Specifications for V608CH

Hakko Electronics Co., Ltd.

Record of Revision

Printing Date	Reference No.	Revised Contents
July, 2001	1039NE0	First Edition
December, 2003	1039NE1	Second Edition (A partial revision) Information updated for V-SFT Ver. 2.1.0.0 •The recommended CF cards modified. •Available PLCs for multi-drop, multi-link2, and multi-link modified. •CF card setting added. •Attribute table partially modified. •CF card manager partially added.

Preface

Thank you for selecting the MONITOUCH V6 series.
For proper set-up, you are requested to read through this booklet to understand more about the product.

For more information about V6 series, refer to the following manuals.

Contents	Manual Name	Manual Number
Connection with PLCs, communication parameter setting, etc.	V6 Hardware Specifications	2006NEx
The V-SFT operating procedure is described.	Reference Manual (Operation)	1043NE
The functions and instructions of V7/V6 series are described.	Reference Manual (Function)	1044NE
V series creation examples	Tutorial	1022NE

For further details about the PLC, see the manual attached to each PLC.

Notes:
1. This booklet may not, in whole or in part, be printed or reproduced without the prior written consent of Hakko Electronics Co., Ltd.
2. Information in this booklet is subject to change without prior notice.
3. This booklet is intended to give information about MONITOUCH hardware.

Notes on safe usage of MONITOUCH

In this "Specifications for V608CH", you will find various notes categorized under the following three levels with the signal words "Danger," "Warning," and "Caution."
These signal words are to warn the user of possible misuse of the unit. To comprehend the critical notes on the safe procedure, you must go through this manual before you install MONITOUCH and operate it correctly.

DANGER

Danger
indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Warning
indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

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

Notes on System Design

WARNING

Never use the input function of MONITOUCH such as the touch switch for an emergency switch because it could threaten a human life or break a part of the unit.
Please design the system of the unit in order to respond to a malfunction of the touch switch.

CAUTION

Never bundle input/output cables with high-voltage and large-current cables such as power supply cables. Keep input/output cables at least 200mm away from power supply cables in order to avoid malfunction caused by noise.

As for the use in the facilities related to nuclear energy or in the facilities of official importance, please consult with our distributer about it.

Notes on Installation

CAUTION

Operate MONITOUCH under the conditions indicated by the manual.

If you don't set the conditions indicated by the manual for the unit, it could cause fire, malfunction, physical damage or deterioration.

Maintain the following conditions in order to avoid fire or trouble.

Don't let the unit come in contact with corrosive gas, flammable gas, solvents, grinding fluids or cutting oil.

Never let the unit be exposed to high temperature, high humidity, and other outside weather conditions.

Don't allow the unit to be exposed to excessive dust, salt, and metallic particles.

Don't allow the unit to be shaken or hit by other objects.

Equipment must be correctly mounted so that the main terminal will not inadvertently be touched during an application.

Notes on Cable Connection

DANGER	Turn off the power supply when you set up the system or connect the cables, otherwise you will get an electric shock or damage the unit.
CAUTION	Connect the cables correctly to the terminals of MONITOUCH in accordance with the specified voltage and wattage. Over-voltage, over-wattage and the incorrect cable connection could cause the unit to be damaged physically or functionally and also could result in fire.
	Ground FG terminal which must be for the unit. The level of grounding resistance is less than 100Ω.
	Prevent any conductive particles from entering into MONITOUCH. The conductive particles could cause fire, trouble, or malfunction of the unit.

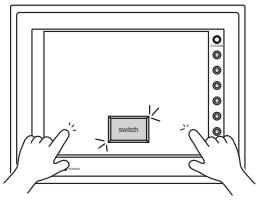
Notes on Maintenance and Operation

DANGER	Never touch the terminals while the power supply is on, otherwise you will get an electric shock.
	You must put the cover of the terminals on the unit when you turn on the power and operate it.
	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.

CAUTION

Hakko Electronics Co.,Ltd. is not responsible for an unauthorized person who may fix, disassemble, or reconstruct any unit.

Switch resolution of the MONITOUCH V608CH is determined by the analog-type resistance film. Do not press two or more positions on the screen at the same time.



Pressing two positions at the same time activates the switch in the center.

If two or more positions are pressed at the same time, the switch located between the pressed positions activates. Please take note of this.

Avoid displaying the same patterns for hours.
It may cause afterimages due to the property of LCD display. If you use the fixed patterns for hours, use the auto-OFF function of the backlight.

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Hardware Specifications

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12. Slide Switch
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1 Features

1) Handy-sized, Portable Unit
A slim, space-saving design makes the unit easily portable. It can be set up as either a wall-mount or desktop unit using the dedicated mounting hardware (optional; V6H-WF) or stand (optional; V6H-ST).

2) 128 Colors Displayable on the 7.7-inch LCD
Equipped with a high-intensity, high-resolution 7.7-inch STN color LCD, rich color display becomes possible on the 128-color V6 series screen. Bitmap files can also be displayed in extremely high quality.

3) VGA Display
A high-resolution VGA (640 dots by 480 dots) display is used. More information can be displayed on the screen.

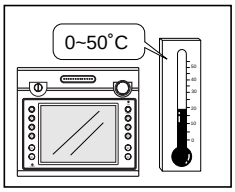
4) Safety Function
A push-lock-type emergency stop switch (forced open-circuit mechanism) is provided as standard.
Also, to prevent misoperations, a deadman switch (3-position switch available as an option) is provided.
It is possible to implement increased security by adding a key switch (optional) that restricts the operation only to the person who has the relevant key.

5) CF (Compact Flash) Card Supported
V6 series supports large-capacity CF cards.
- Saving screen data and system programs
  Since multiple screen data can be saved, it is possible to exchange screen data in the field.
- Saving memo pads
  Data in memo pads can be saved. Saved files can be converted into bitmap files using CF Card Manager included in V-SFT Editor.
- Saving patterns
  Patterns that are used for screens can be saved on the CF card. It is possible to save memory for screen data.
- Saving hard copy image as a file
  Screen display can be saved as a file using the macro command.
  Also, it is possible to convert it into a bitmap file using CF Card Manager included in V-SFT Editor.
- Reading and writing CSV files
  CSV files can be imported into V608CH using the macro command. Data in the PLC memory or V6 internal memory can be output to a CSV file.
- Sampling function
  Sampling data can be saved on the CF card. Sampling data can be converted into a CSV file using the macro command, which enables data editing on the computer.

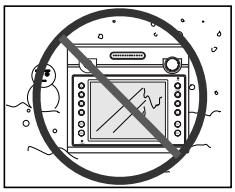
2 Notes on Usage

Environmental Limits

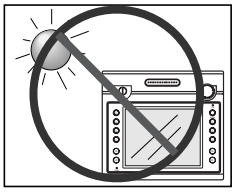
1. Use MONITOUCH at an ambient temperature of 0~50˚C, and a relative humidity of 85 %RH.



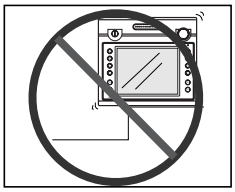
2. Avoid places where moisture may easily condense due to sudden temperature changes.



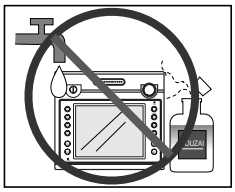
3. Avoid direct sunlight.



4. Never install MONITOUCH in a place where impacts or vibrations may be transmitted.

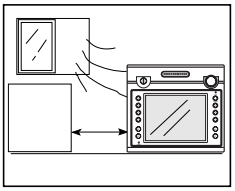


5. Avoid any place in which there is the possibility that water, corrosive gas, flammable gas, solvents, grinding fluids or cutting oil can come in contact with the unit. Never install the unit in a place where dust, salt and metallic particles are present.



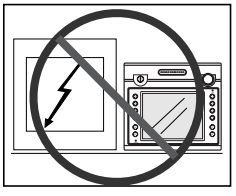
Locations

1. Secure sufficient space around MONITOUCH for ventilation.



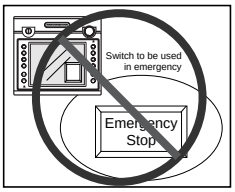
2. Never attach MONITOUCH to the top of any apparatus generating high levels of heat (heater, transformer, large-capacity resistor, etc.).

3. Never install MONITOUCH in the same compartment as high-voltage equipment. The unit should be at least 200 mm away from highvoltage lines or power cables.

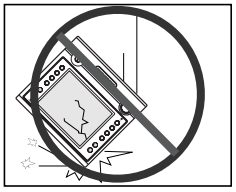


Usage

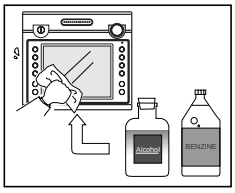
1. An emergency stop circuit must be composed of an external relay circuit with a start signal for MONITOUCH built in. Do not create switches on MONITOUCH to be used in case of emergency.



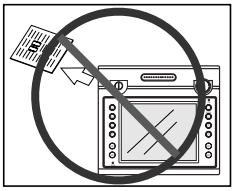
2. MONITOUCH has a glass screen. Never drop or subject the unit to strong impacts.



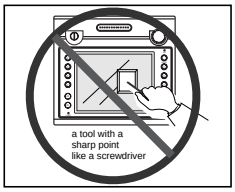
3. In a dry environment, MONITOUCH may generate a large amount of static electricity. Therefore, before touching the unit, touch a grounded metallic section to discharge the static electricity.
4. Application of thinner may discolor MONITOUCH. Use alcohol or benzine available commercially for cleaning.



5. Never remove any printed circuit board from MONITOUCH. (This will harm the unit.)



6. Never operate the display by using a tool with a sharp point like a screwdriver.
Touch the display by fingers.

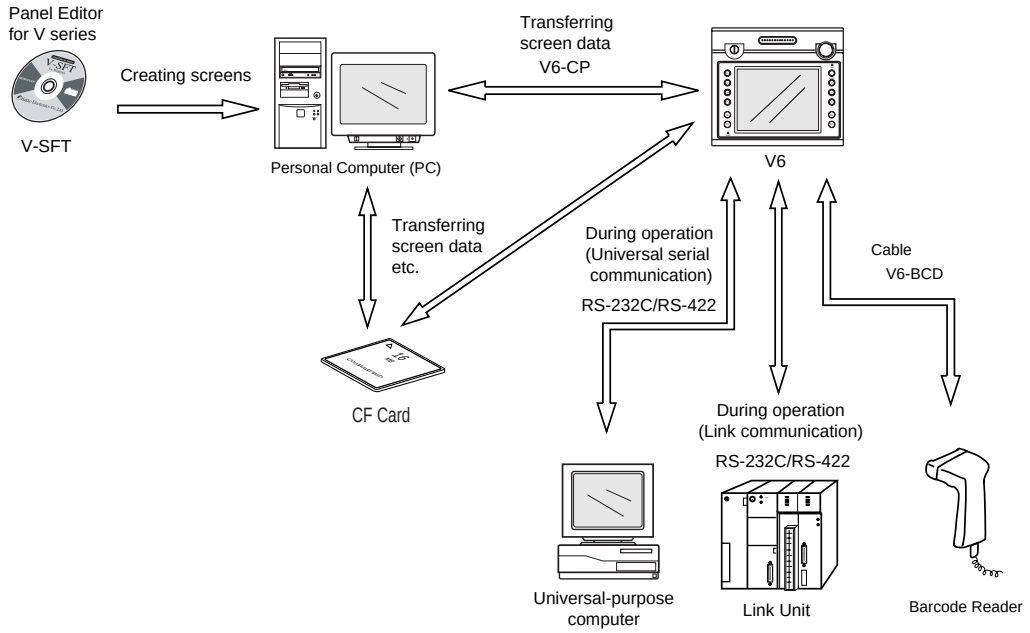


3 System Composition

System Composition / Model Indication / Peripheral Equipment / Recommended CF Cards

System Composition

The following illustration shows possible system configurations using V608CH.



List of Models

The characters on the right of model names represent optional features and special specifications.

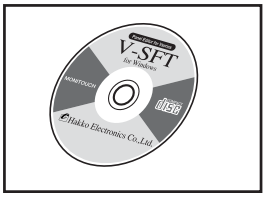
V608CH□

□	Deadman switch	Key switch
0	momentary	w/o
1	momentary	with
2	3-position	w/o
3	3-position	with

V608CH1-027
與標準品不同在於，沒有緊急停止開關，不附帶使用環境說明書

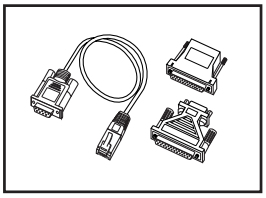
Peripheral Equipment

The following options are available for V6 series.



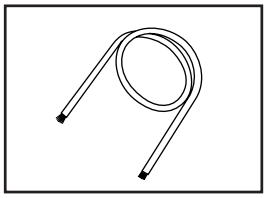
V-SFT

Application software for editing screen data
(for Windows98/NT4.0/Me/2000/XP)



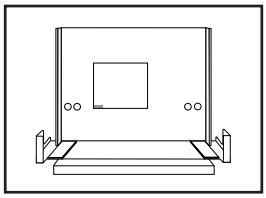
V6-CP (data transfer cable) 3 m

Connects V6 to a personal computer.



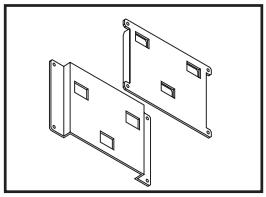
V6H-C☐ (external connection cable)
☐ : 3, 5, 15, 20 (m)

30-wire cable for PLC communication or power supply



V6H-ST (desktop stand)

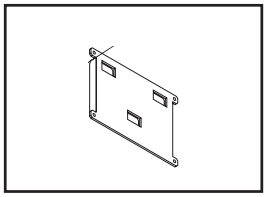
Stand for desktop use. The vertical angle can be set as desired.



V6H-WF (wall-mount bracket)

Mounting bracket for wall-mount use. Two pieces (one for the V6 and the other for the wall) makes a set.

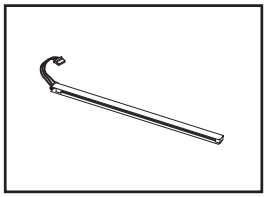
* This wall-mount bracket cannot be used if the modular jack is in use.



V6H-WF1 (wall-side piece of wall-mount bracket)

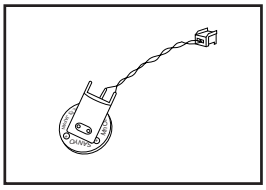
Mounting bracket for wall-mount use. This is the piece to be mounted on the wall.

* This wall-mount hardware cannot be used if the modular jack is in use.



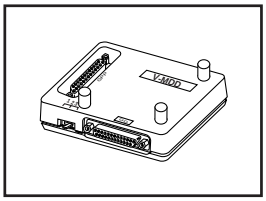
V608C-FL (backlight)

V608H backlight for replacement



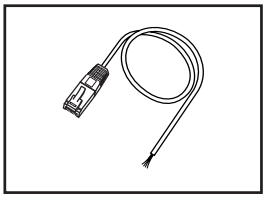
V6H-RB (battery)

Backup battery for the built-in clock



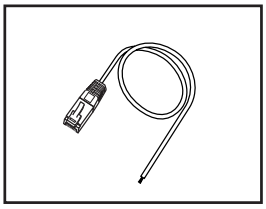
V-MDD (ACPU/QnACPU/FXCPU dual port interface)

Add-on connector with two ports, specifically designed for the connector on Mitsubishi's ACPU/QnACPU/FXCPU programmer. This interface can be used when connecting V6 series directly to Mitsubishi's ACPU/ QnACPU/FXCPU programmer.



V6-BCD (barcode reader cable) 3 m

Connects V6 and a barcode reader.



V6-TMP (V-link cable) 3 m

Connects V6 and a personal computer (PLC).

Recommended CF Cards

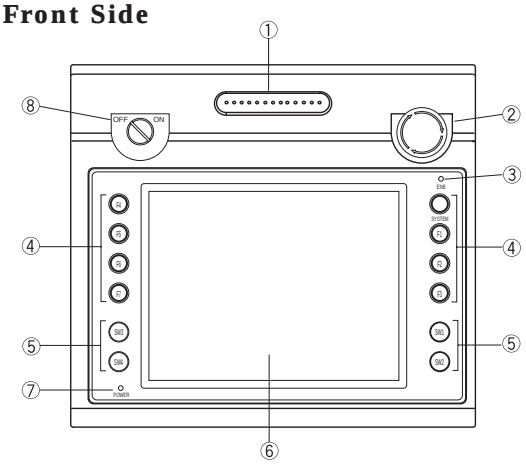
The recommended CF cards are shown in the following table.

Manufacturer	Type	Capacity
Kodak	KPCN-32	32MB
SanDisk	SDCFB-64-505	64MB
	SDCFB-xxxx-801	32MB
		64MB
		96MB
		128MB
		192MB
		256MB
		384MB
		512MB
		1GB
I•O Data Device	CFS-32MA	32MB
	CFS-xxM(HI)	32MB
		64MB
		128MB
		256MB
		512MB

Manufacturer	Type	Capacity
I•O Data Device	CFS-iVxxx	32MB
		64MB
		128MB
		256MB
		512MB
Hagiwara Sys-Com	HPC-CFxxZX	32MB
MELCO	RCF-xx	64MB
		128MB
		256MB
		512MB

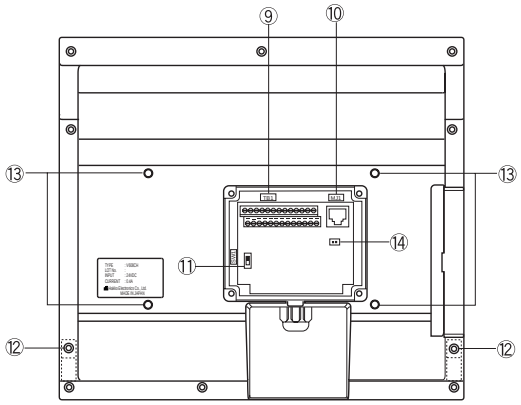
4 Names of Components

Front Side

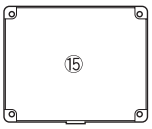


1. Deadman switch
   / 3-position switch (Option)
2. Emergency stop switch
3. ENB lamp
4. Function keys (refer to P2-16)
5. Output switches
6. Display
7. Power lamp
8. Key switch (Option)

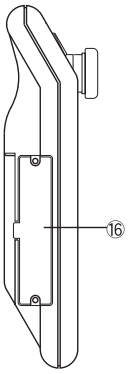
Rear Side



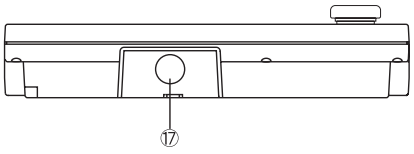
9. TB1 : Terminals for PLC communication,
   power supply and output (to outside)
10. MJ1 : for data transmission
11. SW1 : Terminal resistance (upper:on)
12. Mounting holes for cable clamp and neck strap
13. Mounting holes for bracket (V6H-WF : option)
14. Connector for battery (V6H-RB : option)
    maintaining the data of built-in clock
15. I/F cover



Side



Bottom



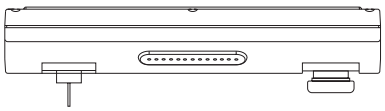
16. CF card interface
17. Mounting hole for communication cable

5 Dimensions

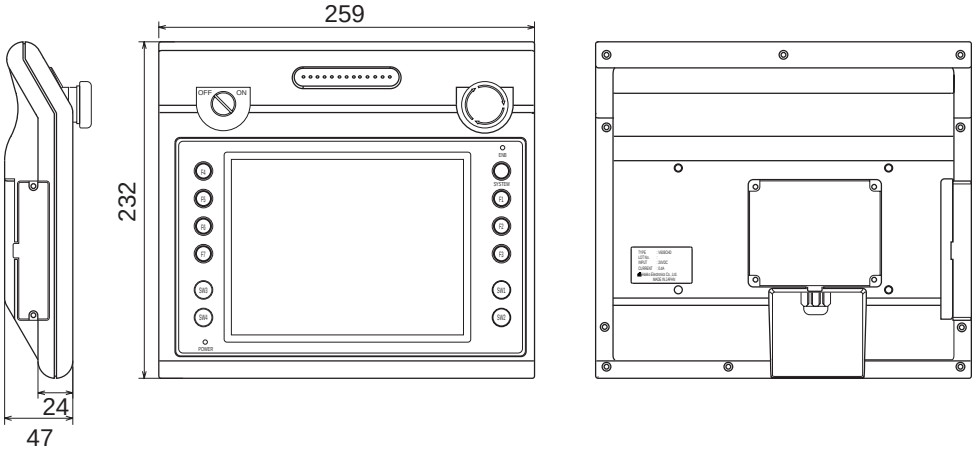
Dimensions of V608CH

Unit : mm

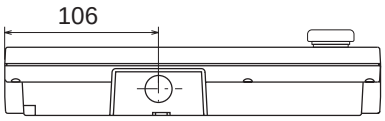
● Top view



● Side view ● Front view ● Rear view



● Bottom view



6 Specifications

General Specifications

Item \ Type		V608CH
Power Supply	Rated Voltage	24V DC
	Permissible Range of Voltage	24V±10% DC
	Permissible Momentary Power Failure	within 10ms (24VDC)
	Demand	20W or less
	Rushed Electric Current	13A 2ms
	With-stand voltage	DC external terminals to FG : 500V AC per min.
	Insulation Resistance	500V DC, 10MΩ or more
Physical Environment	Ambient Temperature	0℃~+50℃
	Storage Ambient Temperature	-10℃~+60℃
	Ambient Humidity	85% RH or less (without dew condensation)
	Dust	No conductive dust
	Solvent Resistance	No cutting oil or no organic solvent to cling to the unit
	Corrosive Gas	No corrosive gas
Mechanical Working Conditions	Vibration Resistance	Vibration frequency: 10~150Hz, Acceleration: 9.8m/s^2 (1.0G) 3 directions of X, Y and Z: one hour
	Shock Resistance	Pulse shape: Sine half wave, Peak acceleration: 147m/s^2 (15G), 3 directions of X, Y and Z: six times
Electrical Working Conditions	Noise Resistance	Noise voltage: 1000Vp-p, noise width: 1μs
	Static Electricity Discharge Resistance	Contact: 6kV , Air: 8kV
Mounting Conditions	Grounding	Grounding resistance: less than 100Ω
	Structure	Protection structure: complies with IP65 (when using I/F cover) excluding V608CH2, V608CH3 Form: in a body Mounting procedure: Hold, Hang, Stand
	Cooling System	Cooling naturally
	Weight	Approx. 1.2kg
	Dimensions W X H X D (mm)	259 X 232 X 47 (Excluding Emargency switch)
	Case Color	Equivalent to the Munsell color system N-2.0 (Black)
	Material	PC/ABS

Display Specificarions

Item	Specifications
Display Device	STN color LCD
Resolution W X H (dots)	640 X 480
Dot Pitch W X H (mm)	0.082 X 0.246
Effective Display	Size 7.7 inches
Color	128 colors + 16 blink colors
Backlight	Cold-cathode tube (replaceable by the user)
Average Backlight Life *	Approx. 40,000 h
Auto Light OFF Function	Always ON / Auto OFF
Contrast Adjustment	Adjustable with a function switch
POWER Lamp	ON when the power is on
ENB Lamp	ON when the screen is operable
Surface sheet	Material : PET

* Room temperature of 25°C is assumed.
The backlight life is regarded as expired when brightness is decreased to 50% of the initial level.

Touch Panel Specifications

Item	Specifications
Switch Resolution	1024 (W) X 1024 (H)
Type	Analog resistance film
Average Mechanical Life	1 million actuations or more
Surface Treatment	Hard-coated, 5% non-glare treatment

Function Switch Specifications

Item	Specifications
Number of Switches	12 (4: external direct output)
Switch Type	Membrane switch
Average Mechanical Life	1 million actuations or more

Emergency Stop Switch Specifications

Item	Specifications
Number of Switches	1
Type	Push-lock type (2 "b" contacts, common)
Average Mechanical Life	100 thousand actuations or more
Rating	Rated using voltage 24V Resistance load 1.0A

Deadman Switch Specifications

Item	Specifications
Number of Switches	1
Type	Momentary type (1 "a" contact)
Average Mechanical Life	1 million actuations or more

3-position Switch Specifications (Optional)

Item	Specifications
Number of Switches	1
Number of Contacts	1 “a” contact (double interrupt, slow action)
Average Mechanical Life	1 million actuations or more (1P→2P→1P) 100 thousand actuations or more (1P→2P→3P)
Operating Pressure (Reference)	Pressure required for direct circuit actuation: 30 N or more

Key Switch Specifications (Optional)

Item	Specifications
Number of Switches	1
Number of Contacts	1 "a" contact
Average Mechanical Life	250 thousand actuations or more
Average Electrical Life	100 thousand actuations or more (open/close frequency: 1200 times/h)
Rating	Rated using voltage 24V Resistance load 1.0A

Interface Specifications

Item	Specifications
Multi-step Terminal Block (TB1) • PLC connection • Power supply • External output	RS-232C, RS-422/485 Asynchronous mode Data length: 7, 8 bits Parity: even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115200 bps
8-pin Modular Jack (MJ1) • Screen data transfer • V-Link • Barcode * I/F cover or wall-mount hardware unusable	RS-232C Data length: 7, 8 bits Parity: even, odd, none Stop bit: 1, 2 bits Baud rate: 4800, 9600, 19200, 38400, 57600, 76800, 115200 bps

Display Function Specifications

Item		Specifications				
Display Language*		Japanese	Eng./W. Europe	Chinese	Chinese (simplified)	Korean
Characters	1/4-size, 1-byte	ANK code	Latin 1	ASCII code	ASCII code	ASCII code
	2-byte (16-dot)	JIS 1st and 2nd	———	Chinese	Chinese (simplified)	Hangul (without Kanji)
	2-byte (32-dot)	JIS 1st	———			
Size of Characters		1/4-size : 8 X 8 dots 1-byte : 8 X 16 dots 2-byte : 16 X 16 dots or 32 X 32 dots Enlarge : W, 1-8 H, 1-8				
Number of Characters		Resolution	640 X 480			
		1/4-size	80 columns X 60 lines			
		1-byte	80 columns X 30 lines			
		2-byte	40 columns X 30 lines			
Property of Characters		Display property : normal, reverse, blinking, bold, shadow Color : 128 colors + blinking 16 colors				
Kind of Drawing		Lines : line, continuous lines, box, parallelogram, polygon Circles : circle, arc, sector, ellipse, elliptical arc, elliptical sector Others : tile patterns				
Property of Drawing		Type of lines : 6 types (fine, thick, dot, chain, broken, two-dot chain) Tile patterns : 16 types (incl. user-definable 8 types) Display property : normal, reverse, blinking Display color : 128 colors + blinking 16 colors Color specification : foreground, background, boundaries (line)				

*The following fonts are also available.

For the details of Gothic, Central Europe, Cyrillic, Greek, and Turkish, refer to "Reference Manual (Operation)" and "V-SFT Additional Specifications."

Drawing Environment

Item	Specifications
Editing Method	Exclusive editing software
Editing Tool	Name of exclusive editing software : V-SFT (ver.1.2.18.0 or later) Personal computer : Pentium II 450MHz or more is recommended OS : Microsoft Windows 98/Me/NT version 4.0/2000/XP Capacity of hard disk required : free area of approx. 460MB or more Display : Resolution of 800 X 600 or more is recommended

Function Performance Specifications

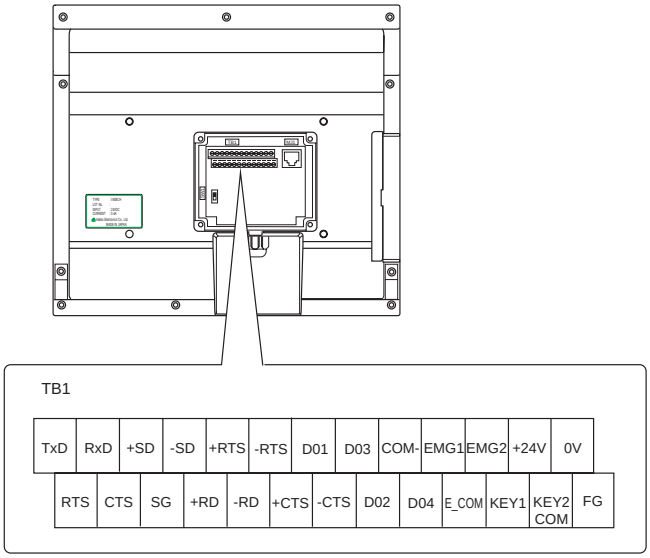
Item		Specifications
Screens		Max. 1024
Screen Memory		FP-ROM (flash ROM), Appox. 2,760kbytes (different from the language)
Switches		768 per screen
Actions of Switch		Set, reset, momentary, alternate, to light (possible to press a function switch and a display switch at the same time)
Lamps		Reverse, blinking, exchange of graphics 768 per screen
Graphs		Pie, bar, panel meter and closed area graph can be displayed without limit. Total capacity per screen: within 128kB Statics and trend graphs: Max. 256 per layer *1
Data Setting	Numerical Data Display	No limits, total capacity per screen: within 128 kB
	Character Display	No limits, total capacity per screen: within 128 kB
	Message Display	Resolution : 640X480, Max. 80 characters No limits, total capacity per screen: within 128 kB
Messages		6144 lines
Sampling		Sampling display of buffer data (constant sample, bit synchronize, bit sample, relay sample, alarm function)
Multi-Overlaps		Max. 1024
Data Blocks		Max. 1024
Graphic Libraries		Max. 2560
Patterns		Max. 1024
Macro Blocks		Max. 1024
Page Blocks		Max. 1024
Direct Blocks		Max. 1024
Screen Blocks		Max. 1024
Calendar		provided
Buzzer		provided, 2 types (intermittent short and long sounds)
Back-light Auto OFF Function		ON at all time, specified freely
Self-diagnostic Function		Self-test function of switches Check function of communication parameter setting Check function of communication

*1 Layer : 4 per screen (base + 3 overlaps)

7 Terminal Block (TB1)

1. Signal Assignment (TB1)

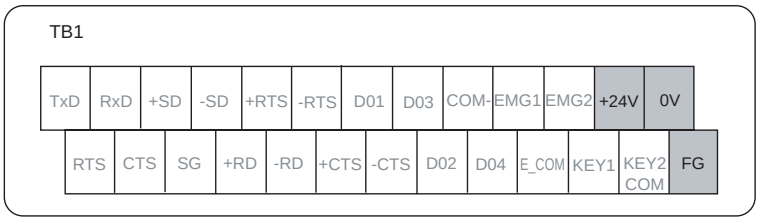
Pin arrangement is shown below:



Signal Name	Contents	Signal Name	Contents
TXD	RS-232C send data	RTS	RS-232C control signal
RXD	RS-232C receive data	CTS	RS-232C control signal
+SD	RS-485 send data (+)	SG	Signal ground
-SD	RS-485 send data (-)	+RD	RS-485 receive data (+)
+RTS	RS-485 control signal	-RD	RS-485 receive data (-)
-RTS	RS-485 control signal	+CTS	RS-485 control signal
D01	External output switch 1	-CTS	RS-485 control signal
D03	External output switch 3	D02	External output switch 2
COM-	External output switch common	D04	External output switch 4
EMG1	Emergency stop 1	E_ COM	Emergency stop 1, 2 common
EMG2	Emergency stop 2	KEY1	Key switch 1
+24V	Power supply	KEY2 COM	Key switch 2
0V	Ground	FG	Frame ground

2. Power Supply Terminal

Connect the power supply cable to the shaded positions.



Power Cable Connection

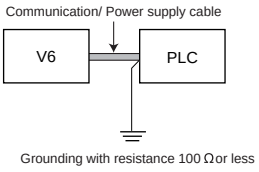
- A power supply source within the allowable voltage fluctuation should be used.
- Use a power supply source with low noise between cables, and between cables and the ground.
- To reduce a possible voltage drop, use a thicker cable.
- Keep the 24-VDC line sufficiently away from high-voltage, large-current cables.

Grounding

Make sure that MONITOUCH is well grounded. (grounding resistance less than 100 ohm or less)

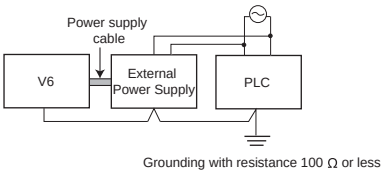
To supply the power from PLC

- Connect FG on the side of the unit to the PLC earth, and ground the PLC earth.

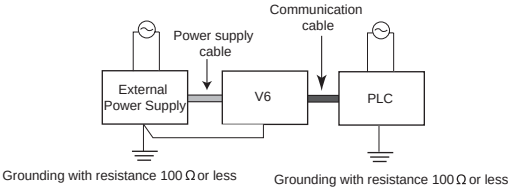


To supply the power from the external unit

- Connect FG on the side of the unit to the PLC earth, and ground the PLC earth if the input power supply between PLC and the external equipment is the same.



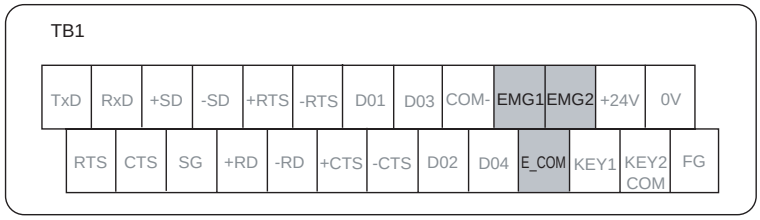
- Ground individually if the input power supply between them is different.



- If the grounding conductor is shared or if the grounding cable is connected to a beam of the building, a harmful influence may be exerted. Be sure to avoid such connection.
- If grounding causes a malfunction, separate the FG terminal from the grounding conductor.

3. Emergency Stop Switch

The emergency stop switch signal is output. Connect the cable to the shaded positions.

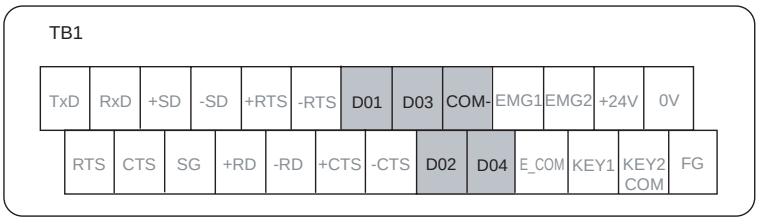


Emergency Stop Switch Specifications

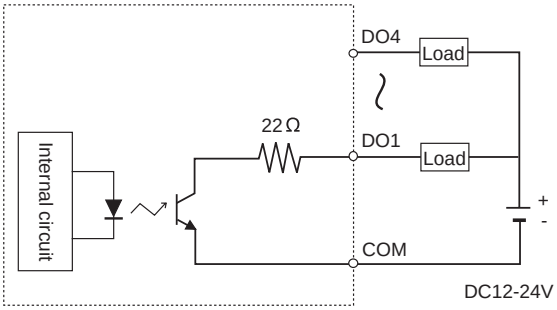
Item	Specifications
Number of Switches	1
Type	Push-lock type (2 "b" contacts, common)
Average Mechanical Life	100 thousand actuations or more
Rating	Rated using voltage 24V Resistance load 1.0A

4. External Output Switches

The external output switch signal is output to the external equipment. Connect the cable to the shaded positions.



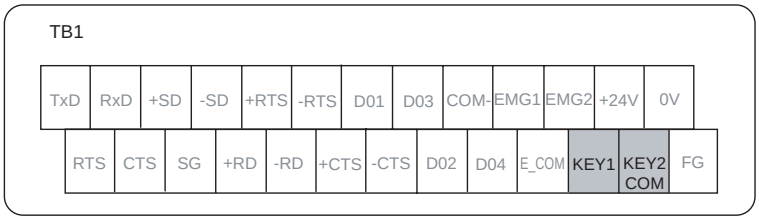
External Output Switch Specifications

Item	Specifications
Number of Output	Points 4
Output Form	Synchronous output
Rated Voltage	12 to 24 VDC
Max. Drive Current	50 mA
Insulation	Photo coupler insulation
Circuit Diagram	

Do not use the external output switch for emergency.

5. Key Switch (Optional)

The key switch signal is output. Connect the cable to the shaded positions.

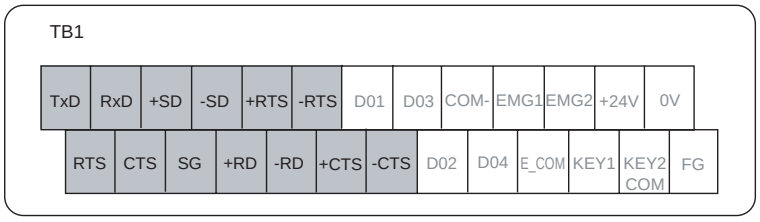


Key Switch Specifications

Item	Specifications
Number of Switches	1
Number of Contacts	1 "a" contact
Average Mechanical Life	250 thousand actuations or more
Average Electrical Life	100 thousand actuations or more (open/close frequency: 1200 times/h)
Rating	Rated using voltage 24V Resistance load 1.0A

6. Serial Interface

PLC communication can be performed through the serial interface. Connect the cable to the shaded positions.



Interface Specifications

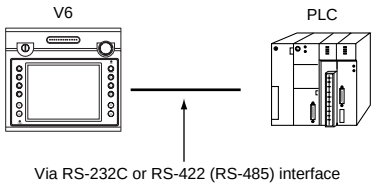
Item	Specifications
Signal Level	RS-232C or RS-422/485
Baud Rate	4800, 9600, 19200, 38400, 57600, 76800, 115200
Parity	Even, odd, none
Data Length	7, 8 bits
Stop Bit	1, 2 bits
Connection	Terminal block connection

7. Connection

Three kinds of V6 to PLC connection styles are available as shown below.

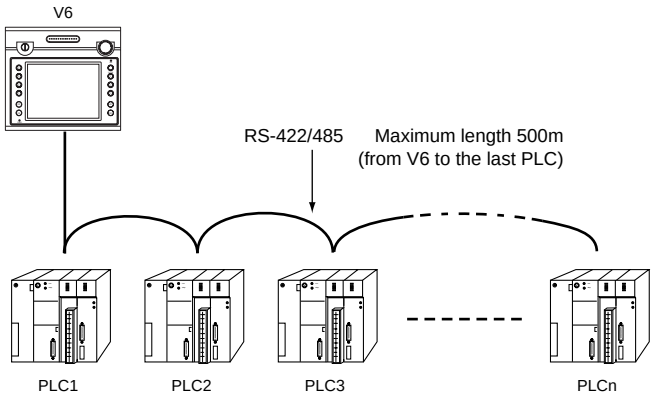
1:1 Connection

Connect one V6 to one PLC (1:1).
Refer to [8. 1:1 connection] page 1-21.



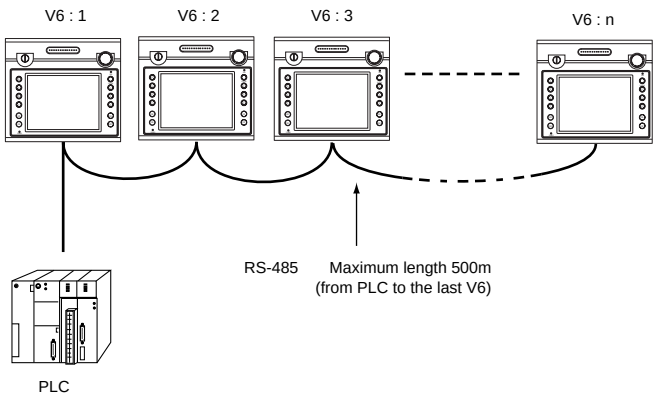
1:n Link Communication (Multi-drop)

Refer to [9. 1:n Link Communication] page 1-23.



n : 1 Link Communication (Multi-Link)

Refer to [10. n:1 Link Communication] page 1-25.



8. Cables

- Use cables of OD ø8.5 to 10.5 mm.
  If a cable less than ø8.5 mm in diameter is used, IP65 cannot be retained.
- Recommended cables
  Use Hakko Electronics's cable "V6H-C ☐ (☐ : 3.5, 15, 20 m)."
- Tighten terminal screws within the following torque range when connecting the cable.

Screw Size	Tightening Torque	Single Cable	Twisted Cable
M2	0.22-0.25N·m	0.14-1.5mm^2	0.14-1.0mm^2

Do not tin core wires.

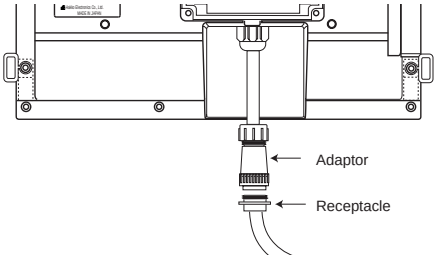
- Recommended bar terminals

Manufacturer	Type
Phoenix Contact	AI0.25-6YE AI0.34-6TQ AI0.5-8WH

- Recommended connectors

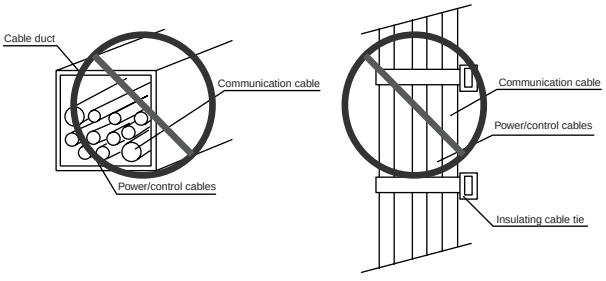
Manufacturer	Name	Type
Nanaboshi Electric	Adaptor	NJW-2831-PM
	Receptacle	NJW-2831-RF

<Example>



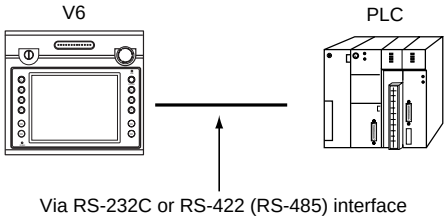
Note on Communication Cable Connection

- Do not connect the communication cable together with the electric circuit.
- Do not tie the communication cable with electric cables in the duct as shown at right. Doing so may cause a noise problem.
- Connect the communication cable independently from other cables.



8 1:1 Connection

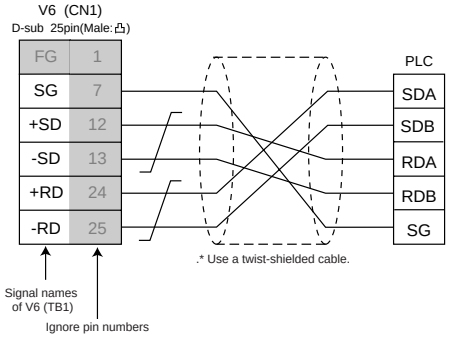
Connect one V6 to one PLC (1:1).



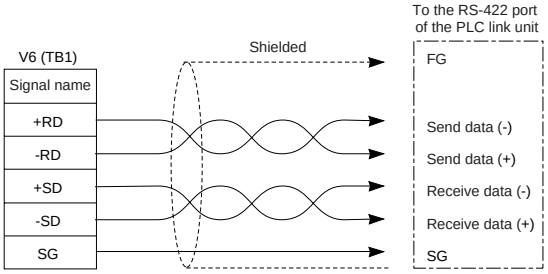
RS-422 (RS-485) Communication

For more information on connection with PLCs, refer to "V6 Hardware Specifications."
Match signal names between V608CH (TB1) and V6 (CN1) (shown in connection diagrams included in "V6 Hardware Specifications") for connection. Ignore pin numbers of V6 (CN1).

<Example>
When connecting V6 with MITSUBISHI's calculator link unit A1SJ71UC24-R4:
Refer to connection diagram 3 (page 2-1) in "V6 Hardware Specifications."



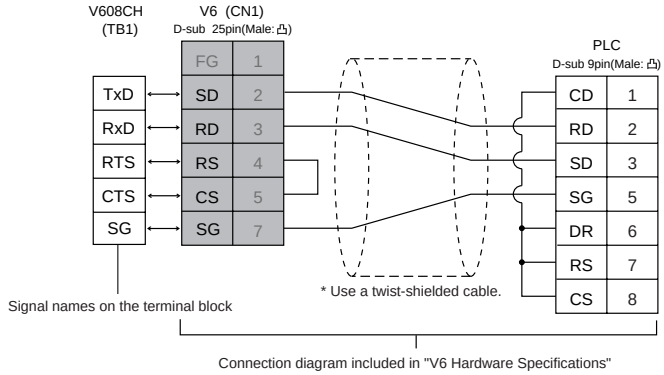
- In the case of RS-422 interface, +SD/-SD and +RD/-RD are paired.
- If SG is present, connect the wire.
- Connect the shielded cable to PLC.
- Set the terminating resistance with the Slide switch. (Refer to "12. Slide Switch.")



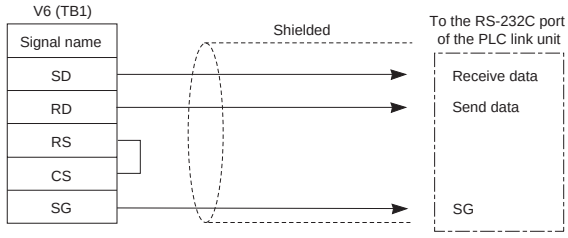
RS-232C Communication

For more information on connection with PLCs, refer to “V6 Hardware Specifications.”
Match signal names between V608CH (TB1) and V6 (CN1) (shown in connection diagrams included in “V6 Hardware Specifications”) for connection. Ignore pin numbers of V6 (CN1).

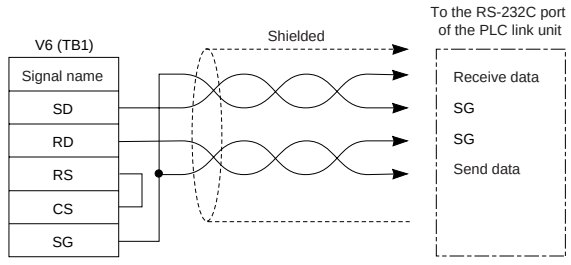
<Example>
When connecting V6 with MITSUBISHI's calculator link unit A1SJ71UC24-R2:
Refer to connection diagram 1 (page 2-1) in “V6 Hardware Specifications.”



- Connect the shielded cable to either V6 or PLC.

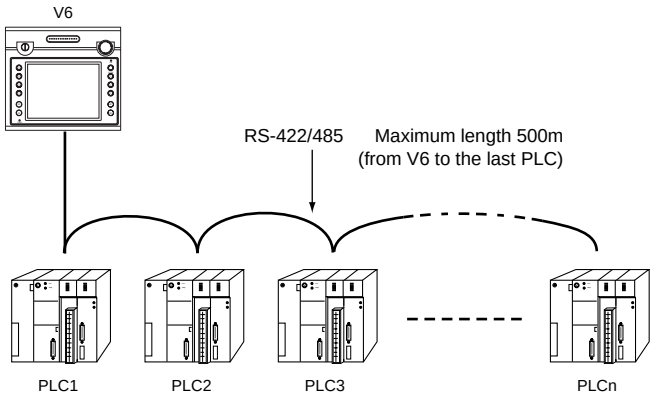


- When the communication between V6 and PLC is not performed properly due to noise, SD/SG and RD/SG are paired.



9 1:n Link Communication (Multi-drop)

One V6 and multiple PLCs are connected. (n = 1 to 32)



Available PLC for multi-drop communication

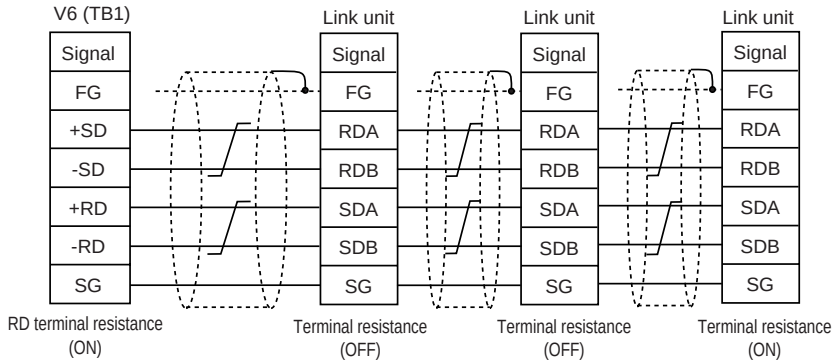
Manufacturer	Models
MITSUBISHI ELECTRIC	A series link, QnA series link, QnH(Q) series link, A link+Net10, FX series link(A prt)
OMRON	SYSMAC C, SYSMAC CV, SYSMAC CS1/CJ1, SYSMAC CS1/CJ1 DNA
SHARP	JW series, JW100/70H COM port, JW20 COM port
Hitachi	HIDIC-H
Matsushita Electric Works	MEWNET
Yokogawa Electric	FA500, FA-M3, FA-M3R
Yaskawa Electric	MEMOBUS, CP9200SH/MP900
Toyoda Machine Works	TOYOPUC
Fuji Electric	MICREX-F series, FLEX-PC series, FLEX-PC COM(T)
KOYO ELECTRONICS	SU/SG, SR-T
Allen-Bradley	PLC-5, SLC500, Micro Logix 1000
GE Fanuc	90 series
TOSHIBA	T series
Siemens	S7-200 PPI, S7-300/400MPI*
SHINKO ELECTRIC	SELMART
SAMSUNG	SPC series, N_plus, SECNET
KEYENCE	KZ series link, KZ/KV series CPU
LG	MASTER-K500/1000, MASTER-KxxxS CNET, GLOFA CNET
FATEK AUTOMATION	FACON FB series
IDEC	MICRO3, MICRO Smart
MODICON	Modbus RTU
TAIAN	TP02
	Universal Serial

* Up to 4 PLCs can be connected to one V6.

Multi-drop Communication (RS-422)

Refer to the PLC manual of each manufacturer for connection.

<E.g.>
The following example describes how one V6 is connected to three PLCs made by MITSUBISHI.
See MITSUBISHI's manual for further details.



* Use a twist-shielded cable.

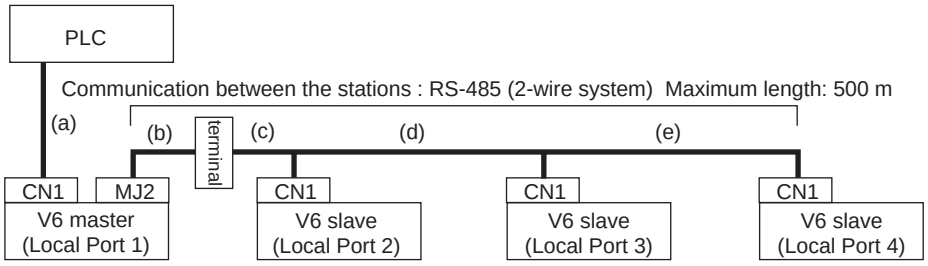
10 n : 1 Link Communication

Multi-link2

Up to 4 units can be connected to one PLC.

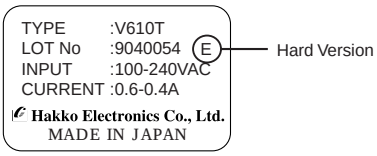
* Between a PLC and the V6 master station is the same as those for 1:1 communication.

V608CH works as only slave station.



- For the I/F driver, the Multi-Link 2 is supported by the version of 1.100 or later
- To use V608CH for slave station, the hardware version of the V6 master station makes sure as follows. The hardware version record [LOT No] of V6 is on the rear side.

master station	Hardware Version	
	Analog type	Matrix type
V612T	D or later	All Hardware version
V612C	C or later	
V610S	D or later	
V610T	D or later	
V610C	C or later	
V608C	F or later	



***** The Multi-Link 2 cannot be used with a communication interface unit such as CU-00, 01, 02, 03, 04, 05.

* The Multi-Link 2 cannot be used with Temperature control network.

Available PLCs for multi-link2.

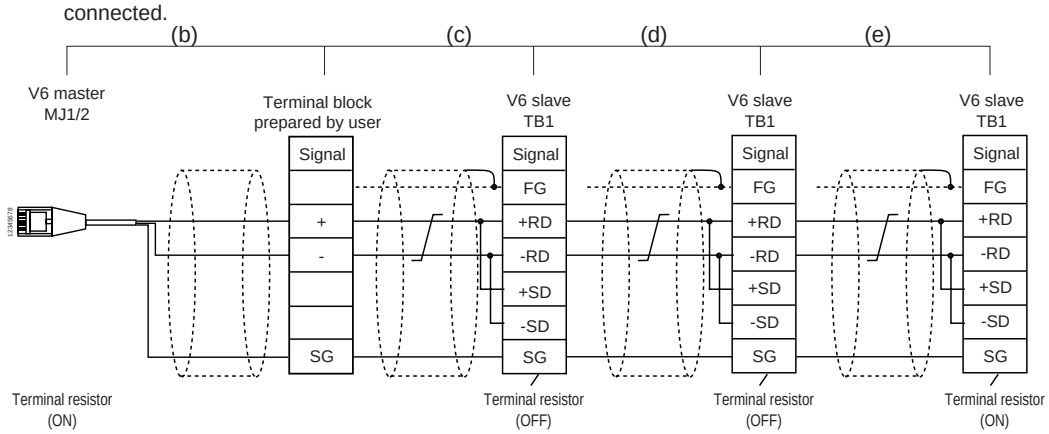
As of December 2003, the PLCs supported are as follows. All the PLCs which are usable for 1:1 communication will be supported.

Manufacturer	Models
MITSUBISHI ELECTRIC	A series link, A series CPU, QnA series link, QnA series CPU, QnH(Q) series link, QnH(A) series CPU, QnH(Q) series CPU, Q00J/00/01 CPU, FX series CPU, FX2N series CPU, FX1S series CPU, FX series link(A prt)
OMRON	SYSMAC C, SYSMAC CV, SYSMAC CS1/CJ1
SHARP	JW series, JW100/70H COM port, JW20 COM port
Hitachi	HIDIC-H, HIDIC-S10/2alpha, HIDIC-S10/ABS
Matsushita Electric Works	MEWNET
Yokogawa Electric	FA500, FA-M3, FA-M3R
Yaskawa Electric	MEMOBUS, CP9200SH/MP900
Toyoda Machine Works	TOYOPUC
Fuji Electric	MICREX-F series, MICREX-F series V4, FLEX-PC series, FLEX-PC CPU, FLEX-PC COM(T), FLEX-PC series(T), FLEX-PC CPU(T)
KOYO ELECTRONICS	SU/SG, SR-T, SR-T(K prt), SU/SG(K-Sequence)
Allen-Bradley	PLC-5, SLC500, Micro Logix 1000, Control Logix
GE Fanuc	90 series, 90 series(SNP-X)
TOSHIBA	T series, EX series
TOSHIBA MACHINE	TC200
Siemens	S5, S5 PG port, S5 V4, S7, S7-300MPI(HMI ADP), S7-300MPI(PC ADP), S7-300MPI(Helmholz SSW7 ADP), TI500/505, TI500/505 V4
SAMSUNG	SPC series, N_plus, SECNET
KEYENCE	KZ series link, KZ-A500 CPU, KZ/KV series CPU, KZ24/300 CPU, KV10/24 CPU, KV-700 CPU
LG	MASTER-K10/60/200, MASTER-K500/1000, MASTER-KxxxS, MASTER-KxxxS CNET, GLOFA CNET, GLOFA GM series CPU
FANUC	Power Mate
FATEK AUTOMATION	FACON FB series
IDEC	MICRO3, MICRO Smart
MODICON	Modbus RTU
Yamatake	MX series, DMC50
TAIAN	TP02

Example of a connection between V6 units.

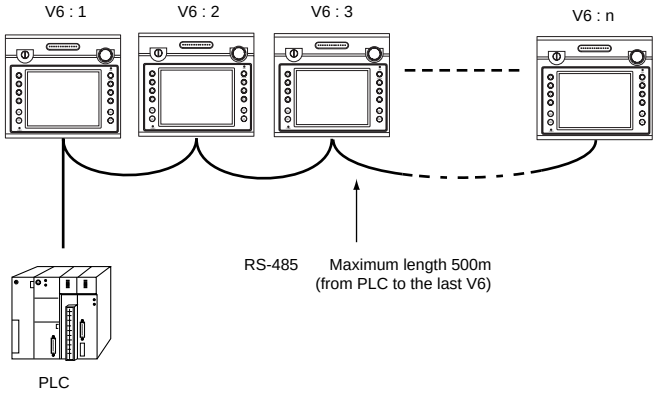
See Multi-link2 manual for further details.

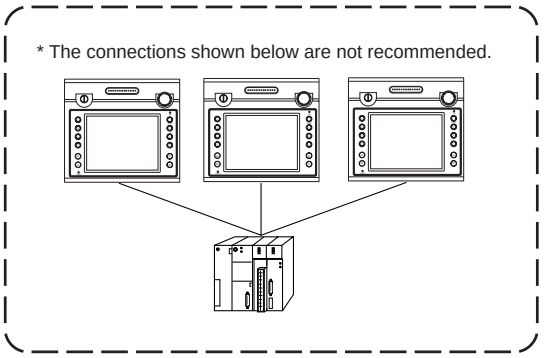
* In order to avoid noise, wire the shielded FG only at the one of both sides so that they are not connected.



Multi-link

Multiple V6 and a PLC are connected. (n=1 to 32)





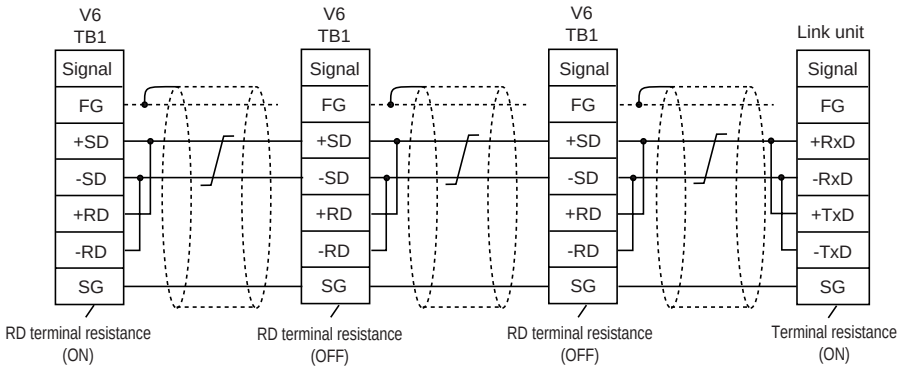
Available PLCs for multi-link

Manufacturer	Models
MITSUBISHI ELECTRIC	A series link, Alink+Net10, FX series link(A prt) QnA series CPU (with V-MDD)
SHARP	JW series, JW100/70H COM port, JW20 COM port
Hitachi	HIDIC-H
Matsushita Electric Works	MEWNET
Yokogawa Electric	FA500, FA-M3, FA-M3R
Toyoda Machine Works	TOYOPUC
Fuji Electric	MICREX-F series, FLEX-PC COM(T)
TOSHIBA	T series
Siemens	S7-200 PPI, S7-300/400MPI*
SHINKO ELECTRIC	SELMART
SAMSUNG	SPC series, N_plus, SECNET
LG	MASTER-K500/1000

* Up to 3 units can be connected to one PLC.

When multiple V6 are connected to a link unit of PLC

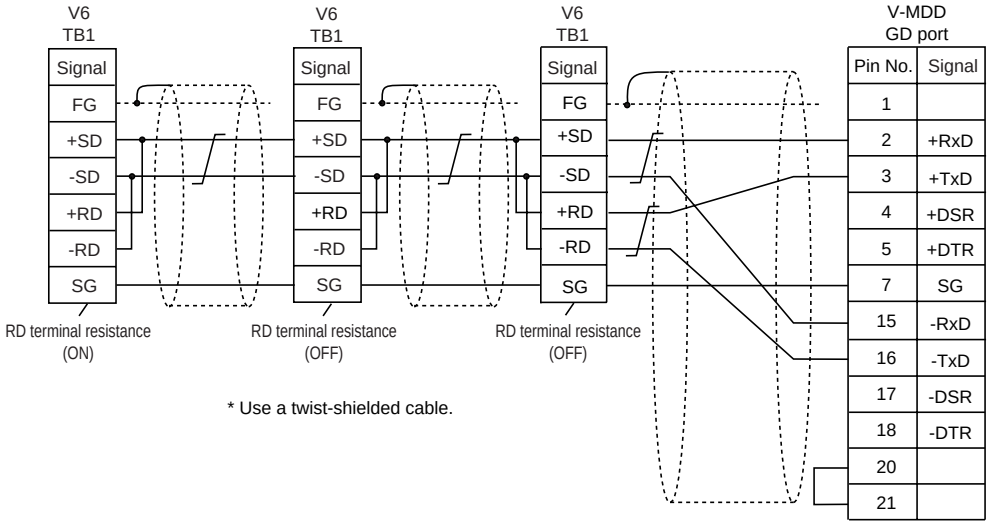
Connect multiple V6 to a PLC by 2-wire connection.



* Use a twist-shielded cable.

When multiple V6 are connected directly to MITSUBISHI's QnA series CPU

The optional equipment, V-MDD is required.

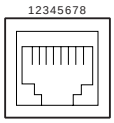


* Use a twist-shielded cable.

11 Modular Jack (MJ1)

Modular Jack (MJ1)

Pin numbers and signal names of modular jack 1 are shown below:

MJ1	Pin No.	Signal Name	Function
	1	-	NC
	2	-	NC
	3	+5V	Power supply for peripheral equipment (Max150mA)
	4	+5V	
	5	0V	GND
	6	0V	GND
	7	RD	RS-232C receive data
	8	SD	RS-232C send data

Setting of Modular Jack (MJ1)

- Set the use of modular jack 1 on V-SFT Editor.
- Go to [System Setting] from the menu bar, and click [Modular]. Select the following options for [Modular Jack 1].

  Modular Jack 1
  [Editor port]
  [Barcode]
  [V-Link]*
  [Modbus Slave]

  * For more information about “V-Link,” refer to “V-Link Manual.”

When using the modular jack, remove the I/F cover. Wall-mount hardware cannot be used.

Screen Data Transfer

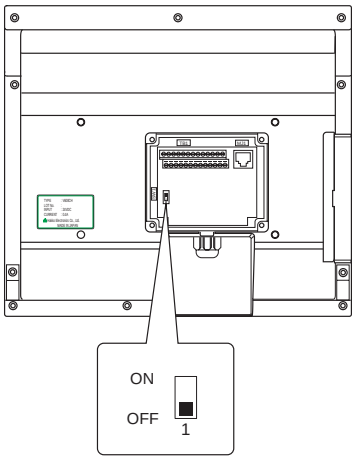
- When transferring screen data, use modular jack 1 (MJ1).
- When [Editor port] is selected for [Modular Jack 1] on the V-SFT, it is possible to select the run/local main mode automatically. Screen data can be transferred in the run mode as well.
  Also, on-line editing or simulation is possible.
- When an option other than [Editor port] is selected for [Modular Jack 1], select the local main mode for screen data transfer. On-line editing or simulation is not possible.
- When transferring screen data, use the cable for screen data transfer (V6-CP, 3 m) for connection between the personal computer and V6.

12 Slide Switch

Setting of Slide Switch (SW1)

Setting of terminating resistance

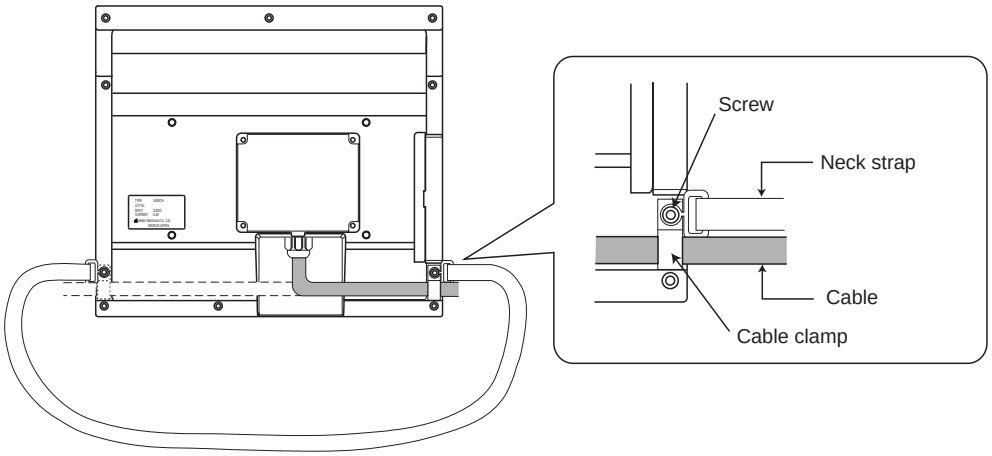
- When V6 is connected with the PLC via RS-422/485 interface, set SW1 in the ON position.



13 Installation of Neck Strap and Cable Clamp

The neck strap, a V608CH accessory, is used to prevent the unit from dropping; another accessory, a cable clamp is used to secure the communication cable.

Secure the neck strap and the cable clamp with screws (M3 x 10) at the machine as shown below.

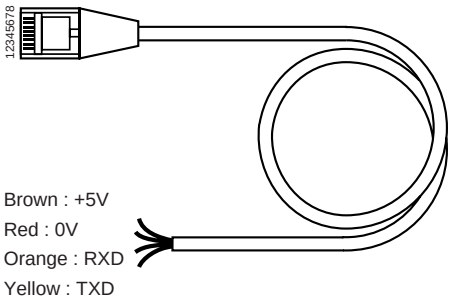


Screw Size	Tightening Torque N・m(kgf・cm)
M3	0.3 - 0.5 (3 - 5)

14 Barcode Reader Interface

- It is possible to receive the signal from a barcode reader by removing I/F cover from V6 and connecting a barcode reader to V6 via the modular jack (MJ1) of V6 series.
- To connect a barcode reader to V6 via MJ1, use the cable which is the optional equipment made by Hakko Electronics Co., Ltd. (V6-BCD).

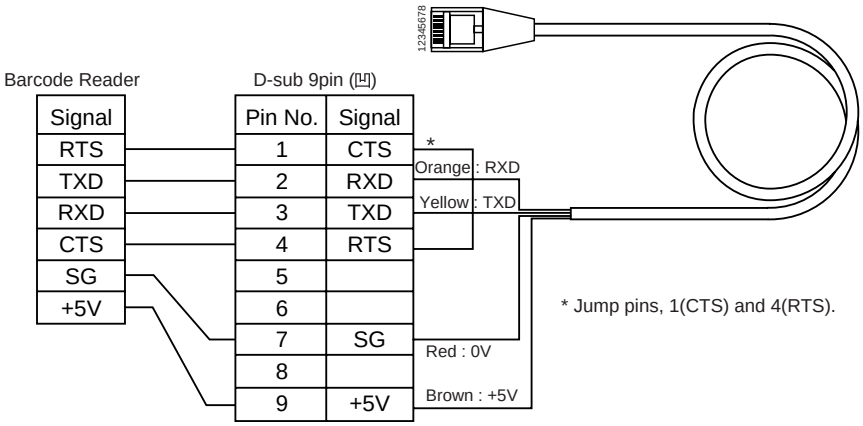
  Length : 3m
  Accessory : Modular Plug

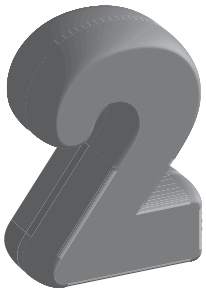


Notes on Connection

- In case of using the barcode reader which uses the CTS and RTS control, the barcode reader may not work normally without jumping RTS and CTS.
- The output power supply (+5V) is max. 150mA. (Refer to page1-29.)

- When the barcode reader connected to V4 is used, connect it to V6 by the following cable.





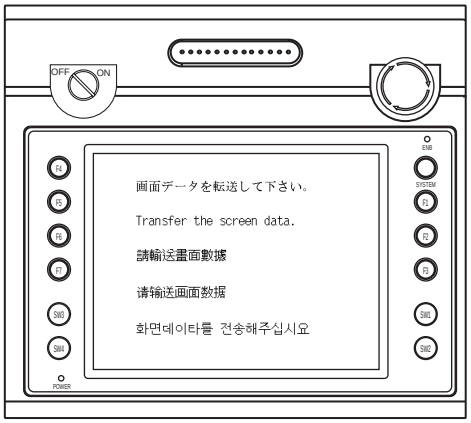
System Screen

1. Operation of V6 Main Menu
2. Function Switches
3. Errors Caused on the V608CH

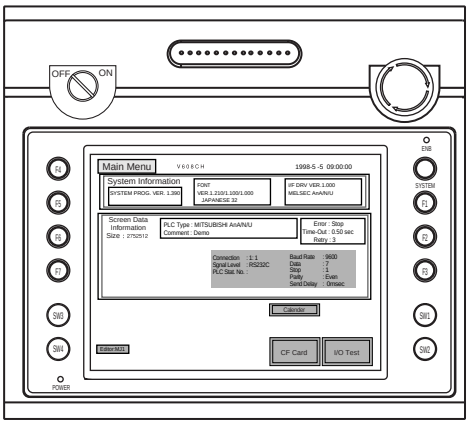
1 Operation of V6 Main Menu

When the power of V6 is turned on for the first time, the screen on the below left is displayed.

When power is turned on for the first time:



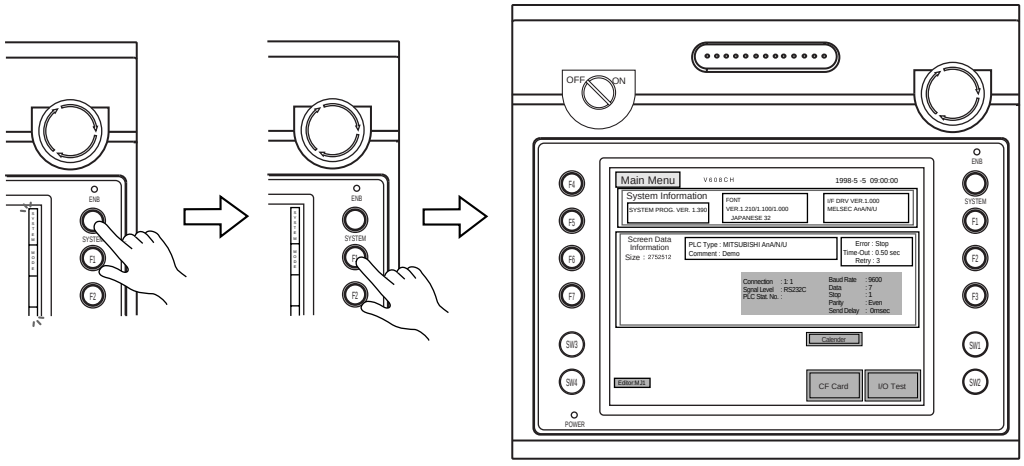
"Main Menu" after the transfering data



To move back to [Main Menu] when the screen data has been already transferred to V6, press the [SYSTEM] switch, then press the [F1] switch when the [ENB] lamp is lighting.

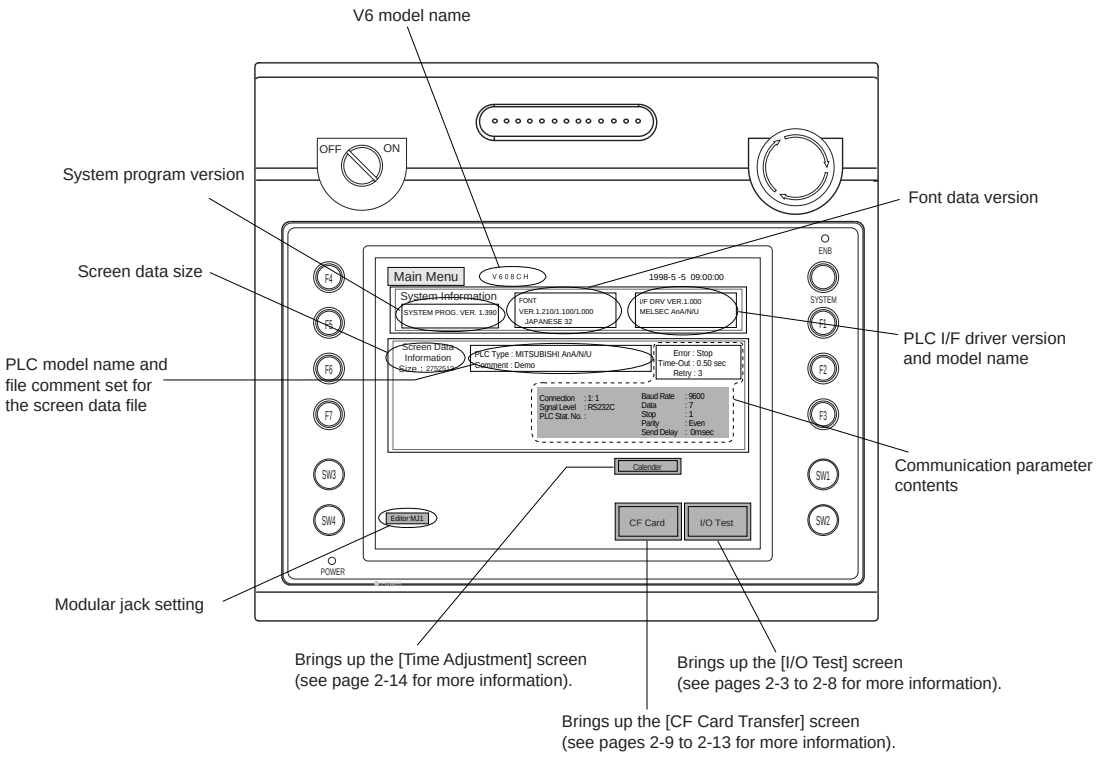
If the [ENB] lamp is off, press the [deadman] switch to turn the lamp on. (see page 3-2.)

"Main Menu"



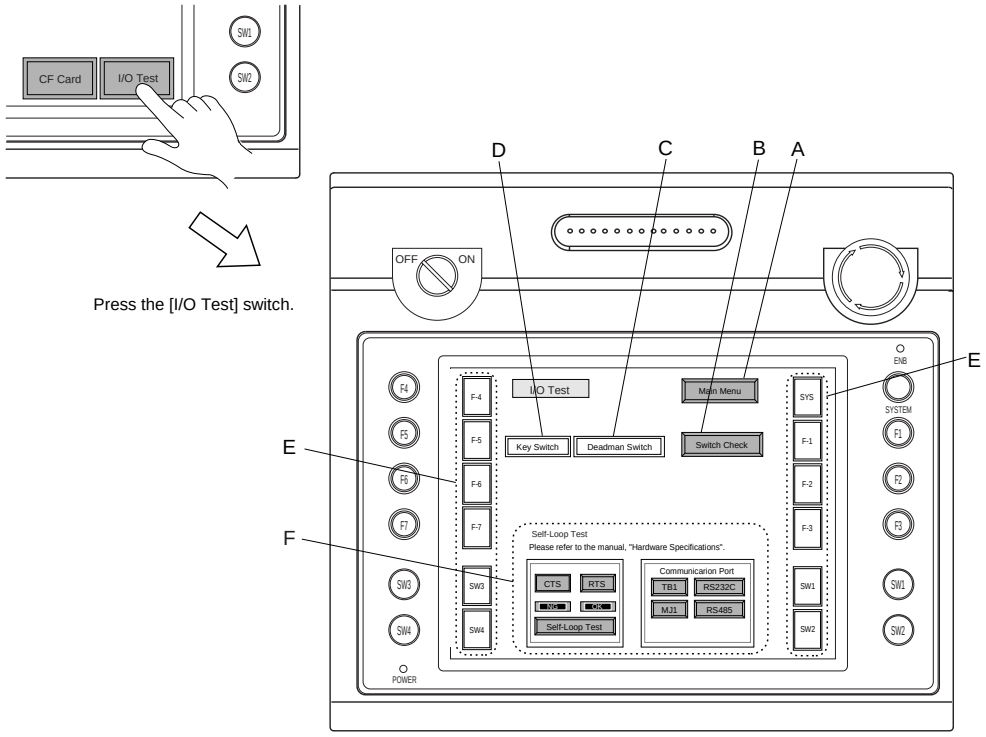
[Main Menu] Screen

V6 system information or screen data information is displayed on the [Main Menu] screen.
When an option other than [Editor Port] is selected for [Modular Jack 1], be sure to select the [Main Menu] for screen data transfer.



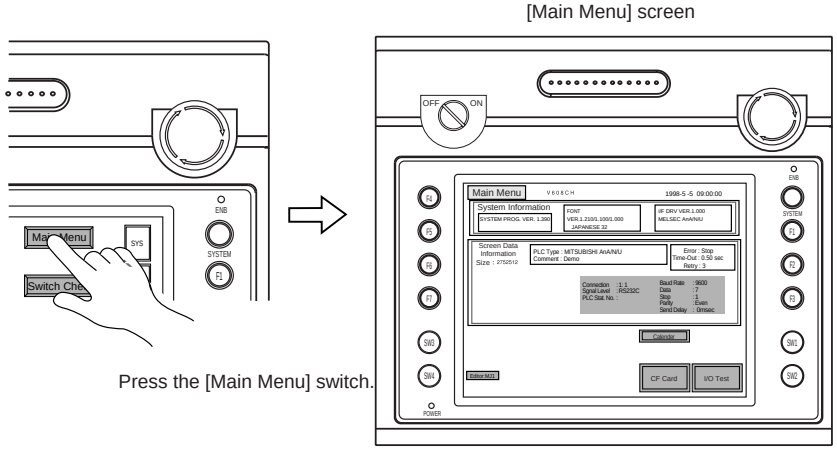
[I/O Test] Switch

When the [I/O Test] switch on the [Main Menu] screen is pressed, the following [I/O Test] screen is displayed. This screen is used to perform a hardware check of V6.



A. [Main Menu] Switch

Pressing this switch brings back the [Main Menu] screen.

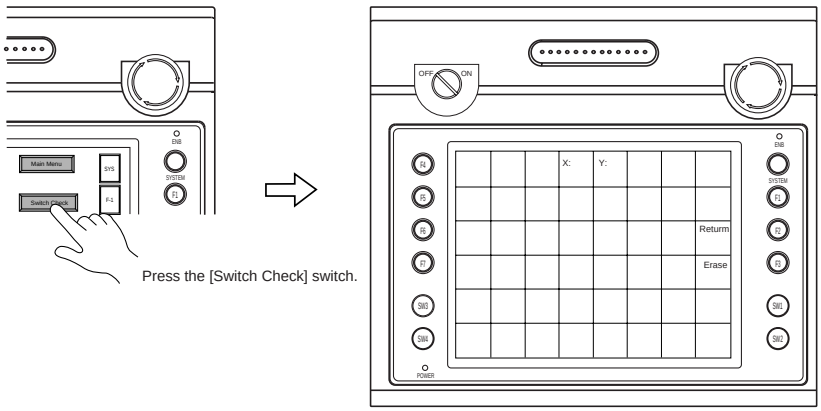


B. [Switch Check] Switch

It is possible to check the response of touch switches on the V6 screen.

Pressing the [Switch Check] switch brings up the screen that is divided into tiles.

[Switch Check] screen

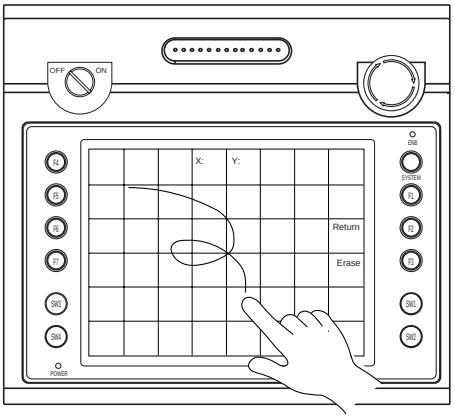


Press on the touch screen and check that the pressed tiles turn white.

When the tiles turn white, touch switches are responsive and working properly.

To move back to the [I/O Test] screen, press the [F2] switch.

To clear the screen, press the [F3] switch.

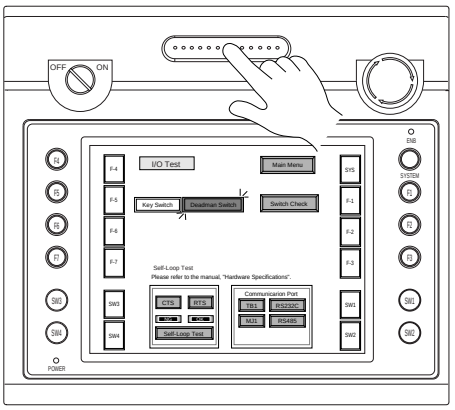


C. Deadman Switch

It is possible to check actuation of the deadman switch.
Hold down the deadman switch and check that the [Deadman Switch] lamp lights on the screen.

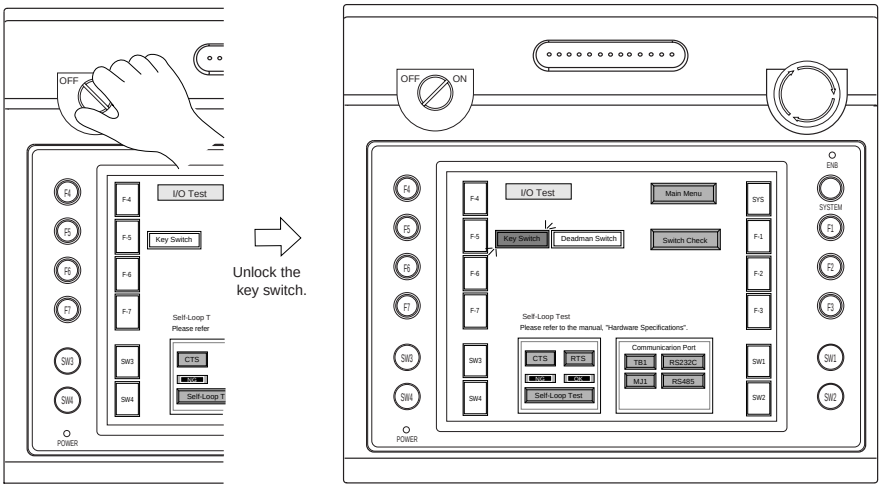
If the [3-Position Deadman Switch] is used, and the lamp is lighting, check that the lamp goes off when the switch is pressed more strongly.

Press the deadman switch.



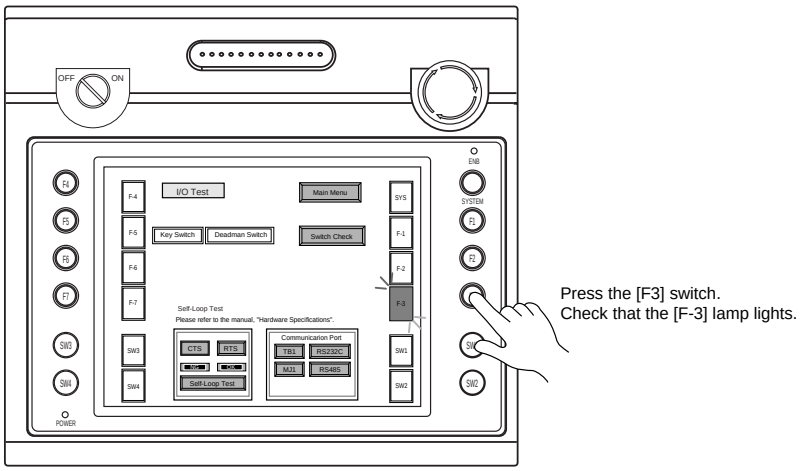
D. Key Switch (Optional)

It is possible to check actuation of the key switch.
Unlock the key switch and check that the [Key Switch] lamp lights on the screen.



E. [System] & Function Switches

Actuation of 12 switches vertically arranged on both sides of the touch screen can be checked.
Hold down each switch and check that the corresponding lamp lights on the screen.

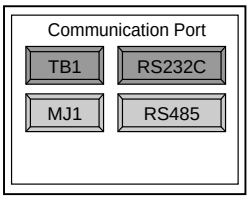


F. Self-loop Test

This screen is used for checking the signals that are minimally required for V6 to achieve communication.

◇ TB1: RS-232C Signal Test

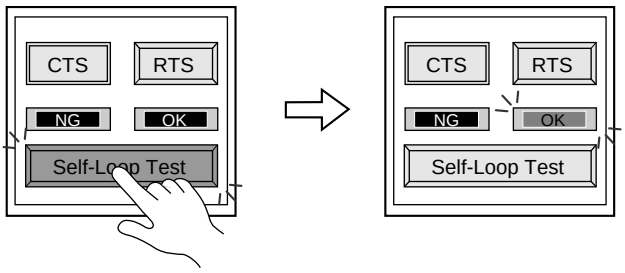
Turn on the [TB1] switch and the [RS232C] switch in the [Communication Port] field.



◆ Loop-back test

The SD and RD signals are checked.

1. Install a jumper between "TxD" and "RxD" of TB1 on the backside of V608CH.
2. Press the [Self-Loop Test] switch and check that the [OK] lamp lights.

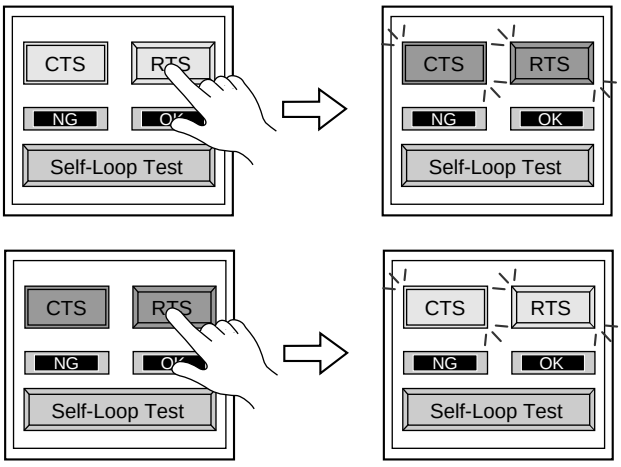


*** If the [NG] lamp lights, contact your local distributor.**

◆ CTS/RTS test

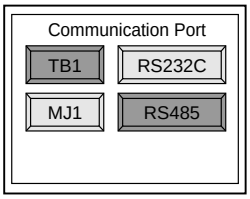
The CTS and RTS signals are checked.

1. Install a jumper between "RTS" and "CTS" of TB1 on the backside of V608CH.
2. Press the [RTS] switch and check that both [RTS] and [CTS] lamps light. Press the [RTS] switch again and check that both [RTS] and [CTS] lamps go off.



◇ TB1: RS-485 Signal Test

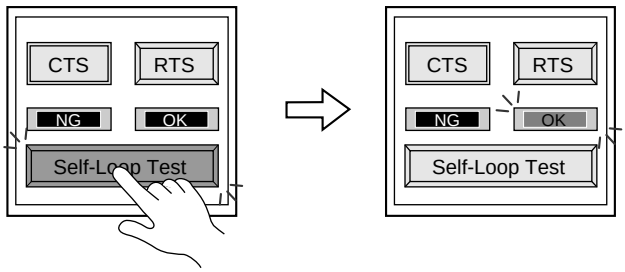
Turn on the [TB1] switch and the [RS485] switch in the [Communication Port] field.



◆ Loop-back test

The SD and RD signals are checked.

1. Install jumpers between "+SD" and "+RD," and "-SD" and "-RD" of TB1 on the backside of V608CH.
2. Press the [Self-Loop Test] switch and check that the [OK] lamp lights.

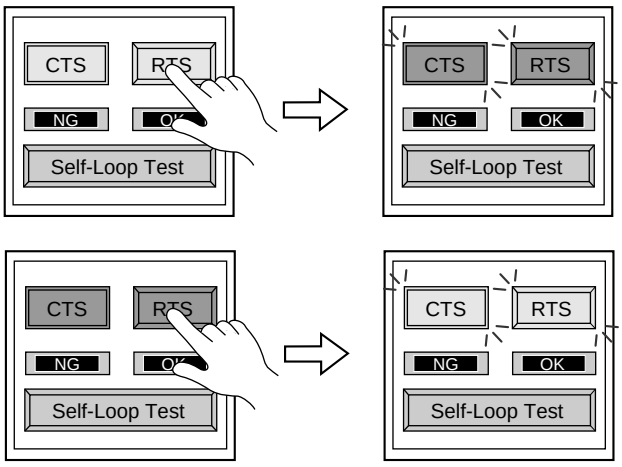


*** If the [NG] lamp lights, contact your local distributor.**

◆ CTS/RTS test

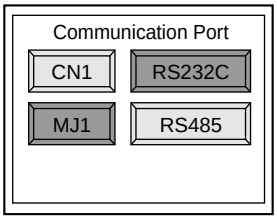
The CTS and RTS signals are checked.

1. Install a jumper between "+RTS" and "+CTS," and "-RTS" and "-CTS" of TB1 on the backside of V608CH.
2. Press the [RTS] switch and check that both [RTS] and [CTS] lamps light. Press the [RTS] switch again and check that both [RTS] and [CTS] lamps go off.



◇ MJ1: RS-232C Signal Test

Turn on the [MJ1] switch and the [RS232C] switch in the [Communication Port] field.

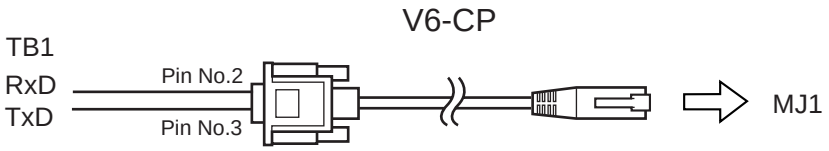


◆ Loop-back test

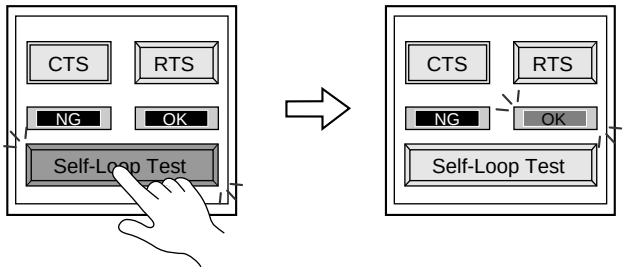
The SD and RD signals are checked.

Execute the test by connecting the data transfer cable (V6-CP) to CN1.

1. Connect the modular jack side of V6-CP to MJ1.
2. Install jumpers between pin no.2 side of D-sub connector and "RxD" of TB1 on the backside of V608CH, and between pin no.3 and “TxD” of TB1.



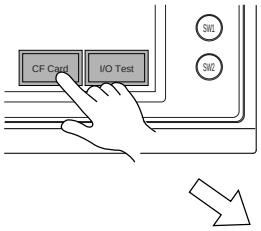
3. Press the [Self-Loop Test] switch and check that the [OK] lamp lights.



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

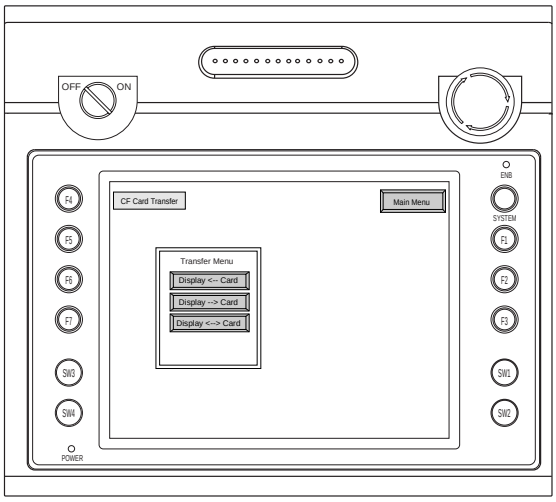
CF Card

Pressing the [CF Card] switch on the [Main Menu] screen brings up the following [CF Card Transfer] screen.
It is possible to transfer data between CF Card and V608CH on this screen.



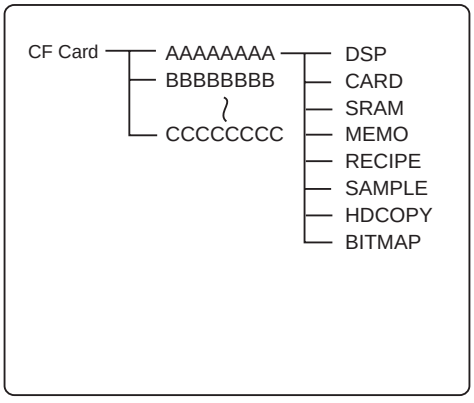
Press the [CF Card] switch.

[CF Card Transfer] screen



◇ Folder Hierarchical Structure ◇

The hierarchical structure of folders on the CF card is shown below:



Root Folders

Folder Name	File Name
xxxxxxxx	Access folder "xxxx" shows the access folder name that is set with CF Card Setting of V-SFT Editor.

DATxxxx Folders

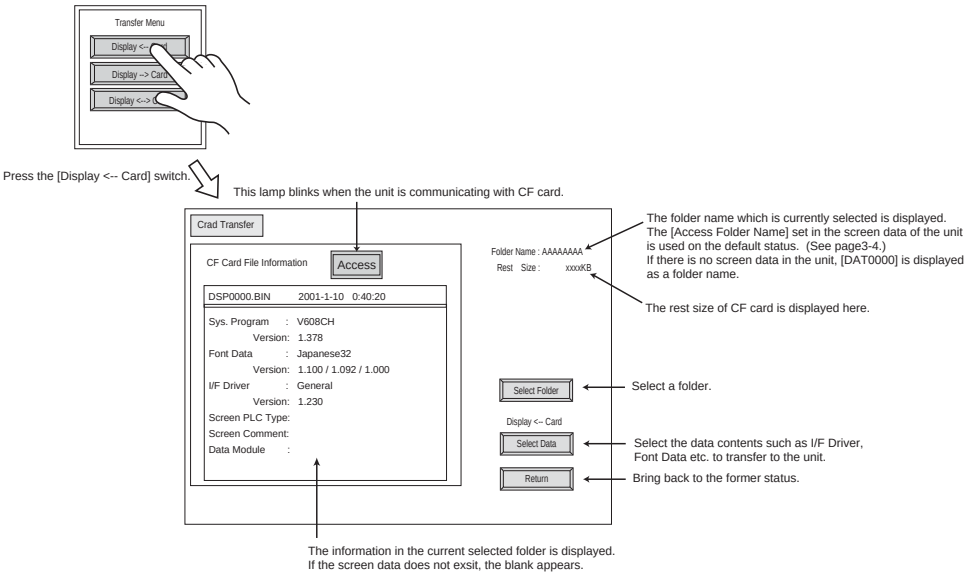
Folder Name	File Name	File Type
DSP	DSPxxxx.BIN	Screen data, system programs
CARD	CARD.BIN	Files for memory card mode
SRAM	- - - -	- - - - - - - -
MEMO	MEMxxxx.BIN	Memo pad data (xxxx : 0 to 7)
RECIPE	RECxxxx.CSV	"Recipe" data
SAMPLE	SMPxxxx.BIN	Sampling data (xxxx : 0 to 11)
HDCOPY	HDxxxx.BIN	Hard copy image data
BITMAP	BMPxxxx.BIN	Bitmap data

A. Display <- Card

Data on the CF card can be transferred to V608CH

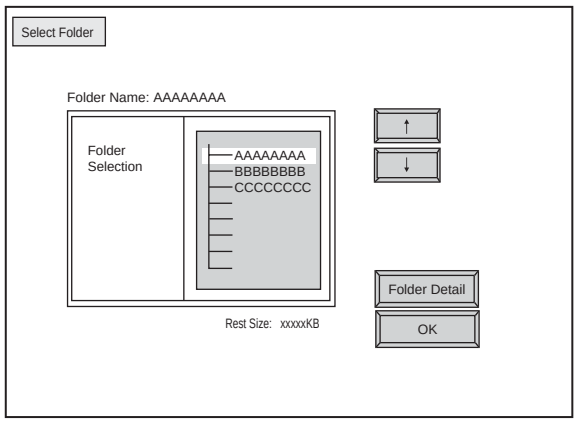
It is necessary to transfer a screen data to CF card from the V-SFT Editor in advance. Use [CF Card Manager] function of the V-SFT, an application software for editing screen data, in order to transfer a screen data to CF Card from the editor. For about [CF Card Manager], See Chapter 3 "6 CF Card Manager" in this specification.

1. Press the [Display <- Card] switch in the [Transfer Menu] field.
   The [CF Card File Information window] is displayed.

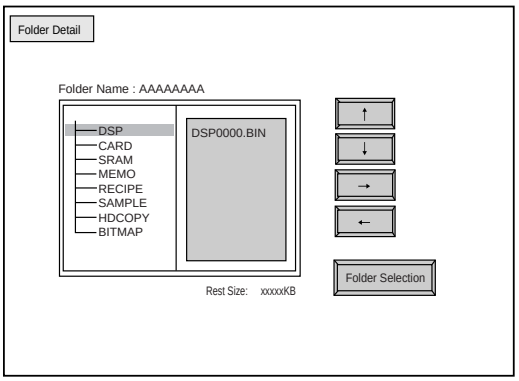


2. Select a folder on the CF Card. (Skip this process if it is not required to change a folder.)
   Press the [Select Folder] switch.
   The Select Folder window is displayed.

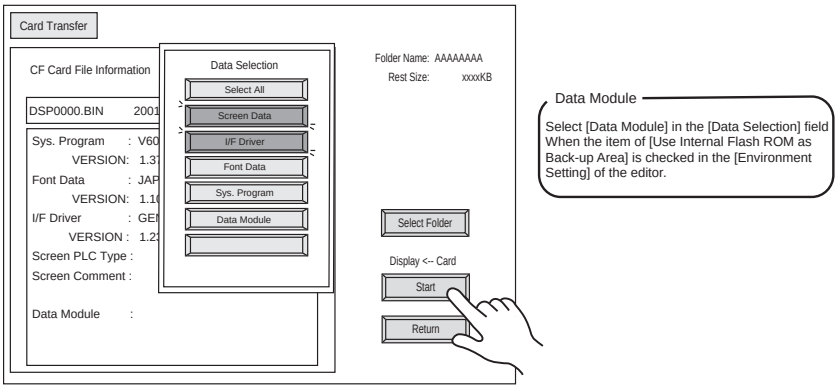
   Select the desired folder using [↑] or [↓], and press the [OK] switch.



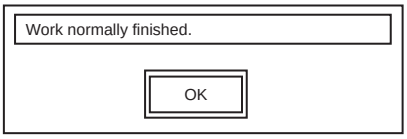
Press the [Folder Detail] switch to see details of each folder.
The [Folder Detail] screen is displayed.
Confirm the contents of each folder using [↑] and [↓] switch, and then press the [Folder Selection] switch to move back to the [Select Folder] screen.



3. Press the [OK] switch to move back to [Card Transfer] screen.
   Confirm the contents of [CF Card File Information] , and press the [Select Data] switch.
   The [Data Selection] window is displayed.
4. Select the data that will be transferred to the unit, and press the [Start] switch.



5. The [Start] switch changes to [Transferring] and blinks.
   When the transfer has been completed successfully, the following window is displayed. Press the [OK] switch.

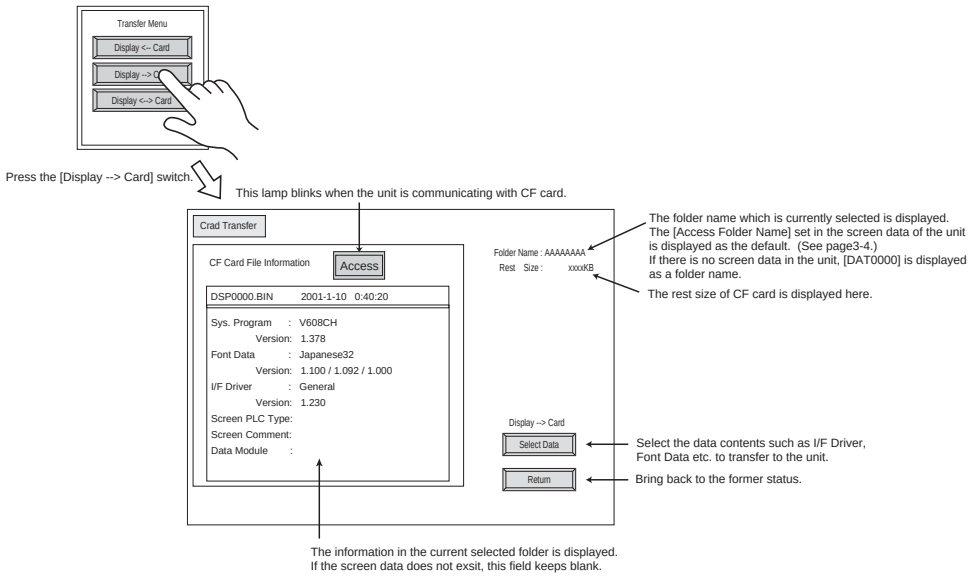


For information about other messages, see page 2-13.

B. Display -> Card

Data in V608CH can be saved on the CF card.

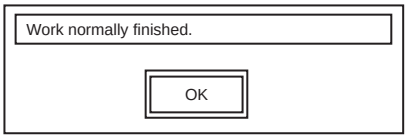
1. Press the [Display --> Card] switch, and then the [Card Transfer] screen is displayed.



2. Confirm the [CF Card File Information], and press the [Start] switch.

When the [CF Card File Information] field is displayed on the screen, data in the unit is overwritten. Take note that the pre-data is gone off when the overwrite is executed.
If the [CF Card File Information] field is blank, a new file is created in the DSP folder located below the [Folder Name]

3. The [Start] switch changes to [Transferring] and blinks.
   When the transfer has been completed successfully, the following window is displayed. Press the [OK] switch.



For information about other messages, see page 2-13.

C. Display <-> Card

Data in V608CH can be compared with that on the CF card.

1. Select [Display <-> Card] in the [Transfer Menu] field, and press the [Card Transfer] screen is displayed.
2. The [CF Card File Information] is displayed.
   Data in this screen can be compared with that in the unit.

The screen data in V608CH can be compared with the data in the folder with the same name as the [Access Folder Name] set in the editor only.

3. Press the [Start] switch.
4. The [Start] switch changes to [Transferring] and blinks.
5. When the comparison has been completed, a window is displayed. Follow the instructions displayed on the screen.

◆ Message Display in Data Transferring

If an error occurs during transferring data, the message display window shown on the right is displayed. The kinds and the contents of the messages are as shown below.

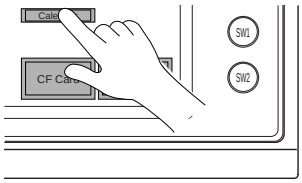
In case V608CH, the word [Memory-Card] in the following table is [CF card].

Message	Contents
Work normally finished.	The specified operation has been concluded normally.
Memory-Card not setting	A memory card is not inserted. (Or in case of trying to write data into a memory card when inserting FROM type memory card)
Memory-Card Capacity over	Cannot write the data into a memory card because the data size in V6 is larger than the capacity of a memory card.
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.
V6 type is different.	The specified type of the data in V6 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 V6.
Data discrepant	There is some discrepancy in data, when comparing data between a memory card and V6.
Screen data on V6 will be broken.	This message appears to inform the user that the data in V6 will be broken by transferring the font data (the size which is larger than the present data) from a memory card to V6. (The [OK] switch continues the transferring. The [Cancel] switch stops transferring.)
Undefined Error occurred.	The error occurred due to some cause other than the above mentioned.

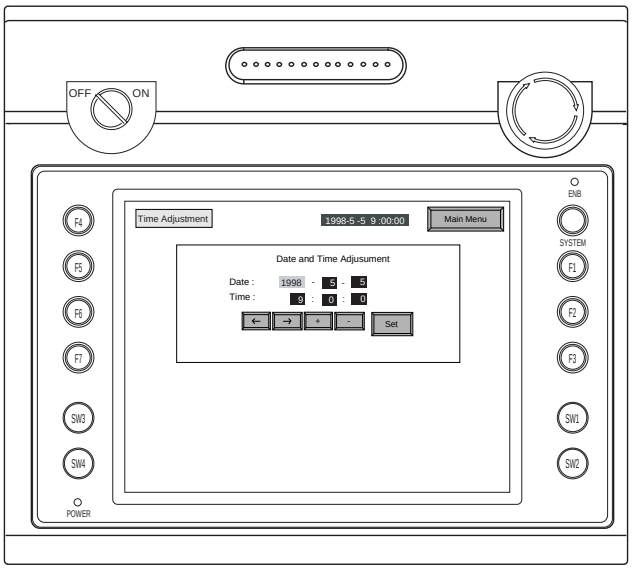
Time Adjustment

When the clock built in V608CH is used, the time can be adjusted on the [Time Adjustment] screen.

Pressing the [Calendar] switch on the [Main Menu] screen brings up the following [Time Adjustment] screen.



Press the [Calendar] switch.



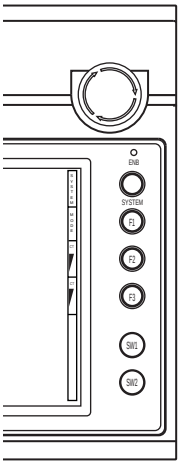
1. Set the current date and time using the [←], [→], [+] and [-] switches on the screen.
2. Press the [Set] switch to determine the setting. The date and time indicated in the top of the screen changes accordingly.

To use the internal clock of V608CH, check [Use Built-in Clock] in the [Built-in Clock Setting] dialog of V-SFT Editor beforehand. (See page 3-3.)

2 Function Switches

Type

[SYSTEM], [F1], [F2], [F3], [F4], [F5], [F6], [F7]



the [SYSTEM] switch

By pressing this switch, the functions of the switches [F1] ~ [F7] are defined.
The type of the [SYSTEM] switch is alternate. When this switch is pressed once, the switch menu is displayed by the side of the function switches [F1] ~ [F5], and each function switch corresponds to an item on the displayed switch menu.
When the [SYSTEM] switch is pressed again, the switch menu which is displayed on the screen will disappear, and the switches [F1] ~ [F7] make outputs to PLC as defined by the user.

Function of [F1] ~ [F5] when the switch menu is displayed

○ [F1] : Mode
This switch changes the operation mode.
Main Menu Mode --> RUN Mode
Run Mode --> Main Menu Mode (possible to specify the changing time)

○ [F2] : Contrast Adjustment (dark)
This switch adjusts the contrast of LCD. When the [F2] switch is pressed once, the LCD color becomes dark. If this switch is held down for 1 second, the LCD color changes rapidly into darkness.

○ [F3] : Contrast Adjustment (intermediate)
This switch also adjusts the contrast of LCD. When the [F3] switch is pressed once, the LCD color becomes intermediate.

○ [F4] : Contrast Adjustment (light)
This switch adjusts the contrast of LCD. When the [F4] switch is pressed once, the LCD color becomes light. If this switch is held down for 1 second, the LCD color changes rapidly into lightness.

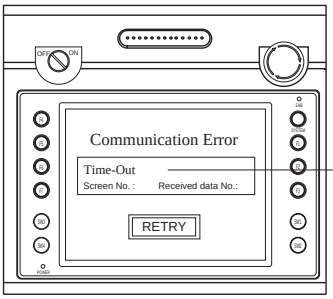
○ [F5] : Backlight
This switch turns the backlight of V6 on or off.
If you want to use this function, you have to set [Backlight] of the [Unit Setting] dialog in [System Setting].
The following list shows the backlight function specified in the editing software.

Backlight	Function Switch (F5)
ON	Ignored.
Auto 1 Auto 2 Auto 3	The following actions are added to the regular functions of these items : Even if the time does not reach the setting time, the backlight will turn off if the [F5] switch is pressed (provided that bit 11(Backlight) of Read Area n+1 is OFF level). (Refer to the “Reference Manual (Function)”.)
Manual Manual2	If you select [Manual], the backlight will turn on or off only when this switch is pressed. Also, you can specify the item, [Backlight Power ON Time Control]. When you turn the power supply of V6 on ... [ON] : the backlight is lit. [OFF] : the backlight is off.

3 Errors Caused on the V608CH

Communication Error

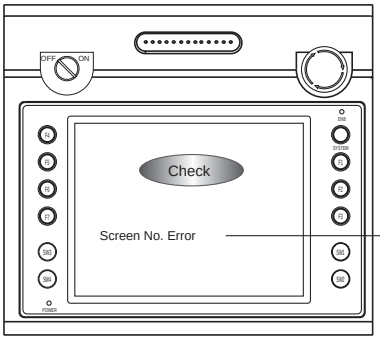
The followings are the errors which are often caused on the V6 series.



Message	Contents	Solution
Time-Out	Although a request is sent for transmission to the PLC, an answer is not returned within the required amount of time.	1) Check the communication parameter. 2) Check the cable and wiring. 3) Data may be disrupted because of noise. Fix noise.
Error code received	An error code was sent to the link unit by the CPU of the PLC.	Solve the problem by examining the CPU error code.
Check I/F driver (applicable to I/F driver for Simulator)	When sending a communication request to a personal computer (simulator), there is no reply from a personal computer.	If a simulator is not used, transfer the I/F driver for PLC again.

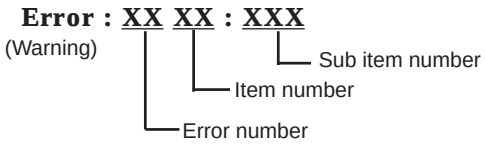
About any other errors except these errors, refer to “Appendix 3 Error” of “Reference Manual (Function).”

Check



Message	Contents	Solution
Screen No. Error	There is no setting for the received screen.	The screen specified by the PLC has not been registered. Check if a screen number which does not exist is entered for the memory address “n+2” of the read area.
Data has some error Error : XX (XX:XXX)	There is error on screen create data.	For the error details and solutions, refer to “Reference Manual (Function).”

◇ Use the item number and sub item number to confirm the location where the error took place. Confirm error details with the error number and make corrections.



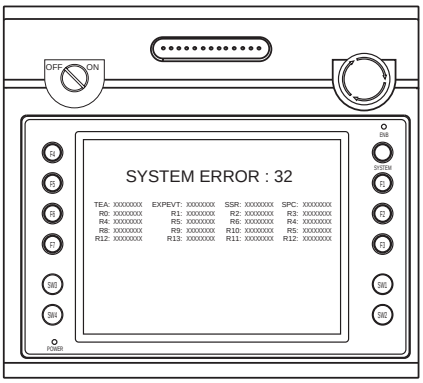
◇ Item number
The item number shows the editing screen or the other place where the error is detected.

26 : CF Attribute Table

About any other errors except these errors, refer to “Appendix 3 Error” of “Reference Manual (Function)”.

SYSTEM ERROR

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



SYSTEM Error : XX

1 : Watch dock 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

(when detecting an error by self-check of RAM)

35 : Inaccurate memory error

(when detecting an access to a memory of an inaccurate memory model, e.g. PLC or internal memory etc.)

The source of the error could be one of the following three problems. Contact the technical support department of your distributor.

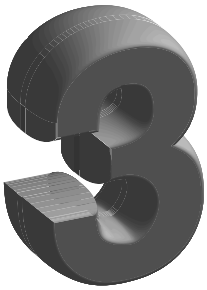
1) Program crash due to noise

2) Hardware problem

3) Bad program

Others

About any other errors like [Warning] or [Touch switch is active], refer to “Appendix 3 Error” of “Reference Manual (Function).”

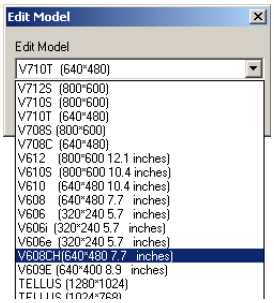


V-SFT Setting

1. Handy Setting
2. Built-in Clock Setting
3. CF Card Setting
4. CF Card Function
5. System Memory
6. CF Card Manager

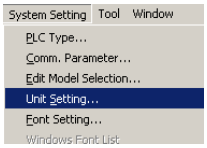
1 Handy Setting

To use V608CH, select [V608CH (640*480 7.7 inches)] in the [Edit Model] dialog of [System Setting].

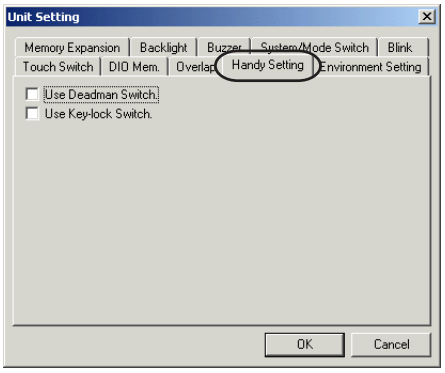


Also, make settings for the deadman switch and the key lock switch in the [Handy Setting] dialog.

1. Select [System Setting] from the menu bar, and click the [Unit Setting].
   The [Unit Setting] dialog is displayed.



2. Select the [Handy Setting] tab.
   The [Handy Setting] dialog comes up.



Use/no use of the deadman switch can be switched during the run mode using the macro command. (See the next page.)
The selection in the [Handy Setting] dialog is validated at power-up.

[☐ Use Deadman Switch]

Choose whether or not to use the deadman switch for operation.
To allow screen operation at all times, uncheck this box.

[☐ Use Key-lock Switch]

Check this box to use the key switch.
To allow screen operation at all times regardless of the key switch setting, uncheck this box.

Deadman Switch

To prevent misoperations, V608CH is equipped with a deadman switch.

◯ When the deadman switch is used:
Screen operation is available only when the deadman switch is on (ENB lamp ON).

◯ When the deadman switch is not used:
Screen operation is available whether the deadman switch is on or off.

Regardless of the above, screen operation is available while the [Main Menu] screen is displayed.

Setting Procedure

Use/no use of the dead man switch can be set in the following two methods.

(a) Select [System Setting] from the menu bar, and click [Handy Setting] in the [Unit Setting] on V-SFT Editor (See the previous page.)

(b) Macro command "SET_DSW"

Usable Device

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation
F0	(SET_DSW)				
F1	○				○

SYS(SET_DSW) F1

F1	0: Not used 1: Used

The selection in the [Handy Setting] dialog is validated at power-up (default setting).

To change the selection during the run mode, use the macro command. The setting made with the macro command is reset to the default when the power is turned off.

2 Built-in Clock Setting

The current time and date can be displayed on V608CH in the following two methods:

◯ To use the clock built in V608CH

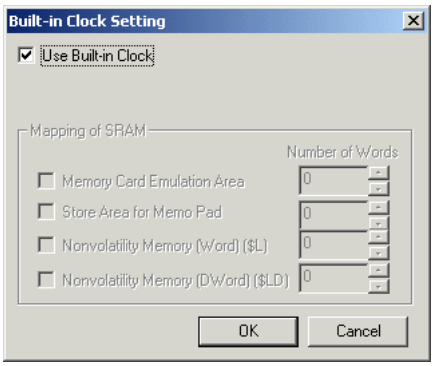
◯ To use the PLC's calendar data

When using the clock built in V608CH, set the [Built-in Clock Setting] dialog of V-SFT Editor.

◆ Setting Item

◎ System Setting → Built-in Clock Setting

Check the [Use Built-in Clock] box.



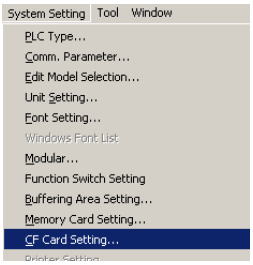
To retain calendar data when the power is off, use a backup battery "V6H-RB," that is available as an optional accessory.

Calendar data can be adjusted on the [Main Menu] screen of V608CH. Refer to "Time Adjustment" (page 2-14).

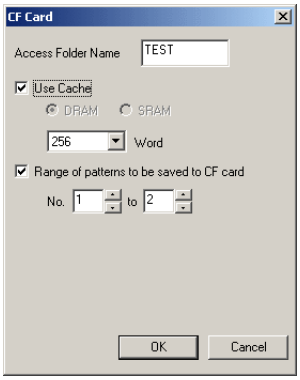
3 CF Card Setting

The following three items, Access Folder Name, Use Cache and Range of Patterns to be saved to CF Card can be set in the [CF Card Setting] dialog.

1. Select the [System Setting] from the menu bar, and click the [CF Card Setting].



2. The [CF Card] dialog is displayed.



[Access Folder Name]

This is used as a folder name when data is saved on the Compact Flash card (CF card).
All the sampling data and hard copy data are stored in this folder.
Set this name within 8 characters (0 to 9, A to Z: a capital letter).

[☐ Use Cache]

Check the [Use Cache] box in order to use cache.
If the [Use Cache] is checked, cache memory is allocated for each buffering area No.
Also, size of cache can be set.

For more information about cache, see page 3-11.

[☐ Range of patterns to be saved to CF card]

Check the [Range of patterns to be saved to CF card] box in order to save them on the card.
If the [Range of patterns to be saved to CF card] is checked, the setting of range of patterns can be selected.

4 CF Card Function

CF Card Function

◯ Saving memo pad data for backup (see page 3-7)
Even if the power supply of V608CH is turned off, data can be saved.
The data on the CF card can be converted into a bitmap file using the V-SFT Editor (CF Card manager).
* It is not possible to read memo pad data created on other V6 models.

◯ Saving hard copy image as a file (see page 3-7)
Hard copy image can be saved as a file using the macro command. It can be converted into a bitmap file on V-SFT Editor for use.

◯ Saving patterns (bitmap files) on the CF card (see page 3-8)
Patterns are saved in an area (bitmap folder on the CF card) other than screen data in order to reduce the capacity of screen data used for them.
Patterns on the CF card can be displayed on the screen to save memory.

◯ Saving sampling data (see page 3-9 to 3-14)
Lots of sampling data can be saved.
Sampling data can be converted into a CSV file using the macro command so that editing on a spreadsheet is possible.
It is also possible to save data in the same format as that for memory cards or to convert it into an MCD file that can be read from or written to the memory card editor (optional, M-CARD SFT).

◯ Saving and reading "recipe" data (see page 3-15 to 3-23)
CSV files can be read using the macro command. This is useful for changing parameter settings, etc. Also, data in the V6 internal memory can be saved as a CSV file.

◯ Transferring screen data and system programs
• Screen data can be transferred between the CF card and V608CH (refer to Chapter 2).
• Multiple screen data can be saved to enable data modification for each system.
• System programs can be transferred for updating the V608CH software version.

◯ Transferring data between the CF card and the computer using CF Card Manager of V-SFT Editor (see page 3-29 to 3-36)

Notes on Use of CF Cards

Note the following points when using CF cards:

1. Save a backup copy at regular intervals.
2. If a disk error arises and data read/write operation is defeated, perform scandisk operation on Windows98/Me/2000/XP and restore the disk. If the disk cannot be restored, format the disk.
   (Windows is a registered trademark of Microsoft Corporation. For Scan Disk and the operation of Windows, refer to manuals for Windows.)
3. Do not allow file size to exceed the capacity of a CF card.
4. When accessing the CF card;
   • turning the power off or resetting
   • removing or inserting the CF card
   may destroy data on the CF card.
   Before removing or inserting the CF card during the run mode, check that data is not being transferred.
   The CF card can be removed or inserted while the [Main Menu] screen is displayed.
5. The CF card has an average life of approx. 300 thousand write operations. Consequently, repeating write operations at very close intervals may shorten the card's useful life. When saving sampling data, be careful about the sampling time. (See page 3-11.)
   Also, avoid frequent write operations using the cycle macro command.

1. Memo Pad Data Backup

Memo pad data can be saved.

Location : \MEMO folder
Type : BIN file
File name : MEMxxxx.BIN (xxxx: 0 to 7; memo pad number)

◆ Setting Item

◎ Memo pad

For the setting procedure of memo pad, refer to Chapter 12 in "Reference Manual (Function)."

◆ Timing of Saving on the CF Card

- When the [Plus Block], [Minus Block] or [Block] switch is pressed
- When the screen is changed or the [Main Menu] screen is displayed from the run mode

2. Hard Copy Image File

The current screen image can be saved on the CF card using the macro command.

Location : \HDCOPY folder
Type : BIN file
File name : HDxxxx.BIN (xxxx: 0 to 1023; screen number)

* If the file name already exists, it is named as HD0000~1.BIN.

◆ Setting Item

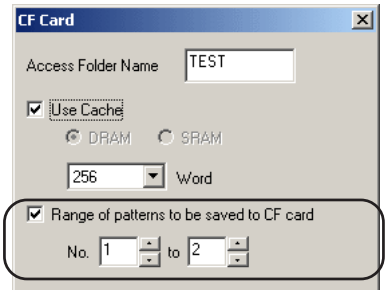
◎ Macro command "HDCOPY"

3. Showing Patterns on the CF Card

Patterns (bitmap files) saved on the CF card can be displayed on the screen.
Memory for screen data can be saved.

◆ Setting Item

◎ System Setting → CF Card Setting



Check the [Range of patterns to be saved to CF card] box.
Specify the range of patterns you would like to save on the CF card.

◆ Saving Patterns on the CF Card

1. Select the [File] on the menu bar, and click the [CF Card Manager] to start writing.
2. Insert the CF card into the CF Card Reader/Writer that is connected to the com puter.
3. Click the [Write to CF Card] of the [File], and specify the screen data.
   When the screen data is saved on the CF card, pattern data is simultaneously saved in the [BITMAP] folder on the CF card.
4. Remove the CF card from the CF Card Reader/Writer in order to insert it into the unit.
   Patterns saved on the CF card are displayed on the screen.

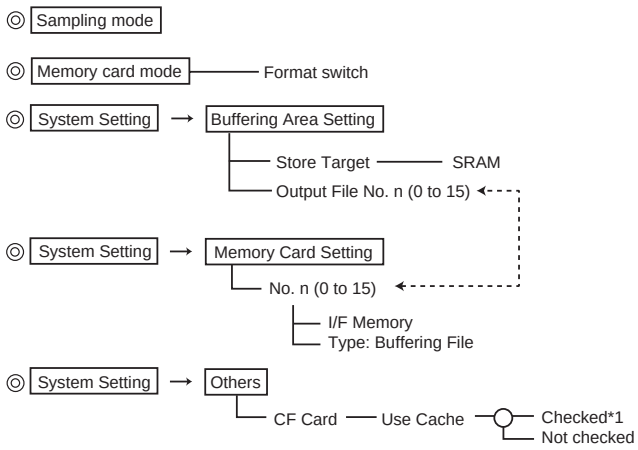
For more information on CF Card Manager, see page 3-29.

4. Saving Sampling Data on the CF Card I

Sampling data can be saved on the CF card in the same format as it is saved in on the SRAM card.
It is also possible to convert sampling data into an MCD file using CF Card Manager of V-SFT Editor, so that it can be opened or edited on the memory card editor (M-CARD SFT).

Location : \CARD folder
Type : BIN file
File name : CARD.BIN

◆ Setting Item



*1 Depending on the timing of saving, the macro command "SMPL_SAVE" may be required.

For more information about these settings except for the CF card, refer to Chapter 10 "Sampling" and Chapter 25 "Memory Card Mode" in "Reference Manual (Function)."

◇ Buffering Area Setting
Select [SRAM] for [Store Target].
Set the same number as the one set for memory card setting for [Output File].

◇ Memory Card Setting
Set the same number as the one set for [Output File] for buffering area setting.
Select [Buffering File] for [Type].

It is recommended to check [Use Cache] due to the limited number of write operations to the CF card.

◇ CF Card Setting
When [Use Cache] is not checked:
Sampling data is saved on the CF card each time sampling is performed.
When [Use Cache] is checked:
Sampling data is stored temporarily in the V6 cache, and when some data is accumulated, it is saved on the CF card.

For more information about cache, see page 3-11.

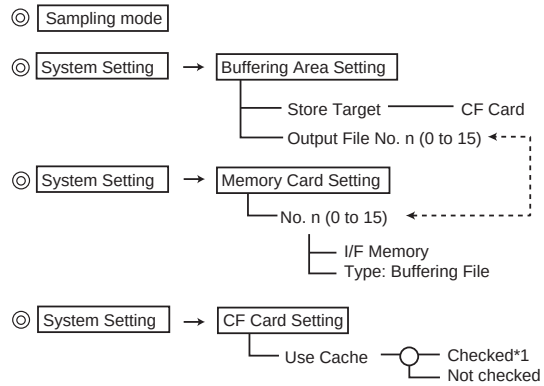
◇ Macro Command "SMPL_SAVE"
To output sampling data in cache to the CF card at random timing, use the macro command.

5. Saving Sampling Data on the CF Card II

Sampling data can be saved on the CF card. It is not necessary to format the CF card for screen data as was required for the SRAM card. Simply insert the CF card into V608CH.

Location : \SAMPLE folder
* No data is output to \CARD.BIN; however, some area is occupied.
Type : BIN file
File name : SMP0000.BIN to SMP0011.BIN
(the number indicates the buffering area number)

◆ Setting Item



*1 Depending on the timing of saving, macro command "SMPL_SAVE" may be required.

For more information about these settings except for the CF card, refer to Chapter 10 "Sampling" and Chapter 25 "Memory Card Mode" in "Reference Manual (Function)."

◇ Buffering Area Setting
Select [CF Card] for [Store Target].
Set the same number as the one set for memory card setting for [Output File].

◇ Memory Card Setting
Set the same number as the one set for [Output File] for buffering area setting.
Select [Buffering File] for [Type].

◇ CF Card Setting
When [Use Cache] is not checked:
Sampling data is saved on the CF card each time sampling is performed.
When [Use Cache] is checked:
Sampling data is stored temporarily in the V6 cache, and when some data is accumulated, it is saved on the CF card.

It is recommended to check [Use Cache] due to the limited number of write operations to the CF card.

For more information about cache, see the next page.

◇ Macro Command "SMPL_SAVE"
To output sampling data in cache to the CF card at random timing, use the macro command.

About Cache:

1. Cache Function

   There is a limit on the number of write operations available with the CF card. The limit does not show the total number of write operations with the CF card but the number of write operations every unit called sector (512 bytes). It is impossible to access files (a part of file) including the sector if the limit comes. Consequently, if write operation is performed frequently during sampling, access may be disabled sooner than is normal. When [Use Cache] is checked, cache memory is allocated for each buffering area number. Sampling data is stored temporarily until the output condition (see 4. below) to the CF card is satisfied, so that the number of write operations can be reduced.
   Cache function can be used when either [Memory Card] or [CF Card] is selected for [Store Target].

   <Note>

   Cache memory is volatile; when the power is turned off or when the CF card is removed, data is lost. Therefore, before turning the power off or removing the CF card, execute the macro command "SMPL_SAVE" to save data on the CF card.

2. Cache Size Adjustment

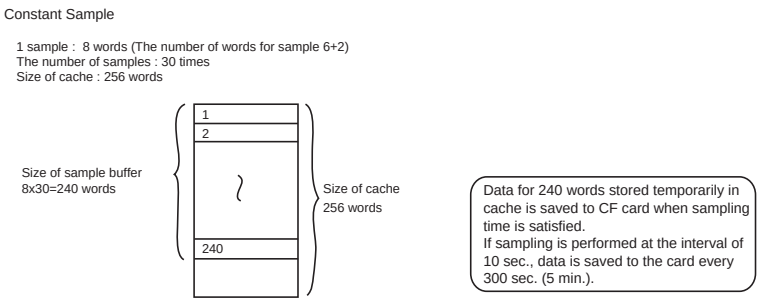
   The sample buffer size is determined by the sampling method, [No. of Words] and [No. of Samples]. (See page 10-17 in "Reference Manual (Operation).") Also, the time interval for outputting to the CF card is determined by [Sampling Time] and [No. of Samples].
   Refer to the above information and adjust the cache size to reduce the number of write operations.
   The cache size can be 256 words to 2048 words.

   <Reference>

   Average CF card life: Approx. 300 thousand write operations
   - If data is written every 5 minutes in 24-hour operation: Approx. 3 years
   - If data is written every 3 minutes in 24-hour operation: Approx. 1.8 years

3. Cache Action

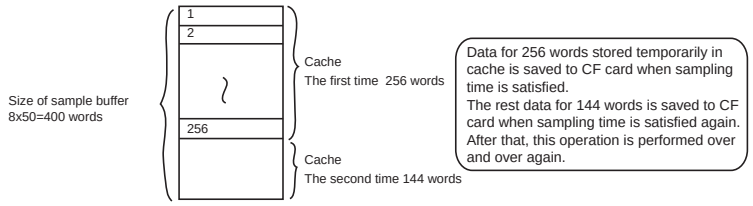
   Cache Size > Sampling Buffer Size



Cache Size < Sample Buffer size

Constant Sample

1 sample : 8 words (The number of words for sample 6+2)
The number of samples : 30 times
Size of cache : 256 words



4. Alarm Sampling
   Information on run hours, frequency, and the time when the alarm has occurred is also saved for alarm sampling.
   The data is stored in memory other than cache, and is output to the CF card together with data in cache when the output condition is satisfied.

5. Output Condition to CF Card
   1. The specified cache memory is full.
   2. The number of sampling times specified for buffering area setting has been exceeded.
   3. Macro command "SMPL_SAVE" is executed.
   4. Macro command "SMPL_CSV" is executed.
   5. The [Reset] switch for the memory card mode is pressed.
   6. The bit for resetting (R) in the sample control memory is set.
   7. The [Main Menu] screen is displayed during the run mode.

   <Note>
   - In the cases of 3 and 7 above, data in all buffering areas (No. 0 to 11) is saved on the CF card. For other cases, only data in the applicable buffering area is saved on the CF card.
   - In the cases of 5 and 6 above, data in cache is output and is saved into a new file in the backup folder (see page 3-13) that is automatically date-stamped.

6. Sampling Data Backup

It is possible to save a backup copy of sampling data stored in the \SAMPLE folder on the CF card. Use the macro command "SMPL_BAK."

Location : \SAMPLE\date folder
<Example>
When a backup copy is saved on 2001/9/1 (September 1, 2001), it is placed in the \SAMPLE\010901 folder. If the folder name already exists, it is named as \SAMPLE\010901~1.

Type : BIN file

File name : SMPxxxx.BIN (xxxx: 0 to 11; buffering area number)

◆ Setting Item

◎ Macro command "SMPL_BAK"
A backup copy of sampling data in buffering area No. "F0" is saved on the CF card.

Usable Device

	PLC Memory	Internal Memory	Constant	Memory Card	Indirect Designation
F0		○	○		

SMPL_BAK F0

7. Saving Sampling Data as a CSV file on the CF Card

A sampling data file (\SAMPLE\SMPxxxx.BIN) in the CF card can be converted into a CSV file and saved.

Location : \SAMPLE folder
Type : CSV file
File name : SMPxxxx.CSV (xxxx: 0 to 11; buffering area number)
("xxxx": the same as that in the BIN file name before conversion)

◆ Setting Item

◎ System Setting → Attribute Table

When converting a BIN file into a CSV file, it is necessary to set the attribute table (that contains the display format information) on V-SFT Editor.
For the setting procedure of attribute tables, see page 3-18.

◎ Macro command "SMPL_CSV"
The BIN file of the specified buffering file number "F0" is converted into a CSV file.

Usable Device

	PLC Memory	Internal Memory	Constant	Memory Card	Indirect Designation
F0		○	○		

SMPL_CSV F0

8. Transferring "Recipe" Data

"Recipe" data in the \RECIPE folder on the CF card can be imported in the V6 internal memory.
It is also possible to transfer data from the V6 internal memory to the CF card.

a. Importing a CSV File

A CSV file in the \RECIPE folder can be transferred to the V6 internal memory.

◆ Setting Item

◎ System Setting → Attribute Table

◎ Create CSV File File Name: RECxxxx.csv
Saves in the RECIPE folder

It is necessary to set the attribute table (that contains the display format information) on V-SFT Editor.
For the setting procedure of attribute tables, see page 3-18.

Create a CSV file and save it in the \RECIPE folder.

◎ Macro Command "LD_RECIPE"
The CSV file number "F1" is transferred to the memory areas starting with "F0."
For the file number, specify the same number set in the "ITEM No." column of the attribute table.

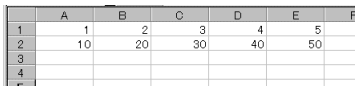
Usable Device

	PLC Memory	Internal Memory	Constant	Memory Card	Indirect Designation
F0	○	○			○
F1	○	○	○		

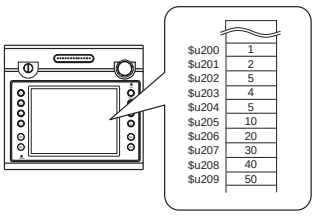
LD_RECIPE F0 F1

<Example>
To import the REC0001.CSV file in the \RECIPE folder on the CF card to internal memory $u200:

\RECIPE
- REC0000.CSV
- **REC0001.CSV**
- REC0002.CSV



Execute the macro command "LD_RECIPE $u200 1."



b. Importing Part of a CSV File

Specified columns or rows of a CSV file in the \RECIPE folder can be transferred to the V6 internal memory.

◆ Setting Item

◎ System Setting → Attribute Table

◎ Create CSV File File Name: RECxxxx.csv
Saves in the \RECIPE folder

It is necessary to set the attribute table (that contains the display format information) on V-SFT Editor.
For the setting procedure of attribute tables, see page 3-18.

Create a CSV file and save it in the \RECIPE folder.

◎ Macro Command "LD_RECIPESEL"
Columns or rows of the CSV file number stored in the "F1" memory are transferred to the memory areas starting with "F0."

Usable Device

	PLC Memory	Internal Memory	Constant	Memory Card	Indirect Designation
F0	○	○			○
F1	○	○			○

LD_RECIPESEL F0 F1

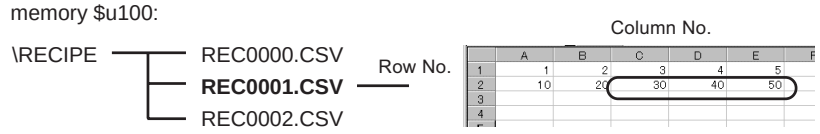
"F1" memory

Address	Contents
n	File number *
n+1	Start row number
n+2	Start column number
n+3	Number of rows
n+4	Number of columns

* For the file number, specify the same number as RECxxxx.csv set in the column of the attribute table.

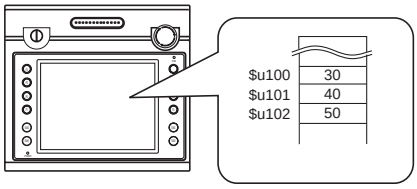
<Example>

To import part of the REC0001.CSV file in the \RECIPE folder on the CF card to internal memory $u100:



$u0000=1 (File No. 1)
$u0001=2 (Start row No. 2)
$u0002=3 (Start column No. 3)
$u0003=1 (1 row)
$u0004=3 (3 columns)

Execute the macro command "LD_RECIPESEL $u100 $u0000."



c. Creating a CSV File

Data in the V6 internal memory can be saved as a CSV file in the \RECIPE folder.

◆ Setting Item

◎ System Setting → Attribute Table

It is necessary to set the attribute table (that contains the display format information) on V-SFT Editor.

For the setting procedure of attribute tables, see page 3-18.

◎ Macro Command "SV_RECIPE"
Data of "F1" words from the "F0" memory is saved as a file No. "F2" in the \RECIPE folder.

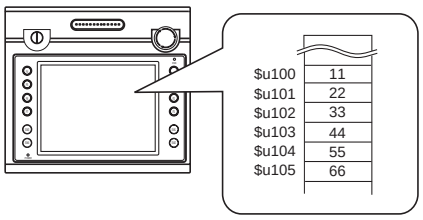
Usable Device

	PLC Memory	Internal Memory	Constant	Memory Card	Indirect Designation
F0	○	○			○
F1	○	○	○		
F2	○	○	○		

SV_RECIPE F0 F1 F2

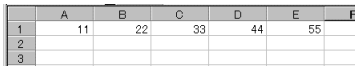
<Example>

To save six words from the V6 internal memory $u100 as the REC0002.CSV file in the \RECIPE folder on the CF card:



Execute the macro command "SV_RECIPE $u100 6 2."

\RECIPE
- REC0000.CSV
- REC0001.CSV
- **REC0002.CSV**



	A	B	C	D	E
1	11	22	33	44	55
2					
3					

9. Attribute Table

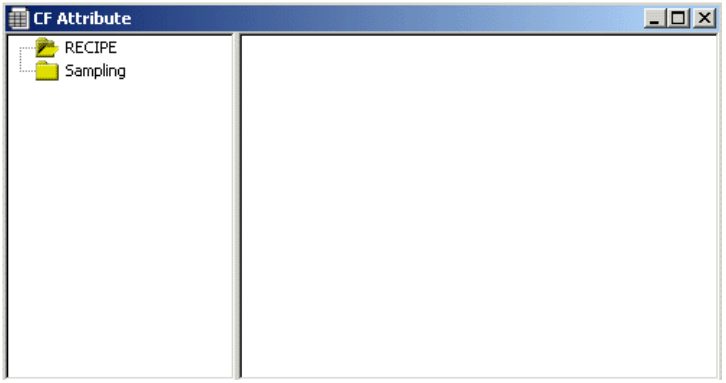
To convert a BIN file into a CSV file, information about the display format and the word length (single-word or double-word) is required, and should be set on the attribute table of V-SFT Editor.
To use the following functions, the attribute table should be set:

a. To convert an SMPxxxx.BIN file in the \SAMPLE folder into a CSV file
b. To transfer a RECxxxx.CSV file to the V6/PLC memory, or to save data in the V6 internal memory as a RECxxxx.CSV file

CF Attribute (Attribute Table)

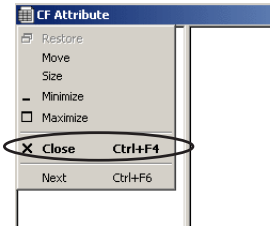
◆ Starting

Select [System Setting] from the menu bar and click the [Attribute Table]. The [CF Attribute] window is opened.

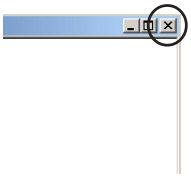


◆ Exiting

Click the upper left of the screen and select [Close] from the menu.
Or click the [X] box at the upper right corner.



or



a. Converting an SMPxxxx.BIN File into a CSV File

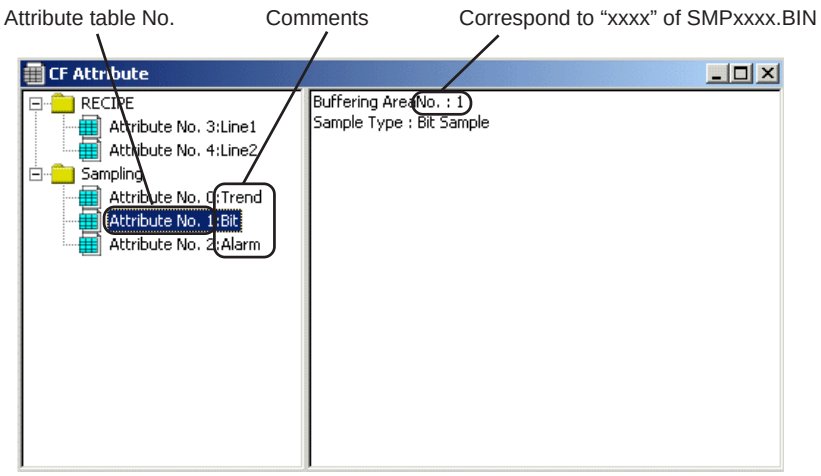
◆ Setting Item

◎ System Setting → Buffering Area Setting

◎ Sampling Mode

◎ System Setting → Attribute Table

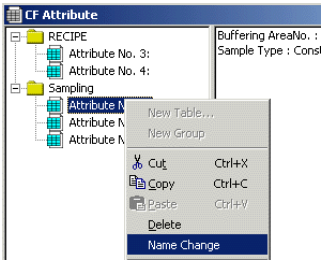
◆ CF Attribute (Attribute Table)



Procedure to enter comments

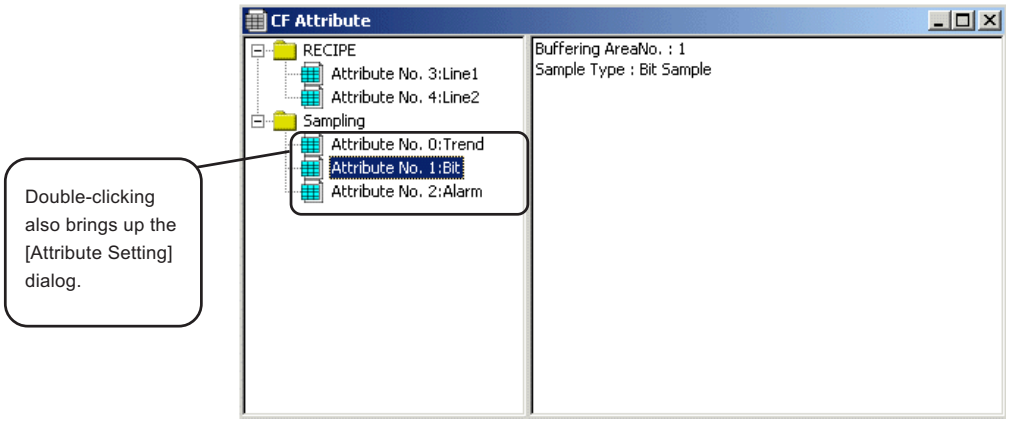
1. Specify the attribute table No. to write down comments.
2. Right-click to select [Name Change], and write down comments.

* Up to 16 characters can be used for a comment.

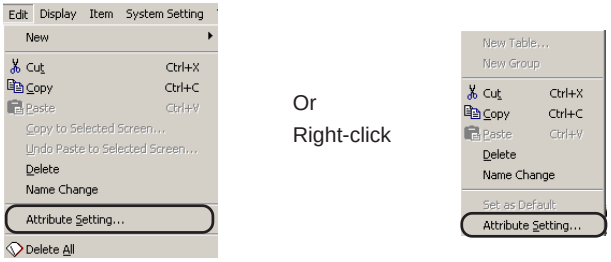


◆ Attribute Setting

1. Select the attribute No. for attribute setting.

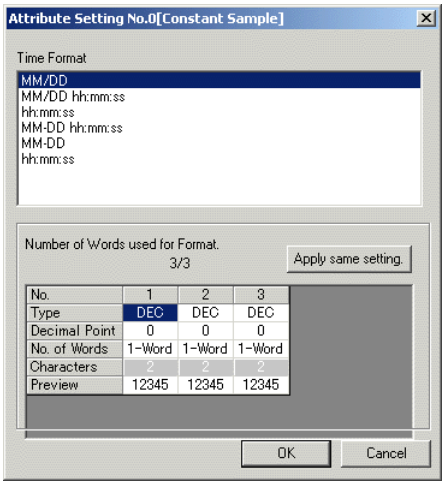


2. Click [Attribute Setting] from the [Edit] menu.
   Or, right-click and select [Attribute Setting].



3. The [Attribute Setting] dialog is displayed.

◇ Constant Sample/Bit Synchronize/Temp. Control Net/PLC2



[Time Format] field

Set the display format of data and time.

[Setting of each data format]

Make setting for each data format. The items shown in the diagram below can be set.

Type	Decimal Point (0 to32)	No. of Words	Characters (0 to 256)
DEC	○	1 Word/ 2 Word	—
DEC-	○	1 Word/ 2 Word	—
HEX	—	1 Word/ 2 Word	—
OCT	—	1 Word/ 2 Word	—
BIN	—	1 Word/ 2 Word	—
CHAR	—	—	○
BCD	—	1 Word/ 2 Word	—
FLOAT	○	2 Word	—

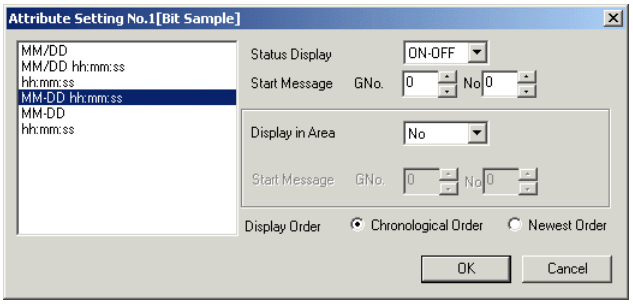
Characters : the number of bytes

[Apply same setting]

Applies the format of the currently selected data to all.

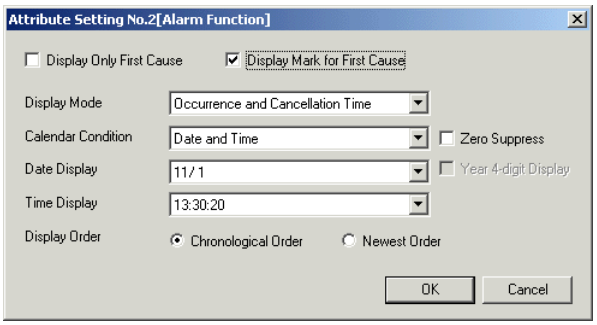
◇ Bit Sampling

Set the display format of date and time, and items for the sampling mode.



◇ Alarm Function

Set the display mode, the display format of date and time, etc.



CSV File Examples

Examples of CSV files created using the macro command "SMPL_CSV" are shown below:

◇ Bit Synchronize

CF Attribute No.

SMP0000.CSV

	A	B	C
1	No.000		
2	5/5	0	
3	5/5	100	
4	5/5	50	
5	5/5	65	
6	5/5	200	
7			
8			
9			

◇ Bit Sampling

CF Attribute No.

SMP0002.CSV

	A	B	C	D	E
1	No.002				
2	2001/5/5 9:12	Error5			
3	2001/5/5 9:12	Error2			
4	2001/5/5 9:12	Error7			
5	2001/5/5 9:12	Error4			
6	2001/5/5 9:12	Error5			
7	2001/5/5 9:12	Error7			
8	2001/5/5 9:12	Error2			
9	2001/5/5 9:12	Error4			
10	2001/5/5 9:12	Error9			
11					
12					
13					
14					

SMP0002

◇ Alarm Function

CF Attribute No.

Primary cause

SMP0003.CSV

	A	B	C	D
1	No.003			
2	*	Error1	6/18 16:36:51	6/18 16:37:08
3		Error8	6/18 16:36:54	6/18 16:37:12
4		Error5	6/18 16:36:57	6/18 16:37:15
5		Error3	6/18 16:37:02	6/18 16:37:26
6		Error6	6/18 16:37:05	6/18 16:37:26
7		Error3	6/18 16:37:28	6/18 16:37:32
8		Error6	6/18 16:37:28	6/18 16:37:32
9	*	Error3	6/18 16:37:33	**********
10		Error6	6/18 16:37:33	**********
11				
12				
13				
14				
15				
16				

SMP0003

b. Transferring a RECxxxx.CSV File to V6 Internal Memory, or Saving V6 Internal Memory Data as a RECxxxx.CSV File

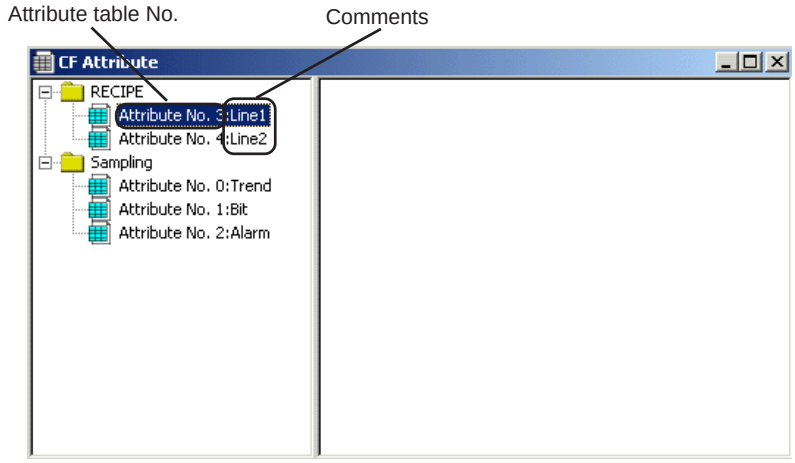
◆ Setting Item

◎ System Setting → Attribute Table

◎ RECIPE folder on the CF card → Create CSV File

REC0000.CSV
≀
REC9999.CSV

◆ CF Attribute (Attribute Table)

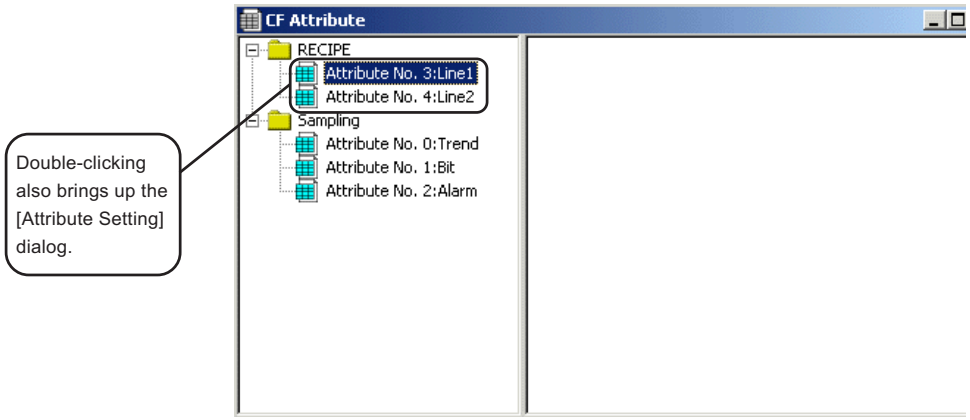


◇ Exporting to a CSV File
The attribute table created in the [CF Attribute] dialog can be saved as a CSV file.
Click [Export to CSV File] from the [File] menu, and give a file name.

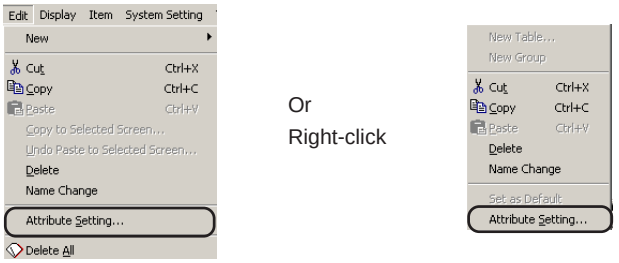
◇ Importing from a CSV File
An exported CSV file can be imported to the [CF Attribute] dialog after editing on a spreadsheet, such as Excel.
Click [Import CSV File] from the [File] menu, and select the desired CSV file.

◆ Attribute Setting

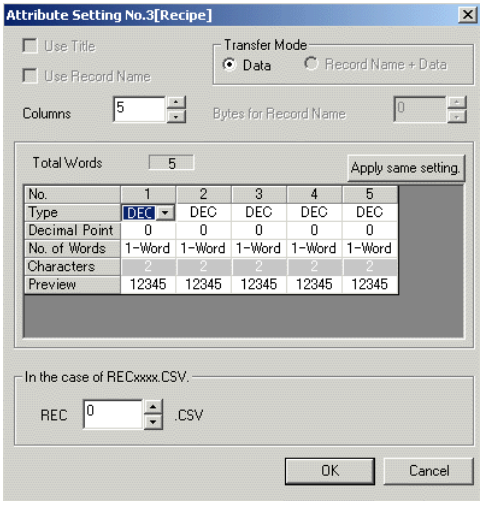
1. Select the attribute No. for attribute setting.



2. Click [Attribute Setting] from the [Edit] menu .
   Or, right-click and select [Attribute Setting].



3. The [Attribute Setting] dialog is displayed.



[The number of Column] (1 to 4096)

Set the number of columns in CSV files.

* The maximum number of columns is [4096]. However, depending on the setting contents of each data, the number is automatically limited if the [Total Words] reaches to [4096] words.
* The maximum number of columns to handle CSV files on Excel is [256].

[Setting of each data format]

Make setting for each data format. The items shown in the diagram below can be set.

Type	Decimal Point (0 to32)	No. of Words	Characters (0 to 256)
DEC	○	1 Word/ 2 Word	—
DEC-	○	1 Word/ 2 Word	—
HEX	—	1 Word/ 2 Word	—
OCT	—	1 Word/ 2 Word	—
BIN	—	1 Word/ 2 Word	—
CHAR	—	—	○
BCD	—	1 Word/ 2 Word	—
FLOAT	○	2 Word	—

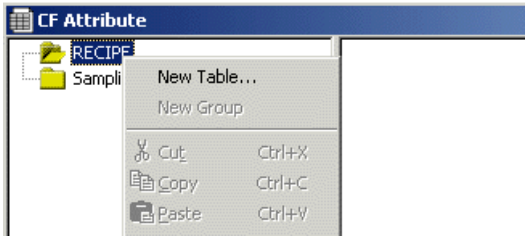
Characters : the number of bytes

After making all the settings shown above, the [Total Words] (1 to 4096) is automatically displayed.

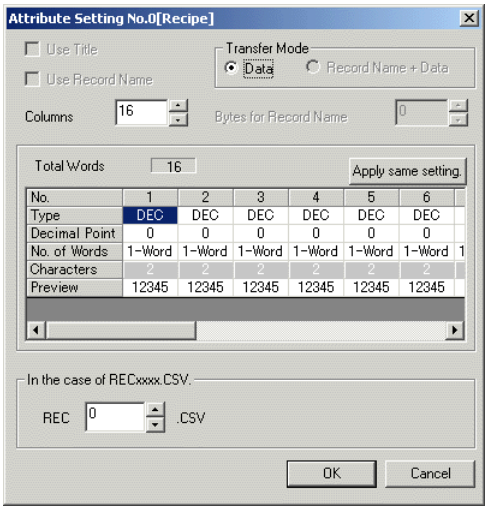
Procedure to set Attribute Table Newly

1. Click the [Attribute Table] from the [System Setting], and the [CF Attribute] is displayed.

2. Select the [RECIPE] folder, and right-click to display the following menu.
   Click the [New Table].



3. The [Attribute Setting No.0] dialog is displayed.
   For the setting items in this window, see page 3-25.



5 System Memory

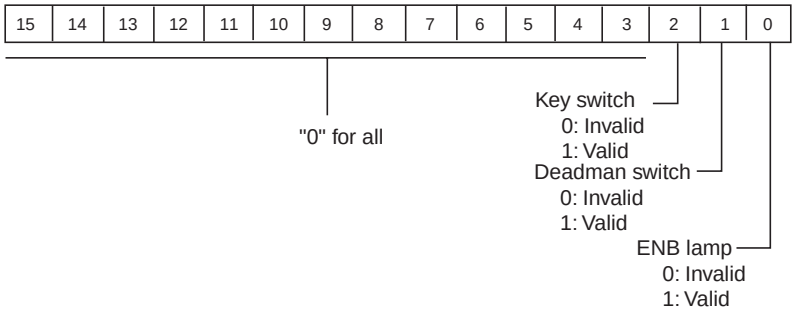
Statuses of the deadman switch, the key switch, external output switches, and the CF card are output to the system memory ($s).
The contents of $s490 to 499 and $s780 are explained in this section.
For information on other memory areas, refer to "Appendix 1" in "Reference Manual (Function)."

List of System Memory Contents

Address	Contents	Memory Type
$s490	V608CH Switch setting of key switch/deadman switch	<-V
$s491	V608CH Answerback of each switch	
$s492	V608CH Backup battery (V6H-RB) status	
$s493		
$s494		
$s495		
$s496		
$s497	CF card error status	<-V
$s498	CF card free space (low-order) Unit: Kbytes	
$s499	CF card free space (High-order) Unit: Kbytes	
$s780	CF card BMP file load information	

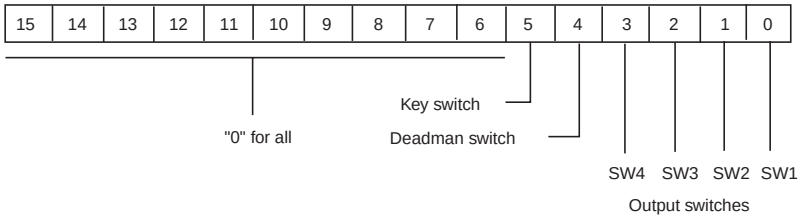
Address Details

◎ $s490
Information on whether or not the deadman switch, the key switch and the ENB lamp are valid is output.



◎ $s491

Answerbacks of the output switches, the deadman switch and the key switch are output.



◎ $s492

The status of built-in clock backup battery (V6H-RB) is output.

0: Normal

1: Battery voltage drop (Replace the battery.)

◎ $s497

The result of access to the CF card is output.

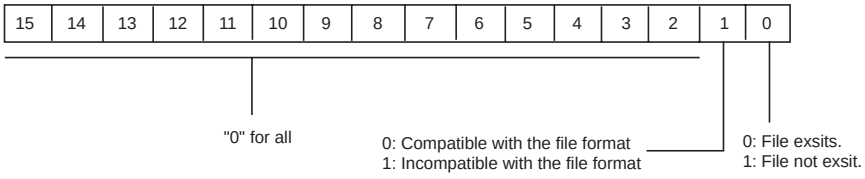
4	No card inserted
6	Small card size
7	Invalid card type
12	Card write error
15	Disk error (open failure)
16	Card read error

◎ $s498 to 499

Free capacity (kbyte) of the CF card is stored.

◎ $s780

The bitmap file loading information is output.



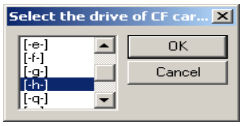
6 CF Card Manager

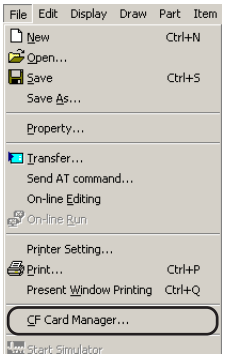
To perform data transfer between V-SFT Editor and the CF card, convert files with the extensions of [.V6] or [.bmp] into a file format so that the unit can read the data, and then save it on the CF card.
Also, it is required to convert a file into the file with the extension of [.V6] or [.bmp] in order to see the data in the card on computer.
CF Card Manager enables to convert these files described above.

A. Starting CF Card Manager (page 3-29)
B. Writing Data into CF Card (page 3-30)
C. Copying CF Card (page 3-33)
D. Back-up of CF Card (page 3-34)
E. Converting a BIN File back to the Original Format (page 3-35)
F. Others (Property) (page 3-36)

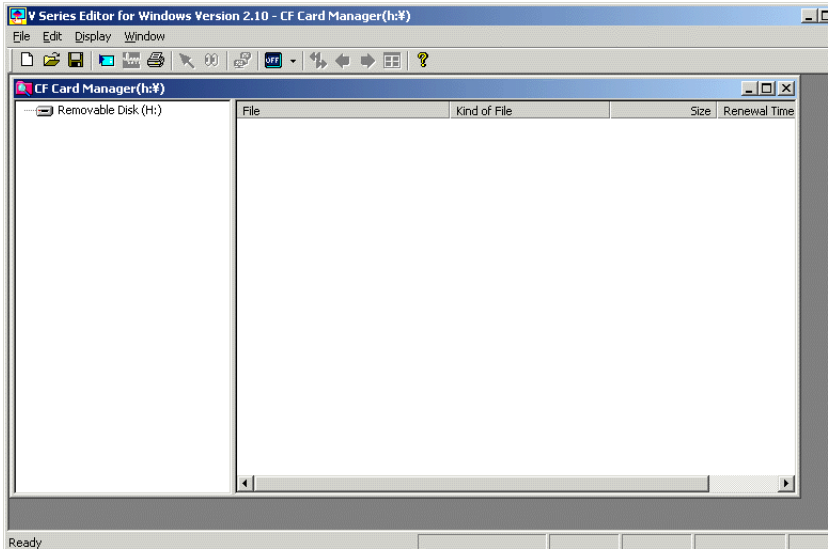
A. Starting CF Card Manager

1. Click [CF Card Manager] from the [File] menu.
2. The following dialog is displayed.
   Select the CF card drive and click [OK].
   Not only the CF card drive but other drives can be selected in this window.





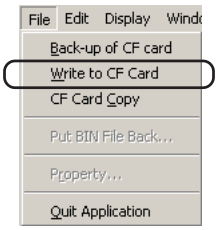
3. [CF Card Manager] is started.



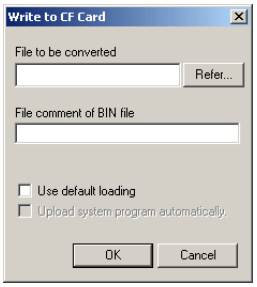
B. Writing Data into CF Card

◎ Screen Data (.V6)

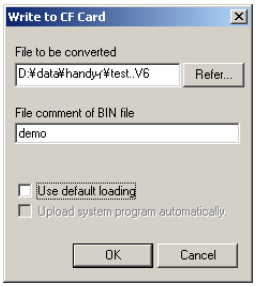
Convert the selected screen data into the BIN file format so that the unit can read the data, and then write it to CF card.



1. Click the [Write to CF Card] from the [File] menu.
2. The [Write to CF Card] is displayed.



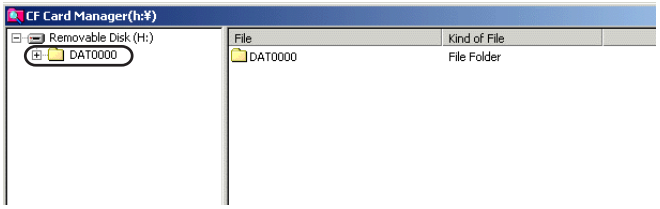
[File to be converted]
Click the [Refer], and specify the file to be written to CF card.
Select the [Screen Data File(*.V6)] as Files of type.



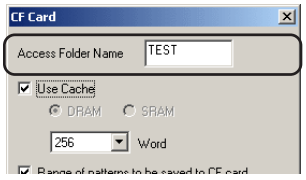
[File comment of BIN file]
This area is used to give a comment to the file (BIN file) written to CF card.

Click the [OK].

3. A folder set in the [Access Folder Name] is created on the CF card.



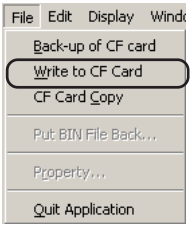
The created folder name on the CF card comes from the [Access folder name] set in the [CF Card Setting] of the V-SFT Editor.



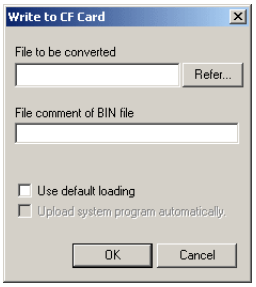
◎ Memory Card Data (.mcd)

Convert the selected memory card data into the BIN file format so that the unit can read the data, and then write it to CF card.

1. Click the [Write to CF Card] from the [File] menu.



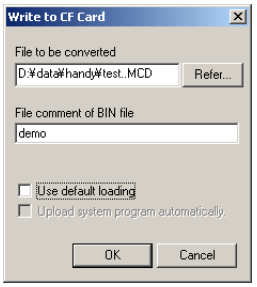
2. The [Write to CF Card] is displayed.



[File to be converted]

Click the [Refer], and specify the file to be written to CF card.

Select the [Memory Card File(*.mcd)] as Files of type.



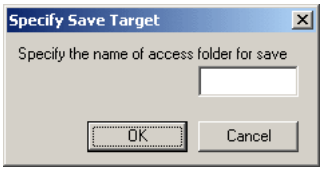
[File comment of BIN file]

This area is used to give a comment to the file (BIN file) written to CF card.

Click the [OK].

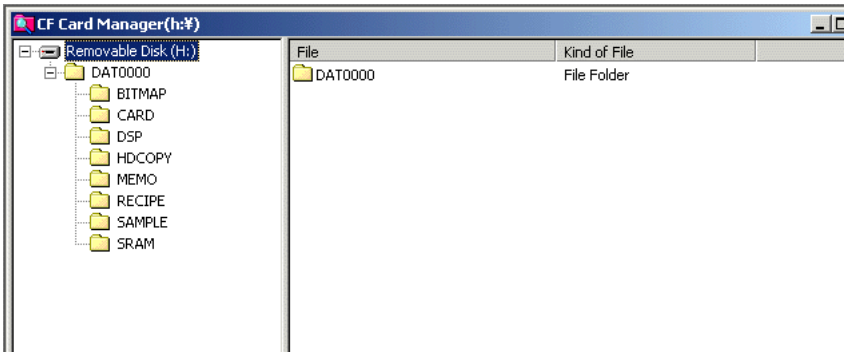
3. The [Specify Save Target] dialog is displayed.

Enter an access folder name to save a mcd file, and click the [OK].



4. A folder is created in the CF card.

There are 8 folders shown in the following diagram under an access folder name in CF card.



[BITMAP]
The item of [Range of patterns to be saved to CF card] can be set on V-SFT in order to save the size of screen data. (Relevant to page 3-8)
Pattern data set in this window is saved in CF card.

[CARD]
Both recipe data and sampling data stored in SRAM are saved in a file.
(Relevant to page 3-9)

[DSP]
Screen data, sys. program, I/F driver, and font data are saved in a file.

[HDCOPY]
Data when the [HDCOPY] macro is executed in the unit is saved. (Relevant to page 3-7)

[MEMO]
Memo pad data in the unit can be saved.

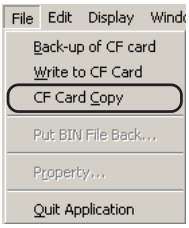
[RECIPE]
CSV files to execute [LD_RECIPE] and [LD_RECIPPESEL] macro are saved in this folder.
(Relevant to page 3-15, 16)
Also, CSV files when [SV_RECIPE] macro is executed are saved. (Relevant to page 3-17)

[SAMPLE]
Sampling data stored in [CF Card] is saved every buffering area here.
(Relevant to page 3-10)

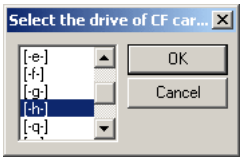
[SRAM]
This folder is not available for V608CH.

C. Copying CF Card

1. Click [CF Card Copy] from the [File] menu.



2. Select the CF card drive and click [OK].



3. The following dialog is displayed. Click [OK].

4. Remove the source CF card from the computer and insert the target CF card. Click [OK].

5. The following dialog is displayed. Click [OK] in the dialog.

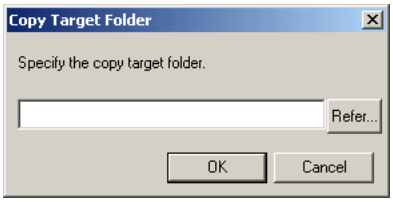
6. When copying has been completed, the following dialog is displayed. Copy operation is complete.

D. Back-up of CF Card

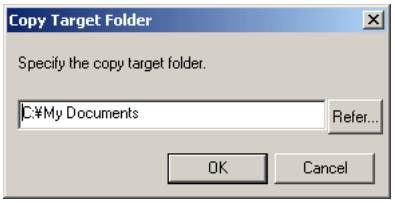
Data on the CF card is saved as back-up.

The target place where back-up is saved can be selected freely.

1. Click [Back-up of CF card] from the [File] menu.
2. The [Back-up of CF card] dialog is displayed.
   Click the [Refer] in order to specify the place where the data is copied.



<Example>
When data is saved in the My Document of C Drive.



3. Click [OK], and the following dialog is displayed.

4. Click [OK]. The data on the CF card is copied to the target copy.
   When copying has been completed, the following dialog is displayed to finish this operation.

5. Check that data is copied on the Explorer.

The functions of copy and paste are also available to copy the data on a CF card to Hard Disk.

E. Converting a BIN File back to the Original Format

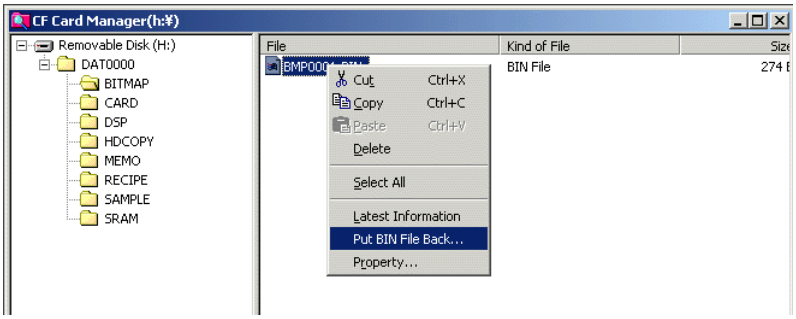
All the data written to CF card has the same extension of [.BIN] after executing [B. Write to CF card]. (See page 3-29.)

BIN files can be converted back to the original file format.
The following files can be converted.

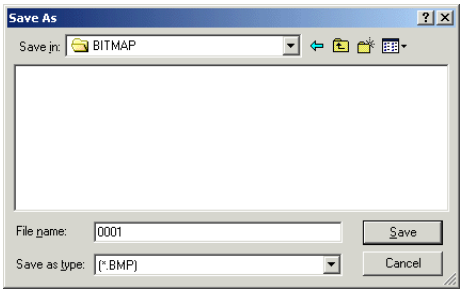
Folder	Extension after Conversion
BITMAP	.bmp
CARD	.mcd (for M-CARD SFT Editor)
DSP	.V6
HDCOPY	.bmp
MEMO	.bmp

◆ Procedure

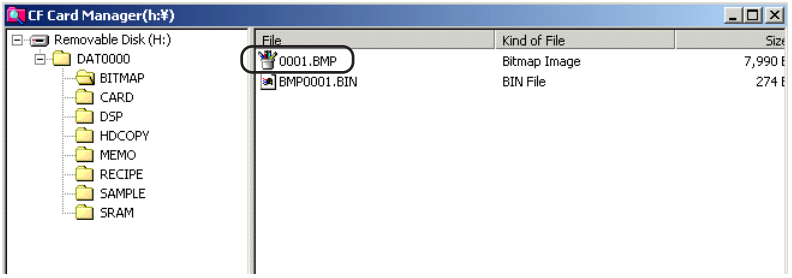
1. Select the file to be converted.
2. Click [Put BIN File Back] from the [File] menu.
   Or, right-click and select [Put BIN File Back].



3. The [Save As] dialog is displayed.
   Select the location, give a file name, and click [Save].



4. A file with ".BMP" extension is created.



F. Others

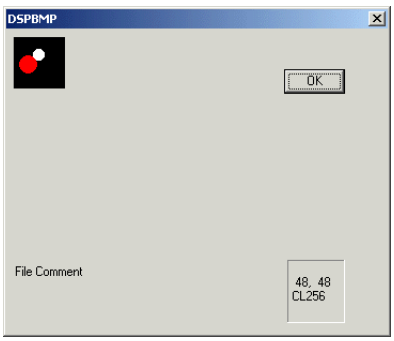
◆ BIN File Property

Select a BIN file, right-click, and select [Property]. The file information is displayed.

<Example>

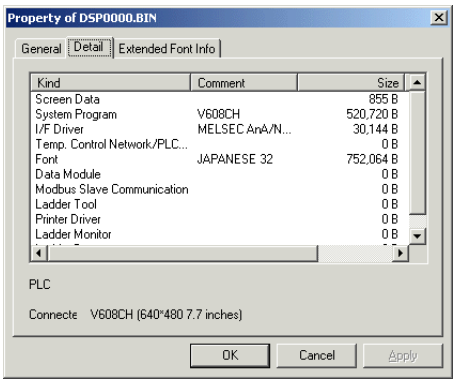
◯ BMPxxxx.BIN/HDxxxx.BIN/MEMxxxx.BIN

The bipmap image is displayed.

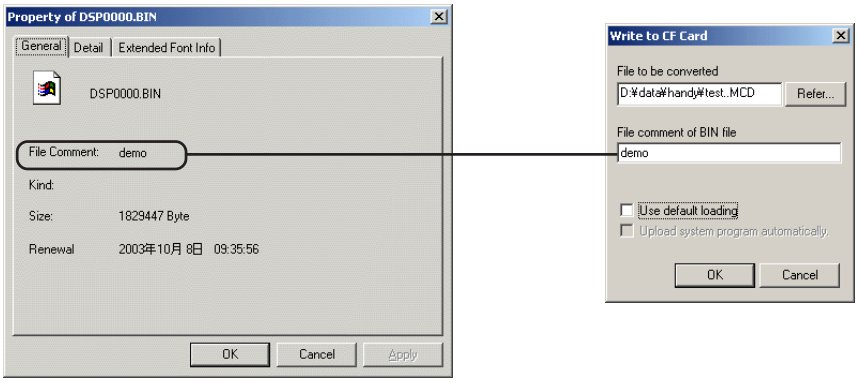


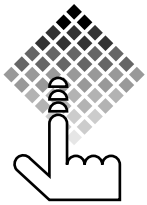
◯ DSPxxx.BIN

The file type, version number, etc. can be displayed on the [Detail] tab window.



The [File comment] entered at the time when [Write to CF card] is executed can be displayed on the [General] tab window.





MONITOUCH

Hakko Electronics Co., Ltd.

890-1, Kamikashiwano-machi, Matto-shi, Ishikawa, 924-0035 Japan
Sales TEL: +81-76-274-2144 FAX: +81-76-274-5208