

PMU Editor User's Manual

For effective use of this S/W, please read this operation manual to the end attentively.



Caution

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3. The information written in this manual may change without prior notice for product upgrade.

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Chapter . Introduction



[feature]

. Distinctions

- (1) Variable Display Devices
 - High-Resolution, High-Brightness Color
 - TFT(12.1", 10.4", 5.5"), STN Mono LCD(5.7", Black & White, Blue)
 - STN Color LCD(5.7", 7.5", 10.4")
- (2) High speed 32bit RISC CPU(ARM processor)
- (3) Front Water & Dust Proof : IP65F
- (4) Ultra Slim Design for Panel Mounting
- (5) Serial Communication Port and Parallel Print Port
- (6) Resistive Matrix/Analog Touch Key
- (7) Flash Memory for Screen Saving(Max. 4M)
- (8) High speed graphic Controller
- (9) Downloadable Operating System Software and Character Font Data
- (10) Graphics and Tags for Dynamic User Interface
- (11) Various Language Support such as Korean, Chinese, English, Japanese, etc
- (12) Many Kinds of Controller Communication Drivers
- (13) Windows-Based HMI System Design Software Tool
- (14) Controller Communication Diagnosis Mode : Protocol Analyzer Function
- (15) Recipe Function for Data or Parameter Batch Input
- (16) Data Logging

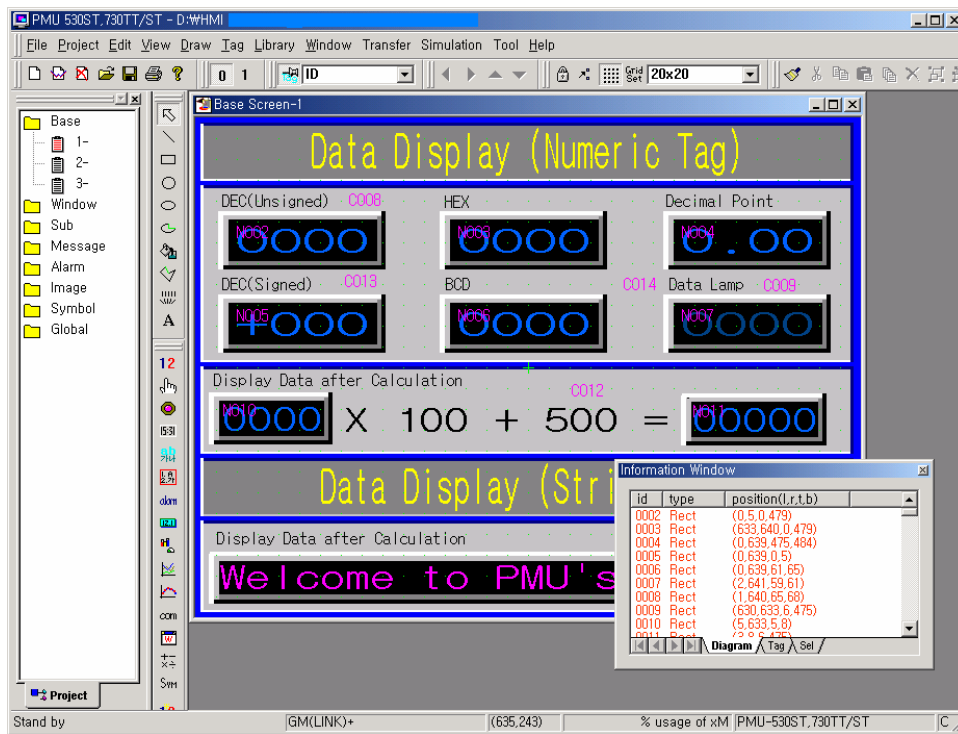
- (17) Usable inner memory of System buffer
- (18) Direct/Indirect addressing to PLC or controller
- (19) Upload function(Screen/Logging/Recipe data)
- (20) All windows fonts are usable to input

. **S/W's Distinctions**

This is software for drawing and transmission, and is software performs programming and debugging.

This S/W is designed to operate on IBM compatible PC

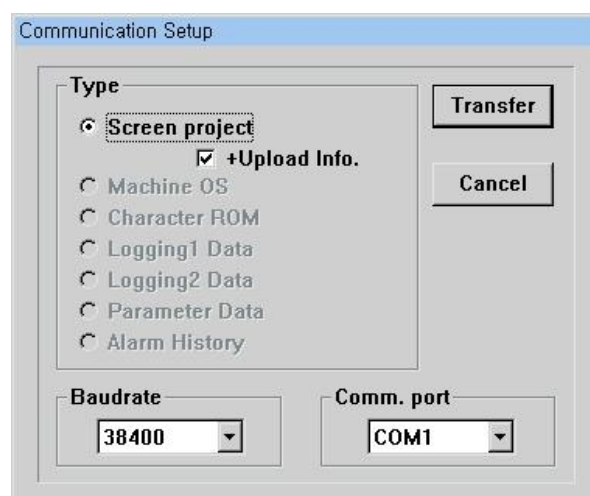
- (1) Windows based Software : Windows 95/98/Me/NT/2000/XP
- (2) Project Management for Integrated Environment
- (3) Object Oriented Graphics and Dynamic Tags Editor
- (4) Downloadable Operating System Software and Character Font Data for System Upgrade
- (5) Easy to use Graphic Object and Tag Tool Bar
- (6) Viewable Screen Thumbnail
- (7) Automatic Screen Saving
- (8) Enlargement of Screen for Detail Graphic Design (100%, 200%, 300%)
- (9) Printing Tag List as Microsoft Excel Worksheet format
- (10) Screen Components Information Windows : Diagrams, Tags and Selected objects List
- (11) Internal Communication Memory Area : System Buffers
- (12) Direct/Indirect Device Memory Assignment
- (13) System Components Library Support
- (14) Simulation
- (15) Transparent text support
- (16) Transparent bitmap support
- (17) All fonts of Windows support
- (18) About movement & resizing, Usage of Arrow keys is possible



[Screen shot of S/W]

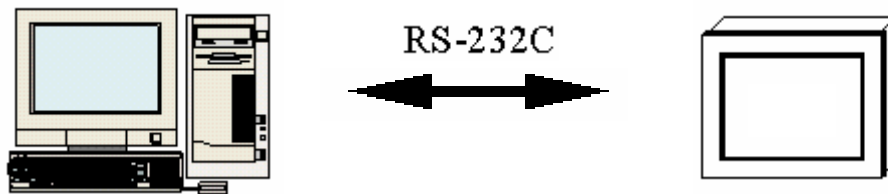
• Connection to Panel

After completion of programming, click 'Transmit'. All composed screen files are compiled into one file and saved. It transmits compiled file through RS-232C port.

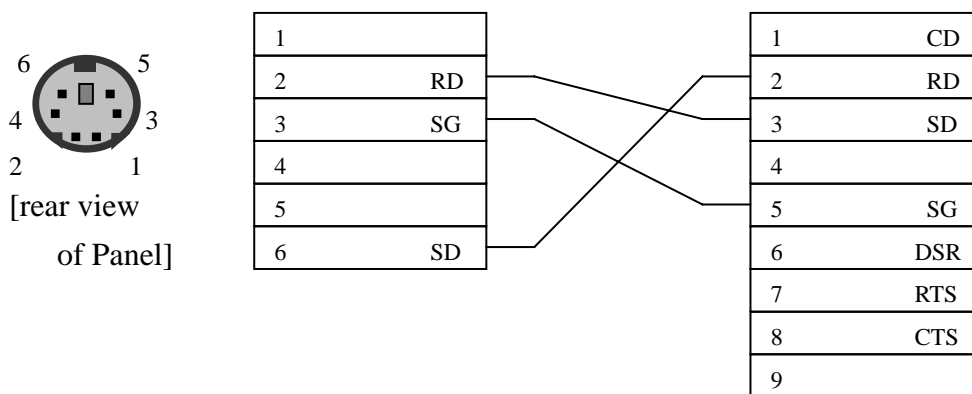


RS-232C

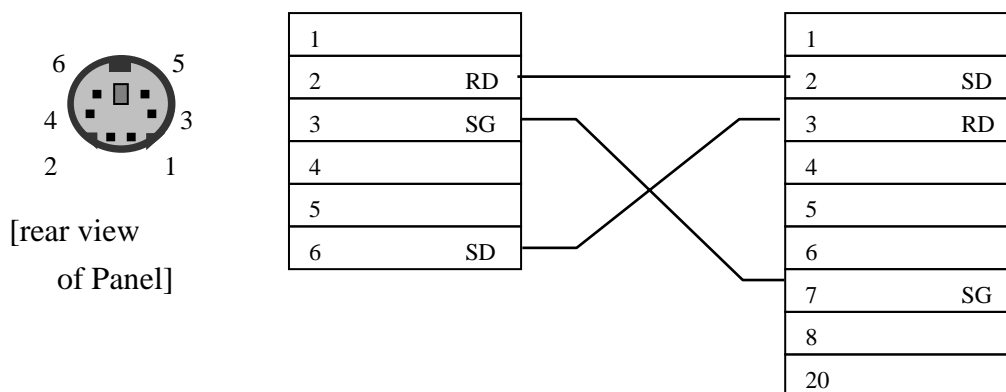
Standard Connector pin between PC and Panel is RS-232C



(1) Connection between Panel's 6pin port and PC's 9pin port



(2) Connection between Panel's 6pin port and PC's 25pin port



Chapter . Installation

Requirements to install software are as follows

Item	Operational Standards
PC	Above IBM PC AT Compatible Recommended above Celeron 233
Memory	Above 64Mbyte, Recommended above 128Mbyte
FDD	One 3.5 inch drive
HDD	Recommended above 40Mbyte -Not the total size of Hard Disk
Serial Port	More than one Serial Communication port (For data communication)
Graphic Adapter and Monitor	Above SVGA(800*600) 16bit colors Recommended above 1024*768
Key board	Windows compatible Keyboard
Mouse	Windows compatible Mouse
Printer	Windows compatible Printer
Recommended O.S Environment	Above Windows 95/98/Me/NT/2k/XP

 **Note** : S/W may not operate under non-standard environment which is different with above specified 'Operational Standard'

. Contents of Package

- Touch Panel
- User's Manual
- Install CD
- * Communication cable is 'Option'

. Installation

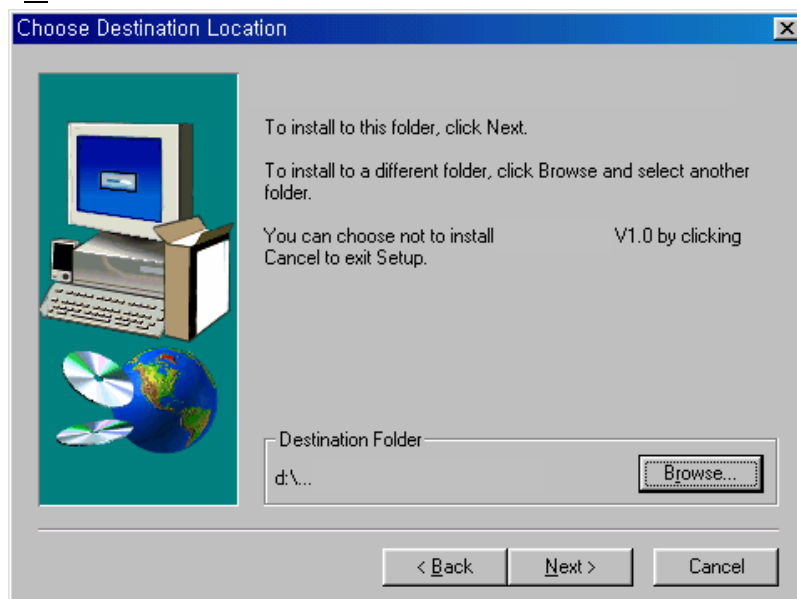
Installation process is same with Windows 95/98/Me/NT 4.0/2000/XP

To install this S/W, run 'Install CD' on Windows.

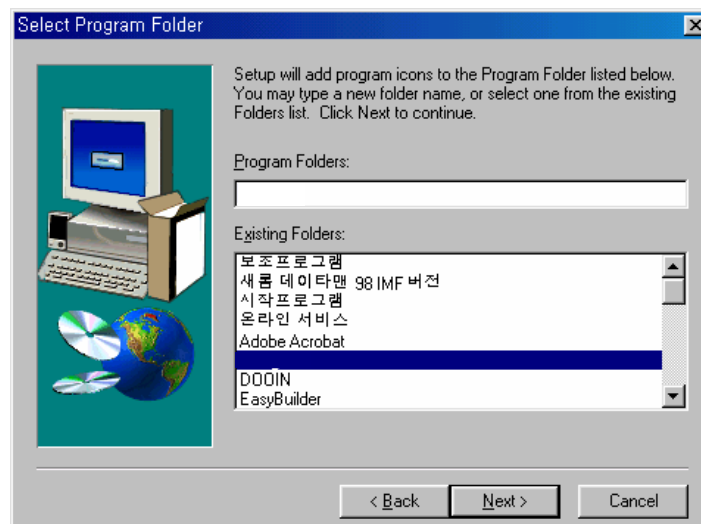
Installation CD has self-extraction setup file("VxxxEng.exe"). This could be changed

by new upgrade version)

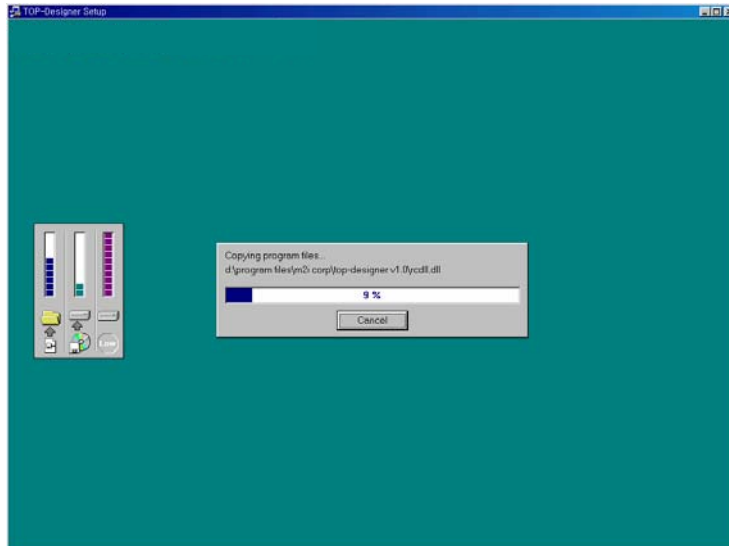
- (1) Insert Insstall CD into CD-ROM Drive.
- (2) Asked whether you agree on 'software License'. Click 'Yes' and move to next process.
- (3) A dialog box appears, it shows 'Destination Folder' to install.
To install in a different folder, click **B**rowse and select other folder.
To stop installation, click 'Cancel'.
Click 'Next' to continue.



- (4) Select program folder. You may select other one from the 'Existing Folders' or make new folder.



(5) It starts copying files from CD to computer.



(6) Click 'Finish' to finish installation.

(7) After completion of installation, The program group and icon are created on program group.

(8) Browsing the installed folder, The folders(OS, Demo, Bitmap, lib-xxx6, lib-xxx3, lib-xxxC) can be seen. OS folder has the firmware of most proper version. Demo folder has demo project files by model. Lib-xxxx folders have libraries for model. Bitmap folder has bitmap files used in touch or lamp tag.

Chapter . Basic Directions

Click 'Start' button on active desktop.

Select 'Program' menu and run this software. It is easy to click icon on active desktop.

. Basic Functions

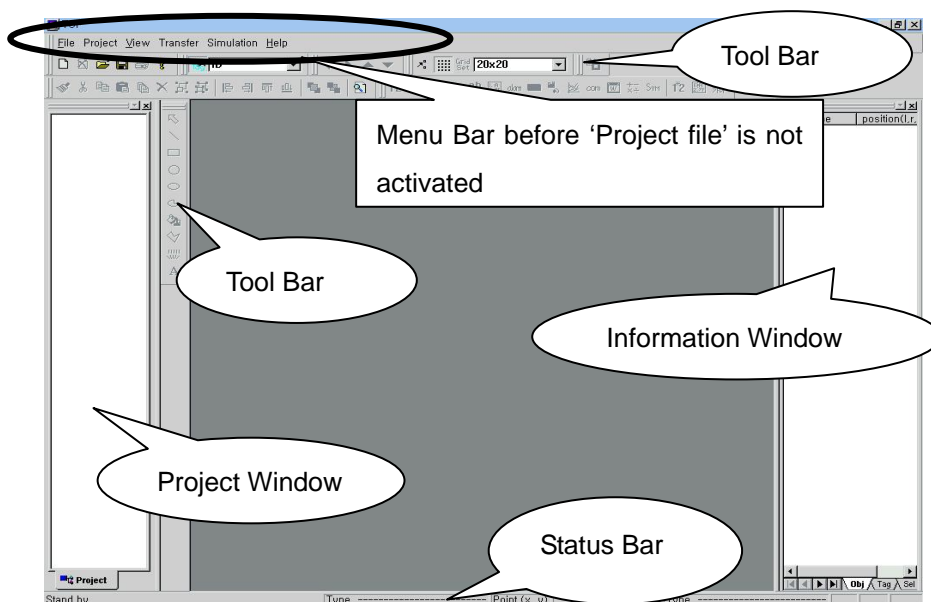
'Screen Edit, Message Edit, Alarm Edit, Simulation, etc' are available simultaneously in main program.

Project file consists of 'Screen data, Message data, Alarm data, Image data, Logging & Recipe data' and project file is saved as just one file.

* Communication Function between PC and Panel

- O/S Program download
- Font Download
- Project file transmission
- Upload(Screen, Logging 1 & 2, Recipe, Alarm history)
- Simulation

. Menu

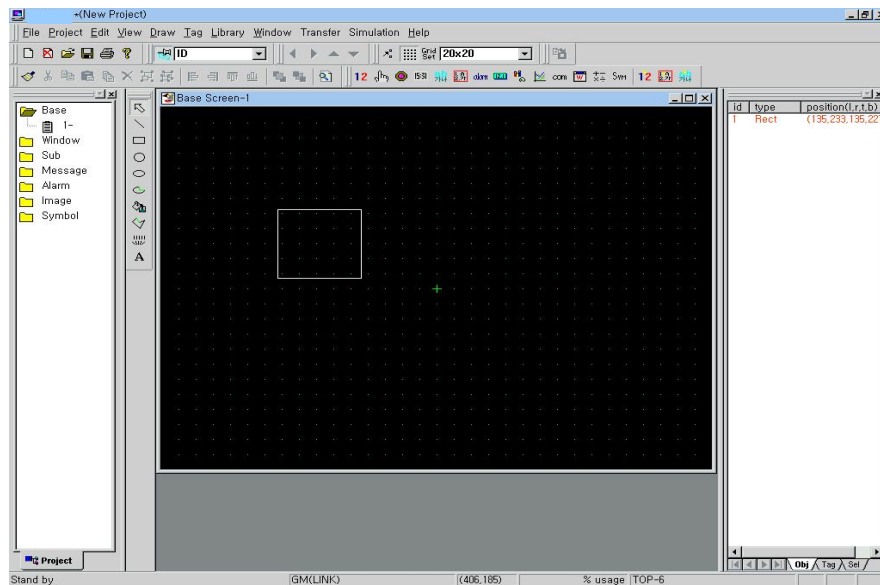


Project window appears on left, and information window on right.

On 'Project' menu,

- click 'Open Project' to open composed project
 - or click 'New Project' to create new project,
- and then all menu are activated.

This picture shows when new project file is created.



(1) Project window

Project Window has 'Base screen, Window screen, Sub-screen, Message, Alarm, Image, Symbol' folders by tree view. Whenever new item is created, the icon is added to the relevant folder.


1) Base screen

- Click 'New' on 'File' menu, and a dialog box appears.
- Click 'Base' radio button and register New Base Screen.

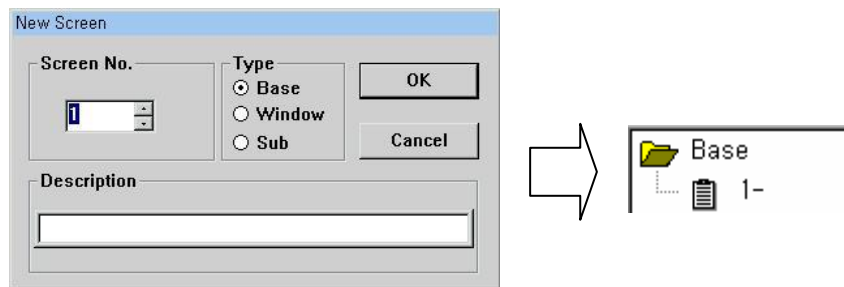
Or

- Click right mouse button on 'Base' screen icon or Base screen description on Project Window Screen, it comes to same result.

Then,

By writing screen number in dialog box and pushing 'OK', New Base Screen is activated, and icon () and screen number are created under


Base Screen folder.

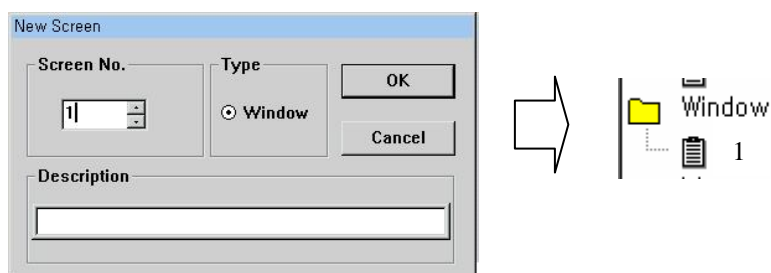


2) Window Screen

- Click 'New' on 'File' menu, and a dialog box appears.
 - Register new Window Screen by clicking 'Window' radio button
- Or
- Add new Window Screen by clicking right mouse button on Window Screen icon or Window Screen description.

Then


By writing screen number in dialog box and pushing 'OK', New Window Screen is activated, and icon () and screen number are created under Window Screen folder.

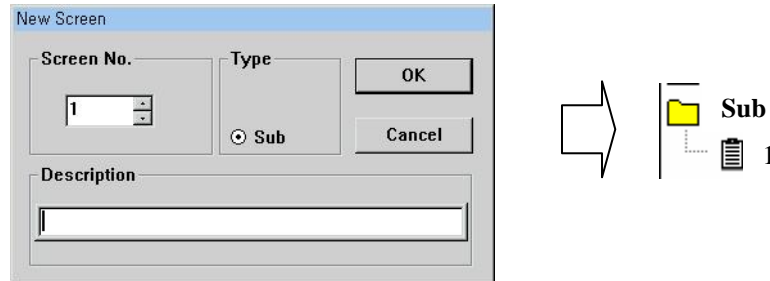


3) Sub Screen


- Click 'New' on 'File' menu, and a dialog box appears.
 - Register new Window Screen by clicking 'Sub' radio button
- Or
- Add new Sub Screen by clicking right mouse button on Sub Screen icon or Sub Screen description.

Then

By writing screen number in dialog box, New Sub Screen is activated, and icon () and screen number are created under Sub Screen folder.



Sub Screen is used in relation to animation tag for animation effect,
And is registered in Base Screen for memory saving.

 **Note** : Just diagrams or bitmap are available in Sub screen, but any tag is not available.

4) Image

- Click right mouse button on 'Image' folder or description and select 'Add' menu.

Or

- Select 'Bitmap-Add' on 'File' menu.

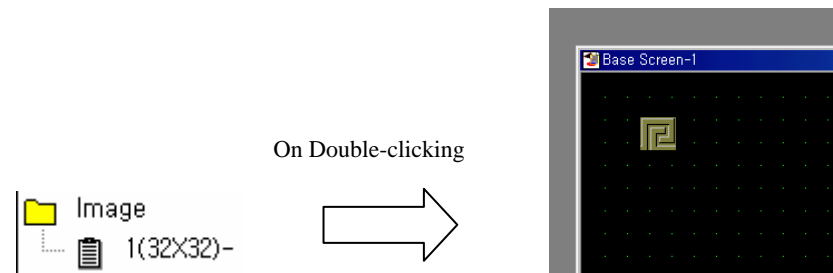
Then, New Image is created.

It is possible to create image file by editing any bitmap file in 'Paintbrush' or other bitmap editor or 'IconMaker'.

Bitmap size is limited as a multiple of 16. But A(Advanced) series model have no limitation in size.

And for A series model, 256 colors are available.

- Double-click on created Image icon, the Image is registered and appears on screen,
- Move to proper position and drop it.



5) Symbol

- Click right mouse button on 'Symbol' (folder icon) folder icon or description and select 'Add' menu.

Or

- Select 'Bitmap-Add' on 'File' menu.

Then, New Symbol is created.

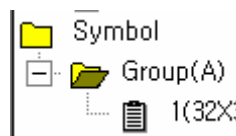
It is possible to create Symbol by editing any bitmap file in 'Paintbrush' or other bitmap editor or 'Icon Maker'.

*Bitmap size is limited as multiple of 16 and can't exceed 96*96 size.*

And only mono(black and white) is available.

Saving bitmap file, save the file as mono bitmap form.

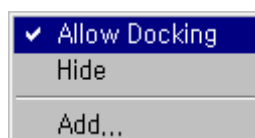
- Double-click on created Symbol icon, the Symbol appears on screen,
- Move to proper position and drop it.



6) Pop up(Context) Menu

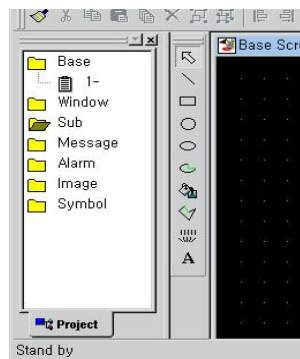
Click right mouse button on folder () or sub-item ()

It shows 'Allow Docking' & ' Hide' menu.

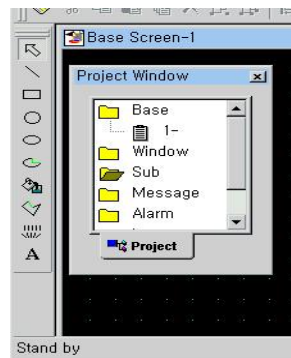


Allow Docking

- Checked : Project Window or Information Window can be attached to the main frame
- Not checked : Project Window or Information Window can not be attached to the main frame. So it allows float Project Window or Information Window.



[Docking]



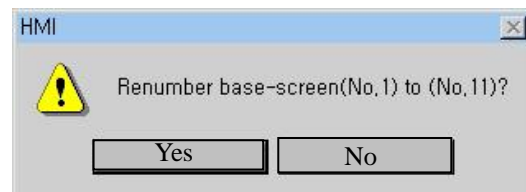
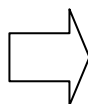
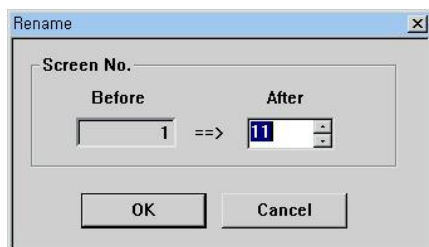
[Floating]

Hide : Hides Project Window

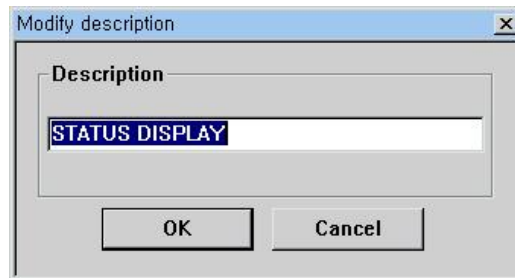
Delete : Deletes the Screen.



Renumber : Changes screen number.



Modify Description : Modifies or changes description.

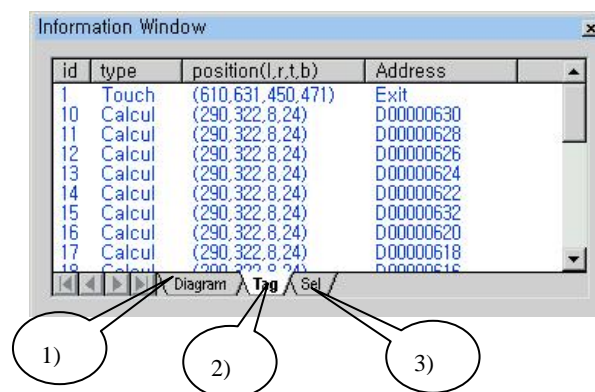


(2) Information Window

Information Window shows the list of Diagrams, Tags which are registered on the active Screen. And it is possible to select any object in Information Window. Click any object, the object's state turn into selection mode, that is, the object's edge turns white point.


Information Window consists of 3 tabs, 'Diagram', 'Tag', 'Selected'

- 1) **Diagram** : Shows created diagrams as like Images, Symbols, other diagrams on the current screen.
- 2) **Tag** : Shows created tags on the current screen.
- 3) **Selected** : Shows selected object(s) on the current screen.



. Tool Bar

Tool bars and the description ;

Tool	Description	Tool	Description
	New Project		Numeric Tag
	Delete File		Touch Tag
	Open Project		Lamp Tag
	Save Project		Clock Tag
	Print Project		Character Tag
	S/W's Information		Message Tag
	Move left 1 dot		Alarm Tag
	Move right 1 dot		Key-indication Tag
	Move up 1 dot		Bar Graph Tag
	Move down 1 dot		Trend Graph Tag
	Snap to Grid		Communication Tag
	Toggle Grid		Window Tag
	Grid Setup		Calculation Tag
	Re-draw		Symbol Tag
	Cut		ExNumeric Tag
	Copy		ExMessage Tag
	Paste		ExString Tag
	Multi Copy		Select mode
	Delete Object		Draw Line
	Group		Draw Rectangle
	Release Group		Draw Circle
	Align Left		Draw Ellipse
	Align Right		Draw Arc/Pie/Chord
	Align Top		Fill Color
	Align Bottom		Draw Poly-line/Polygon
	Bring to Front		Draw Scale
	Send to Back		Edit Text
	Find Address		Transfer Project File
	ExGraph2 Tag		X-Y chart Tag
	Find an address		Lock/Unlock


* Tool bar will increase according to addition of function.

. Menu




. . File

File menu,

- Initial-run state : When no screen is activated

 <u>N</u> ew screen	Ctrl+N
Print setup...	
M <u>e</u> ssage...	Ctrl+M
A <u>l</u> arm...	Ctrl+A
<u>B</u> itmap Load...	
L <u>o</u> gging, R <u>e</u> cipe	▶
Load Logging/Recipe/Alarm...	
Fnet setup...	
E <u>x</u> it	

- When at least one screen is already activated


 <u>N</u> ew screen...	Ctrl+N
 <u>D</u> elete screen...	
 <u>P</u> rint...	Ctrl+P
Print Setup(<u>B</u>)...	
M <u>e</u> ssage...	Ctrl+M
A <u>l</u> arm...	Ctrl+A
<u>B</u> itmap Load...	
L <u>o</u> gging, R <u>e</u> cipe	▶
Load Logging/Recipe/Alarm...	
Fnet setup...	
E <u>x</u> it	

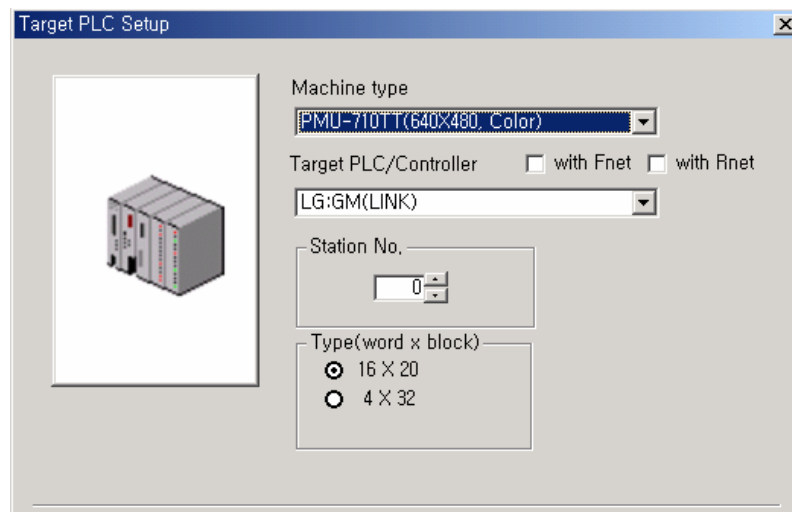
(1) New

Creates new screen - Base Screen, Window Screen , Sub Screen.

- Click 'New', then a dialog box appears,



- Click 'Next' 
- Determine the type of main unit, Controller type, Station Number, and Communication Option type of controller.



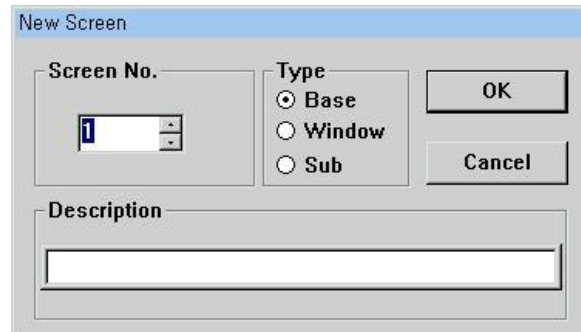
- Click 'Finish' to confirm or 'Cancel' to cancel.

[Controller Type]

- PLC TYPE: LG:GM(LINK)
- PLC TYPE: LG:Master-K [80,200,300,1000]S(LINK)
- PLC TYPE: Melsec UC24(LINK)
- PLC TYPE: Melsec C24(LINK)
- PLC TYPE: LG:GM(LOADER)
- PLC TYPE: LG:Master-K [80,200,300,1000]S(LOADER)
- PLC TYPE: LG:Master-K [10,30,60,100]S(LOADER)
- PLC TYPE: LG:Master-K [10]S1(LOADER)
- PLC TYPE: LG:Master-K [60,200]H(LOADER)
- PLC TYPE: OMRON(SYSMAC-C)
- PLC TYPE: Fuji:MICREX-F(LINK)
- PLC TYPE: Melsec M2N,M3N(LOADER)
- PLC TYPE: Melsec M2A,M3A(LOADER)
- PLC TYPE: Melsec M2U,M3U(LOADER)
- PLC TYPE: Melsec AnS,AOJ2H(LOADER)
- PLC TYPE: Melsec MOJ2(LOADER)
- PLC TYPE: Melsec QnA(LOADER)
- PLC TYPE: Melsec FX(LOADER)
- PLC TYPE: Modicon(MODBUS)
- PLC TYPE: Melsec FX(LINK)
- PLC TYPE: AB SLC500[5/30,04] (loader)
- PLC TYPE: AB PLC-5 (loader)
- PLC TYPE: Siemens S5-3964R (link)
- PLC TYPE: Siemens S7-MPI (loader)
- PLC TYPE: GE Fanuc 90-30[SNP-X, SNP] (loader)
- PLC TYPE: Yaskawa Prolog-8 (loader)
- PLC TYPE: Yaskawa MP-920
- PLC TYPE: Yaskawa CP-9200SH(CP-217)
- PLC TYPE: RTU AE5000(RTU)
- PLC TYPE: Compumotor SX Indexer/Driver
- PLC TYPE: Toshiba PROSEC-T
- PLC TYPE: Fara-N (link)
- PLC TYPE: Fara-N70/700 pro (link)
- PLC TYPE: Fara-N (loader)

- PLC TYPE: SPC (loader)
- PLC TYPE: LG Inverter
- PLC TYPE: LG PLC, Inverter
- PLC TYPE: LG Servo FCS-5000
- PLC TYPE: Compile Technology Tiny
- PLC TYPE: LG:Master-K500,1000(LINK)
- PLC TYPE: LG:Master-K[10,30,60,100]S(LINK)
- PLC TYPE: LG:Master-K10S1(LINK)
- PLC TYPE: Koyo DL-205/305/405
- PLC TYPE: SLAVE(extension)
- PLC TYPE: Delta DVP-ES
- PLC TYPE: Dupline GTI50
- PLC TYPE: SAIA PCD Series

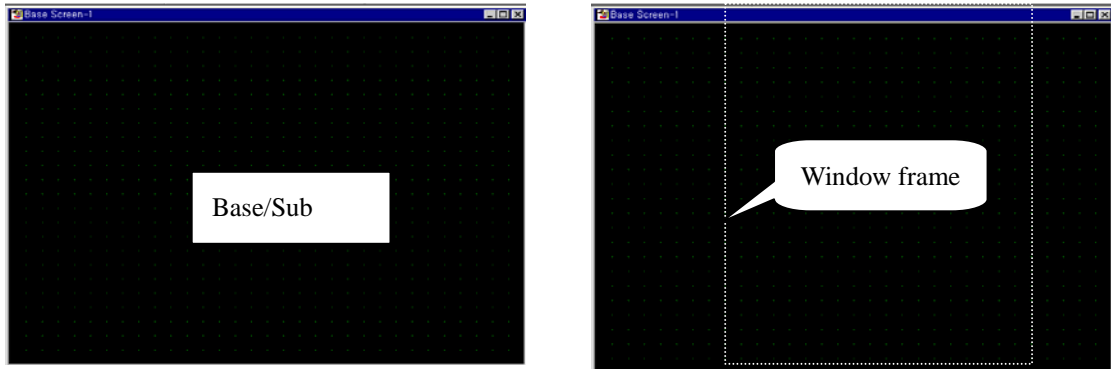
- A dialog box appears, determine 'Screen number', 'Screen type' – Base Screen, Window Screen, Sub Screen -, and write 'Description'



- If the screen number is same with already created screen, an error message appears,



- A selected screen(Base/Window/Sub) is activated.



* Base Screen :

- Creates base screen which would be main screen in Panel.

* Window Screen :

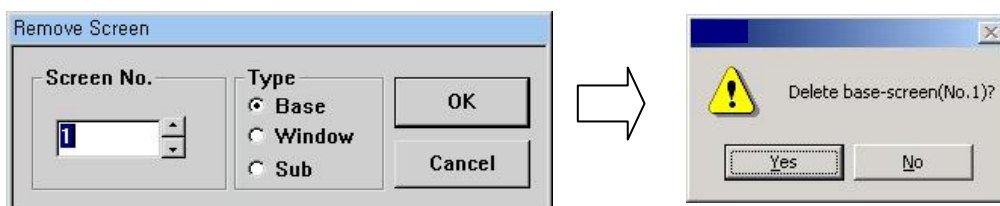
- Creates pop-up window which would be used in Panel.
- Edits screen and registers 'Window Tag' in Base screen in Panel.
- Should edit screen within white-dotted line area, which the area will be real size of pop-up window in Panel's screen. So, tags out of this white-dotted area are not available.
- Adjust the white-dotted line area at a moderate size(Or use 'Auto-sizing win frame' function).
- Window Screen is to activate pop-up some window by touching, or by certain determined condition

* Sub Screen :

- Creates pop-up screen which has diagrams or images except tags.
- Creates animation effect by displaying several Sub Screens continuously

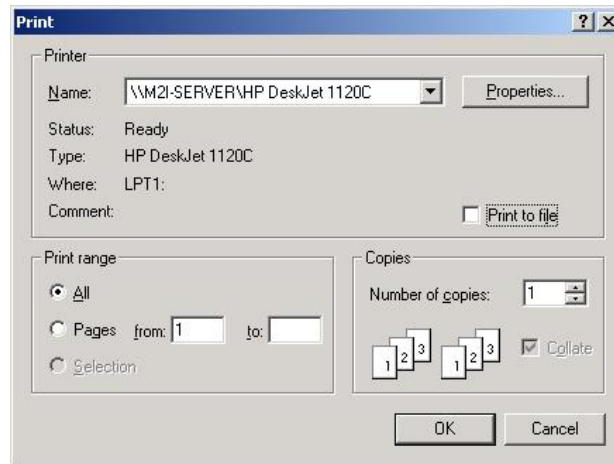
(2) Delete

Deletes 'Base / Window / Sub Screen' which is already created.



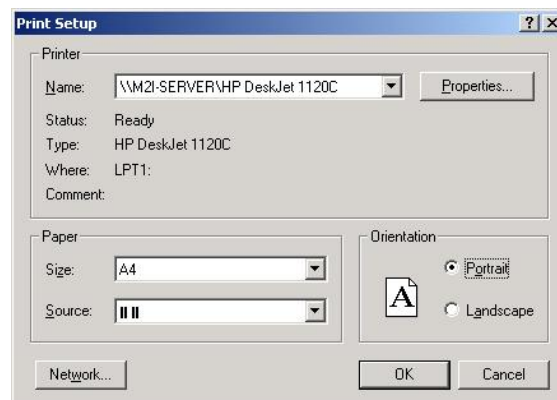
(3) Print

Prints edited screen.

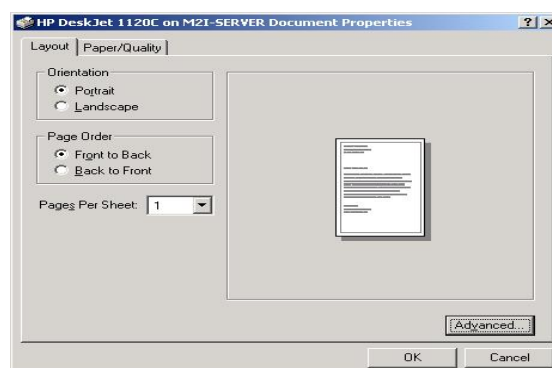


(4) Printer Setup

Sets up printer name and other factors.



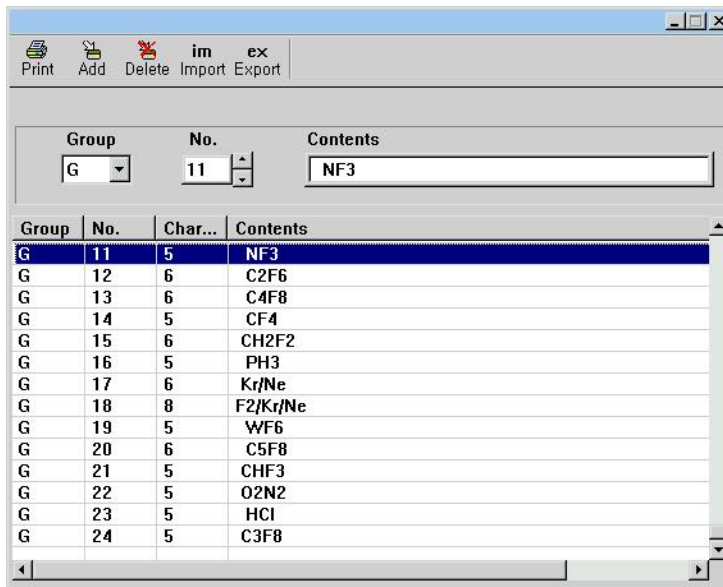
Defines print option in 'Information' tab.



(5) Message File

Edits 'Message File'.

Refer to Chapter 6, 'Creating Message File' for more detail information.

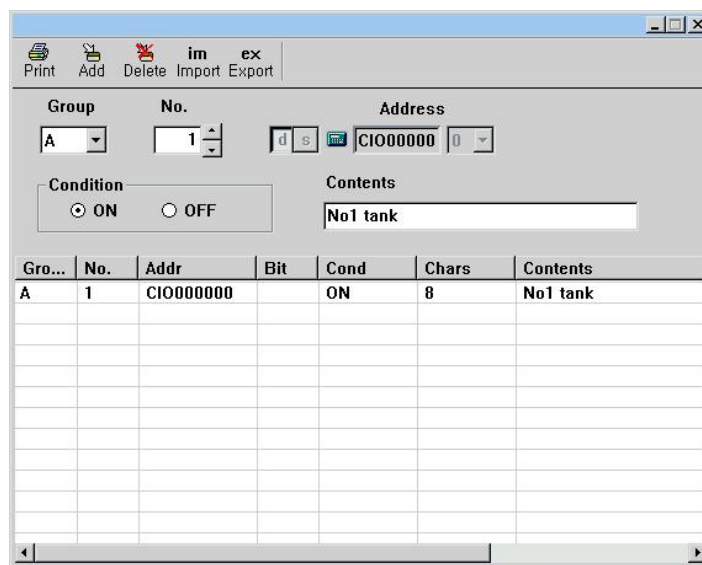


(6) Alarm File

Edits 'Alarm File'.

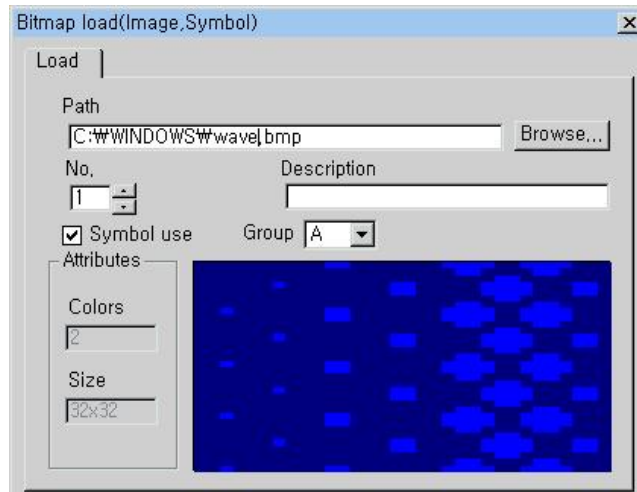
It looks same with Message File, but there is another factor, bit address, which is used on condition of occurring Alarm.

Refer to Chapter 6, 'Creating Alarm File' for more detail information.



(7) Open Bitmap

Opens bitmap file and creates Symbol or Image.
Select path and number, and click 'OK'



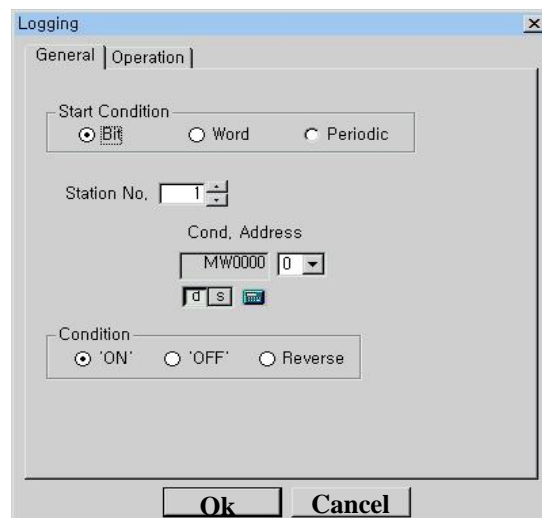
(8) Logging, Recipe

1) Logging

A function to save external controller device's data or system buffer's data inner memory(SRAM) on fixed logging condition and time interval. Individually you can use from logging1 to logging8.

It is possible to print logging data or upload them to PC.

 **Note** : Should assign memory before setup.

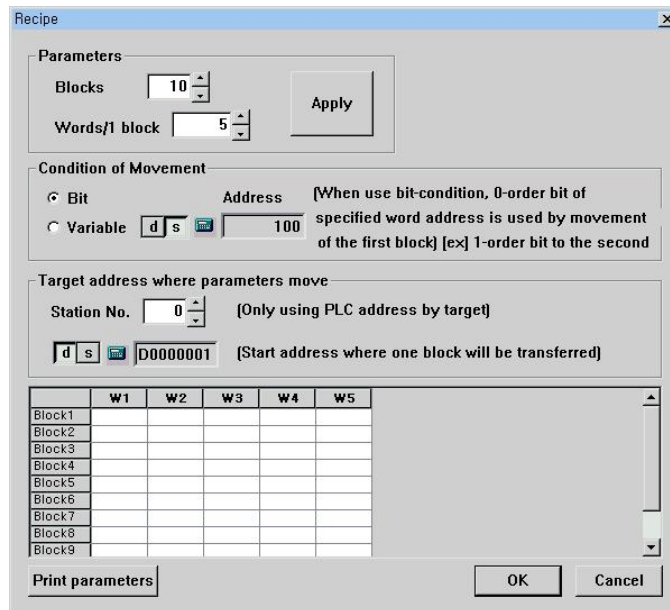


2) Recipe

A function to save parameter data in inner memory(SRAM) in order to operate controller or this panel to transmit relevant data block to working area(controller or system buffer) on fixed transmission condition .

to upload parameter data to PC

Refer to Chapter 4. for detail information about 'Logging and Recipe'.



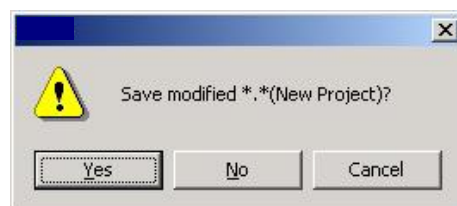
(9) Open Logging / Recipe / Alarm history

Opens Logging data file, Recipe data file or alarm history file.

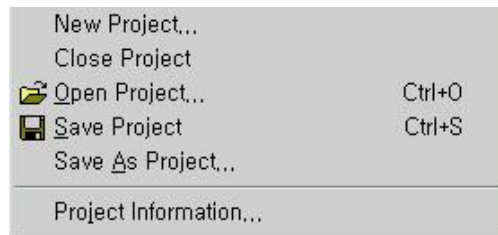
(10) Exit

Click 'Exit' to end.

Asked whether to save working project or not.



. . Project



(1) New Project

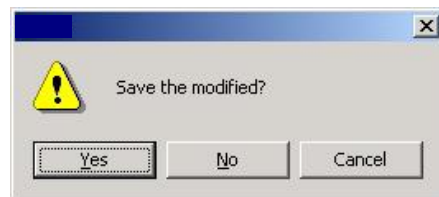
Creates new project.

To create another new project file, save current project file on editing.

Process to create New Project is same with Chapter 3.4.1 (1) 'New'

(2) Close Project

Saves and closes edited project file. Without saving project, below dialog box appears.



(3) Open Project

Opens a file which is already saved.

(4) Save Project

Saves edited current Project File

(5) Save as...

Saves Project File as different file name.

(6) Project Information

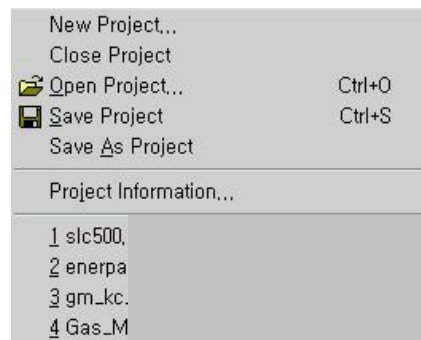
Shows the Project File's information as follows,

The screenshot shows the 'Project Information' dialog box with several callouts:

- Top Callout:** Displays the type of main unit, target PLC, redundant communication information and Station No.
- Left Callout:** Whenever times up, Automatically this project file will be saved.
- Bottom-Left Callout:** Checking this box makes screen capture toggle the color(white to black, black to white) for saving Ink of printer.
- Right Callout:** Advanced option. Default is, 'Write priority is highest' is uncheck, 'Bit write separately' is check.
- Bottom-Right Callout:** Enlargement of printing is possible among 50%, 100%, 200%.

(7) Recent opened files

Shows maximum 4 files' name and paths which are opened recently.



. . Edit



(1) Undo

Cancels operation that performed before (up to 10 times)

(2) Cut

Cuts the object-item or tag.

(3) Copy

Copies object-item or tag to clipboard.

(4) Multi Copy

Multi-copies as many as setting value.

Click multi-copy, a dialog box appears, write row and column number and interval.

* Address increases one by one automatically (For Numeric tag and Key display tag).

(5) Paste

Pastes copied object or tag from clipboard to screen.

(6) Delete

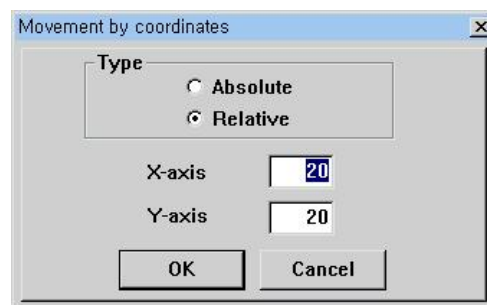
Deletes selected object or tag.

(7) Movement by Coordinates

Moves object as long as assigned X, Y axis' value.

In case of 'Absolute', datum point is (0,0) of screen.

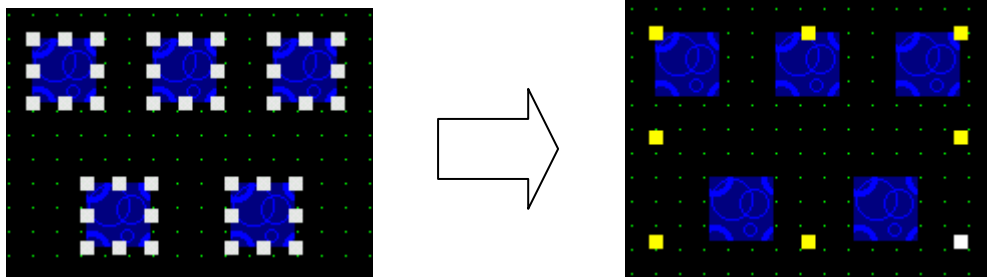
In case of 'Relative', datum point is the left-upper point of selected object.



(8) Group

Groups the selected objects or tags.

It is possible to group with some items, to group with other group, to edit any group. etc

**(9) Ungroup**

Ungroups the selected group into sub group or single objects.

(10) Edit Property

Changes selected object's color and pattern.

(11) Re-draw

Re-draws screen on editing.

(12) Select All

Selects all objects and tags on screen.

(13) Snap to Grid

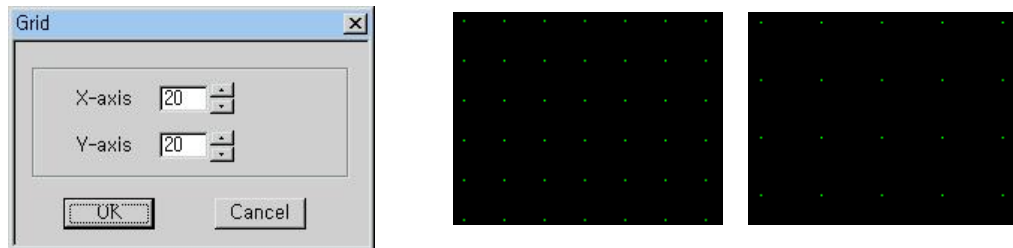
Click 'Snap to Grid' and drag the object by mouse, selected object or tag moves grid by grid. Or not, selected object or tag moves freely.



(14) Grid Setup

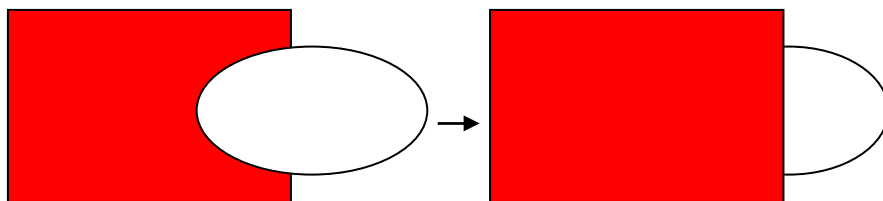
Setups grid interval along X and Y axis.

Click 'Grid Setup', and write grid interval X and Y axis'.



(15) Bring to Front

Brings one object to front of other objects.



(16) Send to Back

Sends one object to back of other objects

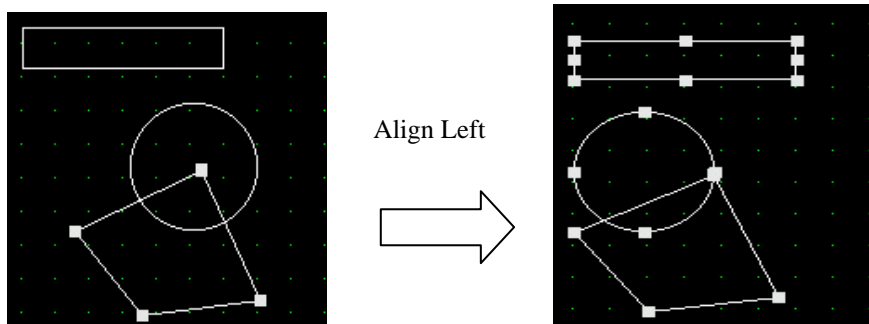
(17) Align Left, Right, Up, Down

Align Left : lines up selected objects on Left of screen

Align Right : lines up selected objects on Right of screen

Align Top : lines up selected objects on Top side of screen

Align Bottom : lines up selected objects on Bottom side of screen



(18) Auto-Sizing Window frame

When a object is diverged from Window screen, Window area size is adjusted automatically on basis of the biggest object's size.

(19) Find Address

- To find any address of external controller, write controller's address and click 'Find'
- The list shows relevant screen number and tag number having the address.
- Double click the tag number, relevant tag dialog appears.
- Click the tag number, the tag is selected.

(20) Screen Capture

- Activate any screen to capture
- Click 'Screen Capture'
- Paste on 'PaintBrush' etc

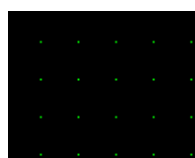
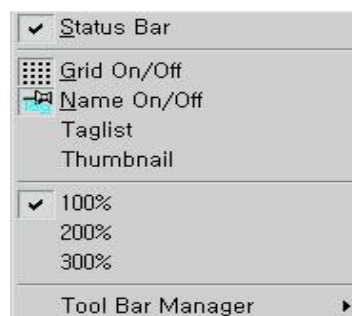
. . View

(1) Status Bar

Shows or hides Status Bar

(2) Grid On/Off

Shows or hides Grid



Checked



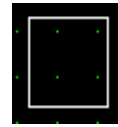
Unchecked

(3) Name On/Off

Shows or hides tag's name



Checked



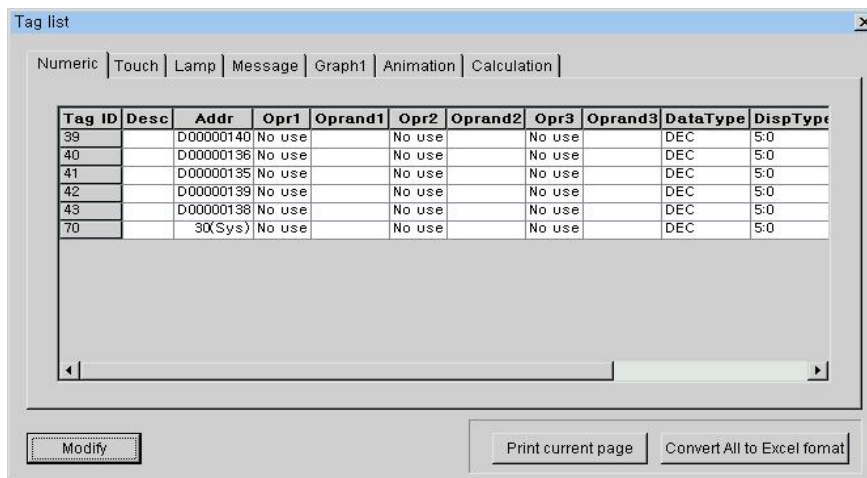
Unchecked

' Type of tag name

- 1) ID : Identical No. such like *T0002*
- 2) Addr. : Address of PLC such like *D0002*
- 3) Desc. : Comments input by user

(4) Tag List

Arranges used tags on current screen in such a way that it is easy to choose and modify any tag.

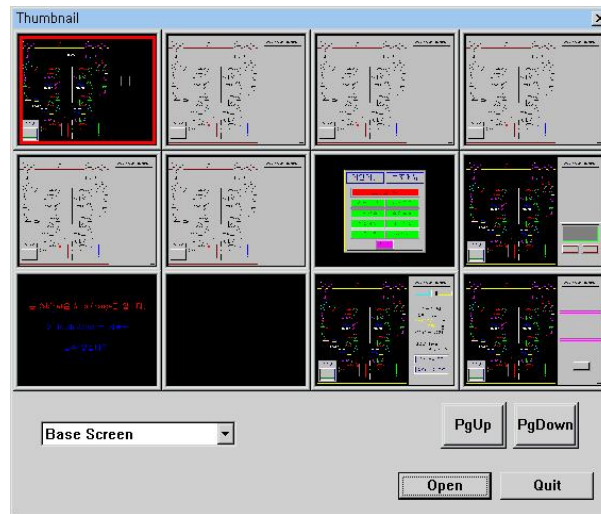


- Modify : Modifies selected tag by clicking a row and edits properties on dialog box.
- Convert into Excel : Converts all of tag list into Excel file format

(5) Thumbnail

Shows all screens simply on one screen.

Select one screen and click 'Open', the screen is activated.



(6) Screen Zoom (100%, 200%, 300%)

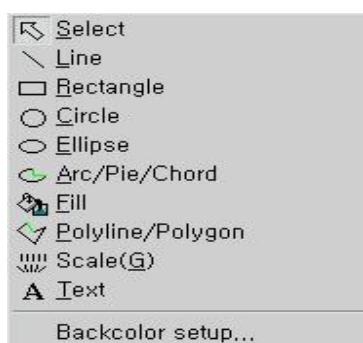
Magnifies screen 100%, 200%, 300%.

(7) Toolbar Manager

Toolbar : Select any Toolbar to show or hide.

Extended : Enables to change Toolbar's style

. . Draw



Draws lines or diagrams.

It is easier to use toolbars.

Refer to Chapter 5. ' Drawing'

. . **Tag**

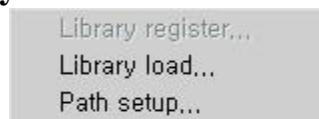


Selects tags and edits screen by use of tags to communicate with controller.

It is easier to use toolbar.

Refer to Chapter 7. 'Tag'

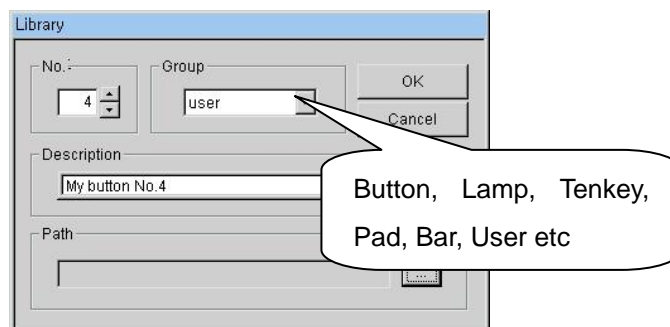
. . **Library**



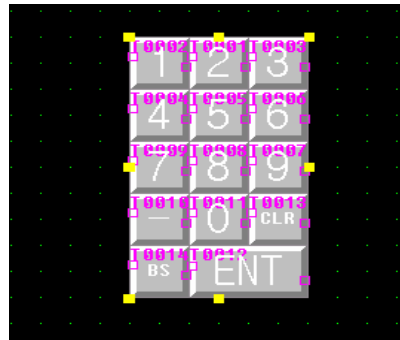
(1) Register Library

Registers any grouped objects -Tags, Diagrams – as a library.

- Group selected objects
- Click 'Register Library' menu
- Write 'Library Number', 'Group Name', 'Description' and 'Path'.



- Click 'OK'



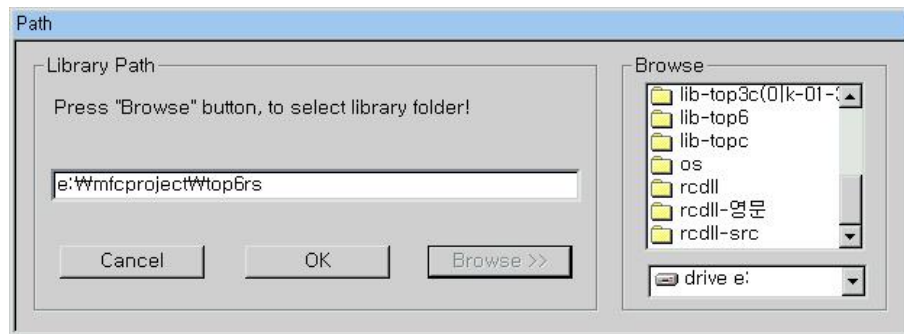
(2) Open Library

Opens registered Library.

- Click 'Open Library' menu. Library table appears.
- Select 'Type' of Library, each type's libraries are listed.
- Choose one of them to load on screen.
 - Double click on any library
 - or click 'Load'
- Then, the selected library is registered on screen
- To delete any library, select one and click 'Delete'
- To view real size on screen, click 'Real View'
- PgUp/PgDown : Moves to previous page or to next page
- View All :
 - Click right mouse button on any library.
 - Click 'View All'
 - It shows full shape of selected library

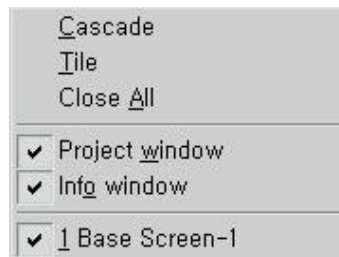


(3) Path



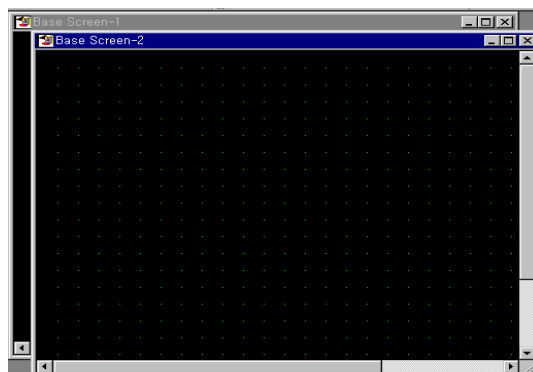
Searches any library folder directly

. . Window



(1) Cascade

Rearranges opened windows in a cascade style.



(2) Tile

Rearranges opened windows in a tile style.

**(3) Close all**

Closes all opened windows.

(4) Project Window

Shows or hides 'Project Window'

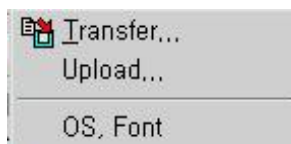
(5) Information Window

Shows or hides 'Information Window'

(6) Current opened screens

Lists screens which are opened currently.

. . Transmission

**(1) Transfer**

Transfers programmed project file in PC to panel.

After saving the project, 'Transfer' menu is available.

Transmission of screens, logging, parameters, alarms, upload information etc together to panel(main body).

Refer to Chapter 9, 'Download & Upload'

(2) O/S, Font Transmit

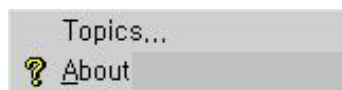
Transfers O/S, Font from PC to panel(main body).

. . **Simulation**

By use of PC, simulates external device's operation after transmission project file to main unit.

Refer to Chapter 8, 'Simulation' for detail information.

. . **Help**

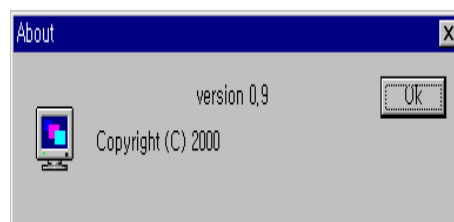


(1) Topics

Shows detail description about directions of S/W.

(2) About ...

Shows information of S/W– Version and etc –

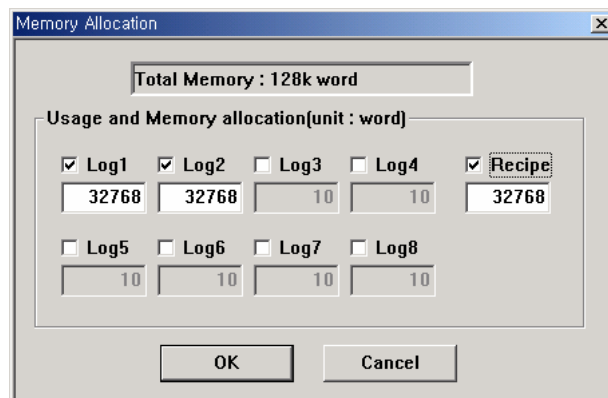


Chapter . Logging & Recipe

. Memory Assignment

Before setting Logging and Recipe, assign memory,

Determine what to use among 'logging 1', 'logging2', ... 'logging8' and 'recipe'
Assign Memory for each items.



Without assignment memory, next error message appears,



. Logging

'Logging' is to save external device's data or inner data of main body semi-permanently in SRAM at regular time-interval or event.

At the same time, logging time(YY/MM/DD/hh/mm) is also saved.

Logged data can be uploaded to PC anytime.

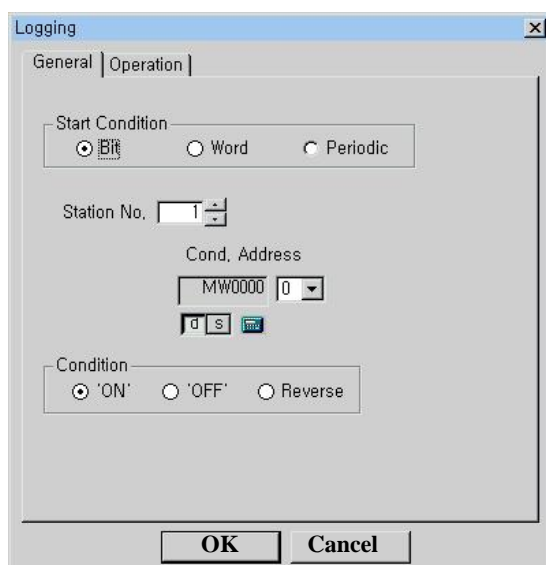
Logged data is preserved unless user downloads new project file, or O.S data.

On the condition that panel(Main body)'s power is off over 1 days, to preserve the logged data, there should be backup battery. When power is off over 1days without

backup battery, logged data and special buffer related to logging may be deleted.

. Logging Conditions

After assignment memory, select 'Logging 1'



. . General

(1) Bit (condition)

- 1) On : As device's address changes from 'off' to 'On' , it starts logging.
- 2) Off : As address changes from 'on' to 'Off' , it starts logging.
- 3) Reverse : As address value reverse – 'from On to Off' or 'from Off to On', it starts logging.

(2) Word (condition)

Starts logging when device's value is within determined range.

If address value is out of the range and back to the range, it restarts logging.

If both range is same(namely Min. and Max. is same value), the only equivalent condition makes starting of logging.

(3) Time (condition)

Starts logging on every setting day/time (hour/minute)

. . Operation

(1) **Logging Interval** : Determine logging time interval.

(2) **Logging Times** : Determine number of times of logging

For example, to log from 8:00 in the morning with 1hour interval till 17:00 of the same day,

Logging interval is '0 Day 1 Hour 0 Minute' and Logging times is '10'.



Caution : On time condition, please set 'Logging Times' as more than 2.

(3) **Logging Target** : Determine external device's station number, address or inner system buffer, and word number to be logged at one time

(4) **Total Logging Times** : Determine total number of logging.

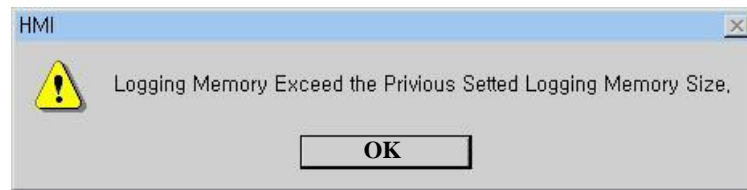
Total Logging Times is multiple of 'Logging Times'.

Total logging memory is not permitted to exceed assigned memory volume of Chap. 4.1

Total Logging memory = (Total Logging Times+1) X (Word Number+4)

['4' is to save logging time and '1' is for inner usage]

As total logging memory exceed assigned memory, next error message appears,



(5) Display the latest at top

- Checked : The last logged data is displayed on the top line.
- Not Checked : The last logged data is displayed on the bottom line

■ Note 1 : Power Failure

When power failure occurs under logging...

Logging 10 times from 8:00 AM everyday with 1 hour period, the power is off at 10:15 and then power is on again at 10:45.

: It logs at 8:00, 9:00, 10:00, 11:00,,17:00 normally. Because logging isn't occurred during power off, from 10:15 to 10:45.

The next day, the power is off from 11:45 to 12:15

: It logs at 8:00, 9:00, 10:00, 11:00, 13:00,,17:00, skipping 12:00.

Because power is off at 12:00. So, it logs 9 times, and the last logging is 'Null'. [* 'Null' data has no logging time.]

The third day, the power is on at 7:30, and off from 15:30 till next morning 7:00

: 8 loggings occur, the last two loggings are 'Null'.

Because it logs at 8:00, 9:00,,15:00.

The fourth day, the power restarts at 8:30, this day has no logging.

Because power is off at start time. That is, when power is off at the time of start condition, it is impossible to check start condition.

Note 2 : Special Buffer connected with data logging

** _LOGED_ONE_1 : Logging #1, ... , _LOGED_ONE_8 : Logging #8

_LOGED_ONE_1 (one logging completed)

: As Logging #1 completes logging one time, buffer's value becomes '1'

_LOGED_ALL_1 (All logging completed)

: As Logging #1 completes all of loggings, buffer's value becomes '1'

_LOGED_CUR_BL_1 (Current Logged block number)

: Shows current logged block number of Logging #1

_LOGED_ALL_CLR_1 (Clear all logged data)

: If buffer's value is not '0', it clears all logged data of Logging #1 and restarts logging. After clears logged data, Firmware changes this special buffer's value to '0'

Logging #1 and Logging #2 ... Logging #8 *operate independently each other*,
It means they *do not affect each other*.

Examples of Logging

(1) Example 1 : On 'Bit' condition

Let's log 20words from MW0010, 10 times, total 100 times, with 1hour interval.

And displays the last logging data on the first line

1) Assign Memory for logging 1 : 32768words

Should be minimum $(100+1)*(20+4) = 2424$ words or higher.

Usage and Memory allocation(unit : word)				
<input checked="" type="checkbox"/> Log1	<input checked="" type="checkbox"/> Log2	<input type="checkbox"/> Log3	<input type="checkbox"/> Log4	<input type="checkbox"/> Recipe
32768	32768	10	10	32768
<input type="checkbox"/> Log5	<input type="checkbox"/> Log6	<input type="checkbox"/> Log7	<input type="checkbox"/> Log8	
10	10	10	10	

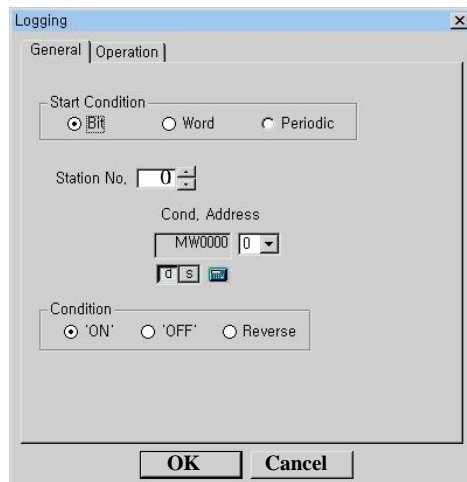
2) General

Start Condition : Bit

Station Number : 0

Address : MW0000's 0 bit(LSB : least significant bit)

Logging Condition : 'On' trigger



3) Operation

Logging Interval : 0 Day 1 Hour 0 Minute

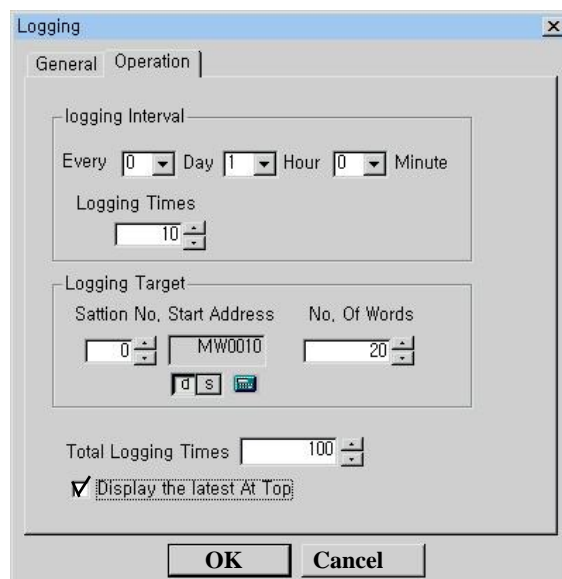
Logging Times : 10

Logging Target : Station Number 0's MW0010

Word Number : 20

Total Logging Times : 100 times

Display the latest at top : Checked



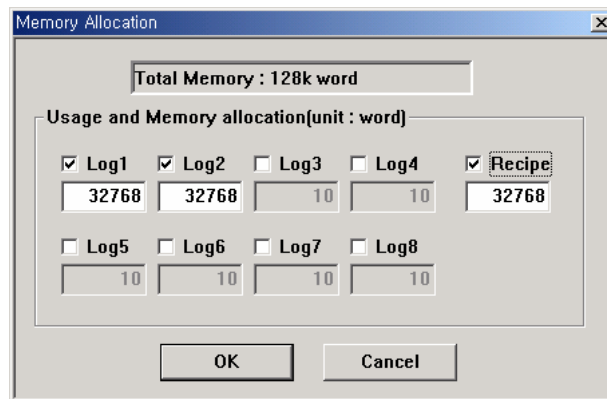
(2) Example 2 : On 'Time' condition

Let's log 20words from MW0010 of '0' station, 8 times from 8:00 AM everyday with 60 minutes period for 30days totally.

And display logging data in logged order.

1) Assign Memory for logging 2 : 32768 words

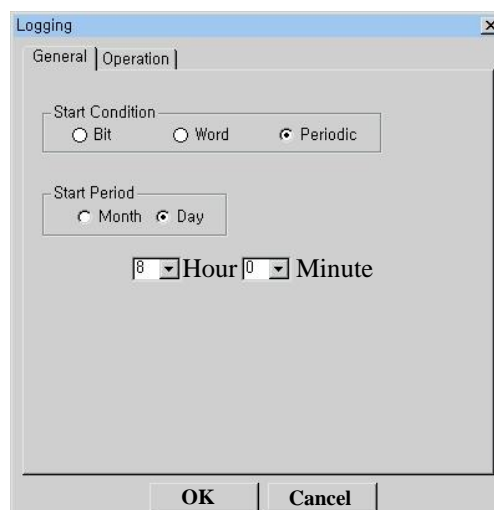
Should be minimum $(240+1)*(20+4)=5784$ words or higher.



2) General

Start Condition : Time

Start Period : Month, 0 Day / 8 Hour / 0 Minute



3) Operation

Logging Interval : 0 Day 1 Hour 0 Minute

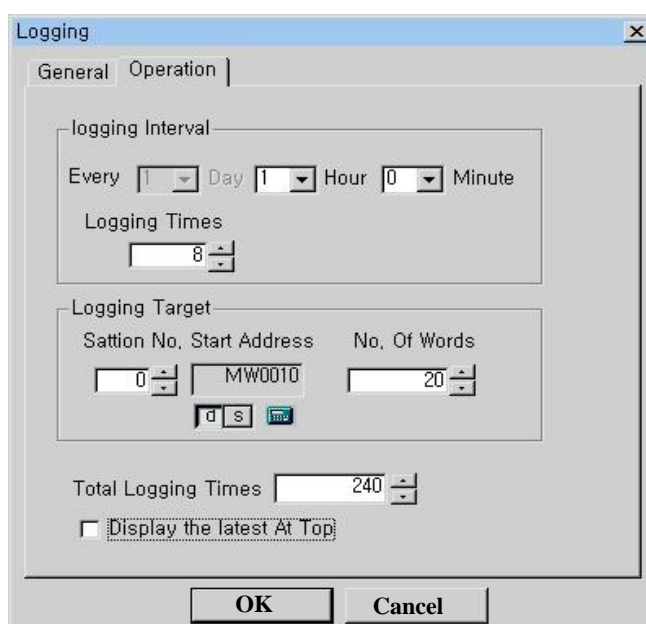
Logging Times : 8

Logging Target : Station Number 0's MW10

Word Number : 20

Total Logging Times : 240

Display the latest at top : Not Checked



. Recipe

Recipe is

saving parameter data, which panel or external device need, in panel(main body).
transmitting data block to working area(controller's address or inner system
buffer) on determined condition.

It is possible to upload data to PC or to print into printer.

panel uses parameters in SRAM.

Parameter data in SRAM are preserved unless modifying parameters, downloading
new project file or O.S.

On the condition that power is off over 1 days, to preserve the logged data, there

should be backup battery. When power is off over 1 days without backup battery, logged data and related special buffer may be deleted.

Likewise with logging, total word number is not permitted to exceed 'Assign memory'

Total Word Number = Word Number * Block number

As total memory exceed assigned memory, an error message appears.

Parameters

Blocks: 10
Words/1 block: 5
Apply

Condition of Movement

Bit Address: [When use bit-condition, 0-order bit of specified word address is used by movement of the first block] [ex] 1-order bit to the second
 Variable d s W000000

Target address where parameters move

Station No.: 0 (Only using PLC address by target)
d s W000000 (Start address where one block will be transferred)

	W0	W1	W2	W3	W4
Block1					
Block2					
Block3					
Block4					
Block5					
Block6					
Block7					
Block8					
Block9					

Print parameters Open parameter that was uploaded OK Cancel

. . Parameter

- (1) Block : Write block number
- (2) Words / 1 block : Write word number per 1 block
- (3) Click 'Apply', blocks and words are formed as many as determined numbers.

. . Transmission Condition

(1) Bit

From '0' bit of selected word (only word addr. possible) address, parameter transmission condition bit and block number make a one-to-one correspondence. As bit value changes from '0' to '1', the corresponding block's data are transmitted to working area. For example, bit '0' is changed from '0' to '1', block #1's data are transmitted to working area. *As same manner, bit '1' is triggered from '0' to '1', block #2's data are moved to working area.*



Caution :

In case that block number is not 16's multiple, should pay attention.
For example, if block number is 10, bit '10' ~ '15' are not used (0~9bit used).
But, *never use address bit, '10' ~ '15'.*

(2) Variable

The value of selected word address becomes block's number directly.
If the value of address is '5', block #5's data are transmitted to working area.
And if the value of address is '0' or exceed 'total block number', the value is ignored. For example, when total block number is 10, if address value is '0' or '11' or '23' etc, no block data are transmitted.

(3) Target Address

Determine station number and working area address which parameter data are transmitted to.

(4) Table : Column is **word** and row is **block**.

(5) Print parameters : Prints current parameter table.

(6) Open parameter that was uploaded : After uploading recipe (parameter move), parameter file (*.RCP) is created. This function make that file (*.RCP) opened in order to use pre-described parameter.

Note : Special Buffer connected with parameter transmission(Recipe)

_PARAM_DEFAULT-LD (parameter default load)

: If value is not '0', parameter table in flash memory is loaded to SRAM memory.

After completion of loading, clears buffer to '0'.

It is useful to initialize parameters that was described in S/W. Because '_PARAM_RESTORE' or '_PARAM_SAVE' is able to change the value of parameter in SRAM.

_PARAM_RESTORE (parameter restore)

: If value is not '0', current values of working area are restored in memory(SRAM) just before new parameter is loaded to the working area. This special buffer is used to save and reuse current parameter data later. That is, when the parameter in working area is more useful than that of SRAM, it is useful.

This buffer is not cleared automatically. Then if value is not '0', restoration proceeds until value of this buffer goes to '0'.

_PARAM_CUR_BLOCK (current block number) – *Read Only*

: This special buffer always has current block number on working.

_PARAM_SAVE (parameter default load) :

: If value is not '0', current values of working area are restored in memory(SRAM) just before new parameter is loaded to the working area.

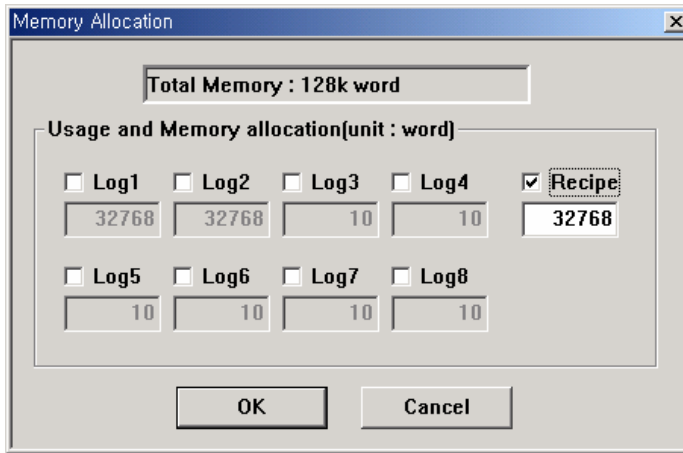
This special buffer is used to save and reuse current parameter data later. After one restoration, clears buffer to '0' automatically.

. Example of Recipe

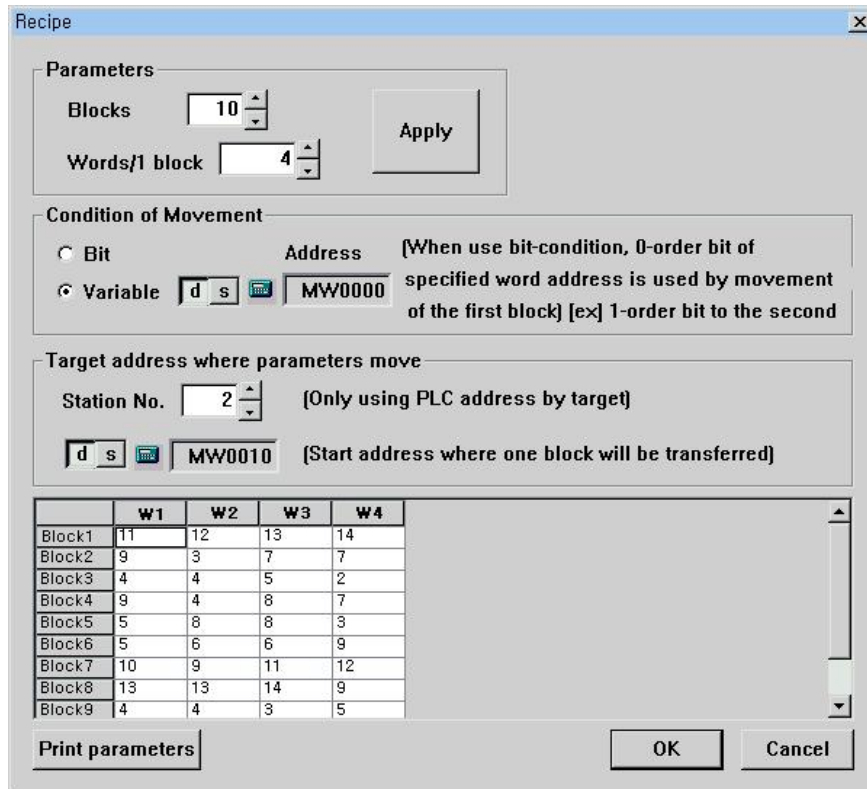
To set 'Recipe',

- Assign memory sufficiently
- Set parameter table as 10 blocks and 4 words
- Set transmission condition as 'Variable' with 'MW0' condition address
- Set working area address on device as 'MW0010' of station number '2'
- Write parameter data

Total word = 10*4



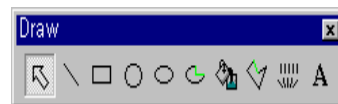
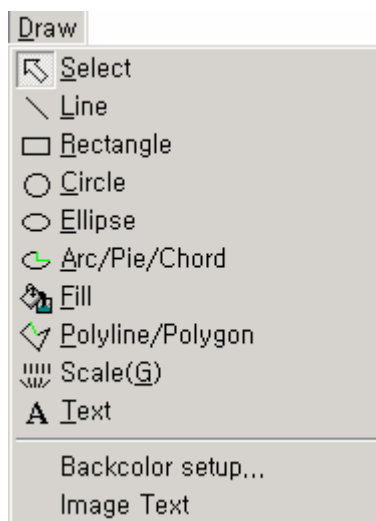
- Block Number : 10
- Word / 1 block : 4
- Transmission Condition : Variable
- Transmission Condition Address : MW0
- Target address : station 2, MW10
- Parameter table : as follows



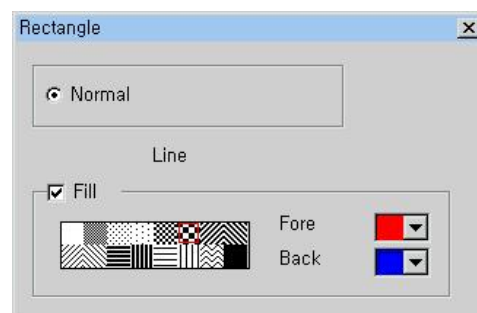
Chapter . Drawing

We serves Modales dialog box, which make it possible to change each diagram's property.

. Creation of diagrams




- (1) Select a diagram on 'Draw' menu or on tool bar.
- (2) Property dialog box appears, edits properties.



- (3) Draw diagrams. Click left mouse button on start point, moves to the other point and click left mouse button again to finish.
- (4) To cancel drawing on the way to drawing, click right mouse button or press ESC key.

. Edit

(1) Select and Cancel

Click selection icon() on tool bar or click right mouse button on empty room of screen.

Click left mouse button on the frame of object-diagram.

With rubber band appearing, it is selected.

To select several diagrams at the same time, drag mouse track as rectangle across area including object-diagrams.

Dragging mouse from left to right, it enables diagrams inside of dragged area to be selected.

Dragging mouse from right to left, even a little touched diagrams are selected.

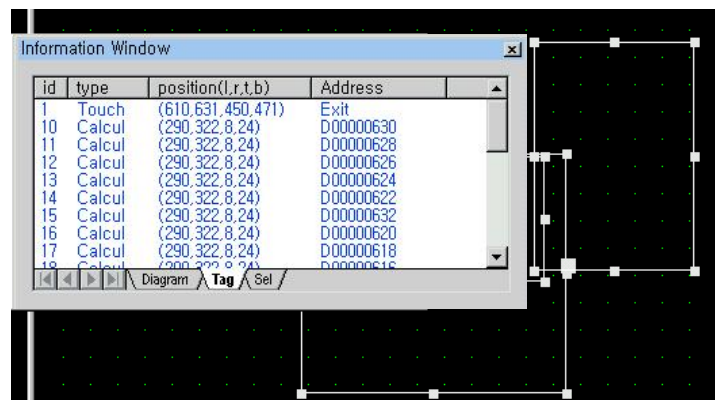
To cancel selection, click left mouse button on unoccupied(empty) screen area.

On information window, selection is available, too. Select object-diagram on information window.

Double click object-diagram on information window, and property dialog box appears.

On selection tab, it is possible to see selected diagram or tag. Double click object-diagram, property dialog box appears.

'Ctrl + A' or clicking 'Select All' on Edit menu make it possible to select all diagrams and tags on screen.



(2) Modify

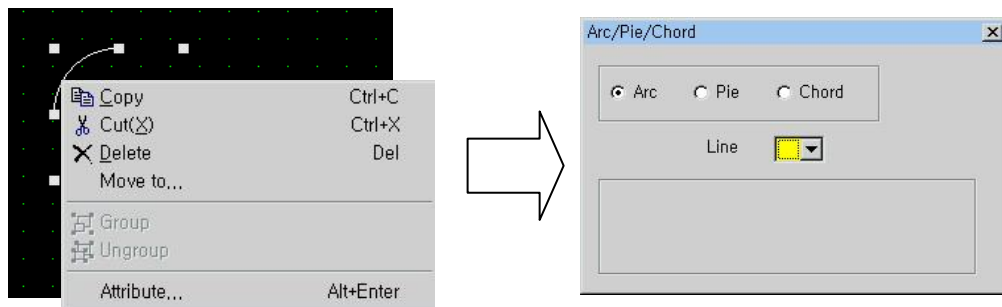
Select diagram by clicking left mouse button and click 'Attribute' on Edit menu

Or, double click left mouse button on object-diagram

Or, click right mouse button on object-diagram and select 'Attribute' menu.

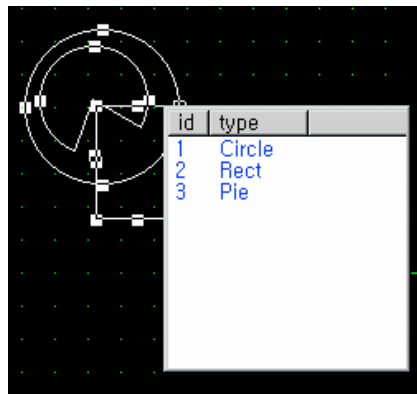
Or, double click left mouse button on information window

Modify properties on property dialogs.



To modify properties of group or plural diagrams, double-click left mouse button, 'Modification list' appears. Double click object diagram and dialog box appears, modify properties.

Without ungrouping, it is possible to modify properties of any diagram of the group



(3) Move

Select object by clicking left mouse and drag mouse to move to other area.

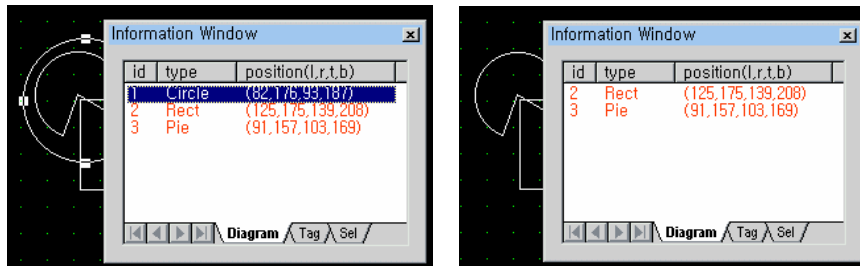
To move dot by dot, click one of , or after moving diagram adjust minutely by 'up, down, left, right' *keys of keyboard*.

(4) Delete

Click left mouse button on object-diagram and press 'Delete' key of keyboard or Select 'Delete' on Edit menu

Or click right mouse button on the diagram and run 'Delete' of sub menu.

Or, on information window, select diagram and press 'Delete' key



(5) Copy (Ctrl + C)

Click left mouse button on object diagram and run 'Copy' of Edit menu

Or click right mouse button on object-diagram, and run 'Copy' of sub menu.

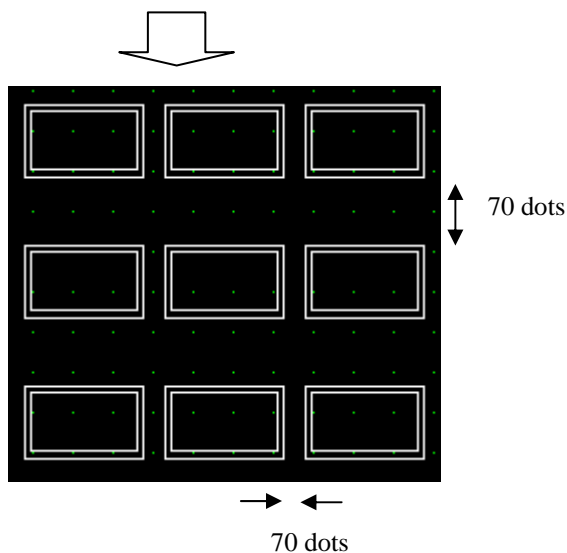
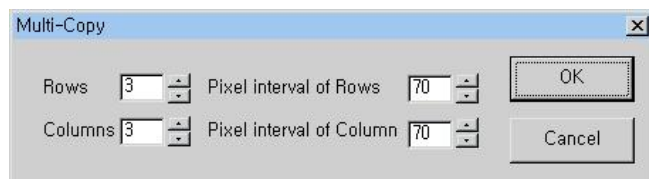
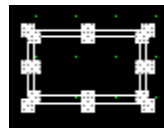
Or click left mouse button on object diagram and press 'Ctrl+C'

(6) Multi copy

Select diagram and run 'Multi copy' of Edit menu

Write number and interval of column and row.

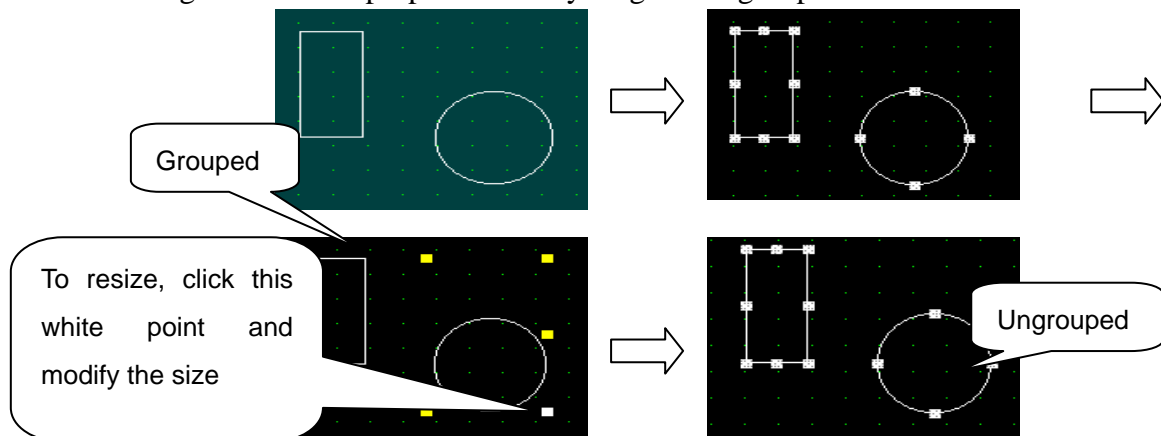
Click 'OK'



** The address increases automatically after multi-copying in Numeric tag and KeyDisplay tag.*

(7) Group and Ungroup

- It is possible to form group 1) group with group 2)groups with group 3)groups with groups 4) group with a diagram 5) group with diagrams 6) diagram(s) with diagram(s).
- Select diagram(s) or group(s) to form group. And click right mouse button and run 'Group'
- To release group, run 'Ungroup'
- Editing functions or properties of any diagram of group is available.

**(8) Paste (Ctrl + V)**

- Run 'Paste' of Edit menu
- Or press 'Ctrl+V'

(9) Cut (Ctrl + X)

- Click left mouse button on object-diagram, it is selected
- Click right mouse button, sub menu appears
- Run 'Cut' of sub menu, or run 'Cut' of Edit menu

(10) Resize Object

- Select object-diagram
- Move mouse to white rectangle point of the selected diagram
- Arrow cursor appears
- Drag the arrow cursor to any direction, the diagram is magnified or reduced
- Or, Have cursor moved to tracker. Then without mouse action, you can use arrow key of keyboard in order to resize.
- To resize Group, drag bottom-right's white rectangle of object-group to other points.

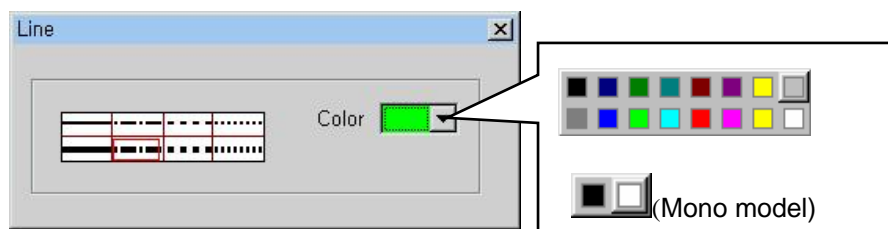
. Diagrams

Select diagram on tool bar or main menu, and edit properties on dialog box.
And draw on screen.

. . Line

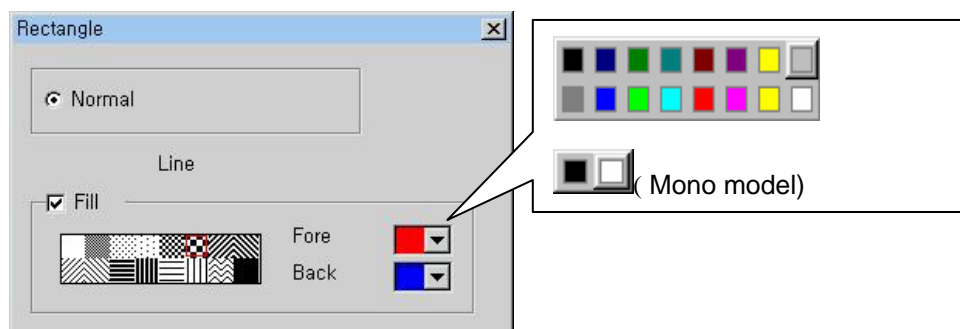
Click left mouse button on start point and drag to another point.
Click left mouse button again to finish.

To draw exact *vertical line or horizontal* line or,
to resize line with *same slope* of the object line,
drag mouse with pressing 'Shift' button



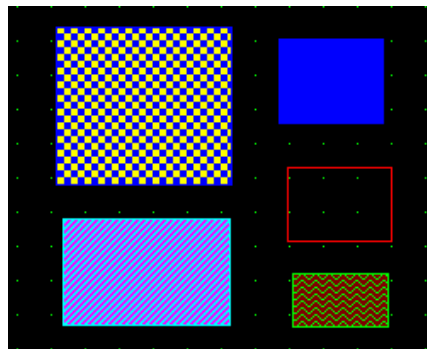
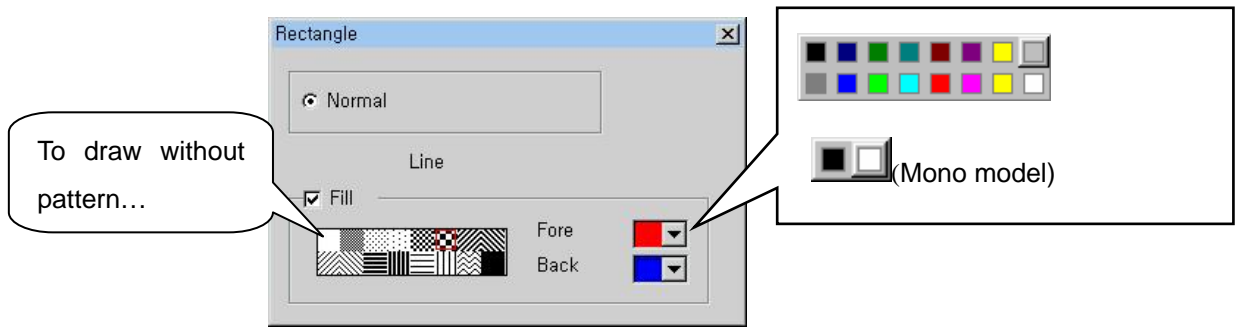
. . Rectangle

It is same process with 'Line'.



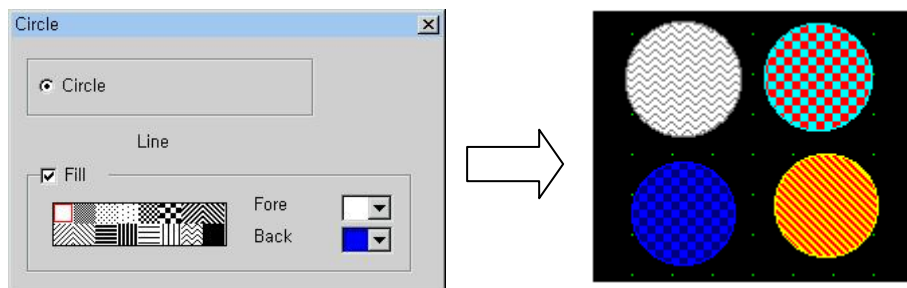
- 1) Line(Frame) Color : Choose frame's color. In this case, 'Fill' color function is not allowed.
- 2) Fill : Fills color inside of rectangle and selects patterns. To fill with just color without any pattern, select white filling color.

- 3) Front Color : Selects front color
- 4) Background Color : Select background color
- 5) By pattern assembly, it is possible to draw various diagrams.



... **Circle** 

It is same process with Rectangle



. . **Ellipse** 

It is same with Rectangle.

. . **Pie / Arc / Chord** 

PMU 30 Series do not support this diagram

Pie : Draws Pie

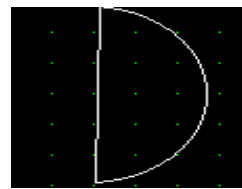
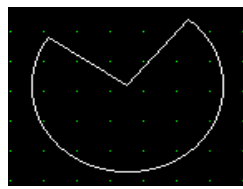
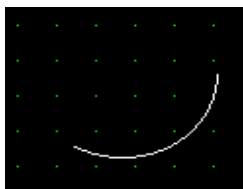
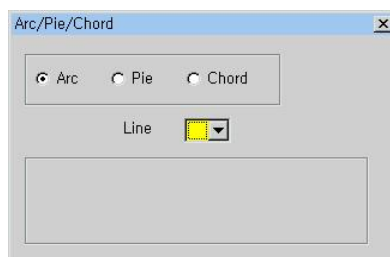
Arc : Draws Arc

Chord : Draws Chord

Click left mouse button on any point of screen and move mouse to other point till scale of circle is satisfied.

Click left mouse button on one point of circle and move mouse clockwise or counterclockwise along the circle, then click left mouse button once more on the end point.

- Clockwise : Move mouse along the circle clockwise and click left mouse button again, it erase the mouse's track.
- Counterclockwise : Move mouse along the circle counterclockwise and click left mouse button again, it erase other part of circle except the mouse's track.



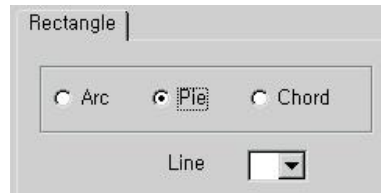
It is easy to changeover by modifying properties.

Example of changeover from Arc to Pie,

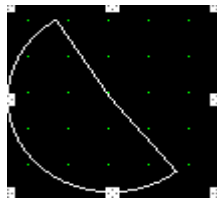
Draws Arc

Double-Click left mouse button on the arc.

Select 'Pie' radio button, and press "OK".



Arc is changed to Pie



. . **Fill Color** 

Fills color inside of closed area.

Filling color is available on conditions that

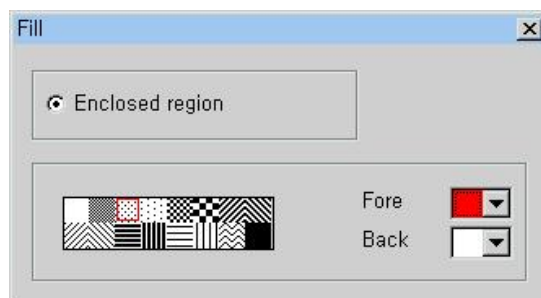
the area to fill color should be closed area,

background of the area to fill color should be black,

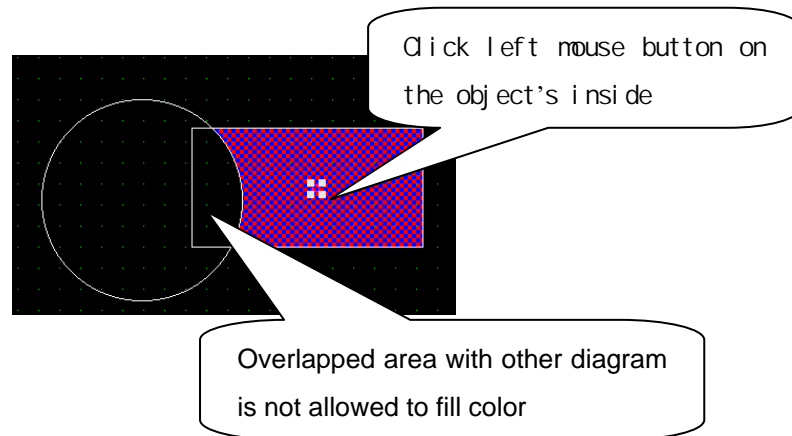
[PMU 30 Series can fill every region regardless of the color of background.]

In addition, it is possible to fill in bitmap(image diagram)]

the area should have no pattern.



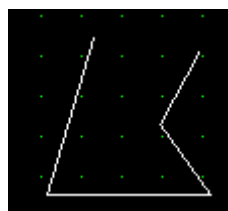
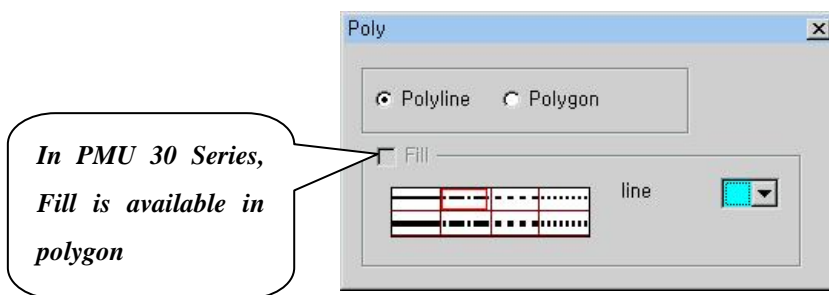
After modifying properties, click left mouse button on the inside of closed area.
 By assembly of color and pattern, it is possible to draw various diagrams.



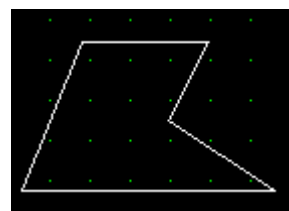
. . . **Polygon** 

Draws Poly line or Polygon.

After modifying properties on dialog box,
 Click left mouse button on screen and move mouse to other position.
 One-click left mouse button to change direction and repeat again.
 To finish drawing, double-click left mouse button or click right mouse button



< Poly Line >

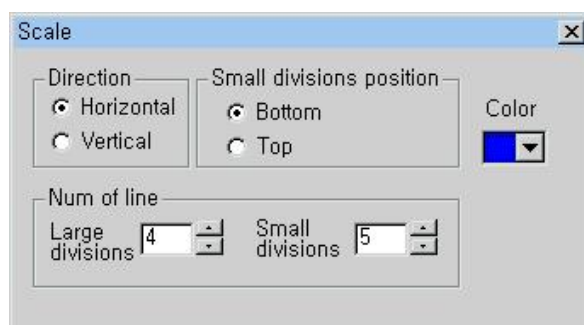


< Polygon >

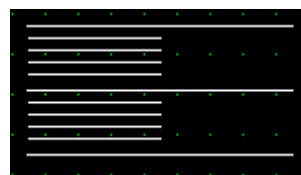
. . . Scale

Run 'Scale' on 'Draw' menu or click scale tool bar

Modify properties on dialog box



- Direction : Determine direction to draw scale. Horizontal or Vertical.
- Small Divisions position : Determine small divisions' position.
In case that direction is 'Horizontal', small division can be located on upside or downside of the main-division.
In case that direction is 'Vertical', small division can be located on right or on left of the main-division.



- Number of Division : Determine number of main-division and small division.
- Line Color : Determine scale's color

Click left mouse button on screen and move to other position.

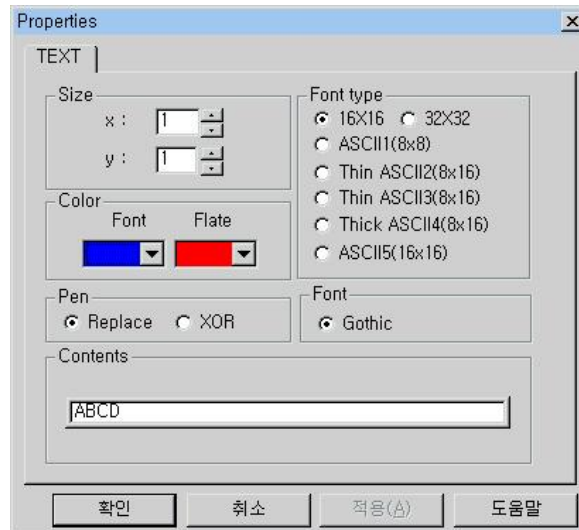
Click left mouse button again to finish drawing scale.

. . Text

Writes text.

Run 'Text' on 'Draw' menu or click text icon

Modify properties on dialog box

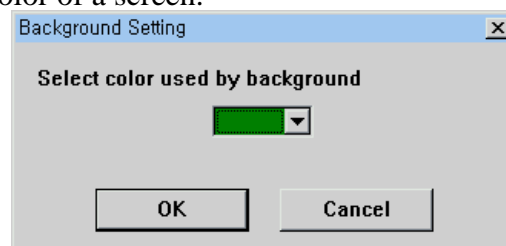


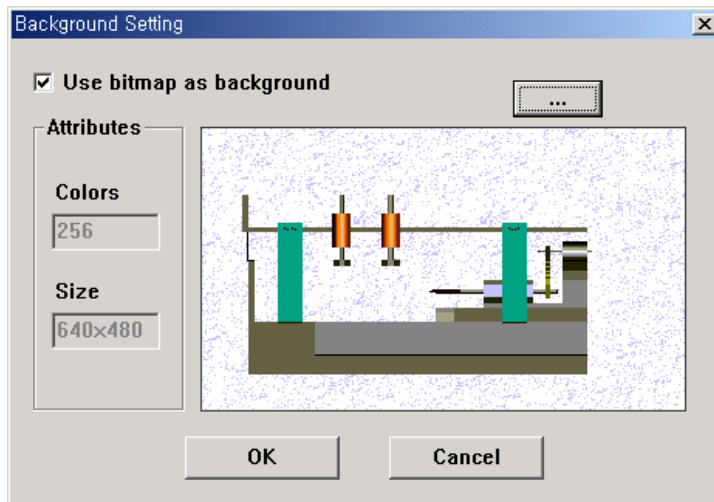
- Size : Select text's size. Maximum 8 times size available.
- Color : Select color of text and background
- Pen
 - Replace : Shows text as determined color itself.
 - XOR : Operates XOR calculation with background color
- Font Type : Determine base font type
- Font : Gothic is default. Another styles would be added later
- Contents : Writes text.

. . Backcolor setup

Select the background color of a screen.

Default is Black.





[In PMU 30 Series, Bitmap usage for background is possible]

. . **Image text**

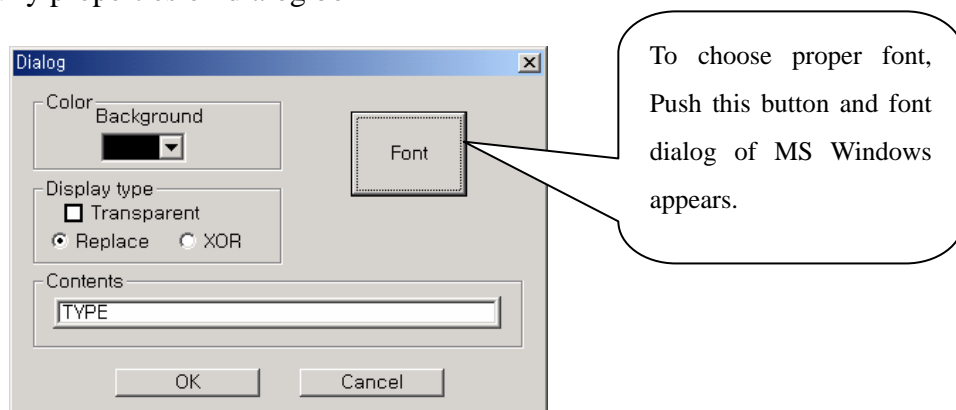
Writes image text.

: image text is text-like diagram which can use all kinds of font in MS Windows.

Internally it is saved and transferred by bitmap format.

Run 'Image text' on 'Draw' menu or click text icon

Modify properties on dialog box



. Bitmap

. . Creation of Bitmap

Bitmap's features are as follows,

1) Symbol

Maximum size is 96*96, and should be multiple of 16.

Limited to mono(Black and White) color.

But once a symbol registered, it is possible to enlarge(up to 8 times) and to change front color and background color.

To save bmp file in paint program, modify the color as 'mono'

Paint program or other bitmap editor program can open edited bitmap file.

2) Image

Maximum size is 320*240(mono) or 640*480 or 800*600 according to type of model, and should be multiple of 16.

Limited to 16 colors. (In mono model, mono color is only possible)

After registration image, it is impossible to adjust size. So when you create image, should consider bitmap size.

[In PMU 30 Series, the size don't need to be multiple of 16. the size is free.

And limited to 256 colors. True color or over 256 color bitmap is loaded as 256 color bitmap by dithering automatically]

3) In mono, It is better to use black background color, and white color for object itself.

(1) Creation bitmap on Auto CAD

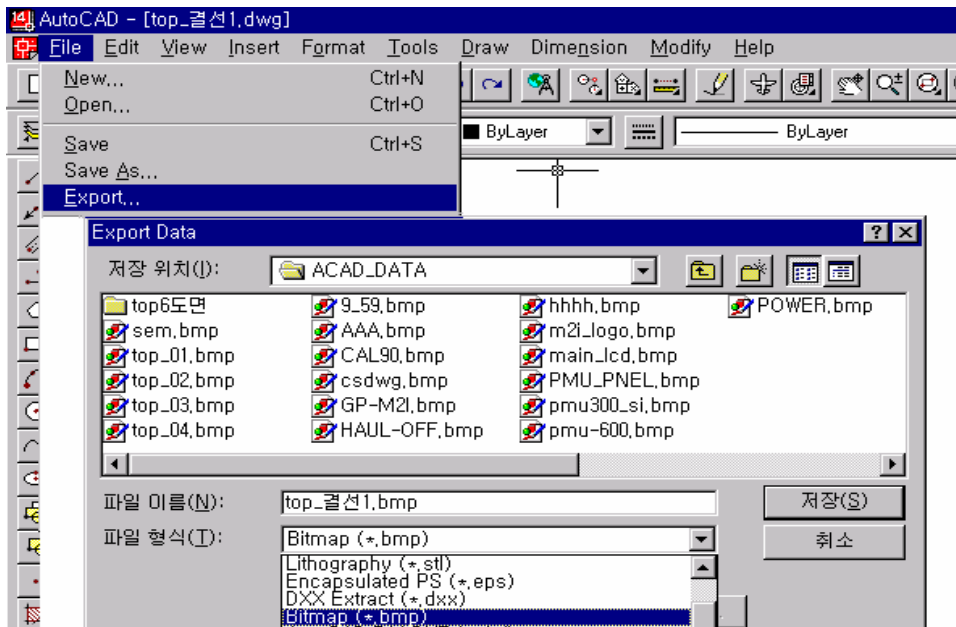
Note

It is difficult to create the exact size(16's multiple) bitmap by making use of Auto CAD. Auto CAD can create bitmap to show just shapes or various pictures on screen.

Load the object file to convert into bitmap file, or draw newly.

Adjust size of object by zoom in / out function

Run 'Export' on 'File' menu and set file form as bitmap(*.bmp)



Save bitmap file

Edit Screen appears. Input 'W'(selects all) command and select area to create bitmap

Click right mouse button, and selected area is shown with dotted line. This dotted line area will be changed to bitmap file.

Click 'Save'

This above process is for color bitmap with not exact size. So, this bitmap on Auto CAD is quite different with the bitmap on this S/W.

Therefore, you should accord bitmap's specification (color, size, etc) with above specification of 5.4.1 by making use of bitmap tool.

Refer to chapter 5.4.1 (3) 'Converting size and color of bitmap'

(2) Creation bitmap on other bitmap tool

Note

- With other bitmap drawing tool, it is possible to use bitmap as symbol or image.

(3) Converting size and color of bitmap

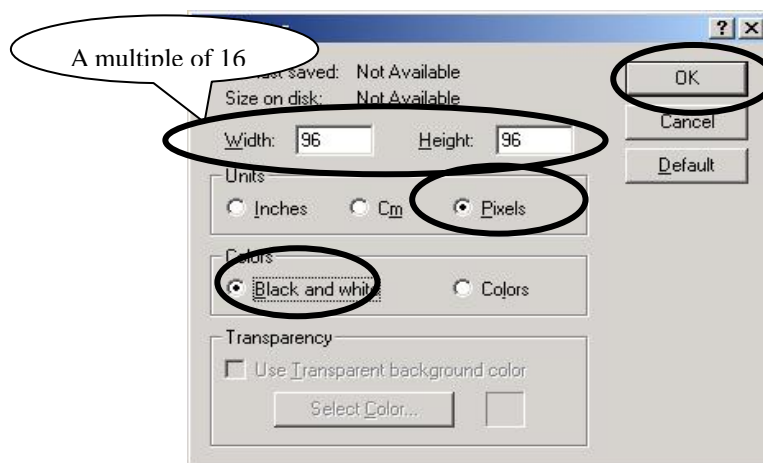
Note

This explains how to convert bitmap file which is not 16's multiple or which is color file into available bitmap file.

Run 'Paint brush' program on Windows

Open a bitmap file to be converted

Modify properties, set width and height as 16's multiple, set unit as pixel, and set color as mono.



Click 'OK'

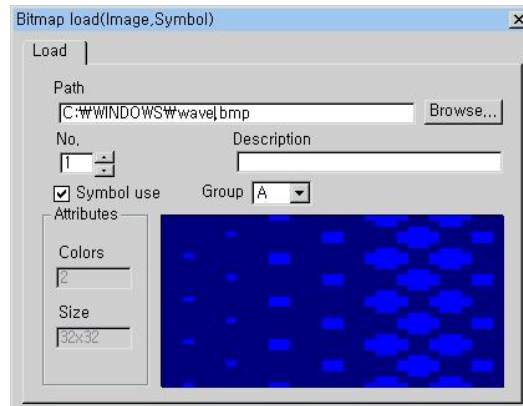
Caution

- To convert bitmap having many colors, all of colors should be converted into black and white.
- If bitmap's size is not 16's multiple, adjust bitmap's size not to be cut.
For example, to change 97 to 96, resize bitmap as 112*112 and locate bitmap in the center of screen not to be cut.

[*In PMU 30 Series, The resizing and decreasing color is not necessary*]

. . Registration of Bitmap

Run 'Open bitmap' on 'File' menu



This tool is to convert bitmap into symbol or image. Converted bitmap is available to use as background image or symbol tag, etc.

To convert bitmap into symbol, check 'Symbol Use'.

Click 'OK'. The bitmap file is converted into symbol or image. And converted bitmap is added to 'Image' or 'Symbol' folder in 'Project Window' view.

'No.' must be identical in same project file.

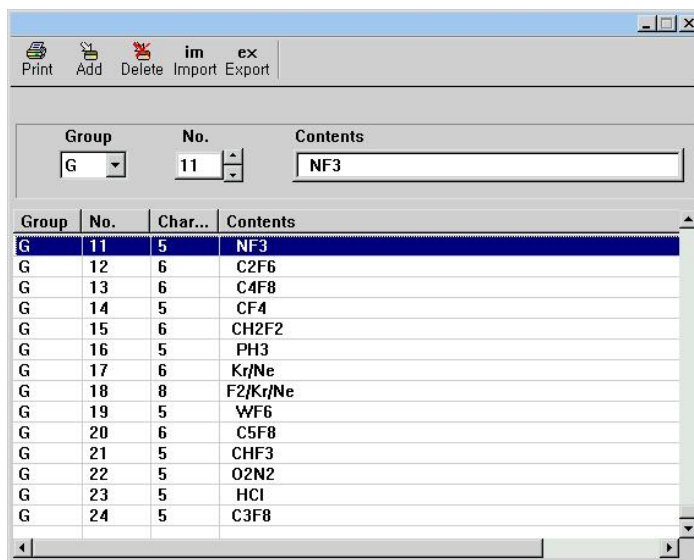
To register bitmap on screen, double click on the object symbol or image in 'Project Window', then the bitmap is clinging to mouse cursor. Move mouse to any position on screen and click left mouse button.

Chapter . Message and Alarm

. Message File

. . Creation of Message

- (1) Run 'Message' on 'File' menu, or double click message icon in 'Project Window'.
Next table appears.



Group	No.	Char...	Contents
G	11	5	NF3
G	12	6	C2F6
G	13	6	C4F8
G	14	5	CF4
G	15	6	CH2F2
G	16	5	PH3
G	17	6	Kr/Ne
G	18	8	F2/Kr/Ne
G	19	5	WF6
G	20	6	C5F8
G	21	5	CHF3
G	22	5	O2N2
G	23	5	HCl
G	24	5	C3F8

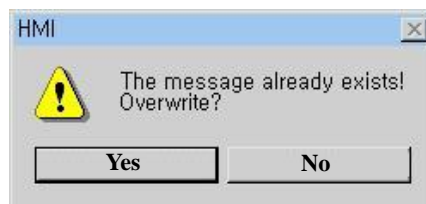
- (2) Select group name and number.
- Message Group : From A to Z
 - Number : From 1 to 999 a group
- (3) Write message, maximum 80 characters is capable.
- (4) Click 'Add' or press 'Enter' key

. . Modification of Message

To modify message,

(1) Select object message and modify it on message table.

(2) Click 'Add' or press 'Enter' key



(3) Asked whether to overwrite or not

(4) Click 'Yes' to confirm and finish.

. . Delete Message

To delete message, select object message and click 'delete' on tool bar.

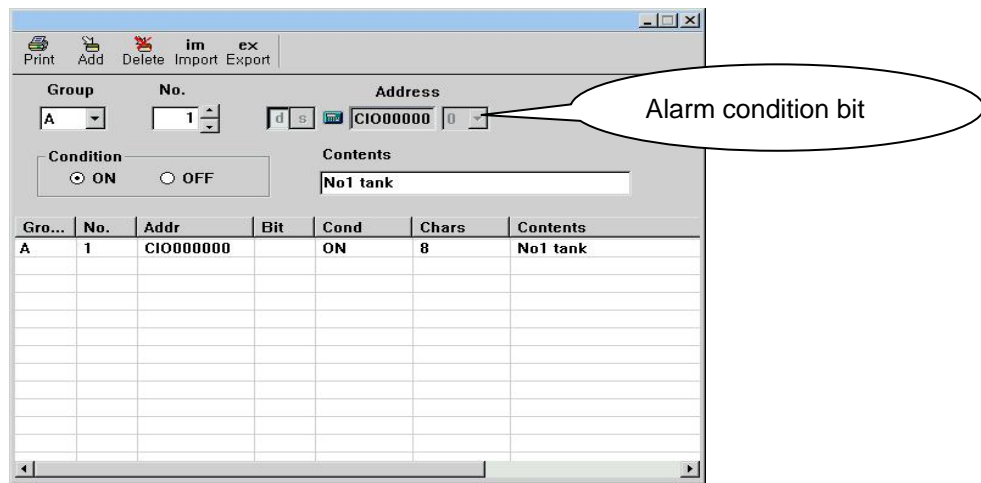
It doesn't show dialog box asking whether to delete or not.

. Alarm File

. . Creation of Alarm

(1) Run 'Alarm' on 'File' menu or double click alarm icon in project window.

Next table appears.

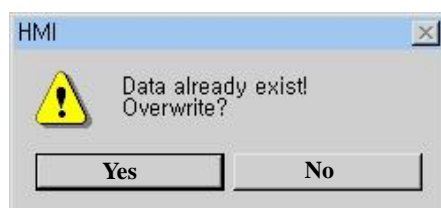


- (2) Select group name and number.
 - Alarm Group : From A to Z
 - Number : From 1 to 999
- (3) Write alarm message, maximum 80 characters is capable.
- (4) Click 'Add' or press 'Enter' key

. . . Modification of Alarm

To modify alarm,

- (1) Select object alarm and modify it on alarm table.
- (2) Click 'Add' or press 'Enter' key
- (3) Asked whether to overwrite or not



(4) Click 'Yes' to confirm and finish.

. . **Delete Alarm**

To delete alarm, select object alarm and click 'delete' on tool bar.
It doesn't show dialog box asking whether to delete or not.

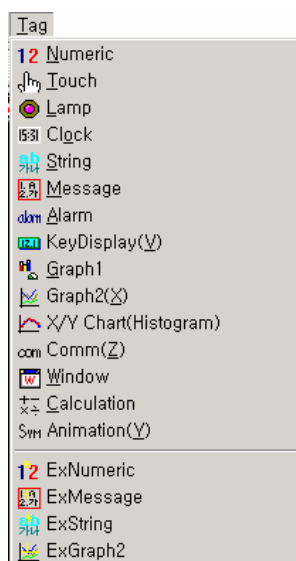
Chapter . Tag

Tag is a dynamic mediator that

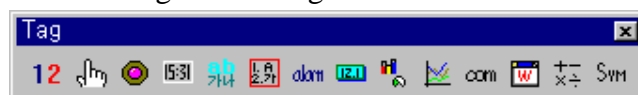
reads data of external controller under particular condition or time-interval,
writes to external controller under particular condition or time-interval

(1) Registration of Tag

- 1) Case 1 : Select an sub-menu(tag item) on main Tag menu.




- 2) Case 2 : Select an tag item on tag tool bar.



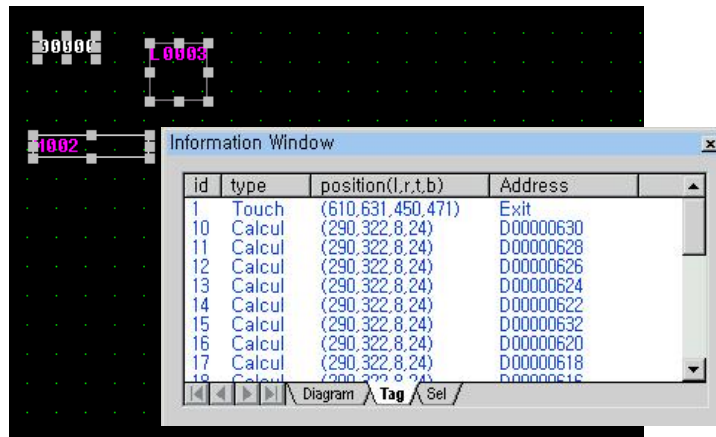
(2) Edit of Tag

1) Select and Cancel

- To select, on selection mode (), click around the edge of tag with left mouse button or click in the *tag's Name* with left button. Dragging mouse from left to right, it enables tags inside of dragged area to be selected. Dragging mouse from right to left, even a little touched tags are selected.
- On information window, click tag tab and select a tag to select. Information

window's selection tab shows all of selected tags.

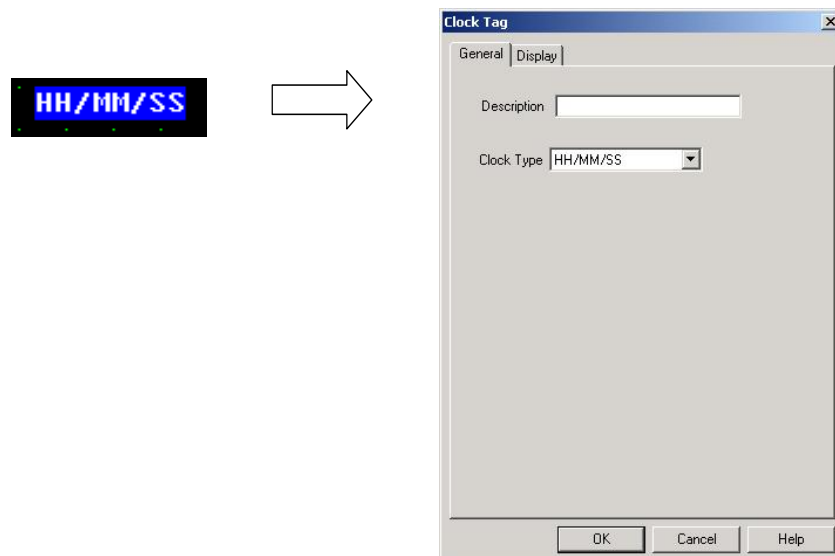
- Selected tag is shown as rectangle with white-gray dotted points(tracker).
- To select several tags, drags mouse over areas including the tags.
- To cancel, click unoccupied area of screen with left mouse button.



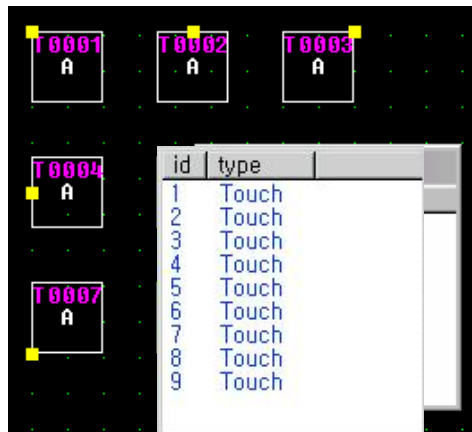
2) Modify

- Click a tag with right mouse button and select 'Attribute'
- Or, double click a tag with left mouse button
- Or, double click a tag's Name(ex) T0002) with left mouse button
- Or, double click a tag among tag list of information window
- Or, select 'Tag list' menu on 'View' menu, and select the tag, and after changing the properties, click 'Modify' button

- Tag dialog box appears as follows.

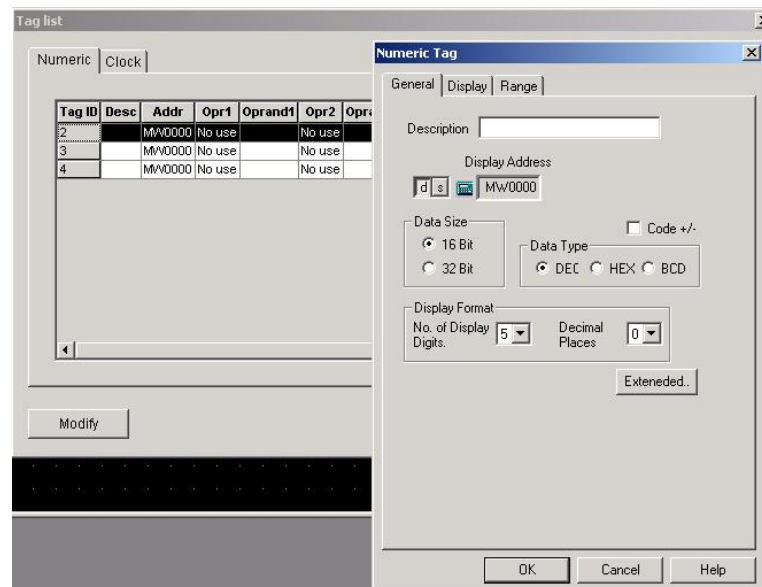


- To modify a group or already selected several tags, double click them with left mouse button. Modification list appears. Double click one of them and modify properties on the shown dialog box.




Or, Select 'Tag list' on 'View' menu, and select a tag(must select by *clicking a Tag ID*) and after changing properties, click 'Modify' button.

It makes same results with double clicking the tag.

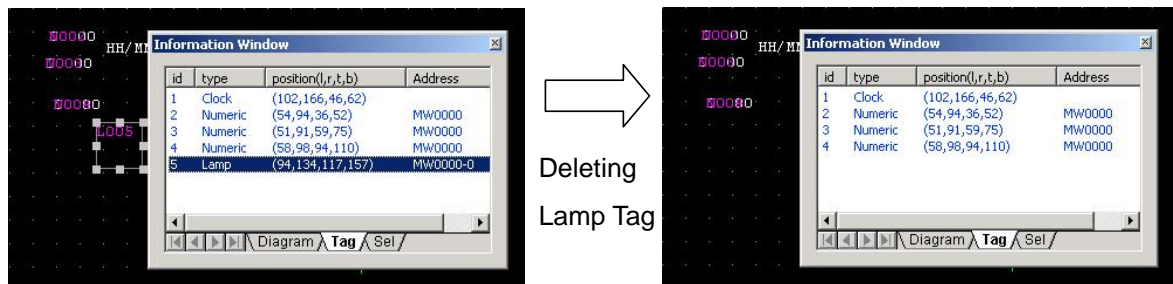


3) Move

Select a tag and drag the tag to other position. To move dot by dot, select a tag and use the buttons as like as next arrow keys,  or arrow keys(up, down, left, right) of keyboard.

4) Delete

- Press 'Del' key on keyboard
- Or select 'Delete' menu on 'Edit' menu
- Or click a tag with right mouse button and run 'Delete' on sub menu .
- Or select tag on tag tab of information window and press 'Delete' key



5) Copy (Ctrl+C)

- With selected tags, run 'Copy' of 'Edit' menu.
- Or click a tag with right mouse button and run 'Copy' of sub menu .
- Or click a tag with left mouse button and press 'Ctrl+C'

6) Multi copy

- Select a tag and run 'Multi copy' of 'Edit' menu
- Write number and interval of column and row.
- Click 'OK'
- Address of 'Key display tag' and 'Numeric tag' is increased automatically.



7) Paste (Ctrl+V)

Run 'Paste' of 'Edit' menu.

Or press 'Ctrl + V'

8) Cut (Ctrl+X)

Press 'Ctrl + X'

Or click object-tag with right mouse button and run 'Cut'.

Or run 'Cut' of 'Edit' menu

9) Group and Ungroup

- It is possible to form group 1) group with group 2)groups with group 3)groups with groups 4) group with a tag 5) group with tags 6) tag(s) with tag(s).
- Select tag(s) or group(s) to form group. And click right mouse button and run 'Group'
- To release group, run 'Ungroup'
- Editing functions or properties of any tag of group is available as like 1 diagram.

10) Resize

Select object-diagram

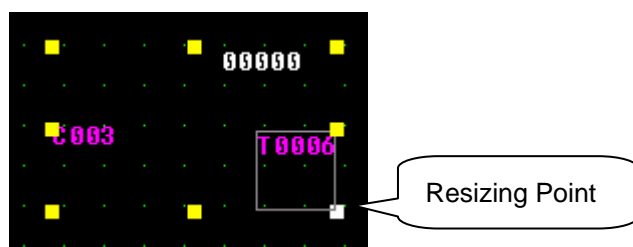
Move mouse around white rectangle point(tracker) of the selected tag, but some tags(ex. Numeric tag) can not be resized.

Arrow cursor appears

Drag the arrow cursor to any direction, the tag is magnified or reduced

Or, Push arrow key(Up,Down,Left,Right) of keyboard.

To resize Group, drag bottom-right's white rectangle of object-group to other points.



 **Note** Tags capable of being resized by mouse dragging

- Touch Tag, Alarm Tag, Lamp Tag, Graph 1 Tag, Graph 2 Tag, X-Y chart Tag, ExGraph2 Tag are capable of being resized by mouse dragging
- For other tags, adjust tag's size on 'Font Pixel' and 'Character size' of 'Display' tab of Dialog box by double clicking object tag

(3) Organization of Tag dialog box

1) General Tab

Sets basic description or running condition of tag

2) Operation Tab

Sets basic operation

3) Range Tab

Sets address value's range to take different running for each different ranges

4) Display Tab

Sets Font type, color and size of tag

General | Display | Range |

or

General | Display | Operation |

(4) Setting

1) Description

Describes tag simply. Available character length is maximum 40

2) Device, System buffer and Constant

Writes the address of (controller)device, system buffer and constant to create tag as follows



[d] : Determines external controller device's address to write or read data

On 'Bit' condition, It is capable of selection from 0 to 15 for 16bit device, from 0 to 31 for 32bit device, from 0 to 7 for 8bit device.

[s] : Determines system buffer's address to write or read data

[c] : Writes operand's value directly to calculate or operate.

This button is available in Numeric, ExNumeric, Touch, Calculation Tags.

[Operator]

NA : Not Available

: Sum up

: Subtract

× : Multiply

/ : Divide

% : remainder by division

&(AND) : logical AND operation


(OR): logical OR operation

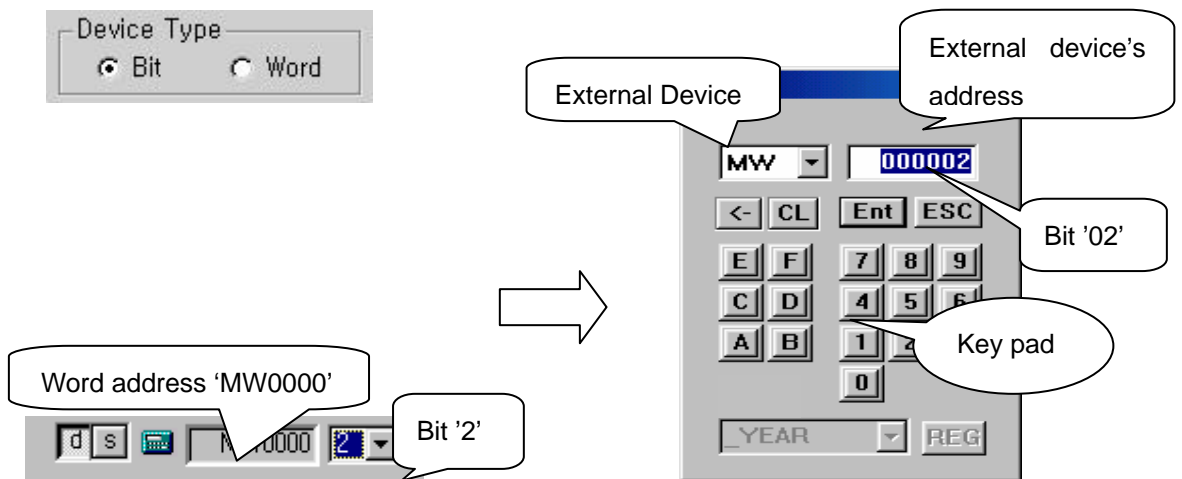
^ : logical Exclusive OR operation

<< : Shift left(Bit operator)

>> : Shift right(Bit operator)

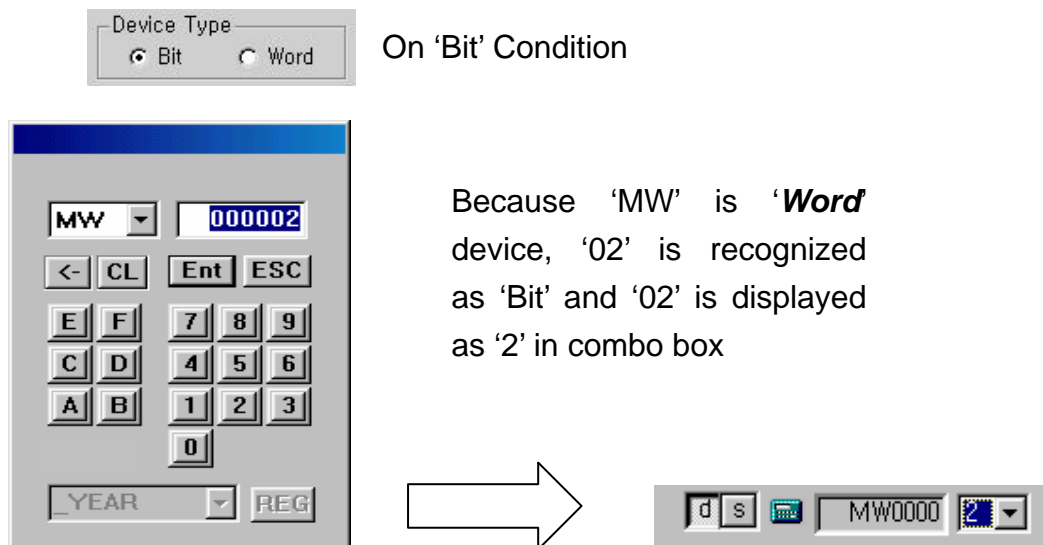
Device's address

- To write or read external device's address, press **d** , and click 
- As address setting dialog box appears, the address is divided into device name and address part as follow,



- To select controller device's address, select controller device's name(D, M, T, etc) in left combo box, and write the device's address by use of keypad or keyboard. And click **Ent** key.


For example,



Because 'MW' is '**Word**' device, '02' is recognized as 'Bit' and '02' is displayed as '2' in combo box

- With wrong input, 'Input error' message shows,

System Buffer

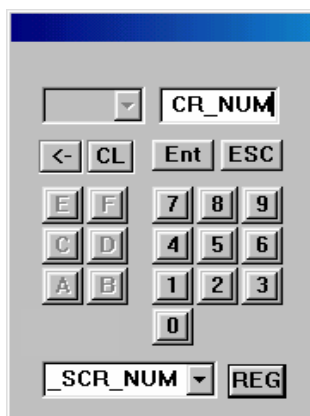
- Press **S** and click .
- A dialog box for address setting appears with initial value.
- System Buffer is "WORD" device. On 'Bit' condition, Edit box's value is divided as 2 parts. For example, if edit box's value is '10002', last 2

digits("02") afterwards is acknowledged as bit of System Buffer. And the remainder("100") is acknowledged as system buffer.



- System buffer
System buffer uses the inner memory area from 0 to 1023(A Series : 0~3068).
- Special buffer
Special buffer is for special functions as like year/month /day /hour /minute /second /timer /etc.
- Bit of Special buffer is not available on 'Bit' condition.

- To select special buffer, select a special buffer in combo box. And then, it is displayed in edit box.



Note Special Buffer List

_SCR_NUM(Screen Number) : Screen number on running (Writing a value to this buffer, Screen would be changed into a screen named by the value)

_KEY_ENT(Enter key) : If press 'Enter' key on running, value is changed to '1'. And then, it doesn't go back to '0'.

_KEY_DSP(Key Display) : Key display data on running

_SCR_SVE(Screen Off setting) : If value is not '0' on running, backlight is turned off. By touching again, backlight is turned on and value is turned back to '0'.

- _RTC_YER(Year) : Year data of RTC (BCD 1999 ~ 2098)
- _RTC_MTH(Month) : Month data of RTC (BCD 1 ~ 12)
- _RTC_DAY(Day) : Day data of RTC (BCD 1 ~ 31)
- _RTC_HUR(Hour) : Hour data of RTC (BCD 0 ~ 23)
- _RTC_MIN(Minute) : Minute data of RTC (BCD 0 ~ 59)
- _RTC_SEC(Second) : Second data of RTC (BCD 0 ~ 59)
- _T1S(1 second) : Counts from 0 to 65535 on every second
- _1ON(First scan 'ON') : If it starts running or it change screen on running, value is changed to '1' at first scan
- _1OFF(First scan 'OFF') : If it starts running or it change screen on running, value is changed to '0' at first scan
- _STOG(Scan Reverse) : On every scan, value is reversed from '0' to '1' or from '1' to '0'
- _ON(Always ON) : Value is always '1'. If this special buffer is tag's starting condition, tag is executed on every scan, so scan speed will be slower.
- _OFF(Always OFF) : Value is always '0'. If this is tag's starting condition, tag is executed on every scan, so scan speed will be slower.
- _CN_ERR(Communication Error Information) : 'Communication Error Information' on running
- _AUX(AUX Value) : AUX terminal data on running. This value is available when there is AUX card
- _PARAM_DEFAULT_LD(Parameter Default Load) : If value is not '0', it loads parameter table in Flash memory to SRAM memory. After loading is completed, clears the buffer's value to '0' . As downloads project file to Machine, parameter default load is also executed 1 time automatically
- _PARAM_RESTORE(Parameter Restore) : If value is not '0', current data of working area(PLC or system buffer) are restored to memory just before new parameter is loaded to working area. This special buffer is beneficial to save current data and reuse it later. After restoration, the value of this buffer does not return to '0' automatically.
- _PARAM_SAVE(Parameter Save) : This is same with '_PARAM_RESTORE', but buffer value is changed to '0' after restoring automatically.
- _PARAM_CUR_BLOCK(Current Block Number) : This contains current working block number
- _LOGGED_ONE_1~8(Completed one logging of Logging #1~8) : Value is changed to '1' whenever logging #1 is logged

_LOGED_ALL_1~8(Completed all logging of Logging #1~8) : Value is changed to '1' as all loggings of Logging #1 are completed

(_LOGED_ALL_8



_LOGED_CUR_BL_1~8(Logging #1's current logged Block Number) : Displays Logging #1's current logged block number. As 1 logging completed, value is changed to '1'

_LOGED_ALL_CLR_1~8(Clear all logged data of Logging #1~8) : If value is not '0', clears all logging data of Logging #1 and restarts logging. After clearance all logging data, changes this special buffer to '0' automatically

_RUN_OUT(Out of Running) : If value is not '0', it ends running

_BAT_WARNING(Battery warning) : When battery charge value is changed to '1', renew battery.

Constant

- Press  and click 
- Write value on keypad
- Press 'Enter' key.

The range of input value and key value would be different by constant's size(16/32bit) and constant's type(HEX, BCD, Decimal).

3) Font Pixel : 16*16(8*16) or 32*32(16*32)

- 16*16 (8*16) font : 16*16 font for Korean text, 8*16 font for English text or numeric text. Font type is Gothic(Default).
- 32*32(16*32) font : 32*32 font for Korean text, 16*32 font for English text or numeric text. Only system font is available.



[16*16]



[32*32]

4) Font zooming : Enlarges each width and length, maximum 8 times enlargement is available.

To enlarge 16*16 font to 32*32, 2 times width and 2 times length, it turns to 32*32.

32*32 Font pixel's character is more beautiful than enlarged 32*32(2 times

of 16*16) font character.



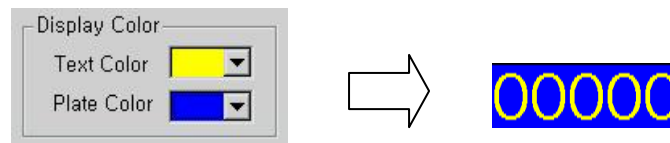
[1*3]



[3*1]

5) Text Color & Background Color (for color model)

: Select text color and background color in combo box as follows,



6) Align : Align is to display data within determined total digits



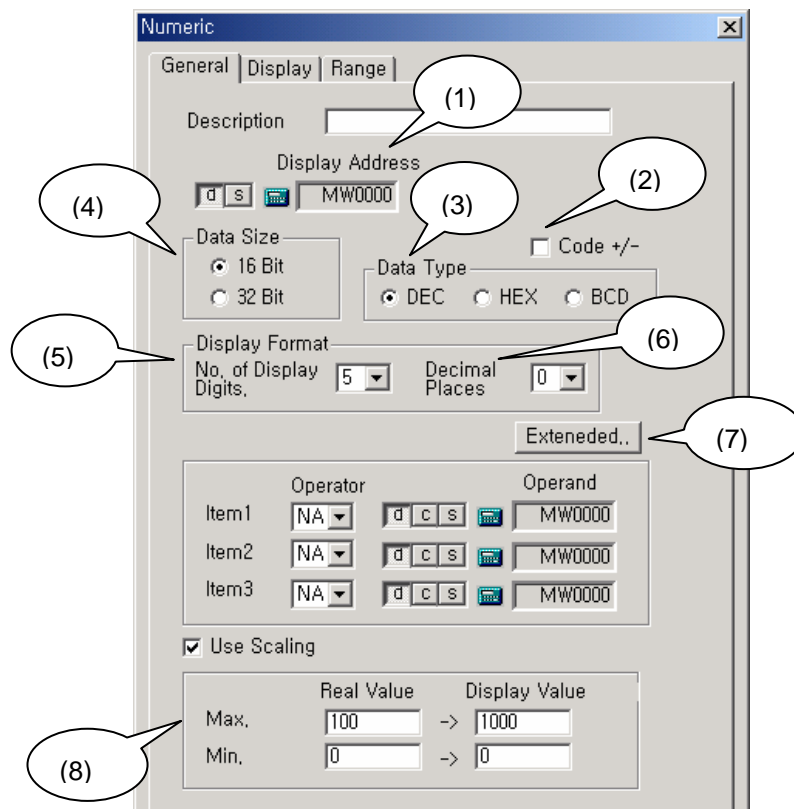
- Align left : Aligns data on left side of determined total digits 123
- Align right : Aligns data on right side of determined total digits 123
- '0' filled : 00123
Aligns data on right side of determined total digits and fills in '0' in vacant left space

. Numeric Tag 12

Displays external device's real-time data on screen.

. . Setting

(1) General



- 1) Display address : Controller device's address to read
- 2) Code +/- : Determines whether to display device data's code or not
- 3) Data type : Decimal, HEX, BCD
 - DEC : Decimal. For example, 65535 is 65 thousand and 5 hundred 35
 - HEX : Hexadecimal. For example, 9h+1h=ah, fh+1h=10h.
 - BCD : Binary Coded Decimal. Each 4bit is 1 figure of decimal. For example, 9h+1h=10h. Clock data comes under BCD.

4) Data size : 16bit, 32bit

	Signed	Unsigned
Decimal	-32768 ~ 32767	0 ~ 65535
HEX		0 ~ FFFF
BCD		0 ~ 9999

[16 bit's Data size of each type]

	Signed	Unsigned
Decimal	-2147483648 ~ 2147483647	0 ~ 4294967295
HEX		0 ~ FFFFFFFF
BCD		0 ~ 99999999

[32 bit's Data size of each type]

5) No. of display digits : Total number of digits to be displayed. If data is larger than setting total digits No., the larger left digits are cut.

For example, Total digit number is '4',

12345 à 2345

6) Decimal places : Determine what size of decimal place is available.

For example, Data is 12345, Total digit number is 5, Decimal place is 1

12345 à 1234.5

If data has (+/-) code, total digit number has one more digit than setting digit number.

For example) Data is -12345, Total digit number is 5, Decimal place is 1

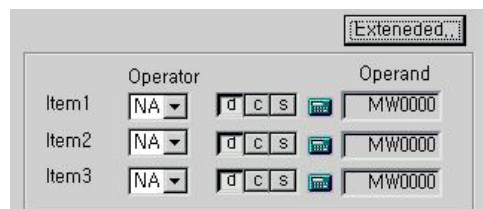
à -1234.5

7) Extended

Sets calculation formula to be able to calculate with the value in saving address.



[Not selected]



[Selected]

Operand : Capable of selecting maximum 3 operands. Although numeric tag value changes, address value is not changed.

There are 3 kinds of operands, external device(d), constant(c), and

system buffer(s).

Operator

NA : Not Available

+ : Operand + Operator

- : Operand - Operator

× : Operand * Operator

÷ : Operand / Operator. Result is saved as 2 word data.

& : Operand AND Operator

: Operand OR Operator

^ : Operand XOR Operator

<< : Shifts Object to left as long as Operator

e.g.) 1101 0111 0010 0110 << "2",

then becomes 0101 1100 1001 1000

>> : Shifts Object to right as long as Operator

e.g.) 1101 0111 0010 0110 >> "2",

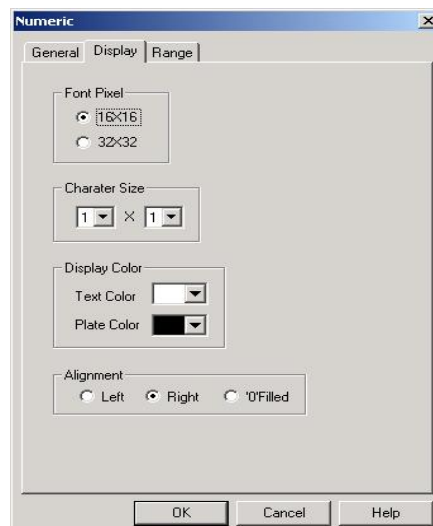
then becomes 0011 0101 1100 1001

8) Use scaling

Displays numeric value as scaled value. Suppose real value goes from 0~10 and scale factor is 0~100. If value is 5, Numeric tag displays 50. scaling only change display but not change real value itself.

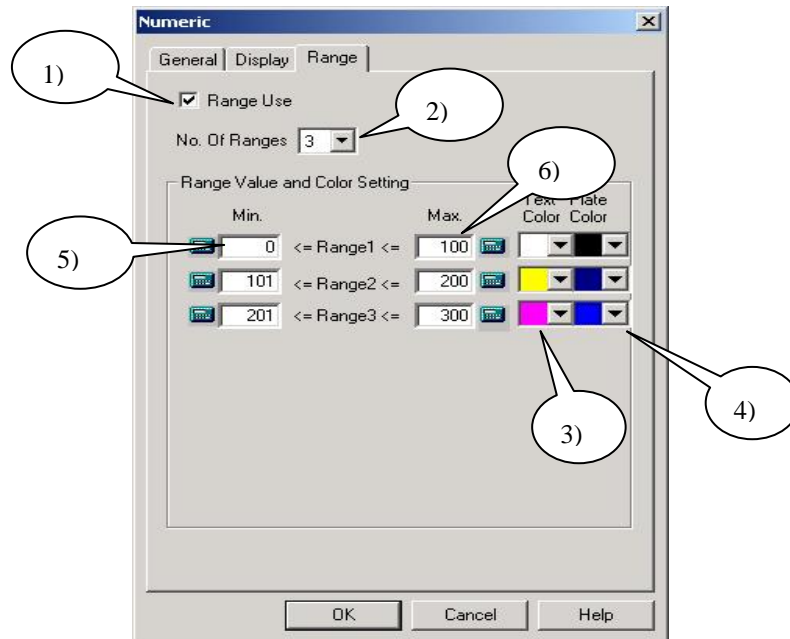
(2) Display

Sets display style, Font, Color, Alignment, etc. Refer to chapter 7. (4) 'Setting' for detail information about Font, Pixel, Character size, Color, Alignment.



(3) Range

Displays different colors for different ranges. Without this setting, numeric tag is displayed with text color and background color determined in 'Display' tab.



- 1) Range Use : Click the check box to set each colors for different range.
- 2) No. of Ranges : Min. 1 ~ Max. 8 is available.
- 3) Text Color : Select text's color
- 4) Background Color : Select background's color
- 5) Min. value : Minimum value of range
- 6) Max. value : Maximum value of range
- 7) Click 'OK' after finishing setting



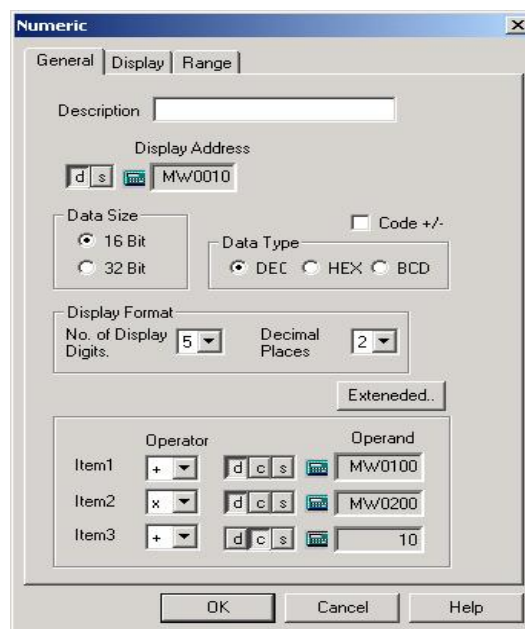
Caution : Ranges should not be overlapped each other.

. . Example

Register a numeric tag

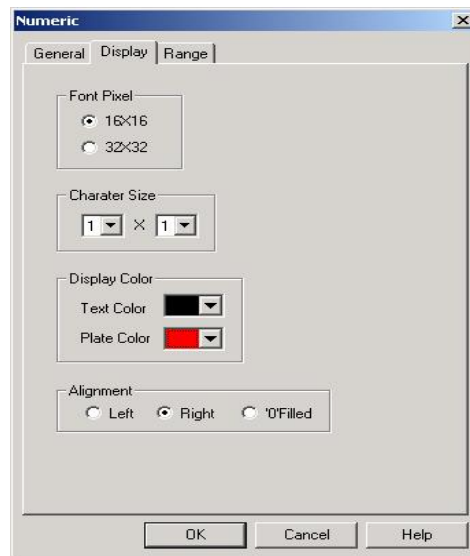
- displays MW10's value as [$MW10+MW100*MW200 + 10$].
 - Data is 16bit DEC value with code (+/-), No. of total digit is 5, Decimal place is 2.
 - If MW10 is between 0 ~ 200, text color is blue and background color is yellow.
 - If MW10 is not the range, text is black and background color is red.
- (This is a example based on color model, it would be some different for other models)

- Address : MW10
- Code +/- : checked
- Data size : 16 bit
- Data type : DEC
- Display Format : Total digit is 5, Decimal place is 2
- Result value : $MW10+ MW100*MW200 + 10$
- Use scaling : Unchecked

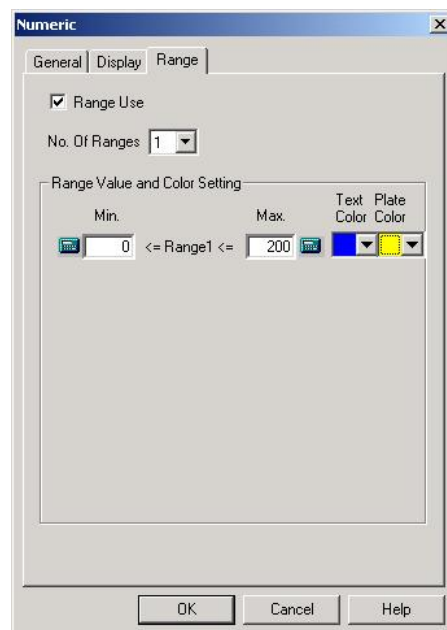


- Font pixel : 16 * 16
- Character size : 1 * 1
- Color : Text is black, background is red

- Alignment : Right



- No. of Range : 1
- Range 1 : Min. value is 0, Max. value is 200, Text color is blue, background color is yellow.



On PC ⇒ 000.00

On Main unit(if address has value) ⇒ 486.82

Note : Code (+/-) occupies 1 digit.

. **Touch Tag**

- Sets touch area on screen (= Registers touch tag on screen)
- Executes operation of bit or word, or special operations by touching the touch tag.

Note :

Matrix type touch is applied to most series, so minimum touch area is 20dot * 20dot. It had better make touch tag's size as 20dot * 20dot.
(if register 2 touch tags overlapped on 20*20 touch cell, more a occupied touch tag is available)

(1) Attention

Don't register Touch tags overlapped. Overlapped registration may make malfunction.

To register touch tag, it had better make the size as 20 * 20 dot.

(2) Use of Touch tag

It is capable of being used as Momentary switch, On switch, Off switch, and Reverse switch.

It is capable of being used to write word data in controller device.

Key function is capable of being used as Ten Key's numeric key or Text key to write text

It is capable of being used as the switch to execute special function (Change screen, Back to pre-screen, Exit running, Screen printing, Logging data printing, Alarm history printing, etc)

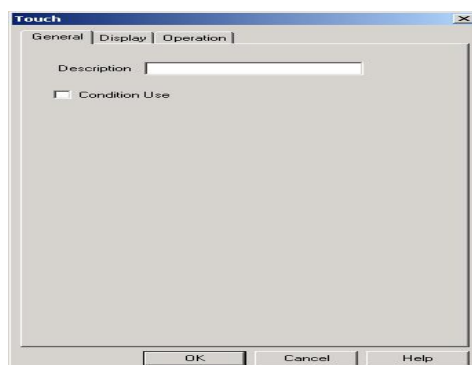
. . Setting

(1) General

Set conditions to calculate in 'Operation' tab.

1) Condition Use

Not checked : Execute the operation whenever touched.

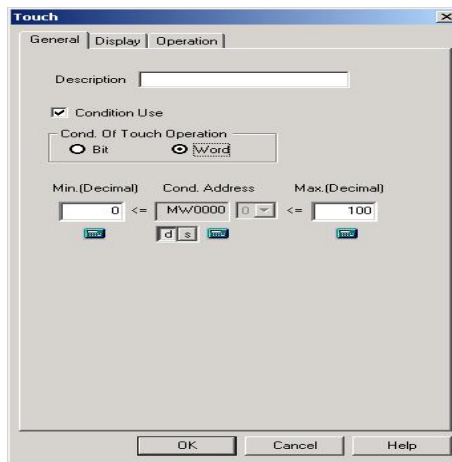


Checked : Execute calculations by the condition in 'Operation' tab only when determined 'Bit' or 'Word' condition is satisfied.

- Bit Condition : Determine address and bit, and when the bit is 'On (0 à 1)', touch tag operates.



- Word Condition : Determine minimum value and maximum value, and when the address value is within the range, touch tag operates



(2) Operation Type

When the 'General' tab's determined condition is satisfied, 4 kinds (bit, word, key, special) operation are available.

1) Bit Operation Type

When touch tag is pressed, it changes a bit value of selected buffer 'from 0 to 1' or 'from 1 to 0'.

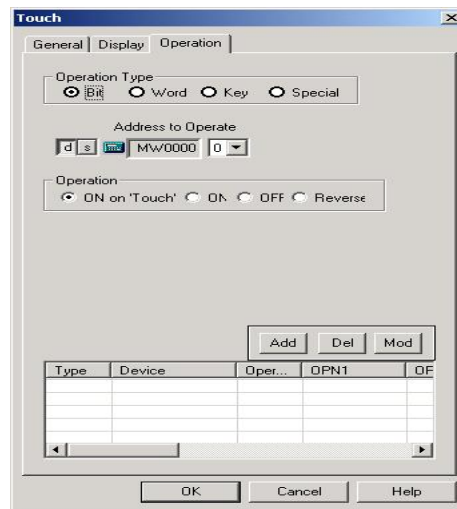
Operation address

Select device and bit to be operated by pressing touch tag.

For 16bit address, it is possible to choose from 0 to 15 and for 32bit address, it is possible to choose from 0 to 31

Operation type

- ON by touched : bit value is '1' as being touched, '0' as being untouched.
- On : bit value becomes '1' after touching
- Off : bit value becomes '0' after touching
- Reverse : bit value is reversed by touching, 'from 0 to 1' or 'from 1 to 0'



2) Word Operation Type

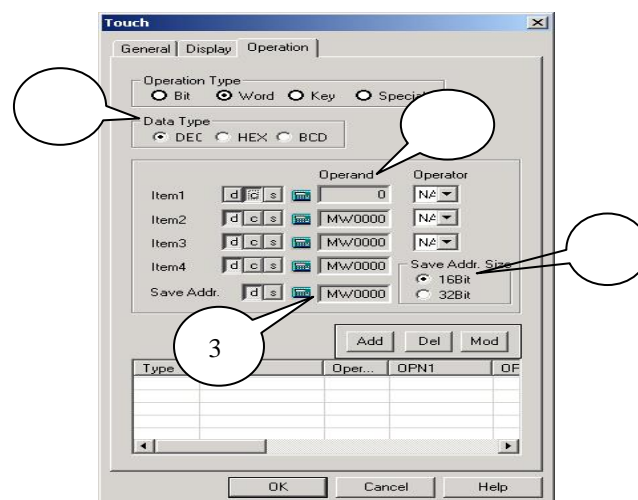
Saves and Moves the result(which is calculated by operand with operator on some condition) in saving device.

Data type : Decimal, HEX, BCD

Operand : Capable of selecting maximum 4 operands. Operand is used for calculation, but is not changeable. Operator types are same with those of numeric tag.

Saving address : Select device address to save calculation result

Saving address's size : Determines the size of device, 16bit or 32bit.

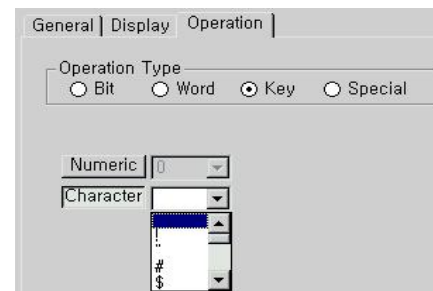
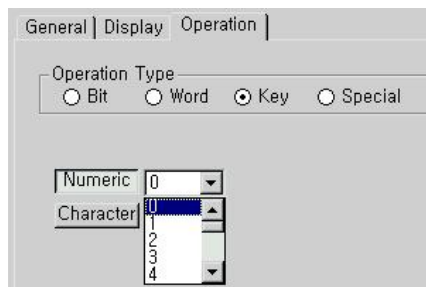


3) Key operation Type

Creates numeric key or text key to write the key's value in 'Key Display' tag.

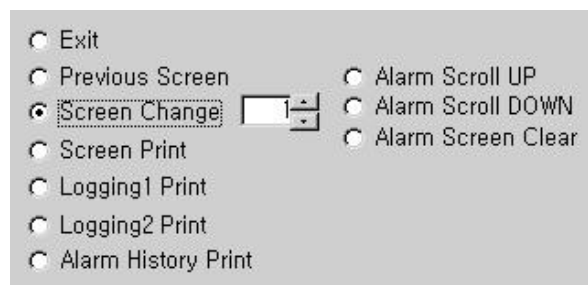
Select 'Numeric' key or 'Text' key. Generally, Key operation is used with key display tag. If touch tag has key operation function, Key display tag displays key value of the touch tag.

- Numeric Key : Choose one among '0 to 9', 'A to F', '-', ENTER, CLR, BS, '.'
- Text Key : Choose one among 128 ASCII code character, ENTER, CLR, BS



4) Special operation

Creates special tag to execute special operation by touching.



Exit : Exits from running mode and turns back to main menu mode

Previous Screen : Calls previous screen displayed before. It is capable of calling, maximum 10 screen.

Screen Change : Changes to the specified screen

Screen Print : Prints current screen

To print, set 'Print Type' in initial setting menu.

- HP Deskjet 100 DPI : Prints with fast speed. It takes about 15 seconds

to print 1 page. This has 2 levels of Gray scale, and is capable of printing horizontally.

- HP Deskjet 75 DPI : Prints as full size of screen vertically. This has 2levels of Gray scale and it takes about 26 seconds to print 1 page.
- HP Deskjet 600 DPI : Prints as full size of screen vertically. This has 16levels of Gray scale and it takes about 3 minutes to print 1 page.



Caution : During printing, Panel(Main unit) does not communicate with external controller(PLC) !

Logging 1~8 print : Prints logging 1~8

[LOGGING DATA]							
2000/02/21		12:00:05					
12345	67980	12345	67890	12345	67890	12345	67890
12345	67980	12345	67890	12345	67890	12345	67890
12345	67980	12345	67890	12345	67890		
2000/08/28		15:05:55					
12345	67980	12345	67890	12345	67890	12345	67890
12345	67980	12345	67890	12345	67890	12345	67890
12345	67980	12345	67890	12345	67890		

Logging data

Alarm history print

[Alarm History]						
No.	Group	Date	Time	ON/OFF	Description	
001	A	2000/8/28	16:14:57	ON	ALARMDATA1ALARMDATA2ALARMDATA3 ALARMDATA4...	
003	B	2000/9/3	16:12:00	ON		

40 characters are available in 1 row.

Alarm Scroll Up/Down/Clear : In Alarm tag, use these keys.

: To scroll or clear alarm list in alarm tag, register touch tag having these functions.

[Add/Delete/Modify]

It is possible to add Max. 10 operations.

- 1) Add : After setting operation type, click 'Add' button. Then, new line is added.
- 2) Delete : Select a line to delete, and click 'Delete' button
- 3) Modify : Click a line to modify, then relevant parameters are displayed in dialog box. Modify the specifications and click 'Modify' button, the line is modified.

Type	Device	Ope...	OPN1	OPR1	OP
Word	D:MW0000		D:MW0000	NA	D:I
Special					

 **Caution : Error message**

Without selection any line and click 'Delete' or 'Modify'

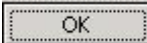


Or



Without registration any operation condition in 'Operation' tab and click 'OK'

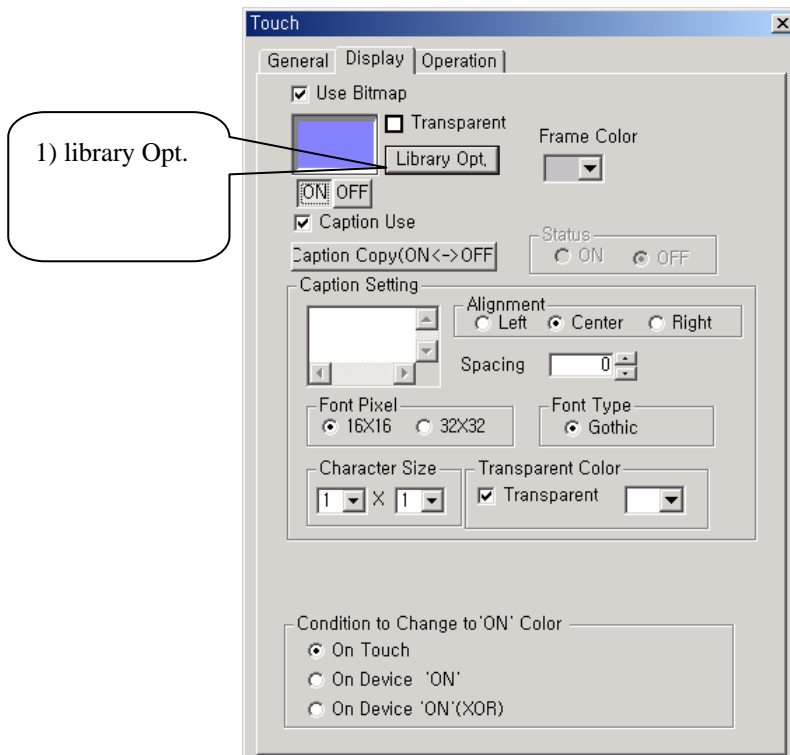


=> After registration click 

For 'Special operation' or 'On by touched' operation, it is possible to register just one.

Maximum 10 registration is available.

(2) Display

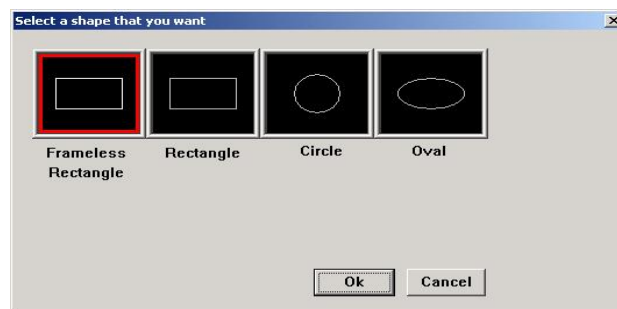


1) Library

- Use Bitmap : Uncheck

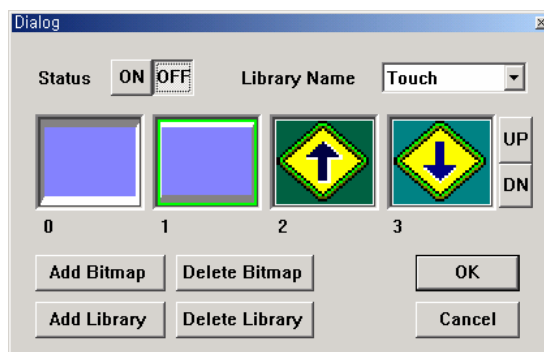
Click 'library' button, a dialog box appears to choose tag's shape,

There are Frameless rectangle(Default), Rectangle, Circle, and Ellipse.



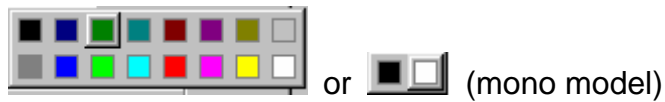
- Use Bitmap : Check

In Advanced model, can use bitmap(up to 256 color) by On/Off touch tag's shape.



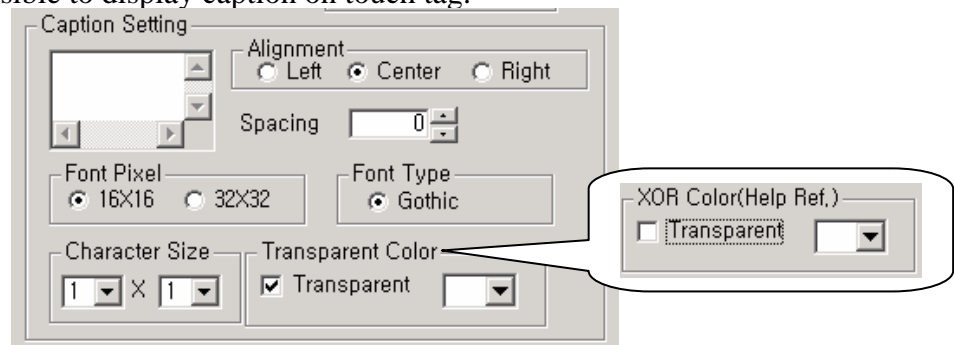
2) Frame color

Select Frame color. 'Frameless rectangle' is not available to determine frame color. In case of using 'Use Bitmap', It is no meaning.



3) Caption Use

It is possible to display caption on touch tag.



Caption : Write text to display

Font Pixel : Select Front pixel and type

Character size : Select Caption's character size

Transparent color : Select 'Transparent' check box in order to use transparent caption color. Uncheck to use XOR color.

[Caution : For transparency, black color is not available]

XOR color : Select XORed color between text color and background color

XOR black color makes caption color be same with background color.

So, 'XOR black' is not available.

4) Touch color Use

- Determine whether to use 'touch color' or not.
- Not checked : Color is not changed by pressing touch tag.
- Checked : Color is changed by pressing touch tag when 'touch display condition' is satisfied. As untouched, it recovers original color.

[Touch Display Condition]

- On Touch : Color is changed to 'ON' color by touching. And by taking off, color is changed to 'OFF' color.

 **Caution**

Except (both visible and invisible) rectangle tag in 'On Touch', all of touch tags display 'ON' color or 'OFF' color. But rectangle touch tag in 'On Touch' displays XOR-operated color.

- On Device 'On' : When selected bit is '1', color is changed to 'ON' color and When the bit is '0', color is changed to 'OFF' color irrespective of the shape of touch(rectangle/ellipse/circle)



 **Caution**

For circle and ellipse, frame color should not be same with 'ON' color or 'OFF' color.

- On Device 'On'(XOR) : When selected bit is '1', color is changed to **XORed** 'ON' color and When the bit is '0', color is changed to original color.



 **Note** : XOR(Exclusive OR)

'0 XOR 0' is 0, '0 XOR 1' is 1, and '1 XOR 1' is 0
 e.g.) 'Black XOR White' result in white, 'Black XOR Black' results in black



(General)



(XOR)

. . **Examples**

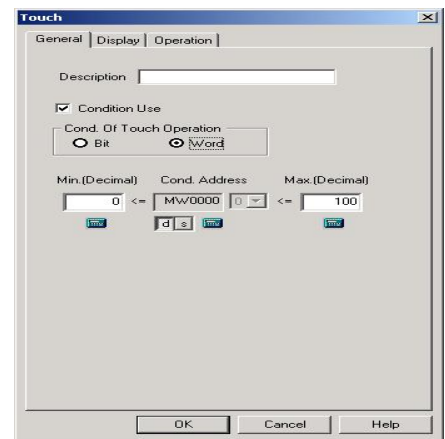
(1) On Word Condition

Register a touch tag

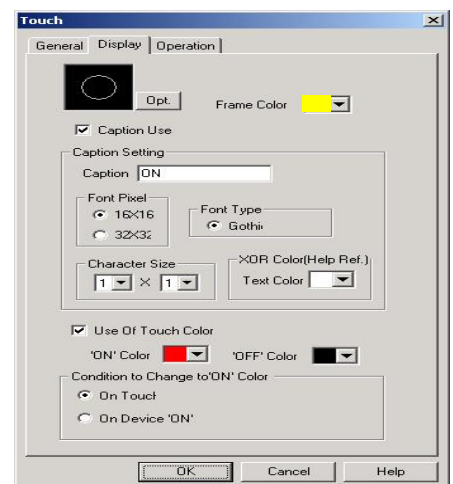
- Operation condition of touch tag is when word device MW0 is between 0 ~ 100.
- After multiply MW100 by MW200 and save the result in MW300, then it exits running.
- Touch shape is ellipse, frame color is yellow, caption is 'Touch', 'ON' color is red by touching.

1) setting

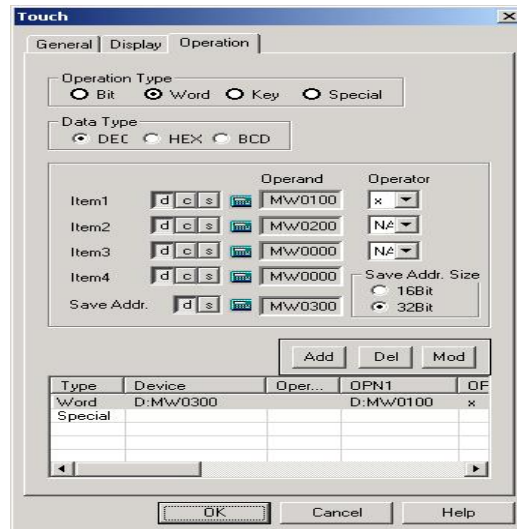
- Condition Use : Check, Word Condition
- Address : MW0
- Minimum Value : 0
- Maximum Value : 100



- Option : Ellipse
- Frame Color : Yellow
- Caption Use: Check
- Caption : ON
- Font Pixel : 16*16
- Font Type : Gothic style
- Character Size : 1 * 1
- Text Color : White
- Touch color use : Check
- 'ON' color : Red
- OFF color : Black
- Touch display condition : On touch



- Operation 1 : Word Operation, $MW100 * MW200 = MW300$
- Saving address's size : 32bit
- Operation 2 : Special Operation, check 'Exit'



2) Result



=> On S/W



=> On Panel(Main unit)

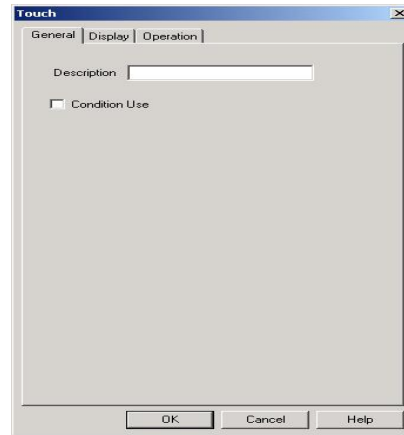
(2) Touch tag used as numeric key

Register a touch tag

- which is used as numeric key '9'
- 'ON' color by touching is blue,
- Rectangle touch tag

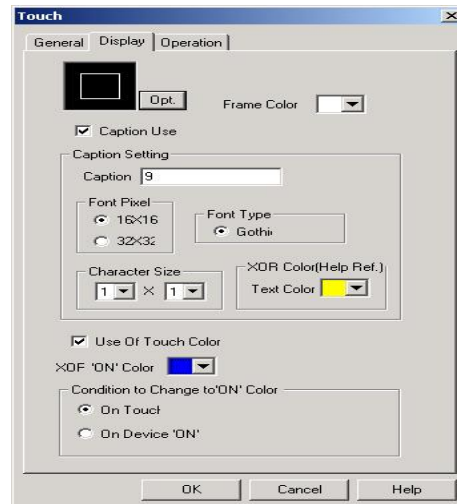
1) General

- Condition Use : Not check



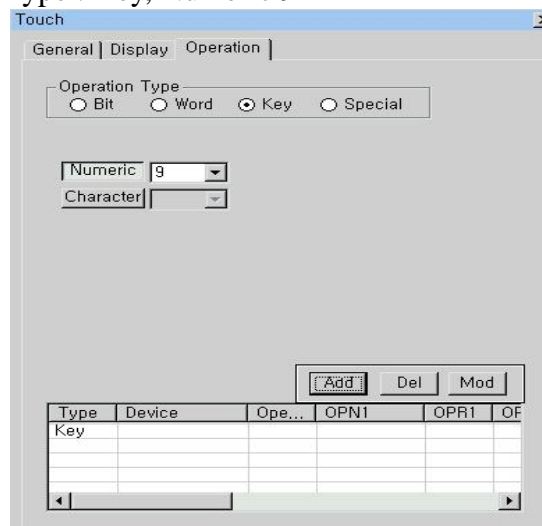
2) Display

- Option : Rectangle
- Frame Color : White
- Caption Use: Check
- Caption : 9
- Font Pixel : 16*16
- Font Type : Gothic style
- Character Size : 1 * 1
- Text Color : Yellow
- Touch color use : Check
- XOR 'ON' color : Blue
- Touch display condition : On touch



3) Operation

- Operation Type : Key, Numeric 9



4) Result



=> On S/W



=> On Panel

. Lamp Tag

Lamp tag is to display an enclosed lamp (circle, rectangle, ellipse, or any closed region or bitmap etc) with determined color on a condition.

(1) Registration

Select bit condition or word condition, and write address.

On bit condition, determine 'On', 'Off' color or shape in display tab.

On word condition, it is possible to display other colors for each other ranges.

. . Setting

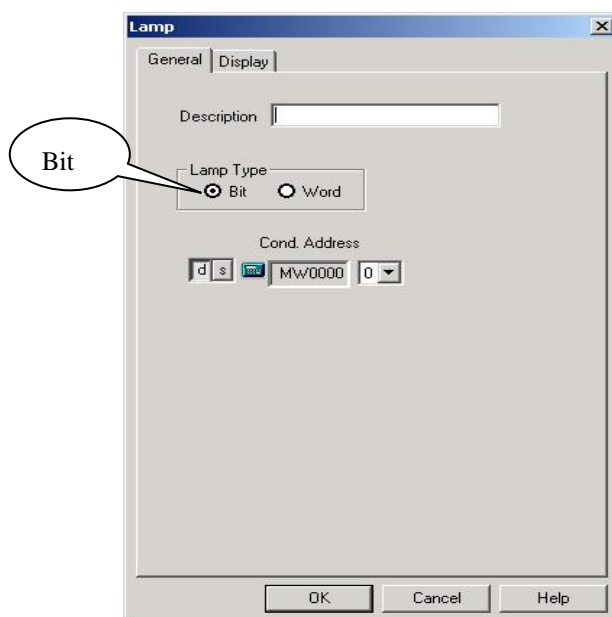
(1) General

Determine condition address to display lamp.

1) Lamp type

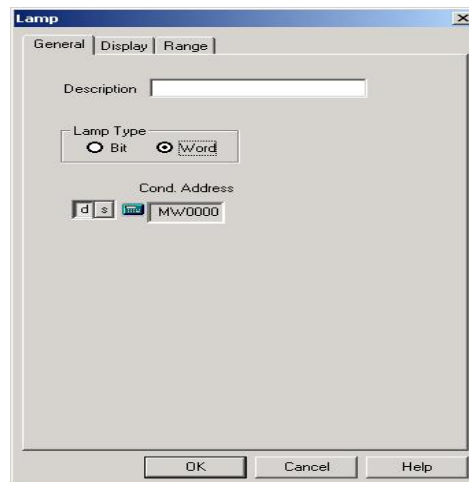
Bit

Turns on/off lamp tag with 'ON' or 'OFF' color or shape which is determined in display tab.



Word

Turns on/off lamp tag when address' value is within determined range, lamp tag shows different color for different range(up to 8 range).



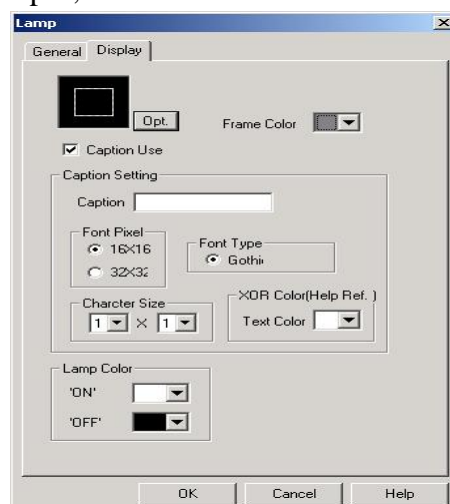
(2) Display

- 1) Setting of 'Caption' and 'Shape of lamp' is same with one of touch tag.
- 2) Black is not available to 'Caption' color. In case caption has 'XOR' color, 'XOR black' makes caption's color be same with background color. Also in case of transparent color, black color is not available for transparent attributes.
- 3) Lamp Color : It is possible to select color only when 'Bit' condition is selected in genera tab. In case of 'Word' condition, color setting can be done in 'Range' tab. When selected bit is '1', it shows 'ON' color. And when selected bit is '0', it shows 'OFF' color.



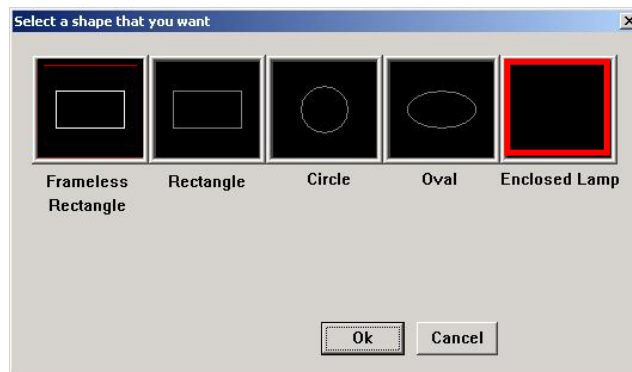
Caution

For circle and ellipse, frame color *should not be same* with 'ON' color or 'OFF' color.



Note : Enclosed Lamp

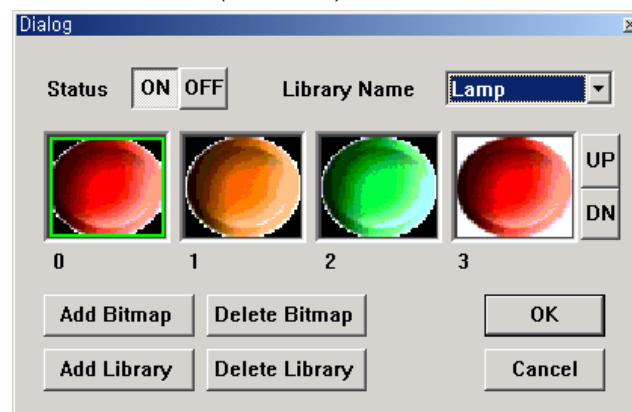
There is another lamp type, enclosed lamp, which is available as only bit lamp. If 'Word' condition lamp is selected in general tab when enclosed lamp is selected, it is converted into bit lamp automatically.



Enclosed lamp is positioned inside any closed region and frame color is not available for 'Enclosed Lamp'.

Note : Bitmap usage

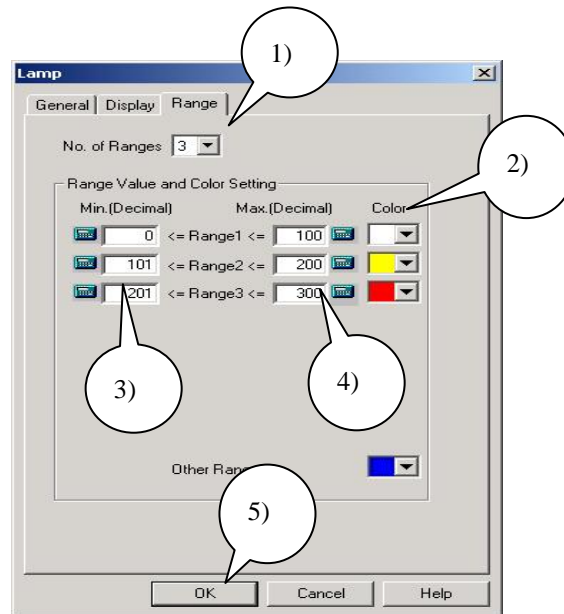
There is another lamp type, 'Use bitmap', which is available as only bit lamp. It is possible to select a bitmap of 'On' and 'Off' as follows. This function is only possible *in Advanced model(A Series)*.



(3) Range

Displays different color for different range. Range setting is available on 'Word'

condition.



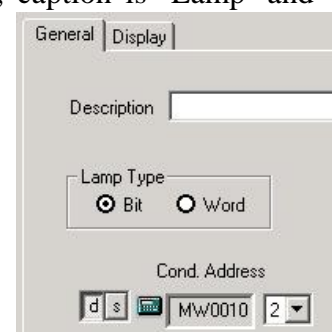
- 1) No. of Range : Min. 1 ~ Max. 8 is available
- 2) Color : Select color to show when the value is within the range
- 3) Min. Value : Minimum value of the range
- 4) Max. Value : Maximum value of the range
(Ranges should not be overlapped each other)
- 5) After finishing setting, click 'OK'

. . Examples

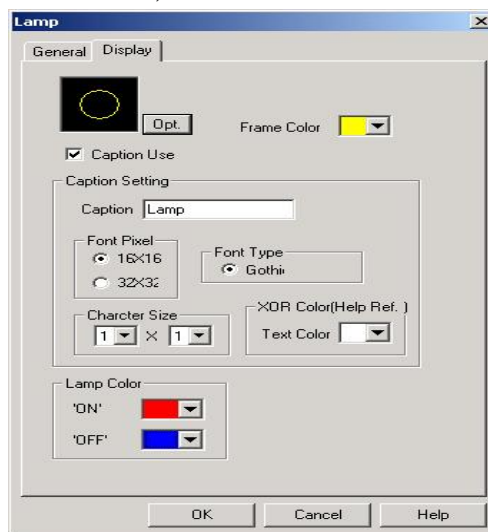
(1) On Bit condition

Register a lamp tag

- If device MW10's third bit is '0', lamp color is blue.
- And if the bit is '1', lamp color is red.
- Lamp tag's shape is circle, frame color is yellow, caption is 'Lamp' and XOR color is white.
- Lamp Type : Bit
- (Display) Condition Address : MW10's third bit



- Lamp shape : Circle
- Frame color : Yellow
- Caption : 'Lamp',
- Font(Pixel and Type) : 16*16, Gothic
- Character size : 1*1
- XOR color : White
- Lamp Color : 'On' à red, 'Off' à Blue



=> On S/W

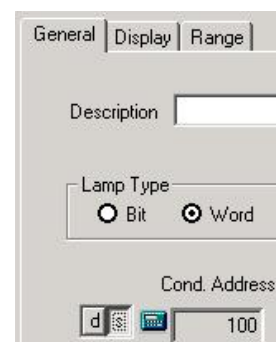


=> On Panel(Main unit)

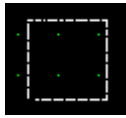
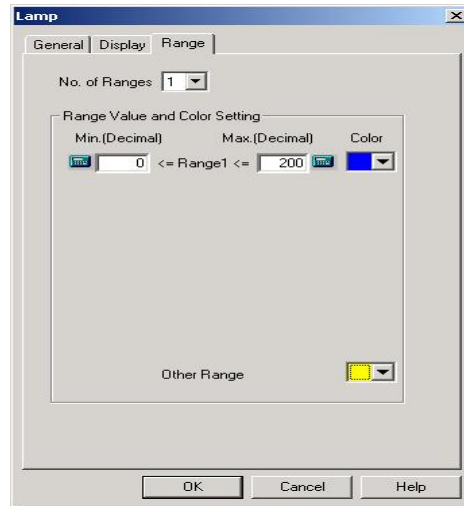
(2) On Word Condition

If system buffer 100's value is within 0 ~ 200, lamp color is blue. Out of the range, lamp color is yellow.

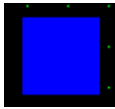
- Lamp Type : Word
- (Display) Condition address : System buffer's 100



- Range 1 : 0~200, blue
- Other range : yellow



=> On S/W (Invisible rectangle)



=> On Panel (When System buffer 100's value is within 0 ~ 200)

. **Clock Tag** 

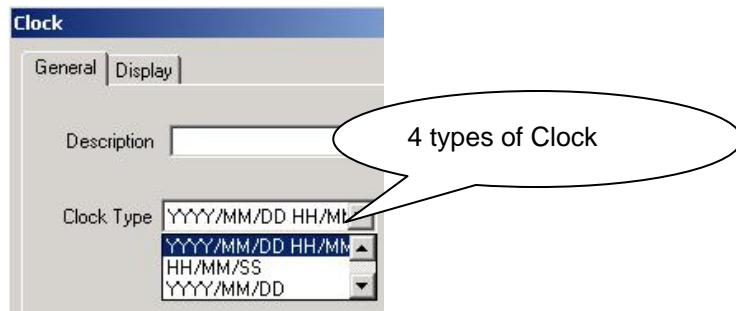
Displays time data of RTC in Main module

(1) Registration

- 1) Select clock tag in 'Tag' menu or click 'clock tag' icon on tool bar
- 2) Select clock type and then the clock tag is floating from mouse
- 3) Click left mouse button on any point of screen

. . **Setting**

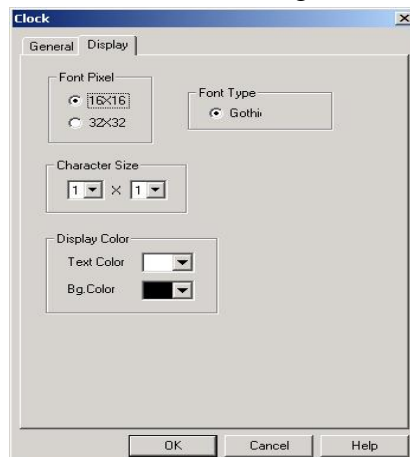
(1) General



- 1) YYYY/MM/DD HH/MM/SS : Year/Month/Day/Hour/Minute/Second
 - 2) YYYY/MM/DD : Year/Month/Day
 - 3) HH/MM/SS : Hour/Minute/Second
 - 4) HH/MM : Hour/Minute
- In future more type will be added.

(2) Display

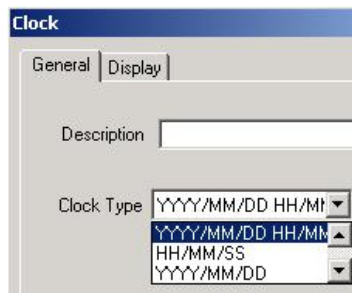
- 1) Text Color : Select color of text
- 2) Background Color : Select color of background



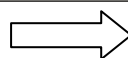
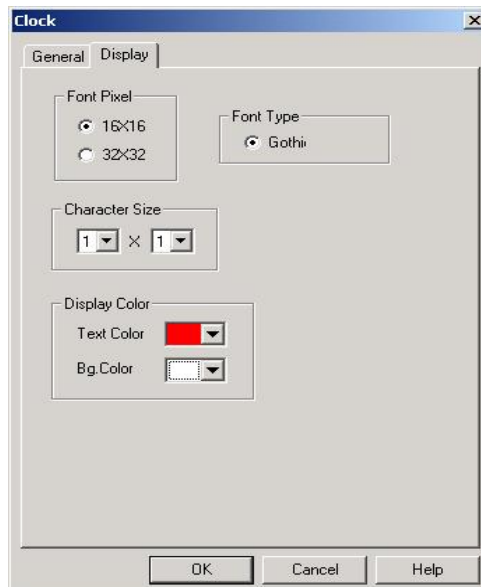
. . **Examples**

Register a clock tag displays 'year/month/day/hour/minute/second.
Text color is red and background color is white.

- Clock type :YYYY/MM/DD HH/MM/SS



- Font (Pixel, Type) : 16*16, Gothic
- Character Size : 1 x 1
- Text Color : Red
- Background Color : White



< On S/W >

< On Panel >

. String Tag

Displays data of selected buffers as ASCII Characters in real time.

(1) Registration

- 1) Select String tag in 'Tag' menu or click 'string tag' icon on tool bar
- 2) Select 'Start(Condition) Address' and 'No. of character' and click 'OK'
- 3) String tag is floating from mouse
- 4) Click left mouse button on any point of screen

. . Setting

(1) General

- 1) Start(Condition)Address : Determine starting address to be converted into string.
- 2) Character No. : Determine number of character to be displayed.
- 3) Max. character No. is (based on 640x480 model)
 - 80 in case of numeric and ASCII character,
 - 40 in case of Korean in '16 x 16' font,
 - 20 in case of Korean in '32 x 32' font
 16-bit device can include 2 ASCII code.
 (If 'Character No' is 20, 10 buffers' data from 'Start Address' are read)
- 4) NULL(0) data

When address's data is '0'(NULL), the NULL data are not displayed.

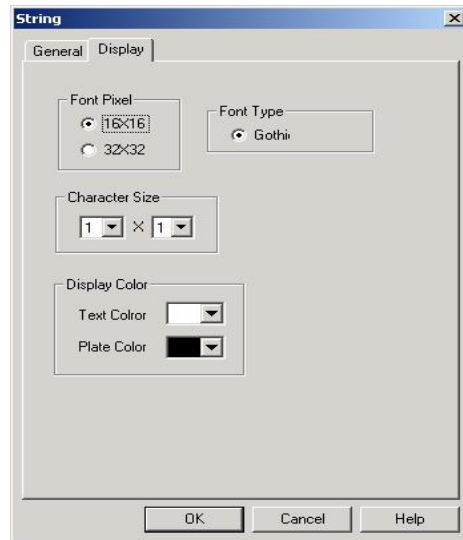
For example, to display 'A' character, you have to write '4100h', not 41h.

Because '41h' is saved in buffer as '0041'.



(2) Display

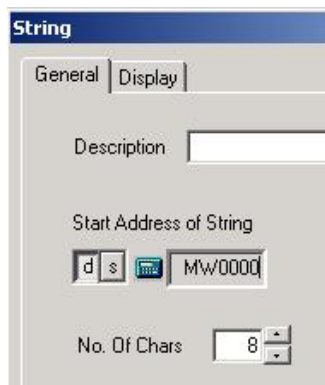
Determine Font Pixel, Font Type, Character Size, Text Color, Plate Color.



. . . Examples

Register string tag to display 8 characters. Start from MW0

- Star Address of string : MW0
- No. of Character : 8



\$\$\$\$\$\$\$\$

=>

ABCDEFGH

< On S/W >

< On Panel >