e-Front runners

Hardware Specifications

MONITOUCH V715

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
May, 2006	2015NE0	First edition
April, 2007	2015NE1	Second edition
June, 2008	2015NE2	Third edition • Cover and back cover changed

Preface

Thank you for selecting the MONITOUCH V715.
For correct set-up of the V715, you are requested to read through this manual to understand more about the product.
The manuals shown below are related manuals for the V715. Refer to them as necessary.

Manual Name	Contents	Reference No.
Reference Manual (Operation)	The V-SFT operational procedures are described.	1043NE
Reference Manual (Function)	The functions and instructions of the V7/V6 series are explained.	1044NE
PLC Connection Manual	Connections with various PLCs and universal serial communications are explained.	2200NE
Temperature Control Network	The temperature control network function is explained.	1033NE
Specifications for CC-LINK Communication Unit	Instructions for CC-LINK are contained.	1028NE
Specifications for PROFIBUS Communication Unit	Instructions for PROFIBUS are contained.	1036NE
Communication Unit Specification DeviceNet	Instructions for DeviceNet are contained.	1047NE
Connection to AB Control Logix	The connection, communication parameters and tag setting for AB Control Logix are explained.	1041NE
M-CARD SFT Operation Manual	The operating procedure of the memory card editor is described.	1023NE
V-SFT Additional Specifications	The additional specifications for the Reference Manual are described.	5044NE
Ladder Monitor Specifications	Instructions for the ladder monitor function are contained.	1045NE

For further details about PLCs (programmable logic controllers), see the manual attached to each PLC.

Notes:

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Notes on Safe Use 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 the item listed with **CAUTION** may have serious ramifications.

DANGER

- Never use the output signal of MONITOUCH for operations that may threaten human life or damage the system, such as signals used in case of emergency. Please design the system so that it can cope with malfunctions of a touch switch. A malfunction of a touch switch will result in machine accident or damage.
- Turn off the power supply when you set up the unit, connect cables or perform maintenance and inspection. Otherwise, electrical shock or damage may occur.
- Never touch any terminals while the power is on. Otherwise, electric shock may occur.
- You must put a cover on the terminals on the unit when you turn the power on and operate the unit. Otherwise, electric shock may occur.
- The liquid crystal in the LCD panel is a hazardous substance. If the LCD panel is damaged, never swallow the leaked liquid crystal. If the liquid crystal spills on your skin or clothing, use soap and wash off thoroughly.
- Never disassemble, recharge, deform by pressure, short-circuit, or reverse the polarity of the lithium battery, and never 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, leaks, or shows any other signs of abnormality. Failure to follow these conditions will lead to explosion or ignition.
- The power lamp flashes when the backlight is at the end of life or is faulty. However, the switches on the screen are operable at this time. Do not touch the screen when the screen becomes dark and the power lamp flashes. Otherwise, a malfunction may occur and result in machine accident or damage.

⚠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 for a system related to nuclear energy, aerospace, medical, traffic equipment, or mobile installations, please consult your local distributor.
- Operate (or store) MONITOUCH under the conditions indicated in this manual and related manuals. Failure to do so could cause fire, malfunction, physical damage or deterioration.
- Understand the following environmental limits for use and storage of MONITOUCH. 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 temperature, 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 vibration or physical shock may be transmitted.
- Equipment must be correctly mounted so that the main terminal of MONITOUCH will not be touched inadvertently. Otherwise, an accident or electric shock may occur.
- Tighten the fixtures of MONITOUCH with a torque in the specified range. Excessive tightening may distort the panel surface. Loose tightening may cause MONITOUCH to come off, malfunction or be short-circuited.
- Check periodically that terminal screws on the power supply terminal block and fixtures are firmly tightened. Loosened screws may result in fire or malfunction.
- Tighten terminal screws on the power supply terminal block equally to a torque of 0.5 N•m. Improper tightening of screws may result in fire, malfunction, or trouble.
- MONITOUCH has a glass screen. Do not drop or give physical shock to the unit. Otherwise, the screen may be damaged.
- Connect the cables correctly to the terminals of MONITOUCH in accordance with the specified voltage and wattage. Over-voltage, over-wattage or incorrect cable connection could cause fire, malfunction or damage to the unit.
- Be sure to establish a ground of MONITOUCH. The FG terminal must be used exclusively for the unit with the level of grounding resistance less than 100Ω. Otherwise, electric shock or a fire may occur.
- Prevent any conductive particles from entering into MONITOUCH. Failure to do so may lead to fire, damage or malfunction.
- Do not attempt to repair MONITOUCH at your site. Ask Hakko Electronics or the designated contractor for repair.
- Do not repair, disassemble or modify MONITOUCH. Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repair, disassembly or modification of MONITOUCH that was performed by an unauthorized person.
- Do not use a sharp-pointed tool when pressing a touch switch. Doing so may damage the screen.
- Only experts are authorized to set up the unit, connect the cables or perform maintenance and inspection.
- Lithium batteries contain combustible material such as lithium or organic solvent. Mishandling may cause heat, explosion or ignition resulting in fire or injury. Read related manuals carefully and handle the lithium battery correctly as instructed.
- Do not press two or more 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 activates.
- Take safety precautions during such operations as setting change during running, forced output, start, and stop. Any misoperation may cause unexpected machine motions, resulting in machine accident or damage.
- In facilities where a failure of MONITOUCH could lead to accident threatening human life or other serious damage, be sure that the facilities are equipped with adequate safeguards.
- At the time of disposal, MONITOUCH must be treated as industrial waste.
- Before touching MONITOUCH, discharge static electricity from your body by touching grounded metal. Excessive static electricity may cause malfunction or trouble.
- The LED lamp on the CF card interface cover lights up in red during access to the CF card. Never remove the CF card or turn off the power of MONITOUCH while the LED lamp is lit. Doing so may destroy the data on the CF card. Check that the LED lamp has gone off before removing the CF card or turning off the power of MONITOUCH.

[General Notes]

- Never bundle control cables and input/output cables with high-voltage and large-current carrying cables such as power supply cables. Keep these cables at least 200 mm away from the high-voltage and large-current carrying cables. Otherwise, malfunction may occur due to noise.
- When using MONITOUCH 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 its ends. However, the cable may be grounded only at one end if this is necessary due to unstable communication conditions or for any other reason.
- Plug connectors or sockets of MONITOUCH in the correct orientation. Failure to do so may lead to damage or malfunction.
- Do not use thinners for cleaning because they may discolor MONITOUCH surface. Use alcohol or benzine commercially available.
- If a data receive error occurs when MONITOUCH and the counterpart (PLC, temperature controller, etc.) are started at the same time, read the manual for the counterpart unit and remove the error correctly.
- Avoid discharging static electricity on the mounting panel of MONITOUCH. Static charges can damage the unit and cause malfunctions. Otherwise, malfunction may occur due to noise.
- Avoid prolonged display of any fixed pattern. Due to the characteristics of the liquid crystal display, an afterimage may occur. If a prolonged display of a fixed pattern is expected, use the auto OFF function of the backlight.
- With the V715, SG and FG are connected inside the unit. Take this into account in your system design.

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1 Product Outline

1. Features
2. Models and Peripheral Equipment
3. System Composition

1. Features

The V715 inherits and heightens the features of the V7 series as described below.

1. High-definition XGA (1024 × 768), 32k-color Display
   A large screen of XGA (1024 × 768) displays abundant information in detail and its 32k-color display makes colorful and visible expression possible.
   JPEG files and bitmap files are clearly displayed in brilliant colors.

2. USB Master/Slave Port as Standard
   Two ports are provided as standard for diverse applications.
   At the master port, a USB-compatible EPSON STYLUS PHOTO series printer or CF card reader/writer can be used.
   On-site versatility is extended further.
   At the slave port, large quantities of screen data can be transferred from the computer at a high speed.

3. CF Card Interface as Standard
   The CF card can be used for saving multiple screen data, sampling data, recipe data, hard copy images, and other various usages.
   The cover and access lamp are provided for the interface and make it possible to insert and remove the CF card safely.

4. 100BASE-TX/10BASE-T Connector as Standard
   This connector enables Ethernet connection with a host computer or PLC.
   High-speed communications are possible via Ethernet for transferring screen data and reading/writing data from/to the server.

5. Video Display Upgraded (Optional)
   A maximum of four channels can be displayed at the same time. Also, a high-definition display of 16M colors makes high-speed and vibrant expression possible.

6. Web Server Function
   It is possible to write or read a PLC memory and to monitor a JPEG file on WWW browser when an HTML file is stored on the CF card.

7. Animation Function
   The animation function enables representation of the field close to the real image.

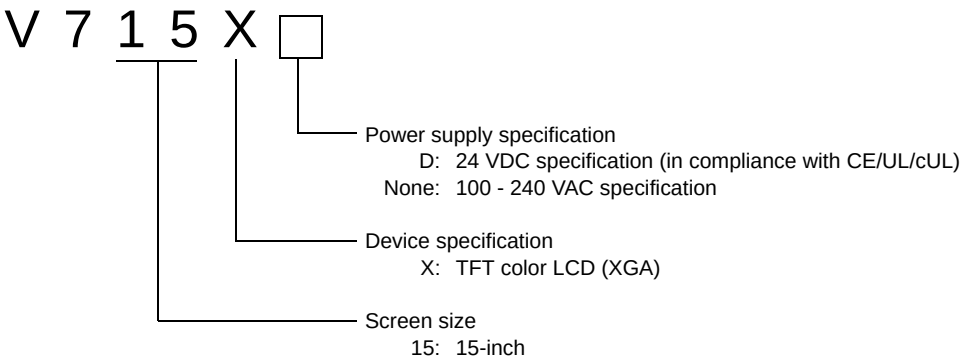
8. Play of WAV File (Optional)
   WAV files can be played with ease simply by connecting the amplifier to the option unit.
   It is possible to use sound for notifying an operator in a remote location about the field conditions, such as an occurrence of an error.

9. Backlight Error Detection Function
   A backlight error detection function is added to detect an error of the backlight.
   When an error occurs, the POWER lamp of the unit flashes.

2. Models and Peripheral Equipment

MONITOUCH Models

The model name consists of the following information.



The following models are available.

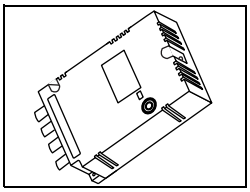
Series and Size	Model Name	Specifications	Remarks
V715 15-inch	V715X	TFT color, 1024 × 768 dots, analog switch, AC power supply	
	V715XD	TFT color, 1024 × 768 dots, analog switch, DC power supply	Compliant with CE/UL/cUL/NK standard

Peripheral Equipment

The following devices are available as options for the V715.

V-SFT (configuration software: English version)

Application software for editing display data for MONITOUCH.
(Windows98/NT4.0/Me/2000/XP compatible)
The V715 is supported with ver. 2.2.34.0 and later.



GU-xx (option unit)

xx: 00 → Video input + sound output unit

Video images can be displayed on the V715 directly.
WAV files can be played on an external speaker.

xx: 01 → RGB input + sound output unit

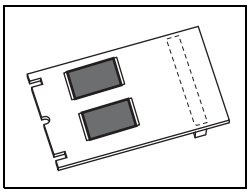
Screen images displayed on an external display can be shown on the V715.
WAV files can be played on an external speaker.

xx: 02 → RGB output + sound output unit

Screen images displayed on the V715 can be shown on an external display.
WAV files can be played on an external speaker.

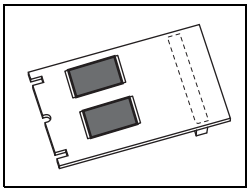
xx: 03 → Sound output unit

WAV files can be played on an external speaker.



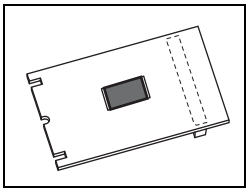
V7EM-F (FLASH memory cassette)

Extension board to extend the memory for screen data.
The capacity of FLASH memory is 8 Mbytes.



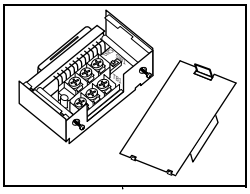
V7EM-L (FLASH memory cassette for ladder monitor)

Extension board for the ladder monitor function.
The memory for screen data is extended at the same time.
The capacity of FLASH memory is 8 Mbytes. (4 Mbytes for ladder monitor, 4 Mbytes for screen data)



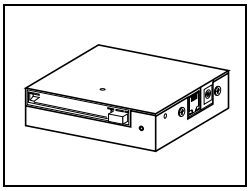
V7EM-S (SRAM memory cassette)

Extension board to back-up the memory for sampling data, V7 internal memory and memo pad.
The capacity of an SRAM cassette is 512 kbyte.



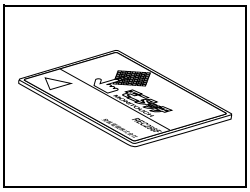
TC485 (terminal converter)

Used for connection between the V7 series and a PLC at the RS-422/485 terminal block.



CREC (card recorder)

Used for creating a backup copy of screen data or works as an external memory storage system for memory manager and data logging functions.



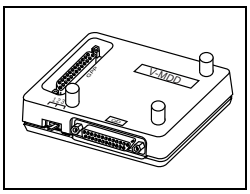
REC-MCARD (memory card) compliant with JEIDA ver. 4.0

Used with the card recorder when having a backup copy of screen data or saving data on an external medium for memory manager and data logging functions.

SRAM 256 k, 512 k, 1 M, 2 M, 4 Mbyte
Flash ROM 4 Mbyte

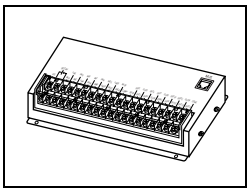
M-CARD SFT (memory card editor)

Application software for editing data stored on a memory card, SRAM or CF card. (Windows98/NT4.0/Me/2000/XP compatible)



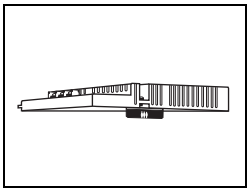
V-MDD (ACPU/QnACPU/FXCPU dual port interface)

Add-on connector with two ports, specifically designed for the connector on the Mitsubishi's ACPU/QnACPU/FXCPU programmer. Operability can be improved when directly connecting the V7 series to the ACPU/QnACPU/FXCPU programmer.



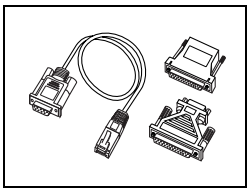
V-I/O (serial extension I/O)

Used as an external I/O unit. It has 16 inputs and 16 outputs.



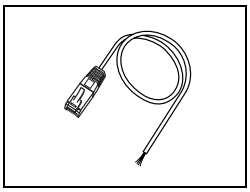
CU-xx [xx: 00 → OPCN-1, 01 → T-LINK, 02 → CC-Link,
03-2 → Ethernet/FL-net (OPCN-2), 04 → PROFIBUS-DP,
05 → MELSECNET/10, 07 → DeviceNet]
(communication interface unit)

Used for connecting to the networks indicated above. This unit enables connection of multiple V7 series to a single PLC. Since other devices can be connected on the same network, it brings about the reduction in costs of the whole system.



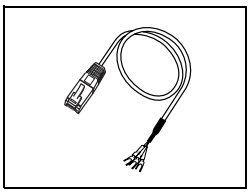
V6-CP (screen data transfer cable) 3 m

Used for connection between the V7 series and a personal computer, or a personal computer and the card recorder (CREC).



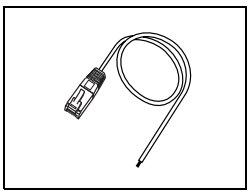
V6-BCD (barcode reader connection cable) 3 m

Used for connection between the V7 series and a barcode reader.



V6-MLT (multi-link 2 master cable) 3 m

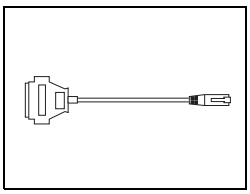
Used for Multi-Link 2 connection between the V7 master station and the V7 slave station.



V6-TMP (temperature controller connection cable)

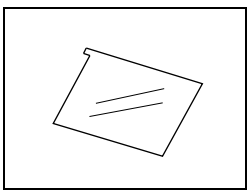
Used for connection between the V7 series and a temperature controller or a PLC via PLC2Way.

V6-TMP: 3 m
V6-TMP-5M: 5 m
V6-TMP-10M: 10 m



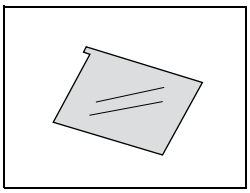
MJ-D25 (MJ-to-D-sub conversion cable) 0.3 m

Used for connection of the V7 series via PLC2Way.



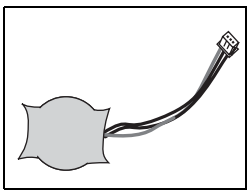
V715-GS (protective sheet)

This sheet protects the operation panel surface. (5 sheets/set)



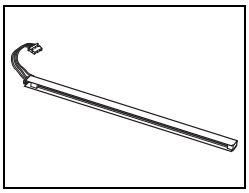
V715-GSN10 (protective sheet)

This anti-glare sheet protects the operation panel surface. (5 sheets/set)



V7-BT (battery for replacement)

Replacement lithium battery for the V7 series.

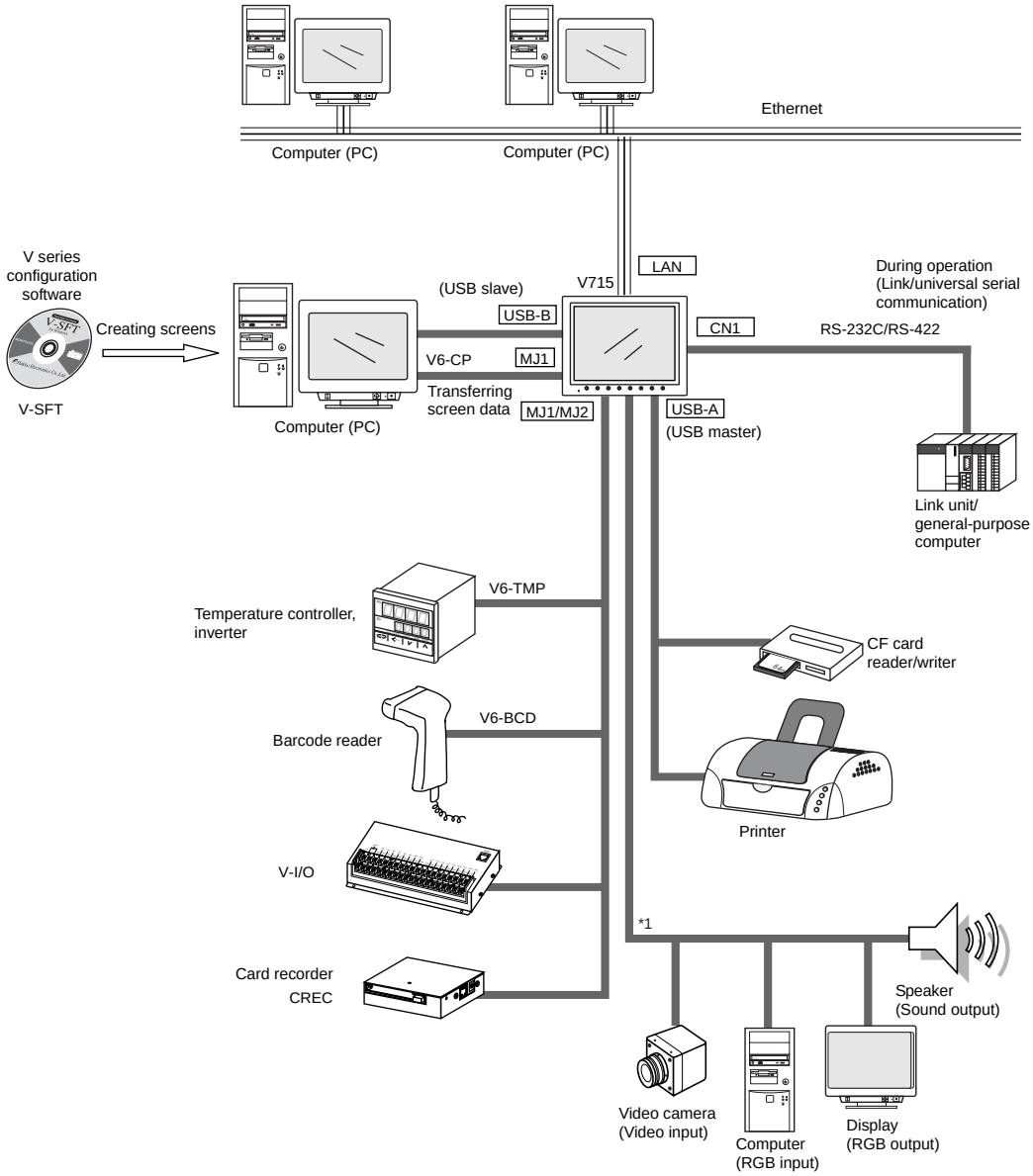


V715X-FL (backlight for replacement)

Replacement backlight parts for the V715.

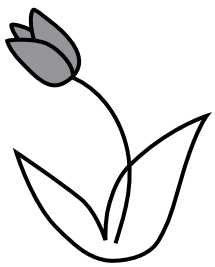
3. System Composition

The following illustration shows possible system configurations using the V715.



*1 The option unit (GU-xx) is required.

MEMO



Please use this page freely.

2 Specifications

1. Specifications
2. Dimensions and Panel Cut-out
3. Names and Functions of Components
4. Serial Connector (CN1)
5. Modular Jack (MJ1/MJ2)
6. USB Connectors
7. LAN Connector (LAN)
8. CF Card

1. Specifications

General Specifications

Item		Specifications	
		V715X	V715XD
Compatible Specification	CE Marking	–	EN61000-6-2, EN55011 Class A
	UL/cUL	–	UL60950-1, UL1604, CSA-C22.2 No. 60950-1 CSA-C22.2 No. 213-M1987
	NK	–	06A014
Power	Rated Voltage	100 - 240 VAC	24 VDC
	Permissible Range of Voltage	100 - 240 VAC ± 10%	24 VDC ± 10%
	Permissible Momentary Power Failure	Within 20 ms	Within 1 ms
	Power Consumption (Maximum Rating)	90 VA or less	40 W or less
	Rush Current	Hardware version c or later *1 For 100 VAC: 20 A, 10 ms or less For 200 VAC: 40 A, 10 ms or less	30 A, 1 ms or less
	Withstand Voltage	AC external terminals to FG: 1500 VAC, 1 minute	DC external terminals to FG: 500 VAC, 1 minute
Insulation Resistance		500 VDC, 10 MΩ or above	
Physical Environment	Ambient Temperature	0°C to +40°C	
	Storage Ambient Temperature	–10°C to +50°C	
	Ambient Humidity	85% RH or less (without dew condensation)	
	Altitude	2000 m or less	
	Solvent Resistance	No cutting oil or organic solvent attached to the unit	
	Atmosphere	No corrosive gas, no excessive dust, and no conductive dust	
Mechanical Working Condition	Vibration Resistance	Vibration frequency: 10 to 150 Hz, Acceleration: 9.8 m/s^2 (1.0G) Single amplitude: 0.075 mm, X, Y, Z: 3 directions for one hour	
	Shock Resistance	Pulse shape: Sine half wave Peak acceleration: 147 m/s^2 (15G), X, Y, Z: 3 directions six times each	
Electrical Working Condition	Noise Resistance	1500 Vp-p (pulse width 1 μs, rise time: 1 ns)	1000 Vp-p (pulse width 1 μs, rise time: 1 ns)
	Static Electricity Discharge Resistance	Compliant with IEC61000-4-2, contact: 6 kV, air: 8 kV	
Mounting Conditions	Grounding	Grounding resistance: less than 100Ω	
	Structure	Protection structure: front panel: compliant with IP65 (when using waterproof gasket) rear case: compliant with IP20 Form: in a single body Mounting procedure: inserted in a mounting panel	
	Cooling System	Cooling naturally	
	Weight	Unit: approx. 5.2 kg	Unit: approx. 5.0 kg
	Dimensions W × H × D	382.8 × 312.8 × 81.1 mm	
	Panel Cut-out	369.4 $^{+0.5}_{-0}$ × 299.4 $^{+0.5}_{-0}$ mm	
Material		Aluminum	

*1 Hardware version a or b
For 100 VAC: 15 A, 10 ms or less
For 200 VAC: 30 A, 10 ms or less
About hardware version, refer to page 8-3.

Display Specifications

Item	Specifications
Display Device	TFT color LCD
Display Size	15-inch
Colors	32,768 colors + 16-color blink
Display Resolution (W × H)	1024 × 768 dots
Dot Pitch (W × H)	0.297 × 0.297 mm
Brightness	350 cd/m^2
Contrast Ratio	450 : 1
Angle of Vertical Visibility	+50 ° , −60 °
Angle of Horizontal Visibility	±75 °
Backlight	Cold cathode rectifier (exchangeable by users)
Average Backlight Life*1	Approx. 60,000 h
Backlight Auto OFF Function	Always ON, random setting
Brightness Adjustment	3 levels (128 levels by macro command)*2
Surface Sheet	Material: Polycarbonate, 0.3 mm thick
POWER Lamp	Illuminated in green when the power is on. Blinks when an error occurs to the backlight.*3

*1 When the normal temperature is 25°C, and the surface luminance of the display is 50% of the initial setting
*2 Adjustable with function switches or macro commands
*3 The backlight may be dead. If the display becomes dim, it is recommended to replace the backlight.

Touch Switch Specifications

Item	Specifications
Method	Analog resistance membrane
Switch Resolution	1024 (W) × 1024 (H)
Mechanical Life	One million activations or more
Surface Treatment	Hard-coated, anti-glare treatment 5%

Function Switch Specifications

Item	Specifications
Number of Switches	8
Method	Membrane switch
Mechanical Life	One million activations or more

Interface Specifications

Item	Specifications
Serial Interface for PLC Connection (D-sub 25-pin, female)	RS-232C, RS-422/485 Asynchronous type Data length: 7, 8 bits Parity: even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115000 bps
Serial Interface 1, 2 for Screen Data Transfer/External Connection (Modular jack, 8-pin)	RS-232C, RS-422/485 (2-wire connection) CREC, Barcode, V-I/O, Multi-link 2, Temperature control network/PLC2Way, V-Link, etc.
USB Master Port (USB-A) for Printer/CF Card Reader Connection	Type A, USB Ver. 1.1
USB Slave Port (USB-B) for Screen Data Transfer	Type B, USB Ver. 1.1
100BASE-TX/10BASE-T for Ethernet Connection	Compliant with IEEE802.3u (100BASE-TX), IEEE802.3 (10BASE-T) Baud rate: 10 Mbps, 100 Mbps Cables: 100 Ω unshielded twist-pair, Category 5, maximum length = 100 m

Clock and Backup Memory Specifications

Item	Specifications
Battery Specification	Coin-type lithium primary cell
Backup Memory	SRAM 128 kbyte
Backup Time Period	5 years (ambient temperature at 25°C)
Battery Voltage Drop Detection	Provided (internal memory of $s167 allocated)
Calendar Accuracy	Monthly deviation ±90 sec (ambient temperature at 25°C)

Drawing Environment

Item	Specifications
Drawing Method	Exclusive configuration software
Drawing Tool	Name of exclusive configuration software: V-SFT (Ver. 2.2.34.0 and later) Personal computer: Pentium II 450 MHz or above recommended OS: Windows98/Me/NT Ver.4.0/2000/XP Capacity of hard disk required: Free space of approx. 460 Mbyte or more (For minimum installation: approx. 105 Mbyte) Display: Resolution 800 × 600 or above recommended

Display Function Specifications

Item		Specifications				
Display Language*		Japanese	English/Western Europe	Chinese (traditional)	Chinese (simplified)	Korean
Characters	1/4-size, 1-byte	ANK code	Latin 1	ASCII code	ASCII code	ASCII code
	2-byte 16-dot	JIS #1, 2 levels	–	Chinese (traditional)	Chinese (simplified)	Hangul (without Kanji)
	2-byte 32-dot	JIS #1 level	–	–	–	–
Character Size		1/4-size	8 × 8 dots			
		1-byte	8 × 16 dots			
		2-byte	16 × 16 dots or 32 × 32 dots			
		Enlarge	W: 1 to 8 times, H: 1 to 8 times			
Number of Displayable Characters		1/4-size	127 characters × 96 lines			
		1-byte	127 characters × 48 lines			
		2-byte	64 characters × 48 lines			
Characters Properties		Display properties: normal, reverse, blink, bold, shadow Colors: 32,768 colors + blink 16 colors				
External Font		It can be set only for Japanese. 16-dot font: 2-byte, 16 × 16 dots, 63 fonts 32-dot font: 2-byte, 32 × 32 dots, 63 fonts				
Graphics		Lines: line, continuous line, box, parallelogram, polygon Circles: circle, arc, sector, ellipse, elliptical arc Others: tile patterns				
Graphic Properties		Line types: 6 (thin, thick, dot, chain, broken, two-dot chain) Tile patterns: 16 (incl. user-definable 8 patterns) Display properties: normal, reverse, blink Colors: 32,768 colors + blink 16 colors Color selection: foreground, background, boundary (line)				

* In addition, the following fonts are available. For more information, refer to Reference Manual (Operation) and the V-SFT Additional Specifications Manual.
Gothic, English/Western Europe (HK Gothic), English/Western Europe (HK Times), Central Europe, Cyrillic, Greek, Turkish

Function Performance Specifications

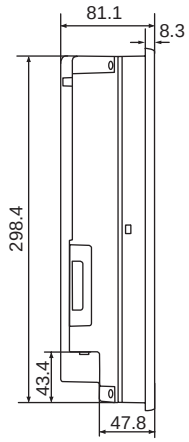
Item		Specifications
Screens		Max. 1024
Screen Memory		Flash memory: Appox. 4,992 kbyte (varies depending on the font used)
Switches		1024 per screen
Switch Actions		Set, reset, momentary, alternate, to light (Possible to press a function switch and a switch on the display at the same time)
Lamps		Reverse, blink, exchange of graphics 1024 per screen
Graphs		Pie, bar, panel meter and closed area graph: No limitation within 256 kbyte per screen*1 Statistics and trend graphs: Max. 256 per layer*2
Data Setting	Numerical Data Display	No limitation within 256 kbyte per screen*1
	Character Display	No limitation within 256 kbyte per screen*1
	Message Display	Resolution: Max. 127 1-byte characters No limitation within 256 kbyte per screen*1
Sampling		Sampling display of buffer data (Constant sample, bit synchronize, bit sample, relay sample, alarm function)
Graphic Library		Max. 2560
Multi-overlaps		Max. 1024
Data Blocks		Max. 1024
Messages		Max. 32768 lines
Patterns		Max. 1024
Macro Blocks		Max. 1024
Page Blocks		Max. 1024
Direct Blocks		Max. 1024
Screen Blocks		Max. 1024
Data Sheets		Max. 1024
Screen Library		Max. 1024
Temperature Control Network/PLC2Way Table		Max. 32
Time Display		Provided
Hard Copy		Provided
Buzzer		Provided, 2 sounds (short beep, long beep)
Auto OFF Function		Always ON, random setting
Self-diagnostic Function		Switch self-test function Communication parameter setting check function Communication check function

*1 The number of setting memory locations is limited to 1024 per screen.
*2 Layer: 4 per screen (base + 3 overlaps)

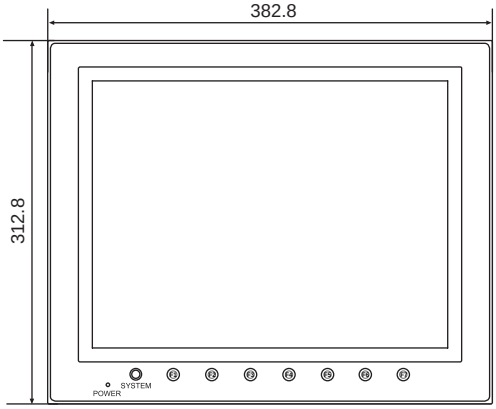
2. Dimensions and Panel Cut-out

(Unit: mm)

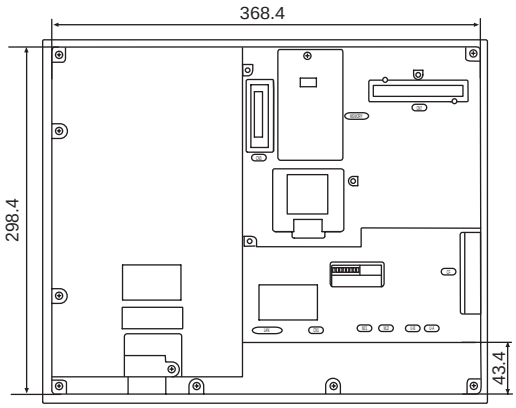
- Side View



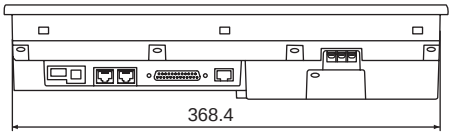
- Front View



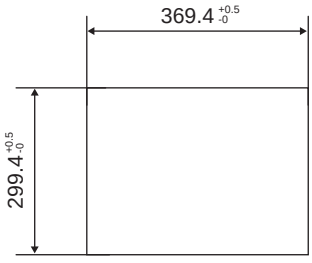
- Rear View



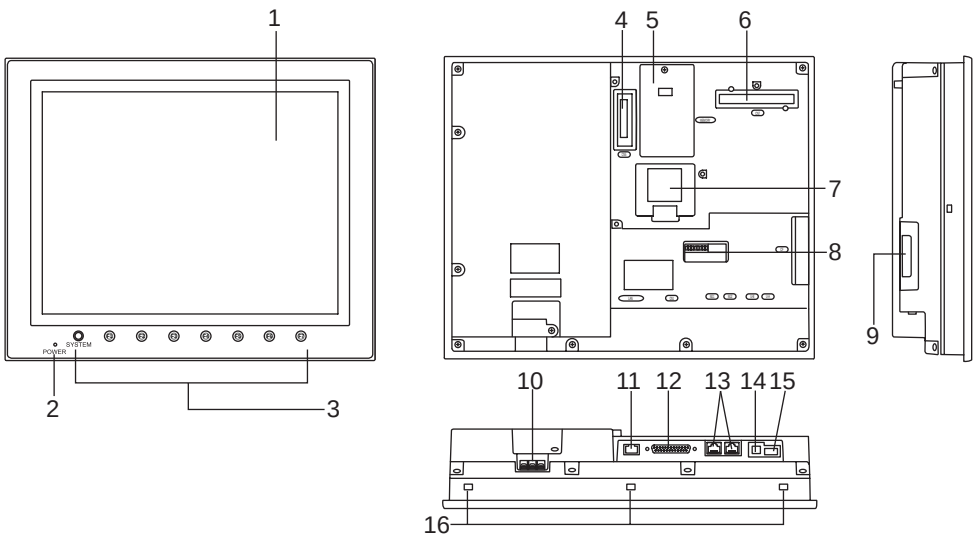
- Bottom View



- Panel Cut-out Dimensions



3. Names and Functions of Components



1. Display
   This is the display unit.
2. Power lamp (POWER)
   Illuminates (green) when the power is supplied. Flashes when an error occurs to the backlight.
3. Function switches
   Used for RUN /STOP selection, brightness adjustment and backlight ON/OFF (according to the setting). These switches can be used as user switches in the RUN mode.
4. Communication interface unit connector (CN5)
   Used for mounting the communication unit (CU-xx, optional) for OPCN-1, T-LINK, CC-Link, Ethernet, FL-net (OPCN-2), PROFIBUS-DP, MELSECNET/10 or DeviceNet.
5. Add-on memory connector (MEMORY)
   Used for mounting the optional FLASH memory cassette (V7EM-F), SRAM cassette (V7EM-S), or FLASH memory cassette for the ladder monitor (V7EM-L).
6. Connector for optional unit (CN7)
   Used for mounting the option unit (GU-xx) for video input, sound output, RGB input or RGB output.
7. Battery holder
   Contains a backup battery for SRAM and clock.
   When the battery voltage drops, replace the battery with a new one (V7-BT).
8. DIP switch
   8-bit DIP switch used for setting terminating resistance of the CN1 signal line and the MJ1/MJ2 RS-422/485 signal line.
9. CF card connector (CF)
   Used for inserting a CF card. Access to the CF card is enabled when the cover is closed.
10. Power supply terminal block
    Supplies the power to the V715 unit (100 to 240 VAC, 24 VDC).
11. 100BASE-TX/10BASE-T connector (LAN)
    Used for Ethernet connection.

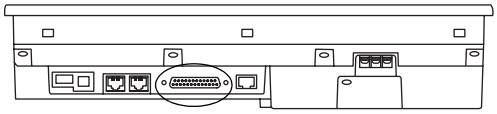
12. PLC communication connector (CN1)
    Used for connection between the V715 and a PLC or an external control unit (computer, custom controller, etc).
13. Modular jack (MJ1, MJ2)
    Used for screen data transfer and connection with a temperature controller, barcode reader, CREC, etc.
14. USB-B (slave port)
    Used for transferring screen data.
15. USB-A (master port)
    Used for connecting a printer or a CF card reader/writer.
16. Mounting hole
    Used for inserting fixtures when securing the V715 to the mounting panel.

4. Serial Connector (CN1)

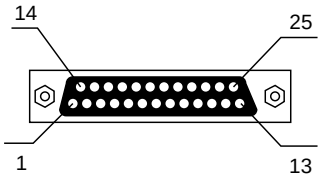
Serial Connector for PLC Connection

To communicate with a PLC (RS-232C, RS-422/485), connect the cable to the serial connector (CN1) at the bottom of the V715 unit.

Bottom View



The serial connector pins correspond to signals as given below.

CN1 (D-sub 25-pin, female)	Pin No.	Signal Name	Contents
	1	FG	Frame ground
	2	SD	RS-232C send data
	3	RD	RS-232C receive data
	4	RS	RS-232C RS request to send
	5	CS	RS-232C CS clear to send
	6		Not used
	7	SG	Signal ground
	8		Not used
	9	+5V	Use prohibited
	10	0V	Use prohibited
	11		Not used
	12	+SD	RS-422 send data (+)
	13	–SD	RS-422 send data (–)
	14	+RS	RS-422 RS send data (+)
	15		Not used
	16		Not used
	17	–RS	RS-422 RS send data (–)
	18	–CS	RS-422 CS receive data (–)
	19	+CS	RS-422 CS receive data (+)
	20		Not used
	21	–	Use prohibited
	22	–	Use prohibited
	23		Not used
	24	+RD	RS-422 receive data (+)
	25	–RD	RS-422 receive data (–)

* SG and FG are connected inside the unit.

The following connector is recommended.

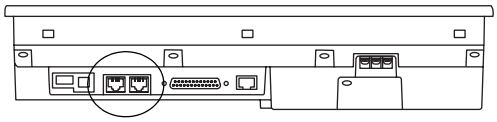
Recommended connector	17JE23250-02 (D8A) made by DDK	D-sub 25-pin, male, metric thread (M2.6), with hood

5. Modular Jack (MJ1/MJ2)

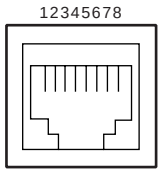
Modular Jack 1 (MJ1) / 2 (MJ2)

This is a modular connector used for connecting a cable for screen data transfer, temperature controller, barcode reader, card recorder (CREC) or serial extension I/O (V-I/O).

Bottom View



Pins of MJ1 and MJ2 correspond to signals as given below.

MJ1/2	Pin No.	Signal Name	Contents
	1	+SD/RD	RS-485 + data
	2	−SD/RD	RS-485 − data
	3	+5V	Externally supplied +5 V *
	4	+5V	
	5	SG	Signal ground
	6	SG	
	7	RD	RS-232C receive data
	8	SD	RS-232C send data

* A maximum of 500 mA is available for MJ1, MJ2 and USB-A in total. When both CU-xx and GU-xx are mounted, a maximum of 300 mA is available in total.

V-SFT Setting

1. The use of MJ1 and MJ2 can be set on the V-SFT editor.
2. Select [Modular Jack] from the [System Setting] menu. The [Modular Jack] dialog is displayed. Select the use of MJ1 and MJ2 from the following options.

Modular Jack 1	Modular Jack 2
[Editor Port]*1	[Not Used]
[Card Recorder]*2	[Card Recorder]*2
[Barcode]*3	[Barcode]*3
[V-I/O]*4	[V-I/O]*4
[Multi-link]*5	[Multi-link]*5
[Temp. /PLC2Way]*6	[Temp. /PLC2Way]*6
[V-Link]*7	[V-Link]*7
[Touch Switch]*8	[Touch Switch]*8
[Ladder Tool]*9	[Ladder Tool]*9
[Modbus Slave]*10	[Modbus Slave]*10
[Printer (Serial Port)]*11	[Printer (Serial Port)]*11

*1 Refer to the next section “Transferring Screen Data.”
*2 Select this option when connecting the card recorder (CREC).
*3 Refer to the next section “Barcode Reader Connection.”
*4 Select this option when connecting the serial extension I/O (V-I/O).
*5 Select this option when “Multi-link 2” is selected for [Connection Mode] and “1” is set for [Local Port] on the [Communication Parameter Setting] dialog.
*6 Select this option when connecting the temperature controller network or PLC2Way.
*7 Select this option for V-Link connection.

*8 Refer to “GU-01 (RGB input + sound output unit).”
*9 Select this option when using the ladder transfer function.
*10 Select this option for Modbus slave communication.
*11 Select this option when connecting the printer with serial interface.
Refer to page 2-13.

Combination of MJ1 and MJ2 Functions

○: Avaiable at the same time. ×: Not avaiable at the same time

MJ2 \ MJ1	Multi-link 2	Card Recorder	Barcode	V-I/O	Temp. CTRL/PLC2 Way	V-Link	Touch Switch	Ladder Tool	Modbus Slave	Printer (Serial Port)
Multi-link 2		○	○	○	○	○	○	×	○	○
Card Recorder	○		○	○	○	○	○	○	○	○
Barcode	○	○		○	○	○	○	○	○	○
V-I/O	○	○	○		○	○	○	○	○	○
Temp. CTRL/PLC2 Way	○	○	○	○		○	○	○	○	○
V-Link	○	○	○	○	○		○	○	×	○
Touch Switch	○	○	○	○	○	○		○	○	○
Ladder Tool	×	○	○	○	○	○	○		○	○
Modbus Slave	○	○	○	○	○	×	○	○		○
Printer (Serial Port)	○	○	○	○	○	○	○	○	○	

Supplemental remarks: Multi-link communication and temperature control network/PLC2Way can be used at the same time.

Combination of Communication Unit (CU-xx) and Modular Jack Function

○: Usable at the same time. ×: Not usable at the same time

Communication Unit \ MJ		Multi-link 2	Card recorder, Barcode, V-I/O, Temperature control network/PLC2Way, V-Link, Touch switch, Modbus slave communication, Printer (serial port)	Ladder Tool	Built-in Ethernet
CU-00	OPCN-1	×	○	×	○
CU-01	T-LINK	×	○	×	○
CU-02	CC-Link	×	○	×	○
CU-03(-2)	Ethernet	△*1	○	△*1	×
CU-03(-2)	FL-net	×	○	×	×
CU-04	PROFIBUS-DP	×	○	×	○
CU-05	MELSECNET/10	×	○	×	○
CU-07	DeviceNet	×	○	×	○

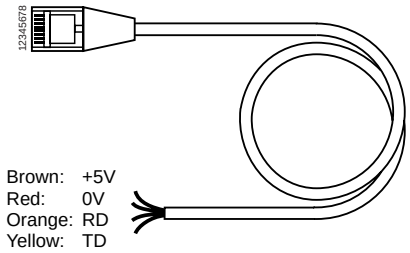
*1 Unavailable when the V715 and a PLC are connected via Ethernet

Transferring Screen Data

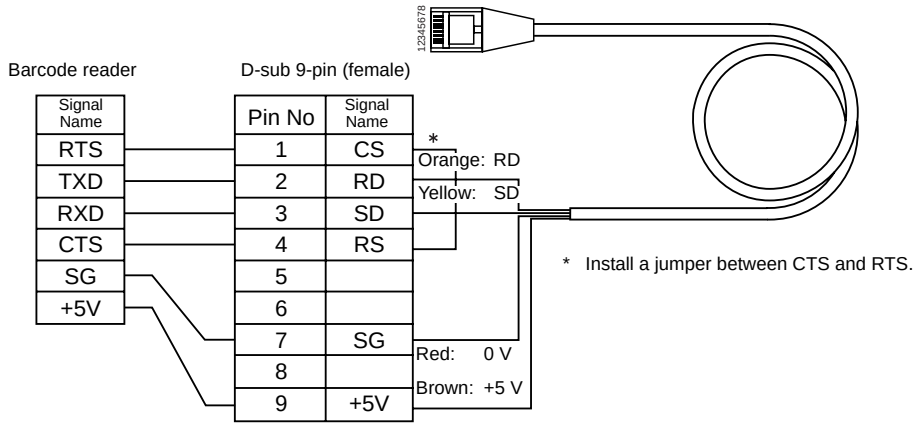
- Use modular jack 1 (MJ1) when transferring screen data.
  * Screen data can be transferred via Ethernet or using a CF card in addition to serial transfer.
- When [Editor Port] is selected for [Modular Jack 1] on the V-SFT editor, it is possible to transfer data in the RUN mode because the RUN/STOP mode (on the Main Menu screen) can be automatically selected.
  Also RUN/STOP mode is automatically selected for on-line editing and simulation.
- When an option other than [Editor Port] is selected for [Modular Jack 1], select the STOP mode (on the Main Menu screen) and transfer screen data. Simulation or on-line editing is not available.
- When transferring screen data, use Hakko Electronics' data transfer cable (V6-CP: 3 m) to connect the V715 to a computer.

Barcode Reader Connection

- It is possible to receive the signal from a barcode reader by connecting the barcode reader at the modular jack (MJ1/2).
- To connect a barcode reader to the modular jack (MJ1/2), use Hakko Electronics' optional cable (V6-BCD).
  Length: 3 m
  with modular plug

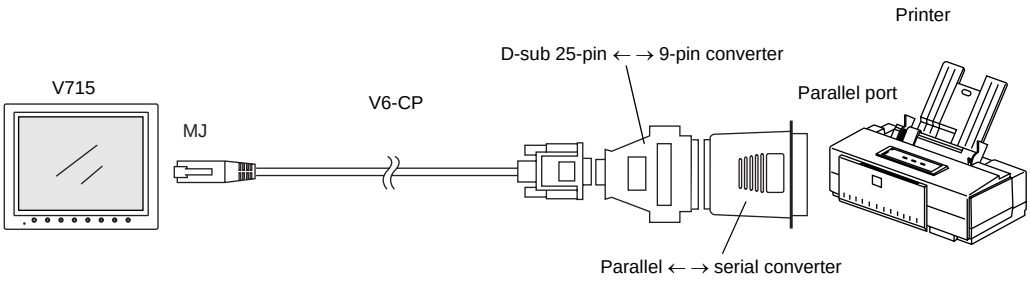


- Notes on connection
  - In the case of barcode readers with CTS and RTS control, it may be necessary to install a jumper to RTS and CTS. Otherwise the barcode reader may not work correctly.
  - About the external power supply, refer to page 2-10.
- When using the barcode reader that was connected to V4 (MONITOUCH's earlier model), connect it to the D-sub 9-pin female connector as shown below.



Printer Connection (Serial Printer)

- To connect a printer through serial interface, connect the cable to a modular jack (MJ1/MJ2).
- Refer to the specification sheet of the printer to be used for the connecting cable for serial interface. For the information on MJ1/MJ2 signals, refer to page 2-10.
- To connect to a printer equipped with a parallel interface, use a commercially available parallel-serial converter.
  When the serial connector of the converter is a D-sub 9-pin male connector, Hakko Electronics' V6-CP connection cable can also be used.



Compatible Printer Models

Control code system:

• PR201	PC-PR201 series compatible with MS-DOS computer (Screen hard copying is not possible.)
• ESC-P	ESC/P24-J84, ESC/P-J84, ESC/P super function compatible with MS-DOS computer (Screen hard copying is not possible.)

Others

• CBM292/293	CBM's line thermal printer (Screen hard copying is not possible.)
• MR400	Sato's barcode printer "MR400 series" (It is not possible to print a screen hard copy, data sheet or sampling data.)
• EPSON STYLUS PHOTO Series: EPSON STYLUS C86 EPSON STYLUS C65	EPSON color ink jet printer (For details on STYLUS PHOTO models, refer to the separate V-SFT Additional Specifications.)

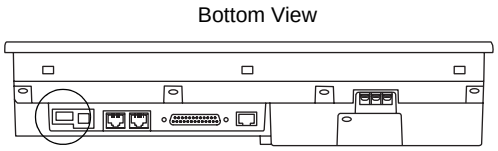
Screen Data Setting

[System Setting] → [Printer Setting] → [Main]

- Type: (as desired)
- Port: Serial port (MJ port) → Go to the [Serial Port] tab window for communication setting.
  ↓
  [Refer to Modular] button
  ↓
- Modular Jack 1 (or 2)
  Printer (Serial Port)

6. USB Connectors

USB-A (Master Port)



Available Devices

Printer

- EPSON color ink jet printer STYLUS PHOTO series with USB port
  * For information on the printer model, contact your local distributor.
- Printer with parallel interface
  Printer models and available print functions are the same as those for a serial printer (page 2-13).

CF Card Reader/Writer

The following items are recommended.

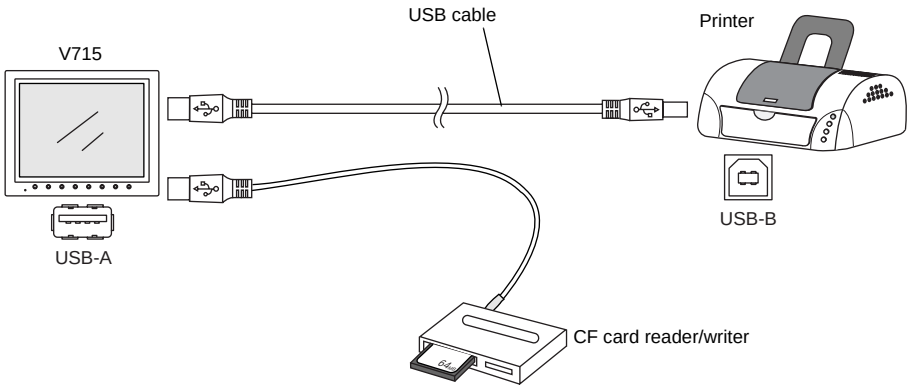
Manufacturer	Model
I-O Data	USB2-7inRW
	USB2-8inRW
BUFFALO	MCR-CF-LT/U2

USB Hub

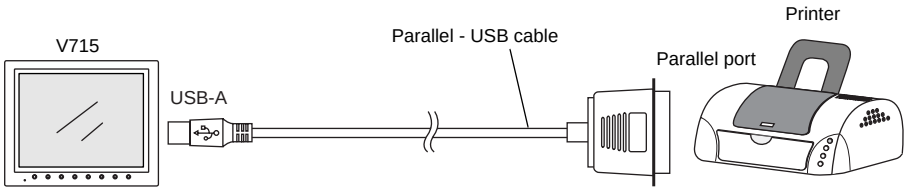
- USB hub can also be connected when using the printer and CF card reader/writer described above at the same time. For more information, refer to page 2-15.

Connecting Cable

- Use the cable included with the device to be connected (printer or CF card reader/writer).



- To connect to a printer equipped with a parallel interface, use a commercially available parallel-USB cable (ELECOM's UC-PGT recommended).



Screen Data Setting

For a Printer

[System Setting] → [Printer Setting] → [Main]

- Type: (as desired)
- Port: USB port

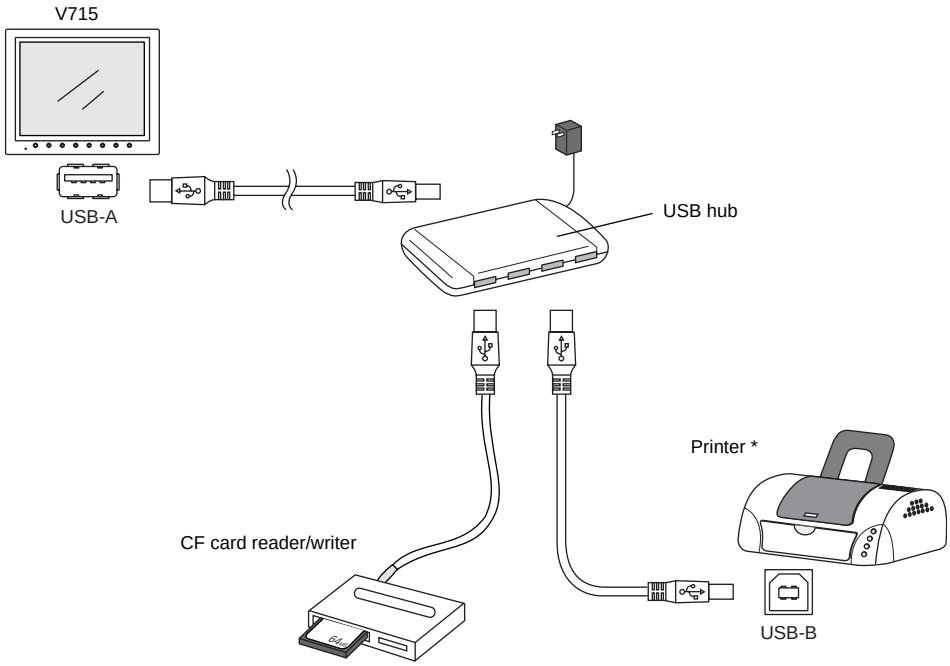
For a CF Card Reader/Writer

[System Setting] → [CF Card Setting]

- CF card connection port: USB port

USB Hub

A printer and reader/writer can be used at the same time with a USB hub.



* Not only the USB-compatible printer, but the parallel printer can also be connected. (In this case, the parallel printer which can be used on MONITOUCH and a commercially available parallel-USB cable (ELECOM's UC-PGT recommended) must be used.)

Recommended USB Hub

The operation of the following USB hub has been verified by Hakko Electronics.

Manufacturer	Model	Remarks *
ELECOM	U2H-G4S2	USB 2.0 compatible

* USB 2.0 compatible hub can be connected; however the USB port provided on the V715 unit only supports USB 1.1.

Notes

- Two or more CF card reader/writers cannot be connected to the USB hub at the same time.
  It is impossible even if they are the ones of different manufactures or models.
  When multiple reader/writers are connected to the USB hub, the only one which has been connected first is recognized.

- A maximum of two USB hubs can be connected (cascaded) to the V715 unit.
  Note that the performance will be decreased more when two USB hubs are connected.

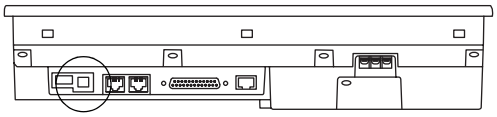
- Do not turn off the power adaptor or disconnect the connector between the power adaptor and the USB hub when the USB hub is connected to the V715 unit and is activated by its power adaptor. Doing so may cause insufficient power supply to the V715 unit resulting in faulty operation such as repeated restarting.

- When connecting two USB hubs to the V715 unit, supply the power to the USB hub using the adaptor included with the hub.
  Even if connecting one USB hub, use the power adaptor included with the USB hub if provided.

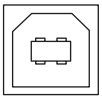
USB-B (Slave Port)

This is a connector for screen data transfer via USB.

Bottom View



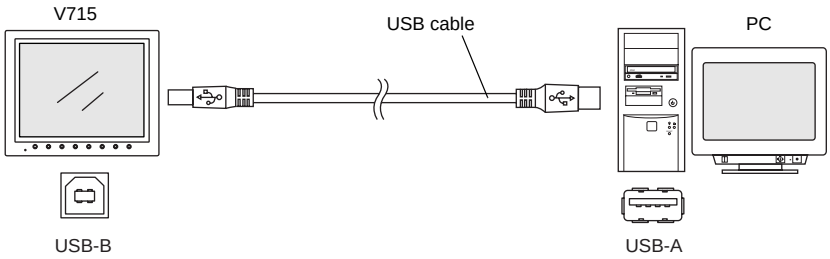
Enlarged View



* When transferring screen data via the USB-B (USB slave port), be sure to install the USB driver for MONITOUCH on the computer. The steps are described in the following section “Installing the USB Slave Driver.”
* When using the USB port on Windows 98, Windows 98 Second Edition or later is required.

Connecting Cable

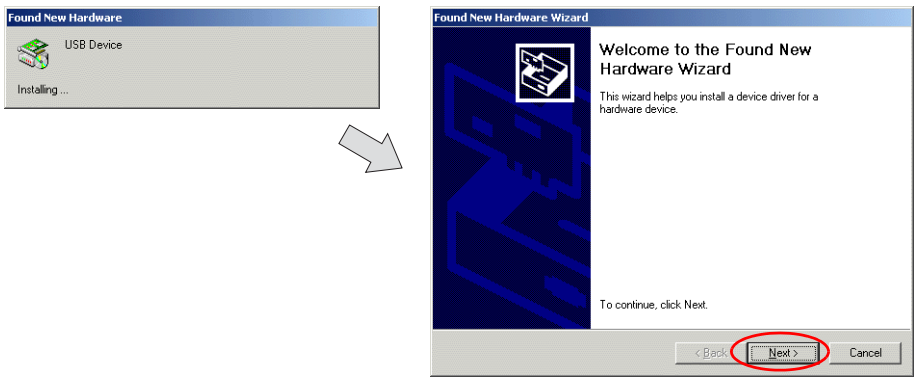
Use a commercially available USB cable.



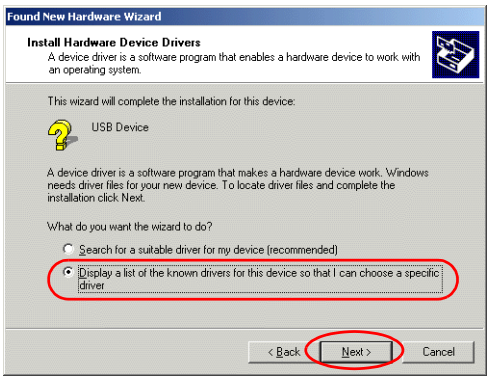
Installing the USB Slave Driver

The installation procedure on Windows XP is described as an example below.

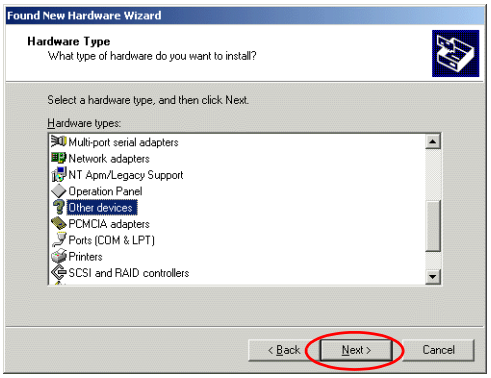
1. Connect the USB-B port of the V715 (with power on) to the computer (with power on) using a USB cable.
2. The message “Found New Hardware” and then the driver installation wizard appear on the computer.



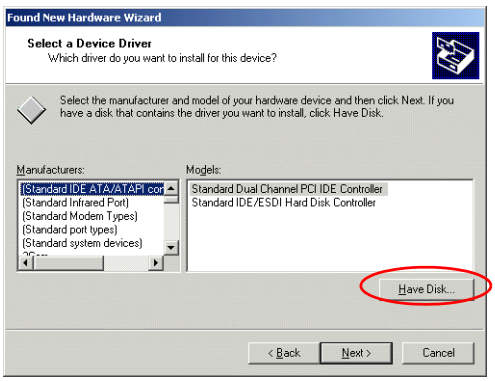
3. When the dialog below is displayed, select [Display a list of the known drivers for this device so that I can choose a specific driver] and click the [Next] button.



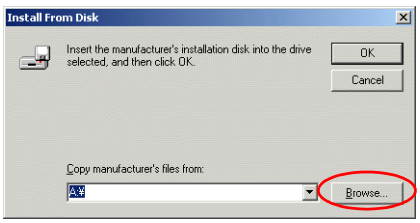
4. The following dialog is displayed. Click the [Next] button.



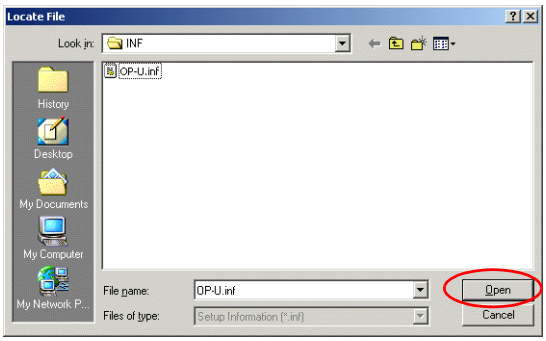
5. The following dialog is displayed. Click [Have Disk] button.



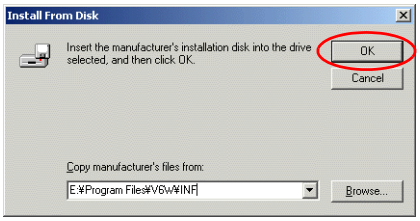
6. The [Install From Disk] dialog is displayed. Click the [Browse] button.



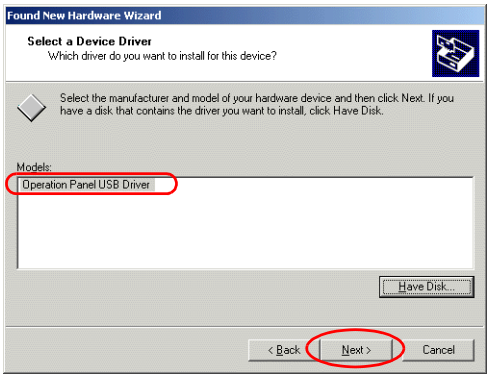
7. The USB driver “OP-U.inf” is automatically stored in the “inf” folder within the V-SFT editor installation folder (“V6W” for example).
   Select the “OP-U.inf” file and click the [Open] button.



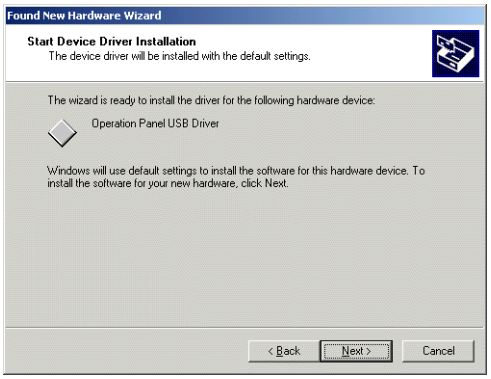
8. The previous dialog is displayed again. Check the path shown under [Copy Manufacturer’s Files From:] and click the [OK] button.



9. The following dialog is displayed. Check that [Operation Panel USB Driver] is shown under [Models:]. Click the [Next] button.



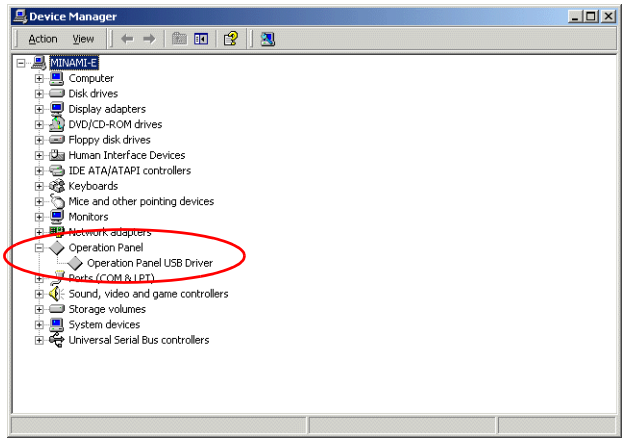
10. The driver installation starts.



11. The dialog below is displayed on completion of installation. Click the [Finish] button.

Recognition of USB Driver

When the driver has been installed successfully, the [Device Manager] window shows “Operation Panel - Operation Panel USB Driver.”



This will disappear when MONITOUCH and the computer are disconnected.
If [Other Device] or [?] is shown even while their connection via USB is maintained, the USB driver is not recognized. If this happens, uninstall the USB driver and reinstall it.

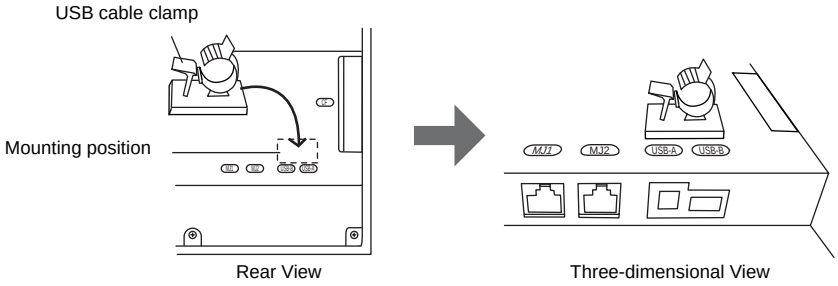
USB Cable Connection

A USB cable may be disconnected from the V715 unit depending on the mounting condition. To avoid disconnection, use the USB cable clamp supplied with the unit.

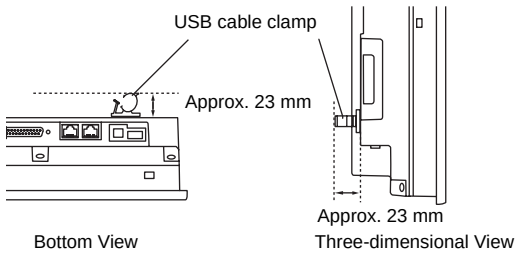
USB Cable Clamp Mounting Position

Mount the USB clamp based on the mark for the USB connectors.

> **CAUTION** Note that the USB cable clamp can never be removed once it is mounted.

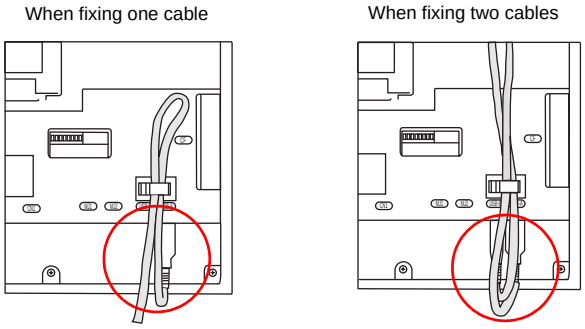


The dimensions of the unit with the USB cable clamp are shown below.



USB Cable Fixation

Fix the cable(s) with the USB cable clamp. If you clamp one cable, it may not be held securely in place. In such a case, loop the cable back and fix two lines with the clamp. To ensure secure cable clamping, keep the loop-back (circled area) as short as possible.



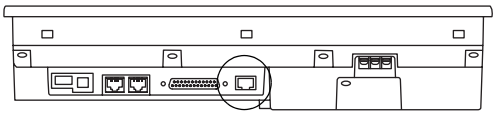
7. LAN Connector (LAN)

The LAN connector supports 100BASE-TX/10BASE-T.

LAN Connector

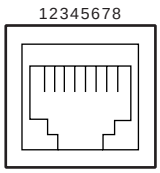
Use this connector for Ethernet connection.
Specification: IEEE802.3 (u) compliant, supporting UDP and TCP/IP

Bottom View



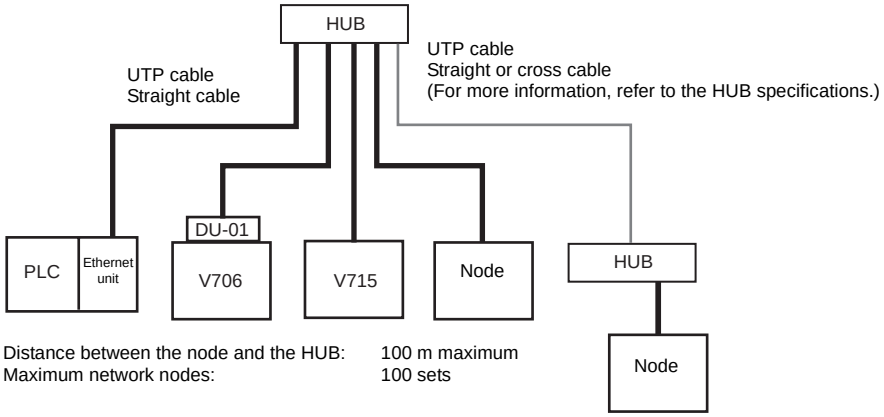
⚠CAUTION MJ1/2 and LAN connector are 8-pin modular jacks.
Check the name plate and insert the connector in the correct position.

The LAN connector pins correspond to signals as given below.

LAN	Pin No.	Signal Name	Contents
	1	TX+	Ethernet send signal (+)
	2	TX–	Ethernet send signal (–)
	3	RX+	Ethernet receive signal (+)
	4	NC	Not used
	5	NC	Not used
	6	RX–	Ethernet receive signal (–)
	7	NC	Not used
	8	NC	Not used

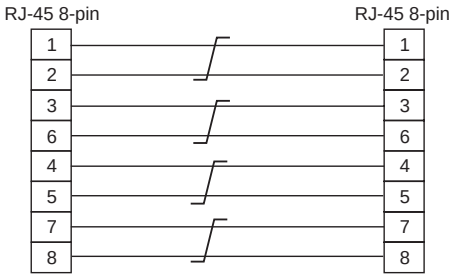
Notes on Wiring

CAUTION When using the LAN port, keep the LAN cable away from the power supply cable as much as possible.



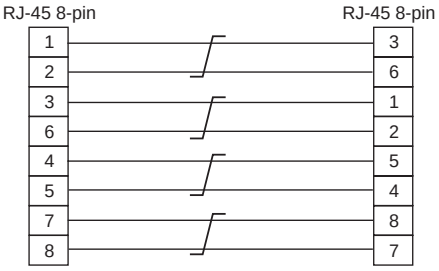
Cable Connection Diagram

Straight cable
(with HUB)



* Unshielded twist-pair cable

Cross cable
(without HUB)



* Unshielded twist-pair cable

Recommended Cable

Use the following recommended cable.

Recommended cable	100BASE-TX/10BASE-T	Type: Twist-pair cable, category 5

8. CF Card

Recommended CF Card

The recommended cards (CompactFlash ™ compliant CF cards) and their capacities are as shown below.

Manufacturer	Model	Capacity
SanDisk	SDCFB-64-J60	64 MB
	SDCFB-128-J60	128 MB
	SDCFB-256-J60	256 MB
	SDCFB-512-J60	512 MB
	SDCFB-1024-J60	1GB
I-O Data Device	CFS-32M(HI)	32 MB
	CFS-64M(HI)	64 MB
	CFS-128M(HI)	128 MB
	CFS-iV32	32 MB
	CFS-iV64	64 MB
	CFS-iV128	128 MB
	CFS-iV256	256 MB
	CFS-iV512	512 MB
	CFX-64M	64 MB

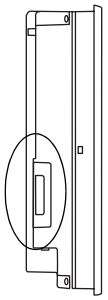
Notes on Handling the CF Card

1. MONITOUCH can recognize a CF card in the FAT file system. It cannot recognize a FAT32-formatted CF card.
2. Do not insert or remove the CF card during access. Doing so may destroy data on the CF card. The LED lamp on the CF card interface cover illuminates in red during access to the CF card. Check that the LED lamp has gone off before inserting or removing the CF card.
   * DIPSW2: OFF (Refer to the next page for details.)
3. Do not turn the power off or on during access to the CF card.
4. Make a backup copy of the CF card at regular intervals.
5. If a disk error occurs and data read/write operation is disabled, perform a scan disk on Windows and try to restore the disk.
   If not restored, format the CF card. Note that data on the CF card will be completely deleted by formatting. (For information on scan disk and Windows operations, refer to the manual for Windows.)
6. The number of writing times per CF card is limited (approx. 300,000 times). Consequently, frequent writing at short intervals may shorten service life of the CF card. When using a CF card to save sampling data, be aware of the sampling time. Also, avoid repeated writing using a CYCLE macro command.

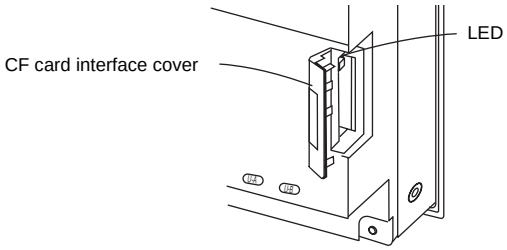
CF Card Connector

The CF card interface is provided on the side of the unit.

Side View



Enlarged View



LED

- When the cover is closed:
  LED: always lit.
- When the cover is opened:
  LED: status varies depending on the setting of the DIPSW2.

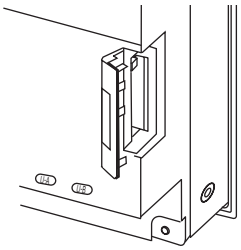
DIPSW2	OFF	ON
LED	OFF *	ON

* When the CF card interface cover is opened during access to the CF card, the LED is lit until access to the CF card is completed.

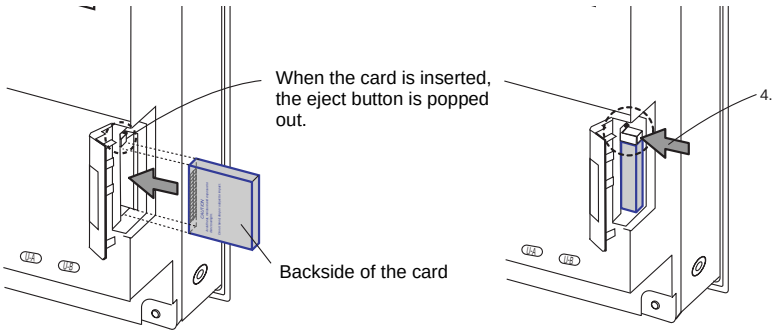
If the CF card is removed during access, the data on the CF card may be destroyed.
By setting the DIPSW2 to the OFF position, you can recognize that the CF card can be removed when the LED is OFF, or cannot be removed when the LED is ON. Therefore, normally set the DIPSW2 to the OFF position.

CF Card Insertion and Removal

1. Open the CF card interface cover.



2. Insert the card securely into the interface with the card backside outwards viewed from the rear of the unit as shown below.
3. Close the CF card interface cover. The LED lamp lights up in red.



4. To remove the card, open the CF card interface cover first. When the LED lamp has gone off, press the eject button. The CF card comes out.

USB Connectors

For more information, refer to page 2-14.

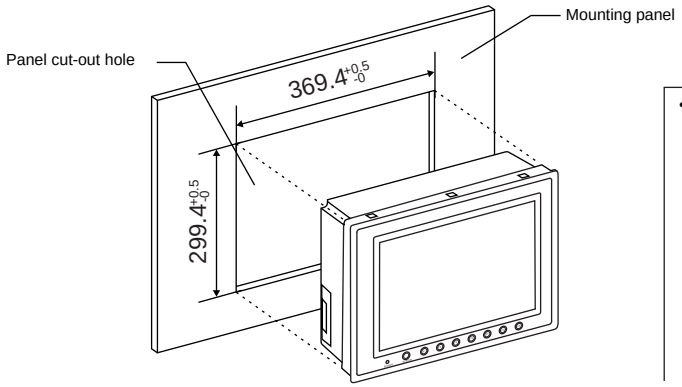
3 Installation

1. Mounting Procedure
2. Power Supply Cable Connection

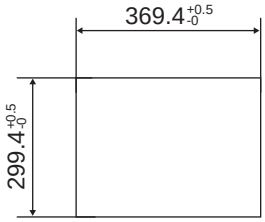
1. Mounting Procedure

Mounting Procedure

1. Insert the V715 into the mounting panel (max. thick: 5 mm).

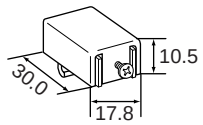


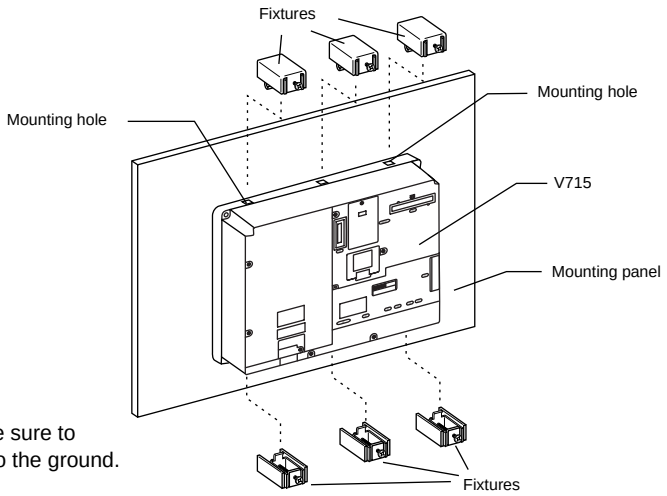
• Panel cut-out dimensions (Unit: mm)



2. Insert six fixtures attached to the V715 into the mounting holes, and tighten them with the locking screws.
   Tightening torque: 0.7 to 1.0 N•m

Fixture dimensions (Unit: mm)



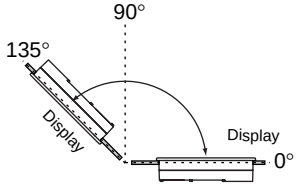


* To prevent static electricity, be sure to connect the mounting panel to the ground.

3. Mount the gasket so that it will be sandwiched securely between the unit and the mounting panel.

Mounting Angle

Install the unit within the angle of 0° to 135° as shown on the right.

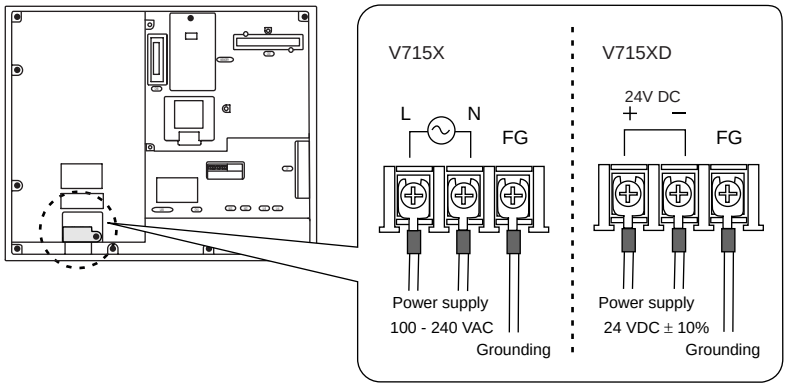


2. Power Supply Cable Connection

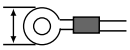
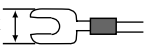
DANGER Electric shock hazard
Shut the power off before connecting the power supply cable.

Power Supply Cable Connection

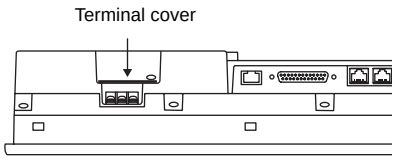
- Connect the power supply cable to the terminal on the backside of the unit.



- Tighten terminal screws on the power supply terminal block with the following torque.

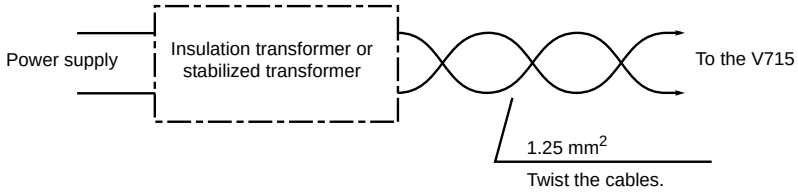
Terminal Screw		
Screw Size	Tightening Torque	Crimp-style Terminal (Unit: mm)
M3.5	0.5 N•m	7.1 MAX  7.1 MAX 

- The power source must be within the allowable voltage fluctuation.
- Use a power source with low noise between the cables or between the ground and the cable.
- Use as thick a power supply cable as possible to minimize drop in voltage.
- Keep power supply cables away from high-voltage, large-current carrying cables.
- Be sure to attach the terminal cover to the terminal block.



Notes on Usage of 100 - 240 VAC Specifications

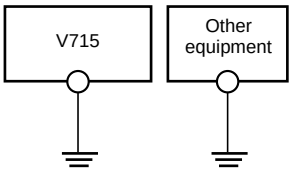
- Generally, an isolating transformer improves noise resistance. However, if the display unit is far away from the secondary port of the transformer and noise gets mixed in, an isolating transformer becomes unnecessary.
- If any power voltage fluctuation caused by noise is expected, it is recommended that a voltage stabilizer (effective in noise resistance) be used.



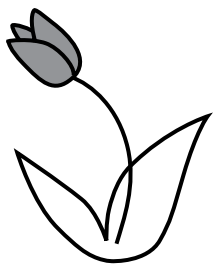
Grounding

⚠CAUTION Be sure to establish a ground of MONITOUCH.
(The level of grounding resistance should be less than 100Ω.)

- An independent earth pole must be used for MONITOUCH.
- Use a cable which has a nominal cross section of more than 2 mm^2 for grounding.
- Set the grounding point near MONITOUCH to shorten the distance of grounding cables.
- SG and FG are connected inside the unit.



MEMO



Please use this page freely.

4 Instructions

1. Coin-type Lithium Battery
2. DIP Switch
3. Function Switches

1. Coin-type Lithium Battery

CAUTION

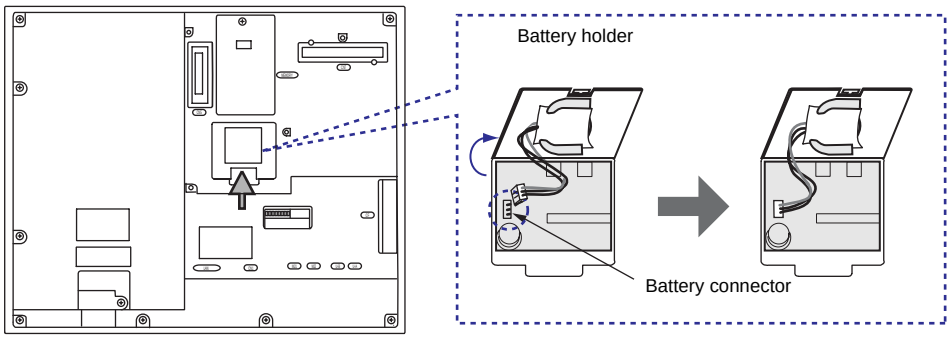
MONITOUCH is delivered without inserting the battery connector in the battery holder on the back of the unit.
Be sure to set the battery when using the calendar function or the SRAM.
Without battery, the contents in the SRAM or calendar will not be retained.

Battery Mounting Procedure

DANGER

Electric shock hazard
Steps 2 to 5 must be performed when the power to the V715 unit is turned off.

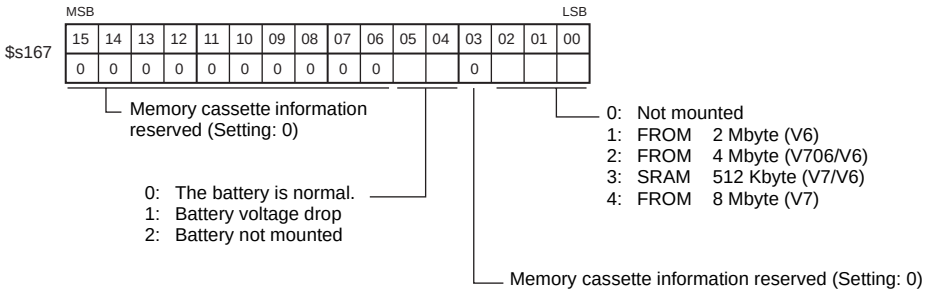
1. Turn the unit off.
2. Open the battery holder cover in the direction of the arrow as shown in the left illustration below.



3. Check that the battery is securely attached to the backside of the cover, and connect the battery connector.
4. Close the battery holder cover.
5. Enter a date five years from now for “Battery replacement” on the sticker on the battery holder.

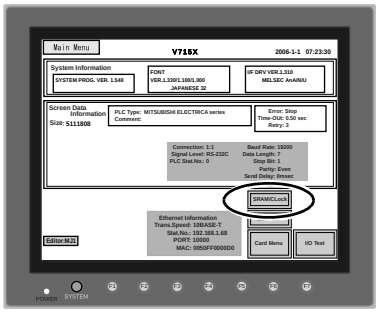
   * The battery status is output to the internal memory $s167 of the V715.
   If the battery voltage drops before five years has elapsed, replace the battery immediately.

Enter a date five years from now.



6. Turn on the power to the V715 unit and check on the Main Menu screen that the battery is correctly mounted.
   When the battery is not connected, the [SRAM/Clock] switch blinks and the message “Battery not set” is displayed at the bottom left corner. When the battery is correctly connected, the [SRAM/Clock] switch goes out and the message is cleared.
   When the battery voltage has dropped, the message “Brownout Battery” is displayed.

Main Menu screen



Battery Replacement

Safety Instructions on Handling the Battery

Lithium batteries contain combustible material such as lithium or organic solvent. Mishandling may cause heat, explosion or ignition resulting in fire or injury. To prevent accidents, pay attention to the following cautions when handling the lithium battery.

⚠CAUTION

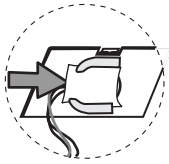
- Be sure to discharge static electricity from your body before battery replacement.
- Use the battery “V7-BT” (replacement battery) for replacement.
- Rough handling of the battery may cause a fire or chemical burn hazard.
- Do not disassemble, incinerate or heat the battery.
- Observe the local and governmental regulations when disposing of waste batteries.
- Keep batteries out of reach of children. (If swallowed, immediately consult a doctor.)
- Never re-charge the battery.
- When the battery leaks or smells, the leaking battery electrolyte may catch a fire. Keep from heat or flame.

Battery Replacement Procedure

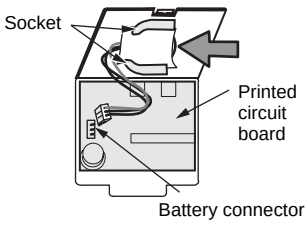
Replacement batteries are available from Hakko Electronics.

Name	Model	Contents
Battery for replacement	V7-BT	• Coin-type lithium primary cell 1 pce • Cautions sticker 1 pce

1. Replace the battery “V7-BT” within three minutes after the unit is turned off.
   If it is not possible to replace within three minutes, use the V-SFT editor or a CF card and make a backup copy of data in the SRAM cassette.
   - When using the V-SFT editor:
     1) Start the V-SFT editor.
     2) Click the [Transfer] icon. The [Transfer] dialog is displayed.
     3) Select [Display] for [Transfer Device] and [SRAM Data] for [Transfer Data].
        To save a backup copy through serial communication using the V6-CP cable:
        Keep [☐ Use Simulator], [☐ Read Comments in Data Transfer] and [☐ Transfer through Ethernet] unchecked.
        To save a backup copy from the V-SFT editor via Ethernet:
        Check [☐ Transfer through Ethernet/IP Address of the V7 Equipped with SRAM]. Keep [☐ Use Simulator] and [☐ Read Comments in Data Transfer] unchecked.
     4) Click the [PC <-] under [Transfer Method].
     5) Save the read data in the “∗.RAM” file.
   - When using a CF card:
     For the backup procedure with a CF card, refer to “Chapter 6 MONITOUCH Operations.”
2. Turn the unit off, and open the battery holder. A battery is set at the socket.
3. Unplug the battery connector. Slide the battery toward the direction shown in the figure on the right, and remove the battery from the socket.



4. Set a new battery. Fit the battery into the socket in such a manner that the red cable side of the battery faces the board and the cable is on the left of the battery. Before fitting the battery into the socket, slide it toward the direction shown in the figure on the right.
5. Plug in the battery connector and close the battery holder cover.
6. Remove the existing caution sticker. Enter a date five years from now for “Battery replacement” on the new caution sticker, and attach it to the battery holder.



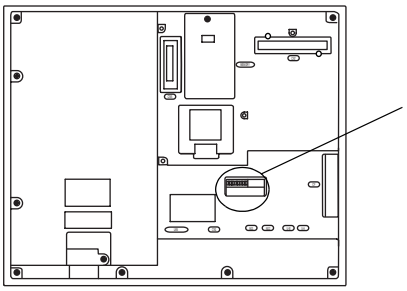
7. When the backup copy of the SRAM data has been saved in step 1, turn on the unit and load the data to the unit.

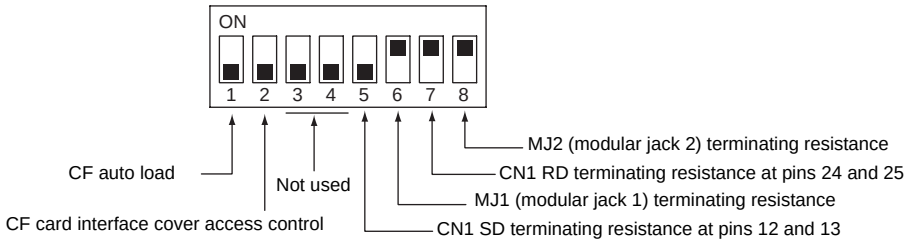
2. DIP Switch

DIP Switch (DIPSW) Setting

When setting the DIP switch, turn the power off. (The following figure shows the DIP switch setting upon delivery.)

Rear View





DIPSW1 (CF Auto Load)

Set the DIPSW1 to the ON position when auto-loading a screen data file saved on a CF card.

- Procedure

1. Transfer screen data from the computer to a CF card. (Refer to the Reference Manual for more information.)
2. Set DIPSW1 in the ON position, and insert the CF card that contains the screen data file.
3. Turn the V715 unit on. The screen data is automatically loaded into the FLASH memory of the unit.

DIPSW2 (CF Card Interface Cover Access Control)

With the DIPSW2, the LED status when the CF card interface cover is opened can be set.
Set the DIPSW2 to the OFF position normally.

When the cover is opened:

DIPSW2	OFF	ON
LED	OFF*	ON

* When the CF card interface cover is opened during access to the CF card, the LED is lit until access is completed.

DIPSW3, 4 (Not Used)

Set the DIPSW3 and 4 to OFF.

DIPSW 5, 6, 7, 8 (Terminating Resistance Setting)

- When connecting the PLC at CN1 via RS-422/485 interface (2-wire connection), set DIPSW7 to the ON position.
- When connecting the PLC at CN1 via RS-422/485 interface (4-wire connection), set DIPSW5 and 7 to the ON position.
- For the following connections at modular jack 1 (2), set DIPSW6 (DIPSW8) to the ON position.
  - Master station for multi-link 2 connection
  - Temperature controller network/PLC2Way connection via RS-485
  - Card recorder: Connection with the CREC (optional)
  - Serial extension I/O: Connection with the V-I/O (optional)
  - Connection to the V715 at the termination of V-Link connection via RS-485

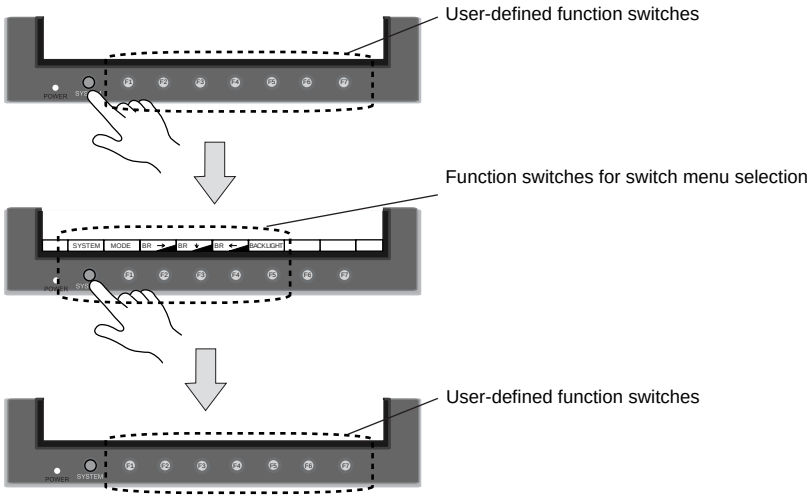
3. Function Switches

Types

- There are eight function switches provided.
  [SYSTEM], [F1], [F2], [F3], [F4], [F5], [F6], [F7]

[SYSTEM] Switch

The [SYSTEM] switch works in “alternate” operations.
When this switch is pressed once, the switch menu is displayed at the upper side of the function switches [F1] to [F7], and each function switch corresponds to the menu item displayed in the switch menu. When the [SYSTEM] switch is pressed again, the switch menu disappears, and the function switches [F1] to [F7] work as defined by the user (page 4-7).



* How to enable the [SYSTEM] switch when it is prohibited:
Hold down the [SYSTEM] key while pressing the [F7] key for the time specified for [Mode Change Delay Time].
[Mode Change Delay Time] is set on the V-SFT editor.

User-defined Function Switches [F1] to [F5]

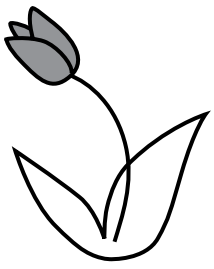
- When the V715 is in the STOP mode, the function switches do not work.
- When the V715 is in the RUN mode and the switch menu by the [SYSTEM] switch is not displayed, the function switches can be defined by the user.
- User-defined function switches should be set in the following dialogs of the V-SFT editor.
  - Settings for each screen
    [Edit] → [Local Function Switch Setting] → [Function Switch Setting] dialog
  - Setting for all screens
    [System Setting] → [Function Switch Setting] → [Function Switch Setting] dialog

[F1] to [F5] Switch Functions with Switch Menu

<table>
<tr><td></td><td>Functions</td><td colspan="3">Contents</td></tr>
<tr><td>F1</td><td>Mode</td><td colspan="3">Selects the operation mode between STOP ↔ RUN.*2</td></tr>
<tr><td rowspan="4">F2
F3
F4</td><td rowspan="4">Brightness</td><td colspan="3">Adjusts the screen brightness in three levels.</td></tr>
<tr><td>F2</td><td colspan="2">Bright</td></tr>
<tr><td>F3*1</td><td colspan="2">Medium</td></tr>
<tr><td>F4*1</td><td colspan="2">Dark</td></tr>
<tr><td rowspan="3">F5</td><td rowspan="3">Backlight</td><td colspan="3">Turn the backlight on and off.
Backlight control should be set on the V-SFT editor.
([System Setting] → [Unit Setting] → [Unit Setting] dialog, [Backlight] tab window)</td></tr>
<tr><td>Always ON</td><td>Auto 1/Auto 2/Auto 3</td><td>Manual/Manual 2</td></tr>
<tr><td>Ignored</td><td>• The [F5] switch turns the backlight off.
• This is valid when the backlight control bit (bit 11) in the read area “n + 1” in the system memory is reset (OFF: 0).</td><td>• Manual
The [F5] switch turns the backlight off. To turn it on, press somewhere on the screen or a function switch.
• Manual 2
The [F5] switch turns the backlight on and off.
• [Backlight Power ON Time Control] that determines the backlight status at power-up becomes valid.
When the power is turned on:
ON → Backlight ON
OFF → Backlight OFF</td></tr>
</table>

*1 When a medium or dark brightness is set, the backlight service life may become shorter.
*2 How to enable the [MODE] switch when it is disabled:
Press the [SYSTEM] key of the V715 unit to display the menu, and hold down the [F1] key (= [MODE] switch) while pressing the [F7] key for the time specified for [Mode Change Delay Time]. [Mode Change Delay Time] is set on the editor.

MEMO



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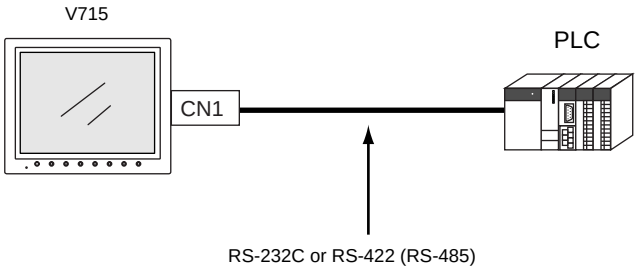
5 Connections

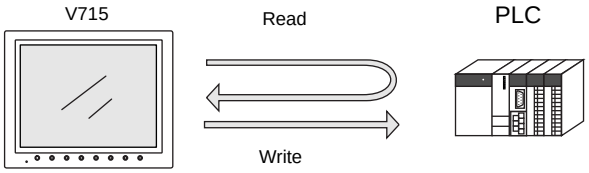
1. 1 : 1 Connection
2. 1 : n Connection (Multi-drop)
3. n : 1 Connection (Multi-link 2)
4. n : 1 Connection (Multi-link)
5. Universal Serial Communications
6. V-Link
7. PLC2Way
8. Temperature Control Network
9. Ethernet
10. Other Networks

1. 1 : 1 Connection

- One set of the V715 is connected to one PLC (1 : 1 connection).



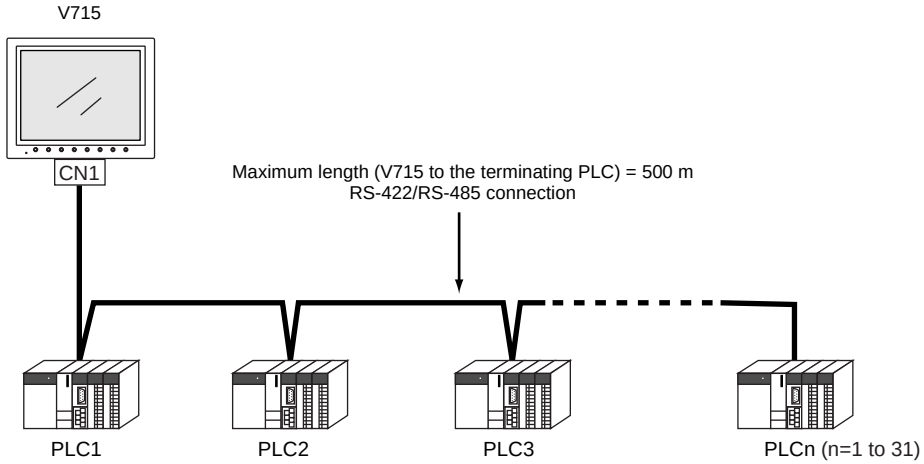
- The host link unit of the PLC or the CPU port is used and the V715 (master station) establishes communications according to the protocol of the PLC. Consequently, it is not necessary to have the dedicated communication program on the PLC (slave station). The V715 reads the PLC memory for screen display. It is also possible to write switch data or numerical data entered through the keypad directly to the PLC memory.



- For more information on wiring and communication settings, refer to the PLC Connection Manual.

2. 1 : n Connection (Multi-drop)

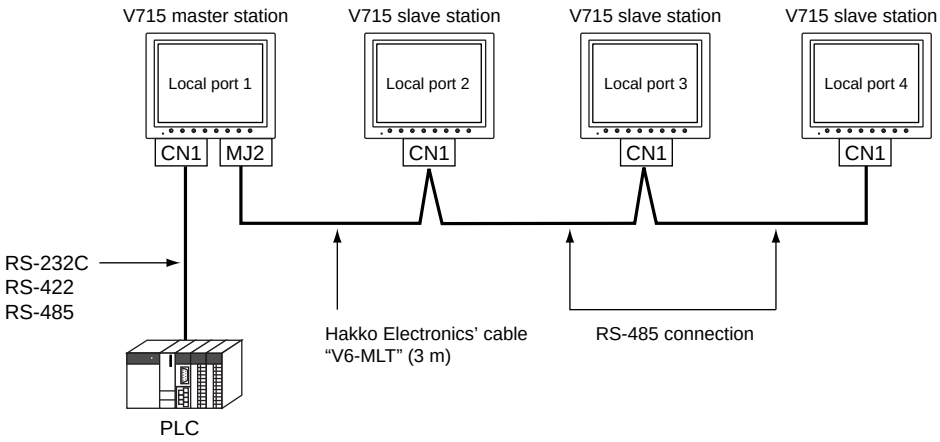
One V715 is connected to multiple PLCs. (Maximum connectable PLCs: 31)



- For more information on wiring and communication settings, refer to the PLC Connection Manual.

3. n : 1 Connection (Multi-link 2)

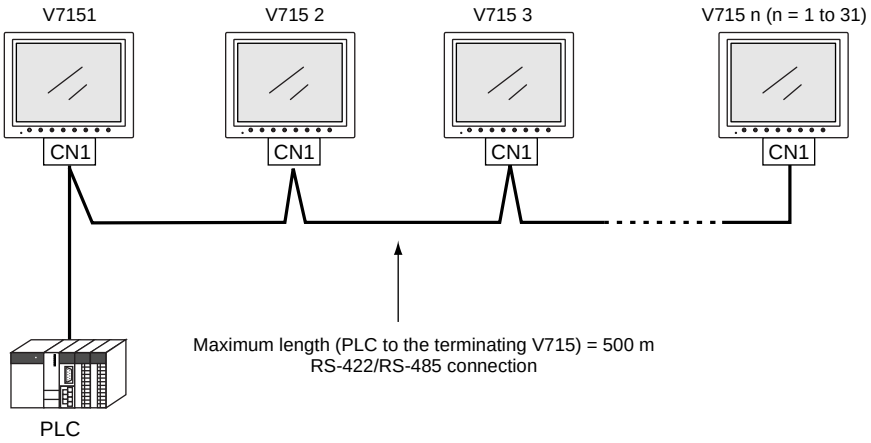
- One PLC is connected to a maximum of four V715 units.
- An original network is created where the V715 (Local Port 1) that is directly connected to the PLC is the master station, and other three V715 units are slave stations. Only the master station makes communications directly with the PLC, and the slave stations make communications with the PLC via the master station.



- Communications between the V715 master station and the PLC depend on the communication speed set on the PLC. The maximum available speed for the V715 is 115 Kbps, which is higher than the one available with multi-link connection described in "4. n : 1 Connection (Multi-link)."
- This multi-link connection is available with almost all the PLC models that support 1 : 1 connection. (The connection between the master station and the PLC is the same as the one for 1 : 1 connection.)
- Use the RS-485 2-wire connection between stations of the V715. Please use Hakko Electronics' multi-link 2 master cable (V6-MLT) for connection between the master station (Local Port 1) and the slave station (Local Port 2).
- The V715, V7 series and V6 series can be used together. The V6 series can be the master station.
  (However, when V606/V606i is the master station, the slave station must be V606/V606i. Also, depending on the hardware version of the V6 series, multi-link 2 connection may not be supported. Refer to the V6 Hardware Specifications.)
- For more information on wiring and communication settings, refer to the PLC Connection Manual.

4. n : 1 Connection (Multi-link)

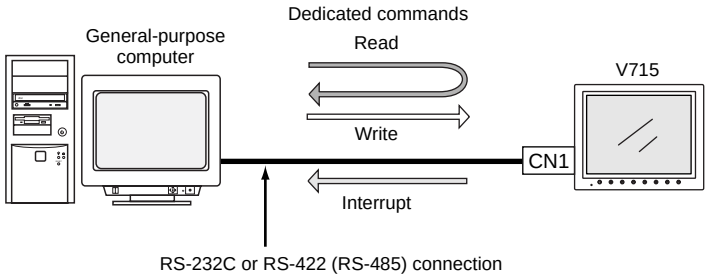
- One PLC is connected to multiple V715 units. (Maximum connectable units: 31)



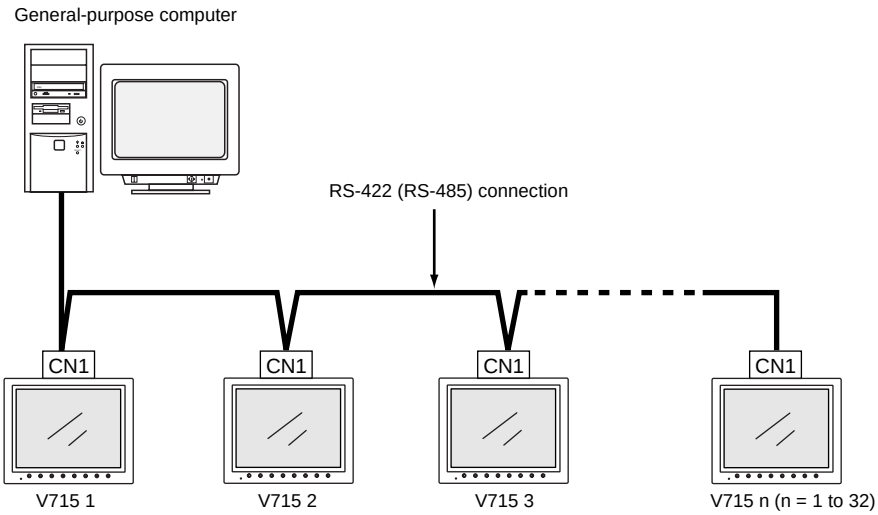
- The PLC must be of the type of signal level RS-422/RS-485 with port numbers.
  RS422 connection between V715 ↔ PLC must be in 2-wire connection.
- The V715, V7 series and V6 series can be used together.
- For more information on wiring and communication settings, refer to the PLC Connection Manual.

5. Universal Serial Communications

- A general purpose computer or an ASCII unit of the PLC (master station) controls the V715 (slave station) using dedicated commands.



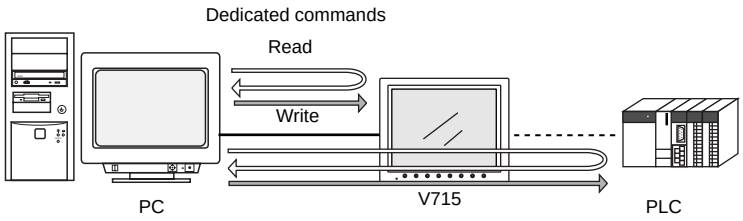
- The V715 internal user memory addresses ($u) must be used for memory allocation for switch, lamp or data display parts.
  When the master station specifies a screen number, data is written to the internal memory address ($u) allocated for the screen. If the screen is switched internally, the new screen number is read and is written to the internal memory address ($u) allocated for the screen.
- For 1 : 1 connection, the V715 can send an interrupt to the master station through switch activation, write command from the keypad, and screen change.
- Use CN1 of the V715 for connection with a general-purpose computer. Either signal level RS-232C or RS-422 (RS-485) can be selected.
- In addition to 1 : 1 connection, 1 : n connection is available among the general-purpose computer and multiple V715 units via RS-422.
  The V715, V7 series and V6 series can be used together. (Maximum connectable units: 32)
  For 1 : n connection, interrupts cannot be used.



- For more information, refer to the PLC Connection Manual.

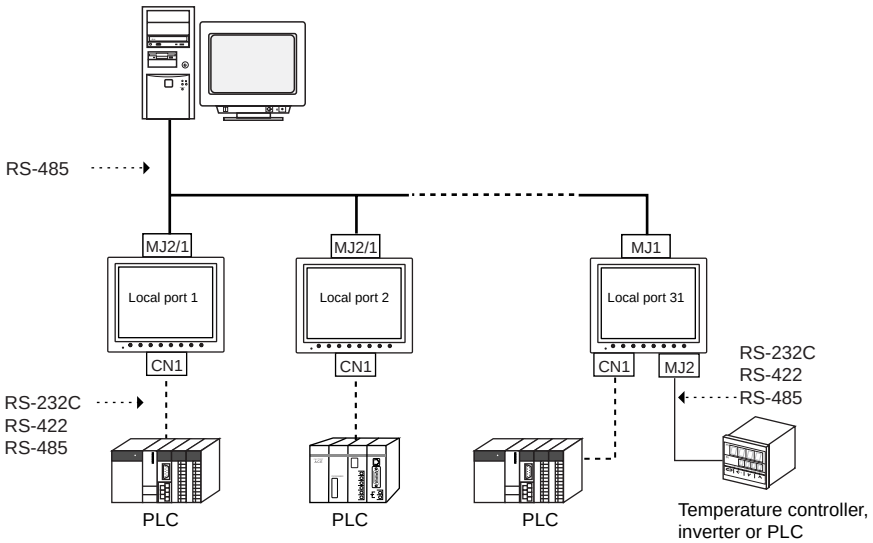
6. V-Link

- “V-Link” is the network where the computer reads from and writes to the internal memory of the V715, memory card, PLC memory or temperature control/PLC2 memory using a dedicated protocol.



- Use the MJ port of the V715 to connect with a general-purpose computer. For connection to the PLC using a temperature controller or the PLC2Way function, use the other MJ port and use CN1 for communications with the PLC. Data of the PLC or temperature controller can be collected through communications with the V715. Data collection is available even between the products of different manufacturers.
- Either signal level RS-232C or RS-485 can be selected.
  With RS-232C, one V715 unit can be connected; with RS-485, a maximum of 31 units of the V715 can be connected.

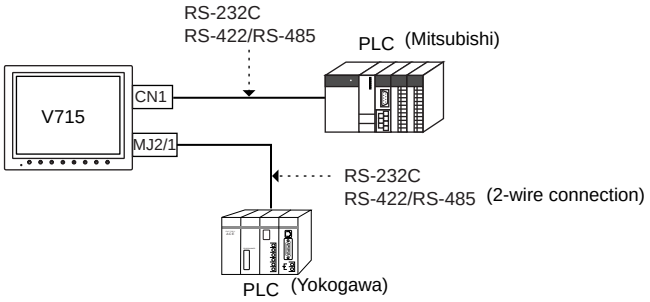
<RS-485 connection>



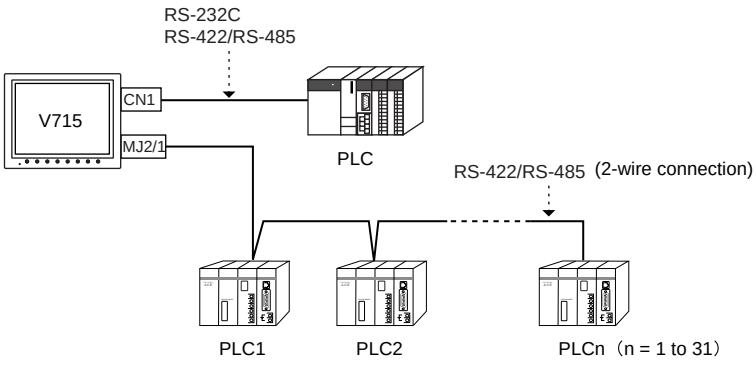
- For more information, refer to the PLC Connection Manual.

7. PLC2Way

- The “PLC2Way” function is an original network function where one V715 can be connected to two PLCs. Even if the manufacturers of these PLCs are not the same, they can be connected to one V715.



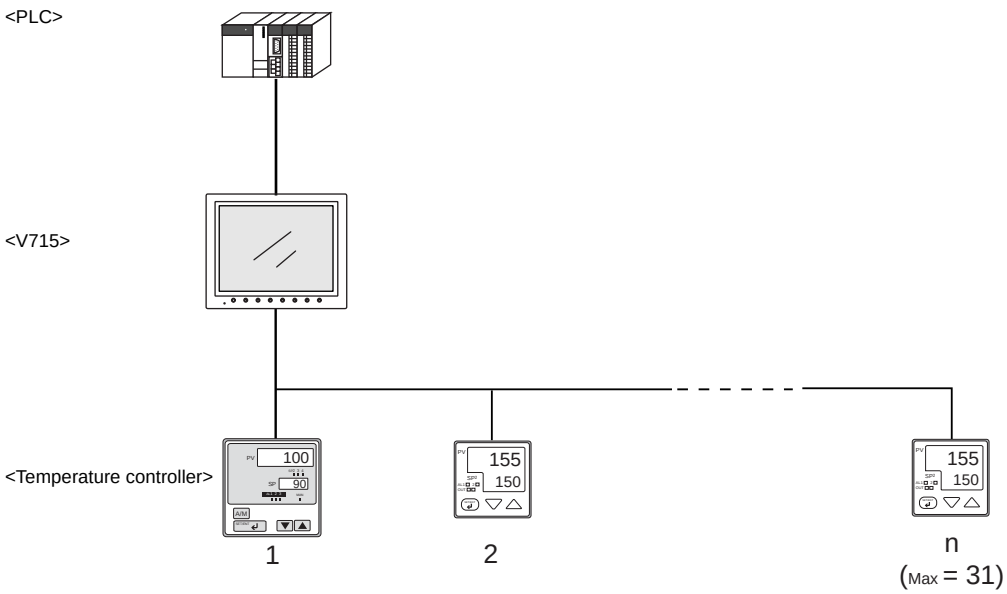
- Connect one PLC to the CN1 connector, and the second PLC (PLC2Way) to the MJ port.
- With the PLC2Way function, it is possible to communicate with PLCs without special program in the same way as 1 : 1 connection.
  Two PLCs that are connected to the V715 are controlled at the same time, and memory read/write operations are available with these two PLCs.
- Connection at the MJ port can be performed via RS-232C or RS-485 (2-wire).
  With RS-232C, one PLC can be connected; with RS-485, a maximum of 31 PLCs can be connected.



- Periodical reading/sampling of PLC data on the PLC2Way side
  When read/write memory addresses are preset on the temperature control network/PLC2Way table, background data reading is performed at regular intervals. It is also possible to save the read data in the V715 internal buffer, SRAM or CF card.
- Data transfer between PLCs
  The PLC memory data can be transferred to another PLC in blocks using a macro command.
- For more information, refer to the PLC Connection Manual.

8. Temperature Control Network

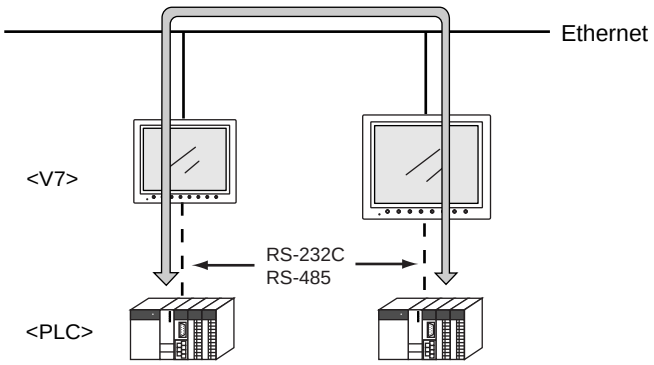
- Using the temperature control network, the V715 can be connected to the temperature controller or inverter.
  With RS-232C, one PLC can be connected; with RS-485, a maximum of 31 temperature controllers can be connected.



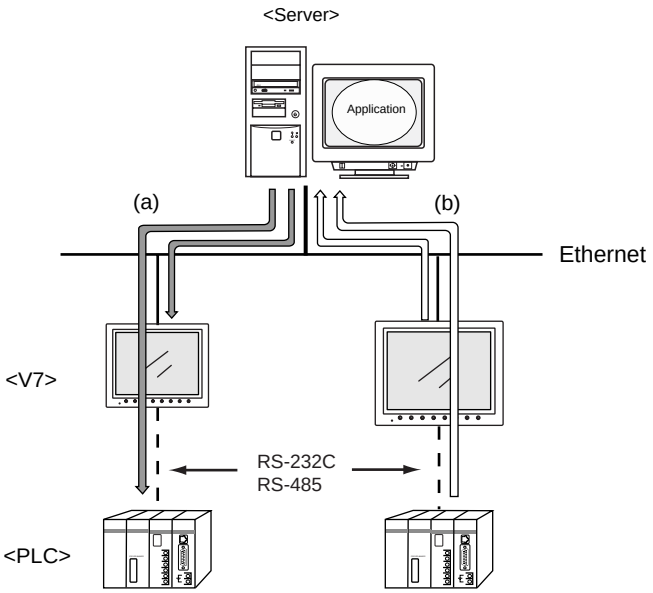
- Data of temperature controllers connected to the V715 can be set or monitored.
- Periodical reading/sampling of temperature controller data
  When read/write memory addresses are preset on the temperature control network/PLC2Way table, background data reading is performed at regular intervals. It is also possible to save the read data in the V715 internal buffer, SRAM or CF card.
- Data transfer
  It is also possible to transfer data in the PLC memory, the V715 internal memory or a memory card to the temperature controller at one time using a macro command. Conversely, data in the temperature controller can be transferred to the PLC memory, the V715 internal memory or a memory card at one time.
- For more information, see the Temperature Control Network Manual.

9. Ethernet

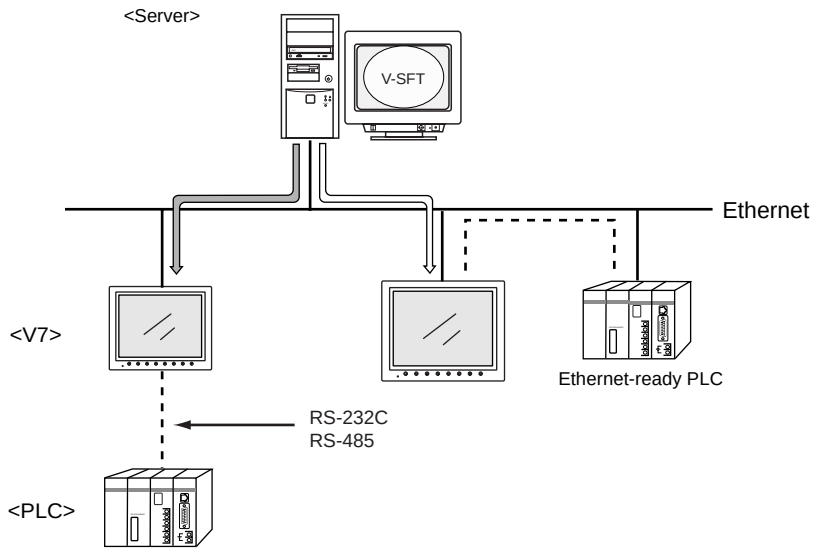
- Transferring data in memory
  Data in memory can be transferred to the V715 on the Ethernet or to the PLCs linked to the V715 as a host by using macro commands (EREAD/EWRITE).



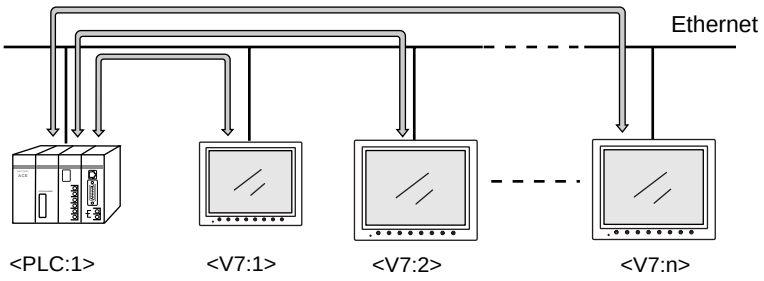
- Communications between the server and the V715
  - "HKEtn10.dll" (for UDP/IP protocol) is provided so that the user can create an original application by using Visual C++ or Visual Basic, etc. to allow the server to access the memory device, such as the V715 internal memory, memory card or the PLC memory linked with the V715 as a host..... (a)
  - The macro command (SEND) enables the V715 to access the server..... (b)



- Screen data can be transferred from the V-SFT editor on the server to the V715.

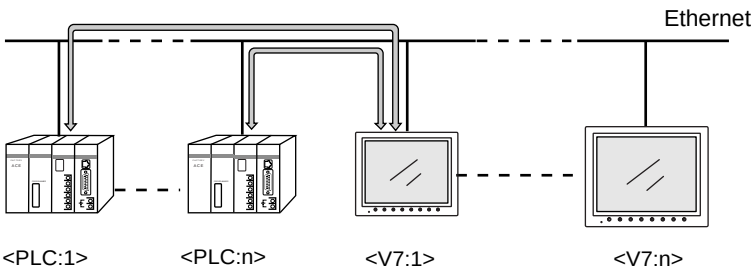


- Communications between the Ethernet-ready PLC and the V715
  - The V715 can communicate with the PLC on the Ethernet.



* Ethernet-ready PLC only

  - The V715 can communicate with multiple PLCs on the Ethernet.



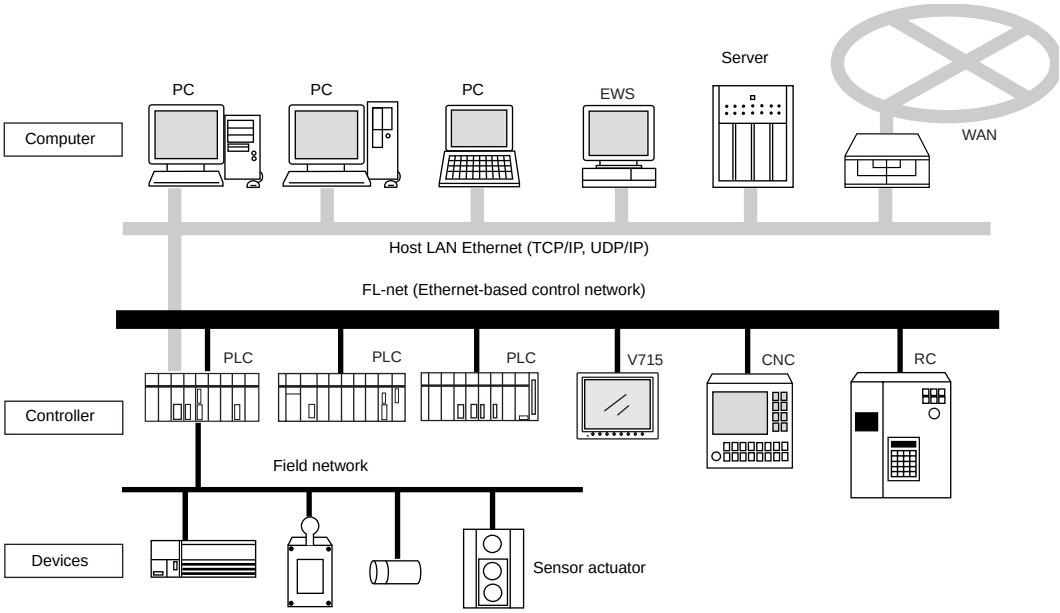
* Ethernet-ready PLC only

- For more information, refer to the PLC Connection Manual.

10. Other Networks

FL-net (OPCN-2)

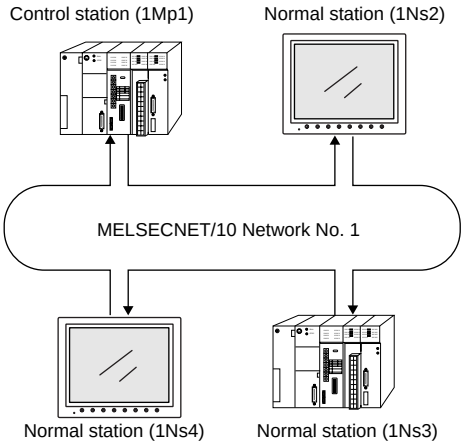
- FL-net (OPCN-2) is standard specifications of the controller-level FA network that the Manufacturing Science and Technology Center has developed, which enables a communication network between multi-vendor programmable controllers, NCs and robot controllers.
  It is possible to connect FA controllers and computers, such as programmable controllers (PLCs) or NC controllers (CNCs), of different manufacturers as shown below for control and monitoring.



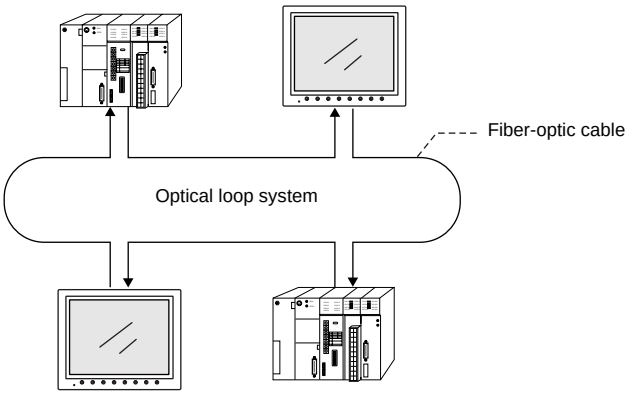
- To use FL-net (OPCN-2) communications on the V715, the communication interface unit “CU-03-2” must be mounted. When the V715 is equipped with the communication interface unit CU-03-2, it becomes an FL-net (OPCN-2)-ready device.
- When CU-03-2 is mounted for FL-net (OPCN-2) communications on the V715, the 10BASE-T/100BASE-TX connector (LAN) provided on the unit cannot be used. Consequently, it is not possible to use FL-net (OPCN-2) communications and Ethernet communications at the same time.
- For more information, refer to the Specifications for Communication Unit FL-net.

MELSECNET/10

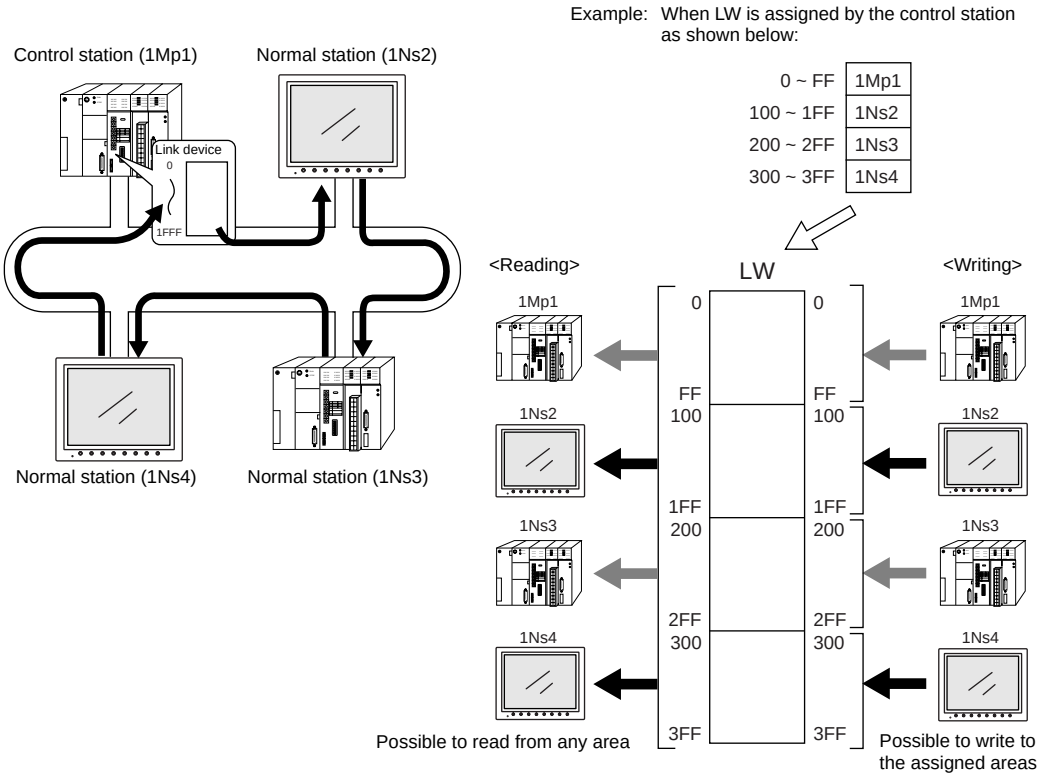
- MELSECNET/10 is the network system that is developed by Mitsubishi Electric Corporation. When the V715 is equipped with the communication interface unit CU-05, it can work as a NET/10 station (a sub-control station).



- For communications with the PLC, no program is required in the same way as communications via a link unit.
- The V715 supports the optical loop system of NET/10. Use fiber-optic cables for connection.



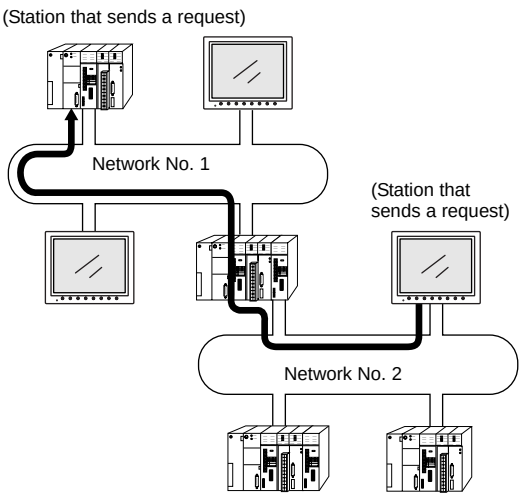
- This network system supports cyclic transmission and enables direct reading from link devices (LB, LW, LX or LY).
  Also it is possible to directly write data to link devices that are assigned by the control station.



- Transient transmission is also supported.
  It is possible to access to memory addresses such as D or M that are usable with the ordinary 1 : 1 communications. All the memory areas in the PLCs on NET/10 can be accessed.

> Note:
>
> Transient transmission is slower than cyclic transmission (2- or 3-times longer response time than cyclic transmission). To achieve high-speed communications, use cyclic transmission.

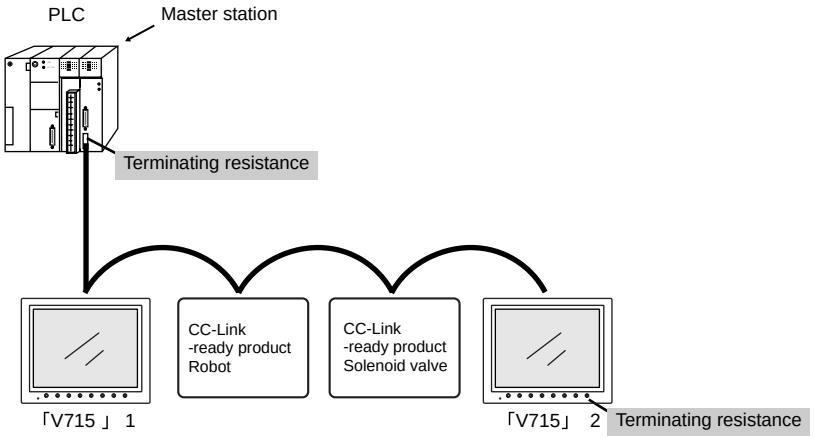
- For more information, refer to the Specifications for Communication Unit "NET/10."



CC-Link

- CC-Link is the network that is developed by Mitsubishi Electric Corporation.
  The V715 works as a local station (intelligent device station).
- To use CC-Link communications on the V715, the communication interface unit “CU-02” must be mounted. When the V715 is equipped with the communication interface unit CU-02, it becomes a CC-Link-ready device.
- For communications with the PLC, no program is required in the same way as communications via a link unit.
- It is possible to perform high-speed communications by connecting multiple remote/local stations to one master station (PLC).

  Example: System configuration with two V715 units



- For more information, refer to the Specifications for Communication Unit CC-Link.

OPCN-1

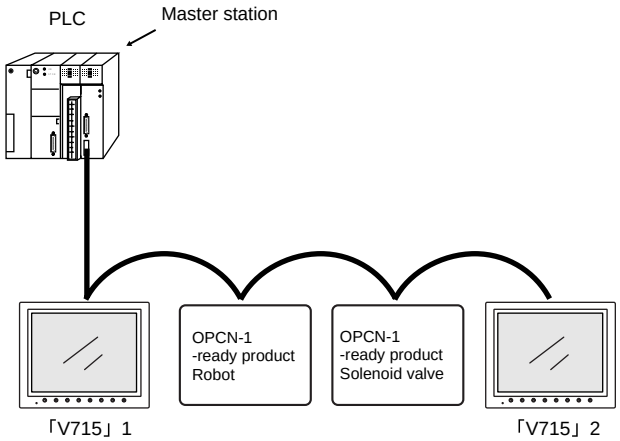
- To use OPCN-1 communications on the V715, the communication interface unit “CU-00” must be mounted. When the V715 is equipped with the communication interface unit CU-00, it becomes an OPCN-1-ready device.
- The V715 that supports OPCN-1 communications is a programmable display that can perform data transfer with the master station (PLC, etc.) in compliance with “JEM-F3008 programmable controller field network standard (level 1)” (normally called “OPCN-1”) that is determined by the Japan Electrical Manufacturers’ Association.
- The GET/PUT service is supported, and communications with the PLC can be performed without program in the same way as communications via a link unit.
- The V715 that supports OPCN-1 communications falls in the TYPE-S51I class.

TYPE- S 5 1 I

- Insulated/Not insulated
  - I: Insulated
  - U: Not insulated
- Wiring method
  - 1: 2-wire connection
  - 2: 3-wire connection
- Transmission range
  - 1: 125 kbps
  - 2: 250 kbps
  - 3: 500 kbps
  - 4: 1 Mbps
  - 5: All baud rates
- Unit type
  - M: Master
  - S: Slave
  - A: Master/Slave

- It is possible to perform high-speed communications by connecting multiple slave stations to one master station (PLC).

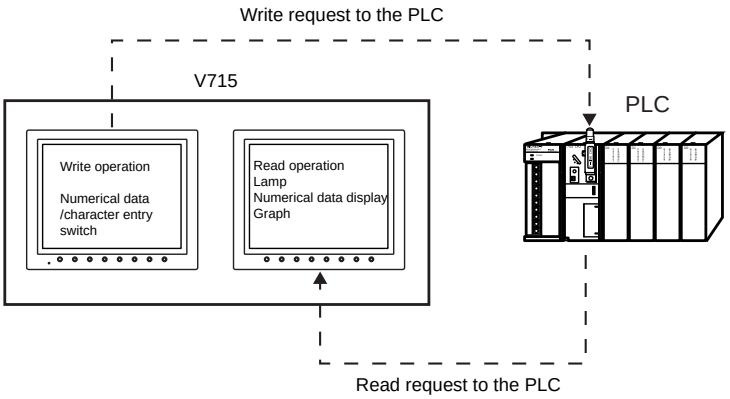
  Example: System configuration with two MONITOUCH units



- For more information, refer to the Specifications for Communication Unit JPCN-1.

T-LINK

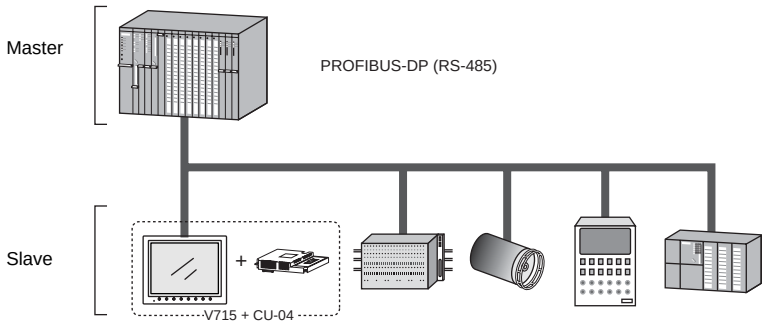
- To use T-LINK communications on the V715, the communication interface unit “CU-01” must be mounted. When the V715 is equipped with the communication interface unit CU-01, it becomes a T-LINK-ready device.
- The V715 that supports T-LINK communications can perform long-distance high-speed data transmission with the Fuji Electric’s PLC MICREX-F series.
- The V715 updates the display when the read data (V715 ← PLC) is changed. The V715 reads data from the PLC memory addresses that are allocated to the items placed on the screen, such as lamp parts or counter parts.
  When switch data or counter setting data on the V715 should be written, the V715 issues a write command to the PLC and writes the output data to the PLC memory.
  These operations are automatically performed on the V715 and no special communication program is required on the PLC side.



- For more information, refer to the Specifications for Communication Unit T-LINK.

PROFIBUS-DP

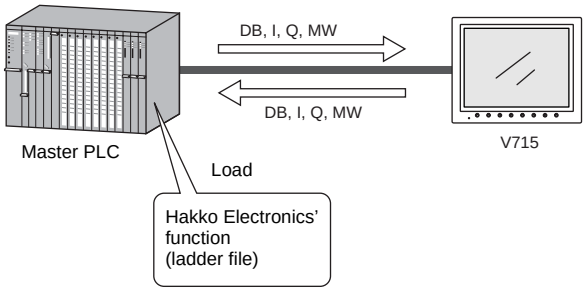
- PROFIBUS is an open field bus independent on the bender that is used for various applications in factory automation and process automation.
  PROFIBUS provides a communication protocol (communication profile) that supports system hierarchy, i.e. DP and FMS.
- When the V715 is equipped with the communication interface unit CU-04, PROFIBUS-DP communications can be performed.



The V715 can work as a slave station on PROFIBUS-DP.
A maximum of 12 Mbps is available (automatically set to the BUS baud rate).
The signal level is RS-485.

* The V715 can only communicate with the master PLC.

- PROFIBUS-DP supports I/O communications only.
  With I/O communication, it is not possible to directly access the device memory (DB or MW) used in the CPU. To enable the V715 to have direct access to these memory devices, Hakko supplies the function (ladder file) for message communications. When this function is loaded in the master CPU, message communications using Hakko Electronics' original protocol are enabled, and the V715 can have access to any memory address.

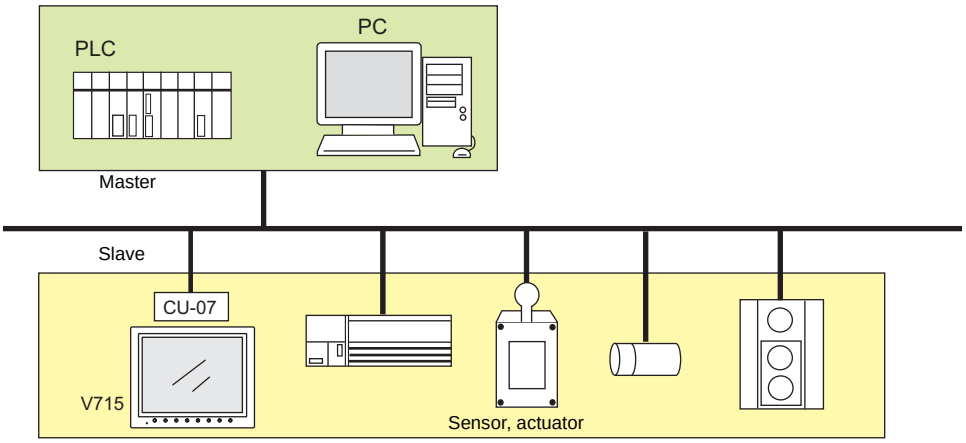


- For the procedure of loading Hakko Electronics' function, refer to the Specifications for Communication Unit PROFIBUS-DP.

DeviceNet

- DeviceNet is an open field network that aids in interconnecting individual control devices, such as PLCs, computers, sensors, or actuators.
  For more information on the DeviceNet, refer to the DeviceNet Specification issued by ODVA*.

  * Open DeviceNet Vendor Association, Inc.
    ODVA, Open DeviceNet Vendor Association, Inc., is an independent organization that controls the DeviceNet specifications. ODVA is formed by vendors with the objective of achieving widespread use of its DeviceNet globally.



- The V715 can communicate with other components as a slave of the DeviceNet with a communication interface unit CU-07 installed.
- The CU-07 supports the I/O message polling function.

6 MONITOUCH Operations

1. Operation Procedure
2. Main Menu Screen

1. Operational Procedures

MONITOUCH Operation

Follow the procedure below to operate MONITOUCH.

1. Installation and wiring
   For more information, refer to “Chapter 3.”
2. Connection with devices including a PLC and a temperature controller
   For instructions and precautions on wiring between MONITOUCH and other devices, refer to the separate “PLC Connection Manual.”
3. MONITOUCH power-on
   - New MONITOUCH

   - Other than the above
     When the check screen below and then the next user screen are displayed correctly, go to step 5.

4. Screen data creation and transfer
   - New MONITOUCH
     Refer to “Initial Screen” (page 6-2).
   - Other than the above
     Refer to Chapter 5, “Data Transference” in “Reference Manual (Operation).”
5. Operation start
   MONITOUCH becomes operable with a PLC or a computer connected to it.

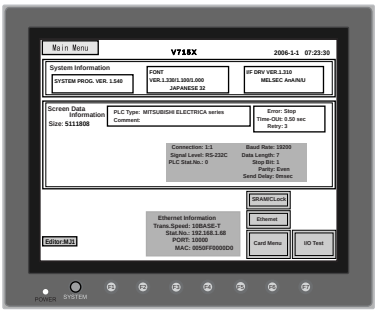
   * If MONITOUCH does not operate normally and shows an error message, eliminate the cause by referring to “Chapter 7.”

Initial Screen

When the power of MONITOUCH is turned on for the first time, the Main Menu screen shown below is displayed.

Initial screen displayed when power is turned on for the first time

Main Menu screen after transferring screen data

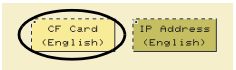


Transferring Screen Data for the First Time

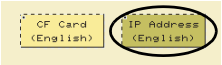
There are four methods for transferring screen data for the first time.

1. Transferring screen data via the V6-CP or USB cable
   Transfer screen data from the computer while the initial screen is displayed.

2. Transferring screen data using the CF card or the memory card and the card recorder (CREC)
   1) Transfer screen data from the computer to the desired card.
   2) Insert the CF card into the V715 unit or connect the card recorder and insert the memory card into the card recorder (CREC).
   3) Press the [CF Card (English)] switch on the screen.The “Card Menu” screen is displayed.
   4) Follow the instructions as described in “Card Menu Screen” (page 6-12) and transfer screen data.



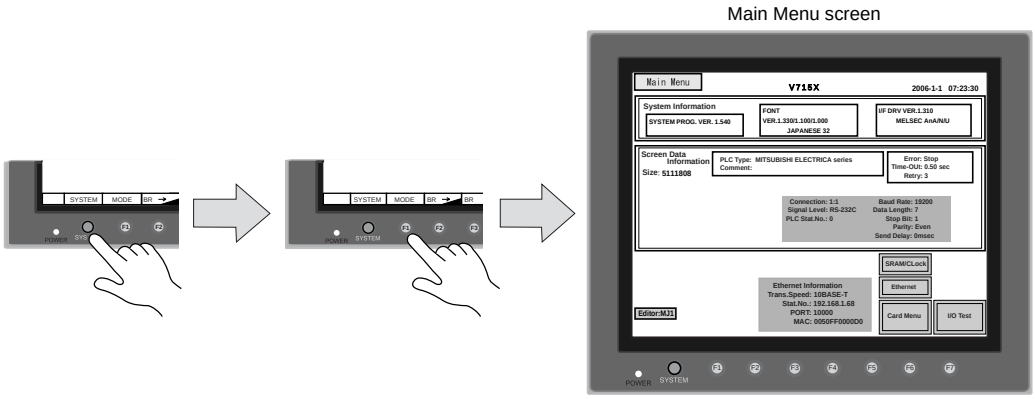
3. Transferring screen data via Ethernet
   1) Press the [IP Address (English)] switch on the screen.
   2) The “Ethernet” screen is displayed.
      Follow the instructions as described in “Ethernet” (page 6-25) and set the IP address.
      Press the [Setting Finished] switch. The initial screen is displayed again.
   3) Transfer screen data from the computer via Ethernet.



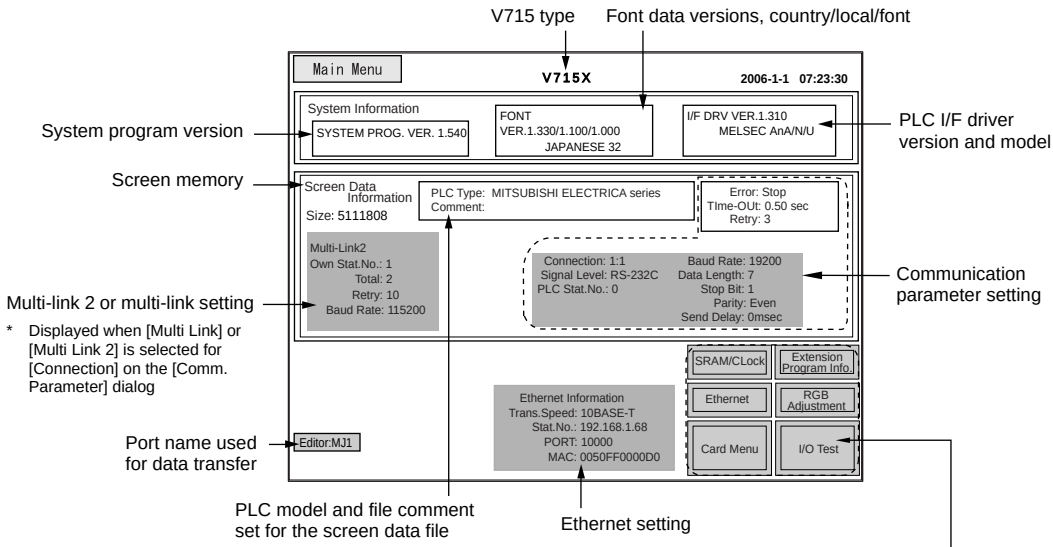
4. Auto-uploading screen data from the CF card to the V715
   1) Transfer screen data from the computer to a CF card.
   2) Turn the V715 unit off. Set the DIPSW1 on the V715 unit to the ON position, and insert the CF card.
   3) Turn the V715 unit on. The screen data is automatically uploaded from the CF card to the V715.

2. Main Menu Screen

- To bring up the Main Menu screen in the RUN mode, press the [SYSTEM] switch and then the [F1] switch while the vertical menu is displayed.



- The Main Menu screen indicates the V715 type, system information, and screen data information.
- The Main Menu screen is the system menu screen for transferring screen data between a computer and the V715.
  When transferring screen data from a computer to the V715 through serial communication, this Main Menu screen must be displayed. (However, if [Editor Port] is selected for [Modular Jack 1] or on-line editing is used, it is not necessary to bring up this screen.)



SRAM/Clock
: Formats SRAM and adjusts calendar data. (Refer to page 6-27.)

Ethernet
: Sets the IP address. (Refer to page 6-24.)

Card Menu
: Transfers screen data between the CF card and the V715. (Refer to page 6-12.)

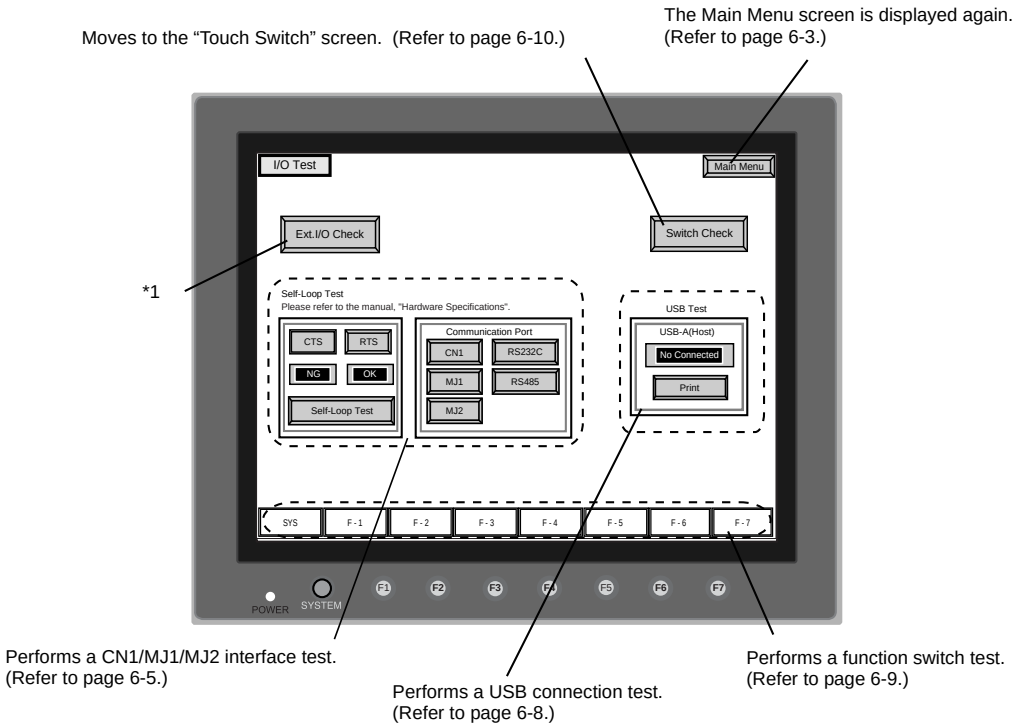
Extension
: Indicates the driver setting and parameter setting for temperature controller/PLC2Way communication, ladder transfer function, Modbus slave communication, etc. (Refer to page 6-28.)

RGB Adjustment
: Appears when the option unit GU-01 is provided. For more information, refer to the instruction manual for the GU-01 option unit.

I/O Test
: Checks the V715 interfaces and performs a touch switch test. (Refer to page 6-4.)

1. I/O Test

When the [I/O Test] switch on the Main Menu screen is pressed, the following “I/O Test” screen appears.
This screen is used to check that there is no problem with the V715 interfaces and touch switch operation.



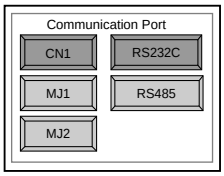
*1 When the serial extension I/O (V-I/O) is connected, use this button to check that the V-I/O works correctly. The [Ext. I/O Check] switch appears only when [V-I/O] is selected for a modular jack on the V-SFT editor.

1-1. Self-loop Test

This is a signal test for communications through the CN1, MJ1 or MJ2 connector.
Perform this test if the communication is not successful when transferring screen data through MJ1, connecting the PLC using CN1, or selecting multi-link 2, temperature controller/PLC2Way or PLC for MJ1/2, or connecting the card recorder or serial extension I/O.

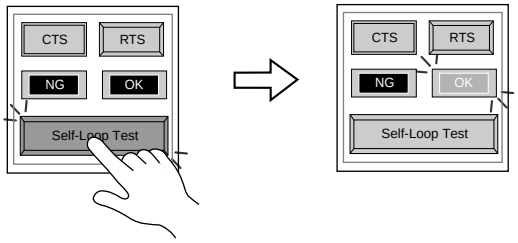
CN1: RS-232C Signal Test

Turn the [CN1] and [RS232C] switches on.



- SD/RD Test
  Check the signals [SD] and [RD].

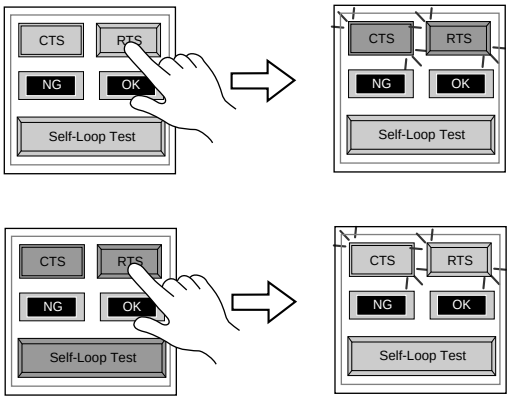
  1. Install a jumper between pins 2 and 3 of CN1 on the backside of the V715 unit.
  2. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.



* If the [NG] lamp lights up, consult your local distributor.

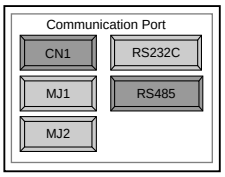
- CTS/RTS Test
  Check the signals [CTS] and [RTS].

  1. Install a jumper between pins 4 (RTS) and 5 (CTS) of CN1 on the backside of the V715 unit.
  2. Press the [RTS] switch and check that both [RTS] and [CTS] lamps light up at the same time. Press the [RTS] switch again and check that both [RTS] and [CTS] lamps go off at the same time



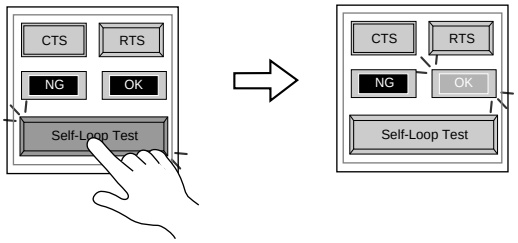
CN1: RS-485 Signal Test

Turn the [CN1] and [RS485] switches on.



- SD/RD Test
  Check the signals [SD] and [RD].

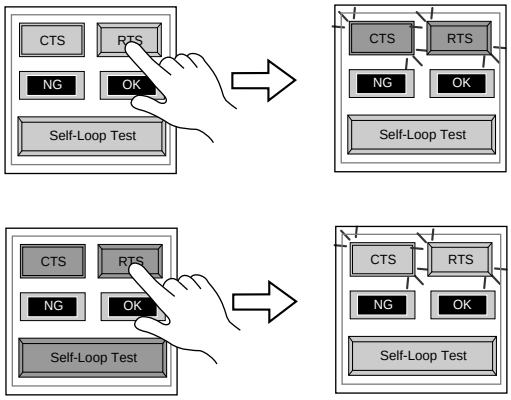
  1. Install a jumper between pins 12 and 24, and between pins 13 and 25 of CN1 on the backside of the V715 unit.
  2. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.



* If the [NG] lamp lights up, consult your local distributor.

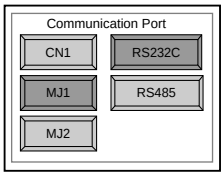
- CTS/RTS Test
  Check the signals [CTS] and [RTS].

  1. Install a jumper between pins 14 (+RTS) and 19 (+CTS) of CN1 and between pins 17 (–RTS) and 18 (–CTS) on the backside of the V715 unit.
  2. Press the [RTS] switch and check that both [RTS] and [CTS] lamps light up at the same time. Press the [RTS] switch again and check that both [RTS] and [CTS] lamps go off at the same time.

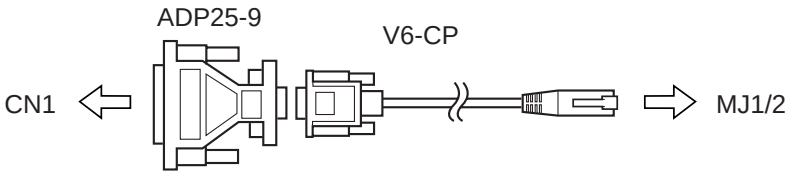


MJ1/2: RS-232C Signal Test

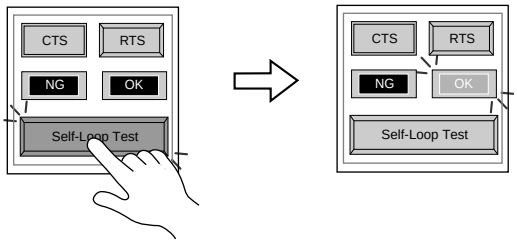
Turn the [MJ1] (or [MJ2]) and [RS232C] switches on.



- RS-232C Self-loop Test
  Check the signals [SD] and [RD].
  Connect the data transfer cable (V6-CP) to CN1 for the test.



1. Set the adaptor ADP25-9 (attached to V6-CP) to the cable V6-CP. Connect the modular jack side of the cable to MJ1 (or MJ2) and the ADP25-9 side to CN1.
2. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.



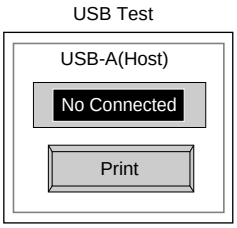
* If the [NG] lamp lights up, consult your local distributor.

MJ1/2: RS-485 Signal Test

If you would like to perform MJ1/2 RS-485 signal test, consult your distributor.

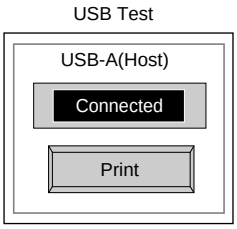
1-2. USB Test

This screen is used to check the status of USB-A (master port) connection.



Checking the Connection Status

If the lamp on the screen shows [No Connected], the device has not been connected to the USB port correctly.
When the lamp shows [Connected], the device is connected to the USB port correctly.



Printer Test

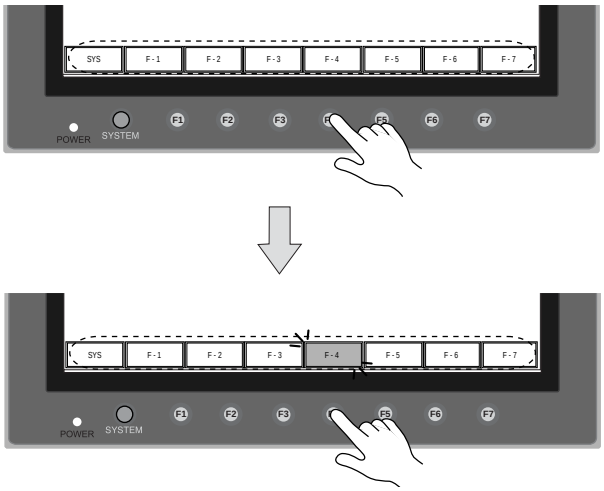
When a printer is connected to the USB-A port, a print test can be done.
Check if the V715 sends signals normally to the printer using the [Print]
The test is successful if a test page is printed without problems.

Ex.:

```
!"#$%&@   0123456789   ABCDEFGHIJKLMNO
!"#$%&@   0123456789   ABCDEFGHIJKLMNO
!"#$%&@   0123456789   ABCDEFGHIJKLMNO
!"#$%&@   0123456789   ABCDEFGHIJKLMNO
!"#$%&@   0123456789   ABCDEFGHIJKLMNO
!"#$%&@   0123456789   ABCDEFGHIJKLMNO
!"#$%&@   0123456789   ABCDEFGHIJKLMNO
```

1-3. SYSTEM & Function Switch Test

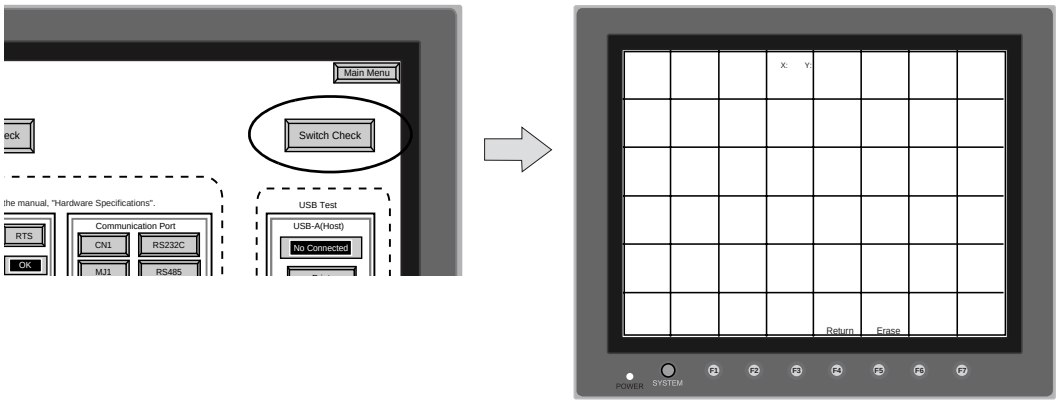
Check operations of eight switches provided horizontally at the bottom of MONITOUCH panel. Hold down the switch, and check that the lamp on the screen lights up.



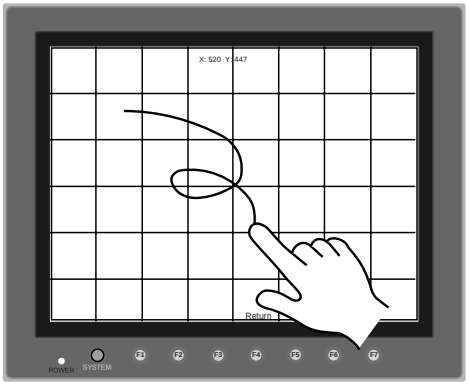
1-4. Touch Switch Test

If a touch switch does not activate at all or if an operation is performed without pressing any touch switch, check that the touch switches on the V715 panel are working properly.

1. Press the [Switch Check] switch. Grids appear on the screen as shown below.



2. Press a position on the panel, and check that the pressed position turns white.
   The switch is activated normally when the pressed position turns white.
   To move back to the “I/O Test” screen, press the [F4] switch.
   To delete white dots, press the [F5] switch.

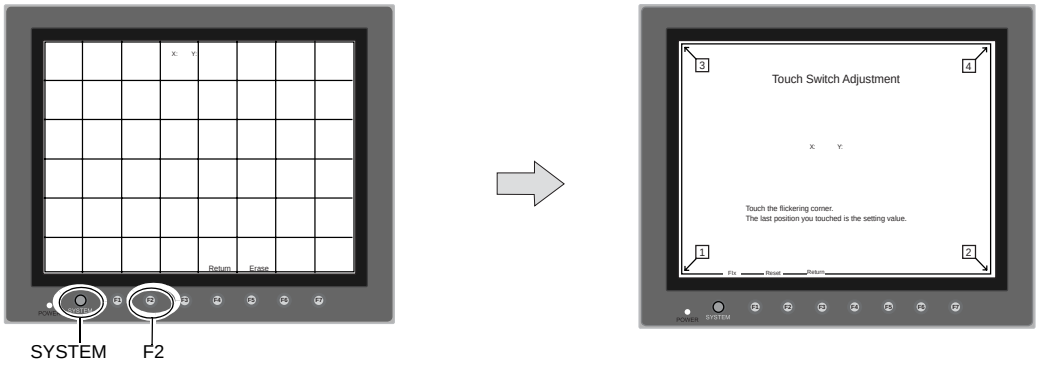


3. If a position different from the pressed position turns white, refer to “Touch Switch Adjustment” on the next page and adjust the touch switch position.

Touch Switch Adjustment

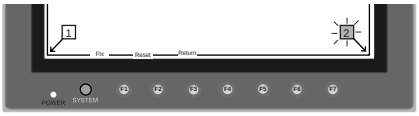
If a position different from the pressed position turns white on the touch switch test screen, follow the steps described below to adjust the touch switch position.

1. Hold down the [SYSTEM] switch and press the [F2] switch on the touch switch test screen. The "Touch Switch Adjustment" screen appears.



2. Press on "1" that is flashing at the corner on the touch switch adjustment screen. When the finger is released, a beep sounds and the position is set. "2" flashes.

3. Press on "2" that is flashing at the corner. When the finger is released, a beep sounds and the position is set. "3" flashes.



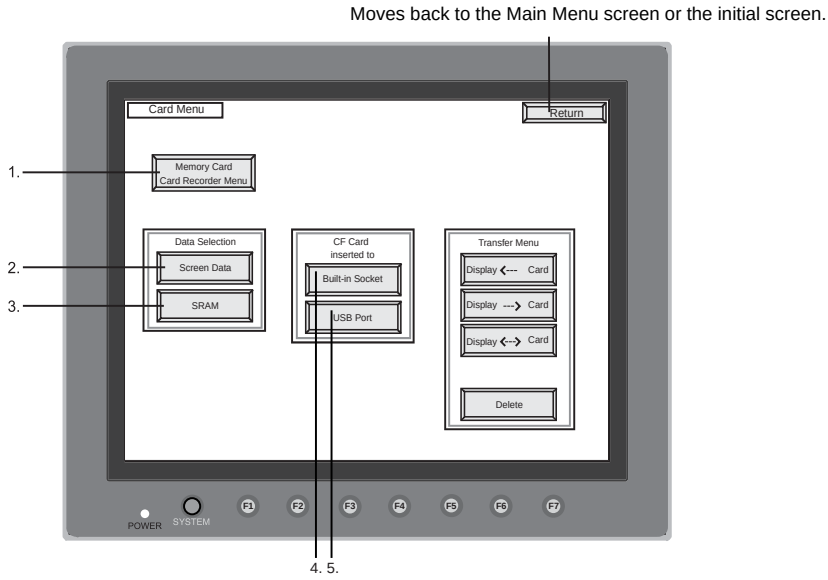
4. Press on "3" that is flashing at the corner. When the finger is released, a beep sounds and the position is set. "4" flashes.

5. Press on "4" that is flashing at the corner. When the finger is released, a beep sounds and the position is set.

6. To re-set the positions, press the [F2] switch and follow step 2 and later.
7. Press the [F1] switch. A long beep sounds and the positions are determined. The touch switch test screen is displayed again.
8. To cancel the setting, press the [F3] switch. The touch switch test screen is displayed again.

2. Card Menu Screen

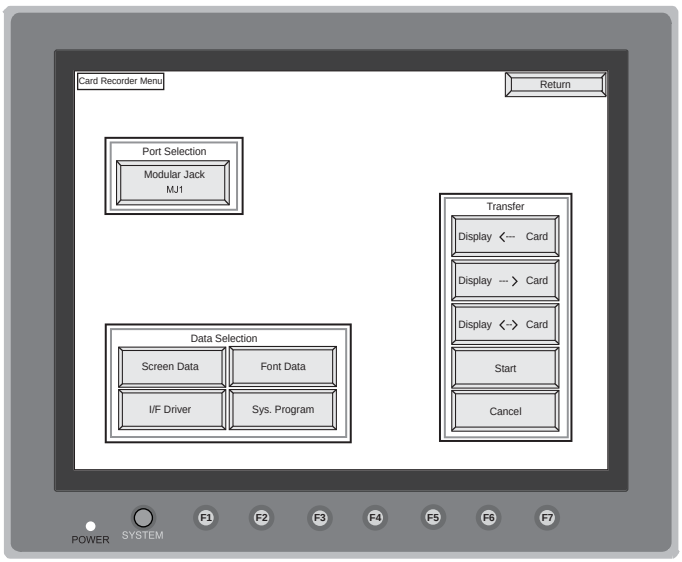
When the [Card Menu] switch on the Main Menu screen is pressed, the following “Card Menu” screen appears.
This screen is used to transfer screen data between the V715 and a CF card or a memory card.



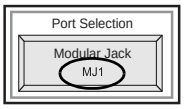
1. [Memory Card/Card Recorder Menu] switch
   Press this switch when connecting the card recorder to the MJ port of the V715 unit and transferring screen data between the V715 and a memory card.
2. [Screen Data] switch
   Press this switch when transferring screen data between the V715 and a CF card.
3. [SRAM] switch
   Press this switch when saving backup copies of the SRAM memory or V7EM-S (SRAM cassette) or when uploading the backup data from the CF card to the V715.
4. [Built-in Socket] switch
   The CF card insertion position can be selected. If using the built-in CF card connector of the V715, press this switch.
5. [USB Port] switch
   The CF card insertion position can be selected. If using a CF card while a CF card reader/writer (commercially available) is connected to the USB-A (master port), press this switch.

2-1. Card Recorder Menu Screen

When the [Memory Card/Card Recorder Menu] switch on the “Card Menu” screen is pressed, the following “Card Recorder Menu” screen appears.
This screen is used to transfer screen data between the V715 and a memory card.
The procedure for transferring data is described below.

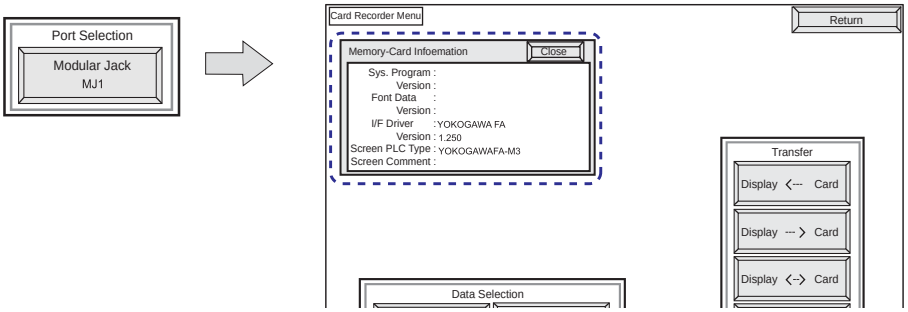


1. Connecting the CREC
   Connect the CREC cable (CREC-CP) to the MJ port that is displayed in the “Port Selection” field.
   - MJ1:..... Connect the CREC to the MJ1 port. Normally MJ1 is selected.
   - MJ2:..... Connect the CREC to the MJ2 port. Only when [Memory Card] is selected for [Modular Jack 2], “MJ2” is indicated in the “Port Selection” field.

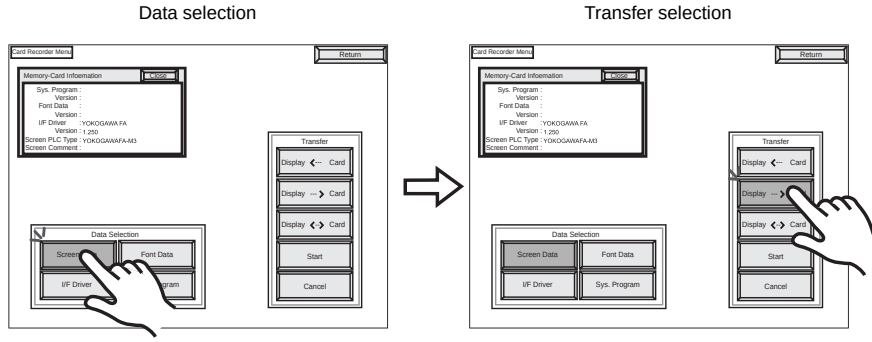


2. Mounting the Memory Card
   Insert a memory card into the card recorder (CREC).

3. Memory Card Information
   Press the [Modular Jack MJ1 (MJ2)] switch.
   The memory card information contained in the inserted memory card is indicated.
   Switches in the “Data Selection” field and “Transfer” field become active.



4. Data Selection and Transfer Selection
   In the “Transfer” field, select [Display <-- Card], [Display --> Card] or [Display <--> Card]. Press the desired switch to turn the switch on. Multiple switches can be pressed in the “Data Selection” field.



5. Starting Data Transfer
   Press the [Start] switch. Data transfer is started. During data transfer, the [Start] switch changes into [Busy] and flashes. When data is transferred, the following message is displayed.

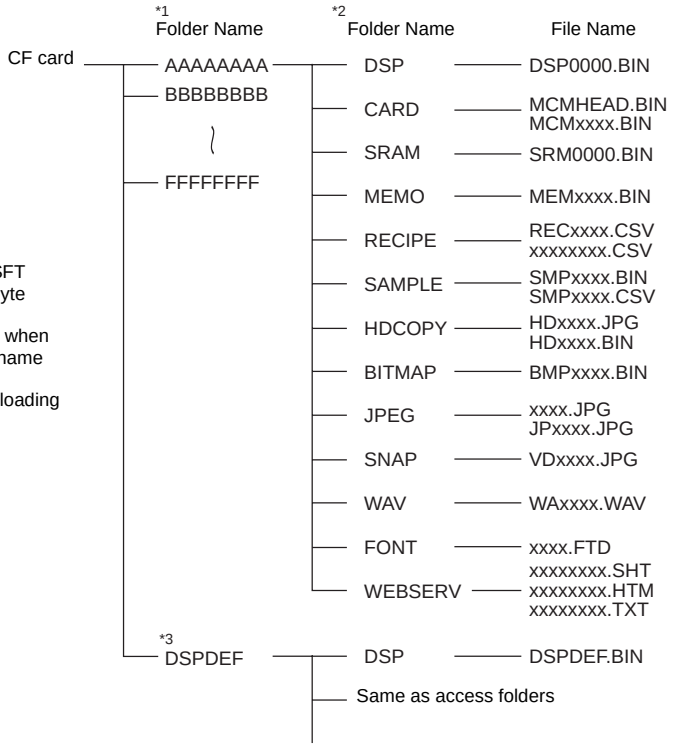
   Press the [OK] switch.

6. Press the [Return] switch. The “Card Menu” screen is displayed again.

2-2. Transferring Screen Data from a CF Card

CF Card Folder Configuration

Folders in the CF card are configured as shown below.



*1 These are access folders set by the V-SFT editor. Any folder name within eight 1-byte characters can be given.
*2 These folders are automatically created when access folders are created. The folder name cannot be changed.
*3 The folder name for screen data auto uploading cannot be changed.

DAT0000 (access folder)

Folder Name	Contents	Folder Name	Contents
BITMAP	Saves pattern data (bitmap data) to reduce the screen data capacity.	RECIPE	Reads and writes recipe data.
CARD	Writes recipe data from the V7 series using the V6-compatible memory manager function.	SAMPLE	Saves history data of the data logging function.
DSP	Reads and writes screen data.	SNAP	Saves video snap images.
FONT	Saves Gothic fonts or language data to reduce the screen data capacity.	SRAM	Saves backup data of SRAM.
HDCOPY	Writes hard copy images in the JPEG file format from the V7 series.	WAV	Saves WAV files for sound output to reduce the screen data capacity.
JPEG	Saves JPEG files for display on the screen.	WEBSERV	Saves files to be accessed from the Web browser.
MEMO	Saves memo pad data drawn with the V7 series.		

DSPDEF (screen data auto upload folder)

Folder Name	Contents
DSP	Automatically reads screen data in this folder when the CF card is inserted in the unit after the DIP switch is set.

(Other folders are the same as access folders.)

Transferring Screen Data from a CF Card

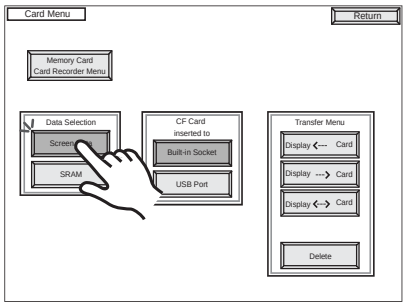
The procedure of transferring data between the V715 and a CF card is described below.

1. Mounting the CF Card
   Insert the CF card into the CF card connector at the side of the unit.

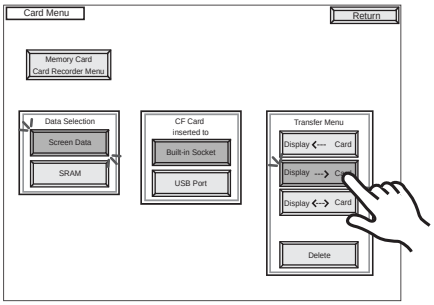
   * Do not remove or insert the CF card in the later steps.

2. Data Selection
   Select [Screen Data]. When the lamp is red, it is selected.

3. Transfer Selection
   Select [Display <-- Card], [Display --> Card] or [Display <--> Card].



Data selection

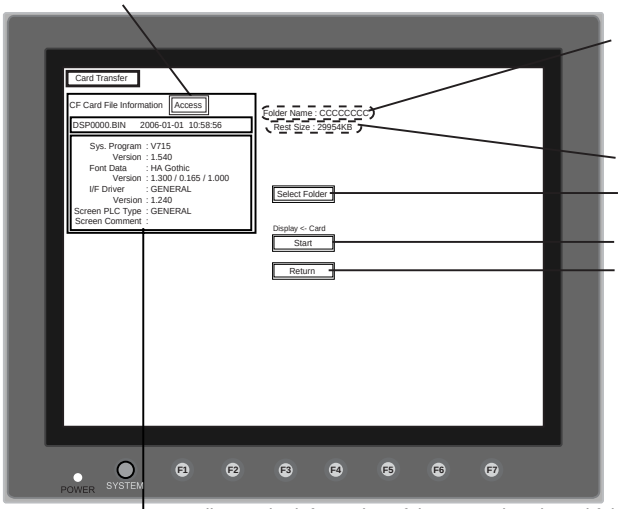


Transfer selection

When [Display <-- Card] is Selected:

Transfer screen data from the computer to the CF card.

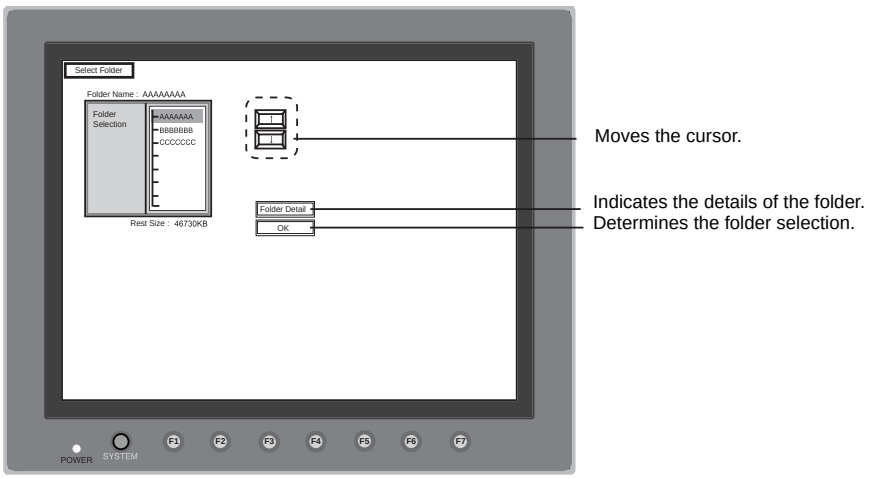
1. When [Display <-- Card] is selected, the “Card Transfer” screen is displayed.



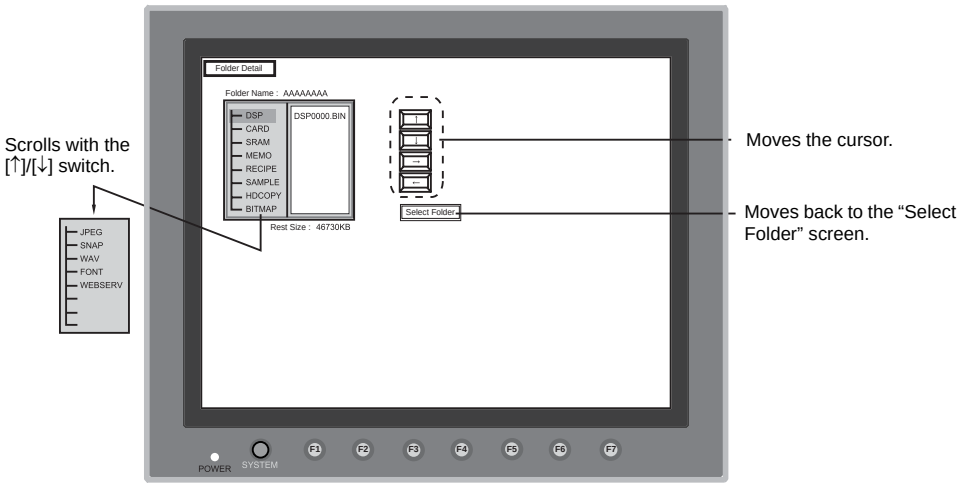
2. Check the folder name, free space, and CF card file information. If the correct folder is selected, move to step 4.

   - Folder Name
     Indicates the name of the currently selected folder.
     The access folder name that is set for screen data is displayed as default.
     If there is no screen data, “DAT0000” is displayed.
   - Rest Size
     Indicates the free space in the CF card.
   - CF Card File Information
     Indicates the information of the currently selected folder.

3. To change to another folder, press the [Select Folder] switch.
   The “Select Folder” screen is displayed.

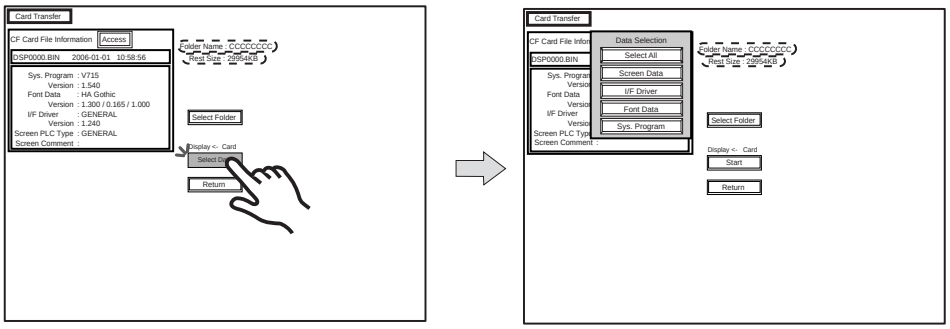


   - To see the details of the folder, press the [Folder Detail] switch.
     The “Folder Detail” screen is displayed.

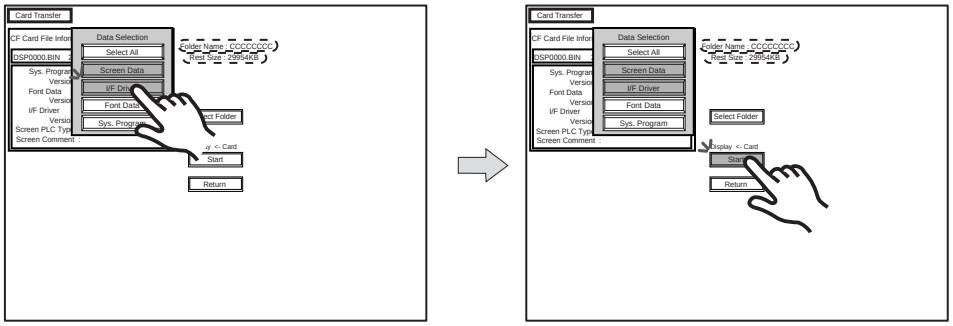


   - Select the desired folder using the [↑]/[↓] switch, and press the [OK] switch.
     The Card Transfer screen is displayed again and the CF card file information of the selected file is indicated.

4. Press the [Select Data] switch.
   The [Data Selection] window is displayed and the [Select Data] switch changes to [Start].

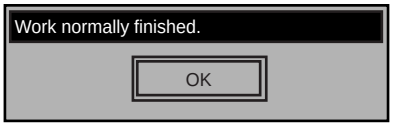


   Select the desired data, and press the [Start] switch.



   To cancel the [Data Selection] window, press the [Return] switch.

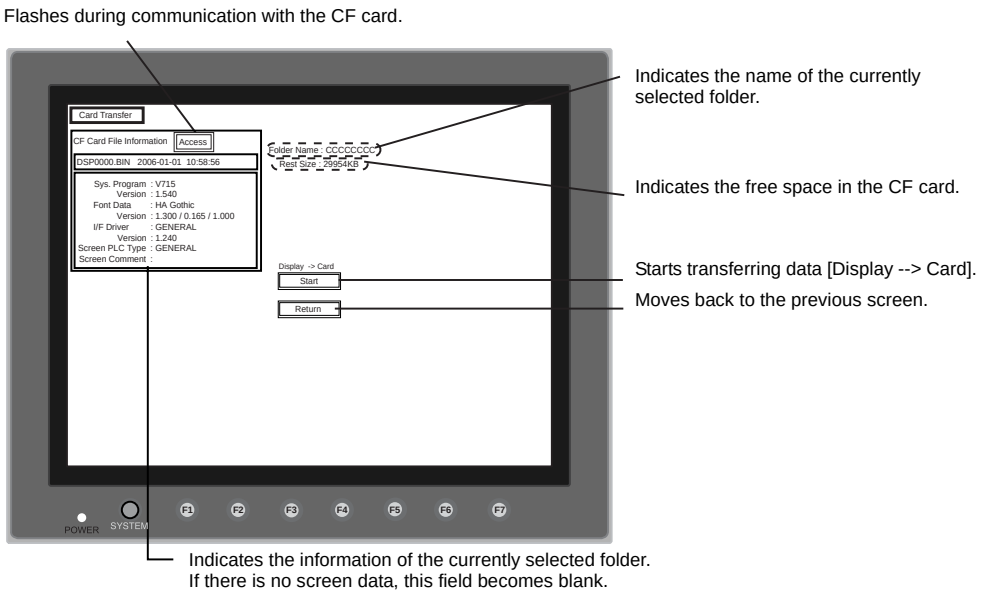
5. During data transfer, the [Start] switch changes into [Busy] and flashes. When the data has been transferred successfully, the following window is displayed. However, when [Sys. Program] or [Select All] is selected, the Main Menu screen is displayed without this message window on completion of data transfer.



   Press the [OK] switch.
   The “Card Menu” screen is displayed.
   If any other message is displayed, refer to page 6-24.

When [Display --> Card] Is Selected:

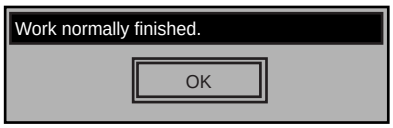
1. When [Display --> Card] is selected, the “Card Transfer” screen is displayed.



2. Check the folder name and CF card file information, and press the [Start] switch.

   * When the access folder name of screen data is the same as that in the CF card, the CF card file information is indicated on the screen, and data in the V715 unit overwrites the CF card data. Note that the CF card data is lost when data in the V715 unit overwrites.
   When the CF card file information is blank, a new file “DSP0000.BIN” is created in the DSP folder.

3. During data transfer, the [Start] switch changes into [Busy] and flashes. When data has been transferred successfully, the following window is displayed.

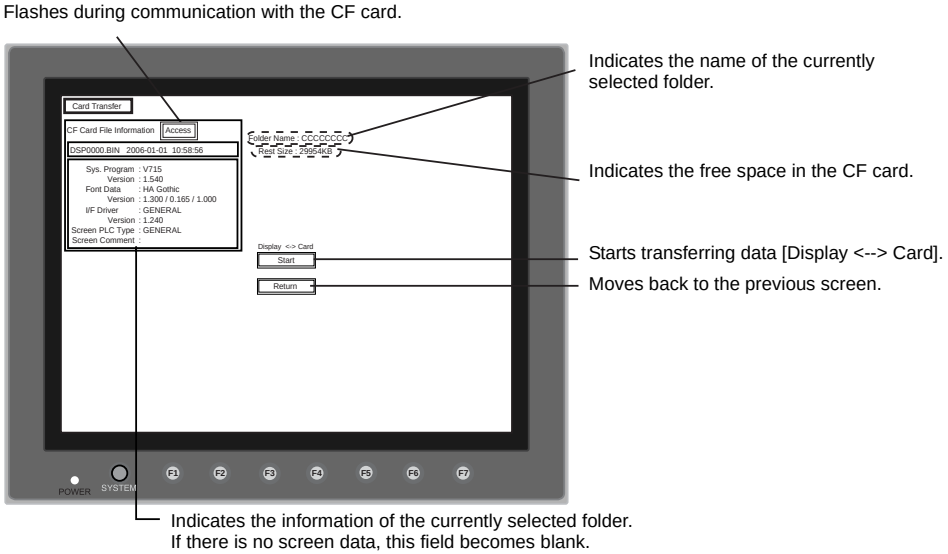


   Press the [OK] switch. The CF card file information shows the data that has been transferred.
   If any other message is displayed, refer to page 6-24.

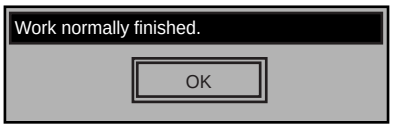
4. Press the [Return] switch. The “Card Menu” screen is displayed again.

When [Display <--> Card] Is Selected:

1. When [Display <--> Card] is selected, the “Card Transfer” screen is displayed.
   Screen data for comparison must be stored in the DSP folder under a folder with the access folder name specified on MONITOUCH.



2. Press the [Start] switch.
3. During data transfer, the [Start] switch changes into [Busy] and flashes. When data has been transferred successfully, the following window is displayed.



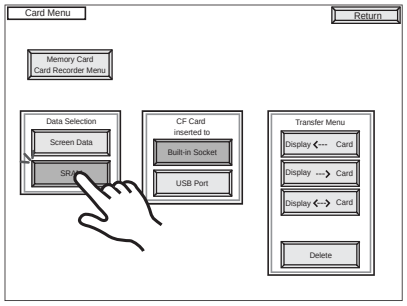
   Press the [OK] switch.
   If any other message is displayed, refer to page 6-24.
4. Press the [Return] switch. The “Card Menu” screen is displayed again.

2-3. Saving Backup Copies of SRAM

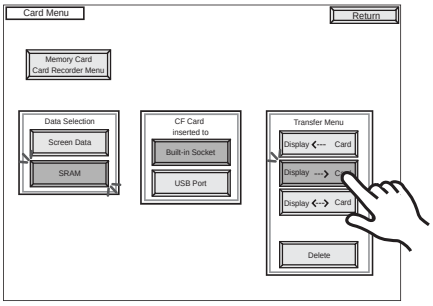
In this section, the procedure for saving backup copies of the SRAM memory or V7EM-S (SRAM cassette) for battery replacement is explained.

1. Press the [SRAM] switch on the “Card Menu” screen. When the lamp is red, that means it is selected.
2. Select [Display <-- Card], [Display --> Card] or [Display <--> Card].

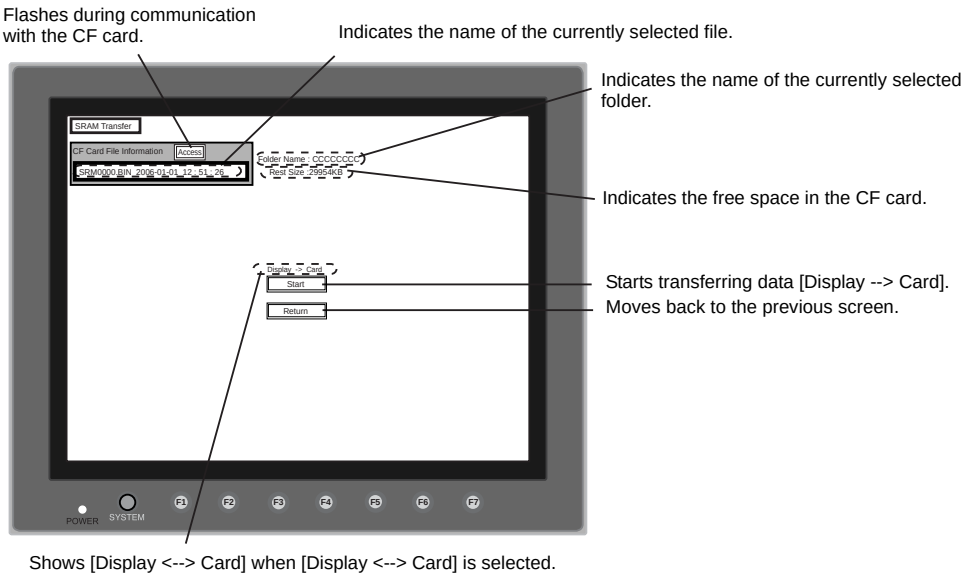
Data selection



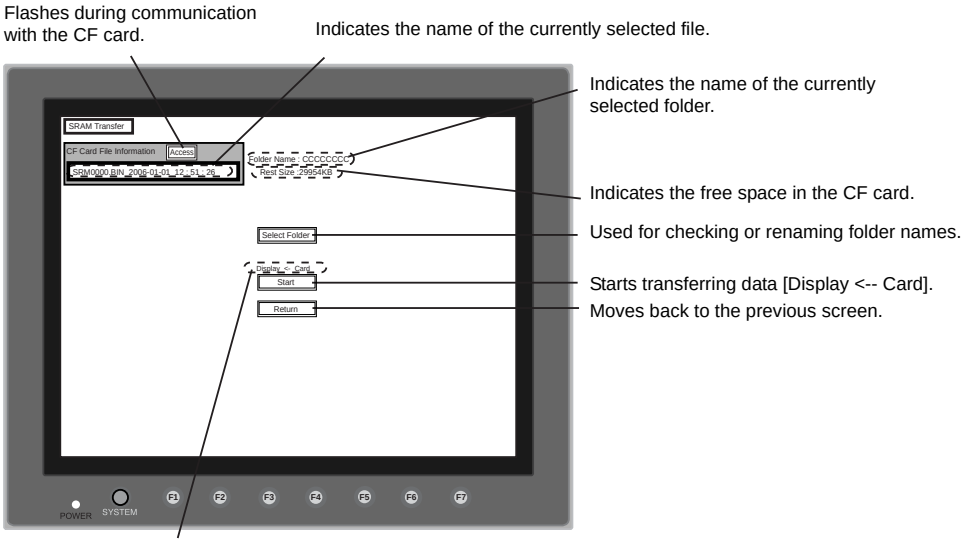
Transfer selection



3. The “SRAM Transfer” screen is displayed.
   - When [Display --> Card] or [Display <--> Card] is selected, the following screen is displayed. Select the CF card folder having the same name as the access folder for screen data in MONITOUCH. The name is shown on the screen. The transferred file is named as “SRM0000.BIN”.



- When [Display <-- Card] is selected, the following screen is displayed.



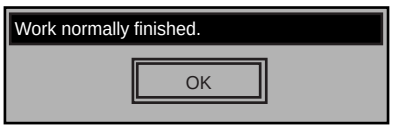
1) To change to another folder, press the [Select Folder] switch.
(The folder name must be “SRM0000.BIN”.)

2) The “Select Folder” screen is displayed as shown on page 6-17.
Select the desired folder (refer to page 6-17), and press the [OK] switch.

3) Moves back to the “SRAM Transfer” screen.

4. Starting Data Transfer
Check the folder name, free space and transfer selection, press the [Start] switch.
Data transfer is started.

5. Ending Data Transfer
When the data has been transferred successfully, the following window is displayed.



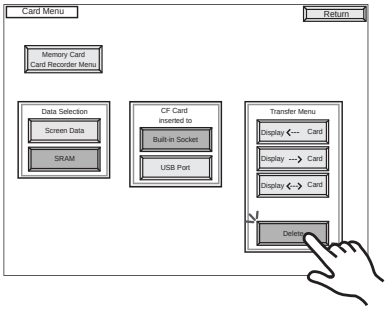
Press the [OK] switch.
If any other message is displayed, refer to the next page.

6. Pressing the [Return] switch moves back to the “Card Menu” screen.

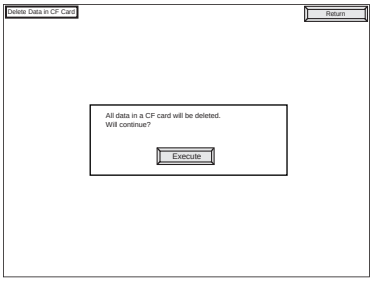
2-4. Deleting Data on the CF Card

Data on the CF card can be deleted. To delete the data, follow the procedures described below.

1. Select [Delete] in the [Transfer Menu] field.

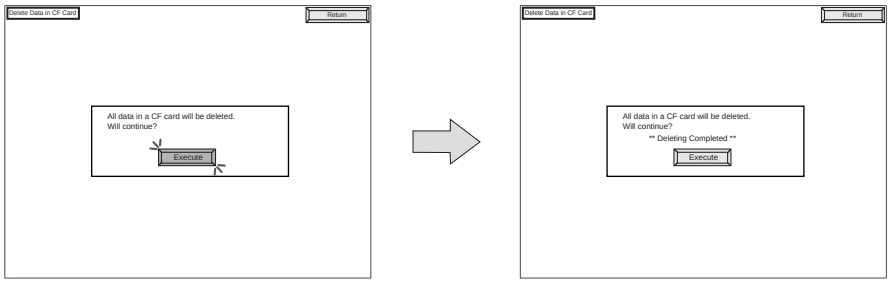


2. The “Delete Data in CF Card” screen shown below is displayed.



Press the [Execute] switch if deleting all data on the CF card.
To move back to the previous screen, press the [Return] switch.

3. The [Execute] switch illuminates for a while after the switch is pressed.
When the data has been completely deleted, the following message is displayed.

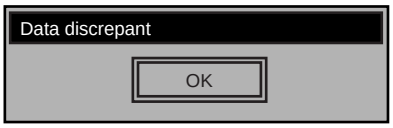


Data is completely deleted.
Press the [Return] switch. The “Card Menu” screen is displayed again.

* Data on the CF card is completely deleted when [Deleting Completed] is displayed on the screen; however, a new folder is automatically created when the screen moves back to the Main Menu by pressing the [Return] switch.

2-5. Messages during Data Transfer

If an error occurs during data transfer, the message window shown on the right is displayed.



The kinds and the contents of the messages are shown below. The same messages are used for the memory card and CF card. When using the CF card, the “memory card” in the explanation should read as the “CF card.”

○: Correspondence

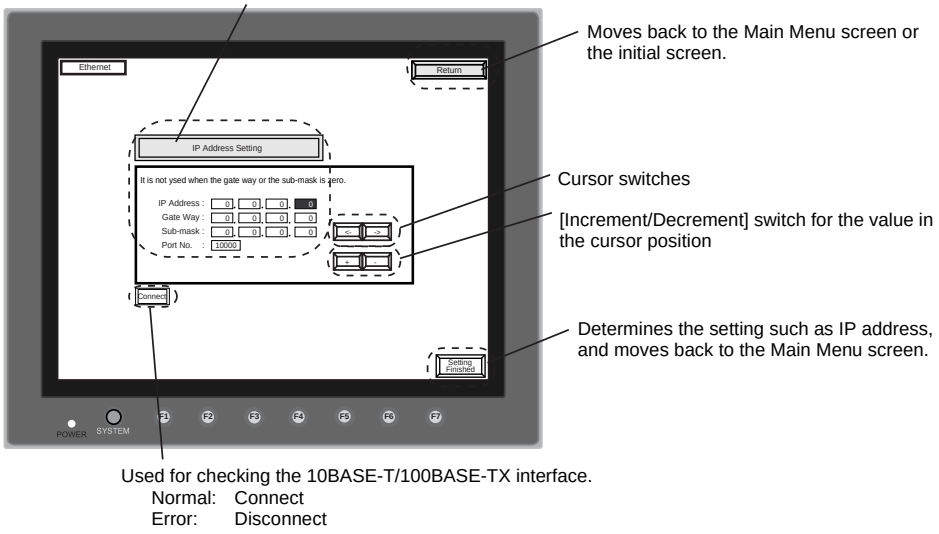
Messages	Contents	CF Card	Memory Card
Work normally finished.	The specified operation has been concluded normally.	○	○
CREC not connecting	No card recorder is connected when selecting a modular jack.	–	○
CREC Communication Error	A communication error occurred between the V715 and CREC when selecting a modular jack.	–	○
Memory-Card not setting	Memory-Card is not inserted.	○	○
Memory-Card Capacity over	Cannot write the data into a memory card because the data size in the V715 is larger than the capacity of a memory card.	○	○
Write Protect: ON	Cannot write data into a memory card because the write protect switch in a memory card is ON.	–	○
Writing Error occurred.	The error occurred while writing the data into a memory card.	○	○
Selected data does not exist.	The data in the reading target does not exist.	○	○
V7 type is different.	The specified type of the data in the V715 is different from the type of the memory card data.	○	○
Selected data can not be read.	The data in a memory card cannot be read.	○	○
Reading Error occurred.	The error occurred during writing data into a flash ROM of the V715.	○	○
Data discrepant	There is some discrepancy in data, when comparing the data between a memory card and the V715.	○	○
Screen data on V7 will be broken.	Warning about data destruction in V7 that may occur when transferring the font data larger than the present data from a memory card to V7. (The [OK] switch continues transferring; the [Cancel] switch stops transferring.)	○	○
Cover for CF card is opened.	The CF card interface cover is opened.	○	–
Undefined Error occurred.	The error occurred due to some cause other than mentioned above.	○	○

3. Ethernet

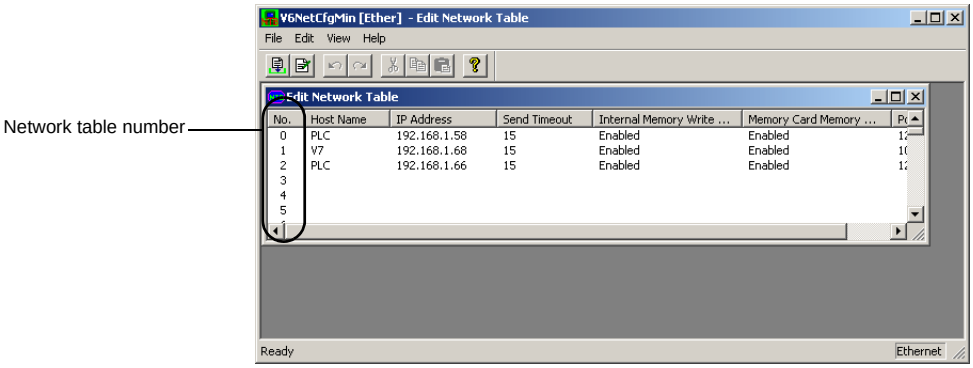
* For more information on the IP address setting, refer to the V-SFT Additional Specifications Manual.

The “Ethernet” screen is displayed by pressing the [IP Address (English)] switch on the initial screen when transferring screen data via Ethernet for the first time, or by pressing the [Ethernet] switch on the Main Menu screen when transferring screen data to MONITOUCH.
This screen is used for setting the IP address (a number that identifies the V715 on the network) that is indispensable for Ethernet communications.

The Ethernet screen and the setting as are shown below when the LAN connector (100BASE-TX/10BASE-T) provided on the V715 unit is used.



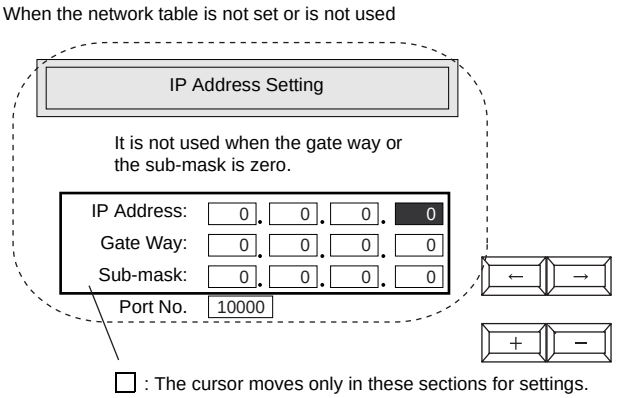
*4 Network Table
Register IP addresses and other information for the V715, PLCs or computers that should be included for Ethernet communications on the V-SFT editor.
([System Setting] → [Network Table Setting] → [Ethernet] → Edit Network Table)
The registered network table can be used or not used depending on the [Not Use Network Table/Use Network Table] switch.



When the Network Table Is Not Used:

In the following cases, select [IP Address Setting].

- Screen data is transferred for the first time via Ethernet.
- The network table is not set for screen data of the V715.
- If the network table is set for screen data of the V715 but you would like to use an IP address that is different from that set on the network table tentatively, press the [Select IP Address from the Network Table] switch to change the switch to [IP Address Setting].

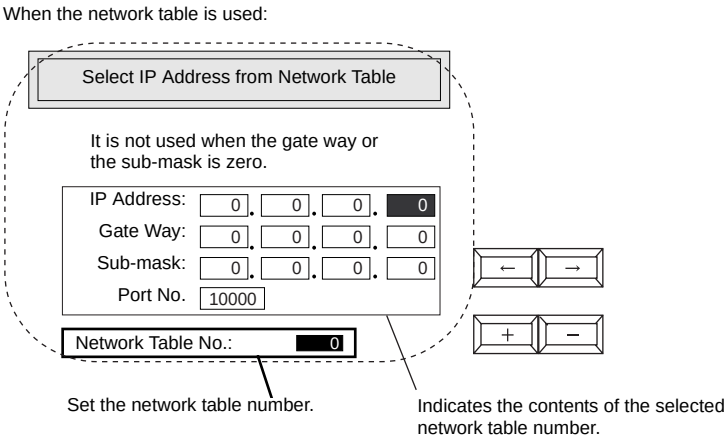


1. Set the IP address.
   (If necessary, set the default gateway and subnet mask.)
2. Press the [Setting Finished] switch. The IP address is determined.
3. The Main Menu screen is displayed again. (If the “Ethernet” screen is displayed from the initial screen, the initial screen is displayed again.)

When the Network Table Is Used:

In the following cases, select [Select IP Address from Network Table].

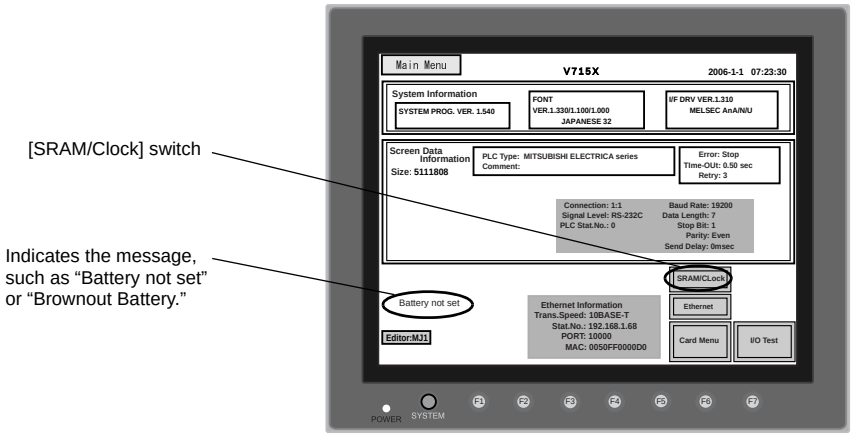
- The network table is set for screen data of the V715 and you would like to change the network table number.



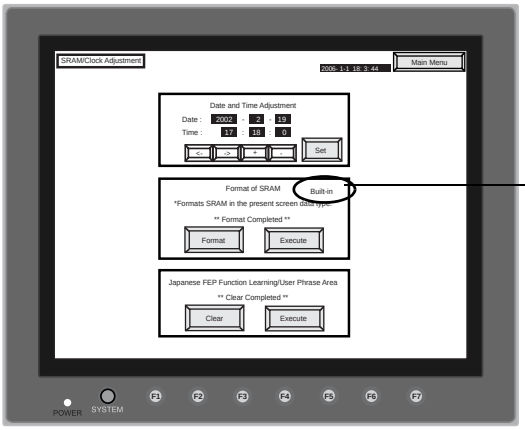
1. Set the network table number.
2. Press the [Setting Finished] switch. The IP address is determined.
3. The Main Menu screen is displayed again.

4. SRAM/Clock

- To use the built-in clock of the V715 or to use the SRAM memory or cassette, it is necessary to select [SRAM/Clock Setting] from the [System Setting] menu and make the SRAM/clock setting. To use the Japanese FEP function, it is necessary to check for [Use Japanese FEP function] from the [System Setting] menu.
  For the setting procedure, refer to the Reference Manual.
- Be sure to set the battery when using the built-in clock of the V715, SRAM, or Japanese FEP function. Without the battery, the contents in the SRAM or clock data will not be retained. When the battery is not connected, the message “Battery not set” is displayed and the [SRAM/Clock] switch flashes on the Main Menu screen. Connect the battery immediately. When the battery is to be replaced, the message “Brownout Battery” is displayed.



- When the [SRAM/Clock] switch on the Main Menu screen is pressed, the following “SRAM/Clock Adjustment” screen appears.
  This screen is used for adjusting the built-in calendar, for formatting the SRAM area, and for clearing learning/user phrase area in the Japanese FEP function.



V7EM-S mounted: Extension
V7EM-S not mounted: Built-in
The above is displayed.

Date and Time Setting

1. Move the cursor using the [←] / [→] switch, and change the value by pressing the [+] / [–] switch.
2. When the desired date and time are set, press the [Set] switch to determine the setting.
3. The calendar data is updated as set.

Formatting SRAM

When the SRAM memory or cassette is formatted, the data contained is cleared. Double-check before formatting the SRAM memory or cassette.

1. “Extension” is shown when V7EM-S (SRAM cassette) is mounted; “Built-in” is shown when it is not mounted.
2. Press the [Format] switch and the [Execute] switch.
   The SRAM area is formatted in the current screen data format. When formatting has been completed, the message “∗∗Format Completed∗∗” is displayed.

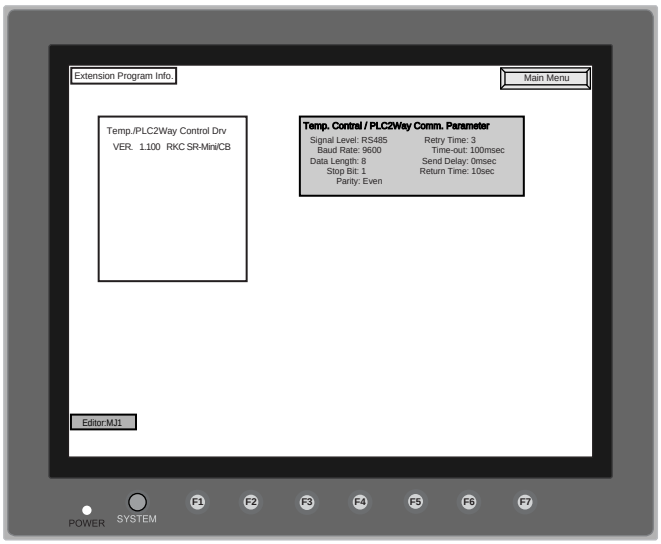
Japanese FEP Function Learning/User Phrase Area

When the learning/user phrase area is cleared, all of the registered data is deleted. Pay utmost care when clearing the area.

1. Press the [Clear] switch and then press the [Execute] switch. When the area has been completely cleared, the message “∗∗Clear Completed∗∗” is displayed.

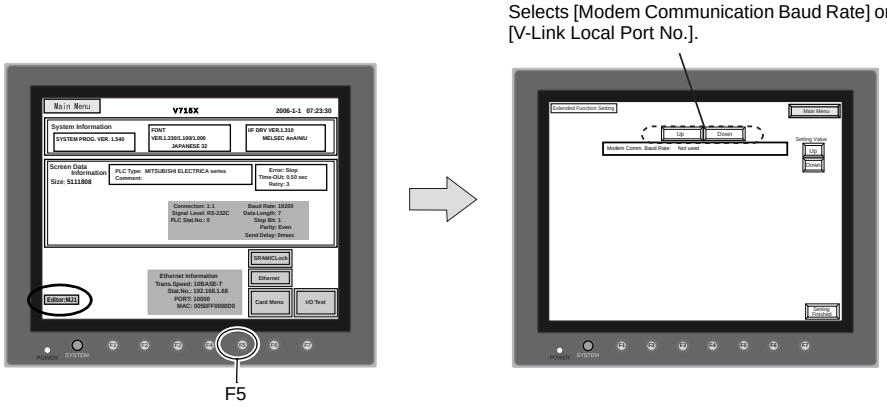
5. Extension Program Information

When the [Extension] switch on the Main Menu screen is pressed, the following “Extension Program Info.” screen appears.
The driver setting and parameter setting for temperature controller/PLC2Way communication, ladder transfer function, Modbus slave communication, etc. are displayed.



6. Extended Function Setting

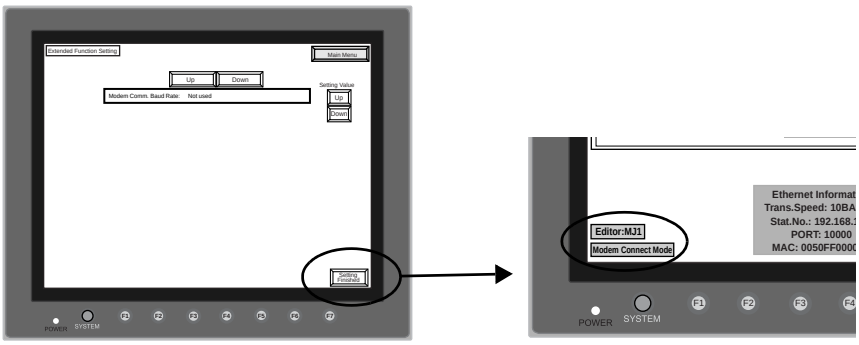
When the [Editor: MJ1] switch on the Main Menu screen and the [F5] switch are pressed at the same time, the following “Extended Function Setting” screen appears.
The baud rate for modem communication and the local port number for V-Link is set on this screen.



Baud Rate Setting for Modem Communication

Set the baud rate to be used when transferring screen data between the V715 and a modem.

1. Select the desired baud rate using the [↑] / [↓] switch, and press the [Setting Finished] switch. (Setting range: 4800, 9600, 19200, 38400, 57600, 115200)
   * The function switches and switches on the Main Menu screen are not valid for 15 seconds after the [Setting Finished] switch is pressed.
   * When the [Setting Finished] switch is pressed, an AT command is automatically sent to the modem and the baud rate used between the V7 and the modem is set.
2. The [Main Menu] (local main) screen is displayed automatically. [Modem Connect Mode] automatically appears under [Editor: MJ1].
3. To transfer screen data without a modem, select “Not Used” for [Modem Comm. Baud Rate]. For screen data transfer while a computer is connected with V6-CP, specify [Not Used] for [Modem Comm. Baud Rate].

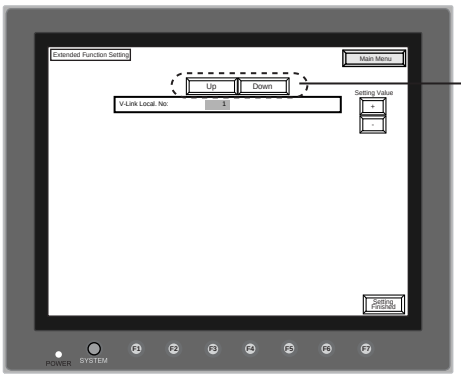


Pressing the [Setting Finished] switch moves back to the Main Menu screen.

V-Link Local Port Number Setting

For V-Link communication, set the V-Link local port number on the Main Menu screen.

1. Select the “V-Link Local No.” setting screen by pressing the [Up] or [Down] switch.



Pressing the [Down] switch brings the “V-Link Local No.” setting screen.

2. Select the desired local port number for V-Link using the [+] / [–] switch, and press the [Setting Finished] switch.
   (Setting range: 1 to 254)
3. The Main Menu screen is automatically displayed again.

7 Error Handling

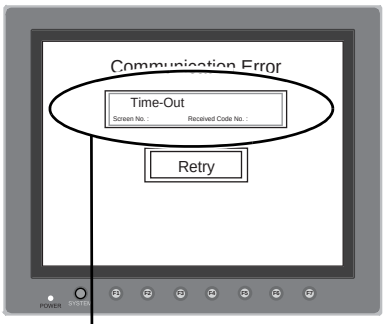
1. Error Messages
2. Troubleshooting

1. Error Messages

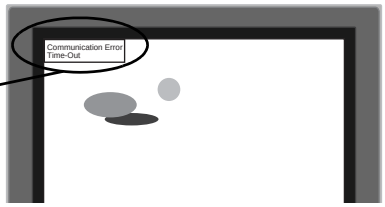
There are five kinds of error messages displayed on the V series:

1. Communication error
2. Check
3. Warning
4. SYSTEM ERROR
5. Touch Switch is active.

1. Communication Error



* When you go to [Comm. Parameter], bring up the [Detail] tab window and set [Continue] for [Comm. Error Handling], a screen like the one shown below is displayed.



Error Message	Contents	Solution	Remarks
Time-Out	Although a request to send is given to the PLC, no answer is returned within the specified time.	1. Check the communication parameters. 2. Check the cables and wiring.	1
		3. Data may be disrupted because of noise. Fix noise.	2
Parity	An error occurred in parity check.	1. Check the cables and wiring.	1
		2. Data may be disrupted because of noise. Fix noise.	2
Framing	Although the stop bit must be [1], it is detected as [0].	1. Check the communication parameters. 2. Check the cables and wiring.	1
		3. Data may be disrupted because of noise. Fix noise.	2
Overrun	After one character is received, the next character is received before internal processing is completed.	1. Check the communication parameters.	1
		2. Data may be disrupted because of noise. Fix noise.	2
Check code error	The check code in the PLC response was not correct.	1. Check the communication parameters.	1
		2. Data may be disrupted because of noise. Fix noise.	2

* If the above error messages are displayed on the V7 series without establishing communication between V7 and PLC, test the solution of remark “1.”
If the error occurs suddenly in communication, test the solution of remark “2.”

Error Message	Contents	Solution
Error code received	The PLC sent an error code (NAK).	Examine the PLC error code and solve the problem.
Break	The PLC's SD (TXD) remains at the low level.	Examine the connection between the PLC's SD (TXD) and the V series RD (RXD).
Invalid memory (applicable to Mitsubishi CPU)	You specified an address that exceeds the memory range of the PLC that you are linked to.	Check the type and range of memory that you set.
Invalid CPU model (applicable to Mitsubishi CPU)	The PLC currently being supported does not have a corresponding CPU.	Confirm whether or not the CPU that you are using can be used with the V series.
Format	The code of the received data is invalid.	Check 1, 2, 3 described below.
Compare (applicable to HIDIC S10)	Transmission data and received data are different.	Check 1, 2, 3 described below.
NAK	A NAK code is received.	Check 1, 2, 3 described below.
TNS discrepant (applicable to Allen-Bradley PLC)	Transmitted TNS data and received TNS data are not in agreement.	Check 1, 2, 3 described below.
Communication Error	An unclear communication error is detected.	Check 1, 2, 3 described below.
Count error (applicable to Mitsubishi CPU and Q link unit)	The expected data amount is different from the count value.	Check 1, 2, 3 described below.
Command error (applicable to Mitsubishi CPU and Q link unit)	The response code differs from the expected code.	Check 1, 2, 3 described below.
Invalid cassette (applicable to Mitsubishi ACPU)	This cassette is not included in the memory cassettes currently being supported.	Contact your local distributor.
Password error (applicable to Mitsubishi QCPU)	The password is incorrect.	Contact your local distributor.

Solution

1. Confirm link unit settings.
   (After making settings, cut power to the PLC.)
2. Go to the editor (V-SFT) and confirm the settings in the [Comm. Parameter] dialog in the [System Setting] menu.
3. If errors only occur from time to time, a noise-based communication error may be present.

* If you still cannot solve the error even after following the suggestions above, contact your local distributor.

Error Messages for Network Communication

- Ethernet

Error Message	Contents	Solution
Ethernet Error:XXXX	The Ethernet status is saved at system memory address $s518 and a code other than "0" (normal) is received. XXXX : Error No.	For the contents and solution to each error number, refer to Appendix 5 of the PLC Connection Manual separately provided.

- MELSECNET/10

Error Message	Contents	Solution
I/F Board Err	The I/F unit for NET/10 has an error.	Contact your local distributor.
Request Code Err	The request command from NET/10 has an error.	
Request Data Err	The request data from NET/10 has an error.	
Word Writing to Sp. Relay (Mitsubishi: A Series)	Word writing to a special relay (M9000 and later) is attempted. (Notes: Only bit writing is possible for special relays when connecting with NET/10.)	Do not attempt to perform word writing to special relays.

- CC-LINK

Error Message	Contents	Solution
I/F Board Err	The I/F unit for CC-LINK has an error.	Contact your local distributor.
No. of Occupy Setting Err	The number of occupy in [Comm. Parameter] is different from the number of occupy by switches.	Check the setting of the number of occupy.
Network I/O Access Err	MONITOUCH has attempted to have access to a memory area out of the designated input/output words.	Check the memory for the network I/O in the screen data file.
Station Number Err	The port number set by a switch is not within the setting range (1 to 64).	Specify the port number within the setting range.
Word Writing to Sp. Relay	Word writing to a special relay (M9000 and later) is attempted. (Notes: Only bit writing is possible for special relays when connecting with CC-LINK.)	Do not attempt to perform word writing to special relays.

- OPCN-1

Error Message	Contents	Solution
I/F Board Err	The I/F unit for OPCN-1 has an error.	Contact your local distributor.
Stat. No. out of range	The port number set by a switch is not within the setting range (1 to 127).	Specify the port number within the setting range.
Network Link Error	Cannot connect to the master station in the network.	Check the condition of the master station (PLC). Check the network connection.
Network I/O Access Err	MONITOUCH has attempted to have access to a memory area out of the designated input/output words.	Check the memory for the network I/O in the screen data file.
Waiting for Reply	1. Less than “Max_int” time (communication monitoring time for salve station) set on the PLC for OPCN-1 communications 2. Timeout on the V-SFT editor (The timeout time can be set from [System Setting] → [Comm. Parameter] on the V-SFT editor.) This error is indicated when the above 1 and 2 are present.	When the “Max_int” time is too long (infinite, for example) on the PLC, it is not possible to know whether or not the response from the PLC is correctly made. This error message disappears when a response from the PLC is received within the “Max_int” time.
Word Writing to Sp. Relay (Mitsubishi: A Series)	Word writing to a special relay (M9000 and later) is attempted. (Notes: Only bit writing is possible for special relays when connecting with OPCN-1.)	Do not attempt to perform word writing to special relays.

- T-LINK

Error Message	Contents	Solution
T-LINK I/F Board Err	The I/F unit for T-LINK has an error.	Contact your local distributor.
Network I/O Access Err	MONITOUCH has attempted to have access to a memory area out of the designated input/output words.	Check the memory for the network I/O in the screen data file.
Access denied by Loader	The PLC loader is being accessed so that processing is not performed on V7. (This error occurs during program transfer from the PLC loader for most cases.)	Wait for the PLC loader to finish processing, and press the [RETRY] switch on the V7 screen.
Communication Error Received Code No. 32	An attempt to access an area that does not exist within the PLC is made. Example: A file area (W) that is not defined with the PLC program	Check the PLC memory addresses set in the screen data file.
Communication Error Received Code No. 36	The number of monitor registration points is too small.	Correct the number of monitor registration points. For monitor registration, refer to the user manual of the PLC you are using.

- PROFIBUS-DP

Error Message	Contents	Solution
Timeout	"Check" is displayed 2 or 3 seconds before this error occurs when connecting V7 and PROFIBUS-DP in the RUN mode.	The setting for [Own Stat. No.] on V7 is discrepant with that for [Address] for [V7 series] on the SIMATIC Manager. Check and correct the setting.
	A screen is displayed instantaneously (= communications performed) before this error occurs when connecting V7 and PROFIBUS-DP in the RUN mode.	The DB address set on the V7 screen may not exist on the PLC (memory over). Check the setting.

- DeviceNet

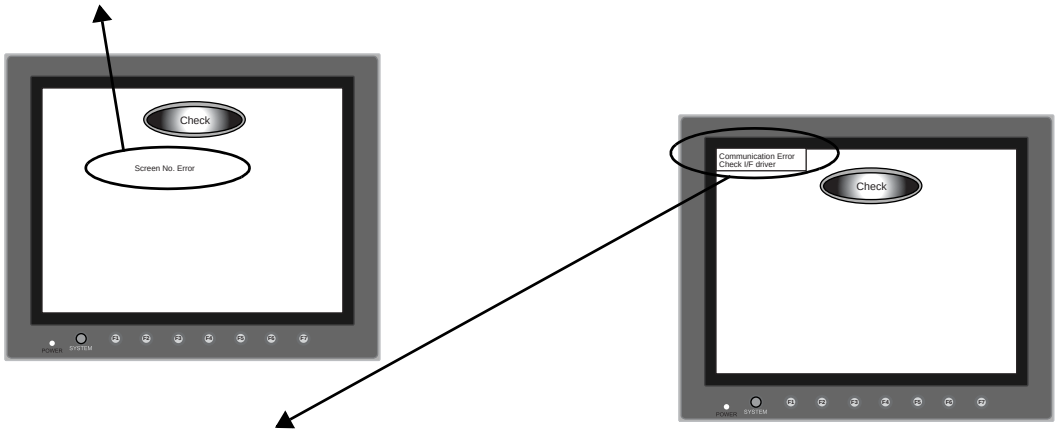
Error Message	LED		Contents	Solution
	MS	NS		
Initialization error	● Red	○	Reading or writing to RAM is not performed normally during initialization check.	• Turn the power on again. If recovery is not possible, a fault is suspected.
			Start-up information check error: The baud rate is outside the specified range.	• Make the baud rate (using DIP switch 7 and 8) the same as set for the master and turn on the power again. If recovery is not possible, a fault is suspected.
			Start-up information check error: Excessive size for input	• On the V-SFT, go to the [Comm. Parameter] dialog. In the [No. of Words Setting for I/O] tab window, enter the desired value of up to 128 words for [Input Range]. Then turn on the power again.
			Start-up information check error: Excessive size for output	• On the V-SFT, go to the [Comm. Parameter] dialog. In the [No. of Words Setting for I/O] tab window, enter the desired value of up to 128 words for [Output Range]. Then turn on the power again.
BUS OFF Error	● Green	● Red	• The communication cable is short-circuited at start-up. • The baud rate does not match the setting for the master.	• Check the wiring and turn on the power again. • Make the baud rate (using DIP switch 7 and 8) the same as set for the master and turn on the power again.
Node Address Duplication Error	● Green	● Red	The same node address is already used for the master or some other slave.	• Check the node address and correct it to an address which is not used yet (using DIP switch 1 to 6). Then turn on the power again.
Network Error	● Green	○	The network power is off.	• Turn on the network power supply.
			No other devices exist on the network.	• Check the wiring and turn on the power again. • Make the baud rate (using DIP switch 7 and 8) the same as set for the master and turn on the power again.
		◎ Red	I/O time-out: Communication with the master has become disabled.	• Check the conditions of the master power supply. • Check the wiring.
		◎ Green	No connection exists.	• Check the wiring.
Definition Error	-	-	The returned error code is not supported by the DeviceNet.	Review the settings below: • Master setting • CU-07 setting • V-SFT setting • Wiring

○: Extinguished ●: Illuminated ◎: Blinking

Depending on the errors detected, turning on the power again may be necessary on the master as well as on the V series.

2. Check

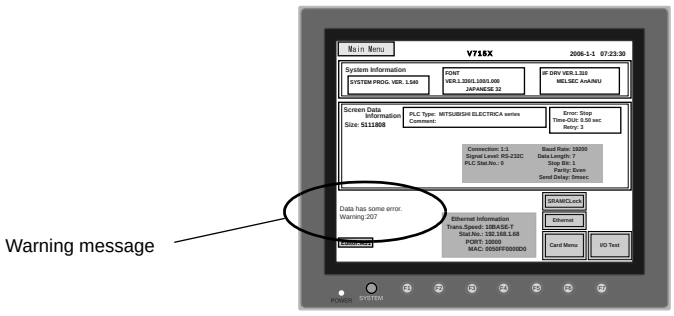
Error Message	Contents	Solution
Screen No. Error	There is no setting for the received screen.	At the start of communications, the V7 series regards the value in the read area “n + 2” as the screen number. Check that the value in the read area “n + 2” is an existing screen number on the PLC.
Data has some error. Error : XX (XX : XXX)	There is an error in the created screen data.	“Error : XX (XX : XXX)” indicates the edited screen and the contents of the error. For the error details and solutions, refer to the Reference Manual (Function) and correct screen data.



Error Message	Contents	Solution
Communication Error Check I/F driver	Although a request to send is given to the computer, no answer is returned within the specified time.	The I/F driver for simulator is transferred. If you do not use the simulator, uncheck [Use Simulator] before transferring data.

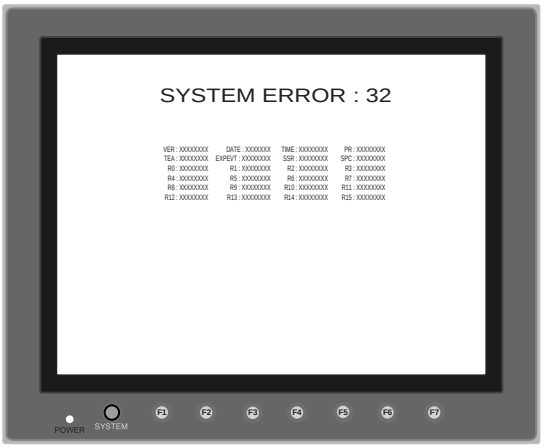
3. Warning

An error may be displayed on the Main Menu screen during data transfer.
This is a warning message.
For the warning details and solutions, refer to the Reference Manual (Function) and correct screen data.



4. SYSTEM ERROR

When a system error is detected, the following error screen is displayed on the V7 series.



ERROR: XX

- 1: Watch dog timer error
- 11: Switch table error
- 30: Request for displaying full error
- 31: Memory allocation system error
- 32: General exceptions/MMU address system error
- 33: RTOS system error
- 34: Memory error
- 35: Inaccurate memory error

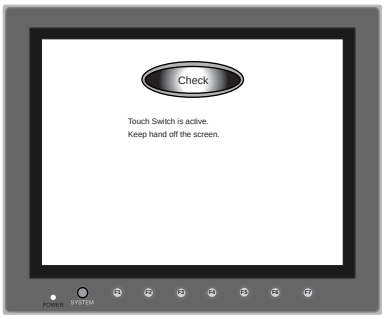
The source of the error could be one of the following three problems.

1) Program crash due to noise
2) Hardware problem
3) Bad program

Solve relevant problems by following the directions in “Troubleshooting” (page 7-7).
If the problem persists, contact your local distributor.

5. Touch Switch Is Active.

If the power is turned on while a touch switch is activated, the following error screen is displayed.
Remove your finger from the screen.
If the error screen remains displayed, contact your local distributor.



2. Troubleshooting

In the Event of an Error

Perform the steps below:

1. If the current error matches a symptom in the following table, correct it by following the instructions provided.
2. If the error does not match the symptoms in the table, contact your local distributor. Please provide the distributor with the information on MONITOUCH model, serial number, symptom of the error, error message (if shown), etc.

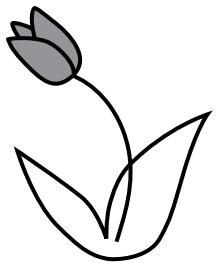
Probable Symptoms

Symptom	Cause	Solution
MONITOUCH is connected to the PLC; however, communication fails. “Communication Error: Time-Out” appears on the screen. 	Probable causes are: 1) Cables are not connected correctly or any cable is disconnected. 2) PLC parameter settings are not correct or disagree with MONITOUCH settings. 3) MONITOUCH is faulty.	Solutions are: 1) Check the cable connection. 2) Recheck the PLC parameter settings. 3) Perform a self-loop test on the “I/O Test” screen (page 6-5). If the test is not successful, please return MONITOUCH to your local distributor immediately.
Communications have been successful. However, opening a certain page always causes a “Communication Error: Error code received” error. 	The error code denotes a PLC error (NAK). 1) When the error code appears only on a certain screen, a memory address that does not exist on the PLC may be set on MONITOUCH screen. 2) When the error code appears at power-on, a memory address that does not exist on the PLC may be set for communication parameters, buffering area, initial macro, etc.	1) Check if any address outside the allowable range for PLC memory is set on the screen. 2) Check if any address outside the allowable range for PLC memory is set for communication parameters, buffering area, initial macro, etc.
Communications have been successful. However, “Communication Error: Parity” or “Communication Error: Framing” suddenly occurs. 	Noise may cause the error.	Check if appropriate measures are taken against noise. Example: Check if communication and power cables are bundled together. Try to attach a ferrite core to the communication cable. Try to attach a noise filter to the power supply, etc.

Symptom	Cause	Solution
"SYSTEM ERROR: xx" occurs. 	The following causes are probable, depending on the symptoms. 1) Turning the power off and back on corrects the error. ↓ Communication failed because of improper timing. 2) Turning the power off and back on does not correct the error. ↓ A certain condition always causes the error. Or MONITOUCH is faulty. 3) A CF card is inserted. ↓ The CF card (front and back) may be reversed. If none of the above matches your error, contact your local distributor.	1) If communication is stable after turning the power on again, continue and observe operation. 2) Make a note of the information on error number, etc. displayed on the screen and contact your local distributor. 3) Check that the inserted CF card faces the correct side.
Switches do not work.	1) Switches do not work in the RUN mode. A beep sounds. ↓ Is the switch interlock enabled? 2) Switch activation position is wrong. On the "I/O Test" screen displayed from the Main Menu screen, press the [Switch Check] switch. On the touch switch test screen, a position different from the pressed position is activated. ↓ The switch activation position may be misaligned. 3) Switches do not work even in the STOP mode. On the "I/O Test" screen displayed from the Main Menu screen, press the [Switch Check] switch. When the touch switch test screen is pressed, nowhere is activated. ↓ MONITOUCH switches may be faulty.	1) Check the settings of switch functions, etc. on the V-SFT editor. 2) Perform a touch switch adjustment (page 6-11). 3) Return MONITOUCH to your local distributor.
The screen becomes dark or black.	1) Touching the screen restores it to the previous illuminated state. ↓ The backlight operates automatically as preset. 2) Touching the screen does not restore it. However, the POWER lamp is lit. ↓ The backlight may be at the end of its life. Or MONITOUCH may be faulty.	1) The time for turning off the backlight can be changed on the V-SFT editor. 2) Return MONITOUCH to your local distributor.

Symptom	Cause	Solution
Screen data cannot be transferred.	1) Screen data transfer has never succeeded. ↓ There may be some errors in the settings on the computer.	1) In the [Transfer] dialog on the V-SFT editor, decrease the baud rate by one level. Also check that the correct COM port is selected.
	2) Screen data transfer was possible, but is disabled now. ↓ MONITOUCH may be faulty. Or, there may be some errors in settings.	2) Check if the modem connection mode is selected. (“Modem Connect Mode” displayed at the bottom of the Main Menu screen denotes the mode.) Also perform an RS-232C self-loop test (page 6-5).
	3) Only serial transfer is successful. ↓ There may be some errors in the Ethernet or USB settings.	3) Transfer via Ethernet Check that the IP addresses set on the V-SFT editor and MONITOUCH are the same. Also check if any error due to Ethernet connection occurs on MONITOUCH. Transfer via USB Is the USB driver recognized? Has the driver been installed successfully (page 2-17)? If the problem persists, contact your local distributor.

MEMO



Please use this page freely.

8 Inspection and Maintenance

1. Inspection and Maintenance
2. Warranty Policy

1. Inspection and Maintenance

DANGER Be sure to turn off the power before conducting inspection or maintenance. Failure to do so could cause an electric shock or damage to the unit.

Daily Inspection

- Check that the screws on MONITOUCH are tightened firmly.
- Check that the connectors and terminal screws used for connection with other devices are tightened firmly.
- If the display surface or frame is dirty, wipe it with a soft cloth soaked in alcohol (commercially available).
- Conduct periodical inspection once or twice a year. The number of inspections may be increased as necessary if facilities are relocated or modified, or the environment is hot, humid, or dusty.

Periodical Inspection

Inspect the following points periodically.

- Are the ambient temperature and humidity appropriate?
  0 to +40°C, 85%RH or less
- Are the environmental conditions appropriate?
- Does the atmosphere contain no corrosive gas?
- Is the source voltage in the allowable range?
  With DC power supply: 24 VDC±10%
- Are MONITOUCH mounting screws tightened firmly?
- Are the connectors and terminal screws used for connection with other devices tightened firmly?
- Is the lithium primary battery within the expiry date?

2. Warranty Policy

Inquiries about Failure

Please direct inquiries about failure or repair to your local distributor.
Your information on MONITOUCH model, serial number, symptom of the failure, error message (if shown), etc. will be appreciated.

* An inquiry form is provided on the final page (page 8-3) of this chapter. The form may be used for your inquiry.

Warranty Period

The product is under warranty for one year after the date of purchase or delivery to the specified place. On the assumption that the maximum stock period of the product after manufacture is 6 months, the warranty period is limited to 18 months (checked by the serial number) after manufacture. When a warranty period is specified in the contract, however, the period in the contract takes precedence.

Free-of-charge Repair

If the product fails before the expiry of the warranty, it will be repaired free of charge.
However, repair of any failure resulting from the causes below will be chargeable even within the warranty period.

- Breakage of or damage to the appearance (housing or surface sheet), touch switches, LCD, or other components due to dropping, impact, or mishandling
- LCD or backlight at the end of life
- Fusion of a printed circuit board pattern associated with connection to external devices, or fusion of a pattern in the terminal block or connector section of a printed circuit board caused by short-circuiting of external load circuit
- Overvoltage or different voltage applied due to wiring mistake (power supply terminal, external communication terminal, or other terminal blocks)
- Failure caused by lightning surge
- Failure due to the entry of conductive substances, water, solvent, particles, etc. under inappropriate environmental conditions
- Failure due to inappropriate environmental conditions (e.g. corrosive gas or high humidity)
- Failure due to vibration or impact exceeding the specified level
- Disassembly and modification by the customer or failure obviously resulting from improper handling by the customer

Chargeable Repair

Any failure that occurs after the expiry of the warranty or does not satisfy the requirements for the free-of-charge repair will be repaired on an chargeable basis.

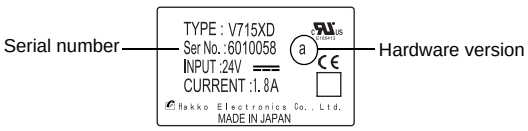
Inquiry Form

Your name		
Company name		
Contact	E-mail:	
	TEL:	FAX:
Model code (*1)		Ser. No. (*1)
MONITOUCH version (*2)	SYS. PROG. Ver. :	I/F DRV. Ver. :
Purchased from: (Name of distributor)		
Date of purchase		

Symptom

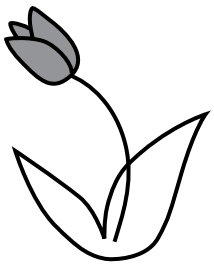
(Please describe the symptom of the failure and also include the error message if any is displayed.)

*1 See the label on the back of MONITOUCH for the model code and serial number (seven digits plus one letter of the alphabet).



*2 Enter the version if it can be checked.
*3 The version is displayed on the Main Menu screen (page 6-3).

MEMO



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MONITOUCH

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