Version 1.0

ZM-71SE Additional Instructions

This manual explains the added functions (for Ver.2.0.0.0) of the screen edit software ZM-71SE for LCD Control Terminal Ver.2.2.3.0.

Please read following manuals, too.

- ZM-71SE Instruction manual (Function version 2.0)
- ZM-71SE Instruction manual (Operation version 2.0)

SHARP MANUFACTURING SYSTEMS CORPORATION

Contents

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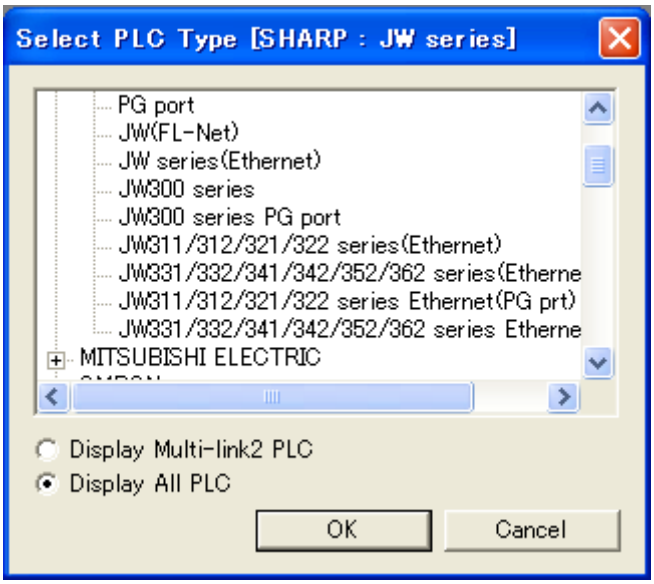
Chapter 1

- PLC type Added
- Models Added
- Temperature Control Network/PLC2Way
- Ethernet Communications
- Backlight
- Check Screen
- Ladder Transfer Function

PLC type added

In PLC type, the following models are added to compatible models of SHARP Corporation.



Correspond to 1. JW300 series COMM port connection

2. JW300 series COMM (PG) command connection
3. JW311/312/321/322 series Ethernet connection
4. JW331/332/341/342/352/362 series Ethernet connection
5. JW311/312/321/322 series Ethernet (PG protocol)
6. JW331/332/341/342/352/362 series Ethernet (PG protocol).

Models Added

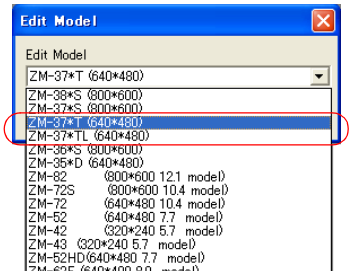
The following models are added to the ZM-300 series.

- ZM-371TL/373TL

ZM-371TL/373TL

Edit Model Selection

The following dialog is displayed when creating a new file or selecting [System Setting] → [Edit Model].



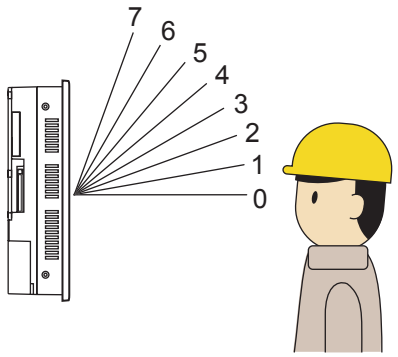
- ZM-371TL : Analogue touch panel screen
  128 colors TFT model
- ZM-373TL : Matrix touch panel screen
  128 colors TFT model

(Note) The color which can be used is limited to 128 colors.

View Angle Adjustment

♦ Overview

The ZM-371TL/373TL offers eight levels of view angle adjustment. This setting is valid when viewing the monitor downward. The adjustment should be made using function switches or macro commands.



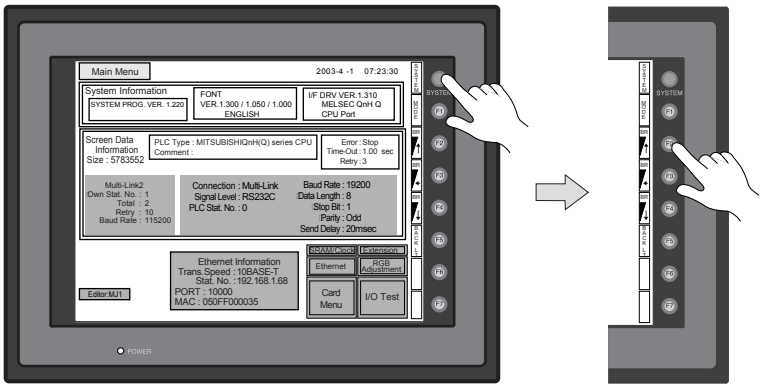
♦ When Using Function Switches

The view angle can be adjusted using function switches in the RUN mode or when the Main Menu screen is displayed.

When [System Switch Prohibited] is selected on the [System/Mode Switch] tab window of the [Unit Setting] dialog that is selected from the [System Setting] menu, the adjustment can only be made on the Main Menu screen.

- Procedure

1) Hold down the [SYSTEM] switch for three seconds when the vertical menu is displayed. The view angle adjustment menu is displayed next to the function switches.



2) Adjust the view angle using the [F2], [F3] and [F4] switches.

Function Switch	Action
SYSTEM	Determine
F2	+1
F3	–1
F4	Reset to the default (0)

3) Press the [SYSTEM] switch to determine or wait for five seconds until the view angle adjustment menu disappears.

♦ When Using Macro Commands

- Setting Items
  - Macro command → ADJ_ANGLE
  - Macro command → SAVE_ANGLE

- Macro Command

[ADJ_ANGLE]

The view angle adjustment value is changed to the one specified for F0.

Available Devices

	PLC Memory	Internal Memory	Constant	Indirect Designation
F0		○	○	

ADJ_ANGLE F0

F0	0 to 7: View angle adjustment value

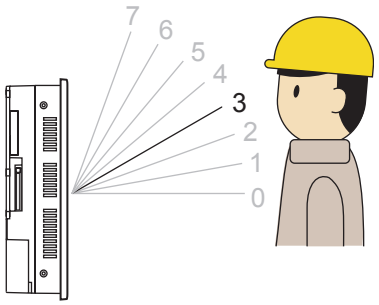
[SAVE_ANGLE]

The view angle adjustment value that is set with the ADJ_ANGLE command is stored on the FROM.

When the SAVE_ANGLE command is executed, the communication (serial, Ethernet) is temporarily interrupted. Do not execute the SAVE_ANGLE command frequently.

- Setting Example

  To adjust the view angle suitable for operation from position 3 shown below:



1) Execute macro command “ADJ_ANGLE 3”.
2) Execute macro command “SAVE_ANGLE”.

When the ZM-371TL/373TL is turned off without executing the SAVE_ANGLE command following the ADJ_ANGLE command, the view angle is reset to the one that was valid before executing the ADJ_ANGLE command.

♦ System Memory

- $s958
  The current view angle adjustment value (0 - 7) is stored.

Temperature Control Network/PLC2Way

The following capabilities are added to the temperature control network/PLC2Way function.

- Synchronized reading

  The data in the memory specified on the temperature control network/PLC2Way table is read at the leading edge (bit ON) of the control memory.

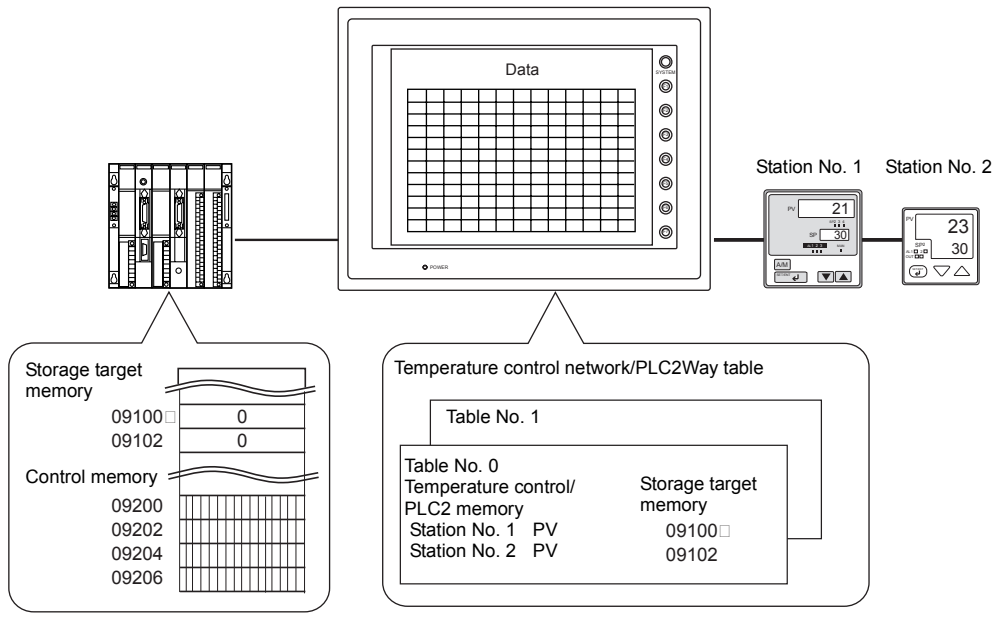
- High-speed reading cycle

  The cycle of reading from the memory specified on the temperature control network/PLC2Way table can be set in increments of 100 ms.

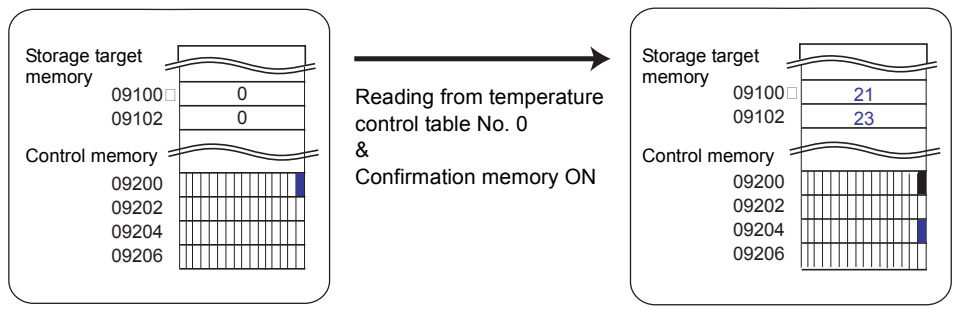
Synchronized Reading

♦ Operation Overview

The data in the memory specified on the temperature control network/PLC2Way table is read into the storage target memory at the leading edge (0 → 1) of the control memory.

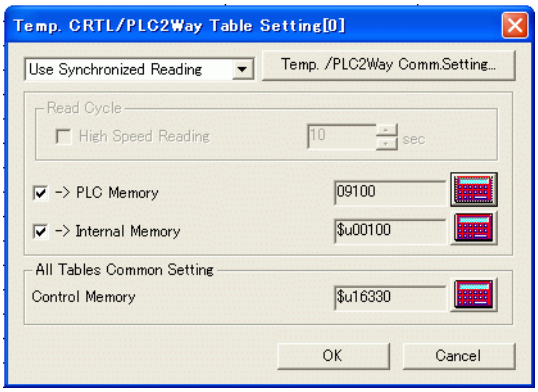


The control memory bit is set (ON) on Table No. 0.



♦ Setting Items

[Temp. CTRL/PLC2Way Table Setting] Dialog



- Use Synchronized Reading

  Be sure to select [Use Synchronized Reading].

- Read Cycle

  This is not valid when [Use Synchronized Reading] is selected.

Omron's ID controller V600/620 is an exception and [Read Cycle] is valid even when [Use Synchronized Reading] is selected.

- Store Target PLC Memory/Store Target Internal Memory

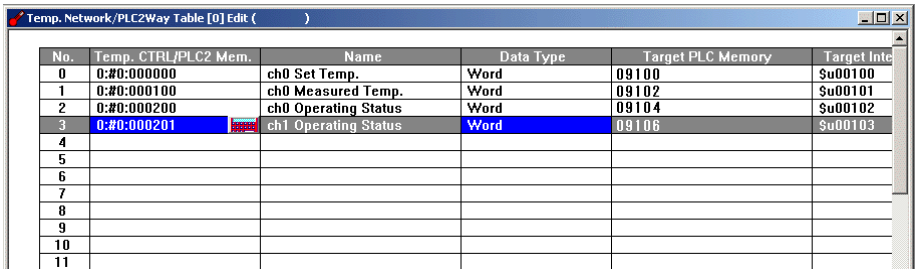
  Set the storage target memory reading from the temperature control/PLC2 memory.

- Control Memory

  Set the memory that triggers reading from the temperature control/PLC2 memory.

For more information on the control memory, refer to "Control Memory" P1-7.

[Temp. Network/PLC2Way Table Edit] Window



- Temp. CTRL/PLC2 Mem.

  Register the required temperature control/PLC2 memory addresses.

For more information on table editing, refer to the manual entitled "ZM-300 User's manual" and "Temperature Control Network."

♦ Control Memory

The control memory becomes valid when [Use Synchronized Reading] is selected.*
4 words consecutively from the control memory “n” are used.

Control memory “n”	Contents	Memory Type
n	Read command memory	→ ZM
n + 1		
n + 2	Read confirmation memory	← ZM
n + 3		

*** Valid when [Use Periodical Reading] is selected on Omron’s ID controller V600/620**

- Read command memory (control memory “n”, “n + 1”)

  One bit is assigned to each table.

  The data in the memory specified for the table number in the “Temp. CTRL/PLC2 Mem.” column is read into the storage target memory at the leading edge (0 → 1).

n

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

Temperature control network/PLC2Way table No. 0 to 15

n + 1

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	

Temperature control network/PLC2Way table No. 16 to 31

- Read confirmation memory (control memory “n + 2”, “n + 3”)

  One bit is assigned to each table.

  The confirmation bit for control memory (n, n + 1) ON is set (0 → 1) and the confirmation bit for control memory (n, n + 1) OFF is reset (1 → 0).

n + 2

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

Temperature control network/PLC2Way table No. 0 to 15

n + 3

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	

Temperature control network/PLC2Way table No. 16 to 31

ON condition of read confirmation memory:
The read confirmation memory is set (ON) when data is read from any single memory address set on the temperature control network/PLC2Way table.

In the case of Omron's ID controller V600/620, [Read Cycle] is valid even when [Use Synchronized Reading] is selected.
If reading from the table is triggered by command memory ON and is not finished, it is retried until reading is completed (until the confirmation bit is set).
If the command memory is reset (OFF) at the execution of retrial, reading is aborted even when reading is not completed.

High-speed Read Cycle

♦ Operation Overview

The cycle of periodical reading from the memory specified on the temperature control network/PLC2Way table can be set in increments of 100 ms.

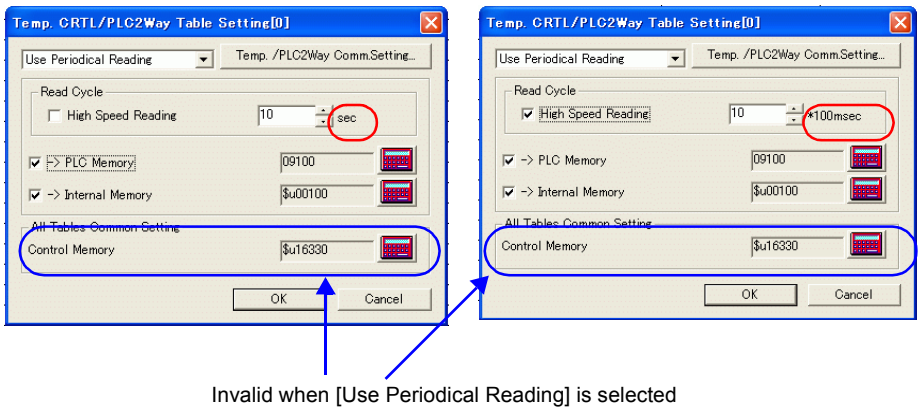
*** This is also valid when [Use Synchronized Reading] is selected on Omron's ID controller V600/620 (P1-8).**

♦ Setting Items

- [Temp. CTRL/PLC2Way Table Setting] Dialog

  Read Cycle: ☐ High Speed Reading

  - [High Speed Reading] unchecked
    Unit: 1 sec
  - [High Speed Reading] checked
    Unit: 100 msec



- Read Cycle

[☐ High Speed Reading]*	Read Cycle	
	Setting Range	Unit
Unchecked	1 to 3600	1 s
Checked	1 to 3600	100 ms

*** ZM-71SE: Available with version 2.1.4.0 and later**

Ethernet Communications

To perform Ethernet communications, IP addresses must be set on ZM series.

Depending on the system configuration, the network table setting may be required. Make necessary settings.

Network Table

Before performing Ethernet communications with the ZM series and PLCs on Ethernet, IP addresses of partners must be set on the network table. However, if ZM series only receives commands from the host computer and does not make any action, Ethernet communications can be performed without network table setting. (See the chart below.)

Partner		Network Table
Ethernet unit on the PLC		Required
ZM series	With EREAD/EWRITE macro commands	Required
Computer	Screen data transfer	Not required
	HKEtn.dll application without SEND macro command	Not required
	HKEtn.dll application with SEND macro command	Required
	E-mail	Not required
	Web server	Not required

Even when the network table is not required for connection, it is possible set the IP address of the local port using the network table.

♦ Setting

- [System Setting] → [Network Table Setting] → [Ethernet]

  [Edit Network Table] window

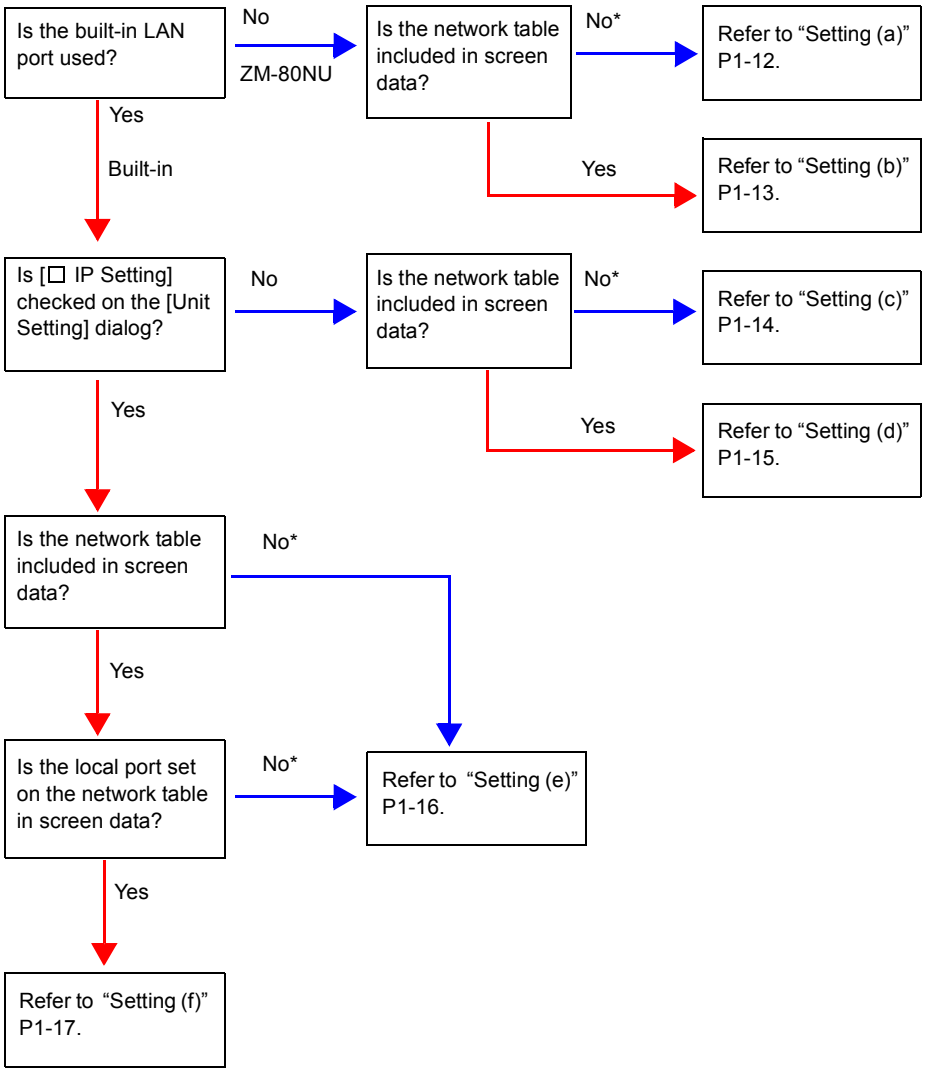
  Register IP addresses of the ZM series and all the devices that make communications with the ZM series.

For more information on table editing, refer to the “ZM-300 User’s manual”.

IP Address Setting

The IP address setting varies depending on either the built-in LAN port of the ZM-3**A(high function display) series is used or the network unit ZM-80NU/80NU2 is used.

Follow the chart below when setting IP addresses.



* When the network table is not included in screen data:
  - Macro commands for Ethernet (EREAD/EWRITE/SEND) cannot be used.
  - Ethernet communications with PLCs are not available.

For more information, refer to “Network Table” P1-10.

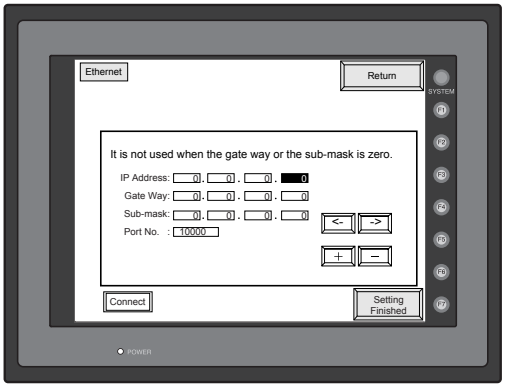
♦ Setting (a)

Set the IP address on the Main Menu screen.

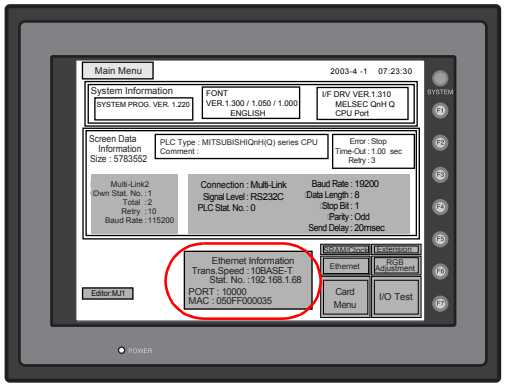
When the network table is not included in screen data:
- Macro commands for Ethernet (EREAD/EWRITE/SEND) cannot be used.
- Ethernet communications with PLCs are not available.

For more information, refer to “Network Table” P1-10.

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



2. Set the IP address and other necessary items.
3. Press the [Setting Finished] switch to move back to the Main Menu screen. The set IP address is displayed.



♦ Setting (b)

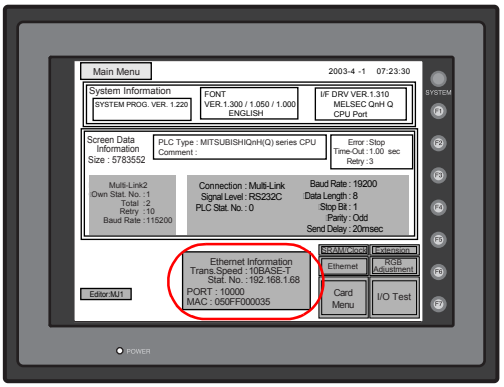
Set the IP address using the rotary switch on the network unit ZM-80NU/80NU2.

1. Set the network table as screen data (refer to the User's manual). Register the IP address of the local port on this network table.
2. Transfer screen data.
3. Match the rotary switch setting on ZM-80NU/80NU2 and the network table number where the IP address of the local port is set.

Be sure to turn ZM series off in this case.

For information on the rotary switch on ZM-80NU/80NU2, refer to the User's manual."

4. The IP address set on the Main Menu screen is displayed.



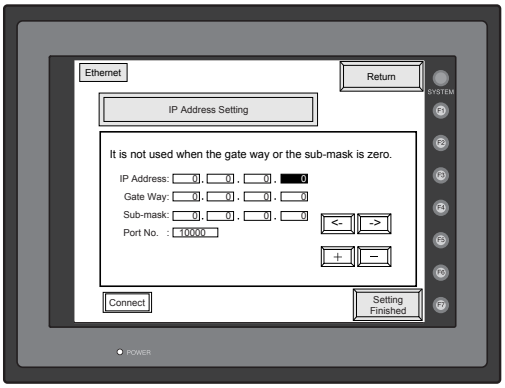
♦ Setting (c)

Set the IP address on the Main Menu screen.

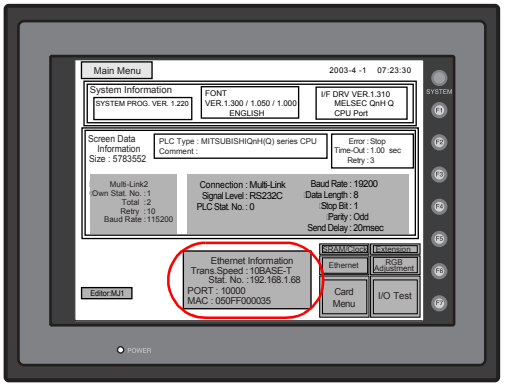
When the network table is not included in screen data:
- Macro commands for Ethernet (EREAD/EWRITE/SEND) cannot be used.
- Ethernet communications with PLCs are not available.

For more information, refer to “Network Table” P1-10.

1. Press the [Ethernet] switch on the Main Menu screen to bring up the Ethernet screen.
2. Select [IP Address Setting] on the screen.
3. Set the IP address and other necessary items.



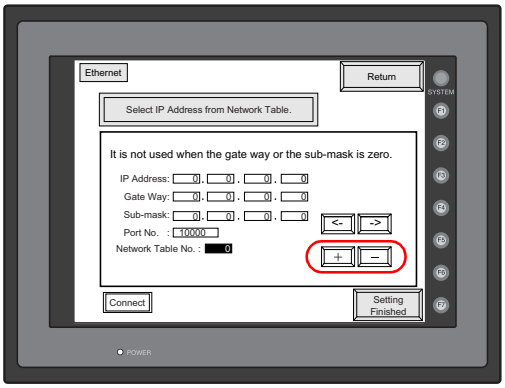
4. Press the [Setting Finished] switch to move back to the Main Menu screen. The set IP address is displayed.



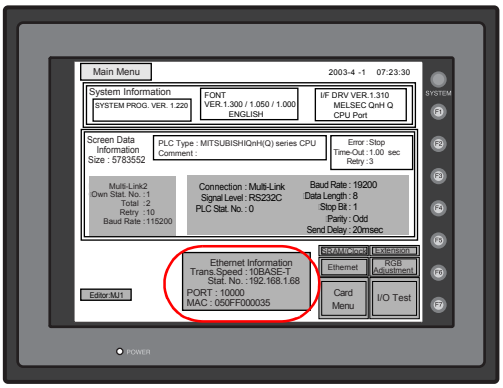
♦ Setting (d)

Set the IP address on the Main Menu screen.

1. Press the [Ethernet] switch on the Main Menu screen to bring up the Ethernet screen.
2. Select [Select IP Address from Network Table] on the screen.
3. Set the IP address by selecting the network table number.



4. Press the [Setting Finished] switch to move back to the Main Menu screen. The set IP address is displayed.



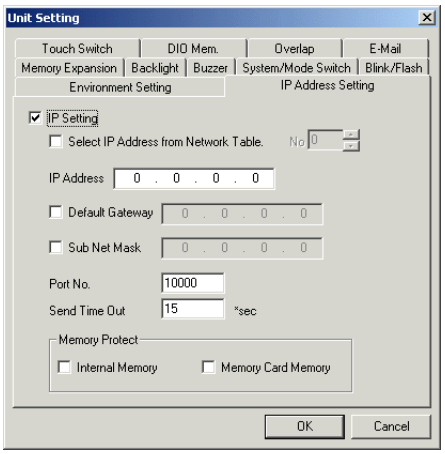
♦ Setting (e)

Set the IP addresses as screen data.

When the network table is not included in screen data:
- Macro commands for Ethernet (EREAD/EWRITE/SEND) cannot be used.
- Ethernet communications with PLCs are not available.

For more information, refer to “Network Table” P1-10.

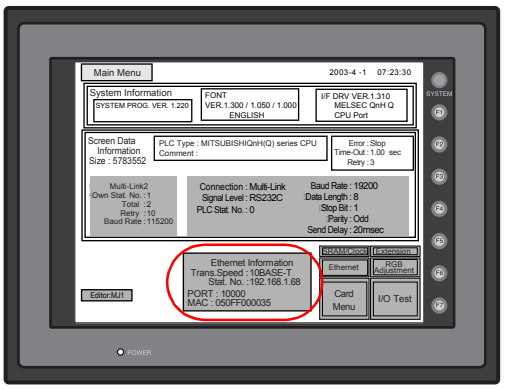
1. Select [System Setting] → [Unit Setting (S)] → [IP Address Setting] on the screen edit software menu. The [IP Address Setting] tab window is displayed.
2. Check [☐ IP Setting].



3. Make the following settings:

- IP Address
- Default Gateway
- Sub Net Mask
- Port No.
- Send Time Out
- Memory Protect

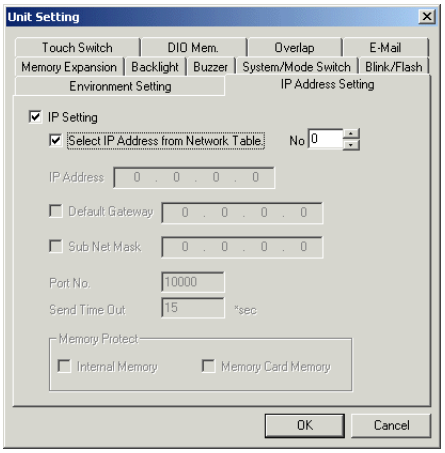
4. Click [OK] and transfer screen data. The IP address set on the Main Menu screen is displayed.



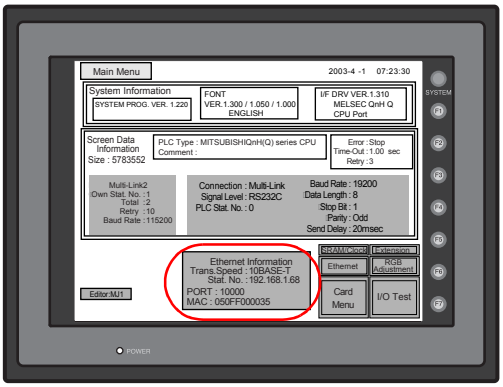
♦ Setting (f)

Set the IP addresses as screen data.

1. Select [System Setting] → [Unit Setting (S)] → [IP Address Setting] on the screen edit software menu. The [IP Address Setting] tab window is displayed.
2. Check [☐ Select IP Address from Network Table].



3. Select the network table number where the IP address of ZM series is registered.
4. Click [OK] and transfer screen data. The IP address set on the Main Menu screen is displayed.



Using Temporary IP Address

There may be cases where you have to connect to another network with an IP address that is different from the one currently set when ZM series or screen data is replaced. In such a case like this, the IP address must be changed. However, this IP address is required only temporarily so that it should be set on the Main Menu screen without changing screen data or the network table.

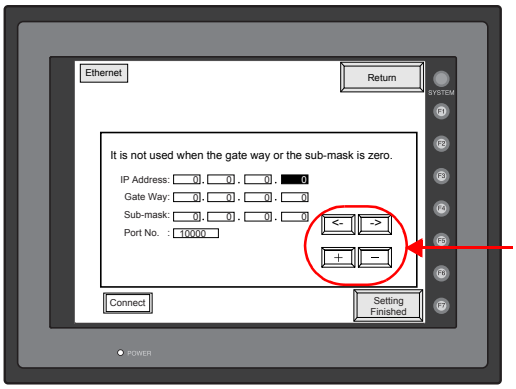
The IP address that has been changed on the Main Menu screen is reset to the original one when the power is turned on or when screen data is transferred.
To change the IP address permanently, make changes on the network table or IP address setting and transfer screen data. (Refer to “IP Address Setting” P1-11.)

♦ Changing Procedure

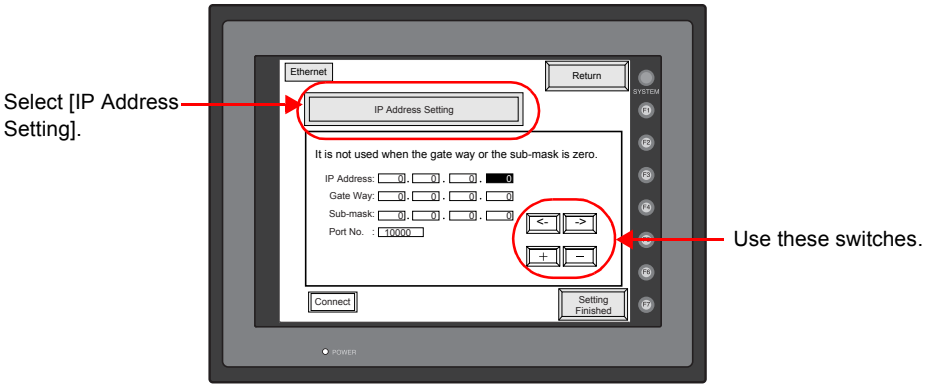
1. Press the [Ethernet] switch on the Main Menu screen to bring up the Ethernet screen.
2. Change the IP address using the [←/→/+/–] switches.

* **Depending on the current IP address setting (Refer to “IP Address Setting” P1-11), the screen display may differ. (See the figures shown below.)**

• Setting (a)/(b)/(e)/(f)



• Setting (c)/(d)



3. Press the [Setting Finished] switch to move back to the Main Menu screen. The set IP address is displayed.

Backlight

[Auto 3] is added on the [Backlight] tab window of the [Unit Setting] dialog.

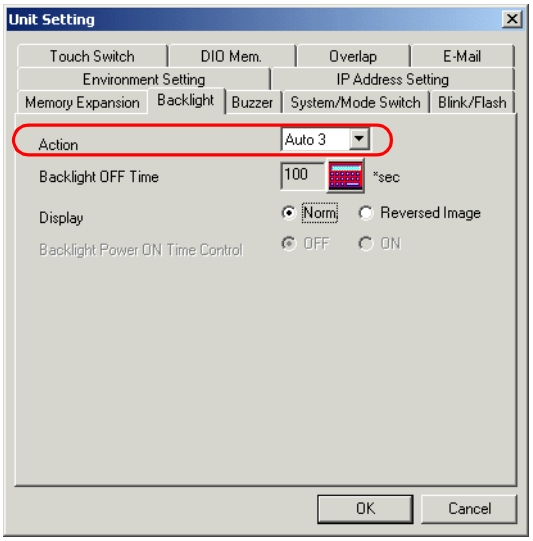
Setting Items

♦ [Unit Setting] Dialog

- [System Setting] → [Unit Setting]

  [Backlight] tab window

  Action



Action

♦ Auto 3

Backlight OFF conditions

The backlight is shut off when the time specified by [Backlight OFF Time] has elapsed from the instant when all the following conditions are raised.

- Bit 11 of [Read Area] “n + 1” (screen status command) is reset (OFF).
- All touch switches are turned off.

Backlight ON conditions

The backlight is turned on when any of the following conditions is raised.

- Bit 11 of [Read Area] “n + 1” (screen status command) is set (ON).
- Somewhere on the screen is pressed.
- The screen is changed.
- An overlap is turned on/off.
- The multi-overlap is changed.

Auto 2

Backlight OFF conditions

The backlight is shut off when the time specified by [Backlight OFF Time] has elapsed from the instant when all the following conditions are raised.

- Bit 11 of [Read Area] “n + 1” (screen status command) is reset (OFF).
- All touch switches are turned off.

Backlight ON conditions

The backlight is turned on when any of the following conditions is raised.

- Bit 11 of [Read Area] “n + 1” (screen status command) is set (ON).
- Somewhere on the screen is pressed.

Check Screen

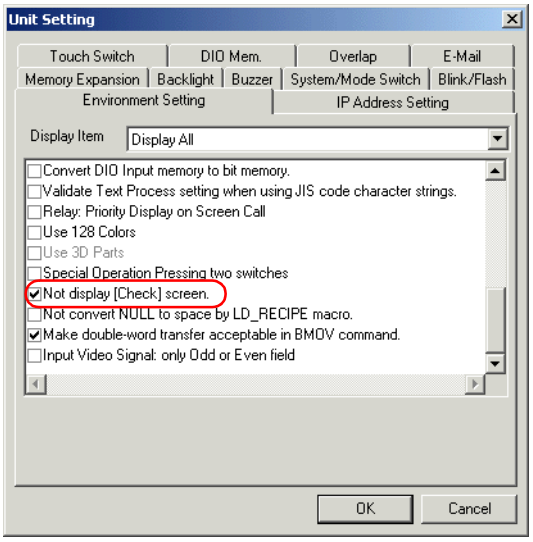
It is possible to select whether or not to show “Check” on ZM series by using the screen edit software until the communication screen is displayed when the mode has been changed from STOP to RUN.

Setting Items

Select with the following check box.

♦ [Unit Setting] Dialog

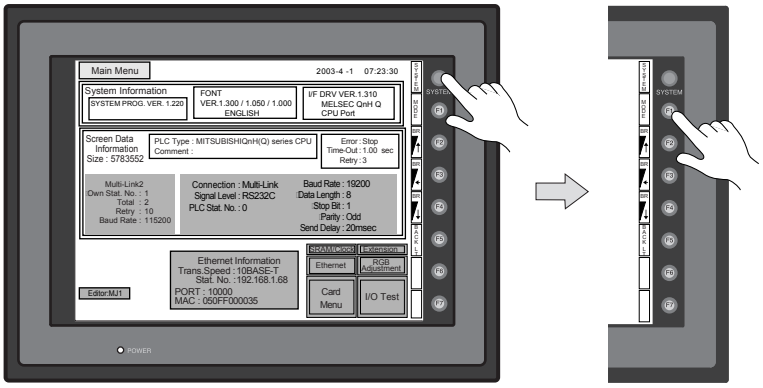
- [System Setting] → [Unit Setting] → [Environment Setting]
  [☐ Not Display [Check] Screen]



Action

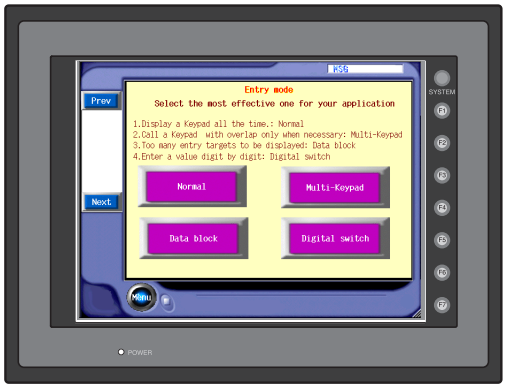
♦ Unchecked

Press the [SYSTEM] switch and the [F1] switch on the Main Menu screen.



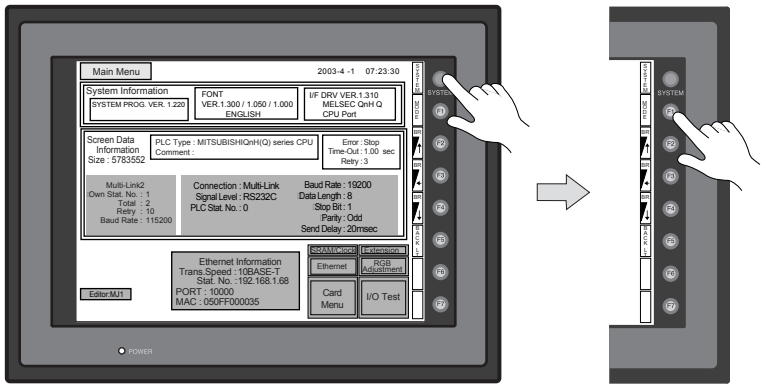
During connection: “Check” blinks.

RUN



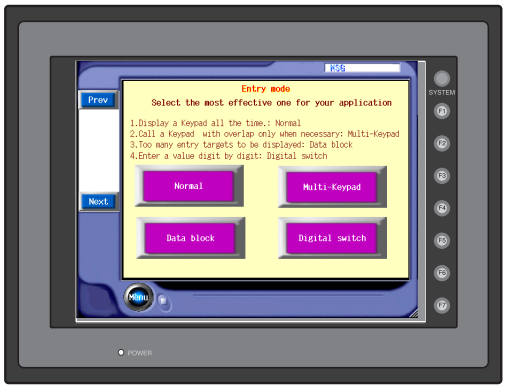
♦ Checked

Press the [SYSTEM] switch and the [F1] switch on the Main Menu screen.



During connection: Nothing is displayed.

RUN



Ladder Transfer Function

This is the setting required for ladder transfer function at MJ1.

It is possible to select whether to select the ladder transfer mode or the screen edit software communication mode when the Main Menu screen is displayed on ZM series.

☞ For more information on the ladder transfer function, refer to the ZM-300 User's Manual.

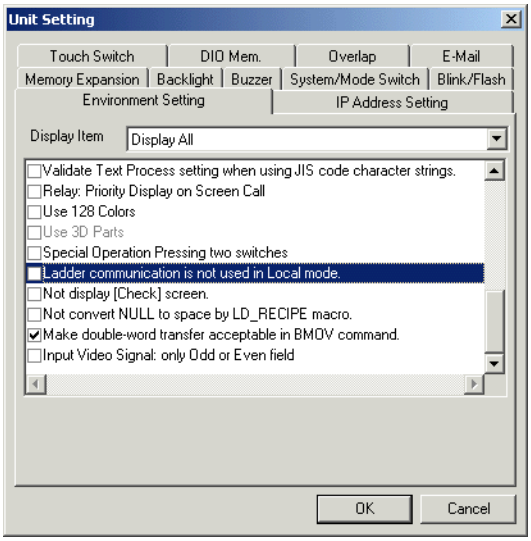
Setting Items

Select with the following check box.

Be sure to check this box when ZM-62E is used.

♦ [Unit Setting] Dialog

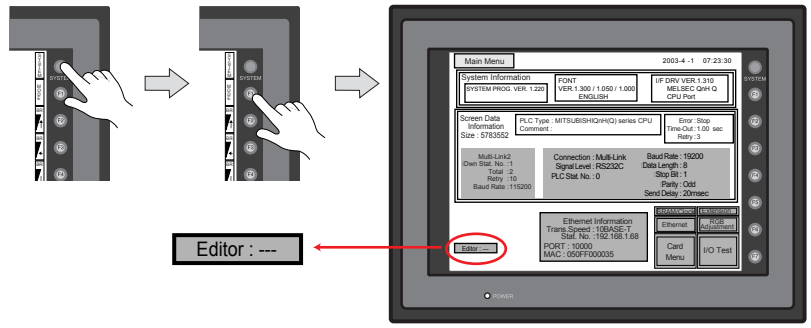
- [System Setting] → [Unit Setting] → [Environment Setting]
  [☐ Ladder Communication is not Used in Local Mode]



Action

♦ Unchecked

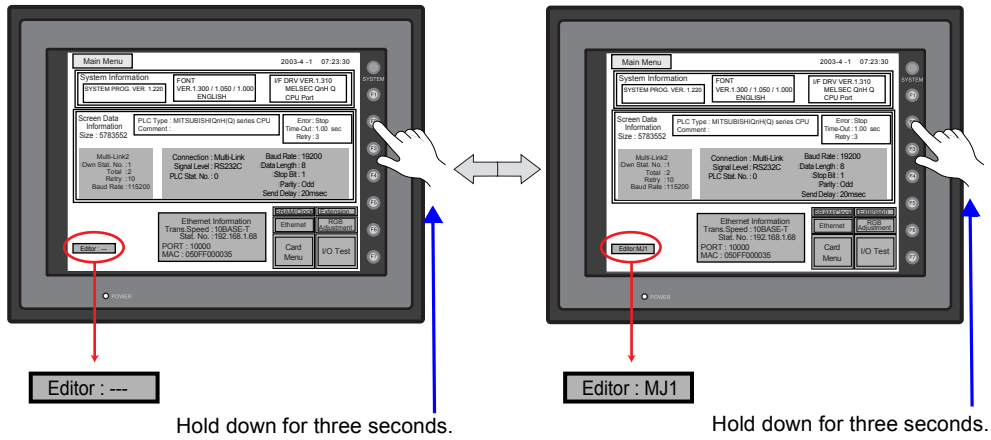
Press the [SYSTEM] switch and the [F1] switch to bring up the Main Menu screen.



“Editor: ----” (ladder transfer mode) is displayed at the bottom left of the screen. Screen data cannot be transferred in this case. See the chart below.

Indication	Ladder Transfer	Screen Transfer (MJ1)
Editor: ---	Enabled	Disabled
Editor: MJ1	Disabled	Enabled

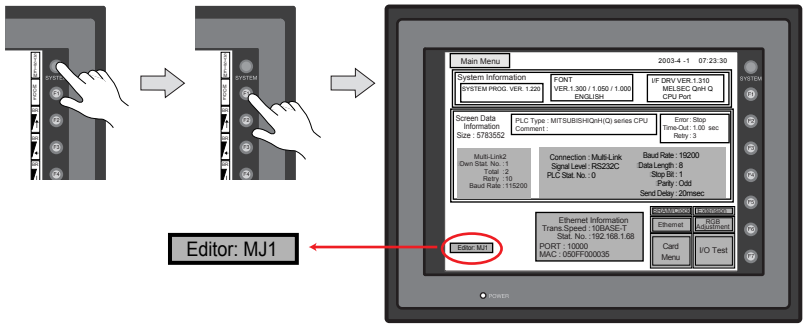
“Editor: ----”/“Editor: MJ1” can be switched by pressing the function switch.
Hold down the [F2] switch for three seconds.



Since ZM-62E is not equipped with function switches, “Editor: ----”/“Editor: MJ1” cannot be switched on the Main Menu screen. Be sure to check the box.

♦ Checked

Press the [SYSTEM] switch and the [F1] switch to bring up the Main Menu screen.



"Editor: MJ1" (screen edit software transfer mode) is always displayed at the bottom left of the screen. Only screen data transfer can be performed.

"Editor: ----"/"Editor: MJ1" cannot be switched by pressing the function switch. It is not possible use the ladder transfer function on the Main Menu screen.

Chapter 2

- Switch
- Switch and Lamp
- Graph Display
- Entry Mode
- Sampling
- Macro
- Animation
- Pattern Editing & Frame (Animation) Editing
- Sound Replay Function
- CF Card
- Attribute Table
- Screen Library
- Print
- Barcodes
- Comment Display
- Windows Fonts
- Recipe Mode
- ZM-71SE Menu Language
- Properties of Screen Data File
- Font Setting
- Transfer
- Internal Memory
- Error

Switch

CF Card Removal Function

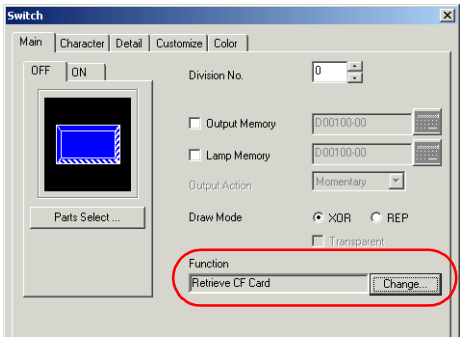
A switch that stops access to the CF card is available. When the CF card is being accessed during sampling, etc., turning on such a switch saves cached data to the CF card and stops sampling. The CF card can then be removed safely.
With [☐ CSV Output] checked in the [Buffering Area Setting] dialog, the use of the switch saves sampling data in CSV file format.

♦ Setting Items

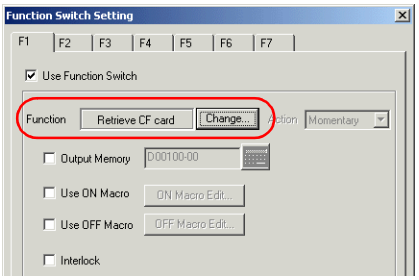
- [Switch] Dialog

  [Main] tab window

  [Function] Normal: [Retrieve CF Card]



It is possible to assign this function to a function switch or a local function switch.



♦ Switch Conditions

The lamp of a switch denotes the following conditions.

Lamp	CF Card Removal	Status of Access to the CF Card
OFF	Disabled	CF card being accessed normally
Blinking (ON and OFF)	Disabled	Data being written to the CF card by activation of the [Retrieve CF Card] switch
ON	Enabled	Access stopped

*** To restart access to the CF card, deactivate the [Retrieve CF Card] switch (access is stopped when the switch is activated) by pressing it again.**

*** If the screen is changed while the [Retrieve CF Card] switch is activated, access to the CF card is restarted automatically.**

*** Switch lamp memory is not available for [Retrieve CF Card] switches.**

♦ System Memory ($s)

The access status is stored in the system memory.

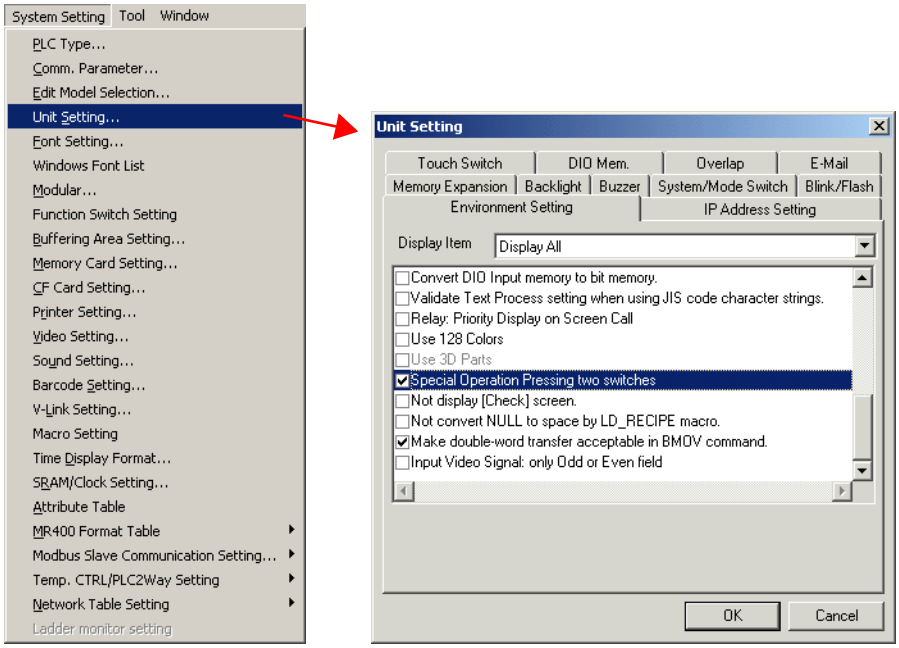
$s	Contents
500	0: Accessing to the CF card 1: CF card access stopped (CF card can be removed)

Two-point Pressing (For Matrix Type Only)

Checking or unchecking the option below determines the action resulting from two-point pressing. Select with the following check box.

♦ Setting Items

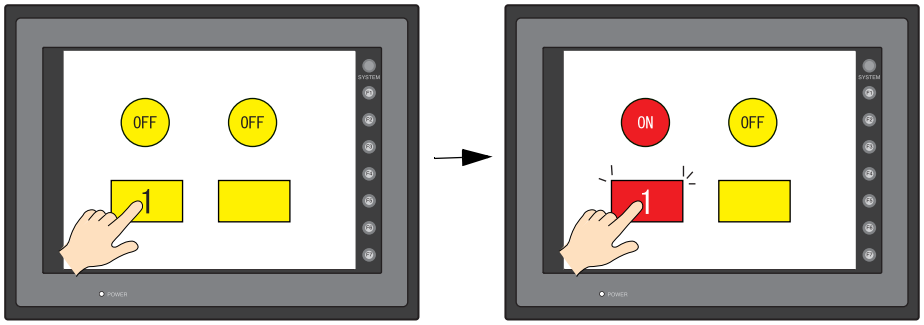
- [System Setting] → [Unit Setting] → [Environment Setting]
  [☐ Special Operation Pressing Two Switches]



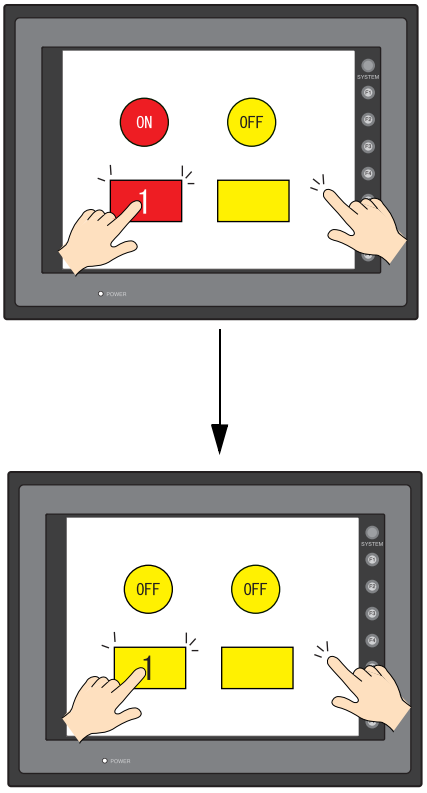
♦ Action

- Unchecked

1) Press switch 1 on the screen. A switch activation status is stored in output memory. (lamp ON)



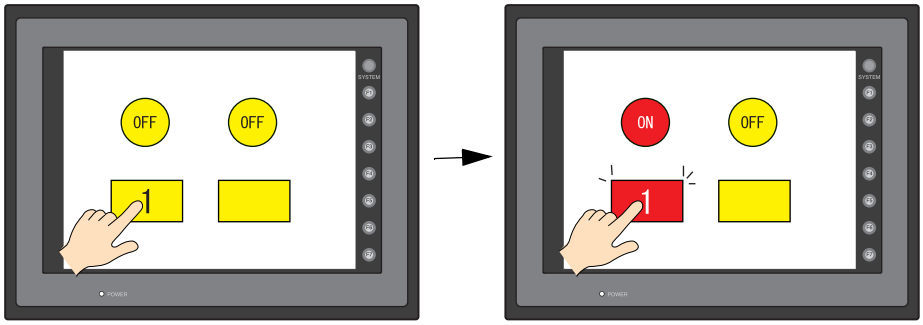
2) Press an area outside the switch on the screen.



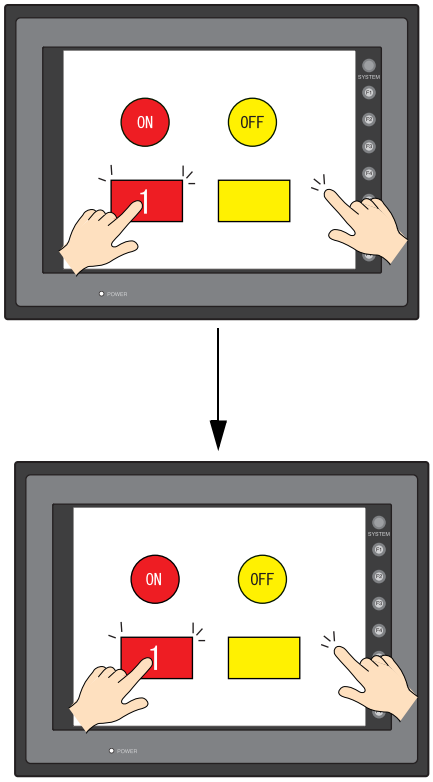
Switch 1 output is turned off.

- Checked

1) Press switch 1 on the screen. A switch activation status is stored in output memory. (lamp ON)



2) Press an area outside the switch on the screen.



Switch 1 output is maintained.

Switch and Lamp

[Transparent] Setting for [Draw Mode: REP]

When [REP] is chosen for [Draw Mode] in the [Switch (Lamp)] dialog, the [Transparent] option is enabled.

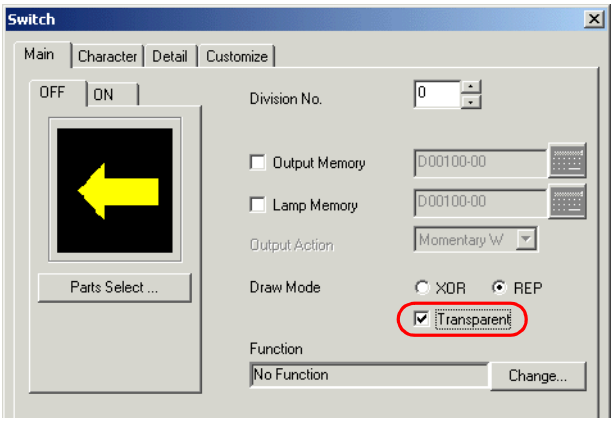
With the option, a switch (lamp) part that is displayed only when it is on and a part consisting of only characters are made available.

♦ Setting Items

- [Switch (Lamp)] Dialog

  [Main] tab window

  [Draw Mode]: REP ☐ Transparent



*** The [Transparent] setting is not valid for the parts files "Std.Z3P (Nos. 0001 - 0003)" and "Parts_j.Z3P (Nos. 0000 - 0003)."**

*** When [☐ Transparent] is checked for switches or lamps or when [☐ With Transparent] (in the [Transparent] dialog) is checked for patterns in the graphic or graphic relay mode, switches/lamps or patterns to be displayed on one screen are limited to 128 pieces or 524,288 dots (H × W) in total.**

For example, when you would like to place as many lamps of H60 × W60 (= 3600 dots) with [Transparent] checked on the screen as possible, "145" is calculated based on the dot limitation; however, from the number limitation, it is limited to 128 lamps.

- With parts file "Std.Z3P" or "Parts_j.Z3P":

  [Modify Part] icon

- With parts file "3DStd.Z3P" or "3Dnow_Px.Z3P":

  [Switch] dialog

  [Customize] tab window

☞ For more information on customizing, refer to "Appendix 2" in the ZM-71SE Instruction manual (Operation version).

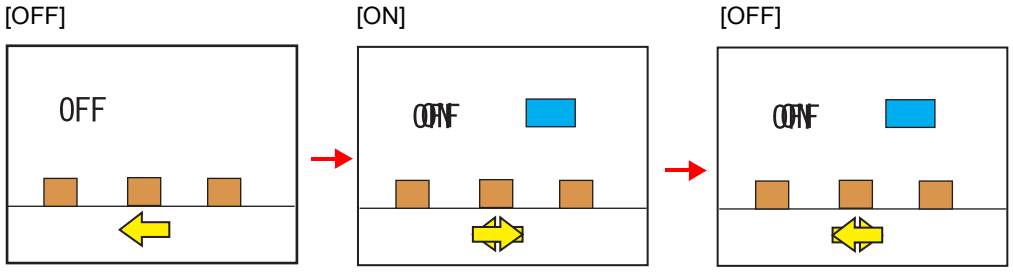
♦ Action

When a part as the following is placed on the screen:

	OFF	ON
Part to be displayed only when it is on	Non-display	
Only characters to be displayed	OFF	ON
Custom parts (Black: transparent color)		

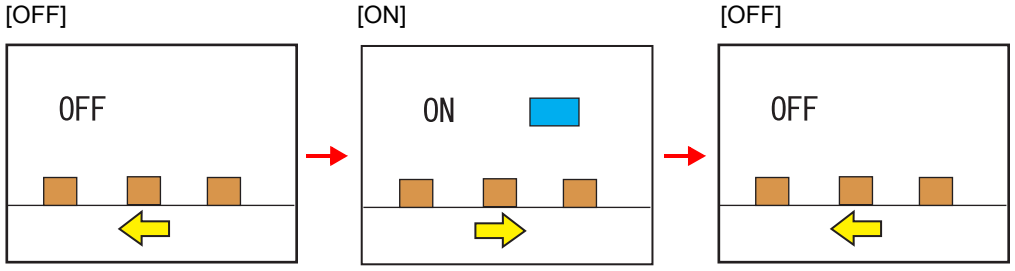
- Unchecked

  Previously displayed parts remain.



- Checked

  Previously displayed parts do not remain. Parts can be displayed normally even with a graphic placed on the background.



Characters on Switches and Lamps

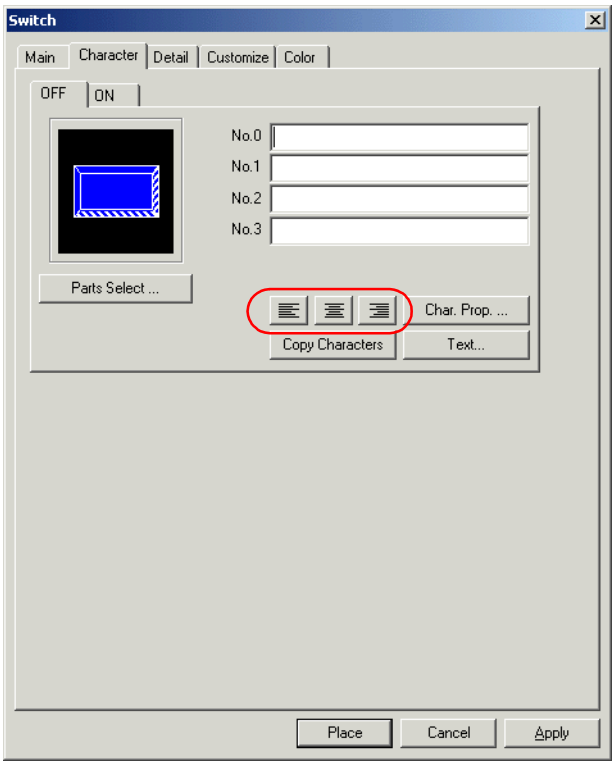
Flush-right and flush-left settings are made available to edit characters on switches or lamps.

♦ Setting Items

- [Switch (Lamp)] Dialog

  [Character] tab window

  [Align Left] [Center] [Align Right]



Graph Display

Scale Setting Using Memory

Graph scales can be specified at memory addresses.

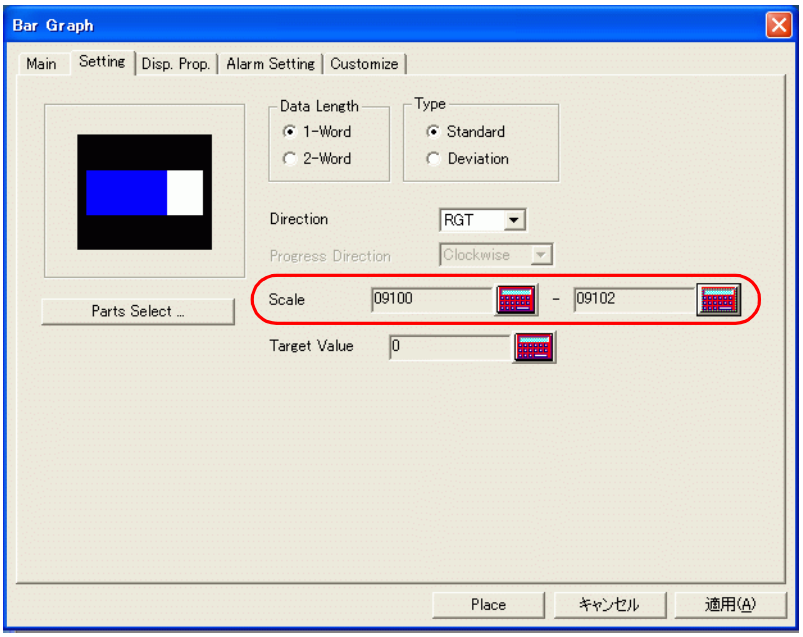
♦ Graph Parts with Memory Address Setting

- Bar graph
- Pie graph
- Panel meter
- Closed area graph

♦ Setting Items

In each graph part dialog

- Bar graph, pie graph, and panel meter
  [Setting] → [Scale]



- Closed area graph
  [Main] tab window → [Scale]

Trend Graph

When [☐ Use XY Parameter] is checked in the [Trend Graph] dialog, either the number of dots or scales can be chosen to express X-axis data.

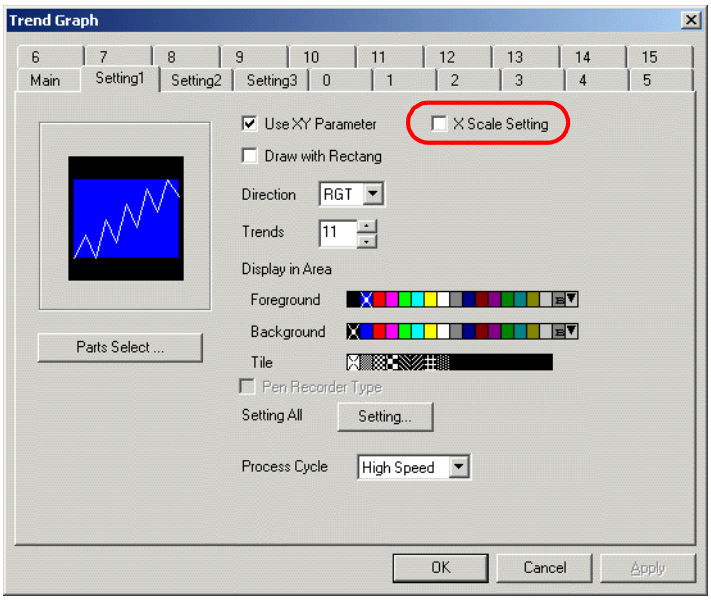
♦ Setting Items

- [Trend Graph] Dialog

  [Setting 1] tab window

  [☐ Use XY Parameters]

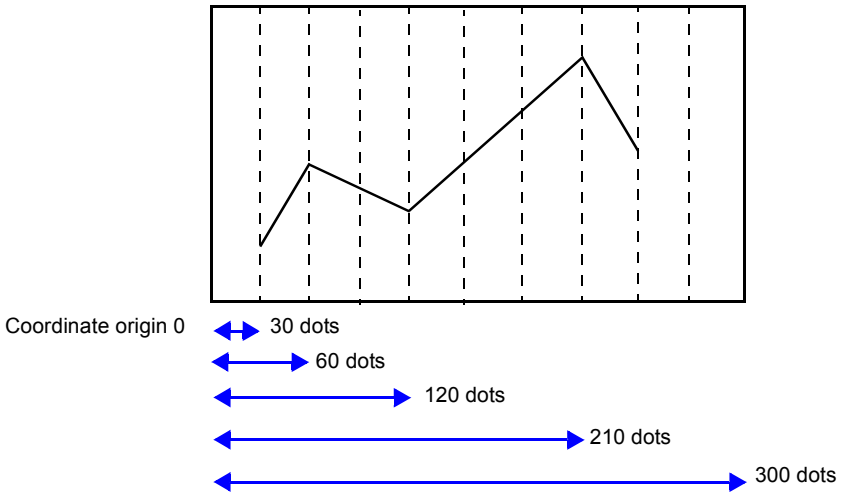
  [☐ X Scale Setting]



♦ Action

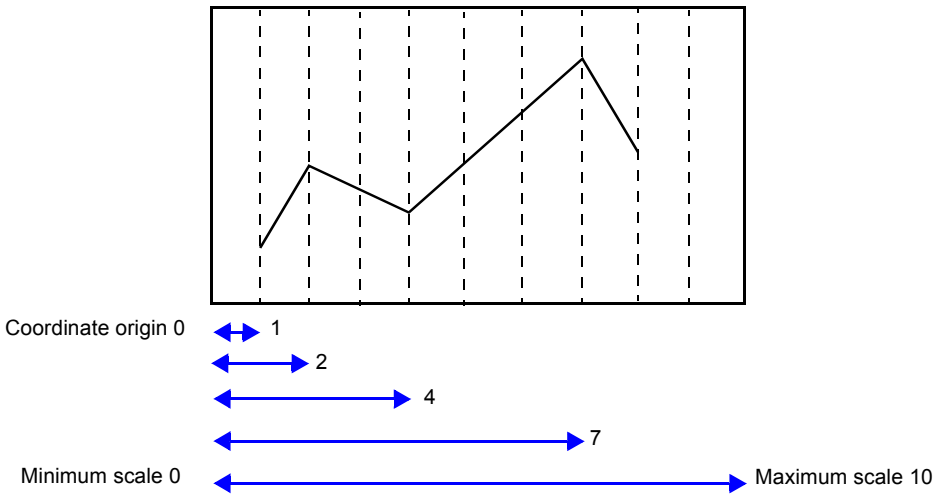
- Unchecked

  Data is expressed in units of dots with respect to the coordinate origin.



- Checked

  Data is expressed by specifying scales based on the size of a display area.



Entry Mode

Switches for Addition and Subtraction

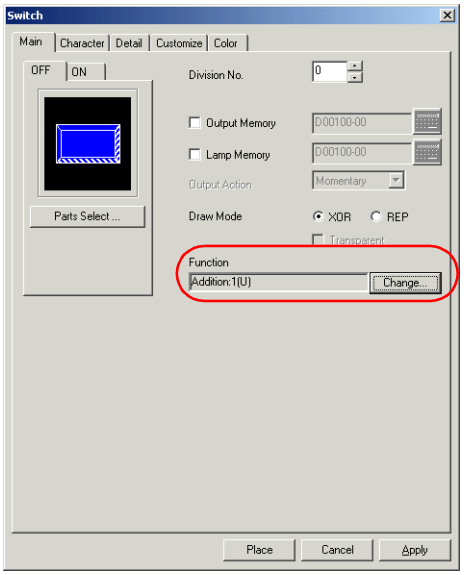
It is possible to add or subtract the specified value to or from the one in the numerical data display part (function: entry target). Pressing the “Write” switch writes data into memory.

♦ Setting Items

- [Switch] Dialog

  [Main] tab window

  [Function] Entry: Addition/Subtract



Set the “Addition/Subtract” switch depending the type of the numerical display part (entry target).

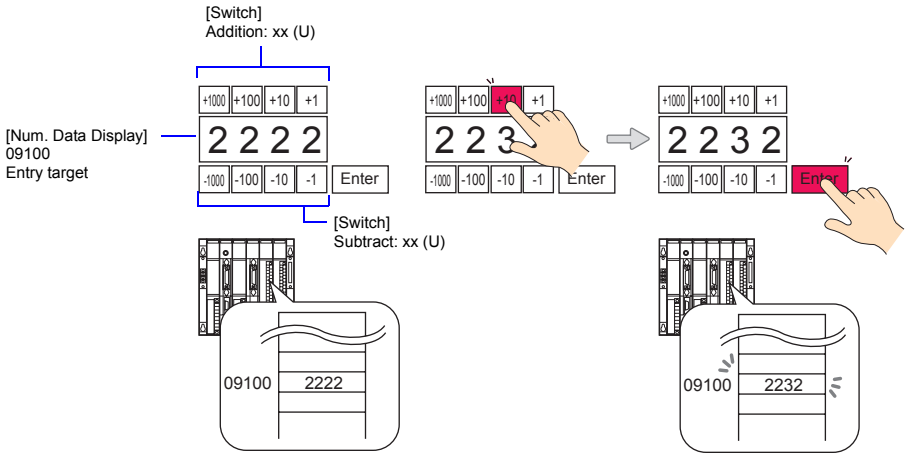
Switch Function		Entry Target	
		Display Type	Input Type
Addition xx (U)	Subtract xx (U)	DEC	DEC/BCD
Addition xx (O)	Subtract xx (O)	OCT	–
Addition xx (H)	Subtract xx (H)	HEX/BIN	–

Range “xx”: 0 to 4294967295 DEC (FFFFFFFF HEX)

*** This function is not available when the input type for the numerical data display part (entry target) is a real number.**

♦ Example

Digital switches can be created using this switch function.



When no alarm setting is made for the entry target:

When the result of calculation exceeds the data length of the entry target, an error buzzer sounds and the switch becomes invalid.

When the alarm setting is made for the entry target:

When the result of calculation is greater than the maximum value or smaller than the minimum value, an error buzzer sounds and the switch becomes invalid.

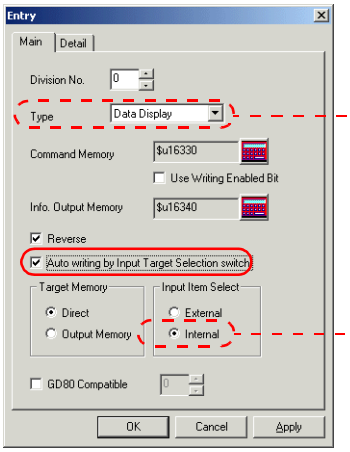
Auto Write Function

When the data display part (function: entry target) is moved, the value is written into the entry target memory.

♦ Setting Items

- [Entry] Dialog

  ☐ Auto Writing by Input Target Selection Switch



* Type: Data Display/Block
Available only with “Input Item Select: Internal”

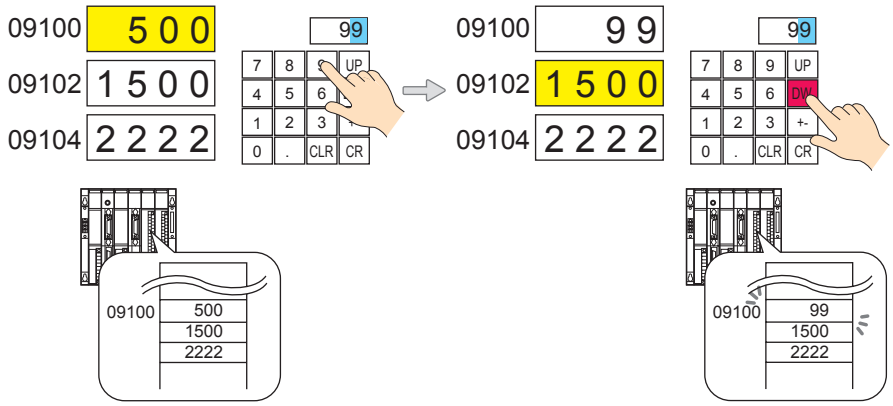
- [Switch] Dialog

  [Main] tab window

  [Function] Entry : ↑, ↓, <<, >>

  Table Data Display: Move Cursor R/L, Move table +/–

♦ Example



♦ Notes

When the entry mode is set on an overlap, overlap auto OFF processing is not performed even if the entry target has been moved.

Cancel Switch

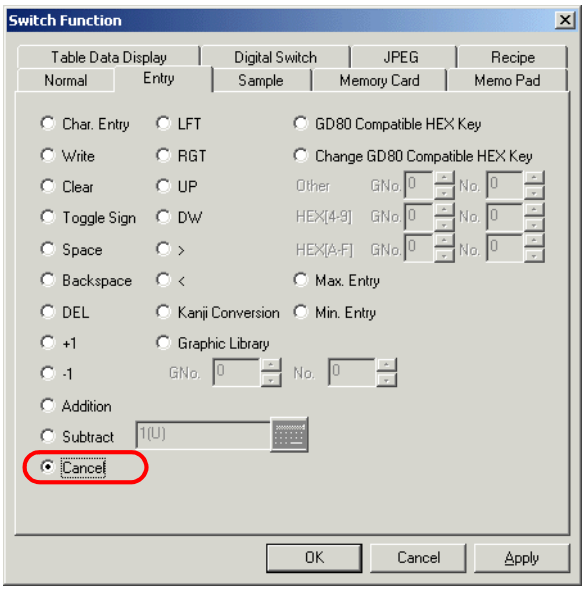
It is possible to create a “Cancel” key that resets the data entered to the original data if it is pressed during data entry.

♦ Setting Items

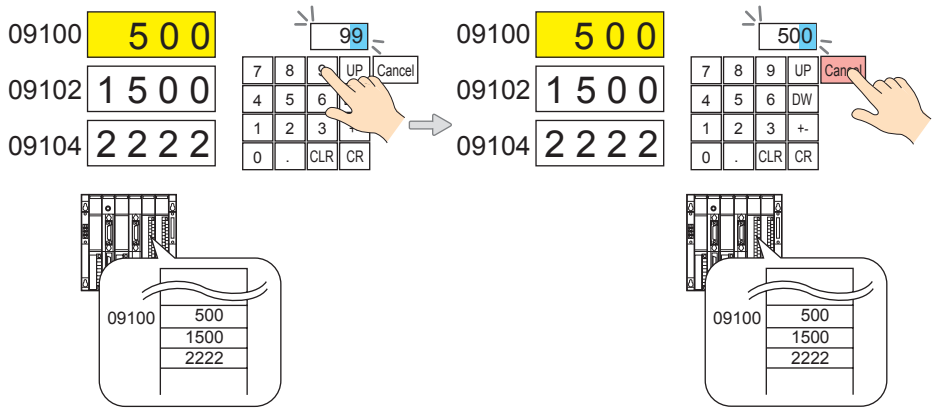
- [Switch] Dialog

  [Main] tab window

  [Function] Entry: Cancel



♦ Example



Max./Min. Entry Switch

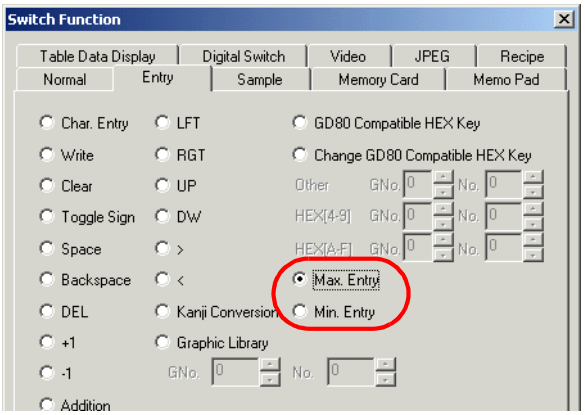
It is possible to create a switch that enters the maximum or minimum value by pressing the “Max.” or “Min.” key when the alarm setting is made for the entry target. Pressing the “Write” switch writes data into memory.

♦ Setting Items

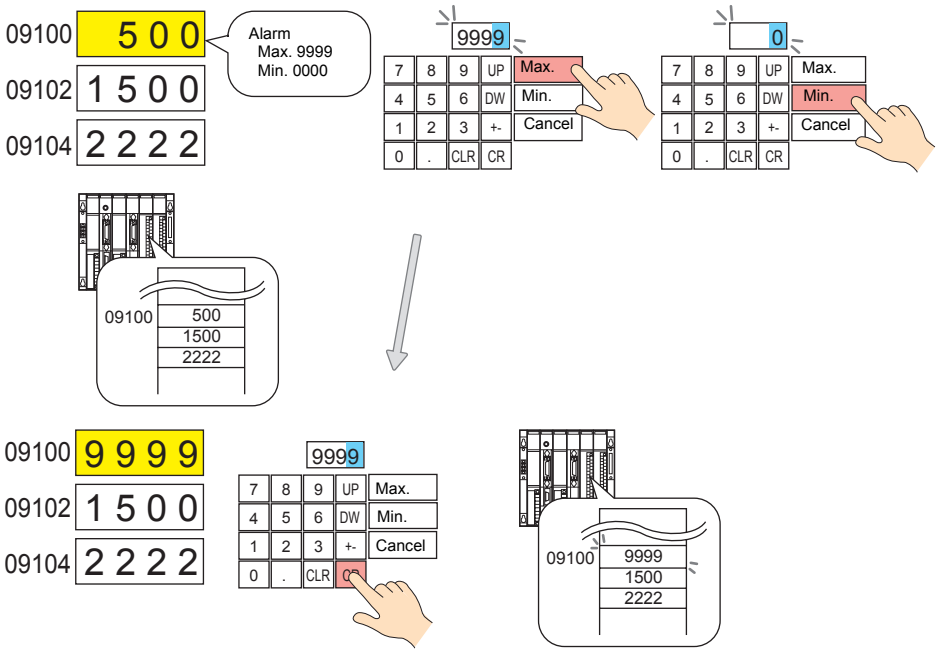
- [Switch] Dialog

  [Main] tab window

  [Function] Entry: Max. Entry/Min. Entry



♦ Example



Sampling

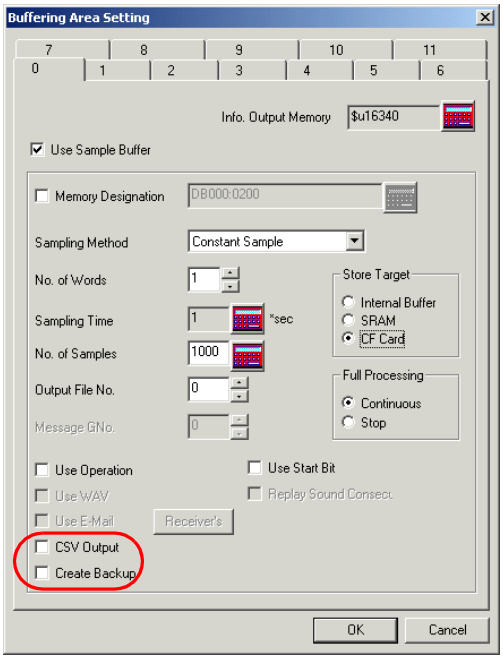
Buffering Area Setting

The following two options are added to the [Buffering Area Setting] dialog.

- [CSV Output]
- [Create Backup]

The above setting is valid only when the storage target of sampling data is the SRAM/CF card.

♦ Setting Items (in the [Buffering Area Setting] dialog)



[☐ CSV Output]

Buffering area data is saved in CSV files.

When to Save:

- When the status of the ZM series is changed from RUN to STOP
- When a [Retrieve CF Card] switch is pressed (refer to “CF Card Removal Function” P2-1)

Storage Target: \(access folder)\SAMPLE

*** If the same file already exists, it is over written.**

File Name: SMPxxxx.csv

0000 - 0011: Buffering area number

[☐ Create Backup]

Buffering area data is saved in a BIN file within a backup folder. This operation is the same as that executed by macro command “SMPL_BAK.”

When to Save:

- When the date is changed (24:00)
- When the power is turned on

Storage Target: \(access folder)\SAMPLE\(date folder)

*** When the macro command is executed on March 1, 2003 (2003/3/1), data is saved in the \SAMPLE\030301 folder. If the \SAMPLE\030301 folder already exists, it is saved in the \SAMPLE\030301~n (n = 1 - 9) folder.**

File Name: SMPxxxx.bin

0000 - 0011: Buffering area number

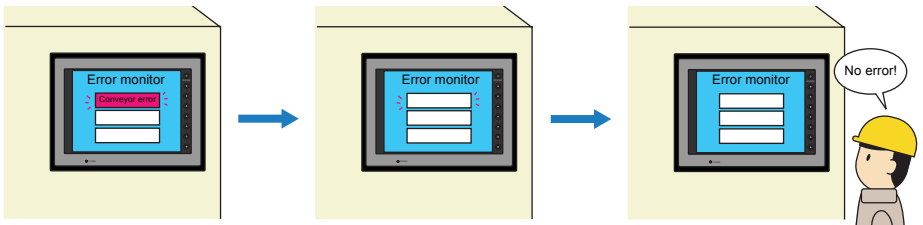
When [☐ CSV Output] is also checked, saving in a CSV file is performed as well in a backup folder.

Relay Sampling

♦ Acknowledge Function

With an acknowledge bit in relay sampling, whether or not an error message is acknowledged can be displayed in distinctive colors in the event of an error occurrence.

If an error occurs while there is no operator attending, the error may be reset automatically before an operator acknowledges it.

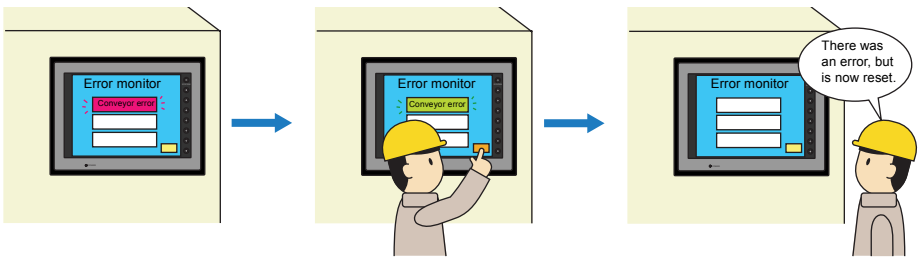


An error occurs without operators in attendance.

The error is reset before it is known to operators.

No one knows that an error occurred.

Using the acknowledge function, you can be informed whether any errors occurred and also whether they are reset now.



An error occurred without operators in attendance and was reset automatically. (The display of the error message remains.)

Afterward an operator checks the error information using the acknowledge bit.
→ The message of an error already reset is displayed in a different color. The message disappears after a predetermined time elapses.

The acknowledge function provides information on error occurrence as well as on error resetting.

What is relay sampling?
When registered error messages are assigned with consecutive memory bits, the activation of a bit brings up the corresponding error message. The message disappears when the bit is reset (OFF). If multiple bits are set (ON), corresponding error messages may be displayed in order from older or newer errors. Scroll switches are available to scroll these displayed error messages.
(For more information, see “Chapter 10 Sampling” in the ZM-71SE Instruction Manual (Function version).)

♦ Operation Overview

When the acknowledge function is used, switches or lamps are used as message areas. One switch or lamp shows one line of message.

Message display is available in the following four conditions:

A: No error

B: Error occurrence

C: Error occurring when the acknowledge bit is set (ON)

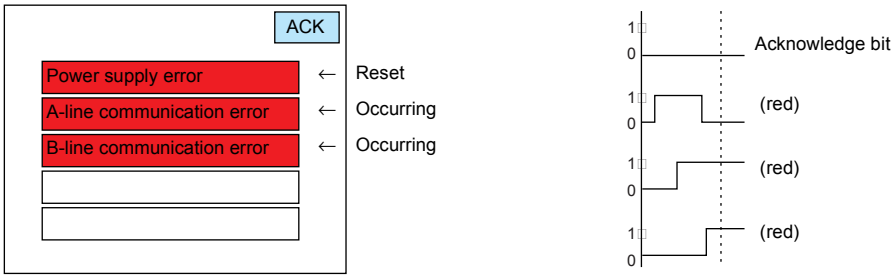
D: Error reset when the acknowledge bit is set (ON)

Four-notch switches for message display or different lamp colors (OFF, ON, P3, and P4 colors) are used to denote these conditions.

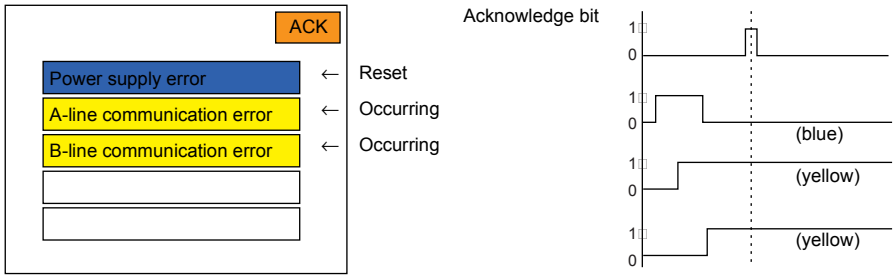
In the example below, lamps provided with four colors each are placed on an acknowledge screen.

OFF color	(no error):	white
ON color	(error occurrence):	red
P3 color	(error occurring when the acknowledge bit is set (ON)):	yellow
P4 color	(error reset when the acknowledge bit is set (ON)):	blue

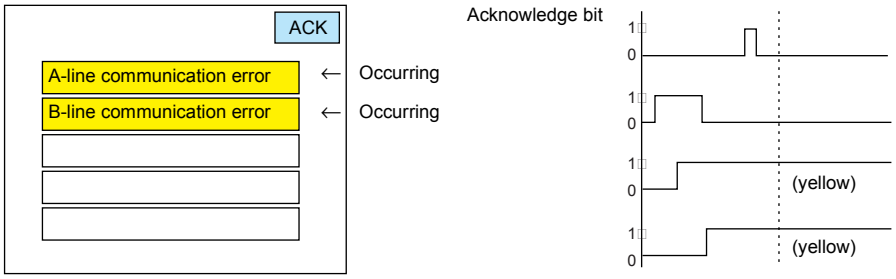
If errors occur, their messages are displayed in red. If any of them is reset, it remains red.



When the acknowledge bit is set (OFF → ON), the messages of the errors still occurring turn yellow.
The message of the reset error turns blue.



After a predetermined time has elapsed, the blue error message disappears and only the messages of the errors still occurring remain yellow.



♦ Setting Items (in the [Relay Sampling] dialog)

- [Main] Tab Window

  [Action Area]: [Switch] or [Lamp]

  *** Choosing [Area] is not valid.**

  [Sub-Action]: [Acknowledge Display]

- [Detail] Tab Window

  [Acknowledgement Display Bit]: (desired address)

  Setting this bit (ON) when errors have occurred brings up their messages in colors showing their respective conditions.

  *** Activation of the acknowledge bit is recognized at the edge of OFF to ON. Reset the bit (OFF) when acknowledge operation is complete.**

  [Time to Retrieve] (sec): (desired seconds)

  When the acknowledge bit is set (ON), the message of an error already reset is displayed in the color for reset until the time for [Time to Retrieve] elapses. Then the message disappears.

♦ Setting Items (Switch or lamp for relay sampling)

Switches or lamps are used as message display areas. One switch or lamp shows one line of message.

*** Be sure to select 4-notch switches or lamps.**

Switch or lamp colors

OFF color: no error

ON color: error occurrence

P3 color: error occurring when the acknowledge bit is set (ON)

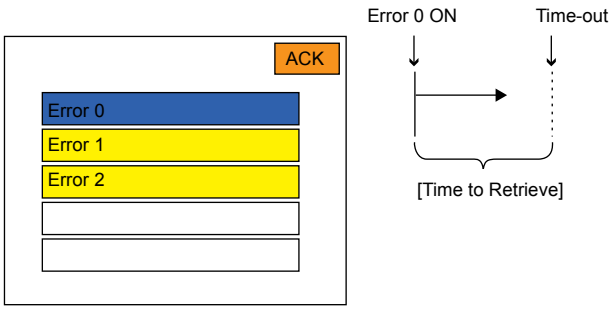
P4 color: error reset when the acknowledge bit is set (ON)

*** Blinking is made available for switches or lamps when basic 16-color is selected.**

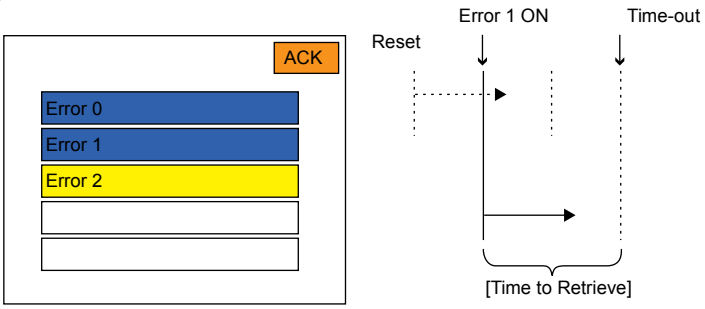
♦ About [Time to Retrieve]

When there is an error reset before or after the acknowledge bit is set (ON), the display of the message remains until the time specified for [Time to Retrieve] elapses.
After the acknowledge bit is set (ON), the first error is reset (1) and counting the time for [Time to Retrieve] starts. Before the time for [Time to Retrieve] is counted to the end, the second error is reset (2). Then time count is reset and restarts from the second error resetting. As a result, the first and second errors are reset at different times; however, their messages disappear at the same time (3).

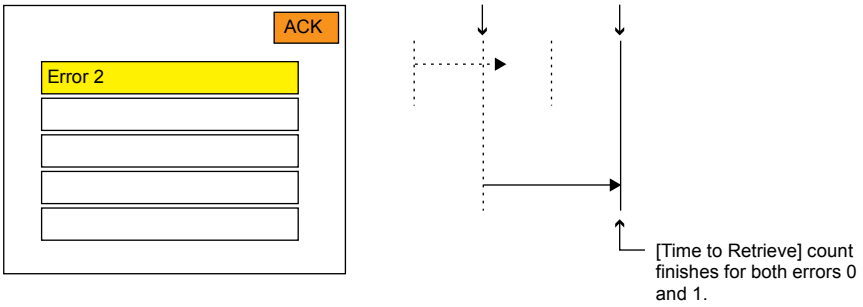
(1)



(2)

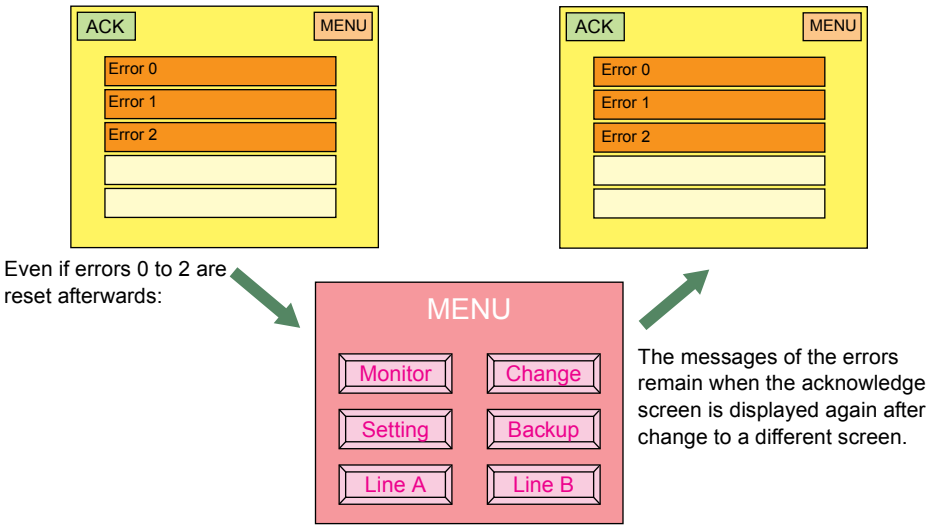


(3)



♦ Display on Acknowledge Screen after Screen Change

If you change the currently displayed acknowledge screen in relay sampling to a different screen and then go back to the previous screen, the error information on the acknowledge screen remains the same as that before screen change. If any errors are reset after screen change, therefore, they will be displayed again at the time of return to the acknowledge screen.



Macro

List of Additional Macro Commands

Classification	Command Name	Contents	Attribute Designation*1	Ref.
CF card (recipe)	LD_RECIPE2*2	Read the CSV file.	Yes	P2-24
	LD_RECIPESEL2*2	Specify lines and columns in the CSV file to be read.	Yes	P2-26
	RD_RECIPE_COLUMN	For recipe mode	–	P2-116
	RD_RECIPE_FILE			
	RD_RECIPE_LINE			
	SET_RECIPEFOLDER			
	SV_RECIPE2	Write into a CSV file.	Yes	P2-28
	SV_RECIPESEL	Specify lines and columns to be written into a CSV file.	None	P2-30
	SV_RECIPESEL2	Specify lines and columns to be written into a CSV file.	Yes	P2-32
	WR_RECIPE_COLUMN	For recipe mode	–	P2-116
	WR_RECIPE_FILE			
	WR_RECIPE_LINE			
CF card (sample)	SMPL_CSV	Save sampling data in a CSV file.	–	P2-34
	SMPLCSV_BAK	Create a backup file of the CSV file.	–	P2-35
CF card (others)	HDCOPY	Save the JPEG file.	–	P2-36
	HDCOPY2	Screen hard copy The backup file number can be specified.	–	P2-37
		Save the JPEG file.	–	
Others	RECONNECT	For multi-drop connection	–	P2-38
	ADJ_ANGLE	For ZM-371TL/373TL view angle adjustment	–	P1-3
	SAVE_ANGLE			

*1 Attribute designation: No
The attribute number cannot be specified at the execution of the macro command. Consequently, the attribute setting is required for each CSV file even if the format is the same.

Attribute designation: Yes
The attribute number not be specified at the execution of the macro command. Consequently, the attribute setting is required only once for CSV files in the same format.

*2 If characters are included in the CSV file, refer to “Notes on LD_RECIPE(2)/LD_RECIPESEL(2)” P2-39.

LD_RECIPE2

Data in the CSV file is read in the format specified by the attribute number.

♦ Preparation of CSV File

Prepare the CSV file to be imported into the ZM-300 series on your personal computer and save it on a CF card.

Storage Target: \(access folder)\Recipe

File Name: RECxxxx.csv

0000 - 9999: File number

♦ Setting Items

- Macro command → [LD_RECIPE2]
- [System Setting] → [Attribute Table] (automatically generated)

♦ Macro Command

[LD_RECIPE2]

Data of the CSV file (REC[F1].csv) set for F1 is written into the F0 memory and later in the format set by attribute No. F2.

Available Devices

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

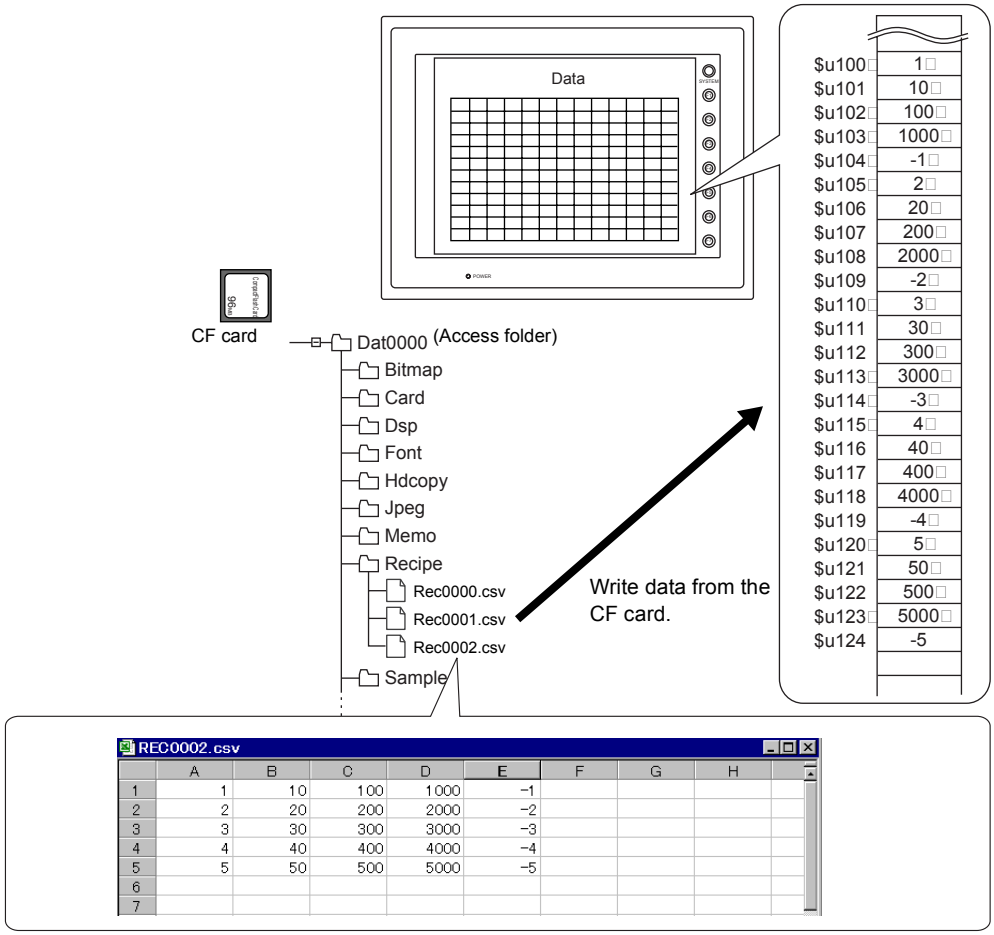
LD_RECIPE2 F0 F1 F2

F0	Target memory address
F1	CSV file number (0 - 9999)
F2	Attribute number (0 - 255)

♦ Example

To read data in the “REC0002.csv” file into $u100 and later using attribute No. 3:

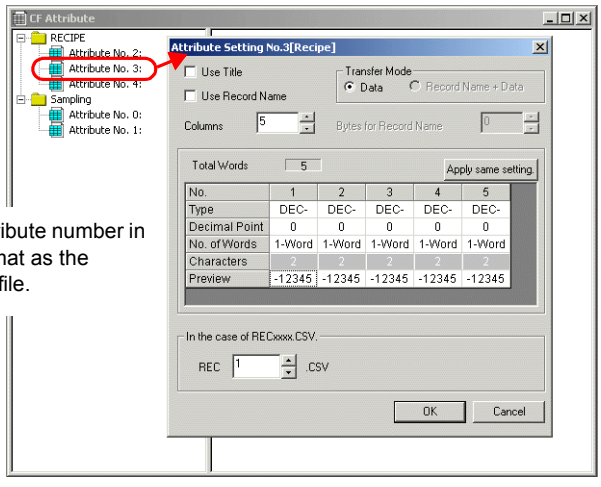
Execute macro command [LD_RECIPE2 $u100 2 3].



REC0002.csv

	A	B	C	D	E	F	G	H
1	1	10	100	1000	−1			
2	2	20	200	2000	−2			
3	3	30	300	3000	−3			
4	4	40	400	4000	−4			
5	5	50	500	5000	−5			
6								
7								

CF Attribute



Select the attribute number in the same format as the created CSV file.

LD_RECIPESEL2

A part (lines/columns) of data in the CSV file is read in the format specified by the attribute number.

♦ Preparation of CSV File

Prepare the CSV file to be imported into the ZM-300 series on your personal computer and save it on a CF card.

Storage Target: \(access folder)\Recipe

File Name: RECxxxx.csv

0000 - 9999: File number

♦ Setting Items

- Macro command → [LD_RECIPESEL2]
- [System Setting] → [Attribute Table] (automatically generated)

♦ Macro Command

[LD_RECIPESEL2]

A part of data of the CSV file set for F1 is written into the F0 memory and later in the format set by attribute No. F2.

Available Devices

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

LD_RECIPESEL2 F0 F1 F2

F0	Target memory address
F1	Memory for specifying the source CSV file (Refer to the chart below.)
F2	Attribute number (0 - 255)

F1 Memory (n)

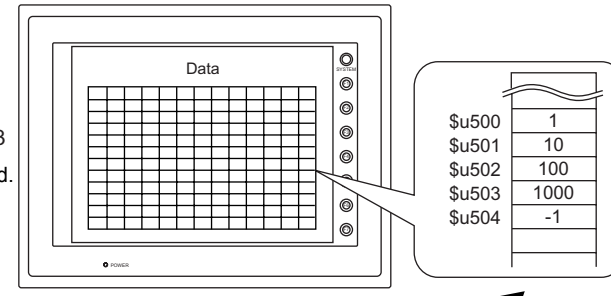
n	CSV file number
n + 1	Start line number (1 -)
n + 2	Start column number (1 -)
n + 3	Number of lines
n + 4	Number of columns

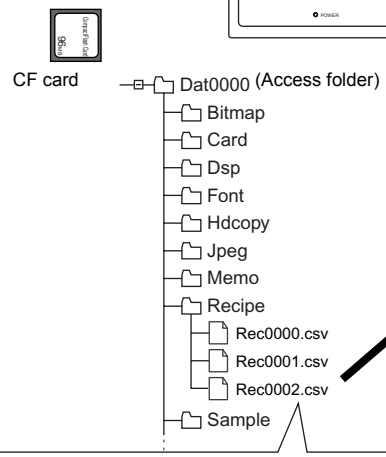
♦ Example

To read data of the first line in the “REC0002.csv” file into $u500 and later using attribute No. 3:

```
$u100=2     (File No. 2)
$u101=1     (Start line No. 1)
$u102=1     (Start column No. 1)
$u103=1     (1 line)
$u104=5     (5 columns)
LD_RECIPESEL2  $u500  $u100 3
```

Execute the above macro command.





Write a part of data from the CF card.

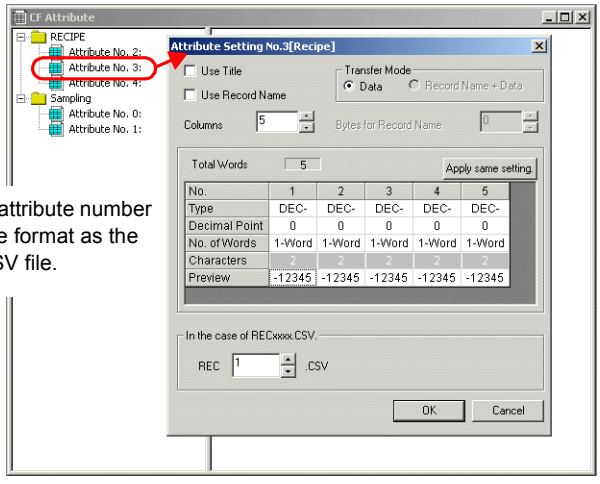
Column number (1 -)

Line number (1 -)

REC0002.csv

	A	B	C	D	E	F	G	H
1	1	10	100	1000	-1			
2	2	20	200	2000	-2			
3	3	30	300	3000	-3			
4	4	40	400	4000	-4			
5	5	50	500	5000	-5			
6								
7								

CF Attribute



Select the attribute number in the same format as the created CSV file.

SV_RECIPE2

Data in the specified memory address is written into a CSV file in the format specified by the attribute number.

♦ Setting Items

- Macro command → [SV_RECIPE2]
- [System Setting] → [Attribute Table] (automatically generated)

♦ Macro Command

[SV_RECIPE2]

Data of F1 words starting from top memory address F0 is saved in the CSV file (REC[F2].csv) in the format specified by attribute No. F3.

Available Devices

	PLC Memory	Internal Memory	Constant	Indirect Designation
F0	○	○		○
F1	○	○	○	
F2	○	○	○	
F3	○	○	○	

SV_RECIPE2 F0 F1 F2 F3

F0	Source memory address
F1	Number of words
F2	CSV file number to be saved (0 - 9999)
F3	Attribute number (0 - 255)

♦ Storage Target of CSV File

When the above macro command is executed, a CSV file is saved on the CF card.

Storage Target: \(access folder)\Recipe

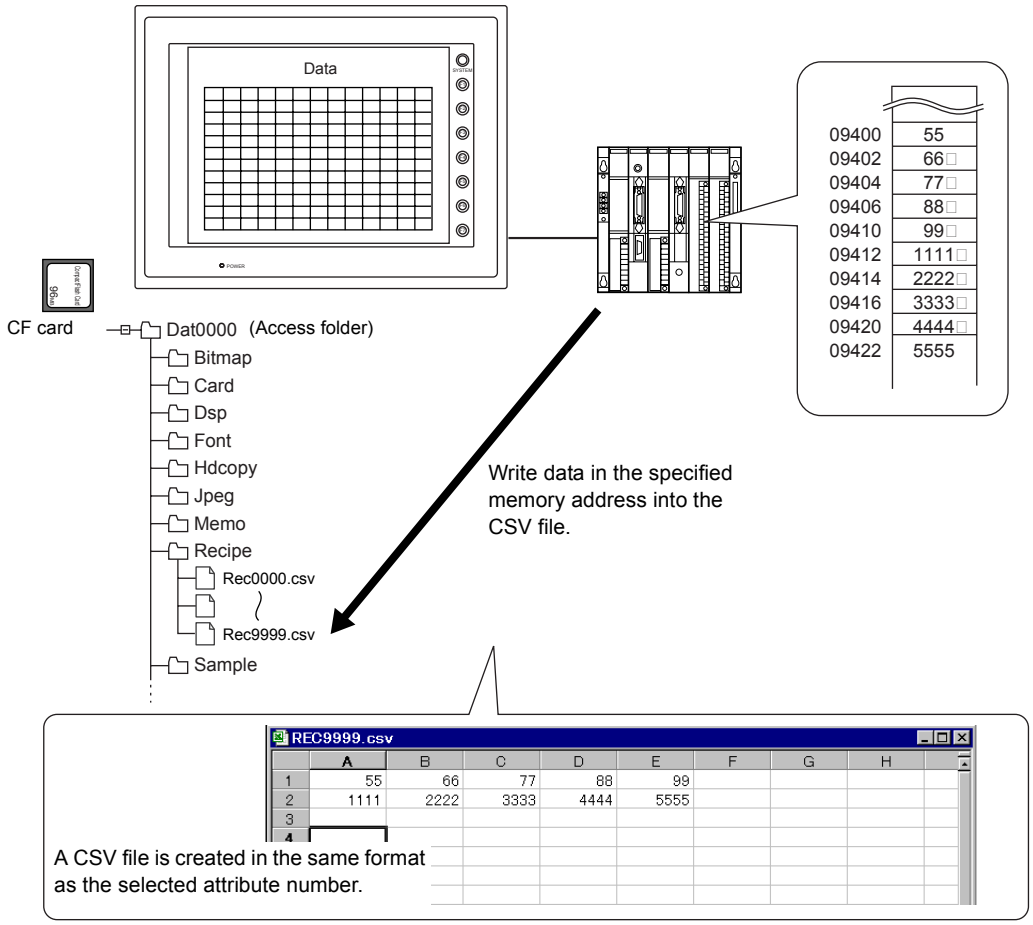
File Name: \RECxxxx.csv

0000 - 9999: File number

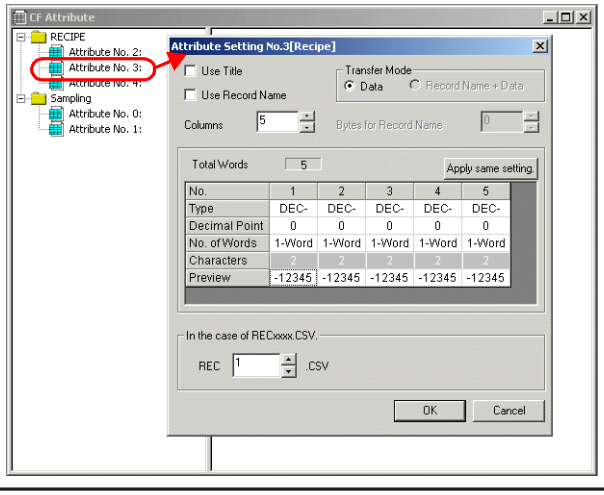
♦ Example

When saving 10 words of data from internal memory $u400 into the “REC9999.csv” file in the format specified by attribute No. 3:

Execute macro command [SV_RECIPE2 $u400 10 9999 3].



CF Attribute



SV_RECIPESEL

Data in the specified memory address is written into a part (lines or columns) of data in the CSV file.

♦ Setting Items

- Macro command → [SV_RECIPESEL]
- [System Setting] → [Attribute Table] (automatically generated)

♦ Macro Command

[SV_RECIPESEL]

Data from top memory address F0 and later is saved into the specified lines or columns in the CSV file.

Available Devices

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

SV_RECIPESEL2 F0 F1

F0	Source memory address
F1	Memory for specifying the target CSV file (Refer to the chart below.)

F1 Memory (n)

n	CSV file number
n + 1	Start line number (1 -)
n + 2	Start column number (1 -)
n + 3	Number of lines
n + 4	Number of columns

♦ Storage Target of CSV File

When the above macro command is executed, data is saved in the specified CSV file.

Storage Target: \(access folder)\Recipe

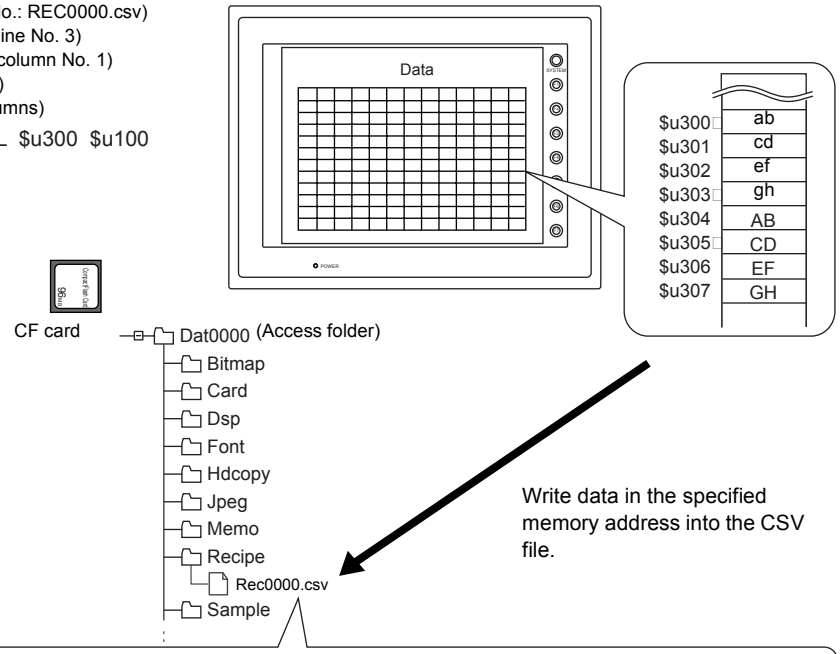
File Name: \RECxxxx.csv

0000 - 9999: File number

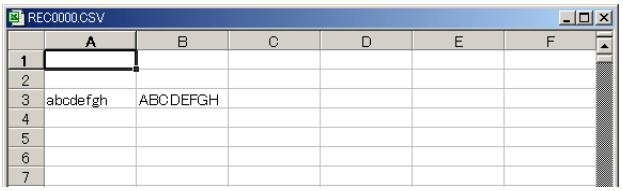
♦ Example

When saving 8 words of data from internal memory $u300 into the third line of the "REC0000.csv" file:

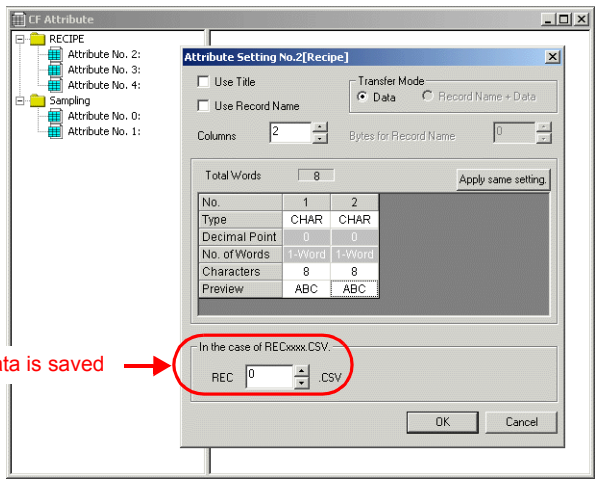
```
$u100=0  (File No.: REC0000.csv)
$u101=3  (Start line No. 3)
$u102=1  (Start column No. 1)
$u103=1  (1 line)
$u104=2  (2 columns)
SV_RECIPESEL  $u300  $u100
```



Data is saved in the specified lines/columns.



CF Attribute



File where data is saved

SV_RECIPESEL2

Data in the specified memory address is written into a part (lines/columns) of data in the CSV file in the format specified by the attribute number.

♦ Setting Items

- Macro command → [SV_RECIPESEL2]
- [System Setting] → [Attribute Table] (automatically generated)

♦ Macro Command

[SV_RECIPESEL2]

Data from top memory address F0 and later is saved into the specified CSV file in the format specified by attribute No. F2.

Available Devices

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

SV_RECIPESEL2 F0 F1 F2

F0	Source memory address
F1	Memory for specifying the target CSV file (Refer to the chart below.)
F2	Attribute number (0 - 255)

F1 Memory (n)

n	CSV file number
n + 1	Start line number (1 -)
n + 2	Start column number (1 -)
n + 3	Number of lines
n + 4	Number of columns

♦ Storage Target of CSV File

When the above macro command is executed, data is saved in the specified CSV file.

Storage Target: \(access folder)\Recipe

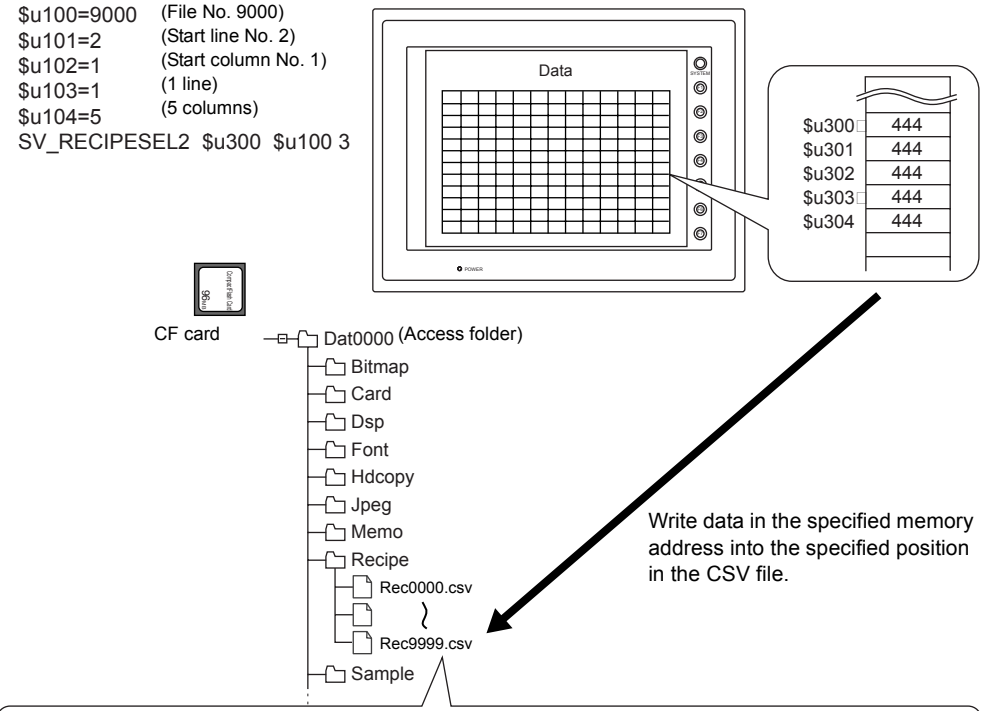
File Name: \RECxxxx.csv

0000 - 9999: File number

♦ Example

When saving 5 words of data from internal memory $u300 into the second line of the “REC9000.csv” file in the format specified by attribute No. 3:

```
$u100=9000    (File No. 9000)
$u101=2       (Start line No. 2)
$u102=1       (Start column No. 1)
$u103=1       (1 line)
$u104=5       (5 columns)
SV_RECIPESEL2  $u300  $u100 3
```

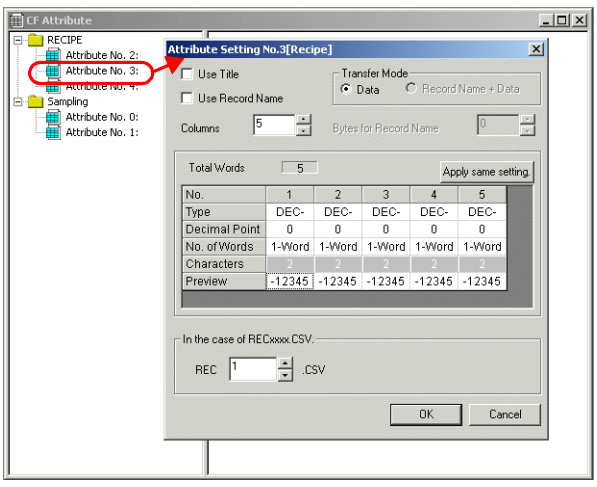


The CSV file is saved in the same format as the selected attribute number.

REC9000.CSV

	A	B	C	D	E	F	G
1	0	0	0	0	0		
2	444	444	444	444	444		
3	0	0	0	0	0		
4	0	0	0	0	0		
5	0	0	0	0	0		

CF Attribute



SMPL_CSV

Sampling data on the SRAM or CF card is saved as a CSV file in the “SAMPLE” folder.

♦ Setting Items

Macro command → SMPL_CSV

♦ Macro Command

[SMPL_CSV]

Sampling data in the buffering area number specified for F0 is saved as a CSV file in the “SAMPLE” folder.

Available Devices

	PLC Memory	Internal Memory	Constant	Indirect Designation
F0		○	○	

SMPL_CSV F0

F0	Buffering area number (0 -11)

Storage Target: \(access folder)\SAMPLE

File Name: \SMPxxxx.csv

0000-0011: Buffering area number

SMPLCSV_BAK

Sampling data on the SRAM or CF card is saved as a CSV file in the backup folder.

♦ Setting Items

Macro command → SMPLCSV_BAK

♦ Macro Command

[SMPLCSV_BAK]

Sampling data in the buffering area number specified for F0 is saved as a CSV file in the backup folder.

Available Devices

	PLC Memory	Internal Memory	Constant	Indirect Designation
F0		○	○	

SMPLCSV_BAK F0

F0	Buffering area No. (0 - 11)

Storage Target: \(access folder)\SAMPLE\(date folder)

* **When the macro command is executed on March 1, 2003 (2003/3/1), data is saved in the \SAMPLE\030301 folder.**
If the \SAMPLE\030301 folder already exists, it is saved in the \SAMPLE\030301~n (n = 1 ~ 9) folder.

File Name: \SMPxxxx.CSV

0000 - 0011: Buffering area number

HDCOPY

The hard copy image of the screen can be saved. Only one file can be saved per screen.

♦ Setting Items

Macro command → HDCOPY

♦ Macro Command

[HDCOPY]

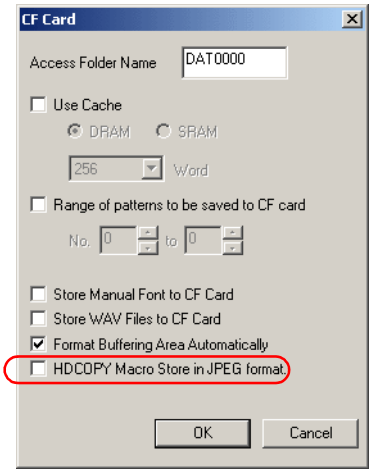
This command saves the screen image that is displayed when it is executed.

Storage Target: \(access folder)\Hdcopy
File Name: \Hdxxxx.JPG (for 32K-/128-color display)
\Hdxxxx.BIN (for 128-color display)

0000-1023: Screen number

In the case of the 128-color display, the file format can be selected.
Select the file format on the [CF Card] dialog.

[System Setting] → [CF Card] → [☐ HDCOPY Macro Store in JPEG format].



- Unchecked
  The image is saved as a BIN file.
  It is necessary to convert it to a bitmap file with the CF card manager to use it as image data.
  For more information, refer to page 23-50 in the ZM-71SE Instruction Manual (Function version).
- Checked
  The image is saved as a JPEG file.

HDCOPY2

Hard copy images can be saved by specifying the backup number. It is possible to save image changes with the passage of time.

The HDCOPY macro command saves one screen in one file; consequently, when the file already exists, it is overwritten.

♦ Setting Items

- Macro command → [HDCOPY2]

♦ Macro Command

[HDCOPY2]

The screen image that is displayed at the time of macro execution is saved with the backup number specified by F0.

Available Devices

	PLC Memory	Internal Memory	Constant	Indirect Designation
F0		○	○	○

HDCOPY2 F0

F0	Backup number (0 - 99)

Storage Target: \(access folder)\Hdcopy

File Name: \Hdxxx~yy.JPG (for 32K-/128-color display)

\Hdxxx~yy.BIN (for 128-color display)

00 - 99: Backup number

000 - 999: Screen number
(Not available with screen No. 1000 - 1023)

In the case of the 128-color display, the file format can be selected.
Select the file format on the [CF Card] dialog of ZM-71SE. Refer to P2-36.

RECONNECT

Reconnection is attempted for the station number where communication is interrupted in multi-drop conection.

♦ Setting Items

Macro command → RECONNECT

♦ Macro Command

[RECONNECT]

Reconnection is attempted only once for the station number specified for F0.

Available Devices

	PLC Memory	Internal Memory	Constant	Indirect Designation
F0		○	○	

RECONNECT F0

F0	0 to 255	Reconnect the specified station number.
	−1	Reconnect all the station numbers.

When reconnection is successful, the “interrupted” information in system memory $s114 to 129 is cleared.

Notes on LD_RECIPE(2)/LD_RECIPESEL(2)

It is necessary to select whether nulls are converted into 20H (space) or read as they are (00) when reading a CSV file including characters using the LD_RECIPE(2)/LD_RECIPESEL(2) macro command.

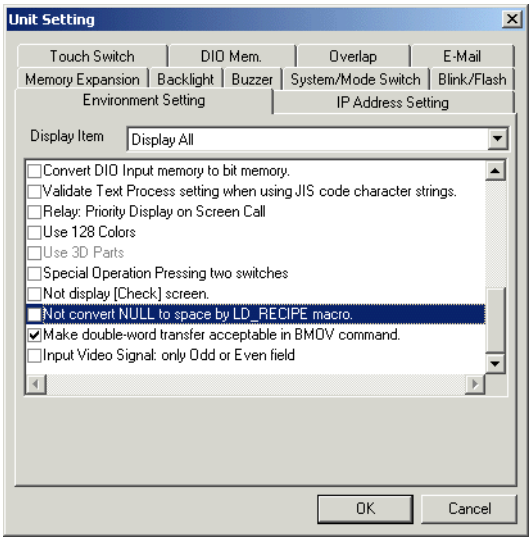
☞ For information on the LD_RECIPE/LD_RECIPESEL macro command setting, refer to Chapter 23 in the ZM-71SE Instruction Manual (Function version).
LD_RECIPE2: Refer to “LD_RECIPE2” P2-24.
LD_RECIPESEL2: Refer to “LD_RECIPESEL2” P2-26.

♦ Setting Items

- [Unit Setting] Dialog

  [System Setting] → [Unit Setting] → [Environment Setting]

  [☐ Not convert NULL to space by LD_RECIPE macro]



♦ Action

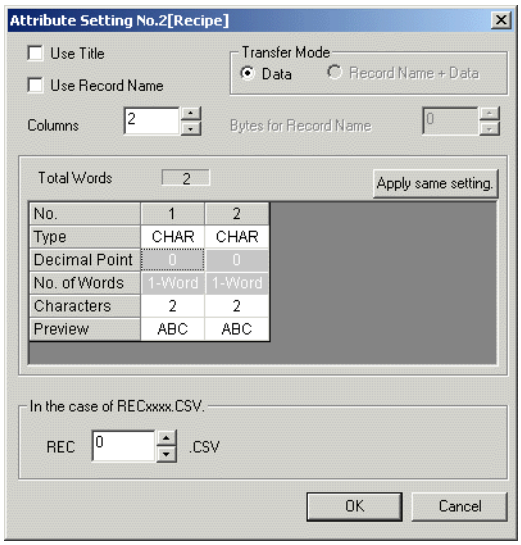
When a CSV file of the following characters is read using the attribute table setting as shown below:

- CSV File

  REC0000.CSV

A,B, a, ,

- Attribute Table



- Unchecked

  NULLs are converted into spaces (20H) and read.

n	2041H
n + 1	2042H
n + 2	A082H
n + 3	2020H

- Checked

  NULLs are read as they are (00H).

n	0041H
n + 1	0042H
n + 2	A082H
n + 3	0000H

Indirect Memory Designation

♦ Designating the Indirect Memory

- Internal Memory

  PLC memory (0 - 65535)

  Temperature control/PLC2Way memory (0 - 65535)

	15 MSB	8 7 LSB 0
n + 0	Model	Memory type
n + 1	Memory number (address)	
n + 2	Extension code	Bit designation
n + 3	00	Port number

- Internal Memory ($L/$LD 65536 -)

  PLC memory (65536 -)

  Temperature control/PLC2Way memory (65536 -)

	15 MSB	8 7 LSB 0
n + 0	Model	Memory type
n + 1	Memory number (address), lower	
n + 2	Memory number (address), higher	
n + 3	Extension code	Bit designation
n + 4	00	Port number

- Model, memory type (HEX)

			Model	Memory Type
Internal Memory	$u		00	00
	$s			01
	$L	0 - 65535	00	02
		65536 -	80	
	$LD	0 - 65535	00	03
		65536 -	80	
	$T	0 - 1023	00	04
PLC memory	0 - 65535		01	The memory type depends on the memory used. Refer to the ZM-300 User's Manual and set the type number of the memory.
	65536 -		81	
Temperature control/PLC2 memory	0 - 65535		03	The memory type depends on the memory used. Refer to the Temperature Control Network Manual and set the type number of the memory.
	65536 -		83	

- Extension code

  Set when the SPU memory slot number of a Mitsubishi PLC and a Yokogawa PLC CPU number are specified.

  Example:

  Mitsubishi Slot No. 0: 00

  Mitsubishi Slot No. 1: 01

  Yokogawa CPU No. 1: 00

  Yokogawa CPU No. 2: 01

- Port number

  1 : 1, Multi-link: Not used

  Multi-drop: Set the PLC port number.

  Temperature controller: Set the temperature controller port number.

• Memory card

	15 MSB 8	7 LSB 0
n + 0	02H	File number
n + 1	Word address in the record	
n + 2	Record number	

- File number, word address in the record, record number

☞ Refer to “Chapter 25 Memory Card Mode” in the ZM-71SE Instruction Manual (Function version).

When accessing a word from the PLC memory, the word in n + 2 is usually “0” even for memory that does not use an expansion code.

Example: Accessing a Mitsubishi PLC D165

(Macro)

$u100 = 0100H Model: 01 (PLC memory), Memory type: 00

$u101 = 0165 Memory No.: 165

$u102 = 0000 Extension code: None

$u200 = *$u100

(Result of execution)

Data in D165 is transferred to $u200.

When accessing the bit-writable memory, such as the Mitsubishi M Relay, the following setting is necessary.

Memory number = M (address)/16

Example: To access M20:

(Macro)

$u100 = 0106H Model: 01 (PLC memory), Memory type: 06

$u101 = 0001H Memory No = 20 ÷ 16 = 1 ... 4

$u102 = 0004H Extension code: None, Bit designation: 4

*$u100 (ON)

(Result of execution)

Bit M20 is set (ON).

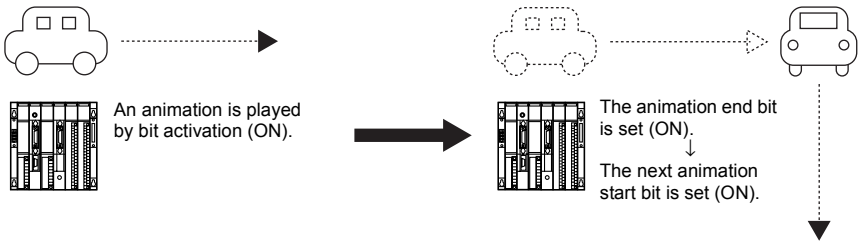
Animation

Setting items for the animation function are added. The added setting items are explained.

☞ For more information on animation, refer to “Chapter 17 Animation” in the ZM-71SE Instruction Manual (Function version).

Addition of Information Output Memory

The animation end bit is output as an animation information output.
When the end bit of an animation is set at the start bit of another animation, animations are continuously played with memory designation, which enables the PLC to recognize the animation that is played at present.



♦ Setting Position

[Animation] dialog → [☐ Info. Output Memory]

When this box is checked, information output memory “n” (1 word) is used.

♦ Memory Contents

Information output memory “n” (animation status)

MSB LSB

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

1: End of animation *

* When an animation is started, it is reset to “0”.

♦ Notes

- In the case of memory designation, the end bit is output when the animation play time (seconds) has elapsed.
- In the case of animation table, the end bit is output when all the animations on the animation table have been played.
- If the animation is finished halfway, the end bit is not output.
- In the case of scale designation, no output to the information output memory is made.

Keeping the End Frame

♦ Setting Position

- [Main] tab window → [☐ Not Delete End Frame]

  or

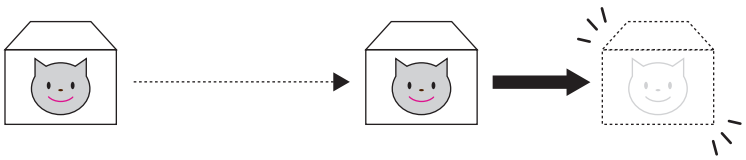
- [Animation Table] tab window → [☐ Not Delete End Frame]

♦ Operation Overview

With [☐ Not Delete End Frame] unchecked:

The animation is played when the command bit is set (ON).

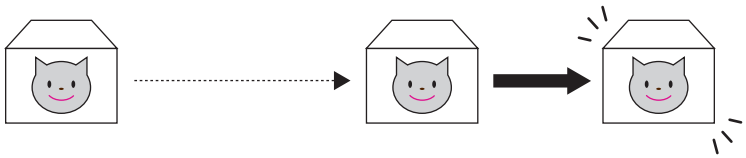
On completion of the play, it disappears even if the command bit remains ON.



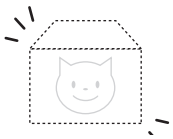
With [☐ Not Delete End Frame] checked:

The animation is played when the command bit is set (ON).

The end frame is shown after completion of the play while the command bit remains ON.



When the command bit is reset (OFF), the end frame disappears.



With this function, animations can be shown or cleared in accordance with the status of the command memory, which facilitates display control from an external device such as PLC.

This setting is not valid for scale designation.

Showing the Start Frame

♦ Setting Position

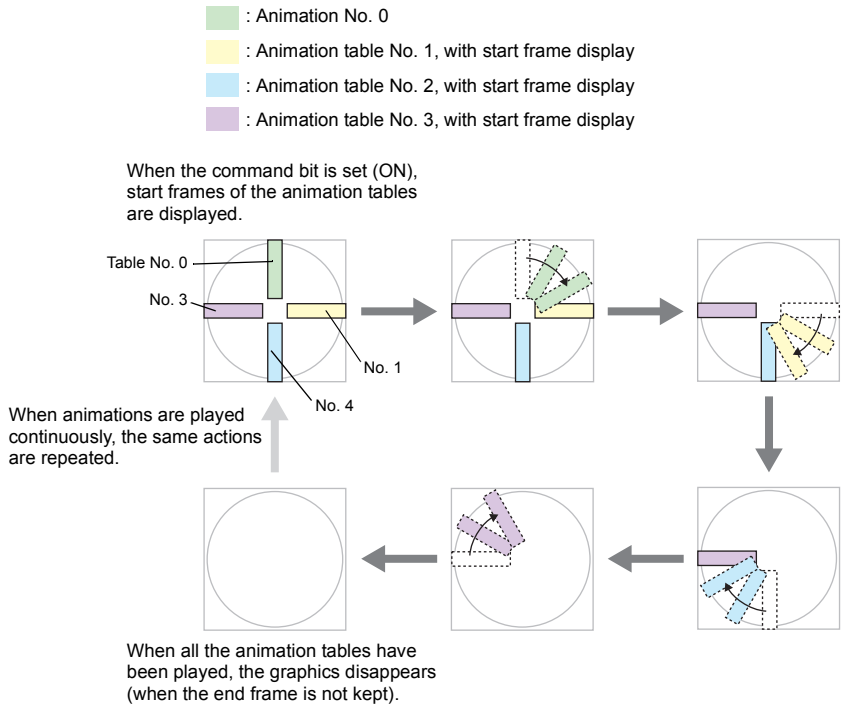
1. [Main] tab window → Check [☐ Use Animation Table].

2. [Animation Table] tab window → [1] - [15] tab
   [☐ Display Start Frame]

♦ Operation Overview

With [☐ Display Start Frame] checked:

This setting is valid when multiple animation tables are used.
It is possible to animate the graphics like the baton pass using the table.
This can be set for animation tables except table No. 0.

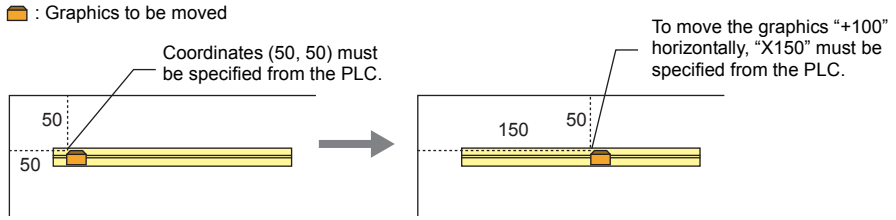


The start frame disappears when the animation of the animation table with the option checked has been started.

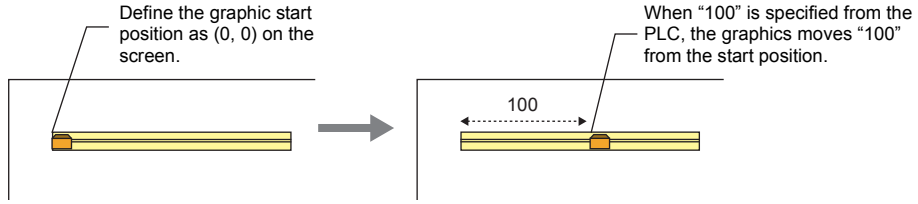
This setting is not valid for scale designation.

Addition in Scale Setting

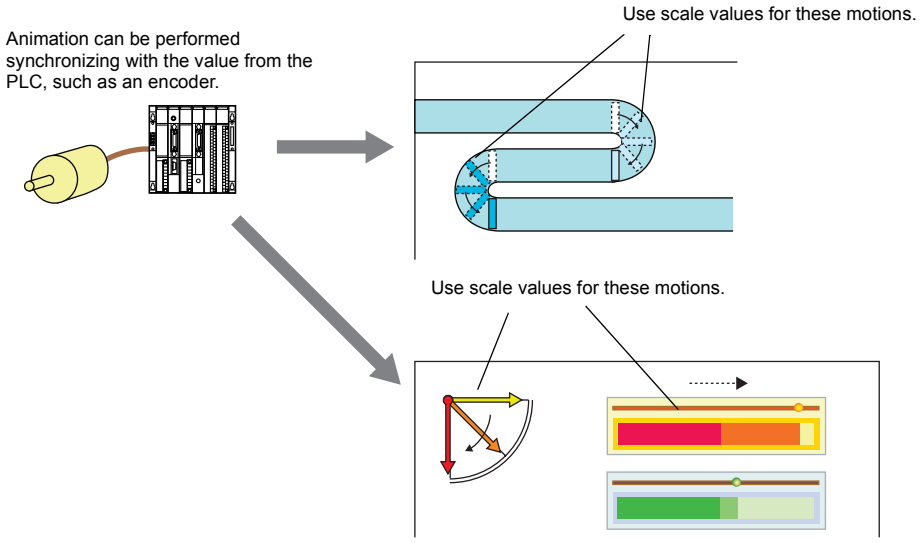
To animate the graphics in accordance with machine motion under control of the PLC, it was necessary to specify the animation number and coordinates with memory designation without using the animation table. It was troublesome to convert the value given from the PLC into the coordinates on the screen where to show the graphics.



With the added function, the graphics can be controlled with scale values when the animation table is used. Consequently, the graphics can be moved or changed synchronizing with the value from the PLC.



Simple animation by scale values allows you to create screens that reflects the machine condition in real time.



♦ Setting Position

1. [Main] tab window → Check [☐ Use Animation Table].
2. [Main] tab window → Check [☐ Scale Designation].
   Specify the address for [Scale Memory].
3. [Animation Table] tab window
   Make necessary settings on the tab window.
4. [Scale] tab window
   Specify the maximum and minimum scale values for each animation table.

♦ Operation Overview

[Animation Table] tab window → [☐ Move] checked

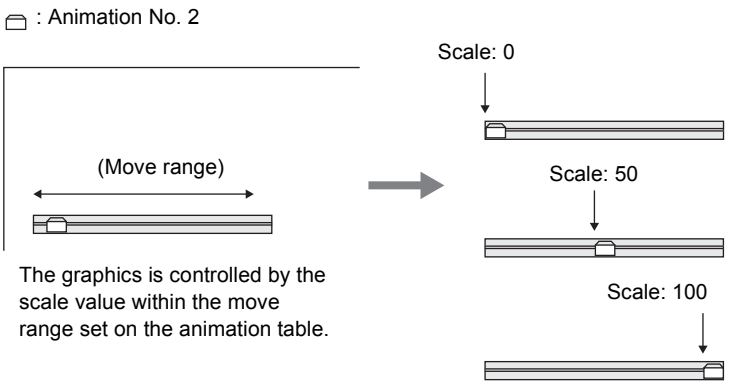
Example:

Animation table No.: 0

Animation No.: 2

[Move] checked: (The graphics moves as shown below.)

Scale: 0 - 100



The move speed can be expressed by changing the scale value.

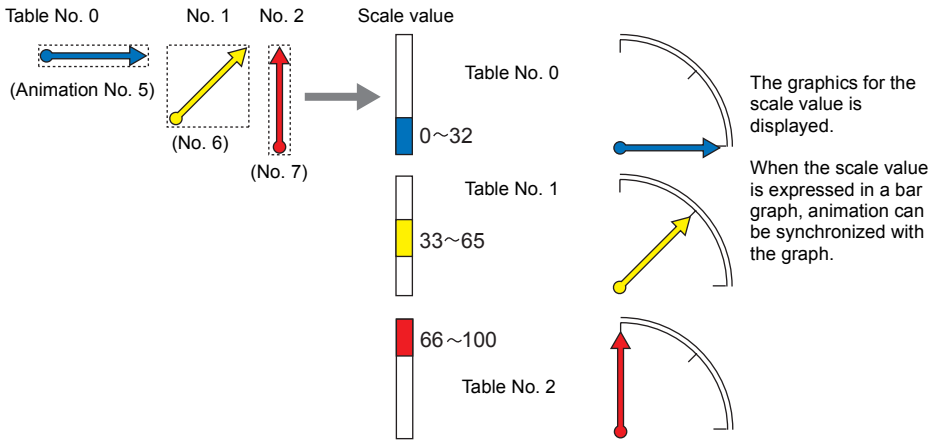
[Animation Table] tab window → [☐ Move] unchecked

The timing to switch the animation number can be specified using a scale value.

Example: Create animation under the following conditions:

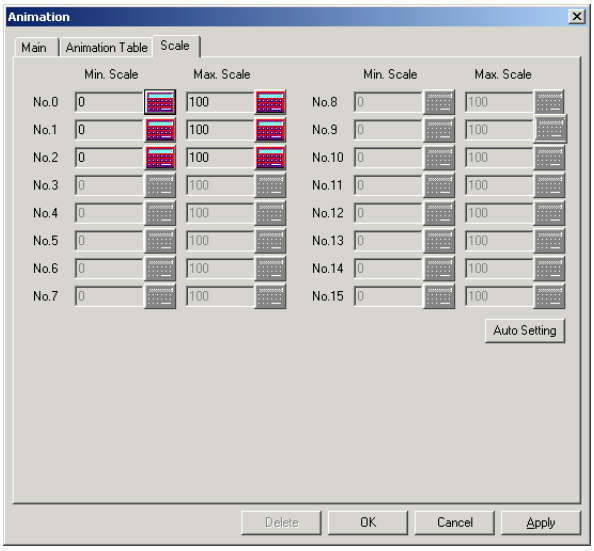
Table No.	Animation No.	Scale	
		Minimum	Maximum
0	5	0	32
1	6	33	65
2	7	66	100

The graphics is animated as shown below.



[Scale] Tab Window

When the animation table is set with [☐ Use Scale Designation] checked on the [Main] tab window, scale settings for as many tables as set can be made on the [Scale] tab window.



[Min. Scale] (PLC memory/internal memory/constant)

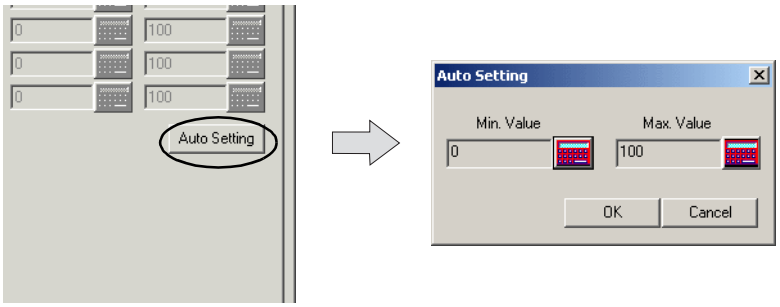
Constant “0” is set as default.

[Max. Scale] (PLC memory/internal memory/constant)

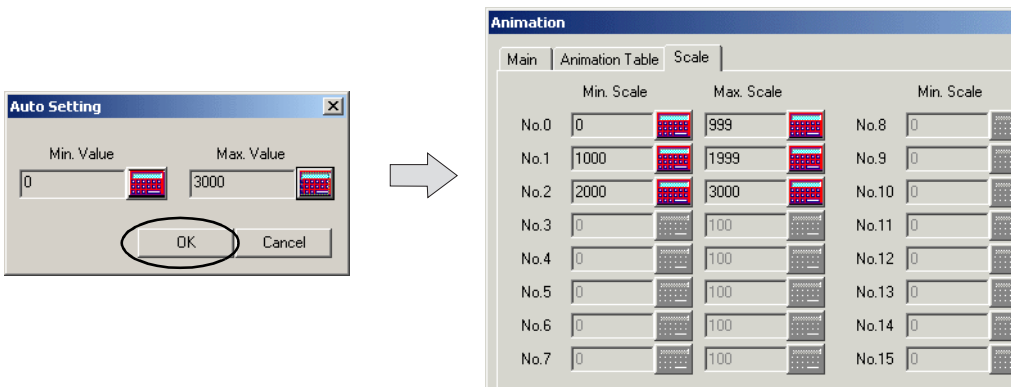
Constant “100” is set as default.

To assign scale values uniformly to the tables:

Press the [Auto Setting] button on the [Scale] tab window.
The following [Auto Setting] dialog is displayed:



Set the desired range and click [OK]. Scale values of the specified range are assigned uniformly to the tables.



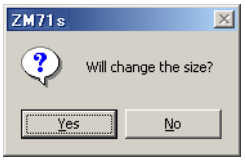
Pattern Editing & Frame (Animation) Editing

The edit capabilities are improved.

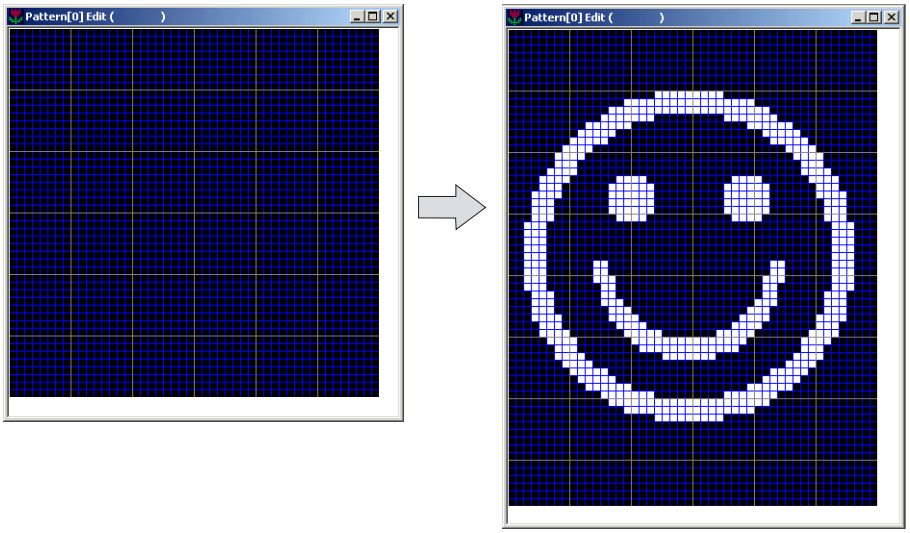
Changing the Size for Characters

If the character size to be placed is greater than the pattern/frame size during pattern or frame (animation) editing, the pattern/frame size is automatically enlarged.

When the character size exceeds the pattern/frame size, the following message is displayed before placement.

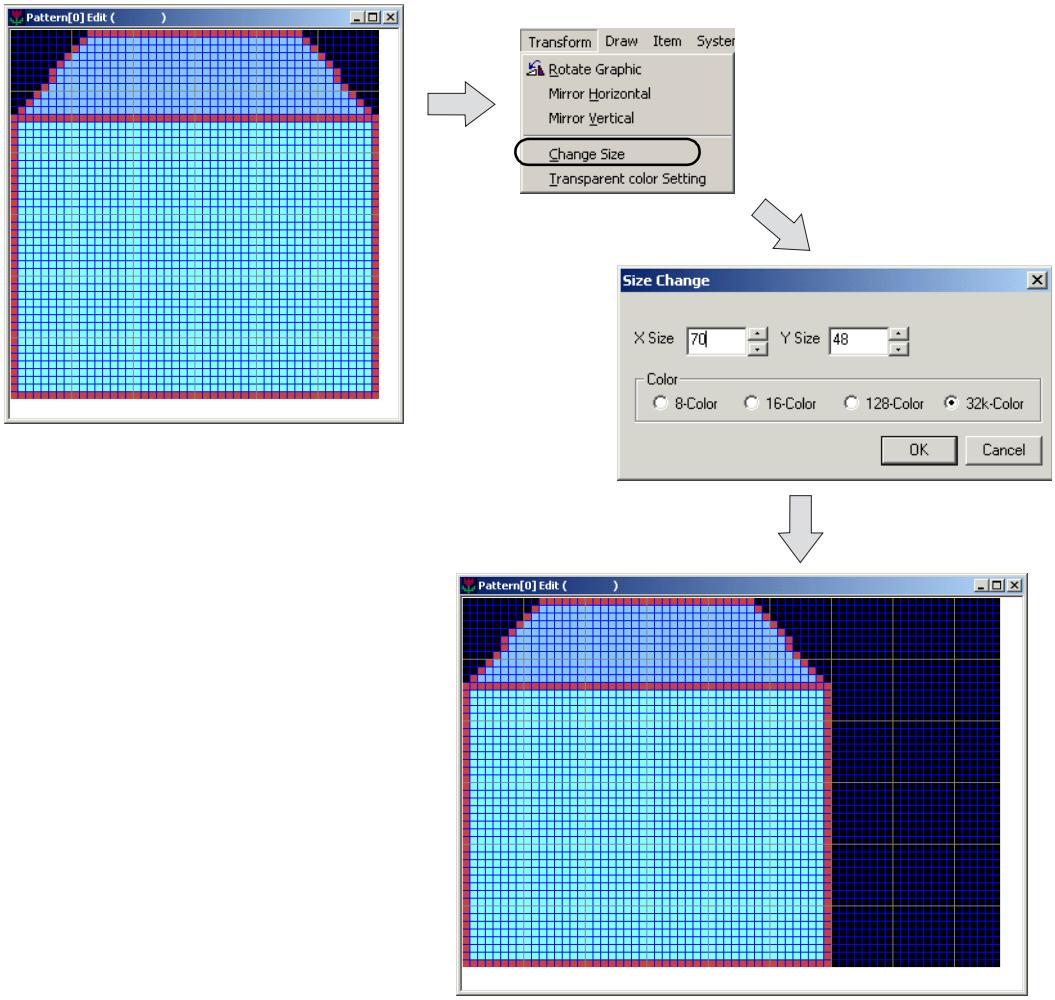


Clicking [Yes] automatically enlarges the size and places the characters.



Retaining Data before Size Change

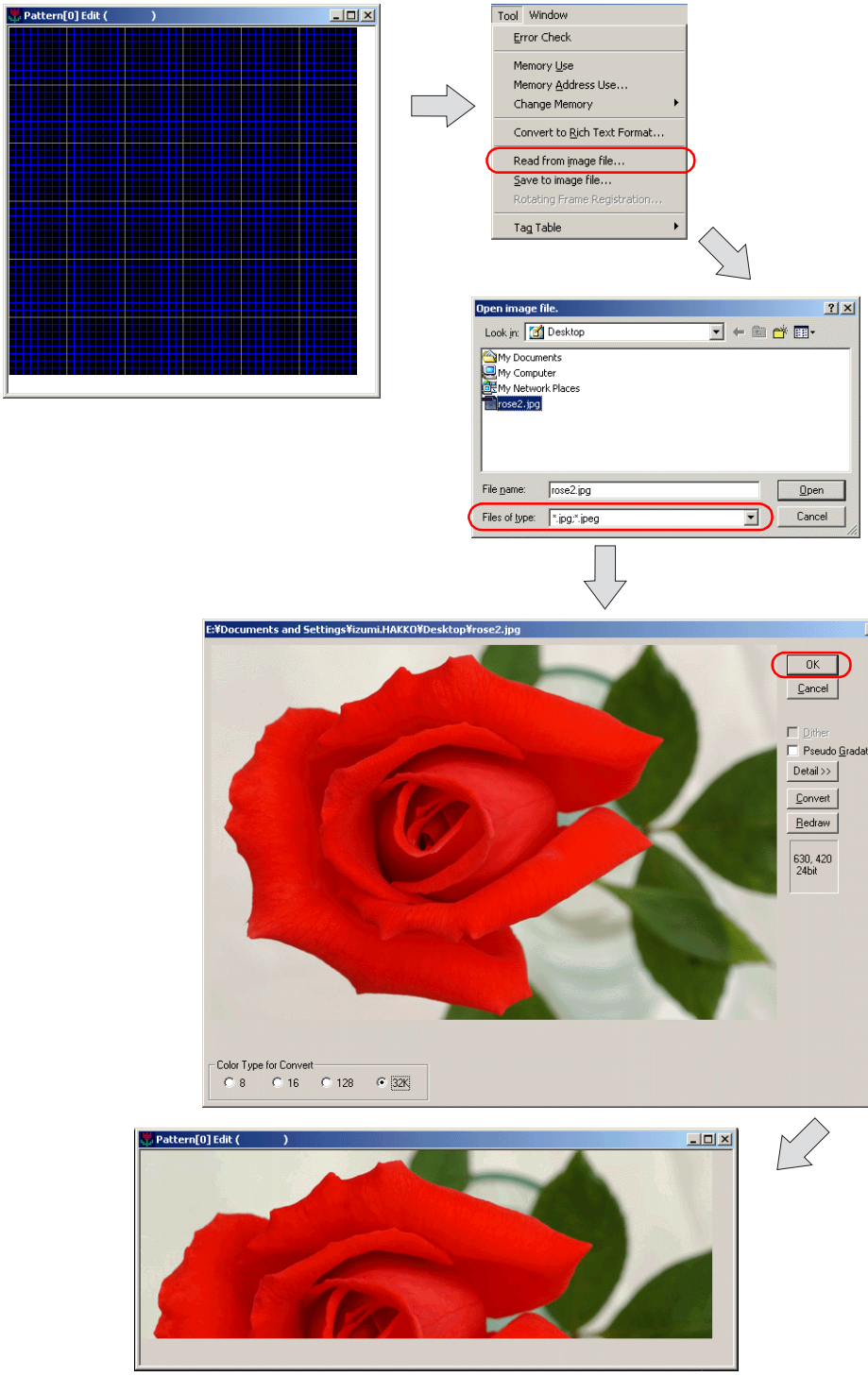
When the created pattern or frame size is changed, the data before the size change is retained.



When deleting all existing data, select [Edit] → [Delete All].

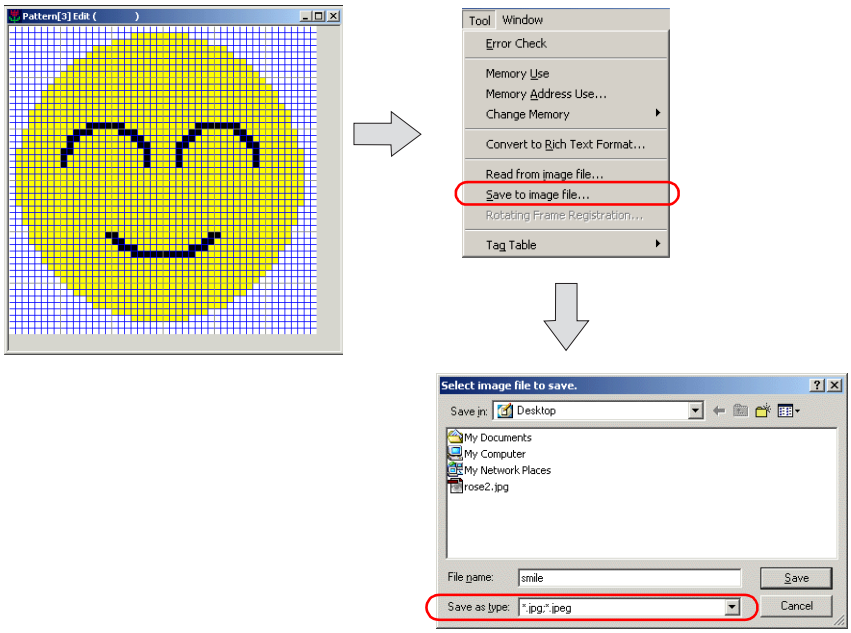
JPEG File Registration

JPEG files can be registered for pattern or frame (animation) editing.



Saving JPEG Files

JPEG files can be registered for pattern or frame (animation) editing.



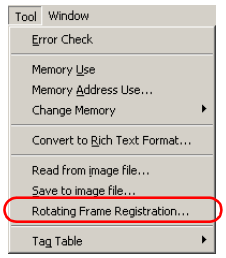
Automatic Creation of Rotary Frames

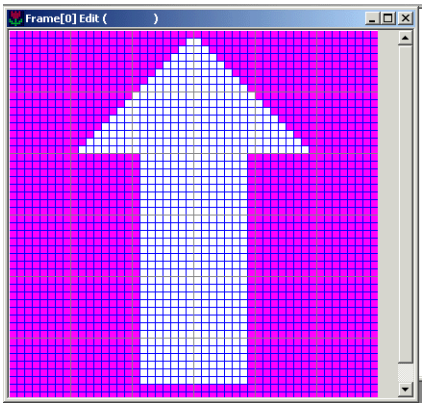
Rotary frames can be created automatically from the registered frame.

This is useful for editing frames to create animation.

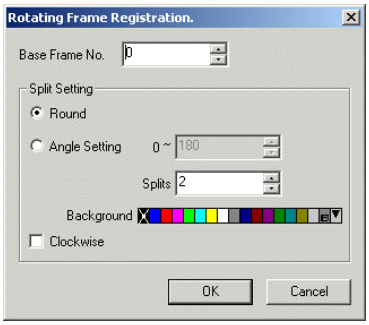
♦ Procedure

1. Open the registered frame from which you want to create rotary frames.
2. Select [Tool] → [Rotating Frame Registration].





3. Set data in the [Rotating Frame Registration] dialog and click [OK].

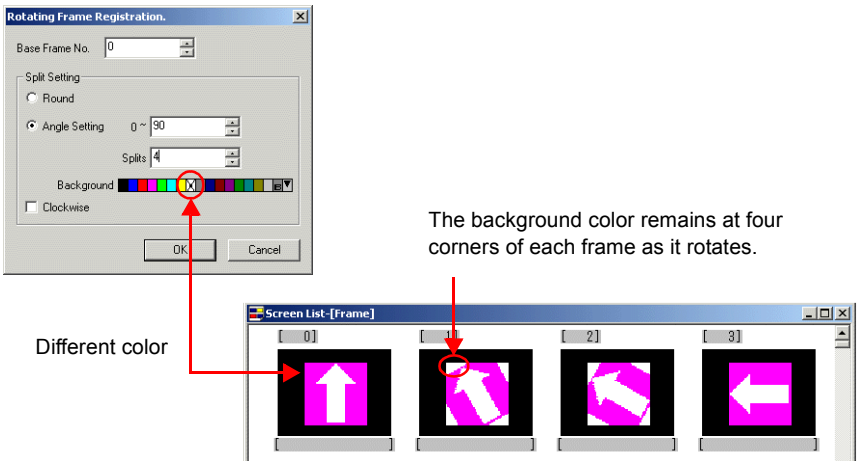


- Base Frame No.: Frame number that you want to make it rotating
- Split Setting
  - Round: Create frames for one entire rotation.
  - Angle Setting (1 to 359)
    Create frames in the specified angle.
  - Splits (2 - 360)
    Number of frames to be created for rotation (including the base frame)
  - Background
    Select the background color for rotary frames.
  - ☐ Clockwise
    Select this option when rotating the frame clockwise.

4. Rotary frames are completed.

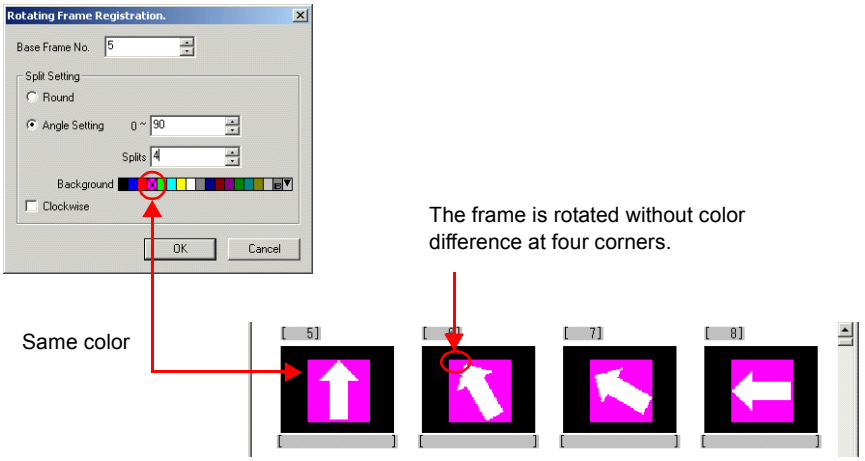
♦ Example 1

When the background color of the registered rotary frames is not the same as that of the base frame:



♦ Example 2

When the background color of the registered rotary frames is the same as that of the base frame:



Sound Replay Function

To use sound items, set WAV files to be replayed on the [Replay Sequence] tab window of the [Sound] dialog. WAV files can be specified by the file name.

☞ For more information on the sound replay function, refer to Chapter 20 in the ZM-71SE Instruction Manual (Function version).

WAV File Name

xxxxxxxx.wav

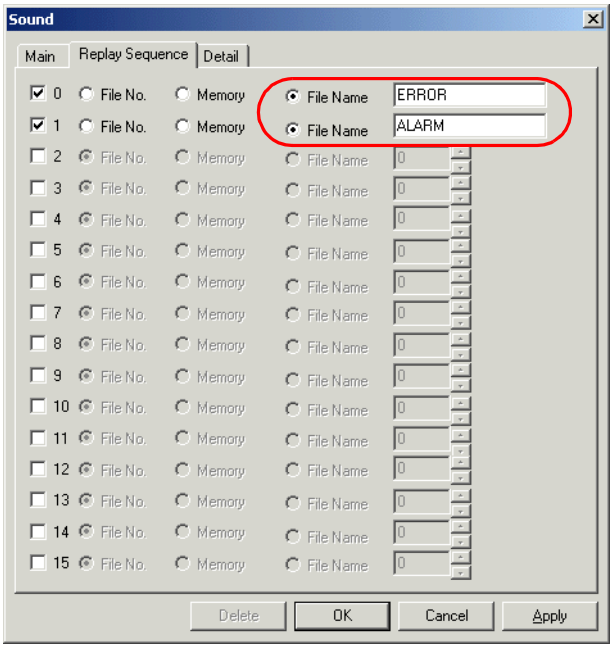
File names must be within eight alphanumeric uppercase characters.

Setting Items

♦ [Sound] Dialog

[Replay Sequence] tab window

File Name

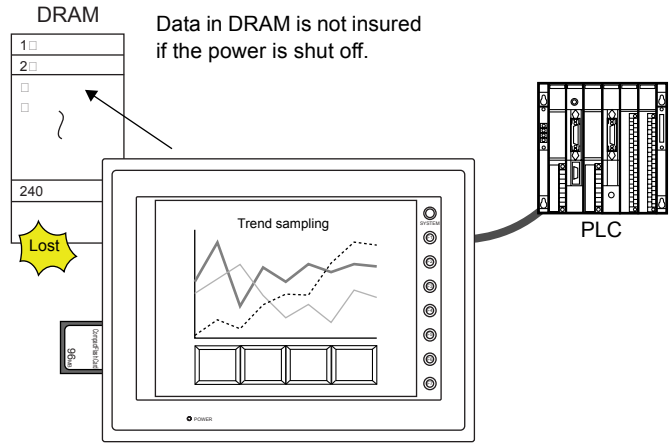


The WAV files that are available when [File No.] or [Memory] is checked on the above dialog are those named “WAxxxx.wav” (xxxx: 0000 - 1023).

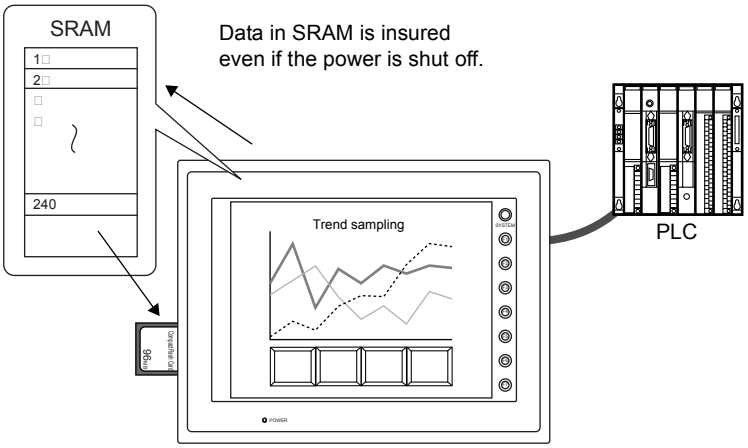
CF Card

Using SRAM as Cache for CF Card

When sampling data is stored on the CF card, the DRAM of ZM series can be used as cache. However, data stored in DRAM temporarily is not insured and will be lost if power failure occurs due to service interruption, etc.



To insure data even at the time of unexpected mini-power failure, SRAM can be used as cache. Data stored in SRAM is insured until the power is turned on next time after power failure, can be output to a CF card.



♦ Setting Position

[System Setting] → [CF Card Setting] → Check [☐ Use Cache].

[DRAM]/[SRAM]

Select [SRAM].

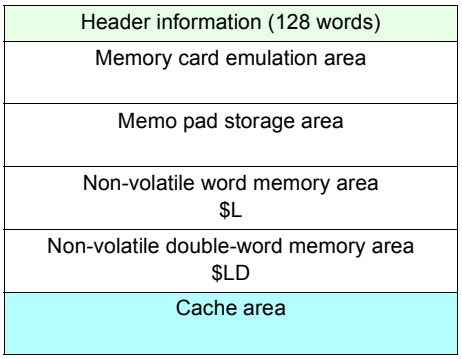
[SRAM] (Unit: words)

[256]
[512]
[768]
[1024]
[1280]
[1536]
[1792]
[2048] (Limit of built-in SRAM)
[4K] (When the SRAM cassette is used)
[8K] (When the SRAM cassette is used)
[16K] (When the SRAM cassette is used)

♦ Cache Area Size Calculation

Contents in the SRAM area

When [☐ Use Cache] is checked and [SRAM] is selected, the SRAM contents will be as shown below.



☞ For more information on SRAM, refer to “Chapter 24 SRAM” in the ZM-71SE Instruction Manual (Function version).

Cache area size calculation (unit: words)

1056 + cache size × number of buffering areas (max. 12)

(Header information)

♦ Notes

System Setting

- When SRAM is used as cache, [Memory Card Emulation Area] by selecting [System Setting] → [SRAM/Clock Setting] cannot be used.
- To use SRAM as cache, format the SRAM on the Main Menu screen of ZM series.

Sampling Mode

- When alarm display is set, only sampling data is insured. Other data, such as automatic operation time or automatic operation stop time, is not insured.
- If the number of sampling times is less than the one that fills the display area size, sampling data in cache may not be insured. Be sure to set a number of sampling times greater than the one that fills the display area.

CF Card Cache Size Expansion (DRAM)

The cache area option to be stored in DRAM is added, and the area up to 4K words can be used.

♦ Setting Position

[System Setting] → [CF Card Setting] → Check [☐ Use Cache].

[DRAM]/[SRAM]

Select [DRAM].

[DRAM] (Unit: words)

[256]
[512]
[768]
[1024]
[1280]
[1536]
[1792]
[2048]
[4K] (← added)

Auto Uploading of CF Card

Setting items for the CF card auto uploading function are added.

♦ Setting Position

◎[File] → [CF Card Manager] → Drive selection

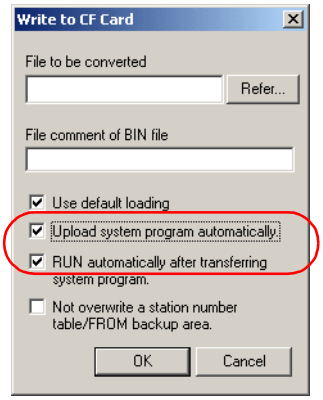
Start the CF card manager.

◎[File] → [Write to CF Card]

→ Check [☐ Use Default Loading].

→ [☐ Upload System Program Automatically]

→ [☐ RUN Automatically after Transferring System Program]



♦ Contents

[☐ Upload System Program Automatically]

- Unchecked

  The following data is written during auto uploading.

  - Screen data
  - I/F driver
  - Fonts

- Checked

  The following data is written during auto uploading.

  - Screen data
  - I/F driver
  - Fonts
  - ZM series system program

[☐ RUN Automatically after Transferring System Program]

- Unchecked

  The Main Menu screen is displayed on completion of automatic uploading.

- Checked

  The RUN mode screen is displayed on completion of automatic uploading.

Attribute Table

To use CSV files stored on the CF card in the recipe mode or macro command, it is necessary to define the CSV files. The place where to make this setting is called the “attribute table.”

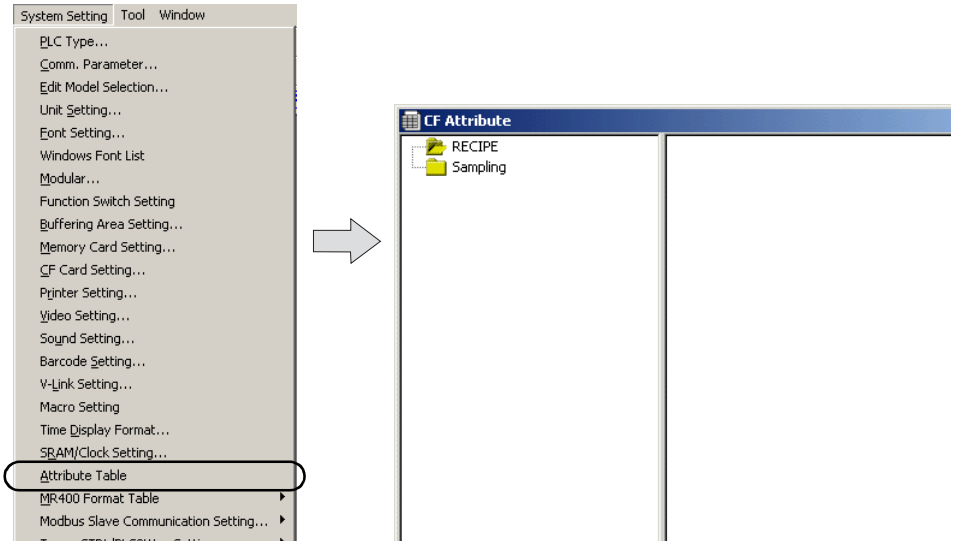
From version 2.1.4.0, the structure of the attribute table has changed.
Also, setting items for the attribute table are added as the recipe mode function is expanded. In this section, new attribute table settings are explained.

☞ For more information on the recipe mode, refer to “Recipe Mode” P2-91.

Attribute Table Window

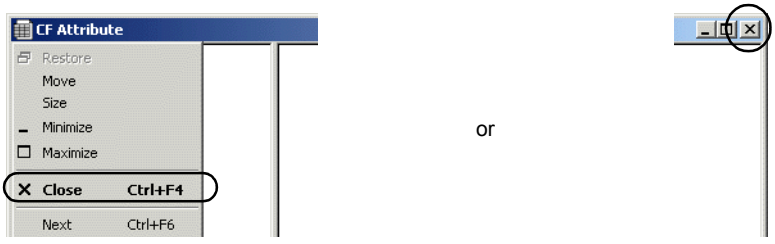
♦ Starting

Select [System Setting] → [Attribute Table].
The [CF Attribute] window is displayed.



♦ Closing

Click the icon on the top left corner of the window and select [Close]. Or click the [×] button on the top right corner of the window.

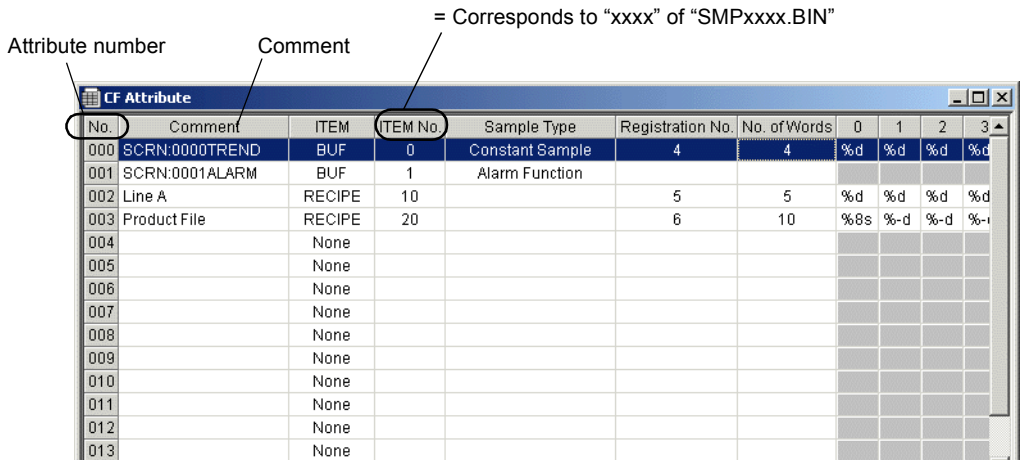


Changes from the Version earlier than 2.1.4.0

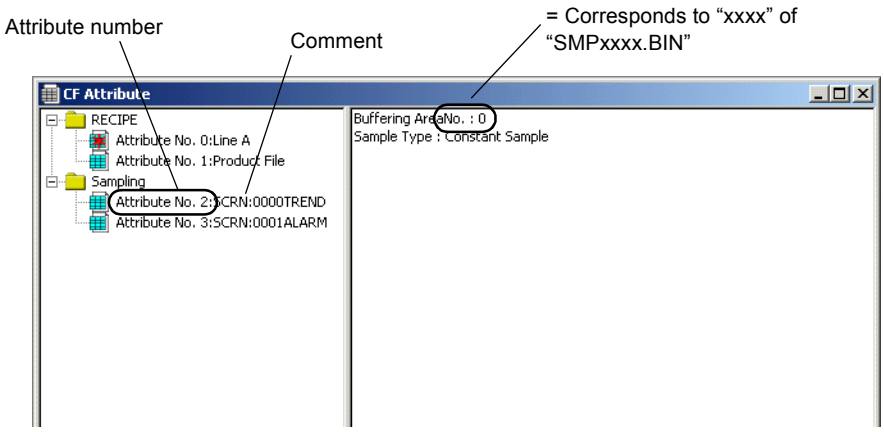
The outward look greatly differs; however, the previous attribute table setting is valid as is.

♦ Sampling Data

- Earlier than version 2.1.4.0

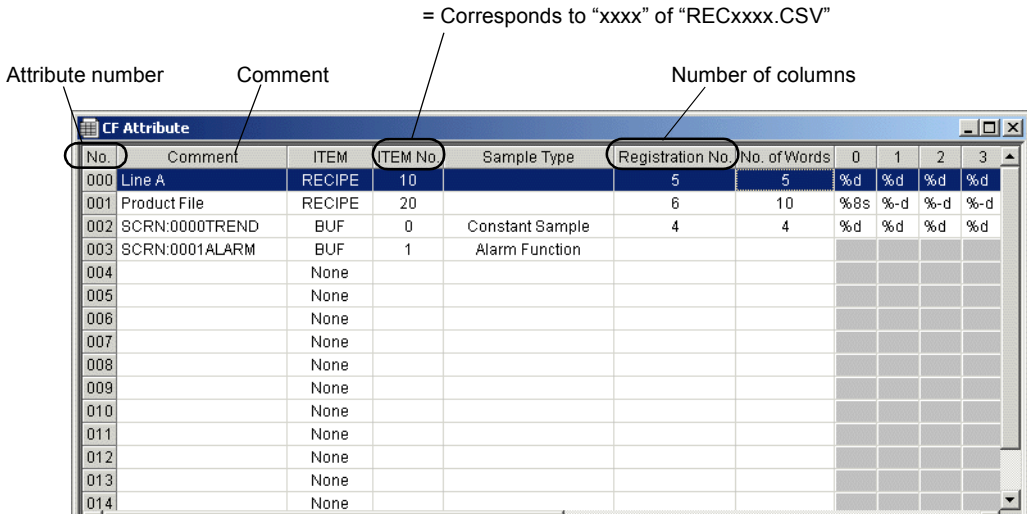


- 2.1.4.0 and later

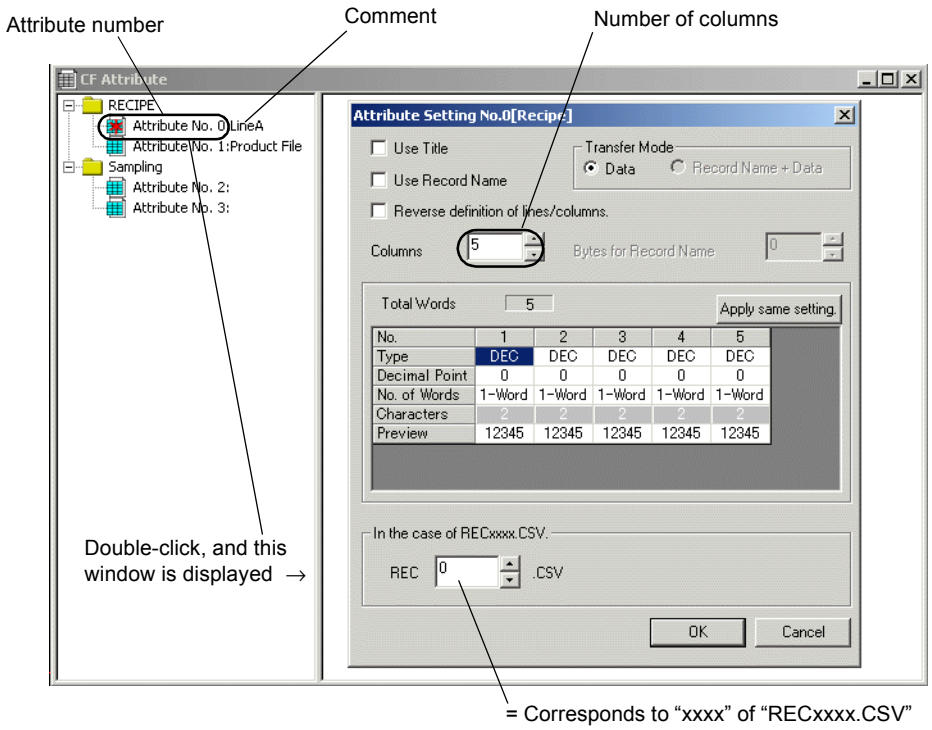


♦ Recipe Data

- Earlier than version 2.1.4.0



- 2.1.4.0 and later



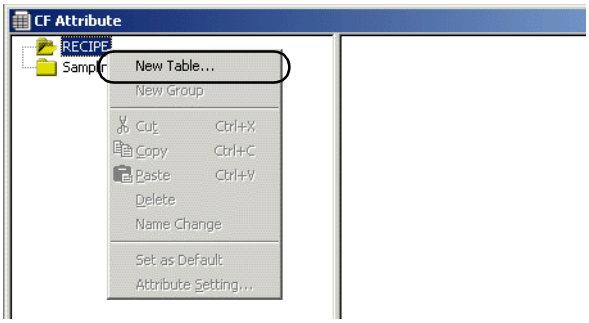
Attribute Table for Recipe Mode

The recipe mode that is available from version 2.0.0.0 handles CSV files. Consequently, the attribute table must be set.

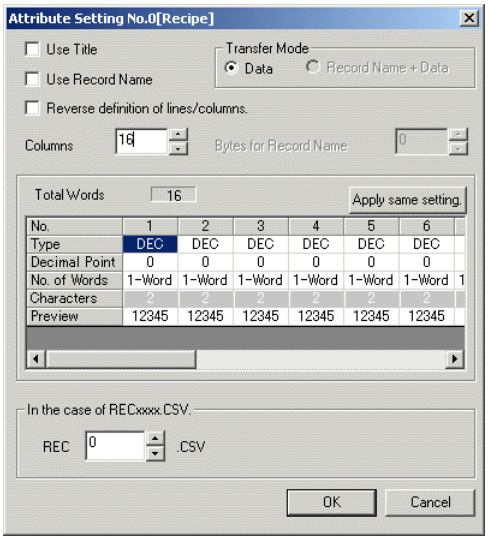
♦ Setting Procedure

1. Select [System Setting] → [Attribute Table] to bring up the [CF Attribute] window.

2. A menu is displayed when right-clicking on the “RECIPE” folder.
   Click [New Table].



3. The [Attribute Setting No. 0] dialog is displayed.
   For the setting items on the dialog, refer to the next section.



4. If multiple attribute settings are required, repeat steps 2 and 3. The attribute settings are created with consecutive numbers.

   *** A maximum of 256 attribute settings (No. 0 to 255) can be created.**

♦ [Attribute Setting] Dialog

[☐ Use Title]

Check this box when displaying the first line in the CSV file as the title on the recipe mode screen.

[☐ Use Record Name]

Check this box when using the first column in the CSV file as the record name storage area. When this box is checked, the following setting items become active.

[Transfer Mode] (Data, Record Name + Data)

Select whether data only is transferred or the record name is transferred with data from the CSV file. When [Record Name + Data] is selected, the number of words transferred is set by [Bytes for Record Name].

[Bytes for Record Name] (0 to 32)

Set the number of bytes used for a record name.

[☐Reverse Definition of Lines/Columns]

Columns and lines within attribute table definition are reversed.

Set this option according to the created CSV file.

- When data in each column in the CSV file is in the same format, leave this box unchecked.

AAA	100	10B1	10.5
BBB	200	FFFF	25.1
CCC	300	50AF	31.0
DDD	400	E005	2.2
EEE	500	568C	0.5
↑	↑	↑	↑
CHAR	DEC	HEX	DEC to the tenths place

- When data in each row in the CSV file is in the same format, check this box.

AAA	BBB	CCC	DDD	EEE	←	CHAR
100	200	300	400	500	←	DEC
10B1	FFFF	50AF	E005	568C	←	HEX
10.5	25.1	31.0	2.2	0.5	←	DEC to the tenths place

Checking [☐Reverse Definition of Lines/Columns] is valid only for macro operation.
This is invalid for the display area in the recipe mode.

[Columns] (1 - 4096)

Set the number of columns in the CSV file.

* **When the record name is used, one column for record name should not be included in the number of columns. Specify the number of columns for data only.**

Record name　　Number of columns

	TEMP	SET	PRESS	MOVE	DATA0	DATA1	DATA2
PRO1	55	12	150	115	1	1000	2000
PRO2	56	11	50	110	2	1005	2005
PRO3	55	15	100	114	3	1010	2010
PRO4	54	16	150	110	5	1015	2015
PRO5	53	11	50	109	8	1020	2020
PRO6	52	13	100	113	9	1025	2025
PRO7	50	10	10	113	1	1030	2030
PRO8	49	15	150	115	5	1035	2035
PRO9	48	15	50	118	2	1040	2040

* **The maximum possible number of columns is 4096. However, depending on the data contents, the number may be limited if the total number of words (refer to the next section) reaches 4096 words.**
* **When handling CSV files on Excel, the maximum number of columns available is 256. Please keep this limitation in mind.**

  If you would like to handle a CSV file having more than 256 columns on Excel, it is recommended to use the option [☐ Reverse Definition of Lines/Columns] (P2-65).

Data Format Setting

Set the format of data. The following options are available.

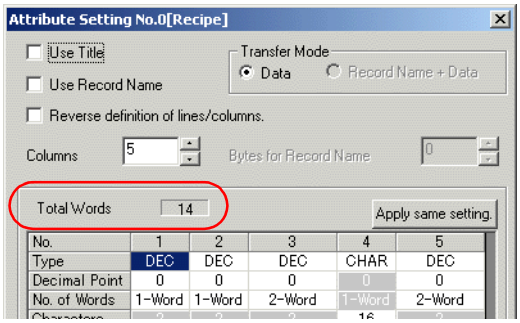
[Type]　(DEC/DEC-/HEX/OCT/BIN/CHAR/BCD/FLOAT)

[Decimal Point]　(0 - 32)

[No. of Words]　(1-Word/2-Word)

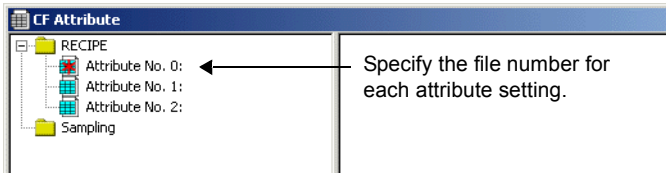
[Characters]　(2 - 255)

When the setting is made, [Total Words] (1 - 4096) is automatically calculated and indicated.



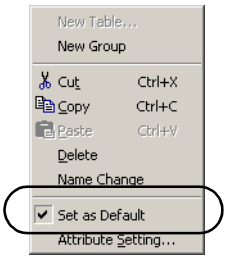
[In the Case of RECxxxx.CSV]

To use the LD_RECIPE or SV_RECIPE macro command or to manage the CSV files with the numbers, the CSV files (RECxxxx.CSV) should be stored in the “RECIPE” folder for reading and writing.
When the attribute setting varies for each “RECxxxx.CSV” file, specify the applicable file number here.



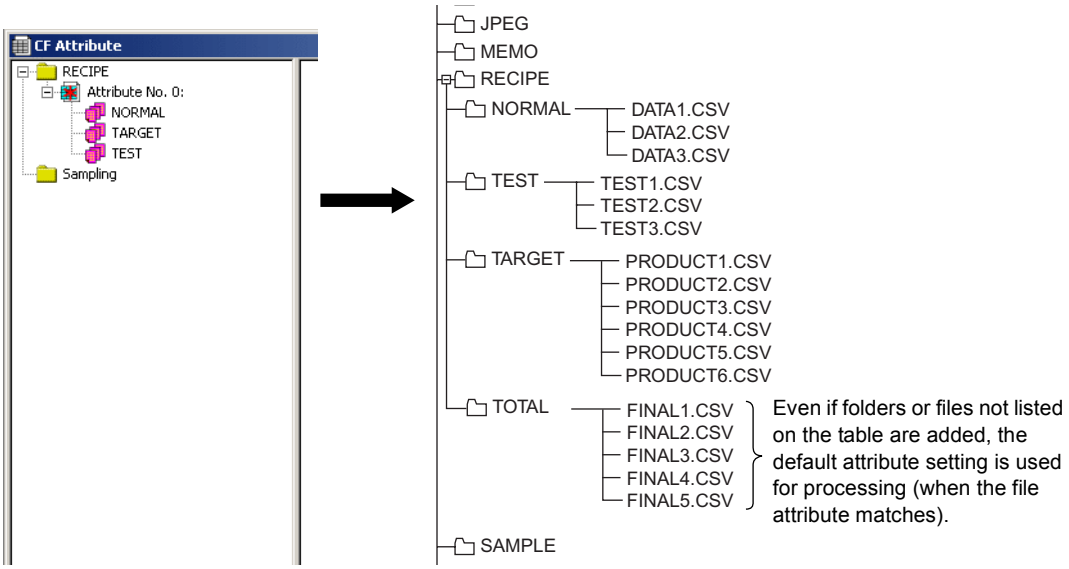
♦ Default Setting

Right-clicking on the attribute number shows [Set as Default] in the menu.



When multiple attribute settings exist, one of this menu item is checked.

For example, if you have created a new folder on Explorer, etc. add it on the CF card and copies new CSV files into this folder, it is necessary to define the folder on the attribute table using the screen edit software.
However, in the recipe mode, if the file described above can be read using the attribute setting of which [Set as Default] is checked, it can be displayed on the screen.



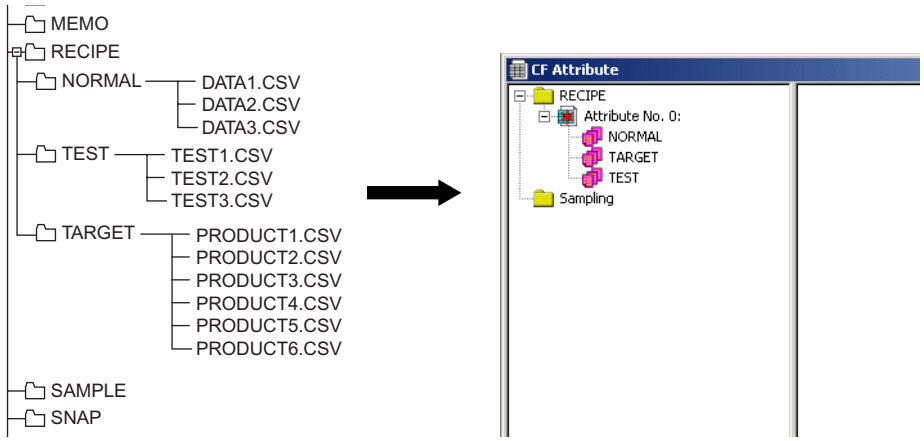
In the same way, newly added “RECxxxx.CSV” files can be handled using the default attribute setting.

♦ Creating Folders

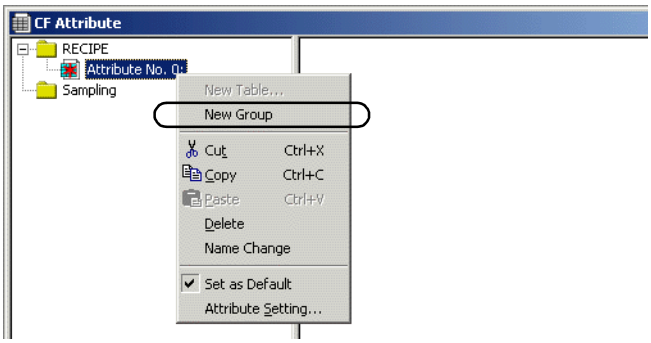
Creating folders for the attribute table may be required when managing CSV files that are named freely (eight alphanumeric characters). When handing the “RECxxxx.CSV” files, no folder is required.

In the recipe mode, CSV files can be named freely using eight alphanumeric uppercase characters. In this case, the CSV files must be stored in a folder created under the “RECIPE” folder.

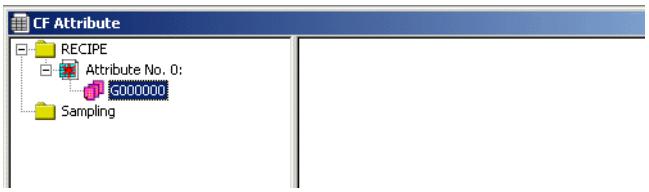
Create this folder under the “RECIPE” folder on the attribute table beforehand. Follow the steps described below.



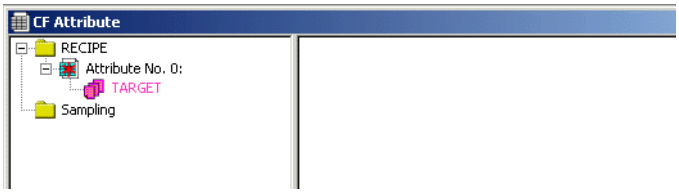
1. Right-click on the attribute table number where the CSV file is defined. A drop-down menu is displayed.



2. Click [New Group]. The “G000000” folder is displayed on the window.

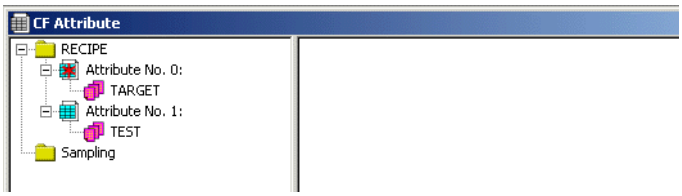


3. To change the folder name, select the “G000000” folder and click on the name again, or right-click and select [Name Change]. When the name is highlighted, enter the desired name within eight alphanumeric characters.



4. If multiple folders in the same format are required to store CSV files, repeat steps 1 to 3.

5. To store the CSV files in different formats in each folder, set the attribute table for each folder and repeat steps 1 to 3.



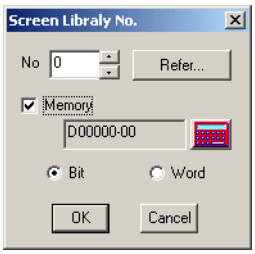
Screen Library

The control memory can be set for screen library, which enables display/non-display by bit activation and display change by the number.

Setting Items

♦ [Screen Library No.] Dialog

☐Memory



The [Screen Library No.] dialog is displayed by double-clicking on the SLIB mark on the screen.

Place a screen library element.

Double-click on the SLIB mark on the screen.

Action

The following action is made depending on the value in the control memory.

Memory	Value	SLIB	Remarks
Bit	ON	Display	
	OFF	Non-display	
Word	0 - 1023	Number display	Non-display if not registered or out of range

Notes

In the following cases, a value change in the memory is not reflected. It is reflected next time when the screen display is switched.

- The screen is already displayed.
- Screen OPEN macro

In the case of memory designation, screen change may be delayed due to the fact that reading from the memory is performed through communications. It is recommended to use the internal memory.

Print

Addition of Printer Models

The ZM-300 series can be connected to EPSON's color ink-jet printer STYLUS PHOTO. Hard copy print in 32K colors becomes possible.

It is not possible to connect any Windows printers other than EPSON's STYLUS PHOTO.

Model
STYLUS PHOTO 750
STYLUS PHOTO 1200
STYLUS PHOTO 720
STYLUS PHOTO EX3
STYLUS PHOTO 790
STYLUS PHOTO 890
STYLUS PHOTO 1290
STYLUS PHOTO 810

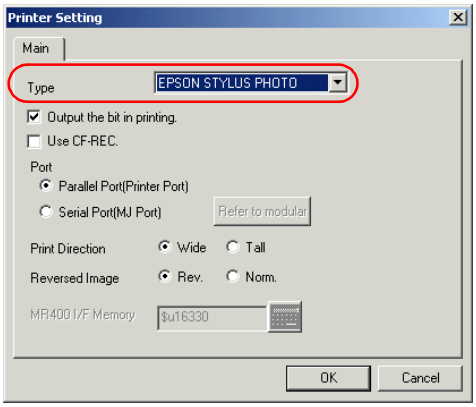
Setting Items

♦ Printer Setting

[Main] tab window

Type: EPSON STYLUS PHOTO

- ZM-35*/36*/37*/38*

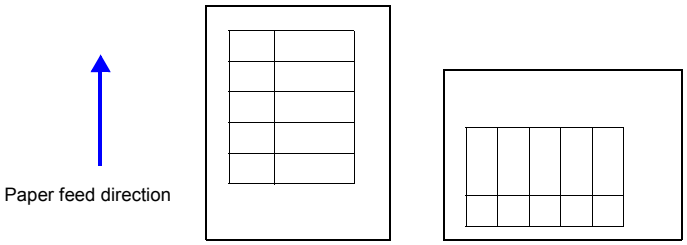


Limitations

1. Printing data sheet or sample print takes almost the same time as hard copy print.
2. Data sheet print

   Print on A4 wide/15 inch wide sheets is not supported.

   *** Data is printed in portrait orientation regardless of the paper setting.**



3. Macro command: OUT_PR

   Only characters are printed. Control codes are not printed.

Barcodes

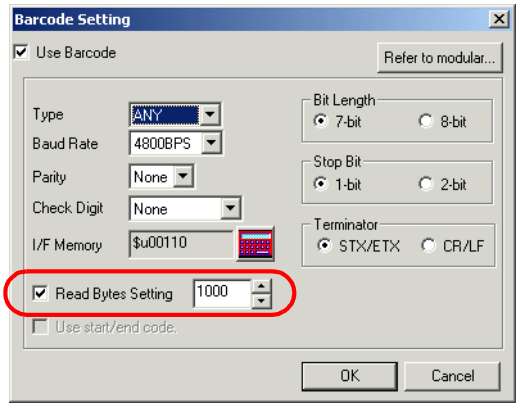
The maximum number of bytes to be read can be set on the [Barcode Setting] dialog. It is possible to prevent data overwrite if data of an unexpectedly great number of digits is read.

Setting Items

♦ Barcode Setting

☐Read Bytes Setting

Number of bytes to be read (Specify an even number.)



♦ Setting Range

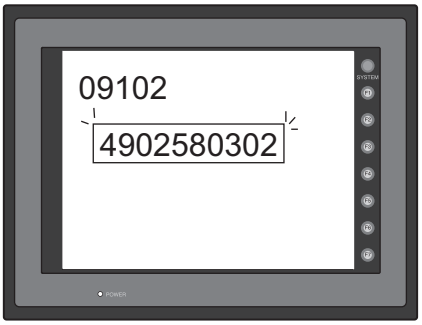
Type	Read Bytes Setting Checked/Unchecked	Memory Capacity Occupied
JAN ITF CORDER BARCODE39	Unchecked	Variable for codes to be read 254 words maximum
	Checked	Fixed to the set number of words (2 to 254 words)
ANY	Unchecked	Variable for codes to be read 2046 words maximum
	Checked	Fixed to the set number of words (2 to 2046 words)

Example

I/F memory: 09100
Read Bytes Setting: Checked
Bytes: 10 bytes

♦ Checked

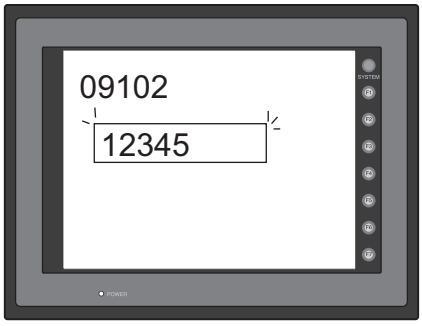
- When data “4902580302474” exceeding 10 bytes is read:
  Data of 10 bytes is stored and the remainder is deleted.



I/F Memory	Value
09100	Flag, bytes read
09102	3934HEX
09104	3230HEX
09106	3835HEX
09110	3330HEX
09112	3230HEX
09114	Not used

10 bytes

- When data “12345” less than 10 bytes is read:
  “0” is stored in memory addresses when there is no corresponding data.



I/F Memory	Value
09100	Flag, bytes read
09102	3231HEX
09104	3433HEX
09106	0035HEX
09110	0000HEX
09112	0000HEX
09114	Not used

10 bytes

Comment Display

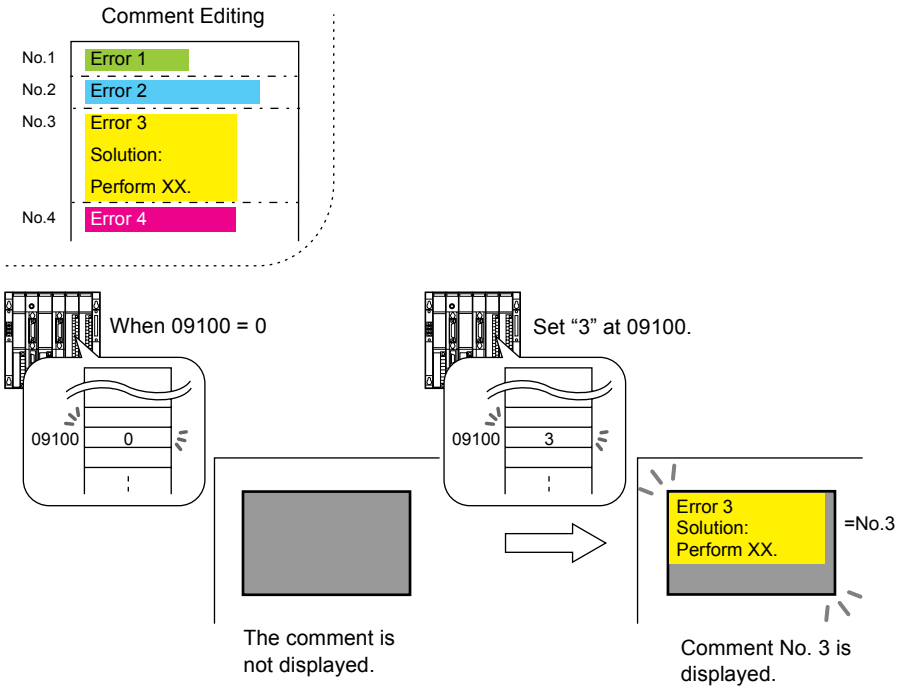
Overview

Register comments in advance, and show the comment by setting the comment number (word designation) to the memory address or by setting (ON) the bit (bit designation).

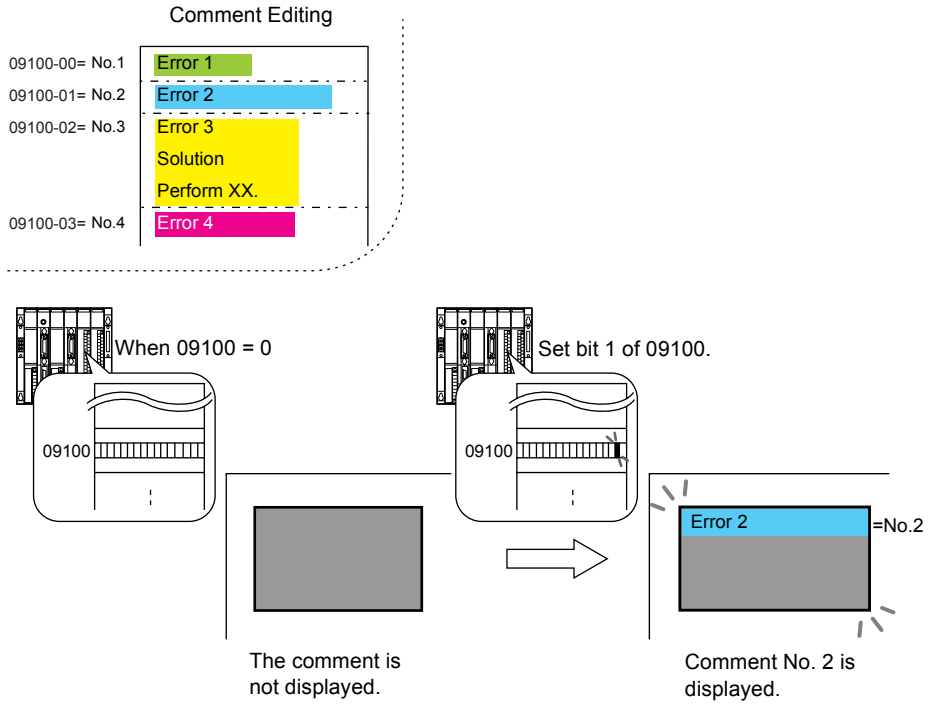
A maximum of 32,767 comments can be registered. The character property, such as color or size, can be set for each comment.

One comment can include multiple lines.

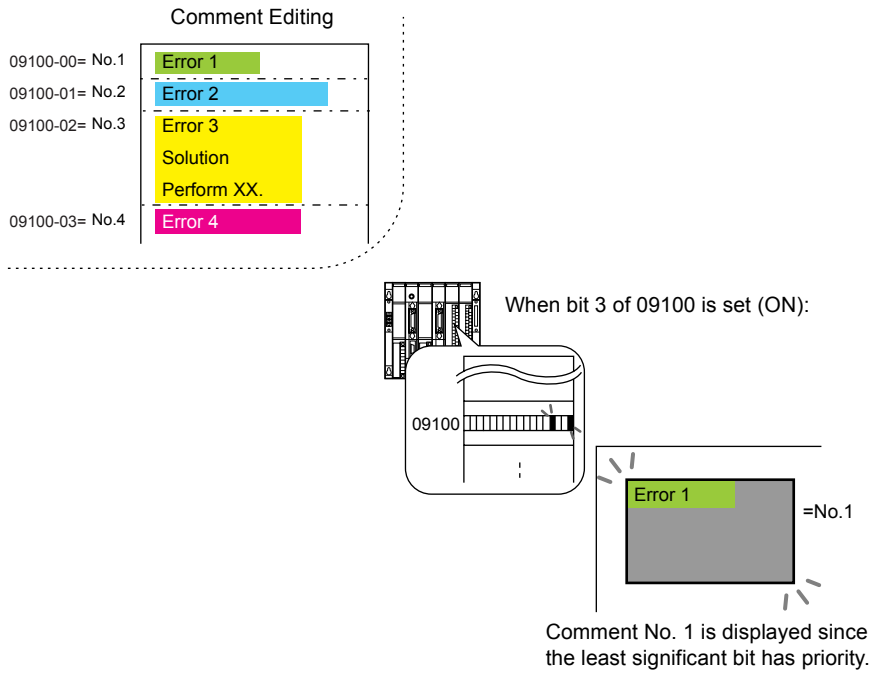
♦ Word Designation



♦ Bit Designation



When multiple bits are set (ON), the least significant bit has priority.



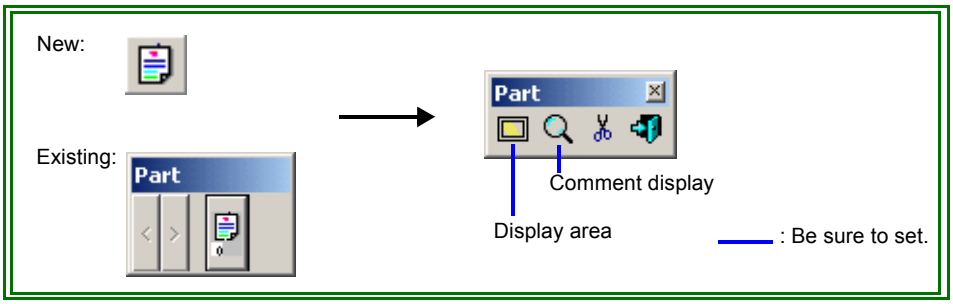
Setting Items

♦ Comment

[Item] → [Comment]

♦ [Comment Display] Dialog

[Part] → [Comment Display]



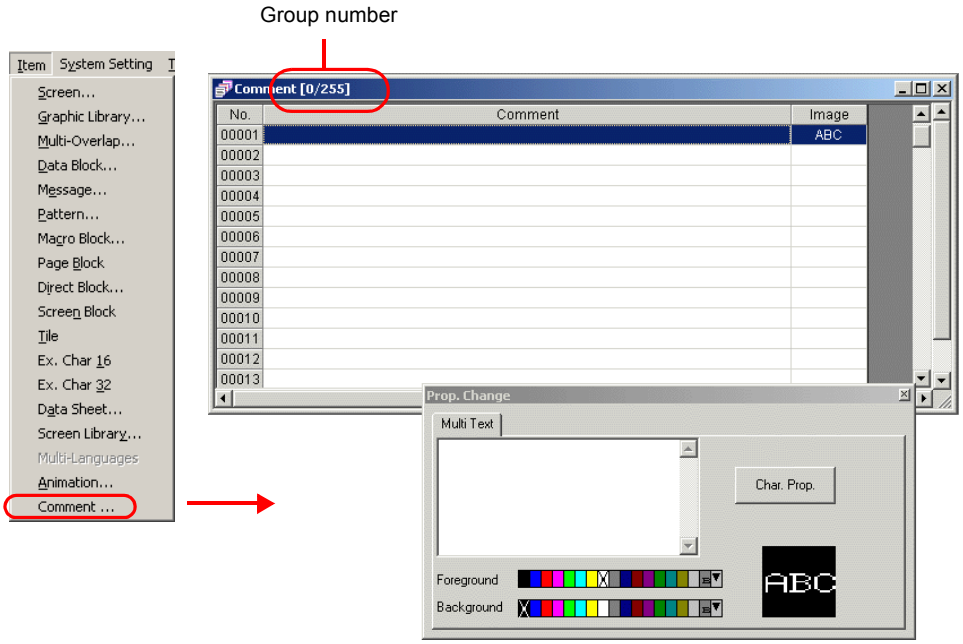
Comment

This is the area where text for comments are registered.

♦ Calling up the Comment

Select [Comment] from the [Item] menu.

The [Comment] edit window is displayed.



Comments are put in group No. 0 to 255.

To change between groups, use the [Preview]/[Next] icons.

Group No.	Comment No.
0	1 - 127
1	128 - 255
2	256 - 383
:	:
255	32640 - 32767

♦ Comment Editing

1. Click the number (1 - 32,767) where to register the comment. The line is highlighted.

2. [Prop. Change] dialog

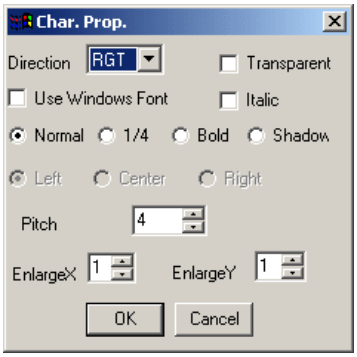
   [Multi Text]

   Comments can be entered in the same way as characters in graphics.

   [Foreground] / [Background]

   Select character colors.

3. [Char. Prop.] dialog



   [Direction]

   Choose a text alignment direction from [→, ↑, ↓].

   [☐Transparent]

   Check the box when using transparency for the text background.

   [☐ Italic]

   Check the box when using italics.

   [Char. Type]

   Choose from [Normal], [1/4], [Bold] or [Shadow].

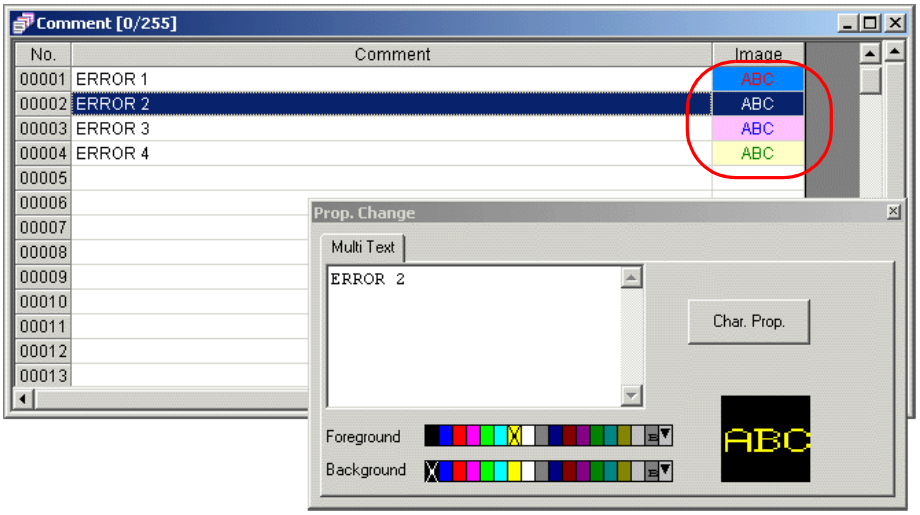
   [Pitch]

   Set the pitch between lines.

   [Enlarge X] [Enlarge Y] (1 - 8)

   Specify enlargement factors for X and Y.

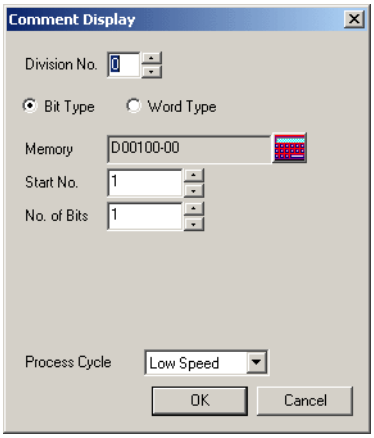
4. When the comment is registered, the image in the set foreground/background colors is displayed in the [Image] column. Some properties, such as transparency, are not shown.



Limitations in Comment Registration

- 1 line — Maximum 100 characters
- 1 comment — Maximum 1,024 characters
- Number of comments — Maximum 32,767 comments
- The screen data size must not be exceeded.

[Comment Display] Dialog



[Division No.]

Set the division number.

(For information on the division number, refer to Chapter 2 in the ZM-71SE Instruction Manual (Operation version).)

[Bit Type]

Select this option to call up the comment by bit activation.

[Word Type]

Select this option to call up the comment by specifying the comment number.

[Memory]

Bit designation:

Set the memory address (1 bit) to call up the comment set for [Start No.]. From this memory address, as many bits as set for [No. of Bits] are consecutively allocated to the comment specified for [Start No.] and later.

When multiple bits are set (ON), the least significant bit has priority.

Word designation:

Set the memory address (1 word) for specifying the comment number.

When “0” is specified, no comment is displayed.

When “1 - 32767” is specified, the corresponding comment is displayed.

However, if the BCD code is used on the PLC, the available range is limited to “1 - 9999.”

[Start No.] (1 - 32767)

This is valid for bit designation.

Specify the comment number to be called up by activation of the bit set for [Memory].

[No. of Bits] (1 - 512)

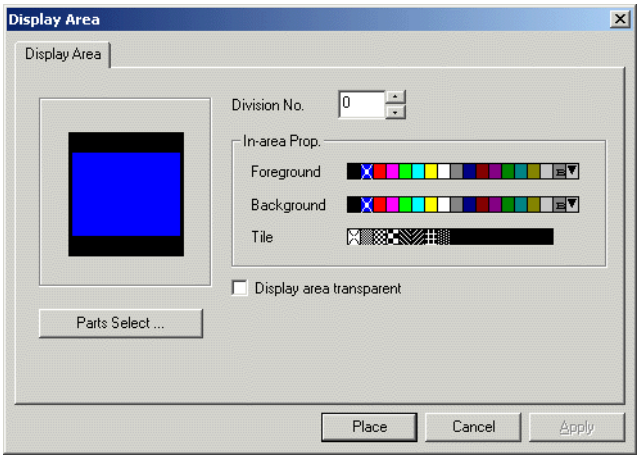
This is valid for bit designation.

Specify the number of bits to be used for comment display (= total number of comments to be displayed). From the bit set for [Memory], as many bits as set for [No. of Bits] are consecutively allocated to the comment specified for [Start No.] and later.

Display Area Part

This is the area where the comment is displayed.

♦ [Display Area] Dialog



[Division No.]

Set the same division number as that in the [Comment Display] dialog.
(For information on the division number, refer to Chapter 2 in the ZM-71SE Instruction Manual (Operation version).)

[In-area Prop.]

Choose colors for the display area part.
The [Background] option becomes active when any tile pattern other than pattern 0 (extreme left) is chosen for [Tile].

[☐ Display Area Transparent]

This is invalid for comment display. Uncheck this option.

When [Bit Type] is selected on the [Comment Display] dialog:
When [☐ Message Dsp.] is checked on the [Display Environment] dialog, the image can be checked on the ZM-71SE editor.

Windows Fonts

Windows fonts can be used as display fonts on ZM series. Parts and messages in various fonts provide the power of expression.

Multiple languages can be included on one screen.

If the computer does not have Windows fonts used in the screen data, screen data cannot be edited or transferred (PC →/PC←). Please take note of this.

Setting Items

The setting items vary depending on the part where Windows fonts are used. Refer to the chart below when setting.

Part		Setting Items		
		Text Properties (P2-84)	Message Edit (P2-85)	Font Registration (P2-86)
Text in drawing	–	○	–	–
Multi-text	–	○	–	–
Characters on switches	–	○	–	–
Characters on lamps	–	○	–	–
Data display	Numerical data*1	○	–	Automatic
	Characters*1	○	–	○
	Messages	○	○	–
Table data display	Numerical data*6	○	–	Automatic
	Characters	○	–	○
	Messages	○	○	–
	Text in drawing	○	–	–
Relay	–	○	○	–
Relay-sub	–	○	○	–
Message mode	–	○	○	–
Sampling	Data sample	○*2	–	–
	Bit sample*3, *4	○	○	–
	Relay sample*4	○	○	–
	Alarm display*4	○	○	–
Time display	–	○	–	Automatic
Calendar	–	○	–	Automatic
Memory card mode	–	Not supported		
Recipe	–	Not supported		
Comment display	–	○*5	–	–

- If the setting is not complete with the part where text properties and message edit are required or if a part that is not supported is used, the fonts set from [System Setting] → [Font Setting] are used for display.
- If the fonts are not registered for the part that requires font registration, they are displayed as spaces.

*1 Available when [None], [Entry Display], [Entry Target], [Max. Display], [Min. Display] or [Digital Switch] is selected for [Display Function]. However, data display of graphic library is not supported.

*2 Make settings on the [Main] tab window of the [Sampling Display Area] dialog.

*3 Set the ON/OFF colors of characters on the [Bit Sampling] dialog. Colors set on the [Message Edit] window become invalid.

*4 The size of time display/status display in the sampling area is fixed.

*5 Set on the dialog for comment registration. (Select [Edit] → [Comment].)

*6 Not supported when [Max. Display], [Min. Display] or [Total Display] is selected for [Display Function].

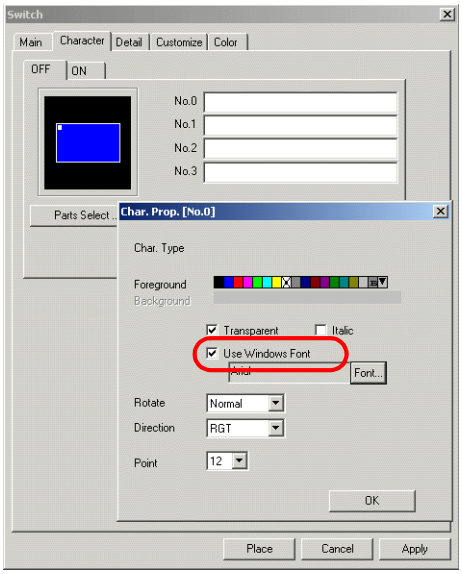
Text Properties

Text properties for parts can be set as described below.

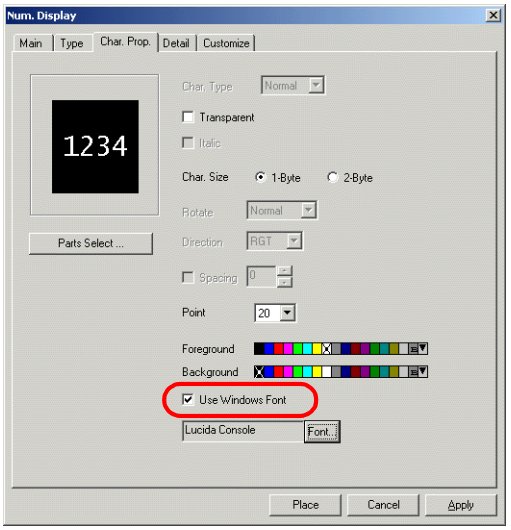
♦ Setting Procedure

1. Open the dialog for the part.
2. Check [☐ Use Windows Font] on the [Character] or [Char. Prop] tab window.

Switch



Numerical data display



3. Windows font names and the [Font] button are displayed.

For information on the [Register Font] button, refer to “Font Registration” P2-86.

4. Click the [Font] button and set the desired font and points.

For the part that requires the setting on the [Message Edit] window, simply put a check mark in step 2.
The setting of Windows fonts should be made on the [Message Edit] window.

Windows fonts available with numerical data display/character display parts are un-proportional fonts only. Proportional fonts cannot be used.

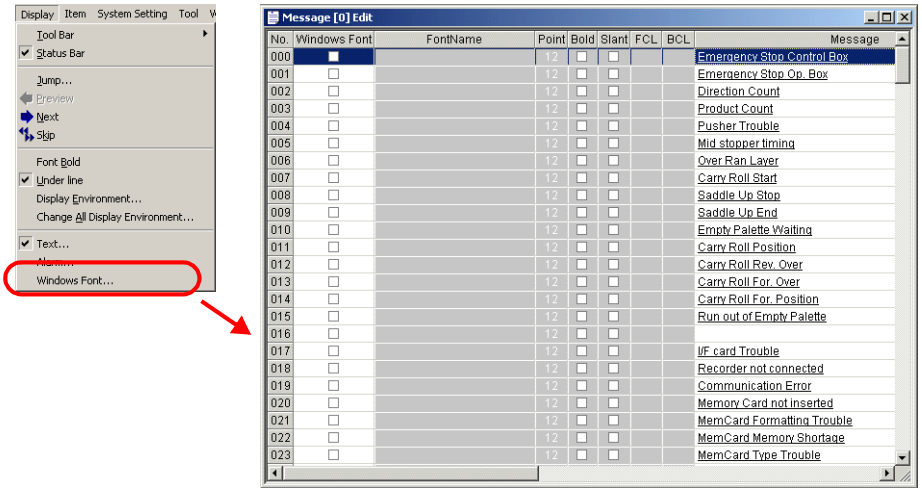
- Example:

Font	Use
MS Gothic	Enabled
MSP Gothic	Disabled
Courier	Enabled
Arial	Disabled

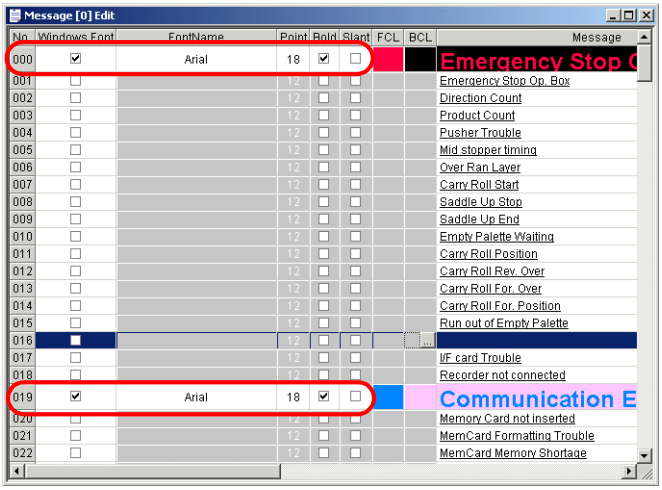
Message Edit

♦ Setting Procedure

1. Select [Item] → [Message]. The [Message Edit] window opens.
2. Select [Display] → [Windows Font]. The Windows fonts can be used.



3. Check the box for the message to be displayed with a Windows font, and set the desired font, points, color, etc.



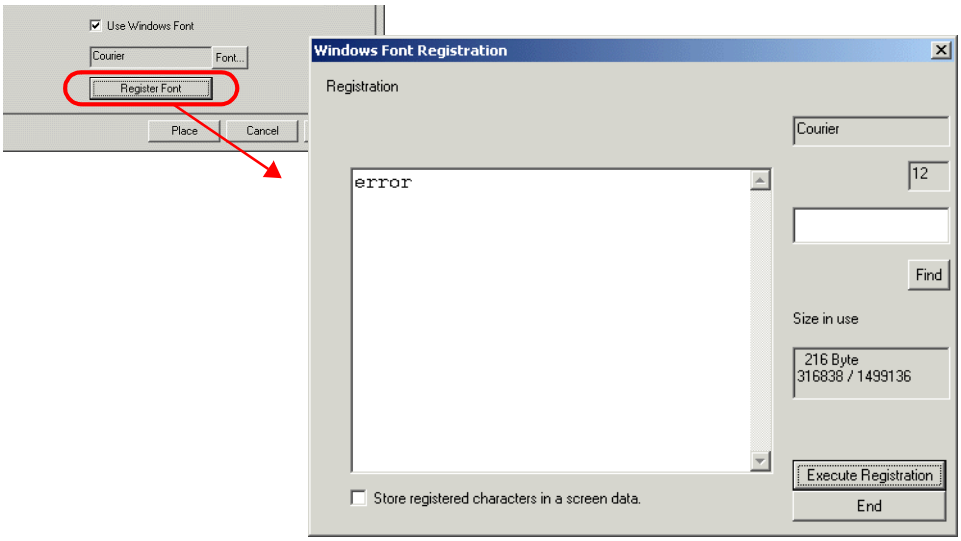
Font Registration

When text properties are set, the [Register Font] button may be displayed depending on the part. On such a part (character display part), there is a possibility of showing any characters differently from the fixed characters such as text in drawing or message display. Therefore, the possible character fonts must be registered to be shown on ZM series.

Character fonts not registered are shown as spaces.

♦ Setting Procedure

1. Select the [Char. Prop] tab for the character display part.
2. Click the [Register Font] button. The [Windows Font Registration] dialog is displayed.



- Registration

  Register the characters to be displayed in a Windows font.

- Find

  The characters entered in the box above the [Find] button are retrieved to find whether they are registered or not. If registered, it is not necessary to register them again.

- Size in Use

  The registered size of the currently selected font is indicated. Maximum size is 256 Kbyte.

The size of characters in the same font and points is indicated. Characters in the same font but in different points must be registered.

- Execute Registration

  The characters entered in the [Registration] box are registered.

- End

  Font registration is finished.

- ☐ Store Registered Characters in a Screen Data

  - Unchecked

    The font registration file (extension ".txw") is not stored in the ZM series. However, since this file is required when reading screen data from the ZM series, be sure to save this file with the screen data.

In case of losing txw file, registered characters are built from screen data again.
In this case, the character's registration is in order of code.

  - Checked

    The font registration file (extension ".txw") is stored together with screen data in the ZM series. However, depending on the file size, the capacity for screen data is reduced.

♦ About the Font Registration File

When screen data with Windows fonts is saved, the following file is also saved in the same folder.

xxxxxxxx.txw
Same file name as the screen data file

This file contains text that is created with font registration. Be sure to keep this font registration file with the screen data file. Do not change any data in this file.

If the font registration file is lost or changed, the registered fonts will be deleted or altered and must be re-registered. Take care not to lose or change the file.

♦ Windows Fonts List

It is possible to check the Windows fonts and sizes registered on the screen data in a list form.

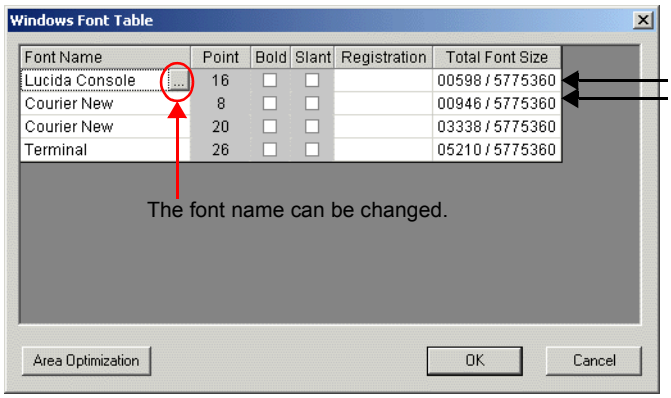
The font name can be changed.

The fonts that can be displayed on the [Windows Font Table] window are those registered for character display parts from the [Register Font] button. Windows fonts used for drawing are not included.

- Checking Method

  [System Setting] → [Windows Font]

  [Windows Font Table] window



It is not possible to change the points, the bold or italic typeface. Change these properties on the dialog for each part.

- Area Optimization

  The font area is optimized by updating the font size due to font change, etc.

Changing Windows Fonts in a Batch

Windows fonts can be set, reset or changed in a batch.

♦ Procedure

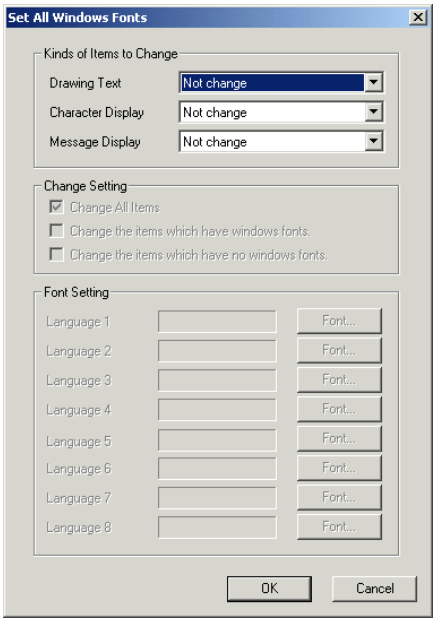
1. Select [Tool] → [Set All Windows Font].
2. Select the desired option.

   Change All: Changes all the items on the screen data being edited.

   Change Present Window: Changes all the items on the current window you are editing.

   Selected Item: Changes the items currently selected.

3. The [Set All Windows Fonts] dialog is displayed.



[Kinds of Items to Change]

Select the items to be changed in a batch. Refer to the table below for the items included in each option.

- No Change
- Remove Windows Fonts Setting
- Check Windows Fonts Setting

Kinds of Items to Change	
Drawing Text	Text in drawing Multi-text Comment display Characters on switches and lamps Table data display (text in drawing)

Kinds of Items to Change	
Character Display	Numerical data display Character display Table data display (numerical data display/character display) Sampling display area Time display Calendar
Message Display	Message display Table data display (message display) Relay Relay-sub Message mode Bit sampling Relay sampling Alarm display

[Change Setting]

- ☐ Change All Items
- ☐ Change Items Which Have Windows Fonts
- ☐ Change Items Which Have No Windows Fonts

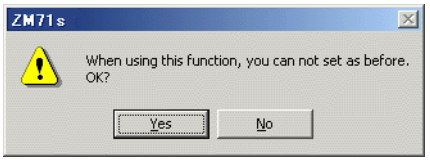
[Font Setting]

Press [Font] and select the font for each language.

4. Make the desired settings and press [OK].

Proportional fonts cannot be used for character display (P2-84). Change the font if the following error message is displayed.

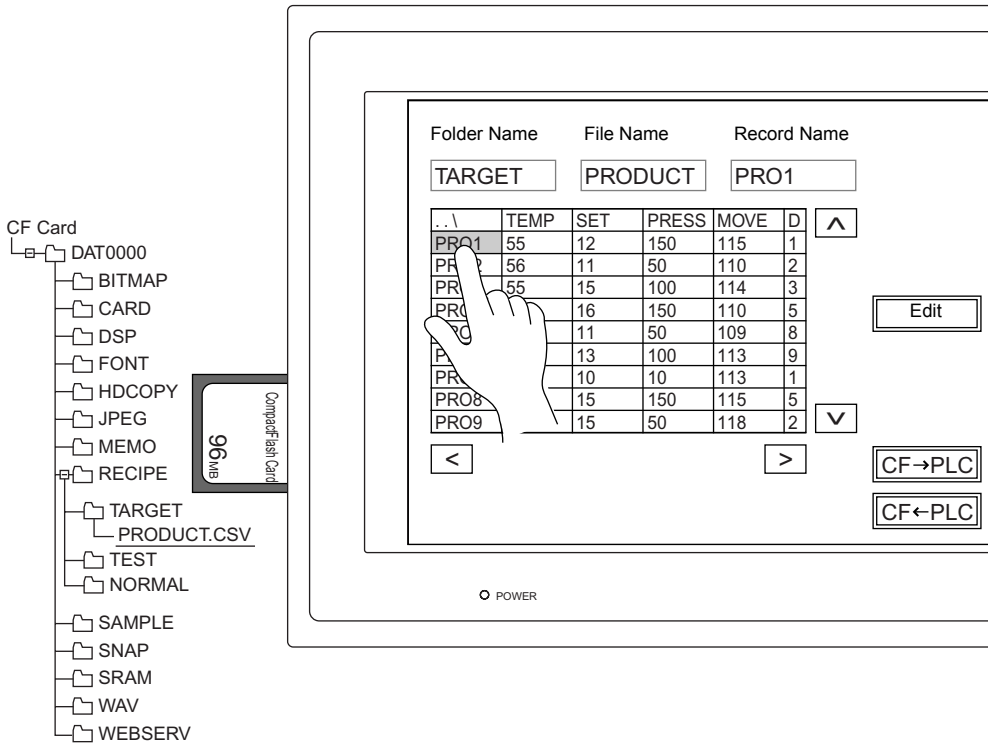
Batch setting of Windows fonts cannot be undone. Great caution must be taken for execution.



5. Font change has been completed.

Recipe Mode

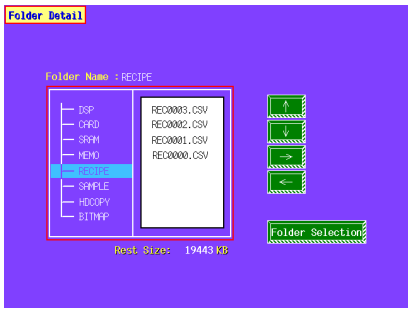
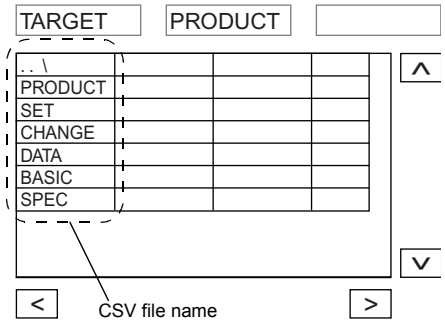
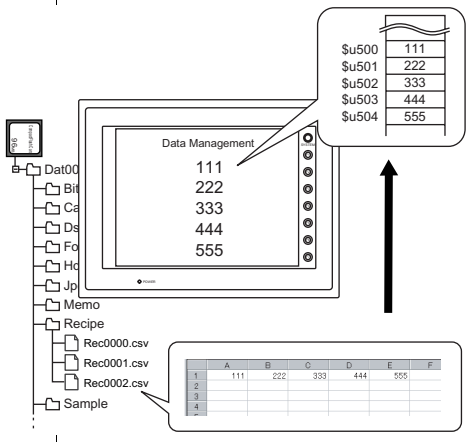
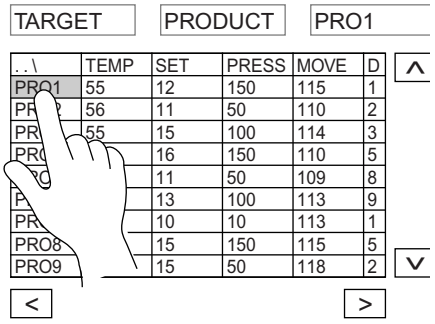
Recipe mode allows CSV file data in the CF card to be displayed or edited with ease on the ZM series.
Recipe mode is capable of functions that are unavailable with the previous recipe function.

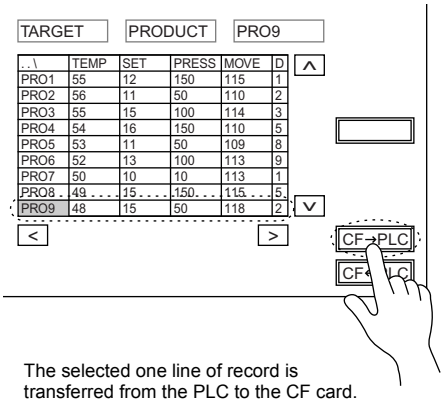
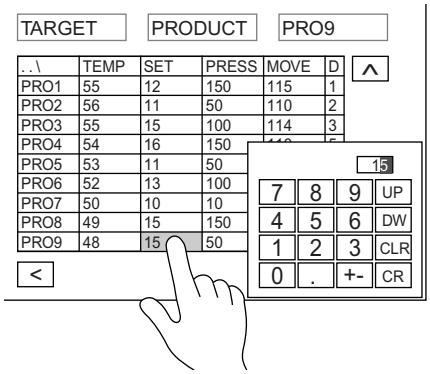
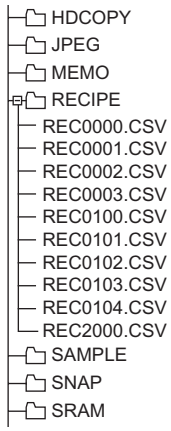
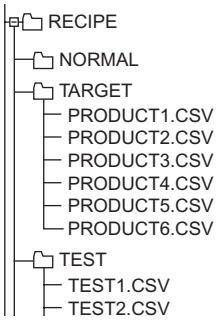


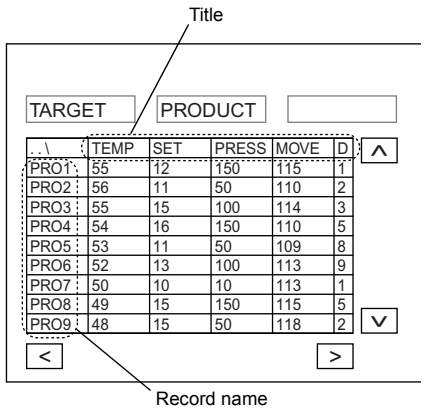
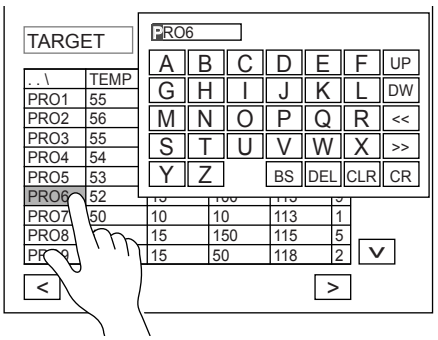
Recipe mode is a new data management system for more convenient and simple CSV file processing.

Comparison with the Previous Recipe Function

The following shows the differences between the newly available recipe mode and the previous recipe function handling CSV files. Refer to the list below.

	Previous Recipe Function	Recipe Mode
How is the CF card contents (CSV file names, data, etc.) checked?	Bring the ZM series to a STOP status. On the [Main Menu] (local main) screen, select the [Folder Detail] screen from the [Card Transfer] menu. The screen shows the CSV file names.  Data contents cannot be checked as they are. When the contents of a CSV file should be checked, they must be read into memory addresses with a macro command once.	CF card contents can be checked on the recipe mode screen while the ZM series is in RUN mode. The names and data of CSV files are tabulated as on Excel worksheets. 
How is CSV file data displayed?	CSV file data must be read into memory addresses once through a macro command LD_RECIPE(2) or LD_RECIPESEL(2) so that the data at the addresses can be displayed. 	CSV file data can be displayed on the recipe mode screen with ease. The recipe data in the CF card is displayed in the display area. Reading the data into memory addresses is not necessary.  CSV file data in the CF card is displayed. It is possible to display directly without a special command.

	Previous Recipe Function	Recipe Mode
How is CSV file data changed?	A macro command SV_RECIPE(2) or SV_RECIPESEL(2) is used to write the changed data to a CSV file.	Data writing is simple with switches on the screen. It is possible to write a CSV file entirely as well as to select and transfer a record (1 line) from a file.  The selected one line of record is transferred from the PLC to the CF card. Through the keypad displayed by the edit function, the CF card can be written directly. 
What are the names of CSV files and where are they stored?	Fixed names “RECxxxx.CSV” (xxxx: 0 - 9999) are given. The RECIPE folder in the access folder within the CF card stores CSV files.  	A desired name can be given to a CSV file within eight one-byte alphanumeric characters. Editing a file name on the screen is allowed. When saving CSV files, create a folder under a name consisting of alphanumeric characters in the RECIPE folder. Store CSV files in the created folder. The number of folders is limited. (Refer to P2-122.) 

	Previous Recipe Function	Recipe Mode
Can CSV file data be recognized as titles or record names?	No.	Yes. In a CSV file, the first line (the data in the extreme left cell is ignored) is recognized as titles, and the first column (the data in the top cell is ignored) is recognized as record names. It is required in advance to select the use of titles and record names in the [Attribute Table] dialog. (Refer to P2-114.) 
Can titles and record names be edited?	–	Yes. Use the edit function. 

Operation Overview

♦ CSV Files Available in Recipe Mode and Location for Storage

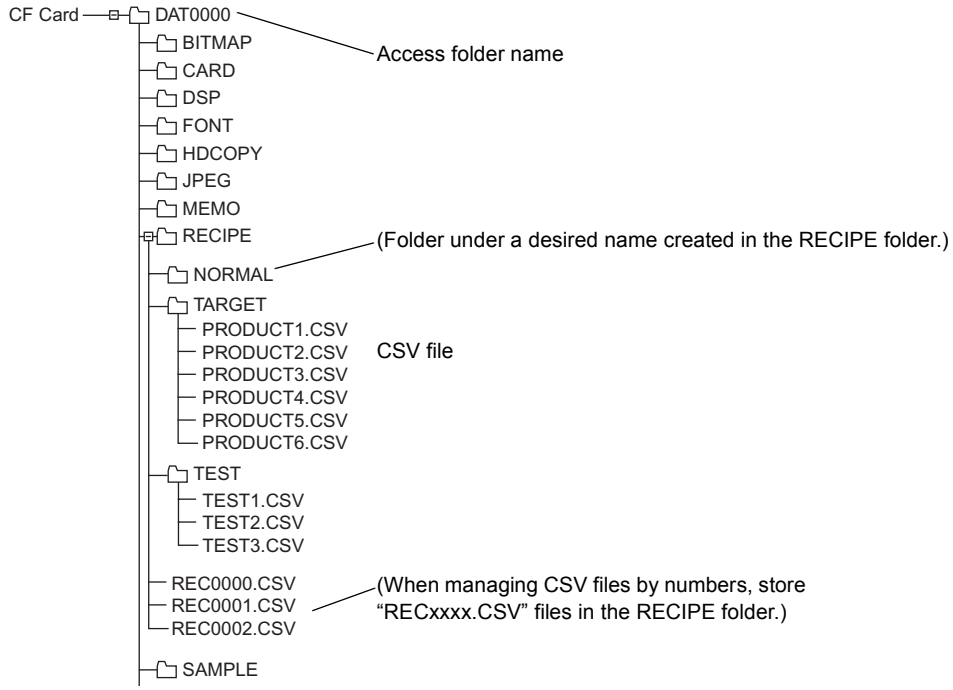
CSV file

xxxxxxxx.CSV (8 one-byte alphanumeric characters maximum)

Storage target:

Access folder\RECIPE\xxxxxxxx (8 one-byte alphanumeric characters maximum)\

*** Create a folder under a desired name (8 one-byte alphanumeric characters maximum) in the RECIPE folder and store CSV files in the created folder.**



A folder to store CSV files must be defined in the attribute table.

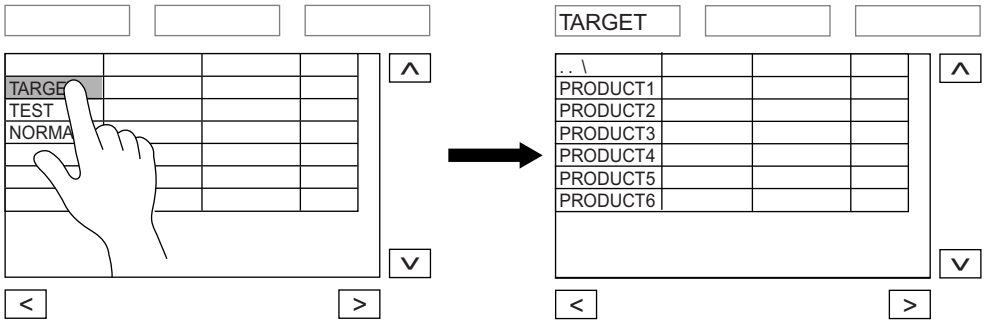
*** After a folder is defined, it is created automatically when the CF card is inserted into the ZM series.**

♦ Selected

- Folder Select

Double-click a folder name.

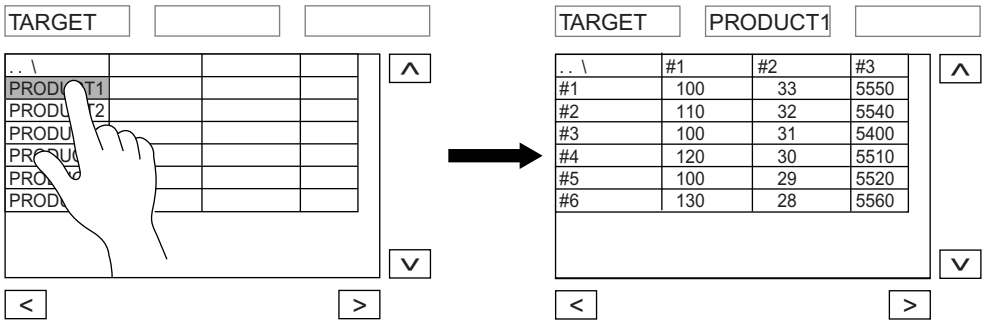
The folder is selected and the files stored in it are displayed.



- File Select

Double-click a file name.

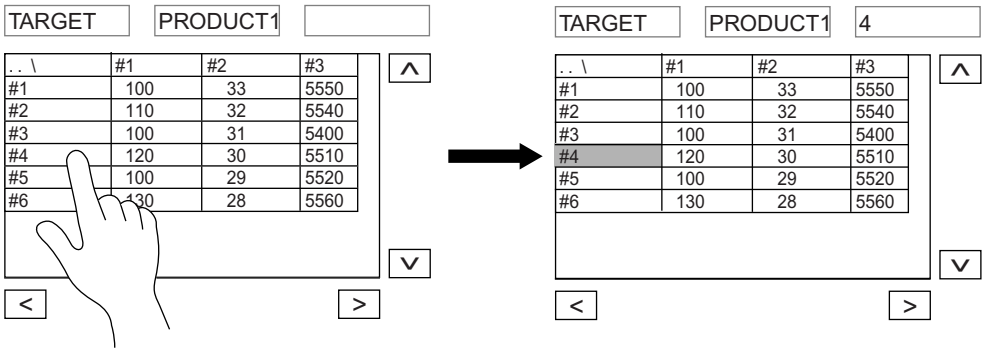
The file is selected and its data is displayed.



- Record Select

Touch a record.

The record is selected.



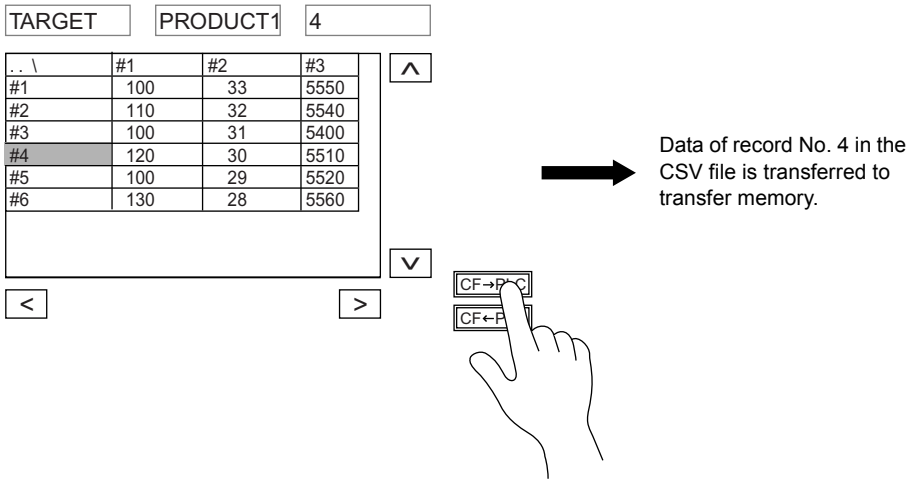
- Select from [Command Memory]

  Selection of folder name, file name, and record number/name from memory is possible without touching or double-clicking on the screen.

♦ Transfer

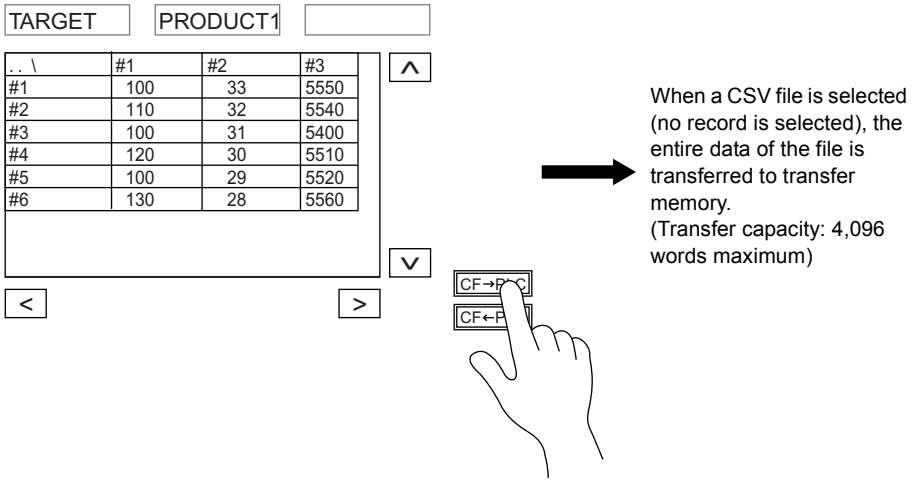
- Transfer (by one line of record)

  By pressing a transfer switch [Card > PLC] or [PLC > Card] while a record is selected, one line of the selected record is recognized as the data to be transferred.



- Transfer (by one file)

  By pressing a transfer switch [Card > PLC] or [PLC > CARD] while a file is selected (before a record is selected), the entire data of the selected file is recognized as the data to be transferred.

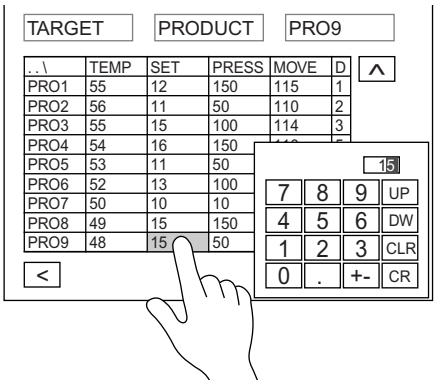


In addition to the way of transfer using selection and transfer switches on the screen, it is possible to select and transfer a file or a record from [Command Memory] addresses.

♦ Editing

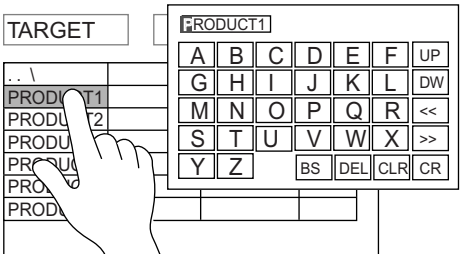
- Data Editing

  While the edit switch is activated, touching a CSV data item brings up the keypad for editing. Entering a value using the [CR] key writes the value to the CF card.



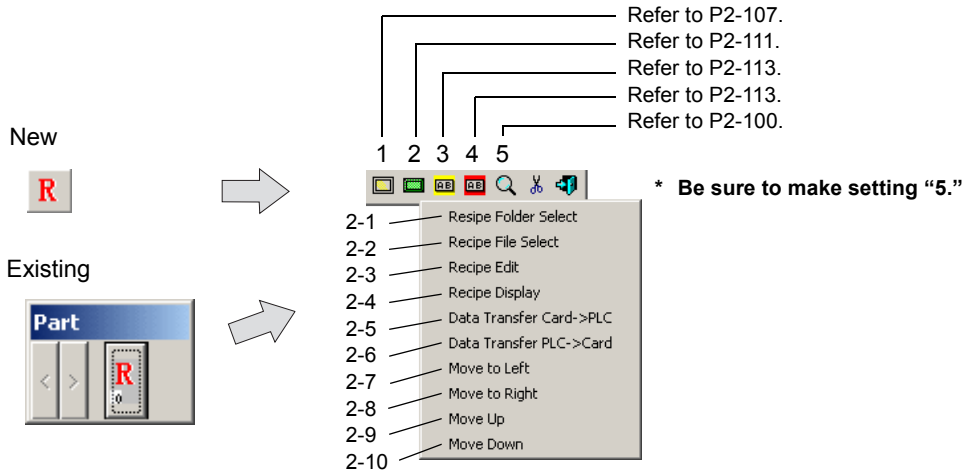
- Name Editing (file, record, and title)

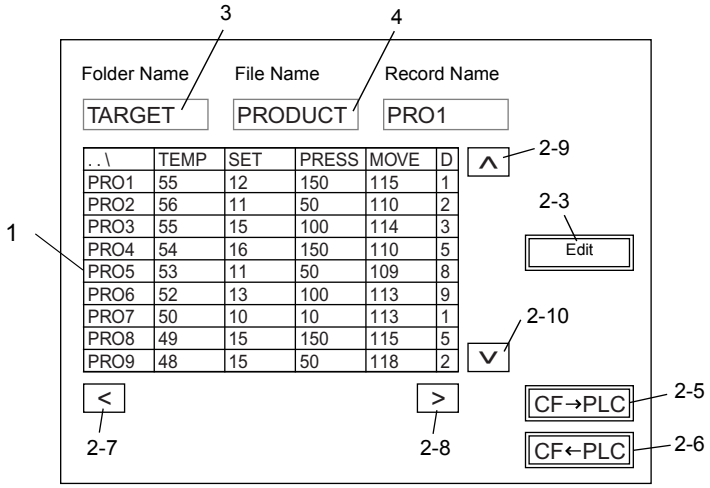
  It is also possible to edit file names and record names/titles (when the use of record names/titles is selected) as editing data. Only characters can be input.



Setting Items

♦ [Part] Auxiliary Tool Box → [Recipe]





. . \	TEMP	SET	PRESS	MOVE	D
PRO1	55	12	150	115	1
PRO2	56	11	50	110	2
PRO3	55	15	100	114	3
PRO4	54	16	150	110	5
PRO5	53	11	50	109	8
PRO6	52	13	100	113	9
PRO7	50	10	10	113	1
PRO8	49	15	150	115	5
PRO9	48	15	50	118	2

♦ [System Setting] → [Attribute Table]

For more information, refer to "Attribute Table" P2-114.

♦ CSV Files (in the CF card)

Arrange CSV files in folders following attribute table settings. (New CSV files can be created with a macro command executed on the ZM series.)

[Recipe] Dialog

♦ [Main] Tab Window

[Division No.] (0 to 255)

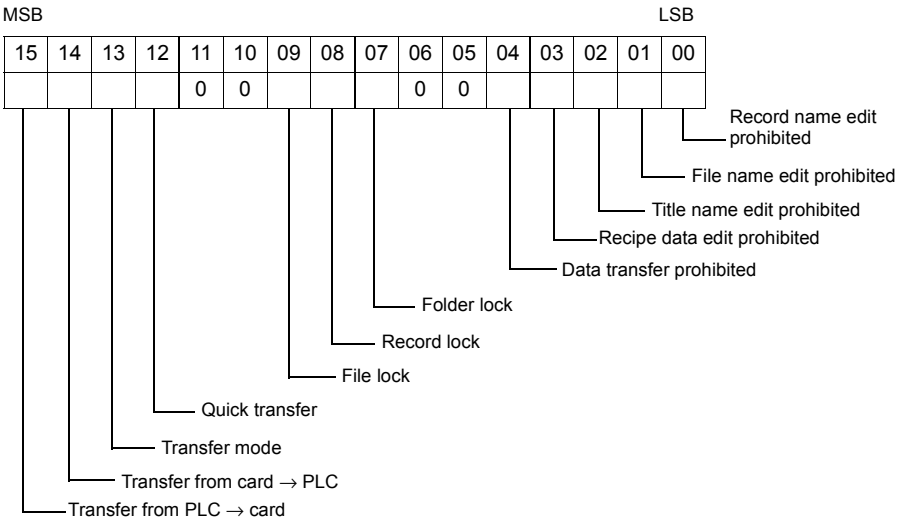
Specify the desired division number. Set a division number in recipe mode. One recipe mode can be set per screen.

[Command Memory]

These memory addresses control recipe mode.
Consecutive eleven words are allocated. The allocation of memory is shown below.

Memory	Contents
n	RCV_FLAG
n + 1	RCV_FILENo
n + 2	RCV_RECDNo
n + 3 (- 6)	RCV_FOLDNAME (8 one-byte characters: 4 words)
n + 7 (- 10)	RCV_FILENAME (8 one-byte characters: 4 words)

n: RCV_FLAG



Bit number	Contents	Description
0	Record name edit prohibited	Record name edit is prohibited.
1	File name edit prohibited	File name edit is prohibited.
2	Title name edit prohibited	Title name edit is prohibited.
3	Recipe data edit prohibited	Recipe data edit is prohibited.

Bit number	Contents	Description
4	Data transfer prohibited	Data transfer between the card and the PLC is prohibited.
5 - 6	Not used	These bits must be reset to “0.”
7	Folder lock	The use of [Recipe Folder Select] switch is prohibited. A folder is selected through memory. A folder name existing in the CF card is specified at [Command Memory] address “n + 3 (and after).” When this is set (ON), the corresponding folder is selected. Even while the bit is set (ON), files or records can be selected as desired from the folder.
8	Record lock	The use of [Record Select] switch is prohibited. A record is selected through memory. A folder name existing in the CF card is specified at [Command Memory] address “n + 3 (and after),” a file name existing in the folder at “n + 7 (and after),” and a record number at “n + 2.” When this bit is set (ON, the corresponding record is selected. If the folder name specified at “n + 3 (and after)” does not exist, activation of this bit does not select the record, and only folders and files in the RECIPE folder are displayed. Likewise, if the file name specified at “n + 7 (and after)” does not exist, the record is not selected and only files in the folder specified at “n + 3 (and after)” are displayed. While this bit is set (ON), all [Select] switches do not work.
9	File lock	The use of [Recipe File Select] switch is prohibited. A file is selected through memory. A folder name existing in the CF card is specified at [Command Memory] address “n + 3 (and after)” and a file name existing in the folder at “n + 7 (and after).” When this bit is set (ON), the corresponding file is selected. If the folder name specified at “n + 3 (and after)” does not exist, the file “RECxxxx.CSV” specified at “n + 1” is selected. If the file does not exist, nothing is selected, and only folders and files in the RECIPE folders are displayed. While this bit is set (ON), records can be selected from the selected file. However, the [Recipe File Select] and [Recipe Folder Select] switches do not work.
10 - 11	Not used	These bits must be reset to “0.”
12	Quick transfer	When bit 14 or bit 15 is set to “1,” while this bit is set, data is transferred upon selection of a record in the ZM series.
13	Transfer mode	“0” (by one record): When records exist, a record is regarded as the data to be transferred. “1” (CSV file bundle): The entire data of a file is regarded as the data to be transferred. Even if a record is selected, the entire data of the file including the record is transferred.

Bit number	Contents	Description
14	Transfer from card → PLC	At the edge of this bit from “0” to “1,” data transfer is executed from the CF card to transfer memory. When a record is selected and bit 13 is reset (OFF), one record is transferred to transfer memory. When no record is selected, or a record is selected and bit 13 is set (ON), the entire data of the file is transferred to transfer memory. On completion of data transfer, bit 14 of [Info. Output Memory] address “n + 28” is set (ON). After transfer, reset this bit to “0.”
15	Transfer from PLC → Card	At the edge of this bit from “0” to “1,” data transfer is executed from transfer memory to the CF card. When a record is selected and bit 13 is reset (OFF), one record is transferred from transfer memory to the CF card. When no record is selected, or a record is selected and bit 13 is set (ON), the entire data of the file is transferred from transfer memory to the CF card. On completion of data transfer, bit 15 of [Info. Output Memory] address “n + 5” is set (ON). After transfer, reset this bit to “0.”

n + 1: RCV_FILENo

This address is available for CSV files “RECxxxx.CSV.”
This bit is used to specify a file number when bit 9 (file lock) or bit 8 (record lock) of “RCV_FLAG” (n) is set to “1.” File numbers can be specified from the PLC, not on the screen.

n + 2: RCV_RECDNo

This bit is used to specify a record number when bit 8 (record lock) of “RCV_FLAG” (n) is set to “1.” Record numbers can be specified from the PLC, not on the screen.

n + 3 (- n + 6): RCV_FOLDNAME (8 one-byte characters = 4 words)

This address is available for CSV files, except for “RECxxxx.CSV.”
When bit 7 (folder lock), bit 8 (record lock), and bit 9 (file lock) of “RCV_FLAG” (n) are set to “1,” a folder name is specified at this memory address. Folder names can be specified from the PLC, not on the screen.

n + 7 (- n + 10): RCV_FILENAME (8 one-byte characters = 4 words)

This address is available for CSV files, except for “RECxxxx.CSV.”
This bit is used to specify a file from the PLC when bit 9 (file lock) or bit 8 (record lock) of “RCV_FLAG” (n) is set to “1.” File names can be specified from the PLC, not on the screen.

[Transfer Memory] (PLC memory/internal memory)

Specify a target memory address for data transfer from the CF card or a source memory address for data transfer to the CF card.

*** The number of transfer words is limited to 4,096. No extra words are transferred. Whether or not words to be transferred is more than 4,096 can be checked by [Info. Output Memory] (next item).**

[Info. Output Memory]

The ZM series writes recipe mode conditions to these memory addresses. Consecutive 29 words are allocated. The allocation of memory is shown below.

Memory	Contents
n	REC_STAT
n + 1	REC_ERRNo
n + 2	REC_FILENo
n + 3	REC_RECDNo
n + 4 (to 7)	REC_FOLDERNAME (8 one-byte characters: 4 words)
n + 8 (to 11)	REC_FILENAME (8 one-byte characters: 4 words)
n + 12 (to 27)	REC_RECDNAME (32 one-byte characters: 16 words)
n + 28	REC_TRFIN

n: REC_STAT

MSB LSB

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

CF card error

n + 1: REC_ERRNo

When bit 0 of “REC_STAT” (n) is set to “1” (CF card error), this address stores the number denoting the error. Respective error numbers indicate the following contents:

Error No.	Contents
4	CF card not installed or access stopped
12	CF card writing error
16	CF card reading error

n + 2: REC_FILENo

When a CSV file “RECxxxx.CSV” is selected or transferred, this address stores the file number.

n + 3: REC_RECDNo

The selected or transferred record number is stored.

n + 4 to 7: REC_FOLDERNAME

This address is available for CSV files, except for “RECxxxx.CSV.”
The address stores a folder name containing the selected file or record.

n + 8 to 11: REC_FILENAME

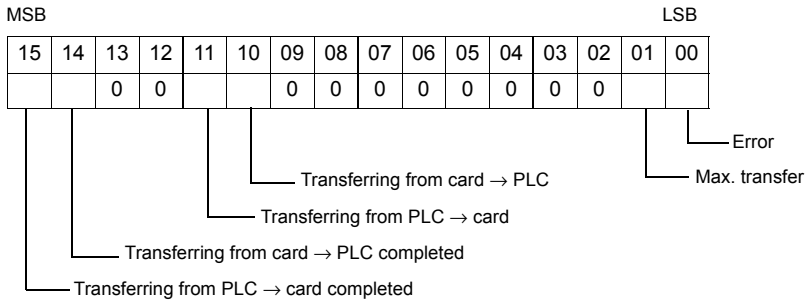
The selected or transferred file name is stored.
However, the address does not store a CSV file name “RECxxxx.CSV.”

n + 12 to 27: REC_RECDNAME

The selected or transferred record name is stored.

n + 28: REC_TRFIN

This address stores the status of data transfer between the CF card and transfer memory. The allocation of memory is shown below.



Bit number	Contents	Description
0	Error	When an error has occurred during transferring, this bit is set to “1.” Then bit 10 or 11 (transferring) set to “1” does not change. Bit 14 and 15 (transfer completed) set to “0” do not change.
1	Max. transfer	The number of transfer words is limited to 4,096. If you attempt to transfer data more than 4,096 words, this bit is set to “1.” 4,096 words are transferred normally; however, no extra words are transferred. This bit is set in either case.
10	Transferring from card → PLC	While transferring, this bit is set to “1.”
11	Transferring from PLC → card	While transferring, this bit is set to “1.”
14	Transferring from card → PLC completed	When transferring has been completed, this bit is set to “1.” Reset the bit to “0” after confirmation of transfer.
15	Transferring from PLC → card completed	When transferring has been completed, this bit is set to “1.” Reset the bit to “0” after confirmation of transfer.

[Action Area] (area/switch)

When displaying them on switches (function: [Recipe Display]), choose [Switch].

☞ For more information, refer to P2-107 and P2-111.

[☐ Not Display Title/Data Area]

This option is enabled when [Area] is chosen for [Action Area].
When the option is checked, recipe data is not displayed. Also when a CSV file with title display setting is selected, titles are not displayed. The display area shows only folder names, file names, or record names.

[☐ Edit Function]

Check this option when changing CSV file data, CSV file names, or record names on the screen through the keypad. Checking the option brings up the [KeyPad] tab window.

☞ For more information on the menu items, refer to P2-106.

[Lines] (1 - 30)

This option is enabled when [Area] is chosen for [Action Area]. Specify the number of lines to display file names or data in the display area. When displaying lines more than specified, use the scroll switches [↓] and [↑].

[Columns] (1 - 100)

This option is enabled when [Area] is chosen for [Action Area] and [☐ Not Display Title/Data Area] is unchecked. Specify the number of columns to display CSV file data. When displaying columns more than specified, use the scroll switches [→] and [←].

[Characters/Cell] (1 - 100)

This option is enabled when [Area] is chosen for [Action Area] and [☐ Not Display Title/Data Area] is unchecked. Specify the number of one-byte characters to be displayed in a cell. If you attempt to display characters more than specified in a cell, only the limited characters are displayed.

[Ruled Line Color]

This option is enabled when [Area] is chosen for [Action Area] and [☐ Not Display Title/Data Area] is unchecked. Ruled lines can be displayed for recipe data or record names in the display area. Specify the color of these ruled lines.

[Line Type]

This option is enabled when [Area] is chosen for [Action Area] and [☐ Not Display Title/Data Area] is unchecked. Ruled lines can be displayed for recipe data or record names in the display area. Specify the line type of these ruled lines.

♦ [Char. Prop.] Tab Window

[Char. Type]

Normal	Plain typeface
Bold	Bold typeface to be used for emphasis
Shadow	Typeface with shadow

[☐ Transparent]

Transparency for characters can be chosen. When making the characters transparent, check the box.

[☐ Italic]

Characters can be italicized. When italicizing the characters, check the box.

[Enlarge X/Y] (1 to 8) (In the case of Gothic [Point] (8 to 72))

This is valid when [Area] is chosen for [Action Area] on the [Main] tab window. Specify enlargement factors for X and Y. When “1” is specified for [Y], Y size equals one-byte character size.

[Foreground] / [Background]

Select character colors.

♦ [Key Pad] Tab Window

This tab window is displayed by checking [☐ Edit Function] in the [Main] tab window. For the use of the edit function in recipe mode, a keypad can be created by the screen edit software. Specify the location for the keypad registration.

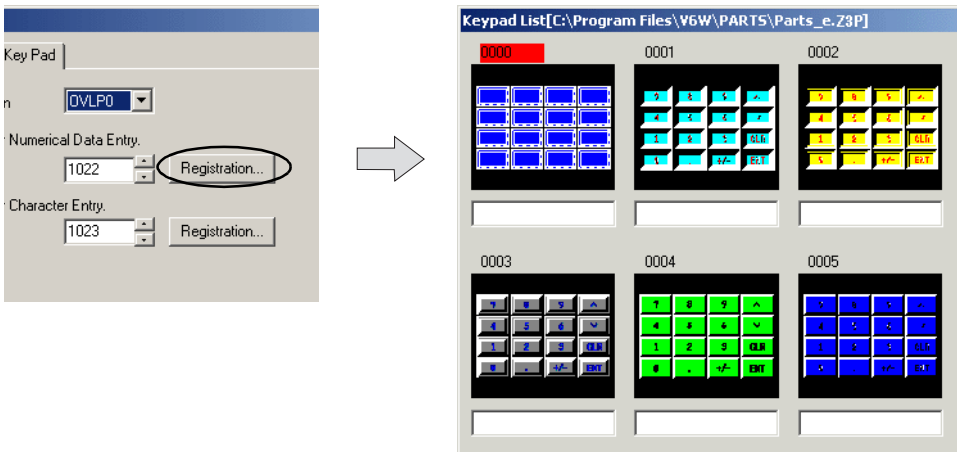
[Key Display Location] (OVLP0/CVLP1/OVLP2)

A keypad must be registered as multi-overlap. Specify an overlap number so that it is registered as multi-overlap for the keypad.

[Multi Overlap No. for Numerical Data Entry] (default: 1022)

Specify a location where a keypad to edit CSV file numerical data is registered. The keypad is registered as the multi-overlap with the specified number by clicking the [Registration] button.

About [Registration] Button
Clicking the [Registration] button brings up the [Keypad List] window.



Any keypad part selected from the list can be placed on the specified multi-overlap.

[Multi Overlap No. for Character Entry] (default: 1023)

Specify a location where a keypad to edit CSV file character data or file names, record names, and titles is registered. The keypad is registered as the multi-overlap with the specified number.

For the usage of the [Registration] button, see the column provided under [Multi Overlap No. for Numerical Data Entry].

Display Area for Recipe Mode

A display area is provided for recipe mode to display folders in the CF card, CSV file names, or recipe data and record names stored in CSV files. Use display area parts for displaying such data.

[☐Reverse Definition of Lines/Columns] for attribute table setting is valid only for macro operation. This is invalid for the display area in the recipe mode.

♦ [Mode Display Area] Dialog

[Division No.]

Set the same division number as that in the [Recipe] dialog.

[In-area Prop.]

Choose colors for the display area part.

[☐ Display Area Transparent]

This is invalid for recipe mode. Do not check the box.

♦ Display status

A display area part linked to recipe mode shows the contents of CSV files stored in the CF card in tabular form.

- All cells in a display area part are the same in size.
  The height of a cell in units of 20 dots is set by the option [Enlarge Y] in the [Char. Prop] tab window selected in the [Recipe] dialog. The length of a cell is set by the option [Characters/Cell] in the [Main] tab window as well as by the options [Char. Type], [☐ Italic], and [Enlarge X] in the [Char. Prop.] tab window selected in the [Recipe] dialog.

- If the display size necessary for recipe mode (cell size × number of lines × number of columns) exceeds a display area part, cells are displayed within the allowable limit.

- For folder or file display

  The first column shows only folder or file names. (The top cell is blank or shows "..\.") Every folder name is followed by "\."

Folder name display

TARGET\			
SOURCE\			
DATA0\			
DATA1\			
DATA2\			

File name display

..\			
PRODUCT			
SET			
CHANGE			
DATA			
BASIC			

Scroll switches [↑] and [↓] only are available in this case.

- For recipe data display

  Displayed contents will vary, depending on whether or not the use of record names or tiles is chosen for the CSV file. To check this, see the [Attribute Setting] dialog (refer to P2-114).

  - When not using record names and titles:

    The first line shows record numbers form “1.” The first column shows data numbers from “1.”

..\	#1	#2	#3
#1	6000	15	200
#2	6100	15	201
#3	6200	20	202
#4	6300	20	203

  - When using record names:

    The first column shows record names. The first line shows data numbers from “1.”

..\	#1	#2	#3
ITEM1	6000	15	200
ITEM2	6100	15	201
ITEM3	6200	20	202
ITEM4	6300	20	203

  - When using a title:

    The first column shows record numbers from “1.” The first line shows titles.

..\	PRODUCT1	PRODUCT2	PRODUCT3
#1	6000	15	200
#2	6100	15	201
#3	6200	20	202
#4	6300	20	203

- For non-display of titles and data

  When [☐ Not Display Title/Data Area] is checked in the [Recipe] dialog, the display area shows folder names, file names, or record names/numbers, but does not show other data and titles.

Folder name display

TARGET\
SOURCE\
DATA0\
DATA1\

Record name display

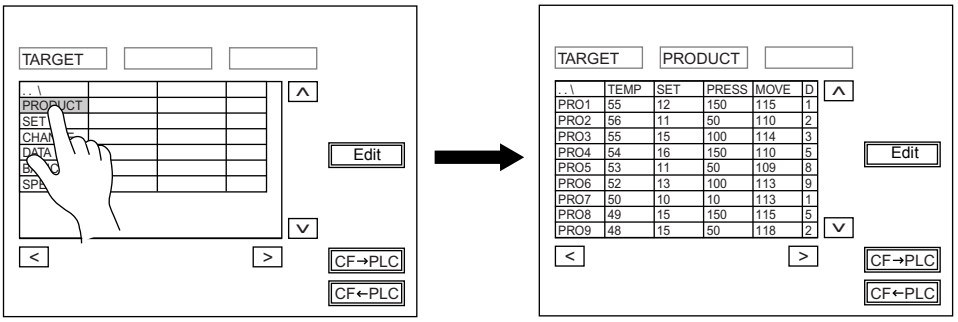
..\
ITEM1
ITEM2
ITEM3
ITEM4

- Make data attribute settings in the [Attribute Setting] dialog.
  Scroll switches [←], [→], [↑], and [↓] are available in any above cases.

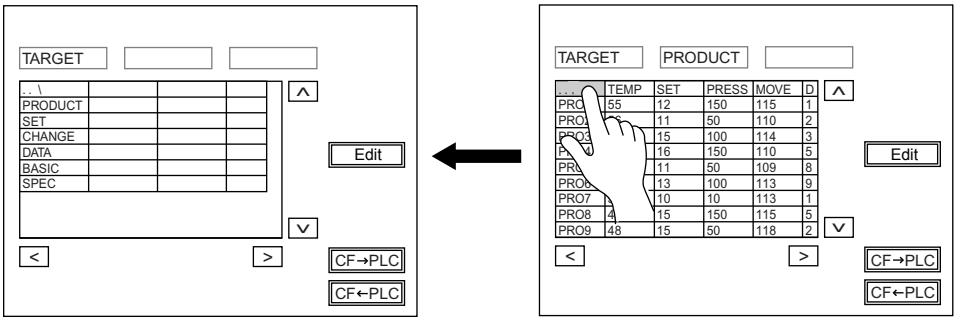
♦ Display Area Function

- Double-click

  When a folder and files are displayed, double-clicking a file name shows the hierarchy lower than the file name.

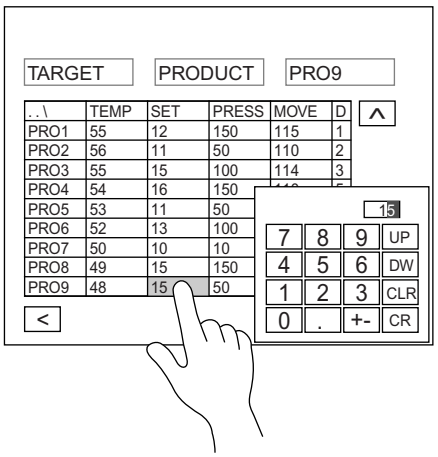


When the lower level of the hierarchy from the file name is displayed, the top left cell shows “..\” Double-clicking this cell brings back the one level higher hierarchy.



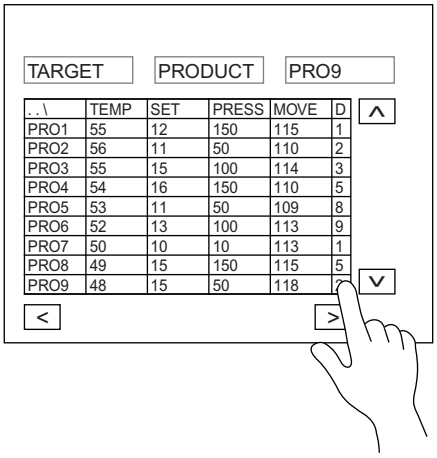
- Click

  With [☐ Edit Function] checked in the [Recipe] dialog, pressing anywhere of the recipe data while the [Edit] switch is activated displays the overlap for editing.



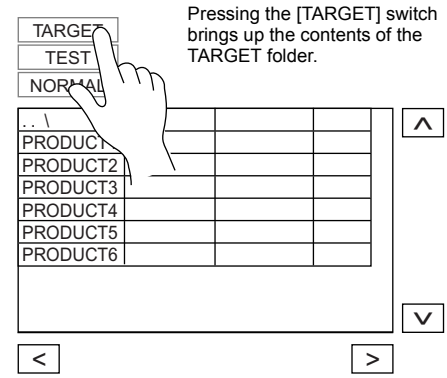
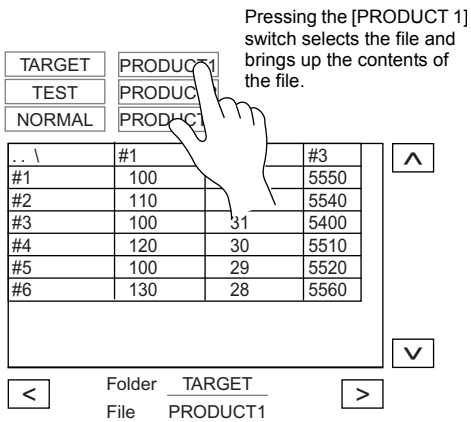
Overlap display

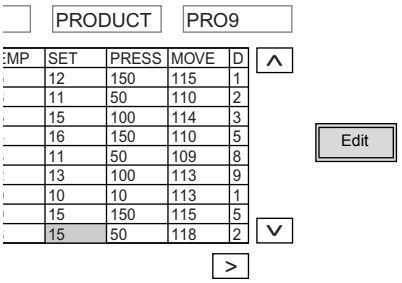
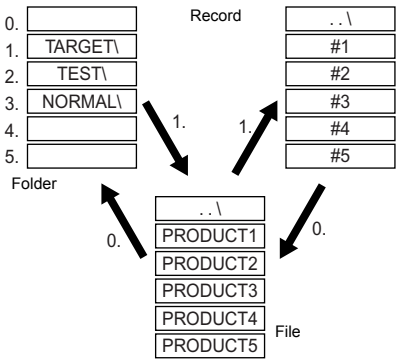
When there are partially displayed cells, pressing such a cell produces no response.



Switches for Recipe Mode

Ten switches in total are available with recipe mode. Four are dedicated to recipe mode and six are commonly used also for other functions.

Type	Switch Function	Setting Items	Contents
For recipe mode	Recipe Folder Select	Folder name/memory designation (Character property setting is made in the [Recipe] dialog. Character enlargement factors are fixed at "1.")	A specified folder name or a string specified at the [Command Memory] address is displayed on a [Recipe Folder Select] switch automatically. When a [Recipe Folder Select] switch is pressed, the folder displayed on the switch is selected and its contents are displayed.  If the folder under the name of the switch does not exist, the contents of the root folder (\RECIPE) are displayed.
	Recipe File Select	File name/memory designation (Character property setting is made in the [Recipe] dialog. Character enlargement factors are fixed at "1.")	A specified file name or a string specified at the [Command Memory] address is displayed on a [Recipe Folder Select] switch automatically. When a folder is selected and a [Recipe File Select] switch for a file stored in the folder is pressed, the file is selected and its contents are displayed.  If the file under the name of the switch does not exist in the folder (or a different folder is selected), the switch does not work. (Pressing it makes an error sound.)

Type	Switch Function	Setting Items	Contents
For recipe mode	Edit	–	An [Recipe Edit] switch is used for editing CSV file data, or CSV file names and record names/titles (only when the use of titles or record names is chosen). Press the desired cell of data or name. The selected cell is displayed in reverse video. When the [Recipe Edit] switch is pressed, the switch is turned on and the overlap of keypad for editing is displayed. By keying in a value and pressing the [CR] key on the keypad, the value is input and the overlap disappears.  The [Recipe Edit] switch remains on. Therefore pressing another cell brings up the overlap. To erase the overlap, turn off the [Recipe Edit] switch by pressing it.
	Recipe Display	Display order 0 - 23 (Character property setting is made in the [Recipe] dialog. Character enlargement factors are fixed at “1.”)	A [Recipe Display] switch is available only when [Switch] is chosen for [Action Area] in the [Recipe] dialog. CF card folders, CSV file names, and record names are displayed on switches, not in the display area. Pressing a [Recipe Display] switch selects the folder, file, or record displayed on the switch.  Each time a switch is pressed, the displayed switch names change accordingly. Combinations of switches and their corresponding folders, files, and records are determined by specifying the order of display. A maximum of 24 switches can be placed for one recipe mode.

Type	Switch Function	Setting Items	Contents
Common to functions	Data Transfer Card > PLC	–	This switch is active when a record or a file has been chosen. Pressing a [Data Transfer] switch transfers the selected record or file data from the CF card to transfer memory.
	Data Transfer PLC > Card	–	This switch is active when a record or a file has been chosen. Pressing a [Data Transfer] switch transfers the selected record or file data from transfer memory to the CF card.
	←	–	This scroll switch is available while CSV file data is displayed in the display area. The switch scrolls data from the right to the left.
	→	–	This scroll switch is available while CSV file data is displayed in the display area. The switch scrolls data from the left to the right.
	↑	–	This scroll switch scrolls up the display of folders, files, records, or CSV file data.
	↓	–	This scroll switch scrolls down the display of folders, files, records, or CSV file data.

Data Display for Recipe Mode

Type	Display Function	Contents
Character display	Recipe folder name display	The currently selected folder name is displayed.
Character display	Recipe file name display	The currently selected file name is displayed.

Attribute Table

For more information on the outline and setting procedures for the attribute table, refer to “Attribute Table” P2-61.

This section describes the settings necessary for recipe mode.

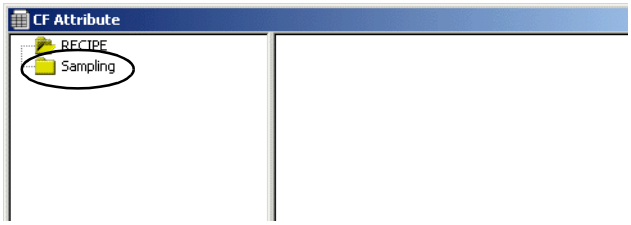
Setting Position

[System Setting] → [Attribute Table]

*Click [Attribute Table Setting] of [RECIPE] dialog, it is also possible to go to [Attribute Table].

Type

CSV file attributes are set in the [Attribute Setting] dialog in the RECIPE folder.

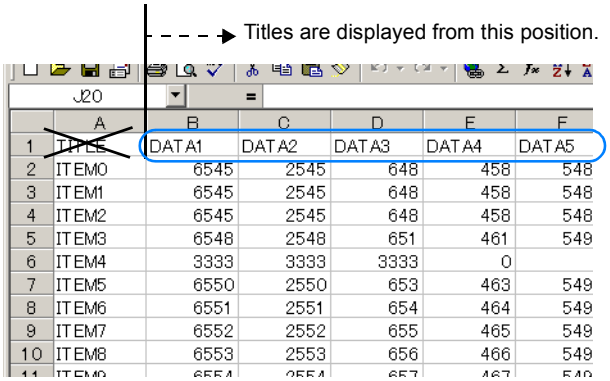


CSV file attribute setting

Attribute setting is required when handling CSV files.
If CSV files are different in attribute, the [Attribute Setting] dialog must be set for each of them. (There is a rule that one folder must store CSV files with the same attributes. Therefore create a separate folder for a CSV file with different attributes.)

[☐ Use Title]

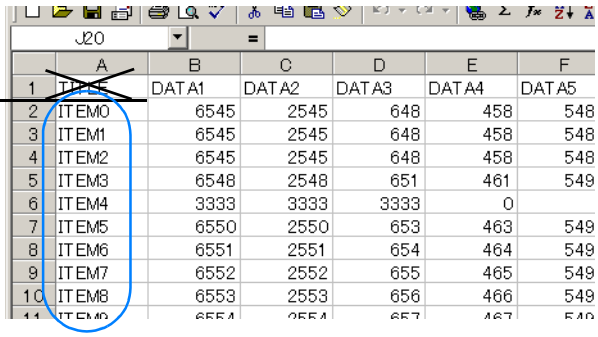
When using the first line in a CSV file to show titles, check this box. (The top left cell is ignored. Cells from the second column are available to show titles.)



[☐ Use Record Name]

When using the first column in a CSV file to show record names, check this box. (The top left cell is ignored. Cells from the second line are available to show record names.)

Record names are displayed from this position.

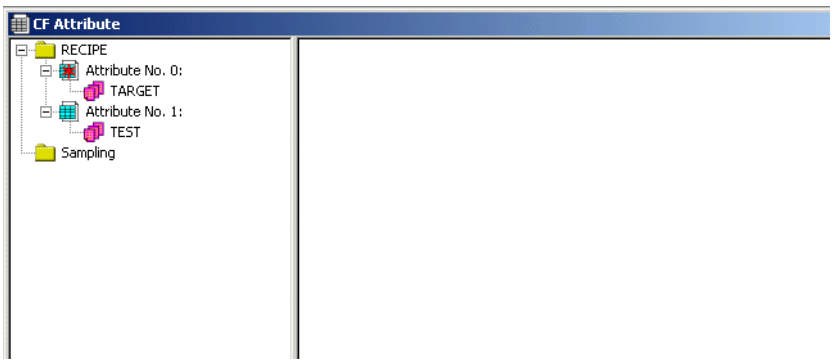


	A	B	C	D	E	F
1	TARGET	DATA1	DATA2	DATA3	DATA4	DATA5
2	ITEM0	6545	2545	648	458	548
3	ITEM1	6545	2545	648	458	548
4	ITEM2	6545	2545	648	458	548
5	ITEM3	6548	2548	651	461	549
6	ITEM4	3333	3333	3333	0	
7	ITEM5	6550	2550	653	463	549
8	ITEM6	6551	2551	654	464	549
9	ITEM7	6552	2552	655	465	549
10	ITEM8	6553	2553	656	466	549

☞ For the other setting items, refer to “Attribute Table” P2-61.

Folder creation

It is required to create a folder as a group to store CSV files having attributes set in the [Attribute Setting] dialog.
When dividing CSV files with the same attributes into multiple folders, register multiple group folders.
When storing CSV files with different attributes in separate folders, group folders corresponding to their respective attribute settings must be created.



Macro

CSV files handled in recipe mode can be read and written also by macros. Available macros are listed below.

Command classification	Command Name	Contents	Refer to:
CF card (recipe)	RD_RECIPE_COLUMN	Reads the data in the specified column of a CSV file from the CF card into memory.	P2-118
	RD_RECIPE_FILE	Reads the entire data of a CSV file from the CF card into memory.	P2-117
	RD_RECIPE_LINE	Reads the data in the specified line of a CSV file from the CF card into memory.	P2-117
	SET_RECIPEFOLDER	Specifies a folder storing CSV files.	P2-116
	WR_RECIPE_COLUMN	Writes data from memory to the specified column of a CSV file.	P2-119
	WR_RECIPE_FILE	Overwrites a CSV file from memory.	P2-118
	WR_RECIPE_LINE	Writes data from memory to the specified line of a CSV file. (If the target CSV file does not exist, a new CSV file is created and the data is written to it.)	P2-119

- SET_RECIPEFOLDER

  Before accessing a CSV file by a macro command, define its folder first. Once folder definition is finished by this macro command, doing so is not necessary until:

  - You attempt to access a CSV file in a different folder.
  - The MONITOUCH is changed from a RUN status to STOP and brought to RUN again.
  - The CF card is removed and inserted.
  - The power is turned off and on again.

Available Devices

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

SET_RECIPEFOLDER F0

F0	Folder to be accessed

When a folder name is fixed, storing the name as a fixed string by a macro command “CHR” facilitates folder definition.
Example:
$u100 = ‘TARGET’
SET_RECIPEFOLDER $u100
Now it is possible to access CSV files in the TARGET folder.

- RD_RECIPE_FILE

  The entire data of a CSV file is read from the CF card into memory.

Available Devices

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

RD_RECIPE_FILE F0 F1

F0	Target memory
F1	CSV file name

Example:

```
$u100 = 'TARGET'
SET_RECIPEFOLDER  $u100
$u110 = 'PRODUCT1'
RD_RECIPE_FILE D200  $u110
```

From the CSV file "PRODUCT1.CSV" in the TARGET folder, its entire data is transferred to memory D200.

- RD_RECIPE_LINE

  Data in the specified line of a CSV file is read from the CF card into memory.

Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation	W Word
F0	○	○			○	
F1	○	○			○	
F2	○	○	○		○	
F3	○	○	○		○	

RD_RECIPE_LINE F0 F1 F2 F3

F0	Target memory
F1	CSV file name
F2	First line (1 - 32767)
F3	Last line (1 - 32767)

Example:

```
$u100 = 'TARGET'
SET_RECIPEFOLDER  $u100
$u110 = 'PRODUCT1'
RD_RECIPE_LINE  D200  $u110  3  3
```

From the CSV file "PRODUCT1.CSV" in the TARGET folder, the data in the third line (record No. 3) is transferred to memory D200.

- RD_RECIPE_COLUMN

  Data in the specified column of a CSV file is read from the CF card into memory.

Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation	W Word
F0	○	○			○	
F1	○	○			○	
F2	○	○	○		○	
F3	○	○	○		○	

RD_RECIPE_COLUMN F0 F1 F2 F3

F0	Target memory
F1	CSV file name
F2	First column (0 - 4096)*
F3	Last column (0 - 4096)*

*** Column 0 displays record names. Columns 1 through 4,096 are recognized as the columns to display data.**
To read record names, specify "0" with the macro command. To read data, specify "1" or after with the macro command.

Example:
```
$u100 = 'TARGET'
SET_RECIPEFOLDER $u100
$u110 = 'PRODUCT1'
RD_RECIPE_COLUMN D300 $u110 5 5
```
From the CSV file "PRODUCT1.CSV" in the TARGET folder, the data in the fifth column is transferred to memory D300.

- WR_RECIPE_FILE

  A CSV file is overwritten from memory.

Available Devices

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

WR_RECIPE_FILE F0 F1

F0	Target memory
F1	CSV file name

Example:
```
$u100 = 'TARGET'
SET_RECIPEFOLDER $u100
$u110 = 'PRODUCT7'
WR_RECIPE_FILE D200 $u110
```
The CSV file "PRODUCT7.CSV" in the TARGET folder is overwritten from memory D200 (and after).

- WR_RECIPE_LINE

  Data is written from memory to the specified line of a CSV file. (If the target CSV file does not exist, a new CSV file is created and the data is written to it.)

Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation	W Word
F0	○	○			○	
F1	○	○			○	
F2	○	○	○		○	
F3	○	○	○		○	

WR_RECIPE_LINE F0 F1 F2 F3

F0	Target memory
F1	CSV file name
F2	First line (1 - 32767)*
F3	Last line (1 - 32767)

Example:

```
$u100 = 'TARGET'
SET_RECIPEFOLDER  $u100
$u110 = 'PRODUCT7'
WR_RECIPE_LINE  D200  $u110  3  3
```

Data is written from memory D200 (and after) to the third line of the CSV file "PRODUCT7.CSV" in the TARGET folder

*** If the target folder does not exist, a new file is created. In this case, make sure to specify "1" for the first line.**

- WR_RECIPE_COLUMN

  Data is written from memory to the specified column of a CSV file.

Available Devices

	Internal Memory	PLC Memory	Constant	Memory Card	Indirect Designation	W Word
F0	○	○			○	
F1	○	○			○	
F2	○	○	○		○	
F3	○	○	○		○	

WR_RECIPE_COLUMN F0 F1 F2 F3

F0	Target memory
F1	CSV file name
F2	First column (0 - 4096)*
F3	Last column (0 - 4096)*

*** Column 0 displays record names. Columns 1 through 4,096 are recognized as the columns to display data.**
To write record names, specify "0" with the macro command. To write data, specify "1" or after with the macro command.

Example:

```
$u100 = 'TARGET'
SET_RECIPEFOLDER  $u100
$u110 = 'PRODUCT7'
WR_RECIPE_COLUMN  D300  $u110  5  5
```

Data is written from memory D300 (and after) to the fifth column of the CSV file "PRODUCT7.CSV" in the TARGET folder.

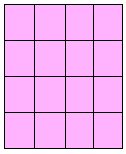
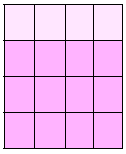
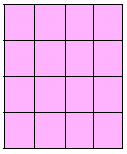
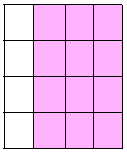
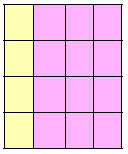
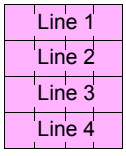
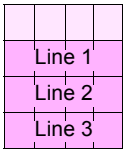
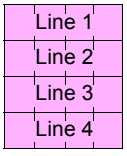
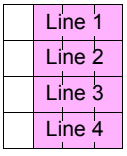
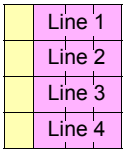
♦ Notes

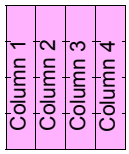
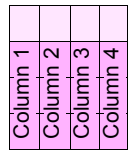
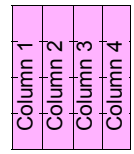
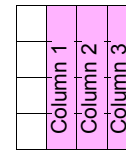
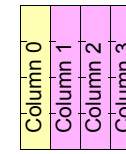
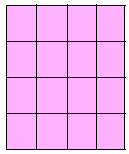
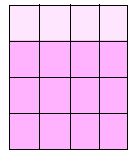
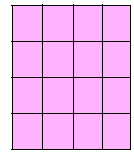
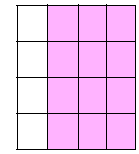
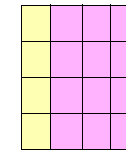
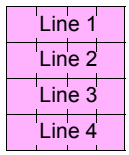
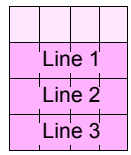
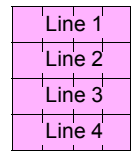
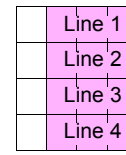
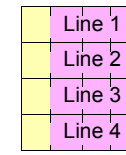
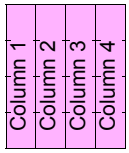
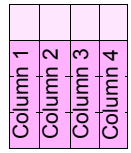
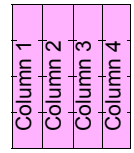
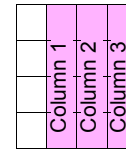
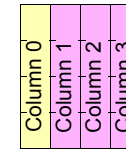
- Creating a new CSV file

  Recipe mode does not have a function to create new CSV files.
  When creating a new CSV file, use a macro command "WR_RECIPE_LINE." (The other writing macros "WR_RECIPE_FILE" and "WR_RECIPE_COLUMN" are not available for file creation.)

- Access areas in CSV files

  When data is read and written by macro commands, sources for data reading and target locations for data writing differ, depending on the settings in the [Attribute Setting] dialog.
  See the following table for details.

	[Attribute Setting] Dialog				
	Title		Record Name		
	Not used	Use	Not used	Use	
				Data	Record name + data
RD_RECIPE_FILE	In a CSV file, the first line and after are handled as the data to be transferred. 	In a CSV file, the second line and after are handled as the data to be transferred. 	In a CSV file, the first column and after of each line are handled as the data to be transferred. 	In a CSV file, the second column and after of each line are handled as the data to be transferred. 	In a CSV file, the first column of each line is handled as the data to be transferred. 
RD_RECIPE_LINE	Line numbers are designated as the following. 	Line numbers are designated as the following. 	Line numbers are designated as the following. 	Line numbers are designated as the following. 	Line numbers are designated as the following. 

	[Attribute Setting] Dialog				
	Title		Record Name		
	Not used	Use	Not used	Use	
				Data	Record name + data
RD_RECIPE_COLUMN	Column numbers are designated as the following. 	Column numbers are designated as the following. 	Column numbers are designated as the following. 	Column numbers are designated as the following. 	Column numbers are designated as the following. 
WR_RECIPE_FILE	Data is written from transfer memory to the first line and after of a CSV file. 	Data is written from transfer memory to the second line and after of a CSV file.  The first line shows titles.	Data is written from transfer memory to the first column and after of a CSV file. 	Data is written from transfer memory to the second column and after of each line in a CSV file.  A comma is written to the first column of each line. (If the CSV file has data in the first column, the data remains.)	Data is written from transfer memory to the first column and after in a CSV file.  As a record name, data equal to the amount specified for [Bytes for Record Name] is written to the first column of each line.
WR_RECIPE_LINE	Line numbers are designated as the following. 	Line numbers are designated as the following. 	Line numbers are designated as the following. 	Line numbers are designated as the following. 	Line numbers are designated as the following. 
WR_RECIPE_COLUMN	Column numbers are designated as the following. 	Column numbers are designated as the following. 	Column numbers are designated as the following. 	Column numbers are designated as the following. 	Column numbers are designated as the following. 

Limitations

♦ CSV File Capacity

Maximum transfer data

A maximum of 4,096 words can be read and written at one time by recipe mode or a macro command. If you attempt to transfer data exceeding the capacity, 4,096 words are transferred, but extra words are not transferred.

Lines and columns

- In case of [☐ Reverse definition of lines/columns.] in Attribute Setting
  Number of lines: 32,767 lines maximum
  Number of columns*: 4,096 columns maximum (within the maximum number of words 4,096)
- In case of [☑ Reverse definition of lines/columns.] in Attribute Setting
  Number of lines: 4,096 lines maximum (within the maximum number of words 4,096)
  Number of columns*: 4,096 columns maximum

File size: 1M byte or under

*** Go to the [Attribute Setting] dialog to make a setting. Note that the number of columns managed by Excel is 256.**

Bytes of record name and title

Number of bytes of a record name: 32 bytes maximum per record

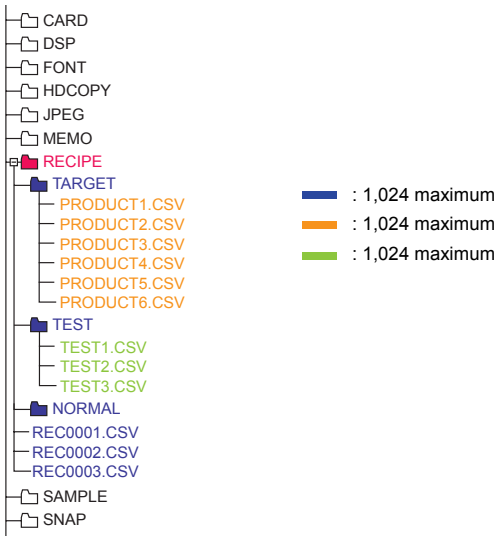
*** Go to the [Attribute Setting] dialog to make a setting.**

Number of bytes of a title: 32 bytes maximum per title

♦ Total Number of CSV Files, etc. (for recipe mpode only)

When using the recipe mode, some folders (or RECxxxx.CSV files) can be created in the RECIPE folder on the CF card. The number of folders or files has a limit.

A maximum of 1,024 folders/files in the RECIPE folder can be recognized in the recipe mode. Likewise, for other folders you have created, the maximum number of CSV files that can be recognized is 1,024.



If the number of folders or files exceeds this limit, those beyond the limit cannot be recognized and simply be ignored in the recipe mode. When access to CSV files is made with a macro command, this limitation is not imposed. However, note that the access time is proportional to the number of files.

ZM-71SE Menu Language

Regardless of the operating system of your computer, you can select the desired menu language for ZM-71SE.

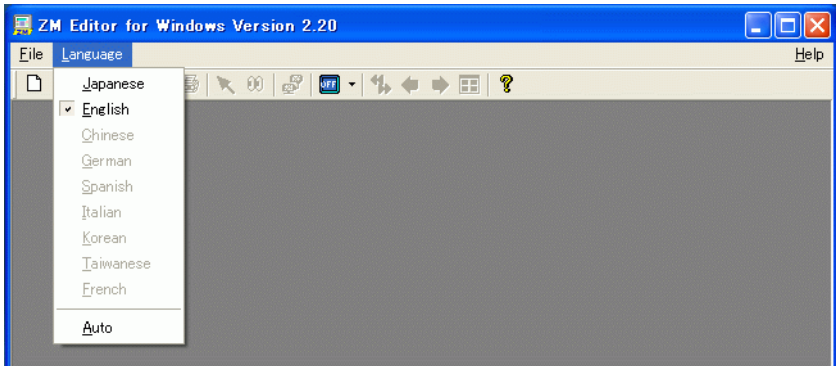
For example, it is possible to show user interface in English for ZM-71SE that is installed on Windows in Japanese.

For version 2.2.0.0, only Japanese/English is selectable.

ZM-71SE Setting Procedure

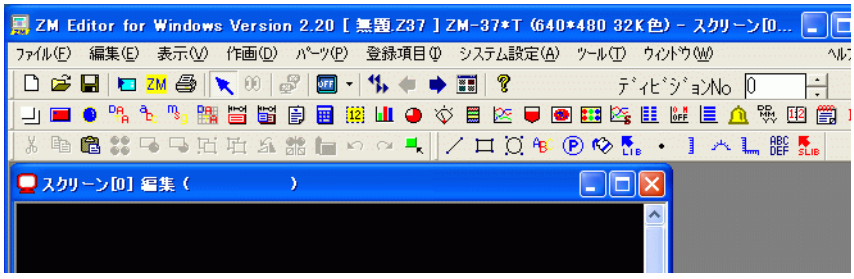
1. Start ZM-71SE. Do not open any screen data file.
2. Click the [Language] menu and select the desired menu language.

Auto: Selects the menu language automatically recognizing the operating system of your computer.



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

4. Exit from ZM-71SE once and re-start. User interface in the selected language is displayed.



Properties of Screen Data File

You can limit the number of windows that can be opened during screen editing. This is used to save memory capacity by limiting the number of open windows.

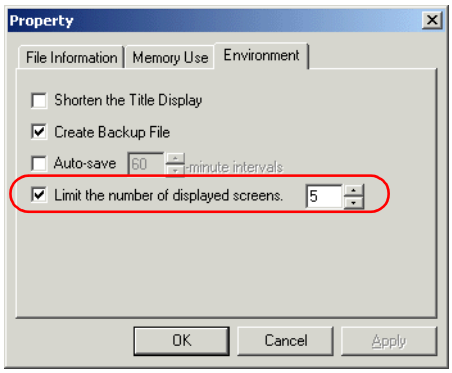
Setting Items

♦ [Property] Dialog

- [File] → [Properties]

  [Environment] tab window

  [☐ Limit the Number of Displayed Screens] 1 to 10



* **Number of screens:**

The total number of screens in screen editing, graphic library editing, multi-overlap editing, data block editing, screen library editing and data sheet editing

At least one screen can be opened for each editing function regardless of number limitation.

Example:
When “1” is set for the number of screens to be displayed:
It is not possible to open two screens for screen editing at one time but a screen for another editing function can be opened.

Font Setting

Fonts

The following language settings are added.

Font		
Gothic (IBM expanded)*1	Japanese Gothic + IBM extended characters (fa40 to fc4b)	
Central Europe	CP1250 code ISO code*2 (ISO-8859-2: Latin2)	Croatia Czech Hrvatski (Croatia) Hungary Poland Romania Slovakia Slovenia
Cyrillic	CP1251 code ISO code*2 (ISO-8859-5: Latin5)	Russia Ukraine Kazakhstan Bulgaria Uzbekistan Azerbaijan
Greek	CP1253 code ISO code*2 (ISO-8859-7: Latin7)	–
Turkish	CP1254 code ISO code*2 (ISO-8859-9: Latin9)	–

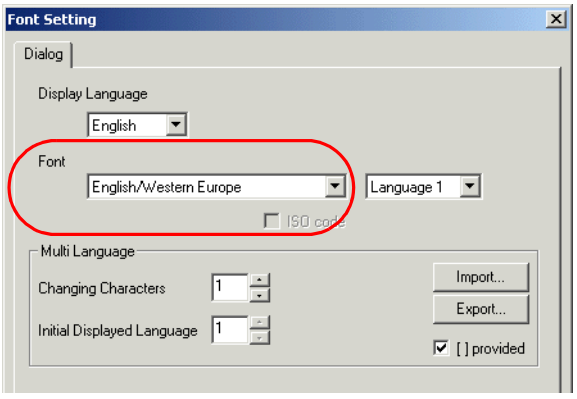
*1 Applicable models: ZM-300 series/ZM-43 series

*2 In the case of ISO codes, check [ISO Code] in the [Font Setting] dialog.

♦ Setting Items

[Font Setting] dialog

[Font] tab window

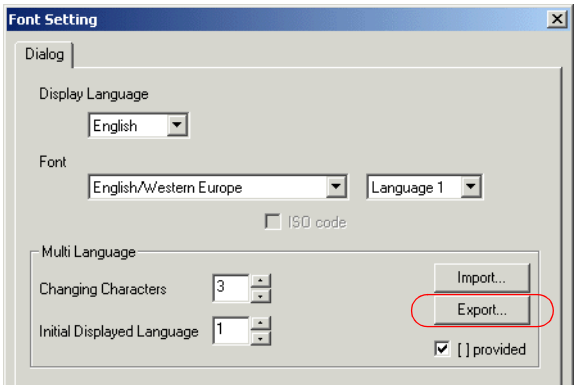


Import/Export

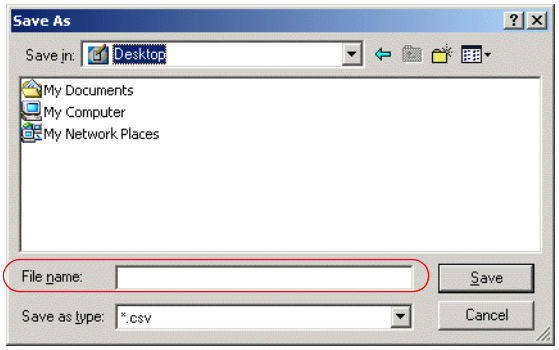
It is possible to export data into separate CSV files for each language. Also, import can be performed for each language.

♦ Export Procedure

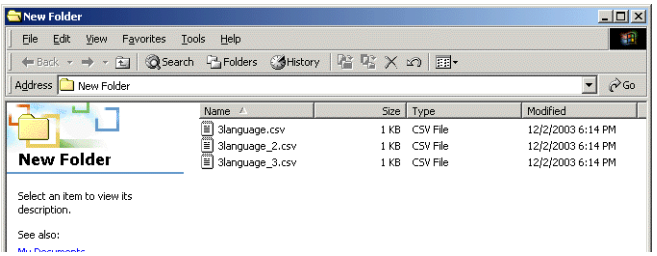
1. Click [Export].



2. The [Save As] dialog is displayed.
   Set the desired CSV file name and click [Save].



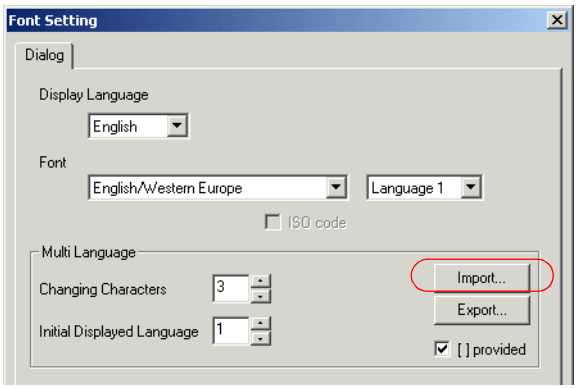
3. As many CSV files as the number of setting languages are created.



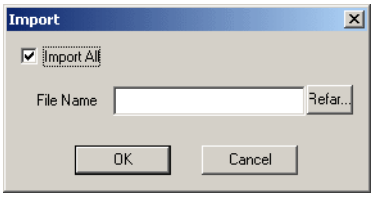
- 1st language xxxx.csv
  "n"th language xxxx_n.csv (n=2 to 8)

♦ Import Procedure

1. Click [Import].



2. The [Import] dialog is displayed.



[☐ Import All]

Check this box when you want to import CSV files for all the setting languages.

[File Name]

- When [☐ Import All] is checked:

  Select the CSV file (xxxx.csv) for the first language.

- When [☐ Import All] is not checked:

  Select the CSV file (xxxx_n.csv) for the “n”th language.

Notes on [☐ Import All]
- Save CSV files in all the languages into a single folder.
- Give CSV file names as shown below.
  1st language xxxx.csv
  “n”th language xxxx_n.csv (n=2 to 8)
- Be sure to select “xxxx.csv” (first language) for “File Name”.
  The following error occurs when a file for the second or later language “xxxx_n.csv” is selected.

3. Click [OK]. CSV files can be imported.

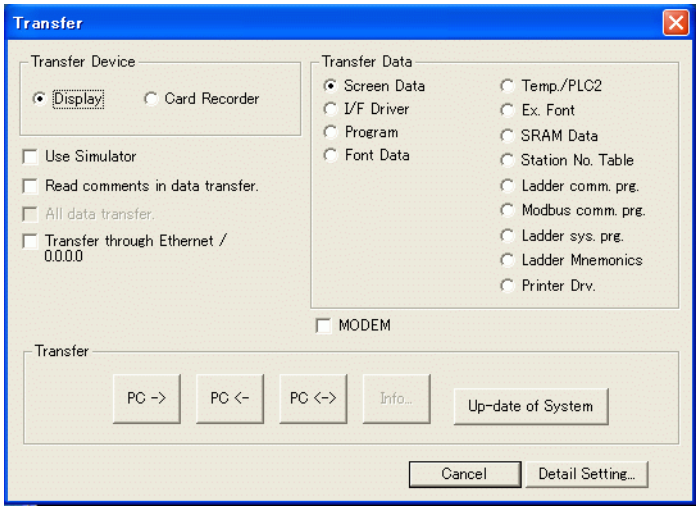
If the CSV file (xxxx.csv) for the first language is changed, the files cannot be imported correctly. Do not change the CSV file for the first language.

Transfer

[Transfer] Dialog

Options for transfer are added for the new functions.

☞ Refer to Chapter 5 in the ZM-71SE Instruction Manual (Operation version).



Setting Items		Contents
Transfer Device	Card Recorder	Select this option when the target/source for transfer is a ZM-1REC.
Transfer Data	Ladder sys. prg.	Refer to the Ladder Monitor version.
	Ladder Mnemonics	
	Printer Drv.	Valid when EPSON's STYLUS PHOTO printer is used. The printer driver (EpsonPM.pdr) is transferred.

Internal Memory

System Memory ($s)

♦ List of Additions

The following information is additionally stored in the ZM-300 system memory.

Address $s	Contents		Memory Type
78	Entry mode	Display type of entry target	←ZM
79	Entry mode	Selection of entry target	→ZM
110	Universal serial	Local port number	←ZM
500	CF Card	Access status	←ZM
810 to 813	IP address of the local port		←ZM
814 to 817	IP address of the other port		←ZM
818	Network table number designation		→ZM
935	Video	Brightness of the selected video area	←ZM
936	Video	Contrast of the selected video area	←ZM
937	Video	Color shade of the selected video area	←ZM
958	ZM-371TL/373TL view angle adjustment		←ZM
1006	E-mail	Error information	←ZM

☞ For the system memory not listed above, refer to the ZM-71SE Instruction Manual (Function version).

♦ Details

- $s78

  The display type of data in the entry target is stored.

Output Code	Entry Target	Display Type
−2	No entry mode	–
−1	No entry target	–
0	Numerical data display	Decimal without sign
1		Decimal with sign (–)
2		Decimal with sign (+)
3		Hexadecimal
4		Octal
5		Binary
6	Character display	Text
7	Message display: other than the entry target	–
8	Numerical data display	Floating-point numerical data

- $s79

  This setting is valid when the entry mode is switched by overlap activation (ON/OFF) or multi-overlap number change on one screen.

  *** Do not set any value other than "0" or "1."**

  [0] The entry target that was selected last in the entry mode becomes selected.

  [1] The entry target currently selected remains selected even after the mode is switched.

- $s110

  The local port number is stored for 1 : N connection at the universal serial port.

- $s500

  The access status to the CF card is stored.

  [0] CF card accessing (CF card cannot be removed)

  [Other than 0] CF card access stopped (CF card can be removed)

- $s810 to 813

  The IP address of the ZM-300 series is stored. When the IP address is not set, "0.0.0.0" is stored.

- $s814 to 818

  The IP address of the network table number for the value* in $s818 is stored. If no network table exists, "0.0.0.0" is stored.

  *** Use the MOV (W) macro command when setting the network table number.**

- $s935

  The brightness of the channel that is selected by pressing in the display area is stored.

- $s936

  The contrast of the channel that is selected by pressing in the display area is stored.

- $s937

  The color shade of the channel that is selected by pressing in the display area is stored.

- $s958

  The current view angle adjustment value is stored. (P1-4)

- $s1006

  Error information during E-mailing is stored.

Error No.	Contents
0	Normal
1	E-mail address error
2	SMTP server log-on error
3	SMTP server log-off error
6	Network not connected

User Memory ($T)

This is the read/write memory that can be used freely.

When the screen is switched, all the areas are reset to “0.” Consequently, these memory addresses can be used for macro commands that should be executed for each screen.

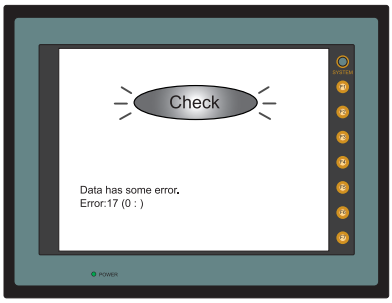
- Available range $T: 0 - 1023 (1024 words)

Error

Some error messages are added for the new functions.

Refer to “Appendix 3 Error” in the ZM-71SE Instruction Manual (Function version).

Check



Error Message	Contents	Solution
Data has some error. Error:XX (XX:XXX)	There is an error in the created screen data.	For the contents and solution to each error number, refer to “Error Details and Solutions” P2-132.

♦ Error Details and Solutions

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.

Error:XX (XX:XXX)
(Warning)
- Sub item number: Refer to P2-133.
- Item number: Refer to P2-132.
- Error number: Refer to P2-133.

♦ Item Number

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

31	JPEG table
32	Animation table
33	Comment table
34	Windows font table
35	Windows font table (message)
36	Windows font table (characters)

♦ Sub Item Number

The sub item number shows the number of the editing screen detecting the error.

- In the case of a comment, the comment number is indicated.

♦ Error Number

The following errors are displayed only on the ZM-300 series. These are not displayed on the ZM-42/43/52/56/72/82.

Error No.	Contents	Remedies
19	An I/F driver the ZM series does not support is transferred.	Transfer the correct I/F driver.
25	Relay sample The number of sampled words is exceeded.	Check the number of words set on the [Buffering Area Setting] dialog. Universal serial: Max. 256 words Other PLCs: Max. 128 words
76	Relay mode The number of execution relays is exceeded.	Check the number of execution relays. Universal serial: Max. 4096 Other PLCs: Max. 512
136	IP address setting error The network table number selected on the [IP Address Setting] tab window of the [Unit Setting] dialog is not registered.	Check the setting on the [IP Address Setting] tab window of the [Unit Setting] dialog, and set the network table.
150	Ladder monitor program is not registered.	Transfer the ladder monitor program (.ldp).
158	The model set for ladder monitor program is not consistent with the one for ladder data.	Transfer the ladder data (.ldm) of the correct model.
159	PLC ladder data is illegal.	Transfer the ladder data (.ldm) again.
183	The printer model is not right.	Transfer the printer driver of the model that is set for screen data.
184	Printer driver is not found.	Transfer the printer driver.
209	PLC ladder data is not registered.	Transfer the ladder data (.ldm).

*** Errors No. 200 and later are warning errors (warning messages).**

Function Correspondence Table

♦ ZM-300 Series Functions

Manual			ZM-300 Series			
	Chapter	Function	High-performance	Standard	ZM-37*TL	ZM-352D
ZM-71SE Instruction Manual (Function version)	2	Overlap	○	○	○	○
		Superimpose	○	○	×	×
		Video display	△	×	×	×
	3	Switch	○	○	○	○
		Coordinate output (analog only)	○	○	○	○
	4	Lamp	○	○	○	○
	5	Data Display	○	○	○	○
	6	Message Display	○	○	○	○
	7	Entry Mode	○	○	○	○
		Password: variable	○	○	○	○
	8	Graph Display	○	○	○	○
	9	Graphic Display	○	○	○	○
	10	Sampling	○	○	○	○
	11	Time Display/Calendar	○	○	○	○
	12	Memo Pad (analog only)	○	○	○	○
	13	Macro	○	○	○	○
	14	Data Sheets	○	○	○	○
	15	Print	○	○	○	○
	16	Barcode 1D	○	○	○	○
		2D	○	○	○	○
	17	Animation	○	○	×	×
	18	Video Display	△	×	×	×
	19	JPEG Display	○	○	×	×
	20	Sound Replay Function	△	×	×	×
	21	Recipe Function SRAM/ZM-1REC	○	○	○	○
		CF card	○	○	○	○
	22	Data Logging SRAM/ZM-1REC	○	○	○	○
		CF card	○	○	○	○
	23	CF Card Built-in	○	○	○	○
		CF-REC	○	○	○	○
	24	SRAM	○	○	○	○
	25	Memory Card Mode	○	○	○	○
		CF card	○	○	○	○
		SRAM	○	○	○	○
		ZM-1REC	○	○	○	○

Manual			ZM-300 Series			
	Chapter	Function	High-performance	Standard	ZM-37*TL	ZM-352D
ZM-71SE Instruction Manual (Function version)	26	Ethernet Function	○	△	△	△
		Screen data transfer/ PLC connection	○	△	△	△
		E-mailing/Web server	○	×	×	×
	27	E-mail	○	×	×	×
	28	Web Server	○	×	×	×
	29	Language Selection Multi-language selection	○	○	○	○
		Display selection	○	○	○	○
This Manual	2	Comment Display	○	○	○	○
		Windows Fonts	○	○	○	○
		Recipe Mode	○	○	○	○
	1	View Angle Adjustment	×	×	○	×
ZM-300 User's manual		Brightness adjustment	○	○	○	×
		Contrast adjustment	×	×	×	○
		Color	32K	32K	128	128

○: Supported, △: Supported as an option, ×: Not supported

♦ ZM-42/43/52/62/72/82 Series Functions

Manual			ZM-42/43/52/62/72/82 Series					
	Chapter	Function	ZM-82 ZM-72	ZM-52D	ZM-52HD	ZM-43	ZM-42	ZM-62E
ZM-71SE Instruction Manual (Function version)	2	Overlap	○	○	○	○	○	○
		Superimpose	×	×	×	×	×	×
		Video display	△	×	×	×	×	×
	3	Switch	○	○	○	○	○	○
		Coordinate output (analog only)	×	×	×	×	×	×
	4	Lamp	○	○	○	○	○	○
	5	Data Display	○	○	○	○	○	○
	6	Message Display	○	○	○	○	○	○
	7	Entry Mode	○	○	○	○	○	○
		Password: variable	×	×	×	×	×	×
	8	Graph Display	○	○	○	○	○	○
	9	Graphic Display	○	○	○	○	○	○
	10	Sampling	○	○	○	○	○	○
	11	Time Display/Calendar	○	○	○	○	○	○
	12	Memo Pad (analog only)	○	○	○	○	○	○
	13	Macro	○	○	○	○	○	○
	14	Data Sheets	○	○	×	○	○	○
	15	Print	○	○	×	○	○	○
	16	Barcode 1D	○	○	○	○	○	○
		2D	×	×	×	×	×	×
	17	Animation	×	×	×	×	×	×
	18	Video Display	×	×	×	×	×	×
	19	JPEG Display	×	×	×	×	×	×
	20	Sound Replay Function	×	×	×	×	×	×
	21	Recipe Function SRAM/ZM-1REC	○	○	○	○	○	○
		CF card	×	×	○	×	×	×
	22	Data Logging SRAM/ZM-1REC	○	○	○	○	○	○
		CF card	×	×	○	×	×	×
	23	CF Card Built-in	×	×	○	×	×	×
		CF-REC	×	×	×	×	×	×
	24	SRAM	△	△	×	△	×	△
	25	Memory Card Mode	○	○	○	○	○	○
		CF card	×	×	○	×	○	×
		SRAM	△	△	×	△	○	△
		ZM-1REC	○	○	×	○	○	○

Manual			ZM-42/43/52/62/72/82 Series					
	Chapter	Function	ZM-82 ZM-72	ZM-52D	ZM-52HD	ZM-43	ZM-42	ZM-62E
ZM-71SE Instruction Manual (Function version)	26	Ethernet Function	△	△	×	△	△	×
		Screen data transfer/ PLC connection	△	△	×	△	△	×
		E-mailing/Web server	×	×	×	×	×	×
	27	E-mail	×	×	×	×	×	×
	28	Web Server	×	×	×	×	×	×
	29	Language Selection Multi-language selection	×	×	×	×	×	×
		Display selection	○	○	○	○	○	○
This Manual	2	Comment Display	×	×	×	×	×	×
		Windows Fonts	×	×	×	×	×	×
		Recipe Mode	×	×	×	×	×	×
	1	View Angle Adjustment	×	×	×	×	×	×
ZM-300 User's manual		Brightness Adjustment	×	×	×	×	×	×
		Contrast Adjustment	×	○	○	○ (ZM-43D/L)	○	×
		Color	128	128	128	16/8-grade display	16/8-grade display	8-grade display

○: Supported, △: Supported as an option, ×: Not supported

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