Fe *e-Front runners*

Hardware Specifications

MONITOUCH V706 Series

HAKKO
TOUCH OPERATION
FLAT PANEL

MONITOUCH

V706 Series

SYSTEM
F1
F2
F3
F4
F5
POWER

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
January, 2004	2012NE0	First edition
January, 2007	2012NE1	Second edition • 100BASE-TX supported • Describes the difference of the MJ2 specifications according to the hardware version 　"c" or later: enables switching RS-232C/RS-485 to RS-422 　"a" or "b": enables switching RS-232C to RS-422 • Length of V6-TMP changed • Form of MJ2-PLC changed • USB hub supported • "Main Menu" screen changed 　[Delete] switch for deleting all the data in a CF card added
June, 2008	2012NE2	Third edition • Cover and back cover changed

Preface

Thank you for selecting the MONITOUCH V706 series.
For correct set-up of MONITOUCH, you are requested to read through this manual to understand more about the product.
For more information about the V706 series, refer to the following related manuals.

Manual Name	Contents	Reference No.
Reference Manual (Operation)	The V-SFT operating procedure is 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
Connecton to A•B Control Logix	The wiring, communication parameters as well as tag entries for A•B 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	Additional specifications for the Reference Manual are explained.	5044NE

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

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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 function of MONITOUCH for operations that may threaten human life or to damage the system, such as switches to be used in case of emergency. Please design the system so that it can cope with malfunction of a touch switch. A malfunction of the 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. Without the terminal cover in place, an 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.
• For MONITOUCH using a lithium battery, never disassemble, recharge, deform by pressure, short-circuit, nor reverse the polarity of the battery, and never dispose of the battery in fire. Failure to follow these conditions will lead to explosion or ignition.
• For MONITOUCH using a lithium battery, never use a battery that is deformed, leaks, or shows any other signs of abnormality. Failure to follow these conditions will lead to explosion or ignition.

⚠️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 the 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. Ground FG terminal which must be used for the unit. 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.
- After wiring is finished, remove the paper used as a dust cover before starting to operate MONITOUCH. Operation with the cover attached may result in accident, fire, malfunction, or trouble.
- Do not attempt to repair MONITOUCH at your site. Ask Hakko or the designated contractor for repair.
- Do not disassemble or modify MONITOUCH. Otherwise, it may cause a malfunction.
- Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repair, overhaul 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.
- For MONITOUCH using a lithium battery, handle the battery with care. The combustible materials such as lithium or organic solvent contained in the battery may generate heat, explode, or catch fire, resulting in personal injury or fire. Read related manuals carefully and handle the lithium battery correctly as instructed.
- When using a MONITOUCH that has analog switch resolution with resistance film, do not press two or more points on the screen at the same time. If there is a switch between the two pressed points, it may be activated.
- 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.

[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. Otherwise, it may cause a malfunction.
- Do not use thinners for cleaning because they may discolor the 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 handle the error correctly.
- Avoid discharging static electricity on the mounting panel of the 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.

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Chapter 3   Installation

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Overview

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Overview

1.   Features

The V706 series inherits and heightens the features of the V6 series as described below.

1. 32k-color Display (except for V706M)
    32,768-color display makes colorful 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. SRAM and Clock Function as Standard
    A 128 kbyte SRAM is standard, allowing backup copies of recipe data or sampling data to be saved with ease.

4. CF Card Interface Supported (USB master port/optional)
    The CF card can be used for saving multiple screen data, sampling data, recipe data, hard copy images, and other various usages.
    JPEG files and font files can also be saved.

5. LAN Connector Supported (optional)
    This connector enables Ethernet connection with a host computer or PLC. It supports 100BASE-TX/10BASE-T. High-speed communications are possible via Ethernet for transferring screen data and reading/writing data from/to the server.

6. Analog Switch/Matrix Switch Supported
    The switch type can be selected from the lineup according to your application.
    A variety of switch types is available to suit your requirements.

2. Models and Peripheral Equipment

MONITOUCH Models

The model name consists of the following information.

V706 ☐☐☐

```
Power supply specification
    D: 24 VDC specification
        (in compliance with CE/UL/cUL)

Switch type
    None: Analog switch
    M: Matrix switch

Device specification
    T: TFT color LCD (QVGA)
    C: STN color LCD (QVGA)
    M: STN monochrome LCD (QVGA)

Screen size
    06: 5.7-inch
```
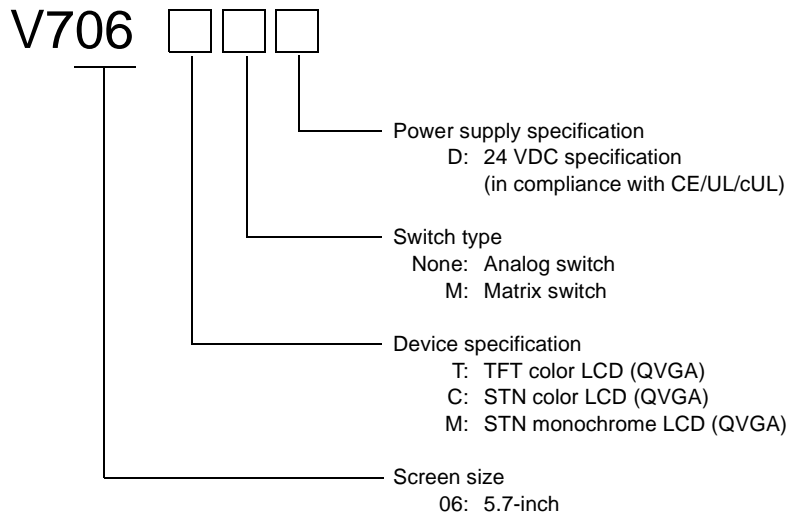
The following models are available.

Series and Size	Model Name	Specifications	Remarks
V706 series 5.7-inch	V706TD	TFT color, 320 × 240 dots, analog switch DC power supply	Compliant with CE/UL/cUL
	V706TMD	TFT color, 320 × 240 dots, matrix switch DC power supply	Compliant with CE/UL/cUL
	V706CD	STN color, 320 × 240 dots, analog switch DC power supply	Compliant with CE/UL/cUL
	V706CMD	STN color, 320 × 240 dots, matrix switch DC power supply	Compliant with CE/UL/cUL
	V706MD	STN monochrome, 320 × 240 dots, analog switch DC power supply	Compliant with CE/UL/cUL
	V706MMD	STN monochrome, 320 × 240 dots, matrix switch DC power supply	Compliant with CE/UL/cUL

Peripheral Equipment

The following options are available for using the V706 series more effectively.

V-SFT (configuration software: English version)
Application software for editing display data for the MONITOUCH.
(Windows98/NT4.0/Me/2000/XP compatible)
The V706 series is supported with ver. 2.2.0.0 and later.
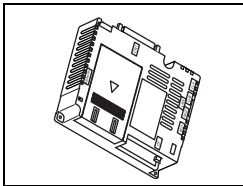
DU-01 (option unit)
Optional unit to be used for D-sub 25-pin connector, CF card and Ethernet.
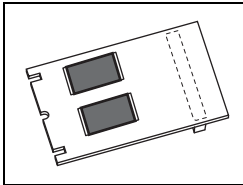
V706EM-F (FLASH memory cassette)
Extension print circuit board to extend the memory for screen data.
The capacity of FLASH memory is 4 Mbyte.

* Only when the DU-01 (option unit) is provided
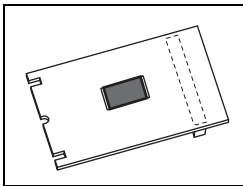
V706EM-S (SRAM memory cassette)
Extension print circuit board to save the sampling data, the internal memory or the memo pad area.
The capacity of SRAM memory is 512 Kbyte.

* Only when the DU-01 (option unit) is provided
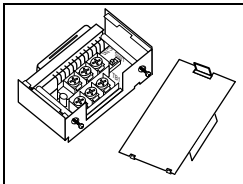
TC485 (terminal converter)
Used for connection between the V7 series and a PLC at the RS-422/485 terminal block.

* Only when the DU-01 (option unit) is provided
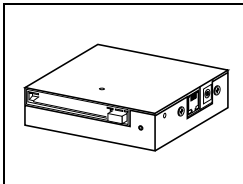
CREC (card recorder)
The card recorder creates a backup copy of screen data or works as an external memory storage system for memory manager and data logging functions.
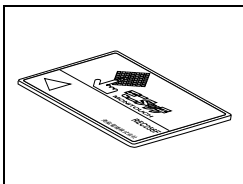
REC-MCARD (memory card) compliant with JEIDA ver. 4.0
Used with the card recorder when having a backup copy of screen data or saving data on an external medium for memory manager and data logging functions.
SRAM   256 K, 512 K, 1 M, 2 M, 4 Mbyte
FLASH ROM   4 Mbyte

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)
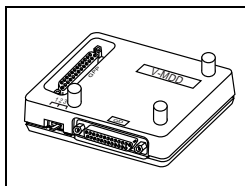
V-MDD (ACPU/QnACPU/FXCPU dual port interface)
Add-on connector with two ports, specifically designed for the connector on the
MITSUBISHI's ACPU/QnACPU/FXCPU programmer. Operability can be improved when
directly connecting the V7 series to the ACPU/QnACPU/FXCPU programmer.

* Only when the DU-01 (option unit) is provided
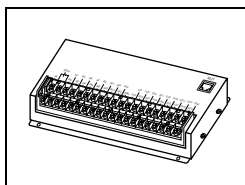
V-I/O (serial extension I/O)
Used as an external I/O unit. It has 16 inputs and 16 outputs.
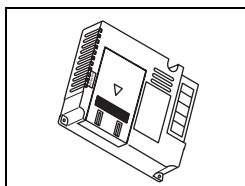
DU-TL (T-Link unit)
Used for communication with T-Link network. This unit enables connection of multiple V706
to one PLC.
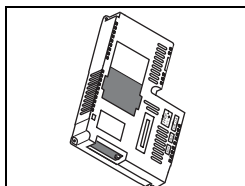
CU-ADP (Adapter unit)
Used for using communication interface unit, CU-xx with V706.
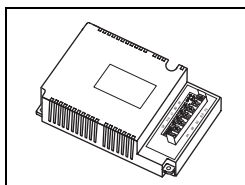
**CU-xx [xx: 00→OPCN-1, 01→T-Link, 02→CC-Link, 03-2→Ethernet/FL-net,
         04→PROFIBUS-DP, 05→MELSECNET/10] (communication interface unit)**
Used for communications with each network. This unit enables connection of multiple V706
to a single PLC. Since other devices on the same network can be connected, it brings about
the reduction in costs of the whole system.
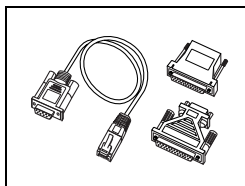
V6-CP (screen data transfer cable) 3 m
Used for connection between the V7 series and a personal computer, or a personal
computer and the card recorder (CREC).

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Overview

V6-BCD (barcode reader connection cable) 3 m
Used for connection between the V7 series and a barcode reader.
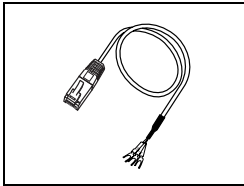
V6-MLT (multi-link 2 master cable) 3 m
Used for Multi-Link 2 connection between the V7 master station and the V7 slave station.

V6-TMP (temperature controller connection cable)
Used for connection between the V7 series and a temperature controller or a PLC via
PLC2Way.

V6-TMP   : 3m
V6-TMP-5M : 5m
V6-TMP-10M : 10m
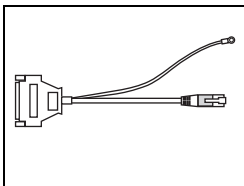
MJ2-PLC (MJ2-to-D-sub conversion cable) 0.3 m
Used for connection between V706 (MJ2) and a PLC on RS-232C or RS-422 (4-wire).

* When connecting between V706 (MJ2) and a PLC on RS-485 (2-wire),
  you can use MJ-D25. (See the following item.)
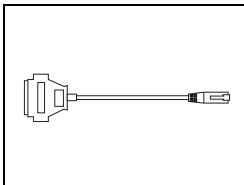
MJ-D25 (MJ-to-D-sub conversion cable) 0.3 m
Used for connection of the V7 series via PLC2Way.
It is also used for connection between V706 (MJ2) and a PLC on RS-232C or RS-485
(2-wire).
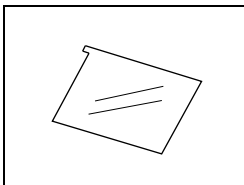
V606-GS (protective sheet)
This sheet protects the operation panel surface. (5 sheets/set)
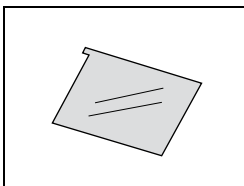
V606-GSN10 (protective sheet)
This anti-glare sheet protects the operation panel surface. (5 sheets/set)
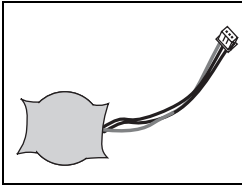
V7-BT (battery for replacement)
Replacement lithium battery for the V7 series.

3.   System Composition

System Composition of V706

The following illustration shows possible system configurations using the V706.
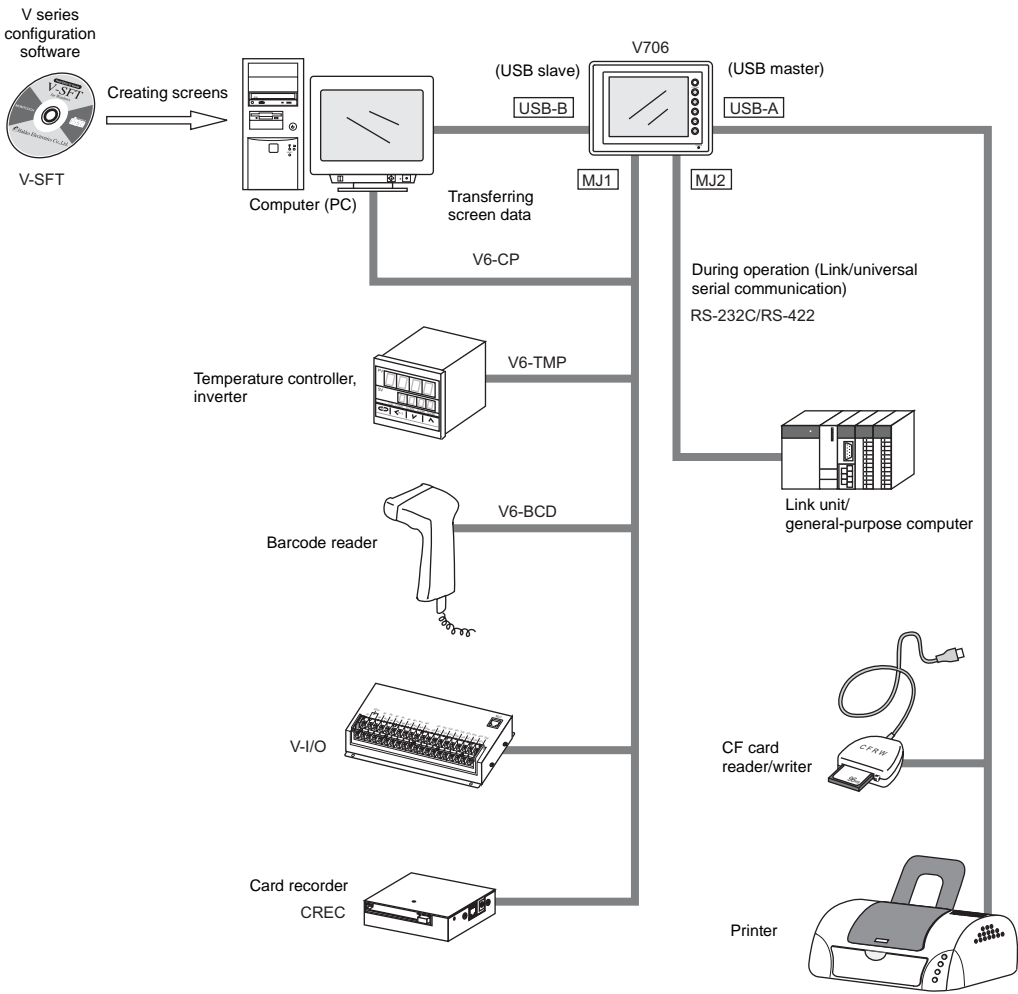
System Composition of V706 + DU-01

The following illustration shows possible system configurations using the V706 and the DU-01.

Ethernet

Computer (PC)   Computer (PC)

V series
configuration
software

Creating screens

V-SFT

(USB slave)   V706+DU-01   LAN   During operation
(Link/universal serial
communication)
RS-232C/RS-422

USB-B

V6-CP   MJ1   D-sub

Transferring
screen data   MJ1/MJ2

Computer (PC)

USB-A

(USB master)

Temperature controller,
inverter   V6-TMP

Link unit/
general-purpose computer

Barcode reader   V6-BCD

V-I/O

CF card
reader/writer

Card recorder
CREC

Printer

2 Specifications

1.   Specifications

General Specifications

Item		Specifications
Power Supply	Rated Voltage	24 VDC
	Permissible Range of Voltage	24 VDC ± 10%
	Permissible Momentary Power Failure	Within 1 ms
	Power Consumption (Maximum Rating)	16 W or less
	Rush Current	20 A or less (with a rise time 0.1 ms)
	Withstand Voltage	DC external terminals to FG: 500 VAC, 1 minute
Insulation Resistance		500 VDC, 10 MΩ or above
Physical Environment	Ambient Temperature	0°C to +50°C *
	Storage Ambient Temperature	−10°C to +60°C
	Ambient Humidity	85% RH or less (without dew condensation)
	Solvent Resistance	No cutting oil or organic solvent attached to the unit
	Atmosphere	No corrosive gas, not so much excessive dust and no conductive dust
Mechanical Working Conditions	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 Conditions	Noise Resistance	1000 Vp-p (pulse width 1μs, 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 100 Ω
	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 only: approx. 680 g, with DU-01 installed: approx. 820 g
	External Dimensions W × H × D (mm)	Unit only: 182.5 × 138.8 × 42.5, with DU-01 installed: 182.5 × 138.8 × 64.0
	Panel Cut-out Dimensions (mm)	$174^{+0.5}_{-0} \times 131^{+0.5}_{-0}$
Case	Color	Black (Munsell N2.0)
	Material	PC/PS resin (Tarflon)

*   As for V706C and V706M, operation for long hours at ambient temperatures of 40 to 50°C may degrade the display quality, such as lowering contrast.

Display Specifications

Item	Model		
	V706T	V706C	V706M
Display Device	TFT color LCD	STN color LCD	STN monochrome LCD
Display Size	5.7-inch		
Colors	32,768 colors +16-color blinks		Monochrome 8 gradation + blink
Resolution W × H (dots)	320 × 240		
Dot Pitch W × H (mm)	0.36 × 0.36	0.36 × 0.36	0.36 × 0.36
Brightness (cd/m^2)	350	160	220
Contrast Ratio	60 : 1	30 : 1	5 : 1
Angle of Vertical Visibility (°)	+65, −40	+20, −35	+20, −40
Angle of Horizontal Visibility (°)	±65	±50	±45
Backlight	Cold cathode rectifier (cannot be replaced by users)		
Average Backlight Life[1]	Approx. 50,000 h	Approx. 54,000 h	Approx. 58,000 h
Backlight Auto OFF Function	Always ON, random setting		
Contrast Adjustment	Not provided	Provided [2]	
Brightness Adjustment	Provided [2]	Not provided	
Surface Sheet	Material: Polycarbonate, 0.3 mm thick		
POWER Lamp	Illuminated in green when the power is on; illuminated in orange when the voltage of the battery (with its cable connected) has become low.		
MJ2 Function Selection	Slide switch Down: RS-422 (4-wire) Up: RS-232C/RS-485 (2-wire [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 the macro command
*3 Hardware version "c" or later

Touch Switch Specifications

Item	Specifications
Method	Analog resistance film type, matrix resistance film type
Switch Resolution	Analog: 1024 (W) × 1024 (H) Matrix: 20 (W) × 12 (H)
Mechanical Life	One million activations or more
Surface Treatment	Hard-coated, anti-glare treatment 5%

Function Switch Specifications

Item	Specifications
Number of Switches	6
Method	Digital resistance film
Mechanical Life	One million activations or more

Interface Specifications

Item	Specifications
Screen Data Transfer/External Connection Serial Interface (Modular jack, 8-pin: MJ1)	RS-232C, RS-422/485 (2-wire connection) CREC, barcode, V-I/O, multi-link 2, temperature control network/PLC2Way, V-link, etc.
PLC Connection Serial Interface (Modular jack, 8-pin: MJ2)	Hardware version "c" or later RS-232C/RS-485 (2-wire connection), RS-422 (4-wire connection) Hardware version "a" or "b" RS-232C, RS-422 (4-wire connection) Asynchronous type Data length: 7, 8 bits Parity: Even, odd, none Stop bit: 1, 2 bits Baud Rate: 4800, 9600, 19200, 38400, 57600, 76800, 115 kbps
Printer/CF Card Reader Connection USB Master Port (USB-A)	Type A, USB Ver. 1.1
Screen Data Transfer USB Slave Port (USB-B)	Type B, USB Ver. 1.1

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 $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. 2.2.0.0 and later) Personal computer: Pentium II 450 MHz or higher 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 higher 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	Latin1	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	Resolution	320 × 240				
	1/4-size	40 characters × 30 lines				
	1-byte	40 characters × 15 lines				
	2-byte	20 characters × 15 lines				
Characters Properties		Display properties: Normal, reverse, blink, bold, shadow Colors: 32,768 colors + blink 16 colors / monochrome 8 gradation + blink				
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 / monochrome 8 gradation + blink Color selection: Foreground, background, boundary (line)				

* In addition, the following fonts are available. For more information, refer to the 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. 1,472 kbyte (varies depending on the font)
Switches		192 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) (Matrix type: Possible to press two switches on the display at the same time)
Lamps		Reverse, blink, exchange of graphics 192 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. 40 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. 6144 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 256 per screen.
*2   Layer: 4 per screen (base + 3 overlaps)

2.   Dimensions and Panel Cut-out

V706 External View and Dimensions

(Unit: mm)

- Front View

182.5

138.8

- Side View

- Rear View

173.6

CN1

130.8

24VDC

MJ1 MJ2 U-B U-A

42.5

6
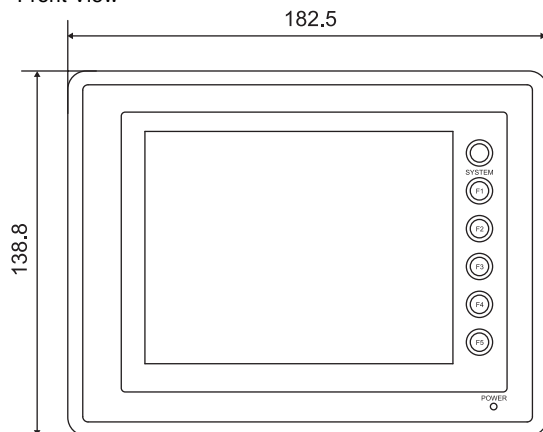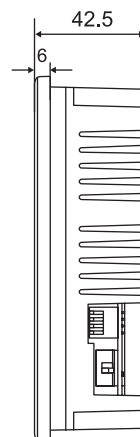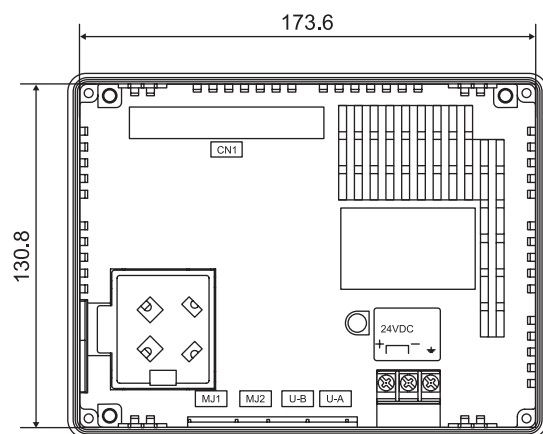
- Bottom View

- Panel Cut-out Dimensions

$174_{-0}^{+0.5}$

$131_{-0}^{+0.5}$

VICPAS
HMI Parts Center
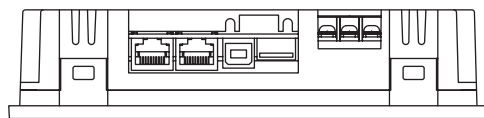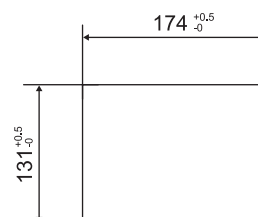
V706 + DU-01 External View and Dimensions

(Unit: mm)

- Front View

182.5

138.8

SYSTEM
F1
F2
F3
F4
F5
POWER

- Side View

- Rear View

173.6

MEMORY

CN1

24VDC

CF

LAN

MJ1 MJ2 U-B U-A

64

42.5

6

128.8

- Bottom View

7   102.7   63.9

- Panel Cut-out Dimensions

$174 \, ^{+0.5}_{-0}$

$131 \, ^{+0.5}_{-0}$
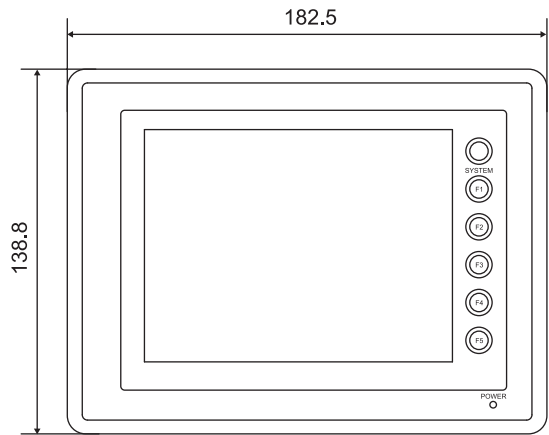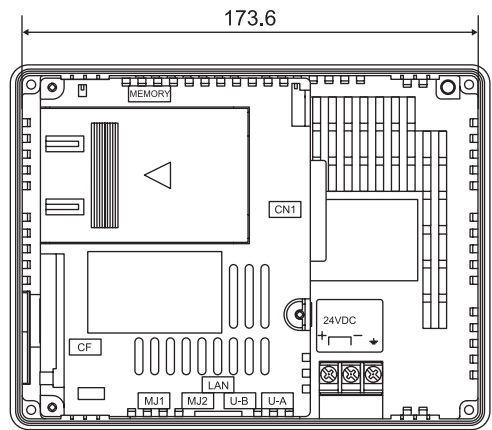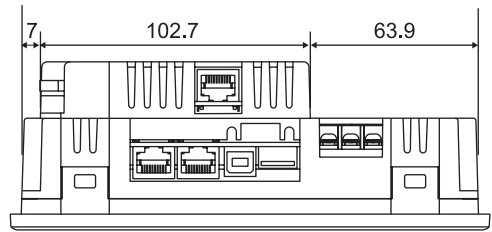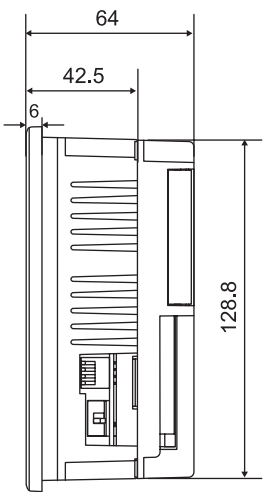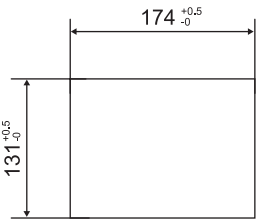
V706 + DU-TL External View and Dimensions

(Unit: mm)

- Front View

182.5

138.8

SYSTEM
F1
F2
F3
F4
F5

POWER

- Side View

- Rear View

173.6

24VDC

T1   T2   SD   x10   x1

67.8

42.5   25.3

128.8

- Bottom View

7   102.7   63.9

- Panel Cut-out Dimensions

$174 \, ^{+0.5}_{-0}$

$131 \, ^{+0.5}_{-0}$
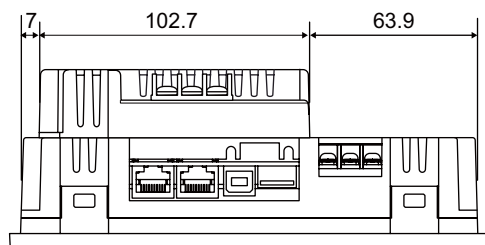
V706 + CU-ADP + CU-xx External View and Dimensions

(Unit: mm)

- Front View

182.5

138.8

SYSTEM
F1
F2
F3
F4
F5

POWER

- Side View

- Rear View

14.1

150.5

2

98

138.8

MJ1   MJ2   U-B U-A

24VDC
+ − ⏚

TYPE:V706□□□
Ser No. □□□□□□
Battery replacement.
電池交換予定日

85.9

64.9

60.9

138.8

- Bottom View

182.5

- Panel Cut-out Dimensions

174 $^{+0.5}_{-0}$

131 $^{+0.5}_{-0}$

VICPAS
HMI Parts Center
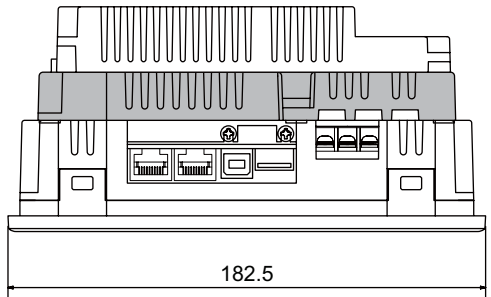
3.   Names and Functions of Components

V706
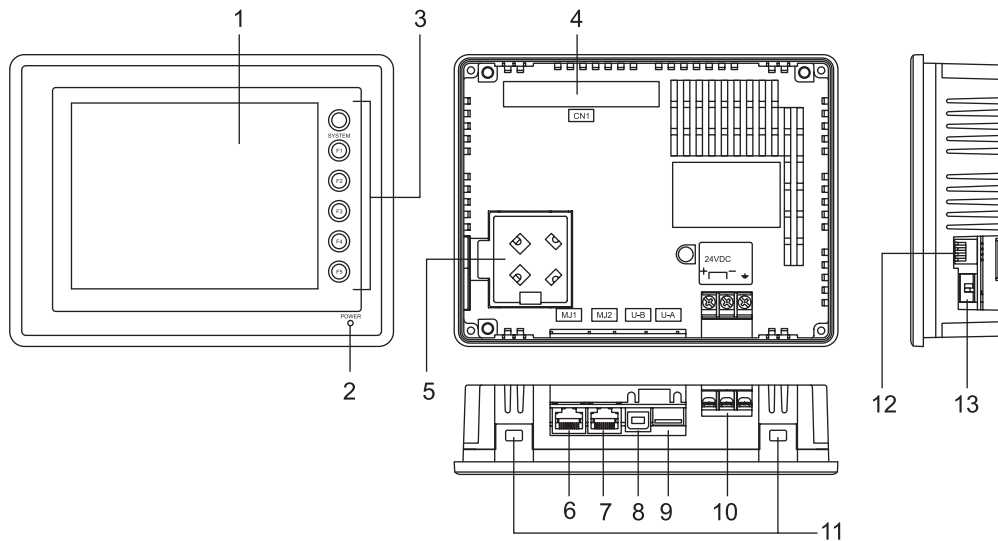
V706+DU-01
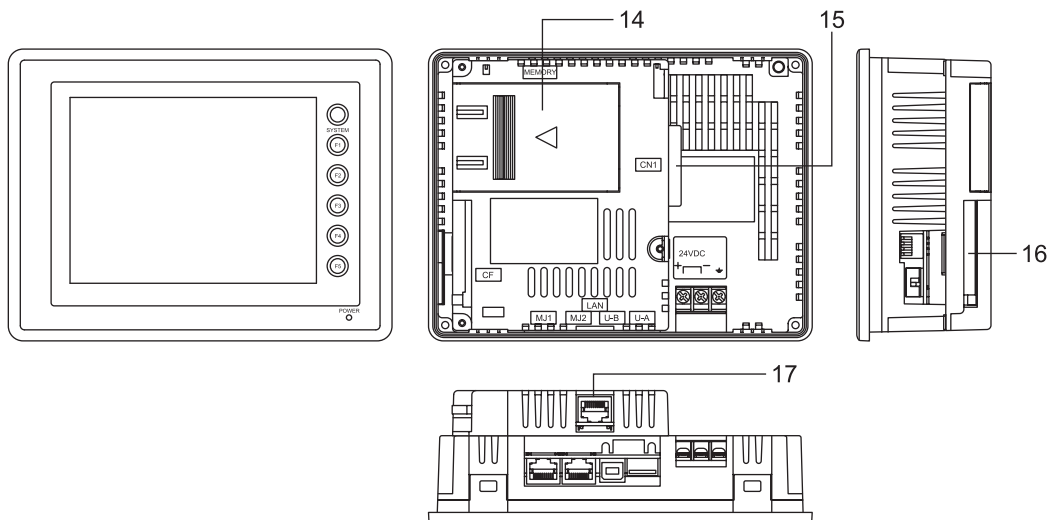
1. Display
    This is the display unit.

2. Power lamp (POWER)
    Illuminates (green) when the power is supplied. The lamp illuminates (orange) when the voltage of the battery set in the MONITOUCH has become low.

3. Function switches
    Used for RUN /STOP selection, contrast adjustment, brightness adjustment and backlight ON/OFF (according to the setting). These switches can be used as user-defined switches in the RUN mode.

VICPAS
HMI Parts Center

4. Option unit connector (CN1)
    This is the connector where the option unit DU-01 is mounted.

5. Battery holder
    Contains a backup battery for SRAM and clock.
    When the battery voltage drops, replace the battery with a new one (V7-BT).

6. Modular jack connector (MJ1)
    This is used for screen data transfer and connection with temperature controller, barcode reader, CREC, etc.

7. Modular jack connectors (MJ2)
    This is used for connection with the PLC.
    With the option unit DU-01 mounted, the modular jack allows you to connect a barcode reader, serial printer, etc.

8. USB-B (slave port)
    This is the connector for screen data transfer.

9. USB-A (master port)
    This is the connector where a printer or a CF card reader/writer is connected.

10. Power supply terminal block
    Supplies the power (24 VDC) to the V706.

11. Mounting holes
    Used for inserting fixtures when securing the V7 series to the mounting panel.

12. DIP switch
    This is used for setting the terminating resistors of the MJ1/MJ2 RS-422/485 signal line.

13. Slide switch
    This is used for switching between the RS-232C/RS-485 * and RS-422 ports for the MJ2.

    *   RS-485 port is supported in the hardware version "c" or later of V706.

14. Add-on memory connector (MEMORY) (optional)
    With the option unit DU01 mounted, this is used for mounting an optional FLASH memory cassette (V706EM-F) or an optional SRAM memory cassette (V706EM-S).

15. PLC communication connector (CN1) (optional)
    With the option unit DU-01 mounted, this is used for connecting the V706 and a PLC or an external control unit (computer, custom controller, etc.).

16. CF card connector (CF) (optional)
    This is the connector where the CF card is inserted when the option unit DU-01 is installed.

17. 100BASE-TX/10BASE-T connector (LAN) (optional)
    With the option unit DU-01 mounted, this is used for Ethernet connection.

4.   Modular Jack (MJ1/MJ2)
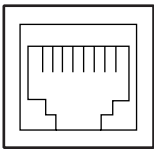
Modular Jack 1 (MJ1)

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

Bottom View
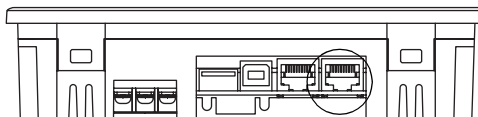
The pins of modular jack 1 correspond to signals as given below.

MJ1	Pin No.	Signal Name	Contents
12345678	1	+SD/RD	RS-485 +data
	2	−SD/RD	RS-485 − data
	3	+5V	Externally supplied +5 V Max. 150 mA[*]
	4	+5V	
	5	SG	Signal ground
	6	SG	
	7	RD	RS-232C receive data
	8	SD	RS-232C send data

*   The maximum current for external supply (+5V) is 150 mA when the MJ1 or MJ2 is used.

V-SFT Setting

1.   The use of modular jack 1 can be set on the V-SFT editor.

2.   Select [Modular] from the [System Setting] menu. The [Modular Jack] dialog is displayed. Select the use of modular jack 1 from the following options.

Modular Jack 1	Remarks
Editor Port	Refer to "Transferring Screen Data" (page 2-21).
Card Recorder	Select this option when connecting the card recorder (CREC).
Barcode	Refer to "Barcode Reader Connection" (page 2-21).
V-I/O	
Multi-Link	Select this option when "Multi-link 2" is selected for [Connection] and "1" is set for [Local Port] on the [Comm. Parameter] dialog.
Temp./PLC2Way	
V-Link	
Ladder Tool	Select this option when using the ladder transfer function.
Modbus Slave	Select this option for Modbus slave connection.
Printer (Serial Port)	Select this option when connecting the printer with serial interface. Refer to page 2-22.

Modular Jack 2 (MJ2: Exclusive to the V706)

<table>
<tr><td>⚠️CAUTION</td><td>The specification of MJ2 depends on the hardware version of V706.

Hardware version "c" or later:
    RS-232C/RS-485 (2-wire connection), RS-422 (4-wire connection)supported
Hardware version "a" or "b":
    RS-232C, RS-422 (4-wire connection) supported

TYPE :V706TD
Ser No. :3080058   a — Hardware version
INPUT :24VDC
CURRENT :0.6A
Hakko Electronics Co., Ltd.
MADE IN JAPAN

The hardware version is printed in the label on the back of V706.
Check it before you use V706.</td></tr>
</table>
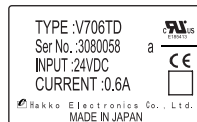
<table>
<tr><td>⚠️CAUTION</td><td>Before using the MJ2, select whether it is used as an RS-232C/RS-485 (2-wire connection supported in the hardware version "c" or later) or RS-422 (4-wire connection) port using the slide switch. The switch is factory-set to RS-422 (4-wire connection).</td></tr>
</table>

This is a modular jack connector used for connection with the PLC.
Unlike the MJ1, the connector is available as an RS-422 (4-wire) port.

Bottom View
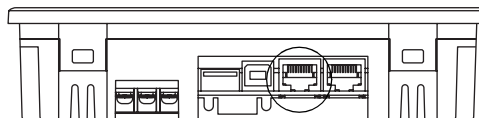
The pins of modular jack 2 correspond to signals as given below.
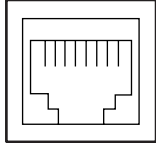
Hardware version "c" or later

MJ2	Pin No.	Slide Switch	Signal Name	Contents
12345678	1 *1	Upper	+SD/RD	RS-485 + data
		Lower	+SD	RS-422 + send data
	2 *1	Upper	−SD/RD	RS-485 − data
		Lower	−SD	RS-422 − send data
	3		+5V	+5 V supply MAX 150 mA *2
	4			
	5		SG	Signal ground
	6			
	7 *1	Upper	RD	RS-232C receive data
		Lower	+RD	RS-422 + receive data
	8 *1	Upper	SD	RS-232C send data
		Lower	-RD	RS-422 - receive data

*1   Switch between RS-232C/RS-485 and RS-422 for pin Nos. 1, 2, 7, and 8 with the slide switch on the V706.
*2   The maximum current for the output power supply (+5 V) is 150 mA when MJ1 or MJ2 is used.

Hardware version "a" or "b"

MJ2	Pin No.	Slide Switch	Signal Name	Contents
	1 *1	Upper	Not used	Not used
		Lower	+SD	RS-422 + send data
	2 *1	Upper	Not used	Not used
		Lower	−SD	RS-422 − send data
12345678	3		+5V	Externally supplied +5 V Max. 150 mA*2
	4			
	5		SG	Signal ground
	6			
	7 *1	Upper	RD	RS-232C receive data
		Lower	+RD	RS-422 + receive data
	8 *1	Upper	SD	RS-232C send data
		Lower	−RD	RS-422 − receive data

*1   Switch between RS-232C and RS-422 for pin Nos. 1, 2, 7, and 8 with the slide switch on the V706.
*2   The maximum current for the output power supply (+5 V) is 150 mA when MJ1 or MJ2 is used.

Without the Option Unit DU-01

The MJ2 is usable as a port for PLC connection.

Slide switch

• Use the switch to set the signal level for the MJ2.

Side View

Slide switch
Lower position: RS-422 (4-wire)
Upper position: RS-232C
                RS-485 (2-wire) *

* Supported in the hardware
  version "c" or later

Wiring

Unusable PLC models

The following PLC models cannot be connected to the MJ2.

Manufacturer	PLC
Mitsubishi	FX Series CPU (however, can be used with FX0N tool port)
Hitachi	HIDIC H-series RS-232C
Siemens	S7-300MPI (HMI ADP)
	S7-300MPI (PC ADP)
	S7-300MPI (Helmholz SSW7 ADP)

When connecting any of the above PLCs, be sure to mount the option unit DU-01 and connect the PLC to the D-sub 25-pin connector of the unit.

V-SFT setting

When "None" is chosen for [Option Unit] on the V-SFT editor, modular jack 2 is automatically used as a PLC port.

* When "None" is chosen for [Option Unit] and "Not connect PLC" is chosen for [PLC Type], MJ2 becomes usable as when a type is chosen for [Option Unit].

Combination of MJ1 and MJ2 functions

When "Not connect PLC" is chosen for [PLC Type], both MJ1 and MJ2 become usable as when a type is chosen for [Option Unit]. Page 2-16 shows usable combination of functions.

With the Option Unit DU-01

MJ2 is used to connect a temperature controller or a barcode reader. Since MJ2 is also available as an RS-422 (4-wire) port, it differs from MJ1 in some respects.

Slide switch

• Use the switch to set the signal level for the MJ2.

Side View

Slide switch
Lower position: RS-422 (4-wire)
Upper position: RS-232C
　　　　　　　　RS-485 (2-wire) *

* Supported in the hardware
  version "c" or later
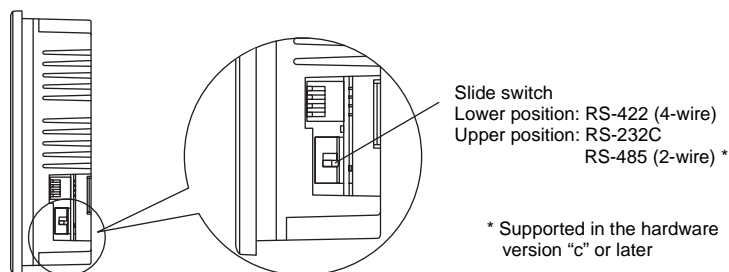
• Functions used with RS-232C
  Barcode reader, ladder tool (ladder transfer), printer (serial port)

• Functions used with RS-485
  Card recorder *, V-I/O *, Multi-link 2

  * Supported in the hardware version "c" or later

• Functions used with either RS-232C, RS-485 or RS-422 depending on the devices to be connected or connecting methods
  Temperature controller network/PLC2Way, V-Link, Modbus slave communication

Wiring

For more information, refer to page 2-20.

V-SFT setting

1. The use of modular jack 2 can be set on the V-SFT editor.

2. Select [Modular] from the [System Setting] menu. The [Modular Jack] dialog is displayed. Select the use of modular jack 2 from the following options.

Modular Jack 2	Remarks
Editor Port	Refer to "Transferring Screen Data" (page 2-21).
Card Recorder *	Select this option when connecting the card recorder (CREC).
Barcode	Refer to "Barcode Reader Connection" (page 2-21).
V-I/O *	
Multi-Link *	Select this option when "Multi-link 2" is selected for [Connection] and "1" is set for [Local Port] on the [Comm. Parameter] dialog.
Temp./PLC2Way	
V-Link	
Ladder Tool	Select this option when using the ladder transfer function.
Modbus Slave	Select this option for Modbus slave connection.
Printer (Serial Port)	Select this option when connecting the printer with serial interface. Refer to page 2-22.

* It is supported in the hardware version "c" or later.

Combination of MJ1 and MJ2 functions

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

MJ2＼MJ1	Multi-Link 2	Card Recorder	Barcode	V-I/O	Temp./PLC2Way	V-Link	Ladder Tool	Modbus Slave	Printer (Serial Port)
Multi-Link 2		○	○	○	○	○	✕	○	○
Card Recorder	○		○	○	○	○	○	○	○
Barcode	○	○		○	○	○	○	○	○
V-I/O	○	○	○		○	○	○	○	○
Temp./PLC2Way	○	○	○	○		○	○	○	○
V-Link	○	○	○	○	○		○	✕	○
Ladder Tool	✕	○	○	○	○	○		○	○
Modbus Slave	○	○	○	○	○	✕	○		○
Printer (Serial Port)	○	○	○	○	○	○	○	○	

Notes on Wiring

Notes on the Use of MJ1/MJ2

⚠️**CAUTION** | The metal shell of the V706 modular jack is used as SG (signal ground). Hakko Electronics' communication cable for modular jack, shielded cable, is connected to the SG inside the V706.

Notes on the Use of MJ2

Either the RS-232C/RS-485 (2-wire) or RS-422 (4-wire) port can be selected for MJ2 with the slide switch.
When the slide switch is set to RS-232C/RS-485 (2-wire), MJ2 is connected in the same manner as MJ1. When the slide switch is set to RS-422, MJ2 is supported as 4-wire connection port of RS-422.

PLC connection

There are two connecting methods.
One method uses an adaptor MJ2-PLC for connection between MJ2 and the D-sub 25-pin connector plus a PLC communication cable (as shown in the separate manual "PLC Connection Manual").
The other method uses a V6-TMP cable for connection between MJ2 and a PLC interface cable.
For information on the PLC wiring diagram, refer to the separate "PLC Connection Manual."

- Connecting to an RS-232C port (example: Mitsubishi A1SJ71UC24-R2):

   * Set the slide switch to the upper position.

With MJ2-PLC   V-series PLC communication cable

* FG wire →   MJ2-PLC

MJ2

* Connect the FG wire to the ground on the side of MONITOUCH.

D-sub 25-pin (Male)

FG	1	
SD	2	
RD	3	
RS	4	
CS	5	
SG	7	

PLC
D-sub 9-pin (Male)

CD	1
RD	2
SD	3
SG	5
DR	6
RS	7
CS	8

With V6-TMP

MJ2
RJ-45 8-pin   V6-TMP

SG	SHELL
SD	8
RD	7
SG	5

PLC
D-sub 9-pin (Male)

CD	1
RD	2
SD	3
SG	5
DR	6
RS	7
CS	8

- Connecting to an RS-422 port:

    * Set the slide switch to the upper position.
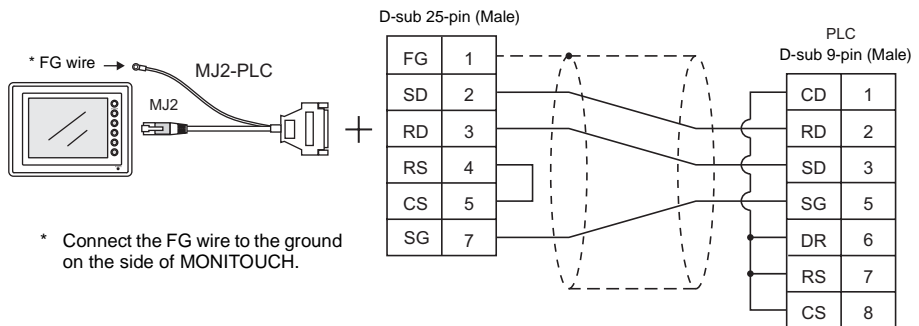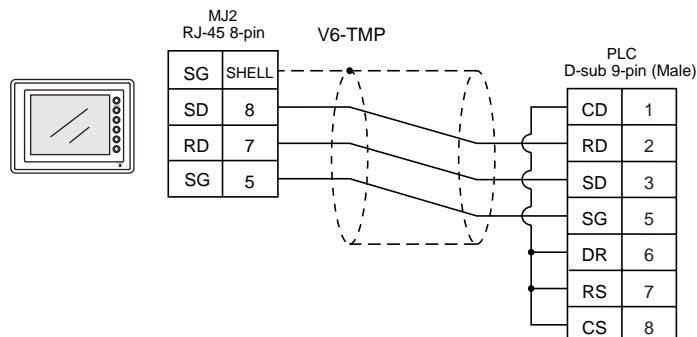
1) Example: Mitsubishi QJ71C24

With MJ2-PLC

V-series PLC communication cable

D-sub 25-pin (Male)

* FG wire → MJ2-PLC

MJ2

* Connect the FG wire to the ground on the side of MONITOUCH.

			PLC
FG	1		
SG	7		SDA
+SD	12		SDB
-SD	13		RDA
+RD	24		RDB
-RD	25		SG

With V6-TMP

MJ2
RJ-45 8-pin   V6-TMP

			PLC
SG	SHELL		
SG	5		SDA
+SD	1		SDB
-SD	2		RDA
+RD	7		RDB
-RD	8		SG
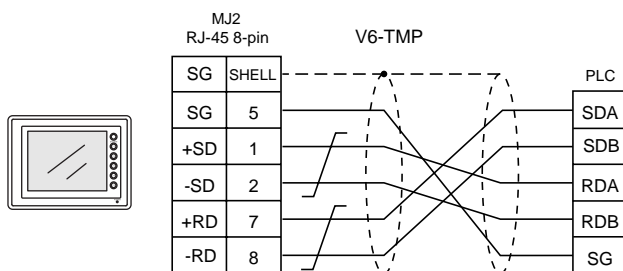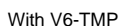
2) Example: Mitsubishi QnA CPU
Connection between MJ2 and the PLC can be established by changing the PLC-side connecting method.

MJ2
RJ-45 8-pin   V6-TMP   Mitsubishi QnA CPU

PLC
D-sub 25-pin (Male)

SG	SHELL			
SG	5		2	+RxD
+SD	1		3	+TxD
-SD	2		4	+DSR
+RD	7		5	+DTR
-RD	8		7	SG
			15	-RxD
			16	-TxD
			17	-DSR
			18	-DTR
			20	
			21	
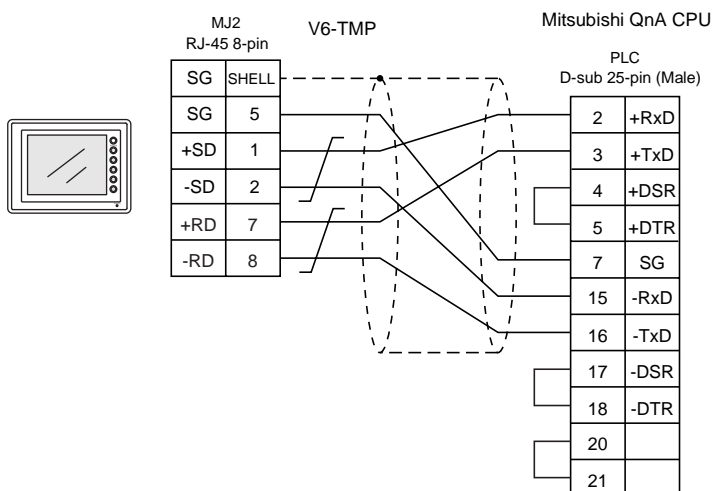
3) Example: Mitsubishi A series CPU
   Connection to ACPU can be established by using V706 exclusive cable (model:
   V706-ACPU-xM (x: up to 2, 3, 5, 10, 15 m)) used not only MJ2 but also MJ1.
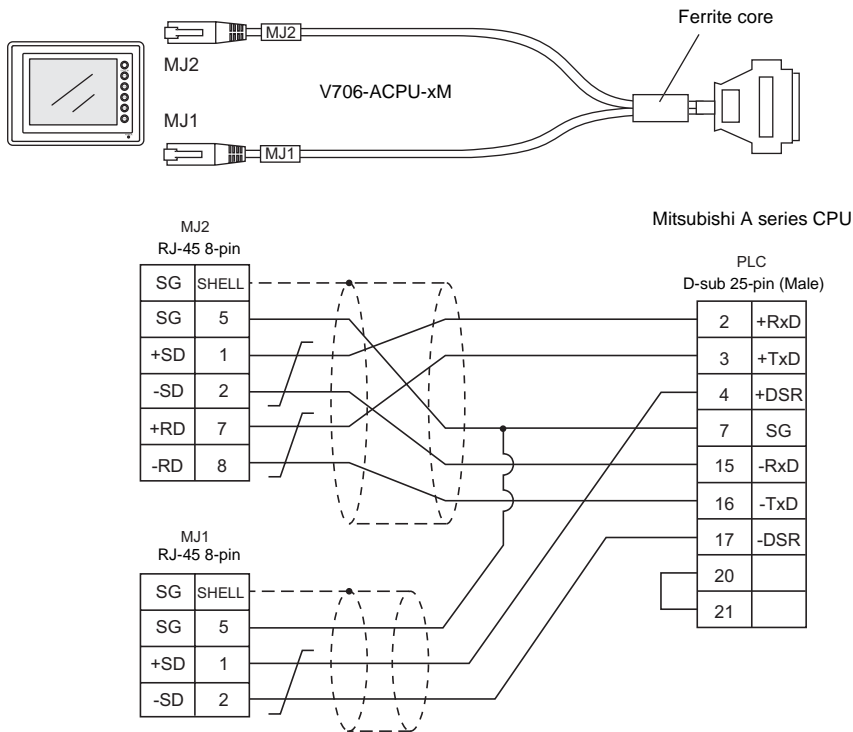
In case of using MJ1 by another function, above mentioned connection is impossible.
Please kindly use the optional unit separately.

- Connecting to an RS-485 port (example: Siemens S7-300 MPI port):
  The slide switch and wiring method will be different by the hardware version.

  - In case of the hardware version "c" or later

    * Set the slide switch to the lower position.

  With V6-TMP

MJ2 RJ-45 8-pin		V6-TMP	PLC	
SG	SHELL			
+SD/RD	1		+RD/SD	3
−SD/RD	2		−RD/SD	8
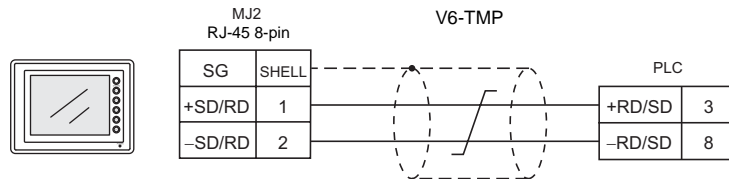
  - In case of the hardware version "a" or "b"

    * Set the slide switch to the lower position.

  V-series PLC communication cable

  With MJ2-PLC

  * FG wire → MJ2-PLC
  MJ2

  * Connect the FG wire to the ground on the side of MONITOUCH.

D-sub 25-pin (Male)			PLC	
FG	1			
+SD	12		+RD/SD	3
−SD	13		−RD/SD	8
+RD	24			
−RD	25			

  With V6-TMP

MJ2 RJ-45 8-pin		V6-TMP	PLC	
SG	SHELL			
+SD	1		+RD/SD	3
−SD	2		−RD/SD	8
+RD	7			
−RD	8			
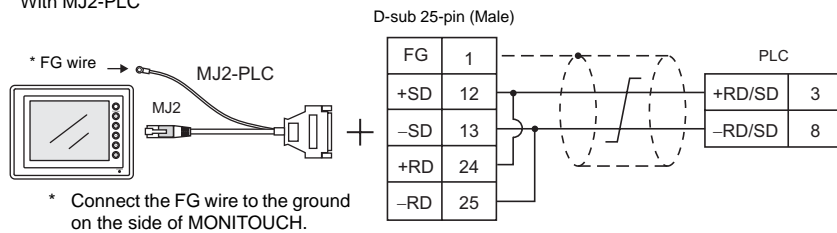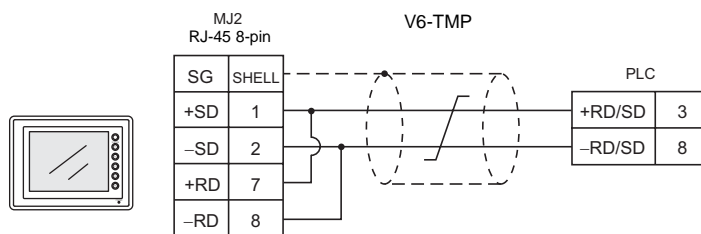
Temperature controller/PLC2Way/V-Link/Modbus slave communication

For information on the wiring diagram, contact your local distributor.

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Specifications

Transferring Screen Data

- Use modular jack 1 (MJ1) when transferring screen data.

- When [Editor Port] is selected for [Modular Jack 1] on the V-SFT, 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 V706 to a personal 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) of the V706.

- 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.
    - The external power supply (+5 V) is max. 150 mA.
      (Refer to page 2-12.)

Brown: +5V
Red: 0V
Orange: RD
Yellow: SD

- When using the barcode reader that was connected to V4 (MONITOUCH's old version), connect it to the D-sub 9-pin female connector using the V6-BCD cable as shown below.

Barcode reader Signal	Pin No	Signal Name	
RTS	1	CS	* Orange: RD
TXD	2	RD	Yellow: SD
RXD	3	SD	
CTS	4	RS	
SG	5		* Install a jumper between CTS and RTS.
+5V	6		
	7	SG	Red: 0 V
	8		
	9	+5V	Brown: +5 V
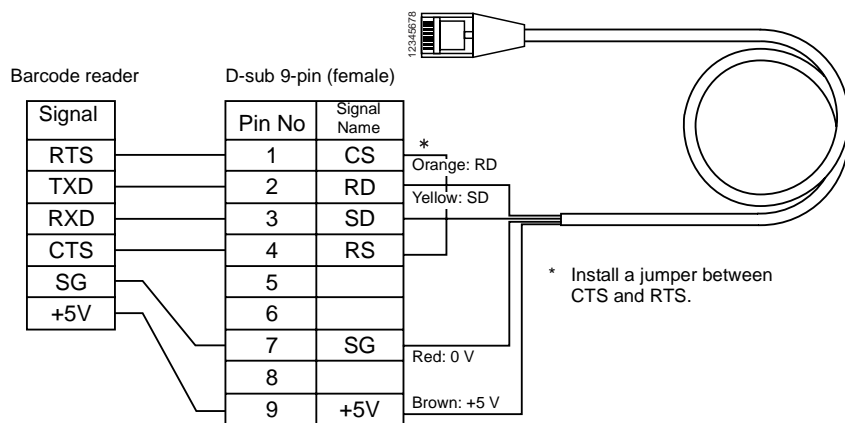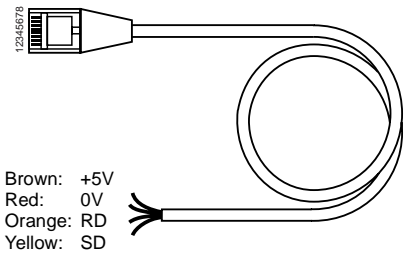
Printer Connection (Serial Printer)

- 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 information on MJ1/MJ2 signals, refer to page 2-12.

- 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, use Hakko Electronics' V6-CP connection cable.
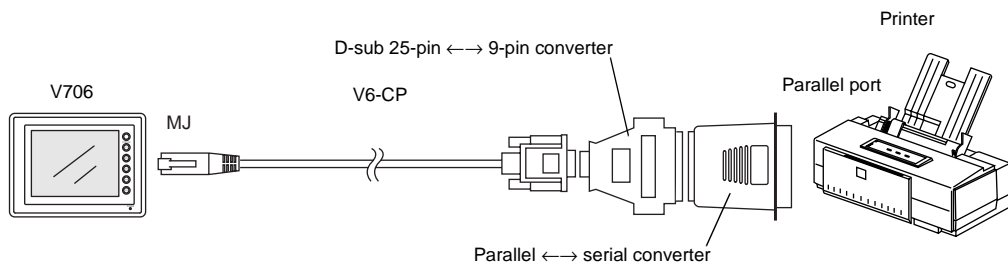
Compatible Printer Models

Control code system:
- PR201   PC-PR201 series compatible with MS-DOS
- ESC-P   ESC/P24-J84, ESC/P-J84, ESC/P super function compatible with MS-DOS

Others
- HP Deskjet Color   PCL Level 3
- 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 EPSON color ink jet printer STYLUS PHOTO
  EPSON STYLUS C86   (For printer models, refer to the separate "V-SFT Additional
  EPSON STYLUS C65   Specification.")

Screen Data Setting

From the [System Setting] menu, select [Printer Setting] and open the [Main] tab window.

- 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)

Set the above options.

5. USB Connectors

USB-A (Master Port)

Bottom View

Enlarged View
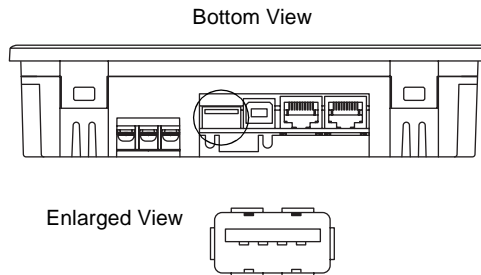
Available Devices

Printer

- EPSON color ink jet printer STYLUS PHOTO for USB port

  * For more information, refer to "V-SFT Additional Specification."

- Printer with parallel interface
  Printer models and available print functions are the same as those for a serial printer (page 2-22).

CF card reader/writer

Recommended models are:

Manufacturer	Type
I-O Data Device	USB-CFRW
TDK	U2RW03CF
ELECOM	MR-UCF1SV

USB hub

- To use both a printer and a CF card reader/writer simultaneously, a USB hub is also available.
  For more detail, refer to page 2-24, 'About USB hub'.

Connecting Cable

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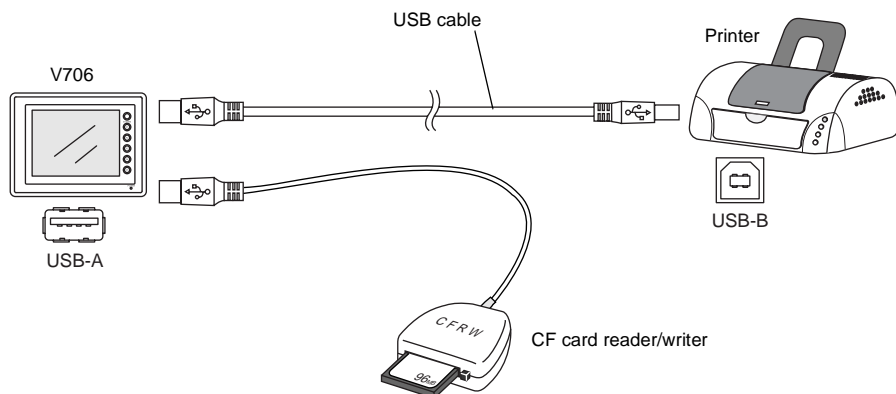
USB cable

Printer

V706

USB-A

USB-B

CF card reader/writer

- To connect to a printer equipped with a parallel interface, use a commercially available parallel ←→ USB cable (ELECOM UC-PGT recommended).
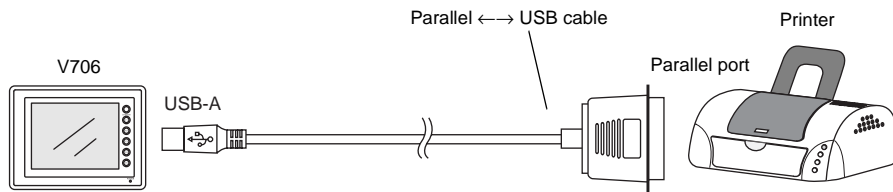
Screen Data Setting

For a printer

From the [System Setting] menu, select [Printer Setting] and open the [Main] tab window.
- Type: (as desired)
- Port: USB Port

For CF card reader/writer

From the [System Setting] menu, select [Unit Setting], and open the [Option Unit] tab window.
- [☐ Use USB CF Card Reader]: checked

About USB hub

A USB hub is available to use both a printer and a CF card reader/writer simultaneously.
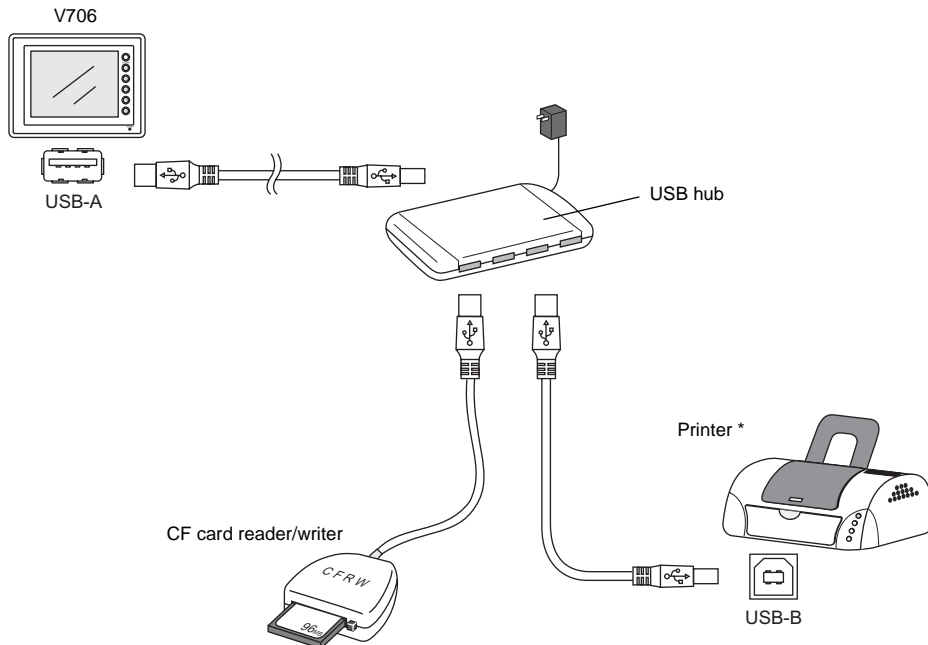
* About avaible printers, not only EPSON STYLUS series which has USB port but also printers with parallel interface can be connected.
  (If you use available printers with parallel interface for MONITOUCH, it is necessary to use a commercially available parallel ←→ USB cable (ELECOM UC-PGT recommended).)

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Available USB hub

The following models are available USB hub.

Manufacturer	Type	Type *
ELECOM	U2H-Q4SBS	USB Ver. 2.0 available
ELECOM	UH-A4SID	USB Ver. 1.1 available
Arvel	H415US2-LV	USB Ver. 2.0 available
Arvel	H413US-BL	USB Ver. 1.1 available

* USB hub which supports USB Ver. 2.0 is available, but the USB port of V706 suppurts USB Ver. 1.1.

Notes

- Two or more CF card reader/writer can not be used simultaneously by connecting to USB hub, though these manufacturers or types are different.
  Even if multiple devices are connected to USB hub, MONITOUCH can recognize only the one which is connected firstly.

- Two or more printers can not be used simultaneously by connecting to USB hub, though these manufacturers or types are different.
  Even if multiple devices are connected to USB hub, MONITOUCH can recognize only the one which is connected firstly.

- Maximum two USB hub can be connected to V706.
  Understand the working performance in using two USB hub is lower than in using one USB hub.

- When using AC adapter attached to USB hub for the conneced USB hub, do not turn off the power of AC adapter, or do not release the connection between AC adapter and USB hub.
  If so, it may cause a malfunction because the power supply of V706 is short.

- When using two USB hub, use each AC adapter attached to USB hub for the power supply of each USB hub.
  Also, even if you use one USB hub, use the AC adapter attached to the USB hub for it.

USB-B (Slave Port)

This is a connector for screen data transfer via USB.

Bottom View
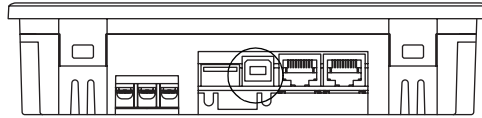
Enlarged View
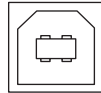
* When transferring screen data via the USB-B (USB slave port), be sure to install the USB driver for MONITOUCH on the computer. The steps are described in the following section "Installing the USB Slave Driver."
  Screen data transfer via the USB port is available with Windows 98 Second Edition and later.

* When you use this port with Windows98, use Windows98 Second Edition or later.

Connecting cable

Use a commercially available USB cable.

V706　　　　　　　　　USB cable　　　　　　　　Computer

USB-B　　　　　　　　　　　　　　　　　　　　USB-A
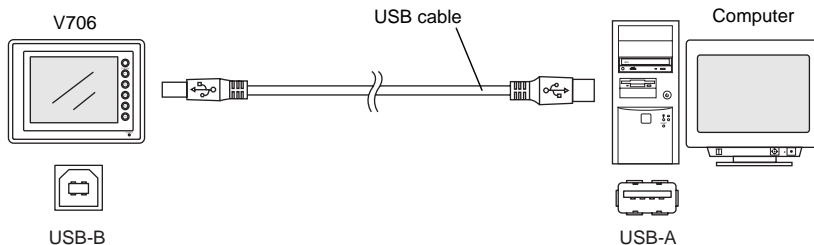
Installing the USB Slave Driver

The installation procedure on Windows 2000 is described as an example below.

1. Connect the USB-B port of the V706 (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. Click the [Next] button.

Found New Hardware
USB Device
Installing ...

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.

To continue, click Next.

< Back　　Next >　　Cancel

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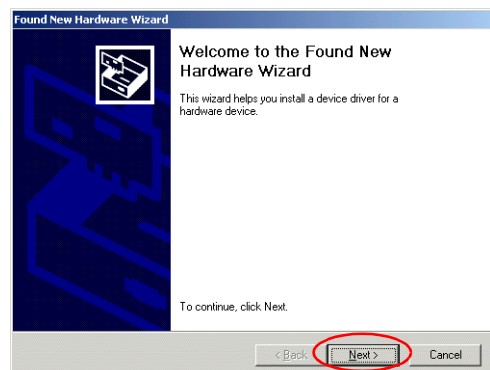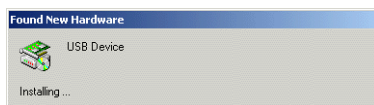
3. When the dialog box below is displayed, select [Display a list of the known drivers for this device so that I can choose a specific driver] and click the [Next] button.
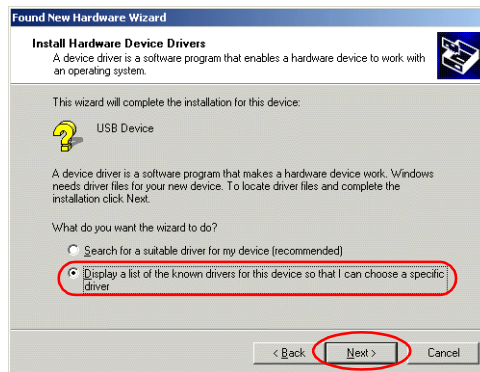
4. The dialog box below is displayed. Select [Other Devices] and click the [Next] button.
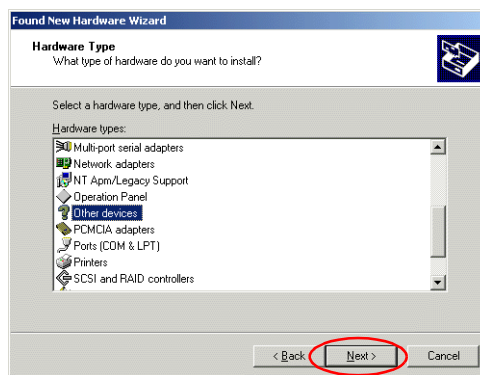
5. The dialog box below is displayed. Click [Have Disk].
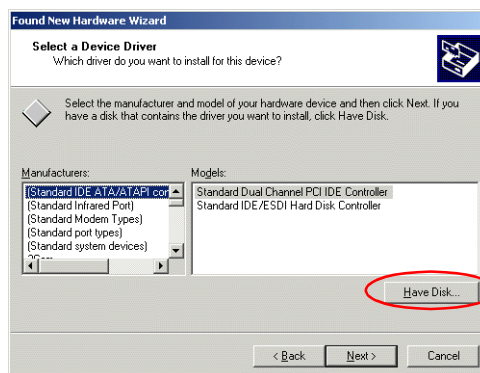
6. The [Install From Disk] dialog box is displayed. Click the [Browse] button.
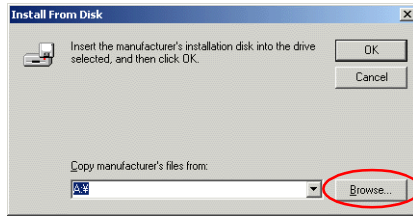
7. The V706 USB driver "OP-U.inf" is automatically stored in the "inf" folder within the V-SFT installation folder ("V6W" for example).
   Select the "OP-U.inf" file and click the [Open] button.
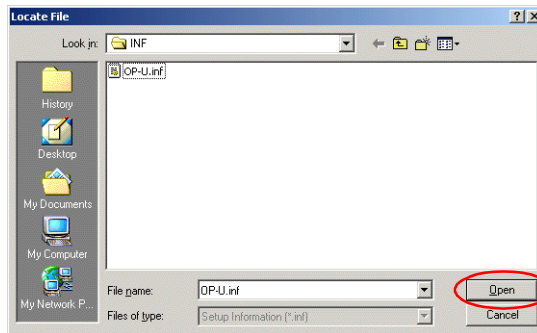
8. The previous dialog box is displayed again. Check the path shown under [Copy Manufacturer's Files From:] and click the [OK] button.
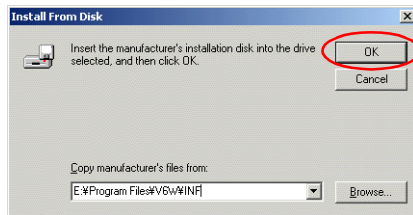
9. The dialog box below is displayed. Check that [Operation Panel USB Driver] is shown under [Models:]. Click the [Next] button.
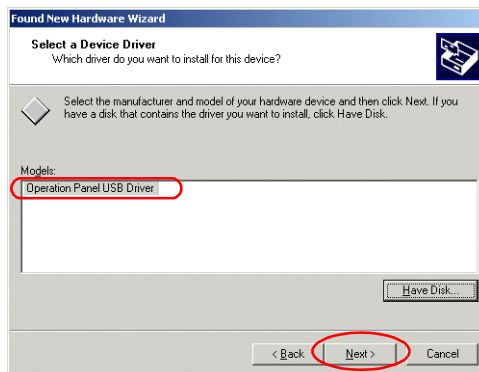
10. The driver installation starts.

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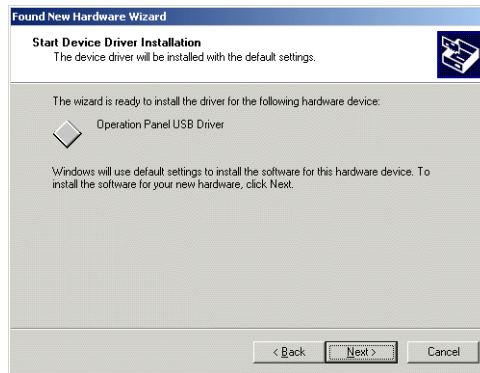
11. The dialog box below is displayed on completion of installation. Click the [Finish] button.

Recognition of USB Driver

When the driver has been installed successfully and the V706 and the computer are connected with a USB cable, the [Device Manager] window shows "Operation Panel - Operation Panel USB Driver."
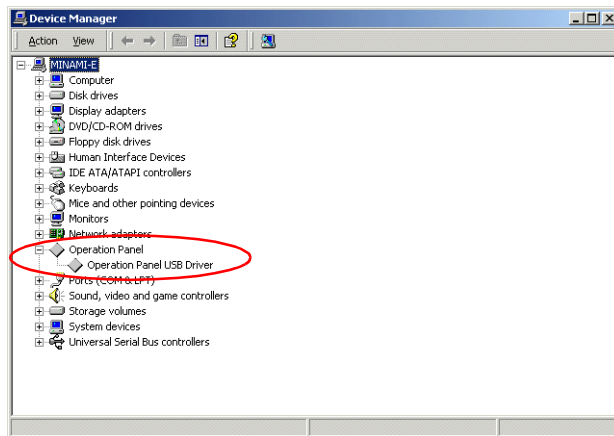
This will disappear when the V706 and the computer are disconnected.
If [Other Device] or [?] is shown even while their connection via USB is maintained, the USB driver may not be recognized. If this happens, uninstall the USB driver once and reinstall it.

6.   D-sub 25-Pin Connector (CN1) (Optional)

When the option unit DU-01 is mounted, the CN1 connector is usable.

Serial Connector (CN1)

To communicate with the PLC (RS-232C, RS-422/485), connect the cable to the serial connector (CN1).

DU-01
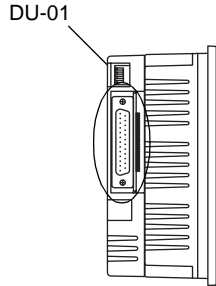
The correspondence between the serial connector pins and signals is shown below. The interface is the same as that for the V7-series CN1.

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 (−)

The following connector is recommended.

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

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7.   LAN Connector (LAN) (Optional)

When the option unit DU-01 is mounted, the LAN connector is usable.
The LAN connector supports 100BASE-TX*/10BASE-T.

  * It is available with SYSTEM PROG. Ver. 1.470 (V-SFT Ver. 2.2.25.0) or later.

LAN Connector

Use this connector for Ethernet connection.

Bottom View

DU-01
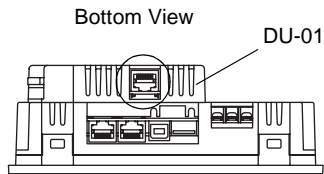
⚠ CAUTION	MJ1/2 and LAN connector are 8-pin modular jacks. Check the name plate and insert the connector in the correct position.

The LAN (100BASE-TX/10BASE-T) pins correspond to signals as given below.

LAN	Pin No.	Signal Name	Contents
12345678	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.

Distance between the node and the HUB: 100 m maximum
Maximum network nodes: 100
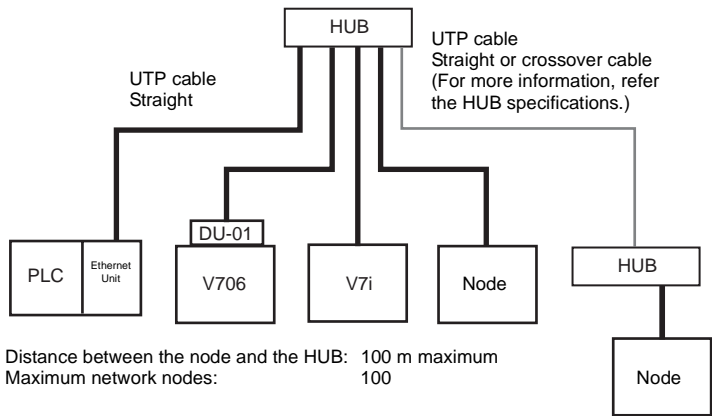
Cable Connection Diagram

Straight cable
(with HUB)
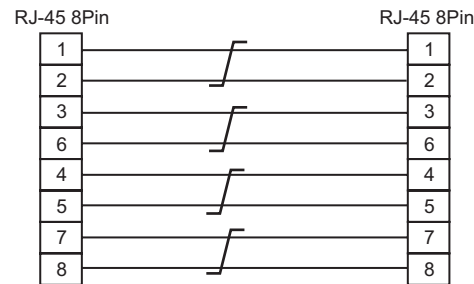
Crossover cable
(without HUB)

* Unshielded twist-pair cable
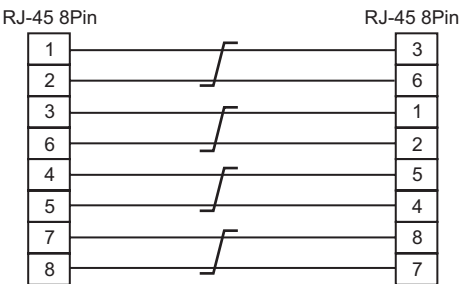
* Unshielded twist-pair cable

Notes on Cables

Use the following recommended cable.

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

8.   CF Card

Recommended CF Cards

CF cards in compliance with CompactFlash^{TM} can be used.
The operation of the following cards has been verified by Hakko Electronics.

Manufacturer	Type	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	1 GB
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

CF Card Insertion Position

With the USB port:

The following items are recommended.

Manufacturer	Type
I-O Data Device	USB-CFRW
TDK	U2RW03CF
ELECOM	MR-UCF1SV
DAZZLE	DM-8000

USB-A

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Specifications
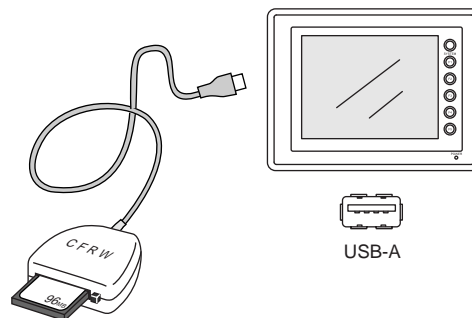
With the option unit:

Insert a CF card into the CF connector of the option unit DU-01.

DU-01
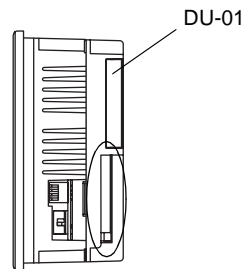
Mounting and Dismounting the CF Card

With the USB port:

Follow the instructions provided in the CF card reader/writer manual.

With the option unit:

1. Insert the card securely into the interface with the card backside outwards viewed from the rear of the unit as shown below.

Card backside

When the card is inserted,
the eject button pops out.

2.
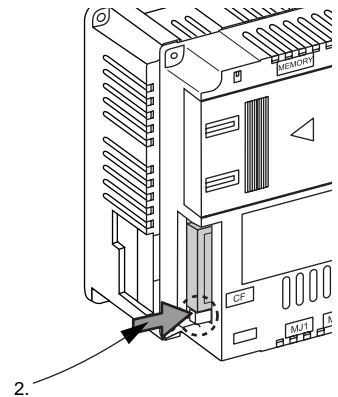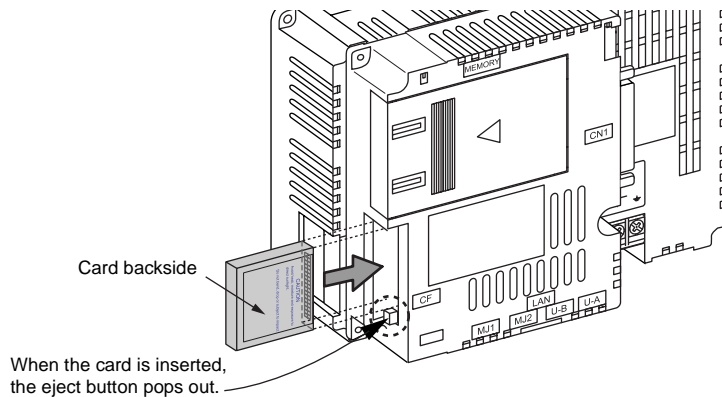
2. To remove the card, press the eject button. The card pops out.

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⚠ 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 CF card can be inserted or removed safely when the Main Menu screen is displayed. Before mounting or removing the CF card, be sure to check that the CF card is not being accessed. However, if the [Card Menu] switch is pressed on the Main Menu screen and the CF card operation screen is displayed, it is not possible to insert or remove the CF card.

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 there should be a disk error and you cannot read/write data, you can scan the disk in Windows to restore the disk data.
    If not restored, initialize the CF card. Note that the data in the CF card will be completely deleted by initialization. (For more information on scanning the disk or operating Windows, refer to the Windows manual.)

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. Be sure to always avoid writing to a CF card with the CYCLE macro command.

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3 Installation

1. Mounting Procedure
2. Power Supply Cable Connection

1. Mounting Procedure

Mounting Procedure

1. Insert the V706 into the mounting panel (max. thick: 5 mm).
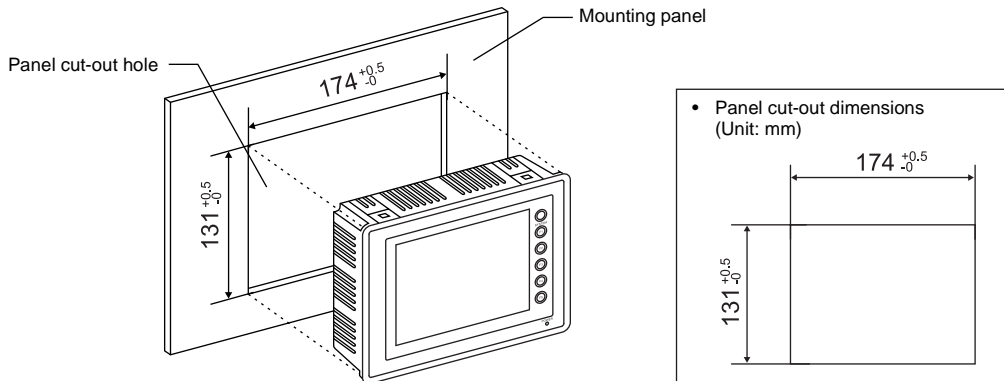
2. Insert four fixtures attached to the V706 into the mounting holes, and tighten them with the locking screws.
   Tightening Torque: 0.3 to 0.5 N•m
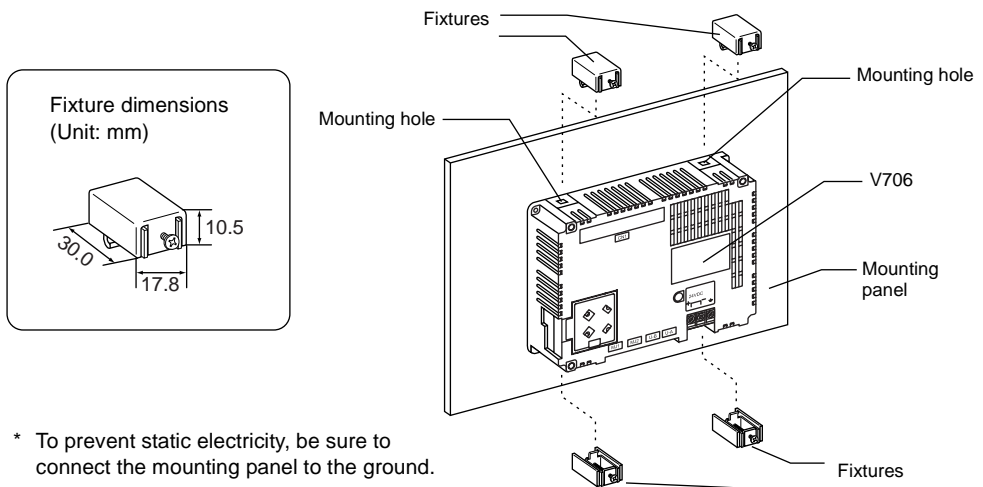
* To prevent static electricity, be sure to connect the mounting panel to the ground.

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.
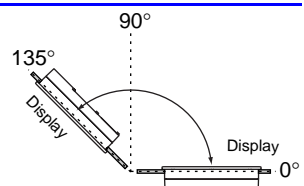
2.   Power Supply Cable Connection

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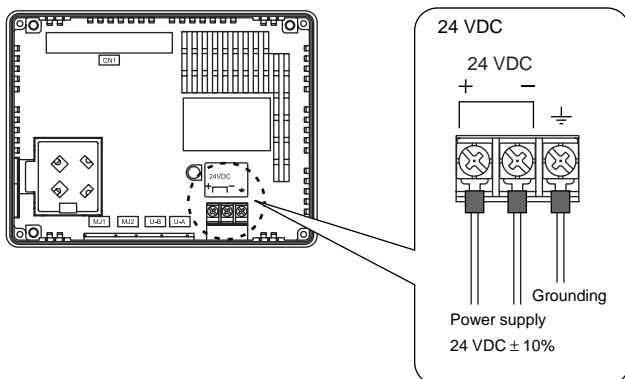
- Tighten terminal screws on the power supply terminal block with the following torque.

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.

Terminal cover
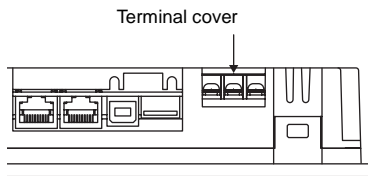
Grounding

┌───┐
│ ⚠ **CAUTION**   Be sure to establish a ground of MONITOUCH.   │
│   (The level of grounding resistance should be less than   │
│   100 Ω.)   │
└───┘

- 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 the MONITOUCH to shorten the distance of grounding cables.

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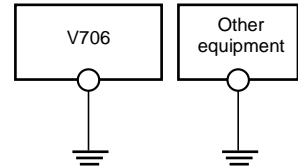
MEMO

Please use this page freely.
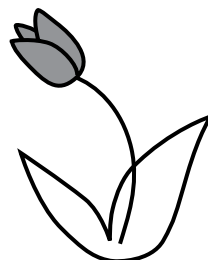
4 Instructions

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

1.　　Coin-type Lithium Battery

> ⚠️**CAUTION**　　The 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 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 V706 is turned off.

1. Turn the unit off.

2. Slide the battery holder cover in the direction of the arrow ("→" shown below) to open it.
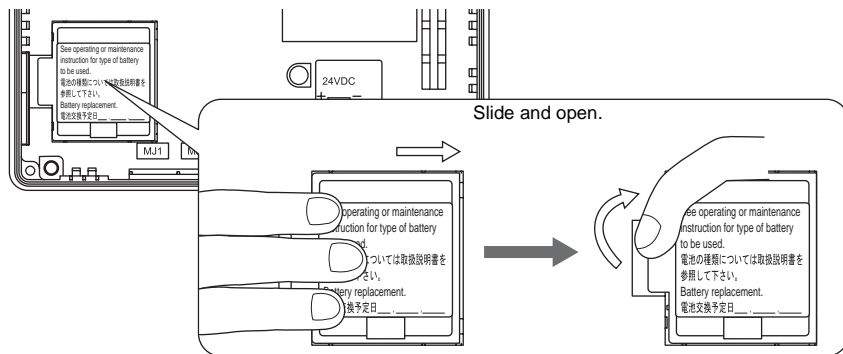
3. Check that the battery is securely attached to the backside of the cover, and connect the battery connector.
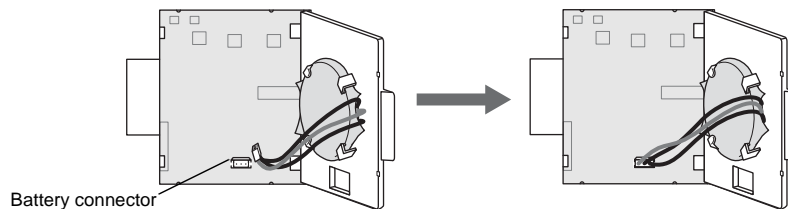
4. Close the battery holder cover. When closing the cover, slide it in the direction of the arrow ("←" shown below) to lock it.
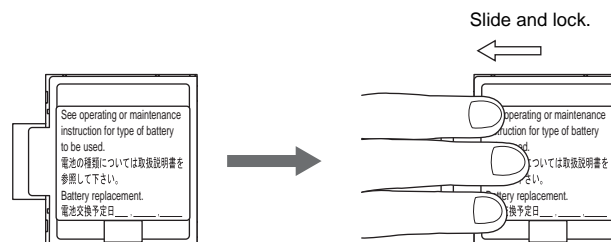
5. Enter a date five years from now for "Battery Replacement" on the sticker on the battery holder.

    *   The battery status is output to the internal memory $s167 of the V706.
        If the battery voltage drops before five years has elapsed, replace the battery immediately.

See operating or maintenance instruction for type of battery to be used.
電池の種類については取扱説明書を参照して下さい。
Battery replacement.
電池交換予定日
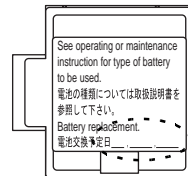
Enter a date five years from now

MSB   LSB

15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
0	0	0	0	0	0	0	0	0	0			0			

$s167

Memory cassette information reserved (Setting: 0)

0: The battery is normal.
1: Battery voltage drop
2: Battery not mounted

0: Not mounted
1: FROM   2 Mbyte (V6)
2: FROM   4 Mbyte (V706/V6)
3: SRAM   512 kbyte (V7/V6)
4: FROM   8 Mbyte (V7)

Memory cassette information reserved (Setting: 0)

6. Turn on the power to the V706 and check that the battery is correctly mounted on the Main Menu screen.
    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
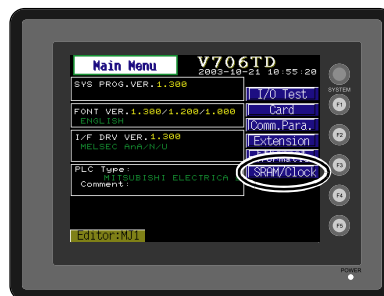
Battery Replacement

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 the V7 series) 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	Type	Contents
Replacement battery	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 (cable: V6-CP) or a CF card and make a backup copy of data in the SRAM.

   • When using the V-SFT:

      1) Start the V-SFT.

      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 from the V-SFT editor on the server 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 Mode].

      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.

3. Slide and open the battery holder. The battery in the socket will come into view.

4. Unplug the battery connector, and remove the battery from the socket. Take out the battery while pressing the center of the battery holder cover as shown in the figure.
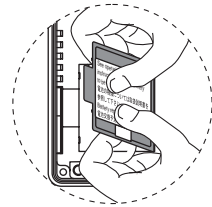
5. Set a new battery. Fit the battery into the socket in such a manner that the red cable side of the battery faces the board and the cable faces out. Insert the battery in the "a" side first, and push it down to "a" while inserted in the "b" side.

6. Plug in the battery connector and slide and lock the battery holder cover.

7. 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 backside of the unit.

8. 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.

Battery holder

"b" side

"a" side

Printed circuit board

Battery connector

Socket
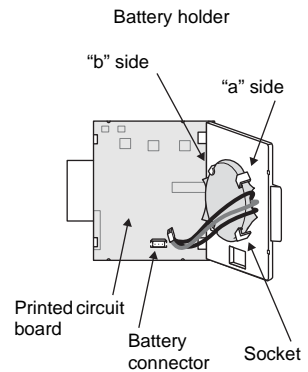
2.   DIP Switch Setting

In the Case of V706

When setting the DIP switch, turn the power off.

Side View

DIP switch

MJ1 (modular jack 1) terminating resistance for RS-485

MJ2 (modular jack 2) SD terminating resistance for RS-422/RS-485

MJ2 (modular jack 2) RD terminating resistance for RS-422/RS-485

CF auto load (for USB/DU-01)

1   2   3   4

ON↓
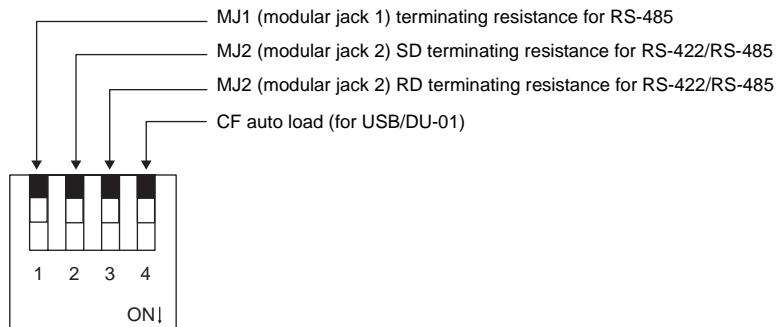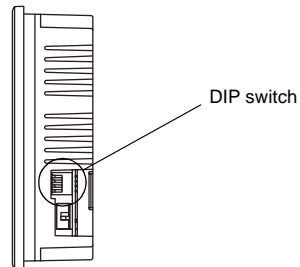
Terminating Resistance Setting (DIPSW1, 2, 3)

Set the terminating resistance for RS-422/485 connection.

- MJ1 can be used for RS-232C or RS-485 (2-wire) connection.
  For the following connections, set DIPSW 1 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 V706 at the termination of V-link connection via RS-485

- MJ2 differs depending on the hardware version of V706.
    - In the case of the hardware version "a" or "b"
      MJ2 can be used for RS-232C or RS-422 (4-wire) connection.
        - For connection to the PLC through the RS-422 interface (4-wire connection) at MJ2, set DIPSW2 and 3 to the ON position.
        - For connection to the PLC through the RS-422 interface (2-wire connection) at MJ2, set DIPSW3 to the ON position.

- In the case of the hardware "c" or later
  MJ2 can be used for RS-232C, RS-422 (4-wire) connection or RS-485 (2-wire).
  For the following connections, set DIPSW 2 and 3 to the ON position.
  - Connection to the PLC through the RS-422 interface (4-wire connection) or the RS-485 interface (2-wire connection) at MJ2
  - For the following connections at MJ2
    - 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 V706 at the termination of V-link connection via RS-485

CF Auto Load (DIPSW4)

A screen data file saved on a CF card can be auto-loaded as described below.

1. Transfer screen data from the computer to a CF card. (Refer to the Reference Manual (Function) for more information.)

2. Set DIPSW4 in the ON position, and insert the CF card that contains the screen data file.

3. Turn the unit on. The screen data is automatically loaded into the FLASH memory of the unit.

In the Case of DU-01

When setting the DIP switch, turn the power off.

Side View

DIP switch

DU-01

CN1 RD terminating resistance at pins 24 and 25
CN1 SD terminating resistance at pins 12 and 13
Not used
Not used

1 2 3 4

ON↓
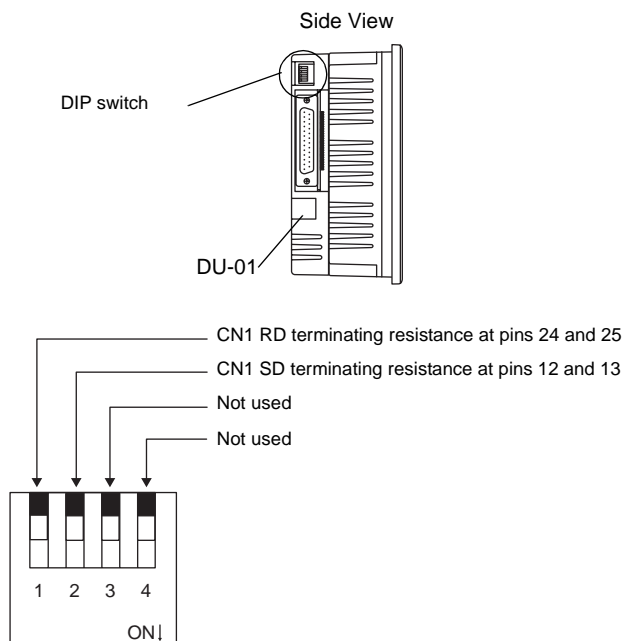
Terminating Resistance Setting (DIPSW1, 2)

Set the terminating resistance for RS-422/485 connection.

- When connecting the PLC at CN1 via RS-422/485 interface (4-wire connection), set DIPSW1 and 2 to the ON position.
- When connecting the PLC at CN1 via RS-422/485 interface (2-wire connection), set DIPSW1 to the ON position.

3. Function Switches

Types

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

[SYSTEM] Switch

The [SYSTEM] switch works in "alternate" operations.
When this switch is pressed once, the switch menu is displayed at the side of the function switches [F1] to [F5], 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 [F5] work as defined by the user (page 4-7).

User-defined function switches

Function switches for switch menu selection

User-defined function switches

For V706T:

For V706C/V706M:
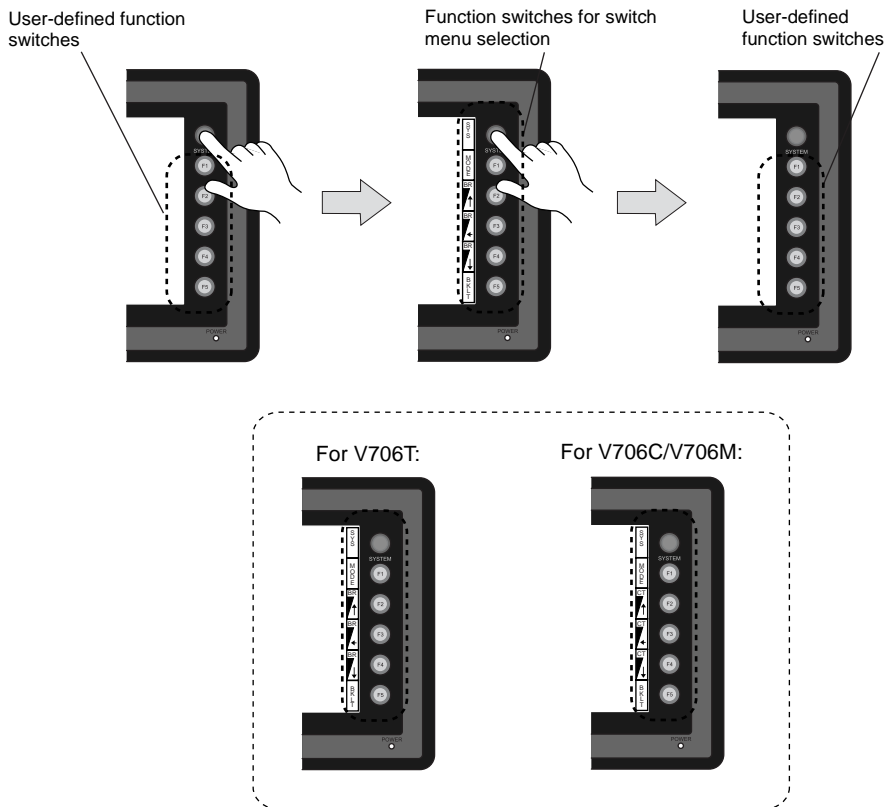
User-defined Function Switches [F1] to [F5]

- When the V706 is in the STOP mode, the function switches do not work.

- When the V706 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

	Functions	Contents					
F1	Mode	Selects the operation mode between STOP ↔ RUN.					
F2 F3 F4	Contrast Brightness	Item	Contrast Adjustment		Brightness Adjustment		
			Adjust the contrast. Holding down the switch for one second or more changes the contrast rapidly.		Adjusts the screen brightness in three levels.		
		Applicable models	V706C/V706M		V706T		
		Adjustment	F2 F3 F4		F2	F3[*1]	F4[*1]
			Dark Medium Pale		1 Bright	2 Medium	3 Dark
F5	Backlight	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)					
		Always ON	Auto 1/Auto 2/Auto 3		Manual/Manual 2		

		Ignored	• 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).
					• 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		

*1   When a medium or dark brightness is set, the backlight service life may become shorter.

MEMO

Please use this page freely.

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

1.   1 : 1 Connection

- One set of the V706 is connected to one PLC (1 : 1 connection).

    [V706 only]

    RS-232C or RS-422 (RS-485)

    [V706 + DU-01]

    RS-232C or RS-422 (RS-485)
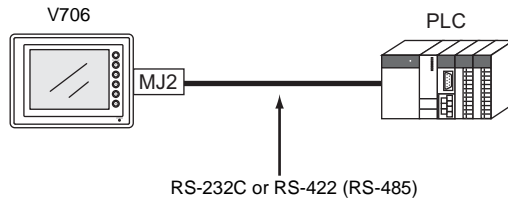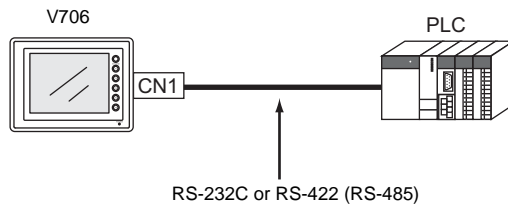
- The host link unit of the PLC or the CPU port is used and the V706 (master station) establishes communications according to the protocol of the PLC. Consequently, it is not necessary to have the dedicated communication program on the PLC (slave station). The V706 reads the PLC memory for screen display. It is also possible to write switch data or numerical data entered through the keypad directly to the PLC memory.
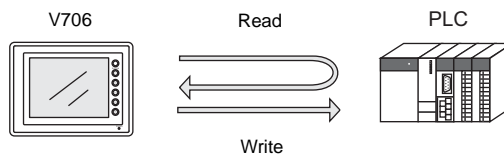
- For more information on wiring and communication settings, refer to the PLC Connection Manual.

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2.   1 : n Connection (Multi-drop)

One V706 is connected to multiple PLCs. (Maximum connectable PLCs: 31)
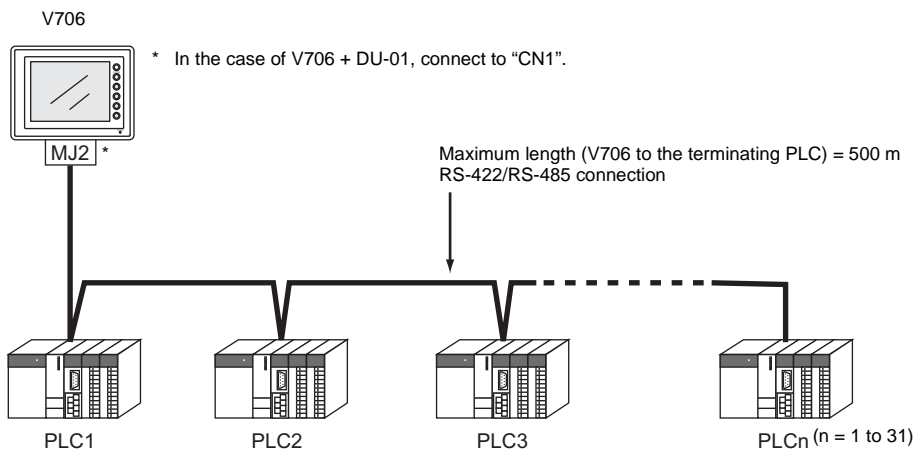
V706

*   In the case of V706 + DU-01, connect to "CN1".

MJ2 *

Maximum length (V706 to the terminating PLC) = 500 m
RS-422/RS-485 connection

PLC1   PLC2   PLC3   PLCn $^{(n\ =\ 1\ to\ 31)}$

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

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

- One PLC is connected to a maximum of four V706 units.

- An original network is created where the V706 (Local Port 1) that is directly connected to the PLC is the master station, and other three V7 series 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.
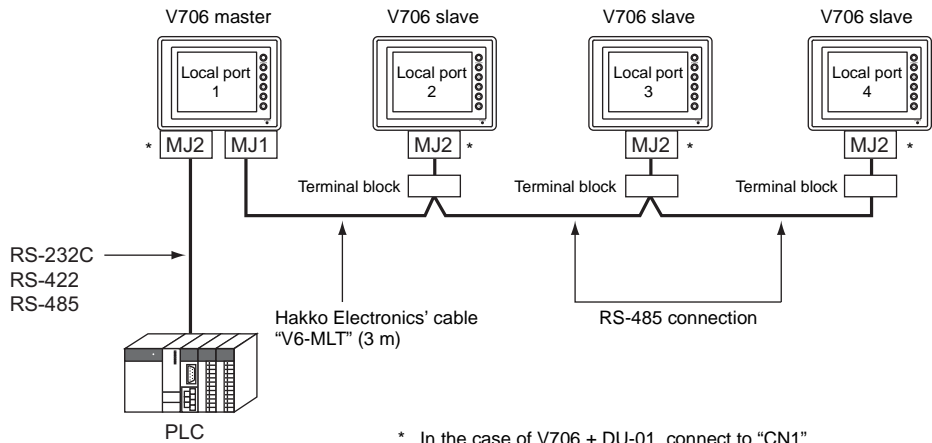
- Communications between the V706 master station and the PLC depend on the communication speed set on the PLC. The maximum available speed for the V706 is 115 Kbps, which is higher than the one available with multi-link connection described in "4. n : 1 Connection (Multi-link)."

- 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 V706. 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 V706, 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 V706 units. (Maximum connectable units: 31)

V706 1   V706 2   V706 3   V706 n (n = 1 to 31)

MJ2 *

Terminal block

* In the case of V706 + DU-01, connect to "CN1".

Maximum length (PLC to the terminating V706) = 500 m
RS-422/RS-485 connection

PLC
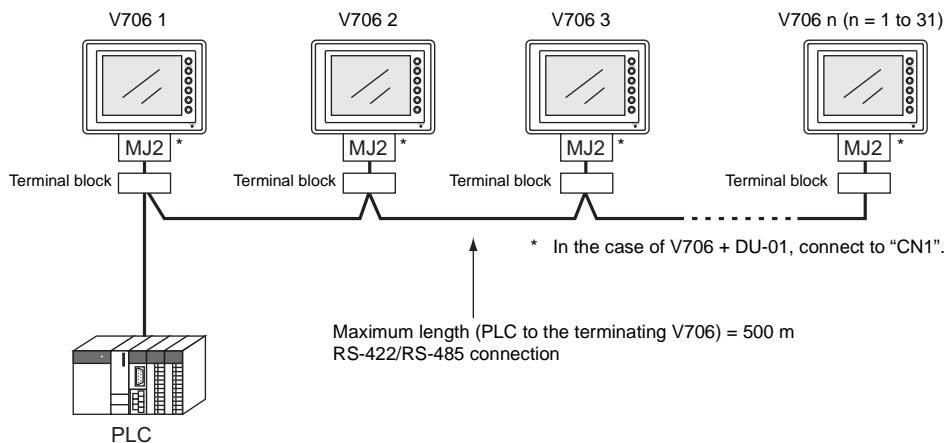
- The PLC must be of the type of signal level RS422/RS485 with port numbers.
  RS422 connection between the V706 ↔ PLC must be in 2-wire connection.

- The V706, 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 V706 (slave station) using dedicated commands.

General-purpose computer   Dedicated commands
Read

Write

V706

MJ2

Interrupt

RS-232C or RS-422 (RS-485)

5
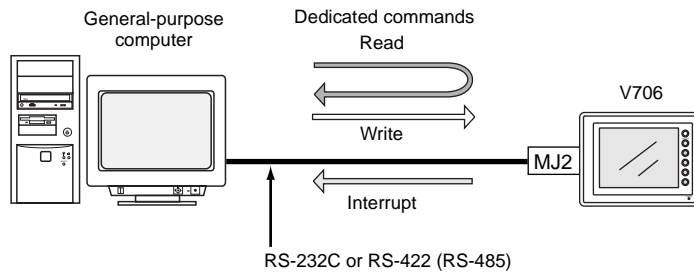
- The V706 internal user memory addresses ($u) must be used for memory allocation for switch, lamp or data display parts.
  When the master station specifies a screen number, data is written to the internal memory address ($u) allocated for the screen. If the screen is switched internally, the new screen number is read and is written to the internal memory address ($u) allocated for the screen.

- For 1 : 1 connection, the V706 can send an interrupt to the master station through switch activation, write command from the keypad, and screen change.

- Use MJ2 (or CN1 when the DU-01 is provided) of the V706 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 between the general-purpose computer and the V706 via RS-422.
  (A maximum of 32 V706 units can be connected.)
  For 1 : n connection, interrupts cannot be used.

General-purpose computer

RS-422 (RS-485) connection

MJ2   MJ2   MJ2   MJ2

V706 1   V706 2   V706 3   V706 n (n = 1 to 32)
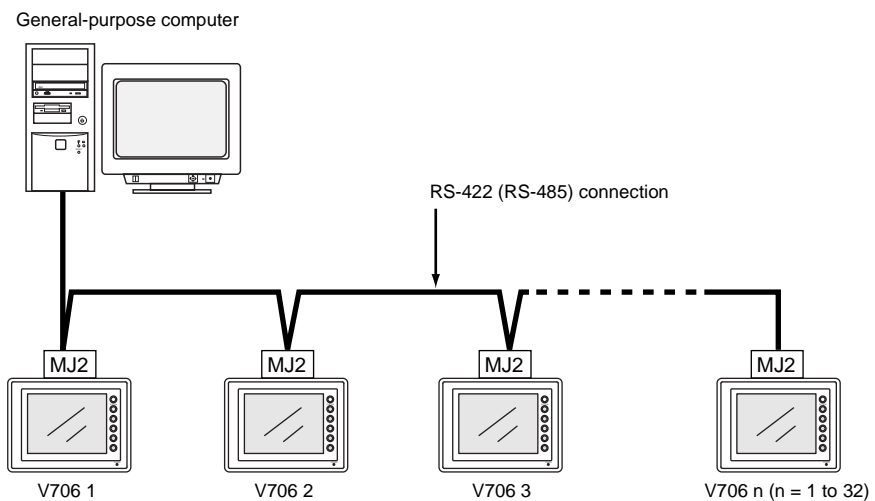
- For more information, refer to the PLC Connection Manual.

6.   V-Link

- "V-Link" is the network where the computer reads from and writes to the internal memory of the V706, memory card, PLC memory or temperature control/PLC2 memory using a dedicated protocol.

Dedicated commands

Read

Write

PC   V706   PLC
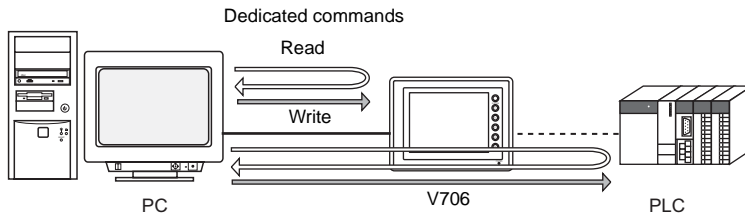
- Use MJ1 of the V706 for connection with a general-purpose computer. Use MJ2 for communications with the PLC.
  When the option unit DU-01 is installed, it is possible to use CN1 for communications with the PLC, MJ2 for connection to the PLC using the temperature controller or PLC2Way, and MJ2 for communications with a computer. Data of the PLC or temperature controller can be collected through communications with the V706. 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 V706 unit can be connected; with RS-485, a maximum of 31 units can be connected.

<RS-485 connection>

RS-485

MJ1   MJ1   MJ2

Local port   Local port   Local port
1   2   31

MJ2   MJ2   * CN1   MJ1   RS-232C
                                                 RS-422
RS-232C   RS-485
RS-422
RS-485

PLC   PLC   PLC   Temperature controller,
                                      inverter or PLC
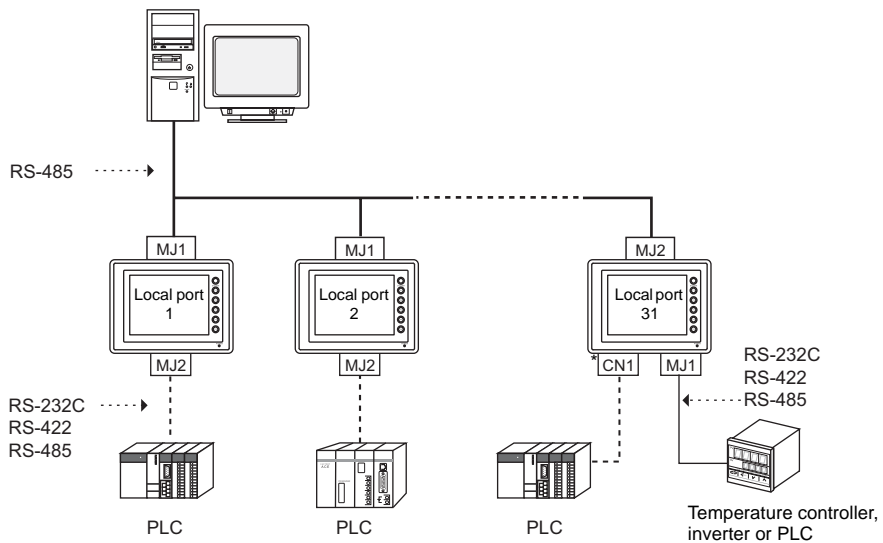
*   [V706 + DU-01]

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

7.   PLC2Way

- The "PLC2Way" function is an original network function where one V706 can be connected to two PLCs. Even if the manufacturers of these PLCs are not the same, they can be connected to one V706.

RS-232C
RS-422/RS-485

PLC (Mitsubishi)

MJ2

V706

MJ1

RS-232C
RS-422/RS-485 (2-wire connection)

PLC (Yokogawa)
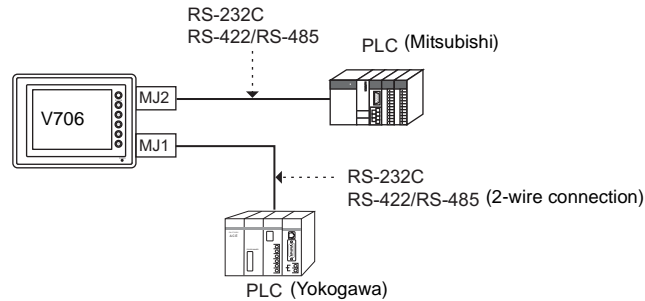
- Connect the first PLC to MJ2 (or CN1 when the DU-01 is provided), and the second PLC (PLC2Way) to MJ1 (MJ2 or MJ1 when the DU-01 is provided).

- 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 V706 are controlled at the same time, and memory read/write operations are available with these two PLCs.

- Connection at MJ1 (PLC2Way) 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.

RS-232C
RS-422/RS-485

MJ2

V706

MJ1

PLC

RS-422/RS-485 (2-wire connection)

PLC1   PLC2   PLCn (n = 1 to 31)
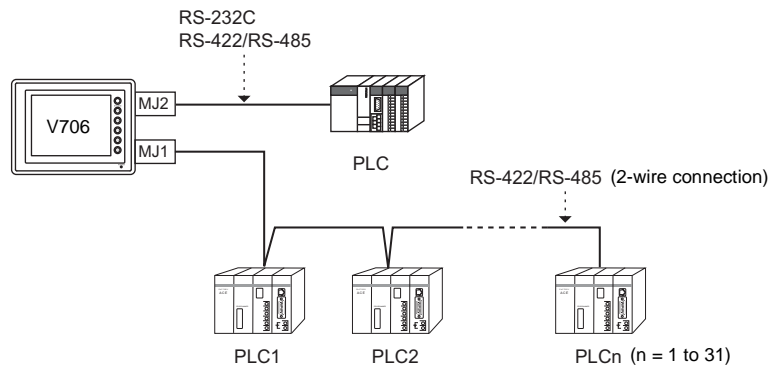
- Periodical reading/sampling of PLC data on the PLC2Way side
  When read/write memory addresses are preset on the temperature control network/PLC2Way table, background data reading is performed at regular intervals. It is also possible to save the read data in the V706 internal buffer, SRAM or CF card.

- 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 V706 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.

PLC

V706

Temperature controller

PV 100
SP 90
A/M

PV 155
150

PV 155
SP 150

1   2   n
(Max = 31)
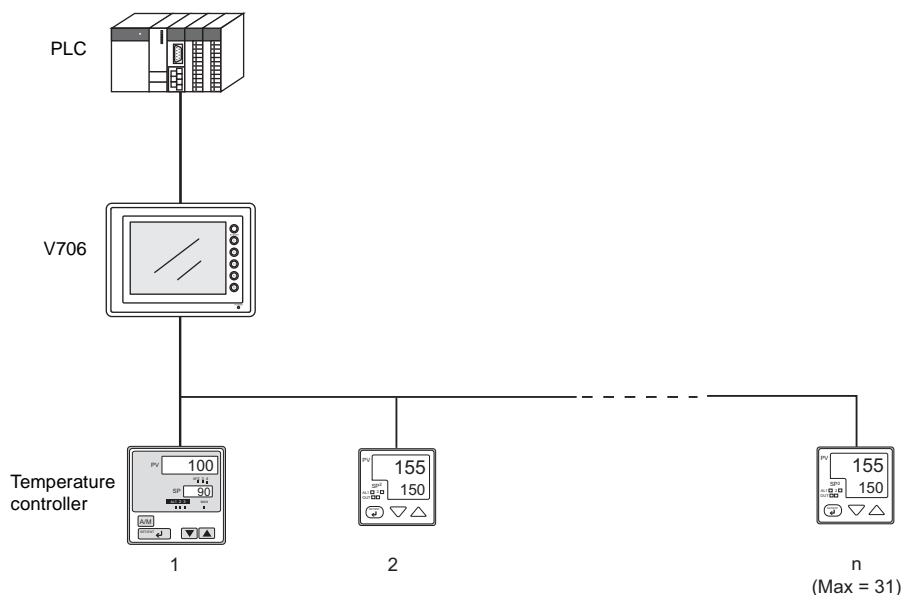
- Data of temperature controllers connected to the V706 can be set or monitored.

- 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 V706 internal buffer, SRAM or CF card.

- Data transfer
  It is also possible to transfer data in the PLC memory, V706 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, V706 internal memory or a memory card at one time.

- For more information, see the Temperature Control Network Manual.

9.   Ethernet

> ⚠️**CAUTION**   To perform Ethernet communications on the V706, the option unit DU-01 must be installed.

- Transferring data in memory
  Data in memory can be transferred to the V706 on the Ethernet or to the PLCs linked to the V706 as a host by using macro commands (EREAD/EWRITE).
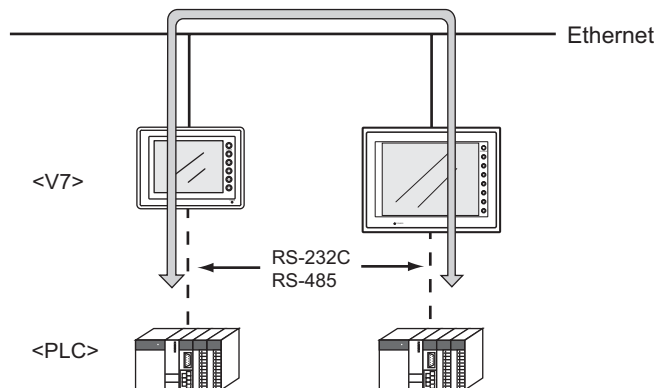
- Communications between the server and the V706
  - "HKEtn10.dll" (for UDP/IP protocol) is provided so that the user can create an original application by using Visual C++ or Visual Basic, etc. to allow the server to access the memory device, such as V706 internal memory, memory card or the PLC memory linked with the V706 as a host........ (a)
  - The macro command (SEND) enables the V706 to access the server........ (b)
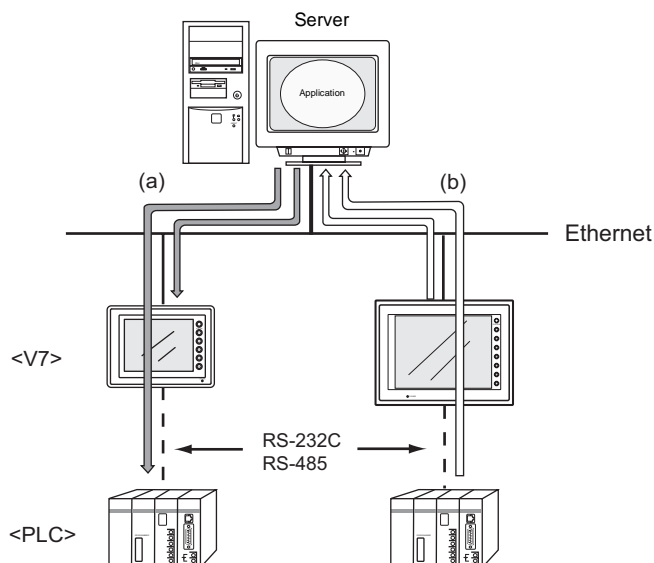
- Screen data can be transferred from the V-SFT editor on the server to the V706.
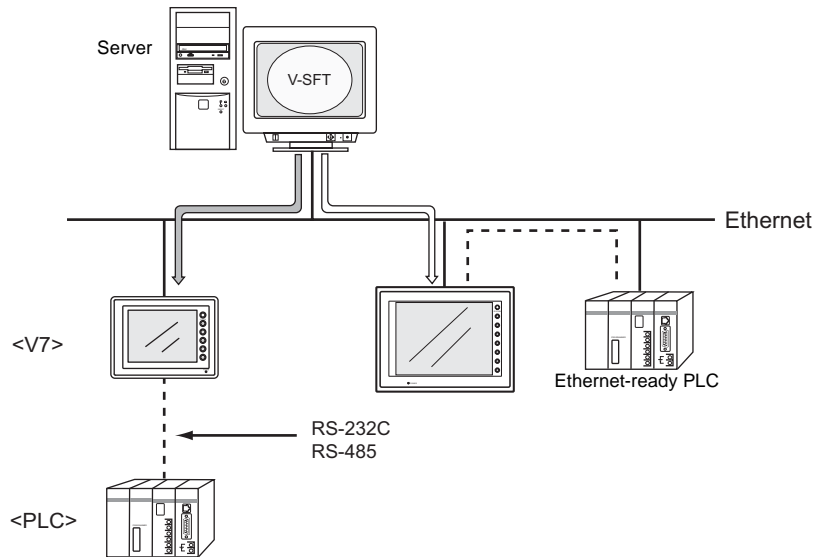
- Communications between the Ethernet-ready PLC and the V706
  - The V706 can communicate with the PLC on the Ethernet.
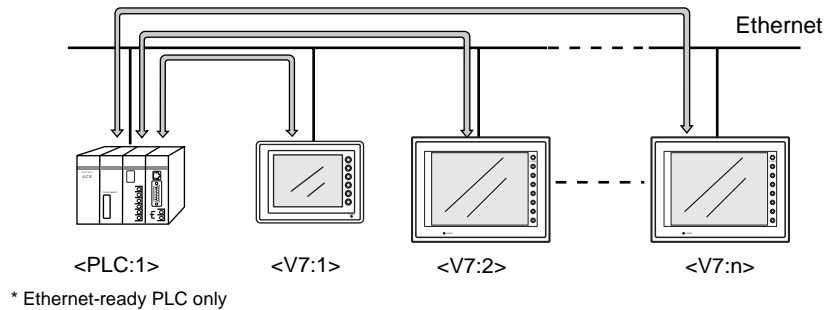
- The V706 can communicate with multiple PLCs on the Ethernet.
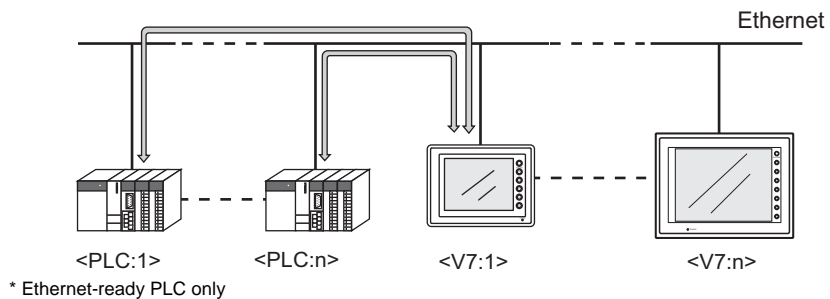
- For more information, refer to the PLC Connection Manual.

6 MONITOUCH Operations

VICPAS
HMI Parts Center

1.   Operational Procedures

MONITOUCH Operation

Follow the procedure below to operate the MONITOUCH.

1. Installation and wiring
    For details, refer to Chapter 3.

2. Connection with devices including a PLC and a temperature controller
    For instructions and precautions on wiring between the 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.
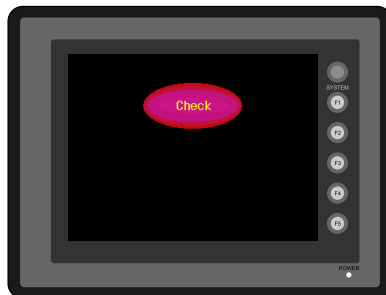
4. Screen data creation and transfer

    • 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
    The MONITOUCH becomes operable with a PLC or a computer connected to it.

    *   If the 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 on the left is displayed.

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

Main Menu screen after transferring screen data
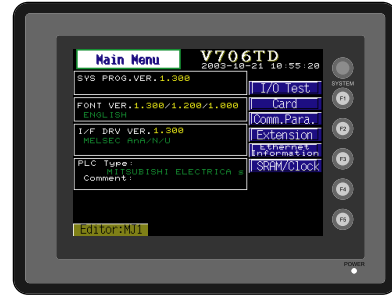
Transferring Screen Data for the First Time

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

- V706 only

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

    2. Transfer screen data from a CF card (USB CF card reader/writer) or a memory card (CREC).

        1) Transfer screen data from the computer to the desired card.

        2) Connect a USB CF card reader/writer or a CREC to the V706, and insert the card.

        3) Press the [CF Card (English)] switch. The "Card Menu" screen is displayed.

        4) Follow the instructions as described in "Card Menu Screen" (page 6-15) and transfer screen data.
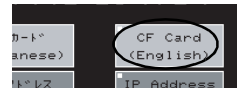
- V706 + DU-01 (option unit)

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

  2. Transfer screen data from a CF card.

     1) Transfer screen data from the computer to a CF card.

     2) Insert the CF card into the option unit.

     3) Press the [CF Card (English)] switch. The "Card Menu" screen is displayed.

     4) Follow the instructions as described in "Card Menu Screen" (page 6-15) and transfer screen data.
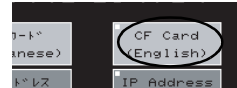
  3. Transferring screen data via Ethernet

     1) Press the [IP Address (English)] switch.

     2) The "Ethernet" screen is displayed.
        Follow the instructions as described in "Ethernet (Optional)" (page 6-30) 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.
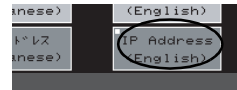
- Auto-uploading screen data from the CF card to the V706

     1) Transfer screen data from the computer to a CF card.

     2) Turn the V706 off. Set the DIPSW1 on the V706 to the ON position, and insert the CF card into the USB CF card reader/writer or the option unit.

     3) Turn the V706 on. The screen data is automatically uploaded from the CF card to the V706.

     * USB CF card reader/writer connection has priority over CF card socket on the DU-01.

2.   Main Menu Screen

The Main Menu screen is displayed when the MONITOUCH is in the STOP mode. In this state, the MONITOUCH is disconnected from the PLC and other external devices.

Displaying the Main Menu Screen

In the RUN Mode

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. (When you specify the [Mode Change Delay time], hold down [F1] for the setting time.)

Main Menu screen
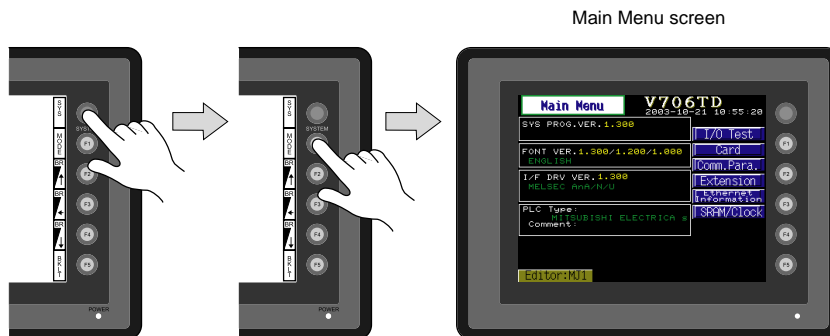
When the [SYSTEM] switch is disabled:

Pressing the [SYSTEM] switch does not bring up the vertical menu.
In this case, press the [SYSTEM] and [F5] switches at the same time. (If the time for simultaneous pressing of these switches is preset, hold down the switches for the required time.)

Main Menu screen
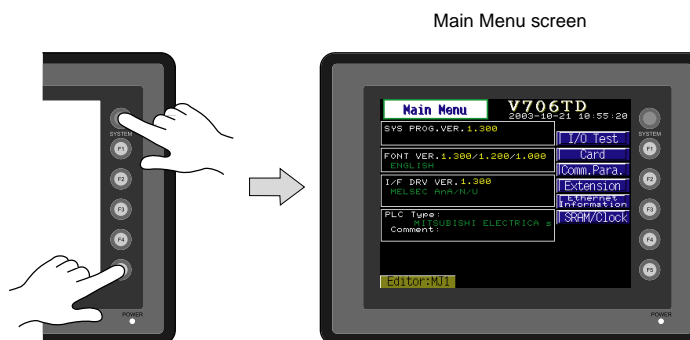
When the [MODE] (F1) switch is disabled:

When the vertical menu is displayed by the [SYSTEM] switch, the [MODE] (F1) switch does not work.
In this case, press the [MODE] (F1) and [F5] switches at the same time. (If the time for simultaneous pressing of these switches is preset, hold down the switches for the required time.)

Moving Back to the Screen in the RUN Mode

Press the [SYSTEM] switch and the [F1] switch.

Main Menu Screen

- The Main Menu screen indicates the V706 model, system information, and screen data information.

- The Main Menu screen is the system menu screen for transferring screen data between a personal computer and the V706.
  When transferring screen data from a personal computer to the V706, 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.)

V706 model

System program version

Font data versions, country/local/font

PLC I/F driver version and model

Port name used for data transfer

I/O Test (See page 6-5.)

Card Menu (See page 6-15.)

Communication parameter (See page 6-28.)

Extension (See page 6-29.)

Ethernet (See page 6-30.)

SRAM/Clock (See page 6-37.)

PLC model and file comment set for the screen data file
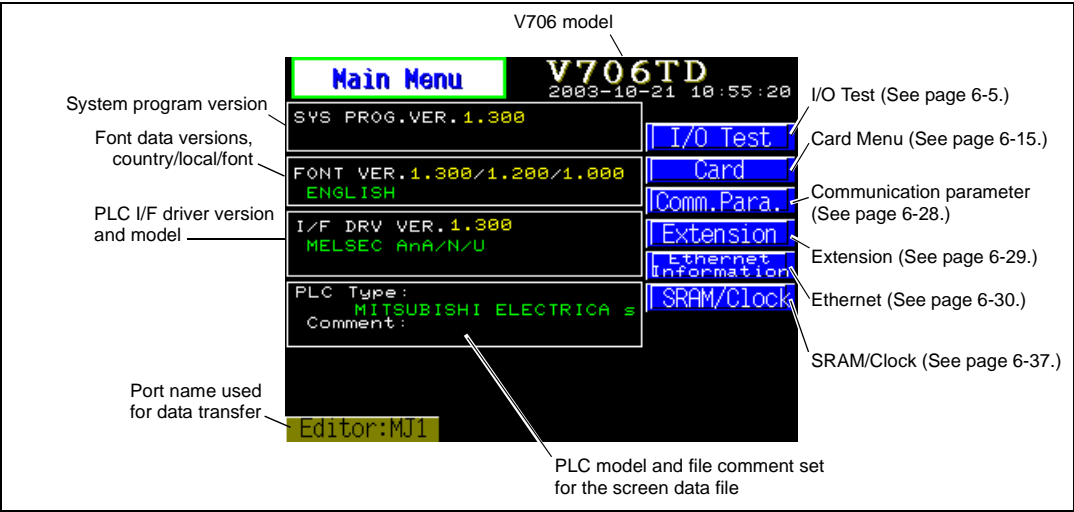
1.   I/O Test

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 V706 interfaces and touch switch operation.

Moves to the "Touch Switch" screen. (See page 6-13.)

Performs a USB-A (master port) connection test. (See page 6-6.)

The Main Menu screen is displayed again. (See page 6-5.)

Performs a CN1/MJ1/MJ2 interface test. (See page 6-7.)

Performs a function switch test. (See page 6-13.)
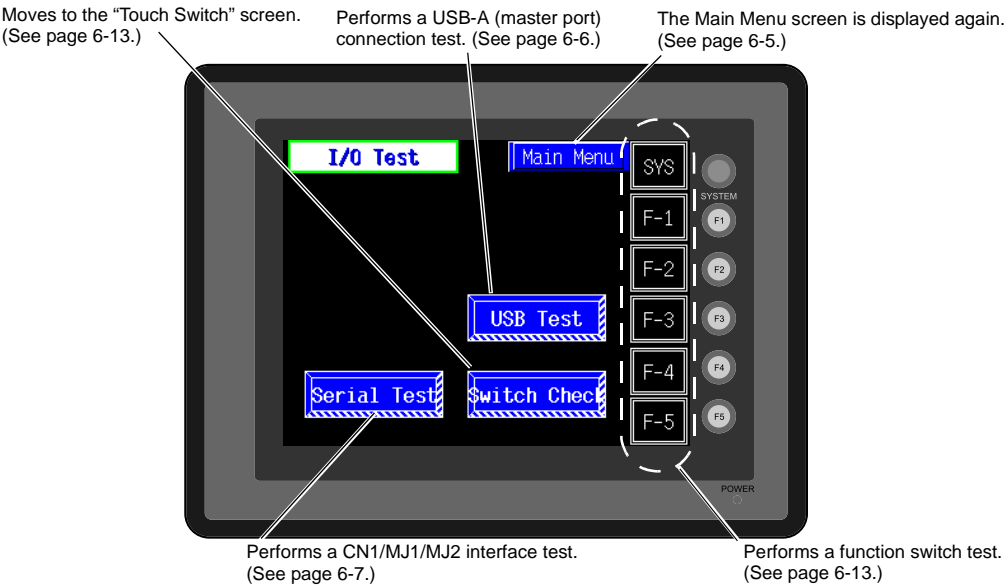
1-1.   USB Test

When the [USB Test] switch is pressed, the following screen is displayed.

Moves back to the "I/O Test" screen.
(See page 6-5.)

USB Test

I/O Test

SYSTEM
F1
F2
F3
F4
F5

USB-A(Host)

No Connected

Print

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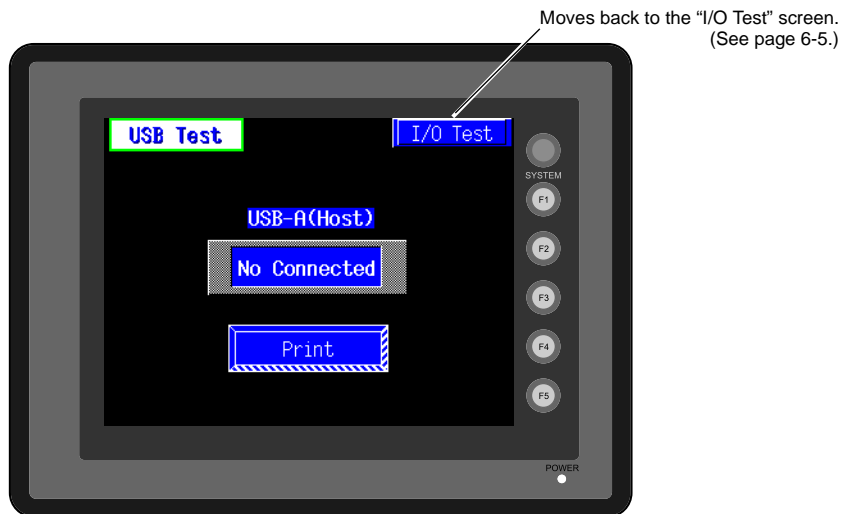
This screen is used to check the status of USB-A (master port) connection.

Checking the Connection Status

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

USB Test

I/O Test

SYSTEM
F1
F2
F3
F4
F5

USB-A(Host)

Connected

Print

POWER
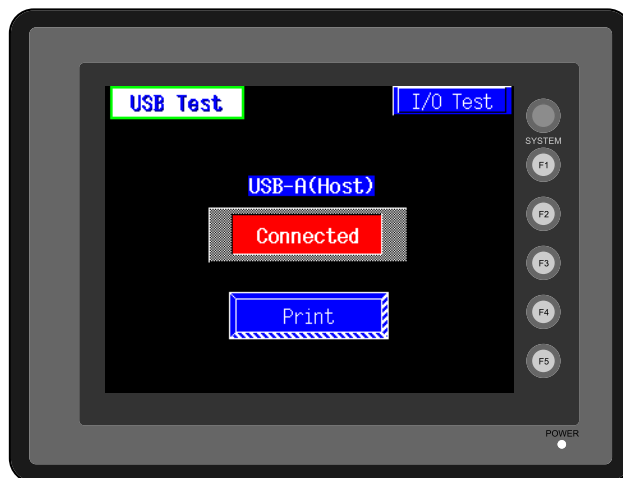
Printer Test

When a printer is connected to the USB-A port, a print test can be done.
Check if the V706 sends signals normally to the printer using the [Print] switch. The test is successful if a test page is printed without problems.

Example:

```
!"#$%&@  0123456789  ABCDEFGHIJKLMNO
!"#$%&@  0123456789  ABCDEFGHIJKLMNO
!"#$%&@  0123456789  ABCDEFGHIJKLMNO
!"#$%&@  0123456789  ABCDEFGHIJKLMNO
!"#$%&@  0123456789  ABCDEFGHIJKLMNO
!"#$%&@  0123456789  ABCDEFGHIJKLMNO
!"#$%&@  0123456789  ABCDEFGHIJKLMNO
```
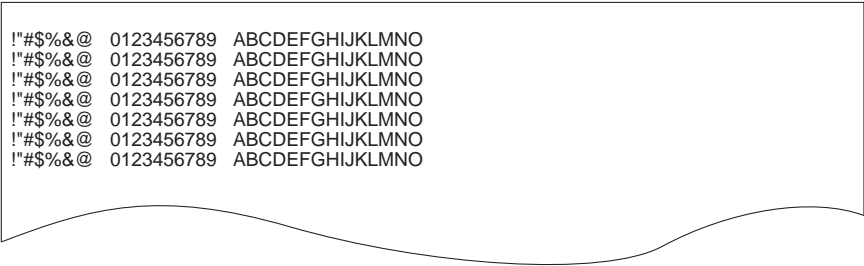
1-2.   Serial Connection Test

When the [Serial Test] switch is pressed, the following screen is displayed.

Moves back to the "I/O Test" screen.
(See page 6-5.)
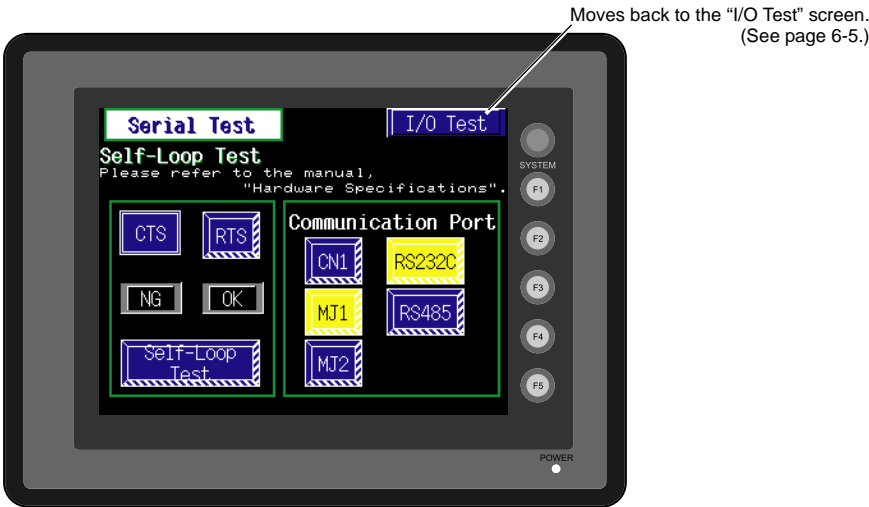
This is a signal test for communications through the MJ1, MJ2 or CN1 connector.
Perform this test if the communication is not successful when transferring screen data through MJ1, connecting the PLC using MJ2 or CN1, or selecting multi-link 2, temperature controller/PLC2Way or PLC for MJ1, or connecting the card recorder or serial extension I/O.

MJ2 Test

RS-232C signal test

1. Slide the slide switch on the MONITOUCH to the upper position for RS-232C.

2. Turn on the [MJ2] and [RS232C] switches under [Communication Port].

Communication Port

CN1	RS232C
MJ1	RS485
MJ2	

3. Check the signals [RD] and [SD]. Wire inside MJ2 as shown below.

MJ2
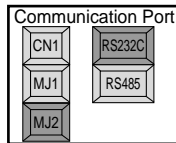
Signal Name	Pin No.
RD	7
SD	8

4. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.

CTS   RTS

NG   OK

Self-Loop Test

⟹

CTS   RTS

NG   OK

Self-Loop Test
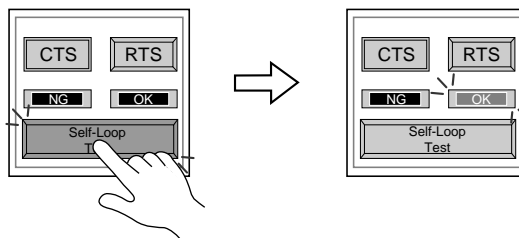
* If the [NG] lamp lights up, consult your local distributor.

RS-422/RS-485 signal test

1. Slide the slide switch on the MONITOUCH to the lower position for RS-422.

2. Turn on the [MJ2] and [RS485] switches under [Communication Port].
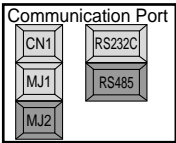
3. Check the signals [+RD], [−RD], [+SD] and [−SD]. Wire inside MJ2 as shown below.

MJ2

Signal Name	Pin No.
+SD	1
−SD	2
+RD	7
−RD	8

4. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.
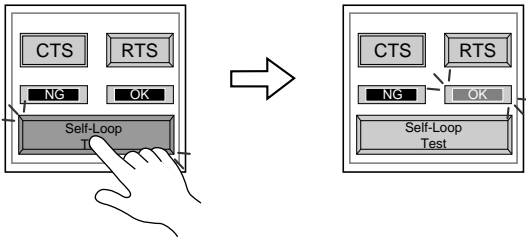
   * If the [NG] lamp lights up, consult your local distributor.

MJ1 Test

RS-232C signal test

1. Turn on the [MJ1] and [RS232C] switches under [Communication Port].
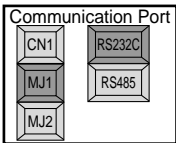
2. Check the signals [RD] and [SD]. Wire inside MJ1 as shown below.

MJ1

Signal Name	Pin No.
RD	7
SD	8

3. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.
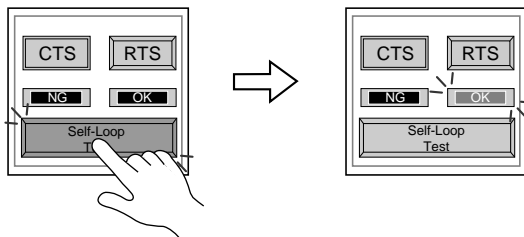
*   If the [NG] lamp lights up, consult your local distributor.

RS-485 signal test

MJ1 must be connected to MJ2 for an RS-485 signal test through MJ1. Therefore, perform a serial connection test to check that there is no problem with MJ2 before conducting an MJ1 test.

1. Slide the slide switch on the MONITOUCH to the lower position for RS-422.

2. Turn on the [MJ1] and [RS485] switches under [Communication Port].
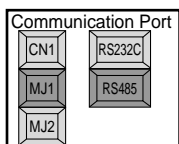
3. Check the signals [+RD], [-RD], [+SD] and [-SD]. Connect MJ1 and MJ2 as illustrated below.
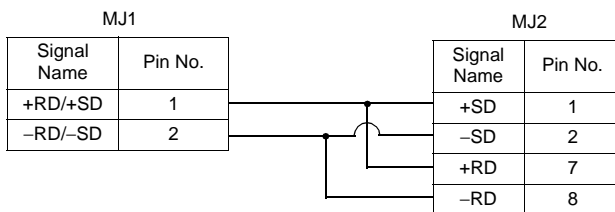
MJ1			MJ2	
Signal Name	Pin No.		Signal Name	Pin No.
+RD/+SD	1		+SD	1
−RD/−SD	2		−SD	2
			+RD	7
			−RD	8

4. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.
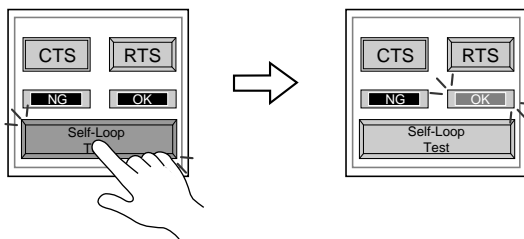
*   If the [NG] lamp lights up, consult your local distributor.

CN1 Test (with the DU-01)

RS-232C signal test

Turn the [CN1] and [RS232C] switches on.
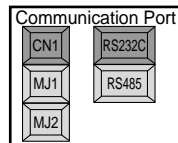
- SD/RD Test
  Check the signals [SD] and [RD].

  1. Install a jumper between pins 2 and 3 of CN1 on the backside of the V706.

  2. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.
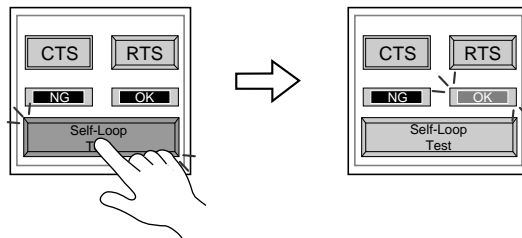
  * If the [NG] lamp lights up, consult your local distributor.

- 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 V706.

  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.
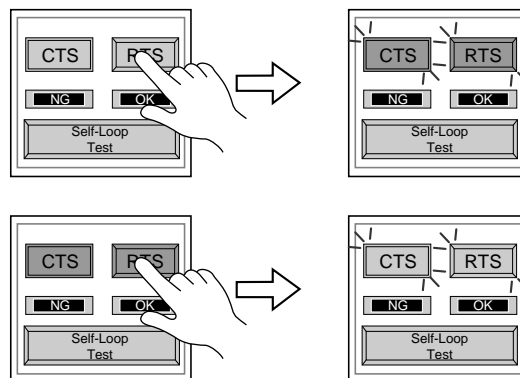
RS-485 signal test

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

```
┌─ Communication Port ─┐
│  ┌────┐   ┌──────┐   │
│  │CN1 │   │RS232C│   │
│  └────┘   └──────┘   │
│  ┌────┐   ┌──────┐   │
│  │MJ1 │   │RS485 │   │
│  └────┘   └──────┘   │
│  ┌────┐              │
│  │MJ2 │              │
│  └────┘              │
└──────────────────────┘
```
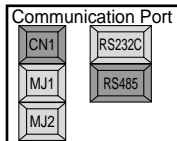
- SD/RD Test
  Check the signals [SD] and [RD].

  1. Install a jumper between pins 12 and 24 and between pins 13 and 25 of CN1 on the backside of the V706.

  2. Press the [Self-Loop Test] switch. When the [OK] lamp lights up, the test is successfully completed.
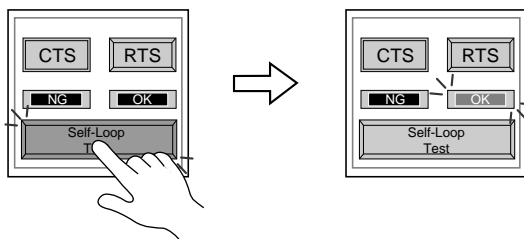
  * If the [NG] lamp lights up, consult your local distributor.

- 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 V706.

  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.
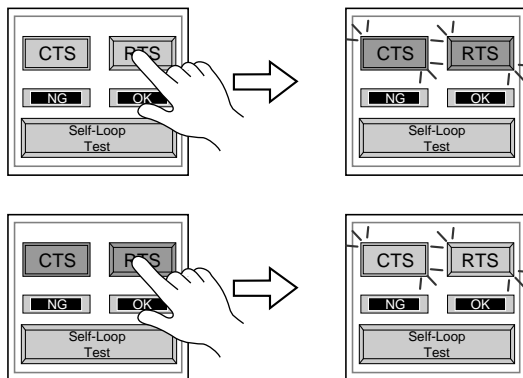
1-3.   SYSTEM & Function Switch Test

Check operations of six switches provided vertically on the right side of the panel.
Press the switch, and check that the lamp on the screen lights up while the switch is held down.
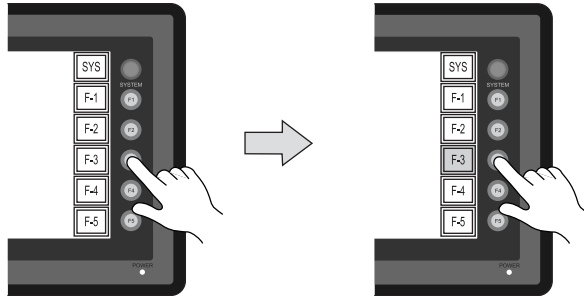
1-4.   Touch Switch Test

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 V706 panel are working properly.

1. Press the [Switch Check] switch. Grids appear on the screen as shown below.
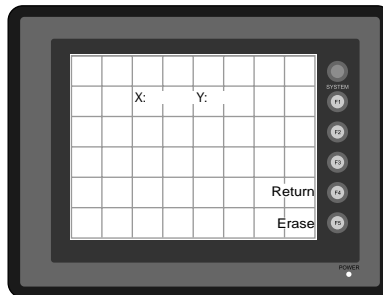
2. Press a position on the panel, and check that the pressed position turns white.
    The switch is activated normally when the pressed position turns white.
    To move back to the "I/O Test" screen, press the [F4] switch.
    To delete white dots press the [F5] switch.
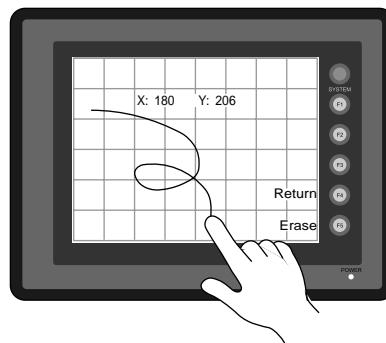
3. If a position different from the pressed position turns white, refer to "Touch Switch Adjustment" on the next page and adjust the touch switch position.

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 adjustment screen.
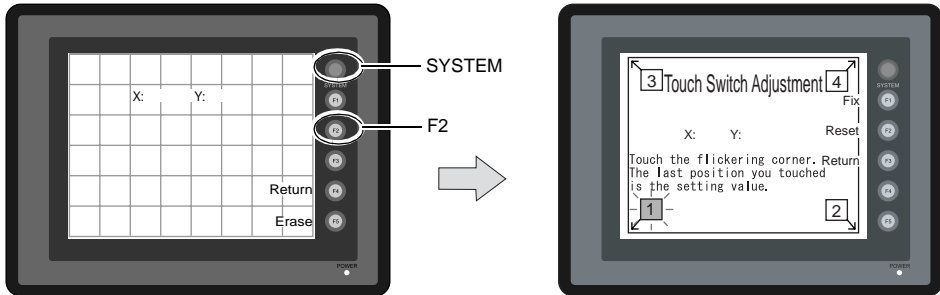
2. Press on "1" that is flashing at the corner on the touch switch adjustment screen. When the finger is released, a beep sounds and the position is set. "2" flashes.
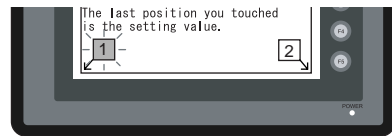
3. Press on "2" that is flashing at the corner. When the finger is released, a beep sounds and the position is set. "3" flashes.
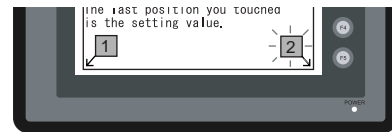
4. Press on "3" that is flashing at the corner. When the finger is released, a beep sounds and the position is set. "4" flashes.
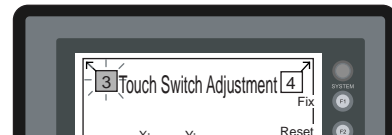
5. Press on "4" that is flashing at the corner. When the finger is released, a beep sounds and the position is set.
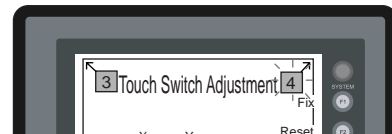
6. To re-set the positions, press the [F2] switch and follow step 2 and later.

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 adjustment screen is displayed again.
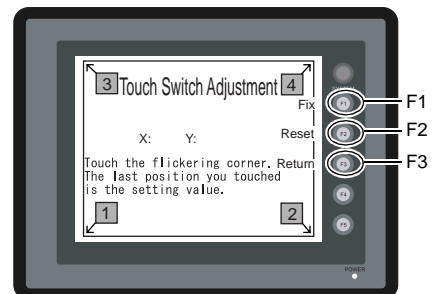
2.   Card Menu Screen

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 V706 and a CF card or a memory card.

The Main Menu screen is displayed again.
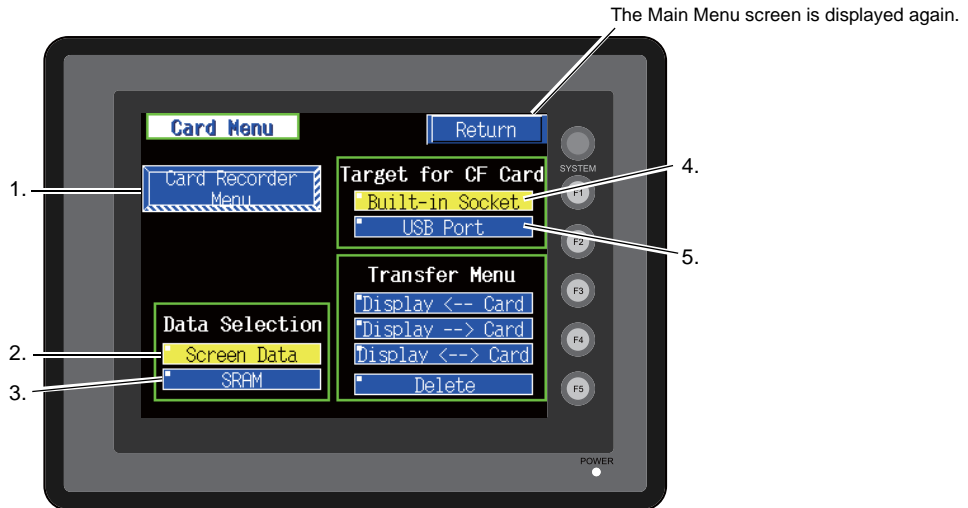
1. [Card Recorder Menu] switch
   Press this switch when connecting the card recorder to the MJ port of the V706 and transferring screen data between the V706 and a memory card.

2. [Screen Data] switch
   Press this switch when transferring screen data between the V706 and a CF card.

3. [SRAM] switch
   Press this switch when saving backup copies of the SRAM memory or when uploading the backup data from the CF card to the V706.

4. [Built-in Socket] switch
   The CF card insertion position can be selected. If using a CF card while the option unit is mounted, 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.

6

V706 / DU-6100 Operations

2-1. Card Recorder Menu Screen

When the [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 V706 and a memory card.
The procedure for transferring data is described below.
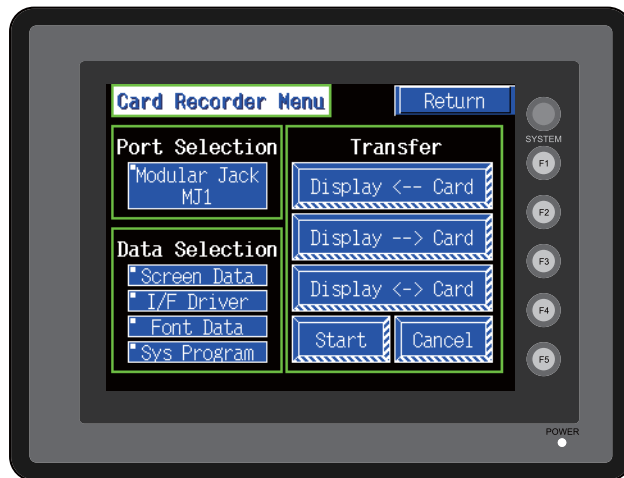
1. Connecting the CREC
   Connect the CREC cable (CREC-CP) to the MJ port that is displayed in the "Port Selection" field.
   - MJ1: Connect the CREC to the MJ1 port. Normally MJ1 is selected.
   - MJ2: Connect the CREC to the MJ2 port. Only when [Memory Card] is selected for [Modular Jack 2], "MJ2" is indicated in the "Port Selection" field.

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

3. Memory Card Information
   Press the [Modular Jack MJ1] switch.
   The memory card information contained in the inserted memory card is indicated.
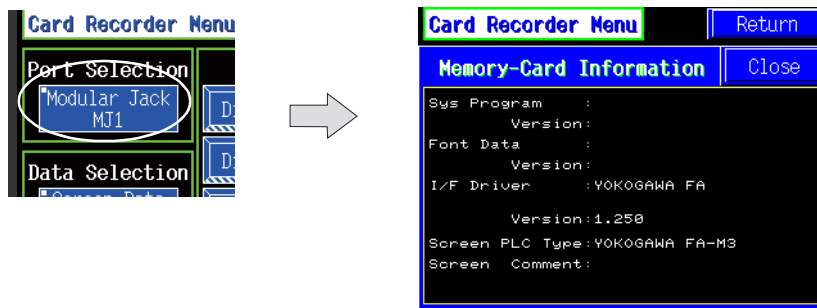
To move back to the previous screen, press the [Close] button.

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.

Data selection   Transfer selection
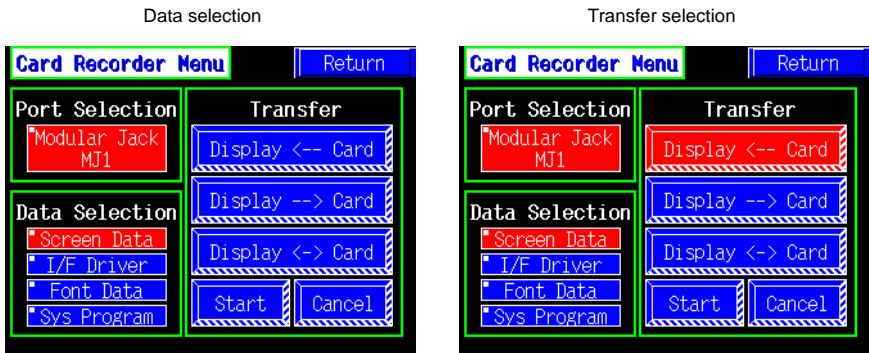
5. Starting Data Transfer

    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.
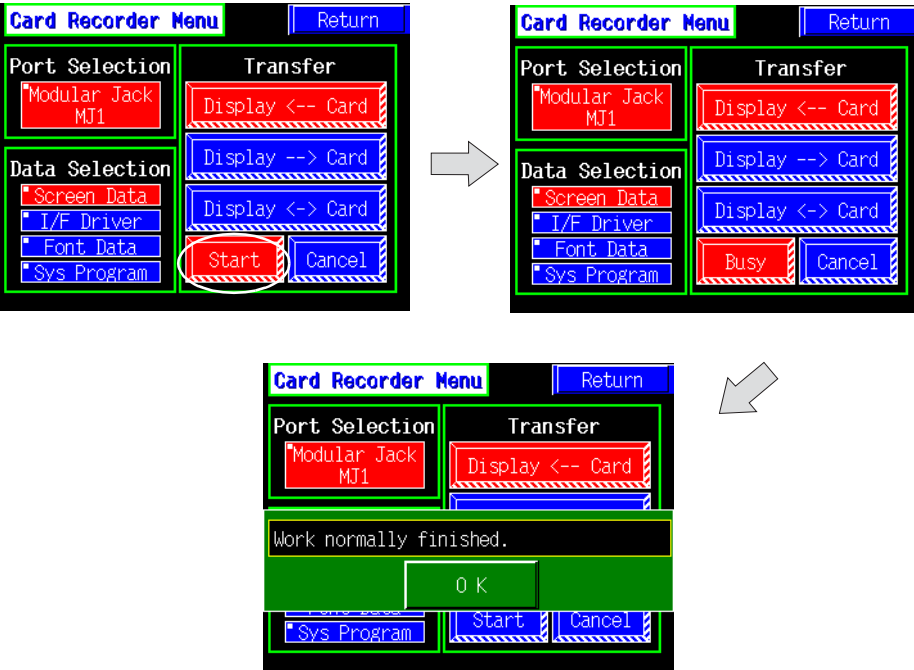
Press the [OK] switch.

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

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2-2. Transferring Screen Data from a CF Card

CF Card Folder Configuration

Folders in the CF card are configured as shown below.

```
                         *1                   *2
                      Folder Name          Folder Name          File Name

   CF card ───── AAAAAAAA ──────── DSP ─────────── DSP0000.BIN
            ──── BBBBBBBB
                                 ──── CARD ──────── MCMHEAD.BIN
                      ⎰                            MCMxxxx.BIN
            ──── FFFFFFFF
                                 ──── SRAM ──────── SRM0000.BIN

                                 ──── MEMO ──────── MEMxxxx.BIN

                                 ──── RECIPE ────── RECxxxx.CSV
                                                   xxxxxxxx.CSV

                                 ──── SAMPLE ────── SMPxxxx.BIN
                                                   SMPxxxx.CSV

                                 ──── HDCOPY ────── HDxxxx.JPG
                                                   HDxxxx.BIN

                                 ──── BITMAP ────── BMPxxxx.BIN

                                 ──── JPEG ──────── xxxx.JPG
                                                   JPxxxx.JPG

                                 ──── SNAP ──────── VDxxxx.JPG

                                 ──── WAV ───────── WAxxxx.WAV

                                 ──── FONT ──────── xxxx.FTD
                                                   xxxxxxxx.SHT
                                 ──── WEBSERV ───── xxxxxxxx.HTM
                                                   xxxxxxxx.TXT
                 *3
            ──── DSPDEF ───────── DSP ─────────── DSPDEF.BIN

                                 ──── Same as access folders
```

*1   These are access folders set by the V-SFT. Any folder name within eight 1-byte characters can be given.
*2   These folders are automatically created when access folders are created. The folder names are fixed.
*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.	WAV	Saves WAV files for sound output to reduce the screen data capacity.
JPEG	Saves JPEG files for display on the screen (except for V706M).	WEBSERV	Saves files to be accessed from the Web browser.
MEMO	Saves memo pad data drawn with the V7.		

DSPDEF (screen data auto upload folder)

Folder Name	Contents
DSP	When setting the dipswitch on the V706 and inserting a CF card, it automatically reads the screen data in this folder.

(Other folders are the same as access folders.)

Transferring Screen Data from a CF Card

The procedure of transferring data between the V706 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 V706.

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

2. Target for CF Card
   Select [Built-in Socket] or [USB Port].

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

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

Data selection   Transfer selection
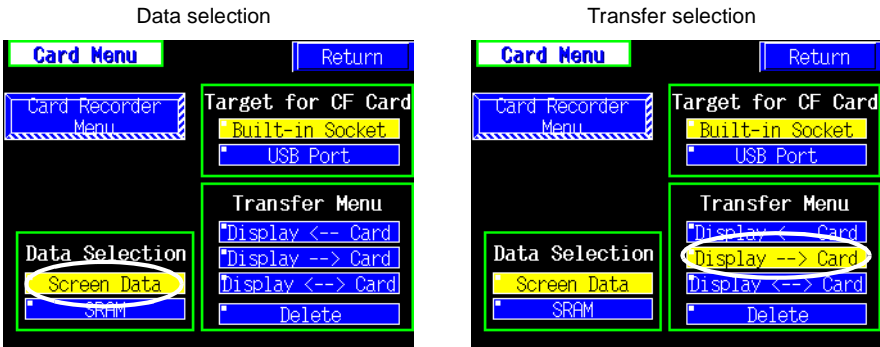
When [Display <-- Card] is Selected:

Transfer screen data from the computer to the CF card.

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

Flashes during communication with the CF card.

Indicates the name of the currently selected folder. The access folder that is set for screen data defaults. If there is no screen data, "DAT0000" defaults.

Indicates the free space in the CF card.

Used for checking or renaming folder names.

Starts transferring data [Display <-- Card].

Moves back to the previous screen.

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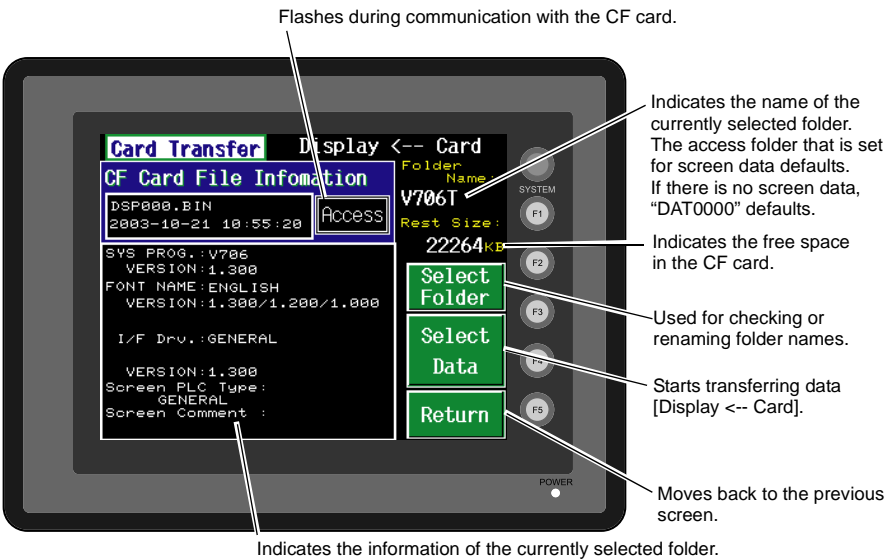
2. Check the folder name, free space, and CF card file information. If the correct folder is selected, move to step 4.

   - Folder Name
     Indicates the name of the currently selected folder.
     Name of the access folder that is set for screen data is indicated by default.
     If there is no screen data, "DAT0000" is indicated.

   - 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.

Moves the cursor.

Indicates the details of the folder.

Determines the folder selection.
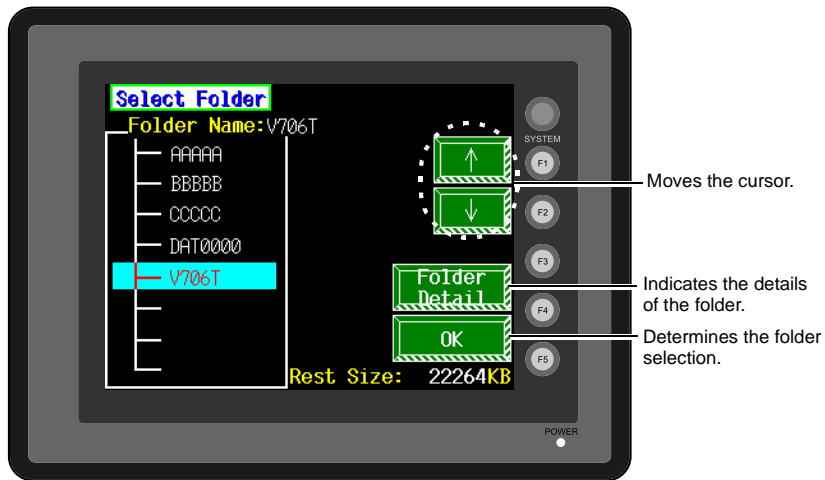
   - To see the details of the folder, press the [Folder Detail] switch.
     The "Folder Detail" screen is displayed.

Scrolls with the [↑]/[↓] switch.

Moves the cursor.

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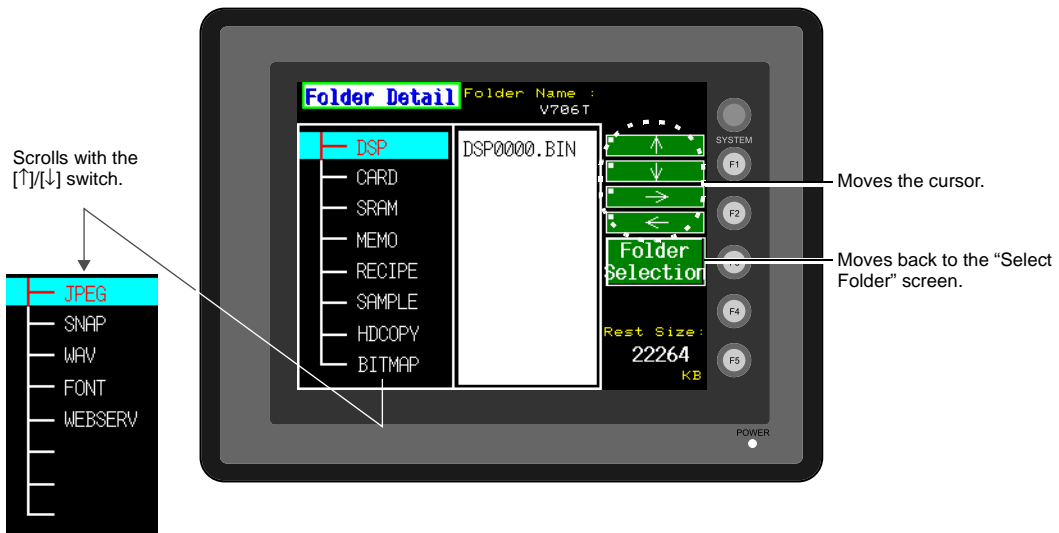
   - Select the desired folder using the [↑]/[↓] switch, and press the [OK] switch.
     The Card Transfer screen is displayed again and the CF card file information of the selected file is indicated.

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4. Press the [Select Data] switch.
    The [Data Selection] window is displayed and the [Select Data] switch changes to [Start].
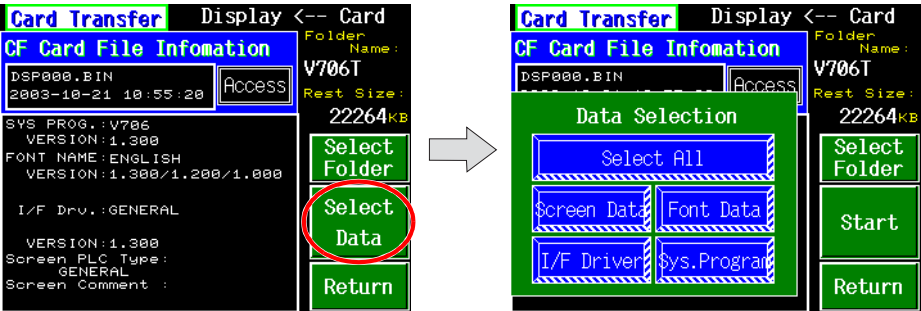
Select the desired data, and press the [Start] switch.
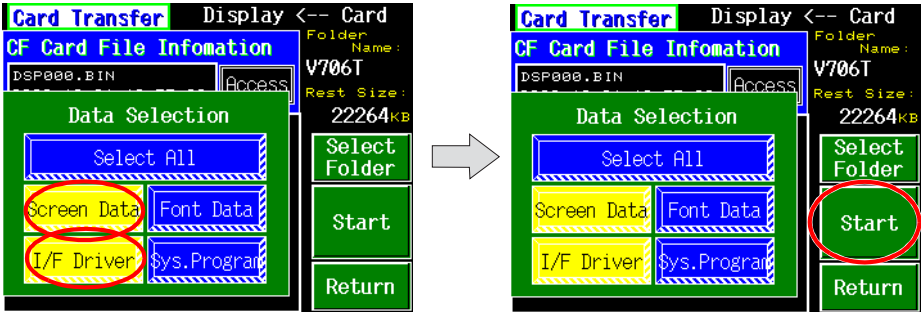
To cancel the [Data Selection] window, press the [Return] switch.

5. During data transfer, the [Start] switch changes into [Busy] and flashes. When 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.
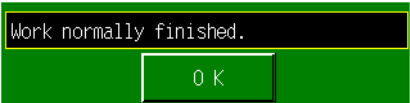
Press the [OK] switch.
The "Card Menu" screen is displayed.
If any other message is displayed, refer to page 6-26.

When [Display --> Card] is Selected:

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

Flashes during communication with the CF card.

Indicates the name of the currently selected folder.

Indicates the free space in the CF card.

Starts transferring data [Display --> Card].

Moves back to the previous screen.

Indicates the information of the currently selected folder.
If there is no screen data, this field becomes blank.
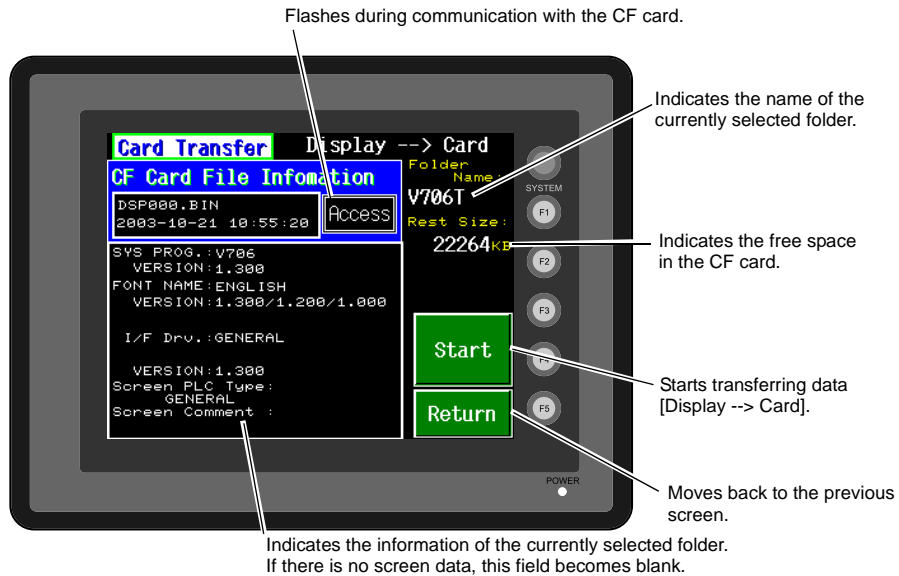
2. Check the folder name and CF card file information, and press the [Start] switch.

    *   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 V7 series overwrites the CF card data. Note that the CF card data is lost when data in the V7 series 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.

Work normally finished.

O K
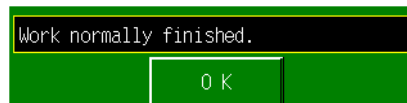
    Press the [OK] switch. The CF card file information shows data that has been transferred.
    If any other message is displayed, refer to page 6-26.

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 used for comparison is that in the DSP folder under the folder having the same name as the access folder that is set by the V-SFT.

Flashes during communication with the CF card.

Indicates the name of the currently selected folder.

Indicates the free space in the CF card.

Starts transferring data [Display --> Card].

Moves back to the previous screen.

Indicates the information of the currently selected folder.
If there is no screen data, this field becomes blank.
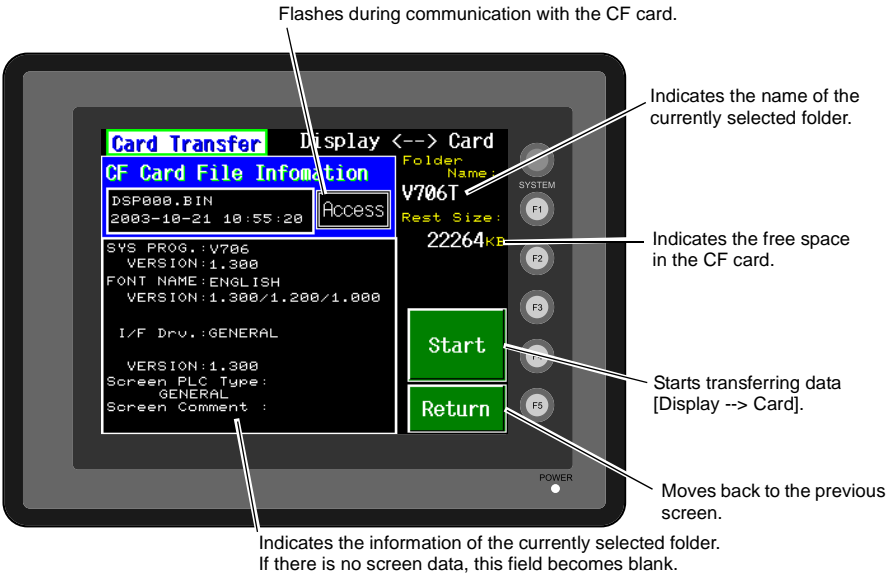
2. Press the [Start] switch.

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 6-26.

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 for battery replacement is explained.

1. Press the [SRAM] switch on the "Card Menu" screen. When the lamp is red, it is selected.

2. Select [Display <-- Card], [Display --> Card] or [Display <--> Card].

Data selection   Transfer selection
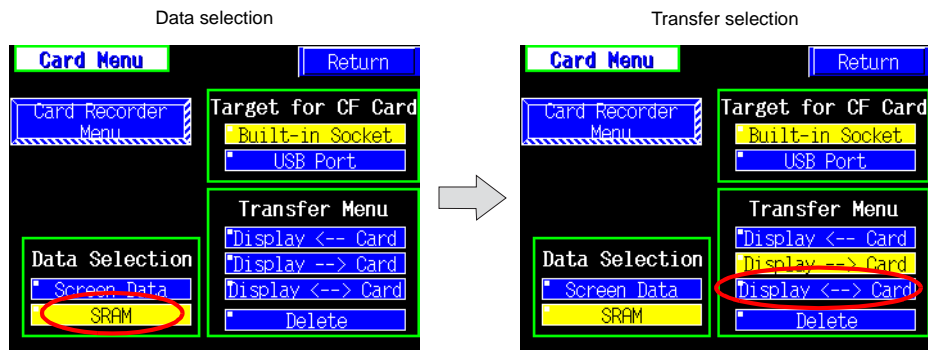
3. The "SRAM Transfer" screen is displayed.
    • When [Display --> Card] or [Display <--> Card] is selected, the following screen is displayed. Select the CF card folder having the same name as the access folder for screen data in the V7 series. The name is shown on the screen. The transferred file is named as "SRM0000.BIN".

Shows [Display <--> Card] when [Display <--> Card] is selected.

Indicates the name of the currently selected folder.

Indicates the free space in the CF card.

Used for checking or renaming folder names.

Starts transferring data [Display --> Card].

Moves back to the previous screen.

Flashes during communication with the CF card.

Indicates the name of the currently selected file.

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

Indicates the name of the currently selected folder.

Indicates the free space in the CF card.

Used for checking or renaming folder names.

Starts transferring data [Display <-- Card].

Moves back to the previous screen.

Flashes during communication with the CF card.

Indicates the name of the currently selected file.

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 6-20.
   Select the desired folder (refer to page 6-20), 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 data has been transferred successfully, the following window is displayed.
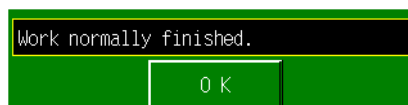
Press the [OK] switch.
If any other message is displayed, refer to the next page.

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

2-4.   Data Deleting in a CF Card

Data in a CF card can be deleted by the following procedures.

1. Select [Delete].
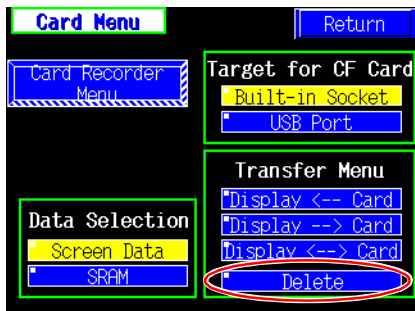
2. The following "Delete Data in CF card" screen is displayed.
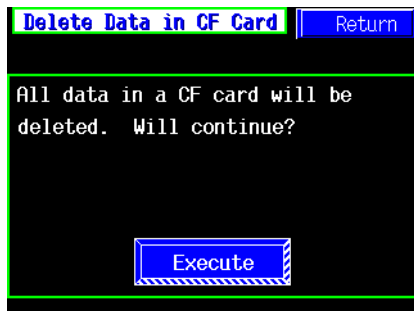
When you want to delete all the data in a CF card, press the [Execute] switch.
When you press the [Return] switch, the "Card Menu" screen is displayed.

3. When the [Execute] switch is pressed, it is turned ON for a while.
    When deleting data is finished, the following message is displayed.
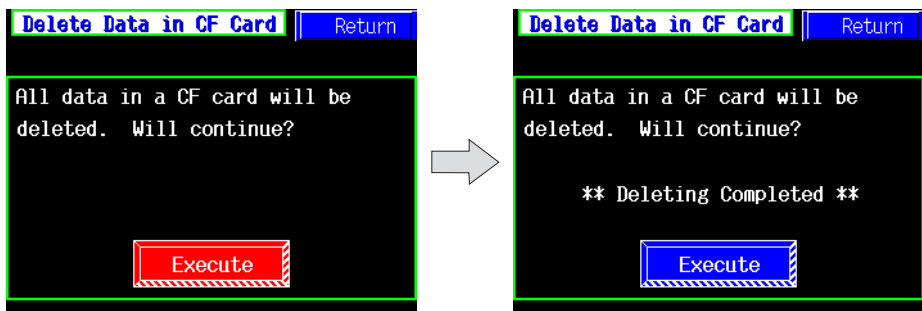
Then, data deleting is completed.
When you press the [Return] switch, the "Card Menu" screen is displayed.

*   All data in a CF card is deleted when the "∗∗ Deleting Completed ∗∗" message is displayed.
    When the "Main Menu" is displayed by pressing the [Return] switch, however, the new folder is
    created in a CF card automatically.

2-5.   Messages during Data Transfer

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

```
Data discrepant

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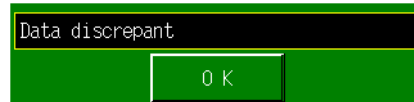
The kinds and the contents of the messages are shown below. The same messages are used for the memory card and CF card. When using the CF card, the "memory card" in the explanation should read as the "CF card".

Message	Contents
Work normally finished.	The specified operation has been concluded normally.
Card recorder not connecting	No card recorder is connected when selecting a modular jack.
CREC Communication Error	A communication error occurred between V7 and CREC when selecting a modular jack.
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 V7 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 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 V7 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 V7.
Data discrepant	There is some discrepancy in data, when comparing data between a memory card and V7.
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.)
Undefined Error occurred.	The error occurred due to some cause other than mentioned above.

3. Communication Parameter Screen

When the [Comm. Para.] switch on the Main Menu screen is pressed, the "Comm. Param." screen, shown below, is displayed.
This screen is used to check the V706 communication parameter settings.

The Main Menu screen is displayed again.

Communication parameter setting

Multi-link 2 or multi-link settings

Displayed when [Multi-link] or [Multi-link 2] is selected for [Connection] on the [Comm. Parameter] dialog
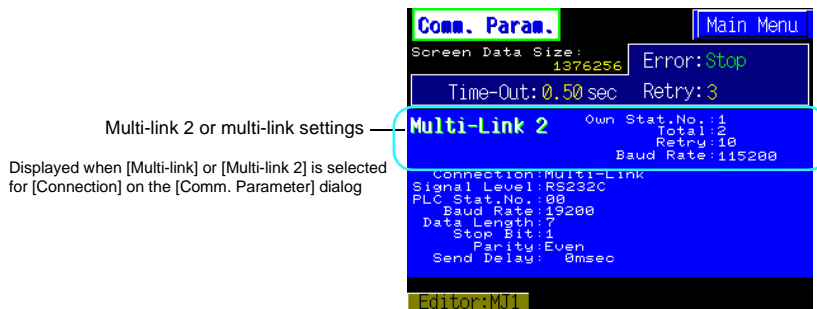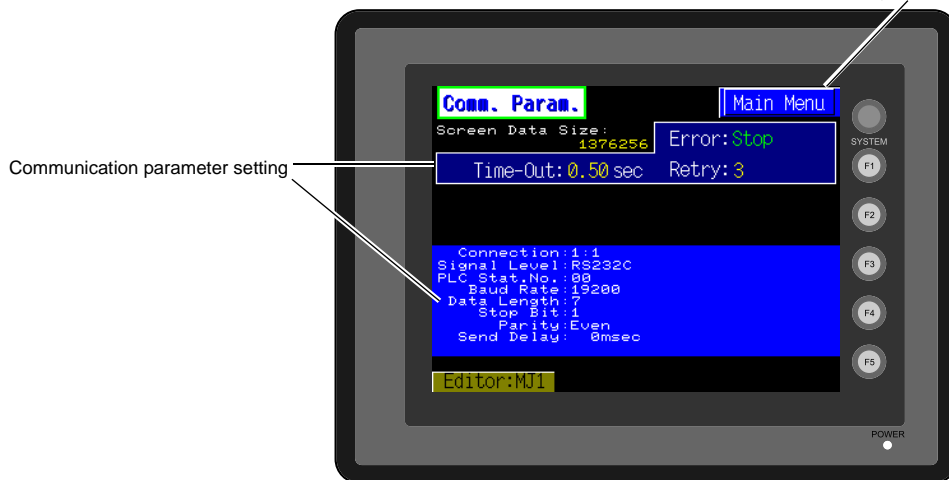
4.   Extension Program Information

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

5.   Ethernet (Optional)

⚠️ **CAUTION**   When performing Ethernet communication on the V706, the option unit DU-01 must be installed.

The "Ethernet Information" 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 Information] switch on the Main Menu screen when transferring screen data to a V706 equipped with the option unit DU-01.

5-1.   Ethernet Information Screen

This screen is used to check the current IP address, port number, or error.

Moves to the "Ethernet" screen for IP Address Setting. (See "IP Address Setting" (page 6-31))

The Main Menu screen is displayed again.
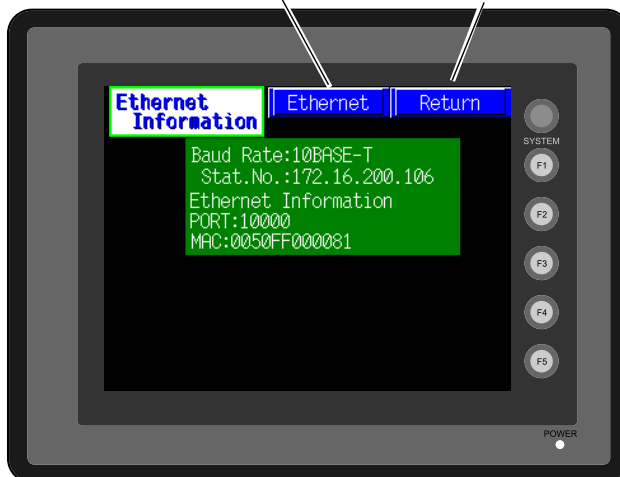
Pressing the [Ethernet] switch brings up the "Ethernet" screen for IP address setting.

To move back to the previous "Ethernet Information" screen, press the [Ethernet Information] switch.

5-2.   IP Address Setting

IP address (number for identifying V706 on the network) setting is required before conducting communications via Ethernet. The setting procedure varies depending on the screen data conditions.

```
┌─────────────────────┐        No     ┌─────────────────────┐   No *    ┌──────────────────┐
│ [☐ IP Setting] is   │──────────────▶│ Network table is set│──────────▶│ "Setting 1"      │
│ checked in the [Unit│               │ on the V-SFT.       │           │ (page 6-32)      │
│ Setting] window on  │               │                     │           └──────────────────┘
│ the V-SFT.          │               │                     │
└─────────────────────┘               └─────────────────────┘   Yes     ┌──────────────────┐
          │ Yes                                  │  ───────────────────▶ │ "Setting 2"      │
          ▼                                      │                       │ (page 6-33)      │
┌─────────────────────┐                                                  └──────────────────┘
│ Network table is set│              No *                                ┌──────────────────┐
│ on the V-SFT.       │──────────────────────────────────────────────▶  │ "Setting 3"      │
│                     │                                                  │ (page 6-34)      │
└─────────────────────┘                                                  └──────────────────┘
          │ Yes                                                                    ▲
          ▼                                                                        │
┌─────────────────────┐              No *                                          │
│ Network table on the│───────────────────────────────────────────────────────────┘
│ V-SFT editor contains│             Yes                                 ┌──────────────────┐
│ a local port setting.│───────────────────────────────────────────────▶│ "Setting 4"      │
└─────────────────────┘                                                  │ (page 6-35)      │
                                                                         └──────────────────┘
```
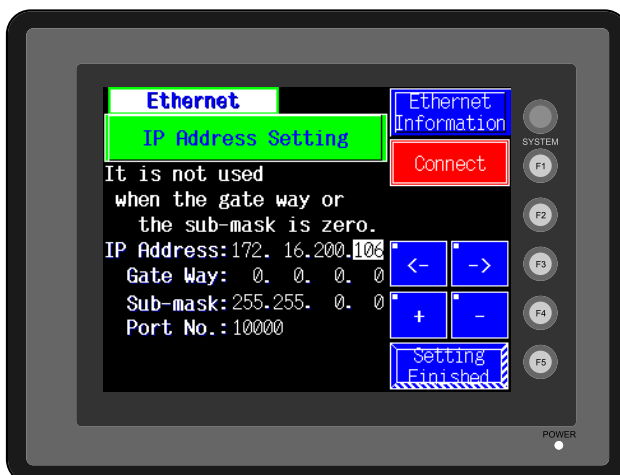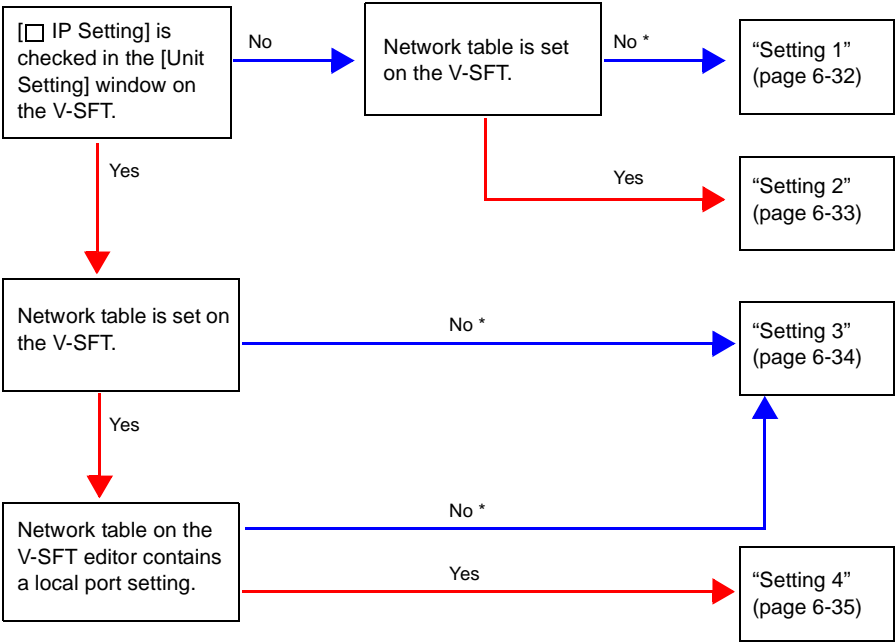

⚠ **CAUTION**	* When no network table is set on the V-SFT:
	  • Ethernet macro commands (EREAD, EWRITE, and SEND) disabled
	  • Communication with PLC via Ethernet disabled
	For more information, refer to page 6-33.

Setting 1

The Ethernet Information screen is displayed.

Used for checking the LAN port status.
  Normal: Connect
  Error: Disconnect

Cursor switches

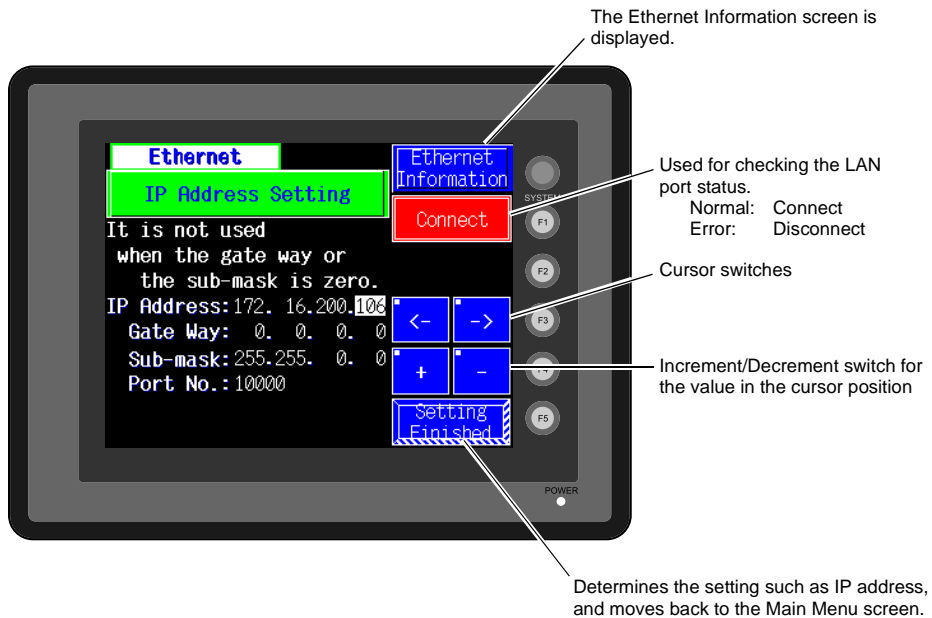Increment/Decrement switch for the value in the cursor position

Determines the setting such as IP address, and moves back to the Main Menu screen.
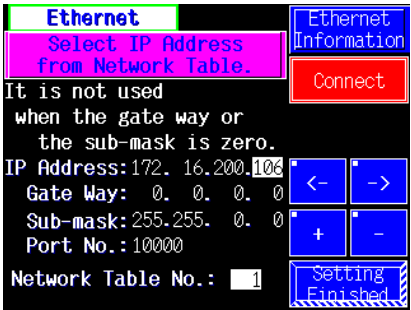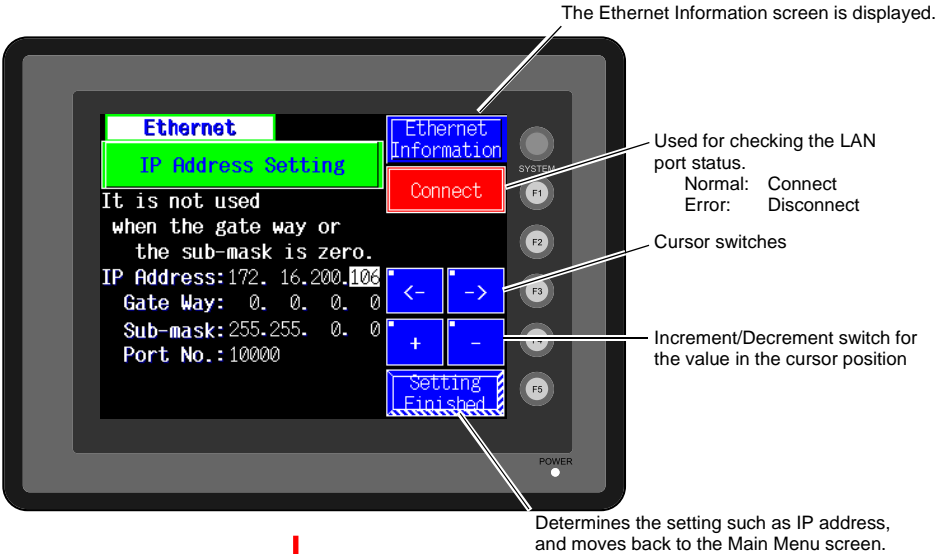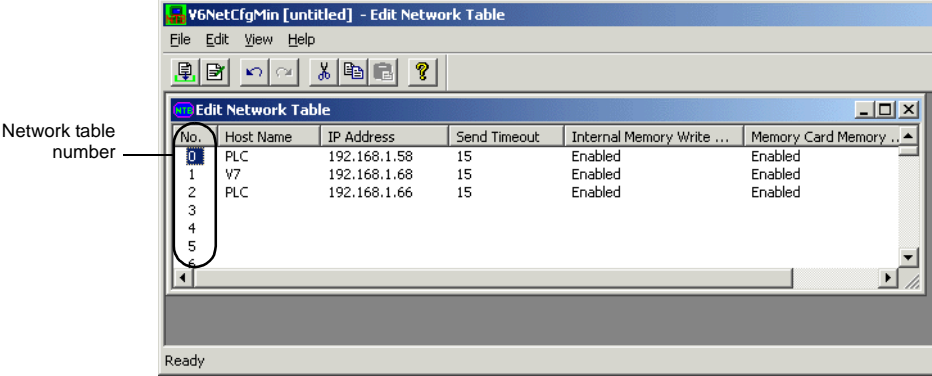
Set the IP address on the MONITOUCH screen.

1.   Open the "Ethernet" screen from the "Ethernet Information" screen using the [Ethernet] switch.

2.   Set the IP address and other necessary options.

3.   Press the [Setting Finished] switch to move back to the Main Menu screen.

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Setting 2

The Ethernet Information screen is displayed.

Used for checking the LAN
port status.
  Normal: Connect
  Error: Disconnect

Cursor switches

Increment/Decrement switch for
the value in the cursor position

Determines the setting such as IP address,
and moves back to the Main Menu screen.

By pressing the [IP Address Setting] switch,
the desired IP address can be selected from
the network table.
The switch changes into [Select IP Address
from Network Table.].[*1]

*1   Network Table
      Register IP addresses and other information for the V706, PLCs or computers that should be included for
      Ethernet communications on the V-SFT editor.
      ([System Setting] → [Network Table Setting] → [Ethernet] → Edit Network Table)
      If you would like to use the IP address of the registered network table, select [IP Address from Network Table].

Network table
number

| No.	Host Name	IP Address	Send Timeout	Internal Memory Write ...	Memory Card Memory ..
0	PLC	192.168.1.58	15	Enabled	Enabled
1	V7	192.168.1.68	15	Enabled	Enabled
2	PLC	192.168.1.66	15	Enabled	Enabled
3					
4					
5					
6					

Set the IP address on the Main Menu screen.

1. Press the [Ethernet] switch on the Main Menu screen to bring up the Ethernet screen.

2. Change the switch on the screen into [Select IP Address from Network Table.].

3. Select the desired IP address by changing the network table number.

4. Press the [Setting Finished] switch to move back to the Ethernet screen.

Setting 3

Set the IP address on the V-SFT editor.

1. On the V-SFT editor, click [System Setting], [Unit Setting] and [IP Address Setting]. The [IP Address Setting] dialog is displayed.

2. Check [☐ IP Setting].
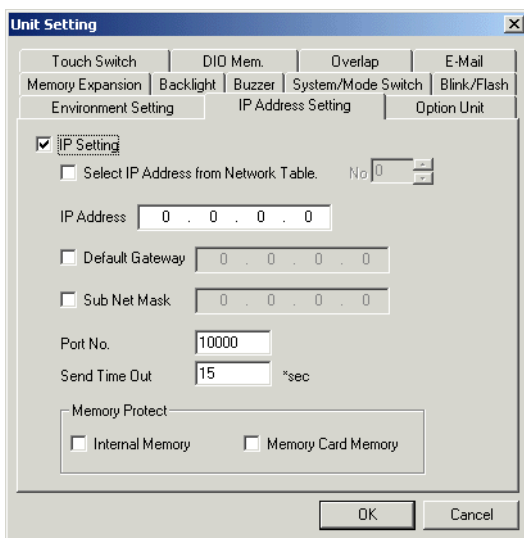
3. Set the following options.
   - IP Address
   - Default Gateway
   - Sub Net Mask
   - Port No.
   - Send Time Out
   - Memory Protect

4. Click the [OK] button and transfer the screen data. The IP address set above can be checked on the "Ethernet Information" screen to be displayed from the Main Menu screen.

Setting 4

Set the IP address on the V-SFT.

1. On the V-SFT editor, click [System Setting], [Unit Setting] and [IP Address Setting]. The [IP Address Setting] dialog is displayed.

2. Check [☐ IP Setting].

3. Check [☐ Select IP Address from Network Table]. Enter the network table number with which the V-series IP address is registered.
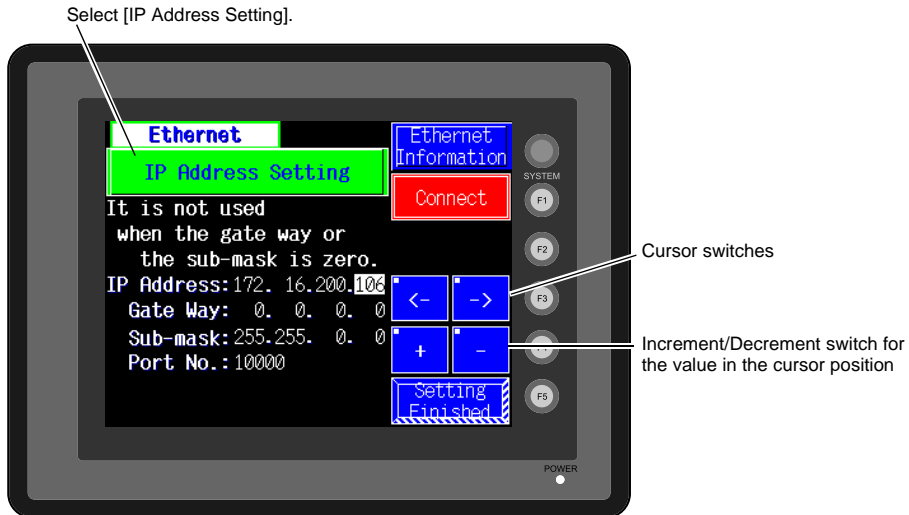

4. Click the [OK] button and transfer the screen data. The IP address set above can be checked on the "Ethernet Information" screen to be displayed from the Main Menu screen.

Changing the IP Address Temporarily
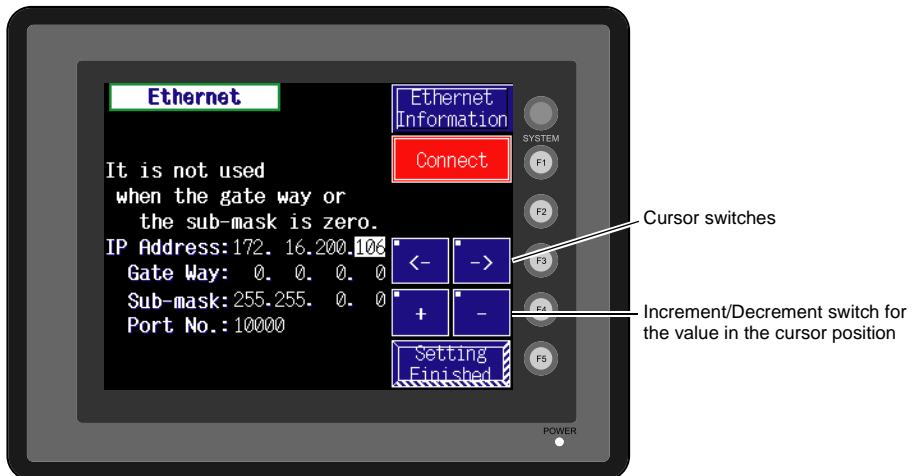
The IP address can be changed temporarily on the MONITOUCH screen.
The screen to be used varies depending on the method of IP address setting (page 6-31).
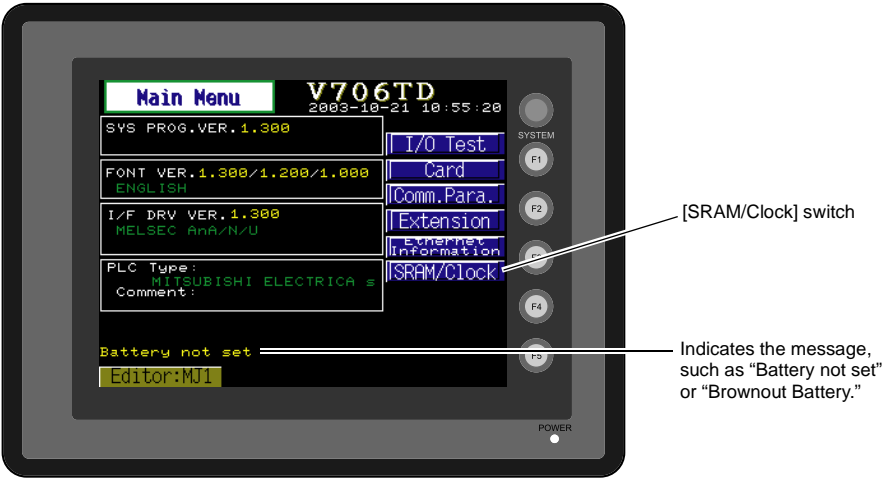
Setting 1/2

Select [IP Address Setting].

Cursor switches

Increment/Decrement switch for
the value in the cursor position

Setting 3/4

Cursor switches

Increment/Decrement switch for
the value in the cursor position

6.   SRAM/Clock

- To use the built-in clock of the V706, it is necessary to select [SRAM/Clock Setting] from the [System Setting] menu and make the SRAM/clock setting.
  For the setting procedure, refer to the Reference Manual (Function).

- Be sure to set the battery when using the built-in clock of the V706. Without 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.

[SRAM/Clock] switch

Indicates the message, such as "Battery not set" or "Brownout Battery."

- 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 and for initializing the SRAM area.

V706EM-S mounted: Extension
V706EM-S not mounted: Built-in
The above is displayed.
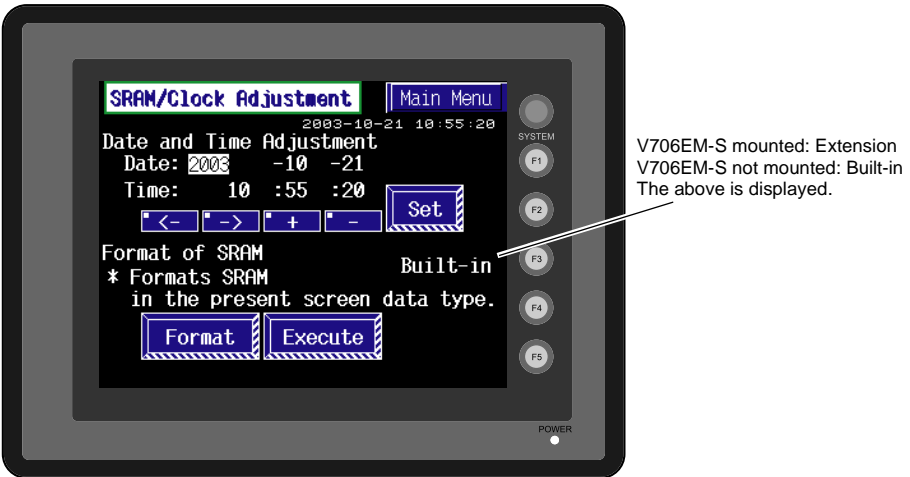
Date and Time Setting

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.

Initializing SRAM

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

1. Press the [Format] switch and the [Execute] switch.

2. The SRAM area is initialized in the current screen data format. When initialization has been completed, the message "∗∗Format Completed∗∗" is displayed.

7. 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.

Selects [Modem Comm. Baud Rate] or [V-Link Local No.].

F5
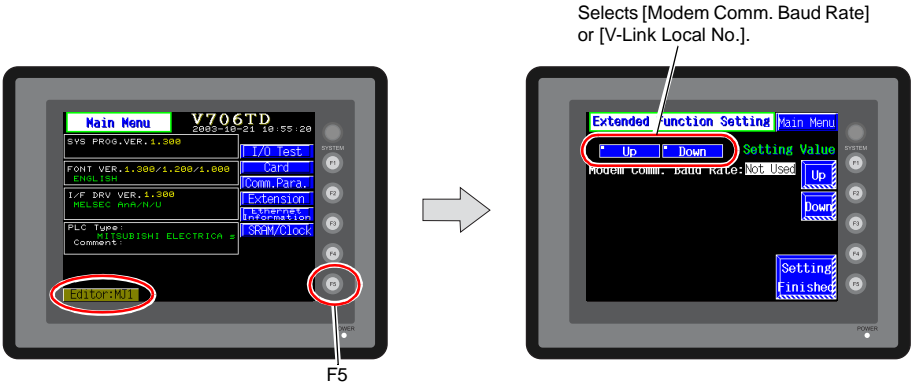
Baud Rate Setting for Modem Communication

Set the baud rate to be used when transferring screen data between the V706 and a modem.

1. Select the desired baud rate using the [Up] / [Down] 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] screen is displayed automatically. [Modem Connect Mode] automatically appears at the right of [Editor: MJ1].
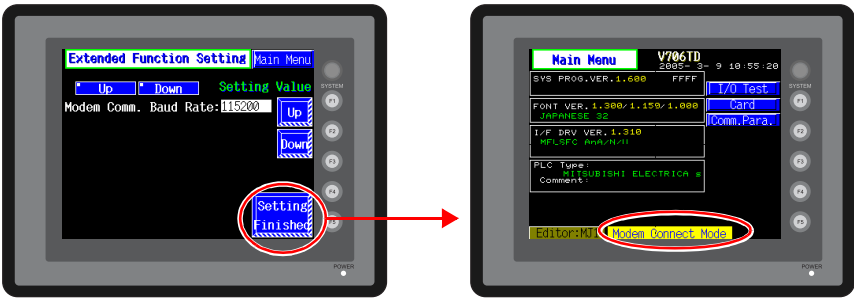
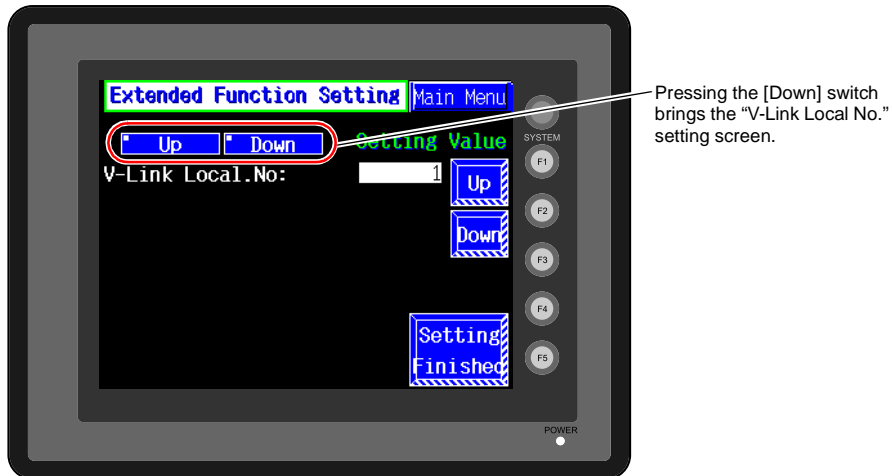Pressing the [Setting Finished] switch moves back to the Main Menu screen.

* 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].

V-Link Local Port Number Setting

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

  * This setting is available only when [Set Local No. in Main Manu.] of the [V-Link Setting] dialog in the [System Setting] menu is checked in V-SFT.

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 [Up] / [Down] switch, and press the [Setting Finished] switch.
   (Setting range: 1 to 254)

3. The Main Menu screen is automatically displayed again.

7 Error Correction
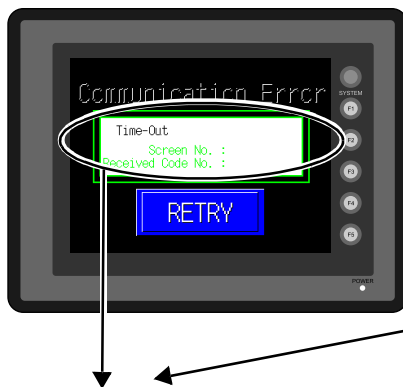
1. Error Messages
2. Troubleshooting
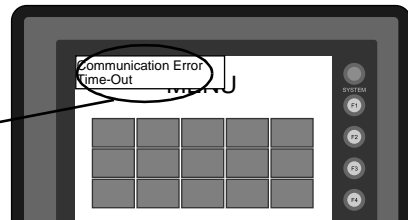
1. Error Messages

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
Timeout	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 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.

Solutions

1. Confirm link unit settings. (After making settings, cut power to the PLC.)

2. Go to 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, it is possible that there is a noise-based communication error.

   * 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.

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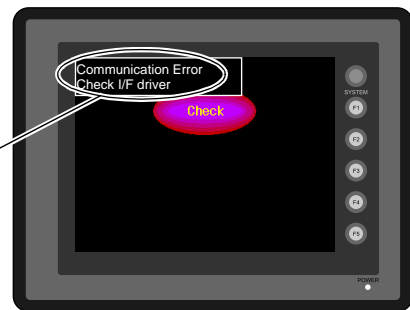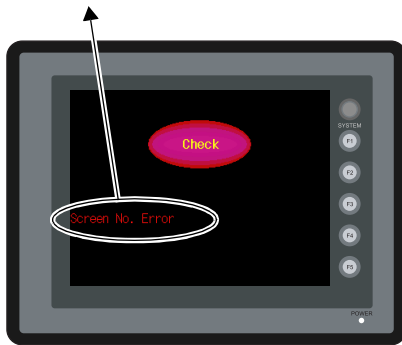
Error Message	Contents	Solution
Communication Error Check I/F driver	Although a request to send is given to the computer, no answer is returned within the specified time.	The I/F driver for simulator is transferred. If you do not use the simulator, uncheck [Use Simulator] before transferring data.

3.   Warning

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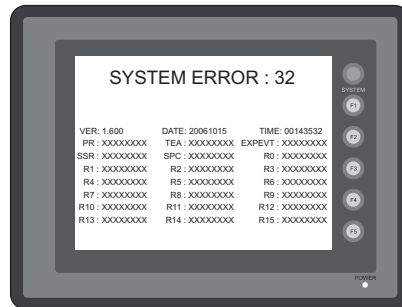This is a warning message.
For the warning details and solutions, refer to the Reference Manual (Function) and correct screen data.

Warning message
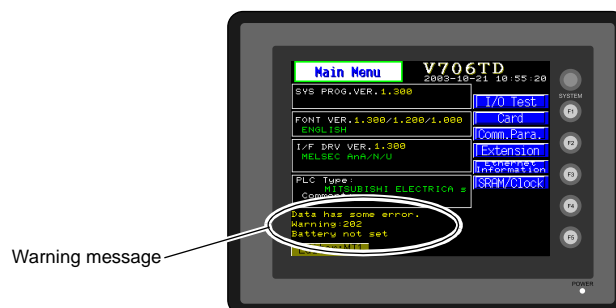
4. SYSTEM ERROR

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

```
SYSTEM ERROR : 32

VER: 1.600        DATE: 20061015      TIME: 00143532
PR : XXXXXXXX     TEA : XXXXXXXX  EXPEVT : XXXXXXXX
SSR : XXXXXXXX    SPC : XXXXXXXX       R0 : XXXXXXXX
R1 : XXXXXXXX     R2 : XXXXXXXX        R3 : XXXXXXXX
R4 : XXXXXXXX     R5 : XXXXXXXX        R6 : XXXXXXXX
R7 : XXXXXXXX     R8 : XXXXXXXX        R9 : XXXXXXXX
R10 : XXXXXXXX    R11 : XXXXXXXX      R12 : XXXXXXXX
R13 : XXXXXXXX    R14 : XXXXXXXX      R15 : XXXXXXXX
```

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 7-5).
If the problem persists, contact your local distributor.

5. Touch Switch is Active

If the power is turned off 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.

```
Check

Touch switch is active.
Keep hand off the screen.
```
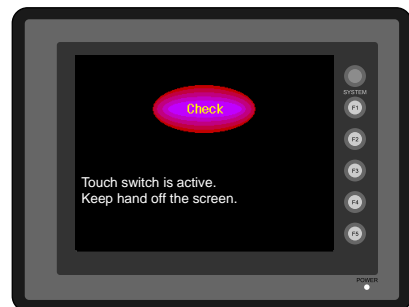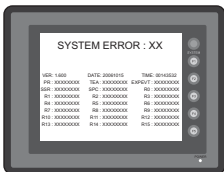
2.   Troubleshooting

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 the MONITOUCH model, serial number, symptom of the error, error message (if shown), etc.
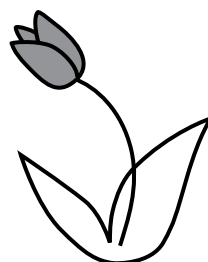
Probable Symptoms

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 the MONITOUCH settings. 3) The 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 6-7). If the test is not successful, please return the 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 the 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. SYSTEM ERROR : XX VER: 1.600 DATE: 20081015 TIME: 00143532 PR : XXXXXXXX TEX : XXXXXXXX EXPEVT : XXXXXXXX SSR : XXXXXXXX SPC : XXXXXXXX R0 : XXXXXXXX R4 : XXXXXXXX R5 : XXXXXXXX R6 : XXXXXXXX R7 : XXXXXXXX R8 : XXXXXXXX R9 : XXXXXXXX R10 : XXXXXXXX R11 : XXXXXXXX R12 : XXXXXXXX R13 : XXXXXXXX R14 : XXXXXXXX R15 : XXXXXXXX	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 the 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. 2) Perform a touch switch adjustment (page 6-14). 3) Return the 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 the MONITOUCH may be faulty.	1) The time for turning off the backlight can be changed on the V-SFT. 2) Return the 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 box on the V-SFT, 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. ↓ The 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 6-7).
	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 the MONITOUCH are the same. Also check if any error due to Ethernet connection occurs on the MONITOUCH. Transfer via USB Is the USB driver recognized? Has the driver been installed successfully (page 2-26)? If the problem persists, contact your local distributor.

7

Error Correction

MEMO

Please use this page freely.

8 Inspection and Maintenance

VICPAS
HMI Parts Center

1.   Inspection and Maintenance

<table>
<tr>
<td>⚠ DANGER</td>
<td>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.</td>
</tr>
</table>

Daily Inspection

- Check that the screws on the 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 +50°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 the 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 the 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 (case 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 the MONITOUCH for the model code and serial number (seven digits plus one letter of the alphabet).
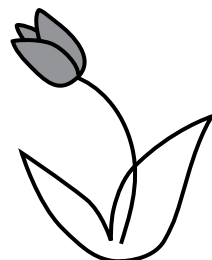
*2　Enter the version if it can be checked.
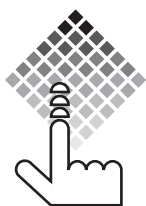The version is displayed on the Main Menu screen (page 6-5).

Serial number————

TYPE :V706TD
Ser No. :3080058　　a
INPUT :24VDC
CURRENT :0.6A
Hakko Electronics Co., Ltd.
MADE IN JAPAN

MEMO

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■ MONITOUCH