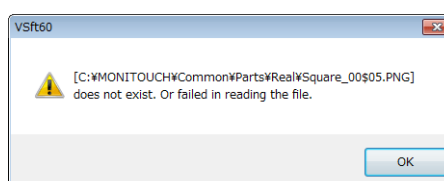
3. The window shown below is displayed. Specify the folder to save in and the filename and click [Save].



4. A converted file is created.

Notes

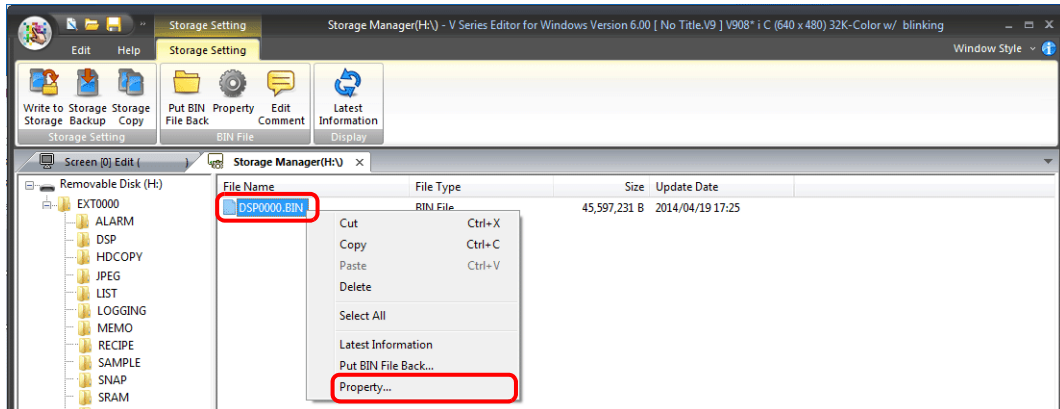
- Note that BIN files in the “BITMAP”, “MSG”, and “SCRN” folders are required to convert “DSP0000.BIN” into a V10/V9 file. If these files are missing, the V10/V9 file will be created without pattern data and 3D parts.



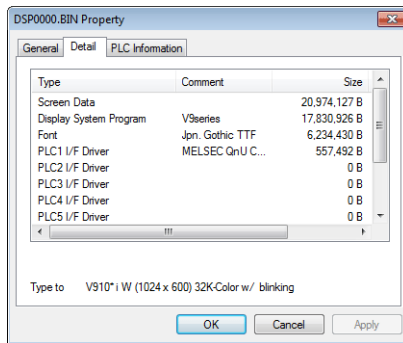
BIN File Properties

Information on each BIN file can be checked before conversion.

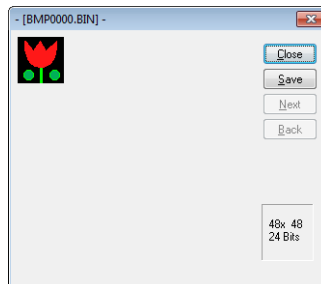
1. Select a file from an access folder.
2. Right-click on the file and select [Property]. Information on the file is displayed.



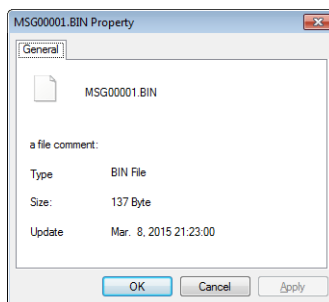
- DSP0000.BIN
The file type or system program version of the file can be checked on the [Detail] tab window.



- BMPxxxx.BIN
A bitmap image is displayed.



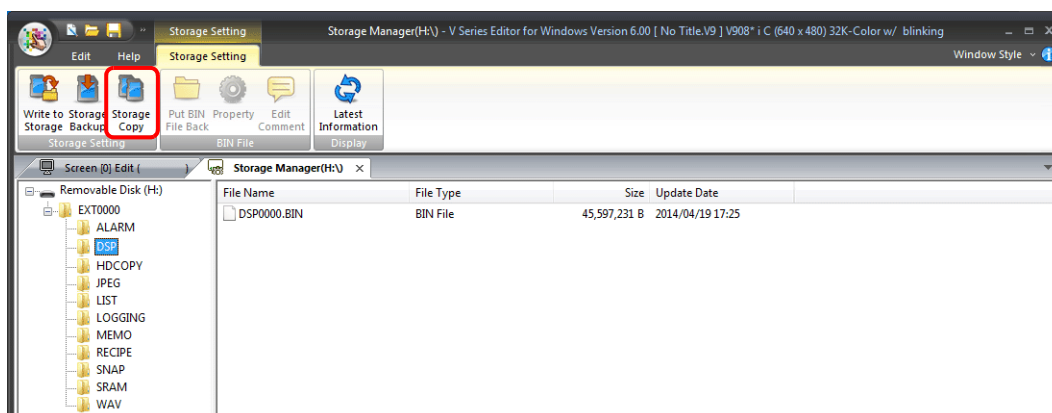
- MSGxyyy.BIN
Information on the file is displayed.



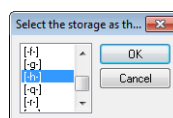
8.4.4 Storage Copy

Copy the data on the storage device.

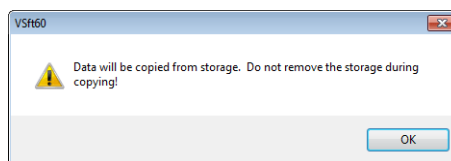
1. Click [Storage Setting] → [Storage Copy].



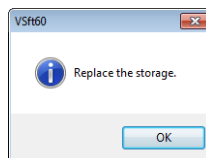
2. Specify the storage device drive and click [OK].



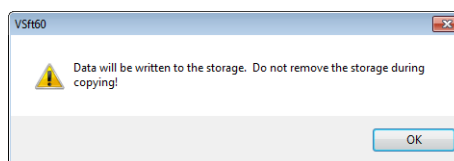
3. The following dialog box is displayed. Click [OK].



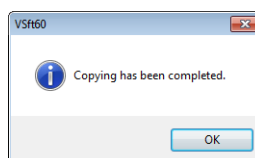
4. The following dialog box is displayed.
Remove the storage device from the PC and insert another device for saving the copied data. Click [OK].



5. The following dialog box is displayed. Click [OK].



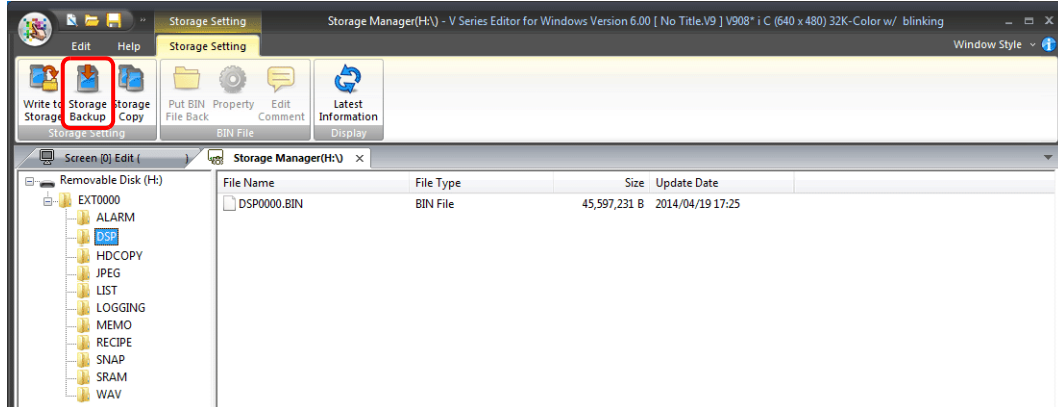
6. When copying is complete, the following dialog box is displayed.



8.4.5 Storage Device Backup

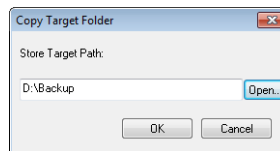
A backup of data on a storage device can be created.
Any folder can be selected for saving the data.

1. Click [Storage Setting] → [Storage Backup].

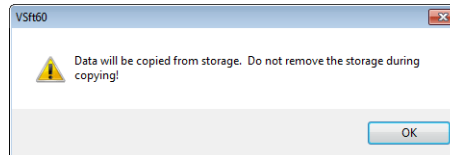


2. When the [Copy Target Folder] window is displayed, click [Open] and specify the copy target folder.

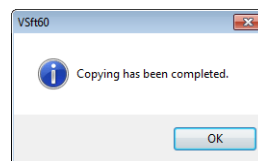
Example: When saving in the "Backup" folder in the D drive:



3. Click [OK]. The following dialog box is displayed.



4. Click [OK]. The data on the storage device is copied to the copy target. When copying is complete, the following dialog is displayed.



5. Use Windows Explorer to check that the data was copied correctly.

* When copying data from a storage device to the hard disk drive, it can also be copied and pasted using Windows Explorer.

8.5 System Device Memory (\$s)

Information about the status and the free space of the storage device inserted into the V10/V9 series unit is stored in system device memory (\$s).

Addresses	Description	SD	USB-A	Device Type																																
\$s497	Storage device error state <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>Card not mounted</td> </tr> <tr> <td>5</td> <td>Format error</td> </tr> <tr> <td>9</td> <td>JPEG/BMP file read error</td> </tr> <tr> <td>12</td> <td>Card write error</td> </tr> <tr> <td>15</td> <td>Disk error (open failure)</td> </tr> <tr> <td>16</td> <td>Card read error</td> </tr> </tbody> </table>	Value	Description	4	Card not mounted	5	Format error	9	JPEG/BMP file read error	12	Card write error	15	Disk error (open failure)	16	Card read error	○ *1	○ *1																			
Value	Description																																			
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9	JPEG/BMP file read error																																			
12	Card write error																																			
15	Disk error (open failure)																																			
16	Card read error																																			
\$s498	Free space on storage device (kB)	○ *1	○ *1																																	
\$s499																																				
\$s500	[Storage Removal] switch status MSB LSB <table border="1" style="margin-left: 20px; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="margin-left: 40px;">System reserved ("0" setting)</p> <p style="margin-left: 100px;">0: Switch OFF (storage removal prohibited) 1: Switch ON (storage removal permitted)</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	○ *1	○ *1	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																					
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\$s1030	Storage device error state \$s497 reference	○	-																																	
\$s1031	Free space on storage device (kB)	○	-																																	
\$s1032																																				
\$s1033	[Storage Removal] switch status \$s500 reference	○	-																																	
\$s1035	Storage device error state \$s497 reference	-	○																																	
\$s1036	Free space on storage device (kB)	-	○	← V10/V9																																
\$s1037																																				
\$s1038	[Storage Removal] switch status \$s500 reference	-	○																																	
\$s1050	Background processing flag MSB LSB <table border="1" style="margin-left: 20px; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td> </tr> </table> <p style="margin-left: 40px;">Reserved for system (set to "0")</p> <p style="margin-left: 100px;">Operation log 0: Not processed, 1: Being processed</p> <p style="margin-left: 100px;">Alarm/logging data backup and CSV file output 0: Not processed, 1: Being processed</p> <p style="margin-left: 100px;">Hard copy macro command 0: Not processed, 1: Being processed</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0				○	○	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																					
0	0	0	0	0	0	0	0	0	0	0	0	0																								
\$s1051	Background processing completion flag When processing has been completed (when \$s1050 turns OFF), this turns ON. When the operation has been verified, the user must clear it to zero. MSB LSB <table border="1" style="margin-left: 20px; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td> </tr> </table> <p style="margin-left: 40px;">Reserved for system (set to "0")</p> <p style="margin-left: 100px;">Operation log 0: Not completed, 1: Completed</p> <p style="margin-left: 100px;">Alarm/logging data backup and CSV file output 0: Not completed, 1: Completed</p> <p style="margin-left: 100px;">Hard copy macro command 0: Not completed, 1: Completed</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0				○	○	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																					
0	0	0	0	0	0	0	0	0	0	0	0	0																								



Addresses	Description	SD	USB-A	Device Type																																
\$s1052	<p>Background processing error flag If an error occurs at the time when processing has been completed (when \$s1050 turns OFF), this turns ON. When the operation has been verified, the user must clear it to zero.</p> <p>MSB LSB</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td> </tr> </table> <p>Reserved for system (set to "0")</p> <p>Operation log 0: Normal, 1: Error</p> <p>Alarm/logging data backup and CSV file output 0: Normal, 1: Error</p> <p>Hard copy macro command 0: Normal, 1: Error</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0				○	○	← V10/V9
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																					
0	0	0	0	0	0	0	0	0	0	0	0	0																								

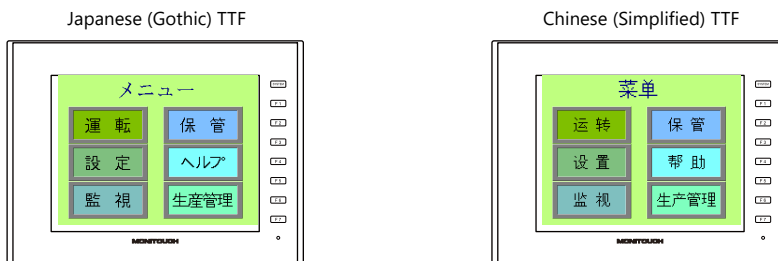
*1 Information on the specified drive is stored at [System Setting] → [Other] → [Storage Setting] → [Storage Connection Target].

9 Language Changeover

9.1 Overview

9.1.1 Fonts

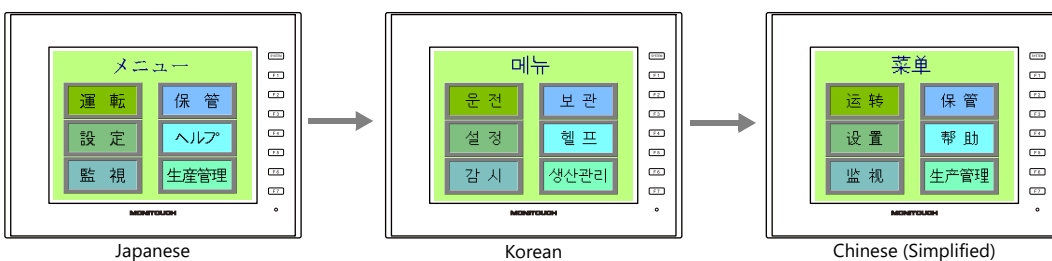
- Select a base language (font) first and then edit the screen using text that can be displayed in the selected font.



☞ For details on font types and supported languages, refer to "9.1.2 Font Types" page 9-2.

- A maximum of 32 languages can be used on the same screen just by switching the text for display.

Example: Registration of screen program "ABC.V9" in three languages



☞ For details, refer to "9.1.3 Language Selection" page 9-7.

- Use "Windows fonts" to display two or more languages on a single screen or display Windows-type characters on the screen.



☞ For details on Windows fonts, refer to the Operation Manual.

9.1.2 Font Types

Fonts are generally divided into four types.

Because the mixed use of fonts is not permitted on the V10/V9 series unit, select one font type in the [System Setting] → [Multi-language Setting] → [Font Setting] window.

However, local screen always uses True type font regardless of the font setting.

Type	Size Specification Method	Features	Image
TrueType font	Point specification	Supports smoothing. Used on the Local mode screen.	8ポイント 運転 MONITOUCH 10ポイント 運転 MONITOUCH 12ポイント 運転 MONITOUCH 16ポイント 運転 MONITOUCH 18ポイント 運転 MONITOUCH 24ポイント 運転 MONITOUCH
Gothic font		Supports smoothing.	8ポイント 運転 停止 モニタッチ 10ポイント 運転 停止 モニタッチ 12ポイント 運転 停止 モニタッチ 16ポイント 運転 停止 モニタッチ 18ポイント 運転 停止 モニタッチ 24ポイント 運転 停止 モニタッチ There are automatic/manual setting restrictions depending on the function.
Stroke font			8ポイント 運転 停止 モニタッチ 10ポイント 運転 停止 モニタッチ 12ポイント 運転 停止 モニタッチ 16ポイント 運転 停止 モニタッチ 18ポイント 運転 停止 モニタッチ 24ポイント 運転 停止 モニタッチ
Bitmap font	XY magnification factor specification	Font data designed in sizes of 16 × 16 dots and 32 × 32 dots (two-byte characters). This font type occupies less memory but is not suitable if a smoother-line typeface is required.	1×1 運転 MONITOUCH 2×2 運転 MONITOUCH 3×3 運転 MONITOUCH



Windows Fonts

No font data is stored on MONITOUCH. Fonts used on Windows, such as “Times New Roman” or “Arial”, are used as image data. Settings can be configured for each item. For details, refer to the Operation Manual.

Supported Language List

The following table lists the fonts and corresponding languages supported by the V10/V9 series.

Font Setting ^{*1}	Supported Language	Supported Character Code	Remarks	
TrueType font	Japanese (Gothic) TTF	Japanese, English	JIS level-1 to level-4 + ANK code	8794 not displayable
	Japanese Times TTF			
	English/Western Europe Gothic TTF	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faroese, French	ISO-8859-1: Latin1 (Extended ASCII code)	
	English/Western Europe Times TTF			
	Chinese (Traditional) TTF	Chinese (traditional), English	BIG5 code (A141 to F9FE) + ASCII code	A344 to A373 not displayable
	Chinese (Simplified) TTF	Chinese (simplified), English	GB2312 code (A1A1 to F7FE) + ASCII code	A021 - A07E A6A1 - A6B8 A6C1 - A6D8 A7A1 - A7C0 A7D1 - A7F1 A8BB, A8BD, A8BE, A8C0 not displayable
	Korean TTF	Hangul, English	KS code (A1A1 to FDFE) + ASCII code	A2E6 and A2E7 not displayable
	Central Europe TTF	Croatian, Czech, Hungarian, Polish, Hrvatska (Croatian), Romanian, Slovakian, Slovene	CP1250 code	
	Cyrillic TTF	Russian, Ukrainian, Kazakh, Bulgarian, Uzbek, Azerbaijani	CP1251 code	
	Greek TTF	Greek	CP1253 code	
	Turkish TTF	Turkish	CP1254 code	
Baltic TTF	Estonian, Latvian, Lithuanian	CP1257 code		
Bitmap font	Japanese	Japanese, English	JIS level-1 and level-2 + ANK code	
	Japanese 32		JIS level-1 + ANK code	
	English/Western Europe	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faroese, French	ISO-8859-1: Latin1 (Extended ASCII code)	
	Chinese (Traditional)			
	Chinese (Simplified)	Chinese (simplified), English	GB2312 code (A1A1 to FEFE) + ASCII code	
	Korean	Hangul, English	KS code (A1A2 to C8FE) + ASCII code	
	Central Europe	Croatian, Czech, Hungarian, Polish, Hrvatska (Croatian), Romanian, Slovakian, Slovene	CP1250 code	
			ISO code (ISO-8859-2: Latin2) ^{*2}	
	Cyrillic	Russian, Ukrainian, Kazakh, Bulgarian, Uzbek, Azerbaijani	CP1251 code	
			ISO code (ISO-8859-5: Latin5) ^{*2}	
	Greek	Greek	CP1253 code	
			ISO code (ISO-8859-7: Latin7) ^{*2}	
	Turkish	Turkish	CP1254 code	
ISO code (ISO-8859-9: Latin9) ^{*2}				
Baltic	Estonian, Latvian, Lithuanian	CP1257 code		
Gothic font	Gothic	Japanese, English	JIS level 1 + level 2 + ANK code	
	Gothic (IBM Extended Character)	Japanese, English	JIS level 1 + level 2 + IBM extended code (FA40 to FC4B) + ANK code	
	English/Western Europe HK Gothic	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faeroese, French	ISO-8859-1: Latin1 (Extended ASCII code)	
	English/Western Europe HK Times			

9 Language Changeover

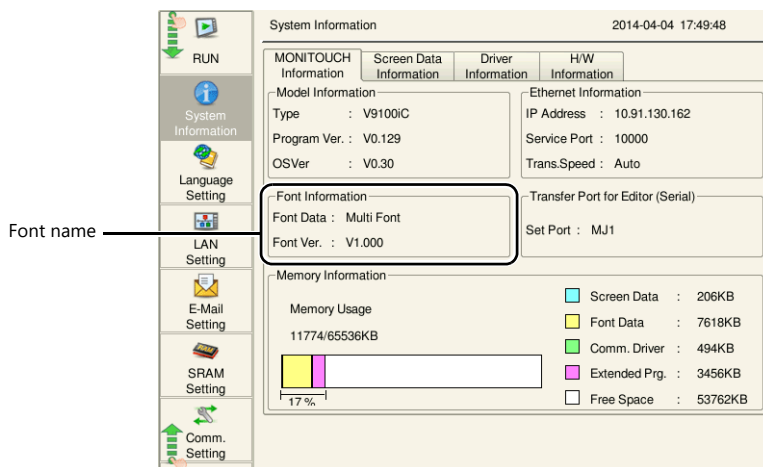
Font Setting ^{*1}		Supported Language	Supported Character Code	Remarks
Stroke font	Japanese stroke	Japanese, English	JIS X 0201 JIS X 0208 NEC special characters IBM extensions NEC selection of IBM extensions	
	English/Western Europe stroke	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faeroese, French	CP1252 code	
	Chinese (Traditional) stroke	Chinese (traditional), English	BIG5 code (A141 to F9FE) + ASCII code	
	Chinese (Simplified) stroke	Chinese (simplified), English	GB2312 code (A1A1 to F7FE) + ASCII code	
	Korean stroke	Hangul, English	KS code (A1A1 to FDFE) + ASCII code	
	Central Europe stroke	Croatian, Czech, Hungarian, Polish, Romanian, Slovakian, Slovene, Hrvatska (Croatian)	CP1250 code	
	Cyrillic stroke	Russian, Ukrainian, Bulgarian, Kazakh, Uzbek, Azerbaijani	CP1251 code	
	Greek stroke	Greek	CP1253 code	
	Turkish stroke	Turkish	CP1254 code	
Baltic stroke	Estonian, Latvian, Lithuanian	CP1257 code		

*1 The mixed use of fonts is not possible.

*2 Select the [ISO Code] checkbox when selecting the corresponding fonts in the [System Setting] → [Multi-language Setting] → [Font Setting] window.

Checking Fonts on MONITOUCH

The font name is displayed at the following location in Local mode.



The font names that are displayed in the [Font Setting] window and in Local mode are listed below.

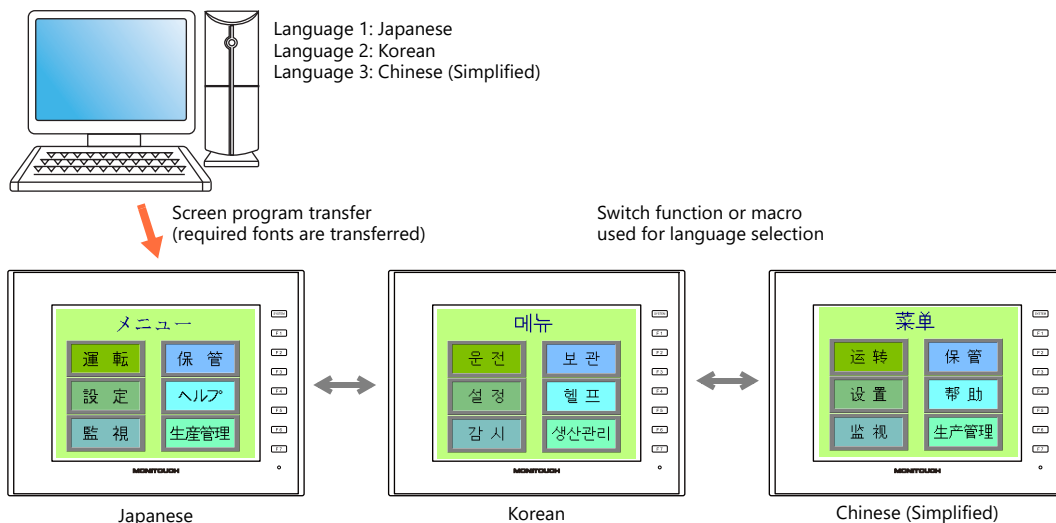
	Font Setting	Local Mode
TrueType font	Japanese (Gothic) TTF	Jpn. Gothic TTF
	Japanese Times TTF	Jpn. Times TTF
	English/Western Europe Gothic TTF	Eng. Gothic TTF
	English/Western Europe Times TTF	Eng. Times TTF
	Chinese (Traditional) TTF	Chinese(Trd.)TTF
	Chinese (Simplified) TTF	Chinese(Smp.)TTF
	Korean TTF	Korean TTF
	Central Europe TTF	Central Euro.TTF
	Cyrillic TTF	Cyrillic TTF
	Greek TTF	Greek TTF
	Turkish TTF	Turkish TTF
	Baltic TTF	Baltic TTF
	Bitmap font *1	Japanese
Japanese 32		JAPANESE 32
English/Western Europe		ENGLISH
Chinese (Traditional)		CHINESE(TRAD.)
Chinese (Simplified)		CHINESE(SIMP.)
Korean		KOREAN
Central Europe		Central Euro.
Cyrillic		Cyrillic
Greek		Greek
Turkish		Turkish
Baltic		Baltic
Gothic font *1	Gothic	HA Gothic
	Gothic (IBM Extended Character)	HA Gothic(IBM)
	English/Western Europe HK Gothic	HK Gothic
	English/Western Europe HK Times	HK Times

Font Setting		Local Mode
Stroke font *1	Japanese stroke	JAPANESE STROKE
	English/Western Europe stroke	ENGLISH STROKE
	Chinese (Traditional) stroke	CHINESE(TRD) ST
	Chinese (Simplified) stroke	CHINESE(SIM) ST
	Korean stroke	KOREAN STROKE
	Central Europe stroke	Cent.Eur. STROKE
	Cyrillic stroke	Cyrillic STROKE
	Greek stroke	Greek STROKE
	Turkish stroke	Turkish STROKE
	Baltic stroke	Baltic STROKE
Multi-language screen (with multiple fonts selected)		Multi Font

*1 TTF display is used on the Local mode screen.

9.1.3 Language Selection

- All required fonts can be stored on MONITOUCH in advance and then displayed by changing between character sets.



☞ For details on settings, refer to [“9.2 Setting Procedure” page 9-8](#).

- The text for display can be changed even when using a single font, such as German ↔ Italian or Japanese ↔ English. Using only one font reduces the space required by the screen program.



☞ For details on languages that are supported by each font, refer to [“Supported Language List” page 9-3](#).

☞ For details on settings, refer to [“9.2 Setting Procedure” page 9-8](#).

- When using a Windows font, it is possible to change only the text. The text for display can be changed using a single font.

☞ For details on Windows fonts, refer to the Operation Manual.

- To change the language in the RUN mode, use a switch with [Function] set to “Language changeover” or use the “CHG_LANG” macro command.

☞ For details, refer to [“9.2.3 Language Selection” page 9-15](#).

- The following methods are available for language editing.

☞ For details, refer to [“9.2.2 Language Editing” page 9-9](#).

☞ For details, refer to [“9.4 Convenient Editing Procedures” page 9-22](#).

9.2 Setting Procedure

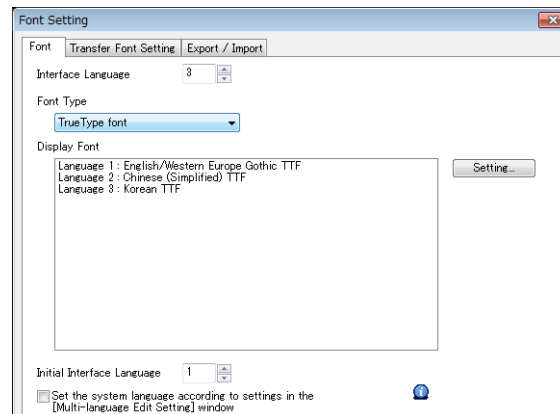
This section describes the procedure for configuring settings that allow changing languages that use different fonts when in RUN mode.

(The procedure is explained assuming that the setting for Language 1 has been completed.)

1. Font settings (refer to [page 9-8](#))
2. Editing of each language (refer to [page 9-9](#))
3. Language selection using the switch function or "CHG_LANG" macro command (refer to [page 9-15](#))

9.2.1 Font Setting

1. Click [System Setting] → [Multi-language Setting] to display the [Font Setting] window.
2. Set a value for [Interface Language]. (Example: set "3" to allow changing between three languages.)
3. Set [Font Type] to "TrueType font" and set the languages to be displayed.
 - Example 1: Changing between Japanese, Chinese (Simplified) and Korean
 - Language 1: Japanese (Gothic) TTF
 - Language 2: Chinese (Simplified) TTF
 - Language 3: Korean TTF
 - Example 2:
 - Changing between German and Italian
 - Language 1: English/Western Europe Gothic TTF
 - Language 2: English/Western Europe Gothic TTF
 - Changing between Japanese and English
 - Language 1: Japanese (Gothic) TTF
 - Language 2: Japanese (Gothic) TTF
4. Select a language number for [Initial Interface Language] so that the corresponding language is displayed when a screen program is transferred.



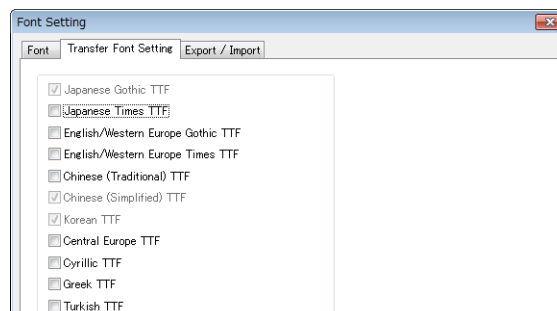
This completes the necessary settings.



Transfer font setting

Select the checkboxes of the fonts required on the V10/V9 series unit. More fonts selected for transfer results in less capacity available for the screen program.

Do not select fonts that are not necessary.



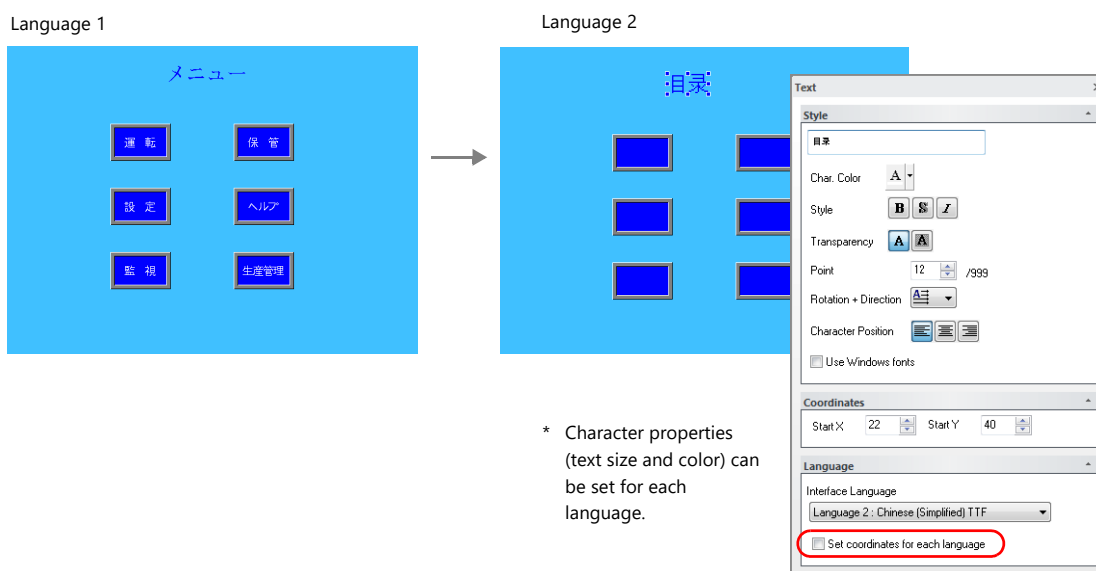
9.2.2 Language Editing

This section explains the multi-language editing procedure assuming that the version of Microsoft Windows on the PC used is capable of editing the required foreign languages. There are three methods for editing languages.

* For details on the settings and notes for editing foreign languages on a Japanese version of Microsoft Windows, refer to the Operation Manual.

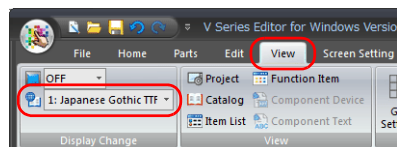
A. Directly Edit Items

By specifying the interface language number on the [Language] changing menu, text for Language 2 and later can be edited on the screen in the same way as Language 1.

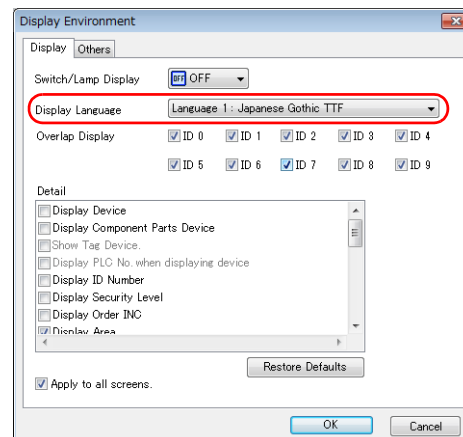


* The interface language number can also be changed using the [Display Language] drop-down menu.

- [View] → [Display Change]



- [View] → [Display Environment]



Checking the layout

After editing, always check the layout of each language for problems using the [Language] changing menu.

Character properties can be set for each language.

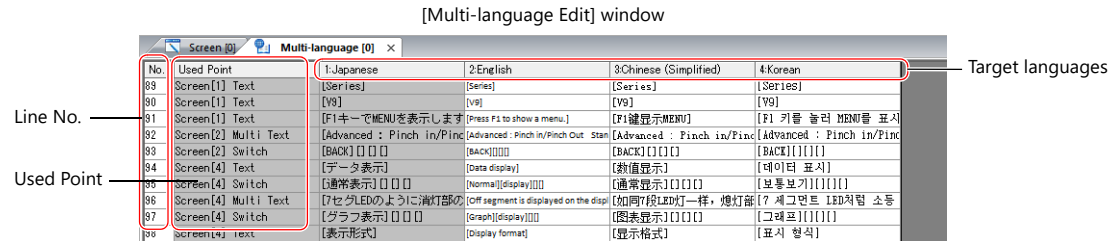
The point size and color settings can be changed for specific languages.

B. Editing in the [Multi-language Edit] Window

Display the text in the screen program edited using Language 1 in the [Multi-language Edit] window and directly enter the desired text in another language.

Text can be copied and pasted between the [Multi-language Edit] window and Excel (pasted as "Unicode text" in Excel).

Editing location: [Home] → [Registration Item ▼] → [Multi-language]

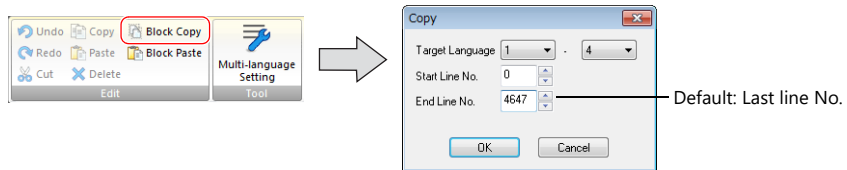


Language 1 cannot be edited in the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

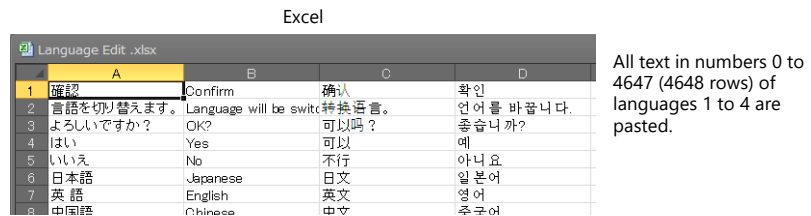
- * The [Multi-language Edit] window can be used to register up to 1000 lines (No. 0 to 999) per sheet. When batch copying over 1000 lines (from the second sheet onwards) for editing in Excel, use the following procedure.

Example: Example: Batch copy of languages 1 to 4, numbers 0 to 4647 (4648 rows) in the [Multi-language Edit] window

- 1) Click [Edit] → [Block Copy]. The [Copy] window is displayed. Specify target languages and start/end line numbers to copy, and click the [OK] button.



- 2) Select a cell in Excel and paste.



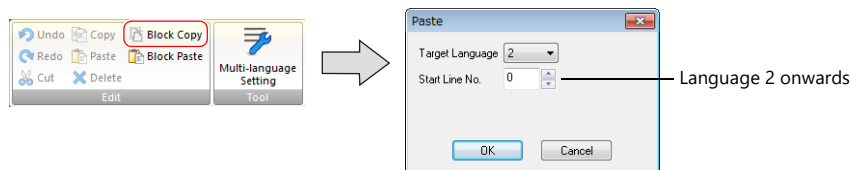
* If text cannot be pasted correctly, click [Paste Special] and select [Paste As: Unicode Text] to paste. Default: Unicode text

- 3) After editing in Excel, select the multi-language columns for Language 2 through 4 by dragging and copy them.



Language 1 cannot be pasted (edited) to the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

- 4) Click [Edit] → [Block Paste] in the [Multi-language Edit] window in V-SFT to display the [Paste] dialog. Select the languages for pasting and the starting row number, and click [OK].



This completes the editing. After editing, always check the layout of each language for problems using the [Language] changing menu. For details, refer to [page 9-9](#).

C. Export / Import

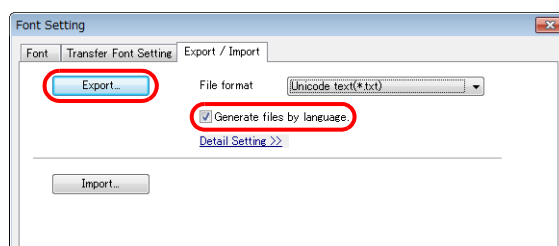
Export and import can be performed by compiling all languages in a text file per language.

Using this function allows text to be imported after undergoing translation and editing by viewing multiple languages side by side on an Excel spreadsheet.

Outputting a File for Each of the Languages for Switching

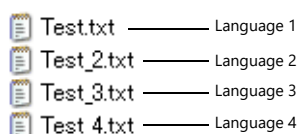
Export procedure

1. Select [System Setting] → [Multi-language Setting] to display the [Font Setting] window and click the [Import/Export] tab.
2. Configure the settings as shown below and click [Export].



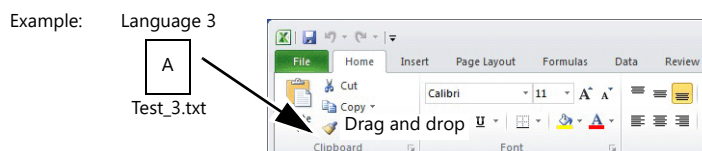
To export to CSV files instead of Unicode text files, select "*.csv" for [File format].

3. The [Save As] window is displayed.
Enter a filename and click [Save] to output text files.



The same number of files are created as there are languages.

4. Start Excel and drag and drop the exported text into the Excel window to open it.



Language 1 cannot be pasted (edited) to the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

5. Register the text in square brackets in column B.

	A	B	C	D
1	MLIB0000.STR	[确认]		
2	MLIB0000.STR	[转换语言。]		
3	MLIB0000.STR	[可以吗?]		
4	MLIB0000.SW000	[可以]		
5	MLIB0000.SW000	[不行]		
6	SCRN0000.B00.SW000	[日文]		



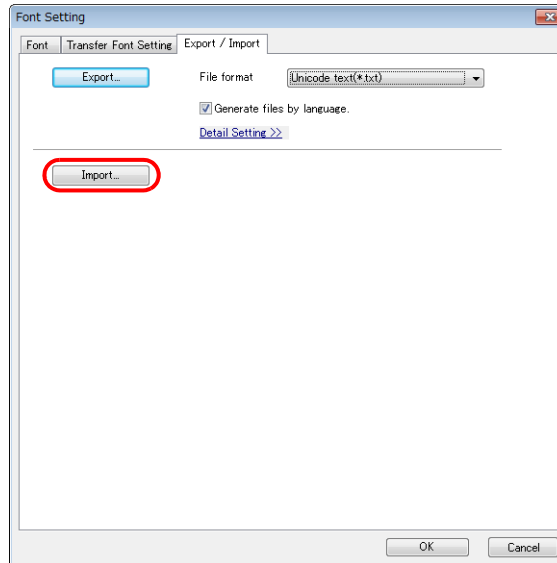
Do not edit column A. Also, do not delete any square brackets in column B. If these are edited or deleted, file import will end in failure.

6. After editing, click [File] → [Save As].
Select "Unicode Text (*.txt)" for [Save as type] and save the file using the same filename.

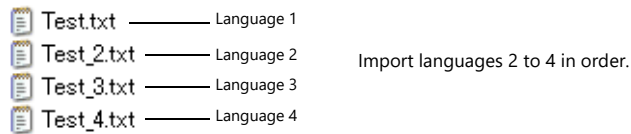
This completes the necessary settings.

Import procedure

1. Click [System Setting] → [Multi-language Setting] to display the [Font Setting] window.
2. Display the [Export/Import] tab and click the [Import] button.



3. The [Open] window is displayed.
Select "Unicode text (*.txt)" for [Save as type] and open each file one at a time.



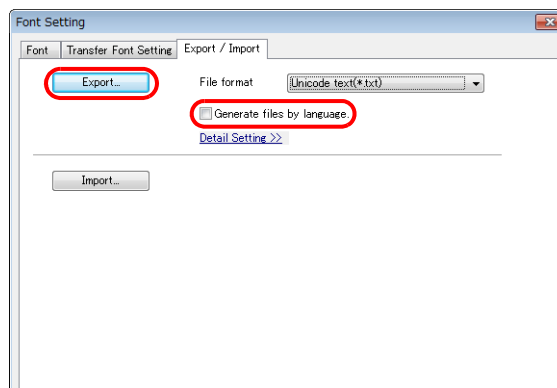
Be sure to save the files for languages 1 to 4 in the same place and using the original filenames. If any file is renamed or the Language 1 file is edited or deleted, file import will end in failure.
The Language 1 file cannot be imported.

This completes the file importing process.
After editing, always check the layout of each language for problems using the [Language] changing menu.
For details, refer to [page 9-9](#).

Outputting All Languages to a Single File

Export procedure

1. Select [System Setting] → [Multi-language Setting] to display the [Font Setting] window and click the [Import/Export] tab.
2. Configure the settings as shown below and click [Export].



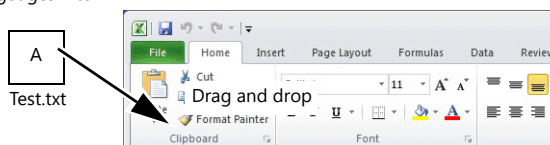
To export to CSV files instead of Unicode text files, select "*.csv" for [File format].

3. The [Save As] window is displayed.
Enter a filename and click [Save] to output text files.

Test.txt ——— Languages 1 to 4 One file is created.

4. Start Excel and drag and drop the exported text into the Excel window to open it.

Example: Languages 1 to 4



Language 1 cannot be pasted (edited) to the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

5. Register the text in square brackets in column C, D, and E (red frame).

	A	B	C	D	E
1	<< header start -->>		Language 2	Language 3	Language 4
2	Export Multi Languages Text List				
3	Ver:1.0	Info:0,1,1,1,1	/	/	/
4	Language:	1:Japanese	2:English	3:Chinese (Simplified)	4:Korean
5	<<-- header end >>				
6	MLJB0000:STR	[確認]	[Confirm]	[확인]	[확인]
7	MLJB0000:STR	[言語を切り替えます。]	[Language will be switched.]	[转换语言。]	[언어를 바꿉니다.]
8	MLJB0000:STR	[よろしいですか?]	[OK?]	[可以吗?]	[중송니까?]
9	MLJB0000:SW000	[はい]	[Yes]	[可以]	[예]
10	MLJB0000:SW000	[いいえ]	[No]	[不行]	[아니요]
11	MLJB0000:ANS0000	[日本語]	[English]	[中国語]	[한국어]



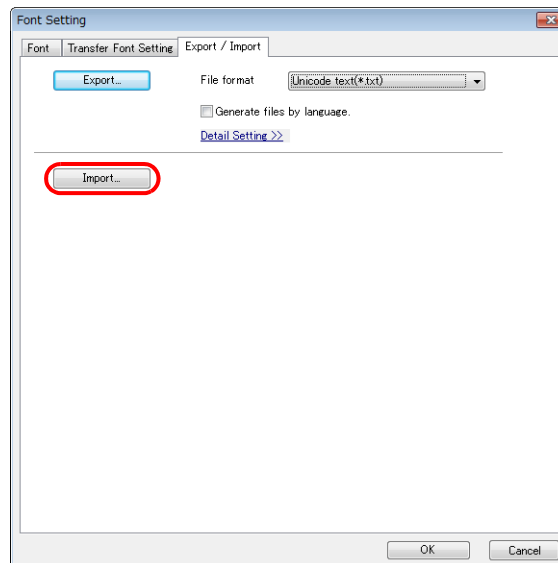
Do not edit the first to fifth rows (header) and columns A/B (language 1). Also, do not delete any square brackets from column C, D, or E. If these are edited or deleted, file import will end in failure.

6. After editing, click [File] → [Save As].
Select "Unicode Text (*.txt)" for [Save as type] and save the file using the same filename.

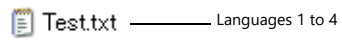
This completes the necessary settings.

Import procedure

1. Click [System Setting] → [Multi-language Setting] to display the [Font Setting] window.
2. Display the [Export/Import] tab and click the [Import] button.



3. The [Open] window is displayed.
Select "Unicode text (*.txt)" for [Save as type] and open the file.



This completes the file importing process.
After editing, always check the layout of each language for problems using the [Language] changing menu.
For details, refer to [page 9-9](#).

9.2.3 Language Selection

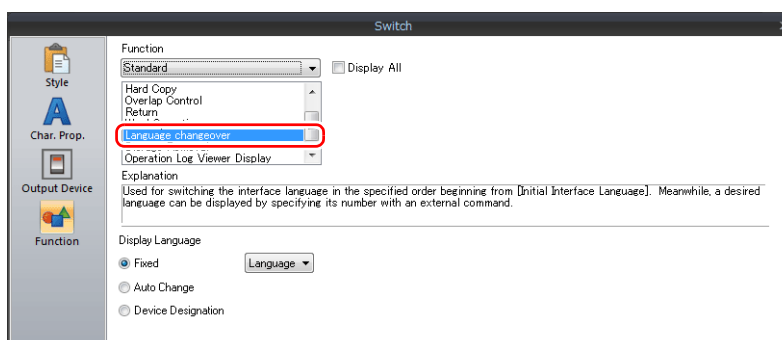
There are two ways to change the language.
Use either a switch function or macro command.

Switch Function

The interface language can be changed using a switch with the function [Language changeover].
Each time a [Language changeover] switch is pressed, the interface language switches in the specified order beginning from the [Initial Interface Language]. A desired language can also be displayed by specifying its number with an external command.

Location of Settings

Switch settings window → [Function] → [Function] → [Language changeover]



Item	Description
Fixed	Display the interface language of the specified language number. Language 1 to 32
Auto Change	Change the interface language in the specified order beginning from the [Initial Interface Language] set in the [Font Setting] window. Languages that are not selected in the window will not be displayed.
Device Designation	Display the interface language of the number stored at the specified device memory. 0: Language 1 1: Language 2 2: Language 3 : 31: Language 32



If a nonexistent language number is specified for display, an error beep sounds and no action takes place. The number of interface languages can be checked at [System Setting] → [Multi-language Setting] → [Font Setting] window.

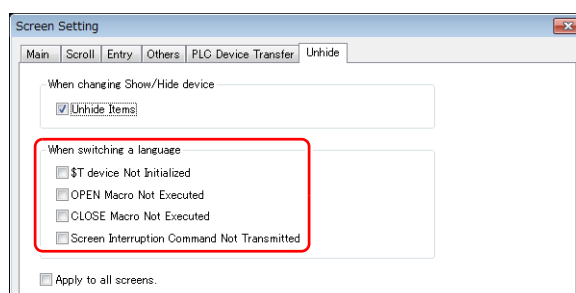
Redraw Timing

When the interface language is switched, the screen is redrawn. The following actions also take place at the same time.

- Open macro, close macro (screen, multi-overlap library)
- Cycle macro (screen)
- \$T device memory zero clear (screen)
- Screen interrupt command transfer (PLC type: universal serial) (screen)

Prevent execution of these operations when redraw occurs by selecting the checkboxes as required.

Location of settings: [Screen Setting] → [Screen Setting] → [Unhide]



SYS (CHG_LANG) Macro Command

The "SYS (CHG_LANG)" macro command can be used to change the interface language. This command is useful when changing the language using the ON macro of a switch or an external command.

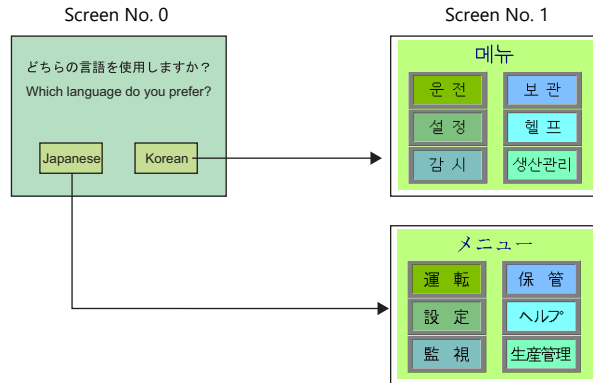


The language is switched over when the screen is changed after the macro command has been executed. For switching the language on the same screen, use the "RESET_SCRN" macro command. For details on macro commands, refer to the Macro Reference Manual.

Setting Example

Example: Changing the language by switching the screen

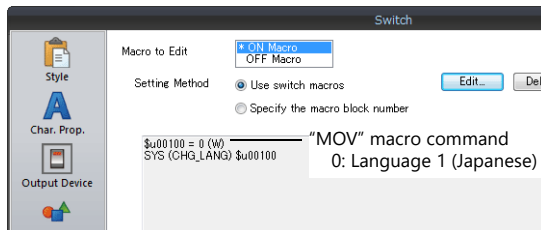
Language 1: Japanese
Language 2: Korean



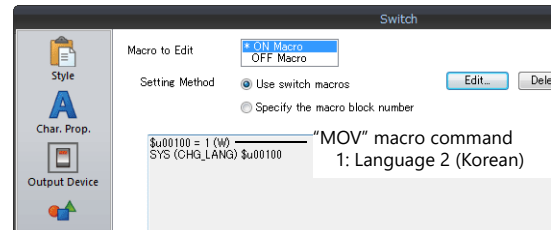
With either switch, the interface language can be switched over when screen No. 1 is displayed.

1. Configure the switch ON macro as shown below.

- "Japanese" switch ON macro



- "Korean" switch ON macro



2. Set the function of each switch to "Language changeover: 1".

This completes the necessary settings.

Detail

Device used

	Internal Device	PLC1 to PLC8 Devices	Memory card	Constant
F1	⊙			

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value	Remarks
F1	0: Language 1 1: Language 2 : 31: Language 32	Although the setting range for [Interface Language] in the [System Setting] → [Multi-language Setting] → [Font Setting] window and [Display Language] in the [Display Environment] window is "1" to "32", the range for "CHG_LANG" is "0" to "31".

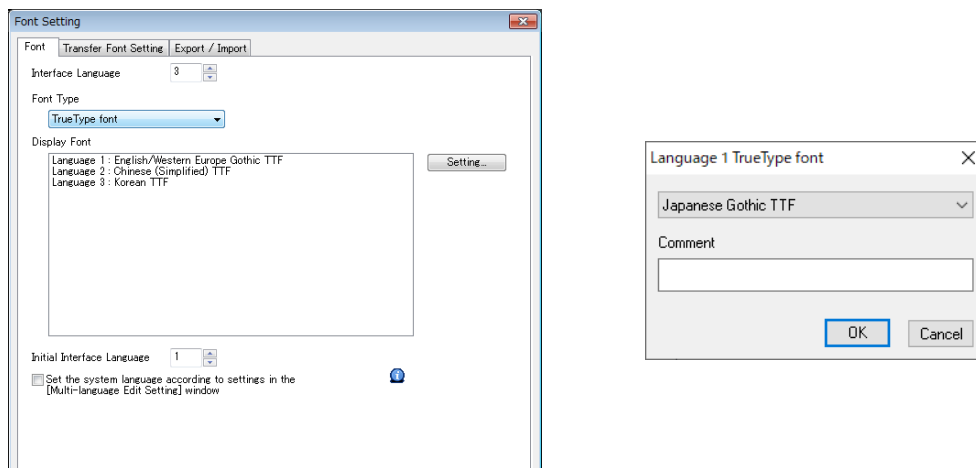
Editing procedure

For details on macro editing, refer to the Macro Reference Manual.

9.3 Detailed Settings

9.3.1 Font Setting

Set the number of languages and fonts for display on the V10/V9 series unit. Display the following window by clicking [System Setting] → [Multi-language setting].



Item	Description											
Interface Language	Set the number of interface languages. 1 to 32 Example: [5]: Languages 1 to 5											
Font Type	Select either [TrueType font], [Bitmap font], or [Gothic font].											
Setting	Set the languages to use and comments *1 respectively.											
Initial Interface Language	Select the language to be displayed immediately after screen program transfer. 1 to 32 Operation is as follows after transfer. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Operation</th> <th>Display Language</th> </tr> </thead> <tbody> <tr> <td>Power ON</td> <td>The language displayed when the power was turned OFF is displayed.</td> </tr> <tr> <td>Switching from RUN mode to Local mode</td> <td>The language used in RUN mode is displayed.</td> </tr> <tr> <td>Switching from Local mode to RUN mode</td> <td>The language used in Local mode is displayed. *2</td> </tr> <tr> <td>In Local mode during screen program transfer</td> <td rowspan="2">The language specified for [Initial Interface Language] in the screen program is displayed.</td> </tr> <tr> <td>In RUN mode during screen program transfer</td> </tr> </tbody> </table>	Operation	Display Language	Power ON	The language displayed when the power was turned OFF is displayed.	Switching from RUN mode to Local mode	The language used in RUN mode is displayed.	Switching from Local mode to RUN mode	The language used in Local mode is displayed. *2	In Local mode during screen program transfer	The language specified for [Initial Interface Language] in the screen program is displayed.	In RUN mode during screen program transfer
Operation	Display Language											
Power ON	The language displayed when the power was turned OFF is displayed.											
Switching from RUN mode to Local mode	The language used in RUN mode is displayed.											
Switching from Local mode to RUN mode	The language used in Local mode is displayed. *2											
In Local mode during screen program transfer	The language specified for [Initial Interface Language] in the screen program is displayed.											
In RUN mode during screen program transfer												
Set the system language according to settings in the [Multi-language Edit Setting] window (setting available for two or more interface languages)	Select this checkbox when setting the interface languages of the following screens. (This setting is convenient when all the same fonts are selected using [Setting...].) The supported languages are Japanese, English/Western Europe, Chinese (Simplified), Chinese (Traditional), and Korean. Local screen, error message screen, ladder monitor, PDF viewer, operation log viewer, data transfer viewer, storage viewer, video player The following settings are required. <ul style="list-style-type: none"> Set each language at [Home] → [Registration Item] → [Multi-language] → [Multi-language Edit] → [Multi-language Edit Setting]. Select the checkboxes of the interface languages at [System Setting] → [Multi-language Setting] → [Transfer Font Setting]. 											

*1 Comments are displayed on the [Language Display] menu, multi-language edit sheets, etc.
This is useful when editing multiple languages with the same font setting.

Font Setting

Language Display

Display Language

Multi-language edit sheet

No.	Using Part	1:English	2:German	3:Italian	4:Spanish
0	Screen[0] Lamp	[S][C][R][E][E][N]	[L][A][M][P]	[L][A][M][P]	[L][A][M][P]
1	Screen[0] Num. Display	[D][A][T][A]	[D]	[D]	[D]
2					

*2 Exceptions

- Example 1: When the same font is registered multiple times, the language number displayed before switching to Local mode is displayed.

[Interface Language]: 2, [Transfer Font Setting]: Japanese (Gothic) TTF, [Initial Interface Language]: 1

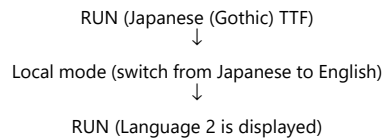
- Language 1: Japanese (Gothic) TTF
- Language 2: Japanese (Gothic) TTF

- Example 2: In the following case, the lowest language number in the font settings is displayed.

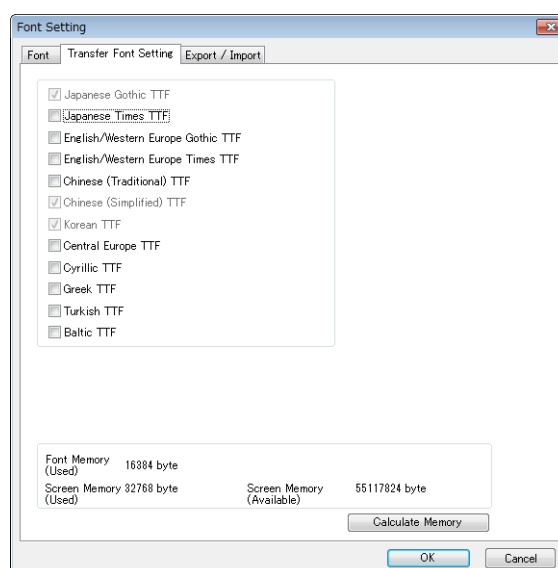
[Interface Language]: 3, [Transfer Font Setting]: Japanese (Gothic) TTF, English/Western Europe Gothic TTF, Central Europe TTF, [Initial Interface Language]: 1

- Language 1: Japanese (Gothic) TTF
- Language 2: English/Western Europe Gothic TTF
- Language 3: Central Europe TTF

Operation example:



9.3.2 Transfer Font Setting

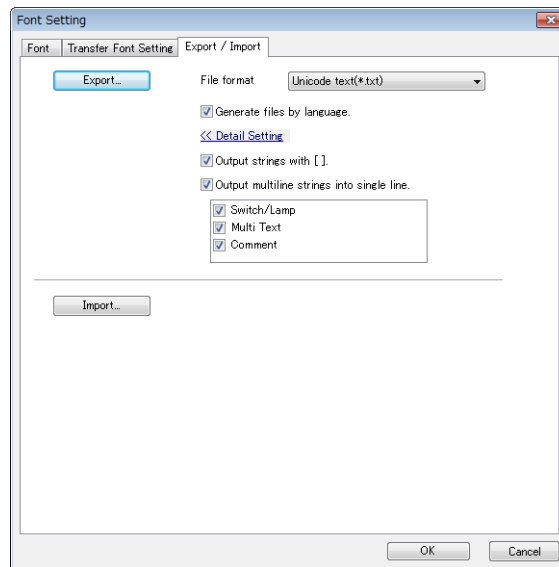










Item	Description
Transfer Font Setting ^{*1}	Select the checkboxes of the fonts required on the V10/V9 series unit. * More fonts selected for transfer results in less capacity available for the screen program. If capacity is insufficient, do not select unnecessary fonts.
Font Memory (Used)	Displays the total memory size used for the currently selected fonts for transfer.
Screen Memory (Used)	Displays the size of the screen program currently being created.
Screen Memory (Available)	Displays the space available for the screen program.
Calculate Memory	Recalculate the volume of data from the current settings.

*1 Languages that can be displayed in Local mode are listed below. Which languages are available for display is determined by selecting the corresponding checkboxes on the [Transfer Font Setting] tab.

Transfer Font Setting	Local Mode
Japanese (Gothic) TTF	Japanese, English
Japanese Times TTF	
English/Western Europe Gothic TTF	English
English/Western Europe Times TTF	
Chinese (Traditional) TTF	Chinese (Traditional), English
Chinese (Simplified) TTF	Chinese (Simplified), English
Korean TTF	Korean, English
Central Europe TTF	English
Cyrillic TTF	
Greek TTF	
Turkish TTF	
Baltic TTF	

9.3.3 Import and Export




Item	Description									
Export	Use this button when editing text for a language other than Language 1 in another application. For details, refer to page 9-11 .									
File format	Select the type of the file to be exported.									
Generate files by language.	<p>Set the file creation method used in exporting.</p> <ul style="list-style-type: none"> Selected The same number of files are created as there are languages. Unselected One file is created. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  Test.txt — Language 1  Test_2.txt — Language 2  Test_3.txt — Language 3  Test_4.txt — Language 4 </div> <div style="text-align: center;">  Test.txt — Languages 1 to 4 </div> </div>									
Output strings with [].	<p>Selected Add square brackets to text in output files.</p> <p>Unselected Delimit output with commas. When a file is opened in Excel, some text like the following will not be imported correctly.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Characters on V-SFT</th> <th>Output File (Standard cell format)</th> <th></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0123</td> <td style="text-align: center;">123</td> <td>← Leading zeros dropped</td> </tr> <tr> <td style="text-align: center;">+BK</td> <td style="text-align: center;">#NAME?</td> <td>← Not recognized as a character string</td> </tr> </tbody> </table>	Characters on V-SFT	Output File (Standard cell format)		0123	123	← Leading zeros dropped	+BK	#NAME?	← Not recognized as a character string
Characters on V-SFT	Output File (Standard cell format)									
0123	123	← Leading zeros dropped								
+BK	#NAME?	← Not recognized as a character string								
Output multiline strings into single line.	<p>Set how multiple lines of text located on a switch or lamp are output.</p> <p>Selected Lines of text are output in one cell with the line feed code “\n”.</p> <p>Unselected Text is output line by line in separate cells.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Switch</th> <th>Checkbox</th> <th>Output Result</th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="text-align: center;"></td> <td style="text-align: center;">Selected</td> <td style="text-align: center;">[Error \n Screen]</td> </tr> <tr> <td style="text-align: center;">Unselected</td> <td style="text-align: center;">[Error] [Screen]</td> </tr> </tbody> </table>	Switch	Checkbox	Output Result		Selected	[Error \n Screen]	Unselected	[Error] [Screen]	
Switch	Checkbox	Output Result								
	Selected	[Error \n Screen]								
	Unselected	[Error] [Screen]								
Import	Use this button to import an exported file. For details, refer to page 9-11 .									

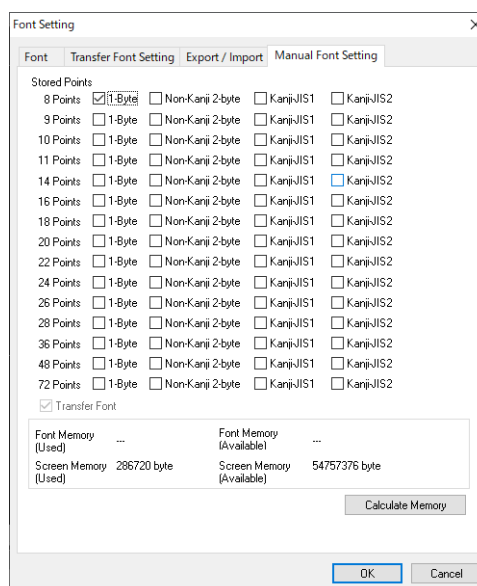
9.3.4 Manual Font Setting

[Manual Font Setting] tab appears when gothic font is selected.

There are two types of Gothic fonts: automatic fonts and manual fonts.

Items that are subject to manual fonts setting are mainly "Text display" and "Message display", which needs to sets the size to use on the screen.

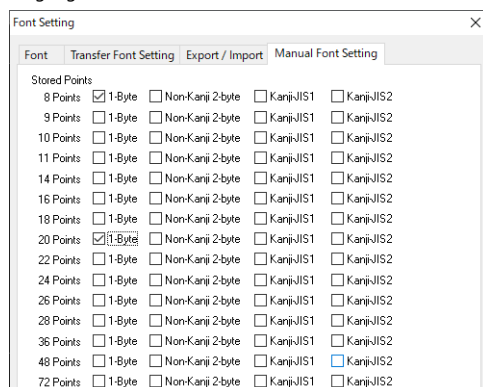
 Refer to "Operation Manual 10. Font"



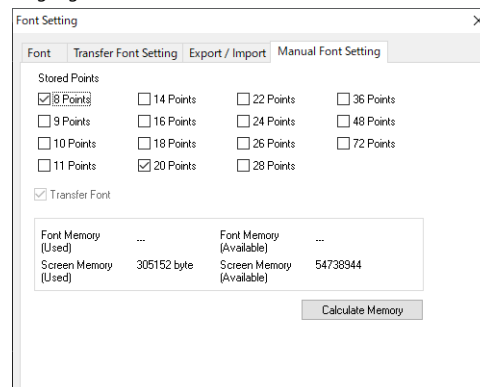
For language changeover:

The [1-Byte] setting of each point of the language 1 (e.g.: Gothic) is directly reflected to each setting of the language 2 (e.g.: English/Western Europe HK Gothic). Note that if you change the setting in one, the setting in the other also changes.

Language 1:



Language 2:



About automatic fonts

For language changeover, the automatic font of the language 1 is automatically transferred to the V10/V9 when the screen program is transferred, but the automatic font is not recognized in the language 2 or later.

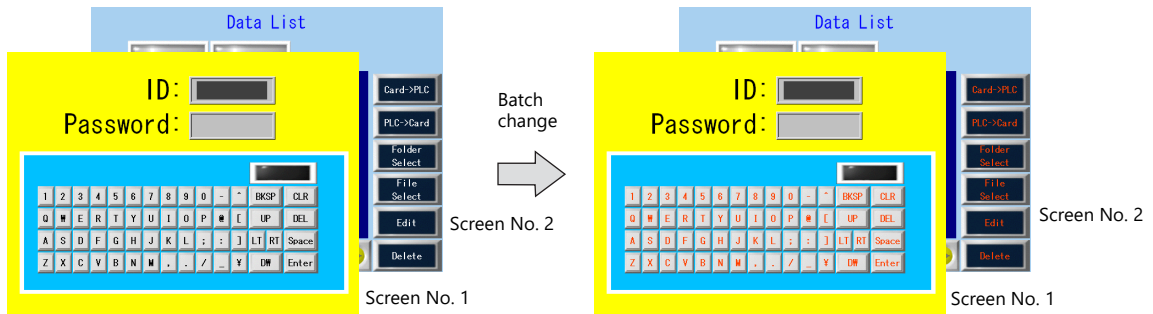
For the language 2 and later, consider the automatic fonts as the manual fonts and set it by "Manual Font Settings".

9.4 Convenient Editing Procedures

9.4.1 Multi-language Batch Change

Overview

Item properties (text color etc.) for multiple languages from language 1 to 32 can easily be changed at once.

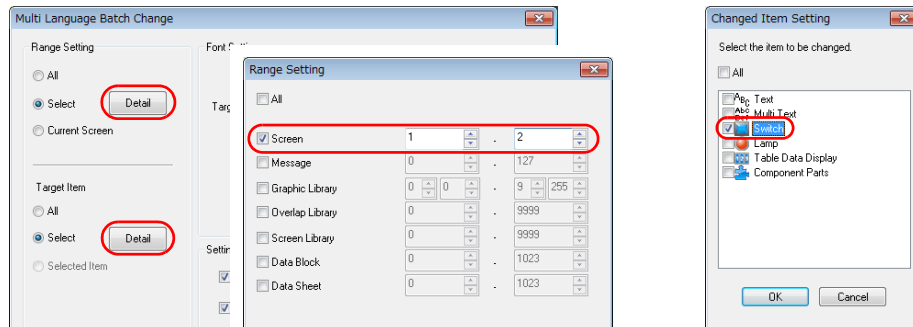


Setting Example

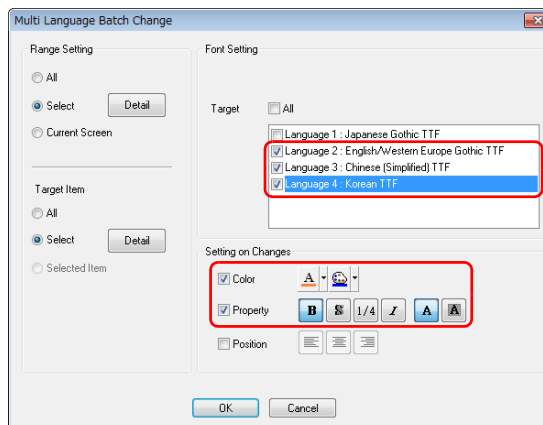
The procedure is explained with an example shown below.

Example: Changing the switch properties on screen numbers 1 and 2
 Text color: black to orange, text property: standard to boldface

1. Select [Tool] → [Multi Language] → [Multi Language Batch Change] to display the [Multi Language Batch Change] window.
2. Click the [Select] → [Detail] button under [Range Setting] and specify a screen range of 1 to 2. Click the [Select] → [Detail] button under [Target Item] and select the [Switch] checkbox.



3. Select the [Target] checkbox under [Font Setting].
4. In the [Setting on Changes] area, select the [Color] checkbox and select orange. Also select the [Property] checkbox and select boldface.



5. Review the settings made in the previous steps, and click [OK].

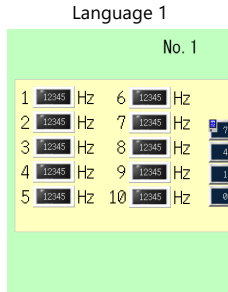
The settings are updated.

9.4.2 Multi-language Batch Copy

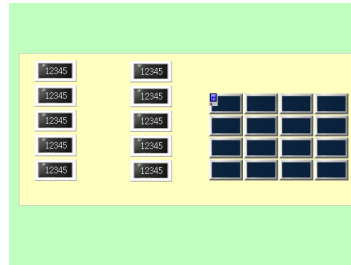
Overview

If exactly the same text, such as text on switches and item numbers, as language 1 is to be used, it can be easily copied at once.

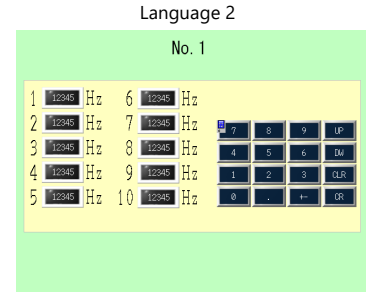
- Before copying



Language 2



- After copying



Setting Example

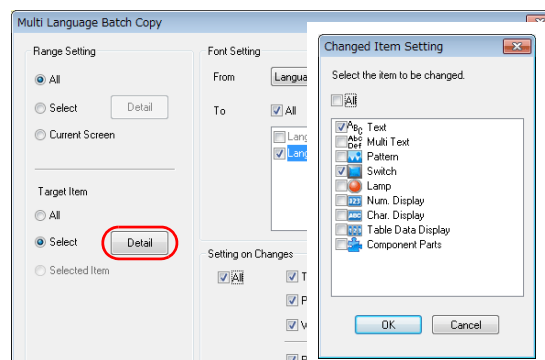
The procedure is explained with an example shown below.

In this example, the text and characters on the switches placed on all screens in language 1 are copied to screens in language 2.

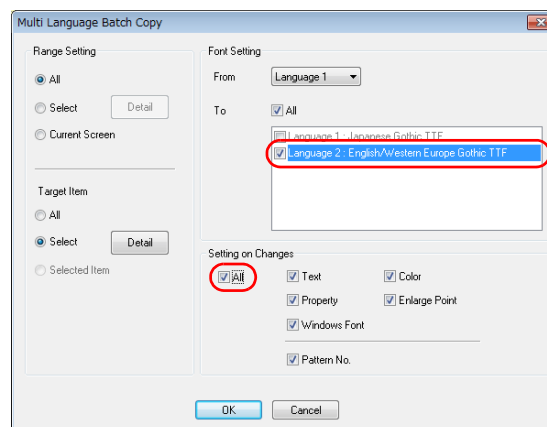
Language 1: Japanese (Gothic) TTF

Language 2: English/Western Europe Gothic TTF

1. Select [Tool] → [Multi Language] → [Multi Language Batch Copy] to display the [Multi Language Batch Copy] window.
2. Select [All] under [Range Setting] and set the target items to [Select] → [Detail] → [Text] and [Switch].



3. In the [Font Setting] area in the [Multi Language Batch Copy] window, select [Language 1] for [From] and [Language 2] for [To].
4. Batch copy in this example targets all properties. In the [Setting on Changes] area, select the [All] checkbox.



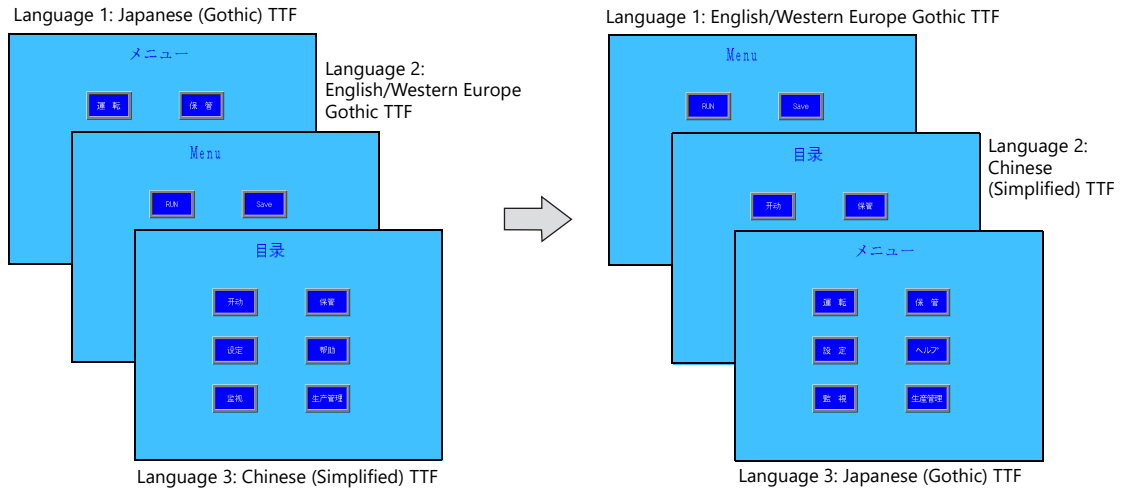
5. Review the settings made in the previous steps, and click [OK].

The settings are updated.

9.4.3 Multi-language Reordering

Overview

Interface languages from language 1 to language 32 can be reordered easily.

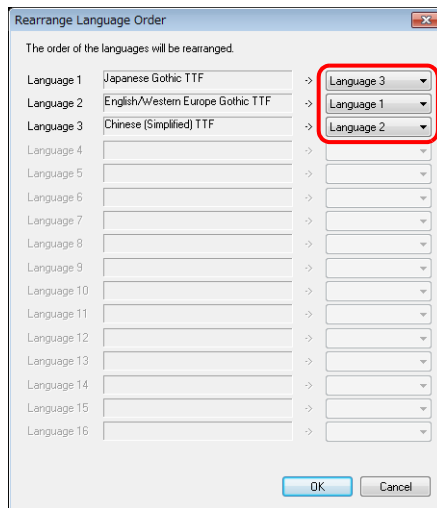


Setting Example

The procedure is explained with the settings shown below as an example.

Language 1: Japanese (Gothic) TTF → Language 1: English/Western Europe Gothic TTF
 Language 2: English/Western Europe Gothic TTF → Language 2: Chinese (Simplified) TTF
 Language 3: Chinese (Simplified) TTF → Language 3: Japanese (Gothic) TTF

1. Select [Tool] → [Multi Language] → [Rearrange Language Order] to display the [Rearrange Language Order] window.
2. Select the language number using the pull-down menus next to [Language 1], [Language 2], and [Language 3].



3. Review the settings made in the previous steps, and click [OK].

The settings are updated.

10 Tag

10.1 Overview

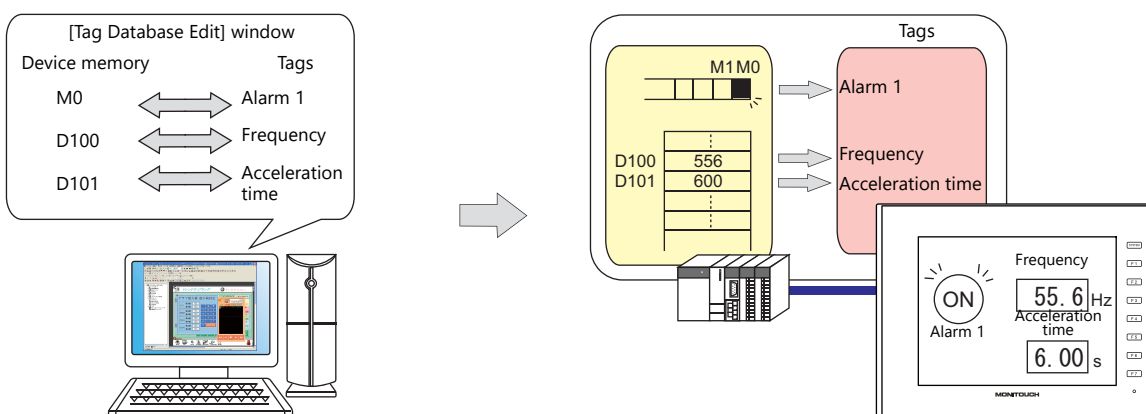
"Tag editing" is a function used to assign names (tags) to PLC or internal device memory (\$u, \$L, etc.) used on the V10/V9 series unit and use these names for screen program creation. Tags can be divided into three general types: device memory designated tags, variable designated tags, and array designated tags.

10.1.1 Tag Types

Device Designation

Assign a tag name to a PLC device memory or internal device memory, and set the device memory for the part or item using the assigned name.

Example: In the [Tag Database Edit] window, register PLC device memory addresses "M0", "D100" and "D101" with names "Alarm 1", "Frequency" and "Acceleration Time", respectively.



Set device memory addresses for parts using tags.

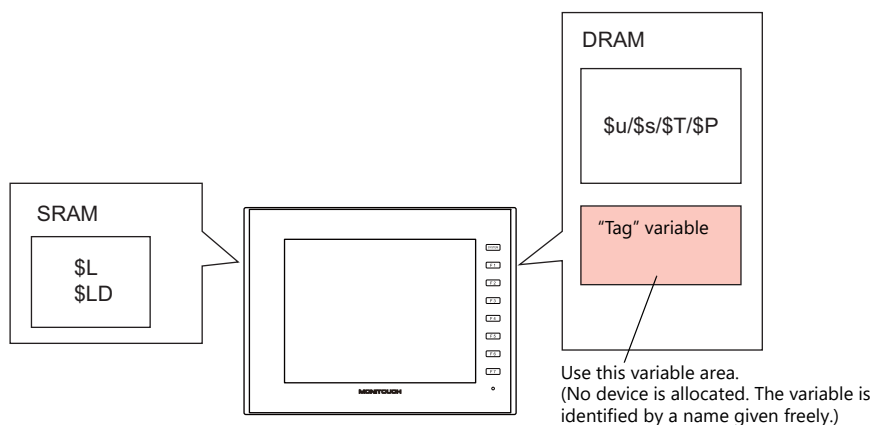
Lamp device memory: "Alarm 1" (M0)
Numerical data display device memory: "Frequency" (D100), "Acceleration time" (D101)

For details on the procedure for editing tags, refer to "10.2 Editing Tags" page 10-3.

Variable Designation

Assign a tag name to a variable in the variable area of the V10/V9 unit, and set the device memory variable for parts and items using the assigned names. This is useful for specifying a working area for V10/V9 internal processing, such as for macro and password functions etc.

Example: Variable area in the V10/V9 series unit



For details on the editing procedure, refer to "10.2 Editing Tags" page 10-3.

Variables

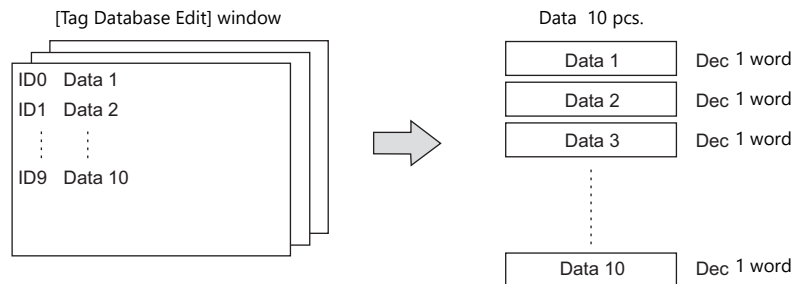
A "variable" is an area that stores data temporarily. This area is used for temporarily storing data, such as a default value or calculated value. The capacity of the variable area is 4096 words for both single words and double words, respectively.

For details, refer to "'Tag' Variable Capacity" page 10-24.

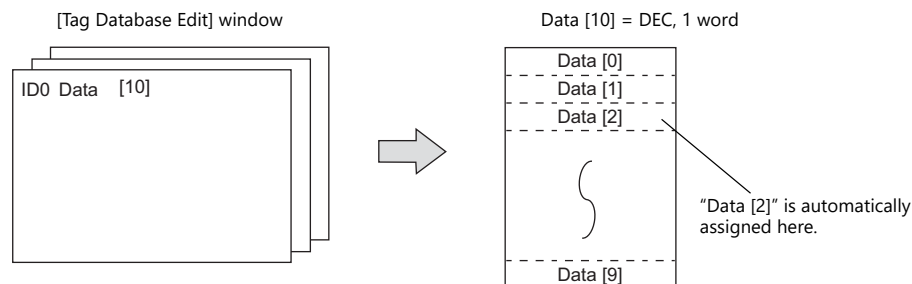
Array Designation

The array format can be specified for the tag. If there is multiple data of the same type, they can be registered at one time. This makes data management and maintenance easier.

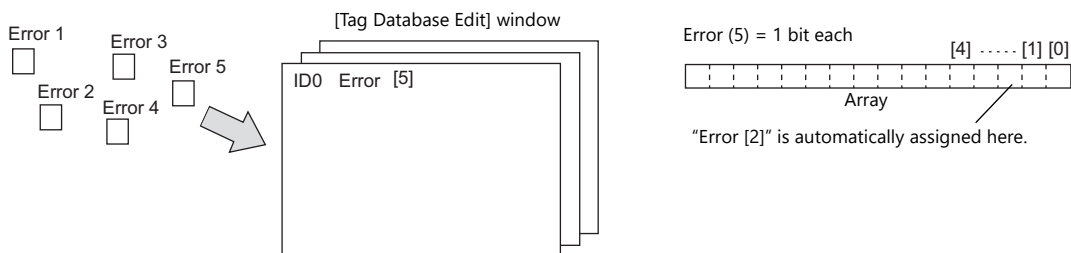
For example, when allocating 10 variables that have the same properties (DEC, 1 word) without using the array format, 10 variables must be registered individually as shown below.




When registering one tag with 10 elements in the array format, 10 variables can be secured in the same way as shown above. If there is multiple data of the same type, the array format can be used to make configuration easier.




In the case of the bit variable:



 For details on the editing procedure, refer to "10.2.3 Configuring Arrays" page 10-6.

10.1.2 Importing Tags

Tags or system labels registered in PLC software can be imported using V-SFT and used as tags.

-  For details, refer to the following.
- "MITSUBISHI ELECTRIC" page 10-13
 - Siemens
 - "SIMATIC Manager (Ver. 5.5 / Ver. 5.4)" page 10-17
 - "TIA Portal" page 10-20
 - "SIMATIC STEP 7-Micro/WIN (S7-200)" page 10-22

10.1.3 Operation and Scaling Functions (For Logging Server and Numerical Data Display)




- Operation and scaling functions can be used with respect to tags. By setting these functions to tags, it is possible to register and edit only tags when there is a need for such operations on tags that are used in multiple locations and items, thereby contributing to reduction of work hours.
- These tags can also be used in the logging server. Therefore, even when handling data that requires operation processing such as temperatures and rotation speeds, logging and display are possible without operation processing on the PLC or using macro commands.

10.2 Editing Tags

Click [Home] → [Registration Item ▼] → [Tag Database], specify a group number, and register tags in the [Tag Database Edit] window.

There are three ways to edit tags.

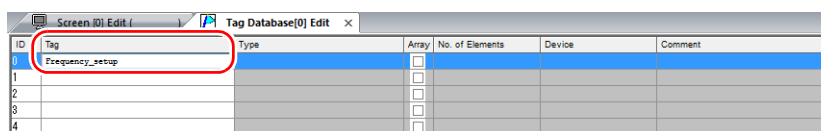
Refer to the following.

-  ["10.2.1 Direct Registration in the \[Tag Database Edit\] Window" page 10-3](#)
-  ["10.2.2 Editing in a CSV File" page 10-4](#)
-  ["10.5 Importing Tags" page 10-13](#)

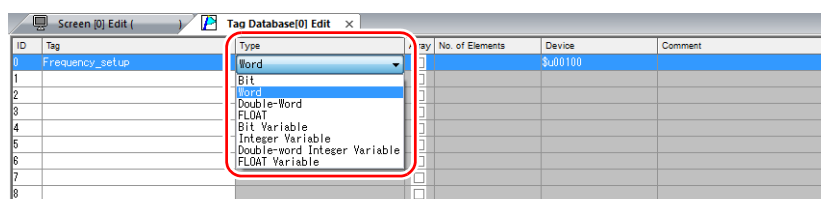
10.2.1 Direct Registration in the [Tag Database Edit] Window

This section describes the procedure for registering "D100" and "D101" (word device memory) and "M0" (bit device memory) of the PLC1 device memory using tags.


1. Click the [Tag] field and register a tag name.



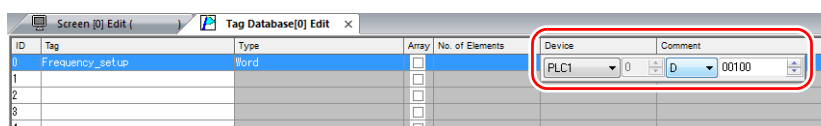
2. Click the [Type] field and select a data type from the list.



- * To register the same type of data at once with consecutive device memory addresses, use the array format.

 For details, refer to "10.2.3 Configuring Arrays".

3. Click the [Device] field and set a device memory address.



4. Click the [Comment] field and enter a comment describing the tag.

5. To register a new device memory address using a tag, select another ID number and repeat steps 1 to 5.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Frequency_setup	Word	<input type="checkbox"/>		D00100	Inverter Port No.1
1	Acceleration_time	Word	<input type="checkbox"/>		D00101	Inverter Port No.1
2	Alarm1	Bit	<input type="checkbox"/>		M00000	ON:Abnormal OFF:Normal
3			<input type="checkbox"/>			
4			<input type="checkbox"/>			

This completes the necessary settings.

Tags can be specified in the settings window of each part.

- Word designation:

Device

- Bit designation:

Lamp Device (Bit device)

Lamp Device (Word Device)

* -xx is the manually entered part of the bit.
xx: 00 - 15, 00 - 31

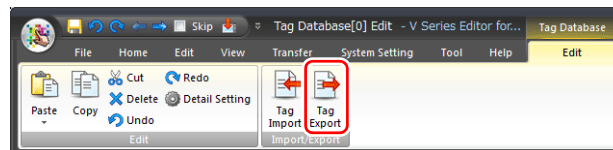
10.2.2 Editing in a CSV File

The data registered in the [Tag Database Edit] window for a screen program can be exported to a CSV file. The CSV file can be edited on a PC and then imported back into the screen program. In the example below, changes are made to the data registered with ID No. 0 in the [Tag Database Edit] window using Excel.

- Tag: Frequency_setup → Run_status
- Device: D100 → D105
- Comment: Inverter Port No. 1 → ON: RUN, OFF: STOP

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Frequency_setup	word	<input type="checkbox"/>		D00100	Inverter Port No.1
1	Acceleration_time	word	<input type="checkbox"/>		M00000	Inverter Port No.1
2	Alarm1	Bit	<input type="checkbox"/>		M00000	ON: Abnormal OFF: Normal
3	Alarm2	Bit	<input type="checkbox"/>		M00001	ON: Abnormal OFF: Normal
4	Flag1	Bit Variable	<input type="checkbox"/>			Within macro
5	Count_value1	Integer Variable	<input type="checkbox"/>			Within macro
6	Title	Word	<input checked="" type="checkbox"/>	5	D00200	Production_A-line

1. Click [Edit] → [Tag Export].

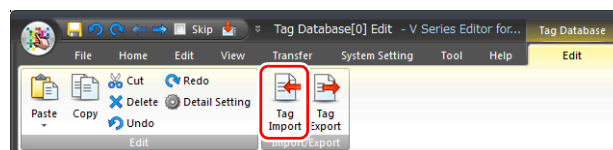


2. Enter an arbitrary filename in the window, select "Csv File (*.csv)" for the [Save as type] field, and click [Save].
3. Open the CSV file in Excel, edit each field for ID number 0, and save the file.

ID	Tag	Type	Array Setting	No. of Elements	Address	Comment
0	Frequency_setup	word			PLC1 [D00100]	Inverter Port No.1
1	Acceleration_time	word			PLC1 [M00101]	Inverter Port No.1
2	Alarm1	Bit			PLC1 [M00000]	ON: Abnormal OFF: Normal
3	Alarm2	Bit			PLC1 [M00001]	ON: Abnormal OFF: Normal
4	Flag1	Bit Variable				Within macro
5	Count_value1	Integer Variable				Within macro
6	Title	Word	<input checked="" type="checkbox"/>	5	PLC1 [D00200]	Production_A-line

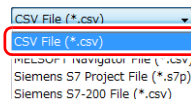
For details on the data in CSV files, refer to "CSV File Configuration" page 10-5.

4. Open the [Tag Database Edit] window and click [Edit] → [Tag Import].



5. Select the CSV file saved in step 3, select "Csv File (*.csv)" for the [Files of type] field, and click [Open].

File types



This completes the necessary settings.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Run_status	word	<input type="checkbox"/>		D00105	ON: RUN, OFF: STOP
1	Acceleration_time	word	<input type="checkbox"/>		M00101	Inverter Port No.1
2	Alarm1	Bit	<input type="checkbox"/>		M00000	ON: Abnormal OFF: Normal
3	Alarm2	Bit	<input type="checkbox"/>		M00001	ON: Abnormal OFF: Normal
4	Flag1	Bit Variable	<input type="checkbox"/>			Within macro
5	Count_value1	Integer Variable	<input type="checkbox"/>			Within macro
6	Title	Word	<input checked="" type="checkbox"/>	5	D00200	Production_A-line

* IDs that already have tags are overwritten with the imported data.

CSV File Configuration

A CSV file opened in Excel is formatted as shown below.

[Tag Database Edit] data exported to a CSV file

	A	B	C	D	E	F	G
1	SYMBOL=1	VER=1	REV=0				
2	ID	Tag	Type	Array Setting	No. of Elements	Address	Comi
3	0	Frequency_setup	1			PLC1 [D00100]	Inver
4	1	Acceleration_time	1	0		PLC1 [D00101]	Inver
5	2	Alarm1	0	0		PLC1 [M00000]	ON:A
6	3	Alarm2	0	0		PLC1 [M00001]	ON:A
7	4	Flag1	3	0			Withi
8	5	Count_value1	4	0			Withi
9	6	Title	1	1	5	PLC1 [D00200]	Production_A-line
10	[0]						
11	[1]						
12	[2]						
13	[3]						
14	[4]						

The number of elements in an array must be the same as the number shown in [No. of Elements].

Column	Item	Description	Remarks
A	ID	0 - 65535 Numbers within square brackets []: Element No. 0 to 4095 with the use of arrays	1-byte
B	Tag *1	Within 100 one-byte characters	1-byte / 2-byte
C	Type	0: Bit device memory 1: Word Device memory 2: Double-word device memory 3: Bit variable 4: Integer variable 5: Double-word integer variable 6: Real number variable 7: Real number device memory	1-byte
D	Array Setting	0: Not used, 1: Used	1-byte
E	No. of Elements	1 - 4096	1-byte, only when "1" is specified for [D. Array Setting]
F	Address	<p>PLC device memory</p> <p>PLCx [xxxxx] PLCNo.1 - 8 Device memory + address</p> <p>Example: Specifying PLC1 Mitsubishi D100</p> <ul style="list-style-type: none"> 1:1 connection Word designation: PLC1 [D00100] Bit designation: PLC1 [D00100-00] 1:n connection (port No. 0) Word designation: PLC1 [0:D00100] Bit designation: PLC1 [0:D00100-00] <p>Internal device memory: xxxxx \$u/\$T/\$s/\$L/\$LD Device memory + address</p> <p>Example: Specifying internal device memory \$u100 Word designation: \$u00100, bit designation: \$u00100-00</p> <p>Memory card device [xx:xxxx] #xxxx File No. 0 to 15 Data No. 0 to 4096 Record No. 0 to 4095</p> <p>Example: Specifying File No. 0, Record No. 0, and Data No. 100 Word designation: [0:0] #0100, bit designation: [0:0] #0100-00</p> <p>I/O device memory PLCx [xxxxx] PLCNo.1 - 8 Device memory + address</p> <p>Example: Specifying PLC1 Fuji Electric T-link T100 Word designation: PLC1 [T100], bit designation: PLC1 [T100-00]</p> <p>Common device memory: CW/CB/MW/MB/VW PLCx [xxxxx] PLCNo.1 - 8 Device memory + address</p> <p>Example: <ul style="list-style-type: none"> Specifying CW100 Word designation: PLC1 [CW0100], bit designation: PLC1 [CW0100-00] Specifying MW100 (port No. 1) Word designation: PLC1 [1:MW0100], bit designation: PLC1 [1:MW0100-00] </p>	1-byte
G	Comment	Within 130 one-byte characters	1-byte / 2-byte

*1 Data that includes unusable characters cannot be imported. Refer to "Detailed Settings" (page 10-7).

10.2.3 Configuring Arrays

This section describes the procedure when "5" is specified for [No. of Elements] for the PLC1 device memory "D200", and "3" for the integer variable in the array format.

1. Select the [Array] checkbox and specify the number for the [No. of Elements] field.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	ProductName	Word	<input checked="" type="checkbox"/>	5	D00200	ALine
1	Parameter	Integer Variable	<input checked="" type="checkbox"/>	3		ALine
2			<input type="checkbox"/>			
3			<input type="checkbox"/>			
4			<input type="checkbox"/>			
5			<input type="checkbox"/>			
6			<input type="checkbox"/>			

Annotations in the screenshot:
 - A red box highlights the 'Array' and 'No. of Elements' columns for rows 0 and 1.
 - An arrow points from the '5' in row 0 to the text: "D200 to D204 are used."
 - An arrow points from the '3' in row 1 to the text: "3 words are used in the variable area."



- A maximum of 4096 elements can be set.
- If the bit variable is specified in the array format, 1 word is occupied in the variable area even if "16" or a smaller number is specified for the number of elements.
For details, refer to "Tag Settings" page 10-24.

2. Double-click on the ID number and enter a description in the [Comment] field of the [Detail Setting] window.

The screenshot shows the 'Tag Database Edit' window with the 'Detail Setting' dialog box open for tag '0'. The dialog box contains the following fields and data:

- Tag: ProductName
- Type: Word
- Array Setting:
- No. of Element: 5
- Element No. table:

Element No.	Comment
0	D200 (Read)
1	D201
2	D202
3	D203
4	D204
- Device: PLC1 0 D 00200
- Comment: ALine

Annotations in the screenshot:
 - Lines connect the 'Total [n]' labels to the 'Element No.' table:
 - Total [0] (= D200) points to row 0.
 - Total [1] (= D201) points to row 1.
 - Total [2] (= D202) points to row 2.
 - Total [3] (= D203) points to row 3.
 - Total [4] (= D204) points to row 4.

* The [Detail Setting] window can also be displayed from the [Tag Database Edit] tab or by right-clicking and selecting [Detail Setting].

This completes the necessary settings.

Tag arrays can be specified in the settings window of each part.

- Tag [n] (n: number of elements in the array)

Device Tag Parameter[0]

* Manually enter a value for [n].

10.2.4 Importing Tags

Tags or system labels registered in PLC software can be imported using V-SFT and used as tags.



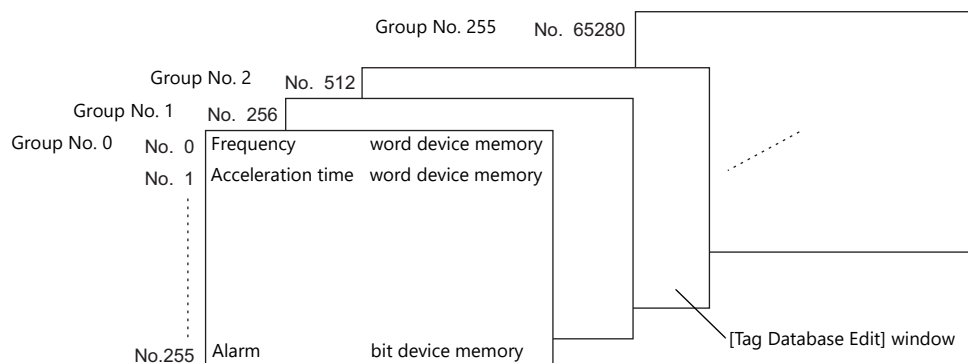
For details, refer to "10.5 Importing Tags" page 10-13.

10.3 Detailed Settings

[Tag Database Edit] Window

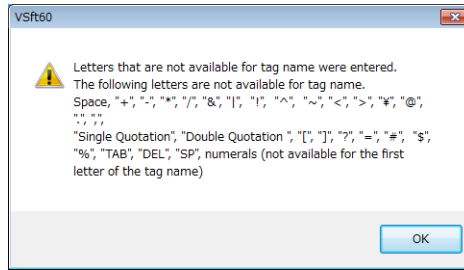
The [Tag Database Edit] window consists of 256 groups, and 256 lines can be registered per group. Accordingly, a maximum of 65536 lines can be registered in total.

Location of settings: [Home] → [Registration Item ▼] → [Tag Database]

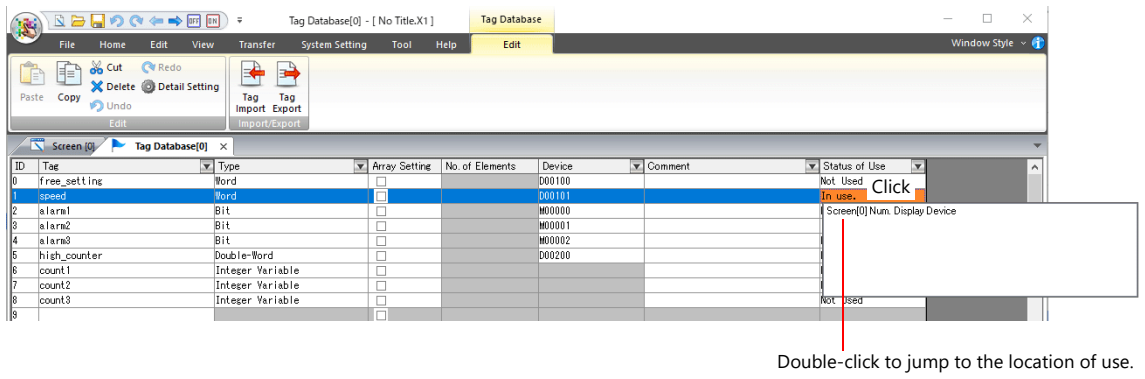


Item	Description																														
ID	Line No. 0 to 65535																														
Tag ^{*1}	Specify a tag name. Max. 100 one-byte characters (two-byte characters allowed, one-byte/two-byte/uppercase/lowercase are treated as different characters.)																														
Type, Device	Specify the data type for the tag. <table border="1"> <thead> <tr> <th>Device memory</th> <th>Type</th> <th>Data Type</th> </tr> </thead> <tbody> <tr> <td>PLC device memory</td> <td>Bit</td> <td>1-bit data</td> </tr> <tr> <td>Internal device memory</td> <td>Word</td> <td>1-word data</td> </tr> <tr> <td>Memory card</td> <td>Double-word</td> <td>Double-word data</td> </tr> <tr> <td>I/O device memory</td> <td>Real number</td> <td>32-bit single precision real number format</td> </tr> <tr> <td>Common device memory</td> <td></td> <td></td> </tr> <tr> <td>Variable</td> <td>Bit variable</td> <td>1-bit data</td> </tr> <tr> <td></td> <td>Integer variable</td> <td>1-word data</td> </tr> <tr> <td></td> <td>Double-word integer variable</td> <td>Double-word data</td> </tr> <tr> <td></td> <td>Real number variable</td> <td>32-bit single precision real number format</td> </tr> </tbody> </table>	Device memory	Type	Data Type	PLC device memory	Bit	1-bit data	Internal device memory	Word	1-word data	Memory card	Double-word	Double-word data	I/O device memory	Real number	32-bit single precision real number format	Common device memory			Variable	Bit variable	1-bit data		Integer variable	1-word data		Double-word integer variable	Double-word data		Real number variable	32-bit single precision real number format
Device memory	Type	Data Type																													
PLC device memory	Bit	1-bit data																													
Internal device memory	Word	1-word data																													
Memory card	Double-word	Double-word data																													
I/O device memory	Real number	32-bit single precision real number format																													
Common device memory																															
Variable	Bit variable	1-bit data																													
	Integer variable	1-word data																													
	Double-word integer variable	Double-word data																													
	Real number variable	32-bit single precision real number format																													
Array	Use an array. For details on setting arrays, refer to "10.2.3 Configuring Arrays" page 10-6.																														
No. of Elements	When [Array] is checked, specify the number of elements to be used in the array. Max. 4096																														
Comment	Enter a description for the tag. Max. 130 one-byte characters (two-byte characters allowed, one-byte/two-byte/uppercase/lowercase are treated as different characters.)																														
Status of Use ^{*2}	If a tag is used as device memory in the screen program, "In use" is indicated. Click a cell indicating "In use" to show where the tag is set. Double-click the indicated location field to jump to that location.																														
Conversion ^{*3}	Set alarm, operation and scaling settings. These settings are used for numerical data display parts and the logging server. For details, refer to "Conversion Settings" page 10-8.																														

*1 If an unavailable character is used, the following message box will appear. In this case, perform registration again.



*2 Display example

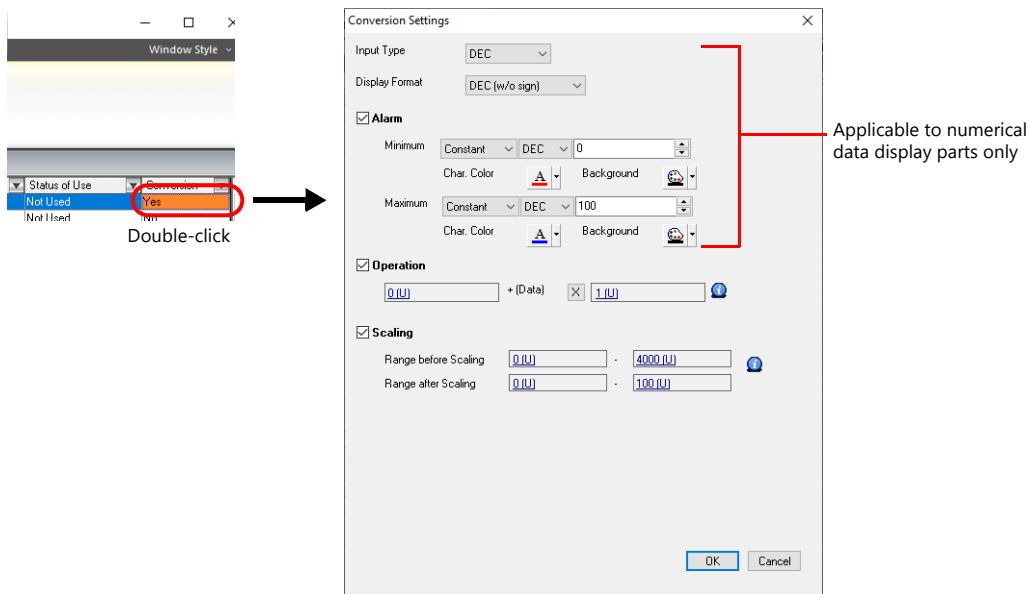


*3 Not supported if [Type] is set to "Bit" or "Bit Variable".

Conversion Settings

Operation and scaling functions can be used with respect to device memory addresses of tags. Configure the following settings.

- Applicable items:
 - Logging server
 - Numerical data display



Item *1	Description																		
Input Type (BCD, DEC, FLOAT)	Select the code to use when reading data from device memory.																		
Display Format	Select the format for displaying on the screen.																		
Alarm *2	Select this checkbox to display data in a different color when it exceeds or falls short of a specific range. When "Entry Target" is selected for [Function], the range of values that can be entered using a keypad can be set.																		
<table border="1"> <tr> <td rowspan="4">Minimum</td> <td></td> <td>Set the minimum value used to trigger an alarm.</td> </tr> <tr> <td>Use offset value designation device</td> <td>Set the device memory address and code used for storing an offset value for the minimum value.</td> </tr> <tr> <td>Char. Color</td> <td>Set the color for text.</td> </tr> <tr> <td>Background</td> <td>Set the background color of text.</td> </tr> <tr> <td rowspan="4">Maximum</td> <td></td> <td>Set the maximum value used to trigger an alarm.</td> </tr> <tr> <td>Use offset value designation device</td> <td>Set the device memory address and code used for storing an offset value for the maximum value.</td> </tr> <tr> <td>Char. Color</td> <td>Set the color for text.</td> </tr> <tr> <td>Background</td> <td>Set the background color of text.</td> </tr> </table>	Minimum		Set the minimum value used to trigger an alarm.	Use offset value designation device	Set the device memory address and code used for storing an offset value for the minimum value.	Char. Color	Set the color for text.	Background	Set the background color of text.	Maximum		Set the maximum value used to trigger an alarm.	Use offset value designation device	Set the device memory address and code used for storing an offset value for the maximum value.	Char. Color	Set the color for text.	Background	Set the background color of text.	
Minimum			Set the minimum value used to trigger an alarm.																
		Use offset value designation device	Set the device memory address and code used for storing an offset value for the minimum value.																
		Char. Color	Set the color for text.																
	Background	Set the background color of text.																	
Maximum		Set the maximum value used to trigger an alarm.																	
	Use offset value designation device	Set the device memory address and code used for storing an offset value for the maximum value.																	
	Char. Color	Set the color for text.																	
	Background	Set the background color of text.																	
Operation	Select this checkbox to perform an operation on the value of the device memory address specified in [Contents]. <div style="text-align: center;"> <p>Offset value (constant) "x" or "/" (+) Multiplier or divisor (constant)</p> <p>Device memory specified in [Contents]</p> </div>																		
Scaling	Select this checkbox to display data after automatically converting the data read from the PLC ([Range before Scaling]) to the specified range ([Range after Scaling]). <div style="text-align: center;"> <p>PLC MONITOUCH</p> <p>4000 100</p> <p>0 0</p> <p>(Range before scaling) (Range after scaling)</p> </div> <table border="1"> <tr> <td>Range before Scaling</td> <td>Specify the data to be read from the PLC</td> </tr> <tr> <td>Range after Scaling</td> <td>Specify the range of data to be shown on MONITOUCH.</td> </tr> </table>	Range before Scaling	Specify the data to be read from the PLC	Range after Scaling	Specify the range of data to be shown on MONITOUCH.														
Range before Scaling	Specify the data to be read from the PLC																		
Range after Scaling	Specify the range of data to be shown on MONITOUCH.																		

*1 For details, refer to "5.1 Numerical Display" in the Reference Manual 1.

*2 The alarm setting uses the values before operation and scaling.

Logging server

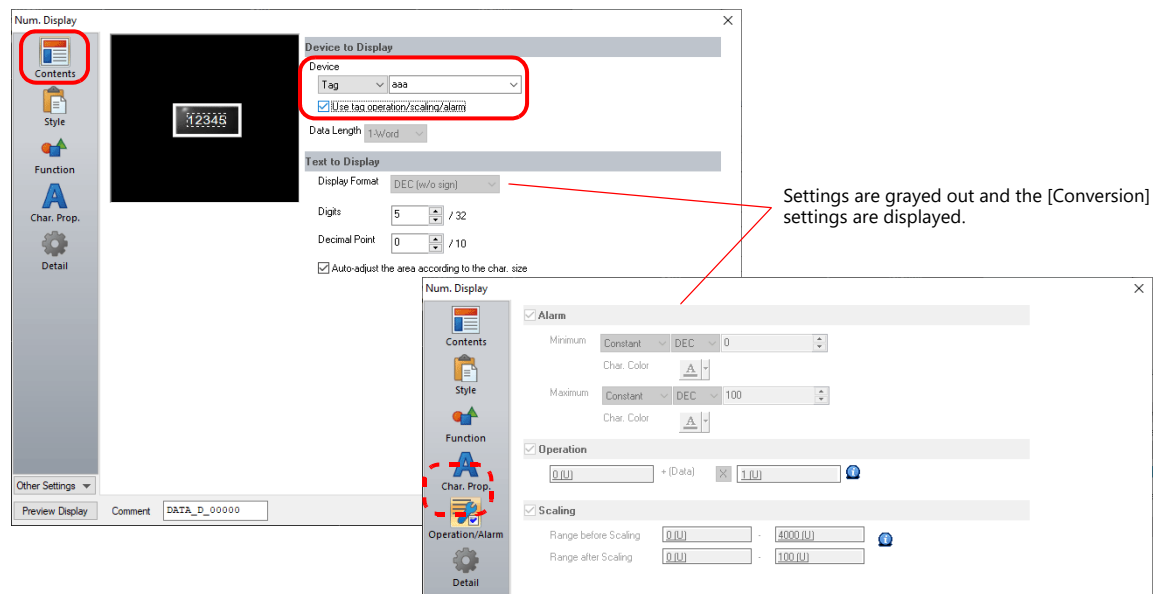
1. Select a tag with [Conversion] settings at [System Setting] → [Logging Server] → [Logging Data].
2. Double-click the [Conversion] cell and select the [Use tag operation/scaling] checkbox.

Settings are grayed out and the [Conversion] settings are displayed.

* Available when [Logging Method] is set to "Trigger" or "Constant Cycle".

Numerical data display

1. Display the settings window for the numerical data display and select the tag with [Conversion] settings at [Contents] → [Device to Display].
2. Select the [Use tag operation/scaling/alarm] checkbox.

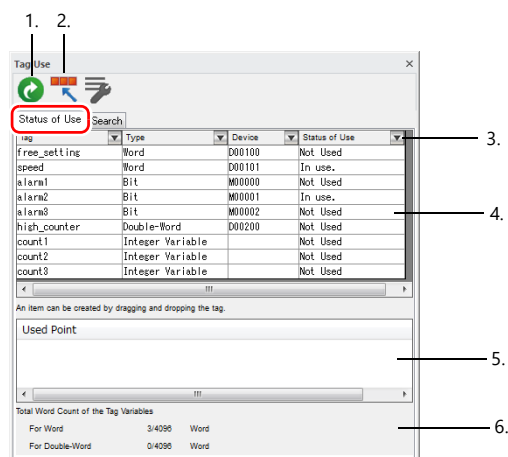


10.4 Tag Status List

The tag status list of the entire screen program can be searched and the total word count of tag variables can be checked.
Display method: [Tool] → [Search] → [Tag Use]

Status of Use

Details

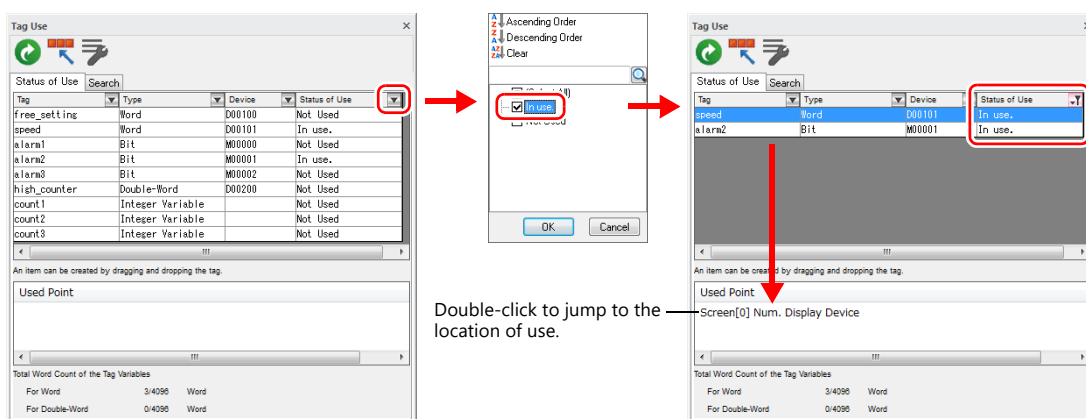


No.	Item	Description
1	Update	Updates the display.
2	VIEW JUMP	When the cursor is over the [Status of Use] list (4): [Tag Database Edit] window is displayed. When the cursor is over the [Use Point] area (5): The relevant screen item is displayed.
3	Filter button	Set the search conditions.
4	List of Memory Use	Displays the search result.
5	Used Point	Displays the location of use of the tag selected in the [Status of Use] list (4).
6	Total Word Count of the Tag Variables	Displays the status of the variable area. Max. 4096 words for single and double words * If the occupied word count exceeds the 4096 words, the value is displayed in red. Set a value smaller than 4096 words. For details, refer to "Tag" Variable Capacity page 10-24.

Operation Method

The procedure of searching for tags currently in use is explained as an example.

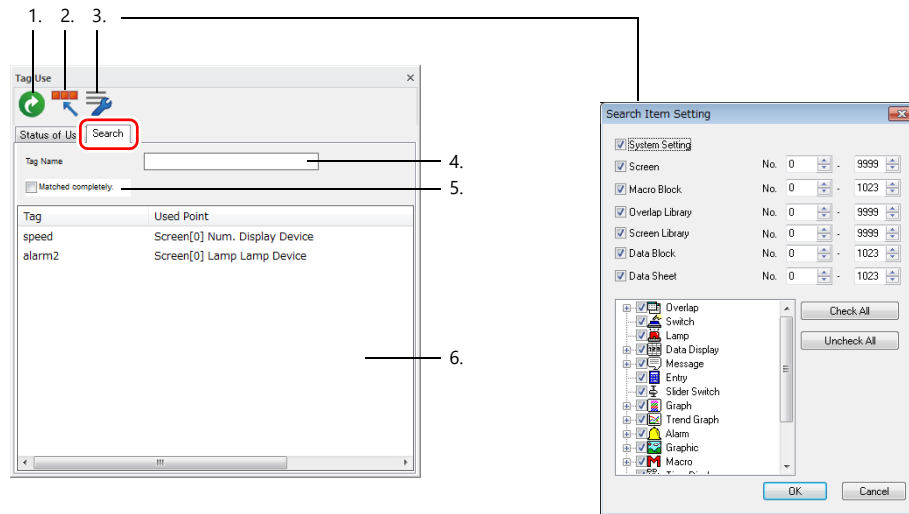
1. Select [In use] from the [▼] filter button on the [Status of Use] list and then click [OK] to display the search results.



2. Selecting a tag displays the location of use. Double-click to jump to the location of use.

Search

Details

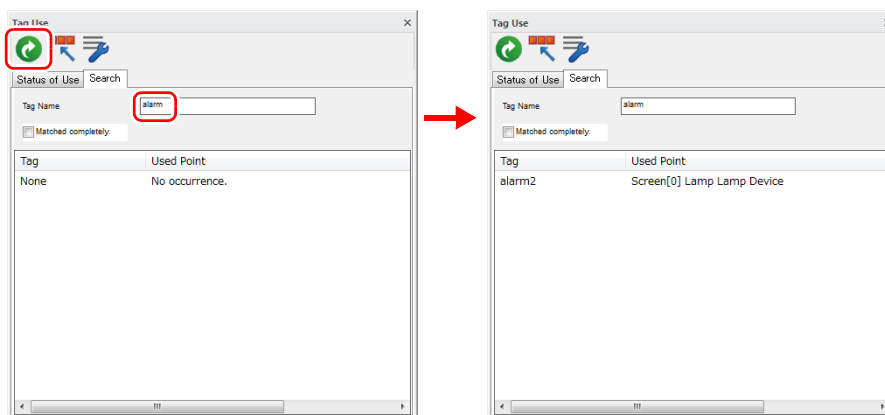


No.	Item	Description
1	Update	Updates the display. Set [Tag Name] (4) and [Search Range] (3), and then click this icon.
2	VIEW JUMP	Displays the location of use of the tag selected in the search results (6).
3	Search Range Setting	Specify the search range.
4	Tag Name	Enter a tag name to search. If a search is performed with this field left blank, all tags in use will be displayed. * One-byte and two-byte characters and uppercase and lowercase characters are treated as separate characters.
5	Matched completely.	Selected: Search for a tag name exactly the same as the one specified for [Tag Name] (4). Unselected: Search for all tags including characters specified for [Tag Name] (4).
6	Search results	Displays the search result.

Operation Method

This section describes the procedure for searching for the locations of use of the "alarm" tag as an example.

1. Click the [Search] tab.
2. Enter "alarm" into [Tag Name] and click the [Update] icon to display the search results.
Unused tags are not returned in the search results.



3. Double-click the tag to jump to the location of use.

10.5 Importing Tags

Tags or system labels registered in PLC software can be imported using V-SFT and used as tags.

Manufacturers of supported PLCs

- "MITSUBISHI ELECTRIC" page 10-13
- Siemens
 - "SIMATIC Manager (Ver. 5.5 / Ver. 5.4)" page 10-17
 - "TIA Portal" page 10-20
 - "SIMATIC STEP 7-Micro/WIN (S7-200)" page 10-22

MITSUBISHI ELECTRIC

Global labels registered in Simple Project (with labels) or Structured Project in MITSUBISHI ELECTRIC's software GX Works2 can be registered as system labels in the software MELSOFT Navigator. These system labels can be exported in CSV file format. When such CSV files are imported using V-SFT, system labels in the files can be used as tags in V-SFT.

* **For details on using PLC software, refer to the relevant PLC manual.**



When whole program compiling is executed in GX Works2, device memory addresses registered with global labels will be reassigned to global labels. If there are global labels with no PLC device memory addresses assigned, addresses of such labels will be assigned according to the automatic assignment setting made in GX Works2.

Therefore, assigning PLC device memory addresses to global labels is recommended.

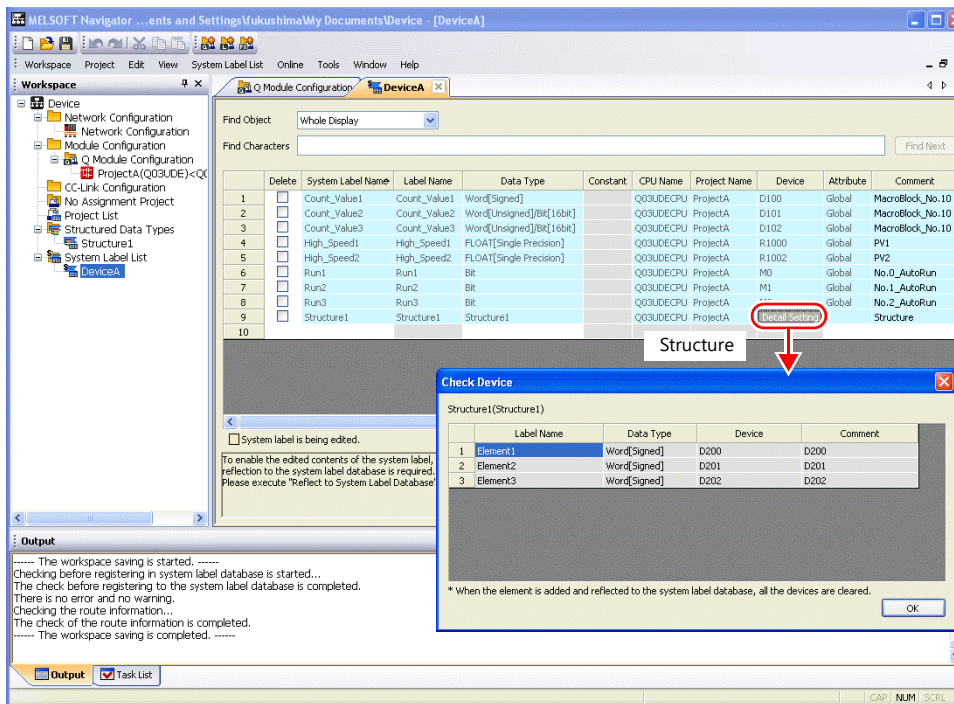
Supported PLC Models

Manufacturer	PLC Model
MITSUBISHI ELECTRIC	QnH (Q) series link
	QnH (Q) series CPU
	QnH (Q) series CPU (multi CPU)
	QnH (Q) series link (multi CPU)
	QnH (Q) series (Ethernet)
	QnH (Q) series (multi CPU) (Ethernet)
	QnH (Q) series (Ethernet ASCII)
	QnH (Q) series (multi CPU) (Ethernet ASCII)
	QnH (Q) series (CC-LINK)
	QnU series CPU
	QnU series (built-in Ethernet)
	L series link
	L series CPU
	L series (built-in Ethernet)
	FX series CPU
	FX2N/1N series CPU
	FX1S series CPU
	FX series link (A protocol)
	FX3U/3UC/3G series CPU
	FX3U/3GE series (Ethernet)
FX3U/3UC/3G series link (A protocol)	

* **Importing using V-SFT is allowed provided that [PLC1] and a 1:1 connection mode are set in the [System Setting] → [Hardware Setting] window. Importing is not possible for PLC2 and subsequent PLCs.**

Procedure

This section describes the steps to import "Device A" data registered in the system label list into a screen program.



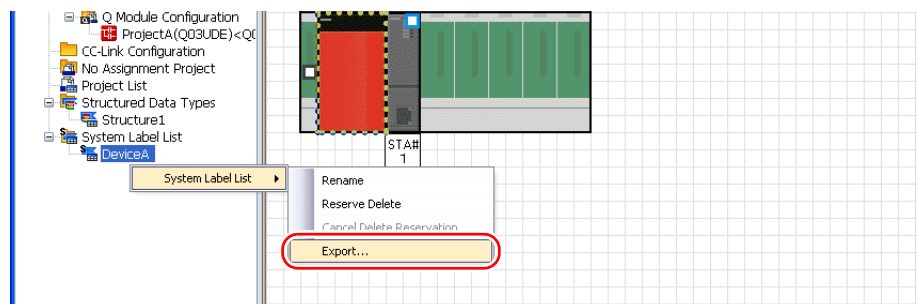
* The following table lists the types of data that can be imported using V-SFT and the data types after importing.

MITSUBISHI ELECTRIC "System Label"		Data Type for Tags in V-SFT
Data Type *1	Length	
Bit	1 bit	Word
Word [Signed]	1 word	
Word [Unsigned]	1 word	
Timer	1 word	
Counter	1 word	
Retentive Timer *2	1 word	
Double Word [Signed]	2 words	Double-word
Double Word [Unsigned]	2 words	
Time	2 words	Real number
FLOAT [Single Precision]	2 words	

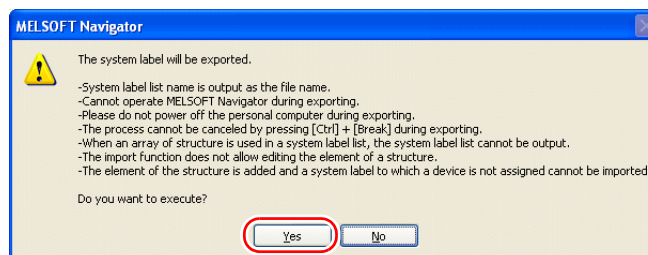
*1 No other types of data can be imported using V-SFT.

*2 With the PLC model QnH (Q) series (CC-LINK), data of the type "Retentive Timer" cannot be imported.

1. Start MELSOFT Navigator.
2. Right-click [DeviceA] under [System Label List], and then click [System Label List] → [Export].



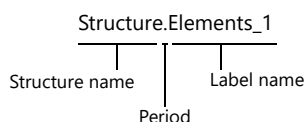
- A message dialog box is displayed. Click the [Yes] button.



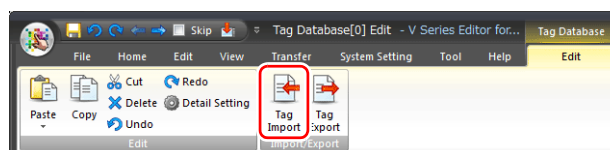
- The [Select Export Destination Folder] window is displayed. Select "CSV" for [Save as type] and click [Save].
- Open the destination folder. Check that the CSV file with the same name in the system label list is created. (Example: DeviceA.csv)

System Label Name	Label Name	Data Type	Constant	CPU Name	Project Name	Device	Attribute	Comment	Remark
Count_Value1	Count_Value1	Word[Signed]		G03UDECPU	ProjectA	D100	Global	MacroBlock_No.10	
Count_Value2	Count_Value2	Word[Unsigned]/Bit[16bit]		G03UDECPU	ProjectA	D101	Global	MacroBlock_No.10	
Count_Value3	Count_Value3	Word[Unsigned]/Bit[16bit]		G03UDECPU	ProjectA	D102	Global	MacroBlock_No.10	
High_Speed1	High_Speed1	FLOAT[Single Precision]		G03UDECPU	ProjectA	R1000	Global	PV1	
High_Speed2	High_Speed2	FLOAT[Single Precision]		G03UDECPU	ProjectA	R1002	Global	PV2	
Run1	Run1	Bit		G03UDECPU	ProjectA	M0	Global	No.0_AutoRun	
Run2	Run2	Bit		G03UDECPU	ProjectA	M1	Global	No.1_AutoRun	
Run3	Run3	Bit		G03UDECPU	ProjectA	M2	Global	No.2_AutoRun	
Structure1	Structure1	Structure1		G03UDECPU	ProjectA			Structure	
Structure1 Element1	Structure1	Word[Signed]		G03UDECPU	ProjectA	D200		D200	
Structure1 Element2	Structure1	Word[Signed]		G03UDECPU	ProjectA	D201		D201	
Structure1 Element3	Structure1	Word[Signed]		G03UDECPU	ProjectA	D202		D202	

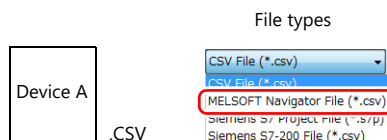
- * The dotted line frame indicates the structure. A structure name with a period is added to the top of each label name.



- Open the screen program in V-SFT. Click [Home] → [Registration Item] → [Tag Database] to display the [Tag Database Edit] window.
- Click [Edit] → [Tag Import].



- The [Open] window is displayed. Select "MELSOFT Navigator File (*.csv)" for [Files of type]. Select the desired CSV filename (e.g. "DeviceA.csv") and click [Open].



The contents of the file are registered as tags in the "tag database edit" window. Types ([Type]) are specified for individual device memory addresses.

This completes the import procedure.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Count_Value1	Word	<input type="checkbox"/>		D00100	MacroBlock_No.10
1	Count_Value2	Word	<input type="checkbox"/>		D00101	MacroBlock_No.10
2	Count_Value3	Word	<input type="checkbox"/>		D00102	MacroBlock_No.10
3	High_Speed1	FLD0AT	<input type="checkbox"/>		R01000	PI1
4	High_Speed2	FLD0AT	<input type="checkbox"/>		R01002	PI2
5	Run1	Bit	<input type="checkbox"/>		M00000	No.0_AutoRun
6	Run2	Bit	<input type="checkbox"/>		M00001	No.1_AutoRun
7	Run2	Bit	<input type="checkbox"/>		M00002	No.2_AutoRun
8	Structure1_Element1	Word	<input type="checkbox"/>		D00200	D00
9	Structure1_Element2	Word	<input type="checkbox"/>		D00201	D01
10	Structure1_Element3	Word	<input type="checkbox"/>		D00202	D02
11			<input type="checkbox"/>			
12			<input type="checkbox"/>			
13			<input type="checkbox"/>			

*** Periods "." cannot be used with tags. If any system label exported from MELSOFT Navigator includes a period, the period is converted to an underscore "_".**

Notes

Note the following when importing.

- Tag names must be within 100 one-byte characters.
- If a file to be imported includes a tag that is already registered, the existing tag is overwritten. Unregistered tags are registered to blank ID numbers (in the [Tag Database Edit] window).
- Only device memory addresses available on the V10/V9 series unit can be imported. For details, refer to the Connection Manual.

Siemens

Supported PLC Models

Manufacturer	PLC Model	PLC Software		
		SIMATIC Manager	TIA Portal	SIMATIC STEP 7-Micro/WIN
Siemens	S7	page 10-17	page 10-20	-
	S7-300/400 MPI			
	S7-300/400 (Ethernet ISOTCP)			
	S7-300/400 (Ethernet TCP/IP PG protocol)			
	S7 PROFIBUS-DP			
	S7-1200/1500 (Ethernet ISOTCP)	-	-	-
	S7-200 PPI	-	-	page 10-22
	S7-200 (Ethernet ISOTCP)	-	-	-

* **Importing using V-SFT is allowed provided that the PLC is specified at [PLC1] in the [System Setting] → [Hardware Setting] window. Importing is not possible for PLC2 and subsequent PLCs. If the connection mode is "1:n", importing occurs via port number 0.**

SIMATIC Manager (Ver. 5.5 / Ver. 5.4)

When a project file (*.s7p) created in Siemens software "SIMATIC Manager (version 5.5 or 5.4)" is imported using V-SFT, names registered in data blocks "DBx" can be used as tags in V-SFT.

 For details on using PLC software, refer to the relevant PLC manual.

Supported data types

The following table lists the data types that can be imported into V-SFT. The corresponding data types in V-SFT are also listed.

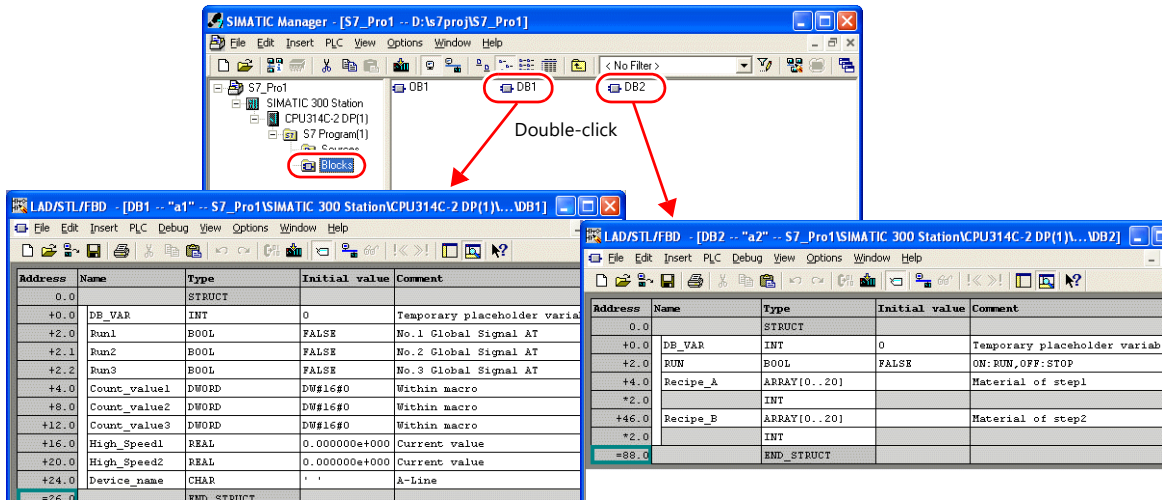
Siemens "DBxx"		Data Type for Tags in V-SFT
Data Type *1	Data Length	
BOOL	1 bit	Bit
BYTE *2	1 byte	Word
CHAR *2	1 byte	
WORD	1 word	
S5TIME	1 word	
DATE	1 word	
INT	1 word	
DWORD	2 words	
DINT	2 words	
TIME	2 words	
TIME_OF_DAY	2 words	
REAL	2 words	Real number

*1 No other types of data can be imported using V-SFT.

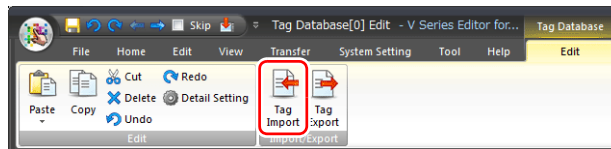
*2 Data types BYTE and CHAR (bytes) are imported as word device memory. If any odd bytes are registered in the PLC software, the data cannot be imported.

Procedure

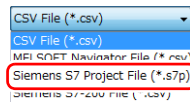
This section describes the steps to import a project file (e.g. "test.s7p"), in which data blocks DB1 and DB2 are registered, to a screen program.



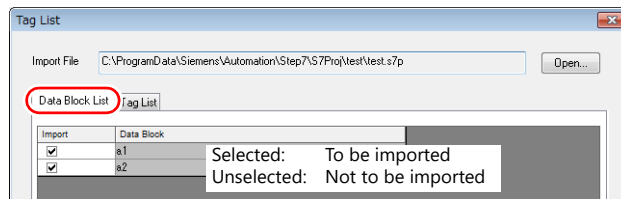
1. Start V-SFT and open the screen program.
Click [Home] → [Registration Item] → [Tag Database] to display the [Tag Database Edit] window.
2. Click [Edit] → [Tag Import].



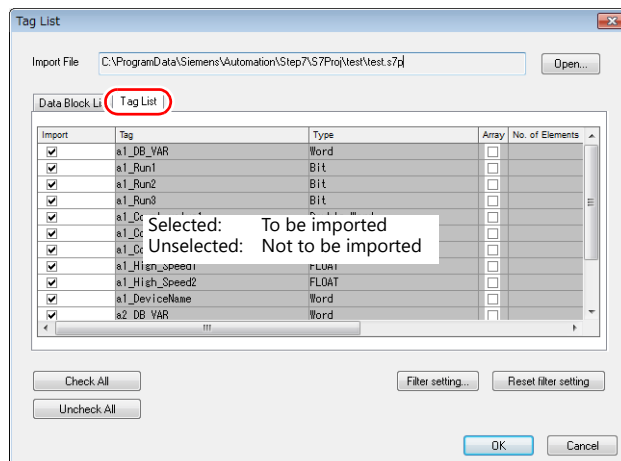
3. The [Open] window is displayed.
Specify "Siemens S7 Project File (*.s7p)" for [Files of type].
Select the desired project file (e.g. "test.s7p") and click [Open].



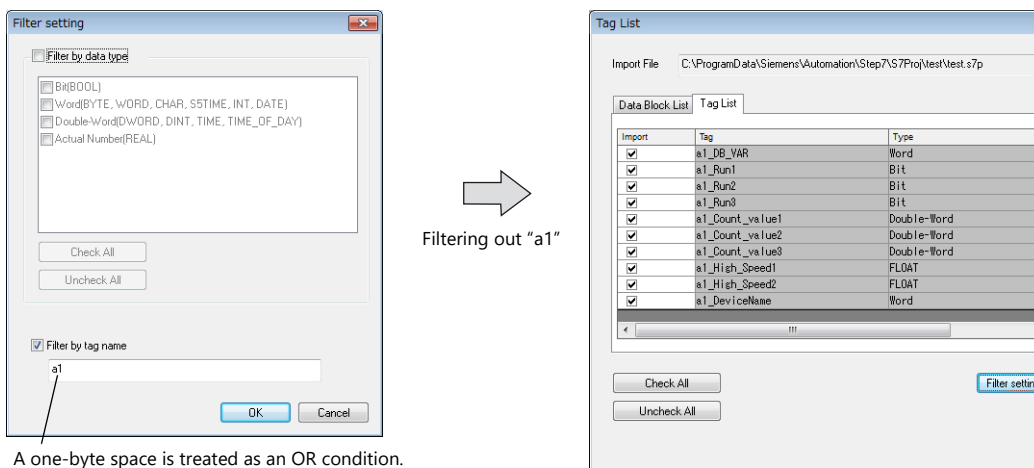
4. The [Tag List] window is displayed. Select the tags to import.
 - [Data Block List]: Displayed block by block (data block "DBx")



- [Tag List]: All tags displayed_



* When specifying further search criteria, go to [Filter setting]. Only tags that match the specified data type, data block name, or tag name will be displayed in the [Tag List] window.



A one-byte space is treated as an OR condition. (Case-sensitive)

5. Click [OK].

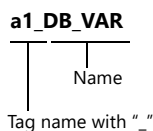
The contents of the file are registered as tags in the "tag database edit" window. Types ([Type]) are specified for individual device memory addresses.

This completes the import procedure.

Example: Only DB1 imported

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	a1_DB_VAR	Word	<input type="checkbox"/>		DB0001:0000	Place-Holder Variables
1	a1_Run1	Bit	<input type="checkbox"/>		DB0001:0002-0	No.0 Global Signal AT
2	a1_Run2	Bit	<input type="checkbox"/>		DB0001:0002-1	No.1 Global Signal AT
3	a1_Run3	Bit	<input type="checkbox"/>		DB0001:0002-2	No.2 Global Signal AT
4	a1_Count_value1	Double-Word	<input type="checkbox"/>		DB0001:0004	Within macro
5	a1_Count_value2	Double-Word	<input type="checkbox"/>		DB0001:0008	Within macro
6	a1_Count_value3	Double-Word	<input type="checkbox"/>		DB0001:0012	Within macro
7	a1_High_Speed1	FLDAR	<input type="checkbox"/>		DB0001:0016	Current value
8	a1_High_Speed2	FLDAR	<input type="checkbox"/>		DB0001:0020	Current value
9	a1_DeviceName	Word	<input type="checkbox"/>		DB0001:0024	A-LINE
10						
11						
12						
13						

* Periods "." cannot be used with tags. If a period is added to a tag, it is converted to an underscore "_".
 The tag name registered in the SIMATIC Manager data block (DBxx) is prefixed to each tag together with an underscore "_".



Address	Name	Type	Initial value	Comment
0.0		STRUCT		
+0.0	DB_VaR	INT	0	Temporary placeholder variable
+2.0	Run1	BOOL	FALSE	No.1 Global Signal AT
+2.1	Run2	BOOL	FALSE	No.2 Global Signal AT
+2.2	Run3	BOOL	FALSE	No.3 Global Signal AT
+4.0	Count_value1	DWORD	D#16#0	Within macro
+8.0	Count_value2	DWORD	D#16#0	Within macro
+12.0	Count_value3	DWORD	D#16#0	Within macro
+16.0	High_Speed1	REAL	0.000000e+000	Current value
+20.0	High_Speed2	REAL	0.000000e+000	Current value
+24.0	Device_name	CHAR	' '	A-Line
+26.0		END_STRUCT		


Notes

Note the following when importing.

- Tag names must be within 100 one-byte characters.
- If a file to be imported includes a tag that is already registered, the existing tag is overwritten. Unregistered tags are registered to blank ID numbers (in the [Tag Database Edit] window).
- Device memory addresses unavailable on the V10/V9 series unit cannot be imported.
 For details on device memory available on the V10/V9 series, refer to the Connection Manual. Data types BYTE and CHAR (bytes) are imported as word device memory. If any odd bytes are registered to device memory in the PLC software, the data cannot be imported.

TIA Portal

When a TIA project file (*.ap11 to *.ap17) created in Siemens software "TIA Portal (Ver. 11 to Ver. 17)" is imported into V-SFT, the contents of the file can be used as tags.

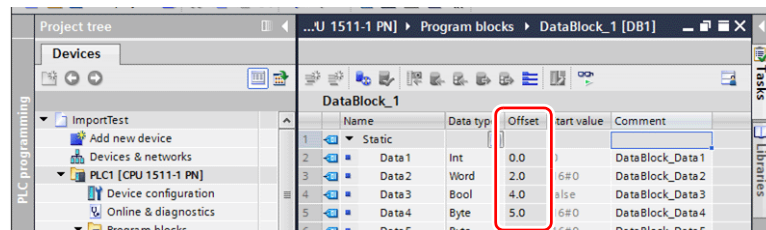
 For details on using PLC software, refer to the relevant PLC manual.


Supported data types

The following table lists the data types that can be imported into V-SFT. The corresponding data types in V-SFT are also listed.

Siemens "DBxx" *1		Data Type for Tags in V-SFT
Data Type *2	Data Length	
BOOL	1 bit	Bit
BYTE *3	1 byte	Word
CHAR *3	1 byte	
WORD	1 word	
S5TIME	1 word	
DATE	1 word	
INT	1 word	
DWORD	2 words	Double-word
DINT	2 words	
TIME	2 words	
TIME_OF_DAY	2 words	
REAL	2 words	Real number

*1 The "Offset" settings on the PLC must be configured. If the "Offset" settings are not configured, importing cannot be performed.



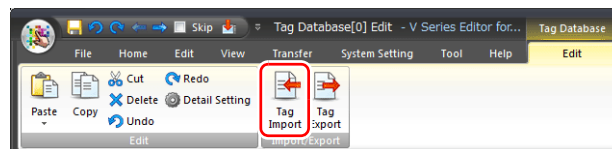
 For details on using PLC software, refer to the relevant PLC manual.

*2 No other types of data can be imported using V-SFT.

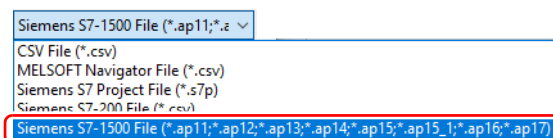
*3 Data types BYTE and CHAR (bytes) are imported as word device memory. If any odd bytes are registered in the PLC software, the data cannot be imported.

Procedure


1. Start V-SFT and open the screen program.
Click [Home] → [Registration Item] → [Tag Database] to display the [Tag Database Edit] tab window.
2. Click [Edit] → [Tag Import].



3. The [Open] window is displayed.
Specify "Siemens S7-1500 File (*.ap11 to *.ap17)" for [Files of type].
Select the desired project file and click [Open].



4. The [Tag List] window is displayed. Select the tags to import.

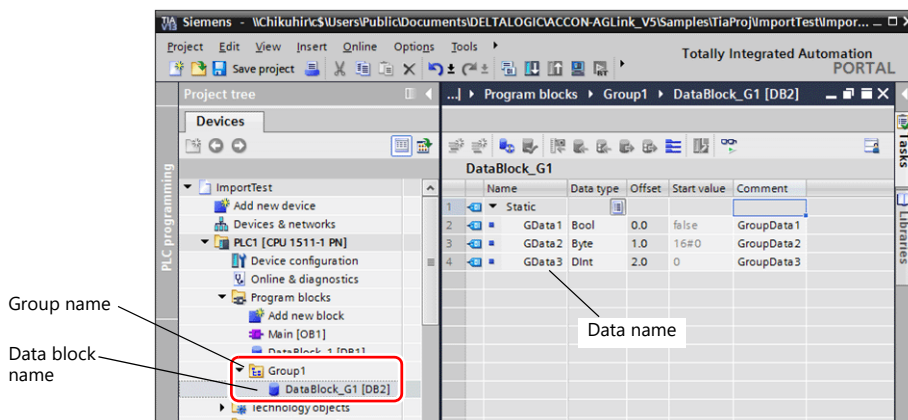
 A filter can be applied. For details, refer to [page 10-19](#).

5. Click [OK].

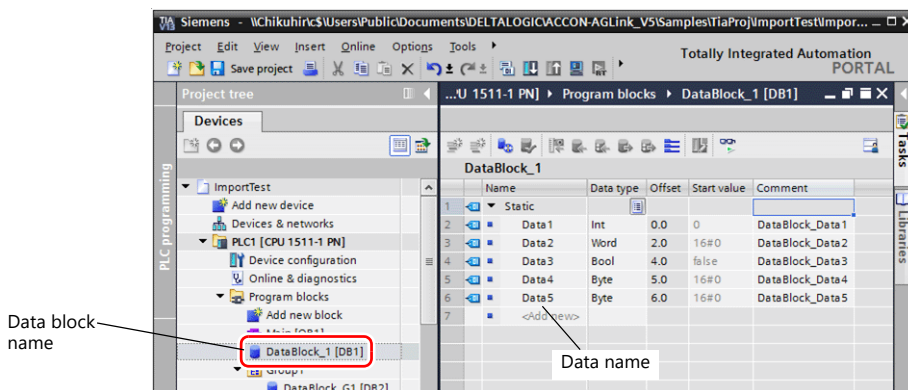
The contents of the file are registered as tags in the tag database edit window. Types ([Type]) are specified for individual device memory addresses. This completes the import procedure.

Importing occurs as follows according to the group settings of the TIA project file.

<Example 1: Group settings exist>



<Example 2: Group settings do not exist>



Example of imported tags in V-SFT

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Group1_DataBlock_G1_GData1	Bit	<input checked="" type="checkbox"/>	1	DB002:0000.0	GroupData1
1	Group1_DataBlock_G1_GData3	Double-Word	<input type="checkbox"/>		DB002:0002	GroupData3
2	DataBlock_1_Data1	Word	<input type="checkbox"/>		DB001:0000	DataBlock_1_Data1
3	DataBlock_1_Data2	Word	<input type="checkbox"/>		DB001:0002	DataBlock_1_Data2
4	DataBlock_1_Data3	Bit	<input type="checkbox"/>		DB001:0004.0	DataBlock_1_Data3
5	DataBlock_1_Data5	Word	<input type="checkbox"/>		DB001:0006	DataBlock_1_Data5
6			<input type="checkbox"/>			
7			<input type="checkbox"/>			
8			<input type="checkbox"/>			

Example 1
With group settings

Example 2
Without group settings

- With group settings: group name_data block name_data name

- Without group settings: data block name_data name

*1 Periods "." cannot be used with tags. If a period is added to a tag, it is converted to an underscore "_".

The tag name registered in the SIMATIC Manager data block (DBxx) is prefixed to each tag together with an underscore "_".


Notes

Note the following when importing.

- Tag names must be within 100 one-byte characters.
 - Only tags registered in one-dimensional arrays in TIA Portal can be imported. Multi-dimensional arrays are not supported.
 - Structures with more than six levels cannot be imported.
 - Only comments registered to "Editing language" in TIA Portal can be imported.
 - If a file to be imported includes a tag that is already registered, the existing tag is overwritten. New tags are registered to blank ID numbers (in the [Tag Database Edit] window).
 - Device memory addresses unavailable on the V10/V9 series unit cannot be imported.
- For details on device memory available on the V10/V9 series, refer to the Connection Manual. Data types BYTE and CHAR (bytes) are imported as word device memory. If any odd bytes are registered to device memory in the PLC software, the data cannot be imported.

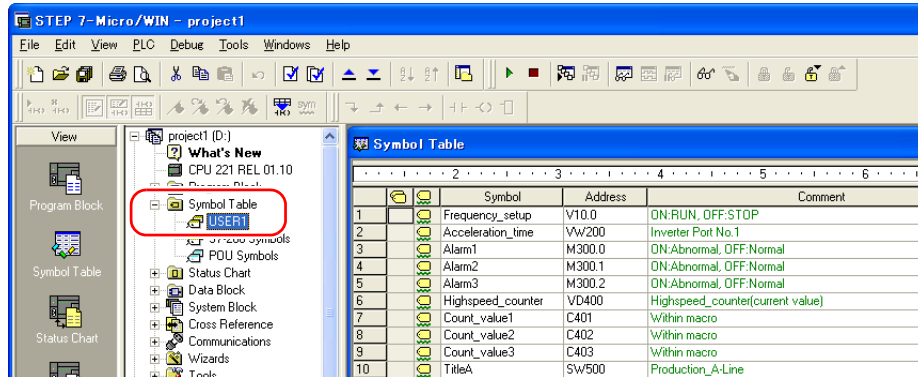
SIMATIC STEP 7-Micro/WIN (S7-200)

When a CSV file copied from the Symbol Table in the software “SIMATIC STEP 7-Micro/WIN” for Siemens S7-200 is imported using V-SFT, the contents in the file can be used as tags.

 For details on using PLC software, refer to the relevant PLC manual.

Procedure

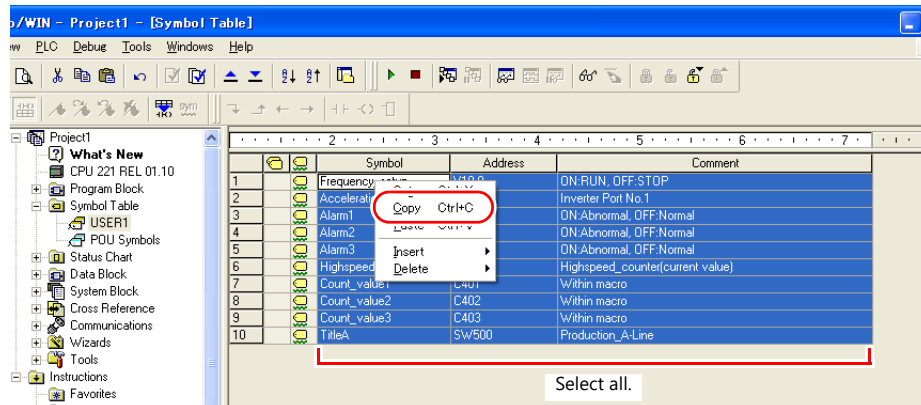
1. Start the software “SIMATIC STEP 7-Micro/WIN” for Siemens S7-200.
2. Open [Symbol Table].



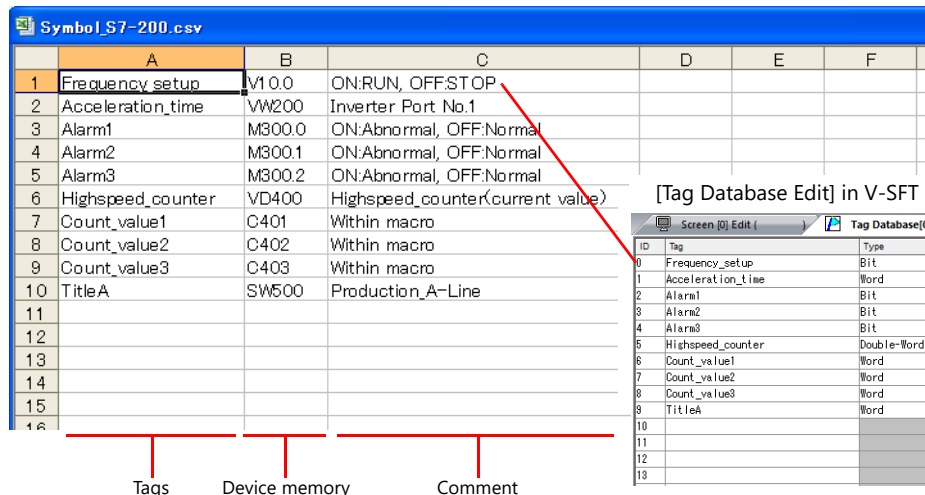
Only device memory addresses available on the V10/V9 series unit can be imported using V-SFT. For details, refer to the Connection Manual. Double-word device memory are imported as word device memory.

Device memory: VD → VW, ID → IW, QD → QW, MD → MW, SMD → SMW, SD → SW

3. Select all columns under [Symbol], [Address], and [Comment]. Right-click and select [Copy] from the right-click menu.

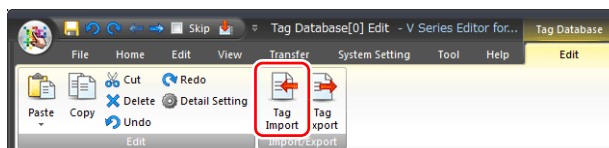


4. Start Excel. Paste the copied data to the worksheet from cell A1.

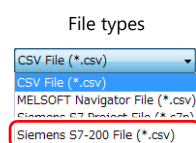


* The first row on the Excel sheet corresponds to tag ID No. 0. The copied data on the worksheet is imported from its first row to the [Tag Database Edit] window. (65536 maximum)

5. Click [File] → [Save As]. The [Save As] window is displayed.
6. Enter a filename. Select "CSV" for [Save as type] and click [Save].
7. Open the screen program. Click [Home] → [Registration Item] → [Tag Database] to display the [Tag Database Edit] window.
8. Click [Edit] → [Tag Import].



9. The [Open] window is displayed. Select the CSV file saved in step 6. Specify "Siemens S7-200 File (*.csv)" for [Files of type] and click [Open].



The contents of the file are registered as tags in the "tag database edit" window. Types ([Type]) are specified for individual device memory addresses.

This completes the import procedure.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Frequency_setup	Bit	<input type="checkbox"/>		Y000100	Place-Holder Variables
1	Acceleration_time	Word	<input type="checkbox"/>		Y000200	No.0 Global Signal AT
2	Alarm1	Bit	<input type="checkbox"/>		M003000	No.1 Global Signal AT
3	Alarm2	Bit	<input type="checkbox"/>		M003001	No.2 Global Signal AT
4	Alarm3	Bit	<input type="checkbox"/>		M003002	Within macro
5	Highspeed_counter	Double-Word	<input type="checkbox"/>		Y000400	Within macro
6	Count_value1	Word	<input type="checkbox"/>		C00401	Within macro
7	Count_value2	Word	<input type="checkbox"/>		C00402	Current value
8	Count_value3	Word	<input type="checkbox"/>		C00403	Current value
9	TitleA	Word	<input type="checkbox"/>		SW00500	A-LINE
10			<input type="checkbox"/>			
11			<input type="checkbox"/>			
12			<input type="checkbox"/>			
13			<input type="checkbox"/>			

Notes

Note the following for importing CSV files.

- IDs that already have tags are overwritten with the imported data.
- Device memory addresses unavailable on the V10/V9 series unit cannot be imported. If such a device memory address is included, the row is left blank.

For details on device memory available on the V10/V9 series, refer to the Connection Manual. Note that double-word device memory are imported as word device memory.

Device memory: VD → VW, ID → IW, QD → QW, MD → MW, SMD → SMW, SD → SW

10.6 Notes

Tag Settings

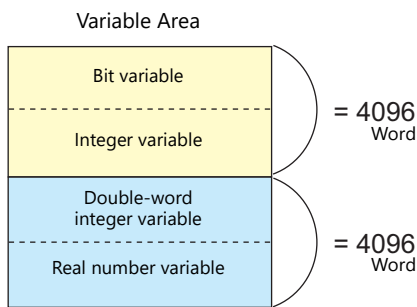
Tags cannot be specified for the following items.

- [Screen Setting] → [PLC Device Transfer]
- Device memory map (transfer source device memory, transfer destination device memory 1, transfer destination device memory 2, control device memory)
- Modbus device memory table

“Tag” Variable Capacity

When “tag” variables are registered in the [Tag Database Edit] window, the variable area in the MONITOUCH is used. Since the capacity of the variable area is limited, check the word count currently used, and be careful not to exceed the capacity.

Capacity of Variable Area

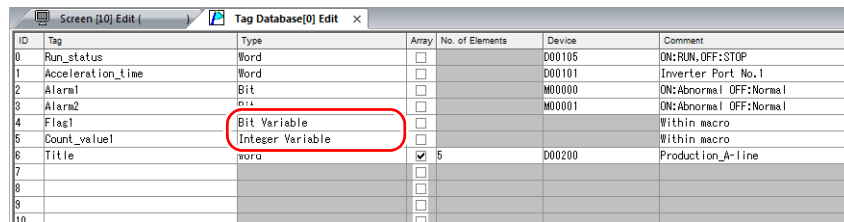


Variable Type	Data Type	Capacity
Bit variable *	1-bit data	4096 word
Integer variable	1-word data	
Double-word integer variable	Double-word data	4096 word
Real number variable	32-bit single precision real number format	

* If the bit variable is specified in array format, 1 word is occupied in the variable area even if “16” or a smaller number is specified for the number of elements.

Checking the Capacity of “Tag” Variable

Check the capacity when the “tag” variables are registered as shown below.



2 words are occupied in the variable area.



Integer variable “1” + bit variable “1”
Two words are used per double-word integer variable
Example: A total of four words are used when two double-word integer variables are registered

For details on status list operations, refer to “10.4 Tag Status List”.

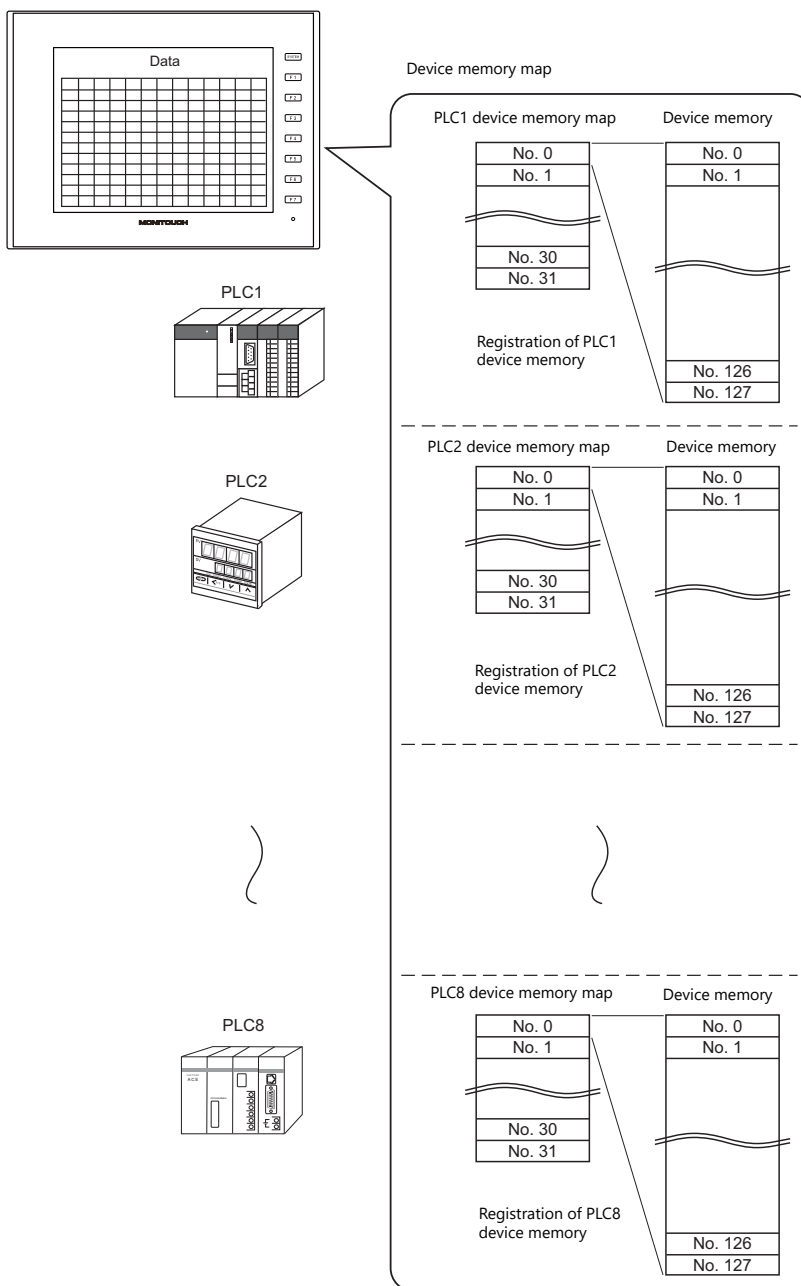


The value is indicated in red when it exceeds the maximum value. If the tag indicated in red is used on the screen, the message “Error: 46” appears and the unit will not run. Set a value smaller than the maximum.

11 Device Memory Map

11.1 Overview

- The V10/V9 series unit contains device memory map numbers 0 to 31 (32 total) with respect to a single logical port. 128 addresses can be registered to a single device memory map and batch transfer of addresses can be performed between each equipment.



- Functions that use device memory maps
 - Periodical reading

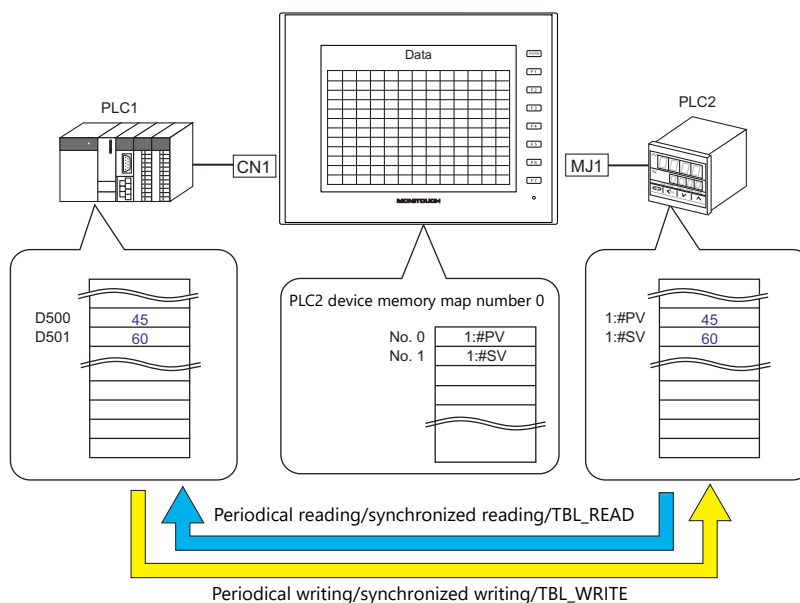
Data in device memory addresses registered on a device memory map is periodically transferred to other equipment. (“11.3 Periodical Reading” page 11-7)
 - Periodical writing

Data in other equipment is periodically transferred to device memory addresses registered on a device memory map. (“11.7 Control Device” page 11-12)
 - Synchronized reading

Data in device memory addresses registered on a device memory map is transferred to other equipment when the relevant bit turns ON. (“11.4 Synchronized Reading” page 11-8)
 - Synchronized writing

Data in other equipment is transferred to device memory addresses registered on a device memory map when the relevant bit turns ON. (“11.6 Synchronized Writing” page 11-11)
 - Macros (TBL_READ, TBL_WRITE)

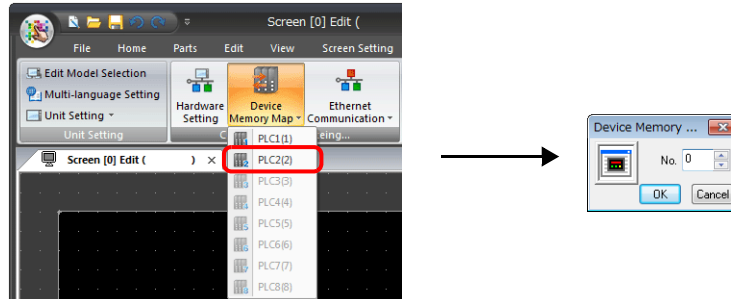
Data in device memory addresses registered on a device memory map is transferred using the “TBL_READ” and “TBL_WRITE” macro commands. (“11.8 TBL_READ/TBL_WRITE” page 11-13)“11.9 System Device Memory” page 11-14



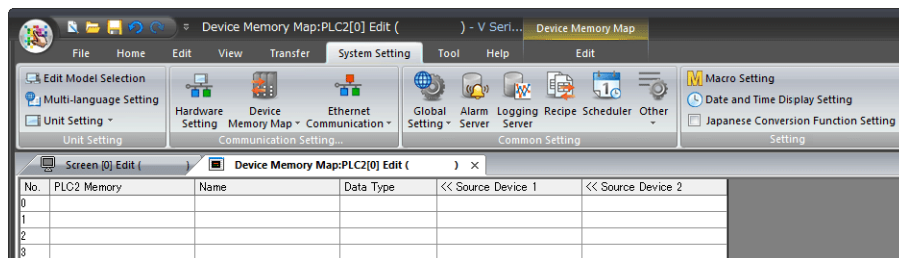
11.2 Editing Device Memory Maps

11.2.1 Starting

1. Click [System Setting] → [Device Memory Map] → [PLCn].
The [Device Memory Map: PLCn] window is displayed.



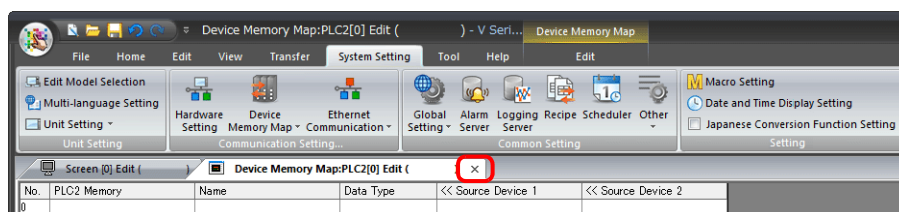
2. Select a device memory map number and click [OK].
The [Device Memory Map Edit] window is displayed.



A device memory map has numbers 0 to 31 (32 total) with respect to a single logical port and 128 addresses can be registered to each device memory map.

11.2.2 Quitting

Click the close button.



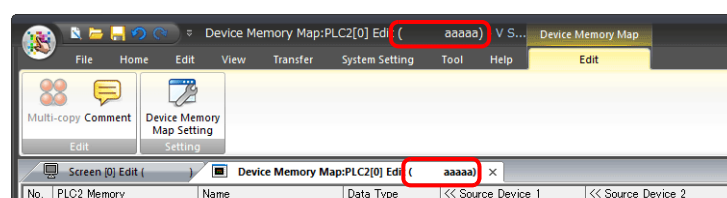
11.2.3 Comment Settings

A comment can be set to each device memory map.

1. With the device memory map displayed, click [Edit] → [Comment]. The [Comment Setting] window is displayed.

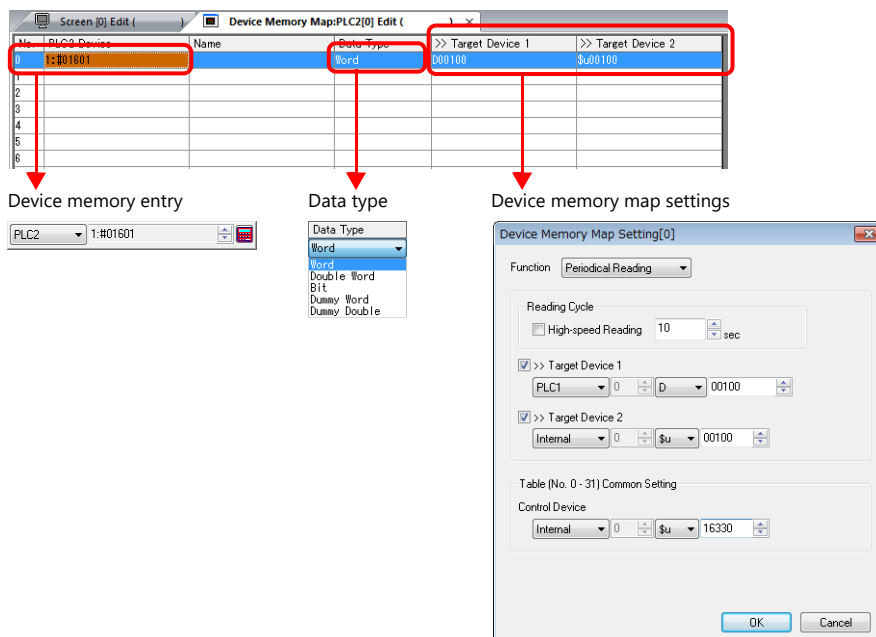


2. Enter a comment and click the [OK] button. The comment is displayed.



11.2.4 Editing the Device Memory Map

Double-click a cell to display the settings window.

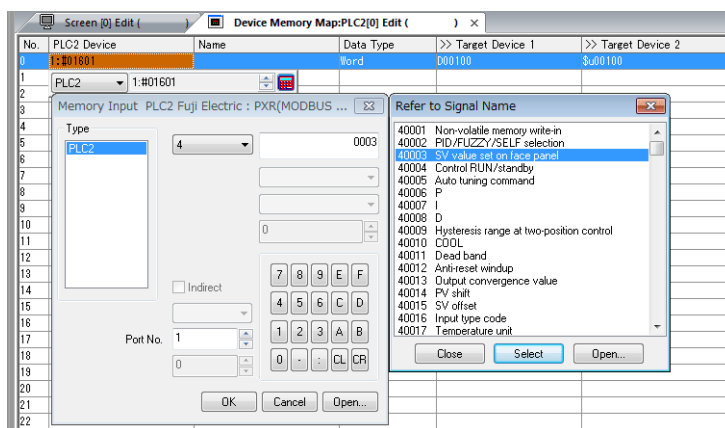


* The [Device Memory Map Setting] window can also be displayed by clicking [Edit] → [Device Memory Map Setting] with the device memory map displayed.

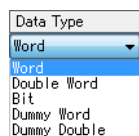
1. Device memory entry

Set the device memory for transfer. If the [Device Memory Map Edit] window for PLC2 is open, register PLC2 device memory.

The following figure shows the list view.



2. Data type



Item	Description
Word	Data is handled as single-word numerical data. Data is transferred based on the [Communication Setting] → [Code] setting of each logical port. *1
Double Word	Data is handled as two-word numerical data. Data is transferred based on the [Communication Setting] → [Code] setting of each logical port. *1
Bit	Data is handled as single-word bit information. Data is transferred as is without conversion. *2
Dummy Word Dummy Double	The transfer source/target device memory addresses are automatically registered with consecutive numbers. If there is an address to be skipped, leaving it not configured (blank) will result in either a dummy word or double word being assigned. When reading: "0" is always stored in the transfer target device memory. Cannot be used for any other purpose. When writing: The transfer source device memory can be used for other purposes.

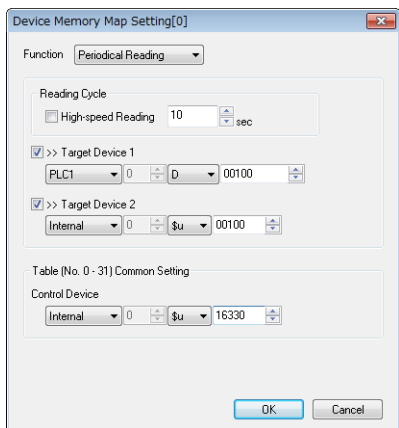
- *1 When Word or Double Word is selected:
The internal device memory of the V10/V9 series unit are always handled as "DEC (with sign)".

	Code	Bit status																																																										
Reading ↓ Transfer source PLC	Communication setting BCD	<table border="1"> <tr><td colspan="16">MSB</td><td colspan="4">LSB</td></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	MSB																LSB				15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	MSB																LSB																																											
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0																																									
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0																																										
V10/V9 internal device memory	DEC	<table border="1"> <tr><td colspan="16">MSB</td><td colspan="4">LSB</td></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	MSB																LSB				15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
MSB																LSB																																												
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0																																										
0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0																																										
Transfer target PLCm	Communication setting DEC	<table border="1"> <tr><td colspan="16">MSB</td><td colspan="4">LSB</td></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	MSB																LSB				15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
	MSB																LSB																																											
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0																																										
0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0																																										
Communication setting BCD	<table border="1"> <tr><td colspan="16">MSB</td><td colspan="4">LSB</td></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	MSB																LSB				15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
MSB																LSB																																												
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0																																										
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0																																										

- *2 When Bit is selected:

	Code	Bit status																																																									
Reading ↓ Transfer source PLC	Communication setting BCD																																																										
	V10/V9 internal device memory	<table border="1"> <tr><td colspan="16">MSB</td><td colspan="4">LSB</td></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	MSB																LSB				15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
MSB																LSB																																											
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0																																									
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0																																									
Transfer target PLCm	Communication setting DEC																																																										
	Communication setting BCD																																																										

- Device memory map settings
Set the purpose of each device memory map.
 - TBL_READ/TBL_WRITE → [page 11-13](#)
 - Periodical reading → [page 11-7](#)
 - Synchronized reading → [page 11-8](#)
 - Periodical writing → [page 11-10](#)
 - Synchronized writing → [page 11-11](#)



11.2.5 Permitting Interruption

Interruption can be permitted by right-clicking on the relevant device memory map number and selecting [Enabling Interruption] on the menu.

When interruption is permitted, an asterisk mark (*) is shown next to the device memory map number. Switch output, cycle reading, trend/alarm reading operations can be performed during device memory map processing.

Operation for the following settings

Reading group 0 (numbers 0 to 7)

↓

Switch output, cycle reading, trend/alarm reading

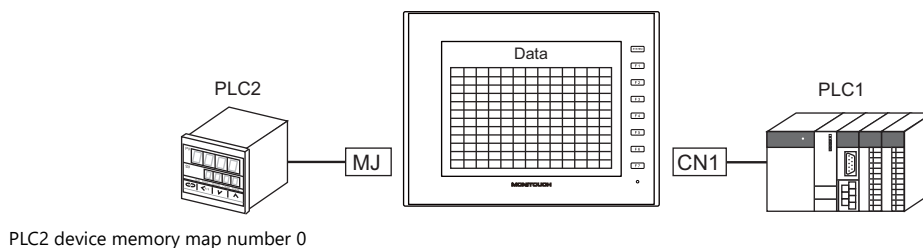
↓

Reading group 1 (numbers 8 to 15)

No.	PLC1 Device	Name	Data Type	>> Target Device 1	>> Target Device 2
0	D00100		Word		\$u00100
1	D00101		Word		\$u00101
2	D00102		Word		\$u00102
3	D00103		Word		\$u00103
4	D00104		Word		\$u00104
5	D00105		Word		\$u00105
6	D00106		Word		\$u00106
7	D00107		Word		\$u00107
*9	D00108		Word		\$u00108
9	D00109		Word		\$u00109
10	D00110		Word		\$u00110
11	D00200		Word		\$u00111
12	D00201		Word		\$u00112
13	D00202		Word		\$u00113
14	D00203		Word		\$u00114
15	D00204		Word		\$u00115
16					
17					
18					
19					
20					
21					
22					

11.3 Periodical Reading

Data in a device memory address registered on a device memory map is transferred to the targeted address at the timing set for [Reading Cycle].



No.	PLC2 Device	Name	Data Type	>> Target Device 1	>> Target Device 2
0	1: #31001	Process value (PV)	Word	D00100	
1	1: #41003	SV value controlled on face panel	Word	D00101	
2					
3					
4					
5					

Transferred at 5 second intervals

Settings

Settings required for periodical reading

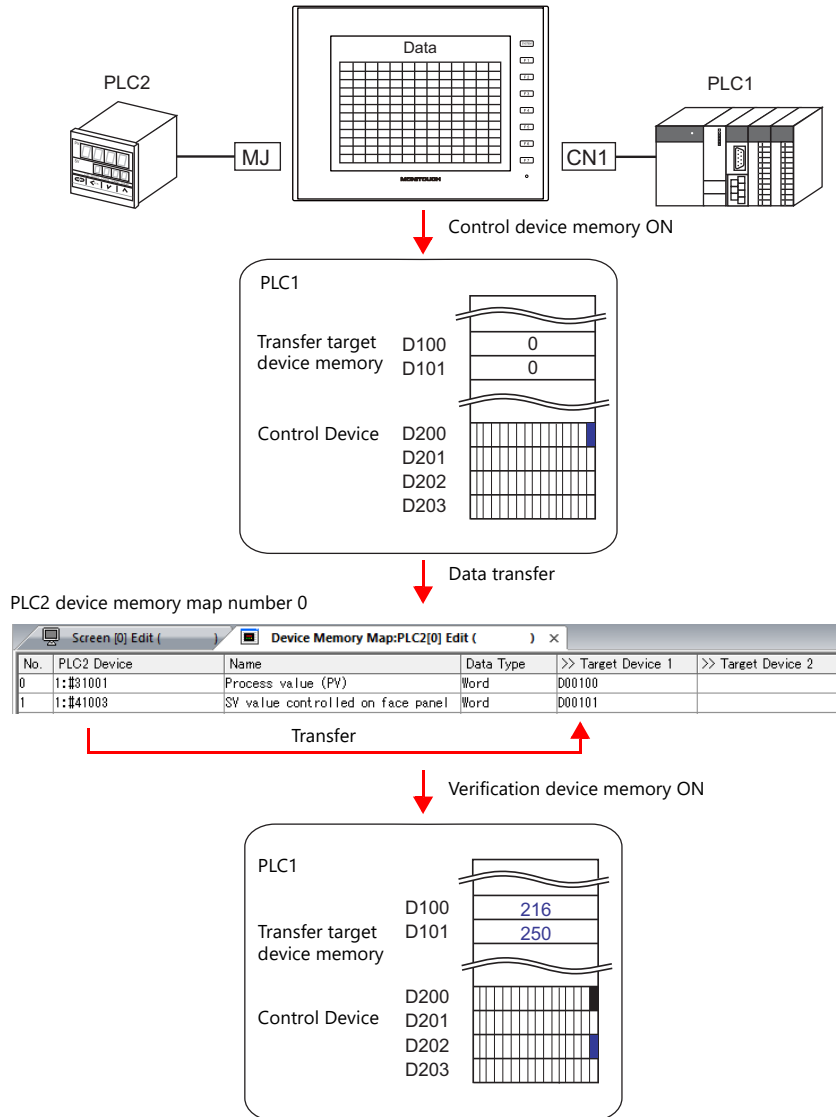
- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"

Disabled when [Periodical Reading] is selected

Item	Description											
Function	Periodical reading											
Reading Cycle	Set the cycle for periodical data reading. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">[High-speed Reading] checkbox</th> <th colspan="2">Reading Cycle</th> </tr> <tr> <th>Setting Range</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Unselected</td> <td>1 - 3600</td> <td>1s</td> </tr> <tr> <td>Selected</td> <td>1 - 3600</td> <td>100ms</td> </tr> </tbody> </table>	[High-speed Reading] checkbox	Reading Cycle		Setting Range	Unit	Unselected	1 - 3600	1s	Selected	1 - 3600	100ms
[High-speed Reading] checkbox	Reading Cycle											
	Setting Range	Unit										
Unselected	1 - 3600	1s										
Selected	1 - 3600	100ms										
Target Device 1 Target Device 2	Set the device memory address for storing the read data.											
Control Device	Disabled when [Periodical Reading] is selected.											

11.4 Synchronized Reading

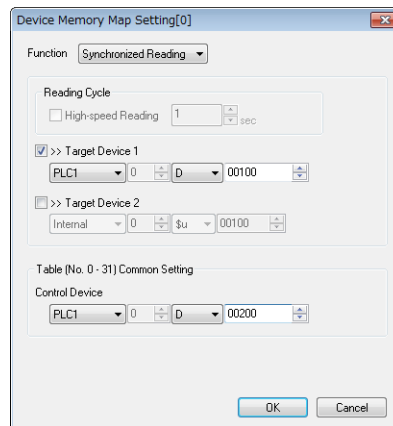
Data in a device memory address registered on a device memory map is transferred to the targeted address when the relevant bit changes from 0 to 1.



Settings

Settings required for synchronized reading

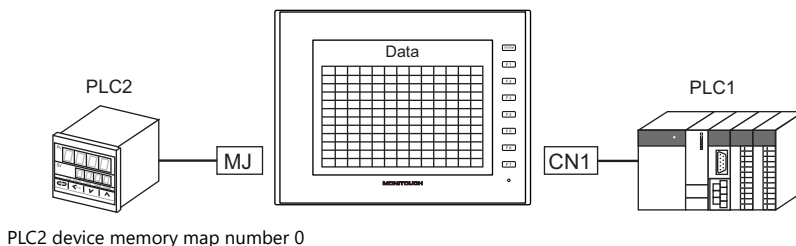
- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"



Item	Description
Function	Synchronized reading
Target Device 1 Target Device 2	Set the device memory address for storing the read data.
Control Device	Set the device memory address that serves as the trigger for synchronized reading. Four words are used for an address common to device memory map numbers 0 to 31. For details, refer to "Control Device" page 11-12.

11.5 Periodical Writing

Data in a source device memory address is transferred to the address registered on the device memory map at the timing set for [Writing Cycle].



No.	PLC2 Device	Name	Data Type	<< Source Device 1	<< Source Device 2
0	1:41003	SV value controlled on face panel	Word	D00100	
1					
2					
3					
4					
5					

Transferred at 5 second intervals

Settings

Settings required for periodical writing

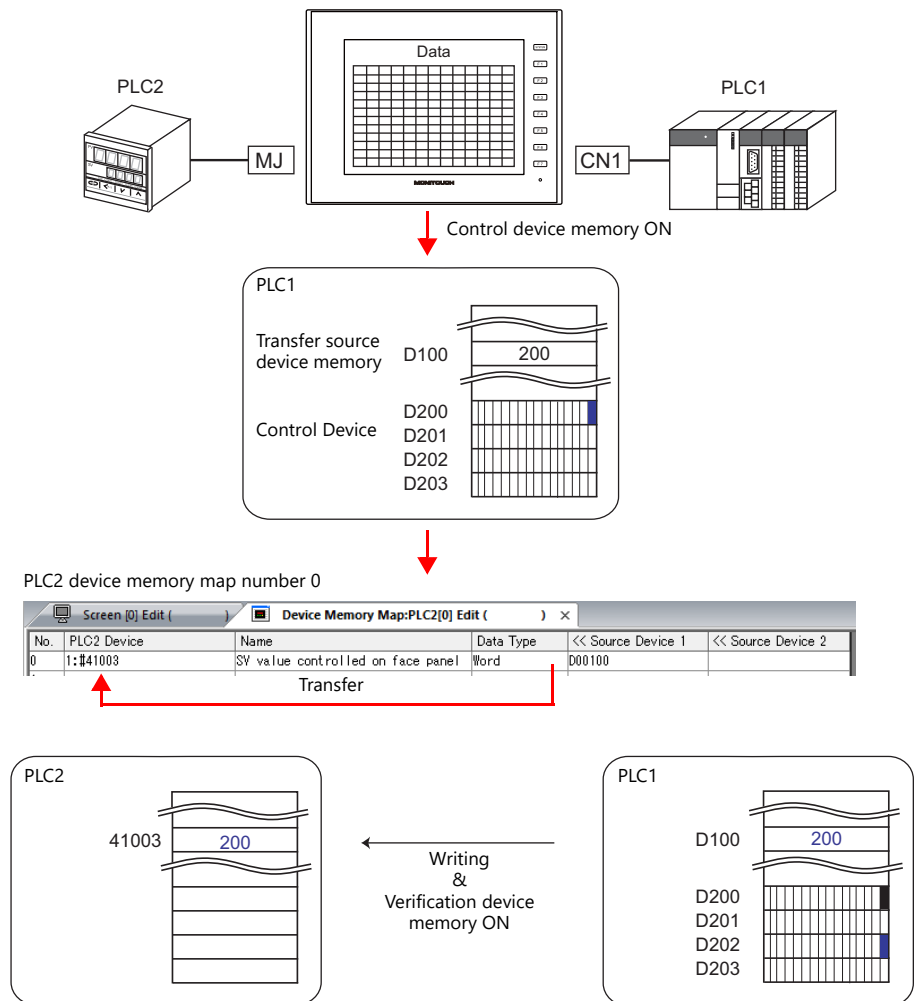
- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"

Disabled when [Periodical Writing] is selected

Item	Description											
Function	Periodical writing											
Periodical Writing	Set whether to perform periodical data writing.											
	<table border="1"> <thead> <tr> <th rowspan="2">[High-speed Reading] checkbox</th> <th colspan="2">Reading Cycle</th> </tr> <tr> <th>Setting Range</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Unselected</td> <td>1 - 3600</td> <td>1s</td> </tr> <tr> <td>Selected</td> <td>1 - 3600</td> <td>100ms</td> </tr> </tbody> </table>	[High-speed Reading] checkbox	Reading Cycle		Setting Range	Unit	Unselected	1 - 3600	1s	Selected	1 - 3600	100ms
	[High-speed Reading] checkbox		Reading Cycle									
Setting Range		Unit										
Unselected	1 - 3600	1s										
Selected	1 - 3600	100ms										
Source Device 1 Source Device 2	Set the device memory address of the source data to transfer.											
Control Device	Disabled when [Periodical Writing] is selected.											

11.6 Synchronized Writing

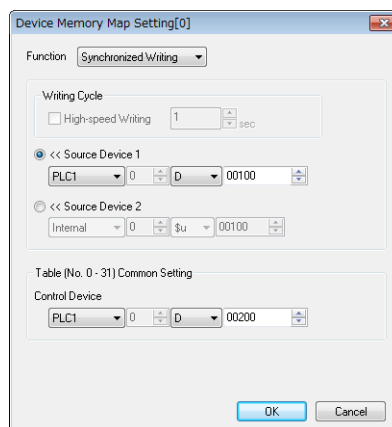
Data in a source device memory address is transferred to the address registered on the device memory map when the control device memory changes from 0 to 1.



Settings

Settings required for synchronized writing

- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"



Item	Description
Function	Synchronized writing
Source Device 1 Source Device 2	Set the device memory address for storing data from the transfer source.
Control Device	Set the device memory address that serves as the trigger for synchronized writing. Four words are used for an address common to device memory map numbers 0 to 31. For details, refer to "Control Device" page 11-12.

11.7 Control Device

This type of device memory is used when synchronized reading or synchronized writing is performed. Four consecutive words are used from control device memory n.

The control device memory can also be changed via [System Setting] → [Device Memory Map] → [PLCn] → [Edit] → [Device Memory Map Setting].

Control Device	Description	Device Memory Type
n	Command device memory for reading/writing	→ V
n+1		
n+2	Verification device memory for reading/writing	← V
n+3		

Reading/Writing Command Device Memory (Control device memory n, n+1)

One bit is assigned to each device memory map.

Reading and writing for the specified device memory map is executed according to the change in bit status from 0 to 1.

n

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	←

Device memory map numbers 0 to 15

n+1

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	←

Device memory map numbers 16 to 31

Reading/Writing Verification Device Memory (Control device memory n+2, n+3)

One bit is assigned to each device memory map.

The turning ON (0 → 1) of the command device memory is recognized, and when the reading/writing finishes, the corresponding bit of the verification device memory turns ON (0 → 1).

Also, when the turning OFF (1 → 0) of the command device memory is recognized, the verification bit of the corresponding device memory map number turns OFF (1 → 0).

n+2

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	←

Device memory map numbers 0 to 15

n+3

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	←

Device memory map numbers 16 to 31

- Synchronized reading
Only one address needs to be successfully read among the addresses registered on the device memory map for the verification device memory to turn ON.
If no addresses were successfully read, the verification bit does not turn ON.
- Synchronized writing
Regardless of whether writing succeeds or fails, the verification bit turns ON after writing is finished.

11.8 TBL_READ/TBL_WRITE

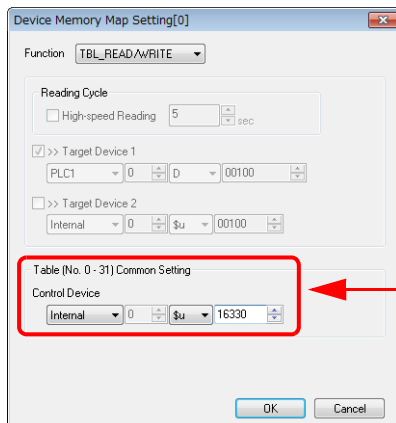
Data in device memory addresses registered on a device memory map is transferred at once using the “TBL_READ” and “TBL_WRITE” macro commands.

Settings

Settings required for device memory map transfer

- “Editing Device Memory Maps” (page 11-3)
- Device memory map settings
- Macros (TBL_READ/TBL_WRITE)

Device Memory Map Settings



Disabled when TBL_READ/TBL_WRITE is selected

Item	Description
Function	TBL_READ/TBL_WRITE * Transfer is possible using a macro even for device memory maps selected for other functions.
Control Device	Disabled when TBL_READ/TBL_WRITE is selected.

Macros

Register a switch ON macro, interval timer etc. For details on macro commands, refer to the Macro Reference Manual.

- TBL_READ
Transfers data in device memory addresses registered on a device memory map to device memory of other equipment.
- TBL_WRITE
Transfers data from other equipment to a device memory address registered on a device memory map.

11.9 System Device Memory

This section explains the system device memory addresses of the V10/V9 series that are related to device memory maps.

\$Pn (n=1 - 8)	\$s*1	Description	Device Type
493	762 (PLC2)	Device memory map reading prohibition flag 0: Periodical reading/synchronized reading executable Other than 0: Periodical reading/synchronized reading stopped	→ V
494	763 (PLC2)	Device memory map TBL_READ/TBL_WRITE macro forced execution Macro operation setting when a port is not communicating 0: Do not execute the macro with respect to all ports Other than 0: Execute the macro with respect to connected ports	
495	764 (PLC2)	Device memory map writing prohibition flag 0: Periodical writing/synchronized writing executable Other than 0: Periodical writing /synchronized writing stopped	

*1 When controlling a device memory map using \$s762, \$s763, or \$s764, set [PLC Properties] → [Detail] → [System memory (\$s) V7 Compatibility] to [Yes] for PLC2. In this case, \$P2:493/494/495 cannot be used.

\$Pn:493, 495

These system device memory addresses can be used to temporarily stop periodical reading/synchronized reading or periodical writing/synchronized writing set in the device memory map.

\$Pn:493

- 0: Periodical reading/synchronized reading is always executed.
- Other than 0: Periodical reading/synchronized reading is stopped.

\$Pn:495

- 0: Periodical writing/synchronized writing is always executed.
- Other than 0: Periodical writing/synchronized writing is stopped.

• Example: Periodical reading

When PLC2 device memory is accessed by a macro, macro completion is delayed when periodical reading of the device memory map is executed (as shown in figure A). To avoid this, periodical reading can be stopped temporarily using \$P2:493 (as shown in Figure B).

Figure A

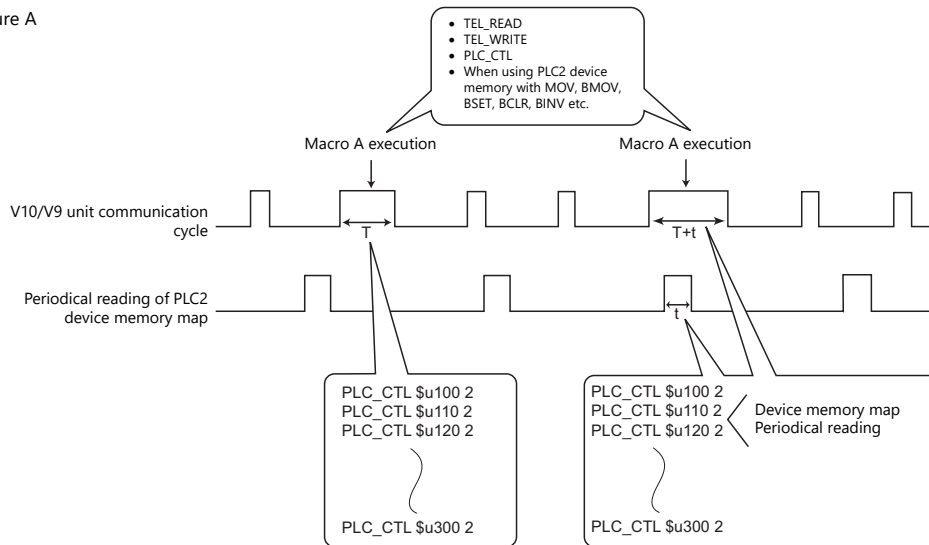
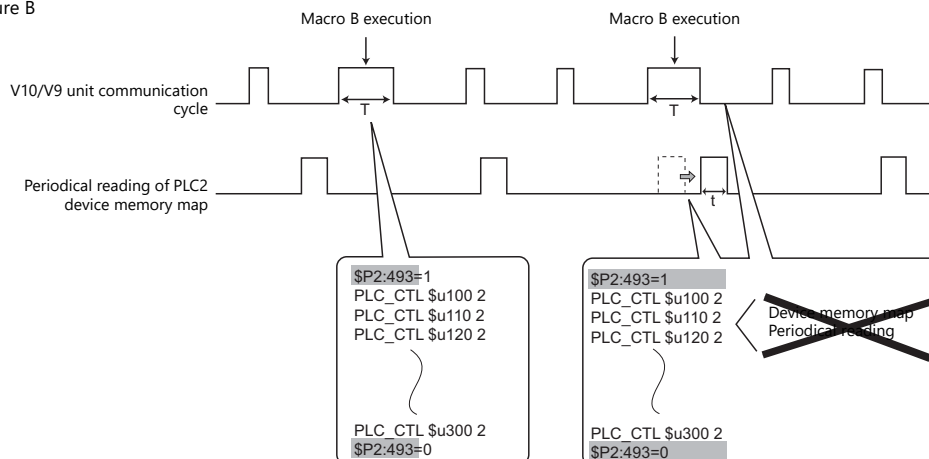


Figure B



12 Ladder Transfer

12.1 Overview

12.2 Serial Connection between the V10/V9 Series Unit and PLC

12.3 Ethernet Connection between the V10/V9 Series Unit and PLC

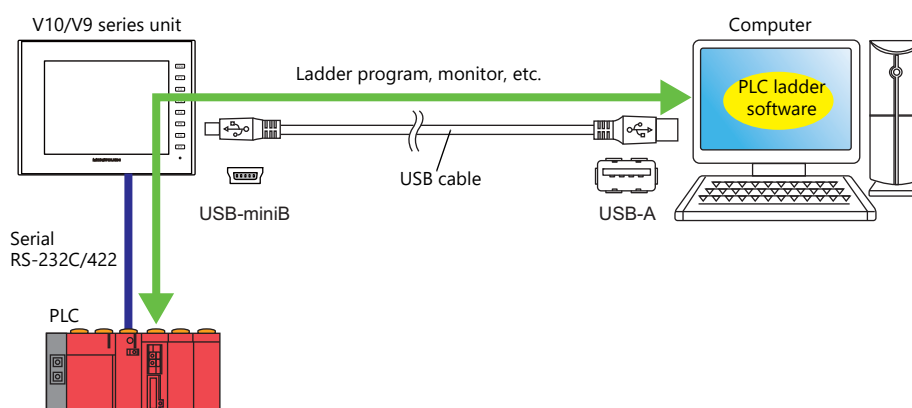
12.1 Overview

- PLC ladder programs can be written and monitored via the V10/V9 series unit.
- The supported models and configuration procedure depend on whether the connection between the V10/V9 series unit and PLC is serial or Ethernet. Be sure to check the system configuration.
 - ["12.2 Serial Connection between the V10/V9 Series Unit and PLC" page 12-3](#)
 - ["12.3 Ethernet Connection between the V10/V9 Series Unit and PLC" page 12-29](#)
- If the connection between the V10/V9 series unit and PC is USB/Ethernet, use the "LadderComOP Ver. 2" software.
 - Installation → ["12.2.3 Ladder Transfer via USB" page 12-11](#)

Serial Connection between the V10/V9 Series Unit and PLC

- There are three methods for connecting the V10/V9 series unit and PC: by USB connection, Ethernet, and serial connection.

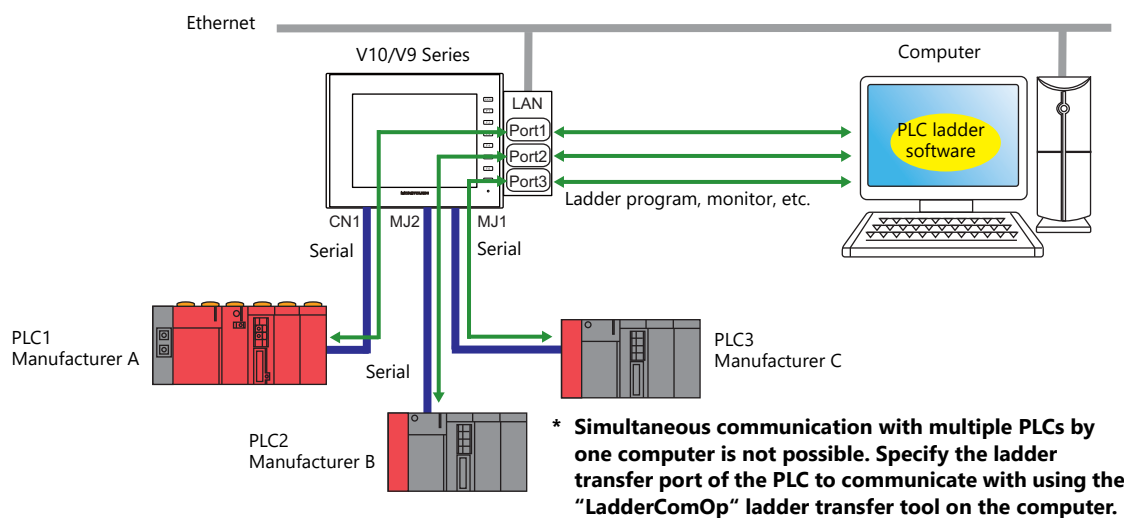
Example: USB connection



- For details on the configuration procedure, refer to.
 - USB connection → ["12.2.3 Ladder Transfer via USB" page 12-11](#)
 - Ethernet connection → ["12.2.4 Ladder Transfer via Ethernet" page 12-16](#)
 - Serial connection → ["12.2.5 Serial Ladder Transfer" page 12-22](#)

- Of PLCs 1 to 8, ladder communication is possible with the three PLCs connected by serial connection.

Example: Ladder communication with three PLCs using Ethernet ladder transfer function

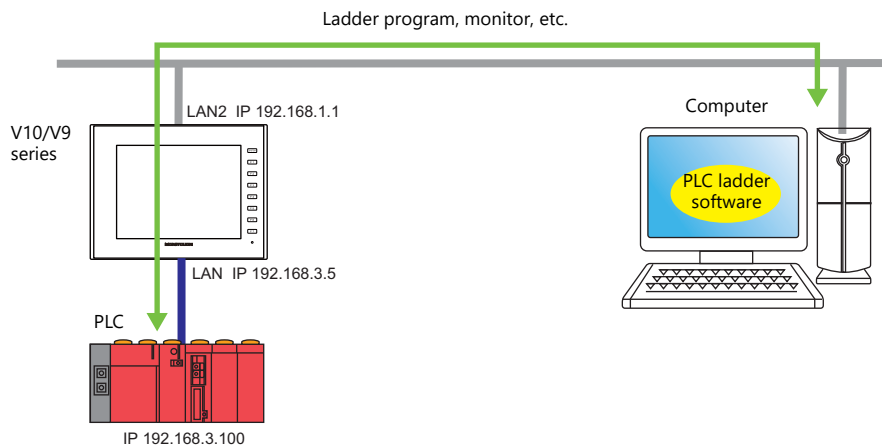





- The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Connection Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to "1") in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.
- Simultaneous ladder communication with multiple PLCs by one computer is not possible. Be sure to specify the ladder transfer port of the PLC to communicate with using the "LadderComOp" ladder transfer tool.
- Be sure to use a different ladder transfer port for each PLC.

Ethernet Connection between the V10/V9 Series Unit and PLC

- Ethernet connection can be used when the V10/V9 series unit and PC as well as the V10/V9 series unit and PLC are both connected via Ethernet.
- Since the LAN ports on the V10/V9 series unit use two channels, only models equipped with LAN2 or WLAN support Ethernet connections.



 For details on the configuration procedure, refer to "12.3.3 Setting Procedure" page 12-31.

12.2 Serial Connection between the V10/V9 Series Unit and PLC

12.2.1 Operating Environment

Supported V10/V9 Models and Connection Ports

V10/V9	PLC Connection Ports (V10/V9 - PLC)	Ladder Transfer Ports (V10/V9 - PC)	Used Applications *2
All	CN1 MJ1 MJ2	USB-B	V-SFT Ver. 6 / LadderComOp Ver. 2
		LAN / LAN2 / WLAN	
		MJ1 / MJ2 *1	V-SFT Ver. 6

*1 PLC connection ports cannot be used.

*2 Windows Vista, 7, 8, 8.1, 10, and 11 are supported.

If using Windows 11, use V-SFT version 6.1.6.0 or later and LadderComOp version 2.1.2.0 or later.

Supported PLC Models



- The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Connection Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to "1") in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.
- For details on compatible PLC models, refer to the Connection Manual.

PLC models that support the ladder transfer function are listed below.

Manufacturer	PLC Name Shown in Editor	Connection CPU/Port	V10/V9 Port		
			MJ1, MJ2	USB B *1	Built-in LAN
MITSUBISHI ELECTRIC	A series CPU	A2A, A3A A2U, A3U, A4U A2US(H) A1N, A2N, A3N A3V, A73 A3H, A3M A0J2H A1S(H), A1SJ(H) A2S(H) A2CCPUC24 A1FX	○ *2	○	○
	QnH (Q) series CPU	Q02(H), Q06H	○	○	○
	QnU series CPU	Q00UJ, Q00U, Q01U Q02U, Q03UD, Q04UDH Q06UDH, Q10UDH, Q13UDH Q20UDH, Q26UDH	○	○	○
	Q00J/00/01 CPU	Q00J, Q00, Q01	○	○	○
	QnH (Q) series CPU (Multi CPU)	Q02(H), Q06H	○	○	○
	Q170M CPU (Multi CPU)	Q170M	○	○	○
	FX series CPU	FX1/2	×	×	×
		FX0N	○	○	○
	FX2N/1N series CPU	FX2N, FX1N, FX2NC	○	○	○
	FX1S series CPU	FX1S	○	○	○
FX-3U/3UC/3G series CPU	FX-3U, FX-3UC, FX-3G	○	○	○	
OMRON	SYSMAC C	All ports	○	○	○
	SYSMAC CS1/CJ1/CJ2		○	○	○

Manufacturer	PLC Name Shown in Editor	Connection CPU/Port	V10/V9 Port		
			MJ1, MJ2	USB B *1	Built-in LAN
Panasonic	FP Series (RS232C/422)	FP0 tool port	○	○	○
		FP2 tool port FP2SH tool port	○	○	○
		FPΣ tool port	○	○	○
		FP-e tool port	○	○	○
		FP-X tool port	○	○	○
		FP0H tool port	○	○	○
	FP7 Series (RS232C/422)	All ports	○	○	○
Yokogawa Electric	FA-M3	Tool port on CPU	○	○	○
	FA-M3R				
	FA-M3V		×	×	×
Fuji Electric	SPB (N mode) & FLEX-PC CPU	FLEX-PC CPU port	○	○	○
		NJ-B16 RS-232C port	○		
		NW0Pxx CPU port	○		
	MICREX-SX SPH/SPB/SPM/SPE/SPF CPU	NP1Px-xx(SPH)	○	○	○
		NW0Pxx(SPB)			
		NA0PAxxx-xx(SPF)			
	FRENIC series (loader)	FRENIC5000 VG7S	○	○	○
		FRENIC-Mini			
		FRENIC-Eco			
		FRENIC-Multi			
		FRENIC-MEGA			
		FRENIC-MEGA SERVO			
		FRENIC-HF			
		FRENIC-Lift			
FRENIC-HVAC/AQUA					
FRENIC-VG1					
FRENIC-Ace					
Allen-Bradley	SLC500	SLC5/03 or later, Channel 0	○	○	○
Siemens *1 *3	S7-200PPI	S7-200 PPI port	○*1 *3	○	○*1 *3
	S7-300/400MPI	S7-300/400 MPI port	○*1 *3	×	○*1 *3
SAMSUNG	SECNET	N70 COM port (RS-422)	○	○	○
		N70 α COM port			
		N700 COM port (RS-422)			
		N700 α TOOL port			
		N7000 COM port (RS-422)			
		N7000 α COM1			
		NX70 TOOL port			
NX700 TOOL port					
FATEK AUTOMATION	FACON FB series	Programming port on CPU	○	○	○
Telemecanique	TSX Micro	TSX37-xx TSX57-xx	○	○	○
RS Automation	N7/NX Series (70/700/750/CCU)	N70 COM port (RS-422)	○	○	○
		N70 α COM port			
		N700 COM port (RS-422)			
		N700 α TOOL port			
		N7000 COM port (RS-422)			
		N7000 α COM1			
		NX70 TOOL port			
NX700 TOOL port					

- *1 Ladder communication is only available in RUN mode. Ladder communication cannot be performed in Local mode.
- *2 Uses both MJ1 and MJ2 so the dedicated "V6-CP-A" cable is required.
- *3 The following messages may be displayed at the top left of the screen on the V10/V9 series unit during access (mainly when transferring a large amount of data, such as programs) to the Siemens S7-200 PPI and S7-300/400 MPI. The V10/V9 series unit automatically returns to normal operation after access is complete.
 - PLC1 Access denied by Loader
 - PLC1 In Reset Service

12.2.2 LadderComOp Ver. 2

The "LadderComOp" ladder transfer tool is required when connecting the V10/V9 series unit and PC via USB or Ethernet in order to monitor or write PLC ladder programs.

LadderComOp Installation

Acquiring the LadderComOp Software

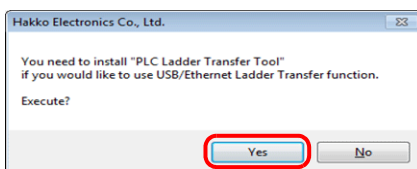
- On the V-SFT Ver. 6 CD-ROM, or download the latest update from our website.
- Download "LadderComOp.exe" from our website.

 Our website URL: www.monitouch.com

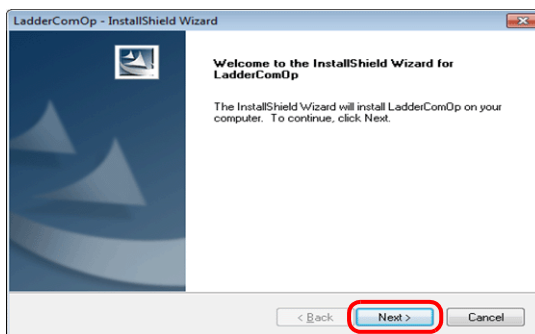
Installation

If installing LadderComOp during V-SFT Ver. 6 installation, perform the procedure below from step 1.
 If installing LadderComOp after downloading "LadderComOP.exe" from our website, perform the procedure below from step 2.

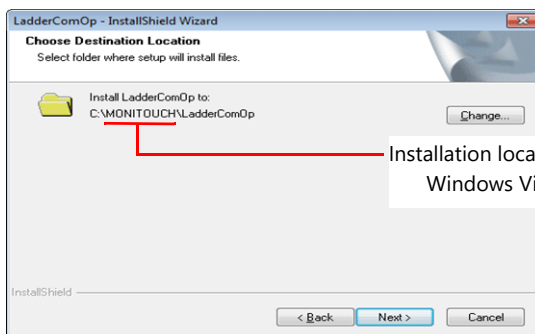
1. After V-SFT Ver. 6 has been installed or updated, the following dialog box is displayed.
 Click the [Yes] button.



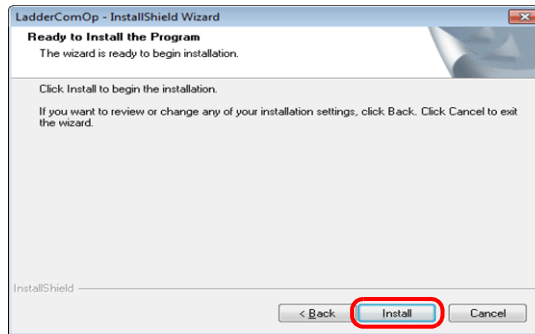
2. Click the [Next] button.



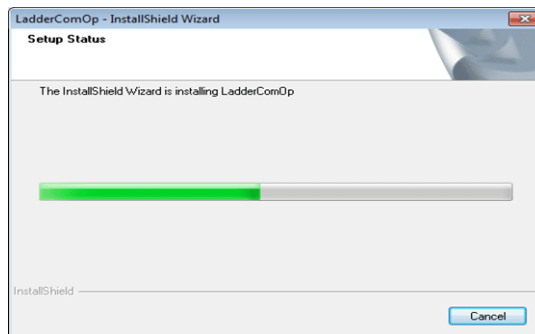
3. Select the location to install the tool and click the [Next] button.



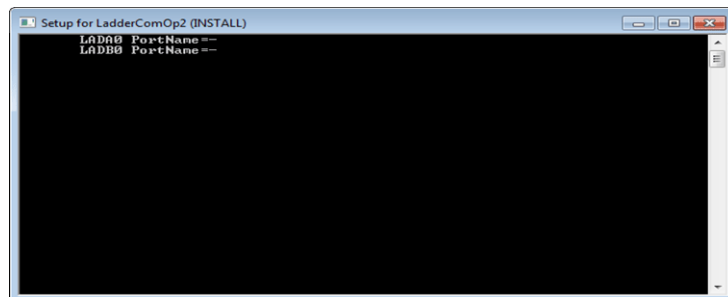
- Click the [Install] button.



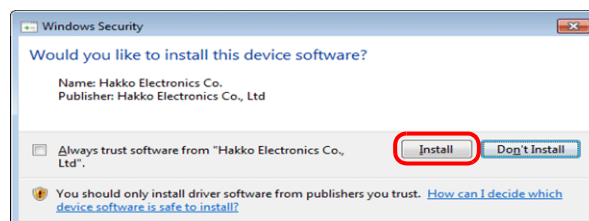
- Installation of LadderComOp starts.



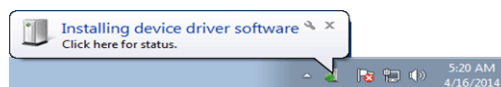
The following window is displayed during installation.



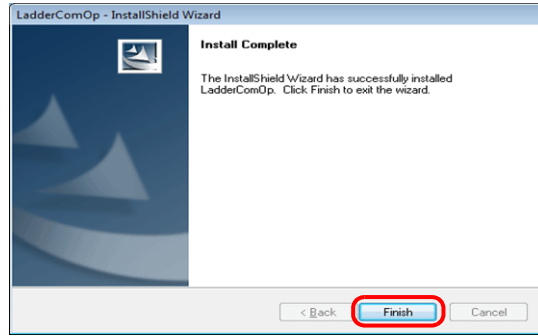
- The following window is displayed. Install the LadderComOp driver.
This window is display three times so click the [Install] button each time.



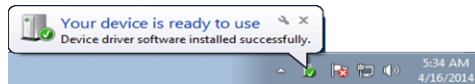
- Installation of the driver starts.



8. The following window is displayed when LadderComOp installation is complete. Click the [Finish] button.

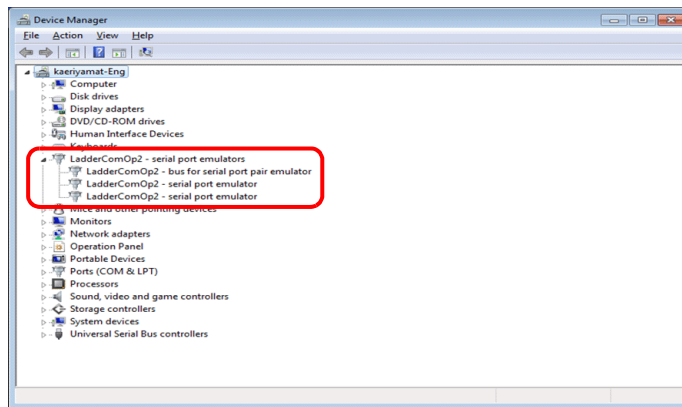


9. The following message is displayed on the PC's task bar when installation is complete.

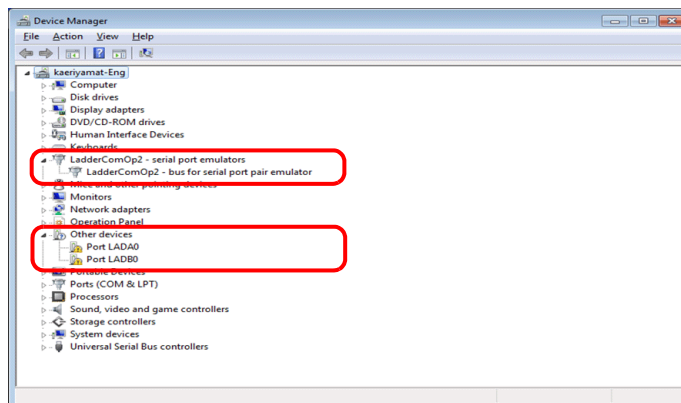


10. Open the Device Manager on the PC.

If installation was successful, "LadderComOp2" is displayed in the Device Manager.

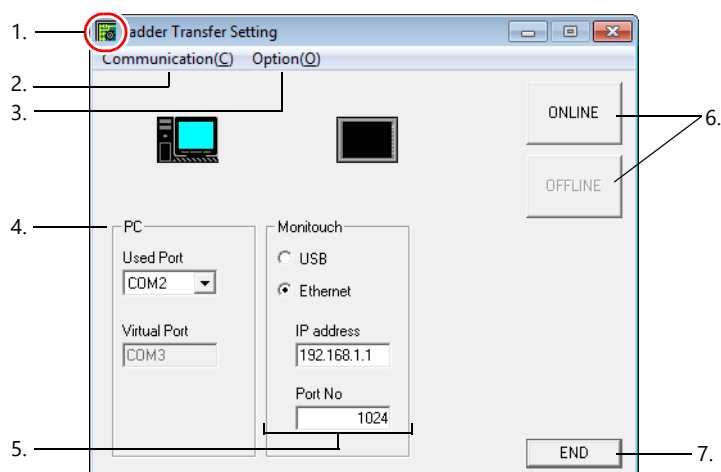


If installation was not successful, a yellow exclamation mark (!) is displayed under [Other devices] in the Device Manager. If this happens, uninstall LadderComOp and then reinstall it.

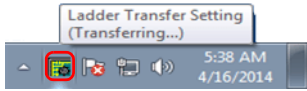
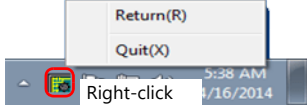


This completes the installation procedure.

LadderComOp Ver. 2 Detailed Settings

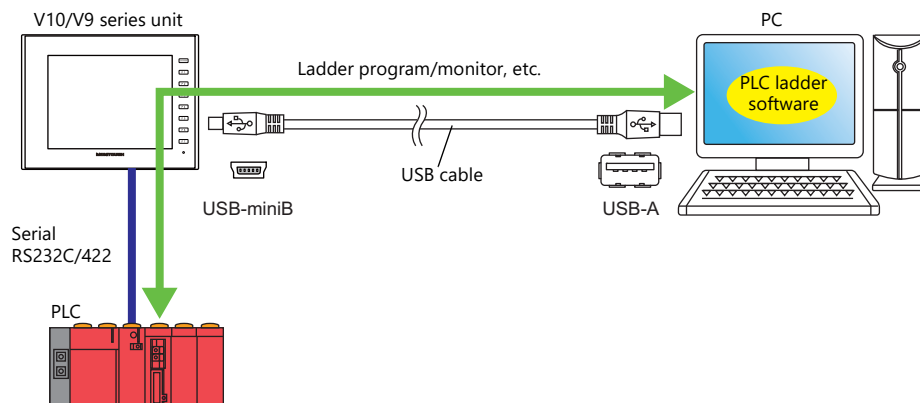


Item	Description
1. Icon	Clicking this icon and selecting [About LadderComOp] opens a window that displays the version of LadderComOp.
2. Communication	Select [Ladder Transfer].
3. Option	Configure the option settings.
	Connected to the MITSUBISHI A series CPU. Always select this when using a MITSUBISHI ELECTRIC A series CPU for the PLC.
	Connected to the TSX Micro. Always select this when using a Telemecanique TSX Micro for the PLC.
	Add in the task tray. Select this to add ladder transfer settings to the task tray.
4. PC	<p>A total of two COM ports on the PC are used.</p> <ul style="list-style-type: none"> Used Port Select the COM port to use for ladder transfer from the list. Range: COM1 to COM256 (COM port numbers that are already assigned on the PC are not shown in the list.) The COM port number set here needs to be set in each relevant PLC programming software.* <p>* The range of usable COM port numbers depends on the PLC programming software. For details, refer to the relevant PLC manual. Example: Panasonic FPWIN GR, COM1 to 15 (COM1 to 5 for Ver. 2.2 or earlier)</p> <ul style="list-style-type: none"> Virtual Port An unassigned COM port number is selected automatically.
5. Monitouch	<p>Select the connection method to use between the PC and V10/V9 series unit.</p> <ul style="list-style-type: none"> USB No settings are required. Ethernet IP address: Set the local IP address of the V10/V9 series unit (built-in LAN port). Port No: Set the port number of the V10/V9 series unit. Set the same port number as set under [System Setting] → [Hardware Setting] → [Ladder Transfer]. Range: 1024 to 65533 (default: 1024)
6. ONLINE/OFFLINE	<p>Turn ladder transfer ON or OFF between the PC and V10/V9 series unit.</p> <ul style="list-style-type: none"> ONLINE Establish a connection between the PC and V10/V9 series unit and enable ladder transfer mode. OFFLINE Disconnect the PC and V10/V9 series unit.

Item	Description
<p>7. Hide/END</p>	<ul style="list-style-type: none"> • Hide Display an icon in the task tray when a connection is established. Ladder transfer settings are added to the task tray. * The [Add in the task tray] checkbox is automatically selected. - The task tray tool tip indicates "Transferring...".  <ul style="list-style-type: none"> - Right-click on the icon in the task tray to display a menu.  <p>Return Display the [Ladder Transfer Setting] window.</p> <ul style="list-style-type: none"> • END Display an icon in the task tray when a connection is not established. Disconnect the PC and V10/V9 series unit and close the [Ladder Transfer Setting] window.

12.2.3 Ladder Transfer via USB

The V10/V9 series unit and PC can be connected via USB to monitor or write PLC ladder programs through the V10/V9 series unit.



For details on supported PLC models, refer to ["Supported PLC Models" page 12-3](#).



- The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Connection Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to "1") in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.
- The USB ladder transfer function cannot be used on units to which the USB simulator driver has been transferred. Always deselect the [Use Simulator] checkbox when transferring screen programs.

Setting Procedure

V-SFT and LadderComOp configuration is required. Refer to the following for the setting procedure.

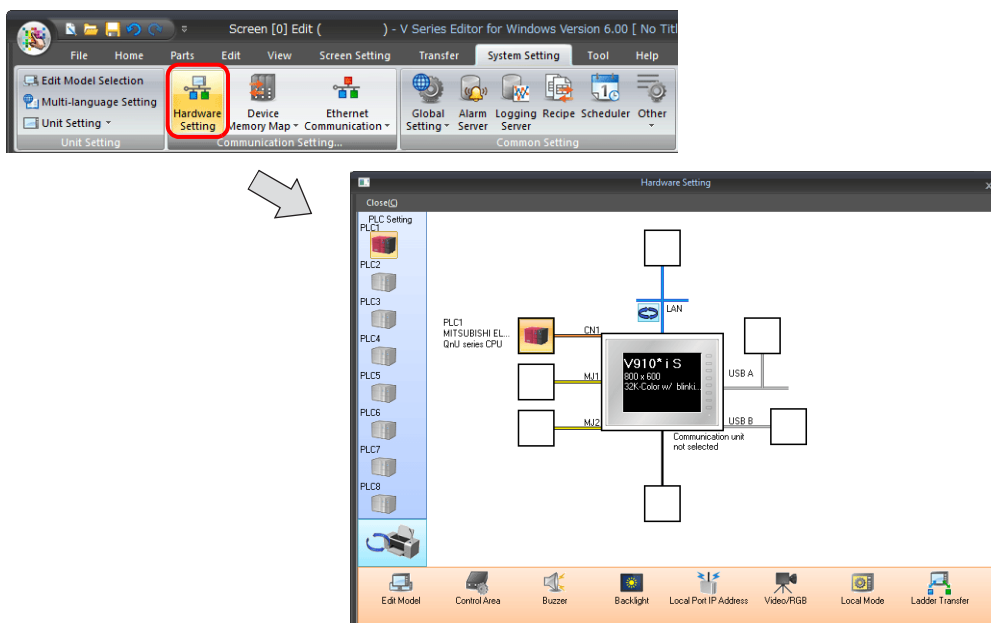
- V-SFT Ver. 6 settings → ["V-SFT Ver. 6 Settings" page 12-11](#)
- LadderComOp settings → ["LadderComOp Settings" page 12-13](#)
- PLC programming software settings → ["PLC Programming Software Settings" page 12-14](#)

V-SFT Ver. 6 Settings

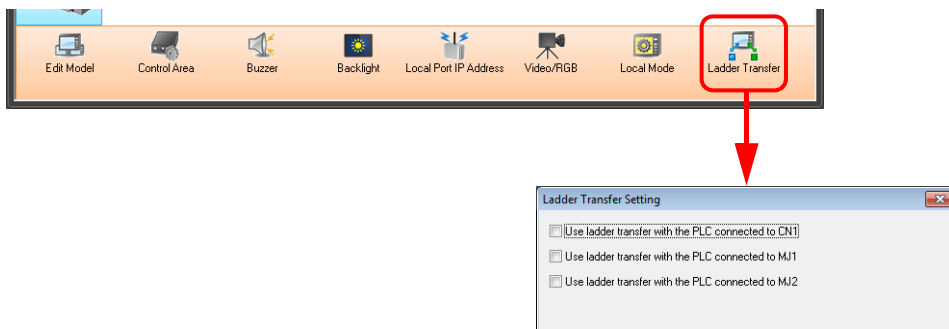
This section describes the settings for ladder transfer using the MITSUBISHI QnU series CPU as an example.

[Ladder Transfer Setting] window

1. Click [Communication Setting] → [Hardware Setting] to display the [Hardware Setting] window.

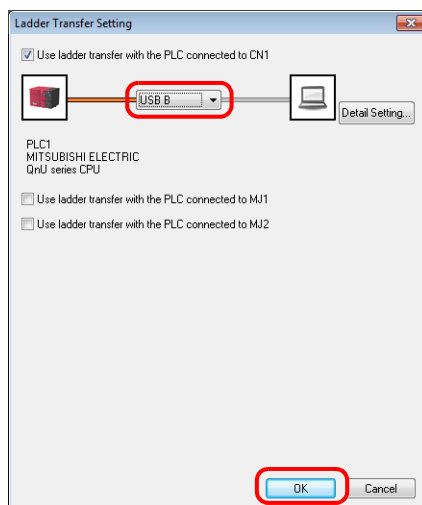


2. Click [Ladder Transfer] to display the [Ladder Transfer Setting] window.



3. Select the port to which the PLC is connected and set the port to which the computer is connected (the ladder transfer port) to [USB B].

* **Be sure to use a different ladder transfer port for each PLC.**



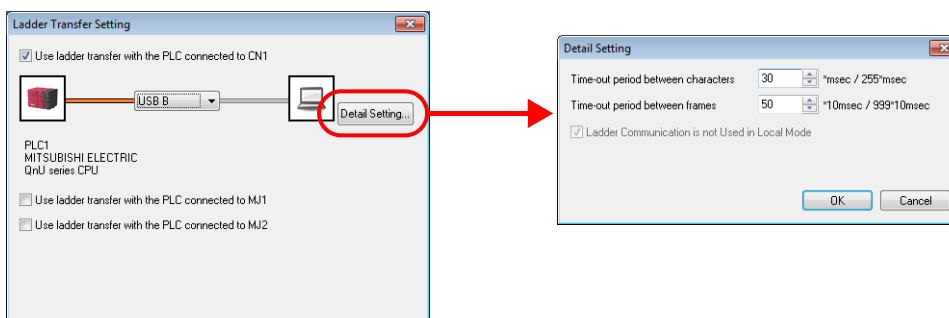
4. Click the [OK] button to complete the necessary settings. Transfer the screen program to the V10/V9 series unit.



Notes on ladder transfer via USB
Observe the following when transferring screen programs over a USB cable.

- Change the V10/V9 series unit to Local mode.
(Ladder communication is enabled only in RUN mode.)
- Set LadderComOp Ver. 2 to [OFFLINE] mode.
(For details on this setting, refer to "[LadderComOp Ver. 2 Detailed Settings](#)" page 12-9.)

Timeout settings for ladder communication can be configured from [Detail Setting].
Configure these settings when communication is unstable.



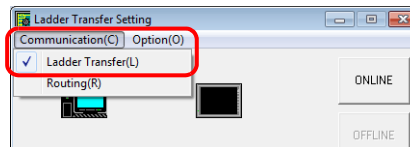
Time-out period between characters	Set the time for checking that data has been transmitted from the ladder tool. Set a time appropriate for the operation environment.
Time-out period between frames	Set the time for monitoring whether a response is received from the PLC after the ladder tool has sent data to the PLC. Set a time appropriate for the operation environment.

LadderComOp Settings

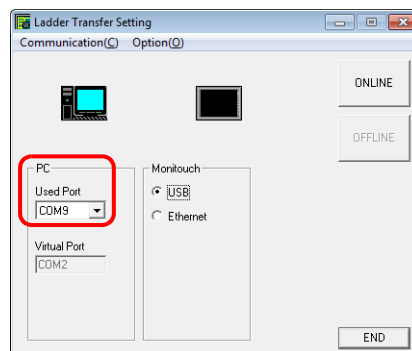
When using the ladder transfer function via USB/Ethernet, the dedicated "LadderComOp" tool must be installed on the PC. For details on the LadderComOp installation procedure, refer to "LadderComOp Installation" page 12-6.

[Ladder Transfer Setting] window

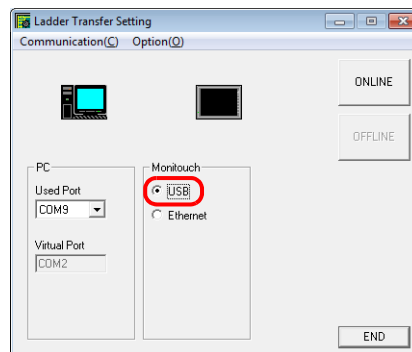
1. From the Windows [Start] menu, click [Programs] → [V-SFT V6] → [LadderComOp] → [Ladder Transfer Setting].
2. The [Ladder Transfer Setting] window is displayed.
3. Select [Communication] → [Ladder Transfer].



4. Select the COM port to use for ladder transfer from the [Used Port] list under [PC].
 - * **This port must match the COM port used in the PLC programming software.**

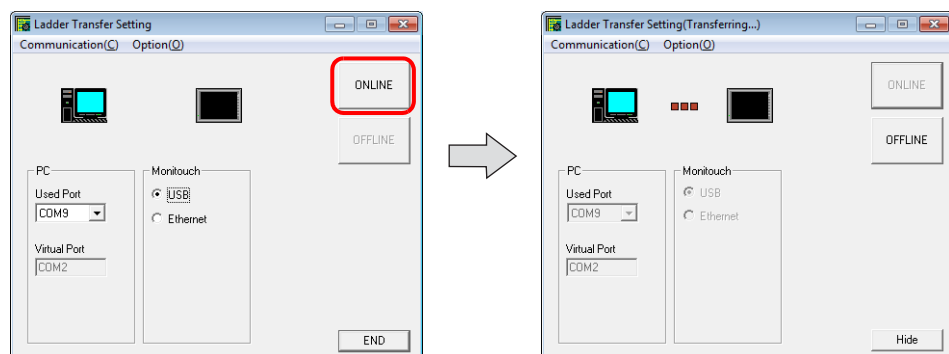


5. Select [USB] under [Monitouch].



6. Click the [ONLINE] button.

The display above the ladder transfer settings changes to the connected state.

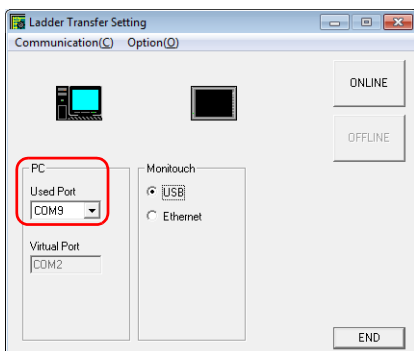


This completes the LadderComOp settings.

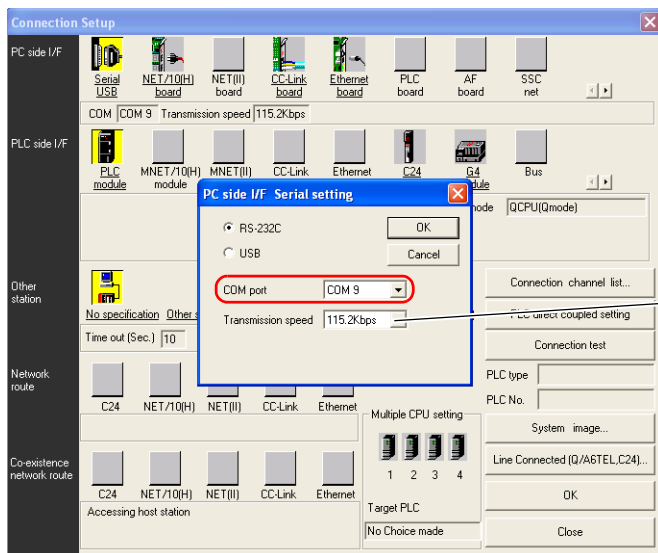
PLC Programming Software Settings

Set the COM port number configured in the [Ladder Transfer Setting] window of LadderComOp to the following window of the relevant PLC programming software to enable access to the PLC.

Example: [Ladder Transfer Setting] window, COM port number 9



MITSUBISHI ELECTRIC GX Developer/GX Works2



For [Transmission speed], specify the same value as the baud rate between the V10/V9 series unit and the PLC.

OMRON CX-Programmer

Be sure to select "SYSMAC WAY" for [Network Type].

[Network Settings] dialog → [Driver] → [Port Name]

For [Baud Rate], specify the same value between the V10/V9 unit and the PLC.

Panasonic "FPWIN GR"

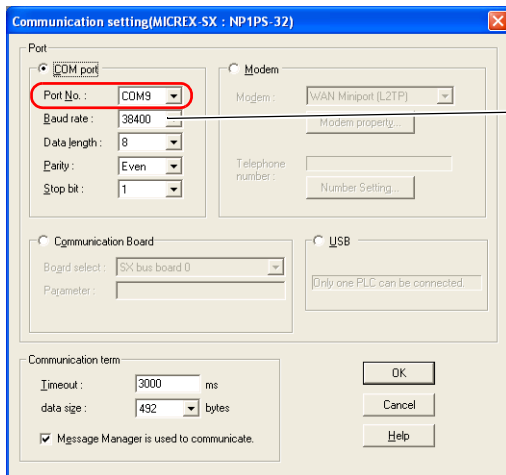
[Communication Settings] dialog → [Port No.]

For [Baud Rate], specify the same value between the V10/V9 unit and the PLC.

Yokogawa Electric "Wide Field2"

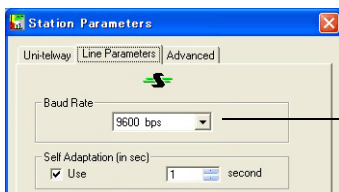
[Environmental Settings] dialog → [Communication Settings] → [COM Port No.]

Fuji Electric SX-Programmer Expert (D300win)

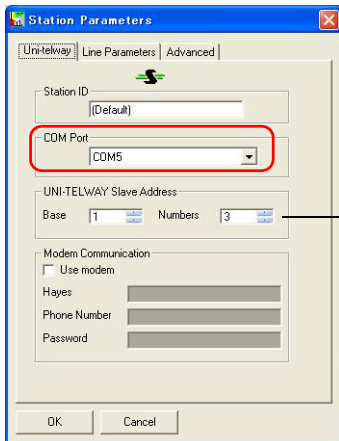


For [Baud rate], specify the same value as the baud rate between the V10/V9 series unit and the PLC.

Telemecanique Drivers Manager

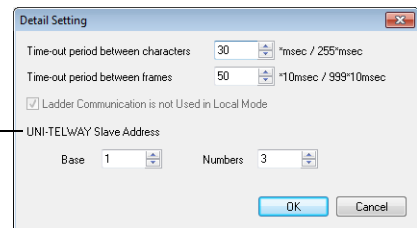


Specify the same baud rate for both the V10/V9 series unit and PLC.



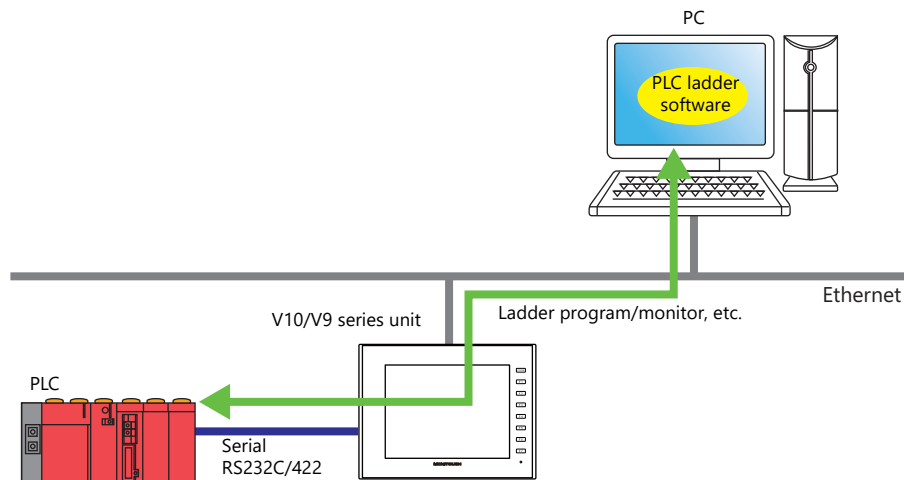
UNI-TELWAY Slave Address
Specify the same [Base] and [Numbers] values.

V-SFT
[System Setting] → [Hardware Setting] →
[Ladder Transfer] → [Detailed Setting]



12.2.4 Ladder Transfer via Ethernet

The V10/V9 series unit and PC can be connected via Ethernet to monitor or write PLC ladder programs through the V10/V9 series unit.



For details on supported PLC models, refer to [“Supported PLC Models” page 12-3](#).



The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Connection Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to “1”) in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.

Setting Procedure

V-SFT and LadderComOp configuration is required. Refer to the following for the setting procedure.

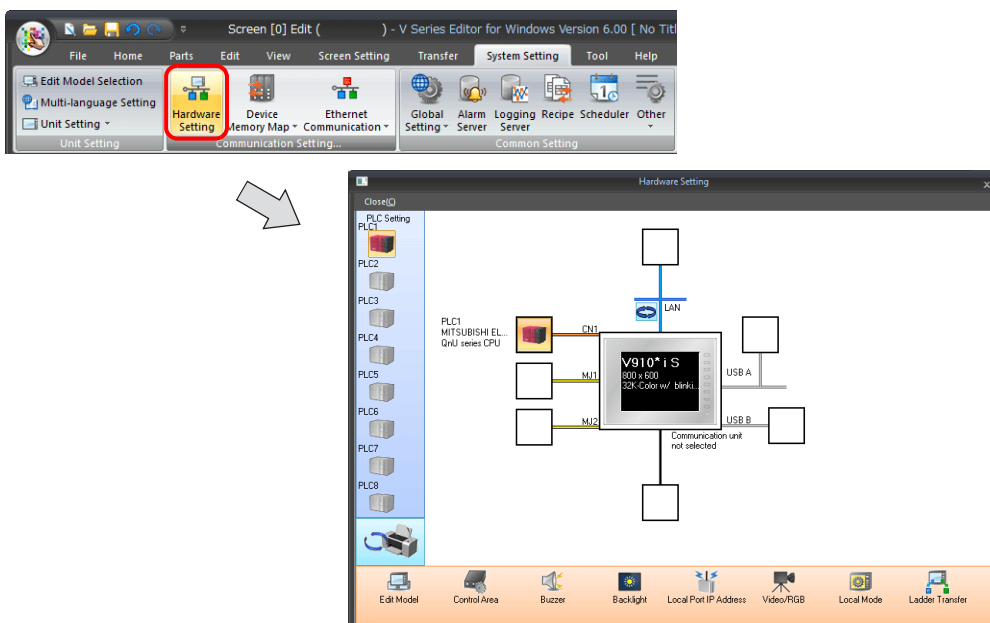
- V-SFT Ver. 6 settings → [“V-SFT Ver. 6 Settings” page 12-16](#)
- LadderComOp settings → [“LadderComOp Settings” page 12-18](#)
- PLC programming software settings → [“PLC Programming Software Settings” page 12-19](#)

V-SFT Ver. 6 Settings

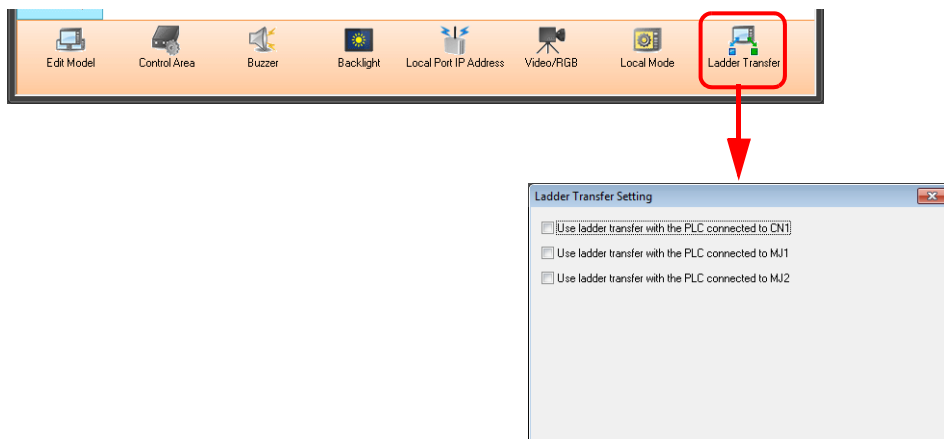
This section describes the settings for ladder transfer using the MITSUBISHI QnU series CPU as an example.

[Ladder Transfer Setting] window

1. Click [Communication Setting] → [Hardware Setting] to display the [Hardware Setting] window.

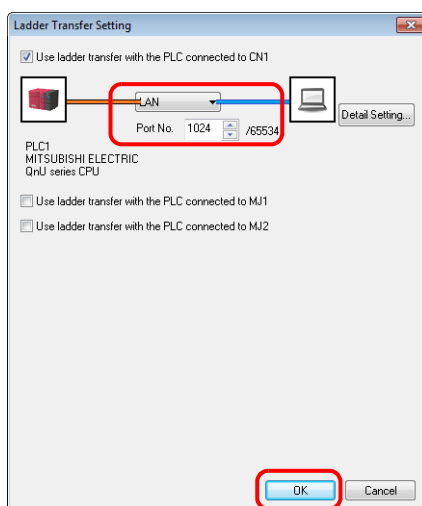


2. Click [Ladder Transfer] to display the [Ladder Transfer Setting] window.



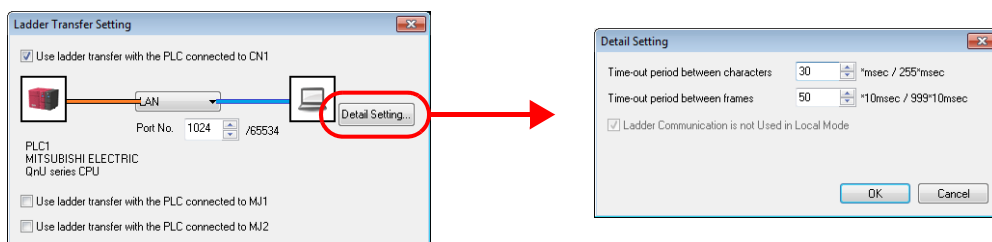
3. Select the port to which the PLC is connected and set the port to which the computer is connected (the ladder transfer port) to [LAN2/WLAN] and specify the port number.

* **This port is also used in the LadderComOp settings.**
Be sure to use a different ladder transfer port for each PLC.



This completes the necessary settings. Transfer the screen program to the V10/V9 series unit.

Timeout settings for ladder communication can be configured from [Detail Setting]. Configure these settings when communication is unstable.



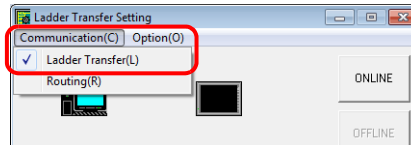
Time-out period between characters	Set the time for checking that data has been transmitted from the ladder tool. Set a time appropriate for the operation environment.
Time-out period between frames	Set the time for monitoring whether a response is received from the PLC after the ladder tool has sent data to the PLC. Set a time appropriate for the operation environment.

LadderComOp Settings

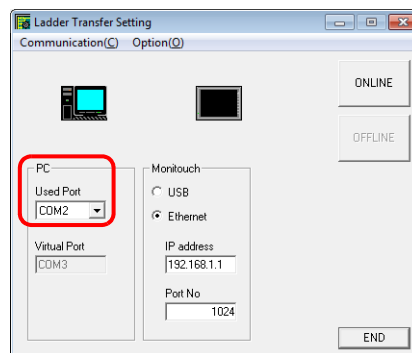
When using the ladder transfer function via USB/Ethernet, the dedicated "LadderComOp" tool must be installed on the PC. For details on the LadderComOp installation procedure, refer to "LadderComOp Installation" page 12-6.

[Ladder Transfer Setting] window

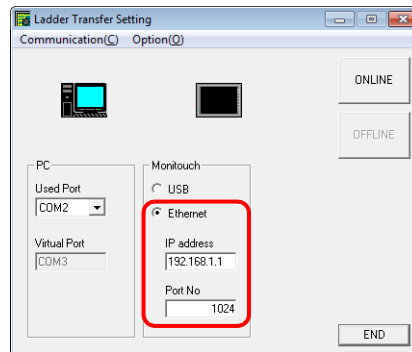
1. From the Windows [Start] menu, click [Programs] → [V-SFT V6] → [LadderComOp] → [Ladder Transfer Setting].
2. The [Ladder Transfer Setting] window is displayed.
3. Select [Communication] → [Ladder Transfer].



4. Select the COM port to use for ladder transfer from the [Used Port] list under [PC].
 - * **This port must match the COM port used in the PLC programming software.**

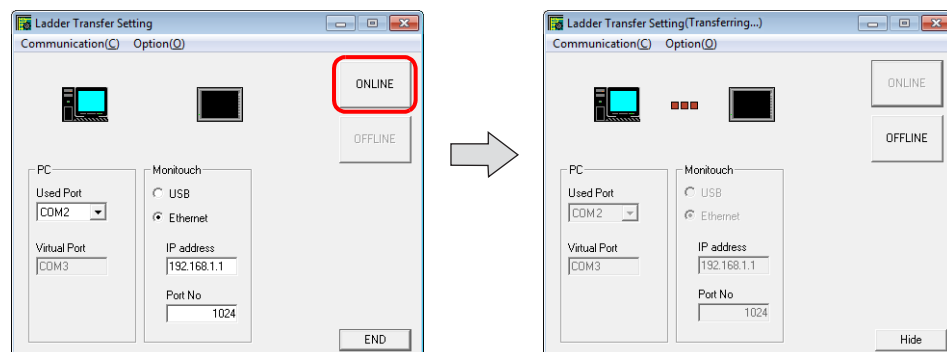


5. Select [Ethernet] under [Monitouch] and set the IP address of the V10/V9 series unit and the port number to use in ladder transfer.
 - * **The port number must match the ladder transfer port number specified in the [Hardware Setting] window of V-SFT Ver. 6.**



6. Click the [ONLINE] button.

The display above the ladder transfer settings changes to the connected state.

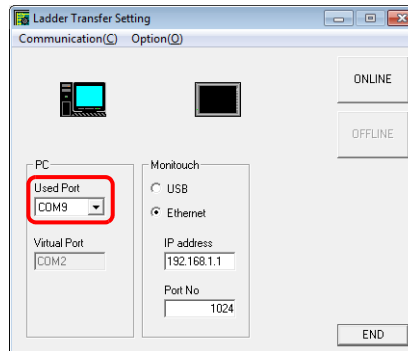


This completes the LadderComOp settings.

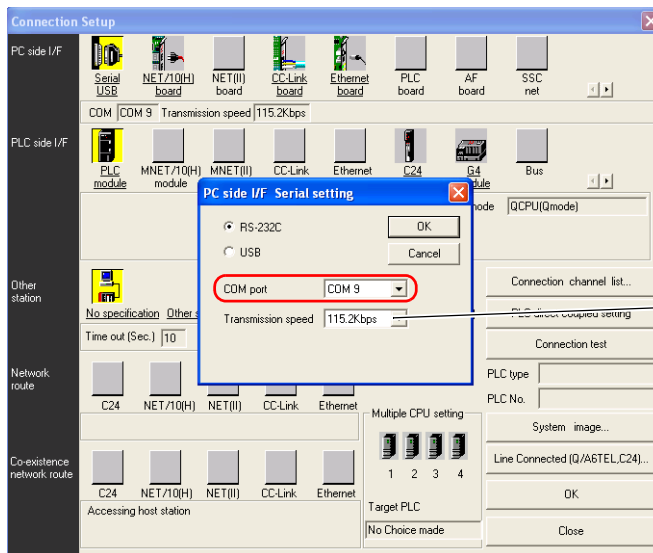
PLC Programming Software Settings

Set the COM port number configured in the [Ladder Transfer Setting] window of LadderComOp to the following window of the relevant PLC programming software to enable communication with the PLC.

Example: [Ladder Transfer Setting] window, COM port number 9



MITSUBISHI ELECTRIC GX Developer/GX Works2



For [Transmission speed], specify the same value as the baud rate between the V10/V9 series unit and the PLC.

OMRON CX-Programmer

Be sure to select "SYSMAC WAY" for [Network Type].

[Network Settings] dialog → [Driver] → [Port Name]

For [Baud Rate], specify the same value between the V10/V9 unit and the PLC.

Panasonic "FPWIN GR"

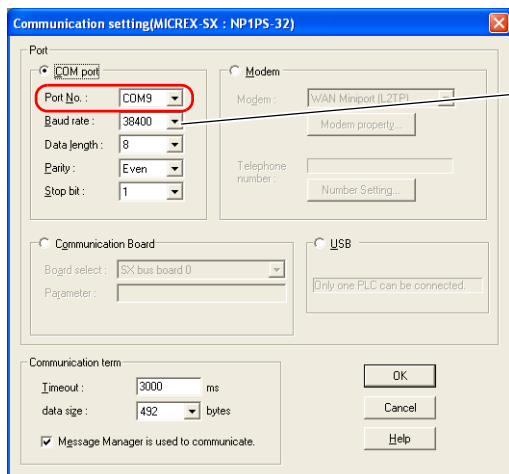
[Communication Settings] dialog → [Port No.]

For [Baud Rate], specify the same value between the V10/V9 unit and the PLC.

Yokogawa Electric "Wide Field2"

[Environmental Settings] dialog → [Communication Settings] → [COM Port No.]

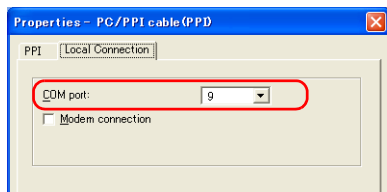
Fuji Electric SX-Programmer Expert (D300win)



For [Baud rate], specify the same value as the baud rate between the V10/V9 series unit and the PLC.

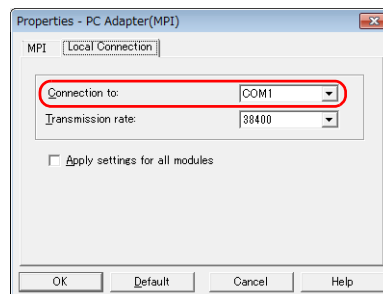
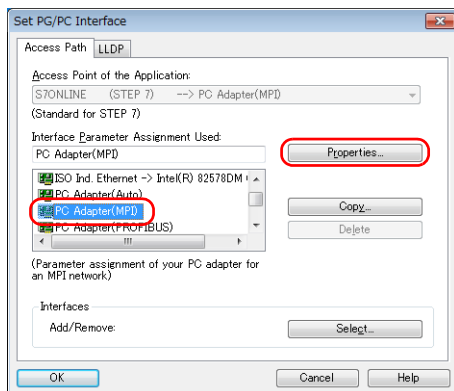
Siemens "STEP 7-Micro/WIN"

[Set PG/PC Interface] dialog → [PC/PPI cable (PPI)] → [Properties].



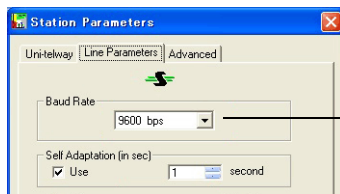
The baud rate between the V10/V9 unit and the PC is fixed to 115 Kbps.

Siemens SIMATIC Manager

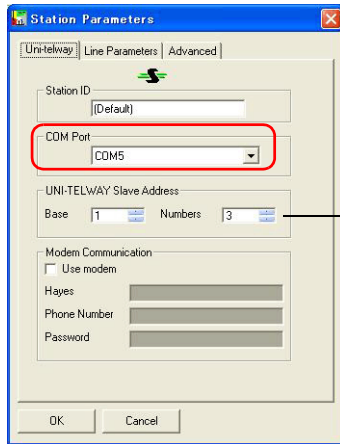


Set [Connection to:] in the range of COM1 to 8.
[Transmission rate:] does not need to be changed.

Telemecanique Drivers Manager

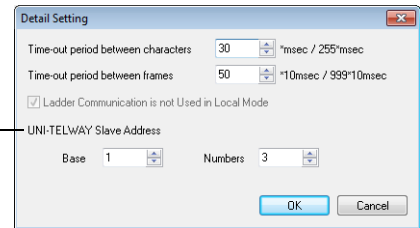


Specify the same baud rate for both the V10/V9 series unit and PLC.



UNI-TELWAY Slave Address
Specify the same [Base] and [Numbers] values.

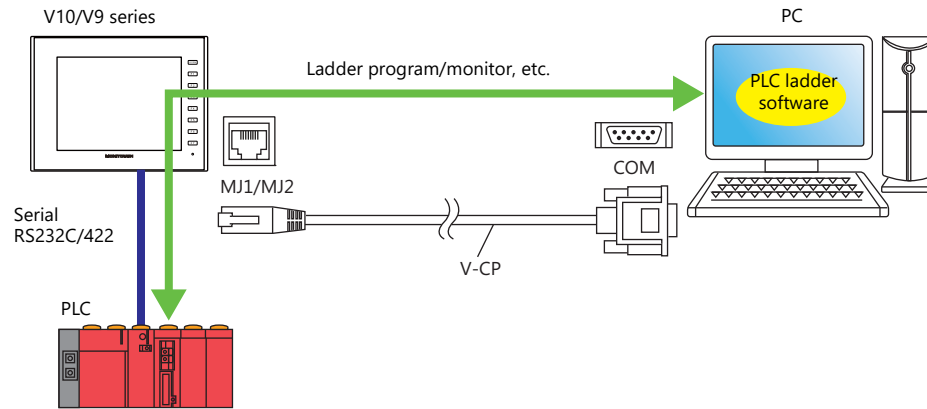
V-SFT
[System Setting] → [Hardware Setting] → [Ladder Transfer] → [Detailed Setting]



12.2.5 Serial Ladder Transfer

The V10/V9 series unit and PC can be connected using a "V-CP" screen program transfer cable to monitor or write PLC ladder programs through the V10/V9 series unit.

* For the MITSUBISHI A series CPU, use Hakko Electronics "V6-CP-A" cable to connect the V10/V9 series unit and PC.



For details on supported PLC models, refer to "Supported PLC Models" page 12-3.

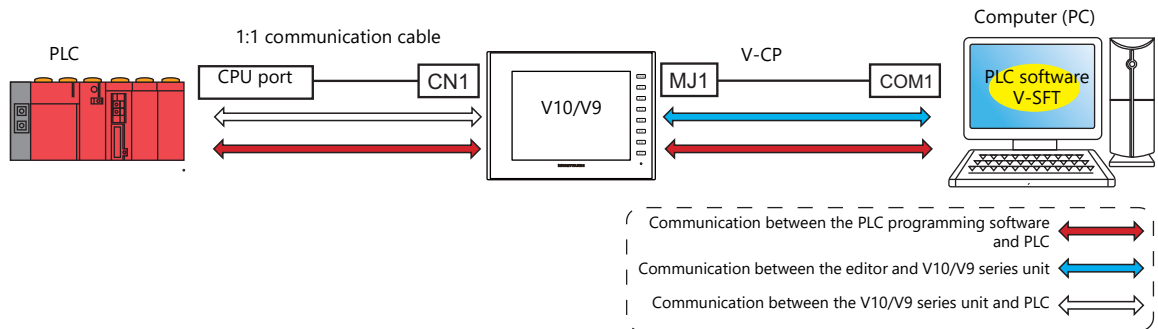


The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Connection Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to "1") in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.

Executing Screen Program Transfer and Ladder Transfer Using the MJ1 Port

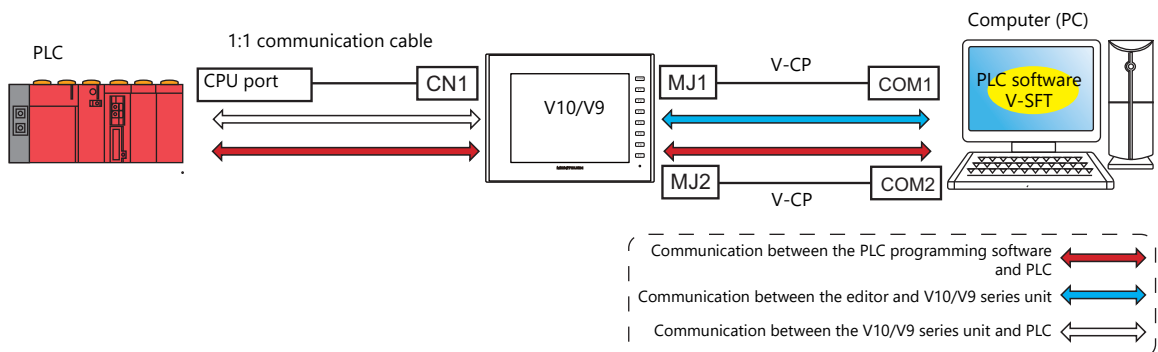
Use the MJ1 port when using the ladder transfer function and performing screen program transfer over a single cable. Screen program transfer and PLC programming software transfers cannot be performed at the same time. Communication of either software is cut off in order to perform transfers.

Screen program transfer is only possible in Local mode. For details, refer to [Ladder Communication is not Used in Local Mode] settings page 12-25.



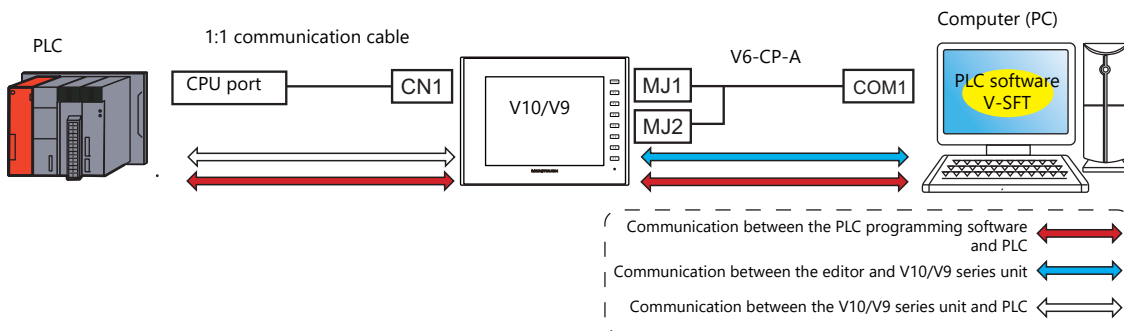
Executing Screen Program Transfer Using the MJ1 Port and Ladder Transfer Using the MJ2 Port

Screen program transfer and PLC programming software transfers can be performed using separate COM ports and cables. Screen program transfer and PLC programming software transfers cannot be performed at the same time.



Communication with the MITSUBISHI ELECTRIC A Series CPU

Use Hakko Electronics "V6-CP-A" cable to connect the V10/V9 series unit and PC.



Setting Procedure

V-SFT configuration is required. Refer to the following for the setting procedure.

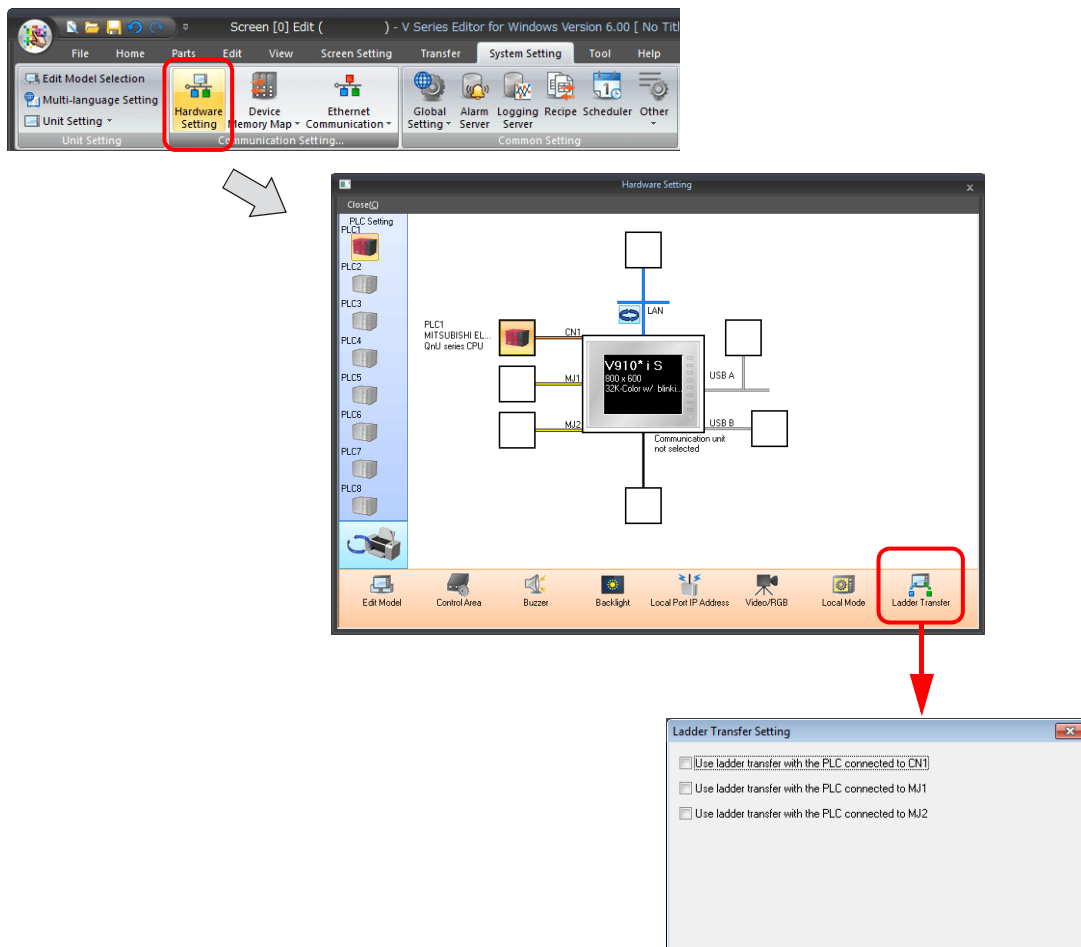
- V-SFT Ver. 6 settings → "V-SFT Ver. 6 Settings" page 12-23
- PLC programming software settings → "PLC Programming Software Settings" page 12-26

V-SFT Ver. 6 Settings

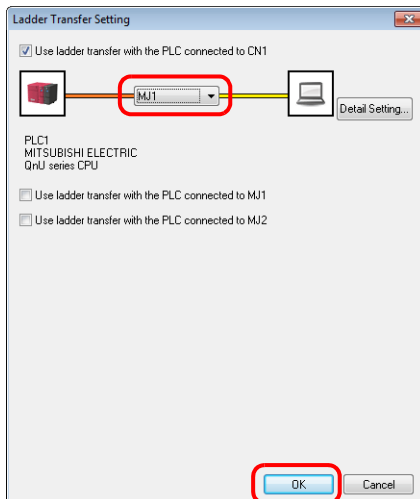
This section describes the settings for ladder transfer using the MITSUBISHI QnH (Q) series CPU as an example.

[Ladder Transfer Setting] window

1. Click [System Setting] → [Hardware Setting] → [Ladder Transfer]. The [Ladder Transfer Setting] window is displayed.

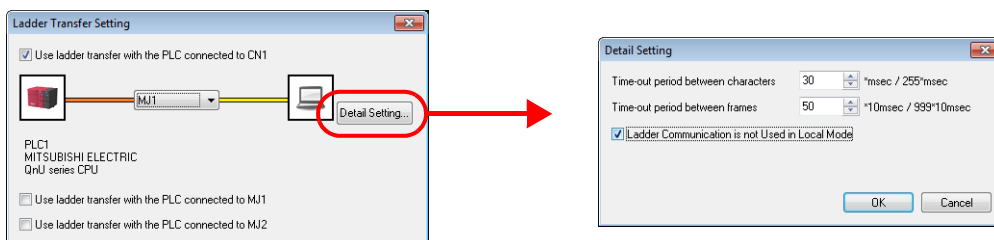


2. Select the port to which the PLC is connected and set the port to which the computer is connected to [MJ1] or [MJ2].



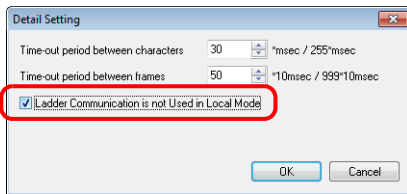
3. Click the [OK] button to complete the necessary settings. Transfer the screen program to the V10/V9 series unit.

Timeout settings for ladder communication can be configured from [Detail Setting].
Configure these settings when communication is unstable.



Time-out period between characters	Set the time for checking that data has been transmitted from the ladder tool. Set a time appropriate for the operation environment.
Time-out period between frames	Set the time for monitoring whether a response is received from the PLC after the ladder tool has sent data to the PLC. Set a time appropriate for the operation environment.

[Ladder Communication is not Used in Local Mode] settings



Whether screen program transfer and ladder transfer can be performed in a particular state of the V10/V9 series unit differs depending on the combination of this setting and the modular jack function.

- MJ1: Ladder transfer

[Ladder Communication is not Used in Local Mode]	V10/V9 Series Unit State	Screen Program Transfer	Ladder Transfer
Selected	RUN	×	○
	Local mode	○	×
Unselected	RUN	×	○
	Local mode	△*	△*

- MJ1: Not connected, MJ2: Ladder transfer

[Ladder Communication is not Used in Local Mode]	V10/V9 Series Unit State	Screen Program Transfer	Ladder Transfer
Selected	RUN	○	○
	Local mode	○	×
Unselected	RUN	○	○
	Local mode	○	○

- MJ1: Not connected/other than ladder transfer, MJ2: Ladder transfer

[Ladder Communication is not Used in Local Mode]	V10/V9 Series Unit State	Screen Program Transfer	Ladder Transfer
Selected	RUN	×	○
	Local mode	○	×
Unselected	RUN	×	○
	Local mode	○	○

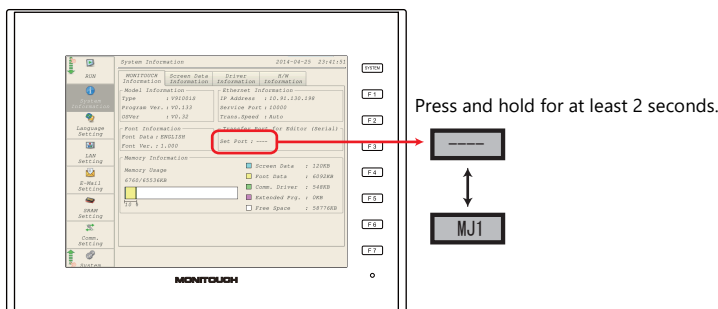
*** Switching to Local mode**

Press the [SYSTEM] → [Local] switch to display the local mode screen.

The [System Information] → [Editor Transfer Port] → [Set Port] setting is [----] (ladder transfer mode).

In this case, screen program transfer using the MJ1 port cannot be performed.

When transferring the screen program, press and hold for more than two seconds near the [Set Port] display and switch [---] to [MJ1] using the [▼] switch.

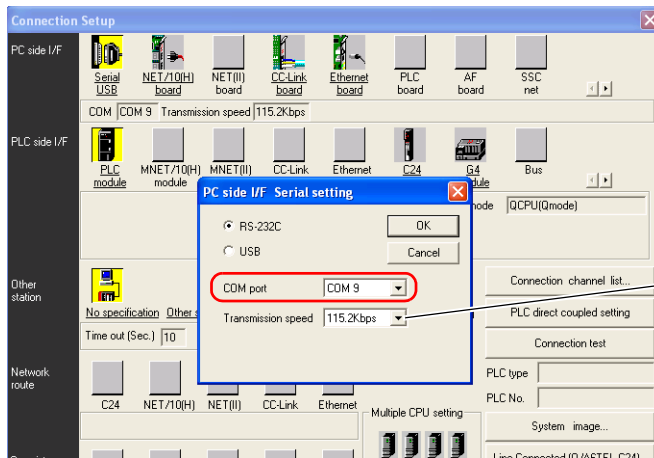


Editor Transfer Port	Screen Program Transfer	Ladder Transfer
----	×	○
MJ1	○	×

PLC Programming Software Settings

Set the COM port number to enable communication with the PLC.

MITSUBISHI ELECTRIC GX Developer/GX Works2



For [Transmission speed], specify the same value as the baud rate between the V10/V9 series unit and the PLC.

OMRON CX-Programmer

Be sure to select "SYSMAC WAY" for [Network Type].

[Network Settings] dialog → [Driver] → [Port Name]

For [Baud Rate], specify the same value between the V10/V9 unit and the PLC.

Panasonic "FPWIN GR"

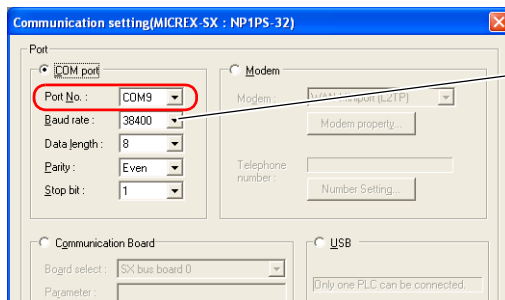
[Communication Settings] dialog → [Port No.]

For [Baud Rate], specify the same value between the V10/V9 unit and the PLC.

Yokogawa Electric "Wide Field2"

[Environmental Settings] dialog → [Communication Settings] → [COM Port No.]

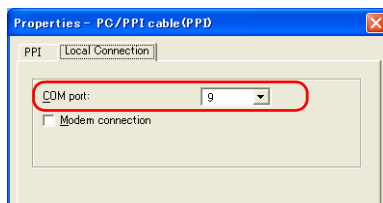
Fuji Electric SX-Programmer Expert (D300win)



For [Baud rate], specify the same value as the baud rate between the V10/V9 series unit and the PLC.

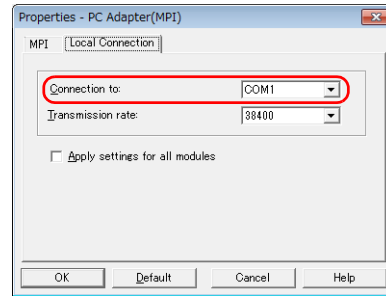
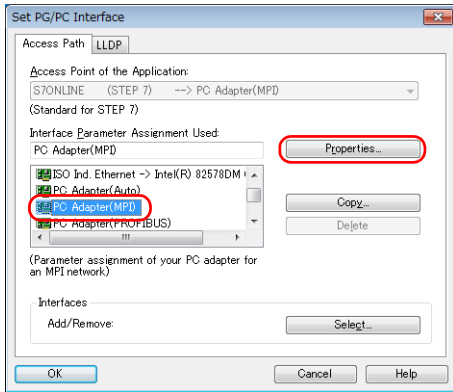
Siemens "STEP 7-Micro/WIN"

[Set PG/PC Interface] dialog → [PC/PPI cable (PPI)] → [Properties].



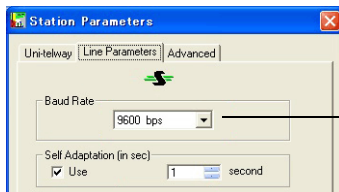
The baud rate between the V10/V9 unit and the PC is fixed to 115 Kbps.

Siemens SIMATIC Manager

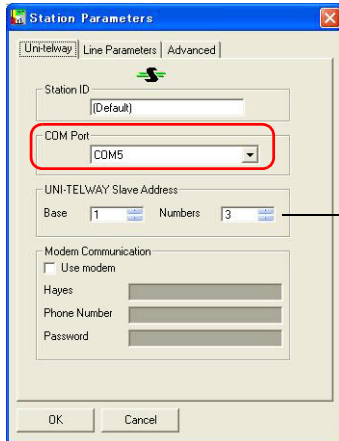


Set [Connection to:] in the range of COM1 to 8.
[Transmission rate:] does not need to be changed.

Telemecanique Drivers Manager



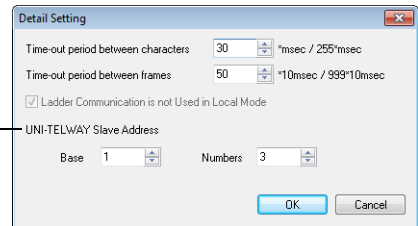
Specify the same baud rate for both the V10/V9 series unit and PLC.



UNI-TELWAY Slave Address
Specify the same [Base] and [Numbers] values.

V-SFT

[System Setting] → [Hardware Setting] → [Ladder Transfer] → [Detailed Setting]



12.2.6 Notes

Screen Program Transfer

- When transferring a screen program via USB cable while executing the ladder transfer function via USB, always perform the following.
 - Change the V10/V9 series unit to Local mode.
(Ladder communication is enabled only in RUN mode.)
 - Set LadderComOp Ver. 2 to [OFFLINE] mode.
(For details on this setting, refer to ["LadderComOp Ver. 2 Detailed Settings" page 12-9.](#))
- When using Siemens S7-200 PPI or S7-300/400 MPI, always change to local mode before transferring the screen program. (Ladder communication is enabled only in RUN mode.)

Other Notes

- The ladder transfer function can be used for up to three ports with PLC 1 to 8.
- When using a PC with user privileges enabled, perform the following in advance.
 - 1) Log in with administrator privileges.
 - 2) Start the LadderComOp program and set a COM port for [Used Port].
 - * When settings are configured initially, LadderComOp may take a few moments to exit.
Also, if a user logs in without administrator privileges, the following message is displayed and the LadderComOP software cannot be used.
- The following messages are displayed at the top left of the screen on the V10/V9 series unit during access (mainly when transferring a large amount of data, such as programs) to the Siemens S7-200 PPI and S7-300/400 MPI. The V10/V9 series unit automatically returns to normal operation after access is complete.
 - PLC1 Access denied by Loader
 - PLC1 In Reset Service
- The communication states of the PLC programming software and PLC when communication is performed between the editor and the V10/V9 series unit are shown below.

Editor	PLC Programming Software
Writing to V10/V9 series unit	Communication stops (normal communication after writing finishes)
Reading from V10/V9 series unit	Normal communication
Checking with V10/V9 series unit	Normal communication

- Baud rate
The baud rate used between the V10/V9 series unit and the PLC is the value set in the editor for [Hardware Setting] → [PLC Properties] → [Baud Rate].
However, when communication (monitoring etc.) with the PLC programming software occurs with the ladder transfer function, the baud rate value changes to that of the PLC programming software. This baud rate is retained until power to the V10/V9 series unit is turned off and on again.
For this reason, set the same baud rate setting for [Hardware Setting] → [PLC Properties] → [Baud Rate] as the PLC programming software.
- When [Use Ladder Tool] is set to [Yes], monitor registration of the V10/V9 series unit and PLC communication is prohibited even if the PLC programming software is not running. This means that the screen display speed is slightly slower than usual.
- When transferring ladder programs when the V10/V9 series unit is in RUN mode, the performance of both the V10/V9 series unit and the PLC programming software decreases because communication between the two is performed in synchronization.

12.3 Ethernet Connection between the V10/V9 Series Unit and PLC

12.3.1 Operating Environment

Supported V10/V9 Models and Connection Ports

V10/V9		PLC Connection Ports (V10/V9 - PLC)	Ladder Transfer Ports (V10/V9 - PC)	Used Applications ^{*2}
Advanced	All	LAN LAN2	LAN ^{*1} LAN2 ^{*1} WLAN	V-SFT Ver. 6 / LadderComOp Ver. 2
V10 Standard V9 Standard	V10xxiSLD V10xxiSLBD V10xxiSRD V10xxiSRBD V9xx0ixLD V9xx0ixLBD V9xx0ixRD V9xx0ixRBD			

*1 PLC connection ports cannot be used.

*2 Windows Vista, 7, 8, 8.1, 10, and 11 are supported.

If using Windows 11, use V-SFT version 6.1.6.0 or later and LadderComOp version 2.1.2.0 or later.

Supported PLC Models

All models that can connect to V10/V9 series units via Ethernet

12.3.2 LadderComOp Ver. 2

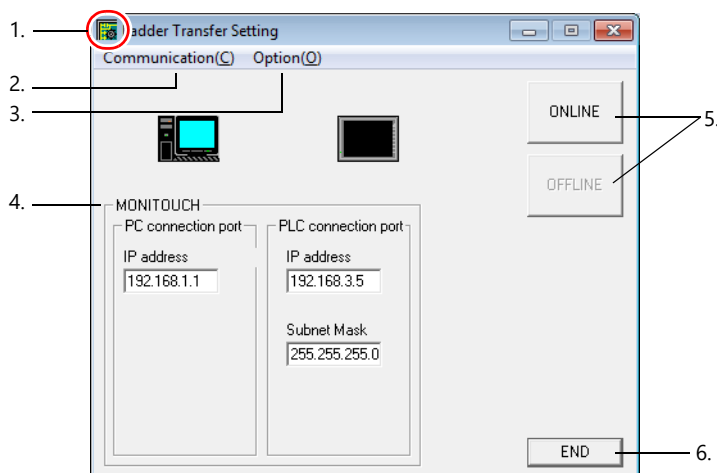
The "LadderComOp" ladder transfer tool is required when connecting the V10/V9 series unit and PC via Ethernet in order to monitor or write PLC ladder programs.

LadderComOp Installation

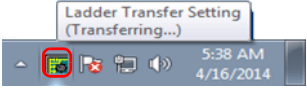
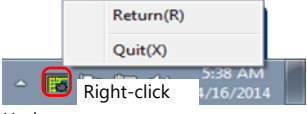
Refer to the following procedure.

 Installation → "12.2.2 LadderComOp Ver. 2" page 12-6

LadderComOp Ver. 2 Detailed Settings



Item	Description
1. Icon	Clicking this icon and selecting [About LadderComOp] opens a window that displays the version of LadderComOp.
2. Communication	Select [Routing].
3. Option	Add in the task tray. Select this to add ladder transfer settings to the task tray.

Item		Description
4. MONITOUCH	PC connection port	Set the IP address of the LAN port used for connection with the PC. This serves as the gateway for the routing function.
	PLC connection port	Set the IP address and subnet mask of the LAN port used for connection with the PLC. This serves as the network address of the routing function.
5. ONLINE/OFFLINE		<p>Turn ladder transfer ON or OFF between the PC and V10/V9 series unit.</p> <ul style="list-style-type: none"> • ONLINE Establish a connection between the PC and V10/V9 series unit and enable ladder transfer mode. • OFFLINE Disconnect the PC and V10/V9 series unit.
6. Hide/END		<ul style="list-style-type: none"> • Hide Display an icon in the task tray when a connection is established. Ladder transfer settings are added to the task tray. <ul style="list-style-type: none"> * The [Add in the task tray] checkbox is automatically selected. - The task tray tool tip indicates "Transferring...".  - Right-click on the icon in the task tray to display a menu.  <ul style="list-style-type: none"> Undo Display the [Ladder Transfer Setting] window. • END Display an icon in the task tray when a connection is not established. Disconnect the PC and V10/V9 series unit and close the [Ladder Transfer Setting] window.

12.3.3 Setting Procedure



The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Connection Mode] is set to [1:1] in the V-SFT. The simulator cannot be used for 1:n communication.

V-SFT and LadderComOp configuration is required. Refer to the following for the setting procedure.

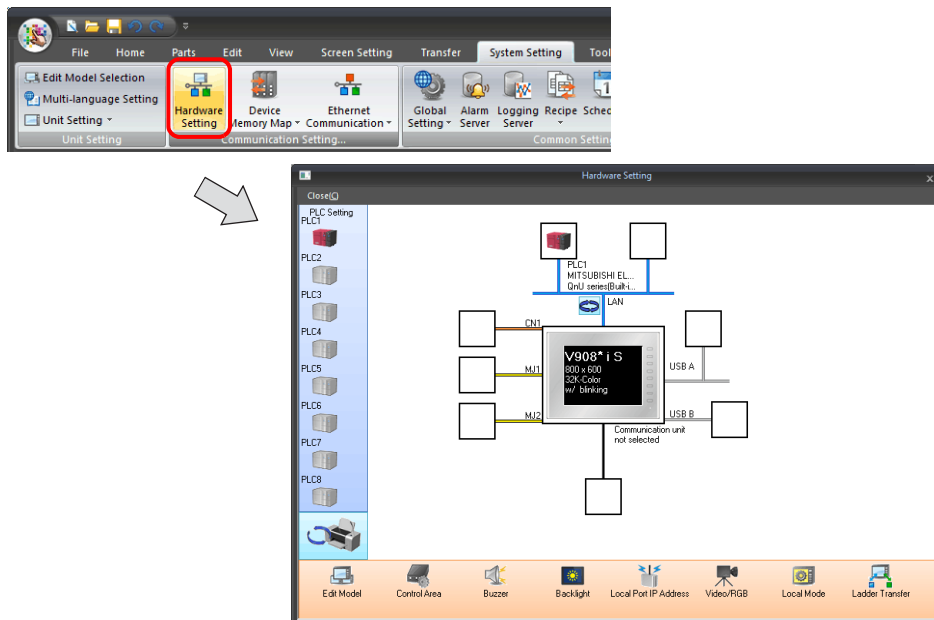
- V-SFT Ver. 6 settings → “V-SFT Ver. 6 Settings” page 12-23
- LadderComOp settings → “LadderComOp Settings” page 12-32
- PLC programming software settings → “PLC Programming Software Settings” page 12-19

V-SFT Ver. 6 Settings

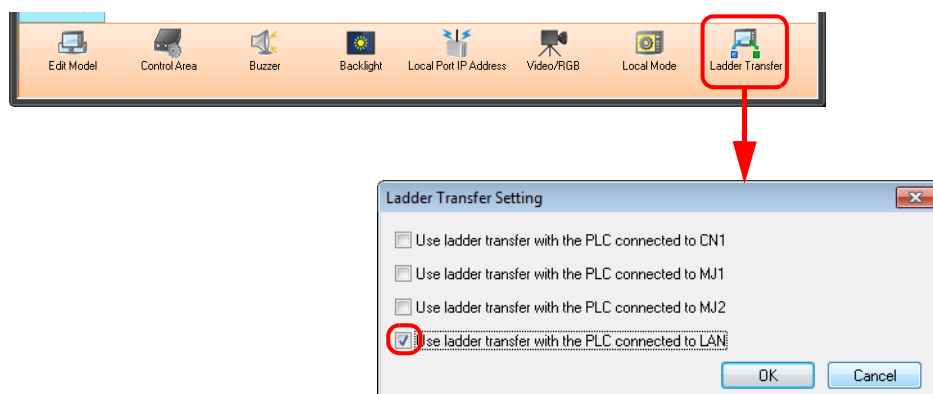
This section describes the settings for ladder transfer using the MITSUBISHI QnU series (built-in Ethernet) as an example.

[Ladder Transfer Setting] window

1. Click [System Setting] → [Hardware Setting] to display the [Hardware Setting] window.



2. Click [Ladder Transfer] to display the [Ladder Transfer Setting] window.



3. Select the [Use ladder transfer with the PLC connected to LAN] checkbox.

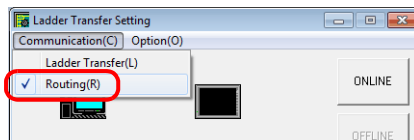
This completes the necessary settings. Transfer the screen program to the V10/V9 series unit.

LadderComOp Settings

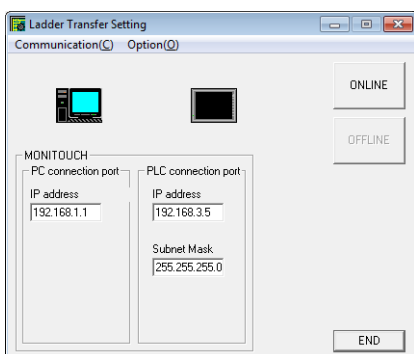
The dedicated "LadderComOp" tool must be installed on the PC. For details on the LadderComOp installation procedure, refer to "LadderComOp Installation" page 12-6.

[Ladder Transfer Setting] window

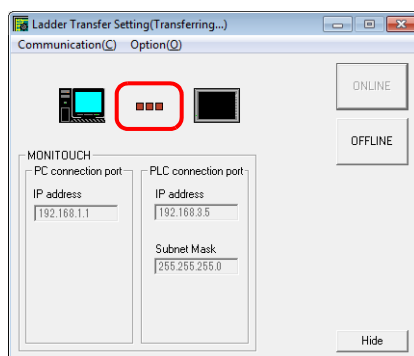
1. From the Windows [Start] menu, click [Programs] → [V-SFT V6] → [LadderComOp] → [Ladder Transfer Setting].
2. The [Ladder Transfer Setting] window is displayed.
3. Select [Communication] → [Routing].



4. Set [PC connection port] and [PLC connection port].
 PC connection port: IP address of the LAN port on the PC for connection.
 PLC connection port: IP address and subnet mask of the LAN port on the PLC for connection.



5. Click the [ONLINE] button.
 The display above the ladder transfer settings changes to the connected state.



This completes the LadderComOp settings.

PLC Programming Software Settings

Specify the IP address of the PLC and establish a connection.

12.3.4 Notes

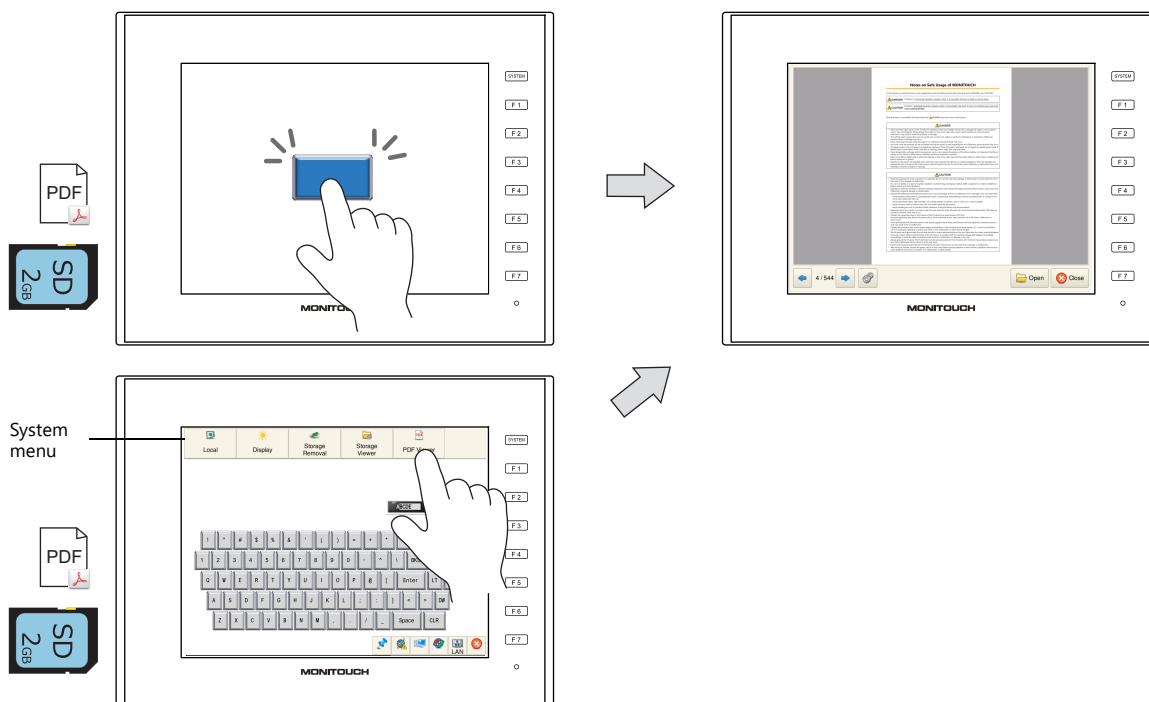
- Two LAN ports of the V10/V9 series unit are used. Therefore, units with one port cannot be used.
- Ladder transfer can be performed even when communication between the V10/V9 series unit and PLC is unavailable.
- Ladder transfer cannot be used together with the VPN remote access service. Always disable the VPN settings on the V10/V9 series unit.
- Always use a different network group for each IP address set for [LAN Setting], [LAN2 Setting], and [WLAN Setting]. If set in the same network group, ladder transfer will not function correctly.

13 PDF Viewer

13.1 Overview

PDF Viewer

- PDF files can be viewed on the V10/V9 series unit without the need for preparing a computer or a paper manual. By saving PDF files of the machine's operation and troubleshooting manuals to a storage device, they can be easily viewed using the dedicated PDF viewer.
- The storage device to refer to can be selected (between the SD card and USB flash drive) from the PDF viewer.
- The PDF viewer can be displayed using switches (a switch part with the [PDF Viewer Display] function or from the system menu) or by a command from a PLC.



* The PDF viewer can be displayed in Local mode as well by using the system menu.

- On V9 Advanced models (capacitive type), pinch-to-zoom gestures can be used for zooming in and out (50 to 200%).



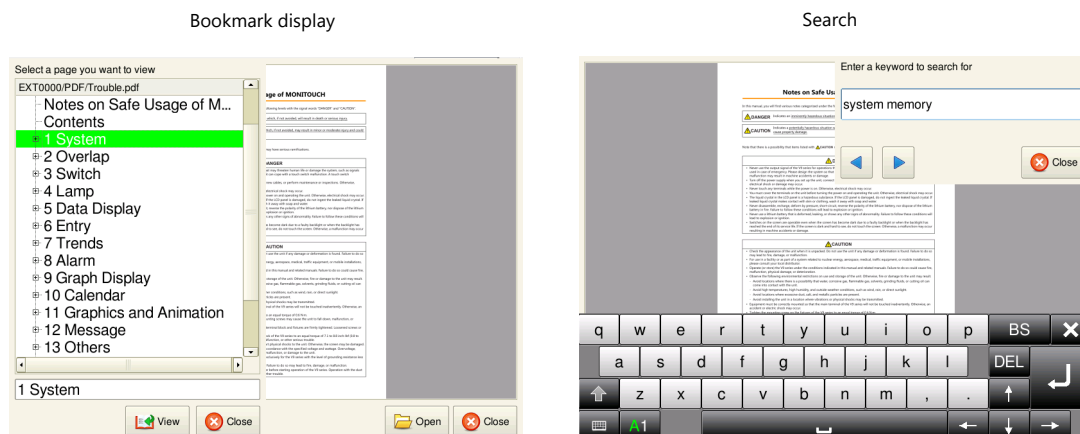
For details on the setting method, refer to the following sections.

["13.3.1 Displaying by Switch "Function: PDF Viewer Display" page 13-3](#)

["13.3.3 Displaying by Commanding from PLC" page 13-6](#)

Search function

The bookmarks of the PDF file can be displayed and text can be searched for. The display can be enlarged for easy viewing as well.



To search for Japanese text, the [System Setting] → [Japanese Conversion Function Setting] checkbox must be selected.



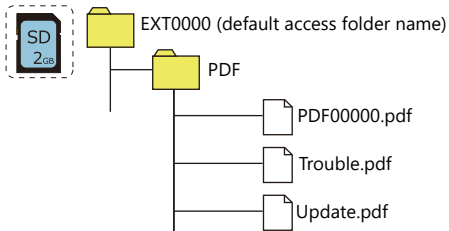
For details, refer to ["13.5 Operating the PDF Viewer" page 13-10](#).

13.2 Preparation of PDF Files

This section describes the specifications of PDF files that can be viewed on the PDF viewer and the procedure for saving a PDF file to a storage device.

PDF File Specifications

The specifications are as follows:

Item	Specifications
File Name	<ul style="list-style-type: none"> PDFxxxx.pdf (xxxx: 00000 to 99999) (For specification by file number) xxxxxxx.pdf (64 or less one-byte characters or 32 or less two-byte characters)
File size	No limitation *1
Number of pages	Maximum 65,535 pages in one file
Supported languages	Languages selected at [System Setting] → [Multi-language Setting] → [Transfer Font Setting] tab window. *2
PDF version	1.0 to 1.7
PDF file storage location	<ul style="list-style-type: none"> When displaying by selecting on the PDF viewer: No settings are required. When displaying using a switch part or by giving a command (control device memory) from a PLC: <ul style="list-style-type: none"> - Folder path specified Any folder specified - Folder path not specified (default) (output drive)\(access folder)\PDF 

*1 Larger PDF files and those with many figures and images will take longer to open

*2 PDF files created with font information embedded can be displayed regardless of the fonts selected in the [Transfer Font Setting] tab window.

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

- Windows Explorer
Open the storage device drive and save the necessary PDF files.
- Storage manager (only when folder path is not specified)
Store the necessary PDF files at "C:\MONITOUCH\User\PDF" (default) using storage manager.

 For details, refer to "8.3.11 Storing PDF Files" page 8-25.

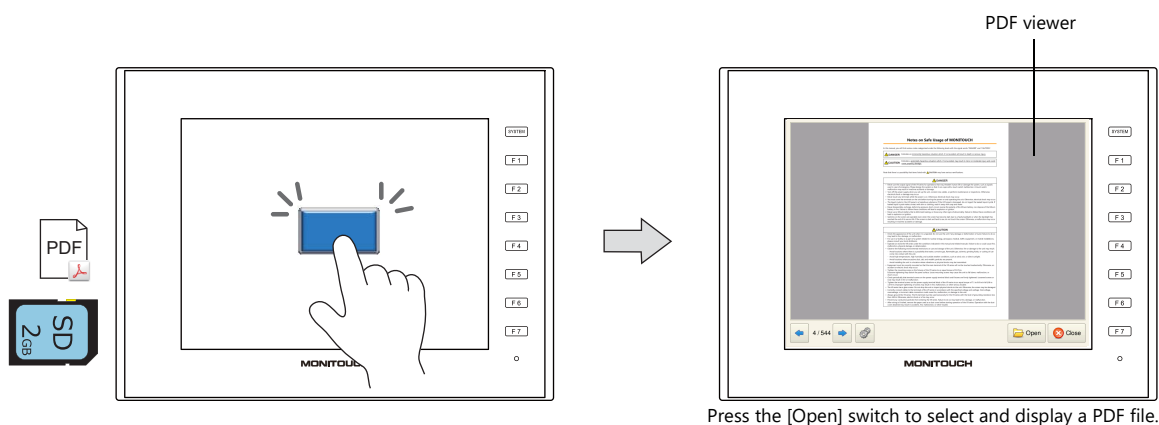
13.3 Setting Example

The PDF viewer can be displayed using a switch part, the [PDF Viewer] switch on the system menu, or by a command from a PLC.

13.3.1 Displaying by Switch “Function: PDF Viewer Display”

Press a switch with the [PDF Viewer Display] function to display the PDF viewer.

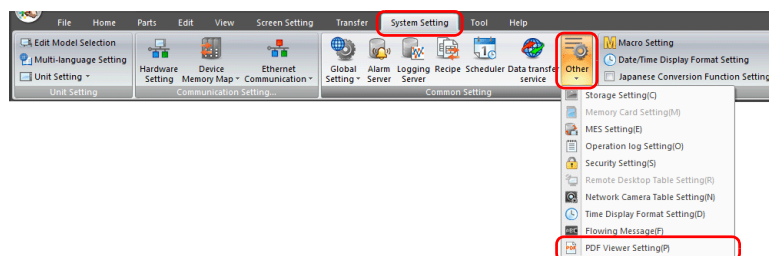
Conceptual Operation



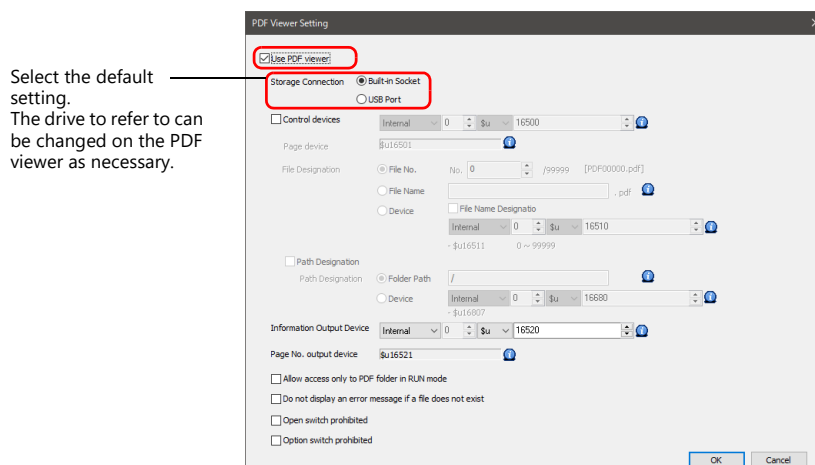
13

Settings for PDF Viewer

1. Click [System Setting] → [Other] → [PDF Viewer Setting].



2. In the [PDF Viewer Setting] window, select the [Use PDF viewer] checkbox and select a [Storage Connection].

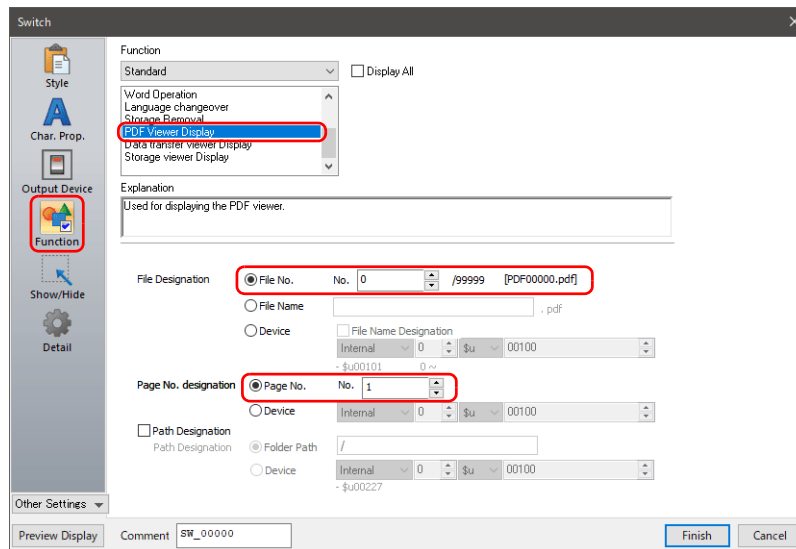


3. Click [OK]. This completes the configuration of settings.


Switch Settings

1. Place a switch part.
2. Select [PDF Viewer Display] in the [Function] settings and make the following settings.

Displaying page 1 of a PDF file named "PDF00000.pdf"
File storage location: \(\access folder)\PDF

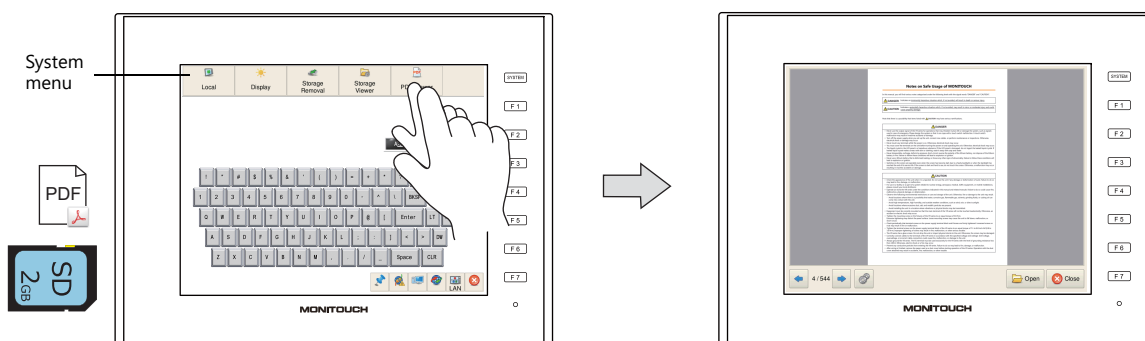


3. Click [Finish]. This completes the necessary settings.

 For details on operation on the V10/V9 series unit, refer to "13.5 Operating the PDF Viewer" page 13-10.

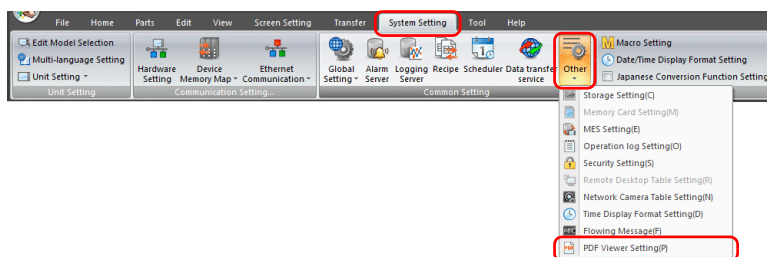
13.3.2 Displaying from the System Menu

The PDF viewer can be displayed by pressing the [PDF Viewer] switch on the system menu.



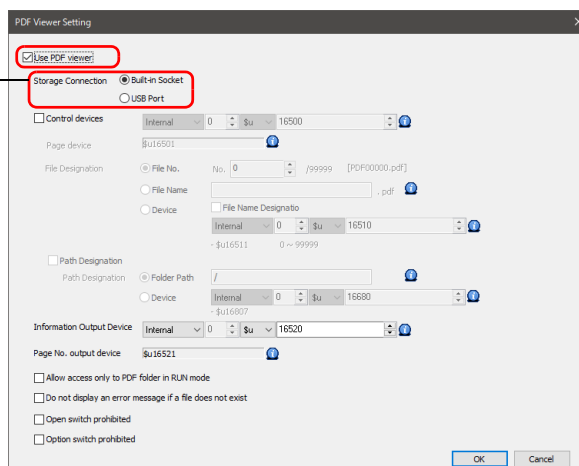
V-SFT Settings

1. Click [System Setting] → [Other] → [PDF Viewer Setting].



2. In the [PDF Viewer Setting] window, select the [Use PDF viewer] checkbox and select a [Storage Connection].

Select the default setting.
The drive to refer to can be changed on the PDF viewer as necessary.



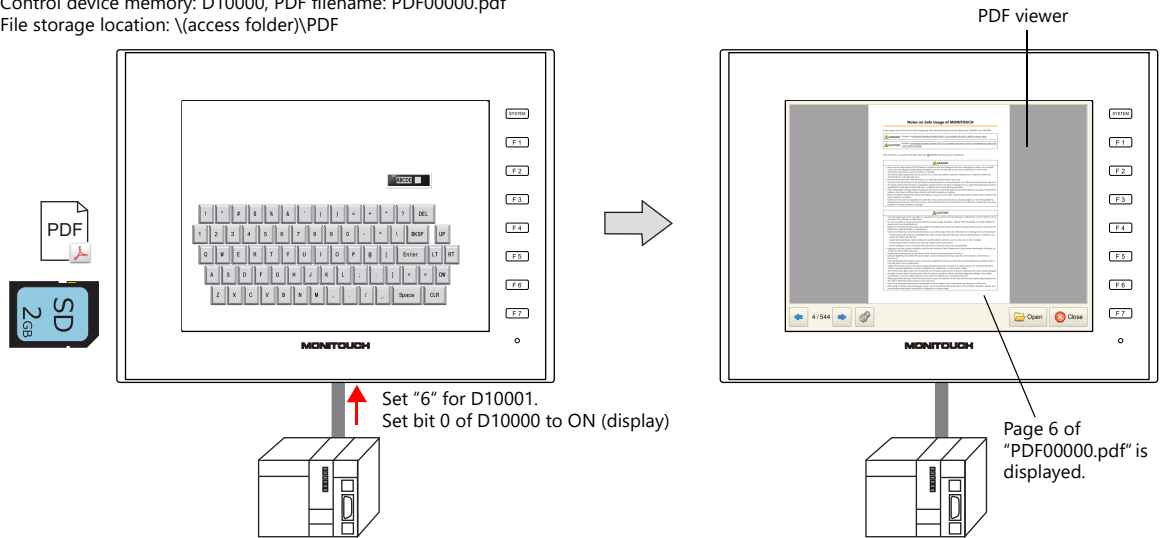
3. Click [OK]. This completes the configuration of settings.

13.3.3 Displaying by Commanding from PLC

The PDF viewer can be displayed by turning the relevant PLC device memory bit ON. The page to display can be specified as well.

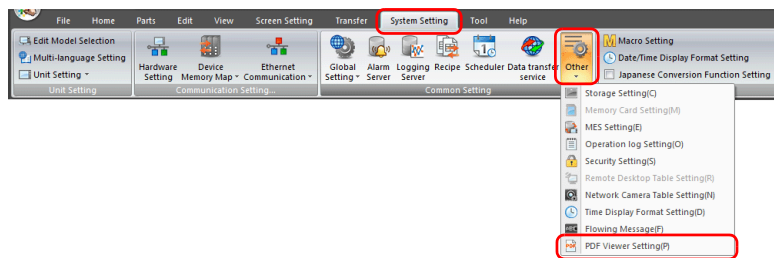
Conceptual Operation

Control device memory: D10000, PDF filename: PDF00000.pdf
 File storage location: \\(access folder)\PDF

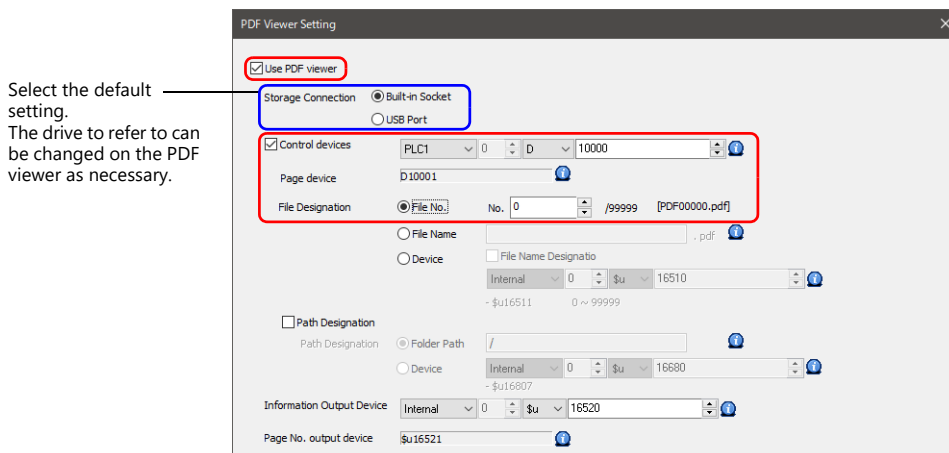


V-SFT Settings (Settings for PDF Viewer)

1. Click [System Setting] → [Other] → [PDF Viewer Setting].



2. In the [PDF Viewer Setting] window, select the [Use PDF viewer] checkbox and make the following settings.



3. Click [OK]. This completes the configuration of settings.

PLC Commands

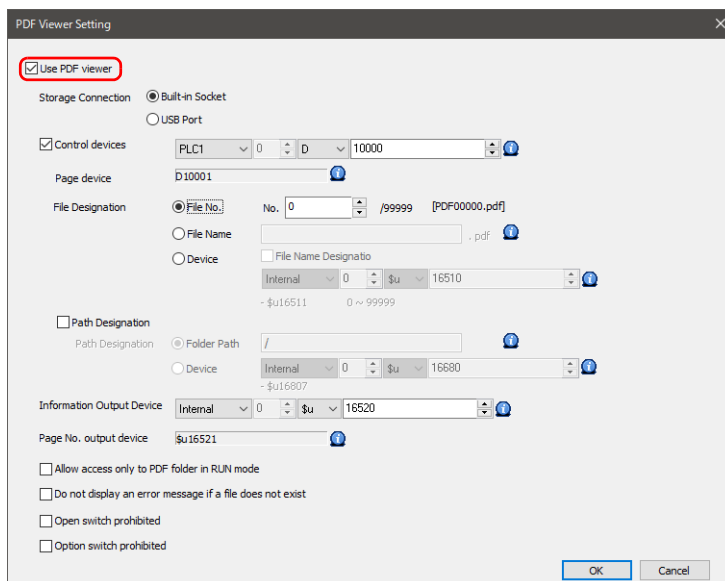
Set the control device memory D10001 to "6". When bit 0 of D10000 turns ON, page 6 of the "PDF00000.pdf" file is displayed.

For details on operation on MONITOUCH, refer to "13.5 Operating the PDF Viewer" page 13-10.

13.4 Detailed Settings

PDF Viewer Settings

Select the [Use PDF viewer] checkbox to enable the following items.



Item	Description																																
Storage Connection	Select the storage device where PDF files are stored. This can be changed on the PDF viewer as necessary.																																
Control devices	Showing and hiding is performed according to the value of the least significant bit. ^{*1} <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">Reserved for system PDF viewer 1 → 0: Hide 0 → 1: Show</p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
Page device	Specify the page number to display initially. No.: 1 to 65535 ^{*2}																																
File Designation ^{*3}	Specify the method for specifying files. <table border="1" style="margin: 10px auto;"> <tr> <td>File No.</td> <td>0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf)</td> </tr> <tr> <td>File Name</td> <td>Maximum of 64 one-byte characters, or 32 two-byte characters</td> </tr> <tr> <td>Device</td> <td>Set the device memory address for specifying the file. The operation differs depending on whether the [File Name Designation] checkbox is selected or not.</td> </tr> <tr> <td>File Name Designation: Unselected</td> <td>Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)</td> </tr> <tr> <td>File Name Designation: Selected</td> <td>Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) ^{*4} * The extension does not need to be specified.</td> </tr> </table>	File No.	0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf)	File Name	Maximum of 64 one-byte characters, or 32 two-byte characters	Device	Set the device memory address for specifying the file. The operation differs depending on whether the [File Name Designation] checkbox is selected or not.	File Name Designation: Unselected	Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)	File Name Designation: Selected	Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) ^{*4} * The extension does not need to be specified.																						
File No.	0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf)																																
File Name	Maximum of 64 one-byte characters, or 32 two-byte characters																																
Device	Set the device memory address for specifying the file. The operation differs depending on whether the [File Name Designation] checkbox is selected or not.																																
File Name Designation: Unselected	Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)																																
File Name Designation: Selected	Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) ^{*4} * The extension does not need to be specified.																																
Path Designation ^{*3}	Select this checkbox to specify a folder as the storage location of PDF files. Storage location: Unselected: (Access folder)\PDF Selected: Folder path specified <table border="1" style="margin: 10px auto;"> <tr> <td>Path Designation</td> <td>Select the method for specifying the path of the folder where PDF files are stored.</td> </tr> <tr> <td>Folder Path</td> <td>Enter the desired path directly. The slash "/" at the beginning of the field is required.</td> </tr> <tr> <td>Device</td> <td>Specify the device memory address for specifying the path. ^{*4} This is to be NULL (0) terminated.</td> </tr> </table> <ul style="list-style-type: none"> • Limitations <ul style="list-style-type: none"> - To be specified within 256 one-byte alphanumeric characters. Two-byte characters are prohibited. - Slashes "/" are used as the delimiter. The backslash "\" cannot be used. - A slash "/" is not necessary at the end of the path. - If specifying a root directory, enter only the first slash "/". 	Path Designation	Select the method for specifying the path of the folder where PDF files are stored.	Folder Path	Enter the desired path directly. The slash "/" at the beginning of the field is required.	Device	Specify the device memory address for specifying the path. ^{*4} This is to be NULL (0) terminated.																										
Path Designation	Select the method for specifying the path of the folder where PDF files are stored.																																
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Device	Specify the device memory address for specifying the path. ^{*4} This is to be NULL (0) terminated.																																

Item	Description																																
Information Output Device	<p>The state of the PDF viewer is output.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td> </tr> </table> <p style="text-align: center;">Reserved for system 1: Page number does not exist</p> <p style="text-align: right;">1: PDF file does not exist</p> <p style="text-align: right;">PDF viewer status 0: Hide 1: Show</p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0																				
Page No. output device	The page number that is currently displayed is output. No.: 1 to 65535																																
Allow access only to PDF folder in RUN mode	<p>Specify the location to access when the [Open] switch is pressed on the PDF viewer screen in RUN mode.</p> <ul style="list-style-type: none"> Unselected: All folders of the storage device (SD/USB) can be accessed from the [Open] switch. Selected: Only the contents of the PDF folder in the access folder set for [Storage Connection] are displayed. The storage device and folder can be selected in Local mode. 																																
Do not display an error message if a file does not exist	<p>Set the action to take when a PDF file does not exist on the storage device.</p> <ul style="list-style-type: none"> Unselected: An error message "The specified file was not found." is displayed. Selected: An error message is not displayed. 																																
Open switch prohibited *5	Select this checkbox to invalidate the [Open] switch on the PDF viewer.																																
Option switch prohibited *5	Select this checkbox to invalidate the option switch on the PDF viewer.																																

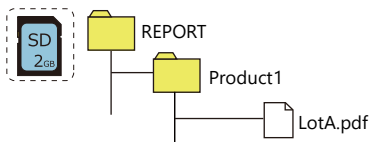
*1 If the display bit is ON when entering RUN mode, the PDF viewer is displayed.
When the PDF viewer is displayed by turning the display bit ON but the PDF viewer is then closed using the [Close] switch, the display bit stays ON.

Turn the display bit OFF by using bit 0 of the information output device memory (0: hide).

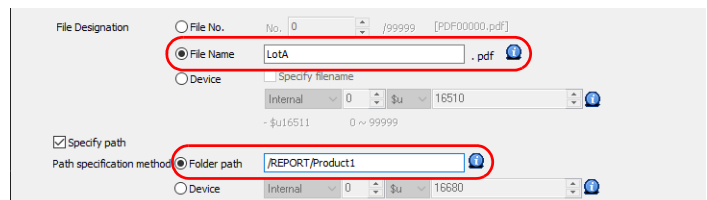
*2 If a page number that does not exist is specified and the PDF viewer is displayed, the first page of the PDF file is displayed.

*3 Setting examples

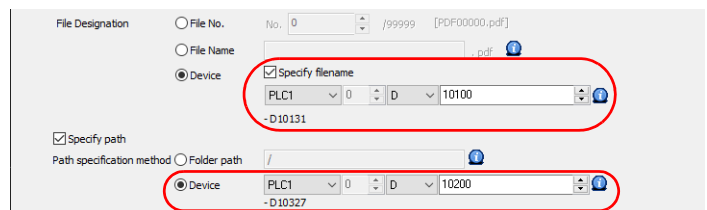
When displaying the following file



• Specifying the filename and folder path directly



• Specifying the filename and folder path using device memory



Specifying the filename and folder path using PLC commands

D10100 ... : LotA
D10200 ... : /REPORT/Product1

*4 Text processing

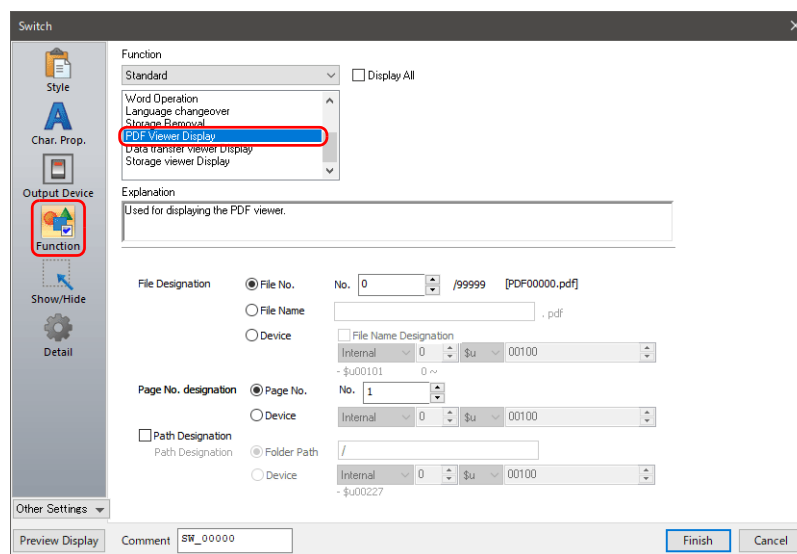
Internal device memory: Fixed to LSB → MSB

PLC device memory: The [System Setting] → [Hardware Setting] → [PLCx Properties] → [Text Process] setting is effective.

*5 The switch on the PDF viewer is grayed out and inoperable.



Switch Function



Item	Description										
File Designation *1	Specify the method for specifying files. <table border="1"> <tr> <td>File No.</td> <td>0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf)</td> </tr> <tr> <td>File Name</td> <td>Maximum of 64 one-byte characters, or 32 two-byte characters *2</td> </tr> <tr> <td>Device</td> <td>Set the device memory address for specifying the file. The operation differs depending on whether the [File Name Designation] checkbox is selected or not. <table border="1"> <tr> <td>File Name Designation: Unselected</td> <td>Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)</td> </tr> <tr> <td>File Name Designation: Selected</td> <td>Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) *2 * The extension does not need to be specified.</td> </tr> </table> </td> </tr> </table>	File No.	0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf)	File Name	Maximum of 64 one-byte characters, or 32 two-byte characters *2	Device	Set the device memory address for specifying the file. The operation differs depending on whether the [File Name Designation] checkbox is selected or not. <table border="1"> <tr> <td>File Name Designation: Unselected</td> <td>Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)</td> </tr> <tr> <td>File Name Designation: Selected</td> <td>Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) *2 * The extension does not need to be specified.</td> </tr> </table>	File Name Designation: Unselected	Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)	File Name Designation: Selected	Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) *2 * The extension does not need to be specified.
File No.	0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf)										
File Name	Maximum of 64 one-byte characters, or 32 two-byte characters *2										
Device	Set the device memory address for specifying the file. The operation differs depending on whether the [File Name Designation] checkbox is selected or not. <table border="1"> <tr> <td>File Name Designation: Unselected</td> <td>Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)</td> </tr> <tr> <td>File Name Designation: Selected</td> <td>Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) *2 * The extension does not need to be specified.</td> </tr> </table>	File Name Designation: Unselected	Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)	File Name Designation: Selected	Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) *2 * The extension does not need to be specified.						
File Name Designation: Unselected	Specify a file number. 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) (Two words are used.)										
File Name Designation: Selected	Specify a filename. Maximum of 64 one-byte characters, or 32 two-byte characters (32 words are used.) *2 * The extension does not need to be specified.										
Page No. designation *3	Specify the method for specifying the page number. Page No.: 0 to 65535 Device: Set the device memory address for specifying the page number (No. 1 to 65535)										
Path Designation	Select this checkbox to specify a folder as the storage location of PDF files. Storage location: Unselected: (Access folder)\PDF Selected: Folder path specified										
Path Designation *1	Select the method for specifying the path of the folder where PDF files are stored. Folder Path: Enter the desired path directly. The slash "/" at the beginning of the field is required. Device: Specify the device memory address for specifying the path. This is to be NULL (0) terminated. *2 <ul style="list-style-type: none"> • Limitations <ul style="list-style-type: none"> - To be specified within 256 one-byte alphanumeric characters. Two-byte characters are prohibited. - Slashes "/" are used as the delimiter. The backslash "\" cannot be used. - A slash "/" is not necessary at the end of the path. - If specifying a root directory, enter only the first slash "/". 										

*1 Setting examples

Refer to "Setting examples When displaying the following file" page 13-8 in "PDF Viewer Settings".

*2 Text processing

Internal device memory: Fixed to LSB → MSB


PLC device memory: The [System Setting] → [Hardware Setting] → [PLCx Properties] → [Text Process] setting is effective.

*3 If a page number that does not exist is specified and the PDF viewer is displayed, the first page of the PDF file is displayed.

13.5 Operating the PDF Viewer

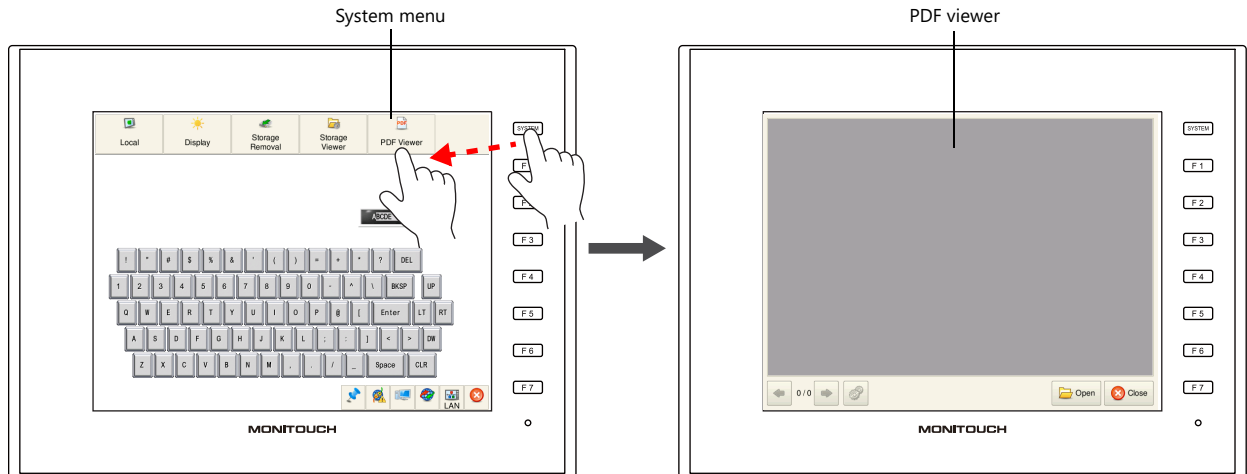
13.5.1 Displaying from the System Menu

The PDF viewer can be displayed by pressing the [PDF Viewer] switch on the system menu. Therefore it can be displayed in both RUN mode and Local mode.

 The PDF viewer can also be displayed in RUN mode by the following methods.

- Switch Function → “13.3.1 Displaying by Switch “Function: PDF Viewer Display”” page 13-3
- PLC Commands → “13.3.3 Displaying by Commanding from PLC” page 13-6

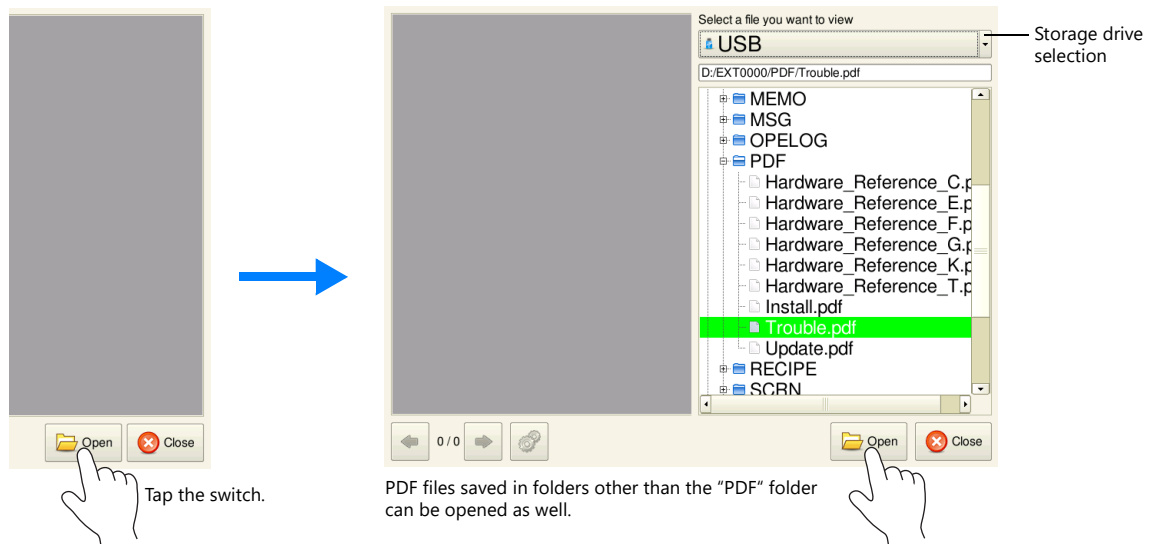
Press the [SYSTEM] switch to display the system menu.
Tap the [PDF Viewer] switch to display the PDF viewer.



* If the [PDF Viewer] is not shown on the system menu, scroll the system menu sideways.

13.5.2 Changing PDF Files to Display

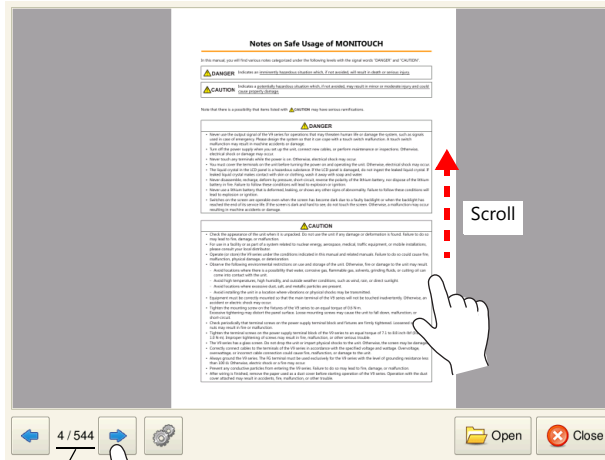
Tap the [Open] switch on the PDF viewer. Select the PDF file to display and tap the [Open] switch.



* Larger PDF files will take more time to open.

13.5.3 Changing the Display Page

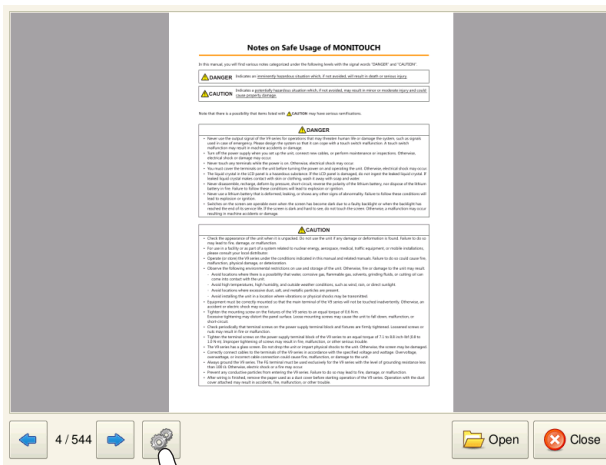
Tap the [←] and [→] switches on the PDF viewer or scroll the display to change the displayed page.



Current page number/Total pages Tap the [→] switch.

13.5.4 Display Scale

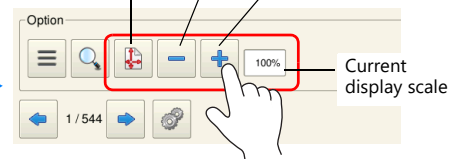
Tap the option switch on the PDF viewer. The following menu is displayed.
Tap the [+] and [-] switches to enlarge and reduce the display respectively.



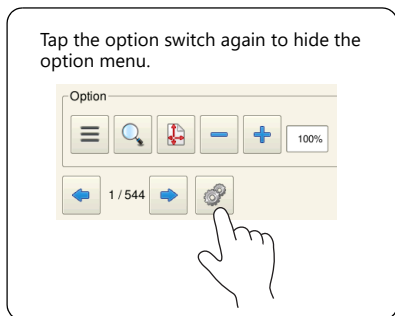
Tap the option switch.

[+]: Enlarge by 25% (up to 200%)
[-]: Reduce by 25% (down to 50%)

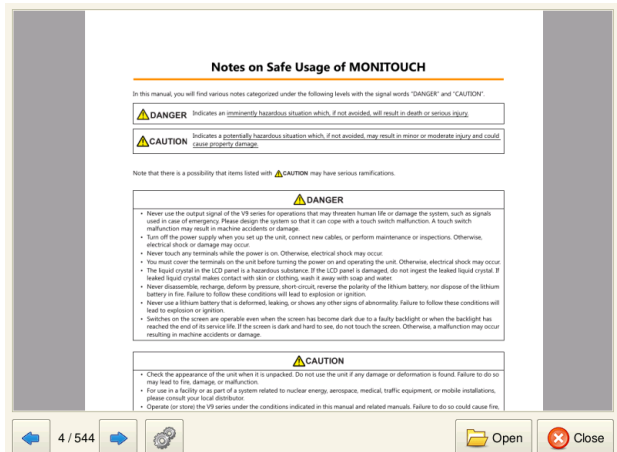
Fit page Reduce Enlarge



Tap the [+] switch to enlarge the display.



Tap the option switch again to hide the option menu.

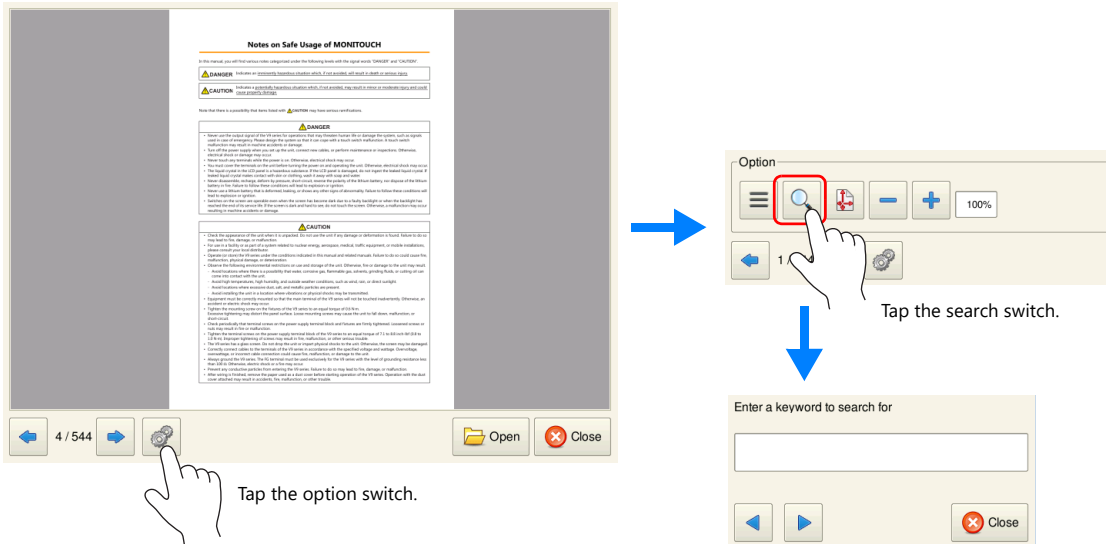


* On V9 Advanced models (capacitive type), pinch-to-zoom gestures can be used for zooming in and out (50 to 200%).

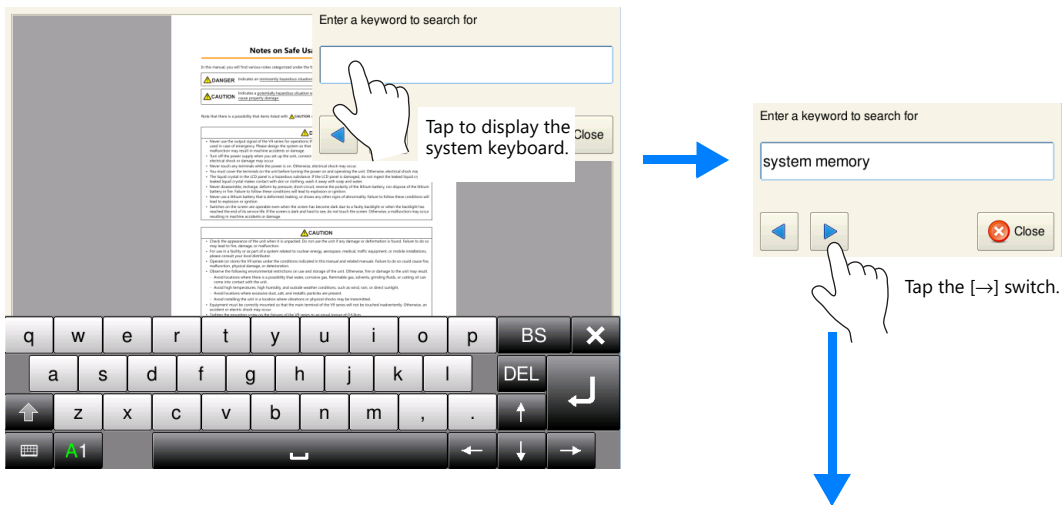
13.5.5 Search Function

Text

Tap the option switch on the PDF viewer. The following menu is displayed.
Tap the search switch on the PDF viewer to display the search window.



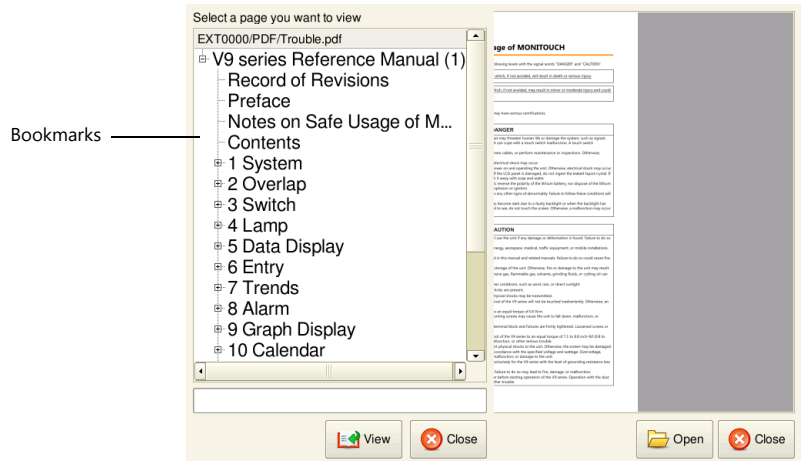
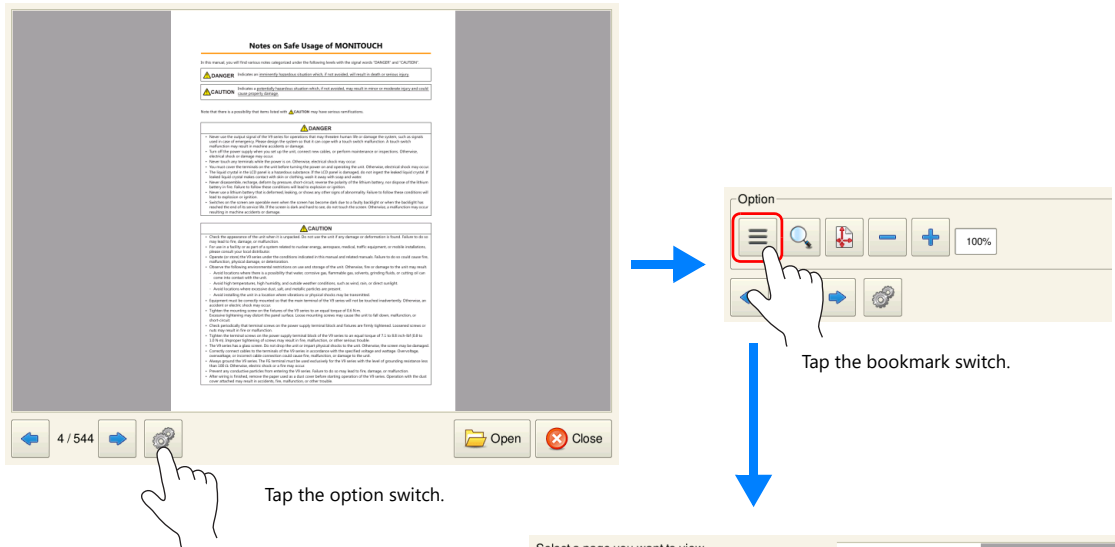
Tap the [Enter a keyword to search for] field. The system keyboard appears. Enter the text to search for and tap the [←] or [→] switch. The cursor moves to text that matches the search.



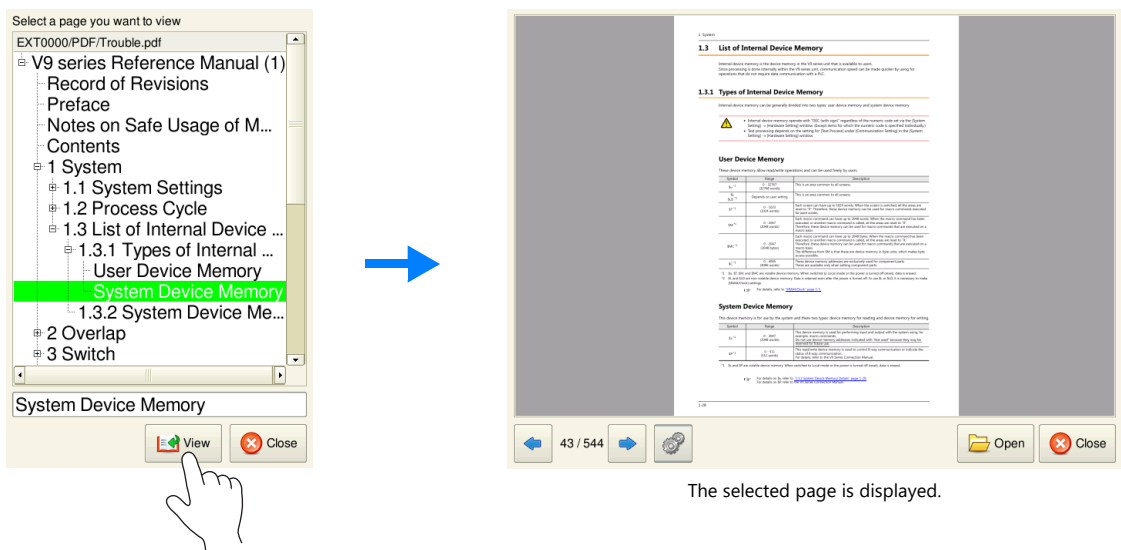
* To enter Japanese text, the [System Setting] → [Japanese Conversion Function Setting] checkbox must be selected.

Bookmarks

Tap the option switch on the PDF viewer. The following menu is displayed.
Tap the bookmark switch on the PDF viewer.



Select a bookmark and tap the [View] switch.



MEMO



14 String Table Function

14.1 Overview

- Strings that are used many times throughout the screen program can be registered to a string table. Once registered, they can be used for text items as well as switches and lamps by simply selecting the string from the string table. If a string needs to be changed, changing the string in the string table will change all occurrences in the screen program, thereby shortening the time required to modify the screen program.

String table

No.	Text	Group Name
0	MENU	Title
1	Logging	Title
2	Alarm History	Title
3	Operation Screen	Title
4	Manual Operation	Title
5	Current	Logging
6	Humidity	Logging
7	Temperature	Logging
8		

Screen[0] Text
Screen[1] Switch
Screen[2] Switch
Screen[3] Switch
Screen[4] Switch

Refer to the string table and set the string to use for each item and part.
(Example string: MENU)

Screen No. 0 Text

Screen No. 1 Switch

Screen No. 2 Switch

- Additions and modifications can be made on the string table from each item and part as well.

String table

Items and Parts that can Use the String Table

- Switch
- Lamp
- Text
- Multi-text

14.2 Registration Method

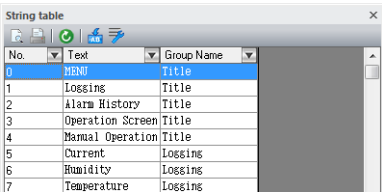
This section describes how to register strings to the string table and how to use the registered strings. There are two registration methods.

- Registration from the string table
- Direct registration from each part and item

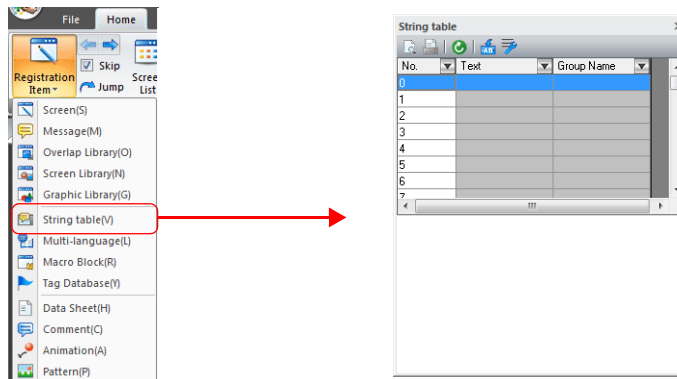
14.2.1 Registration from String Table

This section describes the procedure for preparing the following string table as an example and selecting strings for switches from the prepared string table.

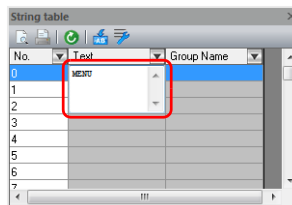
Text	Group Name
MENU Logging Alarm History Operation Screen Manual Operation	Title
Current Humidity Temperature	Logging



1. Click [Home] → [Registration Item] → [String table] to open a string table.

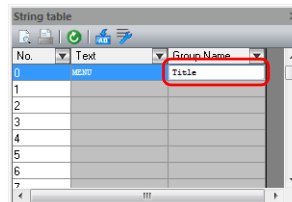


2. Double-click a [Text] field and enter the string.



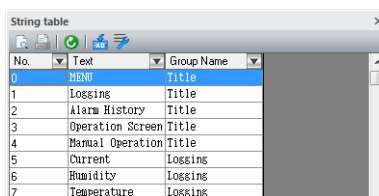
When entering multiple lines in the displayed field, press the [Enter] key.

3. Double-click a [Group Name] field and enter the name for categorizing the string.

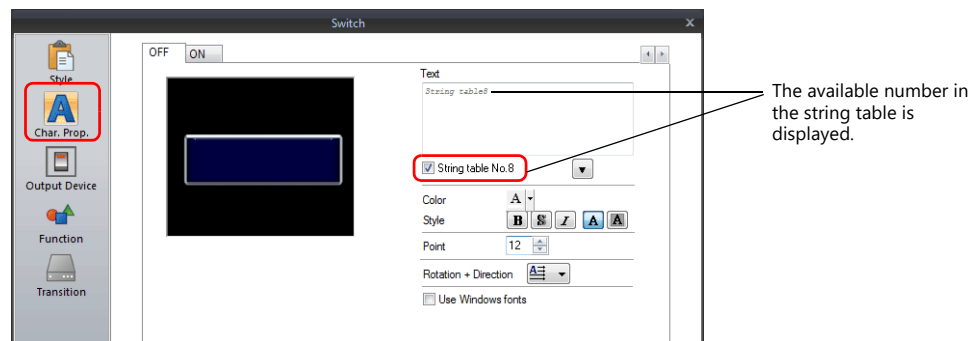


This field can be left blank if a group name is not required.

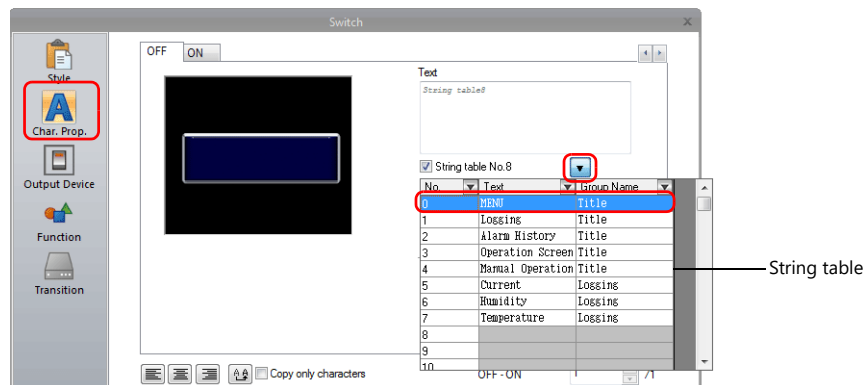
4. Register the other strings in the same procedure by following steps 2 and 3.



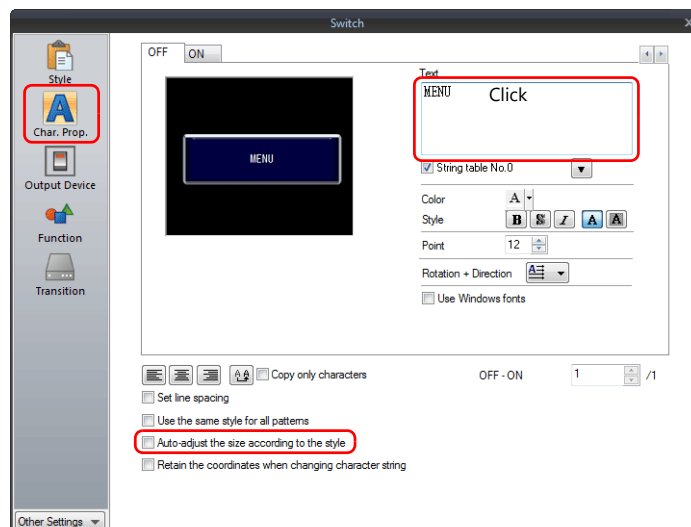
5. Double-click a switch to display its settings window.
6. Click [Char. Prop.] in the left menu pane and select the [String table No. XX] checkbox.



7. Click the down button to display the string table and then select the string to use from the table.



8. Click inside the [Text] field of the settings window. The selected string is displayed in the [Text] field.



For switch and lamp parts, the text display will vary according to the setting for [Auto-adjust the size according to the style].

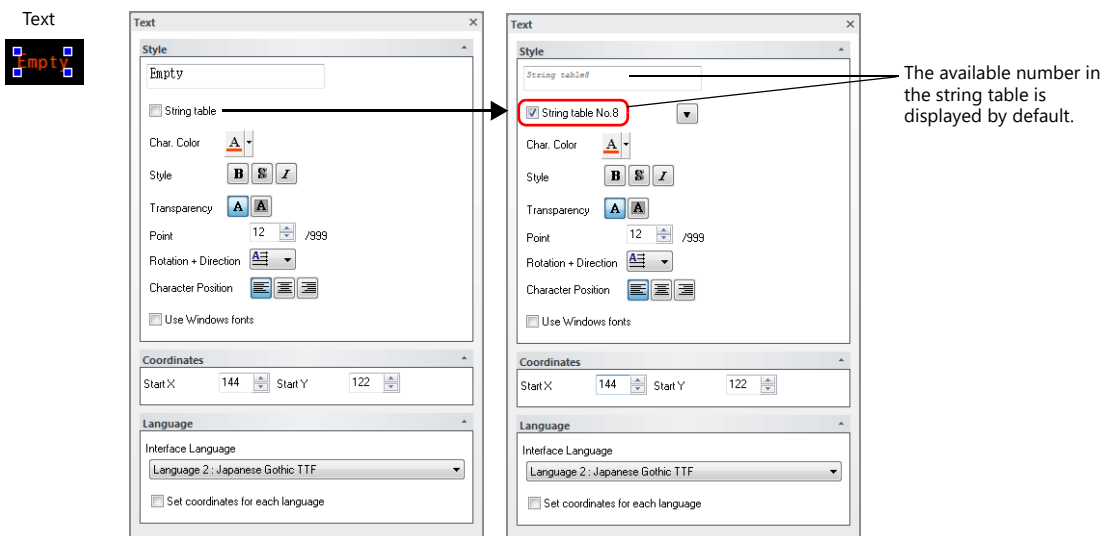
- Selected
The part will be resized according to the length of the string.
- Unselected
Only the characters that will fit in the current part size are displayed.
(The number of rows that can be displayed depends on the maximum number of rows for the part/item type. Switches and lamps: 4 rows, Multi-text: 38 rows)

This completes the necessary settings.
Configure the font size and color as necessary.

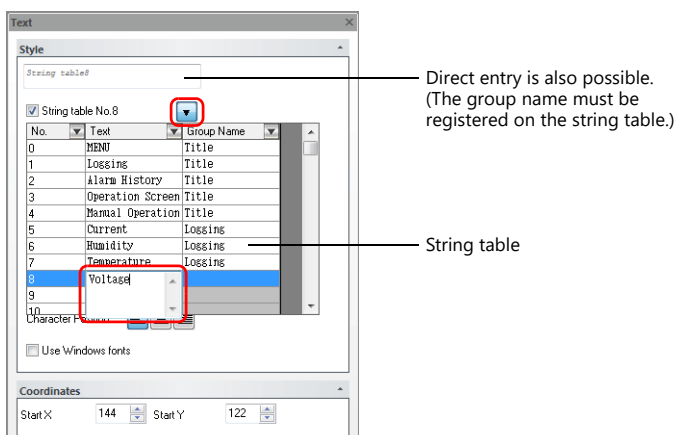
14.2.2 Direct Registration from Parts and Items

This section describes the procedure for registering a string from a text item to the string table as an example.

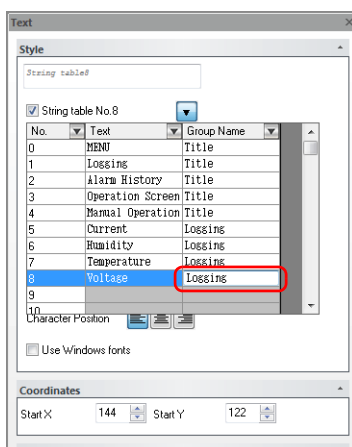
1. Click or double-click a text item placed on the screen to display its item view window. Select the [String table] checkbox.



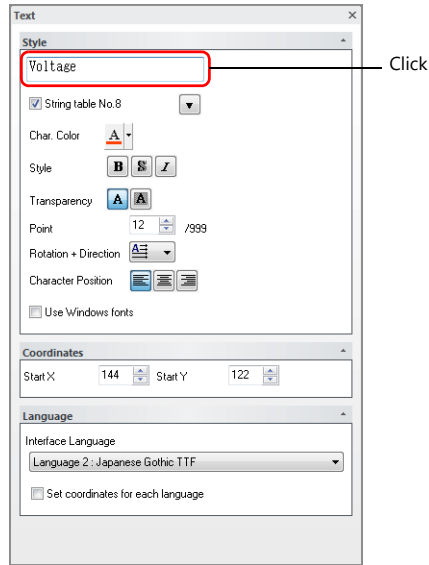
2. Click the down button to display the string table and then enter a string in an available number.



3. Register the group name.



4. With the relevant string table number selected, click on the text field. The string is displayed in the text field.



This completes the registration process.
Configure the font size and color as necessary.

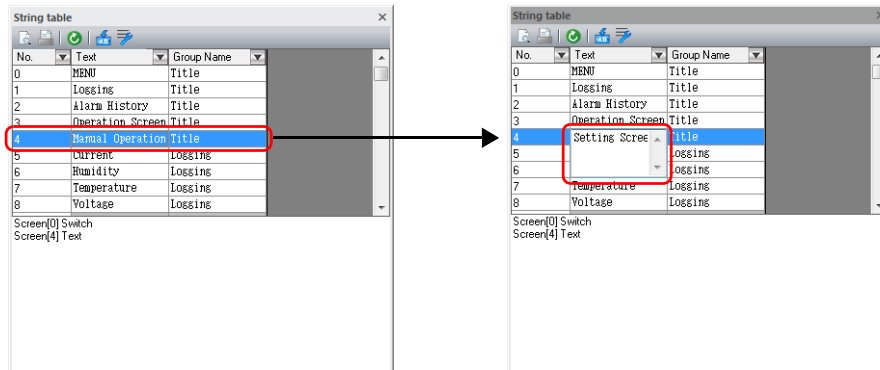
14.3 Changing Strings

This section describes the procedure for changing a string that is referencing the string table. There are two methods.

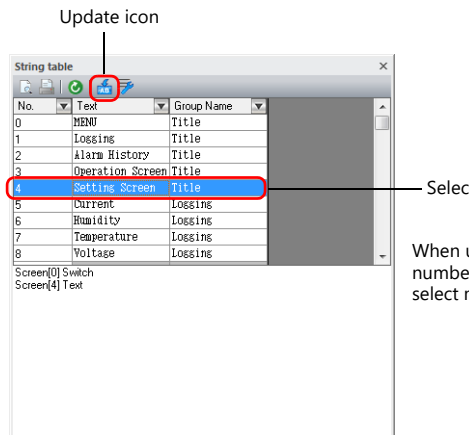
- Changing from the string table
- Changing from parts and items

14.3.1 Changing from String Table

1. Click [Home] → [Registration Item] → [String table] to open the string table and modify the relevant string.

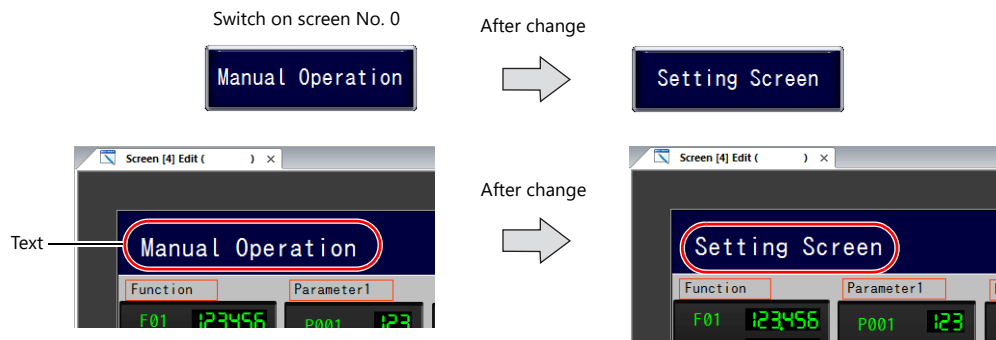


2. With the changed string number selected, click the update icon.



When updating changes for multiple string numbers at once, hold down the [Shift] key to select multiple strings.

All locations where the string is used are updated.



This completes the change.

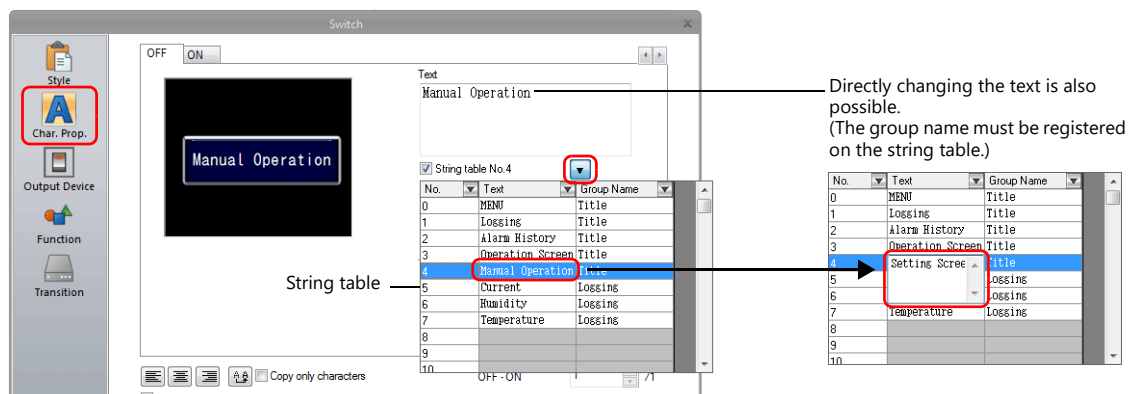


If a string has been changed, be sure to click the update icon. Locations where the string is currently in use will not be updated unless the icon is clicked.

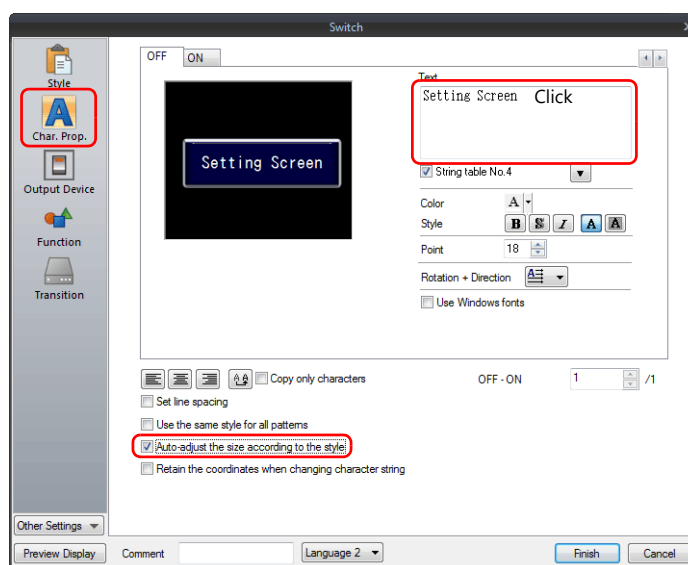
14.3.2 Changing from Parts and Items

This section describes the procedure for changing the text on a switch.

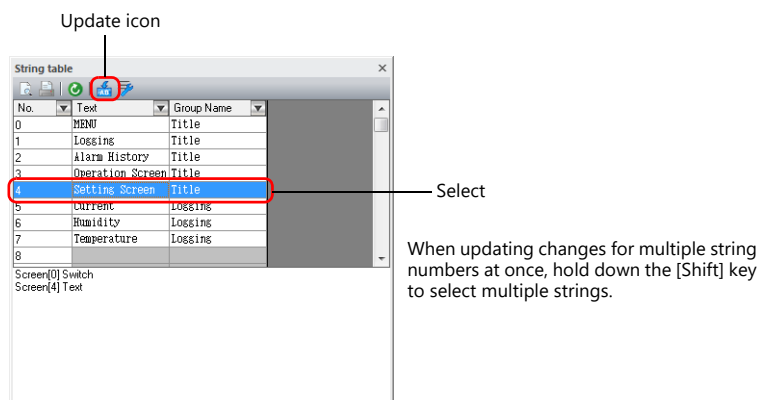
1. Double-click a switch to display its settings window.
2. Click [Char. Prop.] in the left menu pane.
3. Click the down button to display the string table and then change the relevant string on the table.



4. With the relevant string table number selected, click on the text field. The string is displayed in the text field. (The string table is updated as well.)



5. Click [Home] → [Registration Item] → [String table] to open the string table. With the changed string number selected, click the update icon.

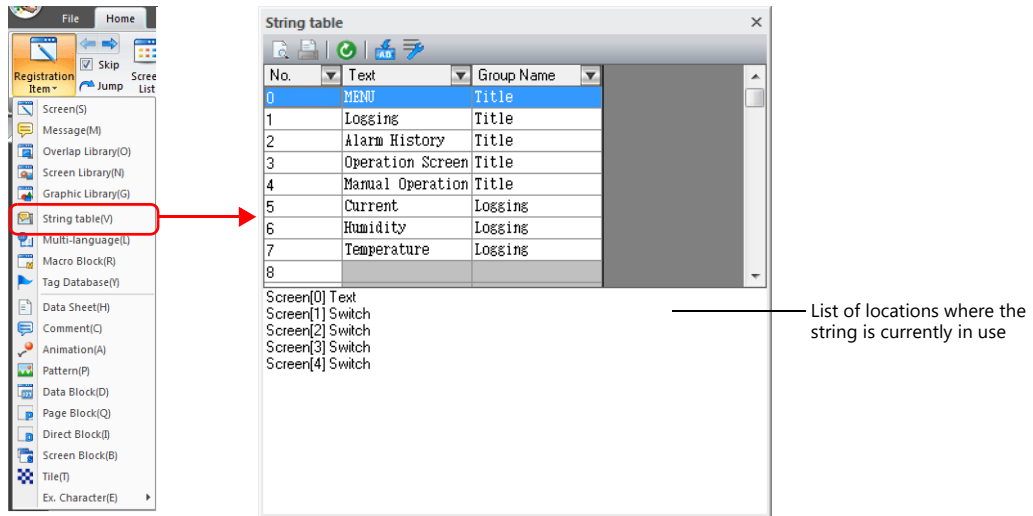


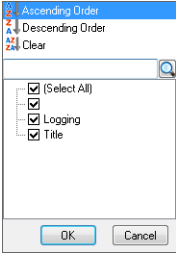
All locations where the string is used are updated.

This completes the change.

14.4 Editing the String Table

Click [Home] → [Registration Item] → [String table].



Item	Description
No.	Indicates the registration number of the string. No. 0 to 32767
Text	Register strings. Press [Enter] to input line breaks. Maximum of 254 characters, 128 lines
Group Name	Register a group name for categorizing the string. This field can be left blank if a group name is not required. Maximum of 256 characters, 1 line
Sort	Sort the table by [No.], [Text], or [Group Name]. 
List of locations where the string is currently in use	List of locations where the selected string is currently in use Double-click on a location to jump to the relevant location.

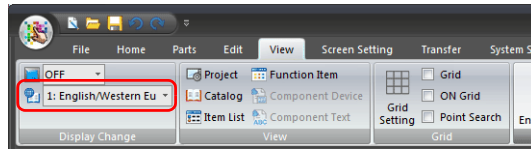
Enlarged view



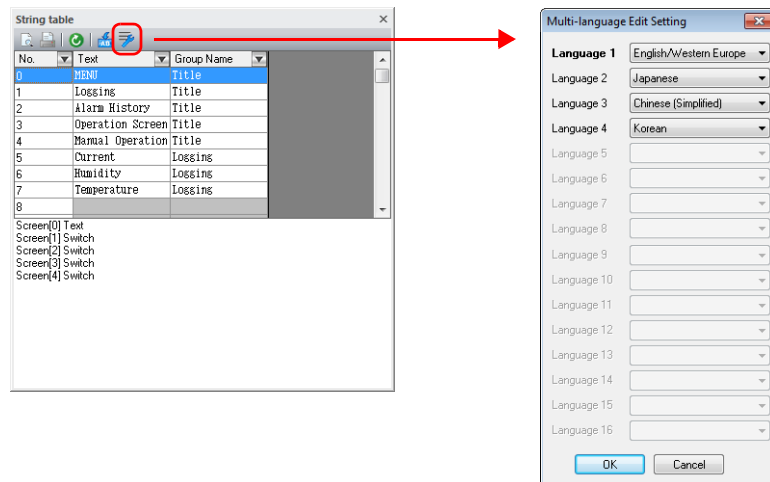
Item	Description
1. Print preview	Preview printer output of the string table.
2. Print current window	Print the string table.
3. Refresh	Refresh to the latest state.
4. Update	Update the locations where the currently selected string is used. Use this icon for updating after editing strings on the string table.
5. Multi-language edit setting	Specify the display language for the [Text] and [Group Name] columns on the string table. * The window displayed from this icon is also displayed from [Home] → [Registration Item] → [Multi-language].

14.5 Multi-language Configuration

- When creating a multi-language screen program, a string table can be prepared per language. Change the language for editing from the [View] → [Display Change] group.



- The [Text] and [Group Name] columns of the string table are displayed in the languages selected in the [Multi-language edit Setting] window. When displaying languages using Windows fonts, the display and editing of such languages is also possible regardless of the settings configured in the [Font Setting] window.



- * The settings made on the [Multi-language edit Setting] window are saved to the screen program.

14.6 Notes

Multi-language Screen Programs

- When using the string table for a part or item, all of the text displayed on that part or item must be selected on the string table.
- When exporting from [System Setting] → [Font Setting], only the string table is exported. The locations where the strings are used are not exported.
If strings are changed on the exported file, the locations where the relevant string is used will be updated when the file is imported.
- In the [Multi-language Edit] tab window ([Home] → [Registration Item] → [Multi-language]), the string table is displayed but the locations where the strings are used are not.
Changes made to the string table on the [Multi-language Edit] tab window are reflected to the locations where the string is used.

Other Notes

- When a string registered to the string table with multiple rows is selected for a text item, all line breaks are ignored and the entered characters are displayed in one line.
- When all numbers of the string table are used (No. 0 to 32767) and there is no available number, if the checkbox for using the string table is selected on any item settings window, No. 0 will be automatically selected.

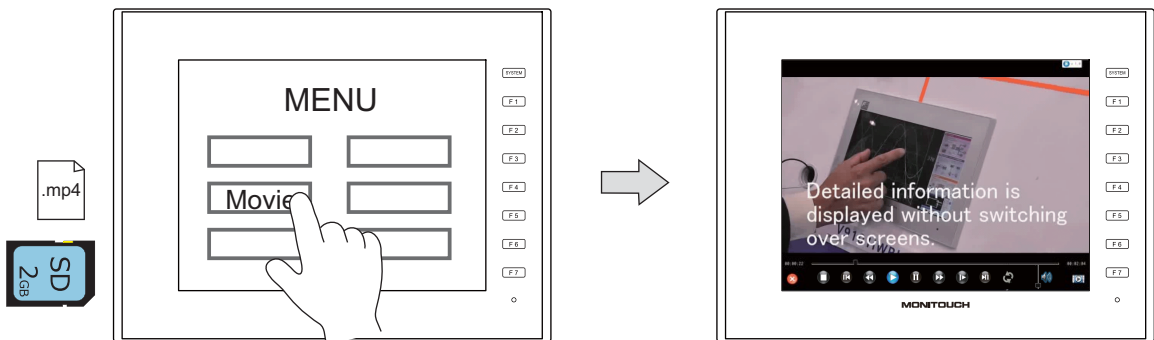
15 Video Player

15.1 Video Player

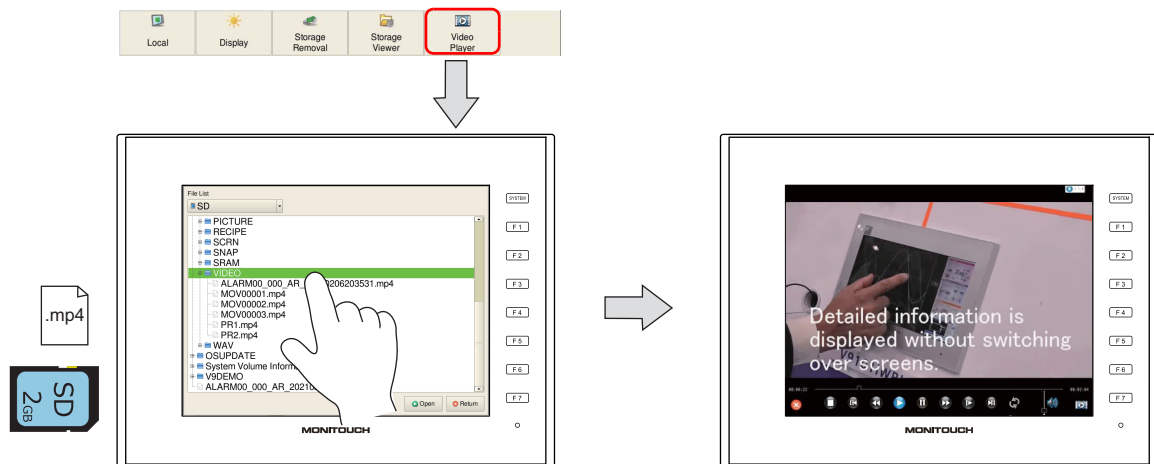
15.1.1 Overview

- Video files in MP4 format (.mp4) can be saved to a storage device and played back using the video player on the V10/V9 series.
- The storage device to refer to can be selected (between the SD card and USB flash drive) from the video player.
- The video player can be displayed using a switch part, the [Video Player] switch on the system menu, or by a command from a PLC.

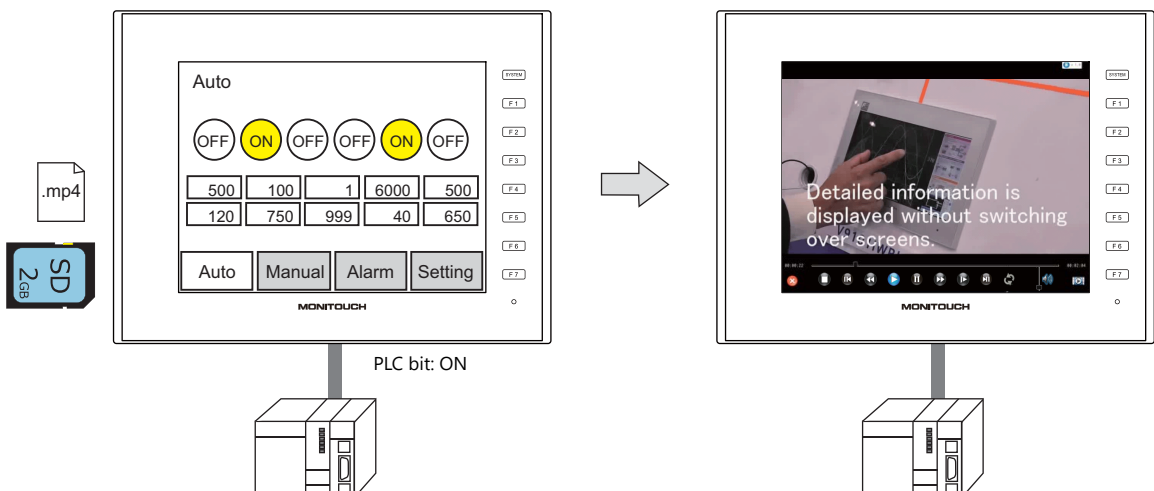
- Switch



- System menu



- PLC command



- Videos can be played back repeatedly by using the [Enable repeat playback] function.
- Operation buttons on the lower part of the video player can be hidden.
- The video player can also be used on portrait-orientated V10/V9 series units.

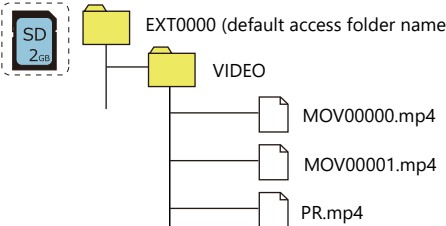
15.1.2 Specifications

Applicable Models

Model	Audio Output	OS	SYSTEM PROGRAM	V-SFT-6	Other Notes
V10	○*	V1.00 or later	V1.000 or later	Version 6.2.0.0 or later	Storage device (SD card or USB flash drive)
V910xiWRLD V910xiWLD V9150iX V9150iXD V9120iS V9120iSD V9100iS V9100iSD V9080iSD	○*	V2.10 or later	V1.130 or later	Version 6.0.12.0 or later	
V9100iC V9100iCD V9080iCD V907xiWRLD V907xiWLD V9060iTD	×				

* Connect an external speaker to the AUDIO port for audio output.

Video File Specifications

Item	Specifications	
File format	MPEG-4 (extension: .mp4)	
Resolution	1920 × 1080 maximum	
Frame rate	Up to 30 FPS	
Audio format	AAC, MP3	
File size	No limitation *	
Filename	File number designation Device memory designation	MOVxxxx.mp4 (xxxx: 00000 to 99999)
	Filename specification	(arbitrary filename).mp4 (64 or less one-byte characters or 32 or less two-byte characters)
Storage destination	<p>PC C:\MONITOUCH\User\VIDEO (default) Store files using the storage manager.</p> <p>Storage device</p> <ul style="list-style-type: none"> When displaying by selecting on the video player: No settings are required. When displaying using a switch part or by giving a command (control device memory) from a PLC: (output drive)\access folder\VIDEO 	

* Larger files will take more time to load.

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

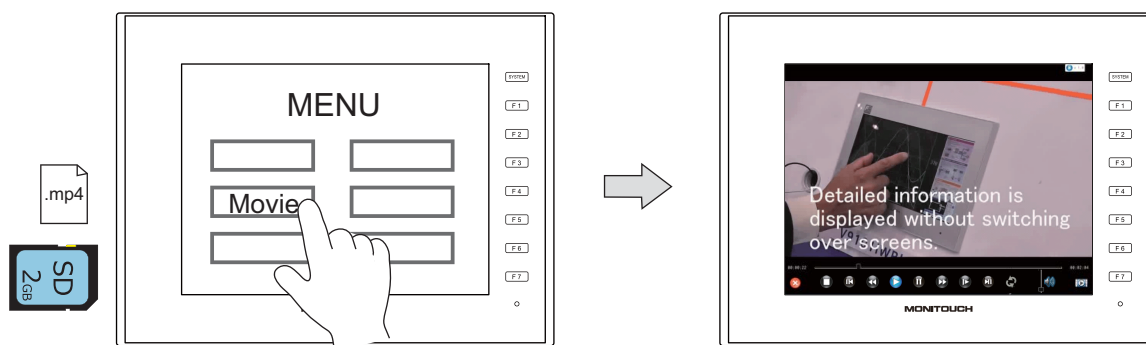
- Windows Explorer
Open the storage device drive and save the necessary video files.
- Storage manager
Store the necessary video files at "C:\MONITOUCH\User\VIDEO" (default) using storage manager.

 For details, refer to "8.3.12 Storing Video Files" page 8-26.

15.1.3 Setting Example

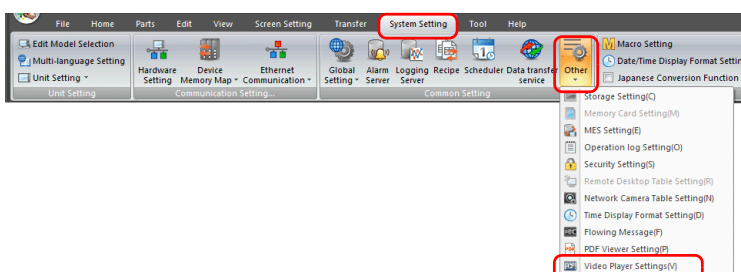
Displaying Using a Switch Part

The video player can be displayed by using a switch part.

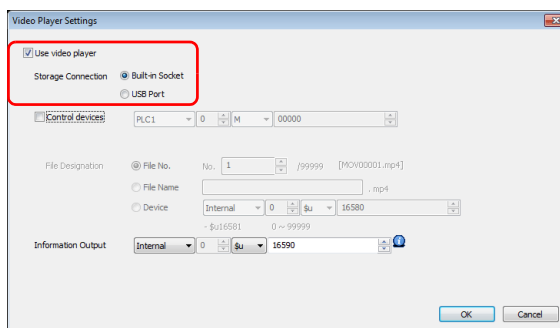


V-SFT settings

1. Click [System Setting] → [Other] → [Video Player Settings].



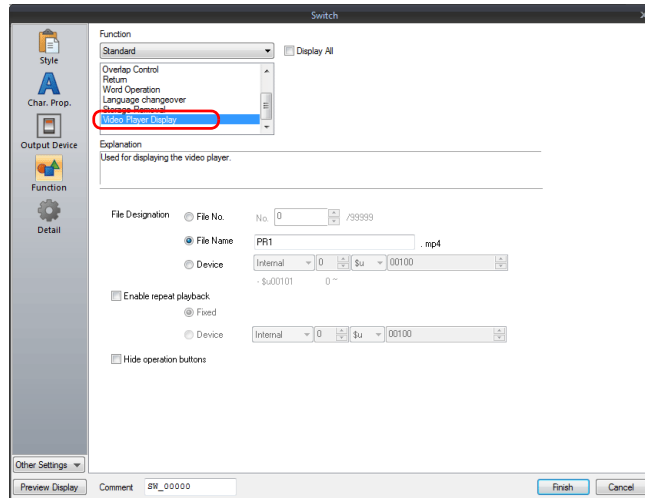
2. In the [Video Player Settings] window, select the [Use video player] checkbox and select a [Storage Connection].



3. Click [OK].

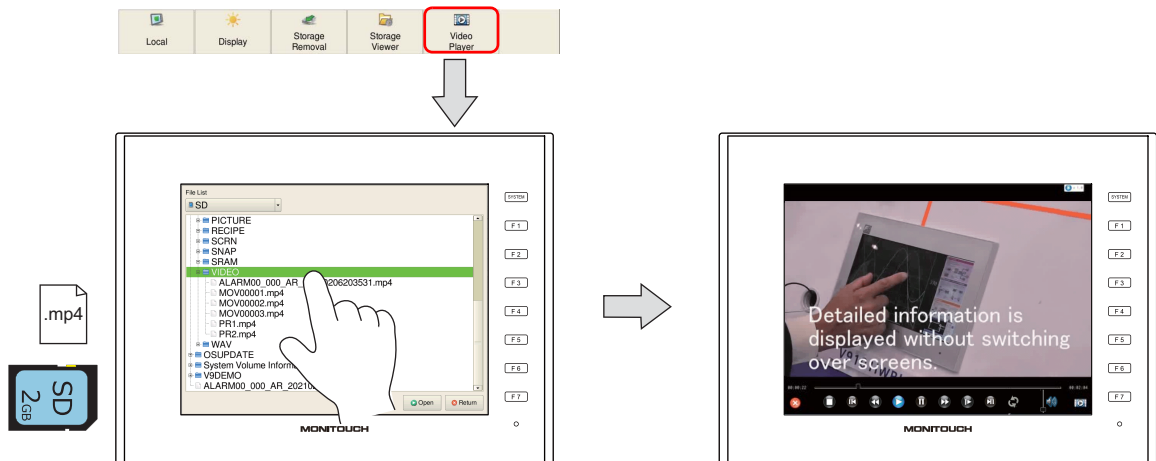
Placing a switch

1. Place a switch from the [Parts] menu.
2. Click [Function] → [Standard] → [Video Player Settings], and configure the necessary settings.



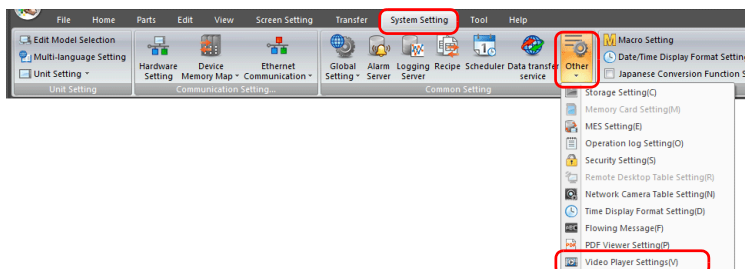
Displaying from the System Menu

The video player can be displayed by pressing the [Video Player] switch on the system menu. Select the file for playback on the File List screen. Video files can be played in Local mode as well by using the system menu.

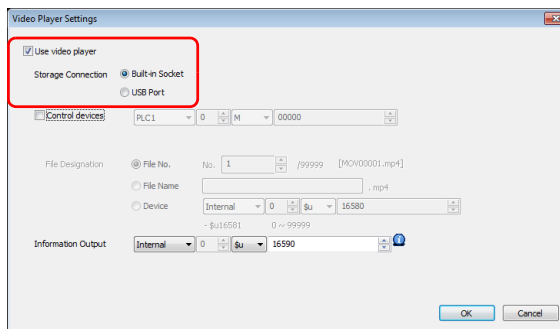


V-SFT Settings

1. Click [System Setting] → [Other] → [Video Player Settings].



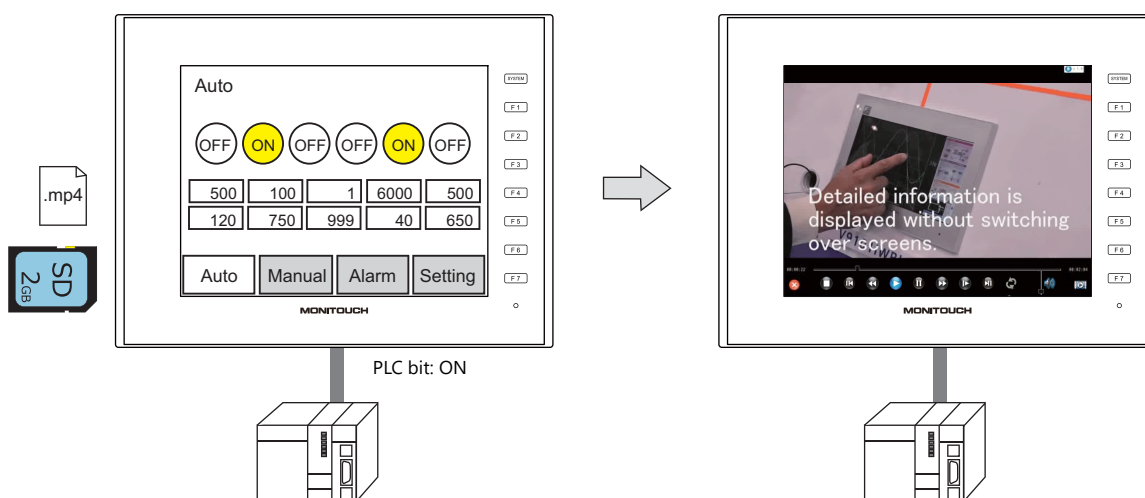
- In the [Video Player Settings] window, select the [Use video player] checkbox and select a [Storage Connection].



- Click [OK]. This completes the configuration of settings.

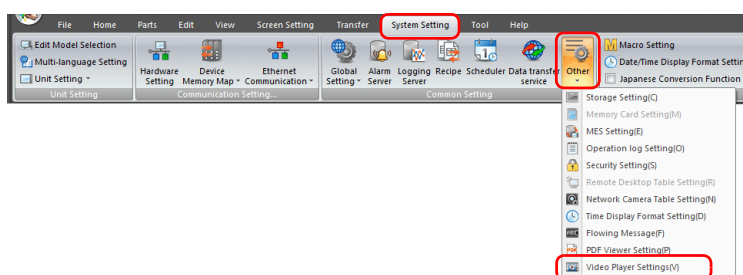
Displaying by Commanding from PLC

The video player can be displayed by setting the relevant PLC device memory bit ON.

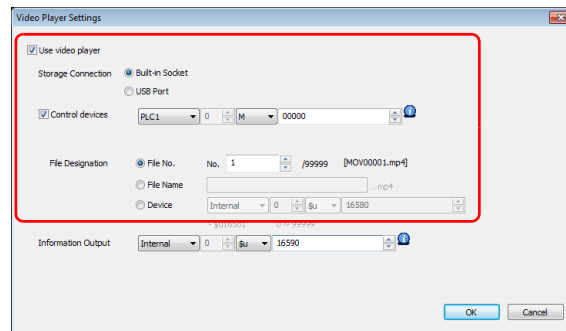


V-SFT settings

- Click [System Setting] → [Other] → [Video Player Settings].



- In the [Video Player Settings] window, select the [Use video player] checkbox and then configure [Storage Connection] and [Control devices].



- Click [OK]. This completes the configuration of settings.

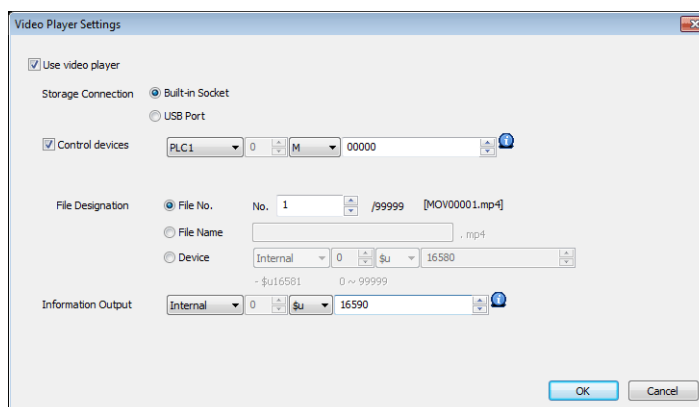
PLC commands

When the control device memory "M0" is set to ON, playback of the "MOV00001.mp4" file begins.

15.1.4 Detailed Settings

Video Player Settings

Select the [Use video player] checkbox to enable the following items.

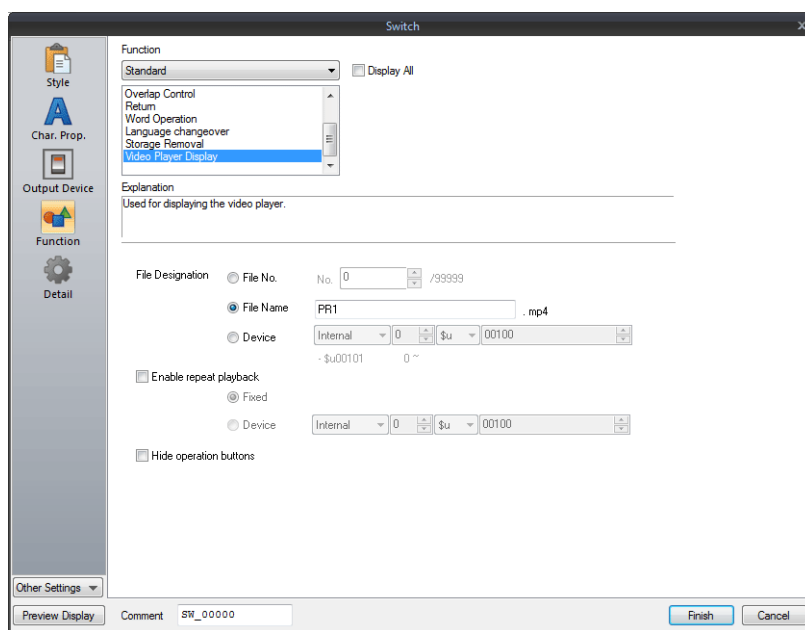


Item	Description																																
Storage Connection	Select the storage device to refer to for video files. This can be changed on the video player as necessary.																																
Control devices	Specify the bit to use for controlling the video player. <table border="1" style="margin: 10px auto;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td> </tr> </table> <p style="text-align: center;">Reserved for system</p> <p style="text-align: center;">Operation buttons 0: Show 1: Hide ^{*3}</p> <p style="text-align: center;">Repeat playback ^{*2} 0: No repeat 1: Repeat</p> <p style="text-align: right;">Video player ^{*1} 1 → 0 (edge): Hide 0 → 1 (edge): Show</p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0	0																					
File Designation	Specify the method for specifying files. [File No.]: 0 to 99999 (Filename: MOV00000.mp4 to MOV99999.mp4) [File Name]: Maximum of 64 one-byte uppercase alphanumeric characters, or 32 two-byte characters [Device]: Set the device memory address (2 words) for specifying the file number (No. 0 to 99999)																																
Information Output	Use four consecutive words to store the following information. <table border="1" style="margin: 10px auto;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: center;">Reserved for system</p> <p style="text-align: center;">Error 0: None 1: Occurring</p> <p style="text-align: center;">1: Operation buttons are not displayed</p> <p style="text-align: right;">Video player 0: Hide 1: Show ^{*4}</p> <p style="text-align: right;">1: Repeat playback is valid</p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0				
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0																						
n	The state of the video player is output.																																
n+1	The file number of the currently played file is output. No. 0 to 99999																																
n+2																																	
n+3	Error Code 0: No errors 1: The specified file does not exist.																																

- ^{*1} If the display bit is ON when entering RUN mode, the video player is displayed.
When the video player is displayed by turning the display bit ON but the video player is then closed using the [Close] switch, the display bit stays ON.
Turn the display bit OFF by using bit 0 of the information output device memory (0: hide).
- ^{*2} If performing repeated playback with a [File Designation: Device] configuration, the file number that is stored in the specified device memory is acquired when the file currently in playback ends and playback starts again.
- ^{*3} Even if operation buttons are hidden, the "quit" button is displayed when playback of the video file ends.
- ^{*4} When displaying the video player using the system menu, this bit is set to "1" when the File List screen is displayed.

Switch Function

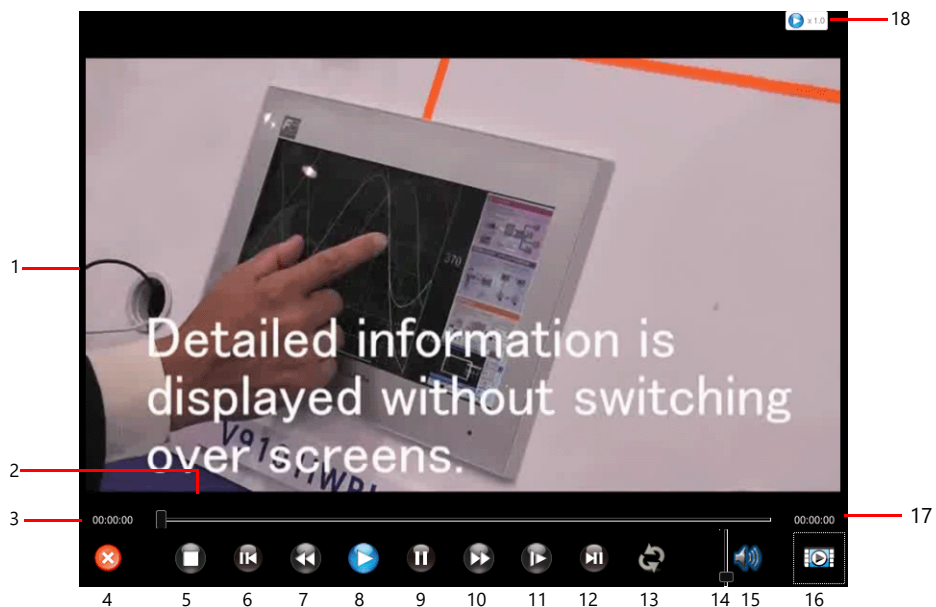
The following settings are available when a switch is set as [Function: Video Player Settings].



Item	Description
File Designation	Specify the method for specifying files. [File No.]: 0 to 99999 (Filename: MOV00000.mp4 to MOV99999.mp4) [File Name]: Maximum of 64 one-byte uppercase alphanumeric characters, or 32 two-byte characters [Device]: Set the device memory address (2 words) for specifying the file number (No. 0 to 99999)
Enable repeat playback	Repeat playback of a specified file. [Fixed]: Repeat playback while the video player is displayed. [Device]: Control repeated playback. 0: No repeat, 1: Repeat
Hide operation buttons	Hides the operation buttons on the lower part of the video player. If this is selected, the "quit" button is displayed when playback of a file ends.

15.1.5 Configuration of Video Player

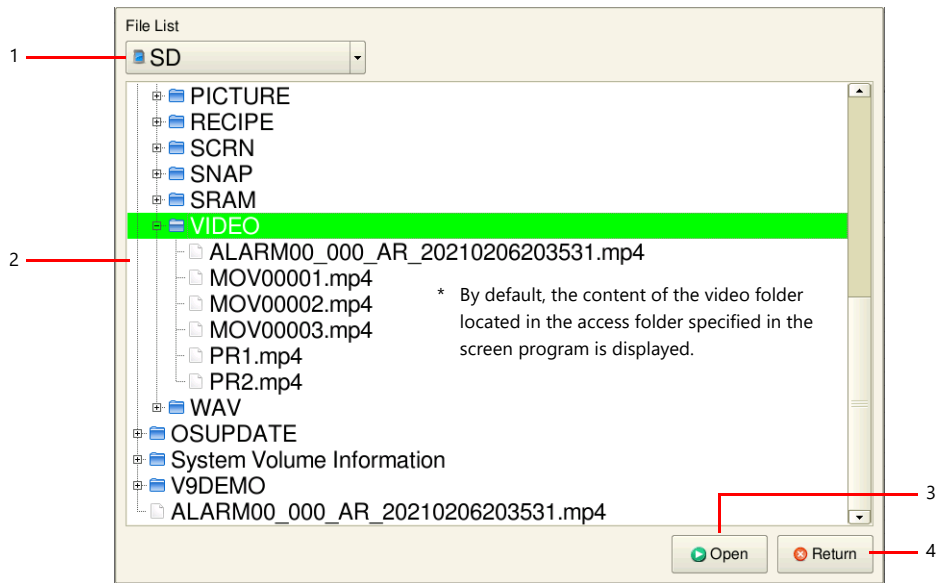
Video Player



No.	Item	Details	No.	Item	Details
1	Playback screen	Videos are displayed in full-screen without changing the aspect ratio.	10	Fast forward	2.0 ×, 4.0 ×, 8.0 ×, 1.0 ×
2	Seekbar	Operable from 0 to 100	11	Slow playback	0.8 ×, 0.4 ×, 0.2 ×, 1.0 ×
3	Playing time		12	Next frame*	Goes forward by 2 seconds This is available only when the video is paused.
4	Quit	Returns to RUN or Local mode	13	Repeat	Turn on/off repeat
5	Stop		14	Volume slider	Volume changeable from 0 to 10
6	Previous frame*	Goes back by 2 seconds This is available only when the video is paused. * Invalid 3 seconds before end of video.	15	Speaker	Turn on/off audio
7	Rewind	2.0 ×, 4.0 ×, 8.0 ×, 1.0 ×	16	File Select	Displays the File List screen
8	Play		17	Total time	
9	Pause		18	Playback speed	Displays the current speed of rewind, fast forward, or slow playback

* Supported on V9 OS version 4.80 or later and System Program version 2.800 or later.

File List



No.	Item	Details
1	Storage device selection	Select the "SD" or "USB" storage device.
2	List of folders and files	Select the video to play from the files on the storage device selected at "1".

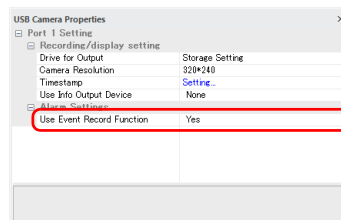
No.	Item	Details
3	Open	Plays the selected file.
4	Return	Returns to RUN mode.

15.1.6 Notes

- If the playback bit of a control device memory is set to ON while a video is currently being played back on the video player that was displayed using a switch part or the system menu, playback of the video file specified by the control device memory starts after the current video ends.
- When a video is in playback because a playback bit was set to ON, if that playback bit is set to OFF again, the video player is hidden immediately even if the video is still playing.
- The video player screen cannot be displayed via RGB output (GUR-02) or on the VNC viewer screen.
- Display Priority
The video player is displayed superimposed over items and overlap displays placed on the screen. However, the playback screen is hidden when the system menu or status bar, which have higher priority, are displayed. The playback screen is displayed again when the system menu or status bar are hidden.
- When the event recording function is used with a USB camera *, video is recorded continuously during RUN mode and the video player is unavailable.
In order to use the video player, stop recording video by using the "USBCAM_REC STOP" macro command or switch to Local mode and then play back a video file.

* Setting to check:

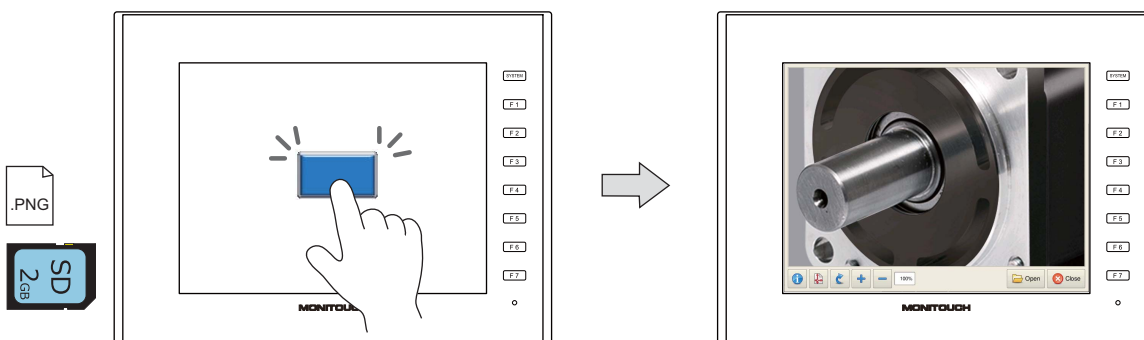
[System Setting] → [Hardware Setting] → [Other Devices] → [USB Camera] → [USB Camera Properties] → [Use Event Record Function] is set to [Yes].



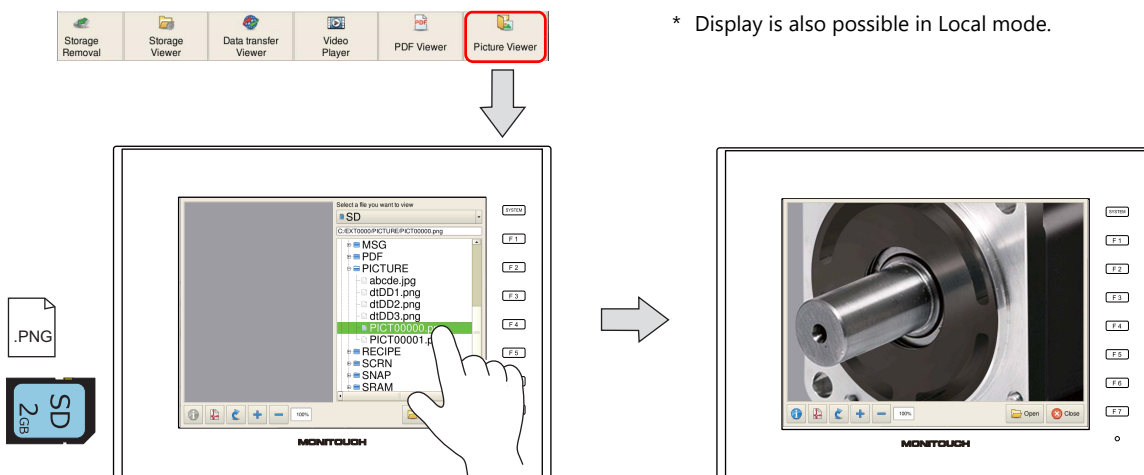
16 Picture Viewer

16.1 Overview

- Image files saved to a storage device can be displayed on the V10/V9 series unit. JPEG, bitmap, and PNG format files can be displayed.
 - The storage device to refer to can be selected (between the SD card and USB flash drive) from the picture viewer.
 - The picture viewer can be displayed using a switch part, the [Picture Viewer] switch on the system menu, or by a command from a PLC.
- Switch

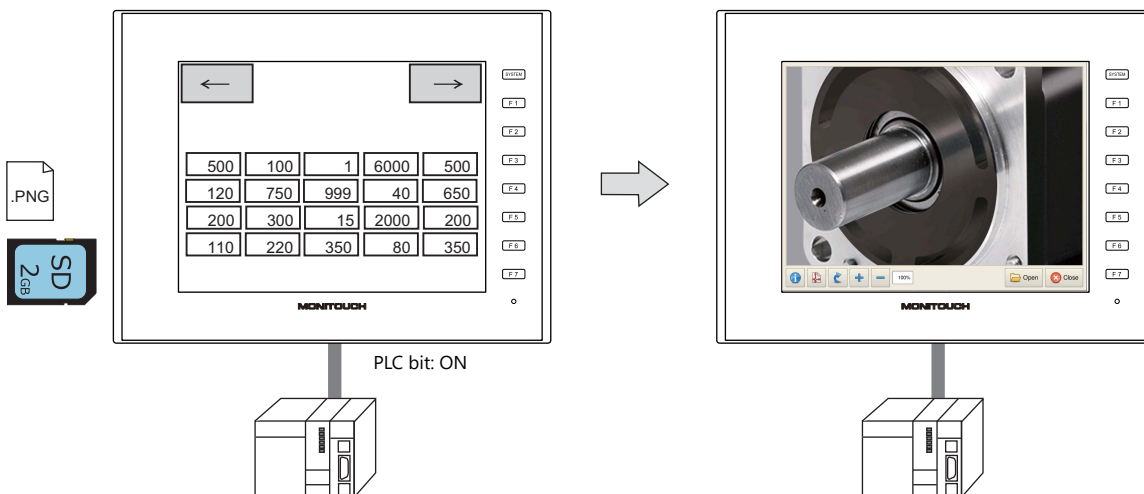


- System menu



* Display is also possible in Local mode.

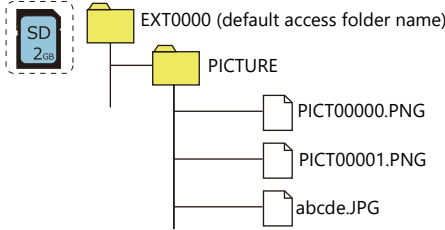
- PLC command



👉 For details on settings, refer to "16.3 Setting Example" page 16-3.

16.2 Specifications

Image File Specifications

Item	Specifications
File types	JPEG (.JPG) PNG (.PNG) BITMAP (.bmp)
Filename ^{*1}	<ul style="list-style-type: none"> • PICTxxxxx (xxxxx: 00000 to 99999) (For specification by file number) • Arbitrary filename (64 or less one-byte characters or 32 or less two-byte characters)
File size	No limitation ^{*2}
Storage location	<p>Computer C:\MONITOUCH\User\PICTURE (default) Store files to the storage device using the storage manager.</p> <p>Storage device</p> <ul style="list-style-type: none"> • When displaying by selecting on the picture viewer: No settings are required. • When displaying using the switch function or by giving a command (control device memory) from a PLC: (output drive)\(access folder)\PICTURE 

*1 Files can have the duplicate filenames if the extension differs. When a PLC command is used to display an image, the file of the format selected at [Picture Viewer Setting] → [File Type] is displayed.

*2 Larger files will take more time to load.

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

- Windows Explorer
Open the storage device drive and save the necessary image files.
- Storage manager
Store the necessary image files at "C:\MONITOUCH\User\PICTURE" (default) using storage manager.

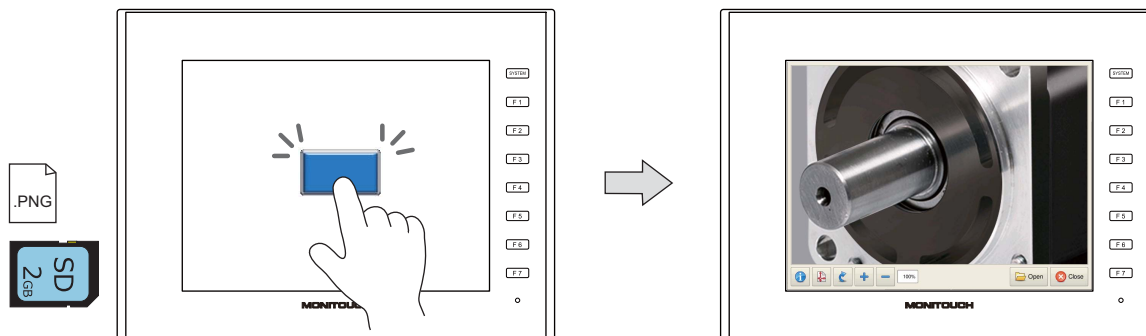
 For details, refer to "8.3.10 Storing Image Files (Picture Viewer)" page 8-24.

16.3 Setting Example

The picture viewer can be displayed using a switch part, the [Picture Viewer] switch on the system menu, or by a command from a PLC.

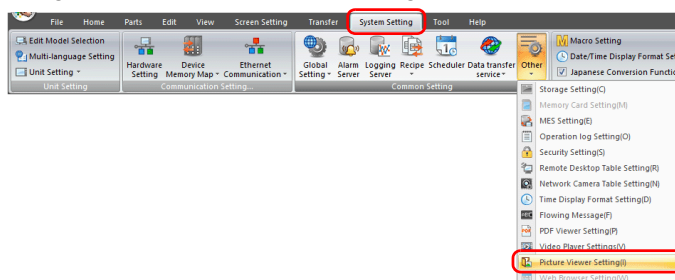
16.3.1 Displaying Using a Switch Part

The picture viewer can be displayed by using a switch part.

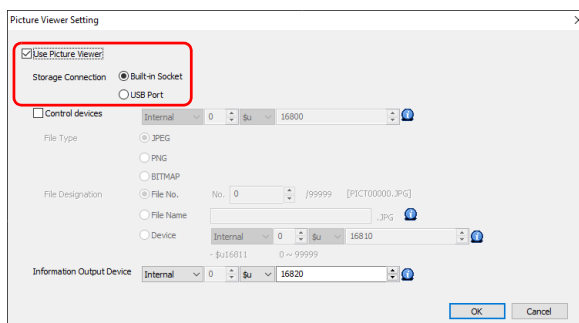


V-SFT Settings

1. Click [System Setting] → [Other] → [Picture Viewer Setting].



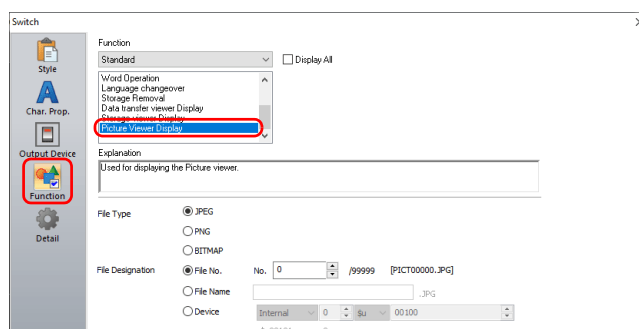
2. In the [Picture Viewer Setting] window, select the [Use Picture Viewer] checkbox and select a [Storage Connection].



3. Click [OK].

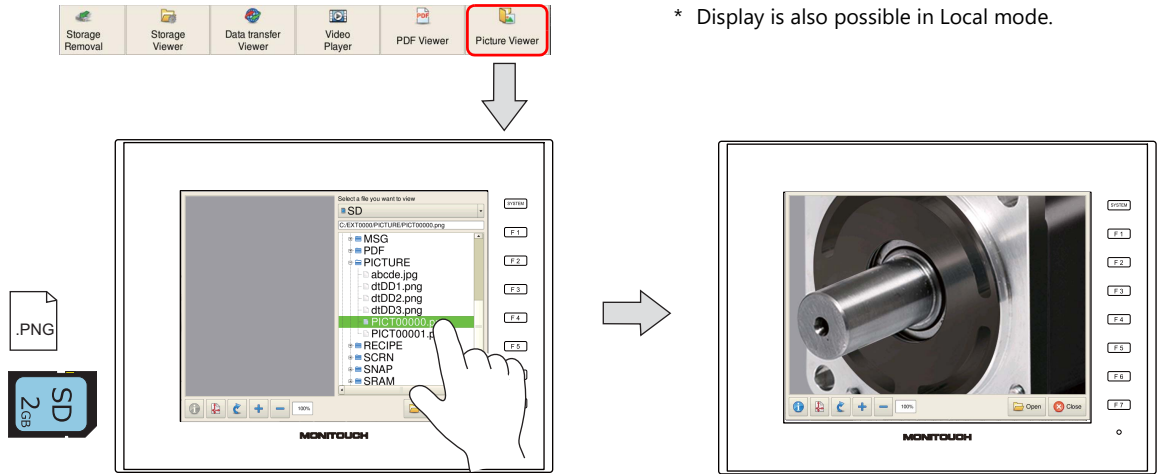
Placing a Switch

1. Place a switch from the [Parts] menu.
2. Click [Function] → [Standard] → [Picture Viewer Display] and configure the [File Type] and [File Designation] settings.



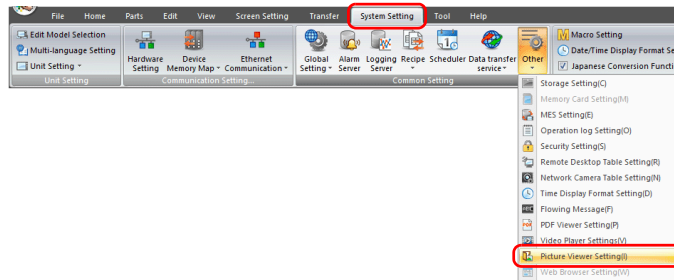
16.3.2 Displaying from the System Menu

The picture viewer can be displayed by pressing the [Picture Viewer] switch on the system menu. Select the file to display from the File List screen.

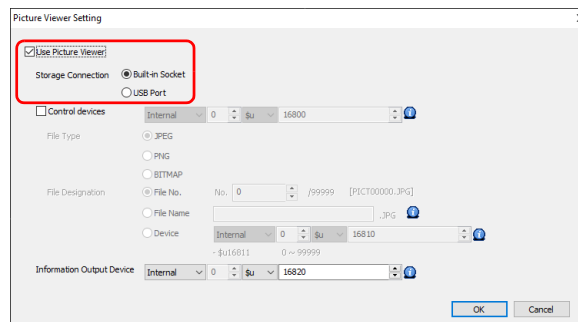


V-SFT Settings

1. Click [System Setting] → [Other] → [Picture Viewer Setting].



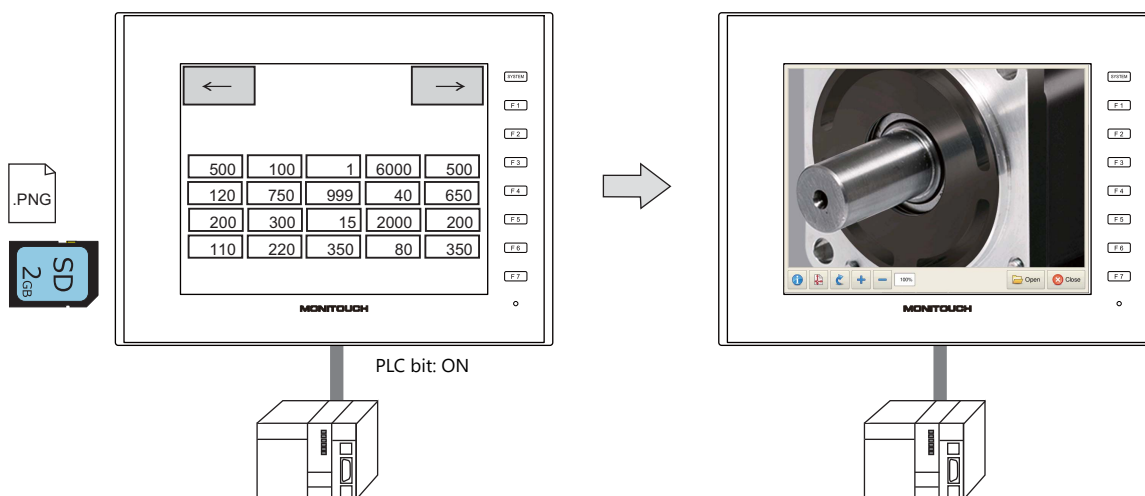
2. In the [Picture Viewer Setting] window, select the [Use Picture Viewer] checkbox and select a [Storage Connection].



3. Click [OK]. This completes the necessary settings.

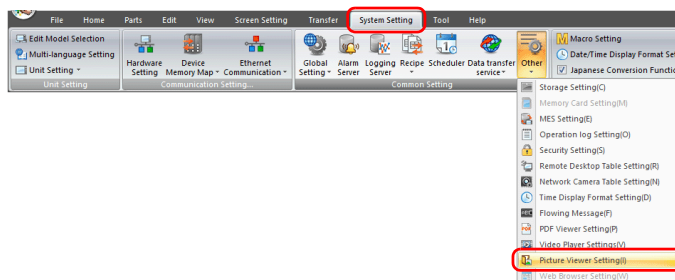
16.3.3 Displaying by Commanding from PLC

The picture viewer can be displayed by setting the relevant PLC device memory bit to ON.

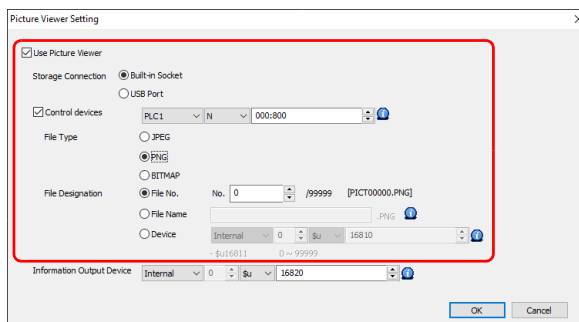


V-SFT Settings

1. Click [System Setting] → [Other] → [Picture Viewer Setting].



2. In the [Picture Viewer Setting] window, select the [Use Picture Viewer] checkbox and configure the following settings.



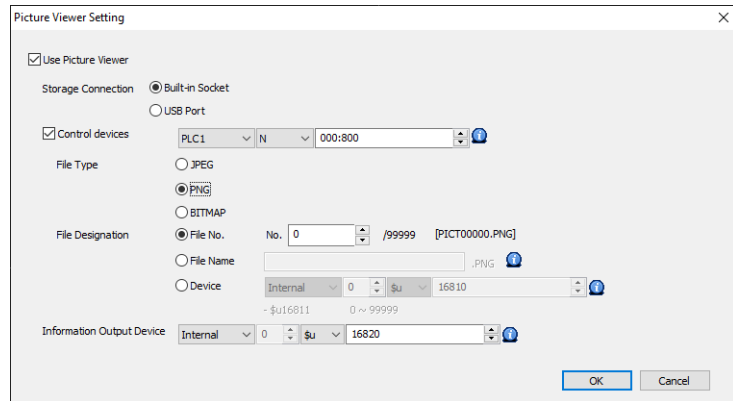
3. Click [OK]. This completes the necessary settings.

PLC Commands

Turn ON bit 0 of the control device memory WM100 to display the "PICT00000.PNG" file.

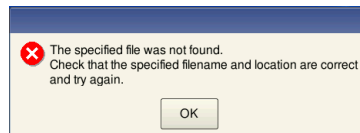
16.4 Detailed Settings

Select the [Use Picture Viewer] checkbox to enable the following settings.



Item	Description																																
Storage Connection*1	Select the storage device to refer to for image files. This can be changed on the picture viewer as necessary.																																
Control devices	Showing and hiding is performed according to the value of the least significant bit. *2 <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center; margin-top: 10px;"> Reserved for system Picture viewer 1 → 0 (edge): Hide 0 → 1 (edge): Show </p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
File Type	Select an image file type. JPEG (.JPG) PNG (.PNG) BITMAP (.bmp)																																
File Designation	Specify the method for specifying files. [File No.]: 0 to 99999 ([File Name]: PICT00000 to PICT99999) [File Name]: Maximum of 64 one-byte uppercase alphanumeric characters, or 32 two-byte characters [Device]: Set the device memory address (2 words) for specifying the file number (No. 0 to 99999)																																
Information Output Device	The state of the picture viewer is output. <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center; margin-top: 10px;"> Reserved for system 1: The specified image file is not found. Status of picture viewer 0: Hidden 1: Displayed </p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		

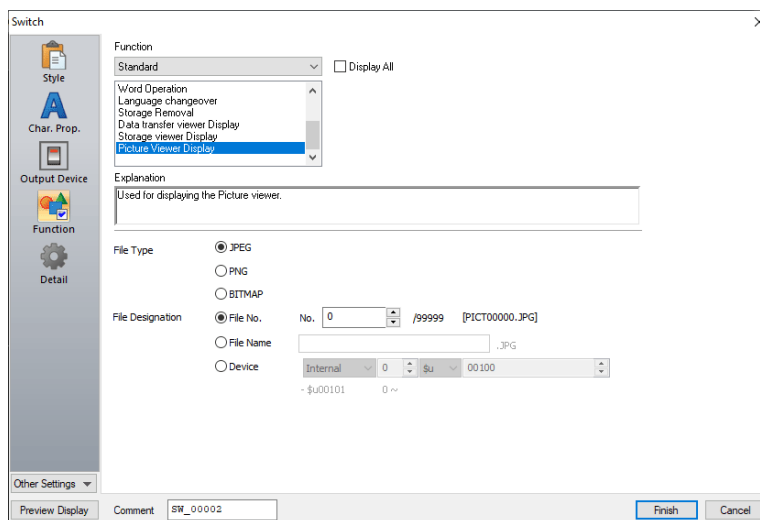
*1 If the specified file is not found on the storage device, an error is indicated when the picture viewer is displayed.



*2 If the display bit is ON when entering RUN mode, the picture viewer is displayed. When the picture viewer is displayed by turning the display bit ON but the picture viewer is then closed using the [Close] switch, the display bit stays ON. Turn the display bit OFF by using bit 0 of the information output device memory (0: hide).

Switch Function

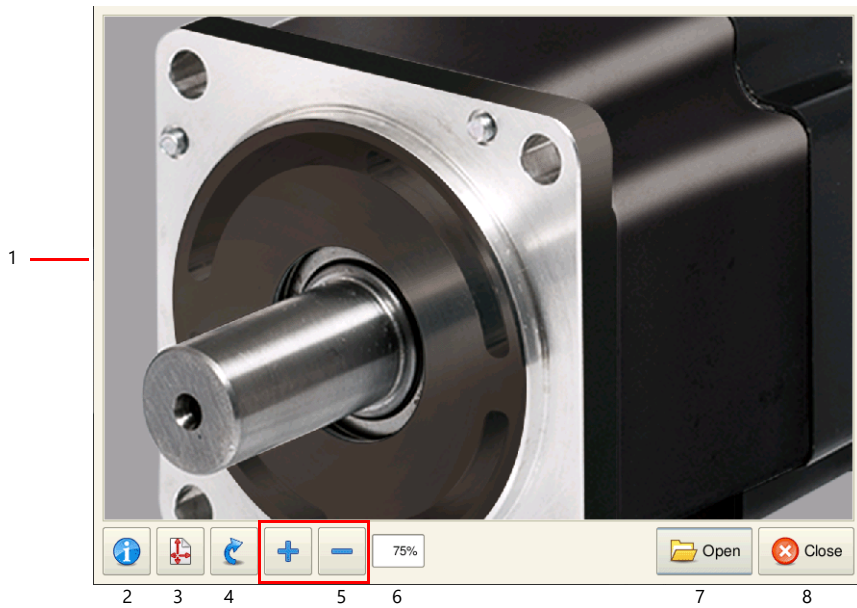
The following settings are available when a switch is set as [Function: Picture Viewer Display].



Item	Description
File Type	Select an image file type. JPEG (.JPG) PNG (.PNG) BITMAP (.bmp)
File Designation	Specify the method for specifying files. [File No.]: 0 to 99999 ([File Name]: PICT00000 to PICT99999) [File Name]: Maximum of 64 one-byte uppercase alphanumeric characters, or 32 two-byte characters [Device]: Set the device memory address (2 words) for specifying the file number (No. 0 to 99999)

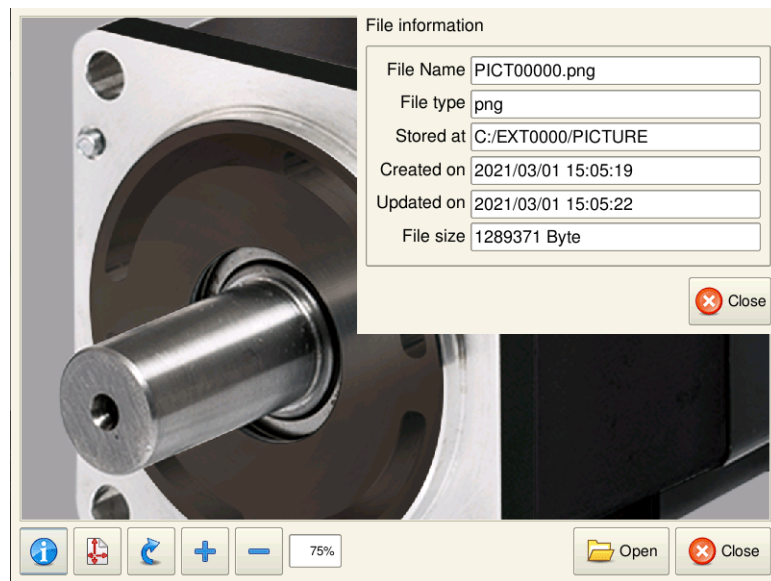
16.5 Configuration of Picture Viewer

Overview



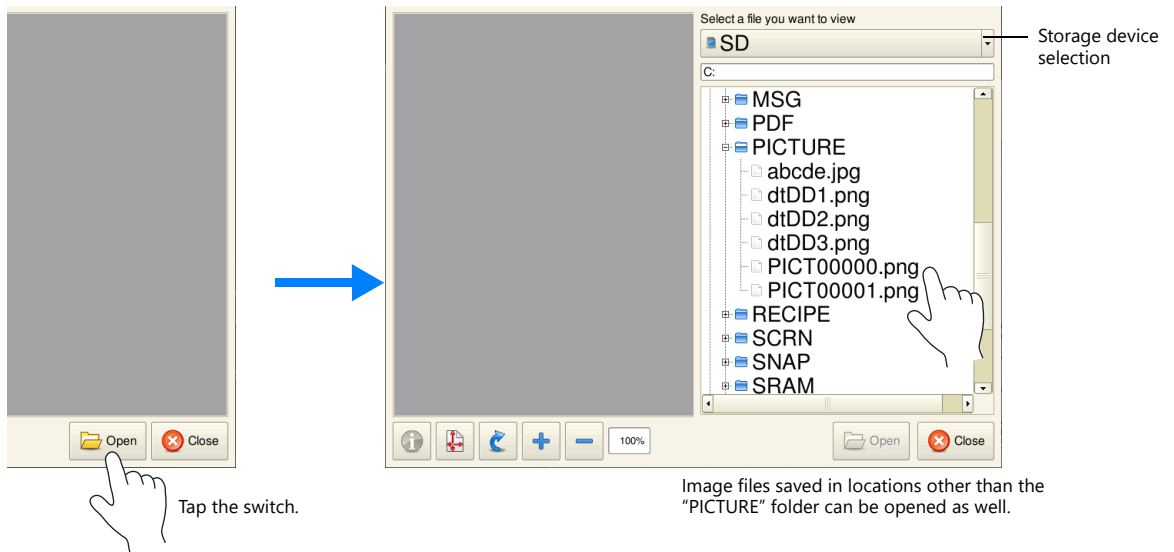
No.	Item	Details	No.	Item	Details
1	Display area	Images are displayed in full-screen without changing the aspect ratio.	5	Zoom in/out	Changes the display scale within 200% to 50%. [+]: Enlarge in 25% increments [-]: Reduce in 25% increments
2	File information	Displays information of the currently displayed file. *	6	Display scale	Shows the current display scale (100% = Actual size).
3	Scale to fit	Scales the image to fit the display area.	7	Open	Displays the file selection window.
4	Rotate	Rotates the image clockwise in 90° increments.	8	Close	Returns to RUN or Local mode.

* File information is displayed at the upper right of the picture viewer.



Changing the Displayed Image File

Tap the [Open] switch on the picture viewer. Select the image file to display and tap the [Open] switch.



* Larger image files will take more time to load.

MEMO



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