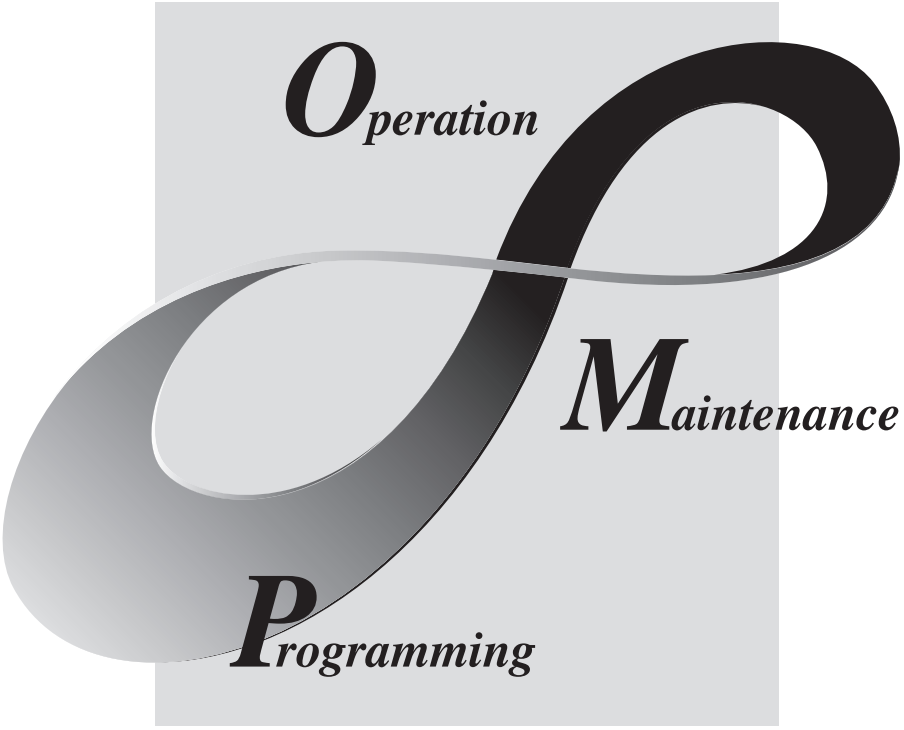
PX Developer Version 1

MITSUBISHI

Operating Manual

(Monitor Tool)

MELSOFT



MELSOFT
Integrated FA Software

SW1D5C-FBDQ-E

● SAFETY PRECAUTIONS ●

(Always read these instructions before using this equipment.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The instructions given in this manual are concerned with this product. For the safety instructions of the programmable controller system, please read the CPU module user's manual.
In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".

⚠ DANGER	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Note that the ⚠ CAUTION level may lead to a serious consequence according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[Startup/Maintenance Instructions]

⚠ CAUTION
● Always read this manual carefully and ensure safety before online operation. Failure to do so may cause incorrect operation, resulting in damage to a machine or an accident.

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REVISIONS

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
Dec., 2002	SH (NA)-080370E-A	First edition
Oct., 2003	SH (NA)-080370E-B	New addition Section 8.6, Section 8.6.1 to 8.6.5, Section 9.15.14, Appendix 1.7, Appendix 2.3 Partial corrections and additions Section 2.1.3, Section 2.1.4, Section 2.2, Section 2.3, Section 3.1, Section 3.2, Section 5.1, Section 6.2.1, Section 6.3.1, Section 6.5.2, Section 7.3.1, Section 7.4.1, Section 7.6, Section 7.7.1, Section 7.7.4, Section 8.4, Section 8.5, Section 9.3, Section 9.5, Section 9.11, Section 9.14, Section 9.15, Section 9.15.8, Section 9.15.9, Section 10.1, Section 10.3.5, Section 11.3.4, Section 12.1, Section 12.2, Appendix 1.1, Appendix 1.2, Appendix 1.3, Appendix 1.4, Appendix 1.5, Appendix 2, Appendix 2.1, Appendix 3 Section 7.3.4 to 7.3.9 changed to Section 7.3.2 to 7.3.7 Appendix 1.7 changed to Appendix 1.8 Appendix 2.3 changed to Appendix 2.4 Deletion Section 7.3.2, Section 7.3.3
Jun., 2004	SH (NA)-080370E-C	Model Addition Q12PRHCPU, Q25PRHCPU New addition Appendix 1.9, Appendix 4 Partial corrections and additions Generic Terms, Abbreviations And Terms, Section 1.2, Section 2.1 to 2.2, Section 4.5, Section 5.1, Section 6.3, Section 7.2.6, Section 7.3.1, Section 7.4.1, Section 7.7.4, Section 8.4 to 8.5, Section 9.3, Section 9.14, Section 10.1, Section 10.3.7, Section 10.5, Section 11.2, Section 11.3.2, Section 11.3.4, Section 12.1, Appendix 1.2, Appendix 1.6 to 1.7, Appendix 2.4, Appendix 3
Feb., 2005	SH (NA)-080370E-D	Partial corrections and additions Section 2.2

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
Feb., 2006	SH (NA)-080370E-E	Partial corrections and additions Generic Terms, Abbreviations And Terms, Section 1.1, Section 1.2, Section 2.1.2, Section 2.1.3, Section 2.1.4, Section 2.1.6, Section 2.2, Section 3.2, Section 7.1.3, Section 7.3.1, Section 7.4.1, Section 7.6.2, Section 7.7, Section 7.7.1, Section 7.7.3, Section 7.7.5, Section 7.7.8, Section 8.5.1, Section 8.6, Section 9.1.1, Section 9.3, Section 9.4, Section 9.5, Section 9.11, Section 9.12, Section 9.14, Section 9.15.9, Section 10.1, Section 10.3.1, Section 10.3.2, Section 10.3.3, Section 10.3.4, Section 10.3.5, Section 10.3.6, Section 10.4, Section 10.5, Section 10.5.1, Section 10.5.2, Section 10.5.7, Section 10.6.1, Chapter 11, Appendix 1.2, Appendix 1.3, Appendix 2.1, Appendix 3, Appendix 4.2, Index
Mar., 2007	SH (NA)-080370E-F	New additions Section 10.3.5, Section 10.3.6, Section 10.5.5, Section 11.1, Section 11.1.1, Appendix 3, Appendix 3.2, Appendix 3.2.1 Partial corrections and additions Section 1.2, Section 2.1.2, Section 2.1.3, Section 2.2, Section 3.2, Section 5.1, Section 6.3.1, Section 6.3.2, Section 7.2, Section 7.3, Section 7.4, Section 7.5, Section 7.7, Section 7.7.5, Section 8.6.2, Section 9.1.4, Section 9.3, Section 9.8, Section 10.3.1, Section 10.3.2, Section 10.3.3, Section 10.3.4, Section 10.4, Section 10.5, Chapter 11, Section 11.2, Section 11.2.1, Section 11.3.4, Section 12.1, Appendix 1.2, Appendix 1.3, Appendix 1.8, Appendix 1.9.2, Appendix 1.9.3, Appendix 2.2, Appendix 2.4, Appendix 5.2, Section 10.3.5 to 10.3.11 changed to Section 10.3.7 to 10.3.13 Section 10.5.5 to 10.5.9 changed to Section 10.5.6 to 10.5.10 Section 11.1 changed to Appendix 3.1 Section 11.3 changed to Appendix 3.1.2 Section 11.4 changed to Appendix 3.1.1 Appendix 3 changed to Appendix 4 Appendix 4 to 4.3 changed to Appendix 5 to 5.3

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*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
Jun., 2008	SH (NA)-080370E-G	Model Addition Q02PHCPU, Q06PHCPU New addition Section 9.1.4, Appendix 4 Partial corrections and additions MANUALS, GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 1.1, Section 1.2, Section 2.1.1, Section 2.1.2, Section 2.1.4, Section 2.1.6, Section 2.2, Section 3.2, Section 4.6, Section 5.1, Section 6.1, Section 6.3.1, Section 6.4.2, Section 7.1, Section 7.1.3, Section 7.3.1, Section 7.5, Section 7.6.2, Section 7.7, Section 7.7.1, Section 8.3, Section 8.5.1, Section 9.1.1, Section 9.1.3, Section 9.3, Section 9.8, Section 9.14, Section 9.15.2, Section 10.1, Section 10.3.7, Section 10.3.9, Section 10.5.1 to Section 10.5.3, Section 10.5.6, Section 10.5.8, Section 10.5.9, Section 11.1.1, Section 11.2.1, Section 12.1, Appendix 1.2.1, Appendix 1.2.2, Appendix 3.1.1[4], Appendix 3.1.2[2], Appendix 4 to 5.3 changed Appendix 5 to 6.3

Japanese manual version SH-080260-P

INTRODUCTION

Thank you for choosing the Mitsubishi MELSOFT series Integrated FA software.
Read this manual and make sure you understand the functions and performance of MELSOFT series thoroughly in advance to ensure correct use.

CONTENTS

MANUALS

The following manuals are also related to this product.
Refer to the following table for ordering a manual.

Related manuals

Manual name	Manual number (model code)
PX Developer Operating Manual (Programming Tool) Explains FBD language programming, compilation, online operations, and debug methods with PX Developer. (Sold separately.)	SH-080369E (13JU38)
PX Developer Programming Manual Explains details of programming with PX Developer, lists of FB parts, and the PID instructions. (Sold separately.)	SH-080371E (13JW00)
PX Developer Operating Manual (GOT Screen Generator) Explains the generation procedure for GOT screen project and details about generated screen. (Sold separately.)	SH-080772ENG (13JU61)
PX Developer Operating Manual (SCADA Interaction) Explains the interaction between PX Developer monitor tool and SCADA software. (Sold separately.)	SH-080773ENG (13JU62)

CAUTION

- Please note that we do not guarantee commercially available software compatible with Microsoft® Windows® Operating System introduced in this manual.
- The software copyright of this product belongs to Mitsubishi Electric Corporation.
- No contents in this manual can be reproduced or duplicated in any form or by any means without permission.
- Although we make utmost efforts, this manual may not completely follow the revisions of the software and hardware.
- In principle, this software should be purchased by one set per personal computer or by license purchase.
- This product (including this manual) can only be used under the software license agreement.
- Please note that we are not responsible for any influence resulting from operating this product (including the manual).
- The contents of this manual are subject to change without notice.

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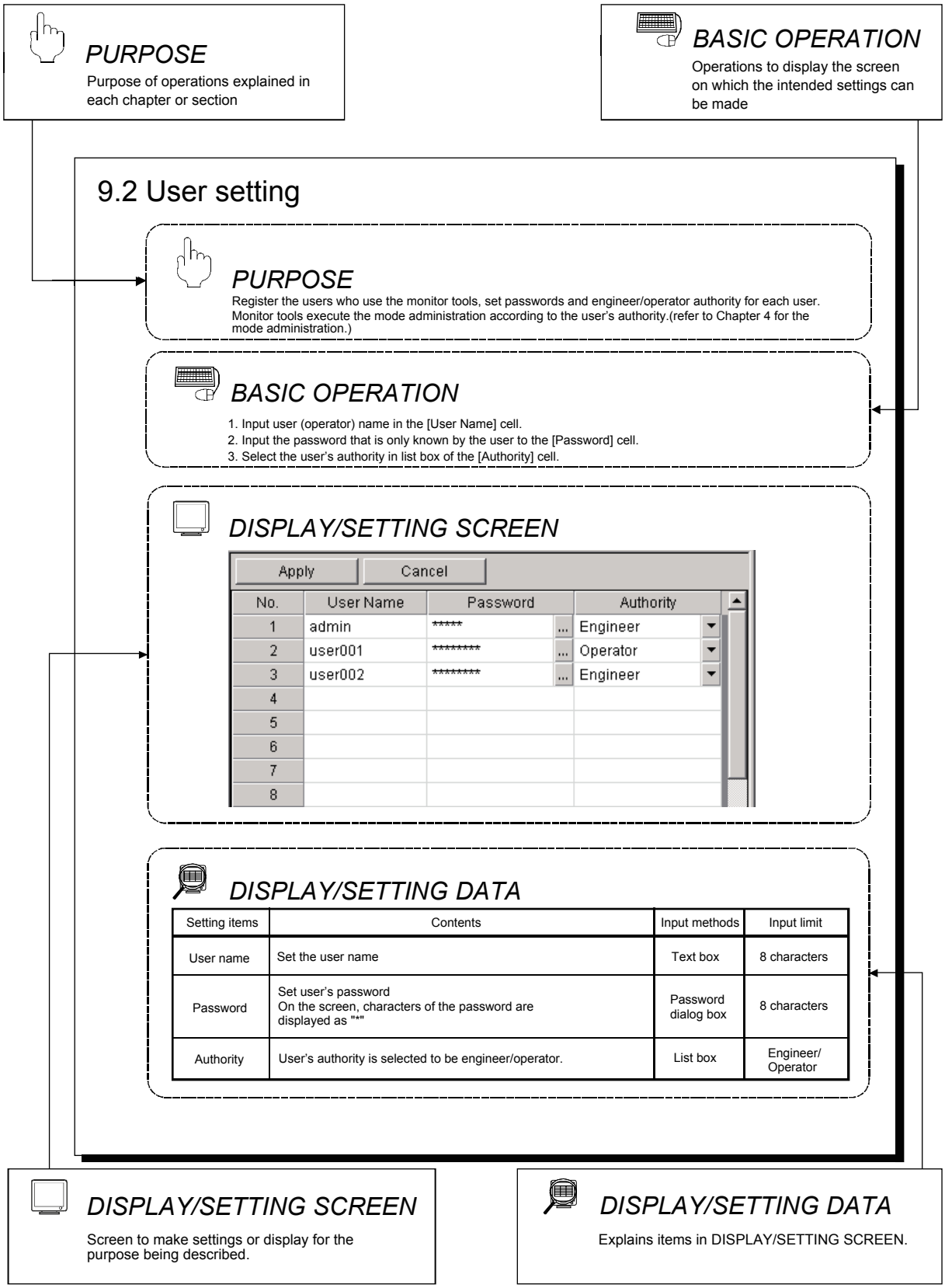
PURPOSE
Purpose of operations explained in each chapter or section
BASIC OPERATION
Operations to display the screen on which the intended settings can be made
9.2 User setting
PURPOSE
Register the users who use the monitor tools, set passwords and engineer/operator authority for each user. Monitor tools execute the mode administration according to the user's authority.(refer to Chapter 4 for the mode administration.)
BASIC OPERATION
1. Input user (operator) name in the [User Name] cell.
2. Input the password that is only known by the user to the [Password] cell.
3. Select the user's authority in list box of the [Authority] cell.
DISPLAY/SETTING SCREEN
Apply
Cancel
No.
User Name
Password
Authority
1 admin ***** Engineer
2 user001 ******** Operator
3 user002 ******** Engineer
4
5
6
7
8
DISPLAY/SETTING DATA
Setting items | Contents | Input methods | Input limit
User name | Set the user name | Text box | 8 characters
Password | Set user's password On the screen, characters of the password are displayed as "*" | Password dialog box | 8 characters
Authority | User's authority is selected to be engineer/operator. | List box | Engineer/ Operator
DISPLAY/SETTING SCREEN
Screen to make settings or display for the purpose being described.
DISPLAY/SETTING DATA
Explains items in DISPLAY/SETTING SCREEN.

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There are also the following types of explanations.

POINT

Informs items to be noted and useful functions relevant to the contents in the chapter or section.

REMARKS

Supplements contents in the chapter or section.

The following table explains symbols in this manual and their description.

Symbol	Description
[ ]	Expresses an item in a window or dialog box, or a menu on the menu bar. [ ] → [ ] expresses the drop-down menu. Example: [File] → [Save the setting data]
( )	Indicates the related button. Example: "Go to Previous Folder" button ()
" "	Expresses a command button. Example: "OK" button
<< >>	Expresses dialog box tab. Example: <<General>> tab

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MANUAL ORGANIZATION

This manual consists of 12 chapters and APPENDICES.
The contents of the manual: The steps from the system programming to the run of DC processing on CPU module by using the PX Developer. The steps are shown as follows:

< Operating procedures before running the process control system >

Operating procedure 1: The setting and wiring of the process control system	Reference
● Install CPU module, Network module, Input/Output module, the related equipments of PLC, and the process control system and other external equipments to realize wiring	QCPU User's Manual (Hardware Design, Maintenance and Inspection) QCPU User's Manual (Function Explanation, Program Fundamentals)

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Operating procedure 2: Confirm the base of using the FBD language of PX Developer for programming	Reference
● Confirm both of the FBD language form and the instruction/data which can be used on CPU module	PX Developer Programming Manual

⇩

Operating procedure 3: Set PX Developer	Reference
● Confirm the system which can be used by PX Developer	PX Developer Operating Manual (Programming Tool) and (Monitor Tool)
● Confirm the function which can run on PX Developer	
● Connect the computer to the network of the process control system	
● Install PX Developer to the personal computer	Method of installing the PX Developer (Included with the product)

⇩

Operating procedure 4: Programming with the programming tool	Reference
● Start the programming tool of PX Developer	PX Developer Operating Manual (Programming Tool)
● Remember the screen display and basic operation of the programming tool	
● Create the project of PX Developer with the programming tool	
● Programming with the programming tool in FBD language	
● Compile FBD language program with the programming tool	
● Download the program to CPU module with the programming tool	
● Online operation and debug with the programming tool	

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Operating procedure 5: Set the monitor tool	Reference
● Start the monitor tool of PX Developer	Chapter 5
● Switch the monitor tool mode to the engineer mode	Chapter 4
● Confirm the screen configuration and basic operation	Chapter 6
● Set the display mode of the monitor target and the monitor screen	Chapter 9

Operating procedure 6: Execute test operation and confirm/adjust the setting	Reference
● Display the monitor screen and reconfirm the settings	Chapter 7 Chapter 10
● Confirm the content of tag data by monitoring the faceplate	
● Execute test operation and tuning	

Operating procedure 7: Set the user-created screen (User monitor screen)	Reference
● Create the user-created screen (user monitor screen) with Microsoft ® Visual Basic® with ActiveX control	Chapter 11
● Assign the created user-created screen to the buttons of the monitor tool bar so that the screen can be started from the monitor tool	Chapter 9

Operating procedure 8: Run the process control system	Reference
● Switch the monitor tool mode to operator mode	Chapter 4
● Display the monitor screen and begin system monitor	Chapter 7
● Run the process control system with the program which has been downloaded to CPU module	QCPU User's Manual (Hardware Design, Maintenance and Inspection) QCPU User's Manual (Function Explanation, Program Fundamentals)

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GENERIC TERMS, ABBREVIATIONS, AND TERMS

The following table shows the generic terms, abbreviations, and terms in this manual.

Generic term/abbreviation		Description
PX Developer		Abbreviation for PX Developer Version 1 (SW1D5C-FBDQ-E)
Programming tool		Abbreviation for PX Developer programming tool
Monitor tool		Abbreviation for PX Developer monitor tool
GX Developer		Abbreviation for GX Developer Version 7 (SW7D5C-GPPW-E Version 7.20W) or later
GT SoftGOT1000		Abbreviation for GT SoftGOT1000 Version2
GT Designer2		Abbreviation for GT Designer2 Version2
Windows Vista®		Generic term for Microsoft® Windows Vista® Home Basic Operating System, Microsoft® Windows Vista® Home Premium Operating System, Microsoft® Windows Vista® Business Operating System, Microsoft® Windows Vista® Ultimate Operating System, and Microsoft® Windows Vista® Enterprise Operating System
Windows® XP		Generic term for Microsoft® Windows® XP Professional Operating System and Microsoft® Windows® Home Edition Operating System
Personal computer		Generic term for IBM-PC/AT-compatible personal computer
Process CPU		Generic term for Q02PHCPU, Q06PHCPU, Q12PHCPU, and Q25PHCPU
Redundant CPU		Generic term for Q12PRHCPU and Q25PRHCPU
CPU module		Generic term for the Process CPU and Redundant CPU
QCPU		Generic term for Q00J, Q00, Q01, Q02(H), Q02PH, Q02U, Q03UD,Q04UDH, Q06H, Q06PH, Q06UDH, Q12H, Q12PH, Q12PRH, Q25H, and Q25PRHCPUs
PC CPU module		Abbreviation for MELSEC-Q series-compatible PC CPU module manufactured by CONTEC CO. , LTD.
Computer link module	For A series	Generic term for A1SJ71C24-R2, A1SJ71C24-R4, A1SJ71C24-PRF, A2CCPUC24, A2CCPUC24-PRF, and A1SCPUC24-R2
	For AnU series	Generic term for AJ71UC24, A1SJ71UC24-R2, A1SJ71UC24-R4, and A1SJ71UC24-PRF
Serial communication module	For QnA series	Generic term for AJ71QC24, AJ71QC24-R2, AJ71QC24-R4, AJ71QC24N, A1SJ71QC24, A1SJ71QC24-R2, AJ71QC24N-R2, AJ71QC24N-R4, A1SJ71QC24N, and A1SJ71QC24N-R2
	For Q series	Generic term for QJ71C24, QJ71C24-R2, QJ71C24N, QJ71C24N-R2, and QJ71C24N-R4
Redundant type extension base unit		Abbreviation for Q65WRB extension base unit for redundant system
CC-Link IE controller network module		Generic term for QJ71GP21-SX and QJ71GP21S-SX
MELSECNET/H module		Generic term for QJ71LP21, QJ71LP21-25, QJ71LP21S-25, QJ71LP21G, and QJ71BR11
Ethernet module		Generic term for E71, QE71, and Q series-compatible E71
E71		Generic term for AJ71E71-S3, A1SJ71E71-B2-S3, A1SJ71E71-B5-S3, AJ71E71N-B2, AJ71E71N-B5T, A1SJ71E71N-B2, A1SJ71E71N-B5T, AJ71E71N-T, A1SJ71E71N-T, AJ71E71N-B5, A1SJ71E71N-B5, AJ71E71N3-T, and A1SJ71E71N3-T
QE71		Generic term for AJ71QE71, AJ71QE71-B5, A1SJ71QE71-B2, A1SJ71QE71-B5, AJ71QE71N-T, A1SJ71QE71N-T, AJ71QE71N-B5, A1SJ71QE71N-B5, AJ71QE71N-B2, A1SJ71QE71N-B2, AJ71QE71N-B5T, A1SJ71QE71N-B5T, AJ71QE71N3-T, and A1SJ71QE71N3-T
Q series-compatible E71		Generic term for QJ71E71-100, QJ71E71-B5, QJ71E71-B2, and QJ71E71
CC-Link module		Generic term for AJ61BT11, A1SJ61BT11, AJ61QBT11, A1SJ61QBT11, QJ61BT11, and QJ61BT11N
C24		Generic term for computer link module and serial communication module
G4 module		Abbreviation for AJ65BT-G4(-S3) peripheral connection module
CC-Link IE controller network		Abbreviation for CC-Link IE controller network system compatible with the Q series
MELSECNET/H		Abbreviation for MELSECNET/H network system compatible with the Q series
MELSECNET/10		Abbreviation for MELSECNET/10 network system compatible with the AnU, QnA/Q4AR
MELSECNET/10 compatible mode		Abbreviation for function and performance-compatible mode so that the MELSECNET/H network system can have upward compatibility to existing MELSECNET/10 network system

Generic term/abbreviation	Description
CC-Link IE controller network board	Generic term for Q80BD-J71GP21-SX and Q80BD-J71GP21S-SX Abbreviation for CC-Link IE controller network interface board
MELSECNET/H board	Abbreviation for MELSECNET/H interface board
MELSECNET/10 board	Abbreviation for MELSECNET/10 interface board
Ethernet board	Generic term for Ethernet PC card and Ethernet interface board supported by Windows®
CC-Link board	Generic term for A80BDE-J61BT11, A80BDE-J61BT13, and Q80BD-J61BT11N
Network module	Generic term for MELSECNET/10(H) network module of QJ71LP21, QJ71LP21-25, and QJ71BR11, and Ethernet interface module of QJ71E71(-B2)

Term	Description
DDC	Abbreviation for Direct Digital Control This designates control that fulfils controller's functions with digital device.
FBD	Function Block Diagram language specified in IEC61131-3 Programs are made by wiring specifically processed blocks, variables, and constants so that they can follow a flow of data signal.
FB	Abbreviation for Function Block This designates function block unit in a program.
Tag	Identification symbol attached to each DDC processing defined by JIS This can be likened to a tag attached to process control equipment.
Tag data	Summarizes data attached to DDC processing indicated with a tag (process condition data/process status data). Accessing the tag data can monitor status and set conditions of the relevant DDC.
Tag data item	Each data item that makes up tag data
Tag FB	Function block works as a controller and indicator including tag data
Faceplate	Gauge window on which such as a controller is displayed in image format Tag data values can be operated on this window.
Lockout tag	Eye-graph tag displayed on a faceplate that indicates precautions for operations and restrictions according to operation authority Also, this designates making the settings to the faceplate.
SV	Set value
PV	Process variable
DV	Deviation Difference between set value (SV) and process variable (PV)
MV	Manipulated variable
PID control	Control that calculates and outputs a manipulated variable (MV) to have the process variable (PV) reach to the same value as the set value (SV) sooner and precisely by combining P action (proportional action), I action (integral action), and D action (derivative action)
Auto tuning step response method	Method that detects dynamic characteristics by moving the plant and automatically obtains proportional gain (Kp), integral time (Ti), and derivative time (Td) of PID based on the Ziegler-Nichols step response method
Auto tuning limit cycle method	Method that detects dynamic characteristics by moving the plant and automatically obtains proportional gain (Kp), integral time (Ti), and derivative time (Td) of PID based on the vibration amplitude and vibration period caused by two-step action (on-off action) of manipulated variable (MV)
Project ID code	Identification code used to check whether the monitor target project (refer to Section 9.3) set with the monitor tool matches the project in the CPU module
Assignment information database	'*.mdb' file created when compilation is executed with the programming tool This file stores assignment information of variables for storing such as tag data and device information of the CPU module.
Operation mode	Mode for determining the operation method of the redundant system The following three modes are available. • Backup mode • Separate mode • Debug mode

Term	Description
Backup mode	Mode for normal operation of the redundant system If a failure or an error occurs in the control system, the standby system switches to the control system to continue the control of the redundant system. The operation mode can be switched to the separate mode using GX Developer.
Separate mode	Mode for maintaining a system (partial modification of a program, replacement of modules mounted on the main base unit) without stopping the control during run of the redundant system During this mode, different programs can be executed in the control system and standby system. System switching cannot be made in this mode (User switching is possible). The operation mode can be switched to the backup mode using GX Developer.
Debug mode	Mode for performing a debug using a single system prior to redundant system operation This permits operations without connecting tracking cables. In this mode, the CPU module is fixed to system A, control system. (Tracking of the redundant system is not performed.) Set/cancel this mode in the redundant parameter setting of GX Developer.
Operation mode change	Switching of the operation mode for system A and system B using GX Developer while the redundant system is running The operation mode can be switched between the backup mode and separate mode.
System A	System to which system A connector for tracking cable is connected in the redundant system
System B	System to which system B connector for tracking cable is connected in the redundant system
System switching System switching User switching	Control switching to backup system to continue system control and network communication when a trouble occurs in the system that performs control in the redundant system (when a failure or an error occurs in the power supply system, mounted module, or network) (Switching between control system and standby system to avoid system down) The following two types are available. • System switching Automatic system switching by the redundant system when a trouble occurs • User switching System switching by sequence program/GX Developer
Control system	A system that performs program operation, system control, and network communication in the redundant system When system A and system B start concurrently in the backup mode, the system A will be the control system. (Concurrent startup: One system starts within three seconds after the other system has started.) When the system A and system B start separately, a system that starts first will be the control system.
Standby system	Backup system to continue system control in case of a failure or an error in the module in the control system in the redundant system (The CPU module in the standby system does not calculate programs.) When system A and system B start concurrently in the backup mode, the system B will be the standby system. (Concurrent startup: One system starts within three seconds after the other system has started.) When the system A and system B start separately, a system that starts later will be the standby system.
Tracking transfer function	Data transfer function that keeps the data of control system and standby system consistent This function enables the standby system to serve as the control system to continue the system control in case of system down of the control system. The Redundant CPU can perform tracking transfer without making the tracking settings, as it tracking transfer setting data has been set by default. (Change tracking transfer setting data using GX Developer.)
Redundant system	System configured using Redundant CPUs This system consists of two basic systems including CPU modules, power supply modules, and network modules. (If module error occurs in one system, the other system continues the system control. Thus, system reliability is improved.) To configure the redundant system, prepare two sets of the systems where the above modules of the same models are mounted on the base unit, and connect the CPU modules with tracking cables.
Redundant parameter	Parameter for setting operation mode of Redundant CPU system and tracking transfer setting data (tracking setting) Use GX Developer to set the parameter.

1 OVERVIEW

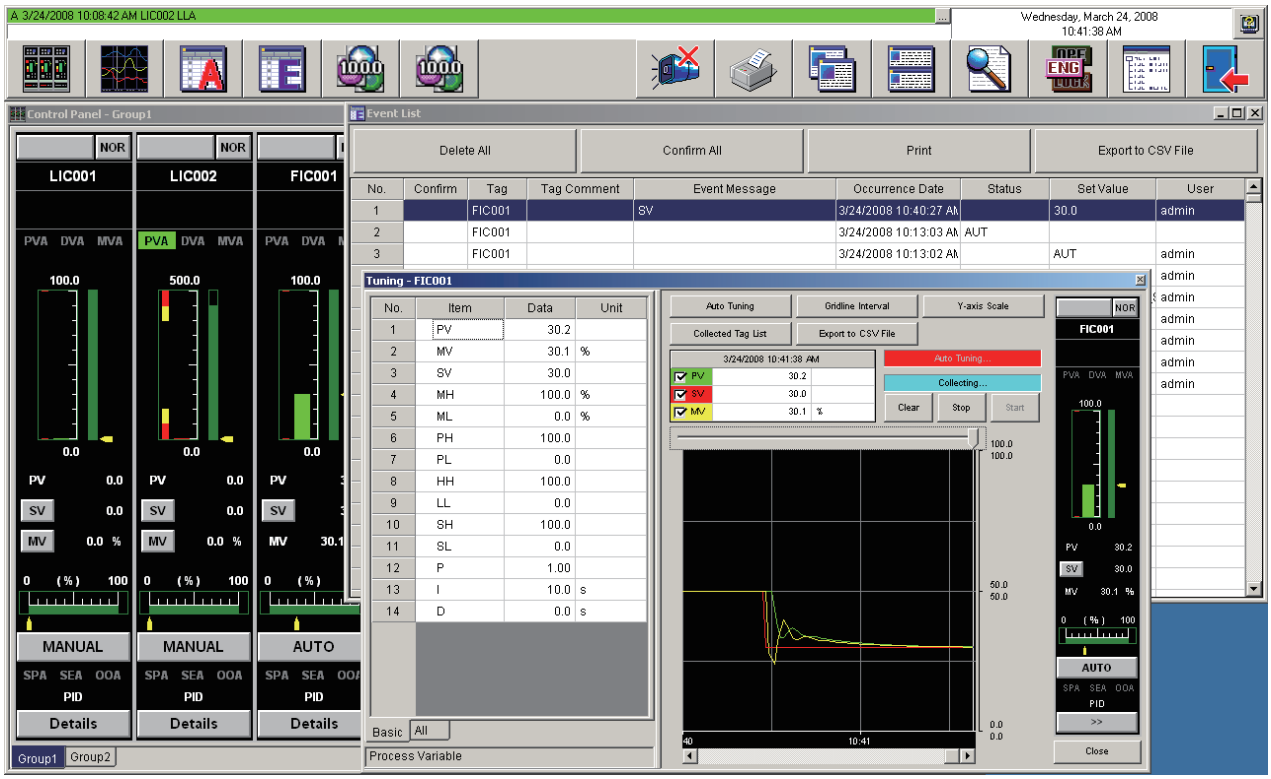
1.1 Overview

PX Developer is a software package which supports users to process DDC on CPU module.
PX Developer consists of programming tool and monitor tool. The programming work is done in FBD language. DDC processing monitor is done with tag data.

PX Developer
- Programming tool (FBD program editing function, FBD→Ladder compile function)
- Monitor tool (DDC monitoring function)

FBD: Function Block Diagram. DDC: Direct Digital Control.

The monitor tool mentioned in this manual is a software tool monitoring and controlling DDC processing on CPU module.



<Monitor Tool Screen>

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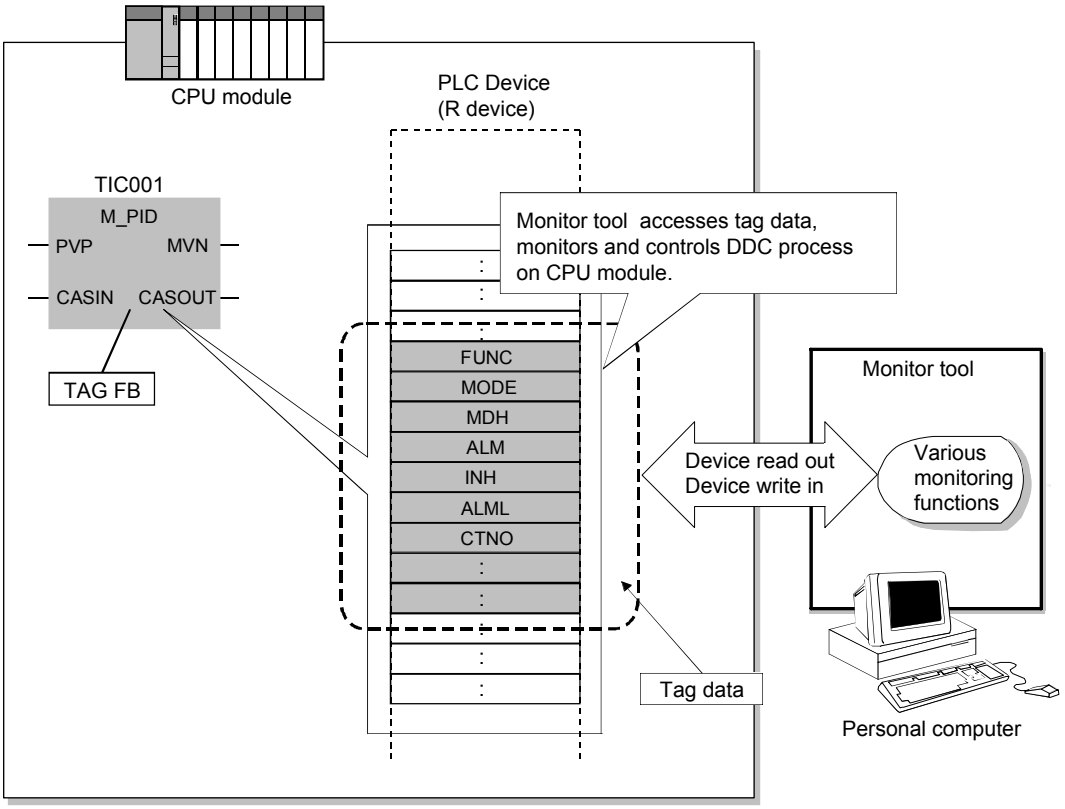
The monitor tool monitors and controls DDC processing executed in the way of tag FB with the programming tool.
Inside Tag FB, there is a data area called tag data. This tag data is arranged on the PLC device. When a program with this tag FB is executed, the tag data can show the logical status of DDC processing at any time. Meanwhile, the monitor tool controls DDC processing logic itself through parameters in this tag data.
Monitor tool communicates with CPU module monitoring and controlling this tag data. The contents of tag data read can be displayed on various kinds of monitor screens. And numerical values can be written to the tag data through users' operation.



The monitoring status with the insertion of tag data

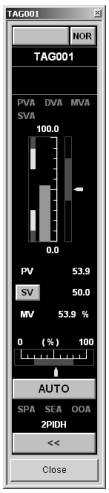
Besides, monitor tool offers ActiveX control. This control can get optional values inside tag data. As a result, users can make optional user-created screens (user monitor screens) with Microsoft® Visual Basic® .
User-created screens made with ActiveX control are easy to be opened by pressing buttons on the monitor tool.

1.2 Features

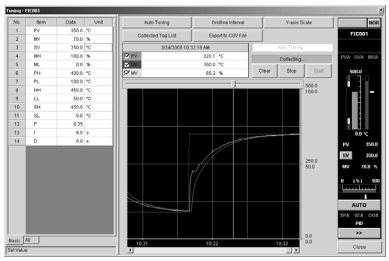
(1) Shorten configuration time of process control system with tag monitoring control function.

Various standard functions are installed inside the monitor tool for tag monitoring control, which are necessary for the start adjustment of process control system.
Communication processing does not need to be programmed, because monitoring work can be done by easily setting tags made by PX Developer programming tool.

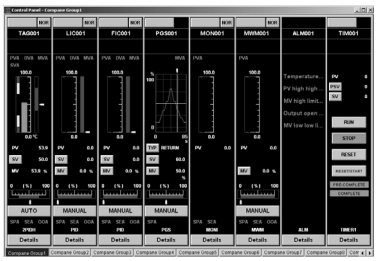
[Standard monitor function installed inside PX Developer monitor tool]



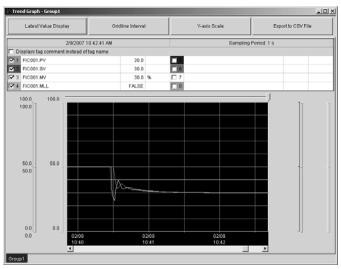
<Faceplate>



<Tuning trend graph>

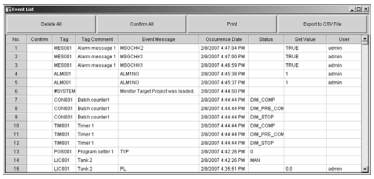


<Control panel>



<Trend graph>

<Alarm list>



<Event list>

(2) Various connection methods with CPU

The monitor tool can monitor and operate up to 8 CPU modules via CC-Link IE controller network, MELSECNET/10(H) or Ethernet network.
The serial/USB connection , CC-Link IE controller network, CC-Link connection and GOT transparent are allowed for adjusting the CPU.

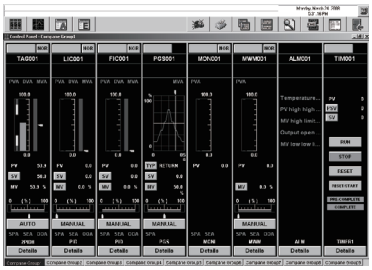
[Communication route of PLC transfer setup that can be set in the monitor tool]

Communication route	Adjustment	Application
Serial/USB	○	×
MELSECNET/10	○	○
MELSECNET/H	○	○
CC-Link IE controller network	○	×
Ethernet	○	○
CC-Link	○	×
GOT transparent	○	×

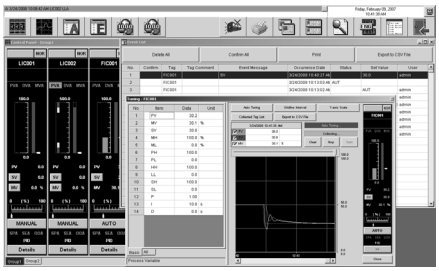
○: usable
×: unusable

(3) Operation environment with single/multiple windows adapted to different purposes.

According to different purposes, single-window mode and multi-window mode can be selected. The former can always display only one screen in maximal size. The latter can display several screens at the same time, furthermore, the window's size and its arrangement can be changed freely through easy setting.



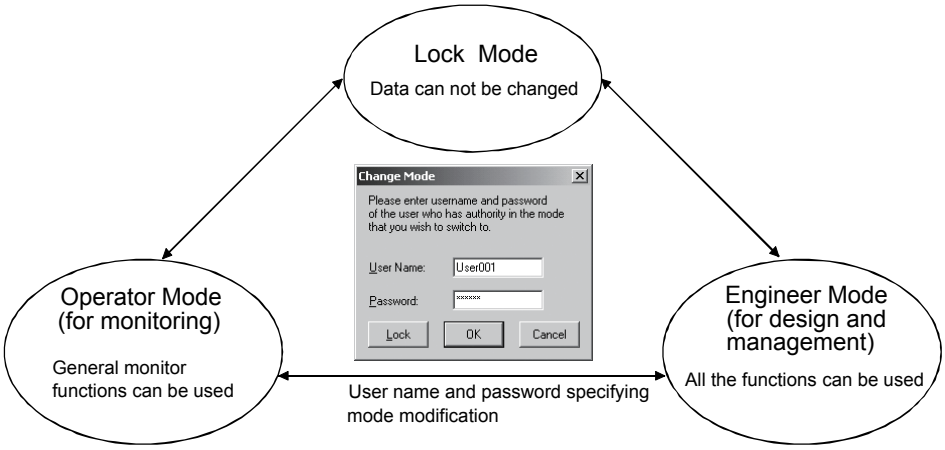
<Single-window mode>



<Multi-window mode>

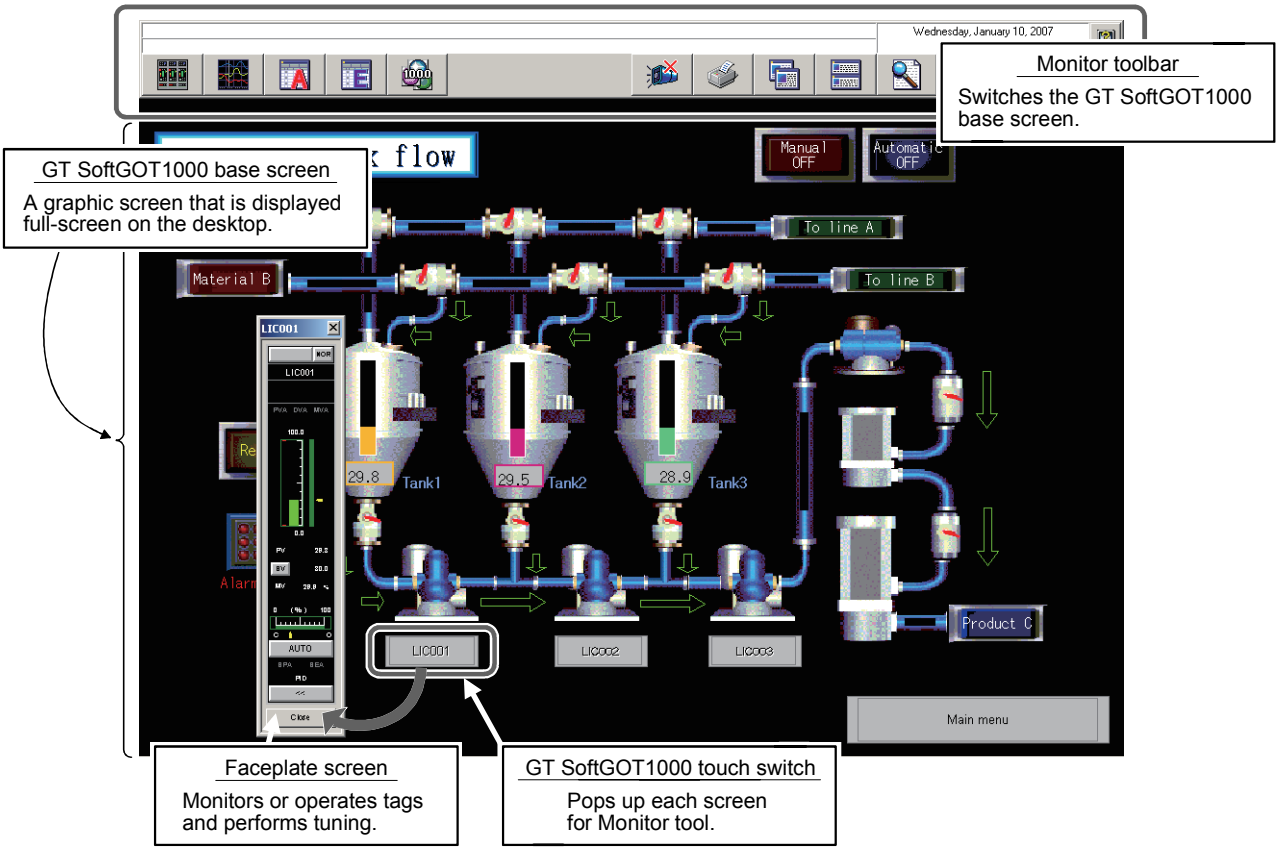
(4) Mis-operation by persons not concerned can be avoided by managing user names and passwords.

In monitor tool, operators without registering user names and passwords (without right) cannot change numerical values and setting by changing modes. Therefore, the mode just needs to be set to lock status. Even without operators, mis-operation by persons not concerned can be avoided.



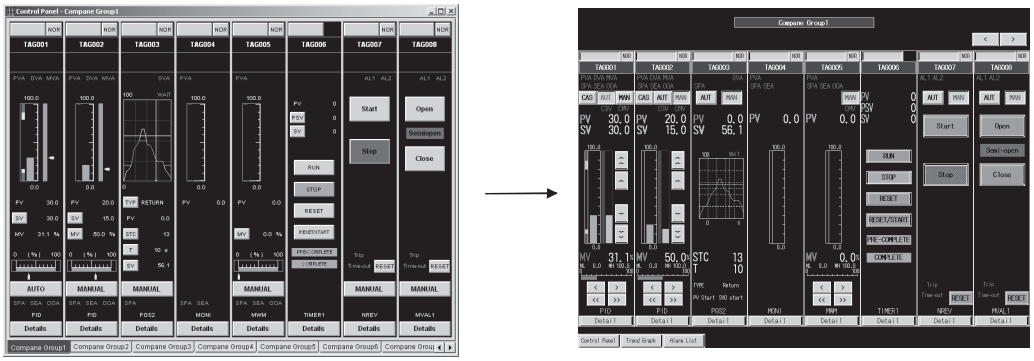
(5) Interaction with GT SoftGOT1000 is possible

Graphic screens created with GT Designer2 can be displayed by starting up GT SoftGOT1000 from the Monitor tool. Users can utilize existing GOT screens and also create graphics using familiar GT Designer2.
Calling monitor tool functions such as faceplate from GT SoftGOT1000 reduces working hours for creating screens.



(6) Auto-generation of GOT screen is possible

GOT screen project can be generated automatically from PX Developer project by using the monitor tool to execute simple setting such as placing screens and then following the wizard to enter required items. This reduces working hours for creating monitoring operation screens.

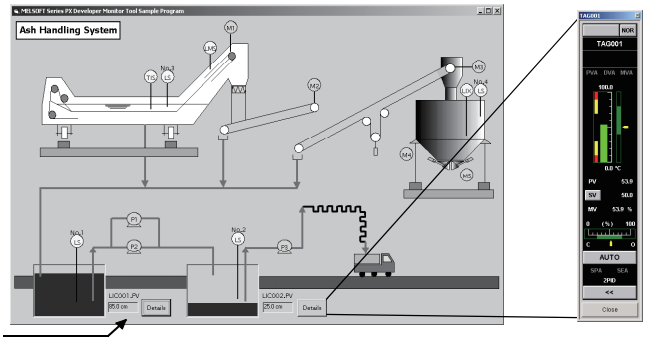


< Monitor tool >

< GOT screen project >

(7) Support user-created screen made by Microsoft® Visual Basic®

Monitor tool provides ActiveX control to get tag data value. To use this control on the graphs made by Microsoft® Visual Basic® , the tag data can be monitored.



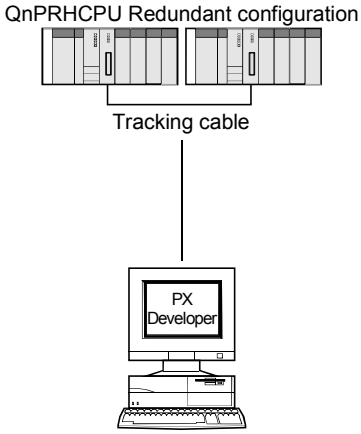
Click button on the screen to open the faceplate

Display the monitoring value of tag data on the user-created screen

(8) Application to Redundant CPU

Monitoring and control can be performed by redundant system including Redundant CPUs.

When the system is switched, the monitoring/control target is automatically changed.



(9) Monitoring is enabled by the monitor tool only.

The personal computer in which GX Developer has not been installed can be monitored by the PX Developer Version 1.06G or later monitor tool only.

2 SYSTEM CONFIGURATION

2.1 System Configuration

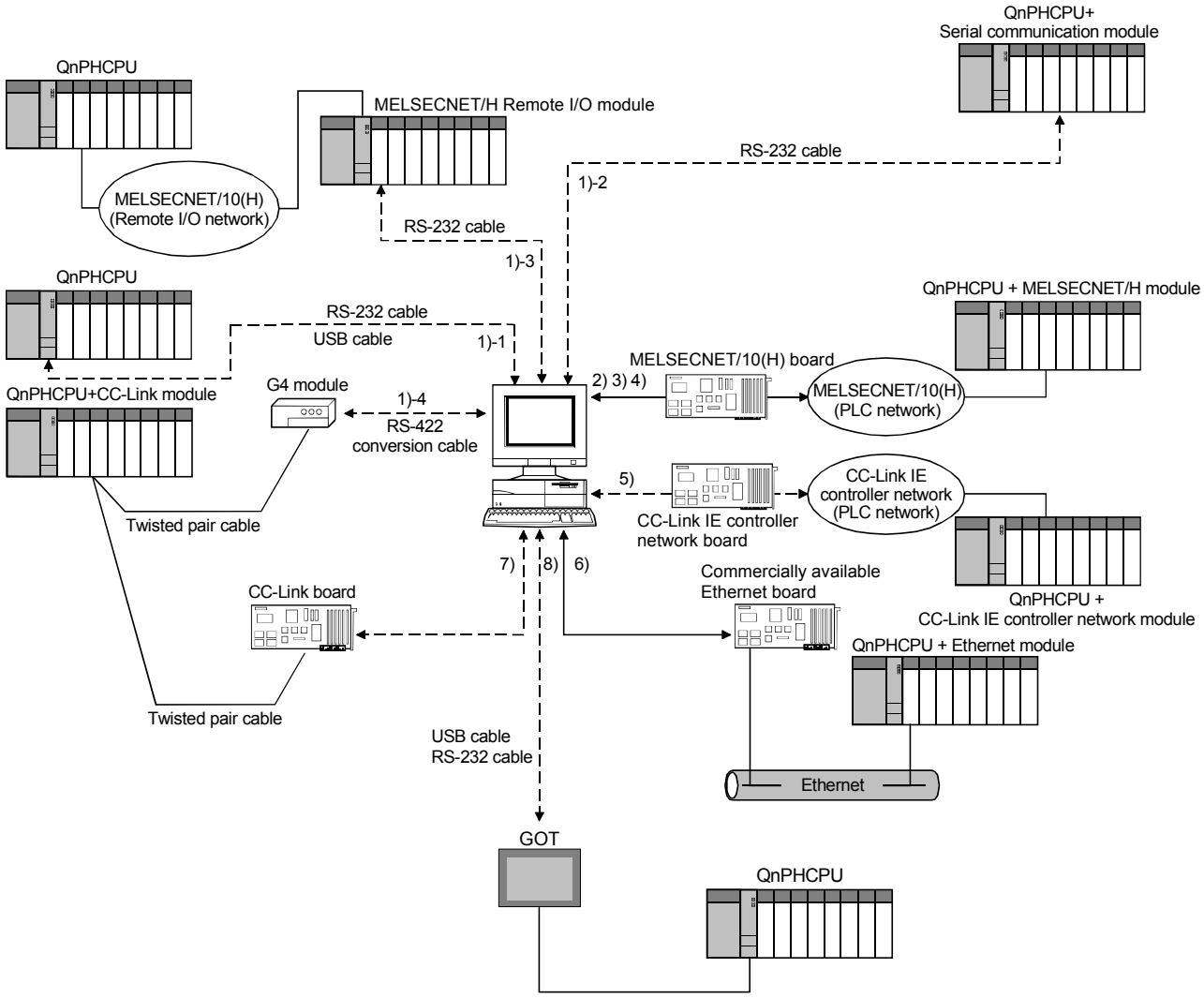
This section deals with system configuration of monitor tools.

2.1.1 Supported CPU

Process CPU: Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU
Redundant CPU: Q12PRHCPU, Q25PRHCPU

2.1.2 Communication route

(1) Connecting to Process CPU



2

Supported route when using Process CPU

No.	Connection method		Precautions for connection
1)-1	Serial/USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 One CPU module can be connected from one personal computer by USB cable. *2
1)-2		C24	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-3		MELSECNET/10(H) remote	
1)-4		G4 module	Use the type of AJ65BT-G4-S3. Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
2)	MELSECNET/10 connection (When using the MESECNET/ 10 board)		The PLC must be set to the MELSECNET/10 compatible mode. When connecting a PLC via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
3)	MELSECNET/10 connection (When using the MESECNET/ H board)		The MELSECNET board and PLC must be set to the MELSECNET/10 compatible mode. When connecting a PLC via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
4)	MELSECNET/H connection		When connecting a PLC via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
5)	CC-Link IE controller network connection		CC-Link IE controller network compatible version of Process CPU is required.*3 Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 The driver for CC-Link IE controller network board whose version supports Process CPU is required.*4
6)	Ethernet connection		The performance as an operator station in normal operation is not guaranteed under the following conditions. *1 • The IP addresses of the Ethernet module and personal computer are not in the same segment. • Single network connection in which a PLC is connected via MELSECNET/10 (H) and Ethernet or in coexistence network connection.
7)	CC-Link connection		Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 CC-Link Ver.1 and Ver.2 boards cannot be used together.
8)	GOT transparent connection*5		Connection method via GOT is the same as that of GX Developer.

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

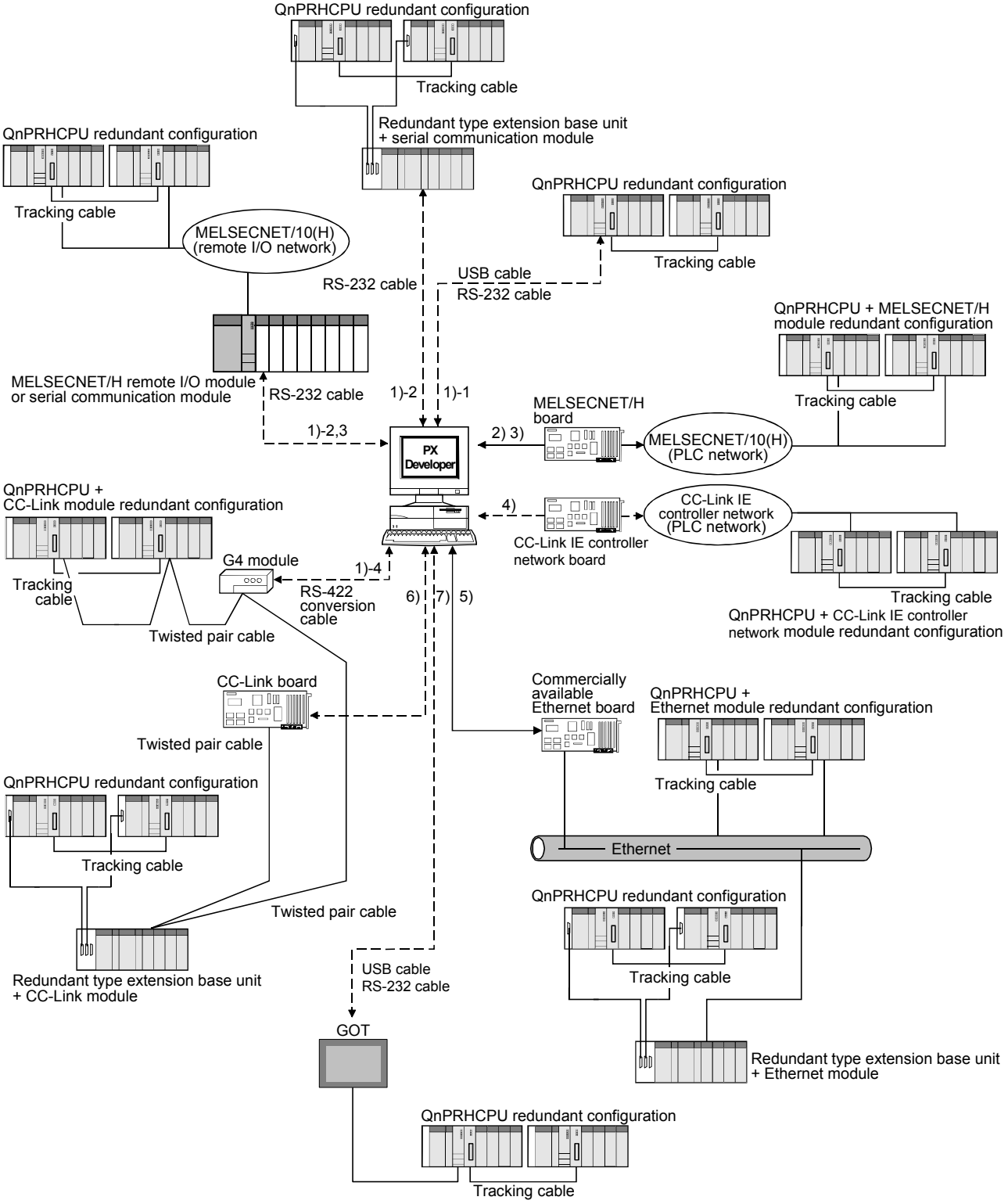
*2: Refer to POINT in Section 2.1.3.

*3: The Process CPU whose first five digits of serial number is 10042 or later is required.

*4: To connect to the Q02PH or Q06PHCPU, the driver (SW1DNC-MNETG-B) Ver.1.03D or later is required. (When connecting to other CPUs, the driver for QnHCPU can be used.)

*5: For details of GOT transparent function, refer to the following manuals:
- GOT1000 Series Connection Manual
- GOT-A900 Series User's Manual (Connection System Manual)
- GOT-F900 SERIES HARDWARE MANUAL [Connection]

(2) Connecting to Redundant CPU of redundant system (backup mode/separate mode)

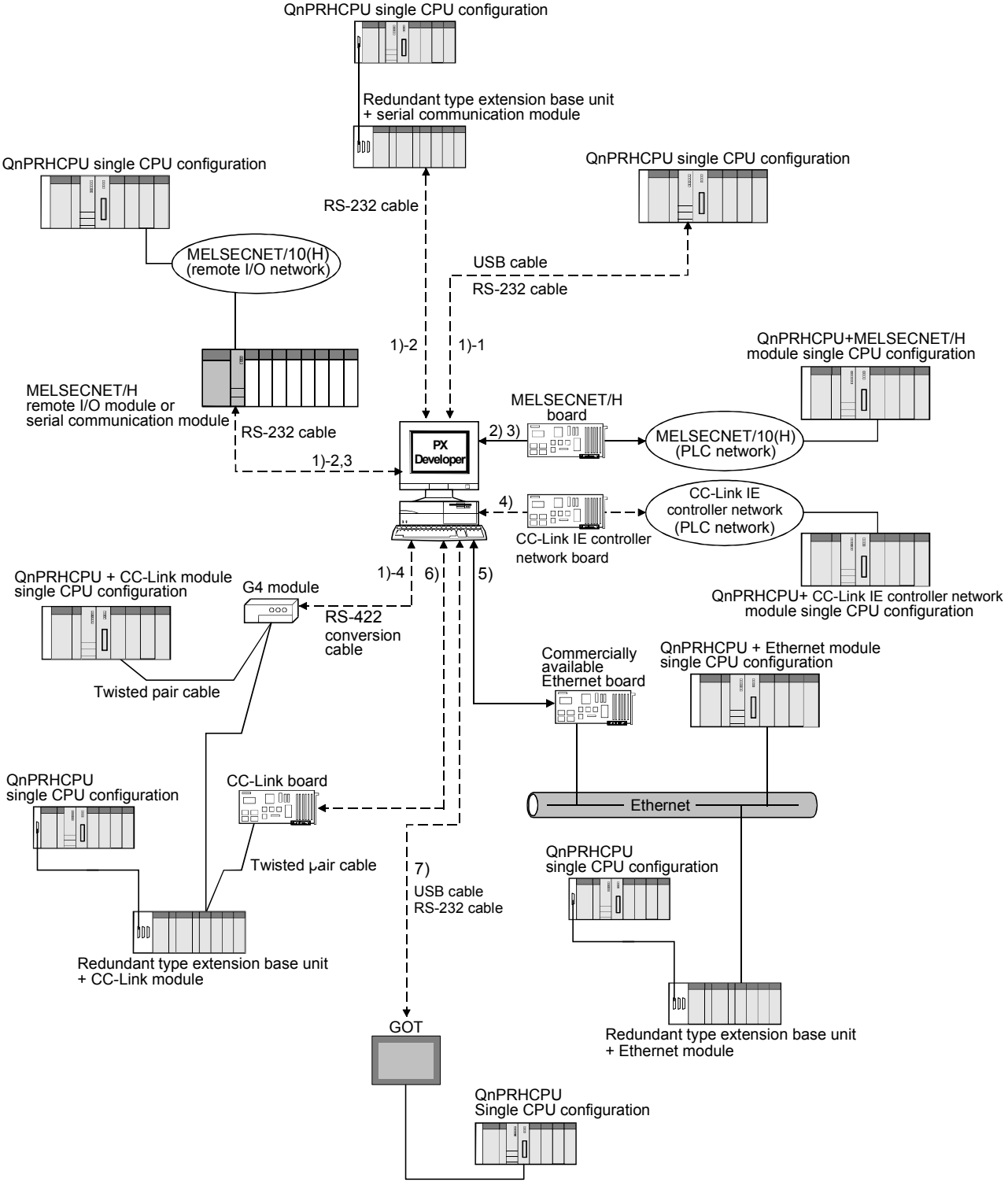


Supported route when using Redundant CPU (redundant configuration)

No.	Connection method		Precautions for connection
1)-1	Serial/USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 Connect a cable to the CPU module in either of system A or system B. (The communication is performed with the CPU module of another system via tracking cable.) One CPU module can be connected from one personal computer by USB cable. *2
1)-2		C24	When connecting via the serial communication module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3 If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-3		MELSECNET/10(H) remote	If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-4		G4 module	If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
2)	MELSECNET/10 connection*4 (When using the MESECNET/ H board)		The MELSECNET board and PLC must be set to the MELSECNET/10 compatible mode. The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting PLCs via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
3)	MELSECNET/H connection		The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting PLCs via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
4)	CC-Link IE controller network connection		CC-Link IE controller network compatible version of Redundant CPU is required. *6 Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 The CC-Link IE controller network module whose version supports Redundant CPU is required.*7
5)	Ethernet connection		The Ethernet module of function version D or later is required to support the Redundant CPU . When connecting via the Ethernet module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3 The performance as an operator station in normal operation is not guaranteed under the following conditions. *1 • The IP addresses of the Ethernet module and personal computer are not in the same segment. • Single network connection in which a PLC is connected via MELSECNET/10 (H) and Ethernet or in coexistence network connection. • Connection via the Ethernet module mounted to a redundant type extension base unit.
6)	CC-Link connection		The driver for CC-Link Ver.1 board and CC-Link module whose versions support Redundant CPU are required. *8 Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 CC-Link Ver.1 and Ver.2 boards cannot be used together. When connecting via the CC-Link module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *6
7)	GOT transparent connection*9		Connection method via GOT is the same as that of GX Developer. Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed.

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.
*2: Refer to POINT in Section 2.1.3.
*3: The Redundant CPU whose first five digits of serial number is 09012 or later is required.
*4: The MELSECNET/10 board is inapplicable, as the driver (SW□DNF-MNET10) is incompatible with the Redundant CPU .
*5: For MELSECNET/H interface board, refer to Section 2.1.4 (1). For MELSECNET/H interface module, the function version D or later is required.
*6: The Redundant CPU whose first five digits of serial number is 10042 or later is required.
*7: The CC-Link IE controller network module whose first five digits of serial number is 10041 or later is required.
*8: For CC-Link Ver.1 board, refer to Section 2.1.4 (3). For CC-Link module, the QJ61BT11N whose first five digits is 06052 or later is required.
*9: For details of GOT transparent function, refer to the following manuals:
• GOT1000 Series Connection Manual
• GOT-A900 Series User's Manual (Connection System Manual)
• GOT-F900 SERIES HARDWARE MANUAL [Connection]

(3) Connecting to Redundant CPU of single configuration (debug mode)



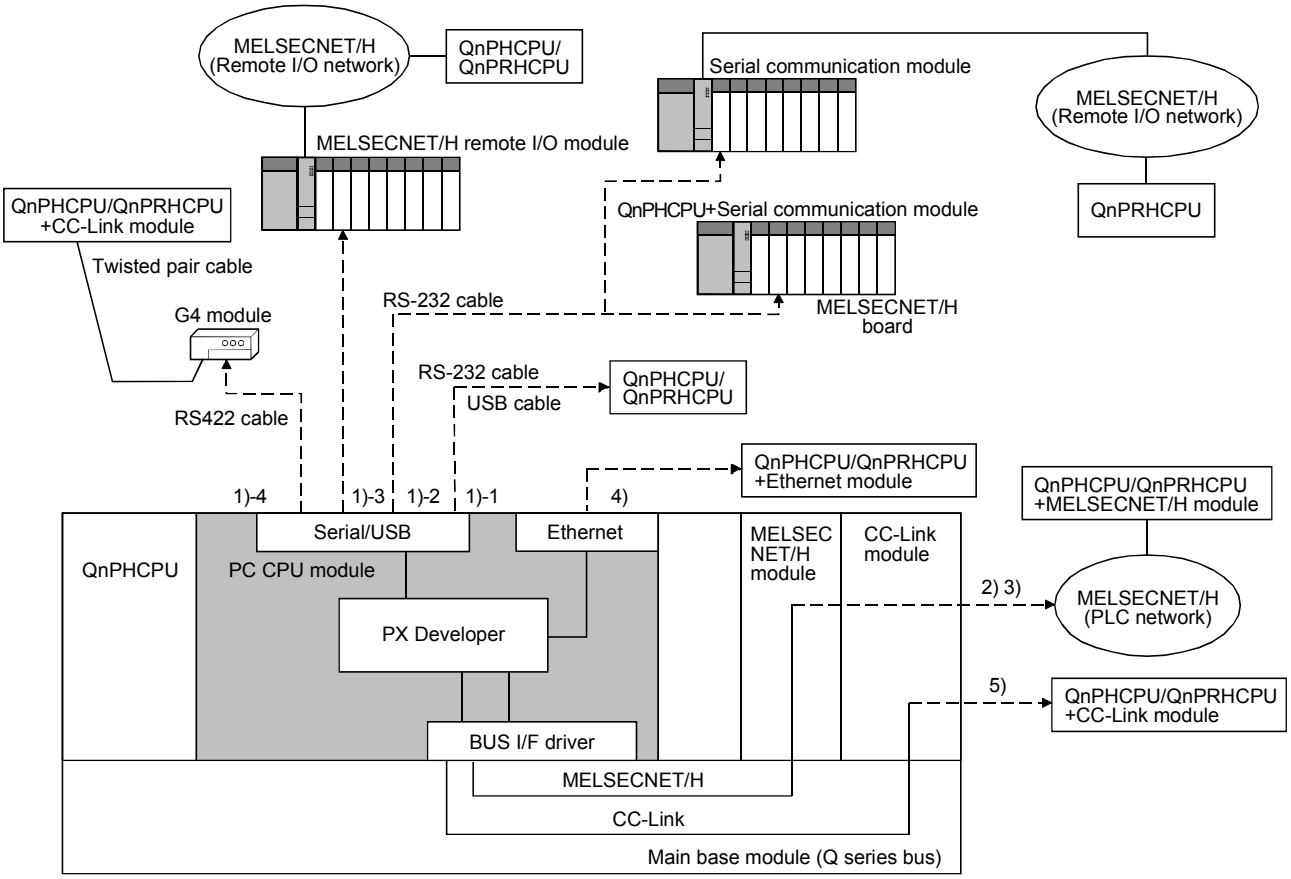
POINT
When monitoring the Redundant CPU in the debug mode, power off the other Redundant CPU or disconnect the CPU from network. Otherwise, a communication error may occur or PX Developer may not normally monitor.

Supported route when using Redundant CPU (single CPU configuration)

No.	Connection method		Precautions for connection
1)-1	Serial/USB connection	CPU module	Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 One CPU module can be connected from one personal computer by USB cable. *2
1)-2		C24	When connecting via the serial communication module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *3 If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-3		MELSECNET/10(H) remote	If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
1)-4		G4 module	If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
2)	MELSECNET/10 connection*4 (When using the MESECNET/ H board)		The MELSECNET board and PLC must be set to the MELSECNET/10 compatible mode. The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting a PLC via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
3)	MELSECNET/H connection		The driver for MELSECNET/H interface board and the MELSECNET/H module whose versions support Redundant CPU are required. *5 When connecting a PLC via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection, the performance as an operator station in normal operation is not guaranteed. *1
4)	CC-Link IE controller network connection		CC-Link IE controller network compatible version of Redundant CPU is required.*6 Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed.*1 The CC-Link IE controller network module whose version supports Redundant CPU is required. *7
5)	Ethernet connection		The Ethernet module of function version D or later is required to support the Redundant CPU . When connecting via the Ethernet module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *7 The performance as an operator station in normal operation is not guaranteed under the following conditions. *1 • The IP addresses of the Ethernet module and personal computer are not in the same segment. • Single network connection in which a PLC is connected via MELSECNET/10 (H) and Ethernet or in coexistence network connection. • Connection via the Ethernet module mounted to a redundant type extension base unit.
6)	CC-Link connection		The driver for CC-Link Ver.1 board and CC-Link module whose versions support Redundant CPU are required. *6 Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1 CC-Link Ver.1 and Ver.2 boards cannot be used together. When connecting via the CC-Link module mounted to the redundant type extension base unit, the version of Redundant CPU needs to be compatible with the redundant type extension base unit. *7
7)	GOT transparent connection*9		Connection method via GOT is the same as that of GX Developer. Applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed.

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.
*2: Refer to POINT in Section 2.1.3.
*3: The Redundant CPU whose first five digits of serial number is 09012 or later is required.
*4: The MELSECNET/10 board is inapplicable, as the driver (SW□DNF-MNET10) is incompatible with the Redundant CPU .
*5: For MELSECNET/H interface board, refer to Section 2.1.4 (1). For MELSECNET/H interface module, the function version D or later is required.
*6: The Redundant CPU whose first five digits of serial number is 10042 or later is required.
*7: The CC-Link IE controller network module whose first five digits of serial number is 10041 or later is required.
*8: For CC-Link Ver.1 board, refer to Section 2.1.4 (3). For CC-Link module, the QJ61BT11N whose first five digits is 06052 or later is required.
*9: For details of GOT transparent function, refer to the following manuals:
• GOT1000 Series Connection Manual
• GOT-A900 Series User's Manual (Connection System Manual)
• GOT-F900 SERIES HARDWARE MANUAL [Connection]

(4) Using the PC CPU module



Supported route when using PC CPU module

No.	Connection method		Precautions for connection
1)-1	Serial/USB connection	CPU module	Same with the precautions for Serial/USB connection of (1) to (3).
1)-2		C24	
1)-3		MELSECNET/H remote	
1)-4		G4 module	
2)	MELSECNET/10 connection (When using the MESECNET/H module)		Same with the precautions for MELSECNET/10 connection of (1) to (3). *2 However, applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
3)	MELSECNET/H connection		Same with the precautions for MELSECNET/H connection of (1) to (3). *2 However, applicable only for adjusting the CPU. If applied for performing normal operations of the CPU as operator station, the performance cannot be guaranteed. *1
4)	Ethernet connection		Same with the precautions for Ethernet connection of (1) to (3).
5)	CC-Link connection		Same with the precautions for CC-Link connection of (1) to (3). *2

*1: This happens as the monitor tool cannot receive event notification. For the system configuration that can receive event notification, refer to Appendix 1.2.

*2: If accessing other station via MELSECNET/H module and CC-Link module, the PC CPU must be set to control the network modules.

2.1.3 Serial/USB connection

(1) Connection cable for serial/USB connection

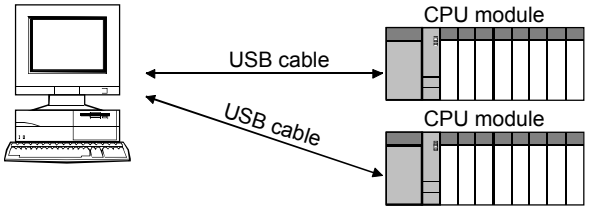
The connection method of serial/USB connection cable is the same when they are connected to GX Developer. For the applicable cables, refer to the GX Developer Operating Manual.

POINT

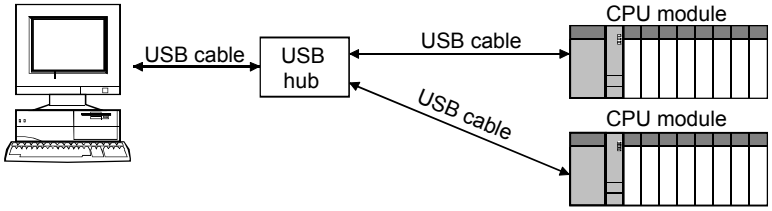
The USB cable connection is not applicable in the following connection structure. Only one personal computer and one CPU module can be connected by USB cable.

<Structures can not be constructed>

- One computer installed with several USB ports is connected to several CPU module.

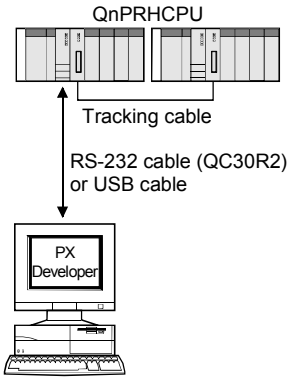


- One computer is connected to several CPU module through USB hub.



REMARK

By connecting a tracking cable to the Redundant CPU in either of system A or system B, QnPRHCPU in both systems can be monitored (The communication is performed with the CPU module of another system via tracking cable.)



(2) Precautions on USB connection

1) A communication error may occur when the personal computer communicates with the CPU module after setting the resume function, suspend setting, power-saving function or standby mode.
Do not set any of the above functions for communication with the CPU module.

2) A communication error may occur and normal operation may not be recovered if connecting and disconnecting a USB cable, resetting the CPU module or turning the power ON/OFF is performed frequently during communication with the CPU module.
When a communication error occurs and normal operation is not recovered, remove a USB cable from the CPU module, and then reconnect it after more than five seconds.
(Even after this operation, an error may occur at the initial communication. Communication, however, will be performed normally at the second time and later.)

2.1.4 Network board

(1) MELSECNET/10,MELSECNET/H, CC-Link IE controller network board

Network	Board	Driver
MELSECNET/10	A70BD-J71QLP23 (For PC/AT, optical) A70BD-J71QBR13 (For PC/AT, coaxial)	SW3DNF-MNET10 (For PC/AT) *1, *2
MELSECNET/10 *4 MELSECNET/H	Q80BD-J71LP21-25 (For PC/AT, optical) *5 Q80BD-J71BR11 (For PC/AT, coaxial) *5	SW0DNC-MNETH(-B)(For PC/AT) *3, *6
CC-Link IE controller network	Q80BD-J71GP21-SX *7, *8 Q80BD-J71GP21S-SX(With external power supply) *7, *8	SW1DNC-MNETG-B*9

*1: The MELSECNET/10 board is inapplicable to the Redundant CPU .
*2: The SW3DF-MNET10 is inapplicable to the following operation systems:
Microsoft® Windows® Millennium Edition Operating System, Microsoft® Windows® 2000 Professional Operating System, Windows® XP and Windows Vista® .
*3: The SW0DNC-MNETH(-B) is inapplicable to the Microsoft® Windows® Millennium Edition Operating System.
*4: Should be used in the MELSECNET/10 compatible mode.
*5: The product whose first five digits of serial number is "06032" or later is required to connect to the Redundant CPU .
*6: The SW0DNC-MNETH(-B) of Ver.90K or later is required to connect to the Redundant CPU .
*7: When connecting with the following CPUs, the CPU module whose first five digits is 10042 or later is required.
Q12PHCPU, Q25PHCPU, Q12PRHCPU, Q25PRHCPU
*8: When connecting with Redundant CPU, the CC-Link IE controller network module whose first five digits is 10041 or later is required.
*9: To connect to the Q02PHCPU or Q06PHCPU, the SW1DNC-MNET-B Ver.1.03D or later is required. (When connecting to other CPUs, the driver for QnHCPU can be used.)

(2) Ethernet Board

The following table shows the Ethernet board/card whose operations are guaranteed by us.

Maker	Model
3COM	EthernetLinkⅢ LAN PC Card
Allied Telesis	CentreCOM LA-PCM Ethernet PC Card LAN Adapter
	RE2000 (ISA)
TDK	10BASE-T LAN card (Model: LAN-CD021BX)

If there are restrictions on Ethernet module to Ethernet board, follow the restrictions.

(3) CC-Link board

Network	Board	Driver
CC-Link Ver.1	A80BDE-J61BT11 (Ver.1 board) *2 A80BDE-J61BT13 (Ver.1 board) *2	SW4DNF-CCLINK-B (For PC/AT) *1, *3
CC-Link Ver.1 CC-Link Ver.2	Q80BD-J61BT11N (Ver.2 board) *2	SW1DNC-CCBD2-B (For PC/AT)

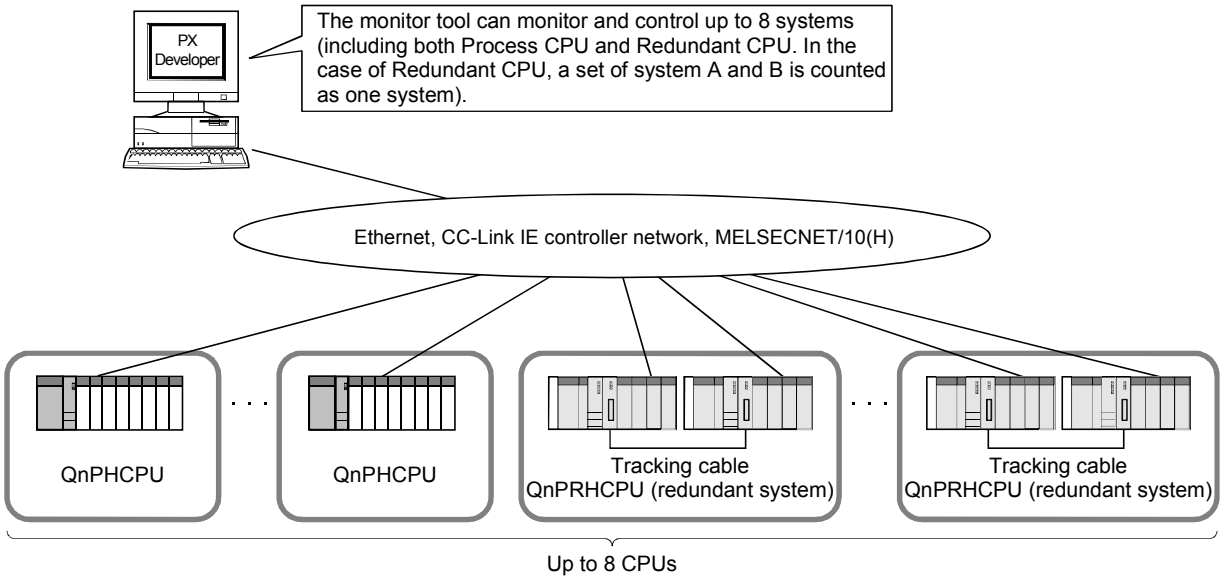
*1: When connecting to a Redundant CPU , the SW4DNF-CCLINK-B of version G or later is required.
*2: CC-Link Ver.1 and Ver.2 boards cannot be used together.
*3: The SW4DNF-CCLINK-B is not compatible with Microsoft® Windows® Millennium Edition Operating System, Microsoft® Windows® XP Home Edition and Windows Vista® .

2.1.5 Printer

No limitation in this application.
Printer on personal computer can be used.

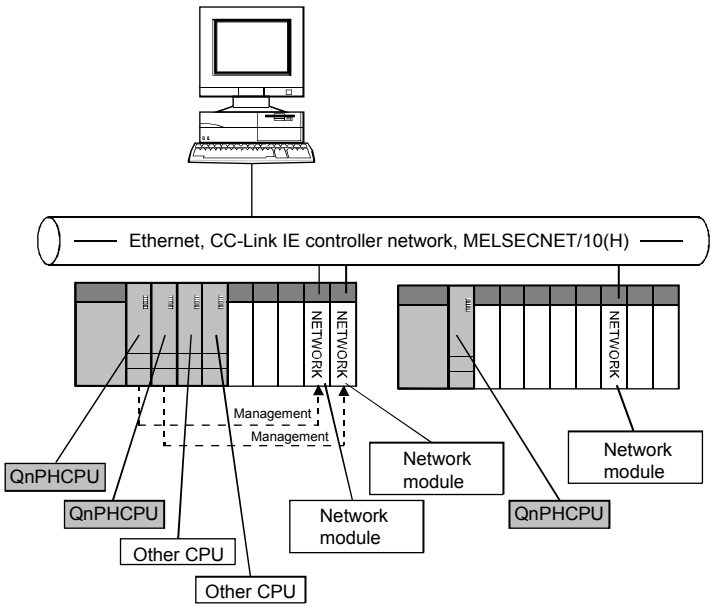
2.1.6 Maximum monitor system configuration limitation with Monitor Tool

A single monitor tool is connectable with eight PLC systems at maximum.
For the system configuration in normal operation, refer to Appendix 1.2.



The multiple CPU system including Process CPU can be monitored when the following conditions are satisfied.

- A network module is controlled by each Process CPU.
- The whole network includes up to 8 CPUs, including Process CPU of multiple CPU system and CPU module of single CPU system. (In the following diagram, 3 QnPHCPUs are counted.)



<System configuration with multiple CPU system>

* The redundant system does not support the multiple CPU system.

2.2 Operating Environment

The following table describes is the operating environment.

<table>
<tr><th colspan="2">ITEM</th><th colspan="2">CONTENT</th></tr>
<tr><td colspan="2">Computer</td><td colspan="2">PC/AT compatible where Microsoft® Windows® Operating System runs</td></tr>
<tr><td>CPU</td><td rowspan="2">Required memory</td><td colspan="2" rowspan="2">Refer to the table in next page, "Applicable operating system and the corresponding required personal computer performance".</td></tr>
<tr><td colspan="2">Hard disk free space</td></tr>
<tr><td colspan="2">Hard disk free space</td><td colspan="2">When installing : Hard disk 200MB or more
When operating: Free space of virtual memory 100MB or more</td></tr>
<tr><td colspan="2">Disk drive</td><td colspan="2">CD-ROM disk drive</td></tr>
<tr><td colspan="2">Display</td><td colspan="2">Resolution: 800 × 600 pixels (256 colors) or more</td></tr>
<tr><td colspan="2">Network interface</td><td colspan="2">One of the following is required
● Ethernet board
● MELSECNET/10 interface board
● MELSECNET/H interface board
● CC-Link IE controller network board
Serial, USB and CC-Link board can only be used for adjustment.</td></tr>
<tr><td colspan="2">Pointing devices</td><td colspan="2">2-button mode mouse or the compatible pointing device</td></tr>
<tr><td colspan="2">Operating system *1</td><td colspan="2">● Microsoft® Windows NT® Workstation Operating System Version 4.0 (English Version) Service Pack 3 or later *2
● Microsoft® Windows® 2000 Professional Operating System (English Version)
● Microsoft® Windows® XP Professional Operating System (English Version) Service Pack 1 or later
● Microsoft® Windows® XP Home Edition Operating System (English Version) Service Pack 1 or later
● Microsoft® Windows Vista® Home Basic Operating System (English Version)
● Microsoft® Windows Vista® Home Premium Operating System (English Version)
● Microsoft® Windows Vista® Business Operating System (English Version)
● Microsoft® Windows Vista® Ultimate Operating System (English Version)
● Microsoft® Windows Vista® Enterprise Operating System (English Version)</td></tr>
<tr><td colspan="2" rowspan="2">Required software package</td><td>When PX Developer Version 1.04E or earlier is used</td><td>GX Developer Version 7 (SW7D5C-GPPW Version 7.20W or later is required) *3</td></tr>
<tr><td>When PX Developer Version 1.06G or later is used</td><td>None</td></tr>
<tr><td colspan="2">Related software package</td><td colspan="2">Software package version required
<table>
<tr><th>Related software</th><th>Model name</th><th>Version</th></tr>
<tr><td>PX Developer Version 1</td><td>SW1D5C-FBDQ-E</td><td>1.14Q or later</td></tr>
<tr><td>GT SoftGOT1000 Version 2</td><td rowspan="2">SW2D5C-GTD2-E
SW2D5C-GTWK2-E</td><td rowspan="2">2.47Z or later</td></tr>
<tr><td>GT Designer2 Version 2</td></tr>
</table></td></tr>
<tr><td colspan="2">Programming language</td><td colspan="2">
<table>
<tr><th>Programming language</th><th>Development software</th></tr>
<tr><td>Visual Basic</td><td>Microsoft® Visual Basic® 6.0
Microsoft® Visual Basic® .NET 2002
Microsoft® Visual Basic® .NET 2003</td></tr>
</table></td></tr>
</table>

*1: Monitor tool cannot be installed on Microsoft® Windows® 98 Operating System and Microsoft® Windows® Millennium Edition Operating System.
Big fonts (Details setting of Screen properties) are not supported.

*2: USB is inapplicable for Microsoft® Windows NT® Workstation 4.0 Operating System, as it will cause a communication error.

*3: GX Developer must be installed because the communication library in GX Developer is used for communication between monitor tool and Process CPU.

Applicable operating system and the corresponding required personal computer performance

Operating System	Required Personal Computer Performance	
	CPU *4	Required memory
Windows NT® Workstation 4.0 (Service Pack 3 or later)	Pentium® 133MHz or more (Pentium® 300MHz or more recommended)	64MB or more
Windows® 2000 Professional	Pentium® 133MHz or more (Pentium® 300MHz or more recommended)	64MB or more
Windows® XP (Service Pack 1 or later)	Pentium® 300MHz or more	128MB or more
Windows Vista®	Pentium 1GHz or more	1GB or more

*4: Cannot be used in the multi processor environment.

POINT

- Folder and file access enable
  This product may make change access to the files of the installation destination folder and sub-folder.
  Hence, when any of the following operating systems is used, file change access enable must have been set for these folders and files by the user who uses this product.
  If file change access enable has not been set, this product may not operate normally.

  Microsoft® Windows NT® Workstation Operating System Version 4.0
  Microsoft® Windows® 2000 Professional Operating System
  Windows® XP
  Windows Vista®

  When this product is used, it is recommended to log on as the user of the administrators group who has the authority to control all of the computer.

- When Windows® XP or Window Vista® is used, the following new functions cannot be used.
  If any of the following new functions is used, this product may not operate normally.

  Start of application in Windows® compatible mode
  Fast user switching
  Remote desktop
  64-bit OS

POINT

- Windows Vista® user account control (UAC)

  (1) When "Privilege Level" of the application[*1] that is set in the user-created screen setting is specified to "Run this program as an administrator", "Privilege Level" of the monitor tool also needs to be specified to "Run this program as an administrator."
  When "Privilege Level" of the monitor tool is specified to "Run this program as an administrator", other applications set in the user-created setting also need to be specified to "Run this program as an administrator."

  (2) When PX Developer is installed in the system area[*2] of Windows, the monitor data file[*3] of the monitor tool is not saved in the folder of PX Developer installation destination. The data file is saved in the virtualized folder[*4] for each user by the virtualization function of Windows Vista® .
  Therefore, the monitor data file cannot be shared between users.
  To save the monitor data in the folder of PX Developer installation destination, "Privilege Level" of the monitor tool needs to be specified to "Run this program as an administrator."
  For the method to execute programs as an administrator in Windows Vista® , refer to Section 5.1.

*1: Applications such as GT SoftGOT1000 and Visual Basic

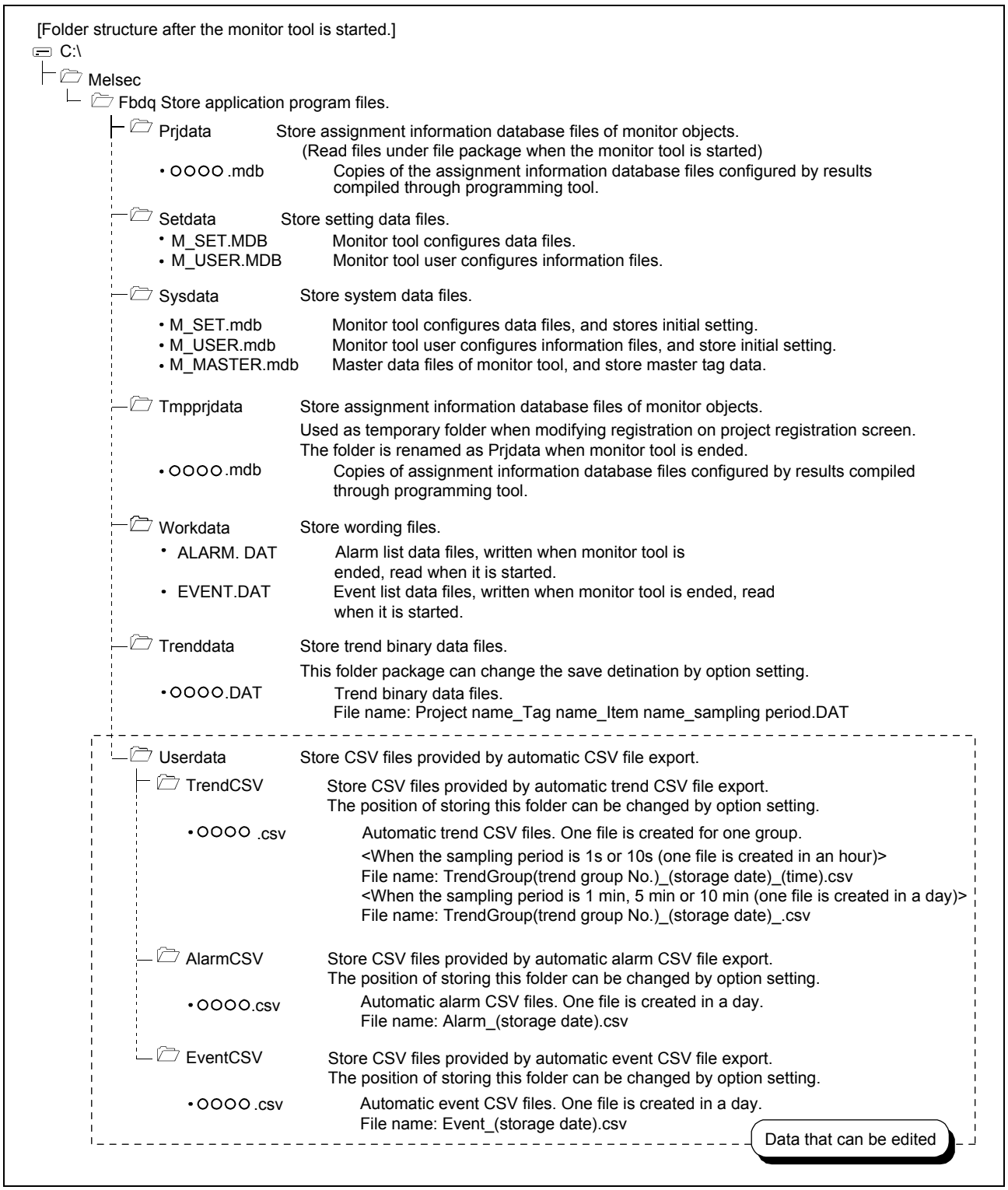
*2: Folders such as "Program Files" and "Windows"

*3: Monitoring data file includes the followings:
- Setting data file
- Trend binary data file (when the storage folder is not specified or in the system area)
- Alarm list/Event list data file
- Trend/Alarm/Event automatic CSV file (when the output folder is not specified or in the system are)

*4: For example, when PX Developer is installed in the "Program Files", the file is stored in the "C:\Users\User_name\AppData\Local\VirtualStore\ProgramFiles\FBDQ" as default.

2.3 Folder Configuration of Monitor Tool

Following will explain the folder configuration and file when the monitor tool is stated up correctly and project made by programming tool is monitored.
The default folder structure of monitor tool is as follows.



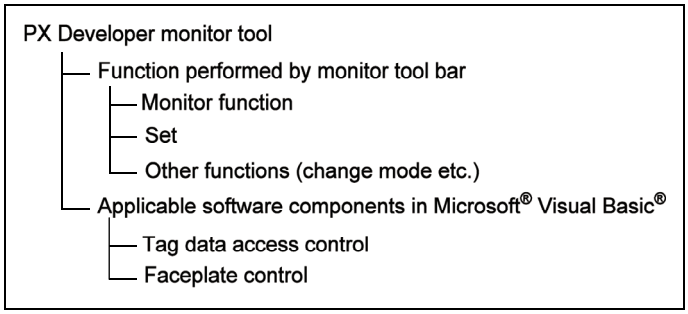
POINT

- Each file is used for storing internal data needed when monitor tool is working. (Basically, user does not need to pay attention to this file.)
- Installation directory can be changed when installing.
- The positions of the "Trenddata", "TrendCSV", "AlarmCSV" and "EventCSV" folders, which store trend binary data files and the files output by automatic CSV file export, can be changed by option setting.

3 FUNCTION OVERVIEW

3.1 Function Overview

The functions of PX Developer monitor tool are as follows



The primary functions performed by tool bar and their corresponding set function screens are introduced here.
As for the detailed introduction of the necessary set for each function, please refer to "Setting under This Condition" in Section 9.15.

Function		Contents	Setting Window
Monitor function	Control panel	A faceplate that can maximum parallel display 8 simulating process control	Control panel setting
	Trend graph	A time sequence change chart that displays tag data item value.	Trend setting
	Alarm list	A list that maximum displays 2000 alarm records	Alarm setting
	Event list	A list that maximum displays 2000 event records	Event setting
	User-created screen	Applied program pointed by start which can display the user-created screen by user.	User-created screen setting
	Pop-up faceplate	A faceplate that can display simulating process control by using pop-up window.	
	Pop-up tuning	A faceplate that can display a tuning pop-up window (faceplate + tuning trend graph + tag monitor).	
Buzzer stop		Stop alarm buzzer.	Option setting
Print screen		Hardcopy of whole screen in the print display.	Option setting
Screen Align		Overlap the diagrams in display or redisplay after vertical arrangement.	
Find		Find tag, Control panel, and Trend graph. Display pop-up faceplate after finding it.	Control panel setting, trend setting.
Change Mode		Determining function limit according to the authority of user. (Mode divided into: lock mode, operator mode engineer mode)	User setting
Setting		Set up work conditions of each function.	
Display communication condition		Confirm the collection period for each type of communication between monitor tool and CPU module.	Monitor target project setting
Automatic CSV file export		Save trend, alarm and event data in CSV files automatically as histories.	Trend setting Option setting
Exit		Stop monitor, exit monitor tool.	

3.2 Function List

The functions of monitor tool are shown here. "Authority" in the table shows the mode in which this function can be used. A certain function cannot be selected and used in other modes.
As for the illustration about mode, please refer to "4 Mode Administration".

Monitor function (General operation) list

Function		Authority	Reference
General operation of monitor window			Section 6.2
	Close window	E/O/L	Section 6.2.1
	Maximize/Minimize Window	E/O/L	Section 6.2.2 to 4
	Change window size	E/O/L	Section 6.2.5
General operation of faceplate			Section 10.1
	SPA (stop alarm) reset	E/O	Section 10.1
	Setting/Removing Lockout Tag	E/(O)	Section 10.2
	Change I/O mode	E/O	Section 10.3.2
	Change control mode	E/O	Section 10.3.3
	Change motion type	E/O	Section 10.3.4
	PV value setting	E/O	Section 10.3.7
	SV value setting	E/O	Section 10.3.8
	MV value setting	E/O	Section 10.3.9
	Count value setting	E/O	Section 10.3.10
	Batch count operation	E/O	Section 10.3.11
	Counter/timer operation	E/O	Section 10.3.12
	Status operation	E/O	Section 10.3.13

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

REMARK

Under the condition of operator mode, the setting/removing lockout tag function using faceplate general operation can only operate the tag, which is defined in the scope of operator.

Monitor function (Monitor window) list

Function			Authority	Reference
Control panel				Section 7.1
	Display	Group tab display (Maximum 500 group)	E/O/L	Section 7.1.1
		Faceplate display (Maximum 8 per screen)		
	Operation	Display group switch	E/O/L	Section 7.1.2
		Faceplate operation	E/O	Chapter 10
		Display pop-up tuning screen	E/O/L	Section 7.1.3
Trend graph				Section 7.2
	Display	Group tab display (Maximum 125 group)	E/O/L	Section 7.2.1
		Trend graph display (maximum 8 per screen)		
	Operation	Display group switch	E/O/L	Section 7.2.3
		Latest value display	E/O/L	Section 7.2.4
		Gridline Interval setting	E/O/L	Section 7.2.5
		Y-axis scale setting		
		Export to CSV file	E/O	Section 7.2.6
Alarm list				Section 7.3
	Display	Display system alarm detail screen	E/O/L	Section 7.3
		Display pop-up faceplate screen	E/O/L	Section 7.6
		Alarm display	E/O/L	Section 7.3.1
	Operation	Confirm check	E/O	Section 7.3.2
		Selected display of alarm	E/O/L	Section 7.3.3
		Delete Recovered Alarms	E/O	Section 7.3.4
		Confirm all	E/O	Section 7.3.5
		Print	E/O	Section 7.3.6
		Export to CSV file	E/O	Section 7.3.7
Event list				Section 7.4
	Display	Operation record	E/O/L	Section 7.4.1
		State change record		
		Information record		
		Monitor target project load history		
		Monitor tool start/stop history		
	Operation	Confirm check	E/O	Section 7.4.2
		Delete all	E/O	Section 7.4.3
		Confirm all	E/O	Section 7.4.4
		Print	E/O	Section 7.4.5
		Export to CSV file	E/O	Section 7.4.6
User-created screen			E/O/L	Section 7.5

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Monitor function (Pop-up window) list

Function				Authority	Reference
Pop-up faceplate					Section 7.6
	Display	Faceplate display		E/O/L	Section 7.6.1
	Operation	Faceplate operation		E/O	Chapter 10
		Display pop-up tuning screen		E/O/L	Section 7.6.2
Pop-up tuning					Section 7.7
	Display	Faceplate display		E/O/L	Section 7.7.1
		Tag monitor display			
		Tuning trend display			
	Operation	Faceplate operation		E/O	Chapter 10
		Tuning trend collecting instruction		E/O	Section 7.7.3
		Change current value		E/O	Section 7.7.4
		Tuning function	Auto tuning (Step Response method/Limit Cycle method)	E/O	Section 7.7.5
			Gridline interval setting	E/O/L	Section 7.7.6
			Y-axis scale setting		
			Collected tag list	E/O/L	Section 7.7.7
			Export to CSV file	E/O	Section 7.7.8

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Other functions (Monitor toolbar)

Function			Authority	Reference
Stop Buzzer			E/O	Section 8.1
Print screen			E/O	Section 8.2
Screen Alignment	Cascade display		E/O/L	Section 8.3
	Tile display			
Find	Search by tag name		E/O/L	Section 8.4
	Search by control panel group name			
	Search by trend graph group name			
Change Mode			E/O/L	Section 4.5
Exit			E	Section 5.2
Help Menu	Display communication condition	Display	E/O/L	Section 8.5
		Reset	E/O	
	PLC error display		E/O/L	Section 6.3.1
	Display operating manual	Monitor Tool		
		GOT Screen Generator		
	About PX Developer			

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Other functions (Automatic functions)

Function		Authority	Reference
Automatic CSV file export			Section 8.6
	Automatic trend CSV file export	E/O/L	Section 8.6.1
	Automatic alarm CSV file export	E/O/L	Section 8.6.2
	Automatic event CSV file export	E/O/L	Section 8.6.3
	Automatic CSV file deletion	E/O/L	Section 8.6.4
	Disk free space check	E/O/L	Section 8.6.5

(Authority ... Valid in E: Engineer mode/O: Operator mode/L: Lock mode)

List of usable software component in Microsoft® Visual Basic®

Function	Authority	Reference
Tag data access control		Section 11.2
Faceplate control		

Setting (General operation) list

Function				Authority	Reference
Common item of setting window					Section 9.1
	Setting item selection			E	Section 9.1.1
	Button operation	Apply setting		E	Section 9.1.3
		Setting cancel			
	Menu	File	Save the setting data	E	Section 9.1.1
			Export Setting Data to CSV File		
			Generate GOT Screen		
			Close		
		Edit	Cut		
			Copy		
			Paste		
			Delete		
			Delete row		

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Setting (Item) list

Function	Setting item	Authority	Reference
User setting			Section 9.2
	User name	E	
	Password		
	Authority		
Monitor target project setting			Section 9.3
	Project name	E	
	Assignment information database file		
	Transfer setup		
Control panel setting			Section 9.4
	Group name	E	
	Tag name		
Trend setting			Section 9.5
	Group name	E	
	Sampling period		
	Automatic CSV file export		
	Tag data item		
	Y-axis scale top limit, bottom limit		
Alarm setting			Section 9.6
	Alarm contents	E	
Event setting			Section 9.7
	Message contents	E	

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Function		Setting item	Authority	Reference
User-created screen setting				Section 9.8
		Application	E	
		Argument		
Unit setting				Section 9.9
		Unit	E	
Faceplate display pattern setting				Section 9.10
		Tag type selection	E	
		String of display and operation button		
		Background color of string of display and operation button		
Faceplate display scale setting				Section 9.11
		Tag name	E	
		PV graph display scale bottom limit		
		PV graph display scale top limit		
		PV graph display division number		
		PV graph display direction		
		PV graph base point when both direction is set		
Faceplate MV characters setting				Section 9.12
		Tag name	E	
		MV graph display character (0%)		
		MV graph display character (100%)		
Lockout tag setting				Section 9.13
		Lockout tag name	E	
		Text color, background color		
		Authority level		
Option setting				Section 9.14
	General	Setting window font	E	
		Monitor window font		
		Printer		
		Window mode		
		Minor alarm color		
		Major alarm color		
		Return check interval (s)		
		Return check timeout (s)		
		PLC status check interval(s)		
		Write tag data (even if the PC's and PLC's project ID codes are different)		
		Automatic CSV file deletion time (0 to 23)		
		Disk free space check size (MB)		

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Function			Setting item	Authority	Reference
Option setting (continued)	Alarm/ event	General	Alarm/Event display on 2nd Line of monitor tool bar	E	Section 9.14
			Highlighted display while alarms occur		
			Event notification UDP port No.		
			Automatic alarm CSV file export		
			Automatic alarm CSV file deletion		
			Alarm CSV file storage period (days)		
			Automatic alarm CSV file export target folder		
			Automatic event CSV file export		
			Automatic event CSV file deletion		
			Event CSV file storage period (days)		
			Automatic event CSV file export target folder		
		Minor alarm	Buzzer type		
			Beep sound time interval		
			Beep sound frequency		
			Sound file		
		Major alarm	Buzzer type		
			Beep sound time interval		
			Beep sound frequency		
			Sound file		
		Event	Buzzer type		
			Beep sound time interval		
			Buzz sound frequency		
			Sound file		

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

Function		Setting item	Authority	Reference
Option setting (continued)	Faceplate	SV Limit Excess Setting	E	Section 9.14
		Background color		
		Text color		
		Alarm area color (no alarm)		
		Button text color		
		Button background color		
		PV bar positive direction color		
		PV bar negative direction color		
		PV bar both direction color (Positive)		
		PV bar both direction color (Negative)		
		PV high/low limit Value bar color		
		PV high high/low low Limit value bar color		
		SV/MV limit value bar color		
		SV/MV pointer color		
		SV(Target) Pointer Color for 2PIDH		
		MV Status Color		
		Frame color (No lockout tag)		
	Trend graph	Gridline		
		Gridline color		
		Background color		
		Graph 1 to 8 color		
		Trend binary data storage folder		
		Automatic trend CSV file export target folder		
		Automatic trend CSV file export time (0 to 23)		
		Automatic trend CSV file deletion		
		Trend CSV file storage period (days)		

(Authority...E: Engineer mode/O: Operator mode/L: Valid for lock mode)

4 MODE ADMINISTRATION

4.1 Mode Overview

When using the monitor tools, the users need to be pre-registered, and their password and authority should be defined. (Engineer or Operator)
When the monitor tool starts, it is in the lock mode and all the operation of configuration and change value are restricted.
When operating, the user designates user name and password, as well as changing the mode. After the change, the mode can be operated within the authority (engineer or operator) corresponding to the pre-registered user names.
Before the operator leaves, if the lock mode is set, the mis-operation by irrelevant persons can be avoided.

4.2 Mode Types

Among the monitoring tools 3 kinds of modes can be set for every user

Mode name	Illustration	Corresponding user's authority
Engineer Mode	For all functions	Engineer
Operator Mode	For mode with general monitor function	Operator
Lock Mode	The setting and tag data mode can not be changed	(No designated user)

4.3 User Authorities

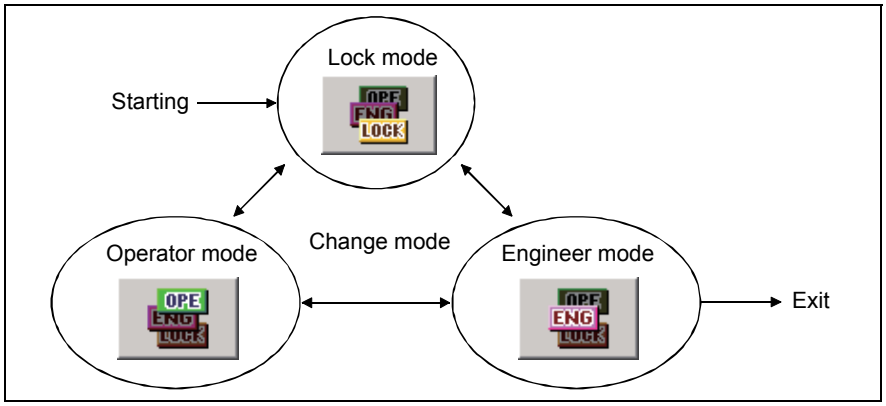
Some available functions will be limited according to the modes

Function	Comment	Lock	Operator	Engineer
Setting	Set the operation conditions of all functions	No	No	Ok
Exit	Exit monitor tools to stop monitoring	No	No	Ok
Lockout tag/ setting/removing	Forbid the operation on the faceplate/ cancel the forbiddance	No	Partly ok Only the operators' grade tag can be changed	Ok All the lockout tags can be changed

(As for the detailed application limits in every function mode, please refer to the functions list in Section 3.2)

4.4 Mode Transition

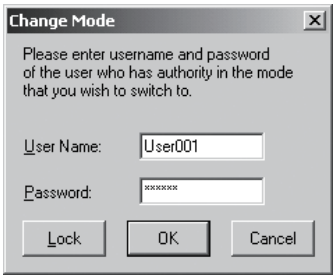
At the starting time, the lock mode is used.
The closing monitor tool can be realized only in the engineer mode.



4.5 Mode Change

By designating pre-reregistered user name and password, change mode function can be employed to change the mode according to the user authority.
User name, its corresponding authority and password are registered by user settings. (refer to Section 4.6, Section 9.2)

↓



1. Click the "Change Mode" button on the monitor tool bar.

2. One of the following two operations can be executed in the "Change Mode" dialog box.

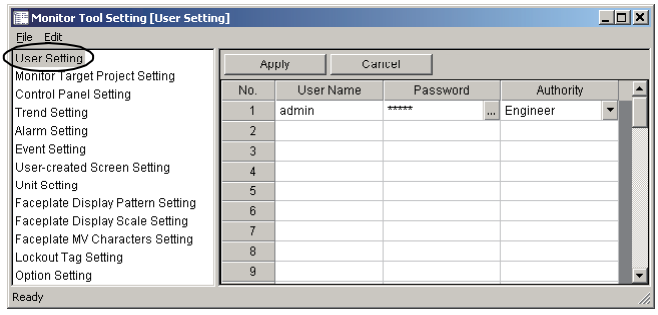
   (In the setting operator/engineer mode)
   - Input character string to user name and password item.
     Click the "OK" button.

   (Return to lock mode)
   - Click the "Lock" button.

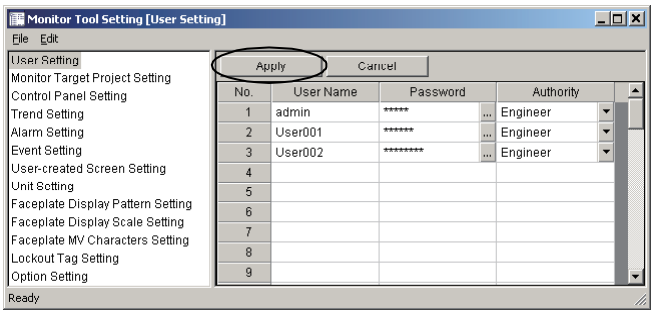
4.6 User Setting

To register the individual user name and password of each operator for operation, the mode must be changed to the engineer mode after a start of the monitor tool.
In the following procedure, display the user setting window and make necessary user setting.
Only in the engineer mode, can the user setting be executed.
For details about the setting window, please refer to Section 9.2.

↓



↓



1. Click the "Setting window" button on the monitor tool bar.

2. The Monitor tool setting window is displayed.

3. Choose "User setting" in the setting item on the left side of the screen, then set freely on the user setting graph displayed on the right side.

4. Click the "Apply" button after finishing inputting all the user name, password and authority.

5. Execute the instruction in the menu: [File] → [Save the setting data] (even without this operation, the setting result will be automatically saved into the setting data file when the monitor tool finishes its task).

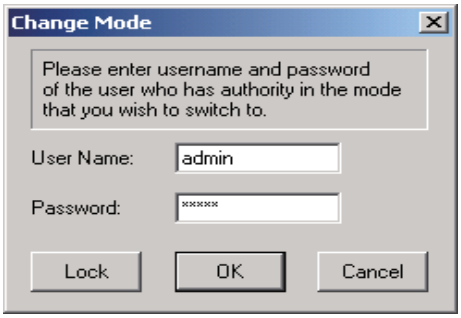
6. Close the setting window.

4.7 Changing Mode after Installation

In order to execute change mode, the user name and password should be registered through the user setting beforehand. (refer to Section 4.6, Section 9.2)
But when the monitor tool starts, the setting window can't be displayed, and the mode is the lock mode.
After the installation, the user setting has not yet been executed. In order to display the user setting window and use it as the initial screen, the following user name and password have been registered in advance.
If the mode is changed with designated user name and password, all function of the monitor tool can be operated when the mode changes into the engineer mode.

User Name	Password	Authority
admin	admin	Engineer

↓



1. Click the "Change Mode" button in the monitor tool bar.

2. Input user name (admin) and password (admin), and then click the "OK" button. (The mode will be changed into engineer mode.)

POINT

If the registered user name and password of engineer authority is forgotten, the operation cannot be executed, at that time, please set the user name and password at [Product ID]. The mode is changed by the user with the first engineer authority though there are other users registered in user setting.
(Product is in [Software registration confirmation] of product package. The partition No. of product ID is "-")

5 START AND EXIT

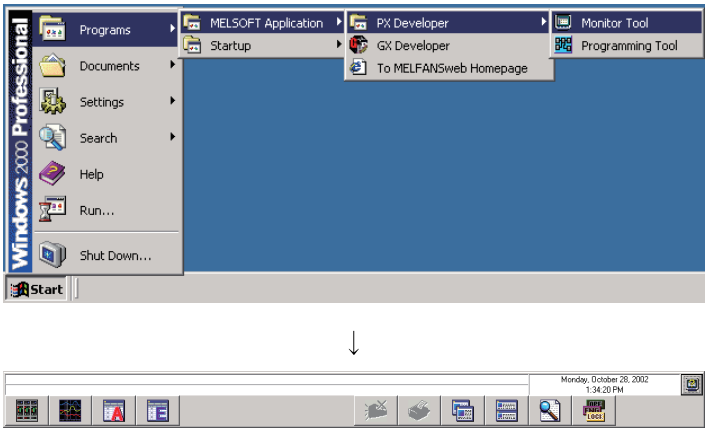
5.1 Starting Monitor Tool

PURPOSE

Start the monitor tool

BASIC OPERATION

The following illustration is about the starting method from the start menu of Microsoft® Windows® Operating System.



1. The cursor moves this way: [Start] → [Program] → [MELSOFT Application] → [PX Developer].
2. Click [Monitor Tool].
3. Start monitor tool of PX Developer. The starting screen appears.

4. The monitor toolbar appears on the top of the screen.

REMARK

Use of PX Developer Version 1.04E or earlier

To use monitor tool, GX Developer Version 7(SW7D5C-GPPW-E Version 7.20W) or later is necessary. Without the above-mentioned software, the corresponding information will be shown at beginning, and the monitor tool cannot be started.

<Method to execute programs as an administrator in Windows Vista® >

(1) When user account control (UAC) is enabled

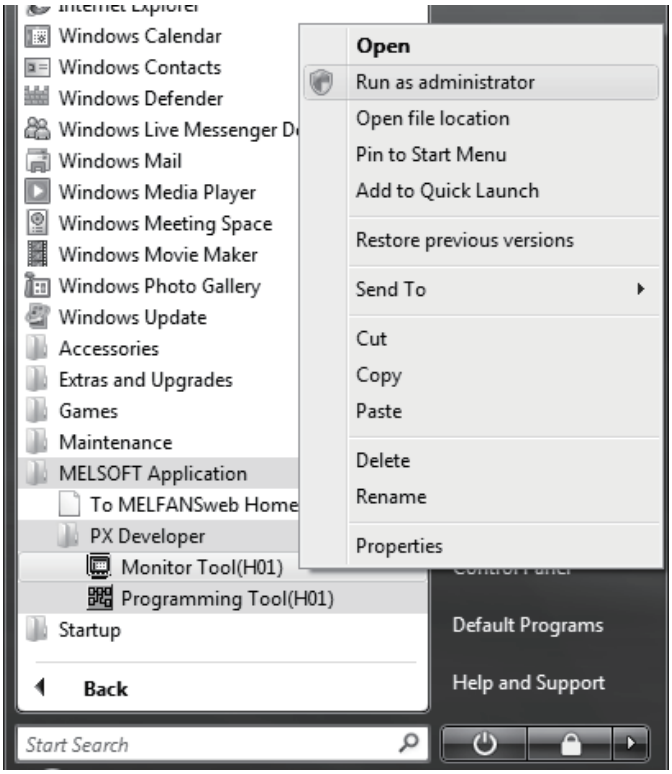
All users including administrator are fixed at and operate as "standard user".
To execute programs in administrator authority, specify "Run as administrator".

(2) When user account control (UAC) is disabled

Programs can be executed by logon user.
(Specifying “Run as administrator” is not necessary.)

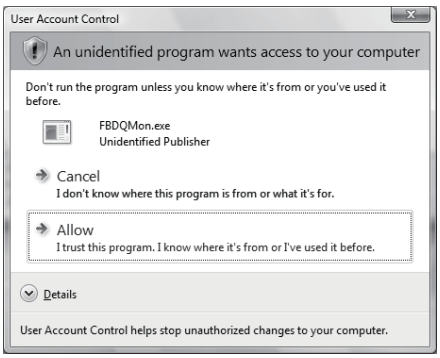
(3) Procedure to execute programs as an administrator

The following shows a procedure to execute the monitor tool as an administrator when UAC is enabled.



Select "Monitor Tool", right-click, and select "Run as administrator" for execution.

* When the user account that is logging on to Windows is an administrator, the following message will be displayed. *[1]
Selecting "Allow" enables to execute as an administrator.

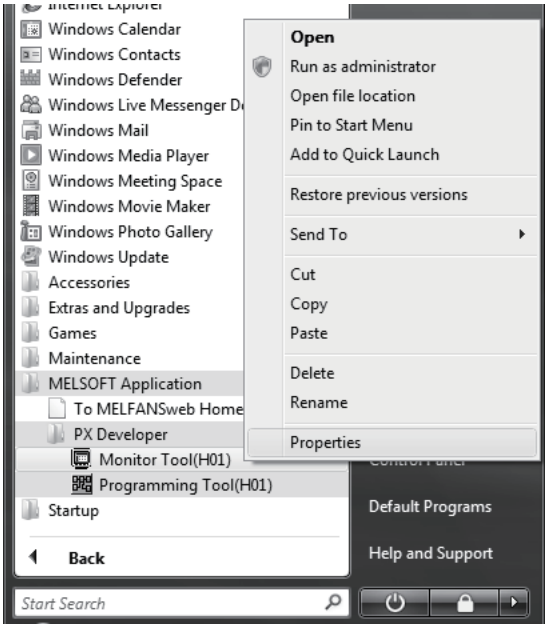


*1: For the method to prevent this screen from appearing, refer to Appendix 4.

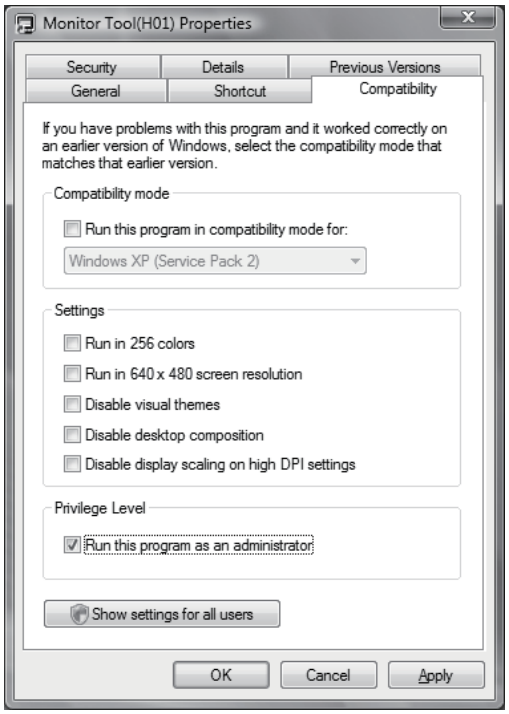
5 - 2

(4) Setting to always execute programs as an administrator

To always "execute programs as an administrator", set as follows.



1) Select "Monitor Tool", right-click, and select "Properties".



2) Select the <<Compatibility>> tab and check "Run this program as an administrator".

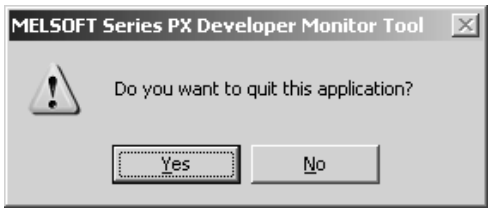
5.2 Exiting Monitor Tool

PURPOSE

Exit monitor tool.

BASIC OPERATION

↓



1. Click the "Exit" button in the monitor toolbar.
2. Click the "Yes" button in the dialog box.
3. Exit the monitor tool.

POINT

- Only in engineer mode, can it be exited.
  After installation, "admin" may be used as user name and password when it is necessary to immediately change the mode into engineer mode. (refer to Section 4.7)
- "Exit the monitor tool" will stop all the data collecting process.
- When the monitor tool is closed, the user-created screen started with it (refer to Section 7.5) will also be entirely shut off.

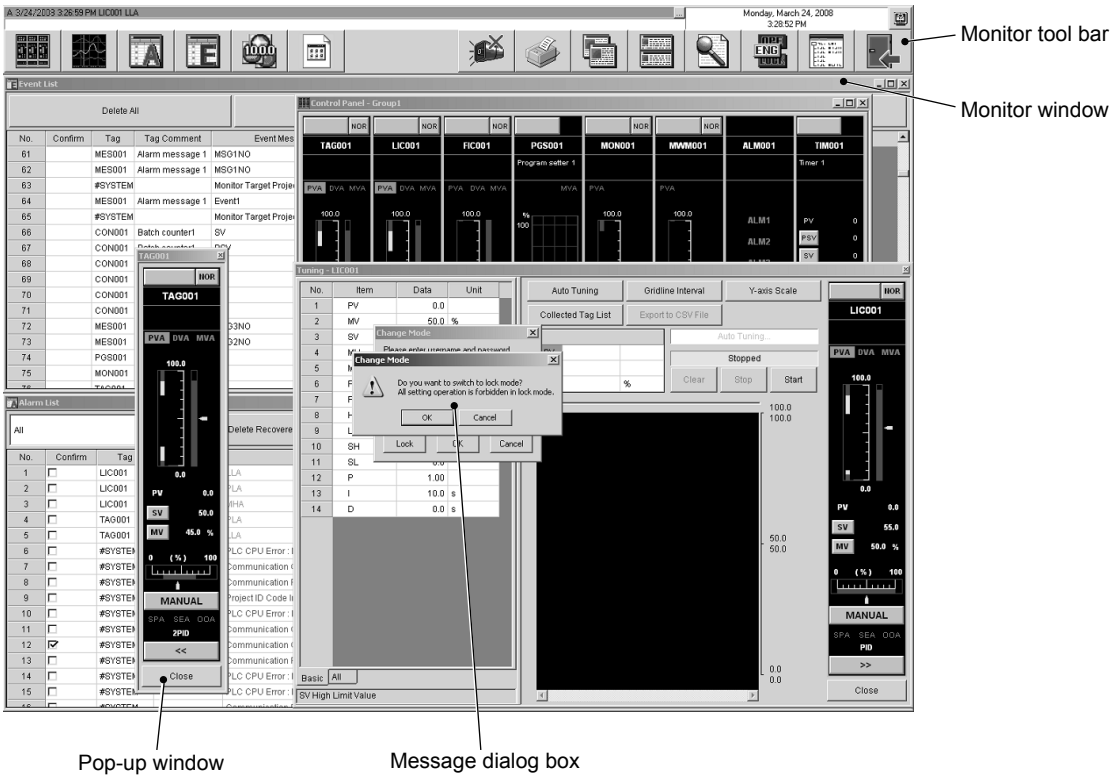
6 SCREEN CONFIGURATION AND BASIC OPERATION

6.1 Overview of Screen Configuration

The screens displayed by monitor tools can be approximately classified as follows:

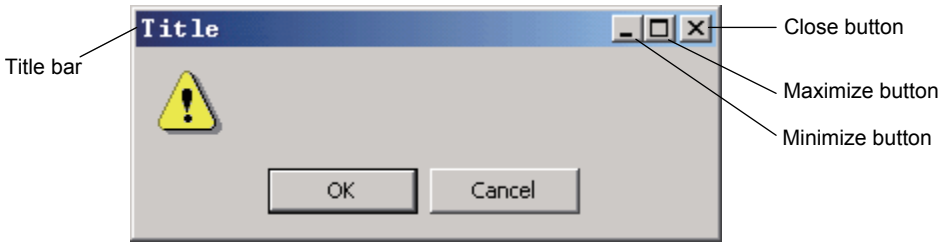
Screen		Feature	Maximum number
Monitor toolbar		Menus to select primary functions. They are always on the top of the screen and will not be cascaded by other windows.	1
Monitor Window	Multi-window mode	Normal windows with variable sizes, possible to be maximized and minimized.	4
	Single window mode	Windows displayed in maximum size, unable to be displayed simultaneously within a plurality of windows.	1
Pop-up window		Usually displayed in front of other windows, with variable sizes, maximization and minimization unallowable.	2
Message, dialog box		Used for display of user's confirmations and settings, fixed window-size.	

The number of screens that can be displayed is subject to the type of the screen. Besides monitor toolbars, 4 monitor windows and 2 pop-up windows can be displayed simultaneously under the multi-window mode.



6.2 General Operation of Screen

A title bar indicating the name of each screen will be available on the upper part of each window.



The title bar can be used to display the system menu for primary operations of the window. And the system menu can be displayed via two ways.

- Right click the title bar on the upper part of the window.
- Press Alt + Space

6.2.1 Closing a window

PURPOSE

Close a displayed window

BASIC OPERATION

Use any one of the methods shown below to close a window except a toolbar.

- Click the close button at the upper right corner of the window.
- Select the [Close] option from the system menu.
- Press Alt + F4.
- Click the "Close" button on the faceplate. (Except the control panel)

6.2.2 Maximizing a window

PURPOSE

To extend a displayed window to a window overlapping the whole screen below the toolbar.

BASIC OPERATION

Use any one of the methods shown below to maximize a window.

- Click the maximize button at the upper right corner of window.
- Select the [Maximize] option from the system menu.
- Press Alt + Space and press x key.
- Double click the title bar at the top of the window.

6.2.3 Minimizing a window

PURPOSE

Temporarily close a displayed window and show buttons of task bars of Microsoft® Windows® Operating System.

BASIC OPERATION

Use any one of the methods shown below to minimize a window.

- Click the minimize button at the upper right corner of the window.
- Select the [Minimize] option from the system menu.
- Press Alt + Space and press n key.

6.2.4 Restoring a window

PURPOSE

To restore the maximized window back to its original state before maximization.

BASIC OPERATION

Use any one of the methods shown below to restore a maximized window to its original size.

- Click the restore button at the upper right corner of the window.
- Select the [Restore] option from the system menu.
- Press Alt + Space and press r key.

6.2.5 Changing the window size

PURPOSE

Change the size of a displayed window.

BASIC OPERATION

(1) Change the width of a window
Scroll the cursor at the right or left of the window until the cursor becomes a right-left directional arrow, and then pull the border of the window rightward or leftward (hold the key of the mouse and move it).

(2) Change the height of a window
Scroll the cursor at the upper or lower of the window until the cursor becomes an upper-lower directional arrow, then pull the border of the window upward or downward.

(3) Change the width and height simultaneously
Move the cursor to one corner of the window till the cursor becomes a slant two-direction arrow, and then pull the border of the window toward any direction.

REMARK

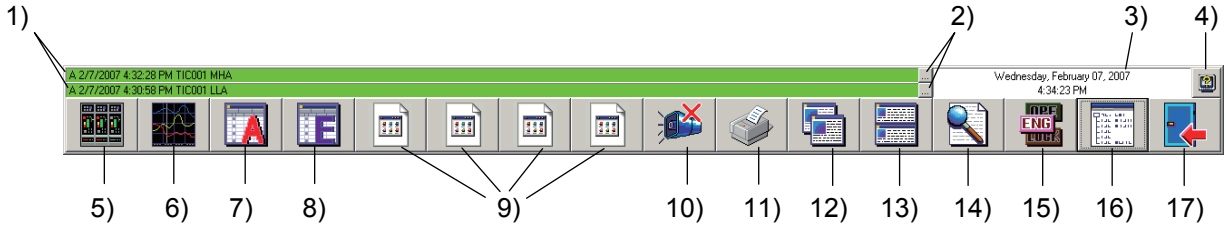
- The window size is not changeable after maximized (full-screen display).
- The characters size will be automatically adjusted according to the window size.

6.3 Monitor Toolbar

The monitor toolbar is displayed on the top of the screen after the monitor tool is started.
The major function menu for users is displayed in button form, on the monitor toolbar.

6.3.1 Contents of monitor toolbar

The following is the monitor toolbar in the monitor tool.



(1) The list of the displayed components

The components on the monitor toolbar are as follows.
Depending on difference of modes etc, there are also situations in which buttons are not displayed. (The details will be recounted in later part of the passage.)

No.	Item	Contents	L	O	E	Setting
1)	Alarm/event display area	Display alarm/events.	○	○	○	○
2)	Faceplate screen display button	Display pop-up faceplate screens of the tag associated with alarm/events.	○	○	○	△
3)	Date/time display area	Display current date/time.	○	○	○	○
4)	Help menu display button	Display help menu.	○	○	○	○
5)	Control panel screen display button	Display control panel screen.	○	○	○	△
6)	Trend graph screen display button	Display trend graph screen.	○	○	○	△
7)	Alarm list screen display button	Display alarm list screen.	○	○	○	△
8)	Event list screen display button	Display event list screen.	○	○	○	△
9)	User-created screen button 1 to 4	Start up registered application program and display user-created screen.	○	○	○	△
			No registration: ×			
10)	Stop buzzer button	Stop the buzzer beep.	△	○	○	○
11)	Print screen button	Print the displayed screen.	△	○	○	○
12)	Cascade window button	Cascade monitor window.	Multi : ○ Single : ×			
13)	Tile window button	Tile the monitor window.				
14)	Find button	Display find dialog box.	○	○	○	△
15)	Change mode button	Display change mode dialog box.	○	○	○	△
16)	Setting window button	Display setting window.	×	×	○	○
17)	Exit button	Exit monitor tools.	×	×	○	△

(L: Lock mode, O: Operator mode, E: Engineer mode, Setting: Setting window is displayed
○: Valid display, △: Gray display indicates an invalid click, ×: Nothing displayed)

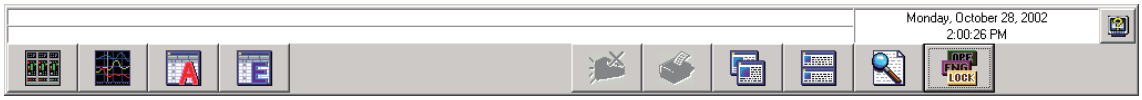
(2) Display/hide buttons

Depending on different modes and settings, unavailable buttons will not be displayed.

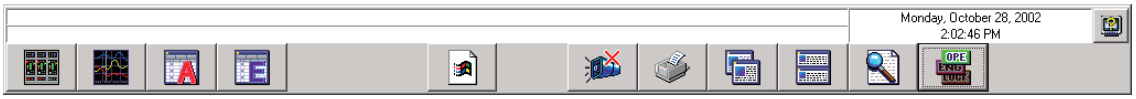
- Buttons of 2), 5) to 9), 14), 15), 17) cannot be clicked when the setting window is opened.
- On the user-created screen button 1 to 4 of 9) are the icons of application program registered by users. If the program is unregistered, no button will be displayed. (refer to Section 9.8 for the details about registration.)
- Cascade window button 12)/ Tile window button 13) is only displayed in multi-window mode, not in single-window mode. Window mode can be switched with option setting (General). (refer to Section 9.14).
- Setting window button 16) and Exit button 17) are only displayed in engineer mode. Switching to the engineer mode can be implemented with change mode button 15).

The following are some display samples of the monitor toolbars.

Lock Mode (No User-created Screen Setting, multi-window mode)

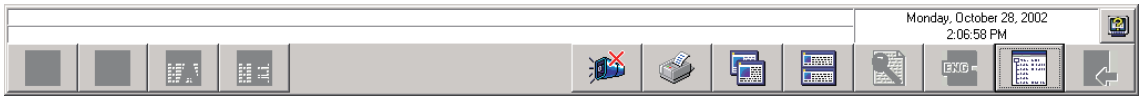


Operator Mode (User-created screen Setting 3 activated, multi-window mode)



Engineer Mode (User-created screen Setting 1 to 4 activated, multi-window mode, 1 row of alarm messages)

Setting window in display (No User-created screen Setting, multi-window mode)



Setting window in display (User-created screen Setting 3 activated, single-window mode, 2 rows of alarm messages)

(3) Alarm and event display area

The upper portion of the monitor toolbar is the area where 2 rows of messages are shown.

(a) Alarm and event display

The first line of alarm and event display shows the up-to-date alarm.
The second line can display alarm and event at user's disposal.
The option at the second line can be executed with option setting (Alarm/Event general) of function setting. (refer to Section 9.14)

1) Case1:
selected "alarm" in option setting (Alarm/Event general)

The first row	The unconfirmed latest alarm highlighted in alarm list screen
The second row	The second alarm after the unconfirmed latest alarm highlighted in alarm list screen

2) Case2:
selected "event" in option setting (Alarm/Event general)

The first row	The unconfirmed latest alarm highlighted in alarm list screen.
The second row	The unconfirmed latest event message in event list screen.

<Display form of alarm>

	Occurrence date	Occurrenec time	Tag name	Tag comment	Alarm content	Faceplate display button
A	01/26/2002	11:13:23AM	TIC001	**********	**********	..

<Display form of event>

	Occurrence date	Occurrenec time	Tag name	Tag comment	Event content	Faceplate display button
A	01/26/2002	11:13:23AM	TIC001	**********	**********	..

Tag names are displayed with 12 characters from its head. Suspension points (...) will be attached to the tag name when it exceeds 12 characters.

Example) TAG012345678 → TAG012345678
TAG0123456789 → TAG012345678...

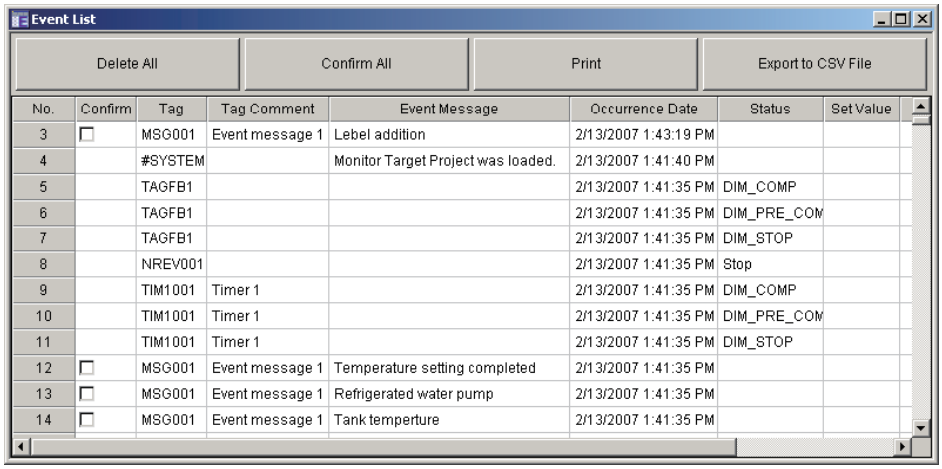
Tag comments are displayed with 24 characters from its head when "Display Tag Comment" is set for Alarm/event display format of the monitor toolbar in option setting.
Suspension points (...) will be attached to the tag name when it exceeds 24 characters.
Tag comments are not displayed for system alarms because they do not have any tag comments.

(b) Faceplate display button

The faceplate display button appears at the right end of the alarm/event display area.
A faceplate screen correlative with the displayed alarm will pop up when this button is clicked.
The faceplate display button appears only for able-to-show-faceplate alarms/events.
The so-called able-to-show-faceplate alarm means the alarms other than system alarm.
The so-called able-to-show faceplate event means the event that tag data of message tag has a confirmation check.
Please refer to Section 7.3.1 and 7.4.1 for details of warnings and events.

(c) Displaying alarm/event list

The Alarm list screen/Event list screen is displayed by double-clicking any space other than the Faceplate screen display button in the alarm/event display area while alarm/event is displayed on the monitor toolbar. *1
The Alarm list screen/Event list screen shows relevant alarm/event selected. *2



No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value
3	☐	MSG001	Event message 1	Lebel addition	2/13/2007 1:43:19 PM		
4		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 1:41:40 PM		
5		TAGFB1			2/13/2007 1:41:35 PM	DIM_COMP	
6		TAGFB1			2/13/2007 1:41:35 PM	DIM_PRE_COM	
7		TAGFB1			2/13/2007 1:41:35 PM	DIM_STOP	
8		NREV001			2/13/2007 1:41:35 PM	Stop	
9		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_COMP	
10		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_PRE_COM	
11		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_STOP	
12	☐	MSG001	Event message 1	Temperature setting completed	2/13/2007 1:41:35 PM		
13	☐	MSG001	Event message 1	Refrigerated water pump	2/13/2007 1:41:35 PM		
14	☐	MSG001	Event message 1	Tank temperture	2/13/2007 1:41:35 PM		

Event list example displayed by double-clicking the alarm/event display area

*1: List screen is not displayed in the following cases:
- when the maximum number of screens to be monitored (refer to Section 6.1) is opened
- when the setting window is displayed
- When the change mode screen is displayed
- When the message box, which appears when the “Exit” button or “Print” button is clicked, is displayed

In the Alarm list screen, all alarms are displayed.

*2: When dialog boxes or message boxes are displayed from the list screen, relevant alarm/event will not be selected.

(4) Date/Time display area

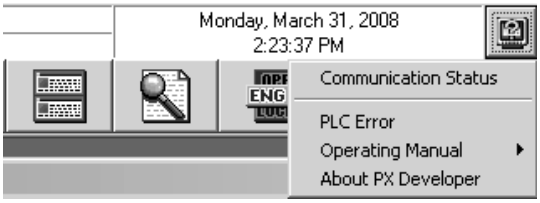
It is the upper right area of the monitor toolbar displaying the current date and time according to the personal computer's settings.

(5) Display button of help menu

It is the button in the top right corner of monitor toolbar. Click this button to display help menu.

Display help menu

Click button to display help menu.



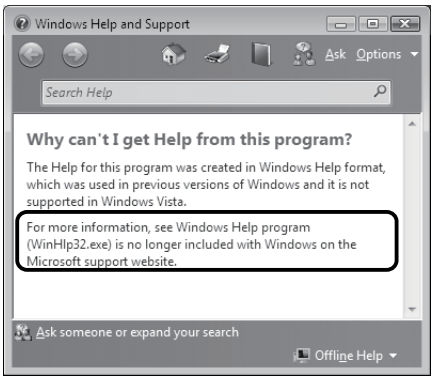
Item		Descriptions
Communication Condition		Display communication status screen. (refer to Section 8.5) This menu cannot be selected when the setting window (refer to Section 9.1.1) is in display.
PLC Error		Display the help screen related to the PLC CPU error codes of the installed GX Developer. *1
Operating Manual	Monitor Tool	Start Acrobat® Reader to display PX Developer Operating Manual (Monitor Tool). *2
	GOT Screen Generator	Start Acrobat® Reader to display PX Developer Operating Manual (GOT Screen Generator). *2
About PX Developer		Display product information such as version.

*1: If GX Developer has not been installed, the PLC error help screen will not appear.

*2: If Acrobat® Reader has not been installed, the manual will not appear.

POINT

When Help is run using Windows Vista® , the following "Windows Help and Support" screen may appear, and the Help screen is not displayed.
Perform the following procedure to install “WinHlp32.exe” which is needed to display the Help screen. (Note: The personal computer needs to be connected to the internet.)



(1) Click the Help button.

(2) The screen shown left opens. Click the link section.

(3) The Microsoft Support Knowledge Base page opens. (http://support.microsoft.com/kb/917607/en-us)
Follow the instruction and download the Windows Help program for Windows Vista (WinHlp32.exe).

(4) Install the file that has been downloaded.

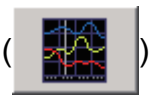
6.3.2 Screen display buttons

It displays all monitor window buttons of the monitoring function.
Please refer to chapter 7 for details about monitor window.

(1) Control Panel Screen display button ()

PURPOSE

Display the control panel screen. (refer to Section 7.1)
Although one control panel screen already exists, another one will be displayed again.

(2) Trend graph display button ()

PURPOSE

Display the trend graph screen. (refer to Section 7.2)
Although one trend graph screen already exists, another one will be displayed again.

(3) Alarm list screen display button ()

PURPOSE

Display Alarm list screen. (refer to Section 7.3)
If the alarm list screen is in display, the current screen can be activated without the need to reopen it.

(4) Event list screen display button ()

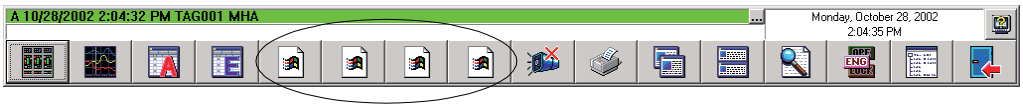
PURPOSE

Display Event list screen. (refer to Section 7.4)
If the Event list screen is in display, the current screen can be activated without the need to reopen it.

POINT
When opening the setting window, no buttons can be clicked.

6 - 10

The following functions are to display those screens that are not immediately set after installation.
Arbitrary screen structure can be specially customized depending on different demands.



(5) User-created screen display button (The button icon is subject to registered application programs.)

PURPOSE

Assign monitoring applications to user-created screen buttons on the monitor toolbar.
Programs created with GT SoftGOT (refer to Section 11.1) or Microsoft® Visual Basic (refer to Section 11.2) can be assigned as applications.

POINT

- When opening the setting window, no buttons can be clicked.
- User-created screen button 1 to 4 will show the icons of those applications registered by users. If unregistered users use the program, these buttons will not be displayed.
- Even though the monitoring screen opened by user-created screen button is not a monitoring screen, it will still be treated as a monitor window.
  As for the limitation of screens to be open simultaneously, please calculate it as one screen of monitor window (refer to Section 6.4).
- When the monitor tool is closed, all user-created screens (refer to Section 7.5) started by it are also closed.

6.3.3 Stop buzzer button

PURPOSE

Stop the buzzer beep.
No changes will occur if this button is clicked when the buzzer is not beeping.
(refer to Section 8.1)

POINT
This button cannot be clicked in lock mode.

6.3.4 Print screen button

PURPOSE

Print the whole hard copy of the displayed desktop. (refer to Section 8.2)

POINT
This button cannot be clicked in lock mode.

6.3.5 Screen alignment button

PURPOSE

Rearrange the displayed windows. (refer to Section 8.3)

(1) Cascade display button

Display the windows in an overlapping way. All windows are staggered and overlapped to each other like pokers in a cater corner direction.

(2) Title display button

Divide the screen into equal portions, and display them together.

POINT
Buttons will not be displayed in the single window mode. Switching of the window mode can be accomplished with option setting (General). (refer to Section 9.14)

6.3.6 Find button

PURPOSE

Search for tags, control panel and trend graphs. (refer to Section 8.4)

POINT
Do not click the Find button when opening the setting window.

6.3.7 Change mode button

PURPOSE

Switching the Lock/Operator/Engineer mode.

POINT
Do not click the change mode button when opening the setting window.

6.3.8 Setting window button

PURPOSE

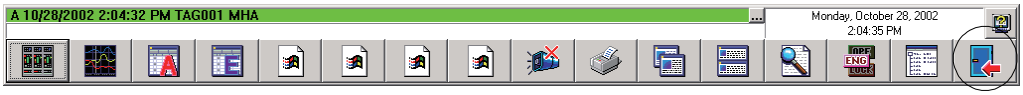
Display the monitor tool setting window.

POINT
Only executable in engineer mode. This button will not be displayed in lock mode or operator mode.

6.3.9 Exit button

PURPOSE

Exit the monitor tool. (refer to Section 5.2)



POINT
● Only executable in engineer mode. This button will not be displayed in lock mode or operator mode. ● All screens displayed from the monitor toolbar are closed. ● Do not click the Exit button during the opening of the setting window.

6.4 Monitor Window

Monitor windows are screens to display monitor results.

6.4.1 Types of monitor window

Monitor windows can be classified as following types:

Type	Specification	Reference
Control panel	Display tag faceplates taking group as a unit.	Section 7.1
Trend graph	Display time sequence change of the values of tag data items by curves.	Section 7.2
Alarm list	Display a recorded alarm list	Section 7.3
Event list	Display a recorded event list	Section 7.4
User-created screen	Display a screen made by user, can make monitor screens of any structure.	Section 7.5

6.4.2 Display form of monitor window

Monitor windows display in the normal window style. Display styles vary with the window modes, arranging form of the screen and maximize/minimize of the screen.

(1) Window mode

In monitor tool, the display mode can be selected from two types of display forms of monitor window according to different uses.
Window modes can be set through option setting (General).

Window Mode	Specification	Maximum display screens
Multi-window	It remembers screen size of each window when they are closed, and still displays at the remembered sizes next time. If sizes are not remembered when installation is finished, it displays the basic sizes.	4 screens
Single-window	It is always displayed at the maximum status. (It cannot be set as the normal window size.)	1 screen

(2) Alignment of the screens

Under the multi-window mode, buttons on the monitor tool bar can be used to set.

Cascade display	On the monitor windows, another monitor window is arranged and displayed at the slightly overlapped status.
Tile display	Evenly divided screens make the windows not overlapped but displayed in a parallel way.

(3) Maximize/minimize

Under the multi-window mode, windows can be set separately.
Under the single-window mode, only one screen can be displayed and it is always displayed in maximum size.

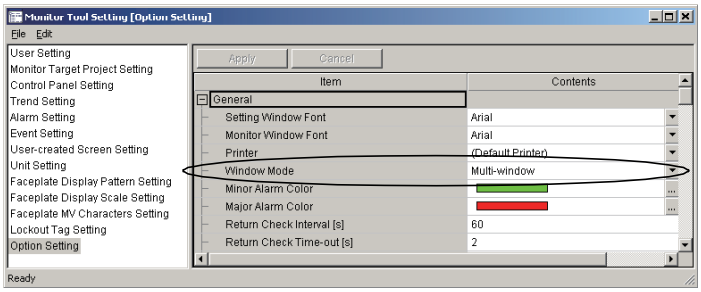
Maximize	Windows are displayed in full screens.
Minimize	Windows are changed to buttons on the task bar.

For the operation method, please refer to "Section 6.2 General Operation for Screen".

Switch method of window mode is as follows.

↓

↓



1. Click "Change Mode" button in the monitor tool bar to change to engineer mode.
2. Click "Setting Window" button in the monitor toolbar.
3. Display monitor tool setting window.
4. Select [Option Setting] from items on the left of the screen, and perform setting in the option setting window displayed in the right of the screen.
5. Select Multi-window/Single-window from the [Window Mode] of [General].
6. Click "Apply" button.
7. Execute the instruction in the menu: [File] → [Save the setting data] (even without this operation, the setting result will be automatically saved into the setting data file when the monitor tool finishes its task).
8. Close setting window.

6.5 Pop-up Window

A pop-up window is a window that displays monitor results of each tag.

6.5.1 Types of pop-up window

Pop-up windows are classified as follows.

Type	Specification	Reference
Pop-up faceplate	A faceplate to display the adjusting instrument for simulating the process control device.	Section 7.6
Pop-up tuning	A screen to display a tuning screen of control. (Faceplate + tuning trend graph + tag monitor)	Section 7.7

6.5.2 Display form of pop-up window

Up to two pop-up windows can be displayed.
If a new pop-up window is opened when two pop-up windows have already been displayed, the first opened one of the two on-screen windows is automatically closed. However, if it cannot be closed as displaying a dialog box for example, the other one is closed.

The window size can be changed as desired. (However, the aspect ratio of the faceplate is not variable.)
Maximize/minimize is not allowed.

REMARK

- When a window is closed, its size will be stored. Thus it will be displayed at the same size next time. However, it will be displayed at a specific size after installation, as its size has not been stored.
- If a new pop-up window is opened when two pop-up windows have already been displayed, either of the on-screen pop-up windows is forcibly closed.
  To keep the desired pop-up window open, close the unnecessary pop-up window before opening a new one.

MEMO

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7 MONITOR FUNCTION

7.1 Control Panel

PURPOSE

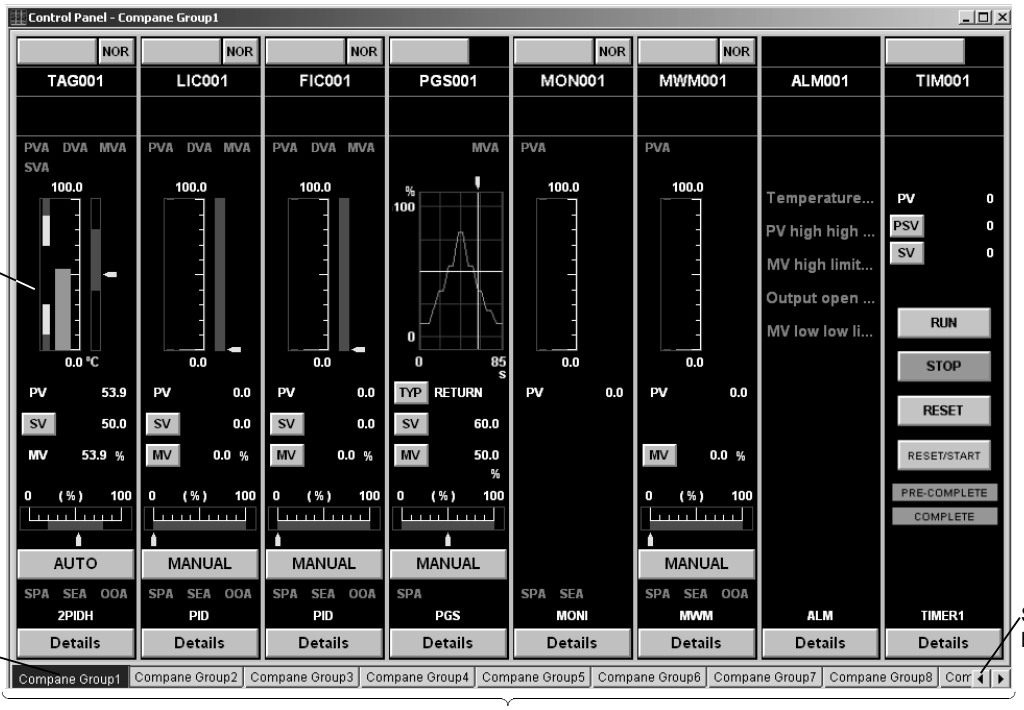
Implement grouping administration to the screen called faceplate with the simulating adjusting meter, and every group is displayed in a parallel way.
On the faceplate, the current PID control status can be monitored with histogram and be executed ON/OFF control.

BASIC OPERATION

1. Click the "Control Panel" button () on the monitor toolbar.

2. Control panel is displayed.

DISPLAY/SETTING SCREEN



8 faceplates/group, 500 groups at most

At most 500 groups can be registered.
Maximum 8 (the number of tags) faceplates can be displayed in one group.
On the control panel, total 500 × 8 = 4000 tags can be registered at most.
(refer to Section 9.4)

7.1.1 Faceplate display

Every piece of assigned tag information is displayed on the faceplate.
In control panel, the tag faceplates of the chosen groups are displayed together on one graphic screen.
The group, number and tag allocation of the faceplate can be set with control panel setting (refer to Section 9.4). As for the detailed introduction of the faceplate, please refer to "Chapter 10 Faceplate".

7.1.2 Displaying the group switching

(1) Choose the display group from the tabs displayed on the graphic screen

By means of clicking group choice tab, the faceplate group on the screen can be switched. The group names set with control panel setting configuration (refer to Section 9.4) are displayed in the group selection tab.

At the time of starting, monitor tool will memorize the chosen group, and display it with the "chosen" status next time.

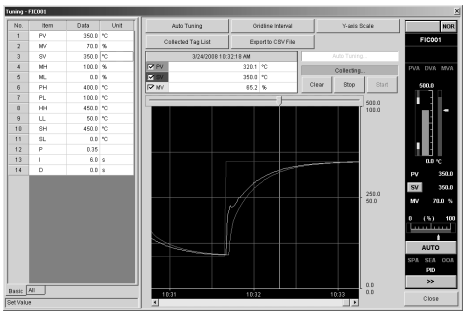
(2) To see unseen tab with the sheet scroll button.

With the sheet scroll button at the right side of group selection tab, the unseen group selection tab can be displayed on the current screen.

1) Scroll one tab to the left with one click.
   Scroll to the left if pressing the button continuously.
2) Scroll one tab to the right with one click Scroll to the right if pressing the button continuously.

7.1.3 Displaying the pop-up tuning screen

On the control panel, the following operation with displayed faceplate enables this tuning screen in the pop-up window. Please refer to "Section 7.7 Pop-up Tuning screen" for details about pop-up tuning screen.



1. Click the "Details" button.

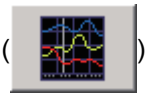
2. Display the pop-up tuning screen of the chosen faceplate.

7.2 Trend Graph

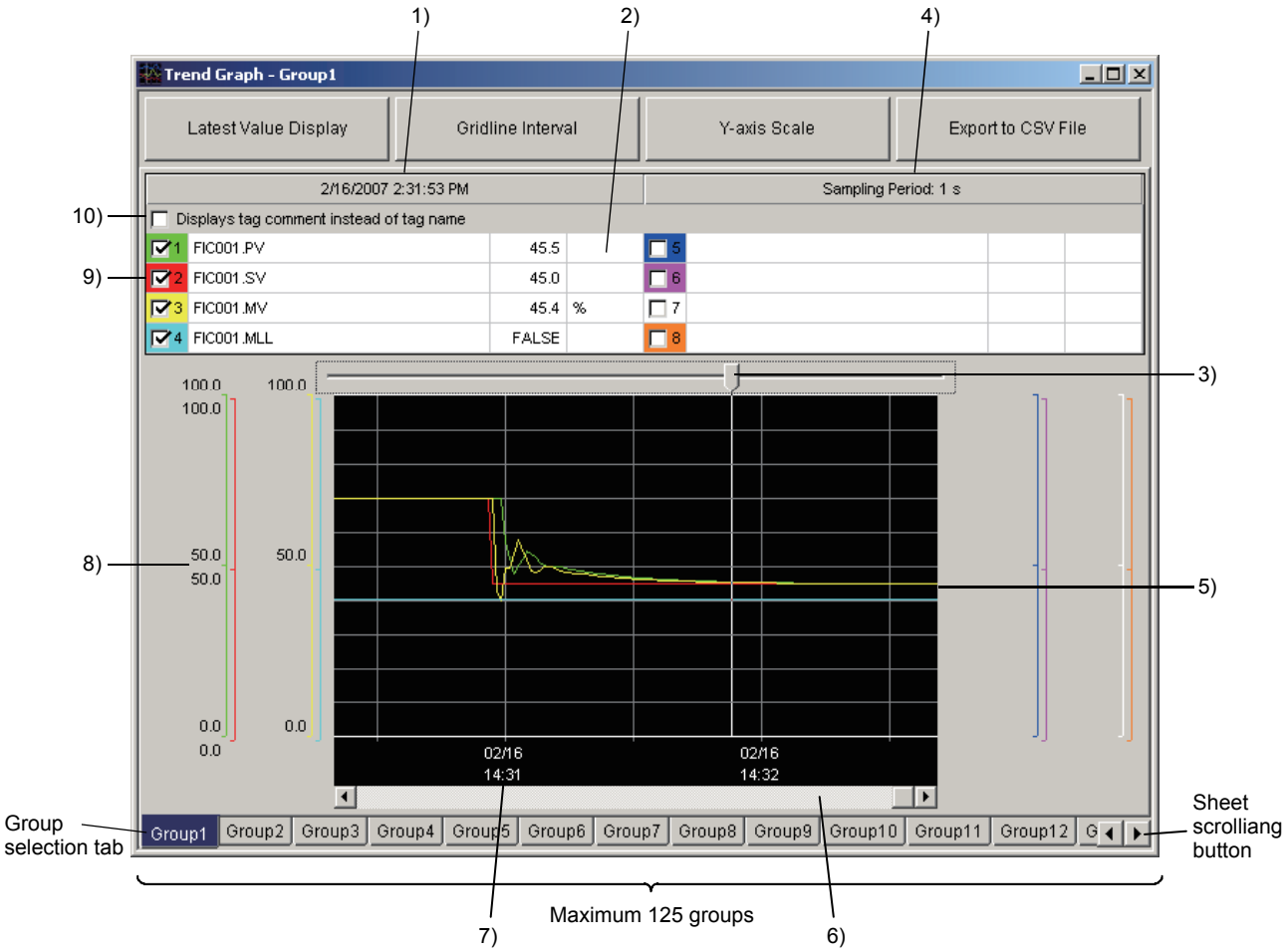
PURPOSE

Display the time series process of the tag data item value with curve graph. The curve graph is managed in groups, and every group is displayed respectively.

BASIC OPERATION

1. Click the "Trend Graph" button () on the monitor toolbar.
2. Display the trend graph.

DISPLAY/SETTING SCREEN



Maximum 125 groups can be registered.
Maximum 8(tag data item number) trend graphs can be displayed in one group.
At most total 125 × 8 = 1000 tag items.
(refer to Section 9.5)
In the 1 second or 10 seconds sampling period, collectable tag data item number is 100 at most.

7.2.1 Displaying a trend graph

The trend graph displays the tag data item value in chosen group. The group and number of trend graph, tag data item allocation and data item can be set with trend setting (refer to Section 9.5).
The displayed contents on the trend graph are as follows.

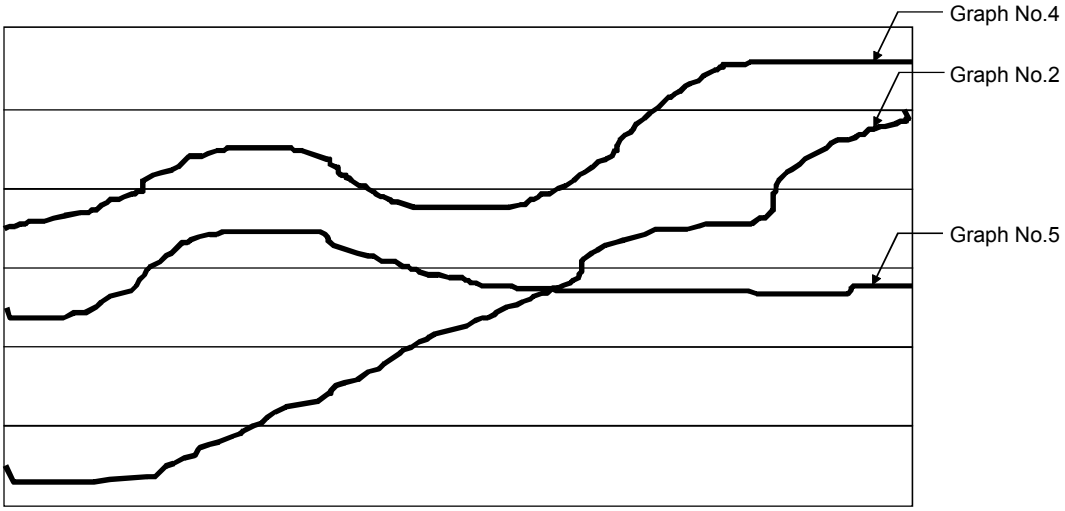
No.	Item	Contents
1)	Cursor position date and time	Display the date and time at the cursor position.
2)	Cursor position data display grid	Display every tag data item value at the cursor position Display the status name if it is the bit item.
3)	Trend cursor position	Designate any position in the trend graph. Display the data of that time through moving cursor.
4)	Sampling period	Display the sampling period of the trend data. Sampling period is set by trend setting (refer to Section 9.5).
5)	Trend graph	The background color, gridline and the graph color are set by choice setting (trend graph) (refer to Section 9.14 (4)). In the screen, the newest value is at the right end, and the oldest value at the left end.
6)	Trend graph scroll bar	The trend graph can be scrolled without cursor position change; therefore the cursor position data will change after scrolling.
7)	Gridline time display	Display the date and time indicated by grid line.
8)	Y-axis scale	Display the top and bottom limit of the scale ruler in every trend graph. Automatically calculate and display the result according to the top and bottom limit of the scale simultaneously. Top and bottom limit can be set by trend setting. ● Nothing displays in BOOL type. ● WORD type fixes within the range of 0 to HFFFF.
9)	Trend Graph Display check box	With check ……. display trend graph. Without check ….. Not display trend graph.
10)	Tag comment display switching checkbox	With check ……. Displays an item name in tag comment. Without check ….. Displays an item name in tag name.

POINT

- Low-speed current value collection (refer to Appendix 1.1) is displayed on trend graph.
  However, high-speed current value collection will be displayed when the sampling period is set to 1 second.
- The sampling period of current value collection can be specified in the communication status screen (refer to Section 8.5).
- When the sampling period is set to 1 second, confirm the following current values displayed on the Collection Period for Each Communication type tab of the Communication Status screen (refer to Section 8.5) are within 1 second.
  The current value of High-speed Current Value Correction (unit: second)
  The current value of High-speed Tag Data Correction (unit: second)
  If either of the value exceeds 1 second, the data cannot be corrected in 1-second period.
- If sampling period is set 10 or more than 10 second, confirm the following current value displayed on the Collection Period for Each Communication type tab of the Communication Status screen are within the setting value for sampling period.
  Current value of Low-speed Current Value Collection ≦ Setting value of sampling period (unit: second)
  When the current value of Low-speed Current Value Collection exceeds, the data cannot be corrected in set sampling period.

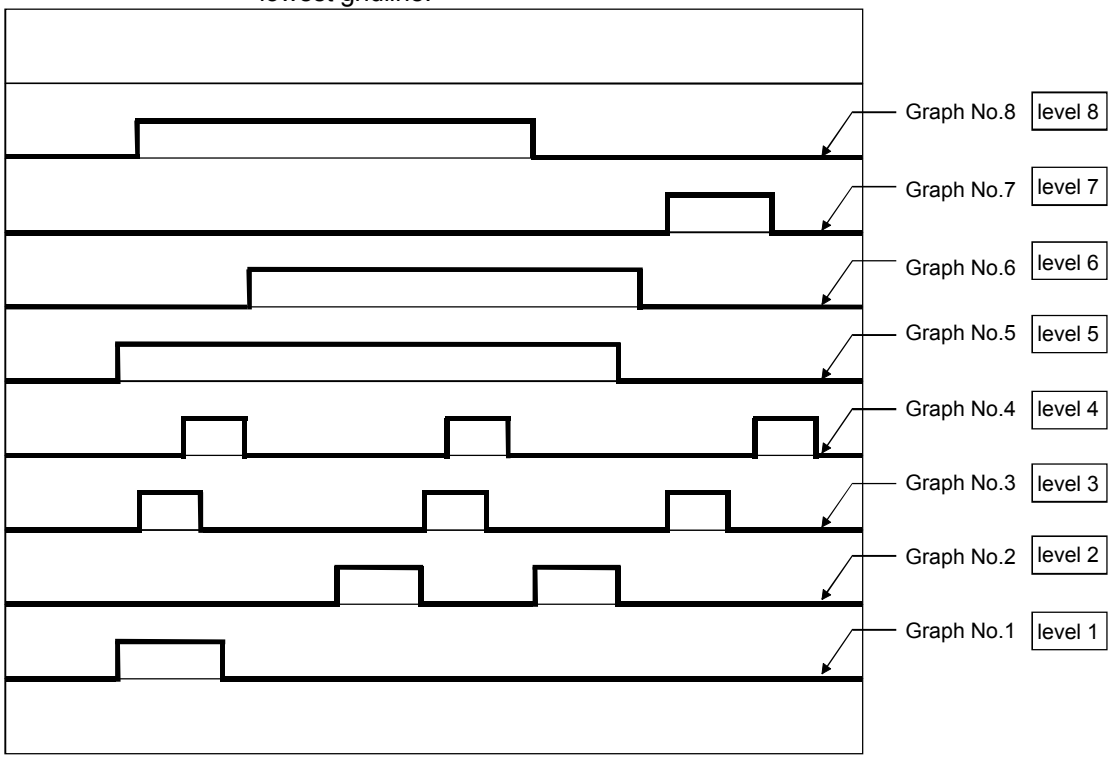
(1) Trend graph (except BOOL type) display

For the types except BOOL (such as REAL), draw the graph No. in the drawing zone according to the Y-axis scale without considering the sequence of graph number.



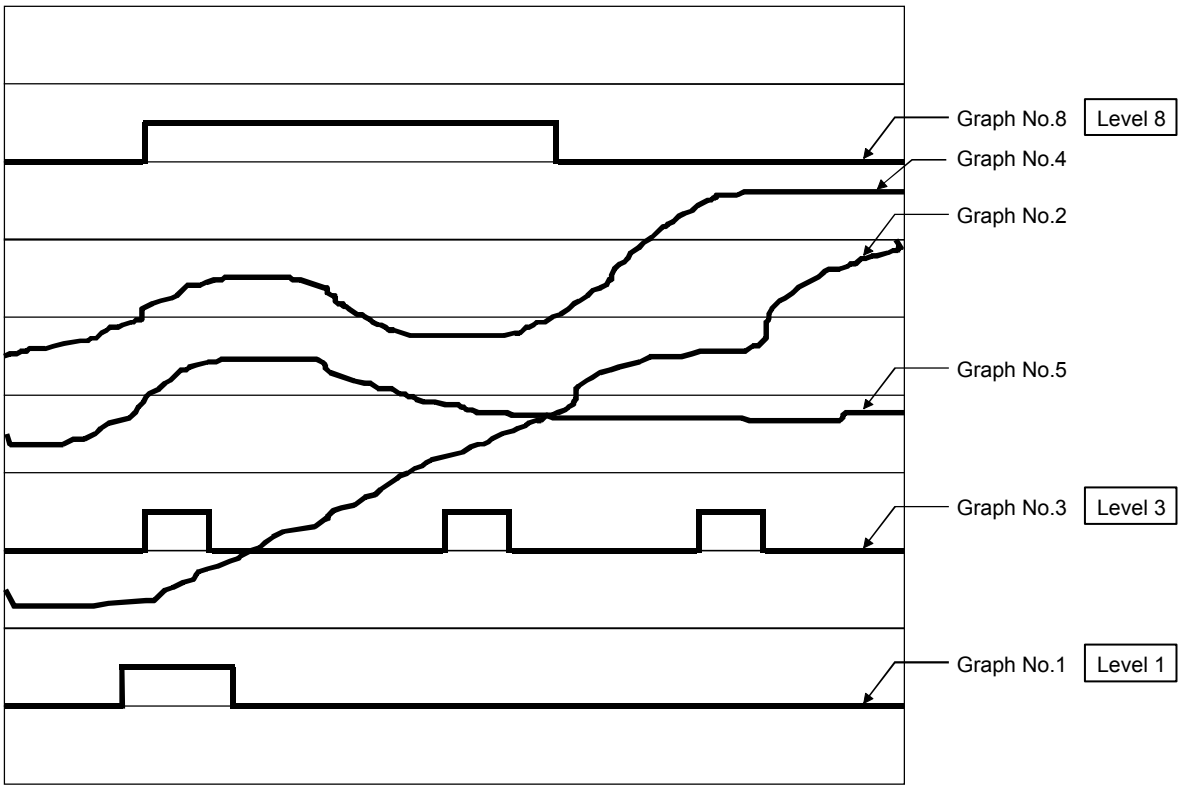
(2) BOOL type trend graph display

For BOOL type, the trend graph drawing zone is fixed by the Graph No. In the order of No.1, No.2, display 8 levels other than Y-axis scale from the lowest gridline.



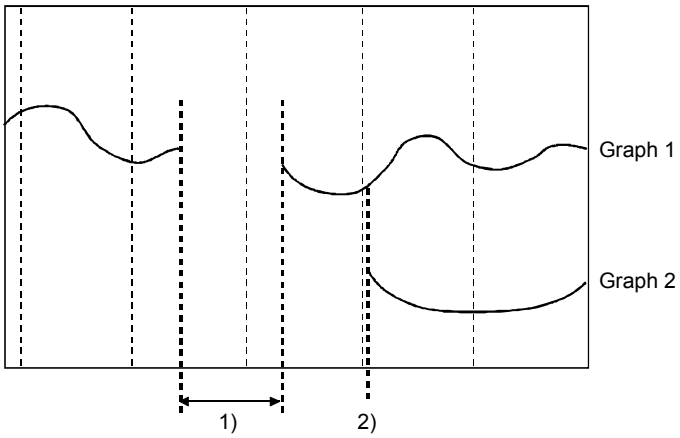
(3) Mixed display of BOOL type and except BOOL type

Graph No.1, 3, 8 (namely level 1, 3, 8 displayed in the diagram) belong to BOOL type.



REMARK

The time interval of trend graph gridline row is fixed, and the collected data is saved into files according to tag data item. Therefore the graph will be neither displayed nor collected, when monitor tools stop result in data-collecting termination and the time-difference graph of allocation tag data item (When collection begins) is displayed.



1) The termination time of monitor tool (Graph 1 is disconnected halfway).
2) The allocation time of tag data items (Graph 2 is displayed from the allocation time).

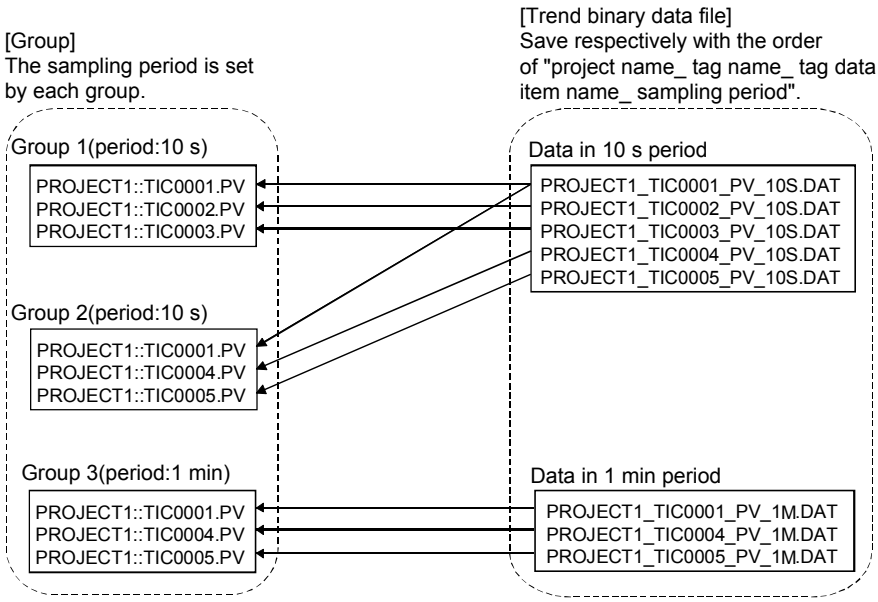
7.2.2 Collecting trend data

The collected data is saved to files with binary system

<table>
<tr><th>Item</th><th>Contents</th></tr>
<tr><td>Collecting object</td><td>Tag data item</td></tr>
<tr><td>Sampling period</td><td>Choose and designate from 1 s, 10 s, 1 min, 5 min and 10 min.</td></tr>
<tr><td>Collected data quantity</td><td>Maximum 10000 points of collected data can be stored in files. The older data will be overwritten when the maximum points are exceeded.</td></tr>
<tr><td>Record-able time</td><td>
<table>
<tr><td>Sampling period</td><td>1 s</td><td>10 s</td><td>1 min</td><td>5 min</td><td>10 min</td></tr>
<tr><td>Record-able time</td><td>2.77 hours</td><td>27.7 hours</td><td>6.9 days</td><td>34.7 days</td><td>69.4 days</td></tr>
</table>
</td></tr>
<tr><td>Folders for storage</td><td>Folders for storage are installation destination.
Melsec\Fbdq\Trenddata.
File name is composed of "Project name_ tag name_ tag data item name_ sampling period " + extension (.DAT).

< An example when the installation destination is drive C>
C:\Melsec\Fbdq\Trenddata\PROJECT1_TAG001_MV_10S.DAT
Make one file for one tag data item.
The folders for storage can be modified with option setting (trend graph). (refer to Section 9.14)</td></tr>
</table>

When trends are collected, the relationship between group and trend binary data file is as following diagram:



7.2.3 Displaying the group switching

(1) Choose the group from displayed tabs in the graphic screen.

Switch to the group displaying trend line by clicking group selection tab. The group names set by trend setting (refer to Section 9.5) are displayed in group-selection tabs.

When monitor tool starts, the chosen group will be memorized and displayed in "chosen" status next time.

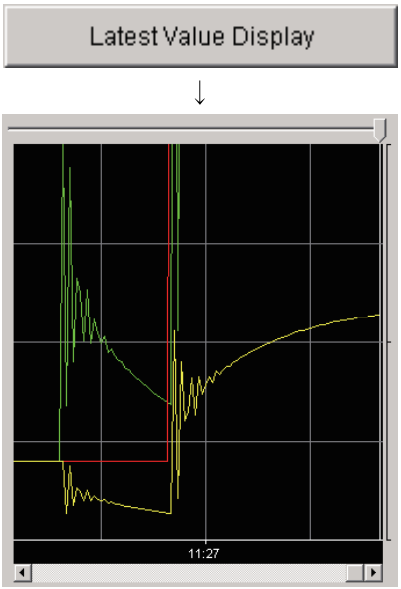
(2) Display the unseen tabs with sheet scroll button in the graphic screen.

Use the sheet scroll button at the left end of group selection tab to display the unseen group selection tab in current screen.

1) Scroll one tab to the left with one click.
   Scroll to the left if pressing the button continuously.
2) Scroll one tab to the right with one click.
   Scroll to the right if pressing the button continuously.

7.2.4 Displaying the latest value

Click the "Latest Value Display" button to display the latest value of trend graph.



1. Click the "Latest Value Display" button on the top of the graphic screen.
2. Trend cursor position, graph-scrolling bar moves to the right to display the latest value of the trend graph.

POINT

Click the "Latest Value Display" button. When the scroll bar is at the right end, the trend graph automatically scrolls from the right to the left during the collection. If the bar is not at the right end, display the time trend graph designated by diagram scroll bar. At that time, the trend graph will not scroll automatically even if the collection is in execution.

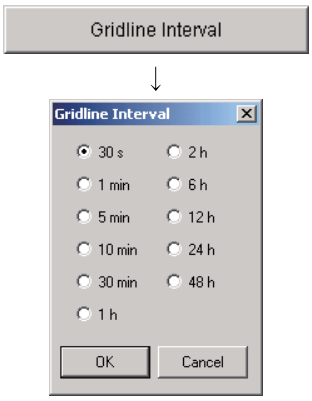
7.2.5 Changing the display magnification

The display magnification of trend graph can be modified by time gridline interval in the diagram and the Y-axis scale setting determined by top and bottom limit of data display. The change will not be memorized when windows are closed and display groups switched, so the initial scale ruler will appear next time when the trend graph is opened.

	Button name	The designated contents for modification
X-axis	Gridline interval	Select the time interval separated by gridline. (30 s, 1 min, 5 min, 10 min, 30 min, 1 h, 2 h, 6 h, 12 h, 24 h, 48 h).
Y-axis	Y-axis scale	Designate the value of display top and bottom limit for every tag data item.

(1) The change of horizontal axis magnification

Transverse magnification can be changed by selecting the time interval for displaying trend graph.



1. Click the "Gridline Interval" button.
2. Display the "Gridline Interval" dialog box
3. Select the time interval separated by gridline.
4. Click the "OK" button.
5. Change the X-axis display magnification of the trend graph.

After the change of gridline intervals, the minimum unit of displayable data by moving the trend cursor changes too. The value appears once every 1 second when the interval is 30 seconds, while once every 2 hours when the interval is 48 hours.
Because the interval value shorter than sampling period cannot be displayed, the designated gridline interval is limited by the length of sampling period.
Sampling period change is executed by trend setting. (refer to Section 9.5).
The relationship between the display unit of every gridline interval and sampling period with designation availability is as follows:

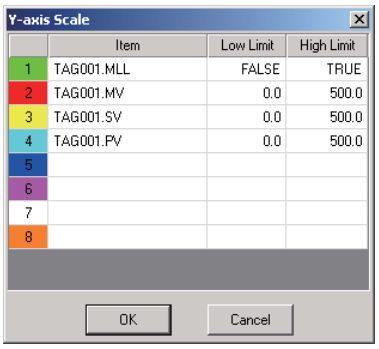
Gridline interval		30 s	1 min	5 min	10 min	30 min	1 h	2 h	6 h	12 h	24 h	48 h
Unit of display		1 s	2 s	10 s	20 s	1 min	2 min	5 min	10 min	30 min	1 h	2 h
Sampling period	1 s	○	○	○	○	○	○	○	○	○	○	○
	10 s	×	×	○	○	○	○	○	○	○	○	○
	1 min	×	×	×	×	○	○	○	○	○	○	○
	5 min	×	×	×	×	×	×	○	○	○	○	○
	10 min	×	×	×	×	×	×	×	○	○	○	○

○: Available for setting ×: Unavailable for setting

(2) The change of Y-axis magnification

Longitudinal magnification can be changed by the top and bottom limit of the data displayed in the designated trend graph.

↓



1. Click the "Y-axis Scale" button on the top of the screen.
2. Display the "Y-axis scale" dialog box.
3. Designate the top and bottom limit of the data in trend graph.
4. Click the "OK" button.
5. Change the Y-axis display magnification in the trend graph.

   The top and bottom limit of WORD type: H0000-HFFFF fixed
   The top and bottom limit of BOOL type: 0-1 fixed

POINT

In the Item field on the Y-axis Scale dialog box, a tag name or tag comment is displayed according to the tag comment display switching checkbox setting.

7.2.6 Exporting to CSV file

Click the "Export to CSV File" button in trend graphic screen to save the trend data to files in CSV form after appointing storage folder and file name.

Output form is as follows:
The first line is the title indicating all data contents. Under it, the collecting data is output in the original order of date and time.

```
Data, TAG001.MLL, TAG001.MV, TAG001.SV, TAG00.MODE,,,,
7/30/2002 6:05:52 PM, 0, 65.2, 450.0, H0010,,,,
7/30/2002 6:05:53 PM, 0, 66.9, 450.0, H0010,,,,
                    ⋮
```

The format of the outputted date and time depends on the setting of Microsoft® Windows® Operating System.
For example, in the case of Windows® 2000, it can be changed using Regional Settings within Control panel.

- REAL type Item
  PV, SV etc. are output in accordance with decimal point bit number.
  Other items are output in accordance with optionally set decimal point bit number.
- INT, DINT type Item
  Output after the character string conversion as the original example.
- WORD type Item
  Output after attaching "H" to the head of the value.
- BOOL type Item
  Output 0 or 1.

POINT

- Trend data can be output to CSV files automatically.
  (Refer to Section 8.6.)
- The data cannot be saved to files in lock mode.

7.3 Alarm List

PURPOSE

Display the list of alarm record

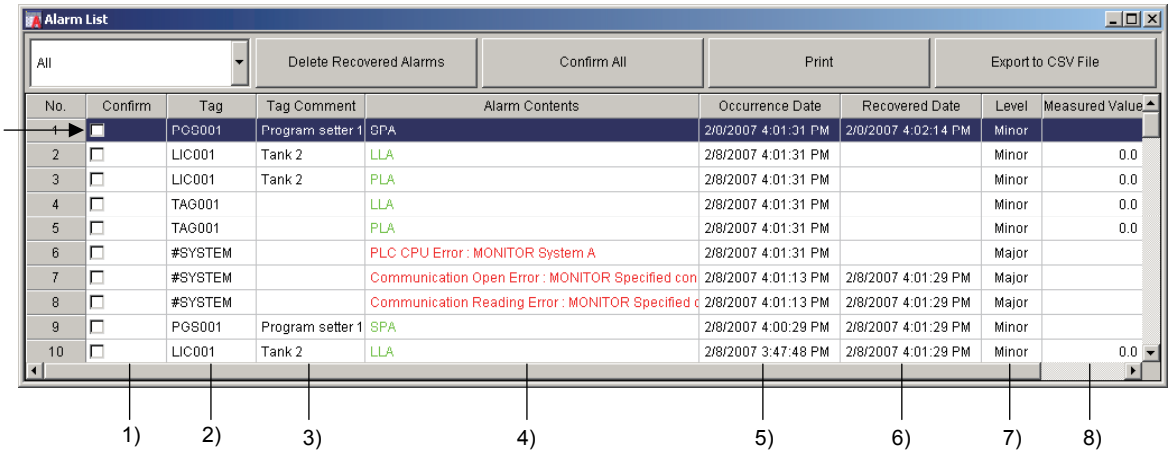
BASIC OPERATION

1. Click the "Alarm List" button ( ) on the monitor toolbar.

2. Display the screen of alarm list.

DISPLAY/SETTING SCREEN

The current row is selected for display.

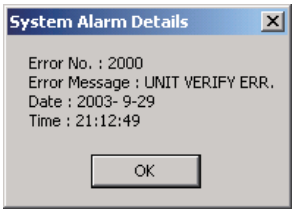


The maximum alarm number that can be displayed is 2000 pieces.

*For information about 1) to 7), please refer to Section 7.3.1 Alarm List Display.

POINT

Double-clicking the alarm line displays the alarm-related faceplate (if any) or the system alarm details dialog box (in the case of the system alarm (refer to Section 7.3.1) line).



The dates and times of the PLC CPU stopping errors and PLC CPU errors displayed in the system alarm details dialog box are those when the errors occurred in the CPU module (dates and times according to the internal clock of the CPU module).
The dates and times of the PLC CPU stopping errors and PLC CPU errors displayed in the alarm list are those when the monitor tool recognized the errors. Hence, the dates and times displayed in the alarm list may not match those displayed in the system alarm details dialog box.

7.3.1 Alarm list display

The alarm record displays according to the sequence of the date and time, the contents of each line are shown as the following chart.

No.	Item	Contents
1)	Confirm field	Display the check box for confirmation only when the alarm occurs.
2)	Tag field	The tag name that displays the alarm occurrence/recovered.
3)	Tag comment field	Displays a tag comment.
4)	Alarm contents field	Display the alarm name (differs from alarm types).
5)	Occurrence date field	Display the date and time of alarm occurrence. *1
6)	Recovered date field	Display the date and time of alarm recovered. *1
7)	Level field	Display Major/Minor alarm. If the alarm level (ALM) bit of tag data is ON, display Major error. If the alarm level (ALM) bit of tag data is OFF, display Minor error. Display major error when system alarm occurs.
8)	Measured Value field	Display related measured value.

*1: The format of the displayed date and time depends on the setting of Microsoft® Windows® Operating System.

(1) Alarm types

An alarm will be displayed when the status of related tag data items changes or a system error occurs.
It is displayed on the alarm list screen and in the alarm/event display area of the monitor toolbar (refer to Section 6.3.1).
The following table shows alarm types that are listed.

Types	Explanation
Measured value exists	To add the related measured value and keep the records for the 6 items of MLA, MHA, PLA, PHA, LLA, HHA involved in item of ALM of the loop tag. If the tag type is 2PIDH, an alarm is displayed for SVLA and SVHA in item of ALM2. MLA, MHA: Display MV value when measured value alarm occurs. PLA, PHA, LLA, HHA: Display PV value when measured value alarm occurs. SVLA, SVHA: Display SV value when measured value alarm occurs.
Measured value not exist	To use the changing bit of the item of ALM included in the loop tag and the status tag (TIMER1, TIMER2, COUNT1, COUNT2) as the occurrence and recovered of the alarm, and then keep the record. If the tag type is 2PIDH, an alarm is displayed for ALM2 items.
Faceplate display pattern	To use the changing bit of the item of ALM included in the status tag (NREV, REV, MVAL1, MVAL2) as the occurrence and recovered of the alarm, and then keep the record. Alarm contents are to display character string, which is set and registered by faceplate display pattern setting. (refer to Section 9.10) The referred number of display mode is got from the display name mode number of tag data (FPNO). It will be displayed as blank without registration. (refer to Section 10.6)
Alarm tag	To use the changing bit of the item of ALM of the alarm tag as the occurrence and recovered he alarm and then keep the record. The alarm contents are to display registered character string set by alarm setting. (refer to Section 9.6) The referred alarm number is the alarm name number of tab data (the saved value in ALM1NO to ALM8NO). It will be displayed as blank without registration. (refer to Section 10.7)
System alarm	To keep the record of the occurrence and recovered of monitor tool system alarm. The displayed alarm contents are determined by alarm types. (refer to the table on the next page)

The following table is the system alarm list

Alarm contents	Contents
"Communication open error" + project name *1,*5,*6	Alarm occurs when network communication open error is detected.
"Communication reading error" + project name *1,*5,*6	Alarm occurs when network communication reading error is detected.
"Communication writing error" project name *1,*5,*6	Alarm occurs when network communication writing is detected.
"Communication close error" + project name *1,*5,*6	Alarm occurs when network communication close error is detected.
"Disk free space error" + drive name	Alarm occurs when the free space of the PX Developer installation destination, trend binary data, CSV files crated by automatic CSV file export memory driver is under "Disk free space check size" of option setting (general). It will be detected once per 10 minutes.
"File error" + File type *2	Alarm occurs when file exceptional error is detected. A file error occurs for each of trend binary data, automatic trend CSV, automatic alarm CSV and automatic event CSV files.
"Memory error" *2	Alarm occurs when memory exceptional error is detected.
"Exception error" *2	Alarm occurs when exception error (not including file exception and memory exception) is detected.
"PLC CPU stopping error" + project name *3,*4,*5	Alarm occurs when a stop error occurs in the CPU module.
"PLC CPU error" + project name *3,*4,*5	Alarm occurs when an operation continue error occurs in the CPU module.
"Project ID code inconsistency" + project name *4	Alarm occurs if the monitor monitor target project set with the monitor tool does not match the project in the CPU module.
"Incorrect PLC type" + project name *4	Alarm occurs when the monitor target project and connected PLC are inconsistent in the PLC type.
"Redundant System: PLC Parameter Read Error" + project name *5	Alarm occurs when the connection target is Redundant CPU and read of PLC parameter has failed.
"Redundant System: System A/B Identification Error" + project name *1,*4,*5	Alarm occurs when the connection target is Redundant CPU and the system cannot be identified (system A or system B).
"Redundant System: Control/Standby System Status Error" + project name *3,*4,*5	Alarm occurs when the connection target is Redundant CPU and the operation system status is invalid.
"Event notification source error" *2	Alarm occurs when the event notification source cannot be specified.
"Event notification data receiving error" *2	Alarm occurs when the size of data received through event notification is out of the range, or the tag block No. is invalid.
"SCADA Interaction Function Error" *2	Alarm occurs when an error arises during SCADA interaction function processing.

*1: Only when the connection target is Redundant CPU, either of "Specified connection target" (specification in "Transfer Setup" screen), "System A" or "System B" (connection target for system monitor) is added.
(Alarm example) Communication Open Error: Project1 System A

*2: With regard to this error, the condition where the system is recovered from the error cannot be recognized. When the confirm field is checked in the alarm list, the system is recovered from the error. When unchecked, the error occurs. "…" always appears in the recovery date.
If the same name alarm (alarm content) has occurred, the alarm is not recorded. If not occurred, the alarm is recorded.

*3: Only when the connection target is Redundant CPU, either of "System A" or "System B" (connection target for system monitor) is added.
(Alarm content example) Communication Open Error: Project1 System A

*4: The alarm is issued/deactivated when checking the PLC status. For details of the relevant processing, refer to Appendix 1.7.

*5: In the case of Redundant CPU only, the alarm is deactivated once when the operation mode is switched (backup mode/separate mode/debug mode)

*6: When communication board errors are detected, communication board name is displayed instead of project name.
(For example: It will be displayed as "Communication open error MELSECNET_BOARD_51" when self-interface access error of MELSECNET/10 is detected.)

POINT

If a system alarm has occurred, double-click the system alarm line in the alarm list to display the corresponding system alarm details dialog box.
Take corrective action, referring to the dialog box. For details of the other troubleshooting, refer to Section 12.1.

(2) Display items based on alarm types

The display items based on alarm types are illustrated in the following table.

<table>
<tr><th></th><th>Confirm</th><th>Tag</th><th>Alarm contents</th><th>Occurrence date *1</th><th>Recovered date *1</th><th>Level</th><th>Measured value</th></tr>
<tr><td>Measured value exists</td><td rowspan="5">Display check box</td><td rowspan="4">Display tag name</td><td rowspan="2">Name of bit item that has been changed.</td><td rowspan="5">Display date and time of alarm occurrence</td><td rowspan="5">Display date and time of alarm recovered *2</td><td rowspan="4">Major/minor</td><td>MV/PV/ SV(Current)</td></tr>
<tr><td>Measured value not exists</td><td rowspan="4">None</td></tr>
<tr><td>Faceplate display pattern</td><td>Registered character string in Faceplate display pattern setting</td></tr>
<tr><td>Alarm tag</td><td>Registered character string in alarm setting</td></tr>
<tr><td>System alarm</td><td>#SYSTEM</td><td>System alarm contents</td><td>Major</td></tr>
</table>

*1: When monitor tool is started or "Apply" button or "Reload" button of monitor target project setting (refer to Section 9.3) is clicked, alarms in occurrence status will transit into recovered status.
If alarm is occurring when it is transiting into recovered date, new alarm will be displayed.

*2: For information about file error, memory error and exception error, recovered date not will be displayed in recovered date field.

POINT

For the communication open, read, write and close errors, only one of them is displayed for each connection target of the project.
Only the first error is displayed. Recovery from the above error is made as soon as communication succeeds.

(3) Example of alarm display

Following are the display examples of various alarm types.

- With measured value

Confirm	Tag	Tag comment	Alarm contents	Occurrence Date *1	Recovered Date *1	Level	Measured value
□	TIC001	Room temperature adjustment valve 1	MLA	1/30/2002 11:43:20 AM		Major	4.8%
□	TIC001	Room temperature adjustment valve 1	MLA	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Major	4.8%

- Without measured value

Confirm	Tag	Tag comment	Alarm contents	Occurrence Date *1	Recovered Date *1	Level	Measured value
□	TIC001	Room temperature adjustment valve 1	DVLA	1/30/2002 11:43:20 AM		Minor	
□	TIC001	Room temperature adjustment valve 1	DVLA	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Minor	

- Faceplate display pattern

Confirm	Tag	Tag comment	Alarm contents	Occurrence Date *1	Recovered Date *1	Level	Measured value
□	VALV001	Water level adjustment valve 1	Time-out	1/30/2002 11:43:20 AM		Minor	
□	VALV001	Water level adjustment valve 1	Time-out	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Minor	

- Alarm tag

Confirm	Tag	Tag comment	Alarm contents	Occurrence Date *1	Recovered Date *1	Level	Measured value
□	ALM001	Operation start alarm 1	Processing A abnormal	1/30/2002 11:43:20 AM		Minor	
□	ALM001	Operation start alarm 1	Processing A abnormal	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Minor	

- System alarm

Confirm*3	Tag	Tag comment	Alarm contents	Occurrence Date *1	Recovered Date *1 *2	Level	Measured value
□	#SYSTEM		Communication open error: PROJECT1	1/30/2002 11:43:20 AM		Minor	
□	#SYSTEM		Communication open error: PROJECT1	1/30/2002 11:43:20 AM	1/30/2002 11:43:50 AM	Minor	

*1: When monitor tool is started or "Apply" button or "Reload" button of monitor target project setting (refer to Section 9.3) is clicked, alarms in occurrence status will transit to recovered status. (Except the file error, memory error and exception error of system alarm)
If the alarm is occurring when it is transiting to recovered status, the new alarm will be displayed. The date and time displayed by recovered date and time is the date and time of the above operation.
*2: For file error, memory error and exception error, recovered date will not be displayed in recovered date field.
*3: For file error, memory error and exception error, make a check mark in the confirm field to set alarm to recovered status. If the check is cancelled in the check box, it will be changed to the occurrence status.
The alarm will not be recovered until checking the checkbox in the confirm field.

POINT

If new alarms occur when there have been 2000 registered alarms, the new alarm will be registered by clearing the oldest-registered alarm that has been recovered. No new alarm will be registered if 2000 alarms are all in occurrence status. However, the latest alarm is recorded to the automatic alarm CSV file.

(4) The display color of alarm

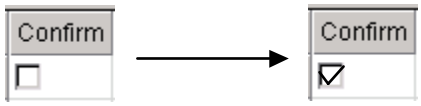
Display color can be set as changing color in terms of the alarm level and status in the alarm list.
Color setting in terms of alarm level can use option setting (General).
If [Highlighted display while alarms occur] is set as <Available> in the option setting (Alarm/Event), the occurring alarm which is not confirmed flashes. (refer to Section 9.14 Option Setting)

Highlighted display while alarms occur	Not confirmed in occurrence status	After confirmation check	In recovered
Available	Background color flicks in alarm level color in 1-second period.	Background color flicks in alarm level color.	Background: white Character : black
None	No matter what the status is, display characters of alarm content in alarm level color.		

POINT
Character size will not change in changing the window size timely.

7.3.2 Confirm check

Click the checkbox to insert a check mark.



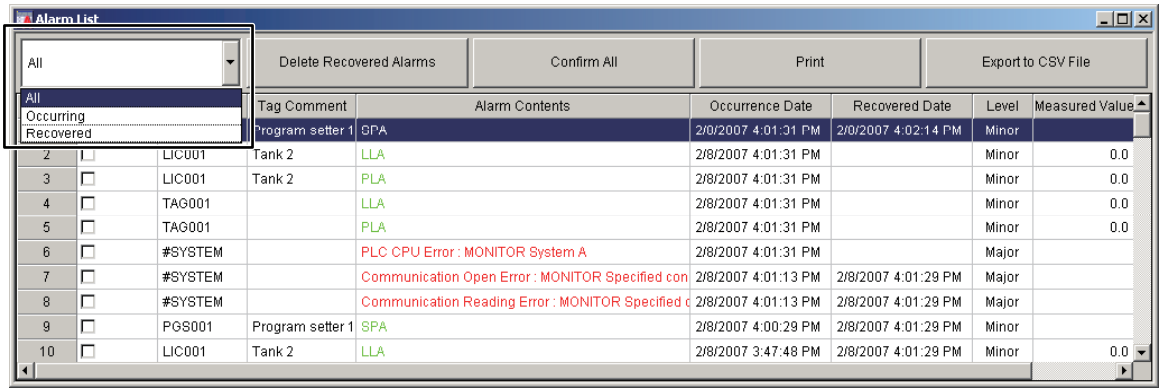
If the check of all confirmation in the list is necessary, please refer to "Section 7.3.5 Confirm all".

POINT

- The confirmation check box cannot be checked in the lock mode.
- The file error, memory error and exception error of system alarm are treated as alarm recovered at confirming and checking step.
  If cancel the check, it will be treated as alarm occurrence.

7.3.3 Displaying selected alarms

Click listbox (▼) on the alarm list screen, and select the displayed alarm.

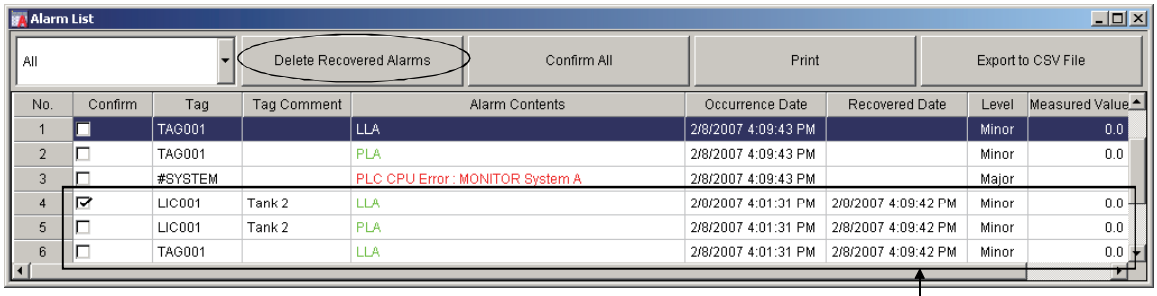


Information about the contents of list box is listed in the following table:

Item	Contents
All	Display all the alarms.
Occurring	Display the alarms in occurrence.
Recovered	Display the recovered alarms.

7.3.4 Deleting recovered alarms

Click "Delete Recovered Alarms" button on the alarm list screen to delete all the alarms in recovered status.



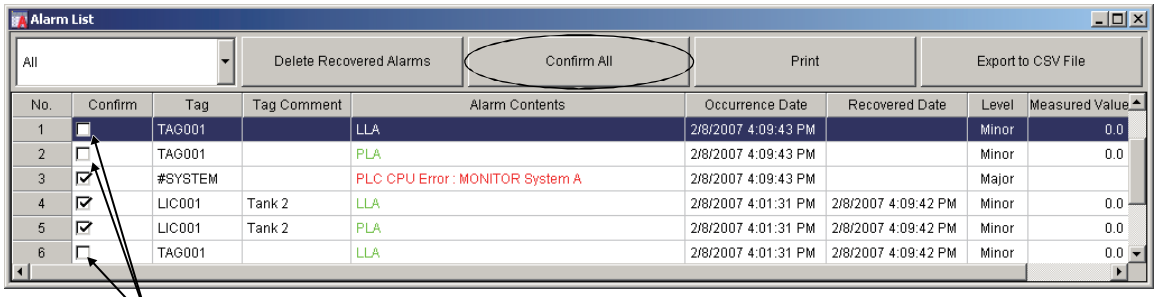
Delete all the alarms in recovered status, no matter whether they are confirmed.

POINT

- "Delete Recovered Alarms" cannot be executed in lock mode.
- "Delete Recovered Alarms" will delete all the alarms in recovered status, no matter whether they are confirmed.
- "Delete Recovered Alarms" cannot be executed if "Occurring" is selected in selected display of alarm (refer to Section 7.3.3).

7.3.5 Confirming all alarms

Click "Confirm All" button on the alarm list screen to confirm all the unconfirmed alarms that are displayed.



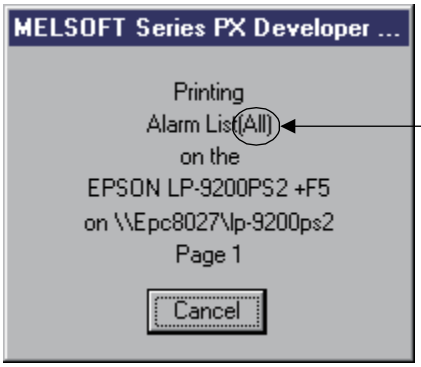
Unconfirmed alarms are all confirmed.

POINT

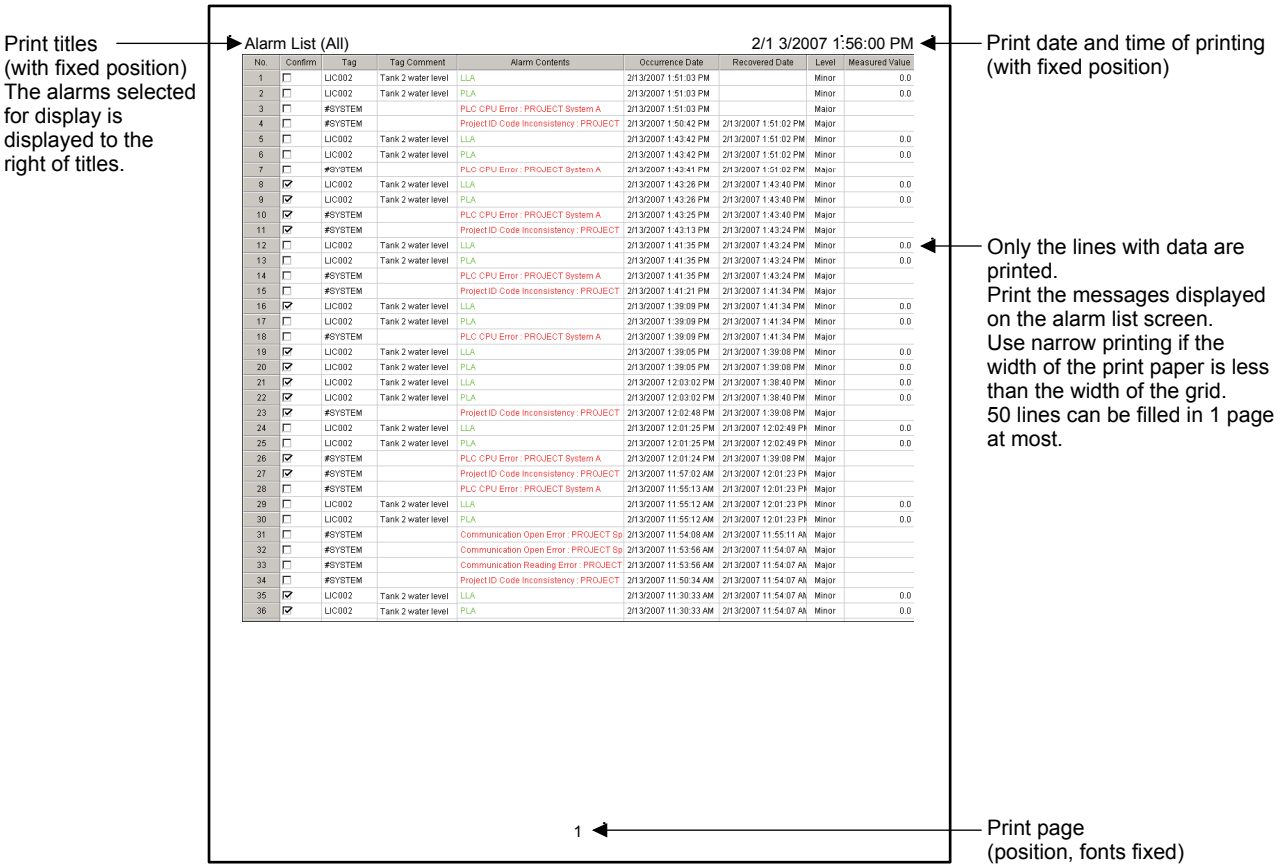
- "Confirm All" cannot be executed in lock mode.
- If "Occurring" and "Recovered" are selected in displayed of alarm (refer to Section 7.3.3), it indicates that the displayed data are confirmed.

7.3.6 Printing an alarm list

Click "Print" button on the alarm list screen to print it.
It will be printed on the printer that is set in the print setting of option setting (General).
If the printer name is not specified, printer set by PC for daily use will be applied.
Following dialog box will be showed after printing is started. The dialog box will be closed after the printing. Click “Cancel” button to cancel printing during printing.



Following are the print image.



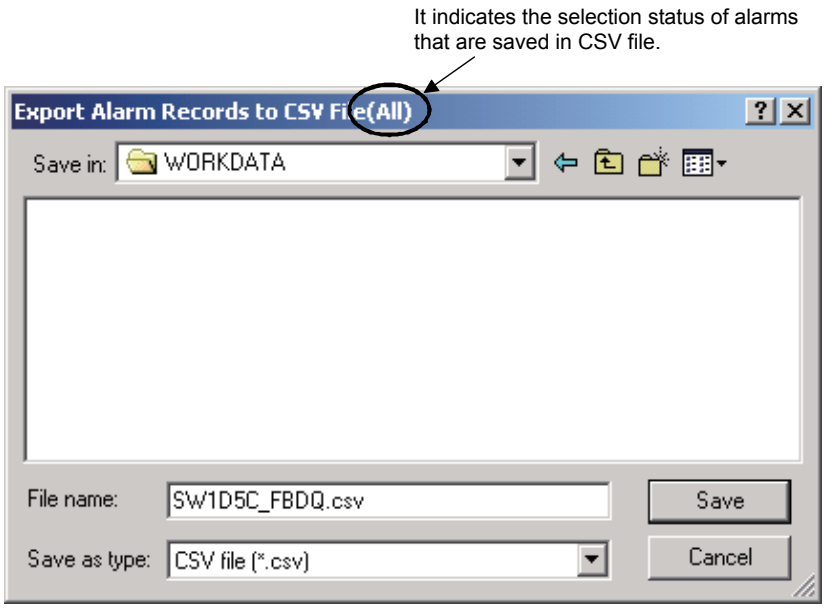
No.	Confirm	Tag	Tag Comment	Alarm Contents	Occurrence Date	Recovered Date	Level	Measured Value
1	☐	LIC002	Tank 2 water level	LLA	2/13/2007 1:51:03 PM		Minor	0.0
2	☐	LIC002	Tank 2 water level	PLA	2/13/2007 1:51:03 PM		Minor	0.0
3	☐	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 1:51:03 PM		Major	
4	☐	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 1:50:42 PM	2/13/2007 1:51:02 PM	Major	
5	☐	LIC002	Tank 2 water level	LLA	2/13/2007 1:43:42 PM	2/13/2007 1:51:02 PM	Minor	0.0
6	☐	LIC002	Tank 2 water level	PLA	2/13/2007 1:43:42 PM	2/13/2007 1:51:02 PM	Minor	0.0
7	☐	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 1:43:41 PM	2/13/2007 1:51:02 PM	Major	
8	☑	LIC002	Tank 2 water level	LLA	2/13/2007 1:43:26 PM	2/13/2007 1:43:40 PM	Minor	0.0
9	☑	LIC002	Tank 2 water level	PLA	2/13/2007 1:43:26 PM	2/13/2007 1:43:40 PM	Minor	0.0
10	☑	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 1:43:25 PM	2/13/2007 1:43:40 PM	Major	
11	☑	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 1:43:13 PM	2/13/2007 1:43:24 PM	Major	
12	☐	LIC002	Tank 2 water level	LLA	2/13/2007 1:41:35 PM	2/13/2007 1:43:24 PM	Minor	0.0
13	☐	LIC002	Tank 2 water level	PLA	2/13/2007 1:41:35 PM	2/13/2007 1:43:24 PM	Minor	0.0
14	☐	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 1:41:35 PM	2/13/2007 1:43:24 PM	Major	
15	☐	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 1:41:21 PM	2/13/2007 1:41:34 PM	Major	
16	☑	LIC002	Tank 2 water level	LLA	2/13/2007 1:39:09 PM	2/13/2007 1:41:34 PM	Minor	0.0
17	☐	LIC002	Tank 2 water level	PLA	2/13/2007 1:39:09 PM	2/13/2007 1:41:34 PM	Minor	0.0
18	☐	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 1:39:09 PM	2/13/2007 1:41:34 PM	Major	
19	☑	LIC002	Tank 2 water level	LLA	2/13/2007 1:39:05 PM	2/13/2007 1:39:08 PM	Minor	0.0
20	☑	LIC002	Tank 2 water level	PLA	2/13/2007 1:39:05 PM	2/13/2007 1:39:08 PM	Minor	0.0
21	☑	LIC002	Tank 2 water level	LLA	2/13/2007 12:03:02 PM	2/13/2007 1:38:40 PM	Minor	0.0
22	☑	LIC002	Tank 2 water level	PLA	2/13/2007 12:03:02 PM	2/13/2007 1:38:40 PM	Minor	0.0
23	☑	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 12:02:48 PM	2/13/2007 1:39:08 PM	Major	
24	☐	LIC002	Tank 2 water level	LLA	2/13/2007 12:01:25 PM	2/13/2007 12:02:49 PM	Minor	0.0
25	☐	LIC002	Tank 2 water level	PLA	2/13/2007 12:01:25 PM	2/13/2007 12:02:49 PM	Minor	0.0
26	☑	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 12:01:24 PM	2/13/2007 1:39:08 PM	Major	
27	☑	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 11:57:02 AM	2/13/2007 12:01:23 PM	Major	
28	☐	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 11:55:13 AM	2/13/2007 12:01:23 PM	Major	
29	☐	LIC002	Tank 2 water level	LLA	2/13/2007 11:55:12 AM	2/13/2007 12:01:23 PM	Minor	0.0
30	☐	LIC002	Tank 2 water level	PLA	2/13/2007 11:55:12 AM	2/13/2007 12:01:23 PM	Minor	0.0
31	☐	#SYSTEM		Communication Open Error : PROJECT Sp	2/13/2007 11:54:08 AM	2/13/2007 11:55:11 AM	Major	
32	☐	#SYSTEM		Communication Open Error : PROJECT Sp	2/13/2007 11:53:56 AM	2/13/2007 11:54:07 AM	Major	
33	☐	#SYSTEM		Communication Reading Error : PROJECT	2/13/2007 11:53:56 AM	2/13/2007 11:54:07 AM	Major	
34	☐	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 11:50:34 AM	2/13/2007 11:54:07 AM	Major	
35	☑	LIC002	Tank 2 water level	LLA	2/13/2007 11:30:33 AM	2/13/2007 11:54:07 AM	Minor	0.0
36	☑	LIC002	Tank 2 water level	PLA	2/13/2007 11:30:33 AM	2/13/2007 11:54:07 AM	Minor	0.0

POINT

- "Print" cannot be executed in lock mode.
- Print in the status that is displayed on alarm list screen.

7.3.7 Exporting to CSV file

Click the "Export to CSV File" button on the alarm list screen and then all the alarm selected to be displayed in Alarm list will be saved in CSV file. During the saving process, the saving folder and the file name should be specified.



The output form is shown as the following chart.
The first line indicates the title of the data contents and the other lines below collect the data according to the output sequence of date and time.

```
Tag,Tag Comment,Alarm Contents,Occurrence Date,Recovered Date,Level,Measured Value
LIC002,Tank 2 water level,PLA,2/13/2007 2:14:10 PM,2/13/2007 2:44:08 PM,Minor,0.0
LIC002,Tank 2 water level,LLA,2/13/2007 2:14:10 PM,2/13/2007 2:44:08 PM,Minor,0.0
#SYSTEM,,Project ID Code Inconsistency : PROJECT,2/13/2007 2:43:58 PM,2/13/2007 2:44:16 PM,Major,
#SYSTEM,,PLC CPU Error : PROJECT System A,2/13/2007 2:44:17 PM,,Major,
LIC002,Tank 2 water level,PLA,2/13/2007 2:44:18 PM,,Minor,0.0
LIC002,Tank 2 water level,LLA,2/13/2007 2:44:18 PM,,Minor,0.0
```

POINT

- Alarm data can be output to CSV files automatically. (Refer to Section 8.6)
  (However, its output form differs from that of the alarm list.)
- Data can not be saved as file when in lock mode.
- In CSV file, output as the status selected in the alarm list screen.

7.4 Event List

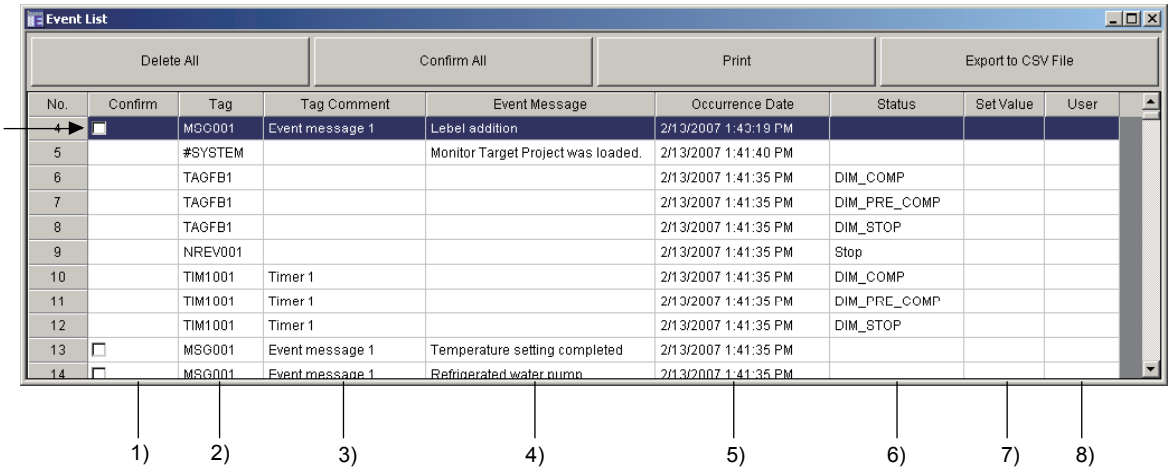
PURPOSE

A list that displays event occur records.

BASIC OPERATION

1. Click "Event List" button () in the monitor toolbar.
2. Display event list screen

DISPLAY/SETTING SCREEN



Maximum 2000 alarm events displayed.

* As for 1) to 8), Please refer to "7.4.1 Event list display"

POINT
Double-clicking the event line displays the event-related faceplate (if any).

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7.4.1 Displaying an event list

The record of events displays according to the sequences of events occurring date and time, the display contents of each bar are as the following table.

No.	Item	Contents
1)	Confirm field	Display a check box, which attaches a confirm label, when there needs confirm check in information label event, display this check box.
2)	Tag field	Display the tag name of an object.
3)	Tag comment field	Displays a tag comment.
4)	Event Message field	Display event name (the name is different as the type of event is different).
5)	Occurrence Date field	Display the date and times of an event occur. *
6)	Status field	Display information related to status.
7)	Set value field	Display information related to set value.
8)	User field	Display the user name that operates the machine when an event occurs.

*: The format of the displayed date and time depends on the setting of Microsoft® Windows® Operating System.

(1) The type of events

The history of events is the general output of the tag data and the status change of the tag data determined by the system. The event contents can generally be classified into the following four types: user operation history, status change history, message history and system event. The types of events are as the following table.

Type		Explanation
Operation history (An output history of user tag data)	Word write	The history of loop tag and status tag when there is a word write operation. Display the value written to set value field ● When item nature is WORD, DWORD; display in hexadecimal. ● When item nature is INT, DINT; attach item unit. ● When item nature is REAL, display using decimal point of item and attach item unit. ● When item is CTNO (lockout tag), display lockout tag name.
	Bit write	The history of loop tag and status tag when there is a kind of bit write operation (ON/OFF). The set value (FALSE or TRUE) will be displayed in set value field.
	Bit write in radio button format	The history of loop tag and status tag, when there is a radio button (when one is on, all others are changed to off) bit write operation. Display selected bit item name in setting field.
	Faceplate display pattern write	The history of status tag (NREV, REV, MVAL1, MVAL2) with radio button bit writes operation using faceplate display pattern set ting (refer to Section 9.10) to register. In the set value field, a string is displayed using faceplate display pattern setting (refer to Section 9.10) to register. The number of display pattern is from display name pattern number of tag data (FPNO). If unregistered, the display is empty (refer to Section 10.6). In the case of Time-out reset, it will be Time-out setting name + "RESET".

Type			Explanation
Status change history (Specific tag data status change history)	Control mode		The history of an item, when register bit of mode item of loop tag and status tag is changed to "ON". Display bit item name in the status field.
	I/O mode		The history when the bit status for TAG STOP (TSTP), OVERRIDE (OVR) and SIMULATION (SIM) in the DIM of loop tag and status tag transferred. Display the mode of changing in status field.
	DIM	Loop tag (BC, PSUM)	The history when the bit registered in DIM item by loop tag (BC, PSUM) is changed to "ON". Display bit item name in a status field.
		Status tag (NREV, REV, MVAL1, MVAL2)	The history when the bit registered in DIM item by status tag (NREV, REV, MVAL1, MAVL2) is changed to "ON". Display A string registered by faceplate display pattern setting set in a status field. (refer to Section 9.10) The number of display pattern is from display name pattern number of FPNO of tag data. If not registered, display is empty. (refer to Section 10.6)
		Status tag (TIMER1, TIMER2, COUNT1, COUNT2)	The history when a bit registered in DIM item by status tag (TIMER1, TIMER2, COUNT1, COUNT2) is changed to "ON". Display A bit item name in status field.
	Lockout tag		The history when CTNO of loop tag status tag is changing. Display the name related to number in status field. If not registered, display is empty.
	Motion type		The history of motion type change when loop tag and tag type are PGS or PGS2. Display the motion type in status field.
Message history			The history of MSG item of message tag, when its bit is changed to "ON". Display a confirm check box when there is a specific confirm in tag data. Event message comes from event setting (refer to Section 9.7). Event number is the message number of tag data (a value stored in MSG1NO to MSG8NO). If not registered, display is empty (refer to Section 10.8).
System event	Monitor target project load history		The history of monitor target projects read by the monitor tool. Checking this record allows judgment of whether tag data has been newly added or changed.
	Monitor tool start/stop history		The history of starting and stopping the monitor tool. Checking this record allows confirmation of whether or not the monitor tool started in the time zone where no alarms occurred in the alarm list.
	Redundant system: control system switching history		The history when standby system is switched to control system. (connection target is Redundant CPU)
	Redundant system: operation mode change history		The history when the operation mode is changed. (connection target is Redundant CPU)

(2) Displayed items according to event types

The displayed items according to event types are showed in the following table:

Event type		Confirm	Tag	Tag comment	Event message	Occurrence date	Status	Set value	User
Operation history	Word write	No display	Displays the tag name of operation objects.	Displays a tag comment.	Displays operation item name.	Displays date and time of operation.	No display	Set value	Displays user name (input user name at mode change).
	Bit write								
	Bit write in radio button format				No display			Bit item name	
	Faceplate display pattern write							Displays the character string set in display pattern setting.	
Status changing history	Control mode	No display	Displays the tag name of changing object.	Displays a tag comment.	No display	Displays the date and time of changing.	Bit item name	No display	No display
	I/O mode						Mode in changing (NOR/SIM/ OVR/TSTP)		
	Loop tag (BC, PSUM)						Bit item name		
	Status tag (NREV, REV, MVAL1, MVAL2)						Displays character string set in display pattern setting.		
	Status tag (TIMER1, TIMER2, COUNT1, COUNT2)						Bit item name		
	Lockout tag				Display bit item name "CTNO"s		Lockout tag		
	Motion type (PGS)				Display bit item name "TYP"s		Motion type		
	Motion type (PGS2)				No display		Bit item name		
Message history		According to tag data	Displays tag name.	Displays a tag comment.	Set character string in event setting	Displays date and time of changing.	No display	No display	No display
System event	Monitor target project load history	No display	#SYSTEM	No display	Monitor target project was loaded	Displays date and time of changing.	No display	No display	No display
	Monitor tool start/stop history	No display	#SYSTEM	No display	Monitor Tool was started/ stopped	Displays date and time of start/end.	No display	No display	No display
	Redundant system: control system switching history	No display	#SYSTEM	No display	Redundant system control switching: + Project name	Displays the date and time of changing.	System A/B	No display	No display
	Redundant system: operation mode change history	No display	#SYSTEM	No display	Redundant system operation mode change: + Project name	Displays the date and time of changing.	Separate mode /Backup mode /Debug mode	No display	No display

POINT

- Even if the size of window is changed, the font size displayed isn't changed.
- If a new alarm occurs, when there are already 2000 alarms; the oldest alarm is deleted, the new alarm is added to the record.

(3) Illustrate example of event

The example of each event type is as follows

- Operation record (Word write)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	TIC001	Room temperature adjustment valve 1	SV	1/30/2002 11: 43: 20 AM		23.5℃	UserABC
	TIC001	Room temperature adjustment valve 1	CTNO	1/30/2002 11: 43: 50 AM		Checking	UserABC

- Operation log (Bit write)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	TIC001	Room temperature adjustment valve 1	MLL	1/30/2002 11: 43: 40 AM		TRUE	UserABC

- Operation log (Bit write in radio button format)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	TIC001	Room temperature adjustment valve 1		1/30/2002 11: 43: 40 AM		MAN	UserABC

- Operation record (Faceplate display pattern write)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	VALV001	Water temperature adjustment valve 1		1/30/2002 11: 43: 40 AM		ON	UserABC
	VALV001	Water temperature adjustment valve 1		1/30/2002 11: 43: 45 AM		Time-out RESET	UserABC

- Status change record (Control mode)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	TIC001	Room temperature adjustment valve 1		1/30/2002 11: 43: 40 AM	MAN		

- Status change record (I/O mode)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	TIC001	Room temperature adjustment valve 1		1/30/2002 11: 43: 40 AM	SIM		

- Status change record (Loop tag BC, PSUM)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	BC001	Batch counter 1		1/30/2002 11: 43: 40 AM	DIM_RUN		

- Status change record (Status tag NREV, REV, MVAL1, MVAL2)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	VALV001	Water temperature adjustment valve 1		1/30/2002 11: 43: 40 AM	ON		

- Status change record (Status tagTIMER1, TIMER2, COUNT1, COUNT2)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	TIMER001	Timer 1		1/30/2002 11: 43: 40 AM	DIM_RUN		

- Status change record (Lockout tag)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	TIC001	Room temperature adjustment valve 1	CTNO	1/30/2002 11: 43: 40 AM	Checking		

● Status change record (Motion type PGS)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	PGS001	Program setter 1	TYP	1/30/2002 11: 43: 40 AM	1		

● Status change record (Motion type PGS2)

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	PGS2001	Program setter 2		3/11/2006 11: 43: 40 AM	TYP_RETURN		

● Message record

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
□	MSG001	Alarm message 1	Please turn to administrator	1/30/2002 11: 43: 40 AM			
	MSG002	Operation start message 1	Start A process	1/30/2002 11: 43: 45 AM			

● Monitor target project load history

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	#SYSTEM		Monitor target project was loaded	1/30/2002 11: 43: 40 AM			

● Monitor tool start/stop history

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	#SYSTEM		Monitor tool was started	1/30/2002 11: 43: 40 AM			
	#SYSTEM		Monitor tool was stopped	1/30/2002 11: 43: 50 AM			

● Redundant system control switching history

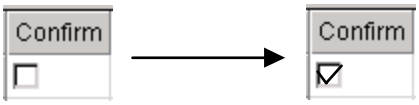
Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	#SYSTEM		Redundant System: Control System switching: PROJECT1	2004/4/01 12:14:28	System A		
	#SYSTEM		Redundant System: Control System switching: PROJECT1	2004/4/01 12:14:28	System B		

● Redundant system operation mode change history

Confirm	Tag	Tag comment	Event Message	Occurrence Date	Status	Set value	User
	#SYSTEM		Redundant System: Operation Mode Change: PROJECT1	2004/4/01 11:43:30	Separate mode		
	#SYSTEM		Redundant System: Operation Mode Change: PROJECT1	2004/4/01 11:43:40	Backup mode		
	#SYSTEM		Redundant System: Operation Mode Change: PROJECT1	2004/4/01 11:43:50	Debug mode		

7.4.2 Confirm check

The check box displays in the message record when tag data of message tag has a confirm tag. Click "Check Box", then input confirm label.



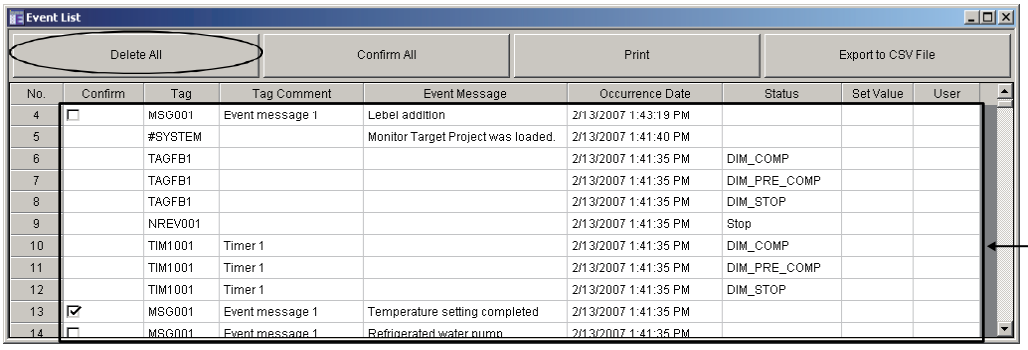
If you want to check all the confirmations in the list, please refer to "7.4.4 Confirm all".

POINT

Check box can not be confirmed in lock mode.

7.4.3 Deleting all events

Click "Delete All" button in the event list screen, all events are deleted.

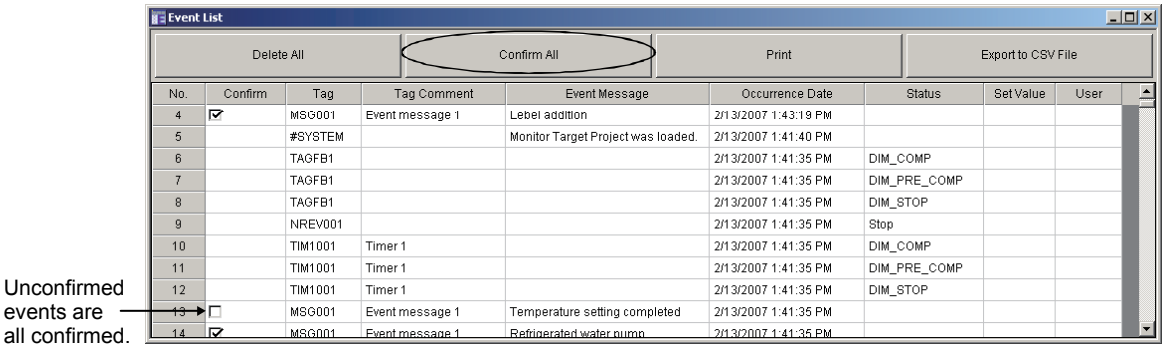


POINT

"Delete All" does not work in lock mode.

7.4.4 Confirming all events

Click "Confirm All" button in the event list screen, all non-confirmed events are confirmed.



POINT

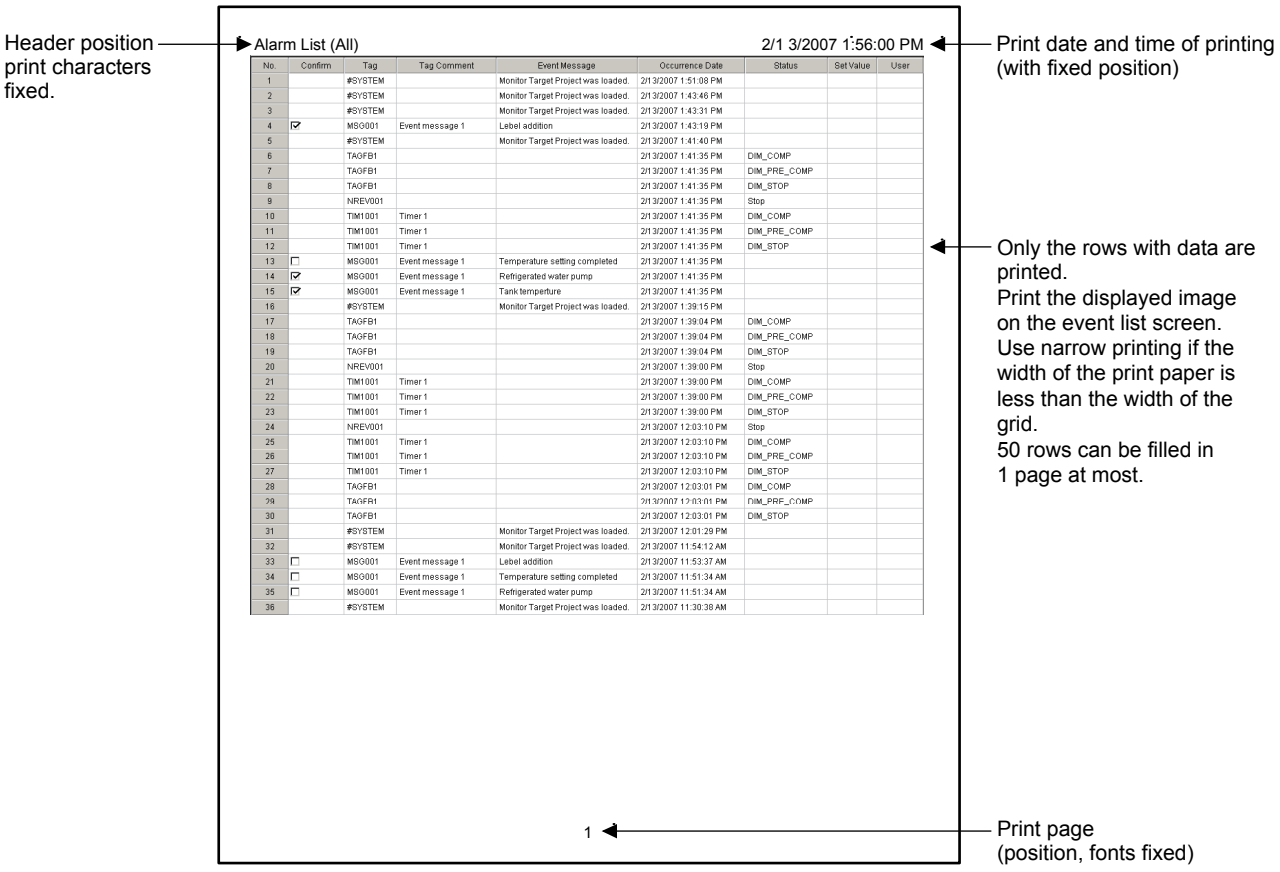
"Confirm All" does not work in lock mode.

7.4.5 Printing an event list

Click "Print" button in the event list screen, the event list can be printed. Print device is a printer set by printer set of the option setting (General). If the printer name isn't specified, the common printer set in the PC can be used.

After print start, the following dialog box displays. The dialog box is closed after print. If "Cancel" button is clicked during printing, printing is cancelled.

Following are the print image:



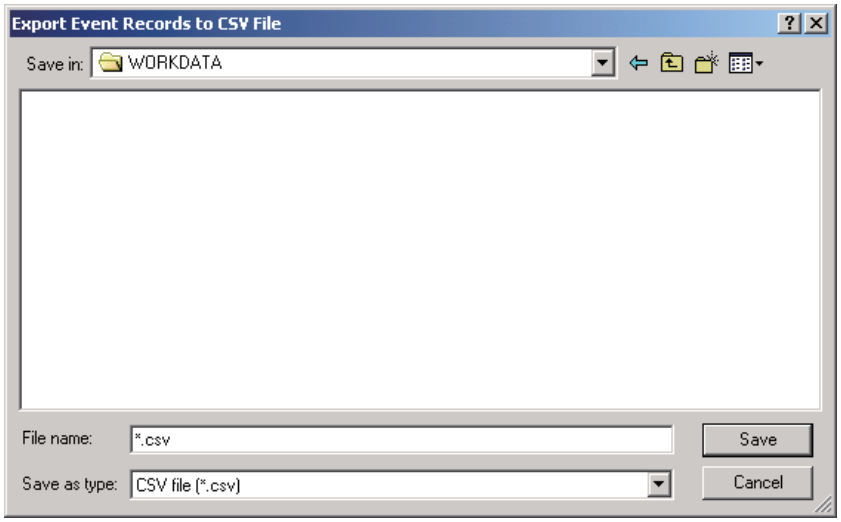
No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	User
1		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 1:51:08 PM			
2		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 1:43:46 PM			
3		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 1:43:31 PM			
4	☑	MSG001	Event message 1	Label addition	2/13/2007 1:43:19 PM			
5		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 1:41:40 PM			
6		TAGFB1			2/13/2007 1:41:35 PM	DIM_COMP		
7		TAGFB1			2/13/2007 1:41:35 PM	DIM_PRE_COMP		
8		TAGFB1			2/13/2007 1:41:35 PM	DIM_STOP		
9		NREV001			2/13/2007 1:41:35 PM	Stop		
10		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_COMP		
11		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_PRE_COMP		
12		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_STOP		
13	☐	MSG001	Event message 1	Temperature setting completed	2/13/2007 1:41:35 PM			
14	☑	MSG001	Event message 1	Refrigerated water pump	2/13/2007 1:41:35 PM			
15	☑	MSG001	Event message 1	Tank temperture	2/13/2007 1:41:35 PM			
16		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 1:39:15 PM			
17		TAGFB1			2/13/2007 1:39:04 PM	DIM_COMP		
18		TAGFB1			2/13/2007 1:39:04 PM	DIM_PRE_COMP		
19		TAGFB1			2/13/2007 1:39:04 PM	DIM_STOP		
20		NREV001			2/13/2007 1:39:00 PM	Stop		
21		TIM1001	Timer 1		2/13/2007 1:39:00 PM	DIM_COMP		
22		TIM1001	Timer 1		2/13/2007 1:39:00 PM	DIM_PRE_COMP		
23		TIM1001	Timer 1		2/13/2007 1:39:00 PM	DIM_STOP		
24		NREV001			2/13/2007 12:03:10 PM	Stop		
25		TIM1001	Timer 1		2/13/2007 12:03:10 PM	DIM_COMP		
26		TIM1001	Timer 1		2/13/2007 12:03:10 PM	DIM_PRE_COMP		
27		TIM1001	Timer 1		2/13/2007 12:03:10 PM	DIM_STOP		
28		TAGFB1			2/13/2007 12:03:01 PM	DIM_COMP		
29		TAGFB1			2/13/2007 12:03:01 PM	DIM_PRE_COMP		
30		TAGFB1			2/13/2007 12:03:01 PM	DIM_STOP		
31		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 12:01:29 PM			
32		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 11:54:12 AM			
33	☐	MSG001	Event message 1	Label addition	2/13/2007 11:53:37 AM			
34	☐	MSG001	Event message 1	Temperature setting completed	2/13/2007 11:51:34 AM			
35	☐	MSG001	Event message 1	Refrigerated water pump	2/13/2007 11:51:34 AM			
36		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 11:30:38 AM			

POINT

"Print" cannot be executed in lock mode.

7.4.6 Exporting to CSV file

Click "Export to CSV File" button in the event list screen, all events are saved in CVS file. When saving, saving folder and file name should be specified.



The Output format is as follows:
The First column is the title of each data contents; the following columns are output collection data according to the original sequence of date and time.

```
Tag,Tag Comment,Event Message,Occurrence Date,Status,Set Value,User
CON001,Batch counter1,,2/8/2007 5:46:40 PM,DIM_COMP,,
TIM001,Timer 1,,2/8/2007 5:46:48 PM,DIM_STOP,,
TIM001,Timer 1,,2/8/2007 5:46:48 PM,DIM_PRE_COMP,,
TIM001,Timer 1,,2/8/2007 5:46:48 PM,DIM_COMP,,
#SYSTEM,,Monitor Target Project was loaded.,2/8/2007 5:46:53 PM,,,
PGS2001,1st step program setter,T,2/8/2007 5:49:02 PM,,5s,admin
```

POINT

- Event data can be output to CSV files automatically. (Refer to Section 8.6.)
- Data cannot be saved to files in lock mode.

7.5 User-created Screen

PURPOSE

Assign monitoring applications to user-created screen buttons on the monitor toolbar.
Programs created with GT SoftGOT1000 (refer to Section 11.1) or Microsoft® Visual Basic (refer to Section 11.2) can be assigned as applications.

BASIC OPERATION

1. Click "Setting window" button in the monitor tool bar, using [User-created Screen Setting] to pre-register application program of screen necessary for display (refer to Section 9.8). Once an application is registered, as long as the setting isn't changed, even if restart after monitor tool is exited, the application program can still display in the monitor tool bar.
2. Click "User-created screen" display button in monitor tool bar (Button icon is determined by the registered application).
3. Start the registered application program, display user-created screen.

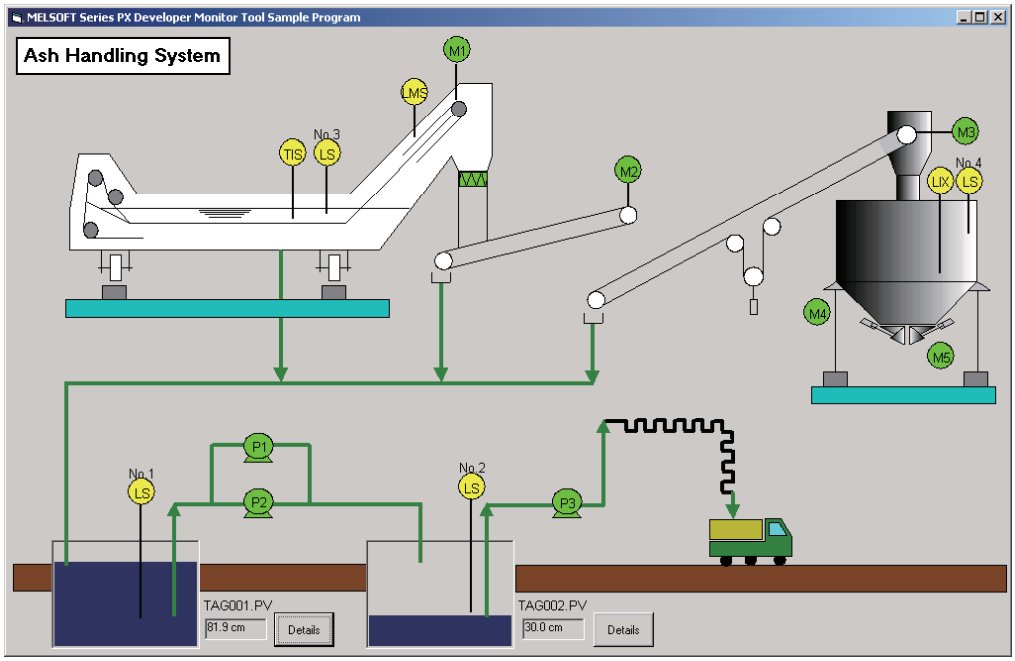
User-created Screen Button 1 to 4

Using button of tool bar can maximum start 4 application programs optionally registered by user.
Screen of application program assigned to a button can only display 1 screen (even if click user-created screen button1 twice, it can only activate the registered screen of application program but can't open two screens). To open multiple screens of the same application program, it needs to register other buttons separately.

POINT

- When monitor screen (such as control panel) is opened or another user-created application is started up in single-window mode during the execution of the application started up by the user-created screen button, the application being executed will be closed.
- When "Do not close when switching Monitor Window." is set in the Detail setting of the user-created screen in single-window mode, the application being executed will not be closed.
  Note, however, that the application being executed closes regardless of settings when the setting window is displayed or the Monitor tool is exited.

The example of user-created screen is as follows:



POINT

- The button can't be clicked during setting window opening.
- The icons of the application program registered by user display at user application program start button 1 to 4. If the user application program isn't registered, no button is displayed.
- Even if the window opened by using "User-created screen" button isn't used for monitor screen, it is still treated as a monitor window about the limit for maximum open screens. (refer to Section 6.4)
- When close monitor tool, all application programs started by "User-created screen" button must be closed.
- Tag data access control (refer to Appendix 3.1.1) can be used to acquire or set the value of tag data and display it on screen. Using a button in a user-created screen, the same faceplate can be opened as the one displayed in other screens of monitor tool. (As for sample data, please refer to sample VB folder of CD-ROM).
  Through faceplate control (refer to Appendix 3.1.2), faceplate can be displayed on the screen.
- When "Privilege Level" of the application is specified to "Run this program as an administrator" in Windows Vista® , "Privilege Level" of the monitor tool also needs to be specified to "Run this program as an administrator."
  For the method to execute programs as an administrator, refer to Section 5.1.

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7.6 Pop-up Faceplate

PURPOSE

To display a screen called faceplate in the form of a pop-up window. This screen displays tag data contents in the forms of simulation adjusting meter and so on.

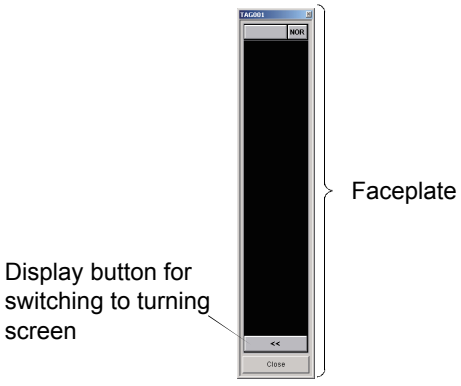
BASIC OPERATION

Any of the following methods can be used to display pop-up faceplate.

- Search with tag names
  1. Click the "Find" button () of the monitor toolbar.
  2. Specify and search tag names with the search dialog box (refer to Section 8.4).
  3. Display the screen of the pop-up faceplate.
- Display the related faceplate with alarm display bar.
  1. Click the faceplate display button at the alarm display bar. This bar is at the top left corner of the monitor toolbar (refer to Section 6.3.1).

  2. Display the pop-up faceplate screen related to alarm.
- Display the related faceplate with alarm display bar
  1. Click "Alarm List" button () at the monitor toolbar.
  2. Double click the alarm display bar on the alarm list screen (refer to Section 7.3).
  3. Display the pop-up faceplate screen related to the alarm.
- Display from pop-up tuning screen.
  1. Click ">>" button on the pop-up tuning screen.
  2. The pop-up tuning screen replaces the displayed pop-up faceplate screen.

DISPLAY/SETTING SCREEN



POINT

- Up to two pop-up windows can be displayed.
  If a new pop-up window is opened when two pop-up windows have already been displayed, the first opened one of the two on-screen windows is automatically closed.
  However, if it cannot be closed as displaying a dialog box for example, the other one is closed.
- If a new pop-up window is opened when two pop-up windows have already been displayed, either of the on-screen pop-up windows is forcibly closed.
  To keep the desired pop-up window open, close the unnecessary pop-up window before opening a new one.

7.6.1 Displaying an faceplate

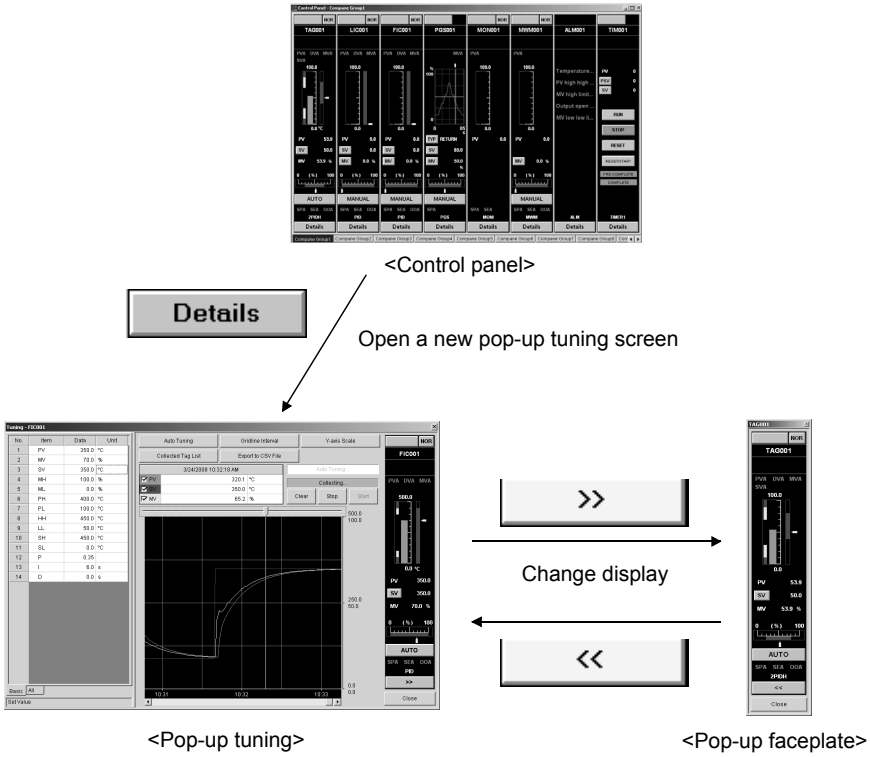
The information of distributed tag is displayed on the faceplate.
Tags are set by control panel setting (refer to Section 9.4).
Please refer to Chapter10 Faceplate for details of each faceplate.

7.6.2 Displaying a pop-up tuning screen

Click "<<"button on the pop-up faceplate, the tuning screen replaces the displayed faceplate screen. Please refer to Section 7.7 Pop-up Tuning Screen for details of the tuning screen.

POINT

Click buttons under the faceplate to change the window of the display faceplate.
See below.



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7.7 Pop-up Tuning Screen

PURPOSE

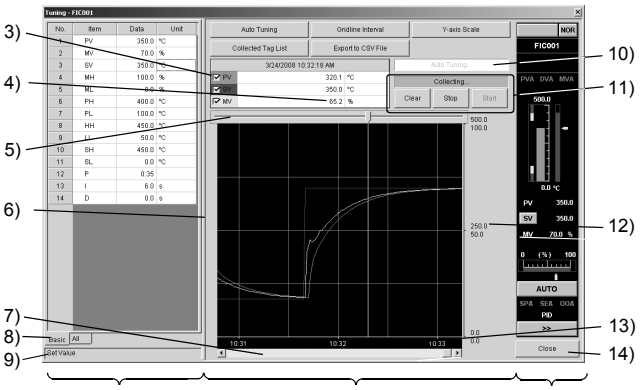
Screens for tuning display in the form of pop-up windows.

BASIC OPERATION

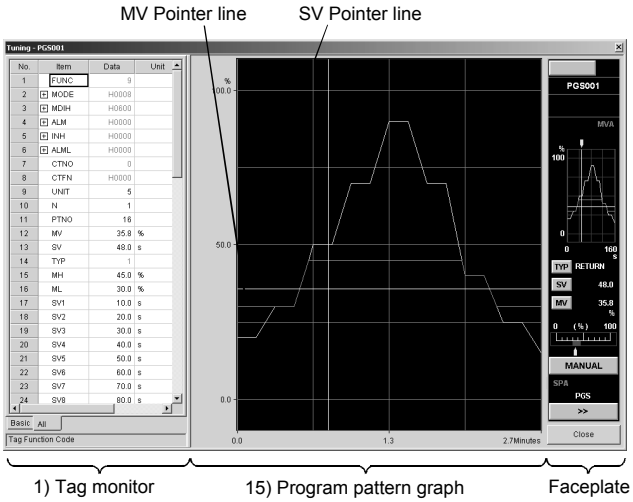
Any of the following methods can be used to display pop-up tuning screens.

- Display from the control panel
  1. Click the "Control Panel" button ( ) at the monitor toolbar.
  2. Click the "Details" button of the faceplate on the control panel.
  3. Display the pop-up faceplate screen.
- Display from the pop-up faceplate screen
  1. Click the "<<" button on the pop-up faceplate screen.
  2. The pop-up tuning screen replaces the pop-up faceplate screen.

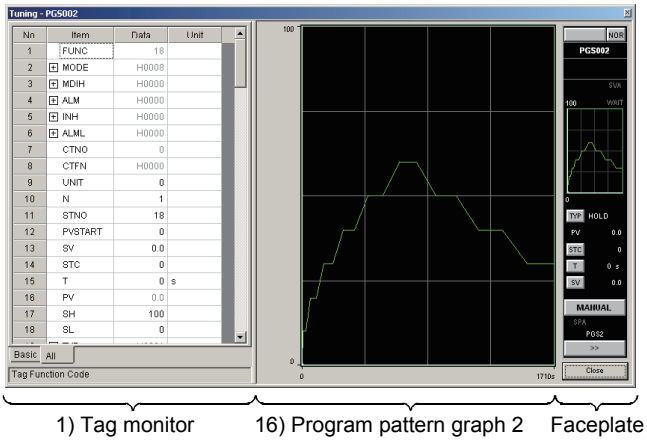
DISPLAY/SETTING SCREEN



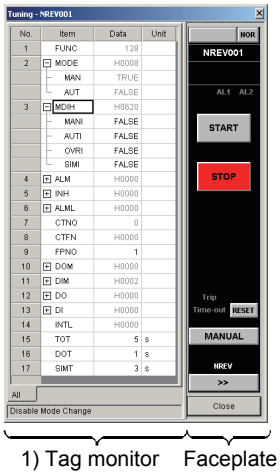
<Under the loop tag condition
(except for tag type PGS, PGS2)>



< Loop tag (PGS tag type)>



< Loop tag (PGS2 tag type)>



<Status, Alarm, Message tag>

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7.7.1 Displaying a pop-up tuning screen

The following table is the displayed contents of all bars on the pop-up tuning screen.

<table>
<tr><th>No.</th><th>ITEMS</th><th>CONTENTS</th></tr>
<tr><td>1)</td><td>Tag monitor *</td><td>It displays values of the tag data items.
For the word item that can be displayed for each bit item, a ⊞ mark is displayed on the left of the item for level indication.
The display of tag items can be switched in the display switching tab of 8).
Values are input to the grid, which can change the tag data.
Judgment between changeable tag data and unchangeable tag data can be made by the text color displayed in the "Data" field.
Changeable data: Black
Unchangeable data: Gray
At the Lock Mode and Setting Lockout tag Mode, data cannot be changed.</td></tr>
<tr><td>2)</td><td>Tuning trend graph *</td><td>Each value of PV, SV, and MV is displayed in graphs.
By setting option setting, background color of the screen, color of the gridlines and each graph can be specified (refer to Section 9.14).</td></tr>
<tr><td>3)</td><td>Graph display check box</td><td>With check……Display the graphs.
Without check.....Cannot display the graphs.</td></tr>
<tr><td>4)</td><td>Cursor position data</td><td>It can only display but cannot change the cursor position data of the tuning trend graph</td></tr>
<tr><td>5)</td><td>Tuning trend cursor position</td><td>By moving the cursor position, data at any time on the tuning trend graph can be displayed on 4) bar.</td></tr>
<tr><td>6)</td><td>Split bar</td><td>When moved on the split bar, the mouse pointer turns to a ⟷ mark.
Drag the split bar in this status to change the horizontal width of Tag monitor.</td></tr>
<tr><td>7)</td><td>Graph scroll bar</td><td>The tuning trend graph can be rolled.
The cursor position on the screen does not change, but the cursor position data changes after rolling. When rolling to the left of the oldest value, it returns to the oldest data position automatically.</td></tr>
<tr><td>8)</td><td>Display switching tab</td><td>Switches the display items in tag monitor.
<table>
<tr><th>Tab name</th><th>Display item</th></tr>
<tr><td>Basic</td><td>Displays only the tag items (e.g., PV/MV/SV value, PID constant and high/low limit alarm value) often monitored/set.</td></tr>
<tr><td>All</td><td>Displays all tag items.</td></tr>
</table>
As for status, alarm and message tag, only the All tab is displayed.</td></tr>
<tr><td>9)</td><td>Detailed names of the tag data items</td><td>It displays items' detailed names of the lines selected with tag monitor.</td></tr>
<tr><td>10)</td><td>Auto tuning status display</td><td>Displays only tag types available for auto tuning.
<table>
<tr><th rowspan="2">Auto tuning executing status</th><th rowspan="2">Alarm</th><th colspan="3">Display format</th></tr>
<tr><th>Display</th><th>Background color</th><th>Font color</th></tr>
<tr><td>In executing</td><td>Not occurred</td><td>Auto Tuning…</td><td>Light blue</td><td>Black</td></tr>
<tr><td rowspan="2">Not in executing</td><td>Not occurred</td><td>Auto Tuning…</td><td>White</td><td>Gray</td></tr>
<tr><td>Occurred</td><td>Auto Tuning…</td><td>Red</td><td>Gray</td></tr>
</table></td></tr>
<tr><td>11)</td><td>Tuning trend collection instructions button and status display</td><td>It sets tuning trend collection instructions and displays status.
Please refer to "Section 7.7.3 Tuning Trend Collection Instruction" for details.</td></tr>
<tr><td>12)</td><td>Y-axis scale</td><td>At the bottom is the scale of MV, at the top section is the scale of PV, SV.
In the middle are the values automatically calculated and displayed according to top and bottom limits of the scale.</td></tr>
<tr><td>13)</td><td>Time display of the gridline</td><td>It displays the gridline time in hour and minute.
When the display trend data does not reach the gridline, the time will not be displayed.</td></tr>
<tr><td>14)</td><td>"Close" button</td><td>Used to close the pop-up window.</td></tr>
<tr><td>15)</td><td>Program pattern graph</td><td>SV and MV against elapsed time are displayed by graphs.
Option setting can be used to specify background color of the curves, colors of the gridline and each graph (refer to Section 9.14).</td></tr>
<tr><td>16)</td><td>Program pattern graph2</td><td>Displays SV of the time set in advance for each step as graphs.
Background color, gridline and color for each graph can be specified in option setting. (Refer to Section 9.14.)</td></tr>
</table>

*: The displayed data are collected through high-speed tag data collection and high-speed current value collection. (refer to Appendix1.1)
The high-speed current value collection period is confirmed in communication status screen. (refer to Section 8.5)

During correction of the tuning trend data, confirm the following current values displayed on the Collection Period for Each Communication type tab of the Communication Status screen (refer to Section 8.5) are within 1 second.

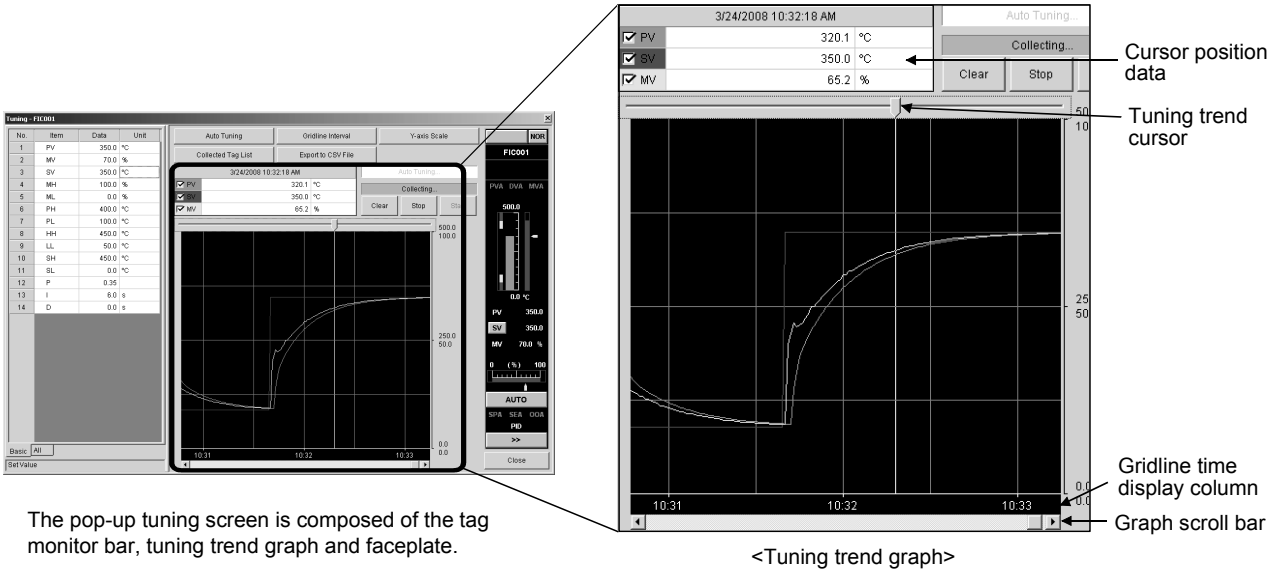
- The current value of High-speed Current Value Correction (unit: second)
- The current value of High-speed Tag Data Correction (unit: second)

If either of the value exceeds 1 second, the data cannot be corrected in 1-second period.

(1) In case of loop tag (except for tag type PGS, PGS2)

On the tuning trend graph, the 3 graphs of PV (process value), SV (set value) and MV (manipulated variable) are displayed one after another in the passing time sequence. The lines of the graphs are displayed in the colors set as the graph 1 to 3 display colors (PV: Graph 1 Color, SV: Graph 2 Color: MV: Graph 3 Color) in option setting (trend graph). (Refer to Section 9.14 (4).)

DISPLAY/SETTING SCREEN



The pop-up tuning screen is composed of the tag monitor bar, tuning trend graph and faceplate.

<Tuning trend graph>

DISPLAY/SETTING DATA

ITEM	CONTENT
Cursor position data	The values at the time selected with the tuning trend cursor are displayed.
Tuning trend cursor	Used to select a time point of the graph: the values corresponding to the selected point are displayed in the cursor position data field.
Gridline time display column	The time is displayed for each gridline.
Graph scroll bar	Used to scroll the graph that cannot be displayed within a single screen.

REMARK

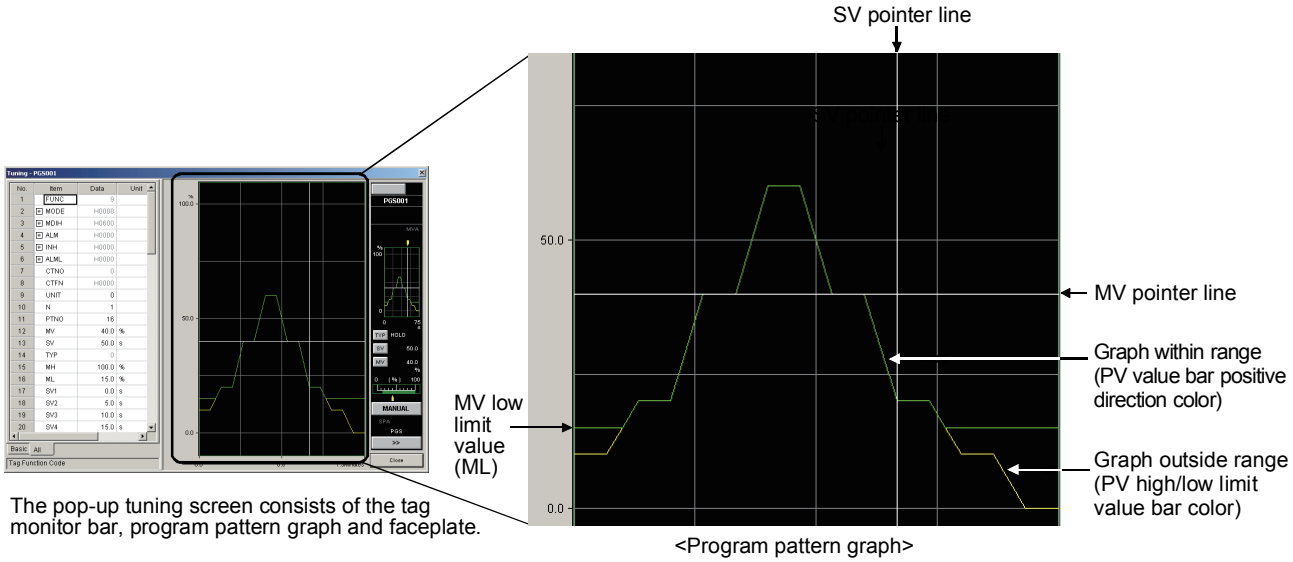
In the presence of displayed trend data, if the window size is changed or the gridline interval is changed on the pop-up tuning screen, the tuning trend cursor and graph scroll bar move to the right end.

(2) In case of loop tag (PGS tag type)

On the program pattern graph, values of SV (set time: second) and MV (set output: %) are displayed in graphs. These values are set with the tag item of PGS.

When the MV output value is out of the high and low limit value range (this range is set through tag data items MH and ML), the graph in this section is displayed in a different color. It is displayed as the double graphs by gaining an integer from the high and low limit values of MV.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

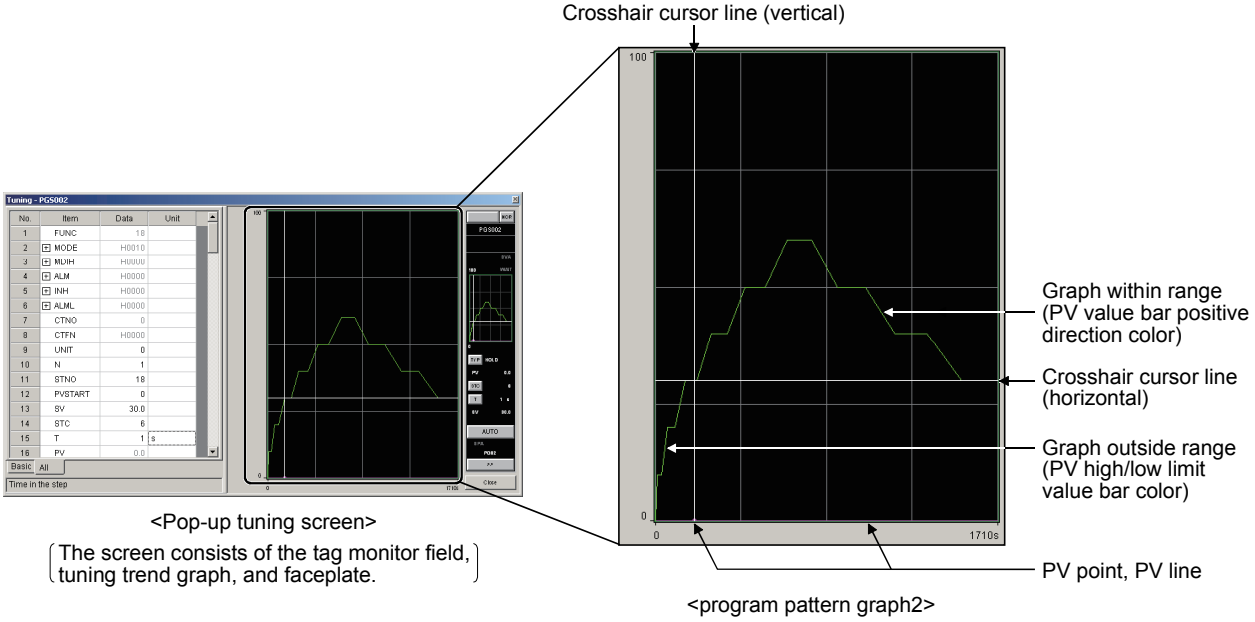
ITEM	CONTENT
MV low limit value (ML)	The MV low limit value set in the tag data item ML is displayed.
SV pointer line	The current value of the SV is displayed. The SV pointer line is displayed in white.
MV pointer line	The current value of the MV is displayed. The MV pointer line is displayed in white.
Graph within range (PV value bar positive direction color)	A graph whose MV output value is within the range of the MV high limit value and low limit value set in the tag data items MH, ML. The line of the graph is displayed in the "PV value bar positive direction color" of the option setting (faceplate). (Refer to Section 9.14 (3).)
Graph outside range (PV high/low limit value bar color)	A graph whose MV output value is outside the range of the MV high limit value and low limit value set in the tag data items MH, ML. The line of the graph is displayed in the "PV high/low limit value bar color" of the option setting (faceplate). (Refer to Section 9.14 (3).)

(3) Loop tag (PGS2 tag type)

On the program pattern graph2, the SV output value of the time set in advance for each step are displayed as graphs. For the Y-axis scale of the graph, RH and RL set with the tag data item of PGS2 are used.

When the SV output value is out of the SV high and low limit value range set at the tag data item SH and SL, the corresponding section of the graph is displayed overlapping with the graph, which the values are clipped in the SV high and low limit value range, in a different color.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

ITEM	CONTENT
Crosshair cursor line (vertical)	Displays the current time in the step. The crosshair cursor line (vertical) is displayed in white.
Crosshair cursor line (horizontal)	Displays current setting value. The crosshair cursor line (horizontal) is displayed in white.
PV point, PV line	Displays the current value of PV. (PV point is displayed on the crosshair cursor line (vertical).) PV point and PV line are both displayed in magenta.
Graph within range (PV value bar positive direction color)	A graph displayed when the SV output value is within the SV high and low limit value range set at the tag data item SH and SL. The graph is displayed in color set for “PV bar positive direction color” in option setting (refer to Section 9.14 (3)).
Graph outside range (PV high/low limit value bar color)	A graph displayed when the SV output value is outside of the SV high and low limit value range set at the tag data item SH and SL. The graph is displayed in color set for “PV high/low limit value bar color” in option setting (refer to Section 9.14 (3)).

(4) On status tag, alarm tag and message tag

The pop-up tuning screen is composed of the tag monitor bar and faceplate only.

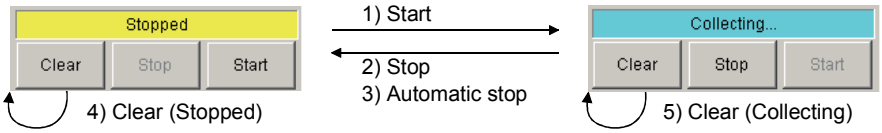
7.7.2 Collecting tuning trend data

The tuned data is not saved in the files, but in the memory.
Data saved in the memory can be export to the CSV files (refer to Section 7.7.8)

Item	Content
Collection objects	Loop tag: 3 values of PV, SV and MV
Sampling period	1 second
Collected data quantity	Maximum number of 20000 points collected data can be stored in the memory each time of tuning. Even if the screen is closed, the collected data will not be cleared, and when collecting, it still continues to collect under the same condition. If the buffer memory is full, it automatically stops collecting.
Time recordable	5.5 hours
Simultaneous execution	16 tuning
Storing destination	Memory

7.7.3 Tuning trend collection instruction

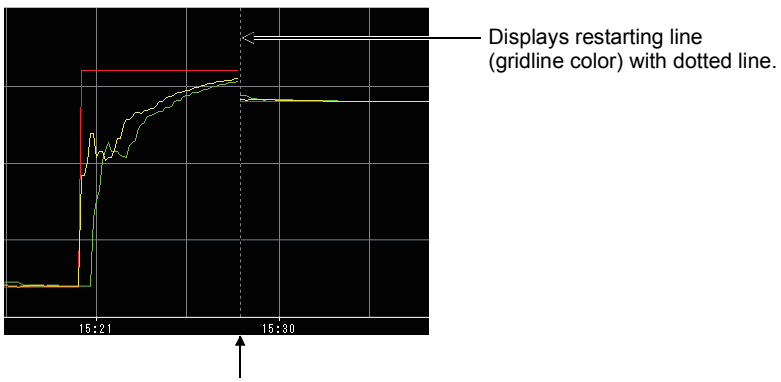
On the pop-up tuning screen, click the button of tuning trend collection instructions to start/stop collecting tuning trend data.



No.	Explanation	Status display after execution
1) Start	Click the button to start collecting the tuning trend data. When the points are recorded to 20000 and the buffer memory is full, tuning trend collection will start after deleting the current turning trend data.	Collecting (Light Blue)
2) Stop	Click the button to stop collecting the tuning trend data.	Stopped (Yellow)
3) Automatic stop	When the points are recorded to 20000 and the buffer memory is full, it will automatically stop.	Stopped (Yellow)
4) Clear (Stopped)	Click the button to clear the tuning trend data. The tuning trend graph returns to the initial display status.	Stopped (Yellow)
5) Clear (Collecting)	Click the button to clear the tuning trend data and automatically start collecting tuning trend.	Collecting (Light Blue)

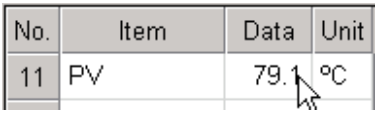
POINT

- In the Lock Mode, the tuning trend data collecting instructions cannot be executed.
- The collected data is cleared when the monitor tool is finished. When it is restarted, the data should be collected again, and the maximum number of 16 tags can be simultaneously tuned.
- The maximum number of 16 tags (retainable tuning trend data) can be simultaneously tuned.
- If the total number of tag retaining tuning trend data is 16, any one of the existing data must be cleared to start collecting of new tags.
  Clear any one of the tags displayed in corrected tag list (refer to Section 7.7.7) after the correction stops.
- If restarting correction without clearing the data after the correction stop, the graph display in before stop and after restart are separated with dotted line.
  The following shows the example when the collection is stopped/restarted.



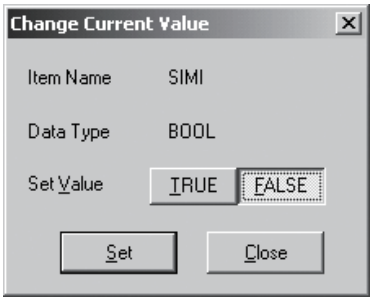
7.7.4 Changing a current value

The tag monitor bar can be used to change current values of the tag data on the pop-up tuning screen. Changed values can be set through a dialog box. This box is displayed from the [Data] quadrille of the tag monitor.



1. On the tag monitor, select the [Data] quadrille of the tag data items to be changed.

2. Click the displayed button.



3. Display the "Change Current Value" dialog box (when the dialog box is displayed, the current value is displayed inside the set value field).
4. Input the set value.
   - WORD, DWORD type: Input with H added on the head in the Hex system.
   - INT, DINT type: Input in the decimal system.
   - REAL type: Input in the form of floating decimal points.
   - BOOL type: Select TRUE or FALSE by toggle button.
5. Click the "Set" button, and the current value is changed.

POINT

- At the Lock Mode, the current value cannot be changed.
- Judgment between changeable tag data and unchangeable tag data can be made by the character color displayed in the "Data" field.
  Changeable data : Black
  Unchangeable data: Gray
- Before clicking the "Close" button, the "Change Current Value" dialog box will not be closed. Therefore, the set value can be continuously changed (repeat the operations of step 4 and 5 mentioned above).

REMARK

- The current value should be set within the high and low limit range that is specified by each tag data item.
  (If the set value is out of the limit range, "Error" information will be displayed.)
  Please refer to PX Developer Programming Manual for the setting range of each tag item.
- Before setting values of PV, SV, and high high/low/low low limit (PV, SV, PH, PL, HH, LL, SH, SL), the right high/low values (RL, RH) of the engineering value should be set. If the tag data is R, when setting the SV value and its high/low values (SV, SH, SL), the right ratio high/low values (RMAX, MIN) should be set beforehand.

7.7.5 Auto tuning

When tuning on the pop-up tuning screens of the tag of types PID, 2PID and 2PIDH, it can be auto tuning before accurate adjustment. Thus, the value can be automatically adjusted to the approximate value.
With the auto tuning function, the following operations/displays are performed in the dialog boxes displayed when the "Auto Tuning" button located at the top center of the screen is clicked.

(1) An execution of auto tuning by the Step Response method

(2) An execution of auto tuning by the Limit Cycle method (only for the 2PIDH type)

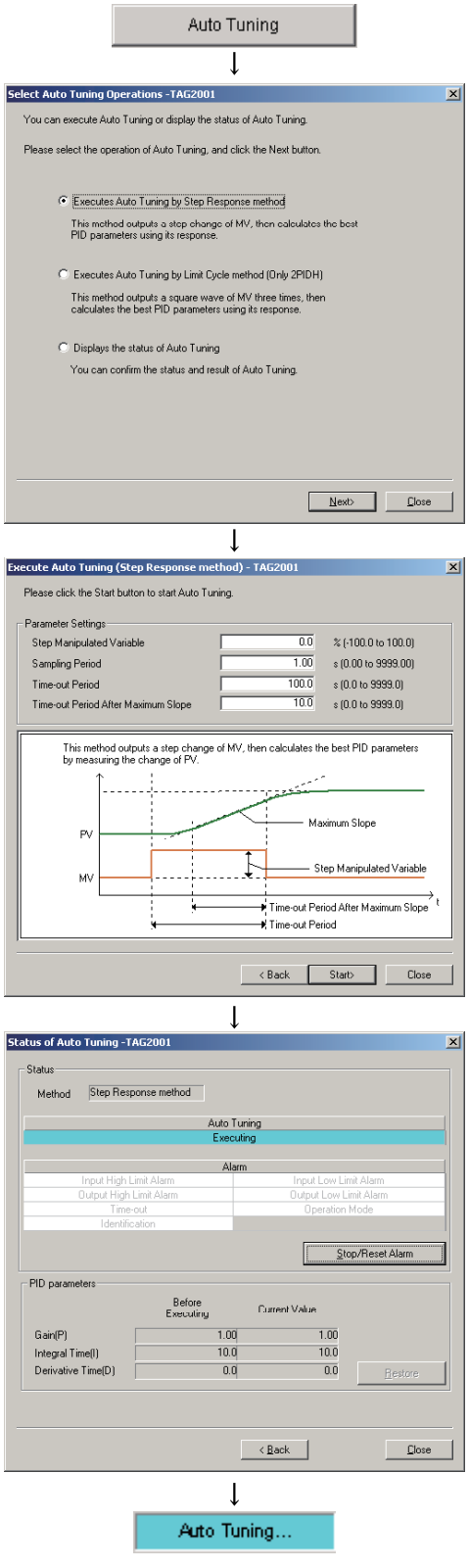
(3) Auto tuning status display

POINT

- The following auto tuning operations cannot be performed when the lockout tag is set or in lock mode.
  (a) Start
  (b) Stop/Reset alarm
  (c) Restore PID parameters
- When an alarm occurs, auto tuning will stop automatically.
- The Limit Cycle method is available with PX Developer Version1.14Q or later.
- The Step Response method can be executed when the control mode is in MANUAL mode or COMPUTER MV mode.
- The Step Response method and the Limit Cycle method share the time-out period (AT1TOUT1). When changing the auto tuning method, please check whether the time-out period is appropriate.

(1) An execution of auto tuning by the Step Response method

BASIC OPERATION



1. Click the "Auto Tuning" button.
2. The "Select Auto Tuning Operations" dialog box is displayed.
3. Select the radio button that says "Executes Auto Tuning by the Step Response method".
4. Click the "Next" button.
5. The "Execute Auto Tuning (Step Response method)" dialog box is displayed.
6. Set the following items.
   - Step Manipulated Variable
   - Sampling Period
   - Time-out Period
   - Time-out Period After Maximum Slope
7. By clicking the "Start" button, auto tuning starts
8. The "Status of Auto Tuning" dialog box is displayed.
9. Execution status of auto tuning can be checked in the auto tuning status display field located above the tuning trend graph even after the "Auto Tuning" dialog box is closed.

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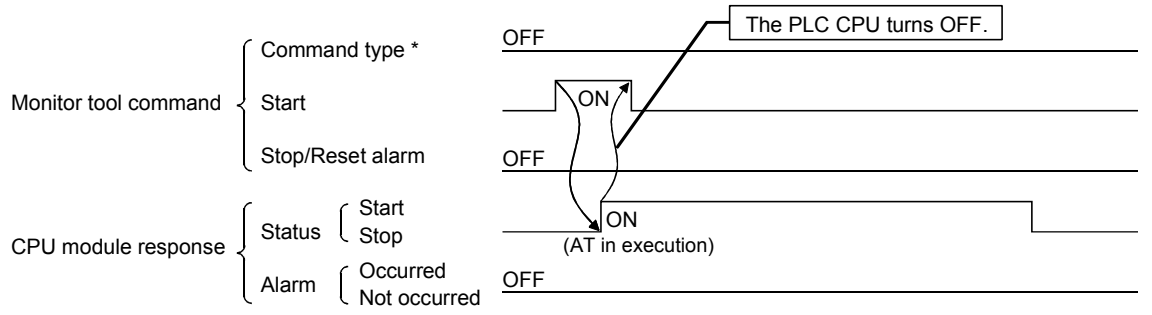
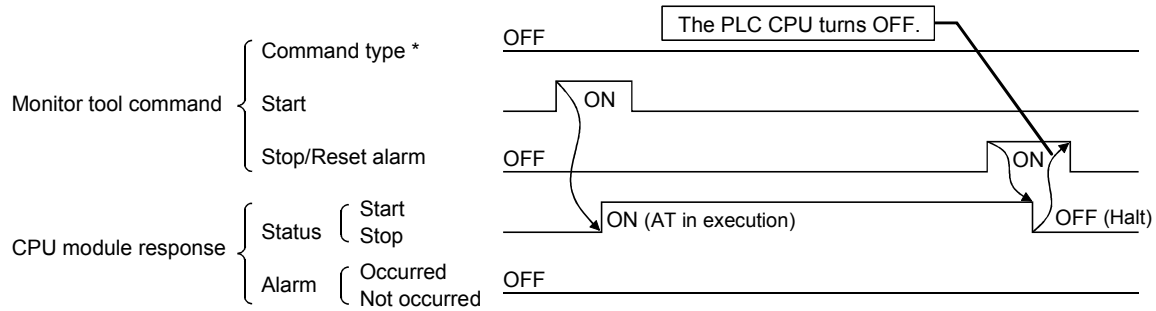
The following shows the timing chart for auto tuning by the Step Response method.

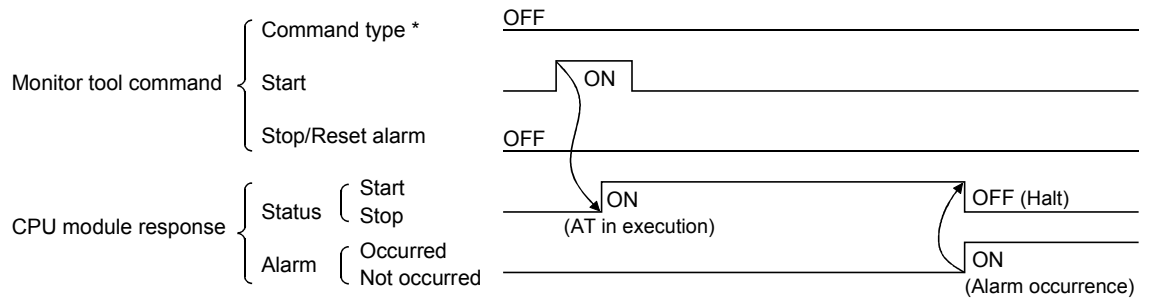
Normal End



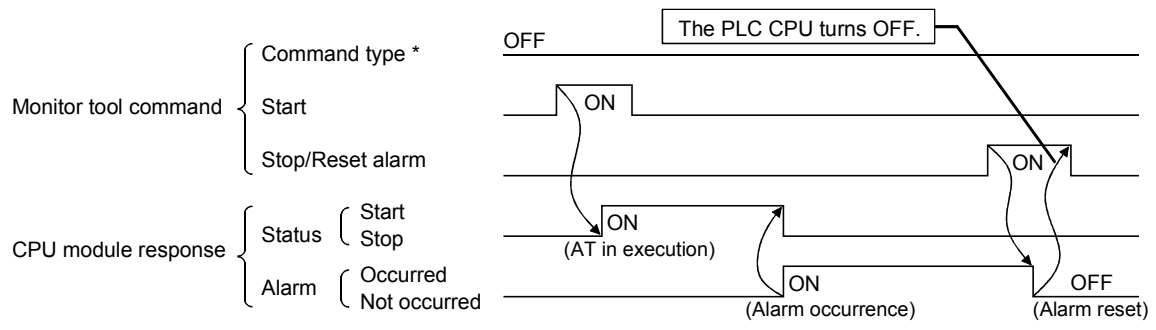
End with a halt by the Stop command



Abnormal end due to alarm occurrence



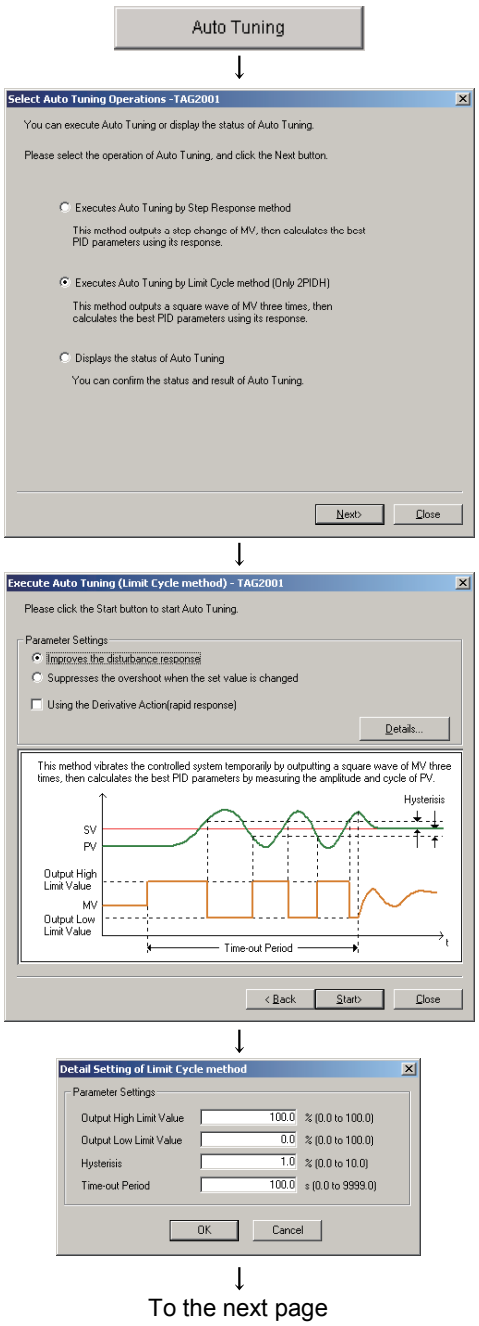
Reset alarm after abnormal end



* Command type is used only when auto tuning by the Limit Cycle method by the tag type 2PIDH is executed.

(2) An execution of auto tuning by the Limit Cycle method (only for the 2PIDH model)

BASIC OPERATION



To the next page

1. Click the "Auto Tuning" button.
2. The "Select Auto Tuning Operations" dialog box is displayed.
3. Select the radio button that says "Executes Auto Tuning by the Limit Cycle method". (Only the 2PIDH type can select this method.)
4. Click the "Next" button.
5. The "Execute Auto Tuning (Limit Cycle method)" dialog box is displayed.
6. Set the following items.
   - Improves the disturbance response
   - Suppresses the overshoot when the set value is changed
   - Using the Derivative Action (rapid response)
7. Click the "Details" button if needed.
8. Set the following tag items.
   - Output High Limit Value (AT2MVH)
   - Output Low Limit Value (AT2MVL)
   - Hysterisis (AT2HS)
   - Time-out Period (AT1TOUT1)
9. Close the "Detail Setting of Limit Cycle method" dialog box by clicking the "OK" button.

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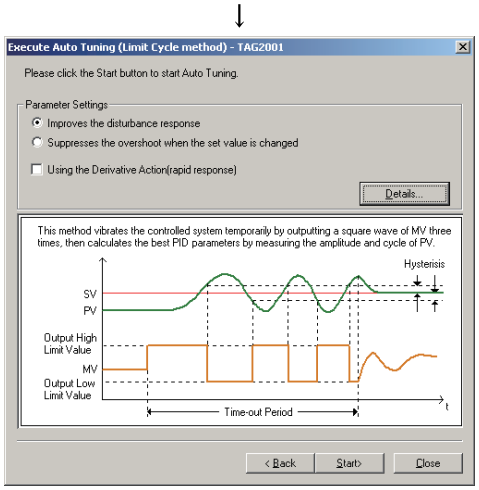
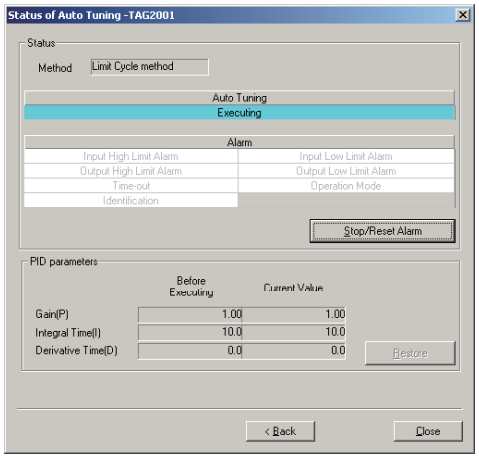


10. Click the "Start" button to start auto tuning.

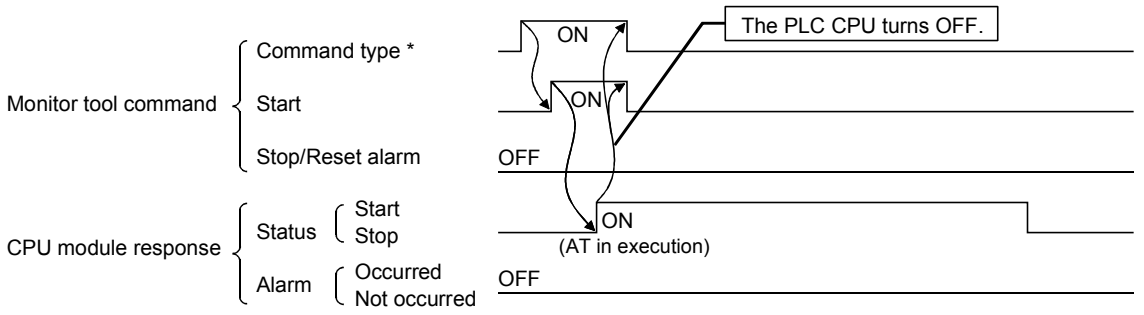


11. The "Status of Auto Tuning" dialog box is displayed.

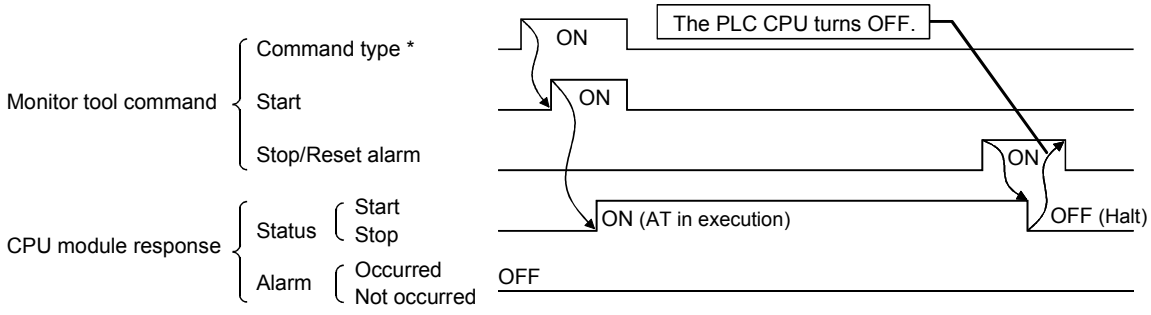
12. Execution status of auto tuning can be checked in the auto tuning status display field located above the tuning trend graph even after the "Auto Tuning" dialog box is closed.

The following shows the timing chart for auto tuning by the Limit Cycle method.

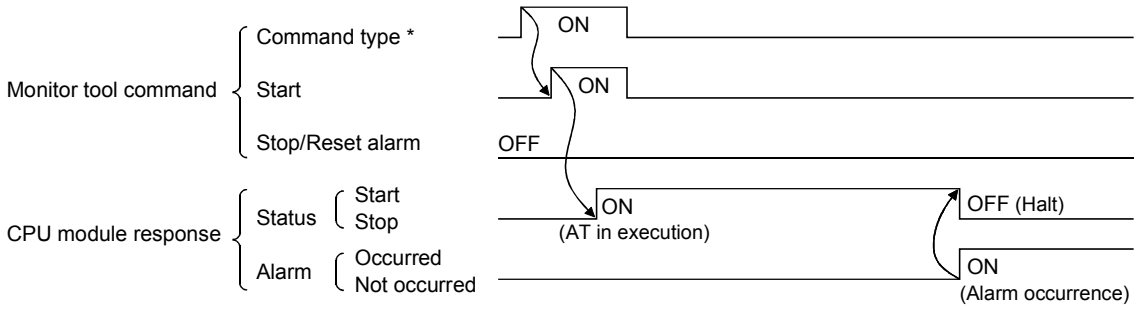
Normal End



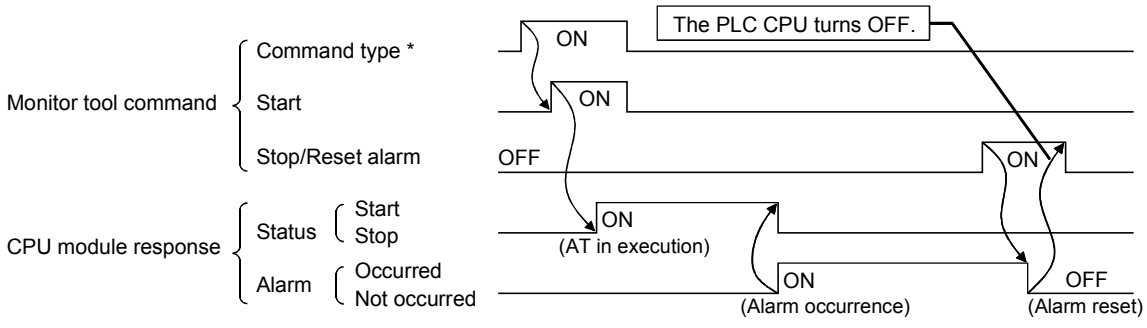
End with a halt by the Stop command



Abnormal end due to alarm occurrence



Reset alarm after abnormal end



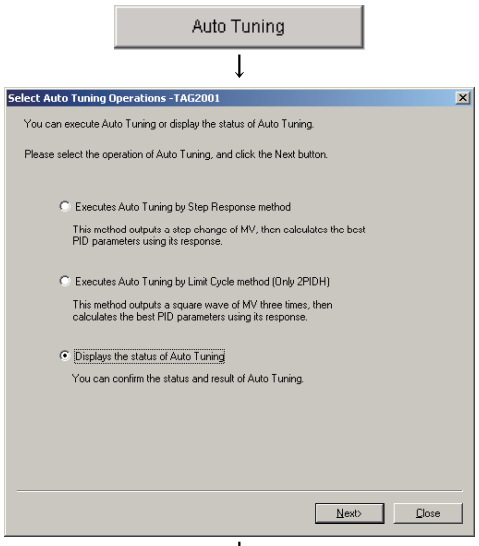
* When the command type turns ON, the system ladder refers to ATTYPE value to determine auto tuning type.

(3) Auto tuning status display

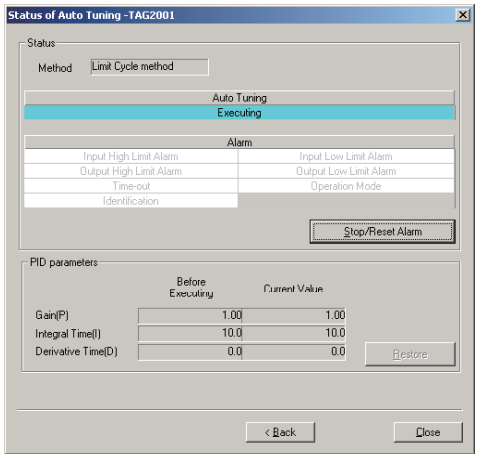
PURPOSE

Displays an execution status or alarm status of auto tuning.

BASIC OPERATION



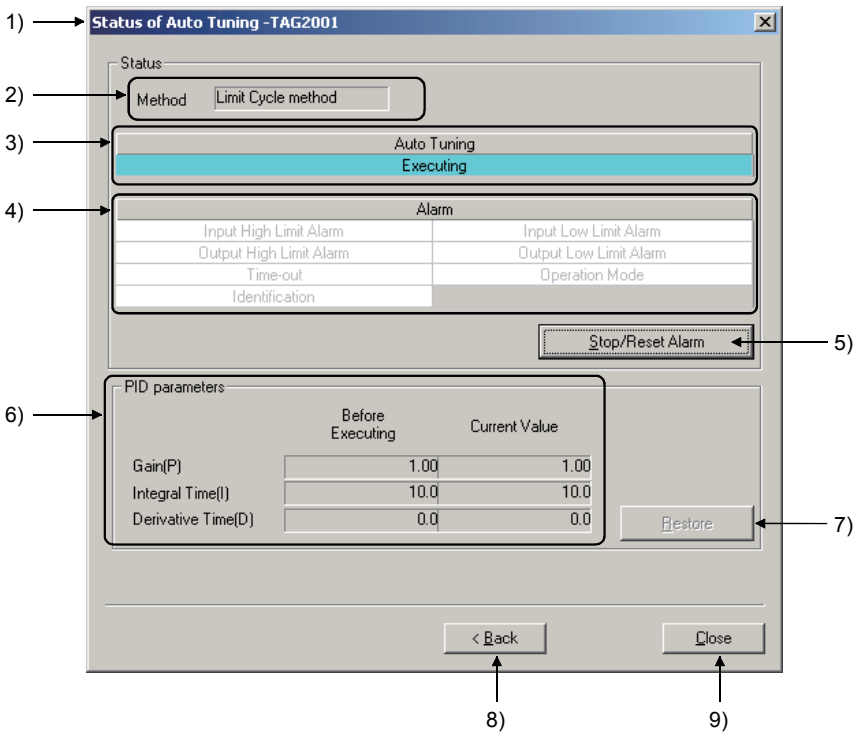
1. Click the "Auto Tuning" button.
2. The "Select Auto Tuning Operations" dialog box is displayed.
3. Select the radio button that says "Displays the status of Auto Tuning".
4. Click the "Next" button.



5. The "Status of Auto Tuning" dialog box is displayed.

POINT
● During execution of auto tuning, the "Select Auto Tuning Operations" dialog box is not displayed. Instead, the "Status of Auto Tuning" dialog box is displayed.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

The Status of Auto Tuning can be checked on the pop-up tuning screen or Auto Tuning dialog box.

<table>
<tr><th>No.</th><th>Item</th><th>Contents</th></tr>
<tr><td>1)</td><td>Title bar</td><td>Displays the tag name of auto tuning target.</td></tr>
<tr><td>2)</td><td>Method</td><td>Displays auto tuning method.
<table>
<tr><th>Display</th><th>Operating method of auto tuning</th></tr>
<tr><td>Step Response method</td><td>Status that auto tuning is executed by the Step Response method</td></tr>
<tr><td>Limit Cycle method</td><td>Status that auto tuning is executed by the Limit Cycle method</td></tr>
<tr><td>—</td><td>Status that the method is not decided</td></tr>
</table></td></tr>
<tr><td>3)</td><td>Auto tuning</td><td>Displays the followings depending on the status of auto tuning.
<table>
<tr><th rowspan="2">Status</th><th colspan="3">Display format</th></tr>
<tr><th>Display</th><th>Background color</th><th>Font color</th></tr>
<tr><td>Auto tuning in execution</td><td>Executing</td><td>Light blue</td><td>Black</td></tr>
<tr><td>Auto tuning not in execution</td><td>Executing</td><td>White</td><td>Gray</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>No.</th><th>Item</th><th>Contents</th></tr>
<tr><td>4)</td><td>Alarm</td><td>
Displays the status of each alarm in different background color and font color.
<table>
<tr><th>Alarm status</th><th>Background color</th><th>Font color</th></tr>
<tr><td>Occurred</td><td>Red</td><td>Black</td></tr>
<tr><td>Not occurred</td><td>White</td><td>Gray</td></tr>
</table>
The following shows the alarms to be displayed in the alarm display field.
<table>
<tr><th rowspan="2">Alarm</th><th colspan="2">Alarm occurrence condition</th></tr>
<tr><th>Step Response method</th><th>Limit Cycle method</th></tr>
<tr><td>Input High Limit Alarm</td><td colspan="2">When either of the bit for input high limit alarm (PHA) or input high high limit alarm (HHA) is ON in the alarm (ALM) items of the loop tag data</td></tr>
<tr><td>Input Low Limit Alarm</td><td colspan="2">When either of the bit for input low limit alarm (PLA) or input low low limit alarm (LLA) is ON in the alarm (ALM) items of the loop tag data</td></tr>
<tr><td>Output High Limit Alarm</td><td>T1 > MV High Limit Value (MH) in Step Manipulated Variable (AT1STEPMV) for T1 = MV + AT1</td><td>Alarms do not occur. *1
(Output value (MV) is controlled below MV High Limit Value (MH).)</td></tr>
<tr><td>Output Low Limit Alarm</td><td>T1 < MV Low Limit Value (ML) in Step Manipulated Variable (AT1STEPMV) for T1 = MV + AT1</td><td>Alarms do not occur. *1
(Output value (MV) is controlled above MV Low Limit Value (ML).)</td></tr>
<tr><td>Time-out</td><td colspan="2">When the time from the start of auto tuning exceeds the time-out period (AT1TOUT1)</td></tr>
<tr><td>Operation Mode</td><td>When the control mode (MODE) is other than MANUAL mode</td><td>• When the control mode (MODE) is switched during auto tuning
• When auto tuning is executed in CASDR mode
• ATTYPE < 0 or ATTYPE > 4
• AT2MVH ≦ AT2MVL</td></tr>
<tr><td>Identification</td><td>Response speed for calculation
R’ = Maximum slope value (%)/ Sampling period for AT1
Response speed
R = |R’|/100(s-1)
When calculation result of above formulas is R ≦ 0</td><td>When PID parameters cannot be calculated
• Xc=AT2HS
• Calculation result PID parameters are Gain > 999 and Integral Time/Derivative Time > 9999</td></tr>
</table>
*1: With auto tuning by the Limit Cycle method, MHA, MLA, and DMLA of ALM tag are cancelled.
</td></tr>
<tr><td>5)</td><td>Stop/Reset Alarm</td><td>Stops auto tuning and resets an alarm.</td></tr>
<tr><td>6)</td><td>PID parameters display</td><td>Displays current PID parameters and PID parameters before auto tuning execution.</td></tr>
<tr><td>7)</td><td>Restore PID parameters</td><td>Writes the original PID parameters to the PLC.
This button cannot be used in the following cases: (Invalid)
• In lock mode
• when the lockout tag is set
• auto tuning in execution
• when no PID parameters exist before auto tuning execution ("------" display)</td></tr>
<tr><td>8)</td><td>Back</td><td>Displays the previously displayed dialog box.</td></tr>
<tr><td>9)</td><td>Close</td><td>Closes a dialog box.</td></tr>
</table>

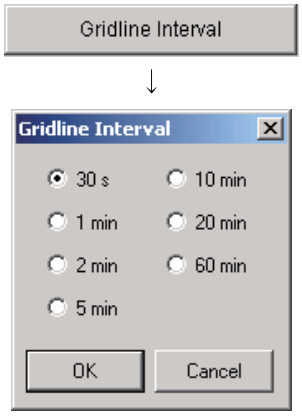
7.7.6 Changing the display magnification

The display magnification of the tuning trend graph can be changed through the time gridline intervals displayed on the screen and the Y-axis scale setting. The Y-axis scale can display the high and low limits of the data. When closing the window, the change will not be remembered, when restarting, the initial scale is displayed.

	Button names	Specified contents for changing
X-axis	Gridline interval	Select the time intervals of the gridline; the initial value is 30 seconds. (30 seconds,1 minute, 2 minutes, 5 minutes, 10 minutes, 20 minutes, 60 minutes)
Y-axis	Y-axis scale	Specify the display high and low values of each tag data item.

(1) Change the magnification of the X-axis

Selecting time intervals of the trend graph display can change the multiplying power of the horizontal direction.

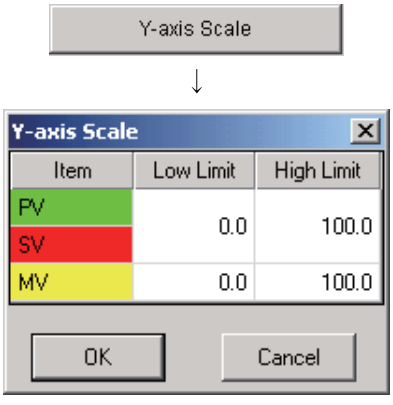


1. Click the "Gridline Interval" button on the screen.
2. Display the "Gridline Interval" dialog box.
3. Select the time intervals for splitting the gridline.
4. Click the "OK" button.
5. Change the X-axis display magnification of the trend graph.

After the gridline intervals are changed, when moving the trend cursor, the minimum unit of the data that can be displayed is also changed. When the gridline interval is 30 seconds, the values per 1 second are displayed. But when the interval is 60 minutes, only the values per 2 minutes can be displayed.
The following table is the display units of each gridline interval.

Gridline interval	30 seconds	1 minute	2 minutes	5 minutes	10 minutes	20 minutes	60 minutes
Display units	1 second	2 seconds	4 seconds	10 seconds	20 seconds	40 seconds	2 minutes

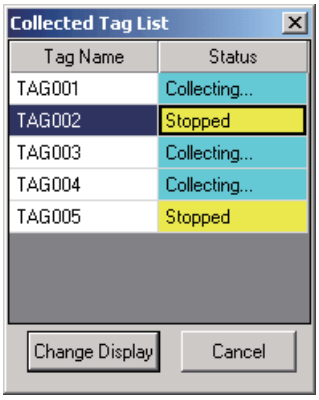
(2) Change the magnification of the Y-axis



1. Click the "Y-axis Scale" button on the top of the screen.
2. Display the "Y-axis Scale" dialog box.
3. Specify the high and low limits of the displayed data on the screen.
4. Click the "OK" button.
5. Change the Y-axis display magnification of the tuning trend graph.

7.7.7 Collected tag list

Click the "Collected Tag List" button on the pop-up tuning screen, the collecting and stopping tag lists are displayed on the dialog box.
Select the tag on the "Collected Tag List" dialog box. Click the "Change Display" button and the specified tag is displayed on the pop-up tuning screen.
Now, on the "Collected Tag List" dialog box on the pop-up tuning screen, tags are displayed at the option status.



POINT
The display status of the "Collected Tag List" dialog box is refreshed at the period of 1 second.

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7.7.8 Exporting to CSV file

Click the "Export to CSV File" button on the pop-up tuning screen, and the trend data can be saved in the form of CSV in the files. When saving the data, the saving folder and file name should be specified.

The following table is the output forms.
In the first line are titles that can show contents of the data. In the rest of the lines, the collected data are output at the previous sequence of the date and time.

```
Date,TAG001.PV,TAG001.SV,TAG001.MV
11/30/2005 3:59:25 PM,0.0,80.0,100.0
11/30/2005 3:59:26 PM,0.0,80.0,100.0
11/30/2005 3:59:27 PM,0.0,80.0,100.0
11/30/2005 3:59:28 PM,0.0,80.0,100.0
11/30/2005 3:59:29 PM,0.0,80.0,100.0
,,,
11/30/2005 3:59:34 PM,0.0,80.0,100.0
11/30/2005 3:59:35 PM,0.0,80.0,100.0
11/30/2005 3:59:36 PM,0.0,80.0,100.0
11/30/2005 3:59:37 PM,0.0,80.0,100.0
11/30/2005 3:59:38 PM,0.0,80.0,100.0
```

If restarting correction without clearing the data after correction stop, data indicating invalid (row only commas) is inserted for 1 row between the stop and the restart.

8 OTHER FUNTION

8.1 Starting/Stopping Buzzer

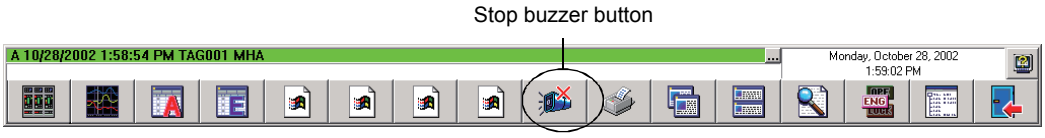
PURPOSE

When there is an alarm or event, it makes the buzzer beep then stop it after confirmation.

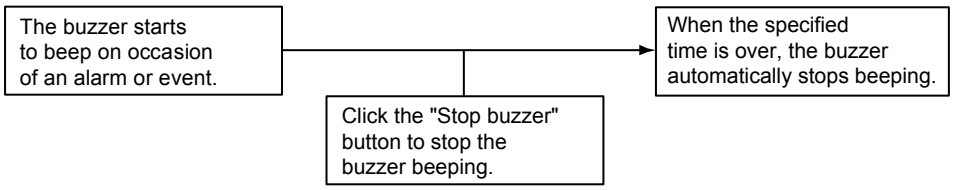
BASIC OPERATION

1. Click the "Setting Window" button on the monitor tool bar. Through operating [Option Setting] → [Alarm/Event] on the displayed setting window, the situation whether the buzzer beeps and types of the beeping sound can be set beforehand when there is an alarm and event. As long as it is not changed, the registered buzzer sound setting is still valid even after the monitor tool is restarted. Please refer to "CHAPTER 9 SETTING" for details.
2. When the buzzer is beeping, click the button "Stop Buzzer" on the monitor tool bar to stop it after confirming the cause.

DISPLAY/SETTING SCREEN



On occasion of alarm and event in monitoring, the monitor tool can make the buzzer beep to notify administrator the errors.
There are 3 different settings for the buzzer according to the degree of the alarm (Major alarm/Minor alarm/Event).
After the installation, if the setting is not changed, the buzzer will not beep.
Clicking the button on the monitor toolbar can stop the beeping buzzer.
Besides, the buzzer can automatically stop after a certain time. Beeping time can be set with second as unit (the maximum setting: 99999 seconds = 27 hours 46 minutes and 39 seconds).



POINT

- In the lock mode, buttons cannot be clicked.
- When the buzzer is not beeping, nothing will change even if the "Stop Buzzer" button is clicked.
- Besides the normal beep sound, the sound files (with WAV file as their extension character) can be set as the buzzer sound as well (refer to Section 9.14).

8.2 Print Screen

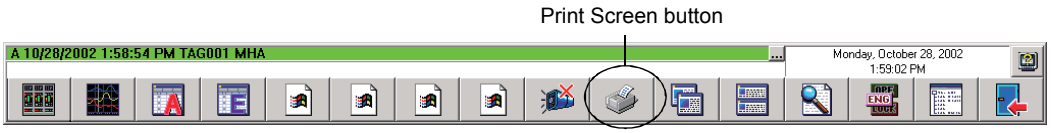
PURPOSE

Print the hard copy of the entire displayed desktop.

BASIC OPERATION

1. Click the button "Setting Window" on the monitor tool bar. Then on the displayed screen, set the printer as the printing beforehand through operating [Option Setting] → [General] → [Printer], if the printer is preset and normally used, it needs not to be reset (refer to Chapter 9 SETTING).
2. Click the "Print Screen" button on the monitor tool bar to print.

DISPLAY/SETTING SCREEN



In order to record current displayed status, user can click the button on the tool bar to print the display screen.
The printing equipment is a printer that is set through [Printer] of the Option Setting (General) (refer to Section 9.14). If the printer name is not specified, then the normally used printer on the personal computer can be used.

POINT

- In the lock mode, the buttons cannot be clicked.
- Print Screen function prints not only the section related to the monitor tool, but also the entire screen like its original appearance.

8

8.3 Screen Alignment

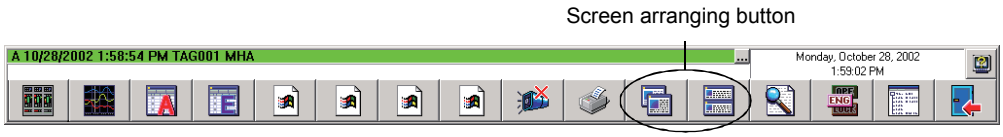
PURPOSE

Display the displayed windows after align them.

BASIC OPERATION

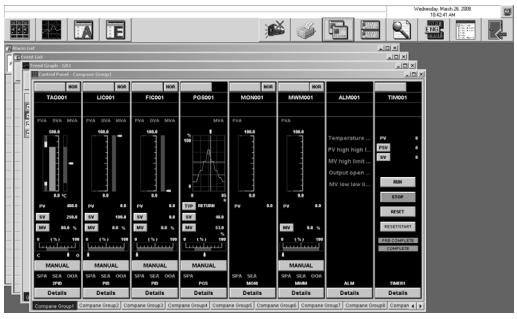
1. Click the "Setting Window" button on the monitor toolbar. Through operating [Option Setting] → [General] → [Window mode] on the displayed setting window, the window is changed to multi-window. As long as the setting is not changed after registration, it is still valid even after the monitor tool is restarted. If it is not changed after installation, it is the multi-window setting (refer to "Chapter 9 SETTING" for details).
2. Click the button "Cascade" or "Tile" on the monitor tool bar to print.

DISPLAY/SETTING SCREEN

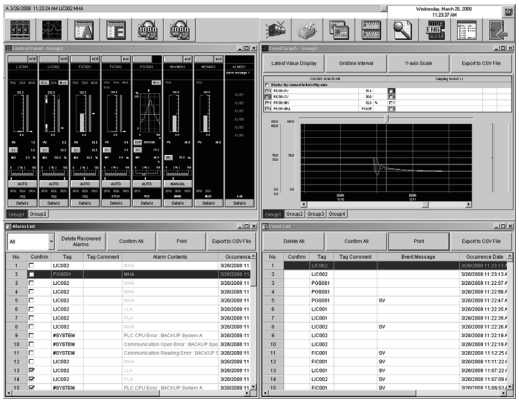


There are two kinds of screen alignment buttons.

Cascade	One windows is slightly cascaded on another window for alignment.
Tile	Screens are evenly divided. Windows are aligned when they are not displayed in cascaded way.



<Cascaded screens>



<Tiled screens>

Other application windows can also be aligned even if they are not opened with the monitor tool. The pop-up windows of the monitor tool cannot be aligned.

POINT
At the single-window mode, screens cannot be aligned (Buttons are not displayed).

8.4 Find

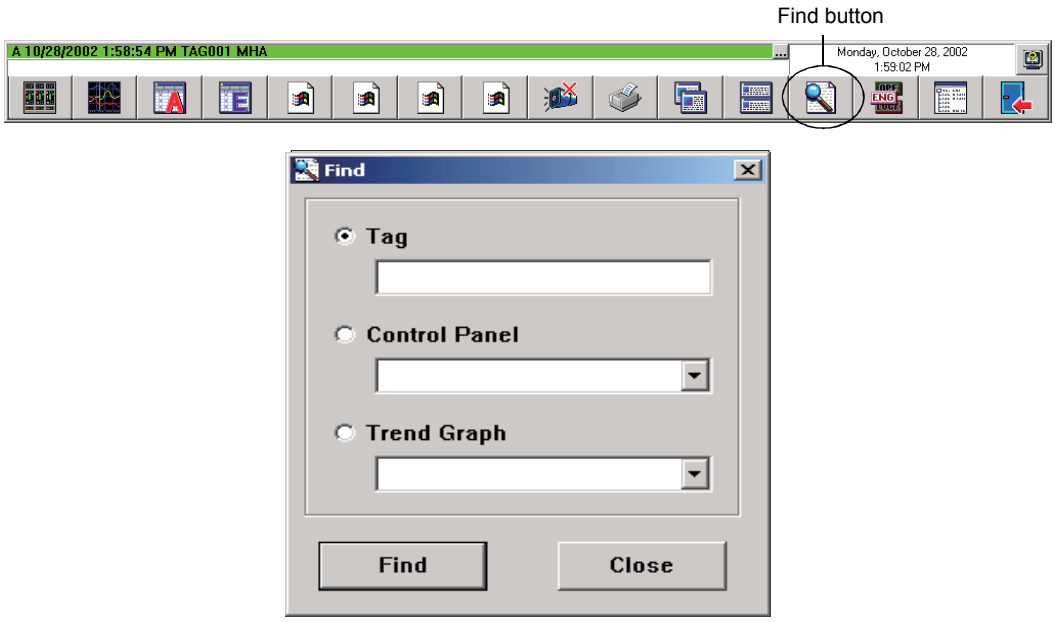
PURPOSE

Find tags, control panel and trend graph.
When finding the target, display it after opening the window.

BASIC OPERATION

Click the "Find" button on the monitor tool bar to display the Find Dialog Box. It is always displayed at the front position. After finding, the dialog box will not be closed as long as the close button is not clicked. Therefore, the finding can be continuously done.

DISPLAY/SETTING SCREEN



<Find dialog box>

POINT
● When the setting window is opened, the find button cannot be clicked. ● The finding cannot be done through wildcards.

(1) Find with tag names

Select the radio button of the tags, then input the tag names, click the find button. When the searching target is found, it becomes the following.

(a) If the pop-up faceplate is not opened

Open the pop-up faceplate on which the tag data is displayed as the target.

(b) If the target pop-up faceplate has already been opened

This faceplate becomes active.

(c) If 2 pop-up faceplate screens have already been opened

The first opened one of them is automatically closed and the pop-up faceplate that displays the target tag data opens.
However, if it cannot be closed as displaying a dialog box, for example, the other one is closed.

When finding only with the tag names, if there are any duplicated tags, the find will be done in the priority sequence of the projects; If simply finding with the tag names, the finding can be done with "project name: : tag name".

(2) Find with group names of the control panel

Select the control panel group by checking the radio button of the control panel. Or input to the Combo box directly, and then click the find button.
When the target is found,

(a) In the case of multi-window mode

Newly open a control panel to display the corresponding group.
However, if 4 monitor windows (maximum) are already opened, a control panel cannot be newly opened. Close the monitor window, and start the operation.

(b) In the case of single window mode

If no monitor window is opened, newly open a control panel to display the corresponding groups.
If a monitor window has been opened, the window is automatically closed and a control panel is newly opened to display the corresponding group.

(3) Find with group names of the trend graph

Select the radio button of the trend graph, select the trend graph group, or directly input to the Combo box, then click the find button.
When finding the target,

(a) In the case of multi-window mode

Newly open a trend graph to display the corresponding group.
However, if 4 monitor windows (maximum) are already opened, a trend graph cannot be newly opened. Close the monitor window, and start the operation.

(b) In the case of single window mode

If no monitor window is opened, newly open a trend graph to display the corresponding groups.
If a monitor window has been opened, the window is automatically closed and a trend graph is newly opened to display the corresponding group.

Please refer to "Section 6.4.2 Display Form of Monitor Window" for the details about window modes.

8.5 Displaying the Communication Status

8.5.1 Displaying the communication status

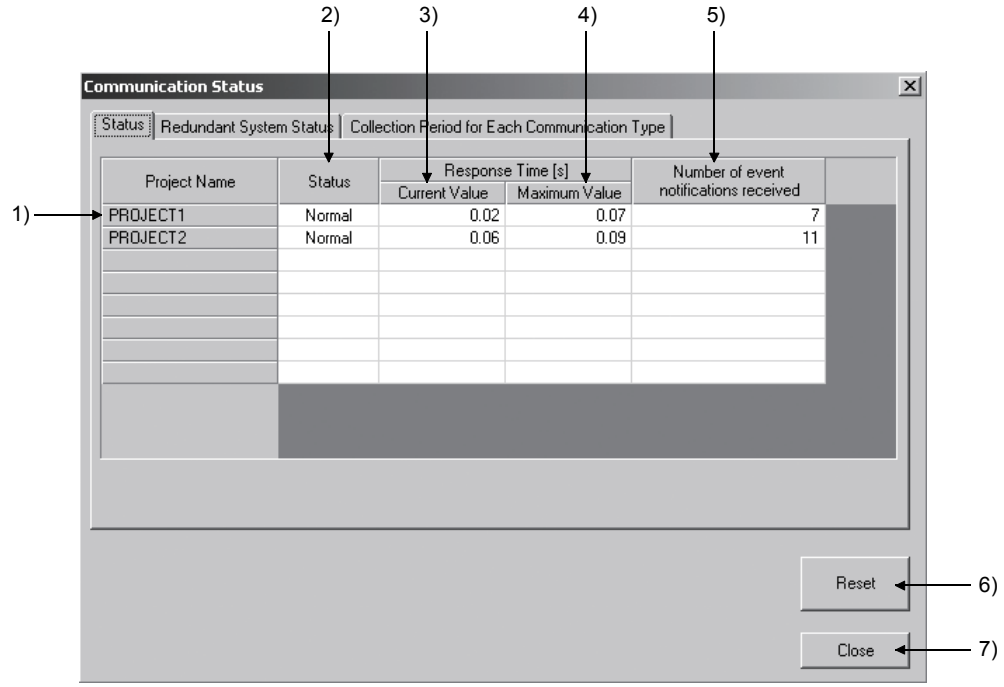
PURPOSE

To check the communication between monitor tool and CPU module for each project.

BASIC OPERATION

1. Click "Help Menu" button ( ) on the monitor tool bar.
2. Select "Communication Status" on the displayed Help Menu.
3. Click << Status >> tab.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

<table>
<tr><th>No.</th><th colspan="2">Item</th><th>Contents</th></tr>
<tr><td>1)</td><td colspan="2">Project Name</td><td>Display the target name of monitor target.
Execute the setting of monitoring target project through monitor target project setting (refer to Section 9.3)</td></tr>
<tr><td>2)</td><td colspan="2">Status</td><td>Display the communication condition between monitor tool and the CPU module specified in "Transfer Setup" screen.
<table>
<tr><th>Display</th><th>Explanation</th><th>Character color</th></tr>
<tr><td>Normal</td><td>Data communication is normal</td><td>Black</td></tr>
<tr><td>Abnormal</td><td>Data communication is abnormal</td><td>Red</td></tr>
<tr><td>——</td><td>PLC connection setup is not yet set.</td><td>Black</td></tr>
</table></td></tr>
<tr><td>3)</td><td rowspan="2">Response Time [S]</td><td>Current Value</td><td>Display the time from read request of low-speed tag data collecting *2 to data receiving.
However, this is not displayed when the PLC connection target is not yet set or when the PLC type is inconsistent. ("－－－－－" is displayed.)</td></tr>
<tr><td>4)</td><td>Maximum Value *1</td><td>Display maximum response time of 3) above.
However, this is not displayed when the PLC connection target is not yet set or when the PLC type is inconsistent. ("－－－－－" is displayed.)</td></tr>
<tr><td>5)</td><td colspan="2">Number of event notification received *1</td><td>Display the times of event notification *2 received by CPU module.
Display range is 0 to 999999.
If it exceeds 999999, it returns to 0.
If a communication error occurs during communication condition display, the previous value of the number of event notification received is kept displayed. In any of the following cases, however, the number of event notification received is not displayed. ("－－－－－" is displayed.)
● The system alarm "Incorrect PLC type" currently occurs.
● The PLC connection target is not set. (Refer to Section 9.3)
● The PLC connection target is Serial, USB, CC-Link, CC-Link IE controller network or GOT transparent (Refer to Section 9.3)
● The following two set network types are different.
1) PLC connection target of monitor tool
2) Event notification destination set on the <<Event Notification>> tab in the project parameter setting of the programming tool.
● A communication error occurred (cable break, etc.)
● When performing a monitor tool in a PC CPU, the monitor tool is connected to PLC CPU with MELSECNET/10(H).</td></tr>
<tr><td>6)</td><td colspan="2">"Reset" button</td><td>Click button to reset the following items.
● Response Time[s] (Maximum Value)
● Number of event notification received
In the lock mode, a reset cannot be made.
Change the mode to the engineer mode or operator mode.</td></tr>
<tr><td>7)</td><td colspan="2">"Close" button</td><td>Click button to close communication condition screen.</td></tr>
</table>

*1: It will be reset after starting monitor tool or executing monitor target project setting (refer to Section 9.3).
*2: For details information please refer to Appendix 1.2.

POINT

- If the Setting Window button of monitor toolbar is clicked when displaying communication condition screen, communication condition screen will be closed automatically.
  Additionally, if Setting Window has been displayed, the communication condition screen cannot be opened.
- If all of the status, response time and number of event notification are displayed as "－－－－－", check the assignment information database file set in monitor target project setting. (refer to Section 9.3)

8.5.2 Displaying the redundant system status

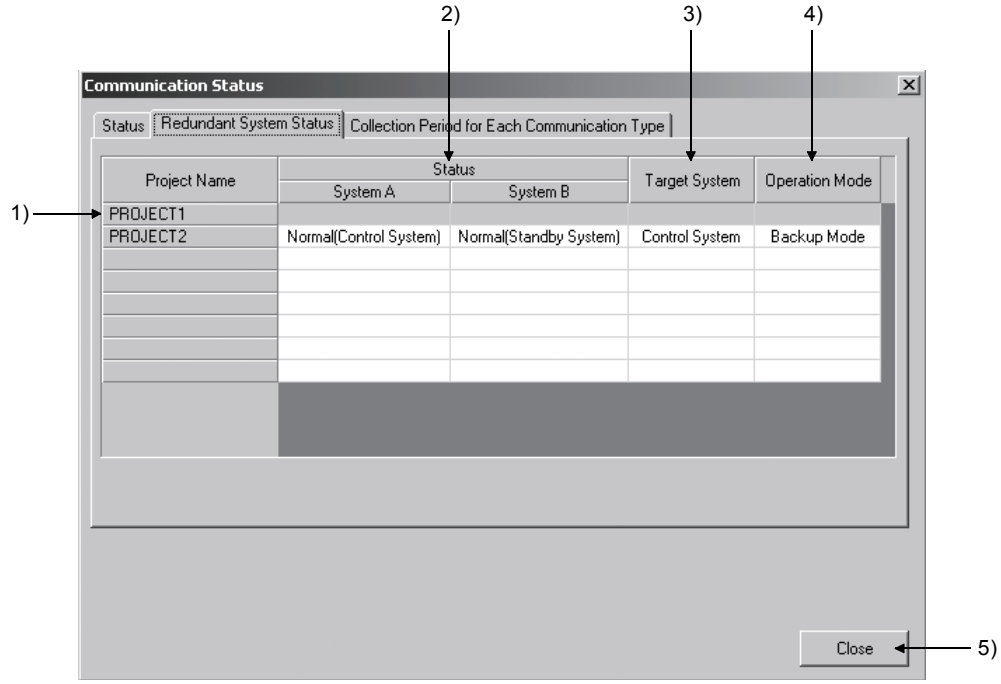
PURPOSE

To check the redundant system condition for each project.

BASIC OPERATION

1. Click "Help Menu" button ( ) on the monitor tool bar.
2. Select "Communication Status" on the displayed Help Menu.
3. Click << Redundant System Status >> tab.

DISPLAY/SETTING SCREEN



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DISPLAY/SETTING DATA

<table>
<tr><th>No.</th><th>Item</th><th>Contents</th></tr>
<tr><td>1)</td><td>Project Name</td><td>Display the target name of monitor target.
Execute the setting of monitoring target project through monitor target project setting (refer to Section 9.3)</td></tr>
<tr><td>2)</td><td>Status</td><td>Display the communication conditions of system A and system B, and operation system status.
Process CPU
Nothing is displayed in the gray background.
Redundant CPU
<table>
<tr><th></th><th>Backup mode/Separate mode</th><th>Debug mode</th></tr>
<tr><td>Normal</td><td>Message:
• When SM1516 is OFF
"Normal (Control System) "
• When SM1516 is ON
"Normal (Standby System) "
• When both SM1515 and SM1516 are OFF or ON
"Normal (Unknown) "
Message color: Black</td><td>For system A, the same as described in left section.
For system B, "-----" is displayed in black.</td></tr>
<tr><td>Error</td><td colspan="2">Message: "Abnormal" Message color: Red</td></tr>
</table>
• When the system (system A/ B) cannot be specified, "-----" is displayed.
• When the redundant system PLC parameter read error occurs, both system A/B) are displayed as "Abnormal".
• This is not displayed when the PLC connection target is not yet set or when the PLC type is inconsistent. ("－－－－－" is displayed.)</td></tr>
<tr><td>3)</td><td>Target System</td><td>Displays the redundant PLC specify in "Connection Setup".
However, this is not displayed when the PLC connection target is not yet set or when the PLC type is inconsistent. ("－－－－－" is displayed.)
When Process CPU is specified, nothing is displayed in the gray background.</td></tr>
<tr><td>4)</td><td>Operation Mode</td><td>Displays the operation mode (Separate mode/Backup mode/Debug mode).
If a communication error occurs, the previous value is displayed.
However, this is not displayed when the PLC connection target is not yet set or when the PLC type is inconsistent. ("－－－－－" is displayed.)
When Process CPU is specified, nothing is displayed in the gray background.</td></tr>
<tr><td>5)</td><td>"Close" button</td><td>Click the button to close the communication condition screen.</td></tr>
</table>

POINT

- If "Setting window" button of monitor tool bar is clicked when the communication condition screen is displayed, the screen will be automatically closed.
  In addition, if the setting screen has been already opened, the communication condition screen cannot be opened.

8.5.3 Collection period for each communication type

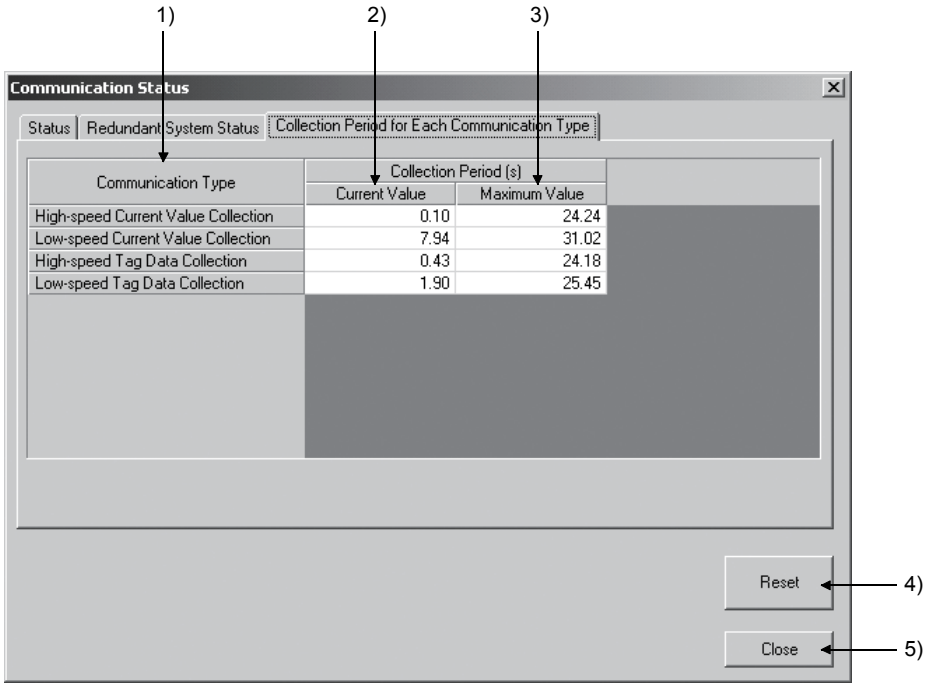
PURPOSE

To specify the collection period of each communication type of monitor tool and CPU module.

BASIC OPERATION

1. Click "Help Menu" button ( ) on the monitor tool bar.
2. Select "Communication Status" on the displayed Help Menu.
3. Click << Collection Period for Each Communication Type >> tab.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Contents
1)	Communication type	For details, refer to Appendix 1.1.
2)	Collection period[s] (Current Value)	Display the collection period (unit: second). The value is updated for each collection.
3)	Collection period[s] (Maximum Value)	Display the maximum value of collection period set in 2).
4)	"Reset" button	Click the button to reset the maximum value of collection period. During lock mode, reset cannot be done. Also, reset cannot be done during change mode dialog box.
5)	"Close" button	Click the button to close the communication condition screen.

POINT

- If collection is performed behind the set period, take the measure by referring to Appendix 1.8.
- If "Setting window" button of monitor tool bar is clicked when the communication condition screen is displayed, the screen will be automatically closed.
  If the setting screen has been already opened, the communication condition screen cannot be opened.

8.6 Automatic CSV File Export

PURPOSE

To output trend, alarm and event data to CSV files automatically.
Used when it is desired to save trend, alarm and event data in CSV files automatically as histories.

(1) Functions related to automatic CSV file export

(a) Automatic trend CSV file export (refer to Section 8.6.1)

Trend data are output to CSV files automatically.

(b) Automatic alarm CSV file export (refer to Section 8.6.2)

Alarm data are output to CSV files automatically.

(c) Automatic event CSV file export (refer to Section 8.6.3)

Event data are output to CSV files automatically.

(d) Automatic CSV file deletion (refer to Section 8.6.4)

CSV files output automatically are deleted automatically when the storage period has passed.

(e) Disk free space check (refer to Section 8.6.5)

When the free space of the disk drive that stores the PX Developer installation destination, trend binary data file, and CSV files output automatically has decreased to or below the preset value, the alarm indicates a shortage of the free space of the disk drive.

(2) Setting items related to automatic CSV file export

The following table indicates the setting items related to automatic trend CSV file export, automatic alarm CSV file export and automatic event CSV file export.

Setting item	Setting position	Reference
Trend setting	Automatic CSV file export	Section 9.5
Option setting (General)	Automatic CSV file deletion time (0 to 23) Disk free space check size (MB)	Section 9.14 (1)
Option setting (Alarm/Event)	Automatic alarm CSV file export Automatic alarm CSV file deletion Alarm CSV file storage period (days) Automatic alarm CSV file export target folder Automatic event CSV file export Automatic event CSV file deletion Event CSV file storage period (days) Automatic event CSV file export target folder	Section 9.14 (2)
Option setting (Trend graph)	Automatic trend CSV file export target folder Automatic trend CSV file export time (0 to 23) Automatic trend CSV file deletion Trend CSV file storage period (days)	Section 9.14 (4)

(3) Automatic CSV file export setting procedure

BASIC OPERATION

1. The monitor tool can be set in the engineer mode only.
   When the mode is not the engineer mode, change mode (refer to Section 4.5) to the engineer mode.
2. Click the "Setting Window" button on the monitor toolbar.
   The setting window is displayed.
3. Set the automatic CSV file export target folder, automatic CSV file deletion (Enable/Disable), automatic CSV file export time (automatic trend CSV file export only), and storage period (CSV file storage period when automatic CSV file deletion is executed).
   The setting positions are as indicated below.
   After setting, click the "Apply" button.

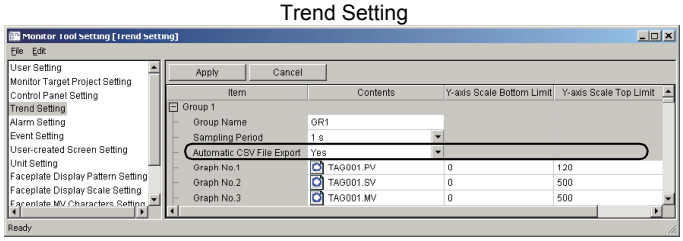
Used function	Setting item	Setting position
Automatic trend CSV file export	Option setting (Trend graph)	Automatic trend CSV file export target folder Automatic trend CSV file export time (0 to 23) Automatic trend CSV file deletion Trend CSV file storage period (days)
Automatic alarm CSV file export	Option setting (Alarm/Event)	Automatic alarm CSV file deletion Alarm CSV file storage period (days) Automatic alarm CSV file export target folder
Automatic event CSV file export		Automatic event CSV file deletion Event CSV file storage period (days) Automatic event CSV file export target folder

4. When Automatic CSV file deletion is set to "Enable" in above 3., set the time for deleting CSV files automatically.
   In Option setting (general), set the "Automatic CSV file deletion time (0 to 23)".
   Click the "Apply" button.
5. In Option setting (general), set the "Disk free space check size (MB)."
   Click the "Apply" button.
6. Set Automatic CSV file export to "Enable".
   The setting positions are as indicated below.
   After setting, click the "Apply" button.
   Automatic CSV file export starts.

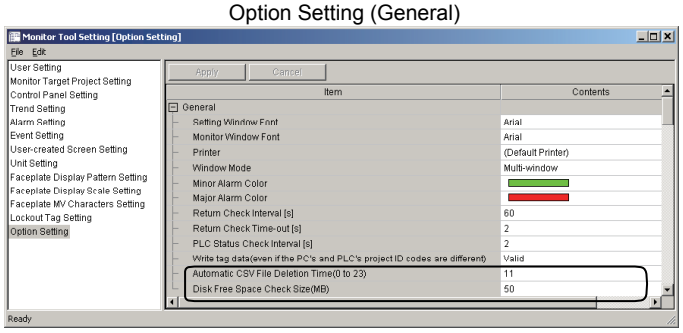
Used function	Setting item	Setting position
Automatic trend CSV file export	Trend setting	Automatic CSV file export (set to each group)
Automatic alarm CSV file export	Option setting (Alarm/Event)	Automatic alarm CSV file export
Automatic event CSV file export		Automatic event CSV file export

DISPLAY/SETTING SCREEN

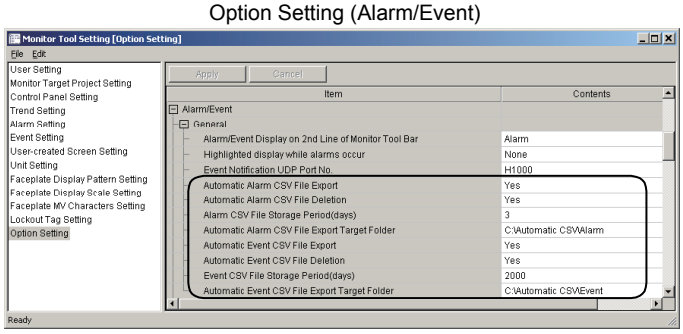
Trend Setting



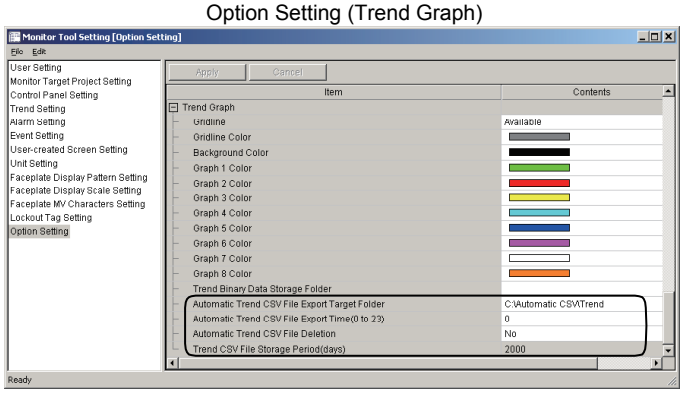
Option Setting (General)



Option Setting (Alarm/Event)



Option Setting (Trend Graph)



POINT

Set the automatic trend CSV file export time and automatic CSV file deletion time to the time when the monitor tool is running.

If the monitor tool has not yet started at the automatic trend CSV file export time, CSV files not yet exported are output at the next monitor tool start.

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8.6.1 Automatic trend CSV file export

This section explains the timing, storage destination, output form, precautions, etc. of automatic trend CSV file export.

(1) Timing and data range of automatic trend CSV file export

The timing of automatic trend CSV file export is as indicated below depending on the sampling period (refer to Section 9.5) of trend data.

Sampling Period	CSV Files Export timing	Range of Data Output to 1 File
1s 10s	Output per hour (0 min every hour).	Trend data of past one hour
1min 5min 10min	Output per day. The CSV files export time is as set to "Automatic trend CSV file export time (0 to 23)" in Option setting (Trend graph).	Trend data of past one day *

*: The automatic trend CSV file output per day is the data between 0:00:00 to 23:59:59 of the previous day.

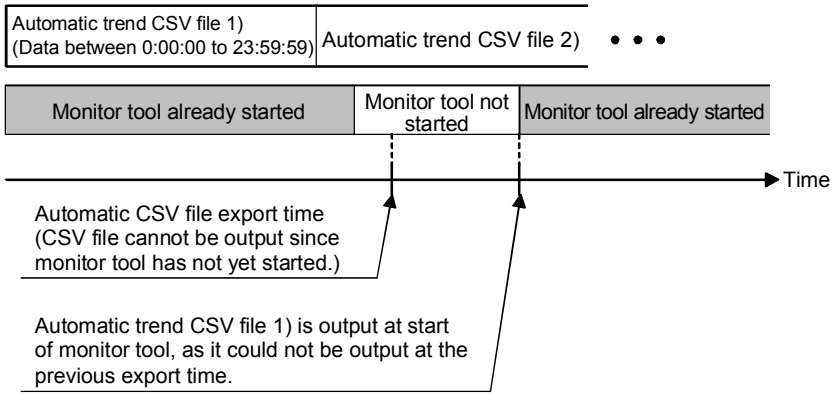
<Output CSV file>

```
Date, TAG001.MLL, TAG001.MV, TAG001.SV, TAG001.MODE,,,,
6/1/2003 0:00:00 AM, 0, 66.9, 450.0, H0010,,,,
6/1/2003 0:01:00 AM, 0, 66.9, 450.0, H0010,,,,
                :
                :
                :
6/1/2003 23:58:00 PM, 0, 53.9, 450.0, H0010,,,,
6/1/2003 23:59:00 PM, 0, 53.9, 450.0, H0010,,,,
```

The output data are those between 0:00:00 to 23:59:59 of the previous day, regardless of the automatic trend CSV file export time (0 to 23).

POINT

- If the monitor tool has not yet started at the time of automatic CSV file export, the automatic trend CSV file is output at the next start of the monitor tool.
  Automatic trend CSV file export at a monitor tool start outputs the data of the preceding file.



- When the "Automatic trend CSV file export time (0 to 23)" setting in Option setting (Trend Graph) is changed to before the current time, the timing of trend CSV file export changes as described below.
  (a) When the output of the data for this day's output is completed
  The automatic trend CSV file is output at the new automatic trend CSV file export time, starting with the data for the next output (next day).
  (b) When the output of the data for this day's output is not completed
  The automatic trend CSV file for this day's output is output immediately after the setting is changed.
  For example, when the current time is 10:30:00, July 10 and the "Automatic trend CSV file export time (0 to 23)" setting is changed to 8 o'clock, the data at 00:00:00 to 23:59:59, July 9 is output.

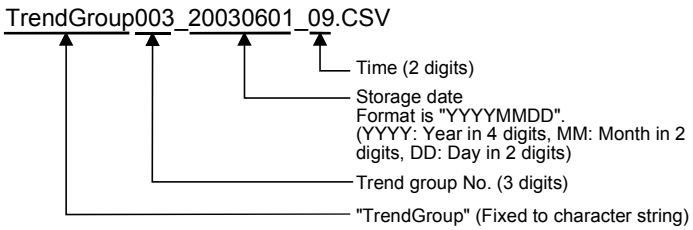
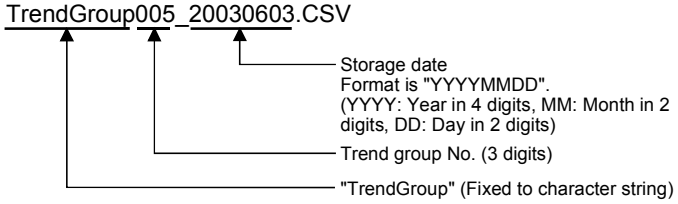
(2) Output destination and file name of automatic trend CSV file

(a) Output destination of automatic trend CSV file

An automatic trend CSV file is output to the folder set to "Automatic trend CSV file export target folder" in Option setting (Trend graph).
When the above setting has not been made, however, the file is output to the "TrendCSV" folder indicated in Section 2.3.

(b) File name of trend CSV file to be output automatically

One automatic trend CSV file is created for one group.
The file name of the CSV file to be output automatically changes as shown below depending on the sampling period (refer to Section 9.5) of trend data.

Sampling Period	File Name
1s 10s	TrendGroup(trend group No.)_(storage date)_(time).CSV The format of the file name is as shown below.  The "storage date" and "time" are those of the data output to the automatic trend CSV file. (Example) When the trend group No. is 3 and the range of the data output to the automatic trend CSV file is 9:00:00 to 9:59:59 on June 1, 2003 "TrendGroup003_20030601_09.CSV"
1min 5min 10min	TrendGroup(trend group No.)_(storage date).CSV The format of the file name is as shown below.  The "storage date" is that of the data output to the automatic trend CSV file. (Example) When the trend group No. is 5 and the range of the data output to the automatic trend CSV file is 0:00:00 to 23:59:59 on June 3, 2003 "TrendGroup005_20030603.CSV"

POINT

- When the automatic trend CSV file export target folder is changed during automatic CSV file export, the setting change is reflected on the automatic export processing in the next period.
- The free space of the disk drive that includes the PX Developer installation destination, trend binary data storage folder and automatic CSV file export target folder is monitored according to the "Disk free space check size (MB)" in Option setting (general).

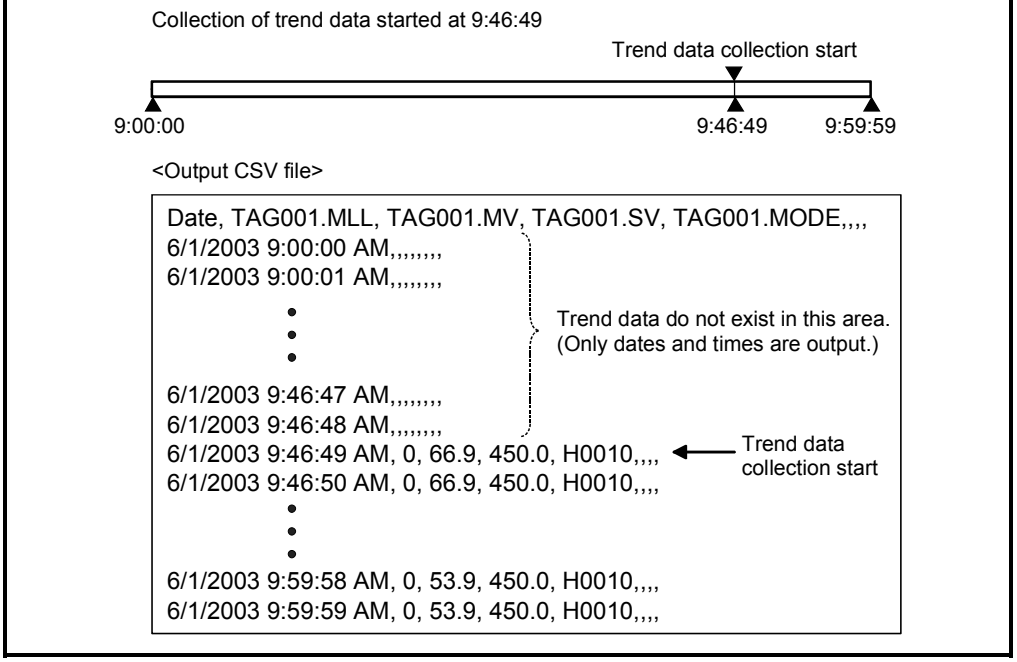
(3) Output form of automatic trend CSV file

The output form of an automatic trend CSV file is the same as that of the CSV output of a trend graph.

Refer to Section 7.2.6 for details of the CSV output of a trend graph.

POINT

When no trend data exist, no characters are output to the tag data item.

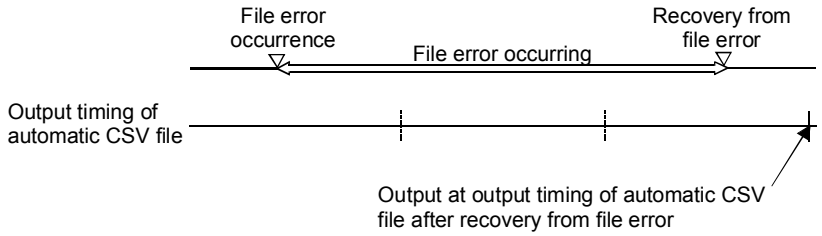


(4) Error processing

An error may occur during file processing due to the insufficient disk free space at the time of CSV files export.
In this case, the system alarm "file error" (refer to Section 7.3.1) occurs.
When the file error occurs, the CSV file is not output.

The CSV file that could not be output will be output at either of the following timings.

- Output timing of automatic trend CSV file after recovery from file error

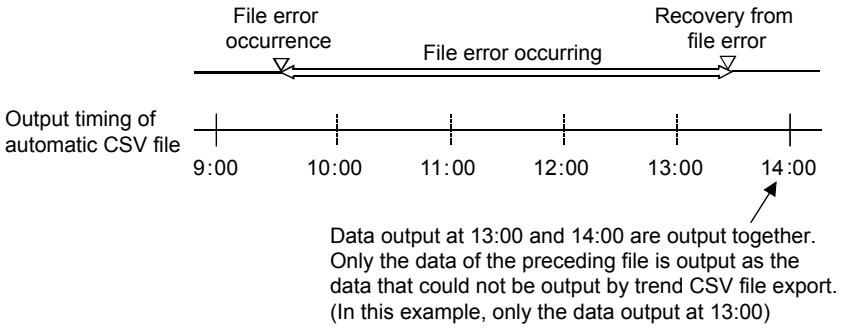


- When monitor tool is started next time
  The output timing is the same as when the monitor tool has not started at the time set for exporting CSV file automatically.
  For details, refer to POINT in (1) of this section.

POINT

If automatic trend CSV file export could not be performed due to a file error, etc., the file that could not be output will also be output together at the next export time.
Only the data of the preceding file is output as the data that could not be output by automatic trend CSV export.

In the case of the trend data whose sampling period is 1 s
(When automatic trend CSV file export is performed at 0 minutes every hour)



8.6.2 Automatic alarm CSV file export

This section explains the timing, storage destination, output form, precautions, etc. of automatic alarm CSV file export.

(1) Timing and data range of automatic alarm CSV file export

The alarm data is output to a CSV file at alarm occurrence/recovery.
The data of one day are output to one alarm CSV file.
Hence, when the date changes, the output destination file of the automatic alarm CSV file data changes.

POINT

If the alarm is cleared, i.e., alarm recovery is made by taking either of the following actions, the alarm recovery date will not be output to the automatic alarm CSV file, while the date will be stored and displayed in the alarm list.

- Restart the monitor tool, or click the “Apply” or “Reload” button in the monitor target project setting (refer to Section 9.3) to clear all the alarms.
  (Except the following system alarm errors: file error, memory error and exception error.)
- Check the check box within the Confirm field to clear the alarm.
  (Except the following system alarm errors: file error, memory error and exception error.)

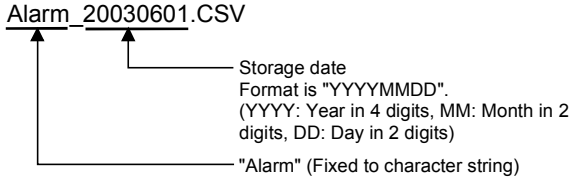
(2) Output destination and file name of automatic alarm CSV file

(a) Output destination of automatic alarm CSV file

An automatic alarm CSV file is output to the folder set to "Automatic alarm CSV file export target folder" in Option setting (alarm/event).
When the above setting has not been made, however, the file is output to the "AlarmCSV" folder indicated in Section 2.3.

(b) File name of alarm CSV file to be output automatically

One automatic alarm CSV file is created a day.
Hence, naming of the CSV file to be output automatically is as described below.

File name
Alarm_(Storage date).CSV The file name format is as indicated below.    The "storage date" indicates the data when the data are generated and output to the automatic alarm CSV file. (Example) When the data output to the automatic alarm CSV file is the data of June 1, 2003 "Alarm_20030601.CSV"

POINT

- When the automatic alarm CSV file export target folder is changed during automatic CSV file export, the setting change is reflected from the next automatic alarm CSV file export processing.
- The free space of the disk drive that includes: the PX Developer installation destination, trend binary data storage folder and automatic CSV file export target folder is monitored according to the "Disk free space check size (MB)" in Option setting (general).

(3) Output form of automatic alarm CSV file

Unlike the CSV export of the alarm list (refer to Section 7.3.7), the alarm occurrence and recovery in automatic alarm CSV file export are output to different lines.

<CSV export of alarm list>

```
Tag,Tag Comment,Alarm Contents,Occurrence Date,Recovered Date,Level,Measured Value
#SYSTEM,,Communication Open Error : PROJECT Specified connection target,2/13/2007 3:05:50 PM,2/13/2007 3:06:05 PM,Major,
LIC002,Tank 2 water level,MHA,2/13/2007 3:10:01 PM,2/13/2007 3:10:12 PM,Minor,100.0%
LIC002,Tank 2 water level,MHA,2/13/2007 3:11:00 PM,2/13/2007 3:12:02 PM,Minor,100.0%
```

Alarm occurrence and recovery are output to one line.

<Automatic alarm CSV file export>

```
Tag,Tag Comment,Alarm Contents,Occurrence Date,Recovered Date,Level,Measured Value
#SYSTEM,,Communication Open Error : PROJECT Specified connection target,2/13/2007 3:05:50 PM,,Major,
LIC002,Tank 2 water level,MHA,2/13/2007 3:10:01 PM,,Minor,100.0%
LIC002,Tank 2 water level,MHA,2/13/2007 3:11:00 PM,,Minor,100.0%
LIC002,Tank 2 water level,MHA,,2/13/2007 3:12:12 PM,Minor,100.0%
LIC002,Tank 2 water level,MHA,,2/13/2007 3:13:02 PM,Minor,100.0%
```

Alarm occurrence and recovery are output to different lines.

Recovery date and time are not output to alarm occurrence line.
Occurrence date and time are not output to alarm recovery line.

(4) Error processing

An error may occur during file processing due to the insufficient disk free space at the time of CSV files export.
In this case, the system alarm "file error" (refer to Section 7.3.1) occurs.
When the file error occurs, the alarm definition is not output to the CSV file.
The alarm is displayed in the alarm list (refer to Section 7.3) or in the alarm/event display area (refer to Section 6.3.1) of the monitor toolbar.

8.6.3 Automatic event CSV file export

This section explains the timing, storage destination, output form, precautions, etc. of automatic event CSV file export.

(1) Timing and data range of automatic event CSV file export

The event data is output to a CSV file at event occurrence.
The data of one day are output to a one event CSV file.
Hence, when the date changes, the output destination file of the automatic event CSV file data changes.

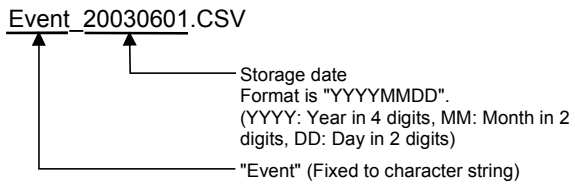
(2) Output destination and file name of automatic event CSV file

(a) Output destination of automatic event CSV file

An automatic event CSV file is output to the folder set to "Automatic event CSV file export target folder" in Option setting (alarm/event).
When the above setting has not been made, however, the file is output to the "EventCSV" folder indicated in Section 2.3.

(b) File name of event CSV file to be export automatically

One automatic event CSV file is created a day.
Hence, naming of the CSV file to be export automatically is as described below.

File name
Event_(Storage date).CSV The file name format is as indicated below.    The "storage date" indicates the data when the data are generated and output to the automatic event CSV file. (Example) When the data output to the automatic event CSV file is the data of June 1, 2003 "Event_20030601.CSV"

POINT

- When the automatic event CSV file export target folder is changed during automatic CSV file export, the setting change is reflected from the next automatic event CSV file export processing.
- The free space of the disk drive that includes the PX Developer installation destination, trend binary data storage folder and automatic CSV file export target folder is monitored according to the "Disk free space check size (MB)" in Option setting (general).

(3) Output form of automatic event CSV file

The output form of an automatic event CSV file is the same as in the CSV export of the event list.
Refer to Section 7.4.6 for details of the CSV export of the event list.

(4) Error processing

An error may occur during file processing due to the insufficient disk free space at the time of CSV files export.
In this case, the system alarm "file error" (refer to Section 7.3.1) occurs.
When the file error occurs, the alarm definition is not output to the CSV file.
The event is displayed in the event list (refer to Section 7.4) or in the alarm/event display area (refer to Section 6.3.1) of the monitor toolbar.

8.6.4 Automatic CSV file deletion

PURPOSE

Use of automatic CSV file export stores CSV file automatically. Hence, the disk drive may be short of free space if automatic CSV file storage is continued.
Set automatic CSV file deletion in order to prevent the disk drive from being short of free space.

BASIC OPERATION

The following table shows the setting item related to the automatic CSV file deletion.

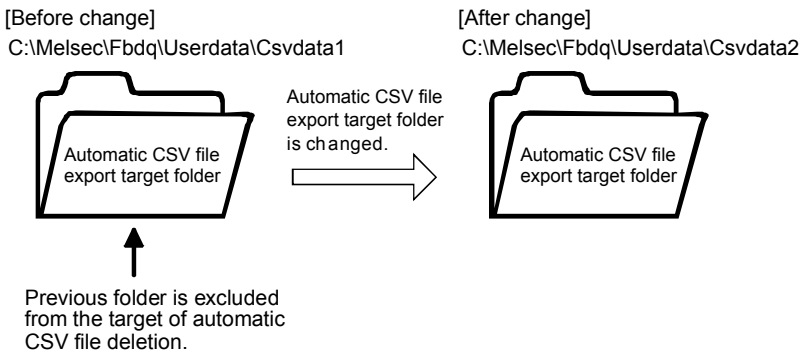
Setting item	Setting position	Reference
Option setting (General)	Automatic CSV file deletion time (0 to 23)	Section 9.14 (1)
Option setting (Alarm/Event)	Automatic alarm CSV file deletion Alarm CSV file storage period (days) Automatic event CSV file deletion Event CSV file storage period (days)	Section 9.14 (2)
Option setting (Trend graph)	Automatic trend CSV file deletion Trend CSV file storage period (days)	Section 9.14 (4)

By setting "Automatic CSV file deletion" to "Enable", CSV files are automatically deleted after the time set to "CSV file storage period (days)" has passed (The execution time (hour and minute) setting is available). This function is applied to the files stored in the corresponding automatic CSV file export target folder.
For automatic CSV file deletion, automatic detection execution time can also be set.

Refer to Section 8.6 (3) for the automatic CSV file deletion setting procedure.

POINT

When the automatic CSV file export target folder is changed during CSV files delete, the previous folder is excluded from the deletion target at the time of next deletion.



8.6.5 Disk free space check

PURPOSE

Set the low limit value of the disk free space, in order that an alarm will occur when the disk drive runs short of space (i.e., has reached the set limit) due to automatic CSV file export.

BASIC OPERATION

The following table shows the setting item related to the disk free space check.

Setting item	Setting position	Reference
Option setting (general)	Disk free space check size (MB)	Section 9.14 (1)

Refer to Section 8.6 for the disk free space check size setting procedure.

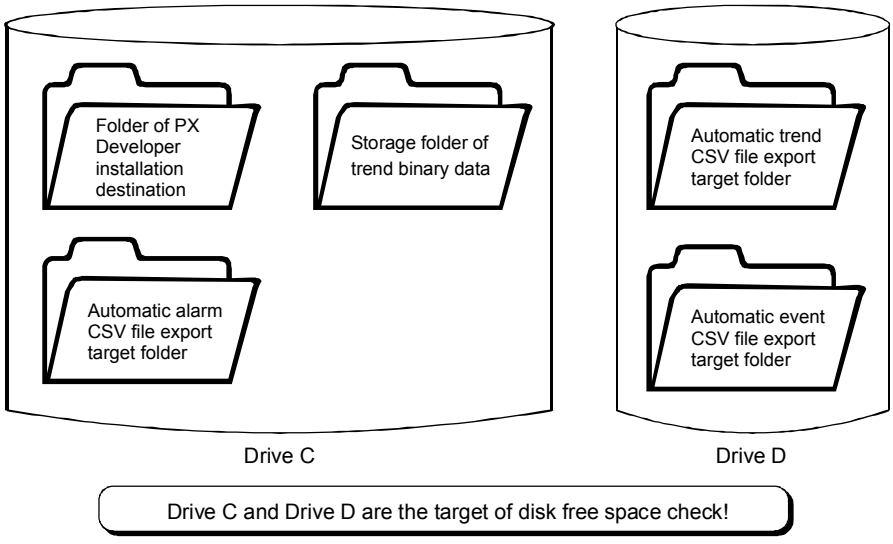
(1) When disk is short of free space

When the free space of the disk drive decreases to or below the "Disk free space check size (MB)" in the option setting (general), the alarm for the disk free space error occurs.
Refer to Section 7.3.1 for details of the alarm.

(2) Target disk drive of disk free space check

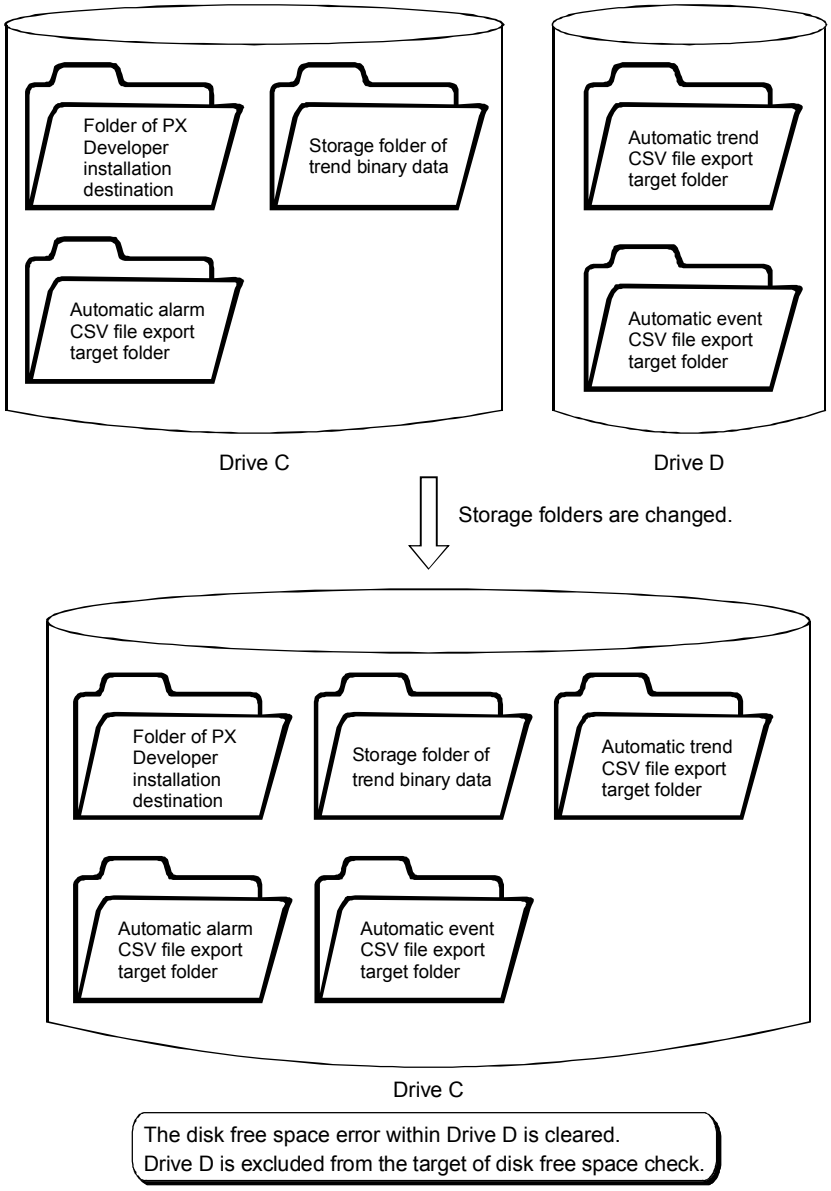
This function checks the disk drives that include the storage folders of PX Developer installation destination, trend binary data files, automatic trend CSV file, automatic alarm CSV file and automatic event CSV file. (for each partition)
The alarm is occurrence and recovery for each disk drive.

When storage folders of data exist in two disk drives, Drive C and Drive D



POINT

If the folders within the disk drive become unused after storage folder setting is changed, errors in the disk drive will be cleared.
At the same time, the disk drive will be excluded from the target of the disk free space check.



(3) Disk free space check period

A disk free space check is performed at intervals of 10 minutes.

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9 SETTING

Various functions of the monitor tool are executed according to the settings specified previously by users. These settings can only change the users who have been licensed by the user with engineer authority. In order to avoid any change by common operators, the setting window can only be displayed in the engineer mode. Please refer to "CHAPTER 4 MODE ADMINISTRATION" for details about.

9.1 Common Setting Window

This part explains the common operation on the setting window.

9.1.1 Displaying and operating the setting window

PURPOSE

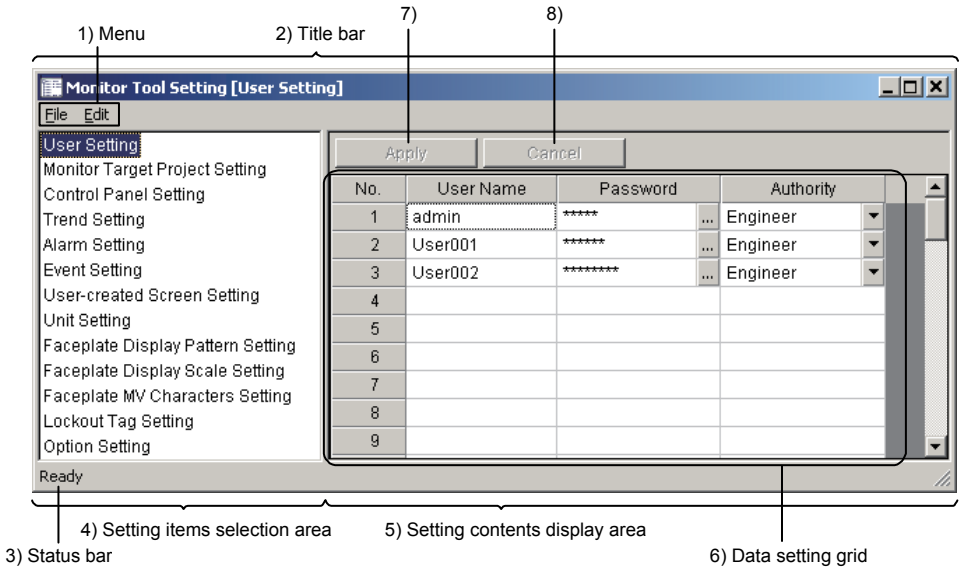
Display the windows and conduct basic operations

BASIC OPERATION

Open the setting window with the following methods:

1. Click the "Change Mode" button on the monitor tool bar.
2. On the displayed Change Mode dialog box, input the user name and password with engineer authority to change the mode to the engineer mode.
   (If it is the engineer mode already, the operations mentioned above are unnecessary.)
3. Click the "Setting window" button on the monitor tool bar.
4. Close the other windows to display the setting window.

DISPLAY/SETTING SCREEN



See the following table for the display contents of each bar.

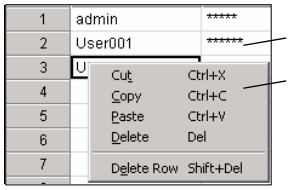
No.	Items	Contents
1)	Menu	Select various common functions and execute them.
2)	Title bar	Display the icon, title bar character string, and title bar buttons.
3)	Status bar	Display supplement.
4)	Setting items selection area	Switch various setting items.
5)	Setting contents display area	Display the contents of the specified items in the "Setting items selection area"
6)	Data setting grid	Input the setting data to each lattice-like input to cell.
7)	"Apply" button	Make the set contents valid and displayed them on the monitor.
8)	"Cancel" button	Cancel the setting data on the screen, and return to the former applied setting data.

(1) Menu

See the following table for functions that can be executed from the menu.

Menu items		Functions
File	Save the setting data	Save the monitor setting information in the setting data file.
	Export Setting Data to CSV File ...	Export the monitor setting information to the CSV files.
	Generate GOT Screen ...	Generate a GOT screen project for monitoring and tuning tags.
	Close	Close the monitor setting window.
Edit	Cut Ctrl + X	Cut the selected character string to the clipboard.
	Copy Ctrl + C	Copy the selected character string to the clipboard.
	Paste Ctrl + V	Paste the character string of the clipboard in the input cell position.
	Delete Del	Delete the selected character string.
	Delete Row Shift + Del	Delete the selected line.

Shortcut menu displayed when right-clicking the data setting grid, the same functions can be executed as the [Edit] on the menu.



Data setting grid

Shortcut menu

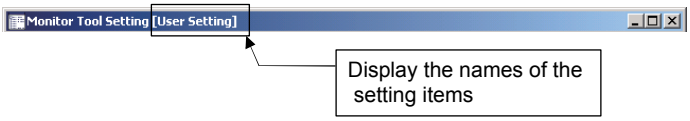
(Displayed while right-clicked)

POINT

Targets of the copy and paste on the data setting grid are the basically-displayed character string (things such as the user setting password and the color setting of the lockout tag names displayed when setting lockout tag are not the copy targets).

(2) Title Bar

The display style of the title bar is in accordance with the normal windows.
What the title character string displays is the item name character string of the final setting target.
After opening the monitor setting window, if the setting items have not been selected, the setting item names will not be displayed.



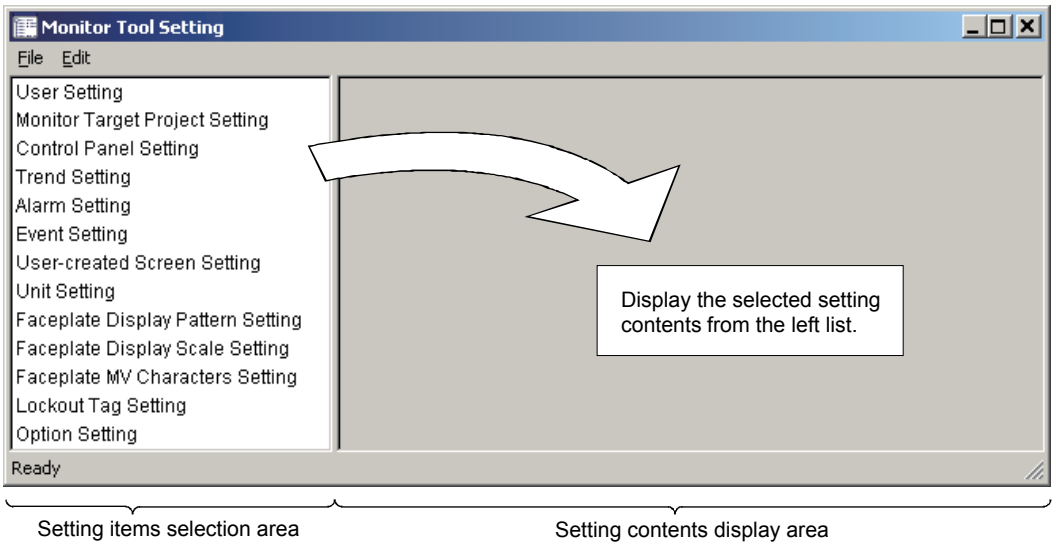
(3) Setting Items Selection Area

In this area, various setting items can be switched.
This can be done by clicking the corresponding positions in the selection area.
The following are selectable setting items.

Option Items	Reference
User setting	Section 9.2
Monitor target project setting	Section 9.3
Control panel setting	Section 9.4
Trend setting	Section 9.5
Alarm setting	Section 9.6
Event setting	Section 9.7
User–created screen setting	Section 9.8
Unit setting	Section 9.9
Faceplate display pattern setting	Section 9.10
Faceplate display scale setting	Section 9.11
Faceplate MV characters setting	Section 9.12
Lockout tag setting	Section 9.13
Option setting	Section 9.14

(4) Setting Contents Display Area

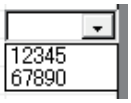
In this area, the contents of the specified items on "Setting items selection area" are displayed.
Data setting of the contents can be done by inputting the data to the cell of the data setting grid.
When the monitor setting window is just open (the initial status) and the setting items have not been selected, the background is grey and no content is displayed.



9.1.2 Inputting to data setting grid

(1) Input data to the cells

See the methods of inputting data to the cells of the data setting grid as below.

Input methods	Display	Contents
Text box		Select the cells directly input the setting data with the keyboard. The following are 2 methods to change the character string of the cell to the selection status. ● Move the cursor to the target cell, then press Ctrl + Enter key. ● Move the mouse cursor to the target cell, and then double click.
List box		Click the button on the right of the cell, list the list box, select from the list.
Button		Click the button on the right of the cell, display the dialog box, then execute setting on the dialog box. The same method with the one mentioned above in the text box can be used to input directly for setting the items of names, file names, and folder names.

POINT

- With the various functions in [Edit] of the menu, several operations can be done: change the cell contents to the general file-creating software or paste the contents to the form calculation software, or input in groups the creating contents such as form calculation software to the cells.
- The copy and paste targets of the data setting grid are the basically-displayed character string (things such as the user-setting password and the color setting of the lockout tag names displayed when setting lockout tag are not the copy targets).

(2) Delete the data of the cells

There are 2 methods to delete data from the cells of the data setting form:

- Press the key Delete.
- Select [Delete] under [Edit] of the menu or on the short-cut menu.

(3) Delete the Row data of the grid

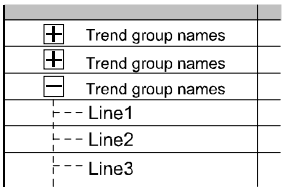
There are 2 methods to delete a whole line of cells

- Press the key Shift + Delete key.
- Select [Delete Row] under the [Edit] of the menu or on the short-cut menu

Select "YES" on the confirm dialog box to delete the entire contents of one line.
When option setting, delete row cannot be used.

(4) Grid hierarchical display

Hierarchical lines according to groups are displayed with a ⊞ mark beside the items.
Click the ⊞, unbind the hierarchical lines.
Click the ⊟, close the hierocracy.



(5) Set with the dialog box

The following part explains the common operations of various functions in the dialog box for the setting displayed when clicking buttons.

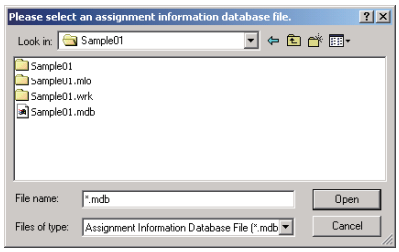
(a) File selection dialog box

It is the dialog box used to set the folders or file names of the targets to be specified.

BASIC OPERATION

1. Select the target folder by using the list box on the [Look in] bar or the "Up" button( ).
2. Display the file type selected by the list box of [Files of type] and the list of the next folders, and then clicks to select the target files/folders on it.
3. Input the file name to the [File name] if a new file is created.
4. Click the "Open" button.

DISPLAY/SETTING SCREEN



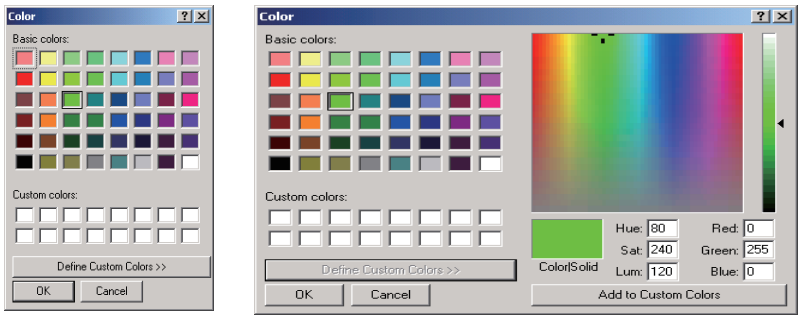
(b) Color selection dialog box

It is a dialog box used to set the specified display color.

BASIC OPERATION

1. Click the selected color display bar from [Basic colors].
2. Click the "Define Custom Colors" button to specify a color that does not exist in the [Basic colors]. On the displayed color samples, users can click the position of their favorite colors, or specify the [Hue], [Sat], [Lum] and the values of [Red], [Green], [Blue] to determinate the created colors. If the "Add to Custom Colors" button is clicked, the created color will be displayed in the bar under [Basic colors].
3. When the specified color is selected, click the "OK" button.

DISPLAY/SETTING SCREEN



9.1.3 Registering and saving the settings

If only the contents of the data setting grid are changed, the monitor tool setting will not change in the actual operation. It is necessary to click the "Apply" button to make the change valid.
The applied setting is saved in the setting data file when the monitor tool is closed. It is still valid when the monitor tool is restarted.
The saving to the setting data file can be also done by operating "[Files] → [Save the setting data]" on the menu.

(1) Apply

Make the setting data valid.
When executing, users should check the edited setting data.
If the setting data is not correct, the message box will be displayed.

1. Click the "Apply" button of the setting window.
2. Click the "OK" button in the confirmation dialog box.

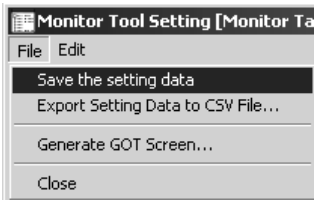
(2) Cancel

Cancel the setting data on the screens to undo the previously applicable data.

1. Click the "Cancel" button on the setting window.
2. Click the "OK" button in the confirmation dialog box.

(3) Save the setting data

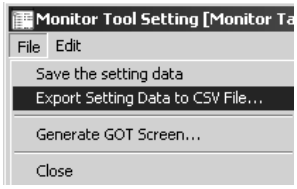
Write the present applicable setting data to the setting data file.
The setting data cannot be saved during the process of changing.
The changed setting can be applied or be saved again after being cancelled.



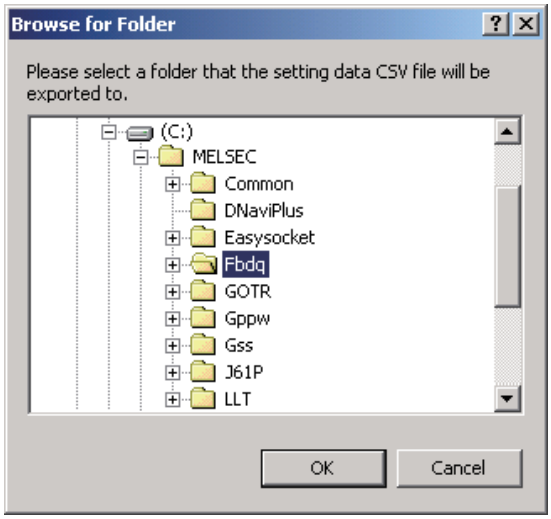
1. Execute "[File] → [Save the setting data]" on the menu.
2. Click the "OK" button in the confirmation dialog box.

(4) Export Setting Data to CSV File

Write the present applicable setting data in the CSV form to the specified files. The setting data cannot be saved during the process of changing. The changed setting can be made to be applicable or be saved again after being cancelled.



1. Execute "[File] → [Export Setting Data to CSV File…]" on the menu.



2. Specify the saving destination in the Files Saving Destination Confirmation Dialog Box.
3. Click the "OK" button

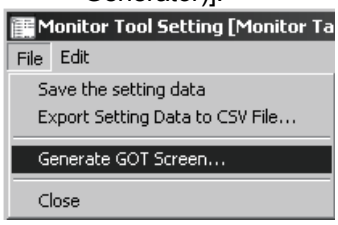
Files are saved in the CSV form to each setting item of the specified folder. Files are automatically named in the form of "(Setting Item Name). csv".

The following are the examples of the Export forms.
(User Setting. csv)

```
No., User Name, Password, Authority
1,admin,*****, Engineer
2,user001,********, Operator
```

(5) Generate GOT Screen

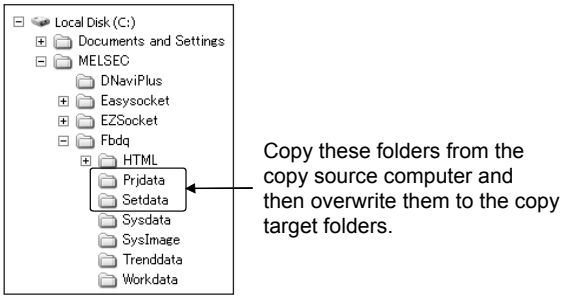
Start up the GOT screen generator function (Wizard style) and generate a GOT screen project.
The GOT screen generator does not start while the setting data is being changed.
For details, please refer to [PX Developer Operating Manual (GOT Screen Generator)].



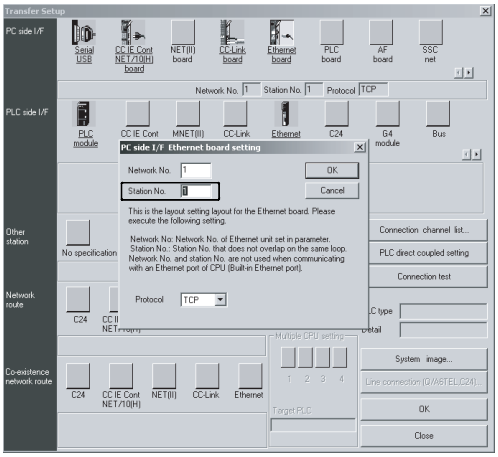
1. Execute "[File] → [Generate GOT Screen…]" on the menu.
2. GOT screen generator wizard appears.

9.1.4 Copying monitoring environment of monitor tool to other computers

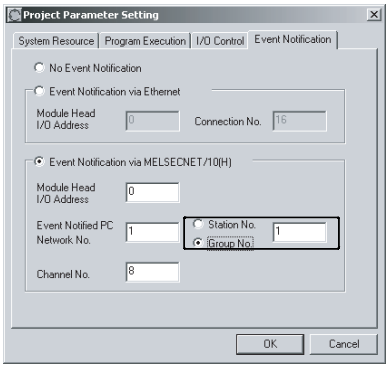
To copy the monitoring environment of monitor tool that is constructed in one computer to other computers, follow the procedures below.



↓



↓



1. Close the monitor tool in both copy source and copy target computers .
2. Overwrite the data to the applicable folder in the PX Developer installation destination folder in the copy target computer. For the folder configuration of monitor tool, refer to Section 2.3.
3. Start up the monitor tool in the copy target computer.
4. When connecting to the programmable controller via Ethernet, call the "Transfer Setup" dialog box from the monitor target project setting and set a different station number for copy source and copy target computers in the PC side I/F Ethernet board setting.
5. Start up the monitor tool in the copy source computer.
6. When using the event notification function with MELSECNET/10(H) connection, specify a group number of the event notified PC in the event notification setting of the programming tool. Subsequently, compile again and execute download so that both copy source and copy target computers are enabled to receive the event notification from the programmable controller.
   For the event notification setting, refer to PX Developer Operating Manual (Programming Tool).
7. After recompiling and downloading a project to the programmable controller by using the programming tool, place the assignment information database file of the project to the path that is specified in the monitor target project setting in the monitor tool and then “reload” the project by using the monitor tool.

POINT

- Communication performance
  When the number of computers connecting to the PLC increases, the communication performance between the PLC and the computers decreases. The following shows how to check the communication performance.
  - Display four control panel screens for each different group. Current value can be checked in the collection period of high-speed current value collection on the <<Collection Period for Each Communication Type>> tab of the communication status screen (refer to Section 8.5). It is recommended that this value should be less than one second.
  - Display two pop-up faceplate screens. Current value can be checked in the collection period of high-speed tag data collection on the <<Collection Period for Each Communication Type>> tab of the communication status screen. It is recommended that this value should be less than one second.
- Path for printers, folders and files
  Monitor tool setting relating to the path for the following printers, folders and files may have different configurations in each computer. Therefore, adjust the configuration of the copy target computer to match with the configuration of the copy source computer. Or, overwrite the setting into the copy target computer and then set it again to match with the configuration of the copy target computer.
  - Application of User-created screen setting
  - Printer of option setting (General)
  - Automatic alarm/event CSV file export of option setting (Alarm/Event general)
  - Major alarm, minor alarm and event sound file of option setting (Alarm/Event)
  - Trend binary data storage folder of option setting (trend graph)
  - Automatic trend CSV file export target folder of option setting (trend graph)

9.2 User Setting

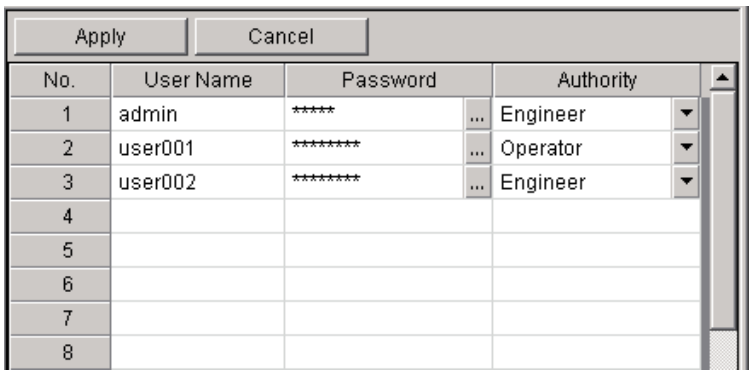
PURPOSE

To register the users who use the monitor tools, to set the passwords and engineer/operator authority for each user. Monitor tools execute the mode administration according to the user's authority. (refer to Chapter 4 for the mode administration.)

BASIC OPERATION

1. Input the user's (operator) name in the [User Name] cell.
2. Input the password that is only known by the user to the [Password] cell.
3. Select the user's authority in the list box of the [Authority] cell.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Setting items	Contents	Input methods	Input limits
User Name	Set the user name	Text box	8 characters
Password	Set user's password On the screen, characters of the password are displayed as "*".	Password dialog box	8 characters
Authority	User's authority is selected to be engineer/operator.	List box	Engineer/Operator

Maximum 50 users can be registered.
The current user authority cannot be changed, and the current user cannot be deleted, either.
The same user name cannot be duplicated. Click the apply button to check whether user names are duplicated.

POINT

- If the user name is not registered, the password and authority cannot be set. First, make user setting.
- When starting the monitor tool in the mode that matches the authority of the specified user (refer to Appendix 2.3), do not use a "/" (slash) or "-" (hyphen) in the first character of the user name and password.

9.3 Monitor Target Project Setting

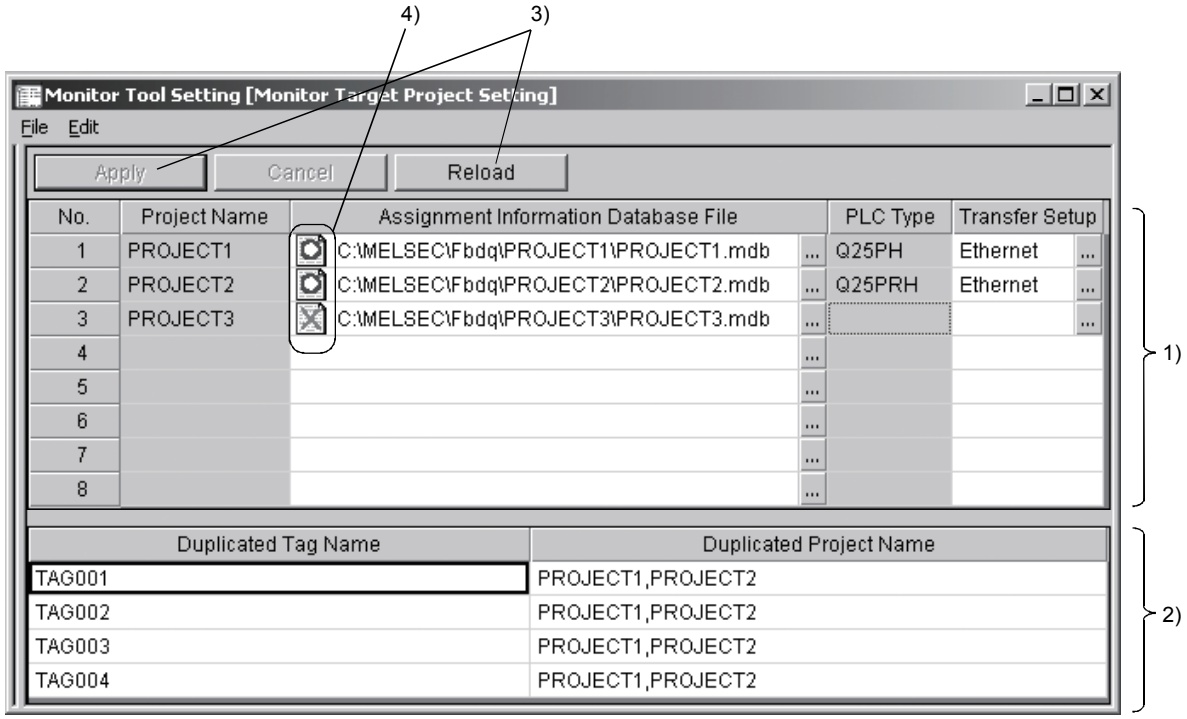
PURPOSE

Set project (Assignment information database file) as monitor targets on the monitor tool.

BASIC OPERATION

1. Click the [Assignment information database file] button to open the project, and display the dialog box.
   If setting the assignment information database file that needs to be opened, click the "Open" button, the assignment information database file name and the path will be displayed in the grid.
2. Click the button in the transfer setup field to display "Transfer Setup" dialog box according to the PLC type.
   Specify the PLC transfer setup, click the "OK" button, close the dialog box, thus, connection path types are displayed on PLC transfer setup.
3. If there are any tags with the same name in different setting assignment information database file, when "Apply" or "Reload" button is clicked, the duplicated tag name will be displayed.

DISPLAY/SETTING SCREEN



Maximally 8 projects can be referred to

9 - 11

DISPLAY/SETTING DATA

1) Data setting area
Specify the connection method between PX Developer project as the monitor target on the monitor tool and CPU module which is written to the program.
See below for the setting items.

Setting items	Contents	Input methods	Input limits
Project Name	Display the project name of the file set to the assignment information database file.	Unable to be edited.	
Assignment Information Database File	Display the dialog box and the selection assignment information database file item of the opened assignment information database file.	File selection dialog box Refer to (1).	Files with mdb as extension name
PLC type	Display the PLC type stored in the above assignment information database file.	Not editable	
Transfer Setup	Specify the PLC transfer setup in the PLC Transfer Setup dialog box.	Transfer Setup dialog box Refer to (2).	

2) Duplicated tags display area
Check the tag information of each item when displaying the screen or clicking the "Apply" button or "Reload" button. If there are any duplicated tag names, they will be displayed.
See as below for the setting items.

Setting items	Contents	Input methods	Input limit
Duplicated Tag Name	If there are any tags with the same name on the different project the tag name will be displayed.	Unable to be edited	
Duplicated Project Name	The projects names with duplicated tag names will be displayed.	Unable to be edited	

3) Apply button, Reload button
Read the setting tag data assignment information to the assignment information database file.

POINT

- All data collection operations (including tuning trend collection) are stopped during registration of assignment information database file.
- Reading all tag data may take time until start is completed.
- Use the "Reload" button to re-register the assignment information database file that was recompiled by the programming tool and then written to the PLC.
  Also make the following checks.
  - Check that the same project does not exist.
  - Check that there is no contradiction between the PLC type of the assignment information database and that of the Transfer Setup.

4) Supportability icon
Indicates whether the assignment information database file specified in "1) Data setting area" can be used with the monitor tool.
This icon is displayed when the assignment information database is ensured.
The display definition is as described below.

Icon	Definition
	The specified assignment information database can be used. Tag data can be monitored/controlled with the monitor tool.
	The specified assignment information database cannot be used. Confirm the displayed error message before taking the action. An error message is displayed in the message box or the status bar (when the relevant cell (s) is (are) selected).

POINT

- If the support possibility icon displays "Transfer Setup" dialog box will not appear by clicking "Transfer Setup" button.

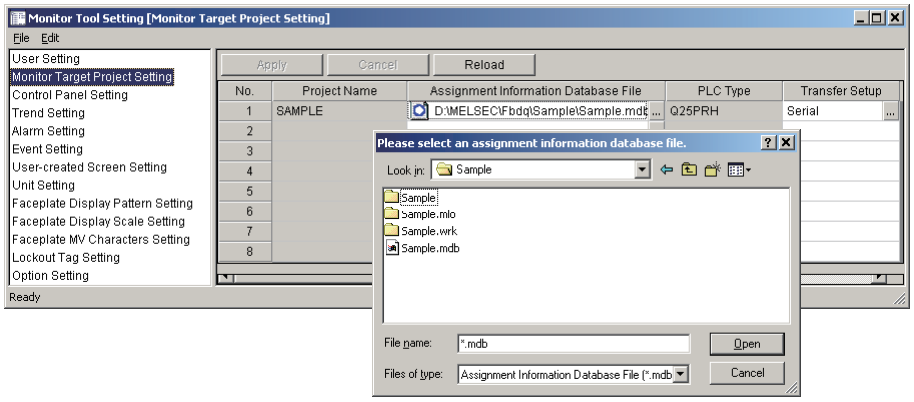
REMARK

When searching with the find function through the specified tag names, if there are any same tag names on different project, the project tags with a higher priority will be found. When setting the monitor target project, the smaller of the [No.] is, the higher its priority is. If there are several duplicated project tag names, the tag name should be specified in the form of (project name):: (tag name) when searching and displaying the only tag by the tag of the monitor tool.

(1) Set assignment information database file

Specify the PX Developer project selected as monitor target on the monitor tool. The current specified assignment information database file refers to the files with mdb as extension name. These files were made beforehand when being compiled by the programming tool.

The files can be set by 2 methods. One is to directly input the character string to the cell of [Assignment Information Database File], the other one is to click the cell button to select in the displayed file selection dialog box. Please refer to "Section 9.1.2 Input to Data Setting Grid" for file selection dialog box.

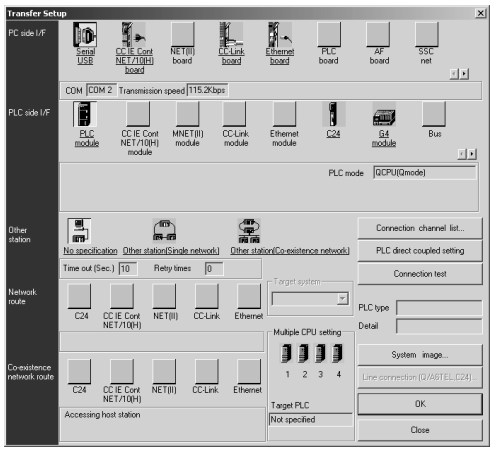


POINT

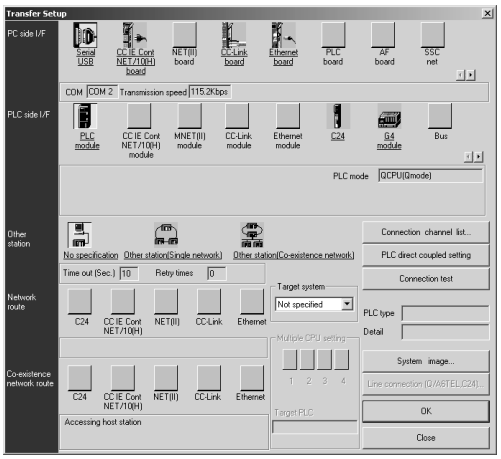
- The assignment information database indicates the "*.mdb" file created by compile of the programming tool.
  This file stores the variable assignment information, which stores tag data, etc., and the device information of the CPU module.
  The monitor tool performs monitoring, etc. of tag data on the basis of this assignment information database.
- Do not specify the same project name.
  Even if they have different path names of the assignment information database file, the projects will be recognized as the same project, when the same name has been assigned to them.
  When changing a project name, save the project as different name using the programming tool, and then re-set the project name using monitor tool.
- When the project has been re-compiled with the programming tool and downloaded to the PLC, it is necessary to click the "Reload" button to re-register the assignment information database file.

(2) Set transfer setup

Specify the connecting to methods CPU module of the writing program.
By clicking the cell button of [Transfer setup], the connection methods can be set on the displayed transfer setup specified window.
Please refer to the PX Developer Operating Manual (Programming Tool) for details.



< Process CPU >



< Redundant CPU>

See as below for the transfer setup that can be set by the monitor tool and the specified contents on the "Transfer Setup" dialog box.

(a) Connecting to Process CPU

PLC Transfer Setup	PC side I/F	PLC side I/F	Other station	Network route	Co-existence network route
Serial *1 USB *1	Serial USB	PLC module C24 MNET/10(H) remote	No specification *2		
			Other station (Single network)	C24 CC-Link NET/10(H) Ethernet	
			Other station (Co-existence network)	C24 CC-Link	NET/10(H) Ethernet
				NET/10(H) Ethernet	C24 CC-Link
		G4 module	Other station (Single network)	CC-Link	
			Other station (Co-existence network)	CC-Link	NET/10(H) Ethernet
CC IE Cont MNET/10 MNET/H	CC IE Cont NET/10(H) board	CC IE Cont NET/10(H) module	Other station (Single network)	CC IE Cont NET/10(H)	
			Other station (Co-existence network)		C24 CC-Link
Ethernet	Ethernet board	Ethernet module	Other station (Single network)	Ethernet	
			Other station (Co-existence network)		C24 CC-Link
CC-Link *1	CC-Link board	CC-Link module	Other station (Single network)	CC-Link	
			Other station (Co-existence network)		NET/10(H) Ethernet

*1: Serial, USB and CC-Link connection are allowed for adjusting the CPU.
*2: Cannot select when PLC side I/F is MNET/10 (H) remote.

(b) Connecting to Redundant CPU

PLC Transfer Setup	PC side I/F	PLC side I/F	Other station	Network route	Co-existence network route	Target system *4
Serial *1 USB *1	Serial USB	PLC module C24 MNET/10(H) remote	No specification *2			Control System Standby System System A System B Not specified
			Other station (Single network)	C24 CC-Link NET/10(H) Ethernet		
			Other station (Co-existence network)	C24 CC-Link	NET/10(H) Ethernet	
				NET/10(H) Ethernet	C24 CC-Link	
		G4 module	Other station (Single network)	CC-Link		
			Other station (Co-existence network)	CC-Link	NET/10(H) Ethernet	
CC IE Cont MNET/10 MNET/H	CC IE Cont NET/10(H) board *3	CC IE Cont NET/10(H) module	Other station (Single network)	CC IE Cont NET/10(H)		
			Other station (Co-existence network)		C24 CC-Link	
Ethernet	Ethernet board	Ethernet module	Other station (Single network)	Ethernet		
			Other station (Co-existence network)		C24 CC-Link	
CC-Link *1	CC-Link board	CC-Link module	Other station (Single network)	CC-Link		
			Other station (Co-existence network)		NET/10(H) Ethernet	

*1: Serial, USB and CC-Link connection are allowed for adjusting the CPU.
*2: Cannot select when PLC side I/F is MNET/10 (H) remote.
*3: The MELSECNET/10 board is inapplicable, as the driver (SW□DNF-MNET10) is incompatible with Redundant CPU. Use the MELSECNET/H board compatible with Redundant CPU.
*4: The connection target specified in Target system is as shown in the following table.

Options	Connection target
Not specified	CPU direction connection: The CPU module directly connected to personal computer Via a module mounted to the main base unit: The CPU module of station in which the network module corresponding to the station No. specified in Network communication path is mounted. Via a module mounted to the redundant type extension base unit: The CPU module in the control system
Control System	The CPU module in the control system
Standby System	The CPU module in the standby system
System A	The CPU module to which the A side connector of tracking cable is connected.
System B	The CPU module to which the B side connector of tracking cable is connected.

In the initial setting, "Control system" is set. If this setting causes an error when the system is switched in Redundant CPU, the control system is always monitored.

POINT

- If the assignment information database file is not registered, PLC connection target cannot be set.
- For communication route, refer to Section 2.1.2.
- If connecting through the network, the network parameter must be set through transfer setup.
  Please refer to the GX Developer Operating Manual for the network parameter setting methods of the compiled program.
- When connecting to the Redundant CPU in the debug mode, make sure to specify it as "Not Specified", "System A" or "Control system".
  Otherwise, a communication error may occur, or monitoring may not be performed properly.

9.4 Control Panel Setting

PURPOSE

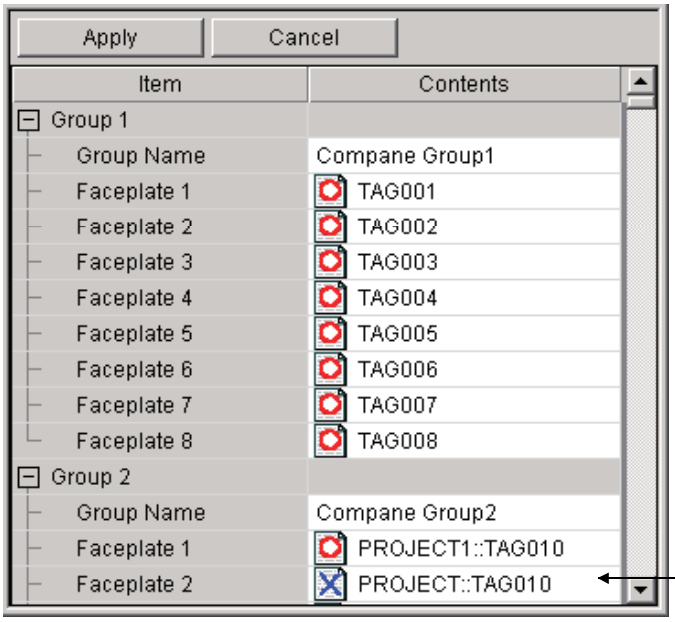
To distribute the tag displayed on the control panel screen.

BASIC OPERATION

1. Input optional group name in the content cell of [Group Name].
2. Input the tag name that is assigned to the faceplate which belongs to the group in the content cell of [Faceplate].
3. When setting the tag name, compare the device data with the tag Information of the projects registered by monitor target project setting, and then the icon that indicates tag existence/inexistence will be displayed automatically.

Click the "Delete" key under the condition that there is the input cell on the group name line (multiple lines can be selected), and then all the tag including the group-affiliated tag name will be deleted.

DISPLAY/SETTING SCREEN



The × icon indicates that the tag is unusable.

At most 500 groups can be registered
Maximum 8 tags can be registered in each group (total 8 × 500 = 4000 tags)

DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input limit
Group name	To set the name of each group	Text box	32 characters
Faceplate 1 to 8	To set the tag name distributed to each group affiliated faceplate	Text box	180 characters

POINT

- The tag name of the corresponding group cannot be set without the group name registration.
- When the settings beyond the group name without the group name registration, error message will be displayed and the input cell will be moved to the position of group name.
- If × icon is displayed, confirm the error message to be displayed before taking the action.
  When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

REMARK

When the tag name is specified, if the same tag name exists in different projects, the project tag with higher priority level will be found.
As project is concerned, the smaller [No.] is, the higher the priority will be in the monitor target project setting. If the tag name is duplicated in duplicated project, the form of (project name): (tag name) should be specified to indicate the exclusive tag.

9.5 Trend Setting

PURPOSE

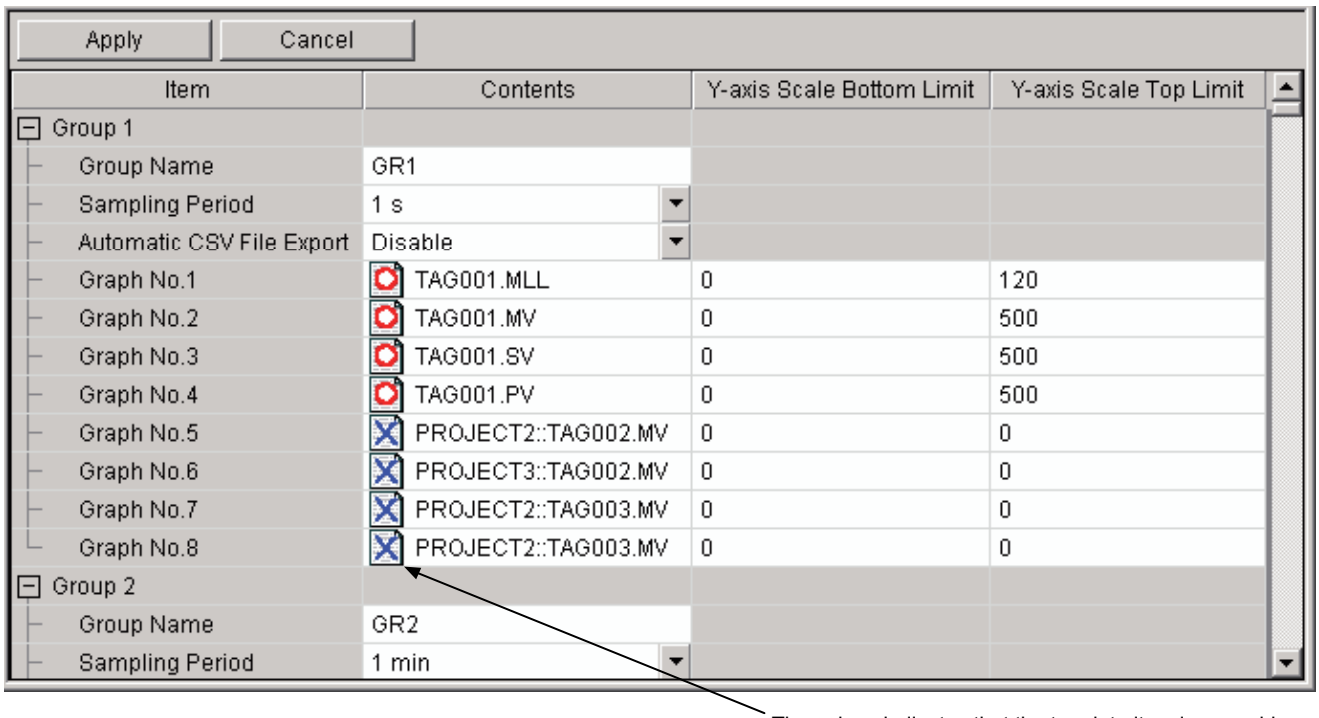
To set the tag data item and the sampling period that are displayed on the trend graph screen.

BASIC OPERATION

1. Input any group name in the content cell of [Group Name].
2. Select the period from the List box in the content cell of [Sampling Period].
3. Select whether the CSV files export of trend data will be executed automatically or not. (Refer to Section 8.6)
4. Input the assigned tag data item distributed to the affiliated trend graph in the form of (tag name). (tag data item name) in the content cell of [Trend Graph No. *].
5. When setting the tag data item, compare the input set data with the tag information of item that is registered by the monitor target project setting. The icon that indicates the existent/inexistent tag data item will be displayed automatically.
6. When clicking the "Apply" button, check whether the bottom limit of the Y-axis scale is lower than the top limit or not. Error message will be displayed when error occurs. (Except for the condition that bottom limit=top limit=0)

Click the "Delete" button under the condition that there is the input cell on the group name line (multiple lines can be selected), and then the group-affiliated sampling period, automatic CSV files export, together with tag data item will be deleted.

DISPLAY/SETTING SCREEN



The × icon indicates that the tag data item is unusable.

The maximum group number to be registered is 125
At most 8 tag data items can be registered in each group
(All together 8 × 125 = 1000 tag data items)
Within the sampling period of 1s or 10s, at most 100 tag data items can be collected.

DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input restriction	Initial setting
Group Name	Set the name of each group	Text box	32 characters	—
Sampling Period	Set the sampling period of the trend data	List box	1s/10s/1min/5min/10min	1s
Automatic CSV File Export	Set whether the CSV file export of trend data will be executed automatically or not.	List box	Disable/Enable	Disable
Tag Data Item	Set the tag data item which is assigned to the trend graph	Text box	213 characters	—
Y-axis Scale Bottom Limit	Set the bottom limit of the Y-axis scale which is displayed on the trend graph	Text box	REAL (Single precision floating decimal fraction)	0
Y-axis Scale Top Limit	Set the top limit of the Y-axis scale which is displayed on the trend graph	Text box	REAL (Single precision floating decimal fraction)	0

* When the bottom limit of the Y-axis scale=0, the top limit of the Y-axis scale=0, the bottom/top limit which is defined by the tag data item should be used.

POINT

- Make the "automatic CSV file export" setting after setting the items related to other automatic CSV file export. (Refer to Section 8.6 (3).)
- The tag data item of the corresponding group cannot be set without the group name registration.
  When the settings beyond the group name without the group name registration, the error message will be displayed and the input cell will be moved to group name.
- The Y-axis scale of the corresponding tag data item cannot be set without the tag data item registration.
  When setting the Y-axis scale without the tag data item registration, the error message will be displayed and the input cell will be moved to the tag data item name.
- If × icon is displayed, confirm the error message to be displayed before taking the action.
  When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

REMARK

When the tag name is specified, if the same tag name exists in different project, the project tag of higher priority will be found.
As project is concerned, the smaller [No.] is, the higher the priority will be in the monitor target project setting .If the tag name is duplicated in multiple projects, the form of (project name): :(tag name). (tag data item name) should be specified to indicate the exclusive tag.

9.6 Alarm Setting

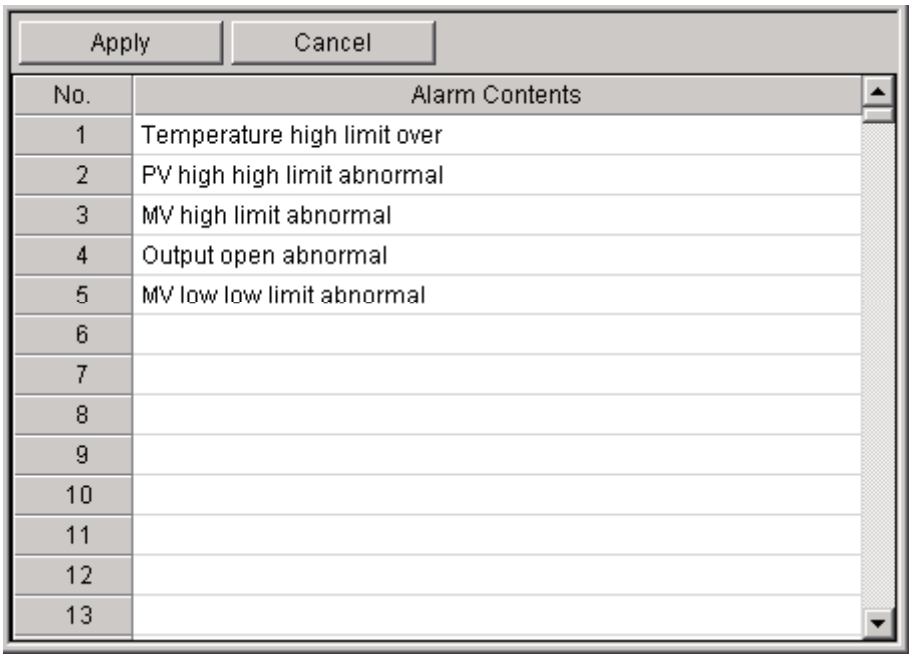
PURPOSE

To set the alarm content assigned to the alarm tag.
To display the set character string on the alarm list screen.

BASIC OPERATION

Input optional character string in the cell of [Alarm Contents].

DISPLAY/SETTING SCREEN



Maximum 10000 pieces of alarm content can be set.

DISPLAY/SETTING DATA

Setting items	Content	Input method	Input limit
No.	It equals to the alarm name number corresponding to the tag data (the value saved in ALM1NO to ALM8NO) (refer to section 10.8)	Input not allowed	
Alarm contents	Set the character string that displays the alarm contents on the alarm tag faceplate.	Text box	64 characters

9.7 Event Setting

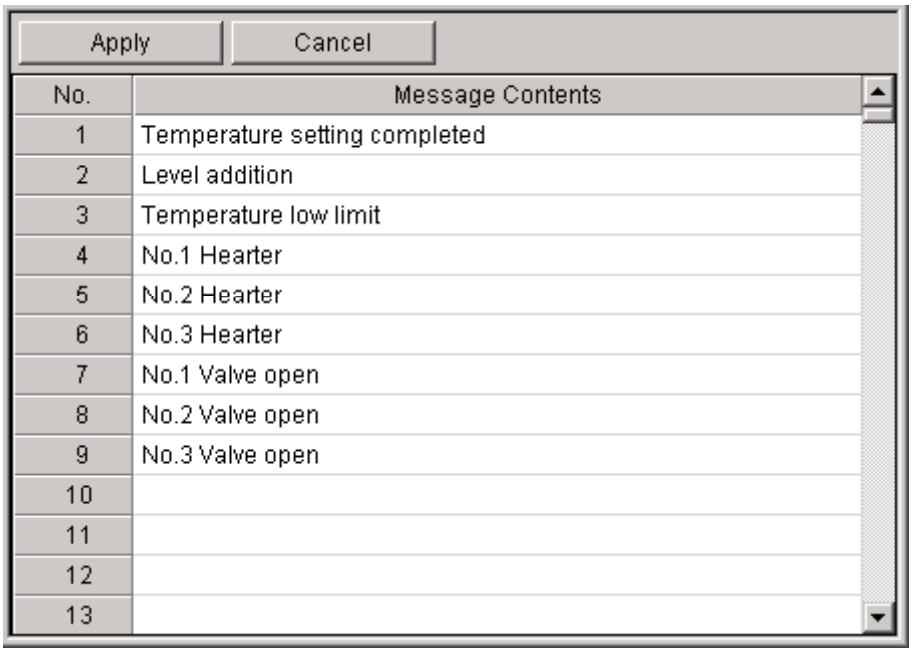
PURPOSE

To set the message content that is assigned to the message tag.
To display the set character string on the event list screen.

BASIC OPERATION

Input optional character string in the cell of [Message Contents].

DISPLAY/SETTING SCREEN



Maximum 10000 pieces of message content can be set.

DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input restriction
No.	It equals to the message name number corresponding to the tag data (the value saved in MSG1NO to MSG8NO). (refer to section 10.8)	Input not allowed	
Message contents	Set the displayed message content on the message tag faceplate.	Text box	64 characters

9.8 User-created Screen Setting

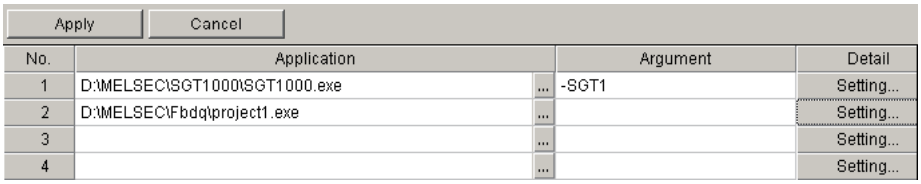
PURPOSE

Assign monitoring applications to user-created screen buttons on the monitor toolbar.
Programs created with GT SoftGOT1000 (refer to Section 11.1) or Microsoft® Visual Basic® (refer to Section 11.2) can be assigned as applications.

BASIC OPERATION

1. Click the button of [Application] cell and the file selection dialog box will be displayed.
2. Select "Application" on the file of file selection dialog box. Click the "Open" button and then the application program path will be input in the cell.
3. Set the starting argument in the cell of [Argument] according to the need of the application program.

DISPLAY/SETTING SCREEN



There are 4 execution application programs that can be registered.
They are assigned to the display button 1 to 4 of the user application which is affiliated to the monitor tool bar in turn. The assignment starts from No.1

DISPLAY/SETTING DATA

Setting item	Contents	Input method	Input restriction
No.	It equals to the number 1 to 4 of the user-created screen button.	Input not allowed	
Application	Set the path of the application program that is assigned to the user-created screen display button of the monitor toolbar.	File Selection Dialog Box	The maximum character number of the path is 255
Argument	Set the argument number given to the application. *1	Text box	255 characters
Detail	Displays the Detail setting of the user-created screen dialog box by clicking the "Setting…" button. *2 (Refer to (1), (2) in this Section.)	Dialog Box	—

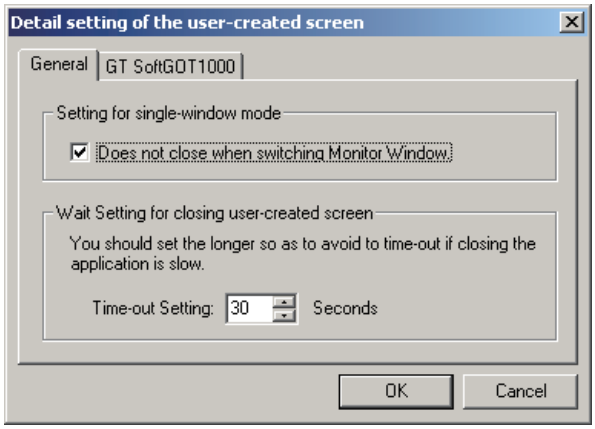
*1: When the file path of GT SoftGOT1000 is set to Application, specifies the module number of GT SoftGOT1000 to be started.
Default of the argument is "-SGT1".
For details, refer to the GT SoftGOT1000 Version2 Operating Manual (SH-080602ENG-D or later).

*2: When the file path of GT SoftGOT1000 is set to Application, the GT SoftGOT1000 tab is added in the Detail setting of the user-created screen dialog box.

(1) Detail setting for GT SoftGOT1000

The following shows the Detail setting dialog box for GT SoftGOT1000.

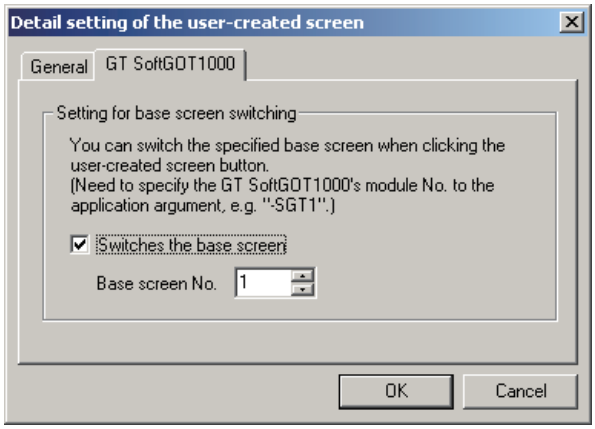
(a) Setting in the General tab



Item	Contents	Input restriction	Initial setting
Does not close when switching Monitor Window.	Does not close GT SoftGOT1000 assigned to the user-created screen button when switching the monitor screen in single-window mode. Note, however, that GT SoftGOT1000 closes regardless of this setting when the setting window is displayed or the Monitor tool is exited.	—	Checked
Time-out Setting (Seconds)	Set the time that the Monitor tool waits for GT SoftGOT1000 to be closed when closing GT SoftGOT1000. *1	1 to 99	30 seconds

*1: GT SoftGOT1000 is closed automatically in the following cases:
- when the monitor screen is switched in single-window mode
- when the setting window is displayed
- when the Monitor tool is exited

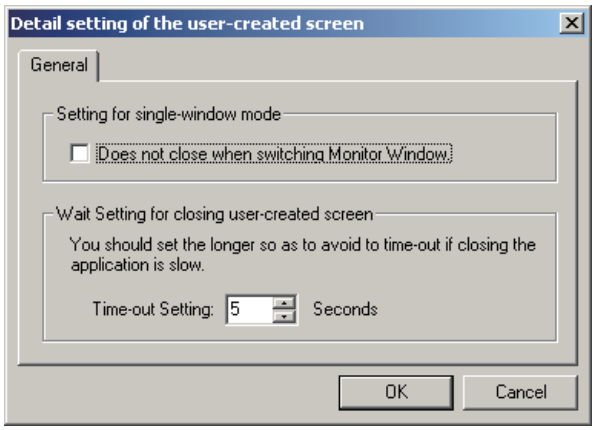
(b) Setting in the GT SoftGOT1000 tab



Item	Contents	Input restriction	Initial setting
Switches the base screen	Set whether to switch the base screen to the specified one when GT SoftGOT1000 is started or activated.	—	Checked
Base screen No.	Set the base screen number to be displayed when GT SoftGOT1000 is started or activated.	1 to 32767	1

(2) Detail setting for other than GT SoftGOT1000

The following shows the Detail setting dialog box for applications other than GT SoftGOT1000.



Item	Contents	Input restriction	Initial setting
Does not close when switching Monitor Window.	Does not close an application assigned to the user-created screen button when switching the monitor screen in single-window mode. Note, however, that GT SoftGOT1000 closes regardless of this setting when the setting window is displayed or the Monitor tool is exited.	—	Unchecked
Time-out Setting (Seconds)	Set the time that the Monitor tool waits for an application to be closed when closing the application. *1	1 to 99	5 seconds

*1: An application is closed automatically in the following cases:
- when the monitor screen is switched in single-window mode
- when the setting window is displayed
- when the Monitor tool is exited

POINT

- The argument cannot be set without the application registration.
- When setting argument without the application registration, error message will be displayed and the input cell will be moved to the application program.
- In the exe form, the application program sold in the market can be registered even if the user does not user-created screen. But the maximum number restriction limitation displayed on the screen will not change even if the registered application is not related to the monitor (refer to Section 6.4.2)
- When the application is changed or deleted, the argument and initial setting are initialized.
- When "Privilege Level" of the application is specified to "Run this program as an administrator" in Windows Vista® , "Privilege Level" of the monitor tool also needs to be specified to "Run this program as an administrator." .
  For the method to execute programs as an administrator, refer to Section 5.1.

9.9 Unit Setting

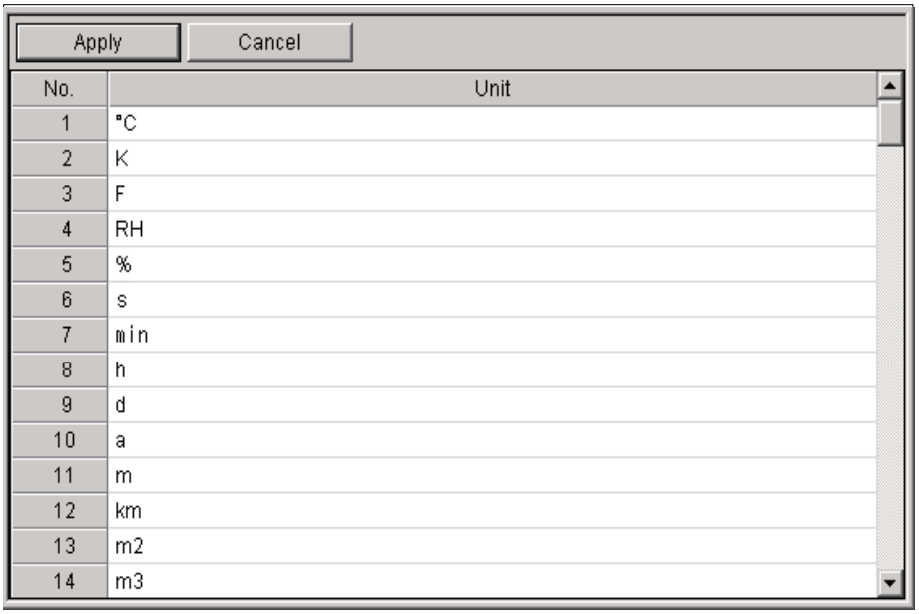
PURPOSE

Set the unit name that indicates the tag data item.

BASIC OPERATION

Input optional unit character string in the cell of [Unit].

DISPLAY/SETTING SCREEN



127 units can be set.

DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input restriction
No.	It equals to the unit number specified by the tag data	Input not allowed	
Unit	Set the unit used	Text box	8 characters

9.10 Faceplate Display Pattern Setting

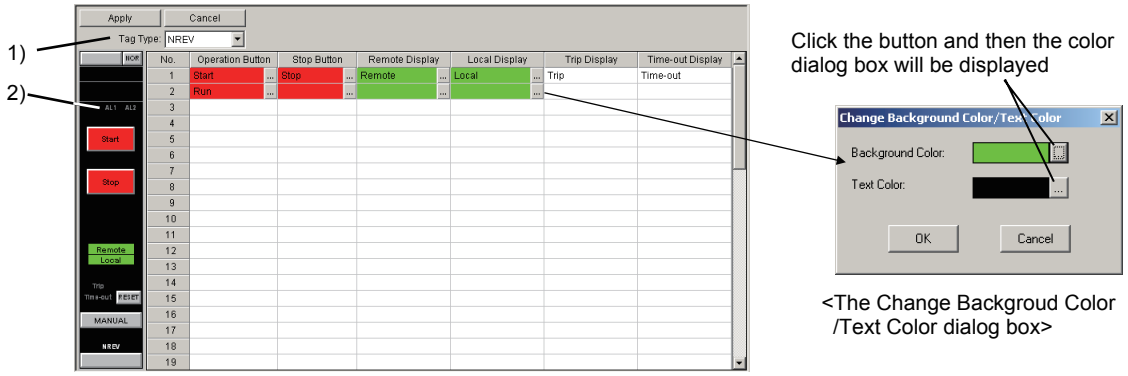
PURPOSE

To set the status button, as well as the character string and background color pattern of the status display (indicator), which are displayed on the status tag faceplate.
To set the pattern number for the display name pattern (FPNO) which is affiliated to the tag data item by using the FB property of the programming tool. The pattern of the displayed character string and background color corresponding to the set pattern number can be displayed on the status tag faceplate.
Furthermore, the character string is recorded as the operation record character string on the event list (refer to Section 7.4). As for the display content related to the status tag faceplate, please refer to "Section10.3.13 Status Operation" and "Section10.6.1 NREV, REV, MVAL1, MVAL2".

BASIC OPERATION

1. Select the tag type in the list box 1) and then the bit map corresponding to the tag type will be displayed on the tag type faceplate image 2).
   The item displayed in the grid is switched according to the tag type.
2. Input the character string that is assigned to the status button and indicator of the faceplate in each cell.
3. Click the button to the right of the cell and then the "Change Background Color/Text Color" dialog box will be displayed. If the color is selected, click the "OK" button and then the background color and text color of the set cell will be displayed. (Trip display and time-out display are displayed by the faceplate alarm graph color, so they cannot be set)

DISPLAY/SETTING SCREEN



<The Change Backgroud Color /Text Color dialog box>

1) The list box of the tag type selection
   Select the tag type of the set name pattern (NREV, REV, MVAL1, MVAL2).
2) Tag type faceplate image
   Display the screen display image of the tag type that is affiliated to the set name pattern.

Each tag type can set maximum 50 pieces of name pattern.

POINT

The background color/text color which equals to those of the first line (No.1) will all be set automatically if new character string is input in certain line.

DISPLAY/SETTING DATA

The set item and initial set of each tag type are shown as the following chart.

Tag types	Setting items	Contents	Initial setting			Input method	Input restriction
			Character	Character color	Background color		
NREV	Operation Button	Set the Button name and status display color	Start	Black	Red	Character: Text box Color: the Change Background Color/Text Color dialog box (color dialog box)	8 characters
	Stop Button	Set the Button name and status display color	Stop	Black	Red		
	Remote Display	Set the indicator name and status display color	Remote	Black	Green		
	Local Display	Set the indicator name and status display color	Local	Black	Green		
	Trip Display	Set the indicator name	Trip	Black			
	Time-out Display	Set the indicator name	Time-out	Black			
REV	Forward Run Button	Set the Button name and status display color	FWD Run	Black	Red		
	Stop Button	Set the Button name and status display color	Stop	Black	Red		
	Reverse Run Button	Set the Button name and status display color	REV Run	Black	Red		
	Remote Display	Set the indicator name and status display color	Remote	Black	Green		
	Local Display	Set the indicator name and status display color	Local	Black	Green		
	Trip Display	Set the indicator name	Trip	Black			
	Time-out Display	Set the indicator name	Time-out	Black			
MVAL1	Open Button	Set the Button name and status display color	Open	Black	Red		
	Close Button	Set the Button name and status display color	Close	Black	Red		
	Semi-open Display	Set the indicator name and status display color	Semiopen	Black	Red		
	Remote Display	Set the indicator name and status display color	Remote	Black	Green		
	Local Display	Set the indicator name and status display color	Local	Black	Green		
	Trip Display	Set the indicator name	Trip	Black			
	Time-out Display	Set the indicator name	Time-out	Black			
MVAL2	Open Button	Set the Button name and status display color	Open	Black	Red		
	Close Button	Set the Button name and status display color	Close	Black	Red		
	Stop Button	Set the Button name and status display color	Stop	Black			
	Semi-open Display	Set the indicator name and status display color	Semiopen	Black	Red		
	Remote Display	Set the indicator name and status display color	Remote	Black	Green		
	Local Display	Set the indicator name and status display color	Local	Black	Green		
	Trip Display	Set the indicator name	Trip	Black			
	Time-out Display	Set the indicator name	Time-out	Black			

Trip display and time-out display are displayed with the alarm color of the faceplate, so the color doesn't need to be set. According to the alarm level of trip and time-out, major alarm color is displayed when major alarm occurs and minor alarm color is displayed when minor alarm occurs.
With regard to the setting of alarm display color, please refer to "Section 9.14 Option setting".

POINT

Only character string can be cut/copied/pasted.
(The color setting is excluded)

9.11 Faceplate Display Scale Setting

PURPOSE

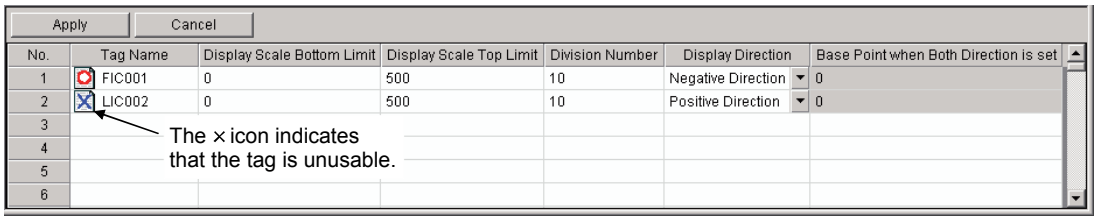
To set the display scale, division number, display direction and both direction base point of the PV graph that are displayed on the faceplate.
To set when the initial set content changed.

BASIC OPERATION

1. Set optional tag name in [Tag Name].
2. When setting the tag name, the tag information of the item that is registered by the monitor target project setting will be compared with the input set data. And then the mark that indicates tag existent/inexistent will be displayed automatically.
3. Input the display scale top/bottom limit, division number, display direction and base point when both direction is set of the set tag.
4. Click the "Apply" Button and check whether the bottom limit of the display scale is less than the top limit. The error message will be displayed when error occurs.

When the tag name is deleted, the display scale top/bottom limit, division number, display direction and base point when both direction is set are also deleted simultaneously.

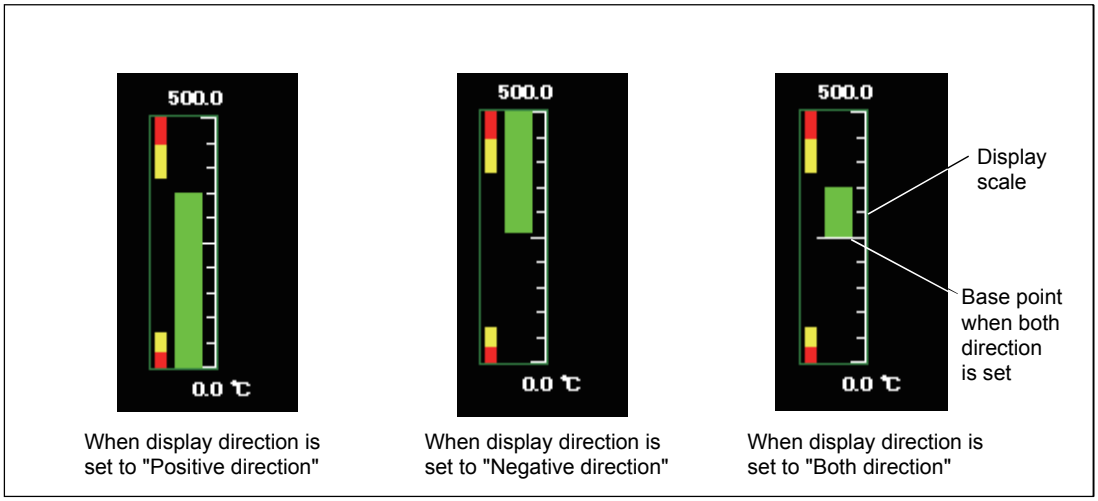
DISPLAY/SETTING SCREEN



Maximum 3840 pieces of tag can be registered

Setting !

Display on faceplate



When display direction is set to "Positive direction"

When display direction is set to "Negative direction"

When display direction is set to "Both direction"

DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input limit	Initial setting
Tag Name	Set the tag name of the display scale	Text box	180 characters	—
Display Scale Bottom Limit	Set the display scale bottom limit of the PV graph which is displayed on the faceplate	Text box	REAL (Single precision floating decimal)	0
Display Scale Top Limit	Set the display scale top limit of the PV graph which is displayed on the faceplate	Text box	REAL (Single precision floating decimal)	100
Division Number	Set the division number of the PV graph which is displayed on the faceplate	Text box	1 to 10	10
Display Direction	Set the display direction of the PV graph bar to be displayed on the faceplate.	List box	Positive direction/ Negative direction/ Both direction	Positive direction
Base Point when Both Direction is set	When setting "Both direction" as the display direction, set the base point of the PV graph bar to be displayed on the faceplate. This setting is available only when "Both direction" is set as the display direction.	Text box	REAL (Single precision floating decimal)	0

POINT

- The display scale top/bottom limit, division number, display direction and "base point when both direction is set" cannot be set without registering the tag name.
- When "Both direction" is set as the display direction, set the both direction base point within the range indicated below.
  Display scale bottom limit ≤ base point when both direction is set ≤ display scale top limit
- If × icon is displayed, confirm the error message to be displayed before taking the action.
  When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

9.12 Faceplate MV Characters Setting

PURPOSE

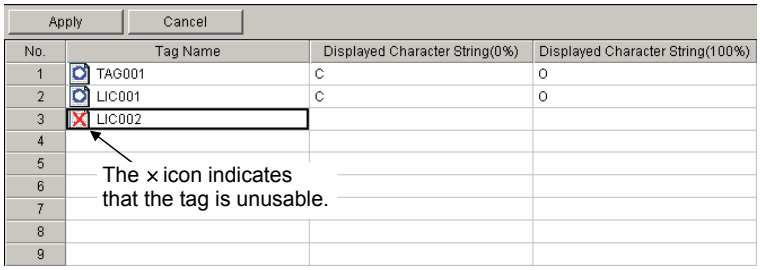
To set the MV characters of the MV graph which is displayed on the faceplate.

BASIC OPERATION

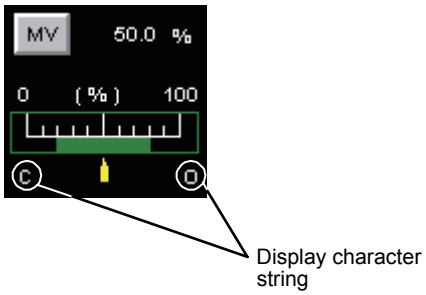
1. Set optional tag name in the cell of [Tag Name].
2. When setting the tag name, the tag information of the project that is registered by the monitor target project setting will be compared with the input setting data. And then the mark that indicates tag existence/inexistence will be displayed automatically.
3. Input the displayed character string of the set tag.

The displayed character string will be deleted when the tag name is deleted.

DISPLAY/SETTING SCREEN



Maximum 3840 pieces of tag can be registered



<MV graph>

DISPLAY/SETTING DATA

Setting item	Content	Input method	Input limit
Tag name	Set the tag name of the open/close direction display character.	Text box	180 characters
Displayed character string (0%)	Set the display character on the 0% position of the MV graph which is displayed on the faceplate.	Text box	2 characters
Displayed character string(100%)	Set the display character on the 100% position of the MV graph which is displayed on the faceplate.	Text box	2 characters

POINT

- The displayed character strings cannot be set without the tag name registration. When doing setting beyond the tag name without tag name registration, error message will be displayed and the input cell will be moved to the position of tag name.
- If × icon is displayed, confirm the error message to be displayed before taking the action.
  When the relevant cell (s) is (are) selected, an error message is displayed in the status bar.

9.13 Lockout Tag Setting

PURPOSE

Set the lockout tag types which are used on the faceplate of the monitor window. Lockout tag is used when operation limit is put on the control device. As the monitor tool is concerned, operation limit is added by the operation of lockout tag on the faceplate. Lockout tag is divided into two levels: engineer level and operator level. Lockout tag of engineer level can only be operated in the engineer mode and lockout tag of operator level can only be operated in the operator mode and engineer made.

BASIC OPERATION

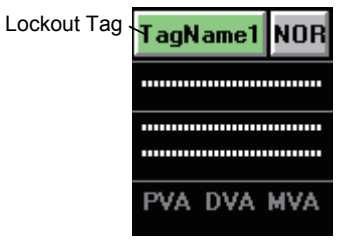
1. Input the character string that indicates the lockout tag name in the cell of [Lockout Tag Name].
2. Click the Button right to the cell and then the "Change Background Color/Text Color" dialog box will be displayed. Select the color and click the "OK" Button, then the background color and text color of the cell will be displayed as the set color.
3. Set the authority of user who can operate the lockout tag on the list box of the [Level] cell.

Graph color, background color and level will be deleted when the Lockout tag name is deleted.

DISPLAY/SETTING SCREEN

<The Change Background Color /Text Color dialog box>

Maximum 32 kinds of tags can be set



The lockout tag is displayed in the lockout tag area at the top of the faceplate.

POINT

When inputting the new character string to the lockout tag name, the background color which is the same as that of the first line (No. 1) will be set automatically.

DISPLAY/SETTING DATA

Setting items of each lockout tag is shown as the following chart.

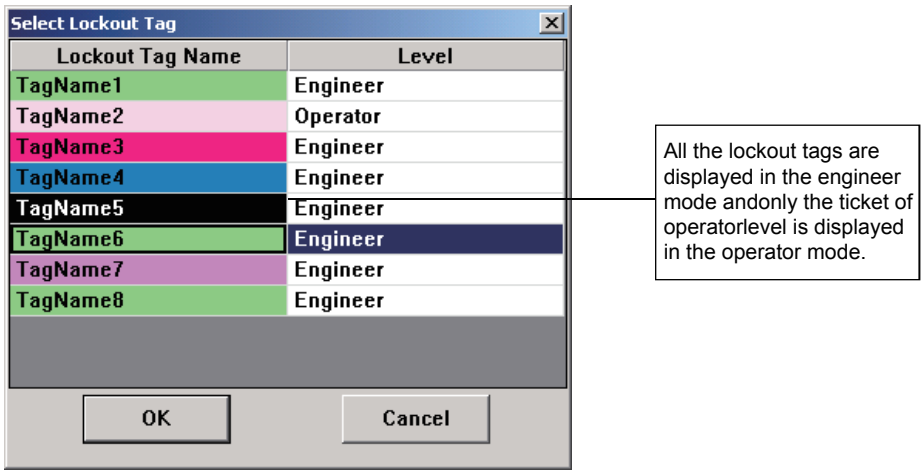
Setting items		Contents	Input method	Input limit
Lockout Tag Name		Set the character string that is displayed on the lockout tag.	Text box	8 characters
	Text color	Set the displayed text color of the lockout tag.	Change Background Color/Text Color dialog box	–
	Background color	Set the background color of the lockout tag.		
Level		Set the authority of user who can operate the lockout tag. (User authority is defined by the user setting)	List box	Operator/Engineer

POINT

- Text color, background color and level cannot be set without the lockout tag name registration.
- When doing setting beyond lockout tag name without the lockout tag name registration, error message will be displayed and the input cell will be moved to the position of lockout tag name.

REMARK

The lockout tag setting can be operated on the faceplate.
Click the display area of lockout tag on the faceplate without the lockout tag setting; the "Select Lockout Tag" dialog box and the set ticket list will be displayed. Only the lockout tag under the current authority level is displayed in the "Select Lockout Tag" dialog box. (Lockout tag of operator level is displayed in the operator mode. Lockout tags of operator level and engineer level are displayed in the engineer mode.)



<Select Lockout tag dialog box>

9.14 Option Setting

PURPOSE

Option setting refers to all the setting of the displayed text font, the buzzer sound of alarm, the graph color of faceplate and other items that can be set on the monitor tool.
Items that can be set by the option setting function is shown as the following chart.

Classification items		Setting items
General		Setting window font
		Monitor window font
		Printer
		Window mode
		Minor alarm color
		Major alarm color
		Return check interval (S)
		Return check time-out (S)
		PLC status check interval(s)
		Write tag data (even if the PC's and PLC's project ID codes are different)
		Automatic CSV file deletion time (0 to 23)
		Disk free space check size (MB)
Alarm/Event	General	Alarm/Event display on 2nd line of monitor tool bar
		Alarm/Event display format of monitor tool bar
		Highlighted display while alarms occur
		Event notification UDP port No.
		Automatic alarm CSV file export
		Automatic alarm CSV file deletion
		Alarm CSV file storage period (days)
		Automatic alarm CSV file export target folder
		Automatic event CSV file export
		Automatic event CSV file deletion
		Event CSV file storage period (days)
		Automatic event CSV file export target folder
	Minor alarm	Buzzer type
		Beep sound time interval
		Beep sound frequency
		Sound file
	Major alarm	(The items same as those of the minor alarm)
	Event	(The items same as those of the minor alarm)

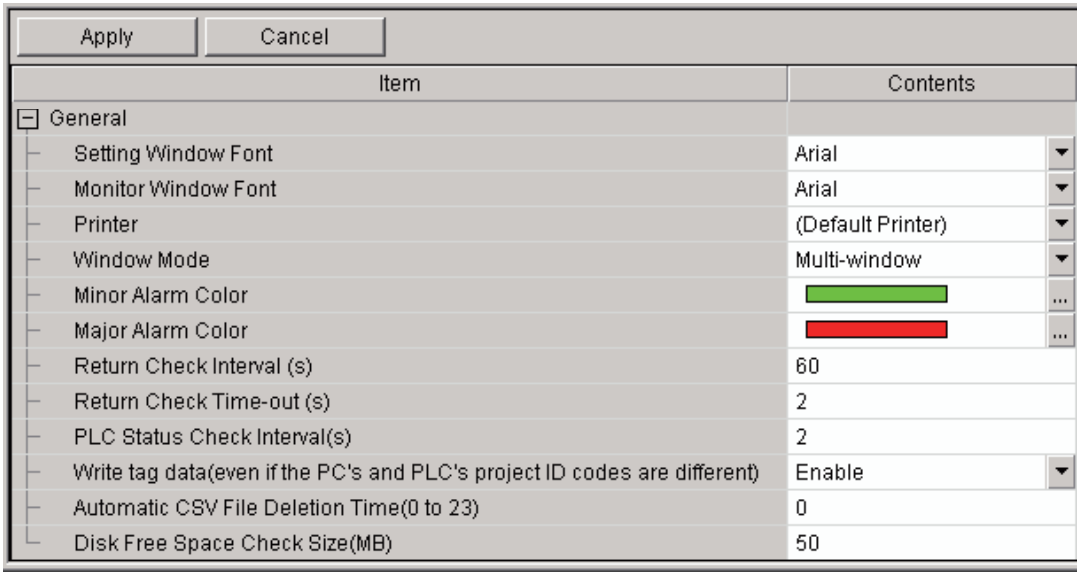
(To the next page)

Classification items	Setting items
Faceplate	SV limit excess setting
	Background color
	Text color
	Alarm area color (No alarm)
	Button text color
	Button background color
	PV bar positive direction color
	PV bar negative direction color
	PV bar both direction color (Positive)
	PV bar both direction color (Negative)
	PV High/Low limit value bar color
	PV High High/ Low Low limit value bar color
	SV/MV limit value bar color
	SV/MV pointer color
	SV (target) pointer color for 2PIDH
	MV status color
	Frame color (No lockout tag)
Trend Graph	Item Name Display Format
	Gridline
	Gridline color
	Background color
	Graph 1 to 8 colors
	Trend binary data storage folder
	Automatic trend CSV file export target folder
	Automatic trend CSV file export time (0 to 23)
	Automatic trend CSV file deletion
	Trend CSV file storage period (days)

(1) General

Set the common items of the monitor tool general function and set the items that cannot be particularly classified by monitor tool general function.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input limit	Initial set value
Setting window font*	Set the font used on the monitor setting window	List box	The font list of the personal computer	Arial
Monitor window font*	Set the font used on the monitor window	List box	The font list of the personal computer	Arial
Printer*	Set the printer used in printing	List box	The printer list of the personal computer	(Default Printer)
Window mode	Select window mode	List box	Multi-window/Single window	Multi-window
Minor alarm color	Set the graph color of Minor alarm	Color dialog box	—	Green
Major alarm color	Set the graph color of Major alarm	Color dialog box	—	Red
Return check interval (s)	When communication open error occurs, set the interval seconds return check communication return check of the CPU module with error (refer to Appendix 1.6)	Text box	10 to 3600	60
Return check time-out (s)	Set the time-out seconds of communication return check (refer to Appendix 1.6)	Text box	1 to 60	2

(To the next page)

Setting items	Contents	Input method	Input limit	Initial set value
PLC status check interval (s)	Set the interval (s) for making PLC status check, such as PLC CPU error. (Refer to Appendix 1.7.)	Text box	1 to 10	2
Write tag data (even if the PC's and PLC's project ID codes are different)	Set whether tag data write will be made valid or not at occurrence of the alarm for project ID code inconsistency. (Refer to Section 7.3.)	List box	Disable/Enable	Enable
Automatic CSV file deletion time (0 to 23)	Set the time when the CSV files output by automatic CSV file export will be deleted (0 minutes every hour). (Refer to Section 8.6.)	Text box	0 to 23	0
Disk free space check size (MB)	Set the disk free space check size of the disk drive that stores CSV files output by the PX Developer installation destination, trend data and automatic CSV file export. When the free space of the disk drive decreases to or below the setting, the alarm for disk free space error occurs. (Refer to Section 7.3.)	Text box	50 to 1024	50

*: The content set in the personal computer is displayed in the font list and the printer list. The detailed setting of the printer is set on the setting window of personal computer. (Except the tag monitor display area of pop-up tuning)
The font size will be selected automatically according to the window size.
The character string of the button, the tab title and the list is change by the monitor window font. The displayed character string on the faceplate cannot change the font.
The font name of 33 characters or more cannot be selected.

POINT

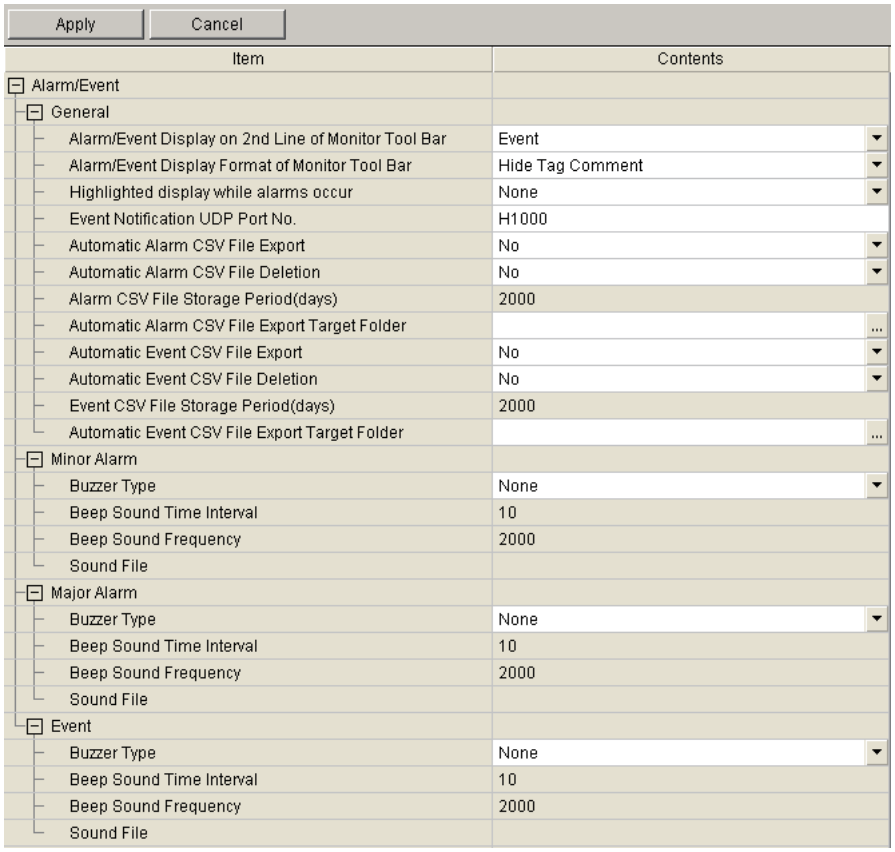
Write tag data (even if the PC's and PLC's project ID codes are different) (refer to Appendix 1.7) is "Enable" (write enabled status) in the initial setting.
If tag data write is performed when the project ID code inconsistency, the system may malfunction.
Change this setting of write tag data (even if the PC's and PLC's project ID codes are different) to "Disable" (write disabled status) when operation has been started after completion of system adjustment.

(2) Alarm/Event

Set the items that is related to display or beep sound when alarm or event occurs.

The setting of [Event Notification UDP Port No.] must be confirmed.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Setting items		Contents	Input method	Input restriction	Initial set value
General	Alarm/Event display on 2nd line of monitor tool bar	Set the display of alarm or event on the second line of alarm/event display area in the monitor tool bar.	List box	Alarm/event	Alarm
	Alarm/Event display format of monitor tool bar	Set whether to display the tag comment in the alarm/event display area of the monitor toolbar.	List box	Display Tag Comment /Hide Tag Comment	Hide Tag Comment
	Highlighted display while alarms occur	Set whether the tag name of alarm list is displayed in a high- lighted way or not while alarm occurs.	List box	None/ Available	None

(To the next page)

Setting items		Contents	Input method	Input restriction	Initial set value
General (Continued)	Event notification UDP Port No.*1	Set the UDP port number of Change notification on the CPU module which is connected with Ethernet.	Text box	H0401 to HFFFF	H1000
	Automatic alarm CSV file export	Set whether automatic alarm CSV file export will be executed or not.	List box	Disable/Enable	Disable
	Automatic alarm CSV file deletion	Set whether alarm CSV file will be deleted automatically or not.	List box	Disable/Enable	Disable
	Alarm CSV file storage period (days)	Set the storage period of CSV files output by automatic alarm CSV file export. When "Automatic alarm CSV file deletion" is "Enable", files that have passed the storage period are automatically deleted.	Text box	1 to 2000	2000
	Automatic alarm CSV file export target folder *2	Set the destination folder to which the CSV files will be output by automatic alarm CSV file export.	Folder selection dialog box	225 characters*3	(No setting)
	Automatic event CSV file export	Set whether automatic event CSV file export will be executed or not.	List box	Disable/Enable	Disable
	Automatic event CSV file deletion	Set whether event CSV file will be deleted automatically or not.	List box	Disable/Enable	Disable
	Event CSV file storage period (days).	Set the storage period of CSV files output by automatic event CSV file export. When "Automatic event CSV file deletion" is "Enable", files stored longer than the set period are automatically deleted.	Text box	1 to 2000	2000
	Automatic event CSV file export target folder *2	Set the destination folder to which the CSV files will be output by automatic event CSV file export.	Folder selection dialog box	225 characters*3	(No setting)
Minor alarm*4	Buzzer type	Set whether the buzzer buzzes or not when alarm occurs. (Beep/Sound)	List box	None/Beep/ Sound	None
	Beep sound time Interval	Set the beep sound timer interval. In the case of "sound", repeat play the content of specified sound file in the set time.	Text box	1 to 99999	10
	Beep sound frequency	Set the beep sound frequency when alarm occurs. (Unit: Hz) Set when the buzzer type is <Beep>.	Text box	50 to 10000	2000
	Sound file	Set the sound file to be played when alarm occurs. Set when the buzzer type is <sound>.	File selection dialog box	The file whose extension is WAV	(No setting)
Major alarm*4	(The items same as those of the minor alarm)				
Event*4	(The items same as those of the minor alarm)				

*1: [Open Setting] of Ethernet by the network parameter of GX Developer, [Event notification UDP Port No.] becomes the set value of [Destination Port No.].
If Microsoft® Windows® XP cannot receive event notification, it may be caused by the setting of Windows® firewall.
For details, refer to the POINT in Appendix 1.2.2.

*2: When no folder is set to this item, CSV files are export to the "AlarmCSV" or "EventCSV" folder given in Section 2.3.

*3: When using the PX Developer Version 1.04E or earlier monitor tool, up to 255 characters can be input. For PX Developer Version 1.06G or later, the former version project that includes more than 225 characters can be read, although the number of input characters is limited to 225.

*4: The beep sound or sound file is set according to minor alarm, major alarm and event when alarm occurs.
Two types of beep sound or sound file can be selected.
If the "Beep" sound is selected, [Beep Sound Timer Interval] and [Beep Sound Frequency] should be specified. If the sound file is selected, [Beep Sound Timer Interval] and [Sound File] should be specified.

Item which needs to be set (classified in terms of buzzer type)

Setting items	Buzzer type		
	None	Beep	Sound
Beep Sound Timer Interval	—	○	○
Beep sound frequency	—	○	—
Sound file	—	—	○

(○: Need to be set, —: Cannot be set)

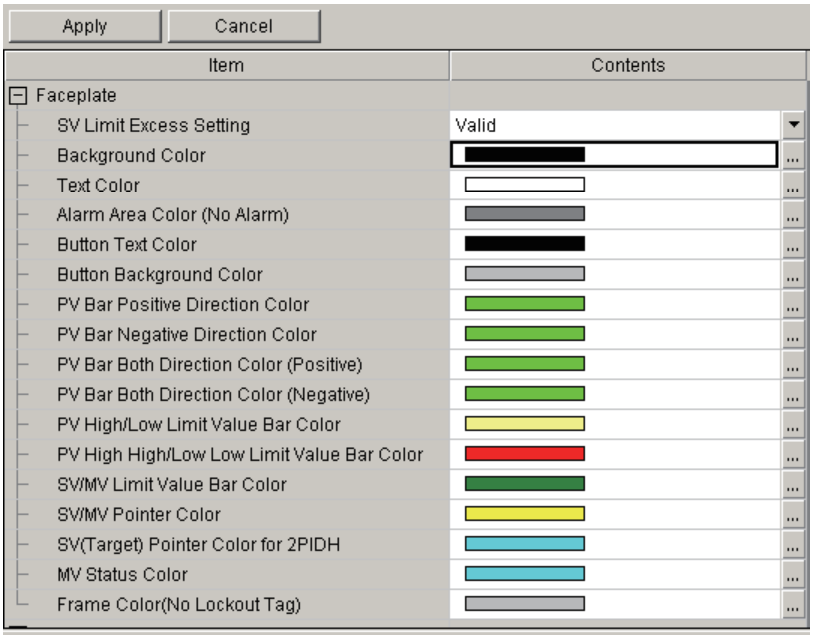
POINT

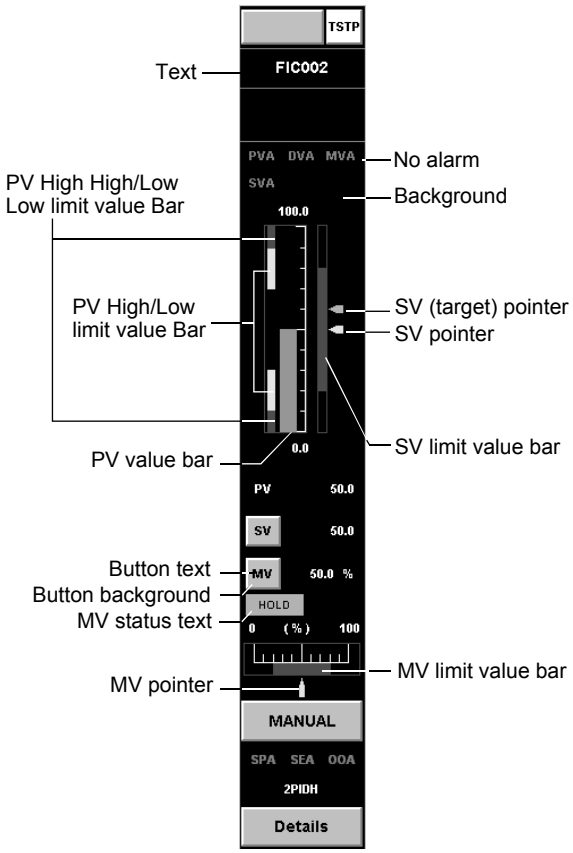
Make the "automatic CSV file export" setting after setting the items related to other automatic CSV file export. (Refer to Section 8.6 (3).)

(3) Faceplate

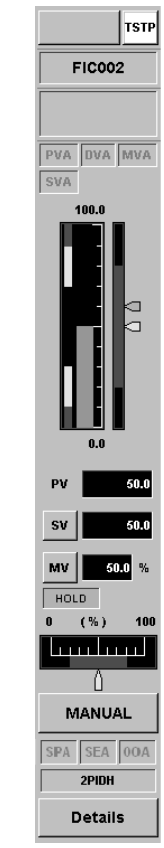
Set the graph color of the faceplate. The initial setting of it can be usual as it was.

DISPLAY/SETTING SCREEN





Background color : black
Text color : gray
(Initial setting)



Background color : gray
Text color : black

DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input restriction	Initial set value
SV limit excess setting	When SV value is set in a faceplate, set input availability (Enable/Disable) of the value exceeding SL and SH.	List box	Valid/Invalid	Valid
Background color	Set the whole background color of the faceplate.	Color dialog box	—	Black
Text color	Set the text color of the faceplate.	Color dialog box	—	White
Alarm area color (No alarm)	Set the text color of the alarm display area when no alarm occurs.	Color dialog box	—	Dark grey
Button text color	Set the text color of the button.	Color dialog box	—	Black
Button background color	Set the background color of the button.	Color dialog box	—	Grey
PV bar positive direction color	Set the PV bar display color when the display direction of the faceplate display scale setting is "positive direction".	Color dialog box	—	green
PV bar negative direction color	Set the PV bar display color when the display direction of the faceplate display scale setting is "negative direction".	Color dialog box	—	green
PV bar both direction color (Positive)	Set the PV bar display color when the display direction of the faceplate display scale setting is "both direction". (Display color when the PV is equal to or greater than the "Base point when both direction is set".)	Color dialog box	—	green
PV bar both direction color (Negative)	Set the PV bar display color when the display direction of the faceplate display scale setting is "both direction". (Display color when the PV is less than the "Base point when both direction is set".)	Color dialog box	—	green
PV high/low limit value bar color	Set the graph color of PV high/low limit value display bar range.	Color dialog box	—	Yellow
PV high high/low low limit value bar color	Set the graph color of PV high high/low low limit value display bar range.	Color dialog box	—	Red
SV/MV limit value bar color	Set the display color of SV/MV limit value range.	Color dialog box	—	Dark green
SV/MV pointer color	Set the graph color of pointer the SV/MV graph.	Color dialog box	—	Yellow
SV (target) pointer color for 2PIDH	Set the display color for SV (target) pointer of a faceplate (used only for the tag type 2PIDH).	Color dialog box	—	Light blue
MV status color	Set the background color for MV status display of a faceplate.	Color dialog box	—	Light blue
Frame color (No Lockout tag)	Set the frame color of the faceplate.	Color dialog box	—	Grey

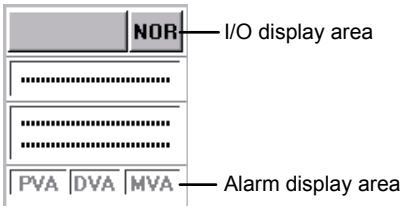
REMARK

When the I/O mode display area of the faceplate is NOR, the graph color is the same as that of normal button. When the area is SIM/OVR/TSTP, the different specified color will be displayed.

	NOR	SIM	OVR	TSTP
Text color	Button text color	White	Black	Black
Background color	Button background color	Blue	Light blue	White

The graph color of the alarm display area is shown as the following chart according to whether alarm occurs or not.
Minor alarm color and major alarm color are set by the Option Setting (General).

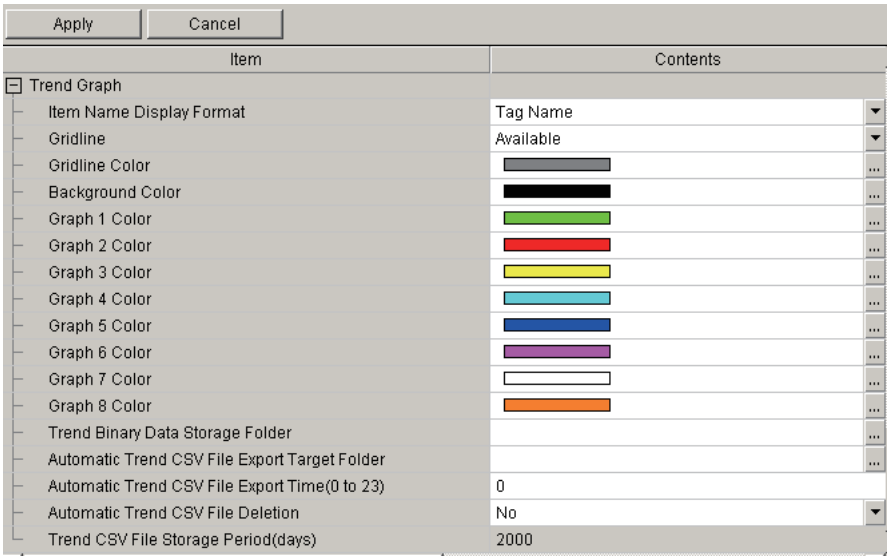
	No alarm	Minor alarm	Major alarm
Text color	Alarm area color	Black	Black
Background color	Background color	Minor alarm color	Major alarm color



(4) Trend Graph

Set the graph color of the trend graph or use the initial set color.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

Setting items	Contents	Input method	Input limit	Initial set value	
Item Name Display Format	Set whether to display an item name in tag name or tag comment.	List box	Tag name/ Tag comment	Tag name	
Gridline	Set whether the gridline is added to the trend graph.	List box	Available/None	Available	
Gridline color	Set the color of the gridline.	Color dialog box	—	Dark grey	
Background color	Set the background color of the graph.	Color dialog box	—	Black	
Graph 1 to 8 Color	Set the line color of the graph.	Color dialog box	—	1	Green
				2	Red
				3	Yellow
				4	Light blue
				5	Blue
				6	Magenta
				7	White
				8	Orange

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Setting items	Contents	Input method	Input limit	Initial set value
Trend binary data storage folder	Set the folder path that saves the trend binary data collection file.	Folder selection dialog box	225 characters*2,*3	(No setting) *1
Automatic trend CSV file export target folder	Set the destination folder to which the CSV files will be output by automatic trend CSV file export.	Folder selection dialog box	225 characters*2	(No setting) *1
Automatic trend CSV file export time (0 to 23)	Set the time when the CSV files output by automatic trend CSV file export will be stored (0 minute every hour).	Text box	0 to 23	0
Automatic trend CSV file deletion	Set whether trend CSV file will be deleted automatically or not.	List box	Disable/Enable	Disable
Trend CSV file storage period (days)	Set the storage period of CSV file output by automatic trend CSV file export. When "Automatic trend CSV file deletion" is "Enable", files stored longer than the set period are automatically deleted.	Text box	1 to 2000	2000

*1: If the output destination folder is not set to the output folder, the file is output to the "Trenddata" or "TrendCSV" folder given in Section 2.3.

*2: When using the PX Developer Version 1.04E or earlier monitor tool, up to 255 characters can be input. For PX Developer Version 1.06G or later, the former version project that includes more than 225 characters can be read, although the number of input characters is limited to 225.

*3: The total number of characters of both trend binary storage folder name and trend binary file name must be within 259.

9.15 Setting under This Condition

The set items and operating procedure that are necessary for the following conditions are explained here.
With regard to the detailed introduction of setting window and operation method, please refer to the related chapters and sections listed in the following chart.

Items	Title
9.15.1	Change Mode
9.15.2	Display Control Panel
9.15.3	Display Trend Graph
9.15.4	Display Alarm
9.15.5	Display Event
9.15.6	Setting Character String Displayed on Faceplate
9.15.7	Designed Lockout Tag
9.15.8	Specified Font
9.15.9	Specified Graph Color
9.15.10	Specified Beep Sound
9.15.11	Change Transfer Setup
9.15.12	Specified Printer
9.15.13	Change Window Mode
9.15.14	Use automatic CSV file export

9.15.1 Changing the mode

The user authority that is corresponding to the user name and password must be specified by user setting for changing at first.

Related setting items

Setting Items	Reference
User Setting	Section 9.2

BASIC OPERATION

1. Click the "Change Mode" button of monitor tool bar. (Section 4.5)
   The "Change Mode" screen is displayed.
2. Input the user name and password of the engineer authority and it will be changed to the engineer mode.
   (After installing the initial setting status, username: admin, password: admin, please specify) (Section 4.7)
3. Click the "Setting window" button of the monitor tool bar. (Section 6.3.8)
   The setting window is displayed.
4. Select [User Setting]. (Section 9.1.1)
   Display and change the data setting area.
5. Set at optional on the user setting window. (Section 9.2)
   Click the "Apply" button. (Section 9.1.3)
6. Close the setting window.
7. Click the "Change Mode" button of the monitor toolbar. (Section 4.5)
   The "Change Mode" screen is displayed.
8. Input the username and password.
   It will be changed to the setting authority mode.
   (When setting the lock mode, the "Lock" button can be clicked)

9.15.2 Displaying the control panel

In order to display the faceplate of optional tag data on the control panel, the projects of monitor target and the writing method of connecting monitor target must be specified. Meanwhile the tags to be displayed should be set by groups.

Related setting item

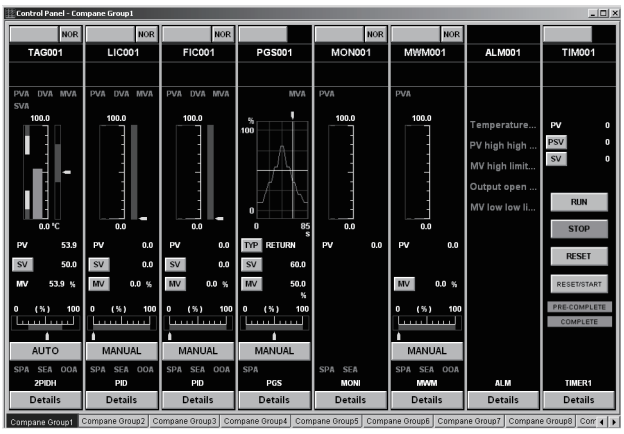
Setting Items	Reference
Monitor Target Project Setting	Section 9.3
Control Panel Setting	Section 9.4

With regard to the setting that is related to the display content of the faceplate on the control panel, please refer to Section 9.15.6.

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar. (Section 4.5)
   The "Change Mode" screen is displayed.
2. Input the name and password of user with the engineer authority to change to the engineer mode.
3. Click the "Setting window" button of the monitor tool bar. (Section 6.3.8)
   The setting window is displayed.
4. Select [Monitor Target Project Setting] (Section 9.1.1)
   Display and change of the data setting area.
5. Set the assignment information database file on the screen of the monitor target project. (Section 9.3)
   Click the "Apply" button. (Section 9.1.3)
6. Select [Control Panel Setting]. (Section 9.1.1)
   Display and change of the data setting area.
7. Specify the display tag on the screen of control panel setting window. (Section 9.4)
   Click the "Apply" button. (Section 9.1.3)
8. Close the setting window.
9. Click the "Control Panel" button of the monitor tool bar and then the control panel will be displayed. (Section 6.3.2) (Section 7.1)

DISPLAY/SETTING SCREEN



9.15.3 Displaying a trend graph

In order to display the value of optional tag data on the trend graph, the projects of the monitor target and the writing method connecting the monitor target must be specified. Meanwhile, the tags to be displayed should be set by groups. In addition, the existence of the gridline and the graph color can be changed by the option setting.

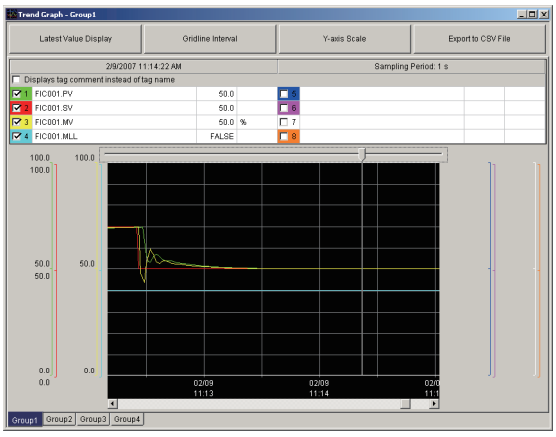
Related setting items

Setting items	Reference
Monitor Target Project Setting	Section 9.3
Trend Setting	Section 9.5
Option Setting (Trend Graph)	Section 9.14 (4)

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar. (Section 4.5)
   The "Change Mode" screen is displayed.
2. Input the name and password of the user with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button of the monitor tool bar. (Section 6.3.8)
   The setting window is displayed.
4. Select [Monitor Target Project Setting] (Section 9.1.1)
   Display and change of the data setting area.
5. Set the assignment information database file on the screen of the monitor target project. (Section 9.3)
   Click the "Apply" button. (Section 9.1.3)
6. Select [Trend Setting]. (Section 9.1.1)
   Display and change of the data setting area
7. Specify the display tag on the trend setting window. (Section 9.5)
   Click the "Apply" button. (Section 9.1.3)
8. Select [Option Setting]. (Section 9.1.1)
   Display and change of the data setting area.
9. Set [Trend Graph] on the option setting screen. (Section 9.14)
   Click the "Apply" button. (Section 9.1.3)
10. Close the setting window.
11. Click the "Trend Graph" button of the monitor tool bar and then the trend graph will be displayed. (Section 6.3.2) (Section 7.2)

DISPLAY/SETTING SCREEN



9.15.4 Displaying an alarm

Two methods can be used to display the events of alarm occurrence on the screen: One is to display one line or two lines of the latest alarm on the monitor tool bar and the other is to display the alarm records on the alarm list screen.
With regard to the alarms of alarm tags or some of status tags (NREV, REV, MVAL1, MVAL2), the user must preset the character string which displays the alarm content.
The option setting can change the graph color and display method of the alarm.
Set the UDP port number that is used for monitor tool to receive communication from CPU module by the option setting when connecting Ethernet.

Related setting items

Setting items	Reference
Monitor Target Project Setting	Section 9.3
Alarm Setting	Section 9.6
Faceplate Display Pattern Setting	Section 9.10
Option Setting (General): minor alarm color, major alarm color	Section 9.14 (1)
Option Setting (Alarm/Event): General	Section 9.14 (2)

BASIC OPERATION

(1) Two lines of alarm are displayed on the monitor tool bar

1. Click the "Change Mode" button of the monitor tool bar. (Section 4.5)
   The "Change Mode" screen is displayed.
2. Input the user name and password that have been added by the engineer authority and it will be changed to the engineer mode.
3. Click the "Setting Window" button of the monitor tool bar. (Section 6.3.8)
   The setting window is displayed.
4. Select [Monitor Target Project Setting] (Section 9.1.1)
   Change and display the data setting area.
5. Set the assignment information database file on the monitor target project screen. (Section 9.3)
   Click the "Apply" button. (Section 9.1.3)
6. Select [Alarm Setting]. (Section 9.1.1)
   Change and display the data setting area.
7. Specify the alarm content which is assigned to the alarm tag on the alarm setting window. (Section 9.6)
   Click the "Apply" button. (Section 9.1.3)
   (It doesn't need to be set if the alarm tag hasn't been set)
8. Select [Faceplate Display Pattern Setting]. (Section 9.1.1)
   Change and display the data setting area.
9. Set the content which is assigned to the status tag (NREV, REV, MVAL1, MVAL2) on the setting window of the faceplate display pattern. (Section 9.10)
   Click the "Apply" button. (Section 9.1.3)
   (It doesn't need to be set if the status tag hasn't been set)
10. Select [Option Setting]. (Section 9.1.1)
    Change and display the data setting area.
11. Set [Event Notification UDP Port No.] of [Alarm/Event]-[General] on the option setting screen. (Section 9.14)
12. If necessary, [Minor Alarm Color] and [Major Alarm Color] of [General] can be changed to optional color on the option setting screen.

(1) Continued

13. [Alarm/Event Display on 2nd Line of Monitor Tool Bar] of [Alarm/Event]-[General] is set to [Alarm] on the option setting screen. Click the "Apply" button. (Section 9.14)
14. Close the setting window. (Section 9.1.3)

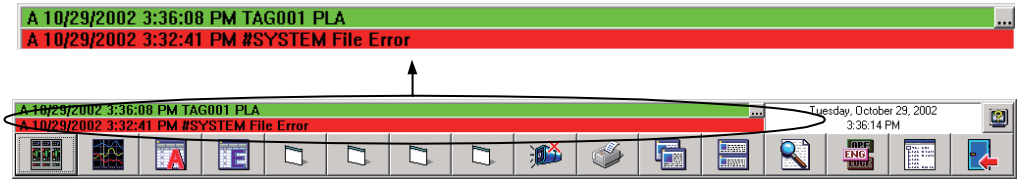
(2) Display Alarm List

1 to 12. Operating steps are the same as those of (1)

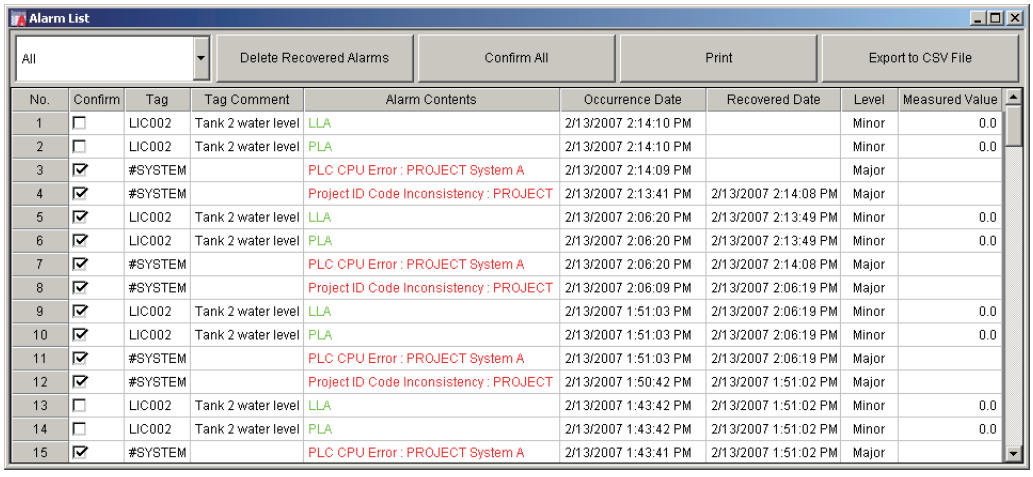
13. If necessary, the setting of [Highlighted Display while alarms Occur] of [Alarm/Event]-[General] can be changed on the option setting screen. (Section 9.14)
    Click the "Apply" button. (Section 9.1.3)
14. Close the setting window.
15. Click the "Alarm List" button of the monitor tool bar. (Section 6.3.2)
    The alarm list is displayed. (Section 7.3)

DISPLAY/SETTING SCREEN

<Alarm/event display area on the monitor tool bar>



<Alarm list screen>



No.	Confirm	Tag	Tag Comment	Alarm Contents	Occurrence Date	Recovered Date	Level	Measured Value
1	☐	LIC002	Tank 2 water level	LLA	2/13/2007 2:14:10 PM		Minor	0.0
2	☐	LIC002	Tank 2 water level	PLA	2/13/2007 2:14:10 PM		Minor	0.0
3	☑	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 2:14:09 PM		Major	
4	☑	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 2:13:41 PM	2/13/2007 2:14:08 PM	Major	
5	☑	LIC002	Tank 2 water level	LLA	2/13/2007 2:06:20 PM	2/13/2007 2:13:49 PM	Minor	0.0
6	☑	LIC002	Tank 2 water level	PLA	2/13/2007 2:06:20 PM	2/13/2007 2:13:49 PM	Minor	0.0
7	☑	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 2:06:20 PM	2/13/2007 2:14:08 PM	Major	
8	☑	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 2:06:09 PM	2/13/2007 2:06:19 PM	Major	
9	☑	LIC002	Tank 2 water level	LLA	2/13/2007 1:51:03 PM	2/13/2007 2:06:19 PM	Minor	0.0
10	☑	LIC002	Tank 2 water level	PLA	2/13/2007 1:51:03 PM	2/13/2007 2:06:19 PM	Minor	0.0
11	☑	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 1:51:03 PM	2/13/2007 2:06:19 PM	Major	
12	☑	#SYSTEM		Project ID Code Inconsistency : PROJECT	2/13/2007 1:50:42 PM	2/13/2007 1:51:02 PM	Major	
13	☐	LIC002	Tank 2 water level	LLA	2/13/2007 1:43:42 PM	2/13/2007 1:51:02 PM	Minor	0.0
14	☐	LIC002	Tank 2 water level	PLA	2/13/2007 1:43:42 PM	2/13/2007 1:51:02 PM	Minor	0.0
15	☑	#SYSTEM		PLC CPU Error : PROJECT System A	2/13/2007 1:43:41 PM	2/13/2007 1:51:02 PM	Major	

9.15.5 Displaying an event

Two methods are used to display the event on the screen.
One is to display one line of the latest event on the monitor tool bar and the other is to display the list of event record on the event list screen.
With regard to the event of the message tag or status tag (NREV, REV, MVAL1, MVAL2), the user must preset the character string of the event content that is displayed.
Set the UDP port number that is used for monitor tool to receive communication from CPU module by the option setting when connecting Ethernet.

Related setting items

Setting item	Reference
Monitor Target Project Setting	Section 9.3
Event Setting	Section 9.7
Faceplate Display Pattern Setting	Section 9.10
Option Setting (Alarm/Event): General	Section 9.14 (2)

BASIC OPERATION

(1) Display the latest event on the monitor tool bar

1. Click the "Change Mode" button of the monitor tool bar. (Section 4.5)
   The change mode screen is displayed.
2. Input the user name and password that have been added by the engineer authority and it will be changed to the engineer mode.
3. Click the "Setting Window" button of the monitor tool bar. (Section 6.3.8)
   The setting window is displayed.
4. Select [Monitor Target Project Setting] (Section 9.1.1)
   Change and display the data setting area.
5. Set the assignment information database file on the screen of the monitor target project. (Section 9.3)
   Click the "Apply" button. (Section 9.1.3)
6. Select [Event Setting]. (Section 9.1.1)
   Change and display the data setting area.
7. Specify the alarm content which is assigned to the alarm tag on the event setting window. (Section 9.7)
   Click the "Apply" button. (It does not need to be set if the alarm tag has not been set) (Section 9.1.3)
8. Select [Faceplate Display Pattern Setting]. (Section 9.1.1)
   Change and display the data setting area.
9. Set the content which is assigned to the status tag (NREV, REV, MVAL1, MVAL2) on the setting screen of the faceplate display pattern. (Section 9.10)
   Click the "Apply" button. (It does not need to be set if the status tag has not been set) (Section 9.1.3)
10. Select [Option Setting]. (Section 9.1.1)
    Change of the data setting area display.
11. Set [Event Notification UDP Port No.] of [Alarm/Event]-[General] on the option setting screen. (Section 9.14)

(1) Continued

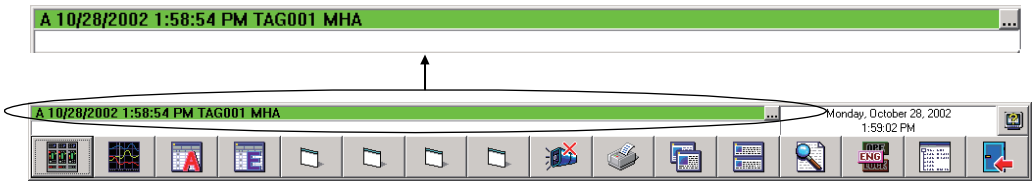
12. [Alarm/Event Display on 2nd Line of Monitor Tool Bar] of [Alarm/Event] - [General] is set to [Event] on the option setting screen.
    Click the "Apply" button. (Section 9.14)
13. Close the setting screen. (Section 9.1.3)

(2) Display Event List

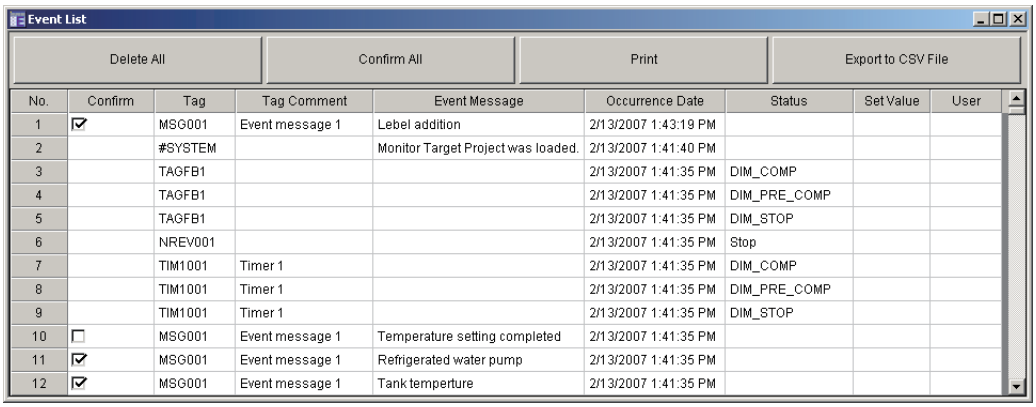
1. to 11. Operating steps are the same as those of (1)
    Click "Apply" button. (Section 9.1.3)
12. Close the setting window.
13. Click the "Event List" button of the monitor tool bar. The event list is displayed. (Section 6.3.2) (Section 7.4)

DISPLAY/SETTING SCREEN

<Alarm/event display area on the monitor tool bar>



<Event list screen>



No.	Confirm	Tag	Tag Comment	Event Message	Occurrence Date	Status	Set Value	User
1	☑	MSG001	Event message 1	Lebel addition	2/13/2007 1:43:19 PM			
2		#SYSTEM		Monitor Target Project was loaded.	2/13/2007 1:41:40 PM			
3		TAGFB1			2/13/2007 1:41:35 PM	DIM_COMP		
4		TAGFB1			2/13/2007 1:41:35 PM	DIM_PRE_COMP		
5		TAGFB1			2/13/2007 1:41:35 PM	DIM_STOP		
6		NREV001			2/13/2007 1:41:35 PM	Stop		
7		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_COMP		
8		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_PRE_COMP		
9		TIM1001	Timer 1		2/13/2007 1:41:35 PM	DIM_STOP		
10	☐	MSG001	Event message 1	Temperature setting completed	2/13/2007 1:41:35 PM			
11	☑	MSG001	Event message 1	Refrigerated water pump	2/13/2007 1:41:35 PM			
12	☑	MSG001	Event message 1	Tank temperture	2/13/2007 1:41:35 PM			

9.15.6 Setting character string displayed on faceplate

Among the character strings displayed on the faceplate, the character string which is assigned to the operation button and indicator is set by the faceplate display pattern setting. The character string which is assigned to the alarm tag and message tag is set by the alarm setting and event setting.
In addition, the character string that can be defined by the monitor tool includes unit, MV characters of MV graph and lockout tag name. The display high/low limit of PV graph can be set by setting the faceplate display scale. The character string (set by the alarm setting, event setting and faceplate display pattern setting) is also displayed on the alarm list screen or event list screen.

Related setting items

Setting items	Reference
Monitor Target Project Setting	Section 9.3
Alarm Setting	Section 9.6
Event Setting	Section 9.7
Unit Setting	Section 9.9
Faceplate Display Pattern Setting	Section 9.10
Faceplate Display Scale Setting	Section 9.11
Faceplate MV Characters Setting	Section 9.12

With regard to the display content of lockout tag which is displayed on the faceplate, please refer to "9.15.7 design lockout tag".
With regard to the graph color setting of the faceplate, please refer to "9.15.9 specified graph color".

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar. (Section 4.5)
   The "Change Mode" screen is displayed.
2. Input the name and password of users with engineer authority to change to Engineer Mode.
3. Click the "Setting Window" button of the monitor tool bar. (Section 6.3.8)
   The setting window is displayed.
4. Select [Monitor Target Project Setting] (Section 9.1.1)
   Change and display the data setting area display.
5. Set the assignment information database file on the screen of the monitor target project. (Section 9.3)
   Click the "Apply" button. (Section 9.1.3)
6. Select the item to be set. (Section 9.1.1)
   Change and display the data setting area. (Section 9.6, 7, 9 to 12)
7. Set the character string that is assigned to the tag on the setting window.
   Click the "Apply" button. (Section 9.1.3)
   (It doesn't need to be set if the corresponding tag hasn't been set on the project)
8. Close the setting window.
   Click the "Find" button of the monitor tool bar and search by tag name. (Section 6.3.6)
   The pop-up faceplate is displayed. (Section 7.6)

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9.15.7 Design lockout tag

The user authority needs to be set for the lockout tag to restrict the operation. The name and color of lockout tag can be set freely.

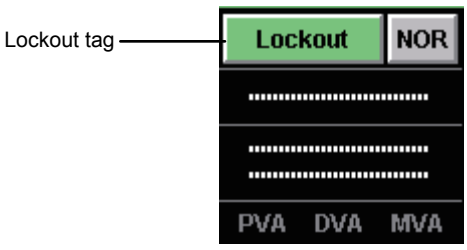
Related setting items

Setting item	Reference
User Setting	Section 9.2
Lockout Tag Setting	Section 9.13

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar. (Section 4.5)
   The change mode screen is displayed.
2. Input the name and password of users with engineer authority to change to Engineer Mode.
3. Click the "Setting Window" button of the monitor tool bar. (Section 6.3.8)
   To setting window is displayed.
4. Select [User Setting]. (Section 9.1.1)
   Change of the data setting area display.
5. Set optionally on the user setting window. (Section 9.2)
   Click the "Apply" button. (Section 9.1.3)
6. Select [Lockout Tag Setting]. (Section 9.1.1)
   Change of the data setting area display.
7. Set optionally on the Lockout Tag setting window. (Section 9.13)
   Click the "Apply" button. (Section 9.1.3)
8. Close the setting window.
9. Click the "Find" button of the monitor tool bar and search by tag name. (Section 6.3.6)
   The pop-up faceplate is displayed.
10. Click the lockout tag display area on the faceplate. (Section 7.4)
    The "Select Lockout Tag" dialog box is displayed. (Section 10.2)
11. Select the lockout tag and click the "OK" button.
    The lockout tag is displayed in the "Lockout Tag Display Area".

DISPLAY/SETTING SCREEN



9.15.8 Specifying a font

The display character font of the setting window and the monitor screen can be changed.

Related setting items

Setting item	Reference
Option Setting (General): Setting Window Font and Monitor Window Font	Section 9.14 (1)

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar to display the change mode screen. (Section 4.5)
2. Input the name and password of users with engineer authority to change to Engineer Mode.
3. Click the "Setting Window" button of the monitor tool bar. The setting window is displayed. (Section 6.3.8)
4. Select [Option Setting]. Change of the data setting area display. (Section 9.1.1)
5. Change [Setting Window Font] and [Monitor Window Font] of [General] optionally on the option setting window. Click the "Apply" button. (Section 9.14)
6. Close the setting window. (Section 9.1.3)

REMARK

- The font can be selected from the font set in PC.
- The size of the font is automatically selected by the screen size. (Except the tag monitor display area of pop-up tuning.)
- The change of the monitor window font is to change the button, tab title and character string of the list. The font of the displayed character string of on the faceplate cannot be changed.

9.15.9 Specifying a display color

The display color of the faceplate, lockout tag, alarm display and trend graph can be changed.

Related setting items

Setting items	Reference
Faceplate Display Pattern Setting	Section 9.10
Lockout Tag Setting: Text Color and Background Color	Section 9.13
Option Setting (General): Minor Alarm Color and Major Alarm Color	Section 9.14 (1)
Option Setting (Faceplate)	Section 9.14 (3)
Option Setting (Trend Graph): Gridline Color, Background Color and Graph 1 to 8 Color	Section 9.14 (4)

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar. (Section 4.5)
   The change mode screen is displayed.
2. Input the name and password of users with engineer authority to change to Engineer Mode.
3. Click the "Setting Window" button of the monitor tool bar. (Section 6.3.8)
   Then setting window is displayed.
4. Select the item to be set. (Section 9.1.1)
   Change the display of data setting area.
5. Select the display color in the color dialog box. (Section 9.1.2)
   Click the "OK" button.
6. Confirm that the color displayed in the cell is the selected color.
   Click the "Apply" button. (Section 9.1.3)
7. Close the setting window.

The items whose color can be set and their initial color settings are listed in the follow table.

Setting items			Initial setting		
			Text	Text color	Background color
Faceplate Display Pattern Setting	NREV	Operation Button	Start	Black	Red
		Stop Button	Stop	Black	Red
		Remote Display	Remote	Black	Green
		Local Display	Local	Black	Green
		Trip Display	Trip	Black	
		Time-out Display	Time-out	Black	
	REV	Forward Run Button	FWD Run	Black	Red
		Stop Button	Stop	Black	Red
		Reverse Run Button	REV Run	Black	Red
		Remote Display	Remote	Black	Green
		Local Display	Local	Black	Green
		Trip Display	Trip	Black	
		Time-out Display	Time-out	Black	

Setting item			Initial setting		
			Text	Text color	Background color
Faceplate display pattern setting (continued)	MVAL1	Open Button	Open	Black	Red
		Close Button	Close	Black	Red
		Semi-open Display	Semiopen	Black	Red
		Remote Display	Remote	Black	Green
		Local Display	Local	Black	Green
		Trip Display	Trip	Black	
		Time-out Display	Time-out	Black	
	MVAL2	Open Button	Open	Black	Red
		Close Button	Close	Black	Red
		Stop Button	Stop	Black	
		Semi-open Display	Semiopen	Black	Red
		Remote Display	Remote	Black	Green
		Local Display	Local	Black	Green
		Trip Display	Trip	Black	
		Time-out Display	Time-out	Black	

Setting item			Initial setting
Lockout Tag setting	Text color		
	Background color		
Option Setting	General	Minor alarm color	Green
		Major alarm color	Red
	Faceplate	Background color	Black
		Text color	White
		Alarm Area Color	Dark-gray
		Button text color	Black
		Button background color	Grey
		PV Bar positive direction color	Green
		PV Bar negative direction color	Grreen
		PV Bar both direction color (Positive)	Grreen
		PV Bar both direction color (Negative)	Grreen
		PV High/ Low Limit Value Bar color	Yellow
		PV High High/Low Low Limit Value Bar Color	Red
		SV/MV Limit Value Bar Color	Dark-green
		SV/MV pointer color	Yellow
		SV (target) pointer color for 2PIDH	Light blue
		MV status color	Light blue
		Frame color	Grey
	Trend Graph	Gridline color	Grey
		Background color	Black
		Graph 1 color	Green
		Graph 2 color	Red
		Graph 3 color	Yellow
		Graph 4 color	Light blue
		Graph 5 color	Blue
		Graph 6 color	Magenta
		Graph 7 color	White
		Graph 8 color	Orange

9.15.10 Specifying a beep sound

In order to beep when alarm or event occurs, it is necessary to set buzzer in option setting. Buzzer type and beep time can be specified.

Related setting items

Setting items	Reference
Option Setting (Alarm/Event)	Section 9.14 (2)

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar to display the mode change. (Section 4.5)
2. Input the name and password of the user with engineer authority to change to Engineer Mode.
3. Click the "Setting Window" button of the monitor tool bar. Then setting window is displayed. (Section 6.3.8)
4. Select [Option Setting]. Change the display of data setting area. (Section 9.1.1)
5. Set the buzzer-related projects as [Alarm/Event] on the option setting window. (Section 9.14)
   Click the "Apply" button. (Section 9.14) (Section 9.1.3)
6. Close the setting window.

The beep sound is set according to Minor alarm/Major alarm/event when alarm occurs. There are two types of beep sound: Beep sound or sound in the sound file.

Setting item		Initial setting value
Minor alarm	Buzzer Type	None
	Beep Sound Time Interval	(10)
	Beep Sound Frequency	(2000)
	Sound File	(No setting)
Major alarm	(The same as that of minor alarm)	
Event	(The same as that of minor alarm)	

When beep sound occurs, [Beep Sound Time Interval] and [Beep Sound Frequency] should be specified. When file sound happens, [Beep Sound Time Interval] and [Sound File] should be specified.

Items to be set (according to the buzzer type)

Setting item	Buzzer types		
	None	Beep	Sound
Beep sound time interval	—	○	○
Beep sound frequency	—	○	—
Sound file	—	—	○

(○: Need to be set, —: Setting not allowed)

REMARK

The beep sound can be stopped by clicking the "Stop Buzzer" button of the monitor tool bar. (refer to Section 8.1)

9.15.11 Changing the transfer setup

The screen that is the same as that of GX Developer will be displayed by selecting [Transfer Setup] of [Monitor Target Project Setting] on the monitor tool bar. In order to change transfer setup of PLC, it should be set on the specified screen of the connected target.
With regard to the basic operation method of transfer setup screen, please refer to GX Developer Operating Manual. But the connection of the monitor tool cannot be the relay station's connection of the network with the different network number. (It can not be connected by blend network of MELSECNET/10(H) and Ethernet which are permitted in GX Developer)

Related setting items

Setting item	Reference
Monitor Target Project Setting	Section 9.3

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar to change the mode to change screen. (Section 4.5)
2. Input the name and password of the user with engineer authority to change to Engineer Mode.
3. Click the "Setting Window" button of the monitor tool bar. The setting window is displayed. (Section 6.3.8)
4. Select [Monitor Target Project Setting] to change the display of data setting area. (Section 9.1.1)
5. Set assignment information database file to the target on monitor target project screen. (Section 9.3)
6. Click [Transfer Setup] on the monitor target project screen to display the transfer setup screen.
7. Select [PC Side I/F], [PLC Side I/F] and [Network route] in turn on the specified screen of the connected target.
8. Click the "Connection Test" button to confirm the normal communication.
9. Click "OK" button to activate transfer setup and close the window.
10. Specify the path and the transfer setup of projects.
    Click the "Apply" button.

When setting the connection of <Ethernet>:

11. Select [Option Setting]. (Section 9.1.3)
    Change of the data setting area display.
12. Confirm that the value of [Alarm/Event]-[General]-[Event Notification UDP Port No.] is in accordance with the [Destination Port Number] value of the destination network parameter setting (set by GX Developer which started from programming tool) on the option setting window. (Section 9.1.1)
    Click the "Apply" button. (Section 9.14)
13. Close the setting window. (Section 9.1.3)

9.15.12 Specifying a printer

When clicking the "Print Screen" button on the monitor tool bar or the "Print" button on the alarm/event list, the output printer will be selected among the printers that have been registered in the printer setting of Personal Computer. The printer can not be set in detail (such as print paper setting) by the monitor tool. It is printed by the setting that is specified by the printer setting of Personal Computer. When specifying the printer without the monitor tool setting, the printer that is set as the "Default printer" will be output.

Related setting items

Setting item	Reference
Option Setting (General): Printer	Section 9.14 (1)

BASIC OPERATION

1. Click the "Change Mode" button on the monitor tool bar to change the change mode screen. (Section 4.5)
2. Input the user name and password with engineer authority to change to the engineer mode.
3. Click the "Setting Window" button on the monitor tool bar. (Section 6.3.8)
   The setting window is displayed.
4. Select [Option Setting] on the menu to change the display of data setting area. (Section 9.1.1)
5. Select [Printer] of [General] on the option setting window. (Section 9.14)
   Select the printer name from the list.
   Click the "Apply" button. (Section 9.1.3)
6. Close the setting window.

9.15.13 Changing the window mode

Window mode is to select multi-screen or maximum display mode of single screen (refer to Section 6.4.2). Set the mode in option setting.

Related setting items

Setting Items	Reference
Option Setting (General): Window Mode	Section 9.14 (1)

BASIC OPERATION

1. Click the "Change Mode" button of the monitor tool bar to display the change mode screen. (Section 4.5)
2. Input the name and password of the user with engineer authority to change to Engineer Mode.
3. Click the "Setting Window" button on the monitor tool bar. Then setting window is displayed. (Section 6.3.8)
4. Select [Option Setting] on the menu to change the display of data setting area. (Section 9.1.1)
5. Set the [Window Mode] of [General] by selecting Multi-window or Single window in option setting screen. (Section 9.14)
   Click the "Apply" button. (Section 9.1.3)
6. Close the setting window.

9.15.14 Using automatic CSV file export

Automatic CSV file export is a function that saves trend, alarm and event data in CSV files automatically as histories.
To use automatic CSV file export, set whether automatic CSV file export will be executed or not for each data (trend, alarm, event).

Related setting items

Setting item	Reference
Trend setting	Section 9.5
Option setting (general)	Section 9.14 (1)
Option setting (alarm/event)	Section 9.14 (2)
Option setting (trend graph)	Section 9.14 (4)

BASIC OPERATION

1. Click the "Change Mode" button on the monitor toolbar. (Section 4.5)
   The Change mode screen is displayed.
2. Enter the user name, who has the engineer authority, and password, to enter the screen the engineer mode.
3. Click the "Setting" button on the monitor toolbar (Section 6.3.8)
   The setting screen is displayed.
4. Set the automatic CSV file export target folder, automatic CSV file deletion (Enable/Disable), automatic CSV file export time (automatic trend CSV file export only) and storage period (only when automatic deletion is made). (Section 9.1.3)
   The setting positions are as follows.
   After setting, click the "Apply" button.

Setting item	Setting position	
Option setting (trend graph)	Automatic trend CSV file export target folder Automatic trend CSV file export time (0 to 23) Automatic trend CSV file deletion Trend CSV file storage period (days)	(Section 9.14 (4))
Option setting (alarm/event)	Automatic alarm CSV file deletion Alarm CSV file storage period (days) Automatic alarm CSV file export target folder	(Section 9.14 (2))
Option setting (alarm/event)	Automatic event CSV file deletion Event CSV file storage period (days) Automatic event CSV file export target folder	(Section 9.14 (2))

5. When automatic CSV file deletion is set to "Enable" in above 4., set the time for automatically deleting CSV files. (Section 9.14 (1))
   In the option setting (general), set the "Automatic CSV file deletion time (0 to 23). (Section 9.1.3)
   Click the "Apply" button.
6. In the option setting (general), set the "Disk free space check size (MB)". (Section 9.14 (1))
   Click the "Apply" button. (Section 9.1.3)

7. Set automatic CSV file export to "Enable".
   The setting positions are as follows. (Section 9.1.3)
   After setting, click the "Apply" button.
   Automatic CSV file export starts.

Setting item	Setting position	
Trend setting	Automatic CSV file export (set for each group)	(Section 9.5)
Option setting (alarm/event)	Automatic alarm CSV file export	(Section 9.14 (2))
Option setting (alarm/event)	Automatic event CSV file export	(Section 9.14 (2))

10 FACEPLATE

The so-called faceplate is the graphic screen displaying tag data content to simulate controller.
When user accesses tag data, execute corresponding process status observation and condition setting. As for the tag types, please refer to Section 10.4.
Tag data value cannot only be displayed but also be changed on the faceplate.

Terms	Contents
Tag	Originally, it indicates certain measurement for process control or JIS definition identifier on hardware; as for the computer control system, it indicates the identifier of various DDC processing.
Tag data	A generic name of the data (process condition data/process status data) from DDC processing indicating tag.
Tag data item	Items for value setting in tag data.

10.1 Faceplate Display

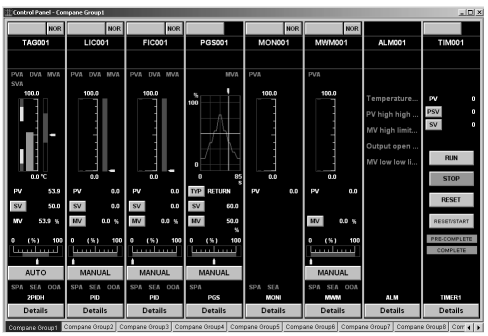
PURPOSE

To display the graphic screen the simulating controller.
To monitor the current PID control status as well as to execute ON/OFF control with the bar graph in each faceplate.

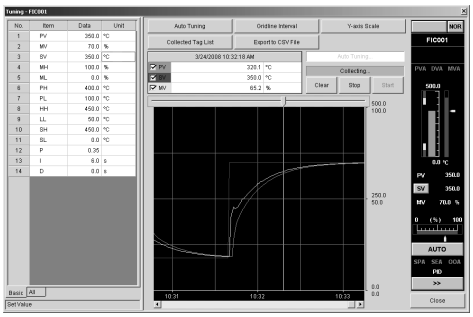
BASIC OPERATION

The faceplate can be displayed in the following monitor screen.
For the details of each screen and its displaying method, Please refer to Section 6.3.2 and Chapter 7.

- Control panel (refer to Section 7.1)
- Pop-up faceplate (refer to Section 7.6)
- Pop-up tuning (refer to Section 7.7)


<Control panel>

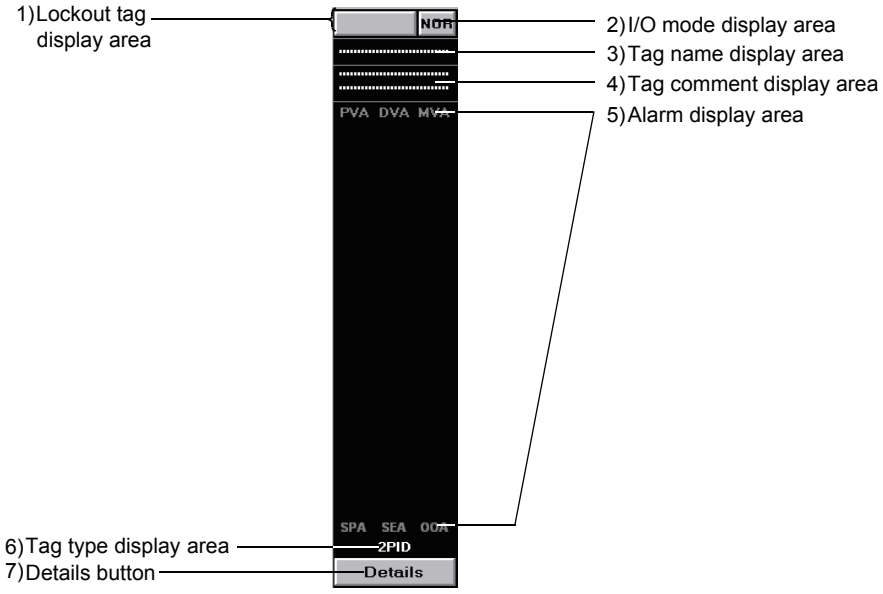

<Pop-up faceplate>


<Pop-up tuning >

10

DISPLAY/SETTING SCREEN

The basic display contents of the faceplate are as follows:



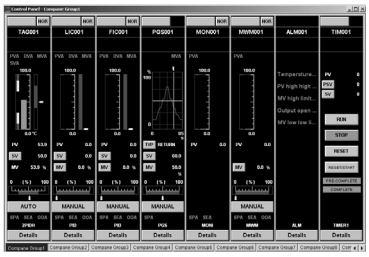
DISPLAY/SETTING DATA

No.	Item	Contents	Text color	Background color	Character No.
1)	Lockout tag name display area	Display Lockout tag name (refer to Section 10.2 for details.)	Without lockout tag: Button text color With tag: Setting color	Without lockout tag: Button background color With lockout tag: Setting color	8 characters
2)	I/O mode display area	Display I/O mode. Click the button to change the I/O mode. (refer to Section 10.3.2 for details.)	NOR: Button text color SIM: White OVR: Black TSTP: Black	NOR: Button background color SIM: Blue OVR: Light blue TSTP: White	3 or 4 characters
3)	Tag name display area	Display tag names. (refer to (1) in this section for details.)	Generally: Text color When tag data cannot be written: Black In setting operation: White	Normal connection: Background color Abnormal communication: Red When tag data cannot be written: Light blue In setting operation: Blue	12 characters
4)	Tag comment display area	Display tag comment in two lines. Set the tag comment in the tag FB declaration window of the programming tool.	Text color	Background color	28 characters
5)	Alarm display area	Display tag alarm (refer to (2) in this section for details)	Without alarm: No alarm color With alarm: Black	No alarm: Background color Minor alarm: Minor alarm color Major alarm: Major alarm color	3 characters
6)	Tag type display area	Display the tag type of the tag.	Text color	Background color	6 characters
7)	Details button	Click the "Details" button to display the pop-up tuning screen. (refer to Section 7.7 for details.)	Button text color	Button background color	Details/<</>>

Employ the ellipsis ".." at the end of a long character string in the tag name display area or tag comment display area.

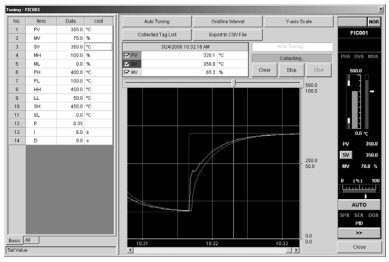
POINT

Click the button at the bottom of the faceplate to change the display faceplate window as the following picture.

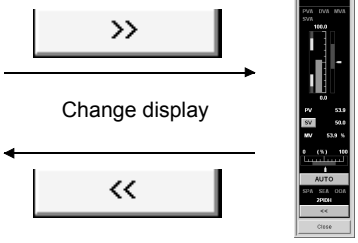


<Control panel>

Open new pop-up tuning screen



<Pop-up tuning>



<Pop-up faceplate>

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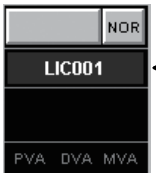
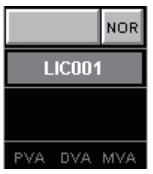
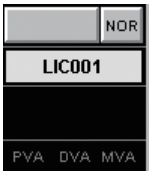
(1) Display data of tag name display area

Status	Description
Faceplate operation	 When the SV/MV setting dialog box, etc. is opened from the faceplate, the background color turns blue.
When tag data cannot be read/written	 When the tag data cannot be read/written, the background color turns red. The tag data cannot be read/written in the following cases. • A communication error has occurred. • "Incorrect PLC type" error has occurred. In either of the above cases, the displayed value will not be updated. In the case of redundant system, the status is relevant to the Redundant CPU that has been selected in the "Transfer Setup" dialog box.
When tag data cannot be written	 When tag data cannot be written, the background color turns light blue. The tag data cannot be read/written in the following cases. • The project ID code inconsistent error has occurred, and "Write tag data (even if the PC's and PLC's project ID codes are different)" has been set as "Enable" in the Option setting (General). • The redundant system A/B Identification error has occurred. • The redundant Control/Standby system status error has occurred. As the data can be read from the PLC CPU, the displayed value will be updated. In the case of redundant system, the status is relevant to the Redundant CPU that has been selected in the "Transfer Setup" dialog box.

POINT

When tag data cannot be read/written, check the following points.
- Connection status of the communication cable.
- PLC connection target in the monitor target project setting (refer to Section 9.3).
- In the alarm list (refer to Section 7.3), double-click the corresponding alarm item to display the system alarm details dialog box.
  Confirm the displayed error definition and take corrective action.

When tag data cannot be written (refer to Appendix 1.7), observe the following instructions.
- Reload the monitor target instructions.
- When PLC download has not been performed after execution of compile with the programming tool, perform PLC download and then reload the monitor target project with the monitor tool.

(2) The displayed contents of the alarm display are as follows:

(a) PVA, DVA, MVA display area

Tag type	Character displayed *1	Contents	
Loop tag	PVA	PV-related	Positive/negative variation rate Input high high/high/low/low low limit over
	DVA	DV-related	Large deviation
	MVA	MV-related	Output variation rate limit Output high/low limit
	SVA	SV-related	SV variation rate limit SV high/low limit
Status tag	AL1	Time-out-related	Time-out over
	AL2	Trip-related	Current and overloaded trip over
Other tags	(Nothing displayed)		

*1: The alarm that has not occurred in the corresponding tag type is not displayed.

(b) SPA, SEA, OOA display area

Tag type	Displayed characters	Description
Loop tag	SPA	Stop alarm When SPA turns ON, the "SPA" part changes to a button. Clicking this button resets SPA. However, SPA cannot be reset in the lock mode. Reset SPA in the engineer mode or operator mode.
	SEA	Sensor error Turns ON when the sensor is abnormal.
	OOA	Output open alarm Turns ON when the output disconnection is detected in the user program.
Other tag	(No indication)	

SPA status	Operation display type *2	Indication
ON	PB-C	SPA
OFF	PL	SPA

*2: Refer to Section 10.3.1 for details.

For tag types, refer to Section 10.4

10.2 Lockout Tag

PURPOSE

Limit the tag data operation on the faceplate by the authority-specified lockout tag.

BASIC OPERATION

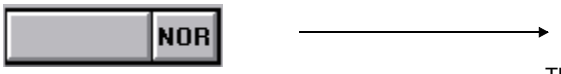
(Setting Lockout tag)

1. Click the lockout tag display area of the faceplate without lockout tag.
2. Display the "Select Lockout Tag" dialog box.
3. Choose the lockout tag in the "Select Lockout Tag" dialog box then click "OK" button.
4. Display the confirmation dialog box. Lockout tag set on the faceplate.

(Removing lockout tag)

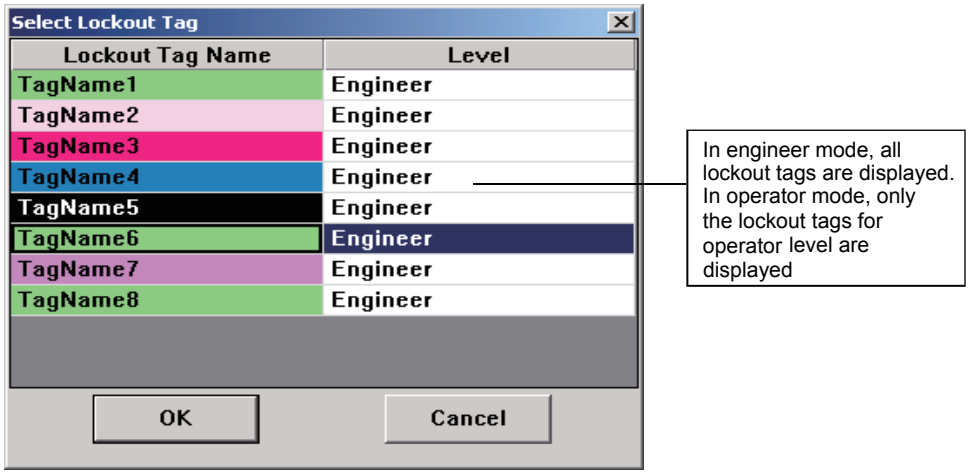
1. Click the lockout tag display area of the faceplate with lockout tag.
2. If the set tag can be removed within the authority of current mode, a dialog box for confirmation of removing the tag is displayed and the Lockout Tag can be removed.
3. If the lockout tag cannot be removed within the authority of current mode, the Corresponding message is displayed: The tag cannot be removed. Execute again after changing mode (refer to Section 4.5)

DISPLAY/SETTING SCREEN



Lockout tag display area

The display color of the frame is the same with the background color of lockout tags display area.



<Select Lockout Tag dialog box>

The lockout tag list available in current mode is displayed Select Lockout Tag dialog box. In the lockout tag list display the tags set according to " Section 9.13.Lockout Tag Setting". The corresponding lockout tag classes available in the mode are as follows:

Current mode	Available lockout tag level
Engineer Mode	Operator, engineer
Operator Mode	Operator
Lock Mode	Lockout tag operation cannot be executed

10.3 Displaying Parts on Faceplate

Display parts simulated to display lamp and push button according to the display tag data contents on the faceplate.

10.3.1 Operation display types

The following list shows the parts names and abbreviations displayed on the faceplate:

Name		Abbreviation	Contents
Push Button	Push button	PB	Display the general push buttons
	Push button with confirmation	PB-C	Display the confirmed message before execution
	Button with display	PB-L	Flick display in 1 second interval in execution
	Push button with confirmation and display	PB-LC	Displaying the confirmed information before execution Flick display every 1 second in execution
	I/O mode display button	PB-SIM	Display change I/O Mode dialog box
	Control mode display button	PB-MODE	Display change Control Mode dialog box
	Motion type setting button	PB-TYPE	Display change Motion Type dialog button box
	PV value setting button	PB-PV	Display PV value setting dialog box
	SV value setting button	PB-SV	Display SV value setting dialog box
	MV value setting button	PB-MV	Display MV value setting dialog box
	Count value setting button	PB-CNT	Display count value setting dialog box
	Executing step No. setting button	PB-STC	Displays the executing step No. setting dialog box
	Time in the step setting button	PB-T	Displays the time in the step setting dialog box
Value display		NUM	Display value data with character and decimal point
Character display		STR	Display ASCII character string
Bar display		BAR	Display the value in bar pattern
Pointer display		IND	Display the current value on the bar With the pointer
Pattern graph display		PGS	Display SV and MV pattern by graph
		PGS2	Displays the SV output values of the time set in advance for each step as graphs
Status, alarm display		PL	Display at the time of status change and alarm occurrence

The faceplate display consists of the above parts.
The common display composition of the faceplate is introduced through the usage samples of the components in following content. In every illustration, the operation display types are stated in abbreviation.

Items	Components mainly used	Reference
I/O mode change	I/O mode display button	Section 10.3.2
Control mode change	Control mode display button	Section 10.3.3
Motion type change	Motion type setting button	Section 10.3.4
Executing step No. setting	Executing step No. setting button	Section 10.3.5
Time in the step setting	Time in the step setting button	Section 10.3.6
PV value setting	PV value setting button and bar display	Section 10.3.7
SV value setting	SV value setting button, bar display and pointer display	Section 10.3.8
MV value setting	MV value setting button, bar display and pointer display	Section 10.3.9
Count value setting	Count value setting button	Section 10.3.10
Batch Count operation	Button with confirmation and display	Section 10.3.11
Count/timer operation	Button with confirmation and display	Section 10.3.12
Status operation	Button with confirmation and display and status/alarm display	Section 10.3.13

REMARK

The background color of the displayed button changes with the change of the status of the equipment.
Before operation, the button color is its background color. After operation, the set color and button background color flicks (with the interval of 1 second).
During the flicking time, the flick status will not be kept when redisplayed owing to page change. If time-out or trip alarm occurs, flicking will stop.

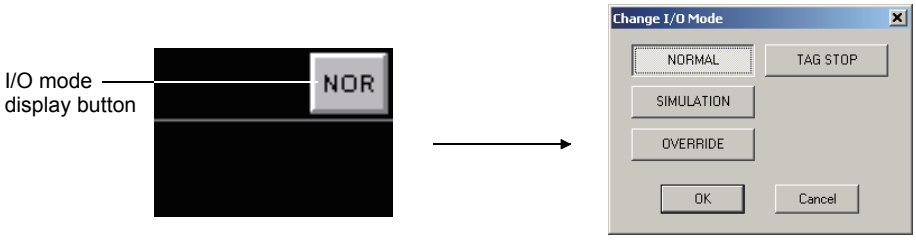
10.3.2 Changing the I/O mode

PURPOSE

To change the connection status of the sequence I/O module during the operation.
I/O mode can be classified as follows:

I/O mode	Abbreviation	Content
NORMAL	NOR	Mode for input/output module connection normal status.
SIMULATION	SIM	Mode for input/output module disconnection and executing simulation operation.
OVERRIDE	OVR	An operation mode only to cut off the signal from input module and hold output when sensor fails. PV value can be input from the screen configuration
TAG STOP	TSTP	Mode for not performing the processing regarding a tag. Stops input processing and loop control operation. Set to the predefined tags and the currently stopped tags for future use. Unnecessary alarm is not occurred as all the alarms to tags are recovered.

DISPLAY/SETTING SCREEN



<Change I/O Mode dialog box >

DISPLAY/SETTING DATA

Item	Operation display type	Contents	Displayed text color	Background color
I/O mode display button	PB-SIM	Display current I/O mode. Click button to display the change I/O mode dialog box for changing I/O mode.	NOR: Button text color SIM: White OVR: Black	NOR: Button background color SIM: Blue OVR: Light blue

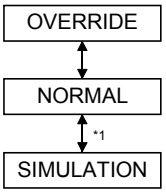
POINT

- For tags without I/O mode (When the tag type PGS, MOUT, SEL, BC, PSUM, TIMER1, TIMER2, COUNT1 and COUNT2) the I/O mode display button will not be displayed (button display area is covered by the background color).

The selectable I/O modes depend on the tag types.
In addition, some switches from one mode into another are limited because of the tag types. As for the tag types, please refer to Section 10.4.

(1) Loop tag (PID, PIDP, SPI, IPD, BPI, R, 2PID) and status tag (NREV, REV, MVAL1, MVAL2).

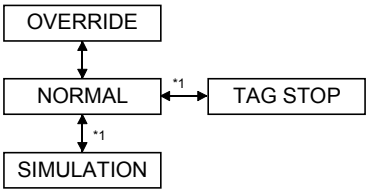
The following shows mode transition is possible.



*1: Can be switched only when the user authority (refer to Section 4.3) is engineer mode.

(2) Loop tag (2PIDH)

The following shows mode transition is possible.



*1: Can be switched only when the user authority (refer to Section 4.3) is engineer mode.

(3) Loop tag (ONF2, ONF3, MONI, MWM)

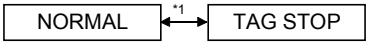
NORMAL and OVERRIDE modes can be set.

(4) Loop tag (PGS, MOUT, SEL, BC, PSUM) and status tag (TIMER1, TIMER2, COUNT1, COUNT2)

I/0 mode display button is not inhibited. (A NORMAL mode always)

(5) Loop tag (PGS2)

The following mode transition is possible.



*1: Can be switched only when the user authority (refer to Section 4.3) is an engineer mode.

POINT

- PV value can be changed when the I/O mode is OVERRIDE.
- I/O mode can be changed only when the control mode (refer to Section 10.3.3) is MANUAL.
  Note that when the tag type is 2PIDH, switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL.
- If MDIH (Disable mode change) setting is executed by memory item (refer to Section 10.5) of tag data, the disable mode cannot be selected.

REMARK

If the improper value is set on DOM of the memory item for the tag data (refer to Section10.5), the button displayed will be blank. At this time, I/O mode should be set again by "Change I/O Mode" dialog box. (The improper value will not be set on DOM, if the user takes the normal operation with the monitor tool.)

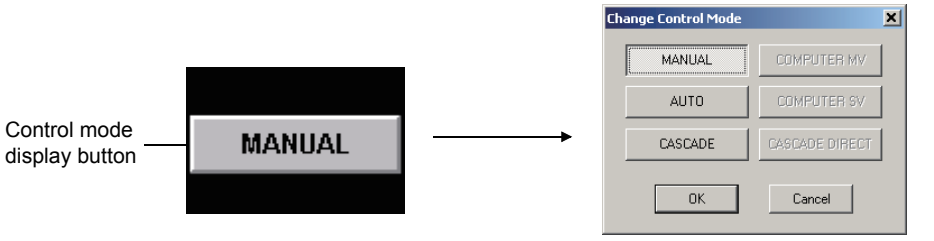
10.3.3 Changing the Control mode

PURPOSE

Switch SV and MV value control method for PID control.
The types of control mode (Operation mode) are as follows.

Control mode	Abbreviation	Contents
MANUAL	MAN	The mode performs manual operation. Output MV set value.
AUTO	AUT	The mode performs auto operation. Control MV value based on SV set value.
CASCADE	CAS	The mode performs cascade operation. Perform control by using output value (MV) of upper loop as set value (SV).
COMPUTER MV	CMV	The mode performs manual operation from upper computer. Output MV set value from upper computer.
COMPUTER SV	CSV	The mode performs automatic operation from upper computer. Based on SV set value Control MV value from upper computer.
CASCADE DIRECT	CASDR	Directly outputs the output value of primary loop as the output value of secondary loop in cascade connection.

DISPLAY/SETTING SCREEN



< Change Control Mode dialog box >

DISPLAY/SETTING DATA

Item	Operation display type	Contents	Display text color	Background color
Control mode display button	PB-MODE	Display current control mode. Click button to display "Change Control Mode" dialog box thus control mode can be changed	Button text color	Button background Color

POINT

- Control mode can't be displayed when control mode doesn't exist (when tag type is MONI, BC, PSUM, TIMER1, TIMER2, COUNT1 or COUNT2).
- MIDH (disable mode change) setting is made to COMPUTER MV and COMPUTER SV in initial setting by memory item (refer to Section 10.5) of tag data.

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Following table indicates whether mode is enabled/disabled for SV and MV operation.

Mode	Operation from faceplate		Operation from upper computer	
	SV operation*1	MV operation*2	SV operation	MV operation
MANUAL	Enable	Enable	Disable	Disable
AUTO	Enable	Disable	Disable	Disable
CASCADE	Disable	Disable	Disable	Disable
COMPUTER MV	Disable	Disable	Enable	Enable
COMPUTER SV	Disable	Disable	Enable	Disable
CASCADE DIRECT	Disable	Disable	Disable	Disable

*1: Indicates the operations of executing step number (STC) and time in the step (T) for PGS2 when the tag type is PGS2.

*2: Indicates the operation of PGS2 setting value (SV) when the tag type is PGS2.

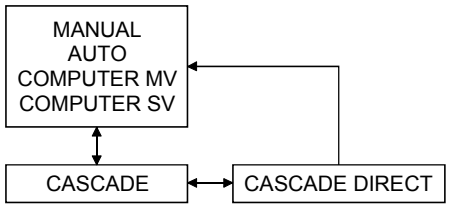
Control modes are different according to different tag types.
Besides, mode switching is restricted according to tag types. Please refer to Section 10.4 for information about tag type

(1) Loop tag (PID, PIDP, SPI, IPD, BPI,R, ONF2, ONF3, SEL, 2 PID and PGS)

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

(2) Loop tag (2PIDH)

All modes can be set.
Switching to CASCADE DIRECT mode is only possible from CASCADE mode.
No restrictions regarding other modes.



(3) Loop tag (MOUT and MWM)

MANUAL and COMPUTER MV modes can be set for them.

(4) Loop tag (PGS2) and Status tag (NREV, REV, MVAL1 and MVAL2)

MANUAL and AUTO modes can be set for them.

(5) Loop tag (MONI, BC and PSUM) and status tag (TIMER1, TIMER2, COUNT1 and COUNT2)

Control mode display button is not displayed.

POINT

- If the I/O mode (refer to Section 10.3.2) is either OVERRIDE or TAG STOP, the control mode cannot be switched from MANUAL.
- If MDIH (Disable mode change) setting is executed by memory item (refer to Section10.5) of tag data, the disable mode cannot be selected.

REMARK

If the improper value is set on MODE of the memory item for the tag data (refer to Section10.5), the button displayed will be blank. At this time, control mode should be set again by "Change Control Mode" dialog box. (The improper value will not be set on MODE, if the user takes the normal operation with the monitor tool.)

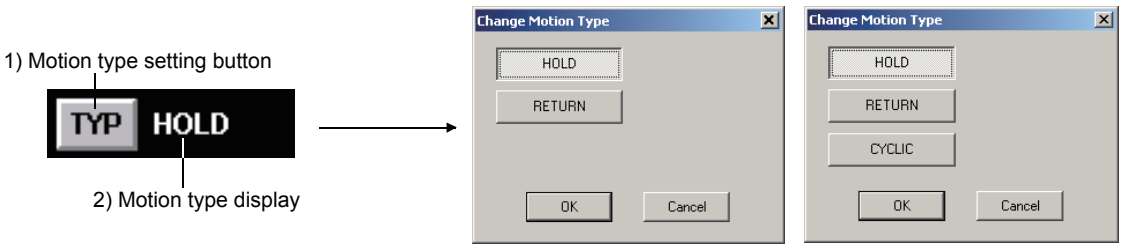
10.3.4 Changing the PGS motion type

PURPOSE

Display and set motion type by loop tag (PGS, PGS2).
The motion types are as follows:

Motion type	Tag type	Contents
HOLD	PGS	After processing SV1 to SVn, the SVn and MVn values are held by SV and MV respectively and the program is stopped.
	PGS2	After processing T1 to Tn, the SVn value is held by SV and the program is stopped.
RETURN	PGS	After processing SV1 to SVn, the SV value is set to 0 and MVn value is held by MV and the program is stopped.
	PGS2	After processing T1 to Tn, the STC and Tvalues are set to 0 and SVn value is held by SV and the program is stopped.
CYCLIC	PGS	Repeats the processing from SV1 to SVn.
	PGS2	Repeats the processing from T1 to Tn.

DISPLAY/SETTING SCREEN



PGS PGS2

<Change Motion Type dialog box>

DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display color	Background color
1)	Motion type setting button	PB-TYPE	Click the button to display "Change Motion Type" dialog box	Valid: Button text color Invalid: White	Valid: Button background color Invalid: Black
2)	Motion type display *1	STR	Display motion type	White	Black

*1: Left blank if the motion type is invalid.

The relationship between control mode (refer to Section 10.3.3) and motion type is as following table.

(1) PGS

Control mode	Motion type setting button	Motion type display	Motion status
MAN	Enabled	HOLD/RETURN	Stop the motion by SV and MV value.
AUT	Enabled	HOLD/RETURN	Operate the selection motion type.
CAS	Disabled	CYCLIC	Operate by CYCLIC motion type.
CMV	Enabled	HOLD/RETURN	Stop the motion by current SV and MV value.
CSV	Disabled	CYCLIC	Operate by CYCLIC motion.

POINT

- When it stops in HOLD/RETURN mode, change the control mode (refer to Section 10.3.3) to MANUAL mode.
- When the control mode (refer to Section 10.3.3) is set as CAS/CSV mode, operate by CYCLIC type no matter what motion type is selected in the "Change Motion Type" dialog box.

(2) PGS2

Control mode	Motion type setting button	Motion type display	Motion status
MAN	Enabled	HOLD/RETURN/CYCLIC	Operates with the current SV value.
AUT	Enabled	HOLD/RETURN/CYCLIC	Operates with the selected motion type.

POINT

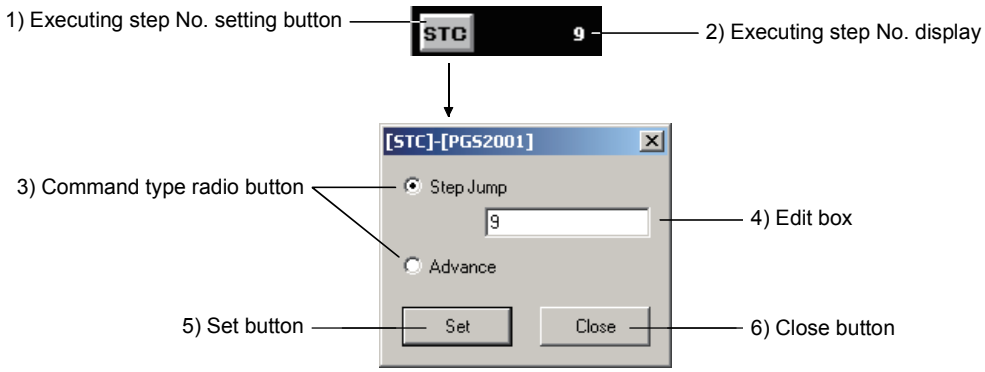
When the motion is stopped at HOLD/RETURN mode, the control mode (refer to Section 10.3.3) is switched to MANUAL mode.

10.3.5 Executing step No. setting

PURPOSE

Displays/sets an executing step No. with loop tag (PGS2).

DISPLAY/SETTING SCREEN



<Executing step No. setting dialog box>

DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	Executing step No. setting button	PB-STC	Displays the executing step No. setting dialog box.	Button text color	Button background color
2)	Executing step No. display	NUM	Displays the executing step No.	White	Black
3)	Command type radio button		Select the command type.	(Follows the display color setting of the dialog box.)	
4)	Edit box		Enables to enter a jump destination step No. when step jump is selected.		
5)	Set button		Step jump is selected: Sets the value in the edit box to the executing step No. (Can be set within the range of 0 to 32). Advance is selected: Turns ON the advance command bit only when the control mode is AUTO.		
6)	Close button		Closes the dialog box.		

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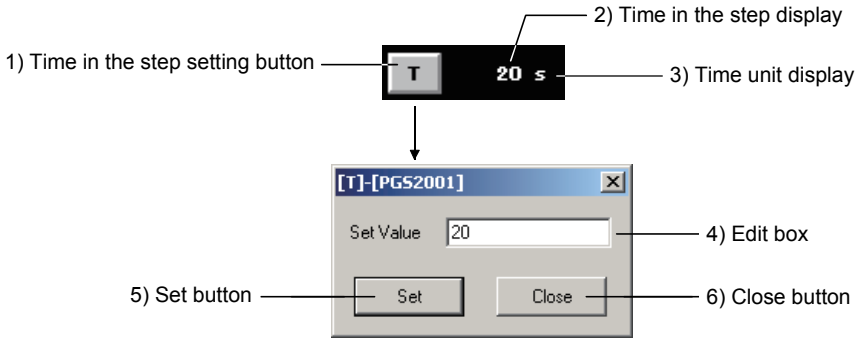
10.3.6 Time in the step setting

PURPOSE

Displays/sets the time in the step with loop tag (PGS2).

DISPLAY/SETTING SCREEN



<Time in the step setting dialog box>

DISPLAY/SETTING DATA

No.	Item	Operation display type	Description	Display color	Background color
1)	Time in the step setting button	PB-T	Displays the Time in the step setting dialog box.	Button text color	Button background color
2)	Time in the step display	NUM	Displays the time in the step.	White	Black
3)	Time unit display	STR	Displays the unit of the time in the step ("s" or "min").	White	Black
4)	Edit box		Enter the time in the step.	(Follows the display color setting of the dialog box.)	
5)	Set button		Sets the time in the step.		
6)	Close button		Closes the dialog box.		

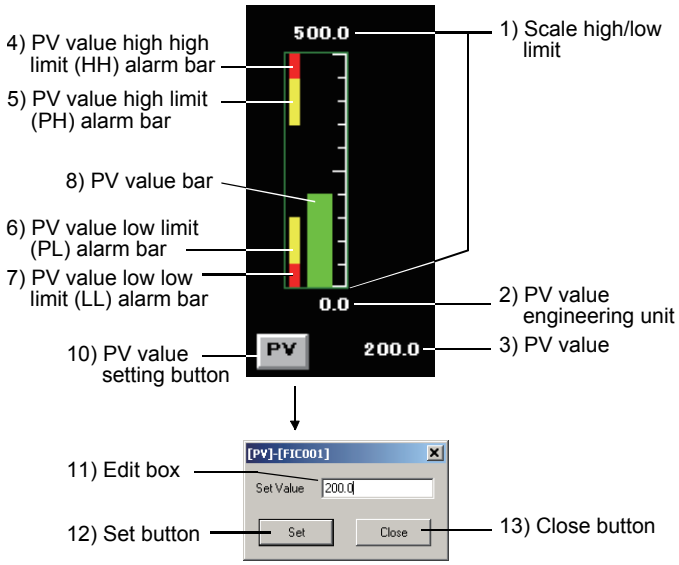
10.3.7 Displaying PV value

PURPOSE

Display and set PV value with high high/high/low/low low limit by bar graph.

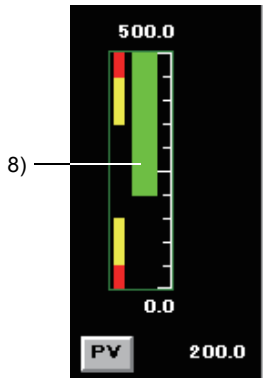
DISPLAY/SETTING SCREEN

(1) When the PV value bar is displayed in the positive direction

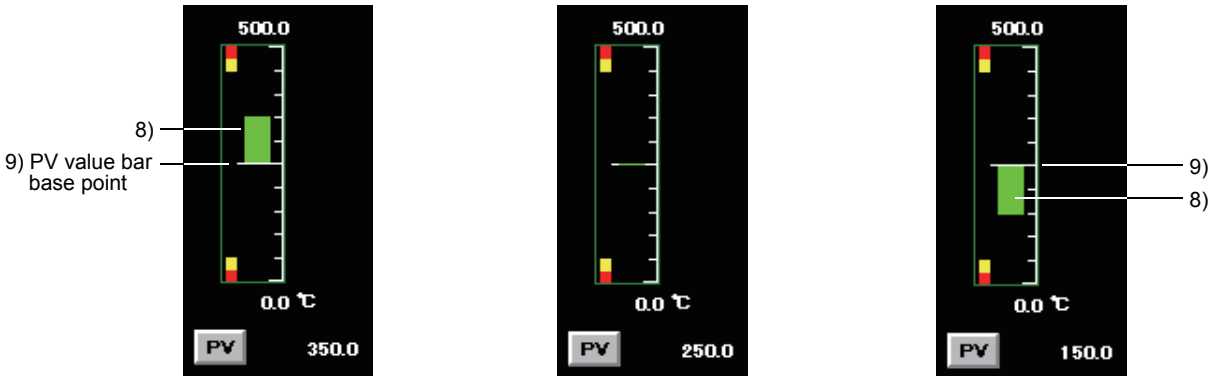


< PV value setting dialog box>

(2) When the PV value bar is displayed in the negative direction



(3) When the PV value bar is displayed both positive and negative direction from the base point



When the PV value bar is greater than the base point

When the PV value bar is equal to the base point

When the PV value bar is less than the base point

When the PV value is equal to the value of "Base Point when Both Direction is set" (refer to Section 9.11), PV value bar is overlapped over the PV value bar base point and is displayed.

DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display color	Background color	
1)	Scale high/low limit	NUM	Display scale high/low limit.	Text color	High limit	PV ≦ RH: Background color PV>RH: PV high high/low low Limit value bar color
					Low limit	PV ≧ RL: Background color PV<RL: PV high high/low low Limit value bar color
2)	PV value engineering unit	STR	Display engineering unit of PV value. (8 characters)	Text color	Background color	
3)	PV value	NUM	Display the PV value. (A total number of 8 bits including symbols and decimal point)	White	Black	
4)	PV value high high limit (HH) alarm bar	BAR	Display PV value high high limit (HH) alarm range by bar.	PV high high/low low limit value bar color	Black	
5)	PV value high limit (PH) alarm bar	BAR	Display PV value high limit (PH) alarm range by bar.	PV high/low limit value bar color	Black	
6)	PV value low limit (PL) alarm bar	BAR	Display PV value low limit (PL) alarm range by bar.	PV high/low limit value bar color	Black	
7)	PV value low low limit (LL) alarm bar	BAR	Display PV value low/low limit (LL) alarm range by bar.	PV high high/low low limit value bar color	Black	
8)	PV value bar	BAR	Display the PV value as a bar. The PV value bar can be displayed in the positive direction, negative direction or both direction. The input high high, high, low and low low limit alarms occur according to the alarm bit status.	<Normal> ● When the display direction is the positive direction, the display color is the PV value bar positive direction color. ● When the display direction is the negative direction, the display color is the PV bar negative direction color. ● When the display direction is both directions, the display color is the PV bar both direction color (positive) if the PV value is equal to or greater than the PV bar base point. The display color is the PV bar both direction color (negative) if the PV value is less than the PV bar base point. < When input high high limit/low low limit alarm occurs > PV high high/low low limit value bar color < When input high low limit alarm occurs > PV value high limit value/low limit value bar color	Black	
9)	PV value bar base point	BAR	When the PV value bar is displayed in both directions, the base point of the PV value is displayed.	White	Background color	
10)	PV value setting button	PB-PV	Click the button to display the PV value setting dialog box. Changes to the button display when the I/O mode is OVERRIDE.	Valid: Button text color Invalid: Text color	Valid: Button background color Invalid: Background color	

No.	Item	Operation display type	Contents	Display color	Background color
11)	Edit box		Key in the set PV value directly. Click "Enter" key or set button, Input value is displayed in device.	Change with the display color set of dialog box.	
12)	Set button		Set PV value of edit box.		
13)	Close button		Close dialog box.		

The display color can be set in the faceplate of option setting (refer to Section 9.14 (3)).

10.3.8 SV value setting

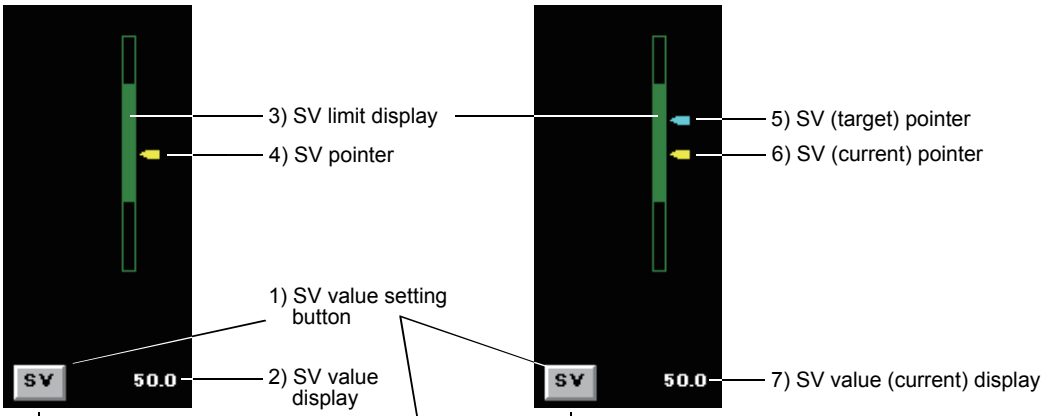
PURPOSE

Display and set SV value.

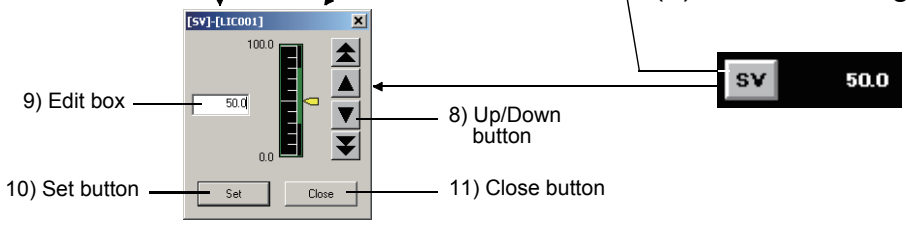
DISPLAY/SETTING SCREEN

(1) When the tag type is other than 2PIDH, PGS2

(2) When the tag type is 2PIDH



(3) When the tag is PGS2



< SV value setting dialog box>

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DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display color	Background color
1)	SV value setting button	PB-SV	Click the button to display SV value setting dialog box When the tag type is 2PIDH, SV value (target) can be set.	Valid: Button text color Invalid: Text color	Valid: Button background color Invalid: Background color
2)	SV value display	NUM	Display and set SV value display a string of 8 bits including characters and decimal point	White	Black
3)	SV limit display	BAR	Display the limit of SV value	SV/MV limit value bar color	Black
4)	SV pointer	IND	Indicate the position of SV value in display bar	SV/MV pointer color	Background color
5)	SV (target) pointer	IND	Indicate the position of SV value (target) in display bar	SV (target) pointer color for 2PIDH	Background color
6)	SV (current) pointer	IND	Indicate the position of SV value (current) in display bar	SV/MV pointer color	Background color
7)	SV value (current) display	NUM	Display the SV value (current)	White	Black
8)	Up/Down button		Click the button; SV value is changed in a fixed amount each time	Change with the display color set of dialog box.	
9)	Edit box		Key in the set SV value directly. Click "Enter" key or set button, Input value is displayed in device		
10)	Set button		Set SV value of edit box		
11)	Close button		Close dialog box		

The display color can be set in the [Faceplate] of option setting (refer to Section 9.14 (3)).
SV value is changed when the up/down button is released. Operations in clicking the up/down button are as follows.

	Low speed Up/Down button	Increase/decrease SV value by using the lowest unit.
	High speed Up/Down button	Increase/decrease SV value by using the bigger value between 10 times of minimum value and 1% of display scale.

POINT

When setting the SV Limit Excess Setting (refer to Section 9.14) of the Option setting (faceplate) to "Valid", the SV value can be set exceeding the SV limit value.

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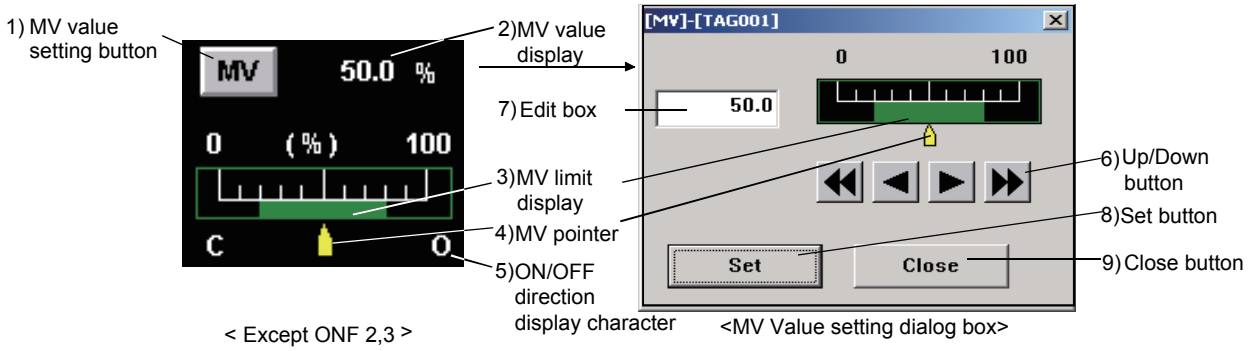
10.3.9 MV value setting

PURPOSE

Display and set the value of MV.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Items	Operation display type	Contents	Display color	Background color
1)	MV value setting button	PB-MV	Click the button, display MV value setting dialog box.	Valid: Button text color Invalid: Text color	Valid: Button background color Invalid: Background color
2)	MV value display	NUM	Display and set MV value. (Display a string of 5 bits at most including symbols and decimal point)	White	Black
3)	MV limit display	BAR	Display the limit of MV value	SV/MV limit value bar color	Black
4)	MV pointer	IND	Indicate the position of SV value background in display bar.	SV/MV pointer color	Background color
5)	ON/OFF direction display character	STR	Display the MV character (refer to Section 9.12)	Text color	Background color
6)	Up/Down button		Click the to change SV value in a constant amount.	(Change with the display color setting of dialog box.)	
7)	Edit box		Key in the set MV value directly Click "Enter" key or set button Input value is displayed in device.		
8)	Set button		Set MV value within edit box		
9)	Close button		Close dialog box.		

The display color can be set in the [Faceplate] of option setting (refer to Section 9.14 (3)).
SV value is changed when the up/down button is released. Operations in clicking the up/down button are as follows.

◀ ▶	Low speed Up/Down button	Increase/decrease MV value by using minimum value.
◀◀ ▶▶	High speed Up/Down button	Increase/decrease MV value by using 10 times of minimum value.

MV can only be set as two values (100%, 0%) or three values (100%, 50%, 0%) when loop tags are ONF2 and ONF3, so MV value setting button is designed as a button with display. The value is set as a constant value; other values can't be set in setting dialog box.

DISPLAY/SETTING SCREEN

DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display color	Background color
1)	MV value setting button	PB-CL	Click MV button to change MV value to the value within ( ). For the ONF2 tag, a setting of 0% or 100% is available. MV<50% : 0% switch lights up. MV ≧ 50%: 100% switch lights up. For the ONF3 tag, a setting of 0%, 50% or 100% is available. MV<25% : 0% switch lights up. 25% ≦ MV<75% : 50% switch lights up. MV ≧ 75% : 100% switch lights up.	Button text color	Lit: green Not lit: Button background color
2)	MV value display	NUM	Display and set MV value, The displayed characters shall be no more than 5 bits including symbols and decimal points.	White	Black

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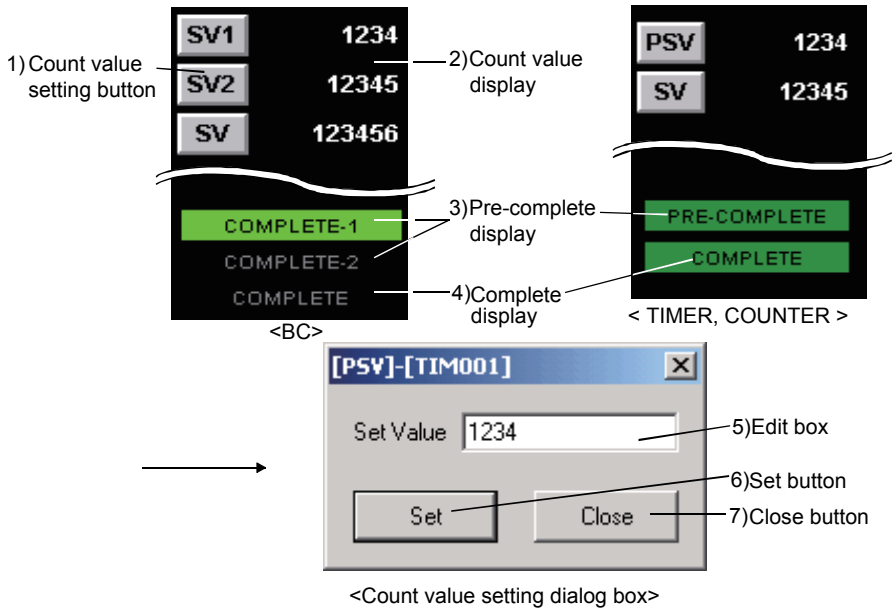
10.3.10 Count value setting

PURPOSE

Display and set the count value by using loop tag (BC) and status tag (TIMER1, TIMER2, COUNT1 and COUNT2).

DISPLAY/SETTING SCREEN



<Count value setting dialog box>

DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display color	Background color
1)	Count value setting button	PB-CNT	Click the button to, display count value setting dialog box.	Button text color	Button background color
2)	Count value display	NUM	Graph a count up value with 8 bits.	White	Black
3)	Pre-complete display	PL	Graph color is changed when count reaches SV1, 2 or PSV value.	Pre-complete: Black Others: Alarm area color	Pre-complete: Green Others: Background color
4)	Complete display	PL	Display color is changed when count up reaches SV value.	Complete: Black Others: Alarm area color	Complete: Green Others: Background color
5)	Edit box		Key in the set SV value directly. Click "Enter" key or set button Input value is displayed in device.	(Change with the graph color setting dialog box.)	
6)	Set button		Set count value of edit box.		
7)	Close button		Close dialog box.		

The graph color can be set in [Faceplate] of option setting (refer to Section 9.14 (3)).

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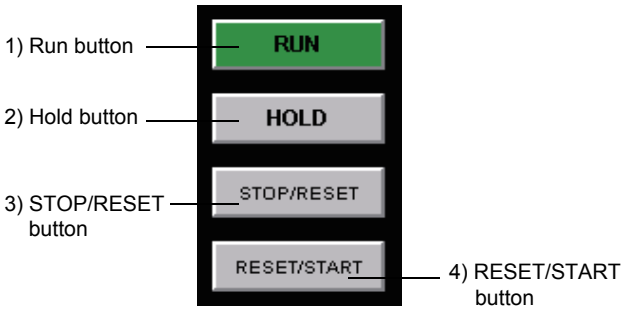
10.3.11 Batch count operation

PURPOSE

Start/Stop count and reset value by using loop tag (BC, PSUM)

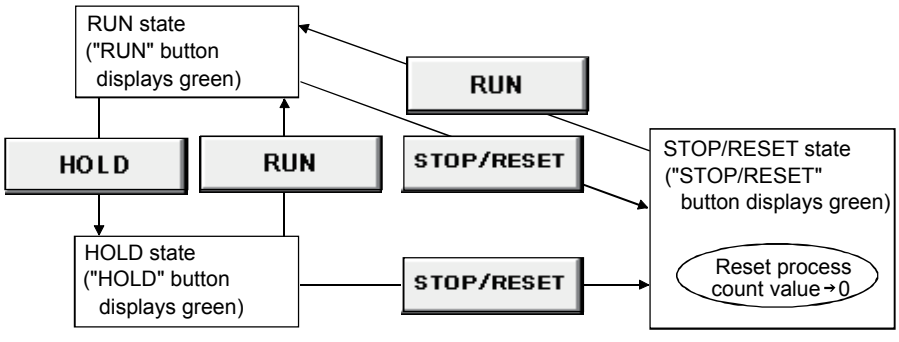
DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No	Item	Operation display type	Contents	Display text color	Background color
1)	RUN button	PB-CL	Start the operation	Button text color	Valid: Green Invalid: Button background color
2)	HOLD button	PB-CL	Hold the value and stop operation	Button text color	Valid: Green Invalid: Button background color
3)	STOP/RESET button	PB-CL	Stop operation and, reset value	Button text color	Valid: Green Invalid: Button Background color
4)	RESET/START button	PB-C	Start operation after resetting value	Button text color	Button Background color

The display color can be set in the [Faceplate] of option setting (refer to Section 9.14 (3)).
State transition by clicking button is shown as follows:

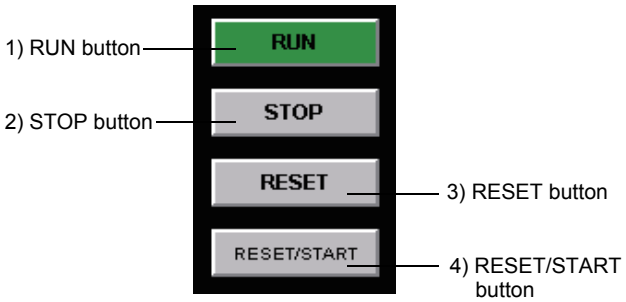


10.3.12 Count/Timer operation

PURPOSE

Start/Stop counter/Timer and reset value by using status tag (TIMER1, TIMER2, COUNT1 and COUNT2).

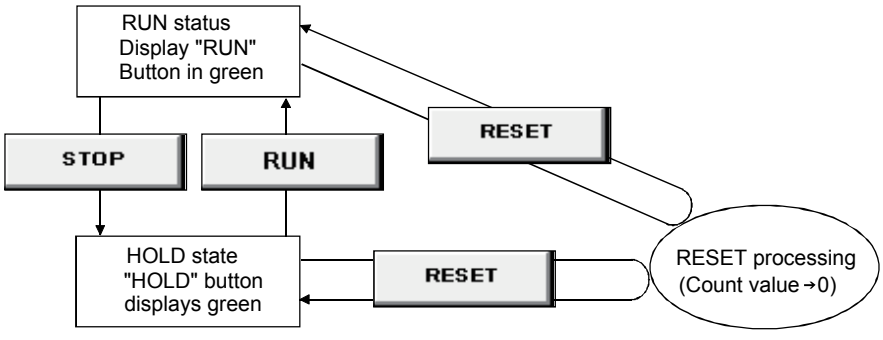
DISPLAY/SETTING SCREEN

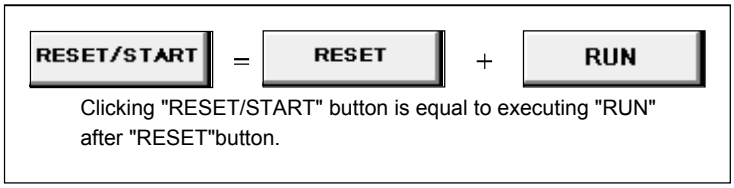


DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display text color	Background color
1)	RUN button	PB-CL	Start operation	Button text color	Valid: Green Invalid: Button background color
2)	STOP button	PB-CL	Stop operation	Button text color	Valid: Green Invalid: Button background color
3)	RESET button	PB-C	Reset value	Button text color	Button background color
4)	RESET/START button	PB-C	Start operation after resetting value	Button text color	Button background color

The display color can be set in the [Faceplate] of option setting (refer to Section 9.14 (3))
State transition by clicking button is shown as follows:





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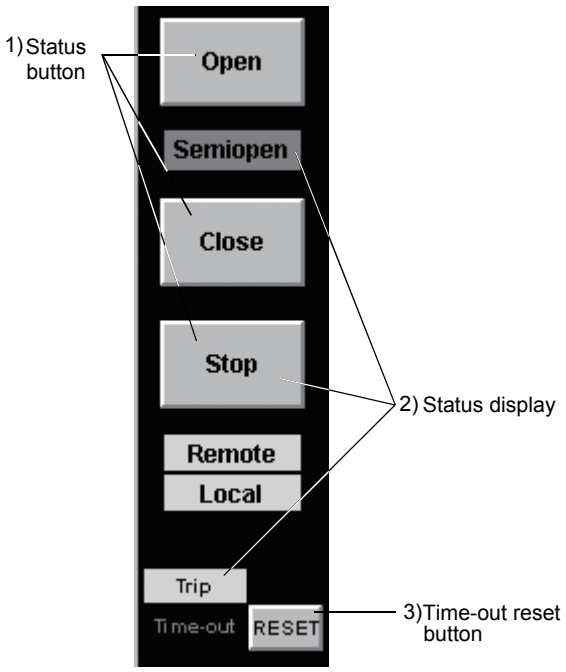
10.3.13 Status operation

PURPOSE

Display the control status of device operation by status tag (NREV, REV, MVAL1 and MVAL2).

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display color	Background color	Character number
1)	Status button	PB-LC	Change the status of device. Display the change of color between status of set. (Open/Close/Start/FWD Run/ REV Run)	Valid: Set color Invalid: Button text color	Valid: Set color Invalid: Button background color	8 characters
		PB-C	Change device status. Display color does not change (MVAL2 STOP)	Button text color	Button background color	8 characters
2)	Status display	PL	Display device status (Semiopen/Remote/Local)	Valid: Set color Invalid: Background color	Valid: Set color Invalid: Background color	8 characters
		PL	Display abnormal status of device. (Trip/Time-out)	Occurring: Black Recovered: No alarm color	Occurring: Alarm color Recovered: Background color	8 characters
3)	Time-out reset button	PB-C	Reset the time-out status	Button text color	Button background color	

The display color (set color) and displayed string of status button and status display can be set by faceplate display pattern setting (refer to Section 9.10). Alarm color can be set by [General](refer to Section 9.14 (1)) in option setting. No alarm color, button text color and button background color can be set by [Faceplate] (refer to Section 9.14 (3)) in option setting

10.4 Tag Types

The types of tag that can be displayed in a faceplate are listed in the following table. As for the contents displayed in the faceplate of each tag, please refer to the sections in "Reference".

Class	Tag type	Name	Reference
Loop tag	PID	PID control	Section 10.5.1
	2PID	2-degree-of-freedom PID control	Section 10.5.1
	2PIDH	2-degree-of-freedom Advanced PID control	Section 10.5.2
	PIDP	Position type PID control	Section 10.5.1
	SPI	Sample PI control	Section 10.5.1
	IPD	I-PD control	Section 10.5.1
	BPI	Blend PI control	Section 10.5.1
	R	Ratio control	Section 10.5.1
	ONF2	2-position ON/OFF control	Section 10.5.3
	ONF3	3-position ON/OFF control	Section 10.5.3
	PGS	Program setting device	Section 10.5.4
	PGS2	Multi-point program setter	Section 10.5.5
	MOUT	Manual output	Section 10.5.6
	MONI	Monitor	Section 10.5.7
	MWM	Manual output with monitor	Section 10.5.8
	SEL	Loop selector	Section 10.5.9
	BC	Batch counter	Section 10.5.10
	PSUM	Pulse integrator	Section 10.5.10
Status tag	NREV	Motor Irreversible Control	Section 10.6.1
	REV	Motor reversible Control	Section 10.6.1
	MVAL1	ON/OFF control 1(without intermediate value)	Section 10.6.1
	MVAL2	ON/OFF control 2(with intermediate value)	Section 10.6.1
	TIMER1	Timer1 (Timer stops when COMPLETE flag is ON)	Section 10.6.2
	TIMER2	Timer2 (Timer continues when COMPLETE flag is ON)	Section 10.6.2
	COUNT1	Count1 (Counter stops when COMPLETE flag is ON)	Section 10.6.2
	COUNT2	Count2 (Counter continues when COMPLETE flag is ON)	Section 10.6.2
Alarm tag	ALM	Alarm	Section 10.7.1
Message tag	MSG	Message	Section 10.8.1

*1: Tag function code No. (Value stored at the head of tag data)

These items in the following table are the example items of "Section 10.3. Display Parts on Faceplate" displayed in the faceplate of each tag type. As for the display contents and operations of the corresponding item in the following explanations of each faceplate display, please refer to sections in "Reference".

Part			I/O Mode	Control mode	Motion type	STC setting	Time in the step setting	PV value setting	SV value setting	MV value setting	Count setting	BC opera-tion	C/T opera-tion	STATUS opera-tion
Reference section			10.3.2	10.3.3	10.3.4	10.3.5	10.3.6	10.3.7	10.3.8	10.3.9	10.3.10	10.3.11	10.3.12	10.3.13
Tag type	Loop	PID	○	○	—	—	—	○	○	○	—	—	—	—
		2PID	○	○	—	—	—	○	○	○	—	—	—	—
		2PIDH	○	○	—	—	—	○	○	○	—	—	—	—
		PIDP	○	○	—	—	—	○	○	○	—	—	—	—
		SPI	○	○	—	—	—	○	○	○	—	—	—	—
		IPD	○	○	—	—	—	○	○	○	—	—	—	—
		BPI	○	○	—	—	—	○	○	○	—	—	—	—
		R	○	○	—	—	—	○	(○)	○	—	—	—	—
		ONF2	○	○	—	—	—	○	○	(○)	—	—	—	—
		ONF3	○	○	—	—	—	○	○	(○)	—	—	—	—
		PGS	—	○	○	—	—	—	○	○	—	—	—	—
		PGS2	○	○	○	○	○	(○)	○	—	—	—	—	—
		MOUT	—	○	—	—	—	—	—	○	—	—	—	—
		MONI	○	—	—	—	—	○	—	—	—	—	—	—
		MWM	○	○	—	—	—	○	—	○	—	—	—	—
		SEL	—	○	—	—	—	(○)	—	○	—	—	—	—
		BC	—	—	—	—	—	(○)	—	—	○	○	—	—
		PSUM	—	—	—	—	—	(○)	—	—	—	○	—	—
	Status	NREV	○	○	—	—	—	—	—	—	—	—	—	○
		REV	○	○	—	—	—	—	—	—	—	—	—	○
		MVAL1	○	○	—	—	—	—	—	—	—	—	—	○
		MVAL2	○	○	—	—	—	—	—	—	—	—	—	○
		TIMER1	—	—	—	—	—	(○)	—	—	○	—	○	—
		TIMER2	—	—	—	—	—	(○)	—	—	○	—	○	—
		COUNT1	—	—	—	—	—	(○)	—	—	○	—	○	—
		COUNT2	—	—	—	—	—	(○)	—	—	○	—	○	—
	Alarm	ALM	—	—	—	—	—	—	—	—	—	—	—	—
	Mess-age	MSG	—	—	—	—	—	—	—	—	—	—	—	—

○: Display corresponding to faceplate, (○): Only display a part of common pattern, —: No display

REMARK

- In SV value of R, bar is display by ratio to PV value.
- In MV value setting of ONF2 and ONF3, bar is not displayed and the MV value setting button can only be set as 2 position (0%, 100%) or 3 position (0%, 50%, 100%)
- In SV value setting of PGS, bar is not displayed, display SV pointer on the pattern graph (refer to Section 10.3.1)

10.5 Loop Tag Faceplate

Loop tag is a tag used for loop control processing.
The types in the loop tag and reference section are as followings.

Tag type	Reference
PID, PIDP, SPI, IPD, BPI, R, 2PID	Section 10.5.1
2PIDH	Section 10.5.2
ONF2, ONF3	Section 10.5.3
PGS	Section 10.5.4
PGS2	Section 10.5.5
MOUT	Section 10.5.6
MONI	Section 10.5.7
MWM	Section 10.5.8
SEL	Section 10.5.9
BC, PSUM	Section 10.5.10

The memory configurations of tag data generally used in loop tag are as followings.
About the detailed information of each tag data, please refer to PX Developer Programming Manual.

Offset	Tag data item		Contents	Reference
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	—
+ 1	MODE	Control mode	Valid/invalid of each selection item of control mode	Section 10.3.3
+ 2	MDIH	Disable Mode Change	Valid/invalid of each selection item of I/O mode control mode and auto tuning	Section 10.3.2 Section 10.3.3 Section 7.7.5
+ 3	ALM	Alarm	The occur/recovery status of each alarm	Section 7.3
+ 4	INH	Disable Alarm Detection	The valid/invalid of each alarm	Section 7.3
+ 5	ALML	Alarm level	The level of each alarm (major/minor alarm)	Section 7.3
+ 6	CTNO	Lockout tag No.	0: no lockout tag, 1 to 32: lockout tag No in display (System area *1)	Section 9.13
+ 7	CTFN	Lockout tag function	The authority of using lockout tag (system area *1)	Section 10.2
+ 8	UNIT	Unit	Industrial unit No. (0 to 127)	Section 9.9
+ 9	N	No. of digits after decimal point	Display bits after decimal point (0 to 4)	—
+ 10 to 93	(The contents are different according to different tag types)			
+ 94	DOM	Monitor output butter	The information downloaded from personal computer to CPU module such as valid/invalid setting in each selection item of I/O mode. (System area *1)	Section 10.3.2
+ 95	DIM	Monitor input butter	Occurrence/recovered status of error read from CPU module to PC (system area *1)	Section 7.4.1

*1: Please do not perform writing by user in system area.

POINT

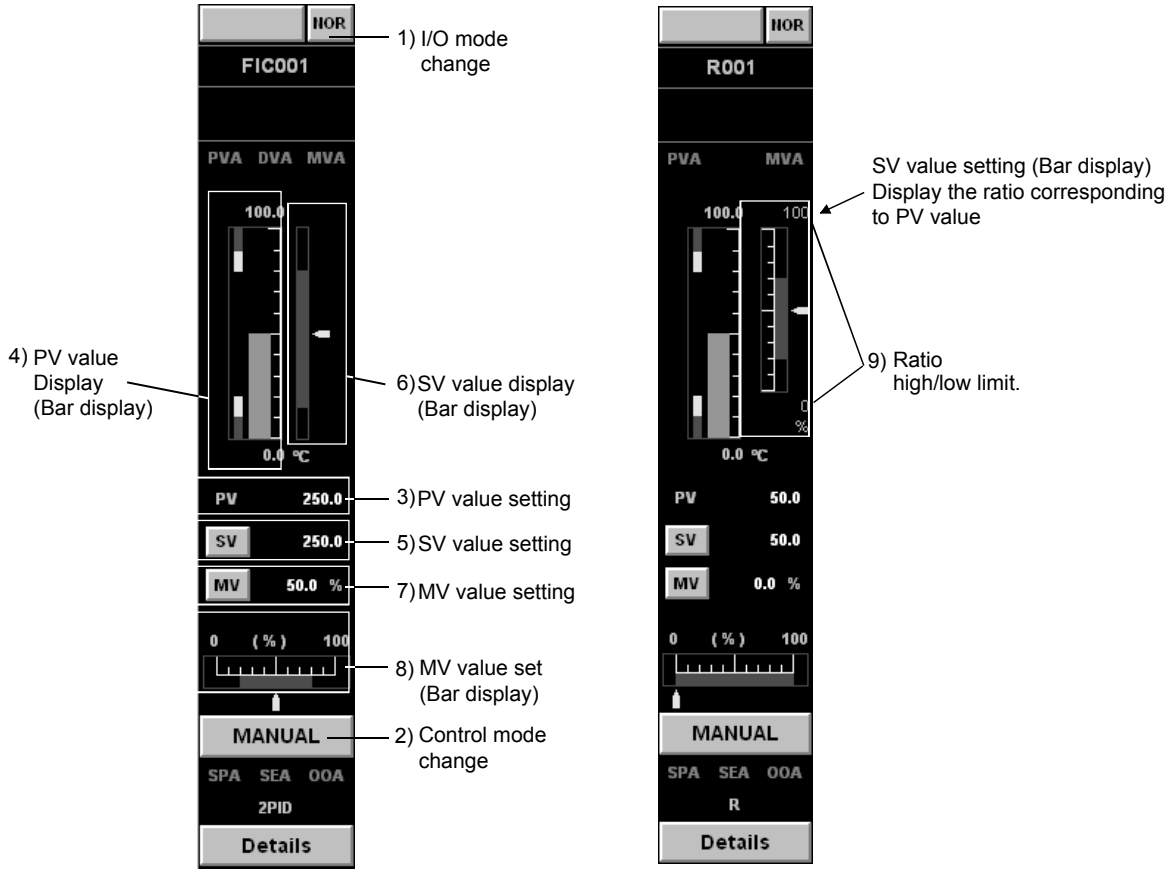
- In setting MDIH (disable mode change), the disabled mode on the faceplate which displays tag data (or auto tuning function) cannot be selected.
- In setting INH (disable alarm detection), the disabled alarm for tag data won't occur.
- If tag types are PID, 2PID, 2PIDH, set contents related to tuning function in DOM/DIM (Monitor Input/Output Buffer).
- If tag types are BC, PSUM, set contents related to batch counter operation in DOM/DIM (Monitor Input/Output Buffer).

10.5.1 PID, PIDP, SPI, IPD, BPI, R, 2PID

PURPOSE

Perform display and operation of PV, SV, MV values of loop tag in the faceplate of basic PID control, position type PID control, sample PI control, I-PD control (IPD), blend PI control (BPI), 2-degree-of-freedom PID control (2PID).
Set SV value using ratio (%) to PV value in the faceplate of ratio control.

DISPLAY/SETTING SCREEN



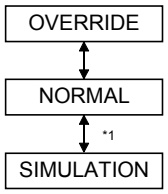
<In PID,PIDP,SPI,IPD,BPI,2PID>　　< R >

DISPLAY/SETTING DATA

No.	Items	Contents	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6)	SV value setting	Display and set SV value.	Section 10.3.8
7) 8)	MV value setting	Display and set MV value.	Section 10.3.9
9)	Ratio high/low limit	Display ratio high/low limit (RMIN, RMAX) of SV value. (Operation display type: NUM)	

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (refer to Section 4.3) is engineer mode.

(2) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.
Enabling/disabling SV, MV operations in different modes are as follow.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

- PV value can be changed when the I/O mode (refer to Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (refer to Section 10.3.3) is MANUAL.
- If the I/O mode (refer to Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (refer to Section 10.5) of tag data, disabled mode cannot be selected.

10.5.2 2PIDH

PURPOSE

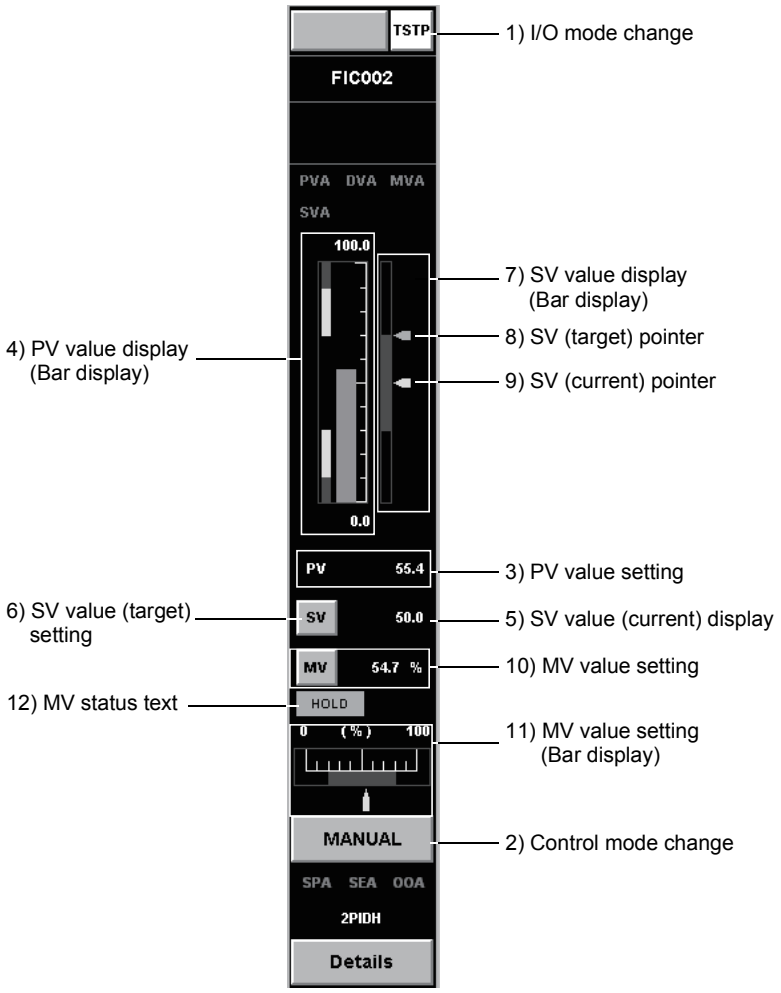
PV, SV and MV values of loop tag are displayed and operated in the faceplate of 2-degree-of-freedom Advanced PID control (2PIDH).
To avoid the sudden change of MV value in SV value change, SV value can gradually be changed in 2-degree-of-freedom Advanced PID control. *1
Therefore, the following two values are displayed in the faceplate.

- SV value (target): SV value set by an user in SV value change
- SV value (current): SV value gradually changes from the value before the change to SV value (target)

Moreover, the processing status of MV output is displayed in a MV status.

*1: Set the SV value (current) variation in the SV variation rate high limit value (DSVL) of tag item.
If the SV variation rate high limit value is 100% (initial setting status), the SV value (current) will become the same value with the SV value (target) and the SV value (current) cannot gradually be changed.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

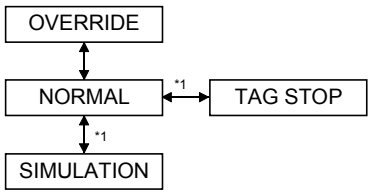
No.	Items	Contents	Reference
1)	I/O mode change	Display and set I/O mode.	Section 10.3.2
2)	Control mode change	Display and set control mode.	Section 10.3.3
3) 4)	PV value setting	Display and set PV value.	Section 10.3.7
5) 6) 7) 8) 9)	SV value setting	Display and set SV value (target) and SV value (current).	Section 10.3.8
10) 11)	MV value setting	Display and set MV value.	Section 10.3.9
12)	MV status text	Display processing status for MV output.	(Following table)

The following shows the display contents of MV status.
MV status is stored in an input monitor buffer (DIM) of tag data.

Display items		Display string	Character color	Background color
Preset MV output processing	Stopped	Nothing displayed	Background color	Background color
	Executing	"PRESET"	Black	MV status color
MV hold processing	Stopped	Nothing displayed	Background color	Background color
	Executing	"HOLD"	Black	MV status color
MV tracking processing	Stopped	Nothing displayed	Background color	Background color
	Executing	"TRK"	Black	MV status color

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (refer to Section 4.3) is engineer mode.

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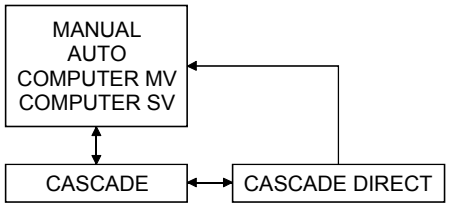
(2) Selectable control mode

All modes can be set.
Switching to CASCADE DIRECT mode is only possible from CASCADE mode.
No restrictions regarding other modes.



Following table indicates whether mode is enabled/disabled for SV and MV operation.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, CASCADE DIRECT, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

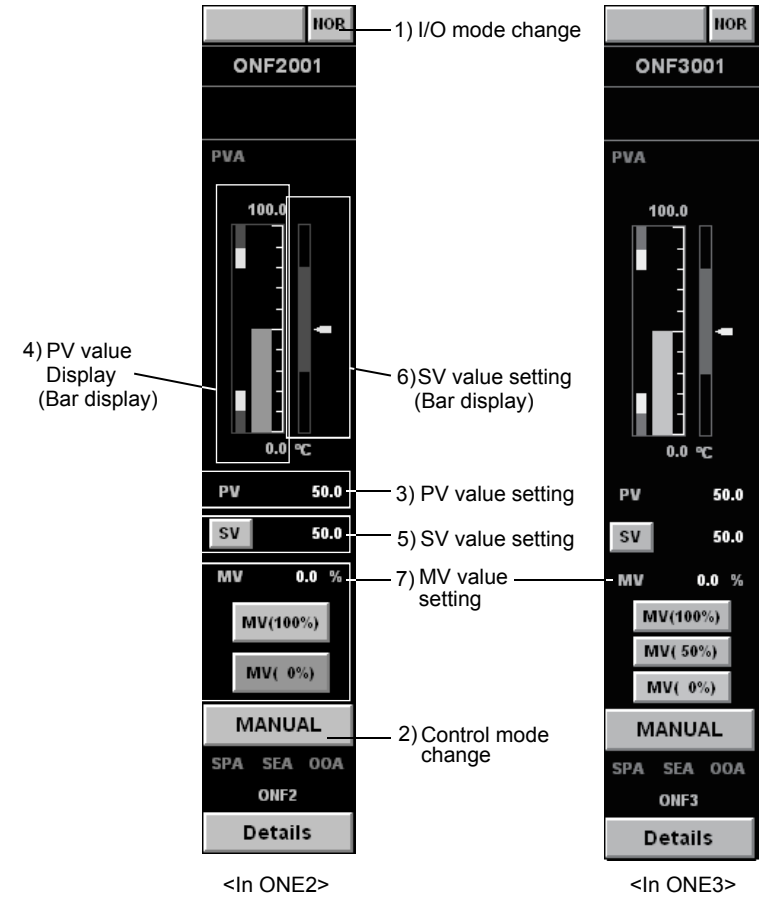
- PV value can be changed when the I/O mode is OVERRIDE.
- I/O mode can be changed only when the control mode (refer to Section 10.3.3) is MANUAL.
  Note that when the tag type is 2PIDH, switching the mode from NORMAL to TAG STOP is possible even if the control mode is not MANUAL.
- If the I/O mode (refer to Section 10.3.2) is either OVERRIDE or TAG STOP, the control mode cannot be switched from MANUAL.
- If MDIH (Disable mode change) setting is executed by memory item (refer to Section10.5) of tag data, the disable mode cannot be selected.

10.5.3 ONF2, ONF3

PURPOSE

To set loop tag, perform display and operation of PV, SV, MV values in the faceplate of 2-position ON/OFF control (ONF2) and 3-position ON/OFF control (ONF3).
MV value is set in two positions of 0%, 100%, (or three positions of 0%, 50%, 100%)

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Items	Contents	Reference
1)	I/O mode change	Display and set I/O mode	Section 10.3.2
2)	Control mode change	Display and set control mode	Section 10.3.3
3) 4)	PV value setting	Display and set PV value	Section 10.3.7
5) 6)	SV value setting	Display and set SV value	Section 10.3.8
7)	MV value setting	Display and set MV value	Section 10.3.9

(1) Selectable I/O mode

It is possible set NORMAL and OVERRIDE mode.

(2) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enable/Disable SV, MV operations in different modes are shown as follows.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

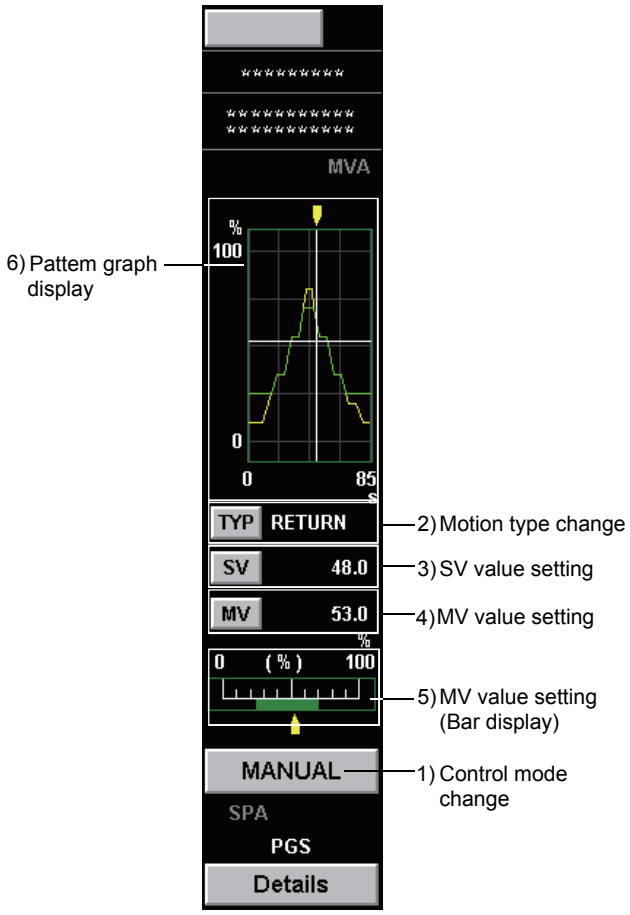
- PV value can be changed when the I/O mode (refer to Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (refer to Section 10.3.3) is MANUAL.
- If the I/O mode (refer to Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable mode change) is performed in the memory item (refer to Section 10.5) of tag data, disabled mode cannot be selected.

10.5.4 PGS

PURPOSE

To set loop tag, display the pattern of MV corresponding to SV (elapsed time) using graph in the faceplate of program setting device (PGS), set motion type.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Items	Contents	Reference
1)	Control mode changes	Display and set control mode	Section 10.3.3
2)	Motion type switch	Display and set motion type	Section 10.3.4
3)	SV value setting	Display and set SV value	Section 10.3.8
4) 5)	MV value setting	Display and set MV value	Section 10.3.9
6)	Pattern graph display	Display the pattern of MV corresponding to SV using graph (Operation display type: PGS)	Display the same contents as 2) of section 7.7.1

(1) Selectable control mode

It is possible to set all modes, no restrictions for mode change.
Enabling/disabling SV, MV operations in different modes are as the following table.

Mode	SV operation	MV operation
MANUAL	Enable	Enable
AUTO	Enable	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable	Disable

POINT

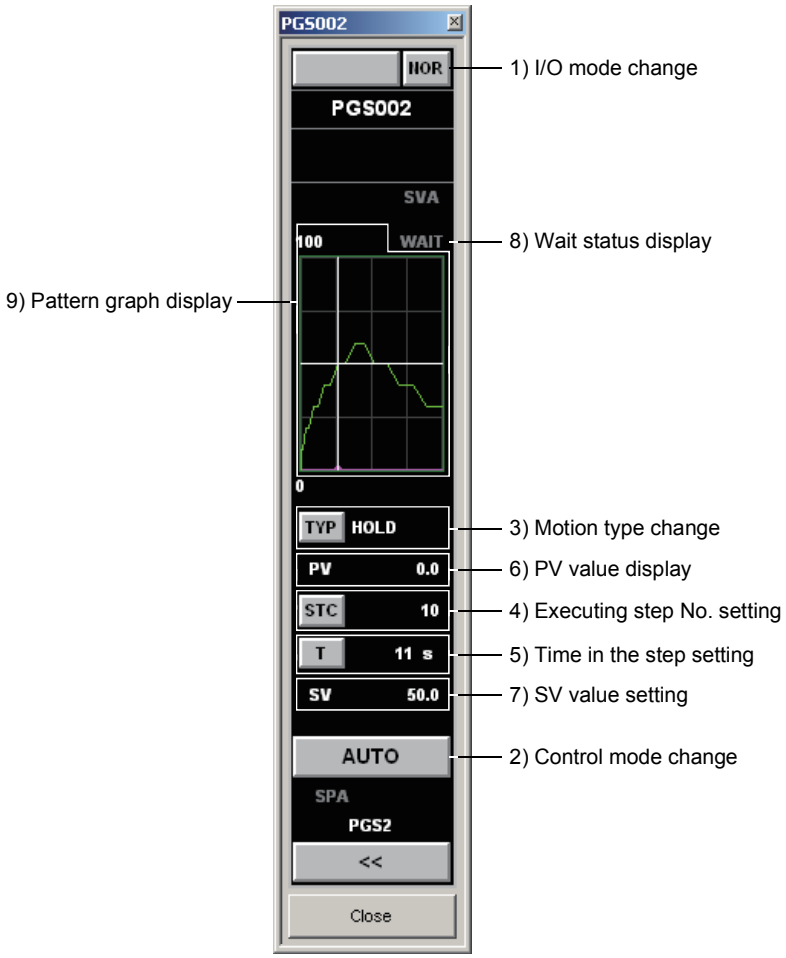
If the setting of MDIH (disable mode change) is performed in the memory item (refer to Section 10.5) of tag data, disabled mode cannot be selected.

10.5.5 PGS2

PURPOSE

Displays the setting values to the predetermined time in every step on a graph in the faceplate for Multi-point program setter (PGS2) of the loop tag.

DISPLAY/SETTING SCREEN



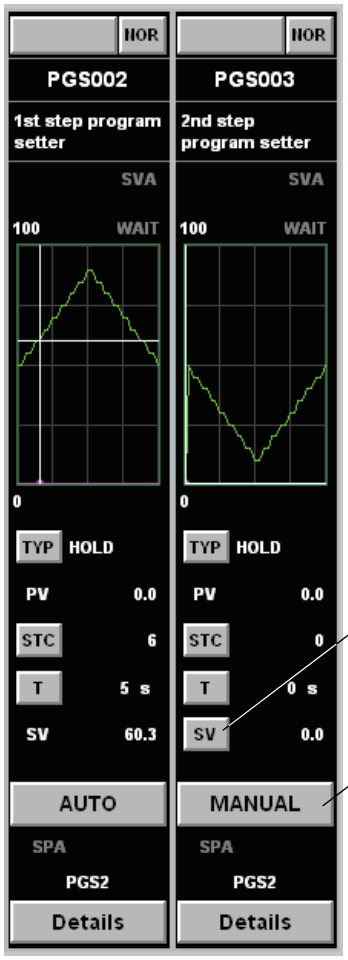
DISPLAY/SETTING DATA

No.	Item	Description	Reference
1)	I/O mode change	Displays/sets the I/O mode.	Section 10.3.2
2)	Control mode change	Displays/sets the control mode.	Section 10.3.3
3)	Motion type change	Displays/sets the motion type.	Section 10.3.4
4)	Executing step No. setting	Displays/sets the executing step No.	Section 10.3.5
5)	Time in the step setting	Displays/sets the time in the step.	Section 10.3.6
6)	PV value display	Displays the PV value.	Section 10.3.7
7)	SV value setting	Displays/sets the SV value.	Section 10.3.8
8)	Wait status display	Displays the current wait status.	The next page
9)	Pattern graph display	Displays the setting values to the predetermined time in every step on a graph. (Operation display type: PGS2)	The display contents are the same as the one shown in Section 7.7.1 (3).

The display during wait status is as follows.
The wait status is stored at input monitor buffer (DIM) in the tag data.

Status	Displayed character string	Displayed character string color	Background color
Normal	"WAIT"	No alarm color	Background color
During WAIT	"WAIT"	Black	Green

Multi-point program setter FB (PGS2) enables to set the optional points exceeding 32 to the program by connecting two or more FBs in multi-link.
For program examples, refer to the PX Developer Version 1 Programming Manual.
The tag of Multi-point program setter FB (PGS2) in multi-link enables the following operations on the faceplate.



The SV value changed on the SV setting when the control mode is MANUAL is reflected to other faceplates of the multi-linked FBs in multistage connection.

Only one FB can be switched to AUTO mode in the faceplates of the multi-linked FBs in multistage connection.
If switched to AUTO mode on any of the faceplates, the AUTO modes set on other faceplates are automatically switched to MANUAL mode.

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(1) Selectable I/O mode

The following mode transition is possible.

NORMAL <*1> TAG STOP

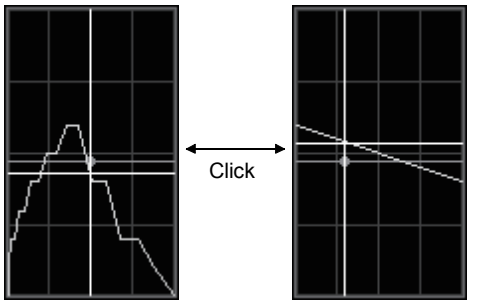
*1: Can be switched only when the user authority (refer to Section 4.3) is engineer mode.

(2) Selectable I/O mode

MANUAL and AUTO modes can be set.
Mode transition is not restricted.

POINT

- Clicking on the graph enables to switch between "All step display" and "Executing step display".



<All step display> <Executing step display>

When a mouse cursor is on the graph, its shape varies depending on the display status as follows:

All step display:

Executing step display:

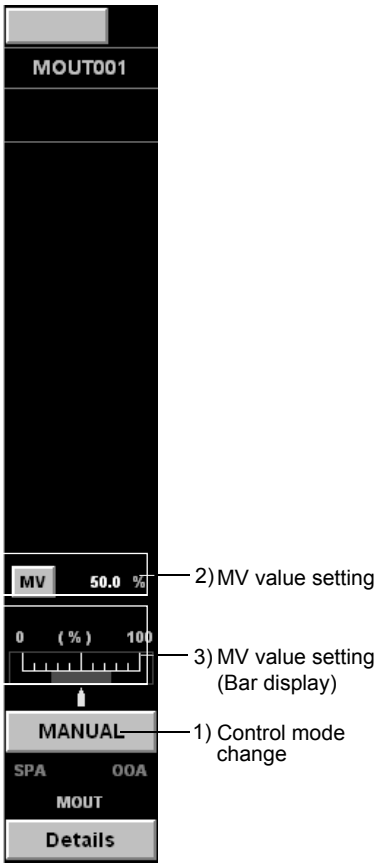
- The SV value can be changed only when the control mode (refer to Section 10.3.3) is MANUAL.
- When setting MDIH (disable mode change) in the memory item for the tag data (refer to Section 10.5), the disabled mode cannot be selected.

10.5.6 MOUT

PURPOSE

The MV value of loop tag can be displayed and operated in the faceplate of manual output (MOUT).

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Items	Contents	Reference
1)	Control mode change	Display and set control mode	Section 10.3.3
2) 3)	MV value setting	Display and set MV value	Section 10.3.9

(1) Selectable control mode

MANUAL and COMPUTER MV modes can be set.

Enabling/disabling MV operations in different modes are as the following table.

Mode	MV operation
MANUAL	Enable
COMPUTER MV	Disable

POINT

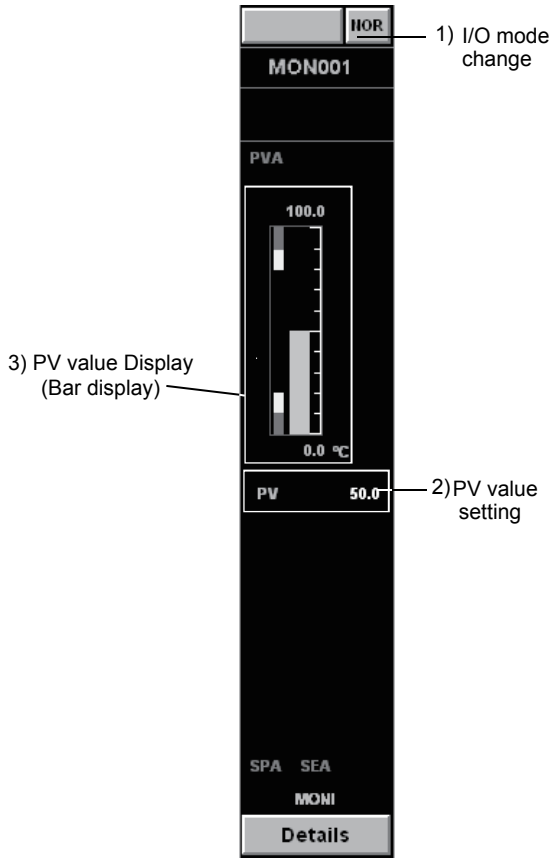
If the setting of MDIH (disable mode change) is performed in the memory item (refer to Section 10.5) of tag data, disabled mode cannot be selected.

10.5.7 MONI

PURPOSE

The PV value of loop tag can be displayed and operated in the faceplate monitor (MONI).

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Contents	Reference
1)	I/O mode change	Display and set I/O mode	Section 10.3.2
2) 3)	PV value setting	Display and set PV value	Section 10.3.7

(1) Selectable I/O mode

It is possible to set NORMAL and OVERRIDE mode.

POINT

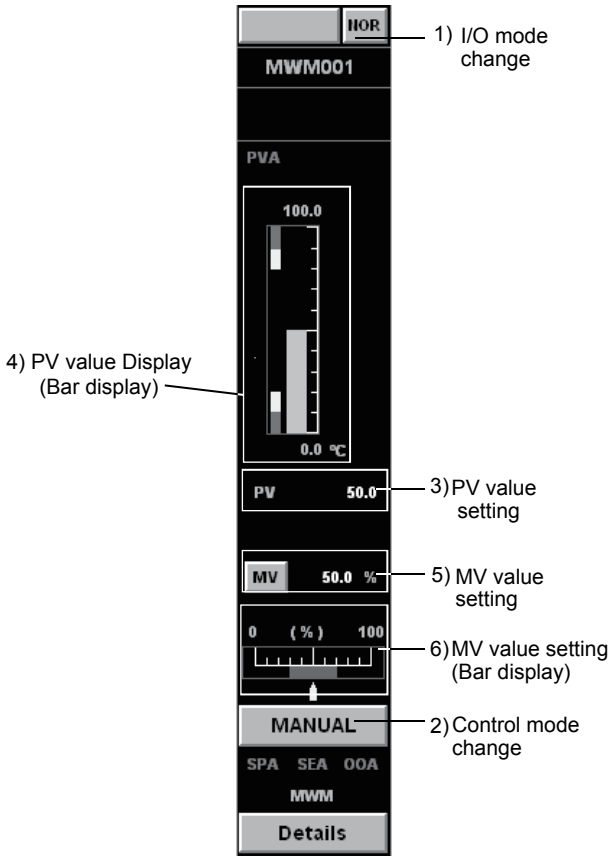
- PV value can be changed when the I/O mode (refer to Section 10.3.2) is OVERRIDE.
- If MDIH (Disable mode change) setting is executed by memory item (refer to Section10.5) of tag data, the disable mode cannot be selected.

10.5.8 MWM

PURPOSE

PV and MV values of loop tag are displayed and operated in the faceplate of manual output with monitor (MWM).

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Items	Contents	Reference
1)	I/O mode change	Display and set I/O mode	Section 10.3.2
2)	Control mode change	Display and set control mode	Section 10.3.3
3) 4)	PV value setting	Display and set PV value	Section 10.3.7
5) 6)	MV value setting	Display and set MV value	Section 10.3.9

(1) Selectable I/O mode

It is possible to set NORMAL and OVERRIDE mode.

(2) Selectable control mode

MANUAL and COMPUTER MV modes can be set.
Enabling/Disabling SV, MV operation in different modes is as following table.

Mode	PV operation
MANUAL	Enable
COMPUTER MV	Disable

POINT

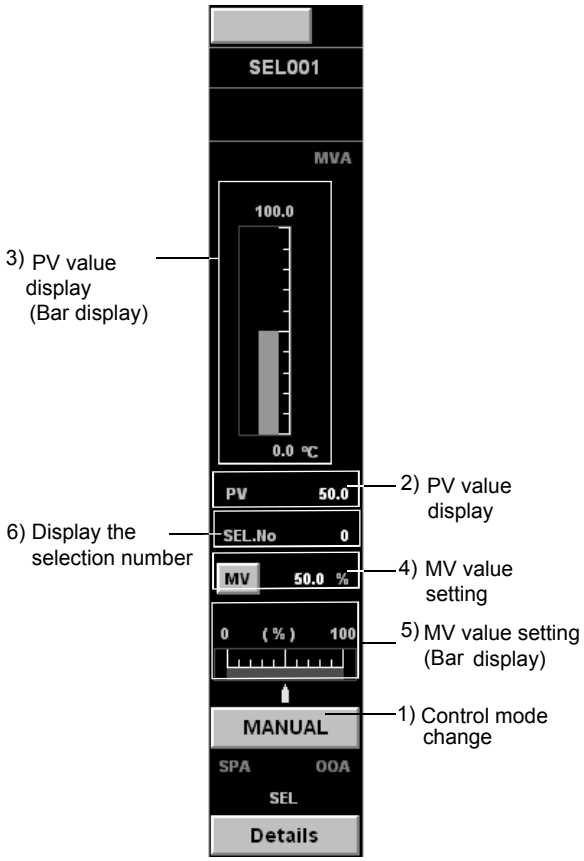
- PV value can be changed when the I/O mode (refer to Section 10.3.2) is OVERRIDE.
- I/O mode can be changed only when the control mode (refer to Section 10.3.3) is MANUAL.
- If the I/O mode (refer to Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disabled mode change) is performed in the memory item (refer to Section 10.5) of tag data, disabled mode cannot be selected.

10.5.9 SEL

PURPOSE

PV and MV values of loop tag are displayed and operated in the faceplate of loop selector (SEL). The selected No. can be displayed.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Contents	Reference
1)	Control mode change	Display and set control mode	Section 10.3.3
2) 3)	PV value display	Display PV value	Section 10.3.7
4) 5)	MV value setting	Display and set MV value	Section 10.3.9
6)	Display the selected number	Display selected number of signal (SLNO) (Operation display type: NUM)	Section 10.3.1

(1) Selectable control mode

All modes except for CASCADE DIRECT can be set and no restrictions regarding mode transition.

Enabling/disabling MV operations of different modes are as the following table.

Mode	MV operation
MANUAL	Enable
AUTO	Disable
CASCADE, COMPUTER MV, COMPUTER SV	Disable

POINT

If the setting of MDIH (disable mode change) is performed in the memory item (refer to Section 10.5) of tag data, disabled mode cannot be selected.

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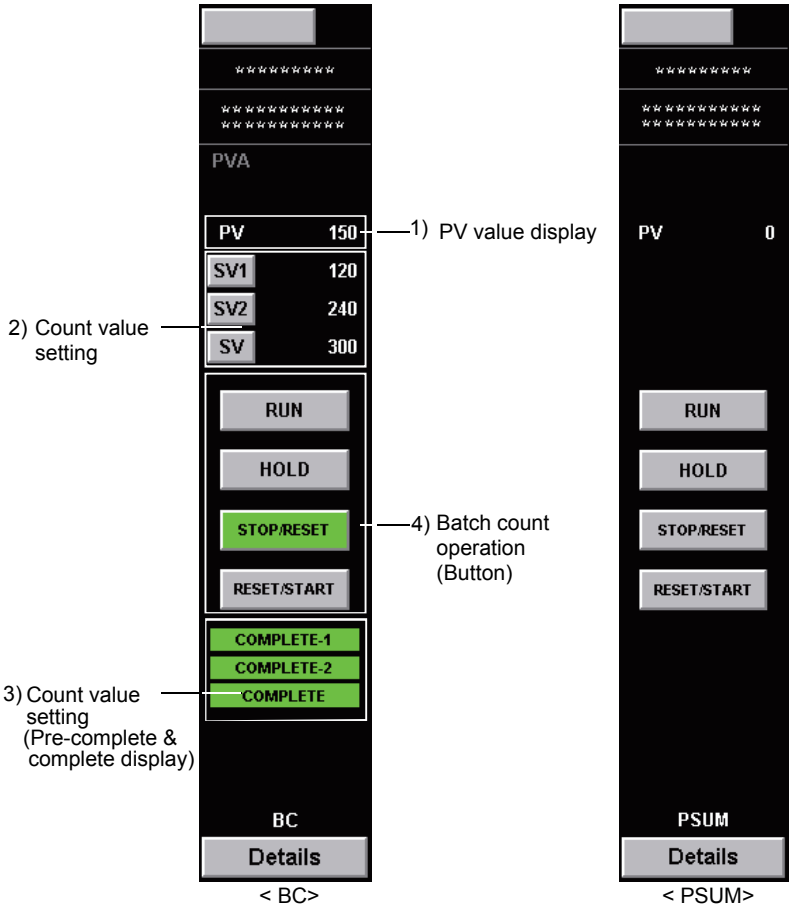
10.5.10 BC, PSUM

PURPOSE

To display PV value of loop tag and set count/timer, one can operate RUN button in the faceplate of batch counter (BC) and pulse integrator (PSUM).
Count value can be operated and displayed in the faceplate of batch counter (BC).
Display pre-complete and complete.

DISPLAY/SETTING SCREEN



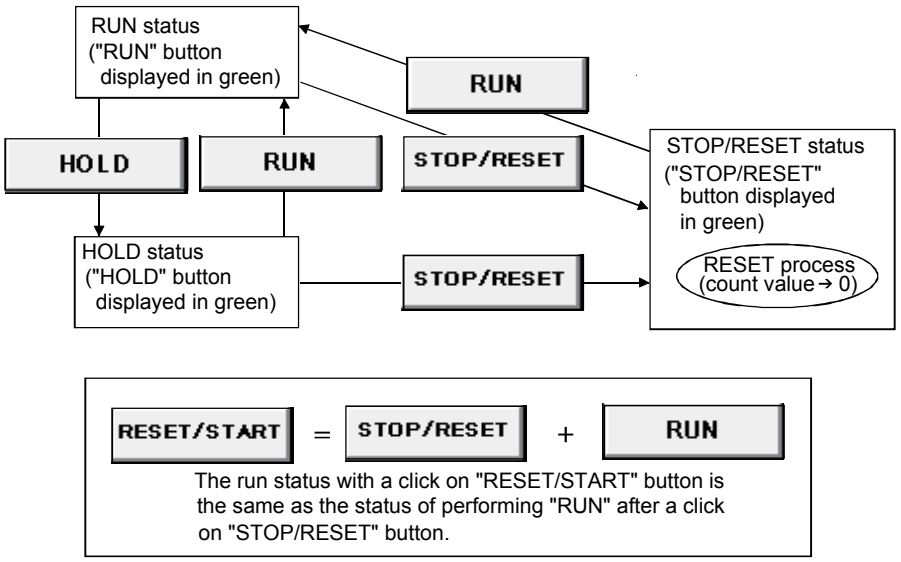
< BC> < PSUM>

DISPLAY/SETTING DATA

No.	Item	Contents	Reference
1)	PV value display	Display PV value	Section 10.3.7
2) 3)	Count value setting	Display and set count value	Section 10.3.10
4)	Batch count operation	Perform such as start/stop operation count	Section 10.3.11

Pre-complete and complete is displayed in green when PV value reaches the SV value set.
The display of COMPLETE-1 is changed when PV value reaches SV1 value. The display of COMPLETE-2 is changed when PV value finally reaches SV2 value. Then the display of COMPLETE is changed when PV value finally reaches SV value.

The diagram below displays the state transition result of clicking buttons.



The three status of: RUN, HOLD, STOP/RESET can be changed in the faceplate of loop tag (BC, PSUM). The button corresponding to current status displays in green.
Count value reset to 0 in STOP/RESET status.
Count value can't be reset to 0 by clicking button in RUN status.

<Button operation examples>

1. Click RUN button when STOP/RESET button is green.
2. Starts to count value when RUN button is displayed in green.
3. Click HOLD button when RUN button is green.
4. The count stops when HOLD button changes to green.
5. Click RESET/START button when HOLD button is green.
6. RUN button changes to green after count is reset to 0, and count value starts to count value.
7. Click STOP/RESET button when RUN button is green.
8. Count value stops and resets when STOP/RESET button is changed to green.

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10.6 Status Tag Faceplate

Status tag is a tag used to monitor and control ON/OFF status.
The tag types in the status tag and reference chapters are as following table.

Tag type	Reference
NREV, REV, MVAL1, MVAL2	Section 10.6.1
TIMER1, TIMER2, COUNT1, COUNT2	Section 10.6.2

The memory configurations of tag data generally used in status tag are as follows.
As for the detailed information of each tag data, please refer to PX Developer Programming Manual.

Offset	Tag data item		Contents	Reference
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	Section 10.4
+ 1	MODE	Control mode	Valid/invalid of each selection item of control mode	Section 10.3.3
+ 2	MDIH	Disable mode change	Valid/invalid of each selection item of I/O mode, control mode and auto tuning	Section 10.3.2 Section 10.3.3 Section 7.7.5
+ 3	ALM	Alarm	The Occur/Recovery status of each alarm	Section 7.3
+ 4	INH	Disable alarm detection	The Valid/Invalid of each alarm	Section 7.3
+ 5	ALML	Alarm level	The level of each alarm (Major/Minor alarm)	Section 7.3
+ 6	CTNO	Lockout tag No.	0: No lockout tag, 1 to 32: lockout tag No in display. (System area *1)	Section 9.13
+ 7	CTFN	Lockout tag function	The authority of using lockout tag (system area *1)	Section 10.2
+ 8	FPNO	Display name pattern	Display name pattern No. (1 to 50)	Section 9.10
+ 9	DOM	Monitor output buffer	The information downloaded from personal computer to CPU module such as valid/invalid setting in each selection item of I/O mode.	Section 10.3.2 Section 10.6.1 Section 10.6.2
+ 10	DIM	Monitor input buffer	The information uploaded from CPU module to personal computer such as Executing/Unexecuted. (System area *1)	Section 10.6.1 Section 10.6.2 Section 7.4.1(2)
+ 11	(The tag types are different according to contents.)			

*1: Please do not perform writing by user in system area.

POINT

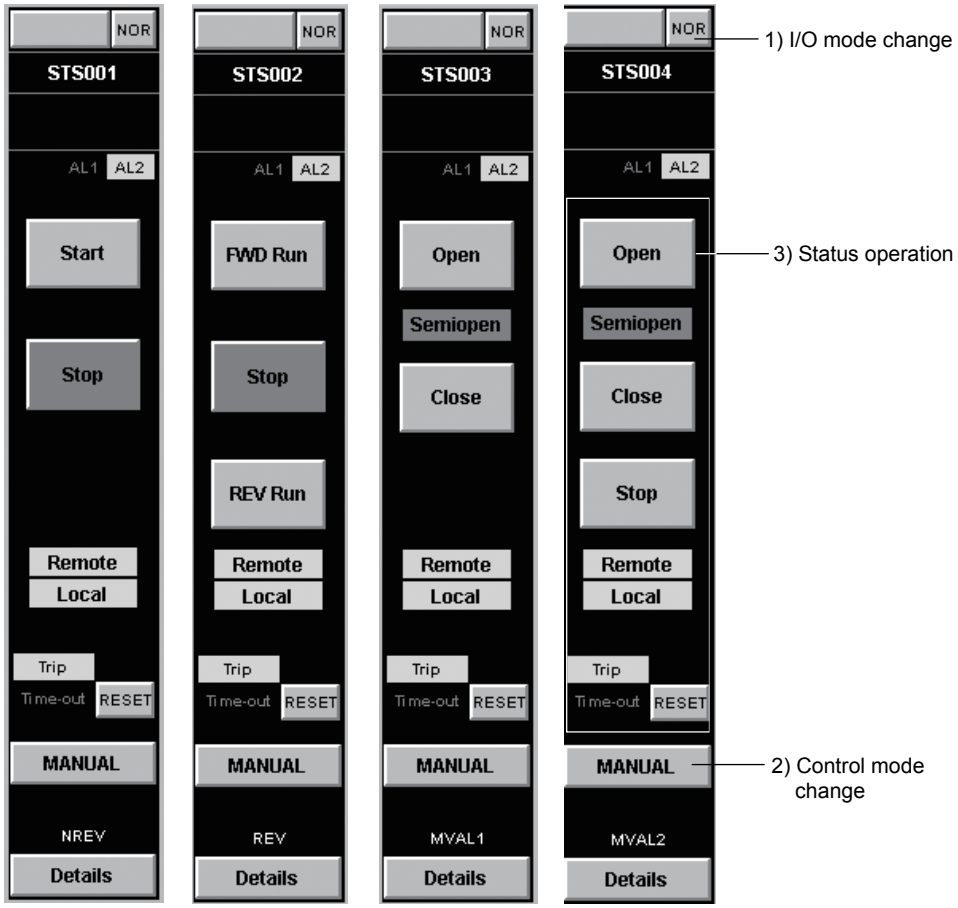
- In setting MDIH (disable mode change), the inhibited mode on the faceplate which displays tag data cannot be selected.
- In setting INH (disable alarm detection), the inhibited alarm related to the tag data cannot occur.
- DOM (Monitor output buffer) can be loaded from tag data access control (refer to Appendix 3.1).
  Please don't load it from user program.

10.6.1 NREV, REV, MVAL1, MVAL2

PURPOSE

Open/Close/Start/Forward Run/Reverse Run status of motor and electric valve of status tag are displayed and operated in the faceplate of motor irreversible control (NREV), motor reversible (REV), ON/OFF control (MVAL1, MVAL2).

DISPLAY/SETTING SCREEN



<In NREV> <In REV> <In MVAL1> <In MVAL2>

DISPLAY/SETTING DATA

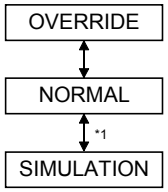
No.	Item	Contents	Reference
1)	I/O mode change	Display and set I/O mode	Section 10.3.2
2)	Control mode change	Display and set control mode	Section 10.3.3
3)	Status operation	Using Open/Close/Start/FWD Run/ REV Run status button to operate device.	Section 10.3.13

Status button	Contents
Start/Stop	Start or stop the run of motor
FWD Run/REV Run/ Stop	Start or stop the forward or reverse run of motor
Open/Close	Open or close electric valve

Status display	Contents
Semiopen	Light in set color in semi open status
Remote/Local	Light in set color in remote and local status
Trip	Light in alarm color in device trip status due to overloading
Time-out	Light in alarm color when device time–out is exceeded

(1) Selectable I/O mode

The following mode transition is possible.



*1: Can be switched only when the user authority (refer to Section 4.3) is engineer mode.

(2) Selectable control mode

MANUAL and AUTO modes can be set.

Enable/disable status operations in different modes are as following table.

Mode	Status operation
MANUAL	Enable
AUTO	Disable

POINT

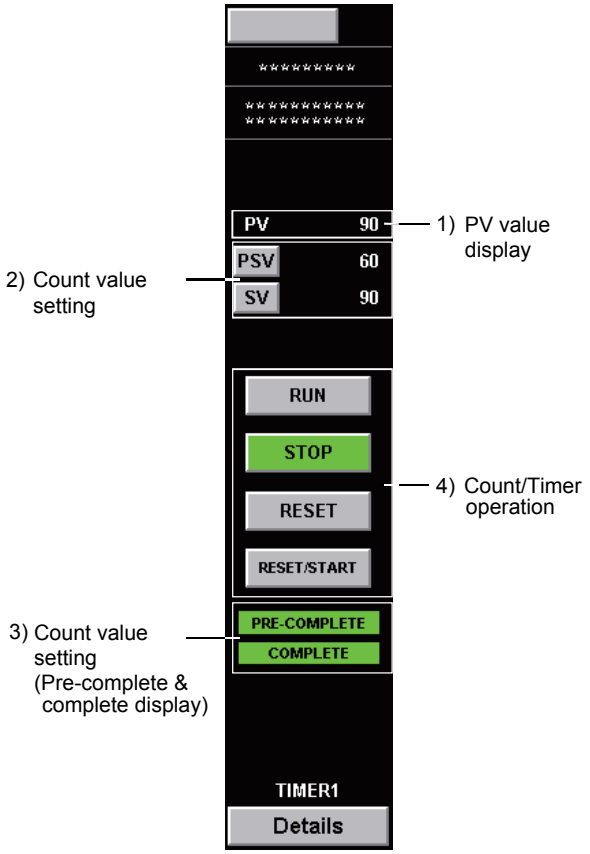
- I/O mode can be changed only when the control mode (refer to Section 10.3.3) is MANUAL.
- If the I/O mode (refer to Section 10.3.2) is OVERRIDE, the control mode cannot be switched from MANUAL.
- If the setting of MDIH (disable change mode) is performed in the memory item (refer to Section 10.5) of tag data, disabled mode cannot be selected.

10.6.2 TIMER1, TIMER2, COUNT1, COUNT2

PURPOSE

Timer/Count value of status tag is displayed and operated in the faceplate of timer (TIMER1, TIMER2), counter (COUNT1, COUNT2).

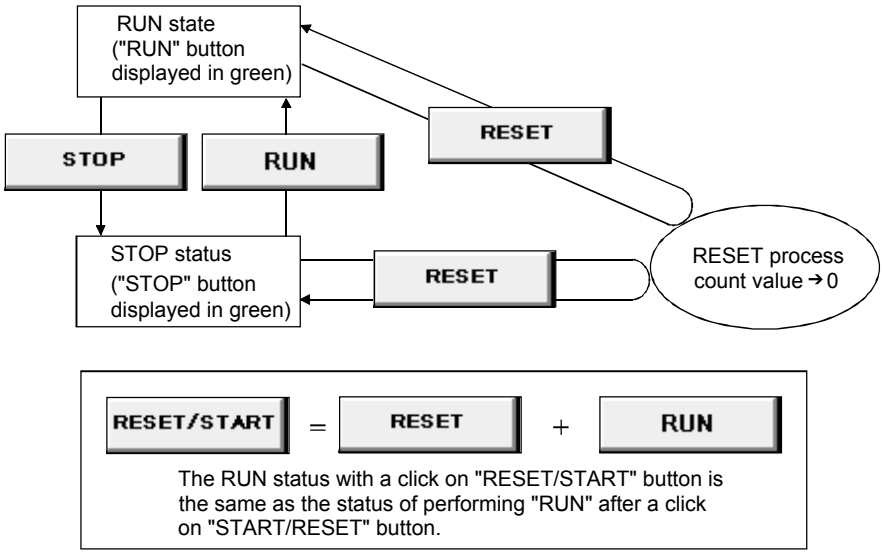
DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Contents	Reference
1)	PV value display	Display PV value	Section 10.3.7
2) 3)	Count value setting	Display and set count value	Section 10.3.10
4)	Count/Timer operation	Perform Run/Stop operation of Count/Timer	Section 10.3.12

The status change caused by clicking the button is as follows:



The two status of RUN, STOP can be changed in the faceplate of status tag (TIMER1, TIMER2, COUNT1, COUNT2).
The button corresponding to current status is displayed in green color.
Count value is reset to low limit when clicking "Reset" button.
Count value itself can be reset in RUN status.

<Button operation examples>

1. Click RUN button when STOP button is green.
2. Count value starts to count-up when RUN button changes to green.
3. Click STOP button when RUN button is green.
4. The count stops when STOP button changes to green.
5. Click RESET/START button when STOP button is green.
6. RUN button changes to green after count reset to 0, count value starts to count-up.
7. Click RESET button when RUN button is green.
8. Count value is reset when RUN button keeps green, count-up starts from the initial status.

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10.7 Alarm Tag Faceplate

Alarm tag is a tag that indicates displays alarm occurrence.
The tag type in the alarm tag and reference section are show in the following table.

Tag type	Reference
ALM	Section 10.7.1

The memory structure of alarm tag is as follows.
Please refer to Section PX Developer Programming Manual about each tag data for details.

Offset	Tag data item		Contents	Reference
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	Section 10.4
+ 1	ALM	Alarm	The occur/recovery status of alarm1 to 8 (System area *1)	Section 7.3
+ 2	ALML	Alarm level	Alarm 1 to 8 level (Major/Minor alarm)	Section 7.3
+ 4	ALM 1NO	Alarm1 Name No.	The No. to specify display string at alarm occurrence (1 to 1000)	Section 9.6
+ 5	ALM 2NO	Alarm 2 Name No.		
+ 6	ALM 3NO	Alarm 3 Name No.		
+ 7	ALM 4NO	Alarm 4 Name No.		
+ 8	ALM 5NO	Alarm 5 Name No.		
+ 9	ALM 6NO	Alarm 6 Name No.		
+ 10	ALM 7NO	Alarm 7 Name No.		
+ 11	ALM 8NO	Alarm 8 Name No.		

*1: Please do not perform writing by user in system area.

POINT

Set display string corresponding to each alarm (1 to 8) by alarm setting (refer to Section 9.6).

10.7.1 ALM

PURPOSE

Occurrence status of alarm is displayed in the faceplate of alarm tag.

DISPLAY/SETTING SCREEN

DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display text color	Background color
1)	Alarm display	PL	Display alarm of occurrence Maximum display a string of 12 characters set by alarm setting (refer to Section 9.6).	Occurring: Black Recorded: No Alarm Color	Occurring: Alarm color Recovered: Background color

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10.8 Message Tag Faceplate

Message tag is a tag that displays occurred event.
The tag types of message tag and reference chapters are as follows.

Tag type	Reference
MSG	Section 10.8.1

The memory structure of message tag are as follows.
AS for the detailed information of each tag data, please refer to PX Developer Programming Manual.

Offset	Tag data item		Contents	Reference
+ 0	FUNC	Tag function code	A code represents tag type (System area *1)	Section 10.4
+ 1	MSG	Message	The occurred/recovered status of event 1 to 8 (System area *1)	Section 7.4
+ 2	MSGCHK	Message confirm check	The confirmation check status of event 1 to 8 (Yes/No)	Section 7.4
+ 4	MSG 1NO	Message1 Name No.	The number to specify displayed string at event occurrence (1 to 1000)	Section 9.7
+ 5	MSG 2NO	Message 2 Name No.		
+ 6	MSG 3NO	Message 3 Name No.		
+ 7	MSG 4NO	Message 4 Name No.		
+ 8	MSG 5NO	Message 5 Name No.		
+ 9	MSG 6NO	Message 6 Name No.		
+ 10	MSG 7NO	Message 7 Name No.		
+ 11	MSG 8NO	Message 8 Name No.		

*1: Please do not perform writing by user in system area.

POINT

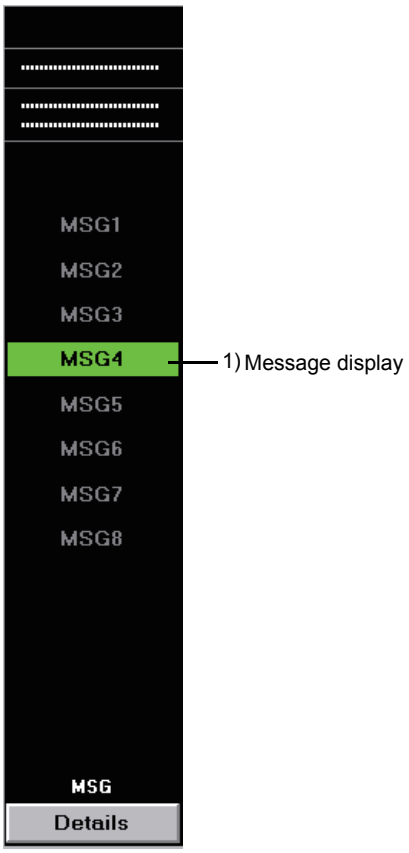
Set display string corresponding to each event (1 to 8) by event setting (refer to Section 9.7).

10.8.1 MSG

PURPOSE

Occurrence status of event is displayed in the faceplate of message tag.

DISPLAY/SETTING SCREEN



DISPLAY/SETTING DATA

No.	Item	Operation display type	Contents	Display text color	Background color
1)	Message display	PL	Display occurred event of occurrence. Maximum display a string of 12 characters set by event setting (refer to Section 9.7).	Occurred: Black Recovered: Alarm Area Color	Occurred: Green Recovered: Background color

10 - 60

MEMO

10 - 61

11 MONITORING WITH USER-CREATED SCREEN

The Monitor tool has the interaction function for utilizing the applications created in GT SoftGOT1000 or Microsoft® Visual Basic® as the graphic screen.

(1) Utilizing GT SoftGOT1000

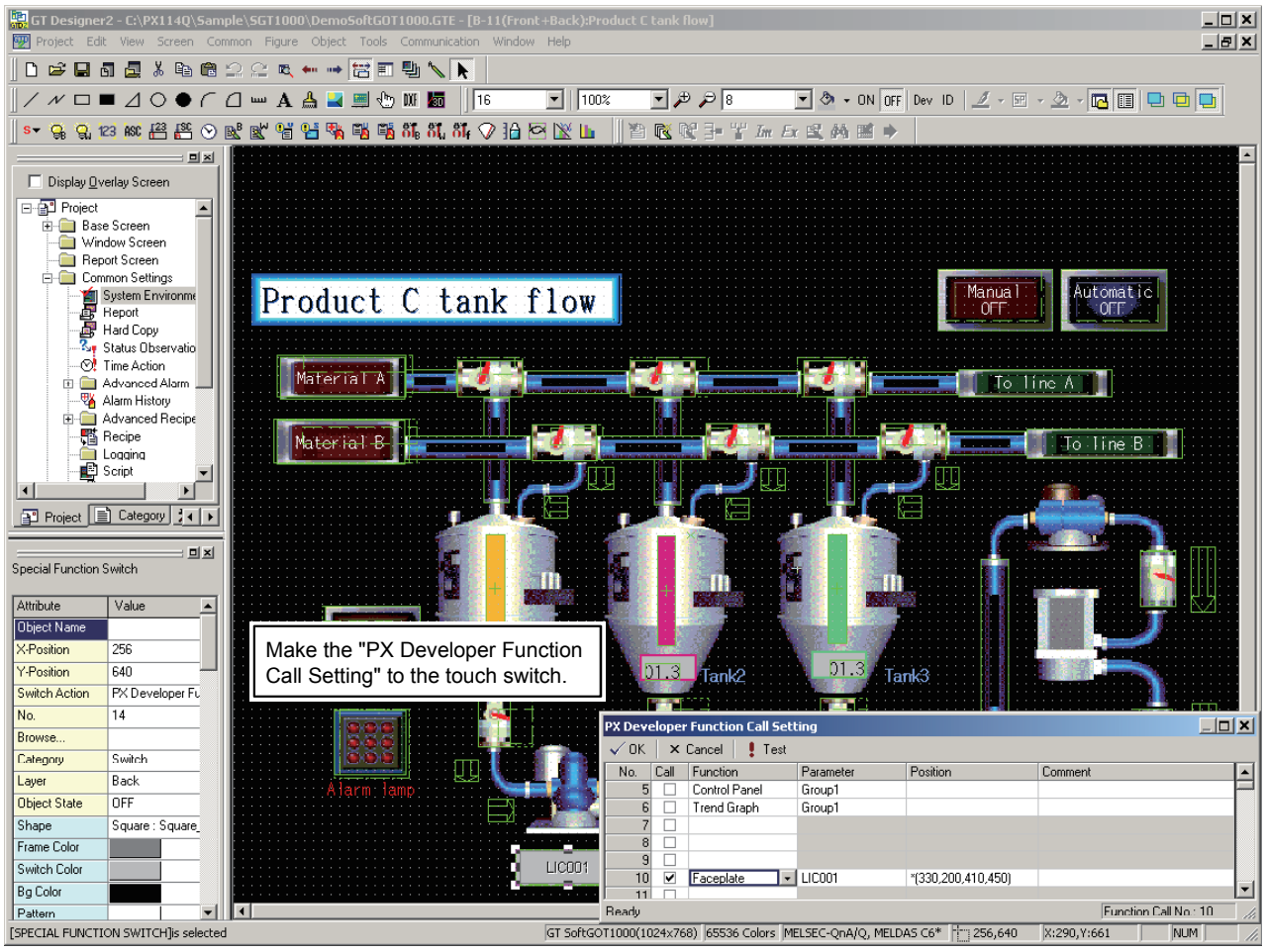
GT Designer2 enables to easily create the graphic screen. It also enables to utilize edit data of the GOT for field monitoring.

(2) Utilizing Microsoft® Visual Basic®

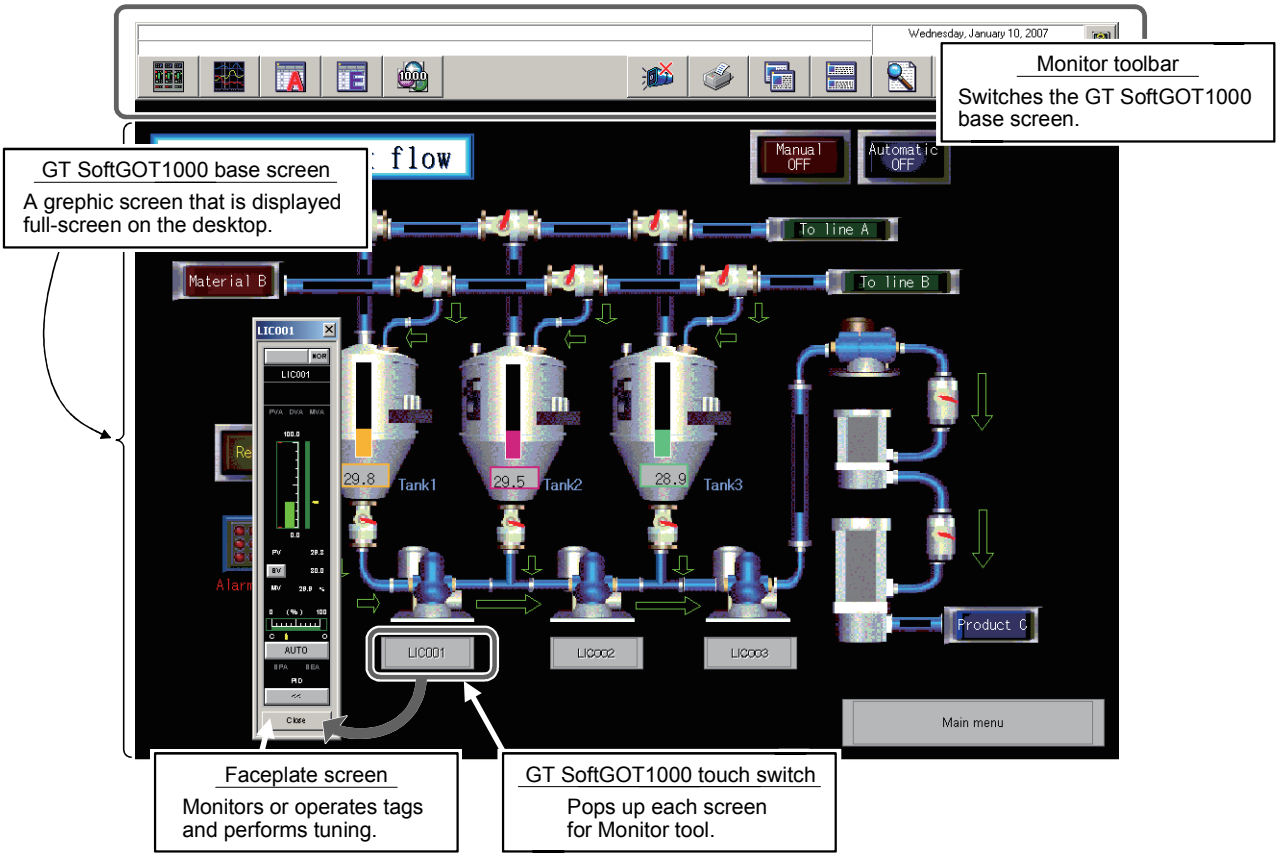
The MonCtrl command and ActiveX control which controls the Monitor tool enable to create a graphic screen application with great flexibility.

11.1 Utilizing GT SoftGOT1000

GT SoftGOT1000 can call the PX Developer monitor tool function.
GT SoftGOT1000 can be started by specifying a base screen with PX Developer Monitor tool.



<GT Designer2>



< Monitor tool and GT SoftGOT1000>

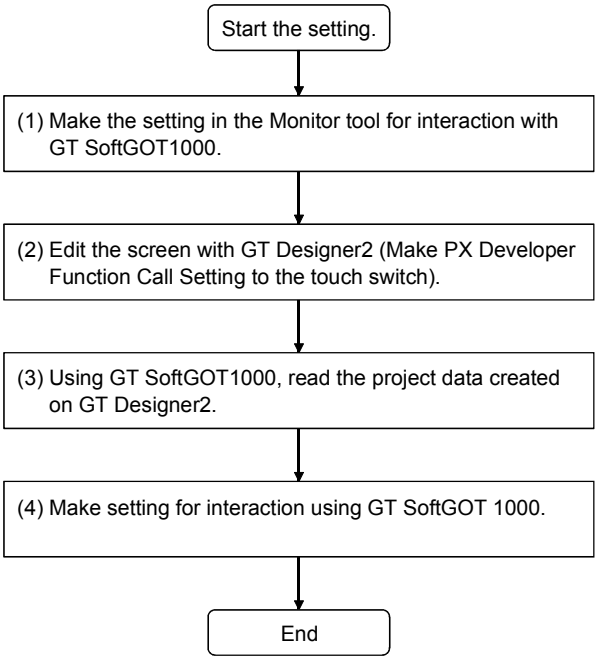
POINT

- For compatible software package versions, refer to Section 2.2.
- For using method of GT SoftGOT1000 and GT Designer2, refer to the GT SoftGOT1000 Version2 Operating Manual (SH-080602ENG-D or later) and GT Designer2 Version2 Screen Design Manual (SH-080530ENG-H or later), respectively.

11 - 2

11.1.1 Setting procedure to use the interaction function between the Monitor tool and GT SoftGOT1000

The following flowchart shows the setting procedure to use the Monitor tool and interaction function in GT SoftGOT1000.



(1) Making the setting in the Monitor tool for interacting with GT SoftGOT1000

Make the following settings in the Monitor tool.

1) Setting the monitor target project (refer to Section 9.3).

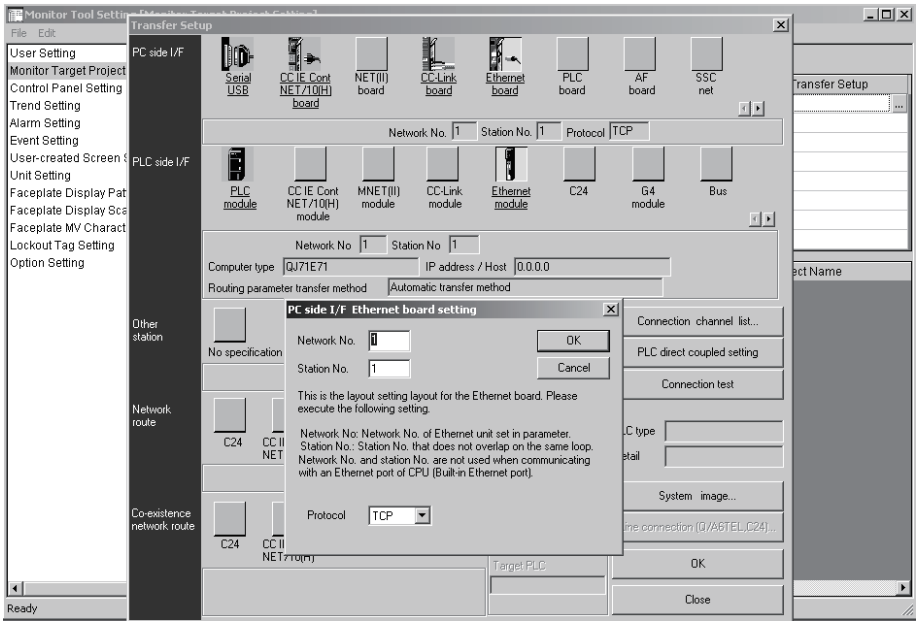
2) Setting the user-created
Specify the module number of GT SoftGOT1000 to be started to the argument (refer to Section 9.8 and the GT SoftGOT1000 Version2 Operating Manual (SH-080602ENG-D)).

3) Setting the control panel (refer to Section 9.4)
Set the control panel to display it on GT SoftGOT1000.

4) Setting the trend graph (refer to Section 9.5).
Set the trend graph to display it from GT SoftGOT1000.

POINT

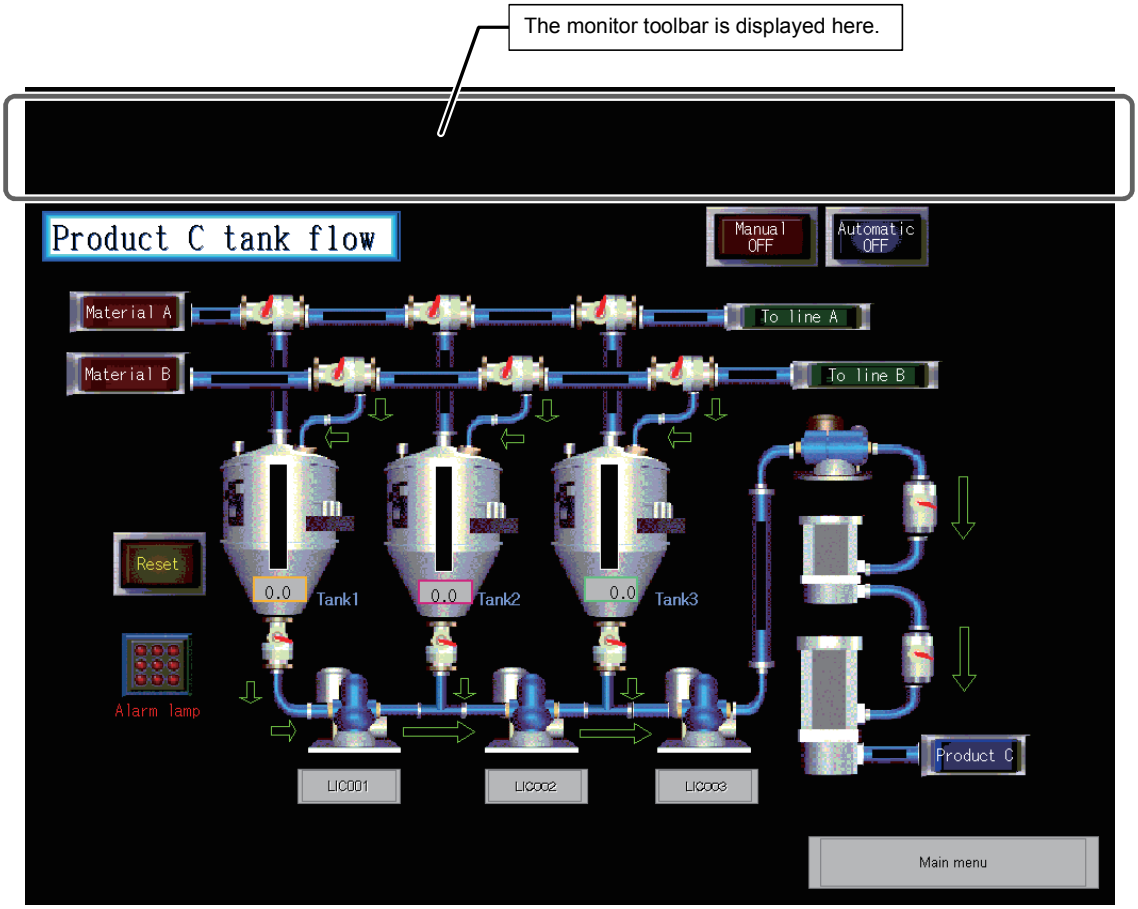
- To set Ethernet on the Transfer Setup screen of Monitor Target Project Setting, specify TCP as the protocol.
(Since UDP is used for GT SoftGOT1000, avoid communications contention.)



(2) Editing with GT Designer2 (Making PX Developer Function Call Setting to the touch switch)

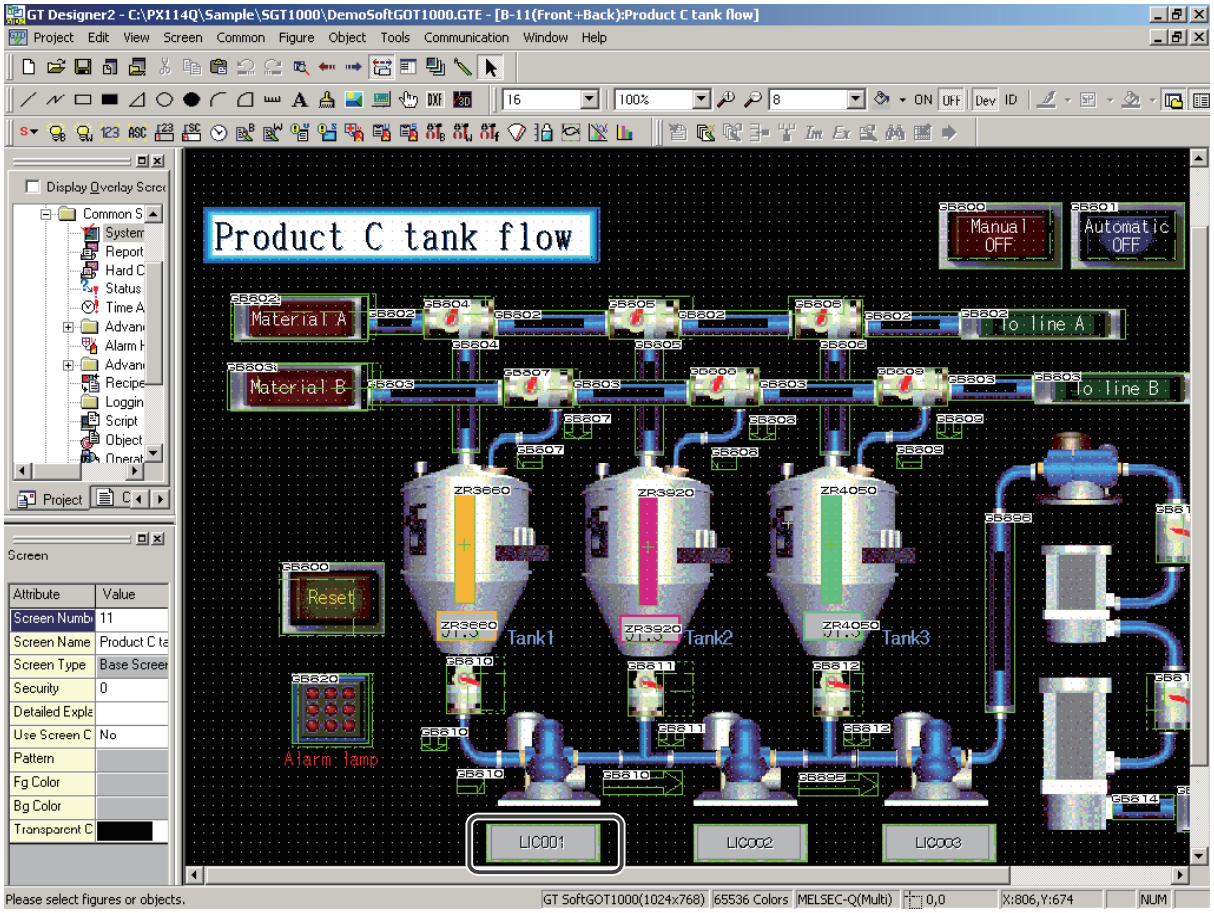
- Positioning the base screen
  Edit a screen for monitoring.
  When displaying GT SoftGOT1000 in full screen mode, make the margin by the following areas.

Screen resolution (width) [pixel]	Display area for the Monitor tool (vertical length from the top of the screen) [pixel]
Less than 1280	86
1280 or more	102

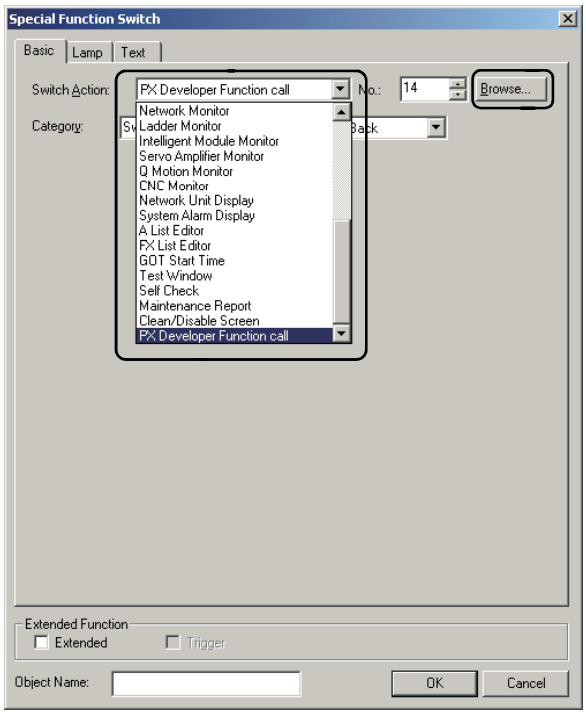


- Setting the touch switch
  The following shows the method for the setting to start the faceplate with the touch switch.

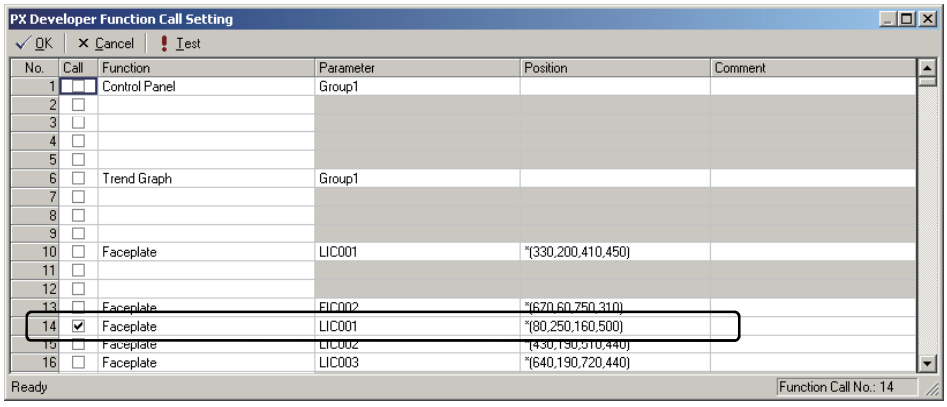
1) Double-click the touch switch.



2) Select "PX Developer Function Call" item in Switch Action, and click the Browse button.



3) Register the function to be called with PX Developer Function Call Setting for specifying it.

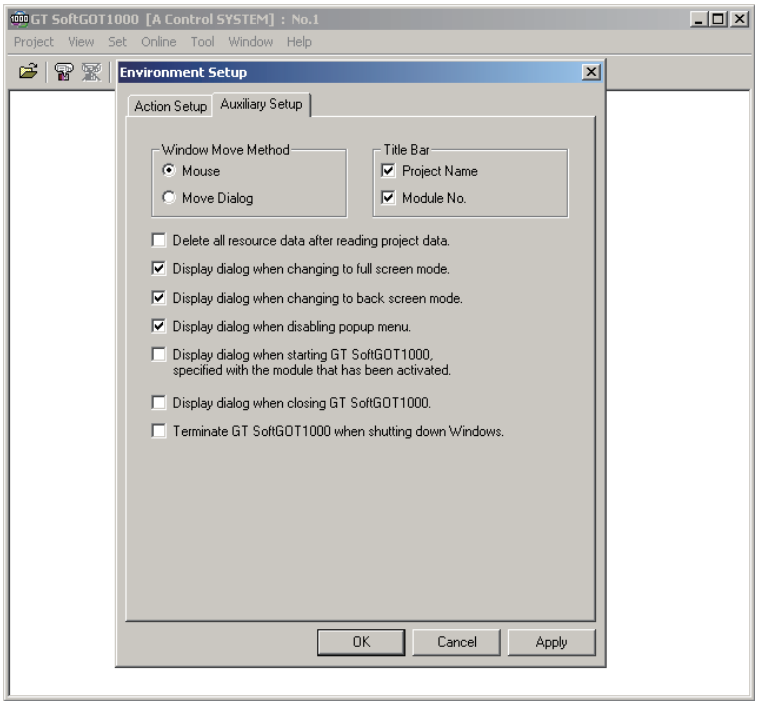


(3) Using GT SoftGOT1000, read the project data created on GT Designer2.

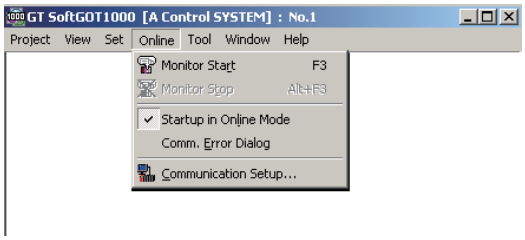
(4) Making setting for interaction using GT SoftGOT1000.

1) Setting necessary items
The following table shows the required setting items for interaction with GT SoftGOT1000.

Item	Description
Display dialog when starting GT SoftGOT1000, specified with the module that has been activated.	Has to be unchecked. The dialog box is not displayed at base screen switching by unchecking this item.
Display dialog when closing GT SoftGOT1000.	Has to be unchecked. A time-out error when the monitor tool setting screen is displayed can be avoided by unchecking this item.



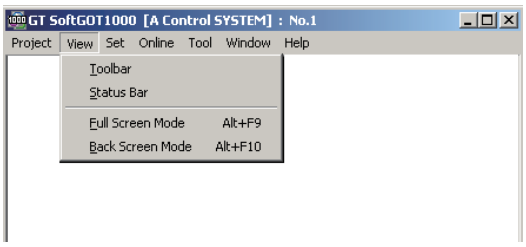
Item	Description
Startup in Online Mode	Has to be checked. A monitor starts immediately after GT SoftGOT1000 start-up by checking this item.



2) Setting optional items

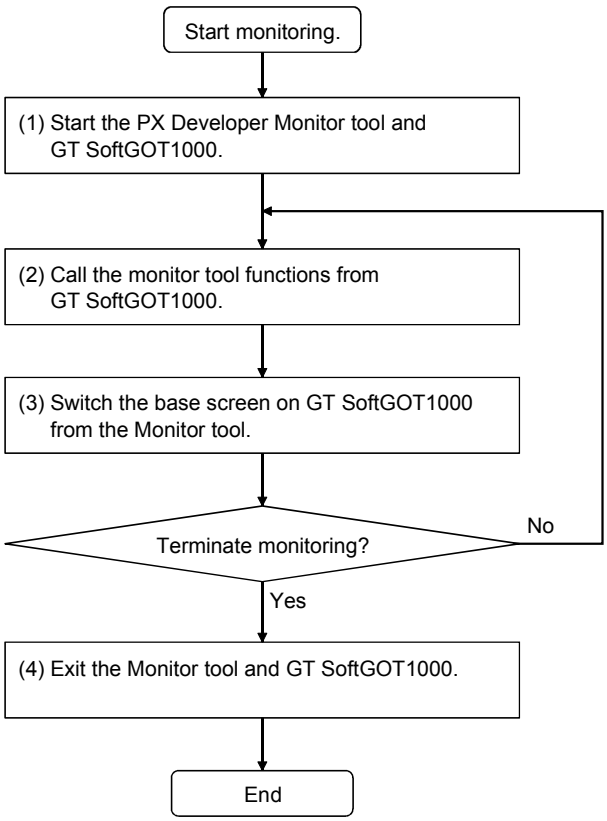
The following table shows the optional setting items for interaction with GT SoftGOT1000.

Item	Description	Remarks
Full Screen Mode	Displays GT SoftGOT1000 in full screen mode.	Also selecting Back Screen Mode is recommended.
Back Screen Mode	Always displays GT SoftGOT1000 to the backmost.	—



11.1.2 Monitoring procedure using the interaction function between the Monitor tool and GT SoftGOT1000

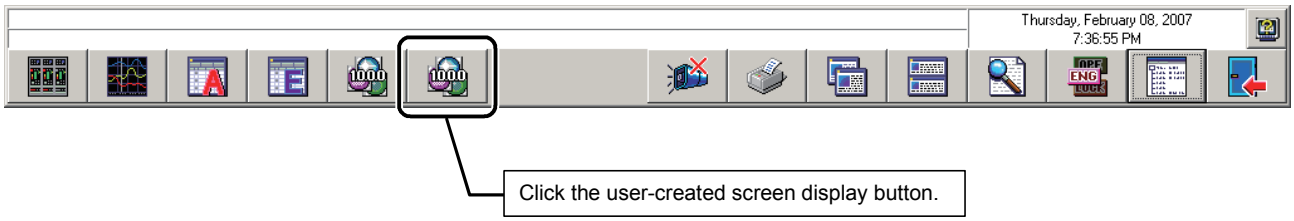
The following flowchart shows the monitoring procedure using the interaction function between the PX Developer monitor tool and GT SoftGOT1000.



(1) Starting the PX Developer Monitor tool and GT SoftGOT1000 (refer to Section 7.5)

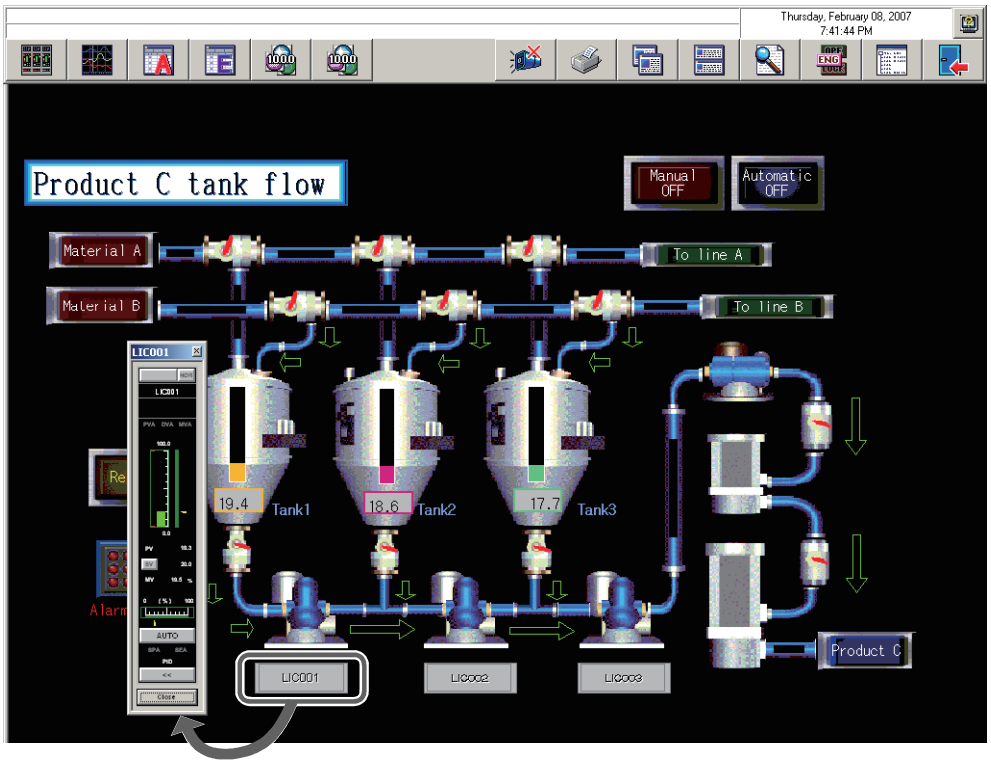
1) Starting the Monitor tool
   Start the Monitor tool from the Start menu.

2) Starting GT SoftGOT1000
   Start GT SoftGOT1000 with the user-created screen display button.



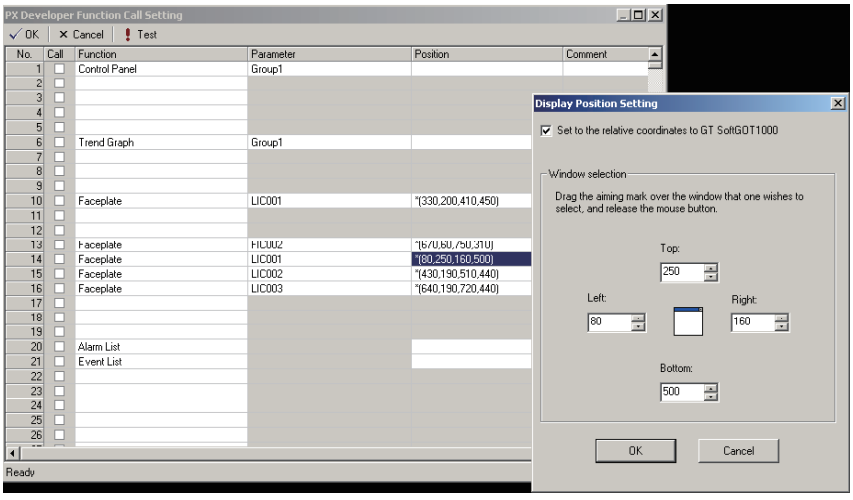
(2) Calling the monitor tool function from GT SoftGOT1000

Click the touch switch to which "PX Developer Function Call" has been set to call the monitor tool function.

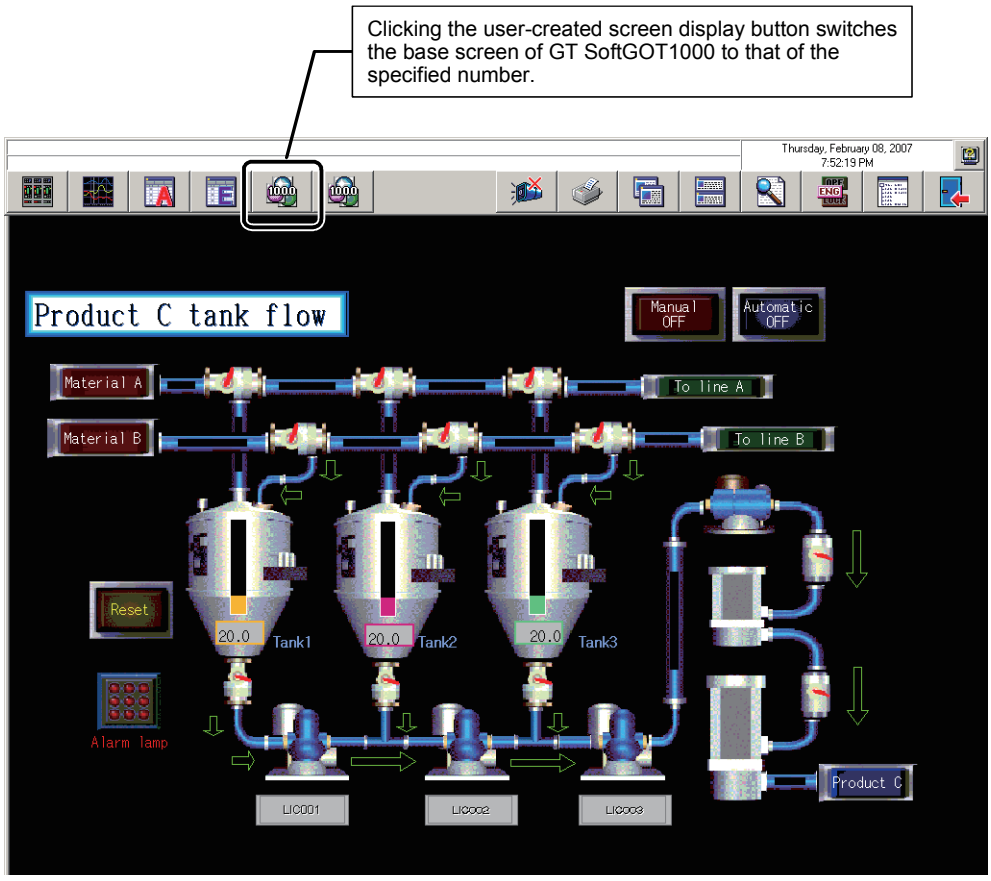


POINT

- A display position of the Monitor tool to be called can be adjusted as needed (The position can be changed with PX Developer Function Call Setting).

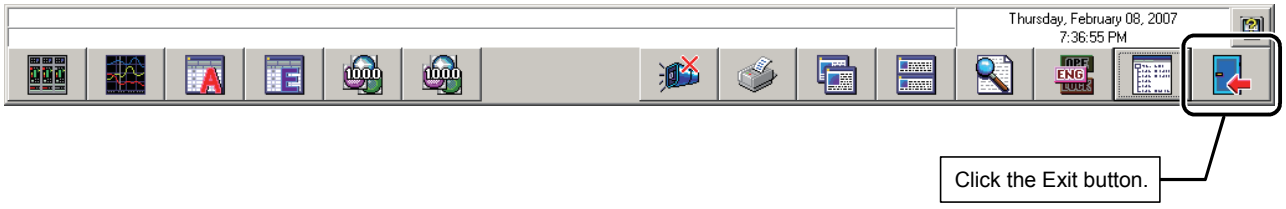


(3) Switching the base screen of GT SoftGOT1000 from the Monitor tool



(4) Exiting the Monitor tool and GT SoftGOT1000

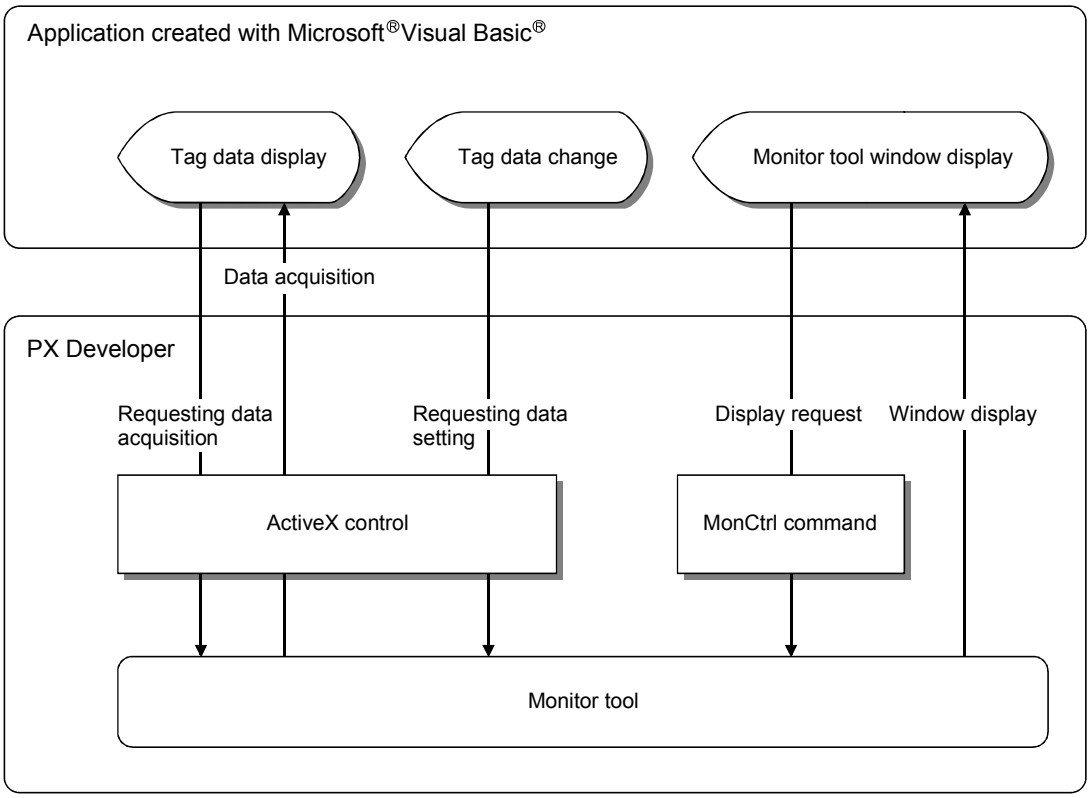
Clicking the Exit button on the Monitor tool exits the Monitor tool and GT SoftGOT1000 started with the user-created screen display button on the Monitor tool.



11.2 Utilizing Microsoft® Visual Basic® Application

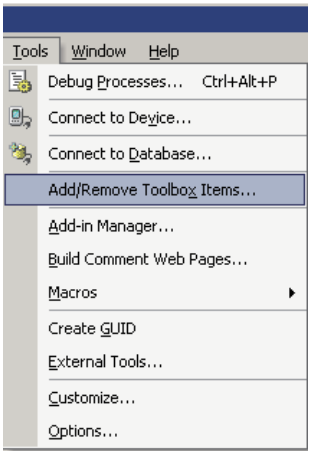
When using Microsoft® Visual Basic® , MonCtrl command (refer to Appendix 3.2) and ActiveX control (tag data access control and faceplate control) which externally control the Monitor tool allow to create graphic screen applications with great flexibility.

Function	Description	Measures	Reference
Tag data acquisition/ setting	Can obtain and set a tag data item value.	ActiveX control (tag data access control)	Appendix 3.1.1
Faceplate display	Can display a pop-up faceplate. Can embed a faceplate on the screen of external application.	ActiveX control (faceplate control)	Appendix 3.1.2
Monitor tool calling	Calls each function of the Monitor tool.	MonCtrl command	Appendix 3.2



11.2.1 Using procedure for ActiveX control

The operation steps in using tag data access control and faceplate control in Visual Basic® are as follows.
For detailed operation methods of Visual Basic® 6.0 or Visual Basic® .NET, please refer to manuals and help of Visual Basic® 6.0 or Visual Basic® .NET.



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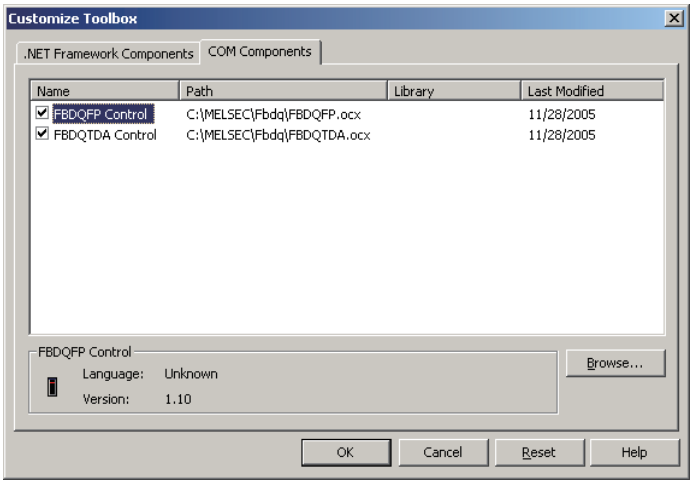

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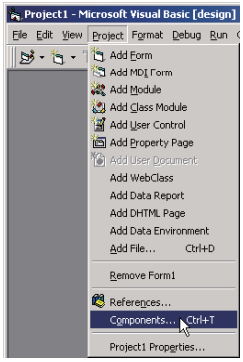
(To the next page)

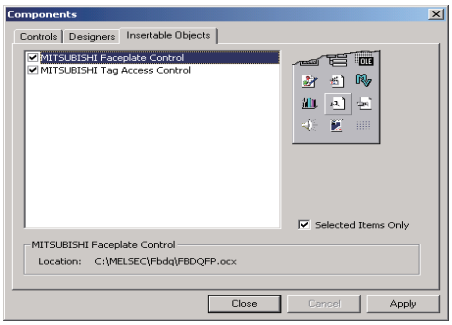
1. Click [Tools] → [Add/Remove Toolbox Items...] on the menu. *1

   *1: When using a Visual Basic® 6.0, Click [Project] → [Components] on the menu.



2. Click <<COM Components>> tab and select "FBDQFP Control" and "FBDQTDA Control". *2

   *2: When using a Visual Basic® 6.0, Click <<Insertable Objects>> tab.



3. Click the "OK" button.

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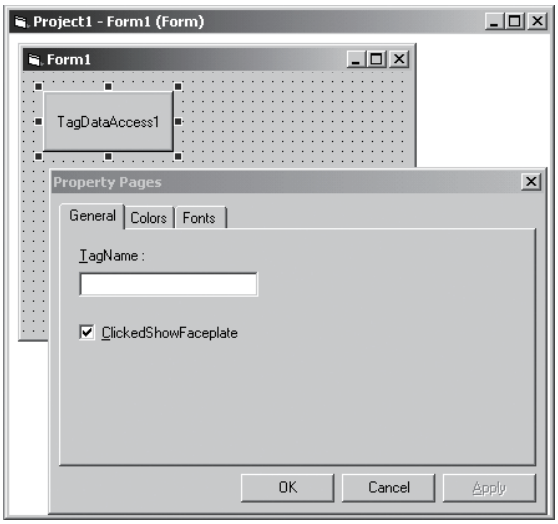
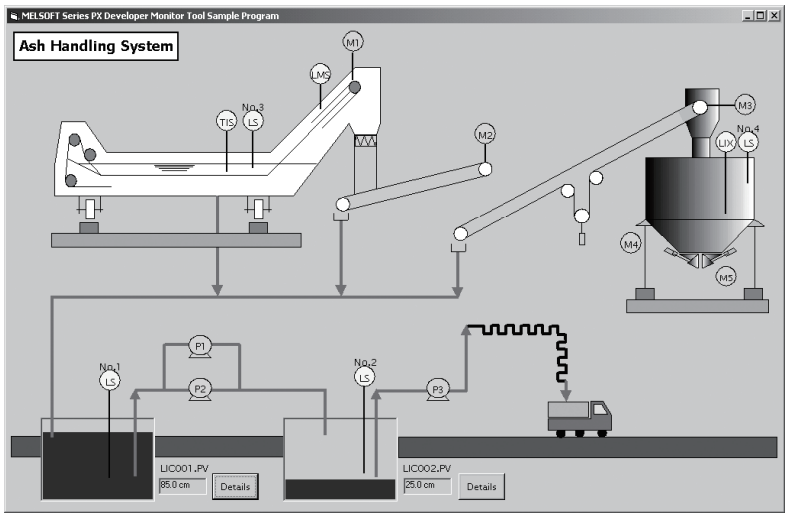
(From the preceding page)

4. Add "MITSUBISHI Tag Access Control" and "MITSUBISHI Faceplate Control" to tool box.



5. Deploy "MITSUBISHI Tag Access Control" and "MITSUBISHI Faceplate Control" as the usual command buttons on the form of the user-created screen.

6. Display the control property dialog box and specify tag name (TagName).
   Other programs related to screen display such as color and character display is executed in the case of "MITSUBISHI Tag Access Control".



7. Create the exe format application that are created by compiling, which is displayed on user-created screen.

8. Start monitor tool and register the above application to user-created screen setting (refer to Section 9.8). Display user-created screen.

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POINT

- Please refer to contents in CD-ROM\SampleVB for sample data.
- If a project created with a Visual Basic® 6.0 is used in a Visual Basic® .NET, the project must be upgraded for a Visual Basic® .NET according to the "Visual Basic Upgrade Wizard" that is opened and displayed in a Visual Basic® .NET. Note that as for "tag data access control" offered by a monitor tool, the following corrections may be required after upgrading.

Property	Case that the corrections are necessary	Correction method
Item	When acquiring or setting the Item property value, the following notation appears and the conversion is unsuccessful in upgrading, therefore a compile error occurs. TagAccess1!PV TagAccess1 ("PV")	Refer to Appendix 3.1.1[1](2) and correct the sentence structure for a Visual Basic® .NET.
BackColor	BackColor property value of tag data access control remains default (&H8000000F) and turns black (&H00000000) after upgrading.	Correct the BackColor property to the default.

  For details of ActiveX control, refer to Appendix 3.1.

- Note that if the Visual Basic® project or SCADA application is edited and saved after uninstalling PX Developer, the original setting contents (Tag name etc.) of Active X (faceplate control, tag data access control) will be deleted when PX Developer is reinstalled
- Please refer to Appendix 3.1 for details of ActiveX control.

12 TROUBLE OCCURRENCE

12.1 Troubleshooting

This section explains the possible troubles caused by monitor tool execution, the troubleshooting methods and reference section.

Trouble	Troubleshooting method	Reference
The monitor tool cannot be started	GX Developer Version 7.20W or later has not been installed when using PX Developer Version 1.04E or earlier. Install the GX Developer and start the monitor tool again.	Section 5.1
	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
The monitor tool cannot be exited	The monitor tool can be exited in the engineering mode only. Ask the authorized personal to change the mode, and then, exit the monitor tool.	Chapter 4
	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
The password is forgotten	Ask the authorized personnel to register the password in the user setting screen again.	Section 9.2
	If the registered authorized personnel user name and password have been forgotten and no operation can be done, enter the project ID as the user name and password. The mode will be changed by the user who is authorized and registered as the first engineer in the user setting. (Project ID code is described in the software registration card included with the product. Make sure to enter "-" between each word.	Section 9.2
Buttons do not appear on the monitor tool bar	The incorrect mode has been selected. Change the mode into the correct one.	Section 6.3.1
The corresponding screen does not appear when a button is clicked on the monitor tool bar	The number of displayed monitor screens has exceeded the maximum. Close unnecessary screens and click the button again.	Section 6.4.2
	A setting screen is being displayed. Close the screen and click the button again.	Section 6.3.1 Section 9.1.1
	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
The values are updated slowly in the monitor tool display	The FBD program may be too many or too large. Set "Communicates with peripherals after program execution" in Program Execution Setting of the Programming tool.	Appendix 1.8 Programming tool*1
The faceplate does not appear in the control panel	The displayed target has not been set. Set the target.	Section 9.15.2
	The PLC connection target settings are wrong Use the monitor tool to set the correct PLC connection target.	Section 9.3
	The communication with the monitor target cannot be done. Check the communication status on the alarm list screen and communication condition screen.	Section 7.3 Section 8.5
	The monitor target project and the CPU module that monitors it are different in the PLC type. Check the PLC type and PLC connection target on the monitor target project setting screen.	Section 9.3

*1: Indicates the PX Developer operating manual (Programming tool).

Trouble	Troubleshooting method	Reference
The occurred event and alarm are not displayed Or The occurred event and alarm are not immediately displayed	In the case of PLC direct connection (RS-232, USB), CC-Link IE controller network, GOT transparent, the event notification and alarm notification will not be performed, as the even notification function is not available.	Appendix 1.2.1
	The character string of the event or alarm has not been defined. Set the character string of the event or alarm.	Section 9.15.4 to 9.15.5
	The PLC connection target settings are wrong. Use the monitor tool to set the correct PLC connection target.	Section 9.3
	The communication with the monitor target cannot be done. Check the communication status on the alarm list screen and communication condition screen.	Section 7.3 Section 8.5
	The event notification target (event notification target within a CPU module) settings made by the programming tool are wrong. Use the programming tool to set the correct event notification target. Also, carry out the following check and setting operations relevant to event notification. (Ethernet connection) • Use GX Developer to check the "open setting" of network parameter and set the IP address and port number of the communication target for broadcasting. • Use GX Developer to check the port number of communication target set in "open setting" of network parameter. Then, set the same value as the port number of communication target to the event notification UDP port number in the option setting of monitor tool. (MELSECNET/10(H) connection) Set the same value to the network No. and station No./group No. for the following : The personal computer of event notification target set in the event notification settings within the project parameter settings of the programming tool, and the MELSECNET/10(H) board of the personal computer that is executing the monitor tool.	Appendix 1.2.2 Programming tool*1
	Due to the security enhancement function (Windows® firewall) loaded to Microsoft® Windows® XP Service Pack2, event notification from the PLC CPU in Ethernet connection is blocked. Add the Monitor tool to the Exceptions setting of Windows® Firewall.	Appendix 1.2.2
Display error message box of "Failed in creating new window"	Insufficient memory. Terminate other applications, and start the monitor tool again.	-
Display error message box on the user-created screen	Refer to the error list.	Appendix 3.1.1[4] Appendix 3.1.2[2]
Display error message dialog box of "Communication status is abnormal" during tag data write, etc.	Confirm that the communication cable has been correctly connected. Check the PLC connection target set in the monitor target project setting. Double-click the corresponding alarm item in the alarm list to display the "System Alarm Details" dialog box. Take the corrective action according the displayed error.	Section 2.1.3 Section 7.3 Section 9.3
Display error message dialog box of "The Project ID Code of the Monitor Target Project is different from that in the PLC due to the following causes:"	The monitor target project set with the monitor tool and that within CPU module are different. Reload the monitor target project. Also when the download to PLC is performed with the programming tool, reload the monitor target project.	Section 9.3 Programming tool*1

*1: Indicates the PX Developer operating manual (Programming tool).

Trouble	Troubleshooting method	Reference
Reinstalling the tool initializes the user settings	Installing the monitor tool (Version 1.00A) initializes (i.e., makes it admin settings only) the user settings (user name, password, authorization). Make the settings in the user setting screen again.	Section 4.7 Section 9.2
Assignment information database file of Version 1.01B or earlier cannot be set as the monitor target project.	This happens because the assignment information database file is the old version. Convert the assignment information database file by switching to the monitor mode in the Programming tool of Version 1.02C or later.	Section 9.3 Appendix 6.2 Programming tool*1

*1: Indicates the PX Developer operating manual (Programming tool).

12.2 Convenience Function

This section illustrates the functions that can be used in accordance with the "Such things desired to do" requirements of the monitor tool. It also indicates the reference chapters and sections about these functions.

Things desired to do	Methods	Reference
To make a file according to the monitoring result.	Use the "Print Screen" function to print a displayed screen	Section 8.2
	Use the "Print" function to print the result.	Section 7.3.6 Section 7.4.5
	Use the "Export to CSV File" function and use the EXCEL (Software to edit an output file.)	Section 7.2.6 Section 7.3.7 Section 7.4.6 Section 7.7.7
To make a file according to the setting contents	Use the "Export to CSV File" function and use the EXCEL Software to edit an output file.	Section 9.1.3
	Use the "Edit" function (Cut/Paste) to directly paste the contents of a grid into the Editor Software or the EXCEL Software.	Section 9.1.1
To make a backup of the setting contents	Save the set contents to the folder: Melsec\Fbdq\set data	Section 2.3 Section 9.1.3
To zoom out a screen display	Change the sizes of the screens freely.	Section 6.2.2 Section 6.2.5
	Always keep the window in maximum size if it is a Single Window mode monitoring screen	Section 9.15.13
	Change the display scale of a Trend Graph.	Section 7.2.5 Section 7.7.5
To change the display colors	Set the display color of the faceplate freely. Set the display colors of the title bar of the dialog box and the screen according to the color settings of the personal computer.	Section 9.15.9
To find occurrence of warnings/events immediately	Display the latest alarm/event content specified in the monitor tool bar.	Section 6.3.1
	Make the beep sound when an alarm event occurs.	Section 9.15.10 Section 8.1
To display tag data in a special monitor screen	Use "ActiveX control" to produce user-created screens by yourself	Chapter 11 Section 7.5
To use the entire computer screen without displaying the monitor tool bar	Hide the monitor tool bar to start. Additionally, control application programs can be used for external control to change the monitor tool bar between Display & Hide.	Appendix 2.1 Appendix 2.2
To start the monitor tool by the mode that matches the authority of the specified user	The mode that matches the authority of the specified user can start the monitor tool.	Appendix 2.3
Not to operate the "Exit" button but use the software control executed externally to close the monitor tool	Exit the monitor tool via the external control application programs.	Appendix 3.1
To output the trend, alarm and event data to CSV files automatically	With the automatic CSV file export function, the trend, alarm and event data can be saved in CSV files automatically as histories.	Section 8.6

APPENDICES

Appendix 1 Communication of the Monitor Tool

For the monitor tool, multiple communication methods can be combined for monitoring so as to maintain the communication performance when the amount of the monitored targets increase. Here each communication method is targets respectively.

Appendix 1.1 Communication types

Communications between the monitor tool and CPU module can be generally classified as follows.

Communication type		Content	Purpose
Event notification* (alarm notification, event notification)		The CPU module initiatively notifies the monitor tool after it detects changes of the alarm/event signal within each tag data.	Monitor the occurrence of alarms and events.
Current value collection	High-speed current value collection *	Poll current value with given priorities and execute collection within each about 1-second interval.	Refresh current value at a high frequency in control panel displaying, collection of tuning trend or trend graph displaying (only when the sampling period is set to 1 second).
	Low-speed current value collection *	Collect current value of the tag data within each about 10-second interval	Collect data if the current value has been entered in setting trend (except 1-second sampling period).
Tag data collection	High-speed tag data collection *	Poll the displayed tag data with given priority and execute collection with each about 1-second interval.	Collect tag data displayed in the pop-up window at high frequency.
	Low-speed tag data collection *	Read all tag data in turn registered in the monitor tool.	Periodically acquire tag data expect the current value.
	Read all tags	Batch read all tag data registered in the monitor tool.	Full tag read during start-up or alteration of monitored target items so as to correctly display the faceplate.
	Read one-shot tag	Read all specified tag data at once.	Read one-shot tag when writing tag data so as to read reply data.
Tag data write		Write the value of a tag data item	Execute write operation when altering the value of a tag data in the faceplate etc.
Return check		Check if the communication with CPU module is in normal operation	Execute this check when a communication open error occurs.
PLC status check		Check for CPU module error occurrence.	Whether a CPU module error has occurred or not can be checked on the monitor tool.
		Check whether the monitor target project set with the monitor tool matches the project in the CPU module.	If there is a mismatch between the monitor target project and the project in the CPU module, write of illegal tag data is prevented.
		Monitors the Redundant CPU operation mode and system status when monitoring the Redundant CPU.	Record the history when the Redundant CPU operation mode or operation mode is switched.
		Read the PLC CPU type name from the PLC CPU of the system specified in "Transfer Setup" to compare with the PLC type of the assignment information database file.	Issue the system alarm when the PLC type is incorrect.

*: The current value and maximum value of collection period can be confirmed by the communication status display screen (refer to Section 8.5).

POINT

- In order to communicate via the network, the network parameters of the GX Developer should be set. Please refer to GX Developer Operating Manual for the method of network parameter setting.
- Event notification adopt the communication among channels function over the MELSECNET/10(H) and the broadcasting communication function over the Ethernet. In order to execute event notification, the path for change notification should be set in the event notification of the project parameter setting of the program tool.
  For the methods of setting the project parameter, please refer to the operation PX Developer Operating Manual (Programming Tool)

APP

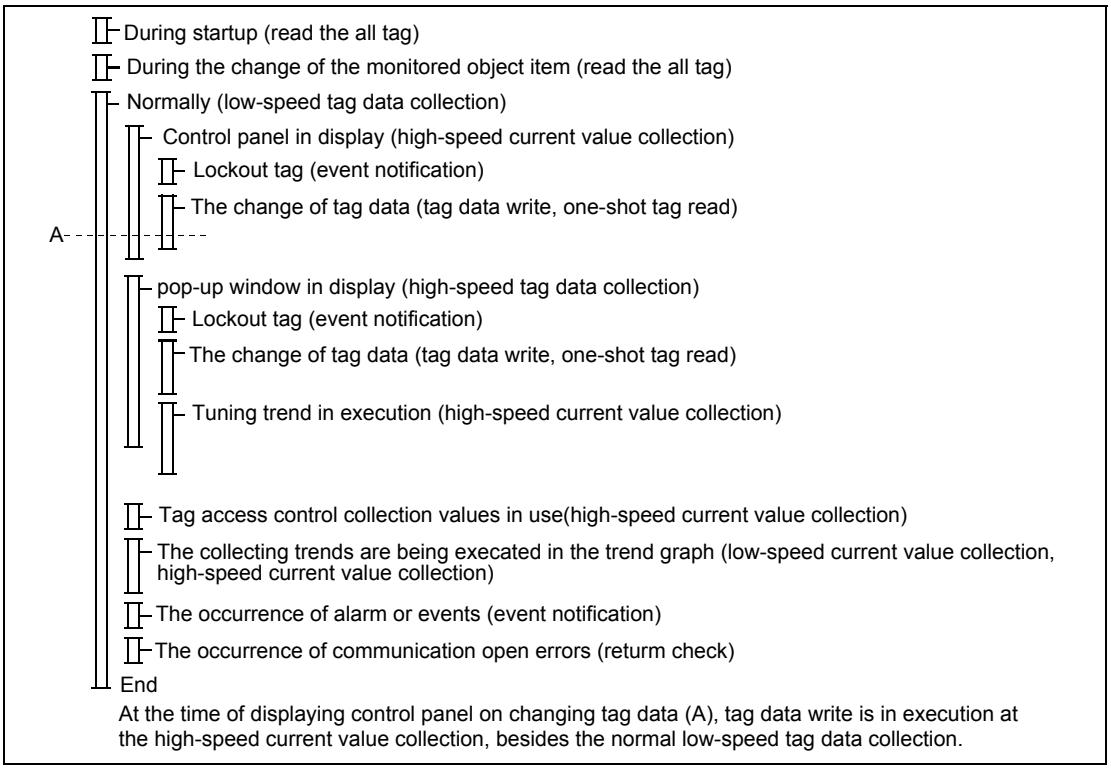
According to the display status of the screen, the communication methods adopted in the monitor tool can be categorized as following.

Condition		Communication type
During start-up		Read the all tag
Change of monitored target project		Read the all tag
Normally		Low-speed tag data collection, PLC status check *
Control panel in display		Low-speed tag data collection, high-speed current value collection
Pop-up window in display		High-speed tag data collection
Tuning trend in execution	With screen display	High-speed tag data collection, high-speed current value collection
	Without screen display	Low-speed tag data collection, high-speed current value collection
Being using tag to access control collection values		Low-speed tag data collection, high-speed current value collection
Being collecting trend data in the trend graph		Low-speed tag data collection, low-speed current value collection, high-speed current value collection
Occurrence of alarm or events		Event notification
Setting lockout tag		Event notification
Change of tag data		Tag data write, one-shot tag read
Occurrence of communication open error		Return check

*: The PLC status check is executed at intervals set to "PLC status check interval(s)" in the option setting (general). (Refer to Section 9.14.)

At the time of start-up of the monitor tool or the alteration of the monitored target project, updating of tag data is fundamentally executed with low-speed tag data collection after batch reading all registered tag data.
Collection of current value or high-speed tag data collection will be executed in the case of faceplate display etc which requires as real time updating of latest values as possible.

The diagram shown below presents the time sequence of each communication method.



App - 2

Appendix 1.2 Event notification

Limit the communication and monitor of alarms and events.
The CPU module only emits a notice when an alarm or event occurs.
The MELSECNET/10(H) applies the communication among channels function, but
The Ethernet applies the broadcasting communication function.

Communication direction	CPU module → monitor tool
Communication object	Altered tag data (96 words per tag)

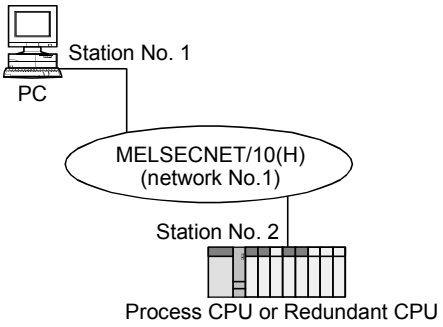
The items for detecting change of tag data are shown in the table as below.

Tag type	Tag data item		Memo
PID, 2PID, NREV, REV, MVAL1, MVAL2, PGS2	MODE	Mode	Control each selection item of the mode to be valid/invalid
	ALM	Alarm	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: display lockout tag No.
	DIM	Monitor input buffer	Occurrence/recovery status of each error, in-execution/non-execution status of a operation
2PIDH	MODE	Mode	Control each selection item of the mode to be valid/invalid
	ALM	Alarm	Occurrence/recovery status of each alarm
	ALM2	Alarm 2	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: display lockout tag No.
	DIM	Monitor input buffer	Occurrence/recovery status of each error, in-execution/non-execution status of a operation
PIDP, SPI, IPD, BPI, R, ONF2, ONF3, MWM, SEL, MOUT, PGS	MODE	Mode	Control each selection item of the mode to be valid/invalid
	ALM	Alarm	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: display lockout tag No.
MONI	ALM	Alarm	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: displayed lockout tag No.
BC, PSUM, TIMER1, TIMER2, COUNT1, COUNT2	ALM	Alarm	Occurrence/recovery status of each alarm
	CTNO	Lookout tag No.	0: no lockout tags, 1 to 32: displayed lockout tag No.
	DIM	Monitor input buffer	Occurrence/recovery status of each error, in-execution/non-execution status of a operation
ALM	ALM	Alarm	Occurrence/recovery status of alarm 1 to 8
MSG	MSG	Message	Occurrence/recovery status of event 1 to 8

Appendix 1.2.1 System configuration that is receivable event notification

(1) In case that transfer setup of a monitor tool is set to "MNET/10" or "MNET/H"

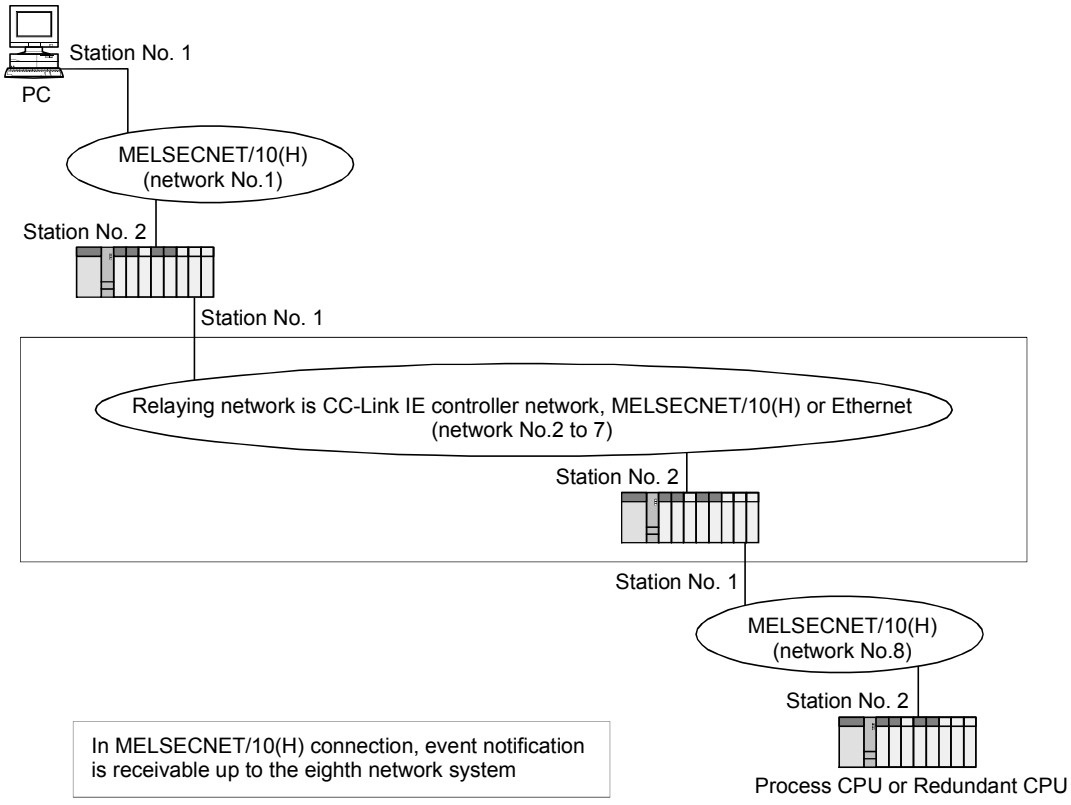
(a) Two-tier system



(b) Multi-layer system

Even when the network is consisted of CC-Link IE controller network, MELSECNET/10 (H) and Ethernet, event notification can be received[*1] when both networks connecting the computer to the PLC and connecting the relay station to the target PLC are MELSECNET/10(H).

*1: Event notification can be received from up to the PLC CPU in the eighth network system.



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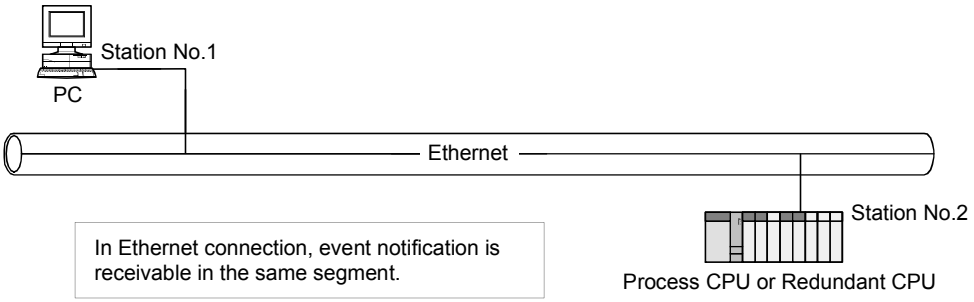
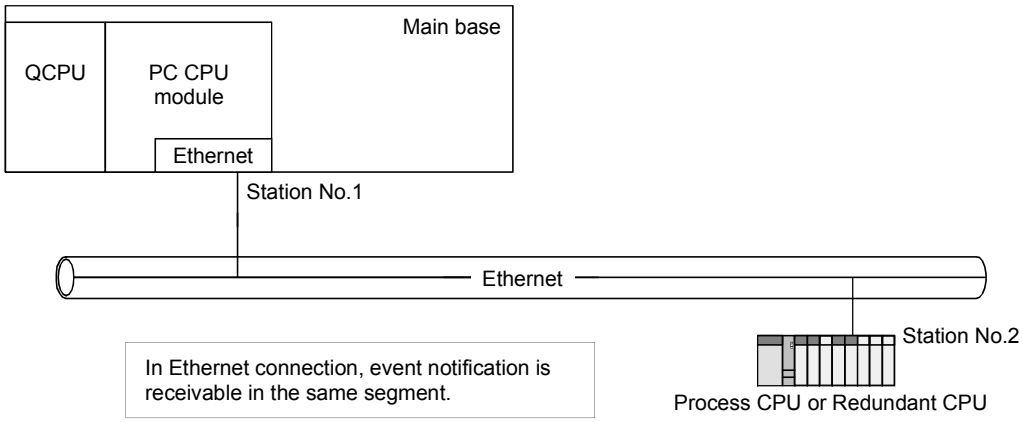
(2) In case that transfer setup of a monitor tool is set to "Ethernet"

In Ethernet connection, event notification is receivable from a PLC CPU in the same segment.



(3) In case that performing a monitor tool in a PC CPU

When the transfer setup of a monitor tool is set to "Ethernet", event notification is receivable from a PLC CPU in the same segment.



POINT

- The event notification does not work when using serial interface (RS-232), USB, CC-Link, CC-Link IE controller network, GOT transparent, to directly connect with the CPU module.
- The event notification does not work when the monitor tool is connected to the Redundant CPU via the Ethernet module mounted to a redundant type extension base unit.
- The event notification doesn't work normally when using the project parameter setting of the programming tool to specify the setting of No Event Notification.
- Even the event notification doesn't work normally; the occurrence of alarms and events is also notified via low-speed tag data collection (refer to Appendix 1.4). During the low-speed tag data collection, the time consumed from the occurrence of alarms or events till the notice to the monitor tool is directly proportional to the amount of registered tags.
- Make sure to use PX Developer Version 1.06G or later monitor tool to monitor the CPU module that includes the projects compiled using the PX Developer Version 1.06G or later programming tool.
  The PX Developer Version 1.04E or earlier monitor tool cannot receive the event notification sent by the project compiled using the PX Developer Version 1.06G or later programming tool.
- The Redundant CPU system receives the event notification when the operation system status or operation mode is changed.
- When the incorrect PLC Type system alarm has occurred, the received event notification data is abandoned.

Appendix 1.2.2 System configuration that can receive event notification

(1) On the occasion of MELSECNET/10(H) connection

To execute notification by using the communication function among channels. The channel number used in communication among channels is Channel No.1 (constant) at the receiver side of the monitor tool. Please set CPU module at the sender side of programming tool.

(2) On the occasion of Ethernet connection

The Ethernet uses the Broadcasting function to execute notification when it is connected.
The following settings are required in the network parameter setting of the GX Developer.

[Motion Setting]
- [Communication Data Code Setting]: Binary code communication
- [Initial timing]: Always waiting for OPEN (Communication possible at STOP time)
- [IP Address Setting]: (Assigned IP addresses)
- [Transmission Frame Setting]: Ethernet (V2.0)

[Open Setting]
- [Protocol]: UDP
- [Fixed Buffer]: Send
- [Fixed Buffer Communication]: No procedure
- [Pairing Open]: No pairs
- [Existence confirmation]: No pairs
- [Local station port No.]: (The No. not used by other connection.)
- [Destination IP Address]: Broadcasting ([IP Address] 255.255.255.255)
- [Dest. Port No.]: (the same as [Event Notification UDP Port No.] open setting of the monitor tool)

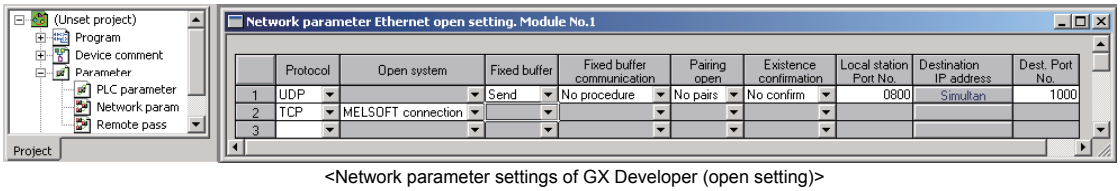
[Router Relay Parameter]
- [Router relay function] : Use
- [Sub-net mask pattern] : (Consult the network administrator before setting *1)
- [Default router IP address]: (Consult the network administrator before setting *2)

*1: Set the same setting configuration with the receiver side computer.
*2: If there is no router, set the IP address that is not used in the system for the address of router.

The open settings of the network parameter of the GX Developer have to be specified when using TCP to connect a single CPU module with multiple MELSOFT products (monitor tool, programming tool and GX Developer). (Not particularly necessary when using UDP to connect)
When the number of connected personal computers increases, the following settings in the network parameter should be added.

[Open Setting]
- [Protocol]: TCP
- [Open System]: MELSOFT connection

Please refer to GX Developer Operating Manual for details of the network parameter settings.

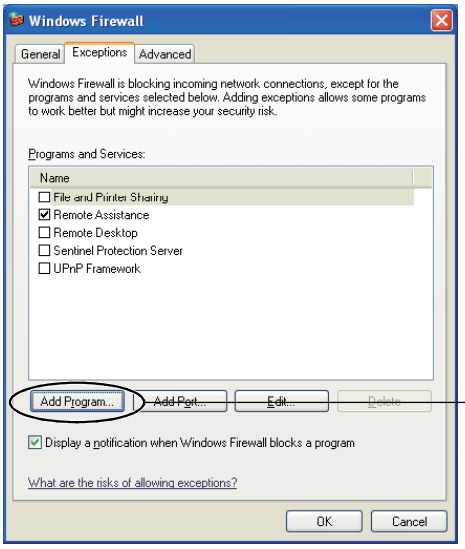


<Network parameter settings of GX Developer (open setting)>

POINT

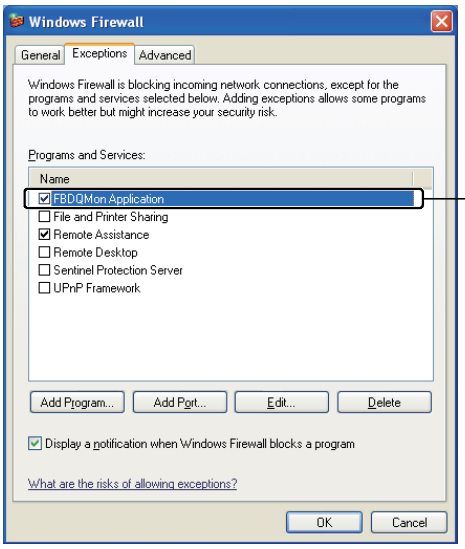
- When the setting for blocking the access to the monitor tool via a network is made with the security enhancement function (Windows® firewall) loaded to Microsoft® Windows® XP Service Pack2 and Windows Vista® , the monitor tool cannot receive event notification from the PLC CPU in Ethernet connection.
  In this case, add the monitor tool (C\:MELSEC\FBDQ\FBDQMon.exe*2) to the exceptions setting of Windows® Firewall*1 as follows.
  Note even when the monitor tool is set as the exceptional program, selecting the checkbox is required to enable the reception.

  (Before adding an exceptional program)



Add an exceptional program with the "Add Program…" button.

  (After adding an exceptional program)



The exceptional program has been added.

*1: For Windows® XP, the Windows® Firewall setting screen is displayed by selecting [Start] → [Control Panel] → [Security Center] → [Windows Firewall].
For Windows Vista® , it is displayed by selecting [Start] → [Control Panel] → [Security] → [Allow a program through Windows Firewall]
To change Windows Firewall setting, logon as a user in administrator group, having authority for controlling all operations of personal computer.

*2: When an installation destination path is changed during PX Developer installation, FBDQMon.Exe will be in the path after change.

Appendix 1.3 Collecting current value data

For such data as PV, SV and MV among the tag data items that need to be updated at high frequency, they are generally collected as current value data in the buffer area at the PLC side.
The current value data collection reads the current value data from the buffer area. It can be categorized into two types as high-speed current value collection and low-speed current value collection according to the length of read interval.

Communication direction	CPU module → Monitor tool
Communication target	Current value data

The tag data items of collected current values are listed in the table shown below.

Tag type	Tag data item		Remark
PID, 2PID, PIDP, SPI, IPD, BPI, R, ONF2, ONF3	PV	Process value	−
	MV	Manipulated variable	−
	SV	Set value	−
2PIDH	PV	Process value	−
	MV	Manipulated variable	−
	SVC	Set value (Current)	−
	SV	Set value (Target)	−
PGS	SV	Set value	−
	TYP	Motion type	Motion type when control mode is AUT
	PV	Process value	−
PGS2	SV	Set value	−
	STC	Executing step No.	−
	T	Time in the step	−
	PV	Process value	−
	TYP	Operation type	−
	SV0C	Start point (Current)	−
MOUT	MV	Manipulated variable	−
MONI	PV	Process value	−
MWM	PV	Process value	−
	MV	Manipulated variable	−
SEL	PV	Process value	−
	MV	Manipulated variable	−
	SLNO	Selection No.	Selected signal (0/1)
BC	SV1	Set value1	The 1st preset value when SV is reached
	SV2	Set value2	The 2nd preset value when SV is reached
	SV	Set value	−
	PV	Process value	−
PSUM	PV	Process value	−
NREV, REV, MVAL1, MVAL2	DIM	Monitor input buffer	−
TIMER1, TIMER2, COUNT1, COUNT2	PSV	Set value (Preset)	The preset value when SV is reached
	SV	Set value	−
	PV	Process value	−
	DIM	Monitor input buffer	−

POINT

The current values and maximum values collected by this communication (high-speed current value collection, low-speed current value collection) can be confirmed on the communication condition screen (refer to Section 8.5).
When the collection period is long, refer to Appendix 1.8 and take corrective action.

(1) High-speed current value collection

It is the current value collection for use of control panel displaying, trend collecting of trend graph (only when the sampling period is 1 second) and tuning trend collection.

Read for the purpose of high frequency refreshing the current value monitoring display on the control panel.

Read the current value data of tag at about 1-second intervals.

POINT
Based on tag data item number that is being monitored and CPU module scanning execution conditions, the collection period may be longer than 1 second.

(2) Low-speed current value collection

Read the variance if the current value data has been entered to trend pen. (However, read if the sampling period is set to 1 second, read via high-speed current value collection.)

Read the current value data at about 10-second intervals.

Appendix 1.4 Collecting tag data

The tag data collection reads tag data. It can be categorized into 4 types according to different read interval and targets.

(1) High-speed tag data collection

Read the tag data displayed in the pop-up window at about 1-second intervals.

Communication direction	CPU module → Monitor tool
Communication target	Tag data (96 words per tag) in display

(2) Low-speed tag data collection

Read 1 tag data every 5 seconds from all the tags registered in the monitor tool. If the amount of tags reaches the maximum, it will take 3840 (8X480) seconds to accomplish reading all the tags in one loop.

Communication direction	CPU module → Monitor tool
Communication target	All the tag data (one time every 5 seconds, maximum 5 tags)

(3) Full tag read

Read all the tag data of the registered tags in the monitor tool during start-up or change of object items.

Communication direction	CPU module → Monitor tool
Communication target	All the tag data

(4) One-shot tag read

After Tag data are written, read the object tag data so as to confirm the written result.

Communication direction	CPU module → Monitor tool
Communication target	Write-in tag data (96 words per tag)

POINT

The current values and maximum values collected by this communication (high-speed tag data collection, low-speed tag data collection) can be confirmed on the communication condition screen (refer to Section 8.5).
When the collection period is long, refer to Appendix 1.8 and take corrective action.

Appendix 1.5 Writing tag data

The write tag data writes tag data. It can be categorized into 2 types according to different tag data write-in targets.

(1) Word writes

Directly write WORD, DWORD, INT, DINT, REAL type tag data items without any conversion of the set values.

Communication direction	Monitor tool → CPU module
Communication target	Changed tag data items

(2) Bit write

Write the set value in bit unit to BOOL type tag data items

Communication direction	Monitoring tool → CPU module
Communication target	Changed tag data items

(3) Bit writing with Radio button form

As for the tag data items in the radio button form where the other buttons turn OFF when one of them is selected for ON, perform bit write that will turn ON the selected bit item and turn OFF the other bit items.

Communication direction	Monitor tool → CPU module
Communication target	The changed tag data items

POINT

- If the communication is abnormal, tag data cannot be written. (The "Communication status is abnormal" error message dialog box is displayed.) Check the connection status of the communication cable, the PLC connection target or other to return the communication condition to normal, and then write the tag data again.
- In the initial setting, tag data can be written if the monitor target project set with the monitor tool differs from the project in the CPU module (project ID code inconsistency).
  However, if tag data is written when the project ID codes inconsistency, the system may malfunction. Change the "Write tag data (even if the PC's and PLC's project ID code are different)" setting of the option setting (general) to "Disable" when operation has been started after completion of system adjustment.
- If tag data cannot be written when the project ID codes inconsistency, reload the monitor target project or perform PLC download after execution of compile with the programming tool, and then write the tag data again.

REMARK

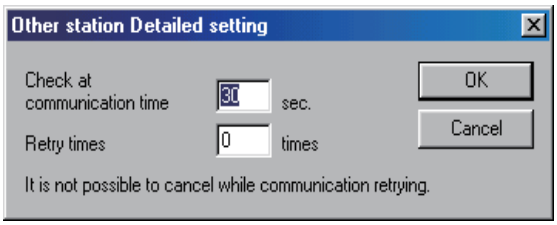
If tag data write operation is executed, the event will be displayed in the operation history. (refer to Section 7.4.1)

Appendix 1.6 Return Check

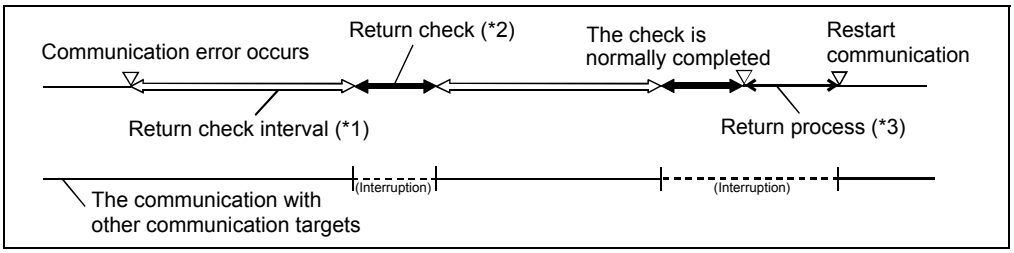
PX Developer checks if the communication has returned to its normal operation when a communication open error occurs because of malfunctions of CPU module etc.
This function is "Return check"

Return check will be executed repeatedly before normal communication is confirmed. After the return check is normally finished and normal communication is confirmed, a return processing operation will be executed for system reconnection.

The interval (*1) of the return check and the timeout (*2) of the check return itself can be arbitrarily varied by unit of seconds. Please use the option setting (general) to set [Return Check Interval (s)] and [Return Check Time-out (s)] (refer to Section 9.14). Please use [Other stations] in the "Transfer Setup" dialog box of the monitored target project setting to set [Check at communication time] of the timeout of the recovery processing (*3) operation. ([Retry times] setting is not necessary, because the return processing is executed after communication is confirmed.)



The diagram shown below illustrates the situation when the normal communication has been confirmed during the 2nd check of return.



POINT

When Return check is working for the system including Redundant CPUs, reconnection is performed for each route at the return check intervals (seconds), if a communication error has occurred in the following routes.

- The route specified in the Transfer Setup.
- The route to connect to system A.
- The route to connect to system B.

Maximum of 3 times the connection route timeout (seconds) is required to perform Return check when all of the above connection routes have been disconnected

REMARK

If frequent accesses to the CPU module, which has communication errors, are executed before the return of normal communication, the communication with other communication targets will be delayed. In order to avoid this situation, please adjust [Return Check Interval (s)] and [Return Check Time-out (s)] at high speed. During [Return Check Interval (s)]], the connected targets, which have no communication errors, can communicate normally.

Appendix 1.7 PLC status check

The monitor tool checks for error occurrence in the CPU module and checks the projects.
The PLC status check indicates the following checks.

- Check for CPU module stop error
- Check for CPU module operation continue error
- Check of project ID code
- CPU model name check
- Redundant CPU operation mode check
- Redundant CPU control/standby system status check
- Redundant CPU system A/B identification flag check

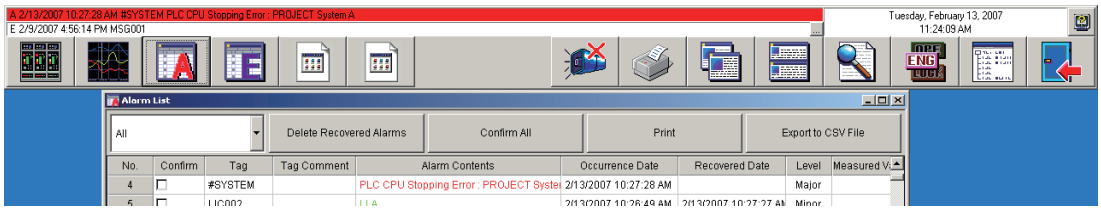
(1) Check details and error display positions in PLC status check

This section explains the check details and error display positions in PLC status check.

(a) Check for CPU module stop error

[Check details]
Whether a stop error has occurred in the CPU module or not is checked.
If a stop error has occurred in the CPU module, the "PLC CPU stopping error" alarm occurs on the monitor tool.

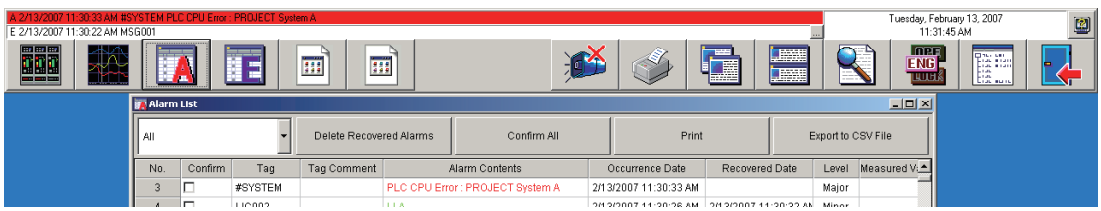
[Error display position]
The alarm is displayed on the monitor toolbar and in the alarm list.



(b) Check for CPU module operation continue error

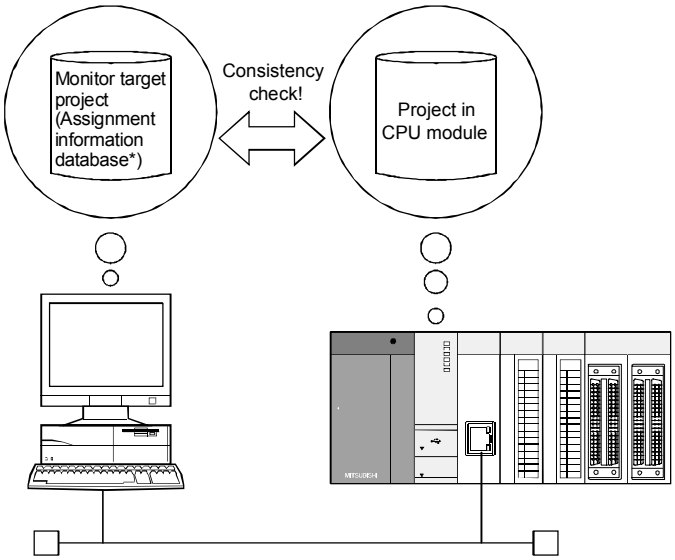
[Check details]
Whether an operation continue error has occurred in the CPU module or not is checked.
If an operation continue error has occurred in the CPU module, the "PLC CPU error" alarm occurs on the monitor tool.

[Error display position]
The alarm is displayed on the monitor toolbar and in the alarm list.



(c) Check of project ID code

[Check details]
Whether the monitor target project set with the monitor tool matches the project in the CPU module or not is checked.
When the monitor target project does not match the project in the CPU module, illegal tag data write is prevented.
If the project ID codes do not match, the "project ID code inconsistency" alarm occurs on the monitor tool.



: The assignment information database indicates the ".mdb" file created at execution of compile with the programming tool.
This file contains the assignment information of variables that stores tag data, etc. and the device information of the CPU module.

[Error display position]
The alarm is displayed on the monitor toolbar and in the alarm list.

(d) CPU model name check

[Check details]
Read the PLC CPU type name from the PLC CPU of the system specified in "Transfer Setup" to compare with the PLC type of the assignment information database file.
When PLC type is incorrect, issue the "Incorrect PLC Type" alarm.

[Error display area]
The alarm is displayed in the monitor tool bar and alarm list.

(e) Redundant CPU operation mode check

[Check details]
Check if the operation mode has been changed or not.

[Display area]
The operation mode is displayed in the operation mode area of the communication status screen.

[Event record]
Record the operation mode switching event when the operation mode is changed.

(f) Redundant CPU control/standby system status check

[Check details]
Check the control/standby system status.
When an element of inconsistency is found in the control/standby system status, "Redundant system: Control/Standby System Status Error" for each system.

[Display area]
The control/standby system status is displayed in the Communication Status system A/B area.

[Error display area]
The alarm is displayed in the monitor tool bar and alarm list.

[Event record]
Record the control system switching event when the standby system is switched to control system.

(g) Redundant CPU system A/B identification flag check

[Check details]
When an element of inconsistency is found in the system A/B identification flag, issue the redundant system A/B identification error for each system.

[Error display area]
The alarm is displayed in the monitor tool bar and alarm list.

POINT

If the "PLC CPU stopping error" or "PLC CPU error" occurs, download of data to the CPU module can be performed.
When the error is caused due to the setting of illegal tag data, set the tag data again.
The error definition can be checked by the FBD program diagnostics of the programming tool.

REMARK

Refer to Section 6.3 for details of the monitor toolbar.
Refer to Section 7.3 for details of the alarm list.

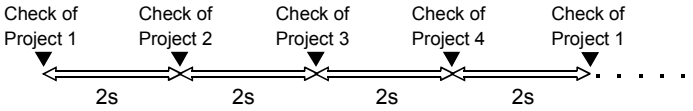
(2) PLC status check timing

The PLC status check is performed at any of the following timings.

- When the monitor tool starts
- When the monitor target project is reloaded
- At the "PLC status check interval (s)" set in the option setting (general)

POINT

When multiple projects are being monitored, the PLC status check is performed for each project as explained below.
The PLC status check is designed to check one project during the time set to "PLC status check interval(s)" in the option setting(general).
For example, if four projects are monitored with the "PLC status check interval(s)" set to "2", one project will be checked at 8-second intervals.



(3) Recovery procedure and timing for alarm that has occurred due to PLC status check

Use the following procedure to clear the alarm that has occurred due to PLC status check.

(a) Recovery procedure

[CPU module stop error or CPU module operation continue error]

1) On the alarm list screen, double-click the line of the alarm that has occurred due to PLC status check.
   The system alarm details dialog box is displayed. (Refer to Section 7.3.)
2) The error code is displayed in the system alarm details dialog box.
   Click "PLC error" within the Help menu on the monitor toolbar to display the error code list. (Refer to Section 6.3.1 (5).)
   Observe the "corrective action" in the error code list.

[Project ID code inconsistency error]

Reload the monitor target project (Refer to Section 9.3).
Observe this instruction as well when PLC download is performed with the programming tool.

[When the PLC type is inconsistent]

The assignment information database file and the PLC CPU connected to the file are different in the PLC type. Correct the PLC connection target settings.

[When the redundant system operation status error has occurred]

The possible cause is that the tracking cable has not been connected or broken when the CPU is started.
Check the tracking cable.

[When the redundant system A/B identification error has occurred]

1) Check the Redundant CPU settings of network parameter.
2) The possible cause is that the tracking cable has not been connected or broken when the CPU is started.
   Check the tracking cable.

(b) Recovery timing

To recover from the alarm that has occurred due to PLC status check, resolve the cause of the alarm.

Appendix 1.8 Measures for delayed collection periods

Following table describes the reasons and measures for delayed high-speed current value collection and high-speeding tag data collection.

Reasons	Measures (execute operations (a) to (c))
The scan time of CPU module is long	(a) Please make the program start frequency of scan lower according to different period types of program. (b) Divide this program into several small programs including necessary operation. Set some of them as "Scan" type and some of them as "normal" or "low" types also set their phase. (c) Set "Communicates with peripherals after program execution" in program execution setting of the programming tool. (For details, refer to the Operating Manual (Programming Tool).)
Execute monitoring when multiple CPU module is connected with a single PC	(a) Please reduce the CPU module connected and monitored by one personal computer.
Execute monitoring when multiple CPU module is connected with multiple PC	(a) Please reduce the collection of trend data and tuning trend from CPU module.
Network is crowded	(a) When Ethernet is applied, please reduce other kinds of computer communication. (b) When MELSECNET/10 or MELSECNET/H is applied, please reduce the number of station and total link station. (c) Please set the communication speed at 25 Mbps.
Displaying control panel screen or pop-up faceplate	(a) Please close the control panel screen or pop-up faceplate if it is not necessary.
Different project tags exist in a same group of control panel screen	(a) Divide the control panel setting in several groups for each project.
The range of assigned device of tag that executes trend collection becomes wide	(a) Please narrow the range of assigned device of tag that executes trend collection. Assignment device of tag is displayed in tag FB declaration window of program tool. For example, if No.1, No.2 and No.100 (line number) tags in tag FB declaration window of program tool are monitored, please move No.100 tag to No.3 in tag FB declaration window. *

*: There are limits for moving (changing) tag FB line number in the tag FB declaration window of programming tool. For details, please refer to [PX Developer Operating Manual (Programming Tool)].

Appendix 1.9 Communication with Redundant CPU

This section explains the communication with Redundant CPU using the monitor tool.

Appendix 1.9.1 Communication route for monitoring

The monitor tool monitors the Redundant CPU in the following communication routes.

(1) The communication route specified in "Transfer Setup".
Reads/Writes the tag data in the communication route specified for the Redundant CPU specified as the connection target.

(2) The communication route that the monitor tool uses in the system
Always monitors CPUs of both system A and B in the two communication routes for both system A and B that the monitor tool use in the system.

Appendix 1.9.2 Monitor operation when the system is switched

This section explains the operation performed when Redundant CPU system switching occurs.

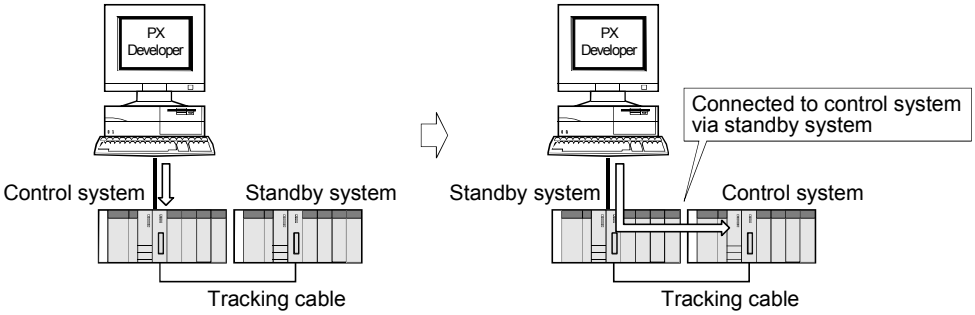
(1) The communication route specified in "Transfer Setup".

Target system	When the system is switched
Control system	The communication is continued according to system switching.
Standby system	
System A	The communication with system A is continued.
System B	The communication with system B is continued.
Not specified	• Via a module mounted to a main base unit or in CPU direct coupled connection: The communication with the target CPU is continued. • Via a module mounted to the redundant type extension base unit: The communication is continued with following system switching.

<Example>

When system switching occurs during access to the Redundant CPU with the "control system" selected as the target system, access is continued as shown below.

<CPU direct coupled connection>



(2) Communication route used by monitor tool in system
The Redundant CPUs of System A and System B are monitored regardless of whether system switching occurred or not.

Appendix 1.9.3 Monitor operation when a communication error has occurred

This section explains the operation performed when a communication error occurs while the Redundant CPU is being monitored.

(1) The communication route specified in "Transfer Setup".

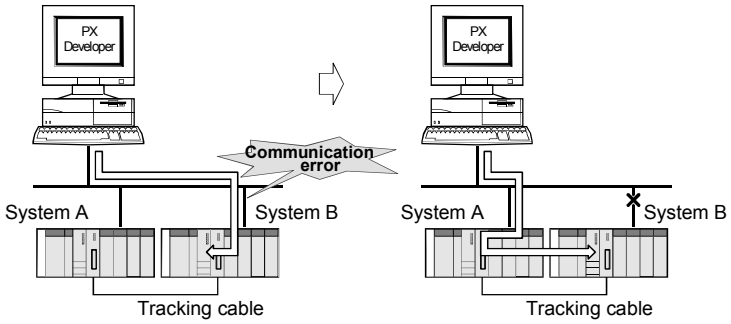
(a) In the backup mode or separate mode

Target system	When a communication error has occurred.
Control system	When the CPU module is connected via the MELSECNET/H module or an Ethernet module mounted to a main base unit, the communication is continued by automatically switching the connection route. (Automatic switching of communication route is hereafter abbreviated to route switching.)
Standby system	
System A	
System B	
Not specified	A communication error occurs without route switching being executed.*1

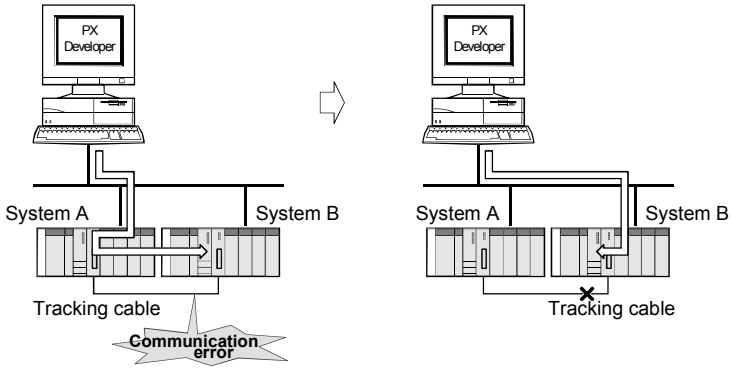
*1: A communication error message is displayed and monitor operation is suspended.
The monitor operation is restarted when the normal communication of monitor tool has been confirmed.

When a communication error occurs during access to the Redundant CPU with "System B" selected as the target system, access is continued as shown below.

1) When network error occurs



2) When tracking cable error occurs



(b) In the debug mode

A communication error occurs without route switching being executed. (Refer to (a)*1.)

(2) Communication route used by monitor tool in system

A communication error occurs without route switching being executed. (Refer to (a)*1.)

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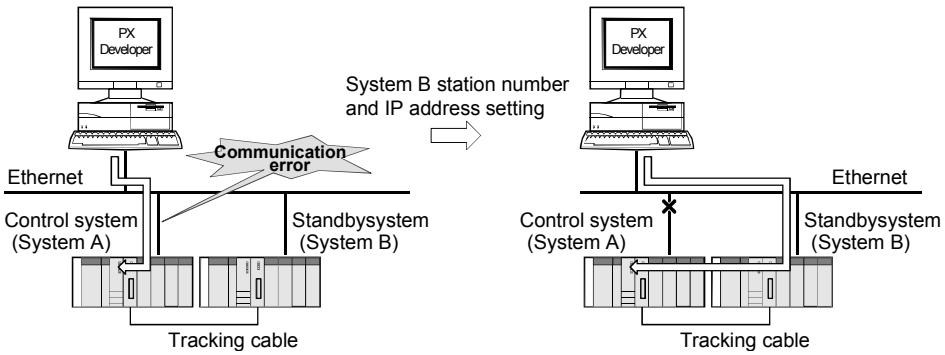
POINT

If communication cannot be made with the Redundant CPU set in the transfer setup at the first connection in the monitor of the Redundant CPU, the monitor of that Redundant CPU is not started. The first connection indicates the following case.

- When the monitor tool is started
- When "Apply" or "Reload" button is clicked in the monitor target project setting.

In this case, restart communication after removing the communication disturbance or changing the transfer setup to the station number of the other Redundant CPU.

<Example> When the control system is set as the target system and the station number and IP address (host name) of the Ethernet module in System A is set as the PLC side I/F on the transfer setup screen
If communication cannot be made with the Ethernet module of System A at the first connection to the monitor tool, a communication error occurs without route switching being executed.
To start communication in this case, set the station number and IP address (host name) of the Ethernet module in System B as the PLC side I/F.



Appendix 2 Monitor Tool Startup Option

The monitor tool can be started with the monitor toolbar/start-up screen hidden and by the mode that matches the authority of the user.

Appendix 2.1 Starting under hiding status

When the monitor tool starts up, it can start up without displaying the monitor tool bar and the start-up screen if the following arguments are specified.

Argument	Operation	Example
/h or /H	Starts up the Monitor tool without displaying the monitor toolbar.	C:\Melsec\Fbdq\FBDQMon.exe /h
/nologo or /NOLOGO	Start up without displaying the start-up screen	C:\Melsec\Fbdq\FBDQMon.exe /nologo

POINT

- If starting up the argument specified /h and /nologo, the monitor tool can be activated without any influence on the displayed screen.
- Please start up the monitor tool in the mode which is corresponding to the user name and authority set initially when using user setting (refer to Section 9.2) to set the system, if you do want to start up the system without displaying the monitor tool bar (/h specified).

  Example 1) User setting goes as follows:

No.	User name	Password	Authority
1	User001	******	Operator
2	User002	****	Engineer

  → use the Operator Mode to activate the monitor tool.

  Example 2) Initialized user settings (as shown below)

No.	User name	Password	Authority
1	Admin	*****	Engineer
2			

  → use the Engineer Mode to activate the monitor tool.
  (Normally the monitor tool is activated in the lock Mode, refer to "Chapter 4 Mode Administration")
- If the user is specified* (/u, /p specified) as well as the monitor toolbar is set to be hidden (/h specified), the monitor tool is activated in the mode that matches the authority of the user.
  *: Refer to Appendix 2.3.

Appendix 2.2 Switching between monitor toolbar show/hide after starting

The monitor tool bar can be changed between Show/Hide after start-up.

(1) Use the icon in the taskbar

The monitor tool bar can be changed between show/hide via the icon in the taskbar.
The operation procedure goes as follows:

1. Start up the Monitor tool.
2. Display the icon of the monitor tool bar in the taskbar.

[Show Monitor Toolbar]

1. If the monitor tool bar is hidden, right click the icon and select [Show Monitor Tool bar] in the displayed menu.
2. Show the monitor tool bar.

[Hide Monitor Toolbar]

1. If the monitor tool bar is in show, right click the icon in the taskbar and select [Hide Monitor Tool bar] in the displayed menu.
2. The monitor tool bar is hidden again.

POINT

- If the monitor tool bar is displayed from hidden status after activation, it will not occupy "Desktop" area, and the other windows can be overlapped over the monitor tool bar and be displayed.
  (When the monitor toolbar is switched from hidden status to displayed status after normal start-up, the toolbar is always displayed in front of other windows. Refer to Section 6.1 Overview of Screen Configuration)
- When the setting window is in display, the monitor tool bar cannot be hidden.

(2) Use the control application

Display status of the monitor toolbar can be switched using MonCtrl command during the Monitor tool start-up.
Refer to Appendix 3.2.

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Appendix 2.3 Starting the Monitor Tool by the Mode That Matches the Authority of the Specified User

This section explains how to specify the user who starts the monitor tool by using arguments.

Argument	Description	Example
/u or /U	Specify the user name to be used at the startup of the monitor tool by the mode that matches the authority of the specified user. (The user name is case sensitive.) Enter the user name after the argument /u and a space.	Refer to the example below.
/p or /P	Specify the password to be used at the startup of the monitor tool by the mode that matches the authority of the specified user. (The password is case sensitive.) Enter the password after the argument /p and a space. When the password has not been specified for the user (refer to Section 4.6), this argument specification is not needed. This argument is always used with the argument /u.	

[Example]
C:\Melsec\Fbdq\FBDQMon.exe /u username /p password

[Example (when space is included in user name or password)]
When a space is included in the user name or password, enclose the user name or password in " " (double quotations).
C:\Melsec\Fbdq\FBDQMon.exe /u "PX Dev" /p "mon tool"

POINT

- If the user name specified with the argument has not yet registered or the password does not match the preset one, the monitor tool starts up in the lock mode.
- If the user is specified (/u, /p specified) as well as the monitor toolbar is set to be hidden (/h specified), the monitor tool is started up in the mode that matches the authority of the specified user.
- When starting the monitor tool in the mode that matches the authority of the specified user, do not use a "/" (slash) or "-" (hyphen) in the first character of the user name and password.

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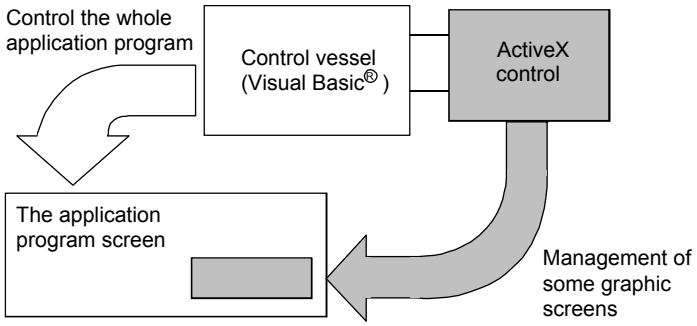
Appendix 3 External Control of the Monitor Tool

Appendix 3.1 ActiveX control

The so-called ActiveX is a kind of compound technology offering service among different software components. Because the standard method of the so-called COM (Component Object Model) is adopted, different software can converse in the network environment no matter what kind of languages used for different softwares. If using ActiveX, users can embed other software's screen into a certain software graphic screen such as embedding the table (made with Microsoft® Excel) in the Microsoft® Word page for making files. (This kind of object linking and embedding technology is called OLE.)
The so-called ActiveX control is a software component that executes particular process. It itself is not an executable application program component. ActiveX control needs to be plugged-in control containers like Visual Basic® and Web browser program. Designer can create a software with wide range of functions by combining the exiting Active X controls without coding all of the necessary functions.



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Appendix 3.1.1 Tag Data Access Control

Tag data access control is the ActiveX control that acquires or sets tag data value. For format such as appearance please refer to the command button control provided by Visual Basic® .
Users can freely arrange tag data access control button on user-created screen. Click the button to display pop-up faceplate screen (refer to Section 7.6) of tags. With tag data access control, users can separately specify tag data item and acquire/set its value.

The tag data access control can be used as the pop-up faceplate display button or control to acquire/set tag data.

(1) When used as a display button of pop-up faceplate.

Please set the property dialog box to display faceplate at click event.
(ClickedShowFaceplate = True)
Click the tag data access control button in the screen, and the pop-up faceplate screen of the specified tag appears.

(2) Used for acquiring or setting tag data value

Set the corresponding button hidden when required.
(Visible = False).
Use the item property of tag data access control to acquire/set tag-data item value in the program.
If the acquired tag-data item value is set for display programming on other control of the screen, such as text box, the tag item value will appear in the screen.
Or, the SV value can be set on user-created screen if programming by replacing the Item property of tag data access control with input value in text box.

POINT

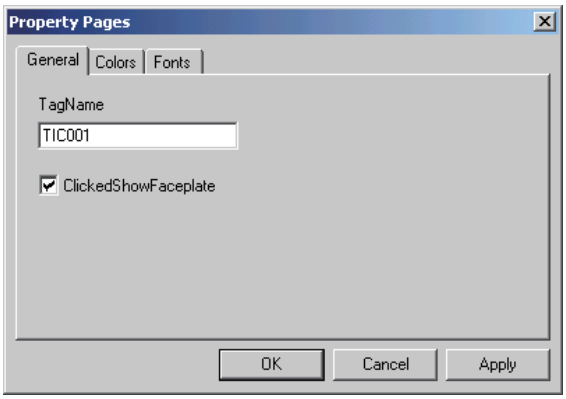
- The faceplate cannot be displayed when the monitor tool is not started. And some value cannot be acquired/set according to the Item property.
- After the faceplate is shown, even if the application program as a start-up resource is closed, the faceplate screen cannot be closed.
- The faceplate control is executed through the monitor tool, so when the monitor tool is exit, the faceplate screen is closed too.

Appendix 3.1.1 [1] Custom Property

The custom property is an interface to the container provided by the controller.
The following is a custom property list of tag data access control.

Custom property	Content
TagName	Specify the name of target tag. Additionally, properties can be acquired and set on the user-created screen.
ClickedShowFaceplate	Specify whether to show the faceplate by clicking event. (TRUE: display/FALSE: not display) Additionally, properties can be acquired and set on the user-created screen.
Item	Tag data item value can be acquired and set.

The <<General>> tab in the custom property dialog box can be used to set the TagName and ClickedShowFaceplate of the custom property of TagDataAccess control.



<Property dialog box>

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Following paragraphs explain the custom properties of tag access data control itself.

(1) TagName property

Specify the name of the tag as access target.

TagName property	
Syntax	Object. TagName
Argument	Object: specify the name of tag data access control object. TagName: specify the name of tag as access object to String type character string.
Data type	String type
Comment	Specify the name of tag as access object. Additionally, tag name specified by TagName property can be acquired or set in execution. If same tag name exist in different projects, the name shall be specified in format of (project name): (tag name). If the same tag name exist in different projects and the name is not specified in the above format, the project tag whose priority is higher is taken as the access object.
Example	<Acquire tag name> Val=TagDataAccess1.TagName <Set tag name> TagDataAccess1.TagName="LIC001" or TagDataAccess1.TagName="Project1: : LIC001"

(2) Item property

Acquire/set the value of tag data item of tag name that is specified by TagName property of tag data access control.

Item property			
Syntax		Visual Basic® 6.0: object.Item(”Name”), Visual Basic® .NET: Acquire tag data: object.get_Item(”Name”), Set tag data: object.set_Item(”Name”,Value) Object: specify the name of tag data access control object.	
Argument		Name: specify the tag data item name of acquire/ set value as String type character string. Value: Specify the setting value to the tag data item name as a Variant type.	
Data type		Variant type	
Comment		Acquire/set value of tag data item in the tag that is specified by TagName property of tag data access control. Value of tag data item specified by argument "Name" can be acquire/set in execution. However, if the tag data item specified by argument "Name" does not exist, error will occur. Error object will be created when error occurs.	
Example		Visual Basic® 6.0	Visual Basic® .NET
	Acquire tag data	Debug.Print TagDataAccess1!PV or Debug.Print TagDataAccess1(”PV”) or Debug.Print TagDataAccess1.Item(”PV”)	Debug.WriteLine (TagDataAccess1!PV) or Debug.WriteLine (TagDataAccess1(”PV”)) or Debug.WriteLine (TagDataAccess1.get_Item(”PV”))
	Set tag data	TagDataAccess1!SV = 50.0 or TagDataAccess1(”SV”) = 50.0 or TagDataAccess1.Item(”SV”) = 50.0	TagDataAccess1!SV = 50.0 or TagDataAccess1(”SV”) = 50.0 or TagDataAccess1.set_Item(“SV”,50.0)

POINT

- For details about the tag item of tag data that can be written and read by users' program, please refer to PX Developer Programming Manual.
- I/O mode and control mode can be changing.
  For details about mode changing conditions, please refer to Section 10.3.2 and Section 10.3.3.
  There are limits in changing I/O mode and control mode according to different tag types.
  For details, please refer to PX Developer Programming Manual.
- Tag data can not be set in the following situations.
  1) In lock mode
     (Please change to engineer mode or operator mode before setting tag data)
  2) Faceplate with lockout tag
     (Please remove the lockout tag from the faceplate that is related to the setting tag data)

(3) ClickedShowFaceplate property

To specify whether to display show faceplate by clicking event.

ClickedShowFaceplate property	
Syntax	Object: ClickedShowFaceplate
Argument	Object: specify the name of tag data access control object. ClickedShowFaceplate: specify whether to display faceplate by clicking event.
Data type	Boolean type
Comments	Set whether to display faceplate by clicking event. TRUE: Display faceplate when click event occurrence. FAULSE: Does not display faceplate when click event occurrence. Additionally, contents specified by ClickedShowFaceplate property can be acquired or set in execution.
Example	<Acquire whether display faceplate or not> Val=TagDataAccess1.ClickedShowFaceplate <Set whether display faceplate or not> TagDataAccess1.ClickedShowFaceplate=True or TagDataAccess1.ClickedShowFaceplate=False

Appendix 3.1.1 [2] Method

Method is the processing available for turning to objects for execution. The methods tag data access control are displayed.

- ShowFaceplate method
  Pop-up faceplate displayed.
  The details are as follows:

Item	Content
Name	ShowFaceplate
Grammar	Object. ShowFaceplate
Argument	Object: Specifying the name of tag data access control objects.
Return value	Display the executing result with Boolean type. (True: Success/False: Error Occur)
Description	Pop-up faceplate screen is displayed in modeless status. In the screen, the displayed tag data are specified by tag names set in the property of tag data access control. Error objects are generated at the occurrence of error.
Example	Dim Ret As Boolean Ret=TagDataAccess1.ShowFaceplate

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Appendix 3.1.1 [3] Event

Event is a notification process about status change such as clicking control or keyboard operation from control to container.
The following events can be used in tag data access control.
For the details, please refer to MSDN library through the help function of Visual Basic® .

Event	Content
Click	When objects are pointed by users mouse, the event occurs after releasing the button.
KeyDown	When objects are focused, the event occurs after pressing the button.
KeyUp	When objects are focused, the event occurs after releasing the button.
DragDrop	The event occurs after drag-drop operation completed
DragOver	In the drag-drop operation, the event occurs when mouse pointer is dragged over the object.
GotFocus	The event occurs when the focus is set at the object.
LostFocus	The event occurs when the object looses the focus.
Validate	The event occurs before moving focus to the control set as True in CausesValidation Property.

Appendix 3.1.1 [4] Error list

Error detection will be executed by tag data access control in the following cases:

(1) Error objects are not created

Error message box will be listed which gives the error contents.

Occurrence timing	Message	Reasons	Measures
Click button when ClickedShowFaceplate=True	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	The connection with PX Developer monitor tool failed.	Registered data has been damaged.	Please restart monitor tool.
	Failed in registering a tag name to the list of tags collected at high speed. Setting window is being displayed.	The Setting window of monitor tool is in display.	Please close the setting window.
	Failed in registering a tag name to the list of tags collected at high speed. The tag name is incorrect.	Tag name set by TagName property is invalid.	Please check tag name.
	Faceplate cannot be displayed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the Setting window.
	Faceplate cannot be displayed. A message box is displayed. Or it is in the state which cannot display a faceplate.	(a) The message box is being displayed. (b) Waiting for the user graphic screen to be closed.	(a) Close the message box. (b) After the user graphic screen has been closed, display the faceplate.
	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

REMARK

- Control container is Visual Basic® and Web browser that ActiveX controls are inserted to and applied.
- High-speed current value collection is a type of communication executed by monitor tool. Please refer to "Appendix 1.3 Current value data collection". High-speed current value collection of tag set by TagName property is executed on tag data access control.

(2) Create error object

Error object will be created when error occurs. The "No." in the following table are the code numbers of the created error object.

Occurrence timing	No.	Message	Reasons	Measures
Setting TagName property	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	1002	The connection with PX Developer monitor tool failed.	Registered data has been damaged.	Please restart monitor tool.
	1003	Failed in registering a tag name to the list of tags collected of high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in registering a tag name to the list of tags collected of high speed. The tag name is incorrect.	The name set by tag name property is invalid.	Please check the tag name.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only on Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

Occurrence timing	No.	Message	Reasons	Measures
Executing Item property	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	1002	The connection with PX Developer monitor tool failed.	Registered data has been damaged.	Please restart monitor tool.
	1003	Failed in registering a tag name to the list of tags collected of high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in registering a tag name to the list of tags collected of high speed. The tag name is incorrect.	The name set by tag name property is invalid.	Please check the tag name.
	1006 *1	Failed in acquiring the tag data. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in acquiring the tag data. The tag Item name incorrect.	The set tag data item name is invalid.	Please check tag data item name.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only on Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1008 *1	Failed in setting the tag data. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in setting the tag data. Cannot operate it in lock mode. Please switch to operator or engineer mode.	Mode of monitor tool is lock mode.	Please set the mode to Engineer mode or Operator mode.
		Failed in setting the tag data. Tag Item name is incorrect.	The set tag data Item name is invalid.	Please check the tag data item name.
		Failed in setting the tag data. This item cannot be set.	Set value of tag data item whose value is not allowed to be set.	Please manage to acquire the value not setting the value of set tag data item.
		Failed in setting the tag data. The specified type is incorrect.	Set invalid data type to tag data item.	Set valid data type to set tag data item.
		Failed in setting the tag data. Alternative bit items should be set to TRUE.	Set FALSE or 0 to this item.	Please do not set FALSE or 0 to this item.
		Failed in setting the tag data. The state transition of Control mode is invalid.	The state transition of control mode is invalid. Tried to change control mode by specifying untransferable mode.	Specify valid mode switch.

*1: Occur only when tag data is acquired.

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Occurrence timing	No.	Message	Reasons	Measures
Executing Item property	1008 *2	Failed in setting the tag data. It is not changed by the specified control mode in a present I/O mode.	Tried to change control mode when I/O mode is OVERRIDE or TAG STOP.	Set I/O mode to the mode other than OVRRIDE and TAG STOP.
		Failed in setting the tag data. Please operate this after changing control mode into MANUAL.	The operation that is not executable in the control mode other than MANUAL is performed (I/O mode change or command bit setting in a status tag).	Set control mode to MANUAL.
		Failed in setting the tag data. The state transition of I/O mode is invalid.	Illegal mode switch is executed in I/O mode setting.	Please specify valid mode switch. For restrictions of I/O mode switch, please refer to Section 10.3.2.
		Failed in setting the tag data. It is not changed by the specified I/O mode except engineer mode.	Tried to change I/O mode to SIMULATION or TAG STOP when the mode regarding user authorities is in operator mode.	Change the mode to engineer mode.
		Failed in setting the tag data. The corresponding disable bit is TRUE.	The corresponding disabled bit is TRUE. Example: To execute mode change to the control mode whose corresponding bit of tag data mode inhibited (MDIH) is TRUE.	Please set the corresponding inhibited bit to FALSE.
		Failed in setting the tag data. A lockout tag is set, therefore data cannot be written.	As setting lockout tag on the faceplate, it is not allowed to set value to tag data item.	Please remove the lockout tag.
		Failed in setting the tag data. The specified item cannot be set in the current mode. (I/O mode)	To set value of items that cannot be set in the current I/O mode.	Please change to the I/O mode in which value can be set.
		Failed in setting the tag data. The specified item cannot be set in the current mode. (Control mode)	To set value of items that cannot be set in the current control mode.	Please change to the control mode in which value can be set.
		Failed in setting the tag data. The setting value is out of range. (Range: xx <= xx <= xx)	Value exceeding the range has been set.	Please set value within the range.
		Failed in setting the tag data. Communication status is abnormal.	Communication is not normally performed.	Set communication status right.
		Failed in setting the tag data. The Project ID Code of the Monitor Target Project is different from that in PLC CPU: *3	(a) The PLC connection target in the monitor target project setting is wrong. (b) PLC download has not been performed after execution of compile with the programming tool. (c) Reload of the monitor target project with the monitor tool has not been performed after execution of PLC download with the programming tool.	(a) Specify the correct connection target. (b) Perform PLC download with the programming tool. (c) Perform reload of the monitor target project with the monitor tool.
		Failed in setting the tag data. The following error is occurring. (Redundant system: System A/B identification error)	The Redundant CPU settings of network parameters are wrong, or the tracking cable has not been connected or broken when the Redundant CPU is started.	Correct the Redundant CPU settings of network parameters or connect the tracking cable correctly to reset the Redundant CPU.
		Failed in setting the tag data. The following error is occurring. (Redundant system: Control/ Standby system status error)	The tracking cable has not been connected or broken when the Redundant CPU is started.	Connect the tracking cable correctly, and reset the Redundant CPU.
		Failed in setting the tag data. The PLC type in the assignment information database is different from that of the connected PLC CPU.	The PLC connection target is wrong.	Set the correct PLC connection target.
		Failed in setting the tag data. Operate after changing the control mode into AUTO.	The control mode is not in AUTO. (at DOM_ADV_START command bit setting for PGS2)	Set the control mode to AUTO.

*2: Occur only when tag data are set.

*3: Occurs only when "Write tag data (even if the PC's and PLC's project ID codes are different)" is set to invalid in the option setting (general).

Occurrence timing	No.	Message	Reasons	Measures
Executing Item property	1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

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Occurrence timing	No.	Message	Reasons	Measures
Executing ShowFaceplate method	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start monitor tool.
	1002	The connection with PX Developer monitor tool failed.	Registry data has been damaged.	Please restart monitor tool.
	1003	Failed in registering a tag name to the list of tags collected at high speed. Setting window is being displayed.	The setting window of monitor tool is in display.	Please close the setting window.
		Failed in registering a tag name to the list of tags collected at high speed. The tag name is incorrect.	Tag name set by TagName property is invalid.	Please confirm tag name.
	1005	Faceplate cannot be displayed. Setting window is being displayed.	The setting window of monitor tool is in display.	Please close the setting window.
		Faceplate cannot be displayed. A message box is displayed. Or it is in the state which cannot display a faceplate.	(a) The message box is being displayed. (b) Waiting for the user graphic screen to be closed.	(a) Close the message box. (b) After the user graphic screen has been closed, display the faceplate.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only in Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

REMARK

- High-speed current value collection is a type of communication executed by monitor tool. For details, please refer to "Appendix 1.3 Current Value Data Collection".
- High-speed current value collection of tag set by TagName property will be executed on the tag data access control.

Appendix 3.1.2 Faceplate Control

Faceplate control is the ActiveX control that displays faceplate on user-created screen.
The external appearance and function are as same as that of monitor tool faceplate.
Users can arrange the faceplate freely on the user-created screen.

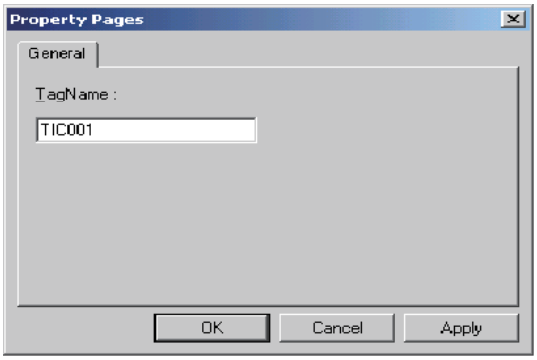
POINT
Faceplate cannot be displayed if monitor tool is not started.

Appendix 3.1.2 [1] Custom Property

The following is a list of custom properties of faceplate control.

Custom property	Contents
TagName	Specify the target tag name.

Custom property TagName can be set through the <<General>> tab of property dialog box.



Following table describes the contents related to the custom properties of faceplate control.

TagName property	
Comments	Specify the name of tag as access target. If different projects have the same tag name, specify the name in (Project name): (tag name) format. If different projects have the same tag name which is not specified in the above format, the tag which priority is higher will become access target. If resetting the tag name in its execution, the display in a faceplate changes as well. When the tag name is blank, the tag name display for faceplate is also blank.

Appendix 3.1.2 [2] Error list

(1) Error display by message box

When the faceplate control detects an error, the background color of tag name display area turns yellow and the tag name turns black. If the faceplate is clicked in this status, the following message will appear.

Occurrence timing	Message	Reasons	Measures
In executing faceplate controls	PX Developer monitor tool not found.	Monitor tool is not started.	Please start monitor tool.
	The connection with PX Developer monitor tool failed.	Registered data has been damaged.	Please restart monitor tool.
	Failed in registering a tag name to the list of tags collected at high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
	Failed in registering a tag name to the list of tags collected at high speed. The tag name is incorrect.	The name set by TagName property is invalid.	Please check the tag name.
	Failed in acquiring the tag data. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only in Microsoft® Windows NT® Workstation 4.0 Operating System.	Please close the pop-up menu.
	Failed in acquiring the faceplate setting information. Setting window is being displayed.	Setting window is being displayed.	Close the setting window.
	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

(2) Creation of error object

Error object will be created when an error occurs. The No.s in the following table are the code numbers of the created error objects.

Occurrence timing	No.	Message	Reasons	Measures
Calling or Setting TagName property	1001	PX Developer monitor tool not found.	Monitor tool is not started.	Please start the monitor tool.
	1002	The connection with PX Developer monitor tool failed.	Registered data has been damaged.	Please restart monitor tool.
	1003	Failed in registering a tag name to the list of tags collected of high speed. Setting window is being displayed.	Setting window of monitor tool is in display.	Please close the setting window.
		Failed in registering a tag name to the list of tags collected of high speed. The tag name is incorrect.	The name set by tag name property is invalid.	Please check the tag name.
	1007	The processing failed because of the interruption from the windows task bar.	The pop-up menu of user-created screen is displayed on the taskbar of Microsoft® Windows® Operating System. This may occur only on Microsoft® Windows NT® Workstation 4.0 Operating System.	Please add error processing to Visual Basic® program.
	1009	Failed in acquiring the faceplate setting information.	Setting window is being displayed.	Please close the setting window.
	1010	The container application requires administrative privileges to perform this action. Please close the application and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the application's manual or help.	Privilege level of the container application is lower than the privilege level of the monitor tool.	Close the container application and set it to run as an administrator.
	1011	Monitor Tool requires administrative privileges to perform this action. Please close Monitor Tool and run it under an account that is an administrator on this machine. For information about how to run as an administrator, see the following manual: PX Developer Version 1 Operating Manual (Monitor Tool)	Privilege level of the monitor tool is lower than the privilege level of the container application.	Close the monitor tool and set it to run as an administrator.

REMARK

High-speed current value collection is one type of communication executed by monitor tool.
For details please refer to "Appendix 1.3 Current Value Data Collection".
High-speed current value collection of tag set by TagName property will be executed on the tag data access control.

Appendix 3.2 MonCtrl command

Functions of the monitor tool can be called from external applications, such as Microsoft® Visual Basic® using the MonCtrl command (MonCtrl.exe).

(1) Restrictions on the MonCtrl command

The monitor tool cannot be called in the following cases:

- when the monitor tool is not started
- when the setting window is displayed
- when the "Change Mode" dialog box is displayed
- when the monitor toolbar is displaying modal dialog boxes (message box or error message)
- when the monitor toolbar is closing an application opened from the user-created screen buttons
- when the monitor screen is displayed additionally as the fifth screen in multi-window mode

(2) Arguments of the MonCtrl command

The following shows arguments used for the MonCtrl command.
Only one function (argument) can be specified.

Item	Argument*1	Description*2
Hide monitor Toolbar	/hide or /h	Hides the monitor toolbar. Format: MonCtrl.exe /hide or MonCtrl.exe /h
Show monitor Toolbar	/show or /s	Displays the monitor toolbar. Format: MonCtrl.exe /show or MonCtrl.exe /s
Exit monitor tool	/exit or /e	Exits the monitor tool. Format: MonCtrl.exe /exit or MonCtrl.exe /e Restrictions: Exits only in engineer mode if the monitor toolbar is displayed. Point: Confirmation dialog box is not displayed. Exits regardless of the mode (lock mode, operator mode or engineer mode) if the monitor toolbar is hidden.
Control panel display	/controlpanel	Displays the control panel with the specified group name. Format: MonCtrl.exe /controlpanel [Group name] [/position left coordinate, top coordinate, right coordinate, bottom coordinate] [/maximize]
Trend graph display	/trend	Displays the trend graph with the specified group name. Format: MonCtrl.exe /trend [Group name] [/position left coordinate, top coordinate, right coordinate, bottom coordinate] [/maximize] Restrictions: When specifying trend graph display position, the Monitor tool adjusts height to three-quarters of width automatically if height exceeds three-quarters of width.
Alarm list display	/alarm	Displays the Alarm list screen. Format: MonCtrl.exe /alarm [/position left coordinate, top coordinate, right coordinate, bottom coordinate] [/maximize]

Item	Argument*1	Description*2
Event list display	/event	Displays the event list screen. Format: MonCtrl.exe /event [/position left coordinate, top coordinate, right coordinate, bottom coordinate] [/maximize]
Pop-up faceplate screen display	/faceplate	Displays the pop-up faceplate screen with the specified tag name. Format: MonCtrl.exe /faceplate tag name [/position left coordinate, top coordinate, right coordinate, bottom coordinate] Restrictions: When specifying faceplate display coordinates, the monitor tool adjusts horizontal to vertical ratio to 5:1 automatically.
Find screen display	/find	Displays the find screen. Format: MonCtrl.exe /find
Change mode	/changemode	Displays the change mode screen. When user name and password are specified for argument, the mode is changed according to the registered user authority. When "/lock" is specified for argument, the mode is changed to lock mode. Note that user name, password, and lock are specified for argument, the change mode screen is not displayed. Format: MonCtrl.exe /changemode [/user User name [/password Password]] or MonCtrl.exe /changemode [/u User name [/p Password]] or MonCtrl.exe /changemode /lock Restrictions: When the Change mode screen is displayed, mode cannot be changed.
Communication status screen display	/comstatus	Displays the communication status screen. Format: MonCtrl.exe /comstatus
Stop buzzer	/buzzeroff	Stops the buzzer of the monitor tool. Format: MonCtrl.exe /buzzeroff Restrictions: • The buzzer is not stopped in lock mode.

*1: Arguments are not case-sensitive.

*2: Format is written without path. For actual use, describe with full path (refer to Application examples of the MonCtrl command) according to the install destination of PX Developer.
The following shows regulations for notation of arguments.

Notation	Description
Underline (_)	Information that the user must specify
Bracket ([ ])	Omittable item

POINT

- "/" (slash) and "-" (hyphen) cannot be used for the first character of group names, user names or passwords.
- Group names, user names or passwords are case-sensitive.
  If group names, user names or passwords include any spaces, are included, quote them using " ” " (double quotation).
- When group names, user names or passwords include " ” " (double quotation), specify them using three double quotations " ”"” " for one double quotation " ” ".
  Example) Specify "abc”"”def" for the user name "abc”def".

(3) Display position and maximum display specification

The following explains the method for specifying display position and maximum display.

The display position and maximum display can be specified using the following arguments in combination with the arguments for display position and maximum display.

/controlpanel, /trend, /alarm, /event, /faceplate

<table>
<tr><th>Item</th><th>Argument*1</th><th>Description*2</th></tr>
<tr><td>Display position</td><td>/position</td><td>Specifies the display position of a window.
<table>
<tr><td>Format</td><td>/position left coordinate, top coordinate, right coordinate, bottom coordinate</td></tr>
<tr><td>Point</td><td>• In single-window mode, this argument specification is ignored because the window is always displayed at maximum on the primary monitor. Note when displaying the pop-up faceplate screen, the window is displayed at the specified coordinates position.
• Specify the left, right, top, and bottom of coordinates within the range of –32768 to 32767, without including spaces and tabs between commas and numbers.</td></tr>
</table></td></tr>
<tr><td>Maximum display</td><td>/maximize</td><td>Displays a window in its maximum size.
<table>
<tr><td>Format</td><td>/maximize</td></tr>
<tr><td>Point</td><td>• Display coordinates at disabling maximum display can be set in advance by specifying an argument"/maximize" after "/position".
• In single-window mode, this argument specification is ignored.</td></tr>
</table></td></tr>
</table>

*1: Arguments are not case-sensitive.

*2: The following table shows regulations for notation of arguments.

Notation	Description
Underline (_)	Information must be specified by a user

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Application examples of the MonCtrl command

The following shows the application examples of the MonCtrl command using Microsoft® Visual Basic® application.

- Calling the faceplate whose tag name is TIC001

```
Dim RetVal
RetVal = Shell ("C:\MELSEC\FBDQ\MonCtrl.exe /faceplate TIC001")
```

- Calling the control panel whose group name is A tank by specifying the display position

```
Dim RetVal
RetVal = Shell ("C:\MELSEC\FBDQ\MonCtrl.exe /controlpanel "A Tank" /position
110,150,1180,980")
```

- Calling the Change Mode screen

```
Dim RetVal
RetVal = Shell ("C:\MELSEC\FBDQ\MonCtrl.exe /changemode")
```


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Appendix 4 Warning Message Appears on Windows Vista

Appendix 4.1 Overview of warning message

As a user account control function has been added to Windows Vista® , a warning message appears when you run the monitor tool.

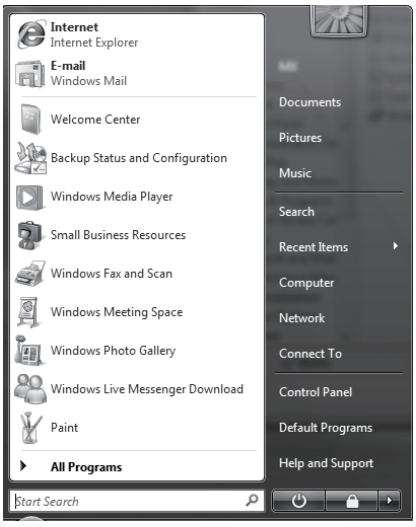
Appendix 4.2 Methods for preventing the warning message

POINT
The user account control (UAC) function prevents a crash (e.g. prevention of start-up of a program which executes unintended operation). Before setting this function, grasp that the security function offered by UAC will be disabled and fully understand the risk.

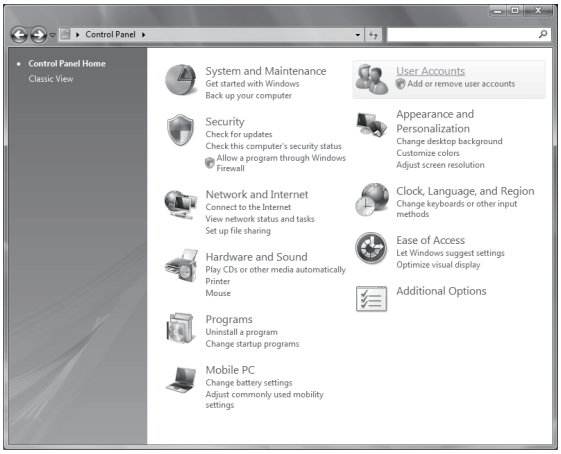
The following two methods are available for preventing a warning message.

(1) Disabling the user account control function

The following shows a procedure for disabling the user account control function.



1) Select [Start] – [Control Panel].



2) Select [User Accounts].

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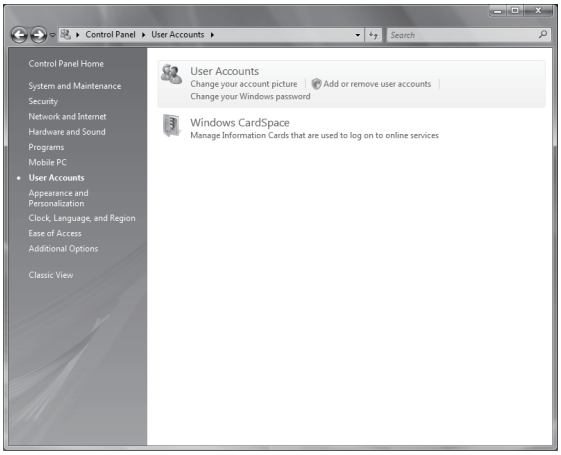
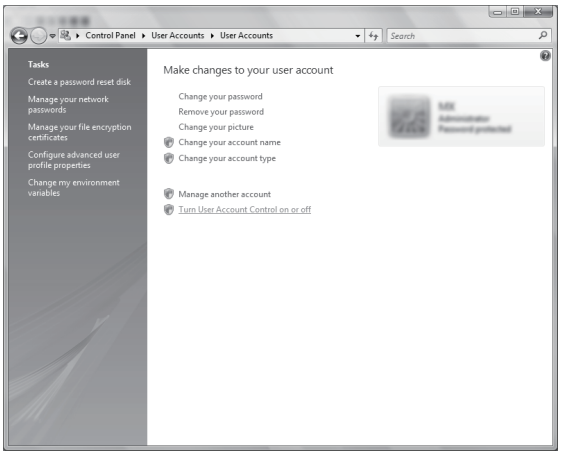


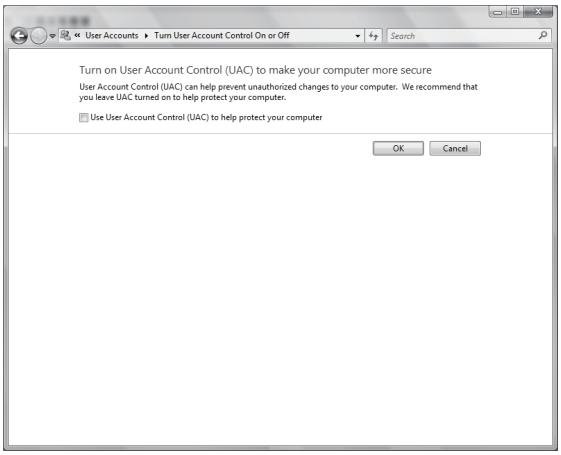
3) Select [User Accounts].

↓



4) Select [Turn User Account Control on or off].

↓



5) Deselect [Turn on User Account Control (UAC) to make your computer more secure].

↓

(Setting completion)

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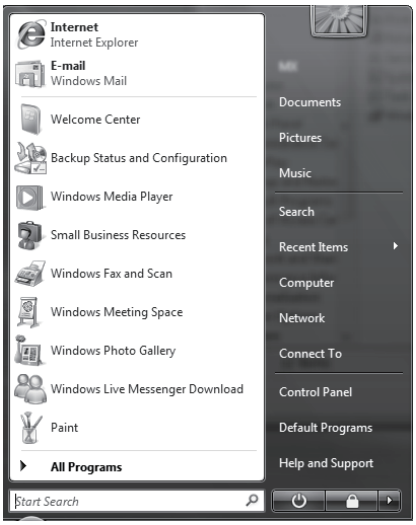
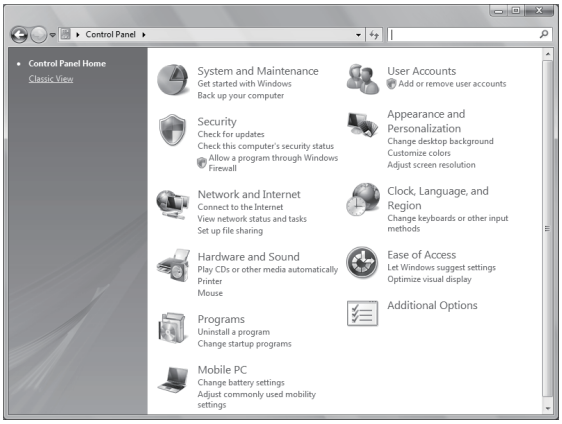
(2) Allowing the warning message without showing it

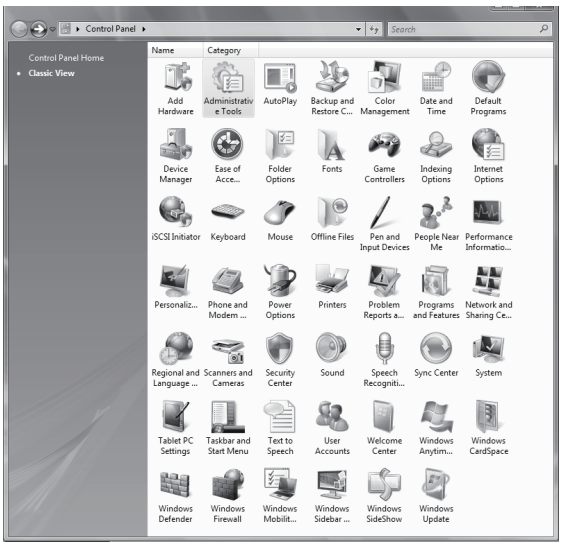
The following shows a procedure for allowing a warning message without showing it.



1) Select [Start] – [Control Panel].



2) Select [Classic View].



3) Select [Administrative Tools].

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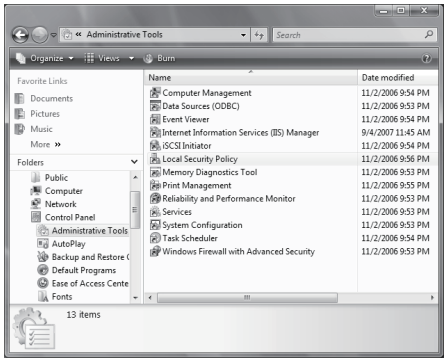
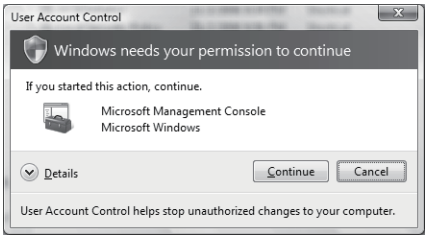
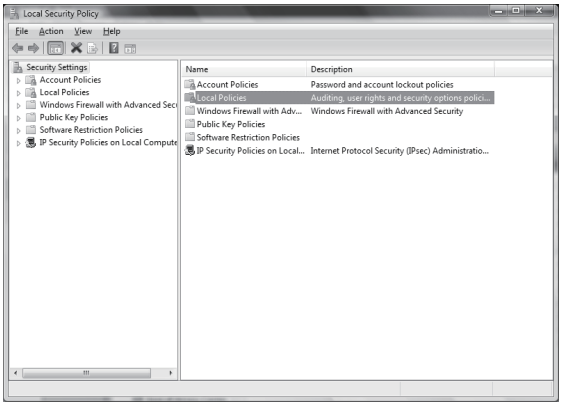


↓

4) Select [Local Security Policy].

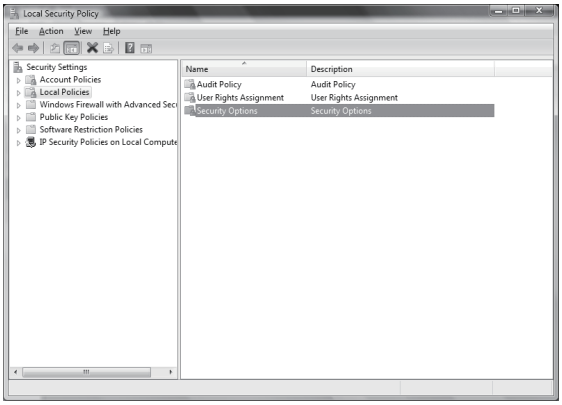
* When user account control is enabled in Windows Vista® , the following screen appears.
Click the Continue button.





5) Select [Local Policies].

↓



6) Select [Security Options].

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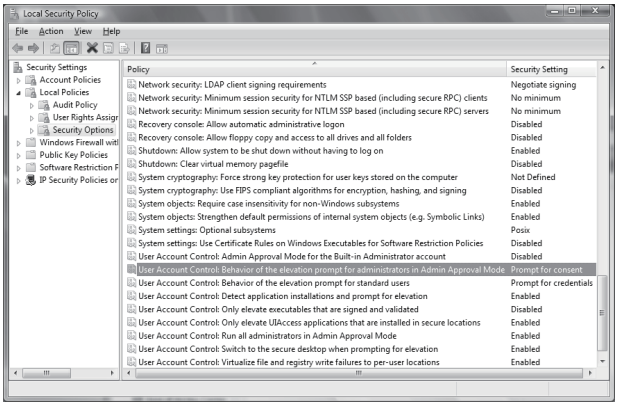
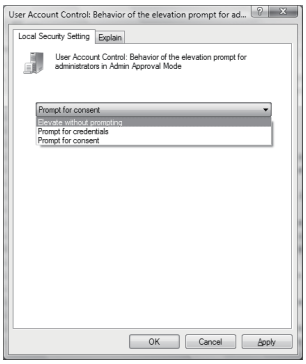


↓



↓

(Setting completion)

7) Select [User Account Control: Behavior of the elevation prompt for administrators in Admin Approval Mode Prompt for consent].

8) Select [Elevate without prompting] on the <<Local Security Setting>> tab, and click the OK button.

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Appendix 5 Functions Added to and Changed from Old Version

The following table indicates the functions added and changed with this upgrade.

Compatible version*	Added/changed function	Addition/change	Reference
Version 1.04E	Microsoft® Windows® XP compatibility	Compatible with Microsoft® Windows® XP Professional and Microsoft® Windows® XP Home Edition.	Section 2.2
	Help menu	The error codes related to the CPU module error can be displayed from the monitor tool.	Section 6.3.1 (5)
	Pop-up window	If a new pop-up window is opened when two pop-up windows have already displayed, the first opened one of the two on-screen windows is closed automatically.	Section 6.5.2
	Event list	The history of starting and exiting the monitor tool and the history of loading the monitor target projects are left as event history.	Section 7.4.1
	Pop-up tuning window	● In pop-up tuning, the BOOL type items are displayed in a tree form. Also, BOOL type tag data can be changed. ● The pop-up tuning window size can be changed regardless of the aspect ratio.	Section 7.7
	Number of event notifications received on communication condition screen	The number of event notifications received on the communication condition screen is changed to the "－－－－－" at a communication error, etc.	Section 8.5
	Automatic CSV file export	The function that outputs trend, alarm and event data to CSV files automatically is added.	Section 8.6
	Monitor target project setting	Whether the file specified in the monitor target project setting can be used with the monitor tool or not is displayed.	Section 9.3
	Write tag data (even if the PC's and PLC's project ID codes are different)	The setting can be made to disable tag data write at a project ID code inconsistency.	Section 9.14 (1)
	Disk free space check	The disk free space check size can be set.	Section 9.14 (1)
	Faceplate	● The "Close" button is added to the faceplate. ● The display direction of the PV value bar on the faceplate can be changed. ● When a project ID code inconsistency is detected, the background of the tag name is changed to light blue, and tag data write can be disabled. ● The stop alarm (SPA) can be reset from the faceplate.	Section 10.1
	PLC status check	The error of the CPU module can be detected on the monitor tool. (The error is displayed as an alarm.) Also, the consistency between the monitor target project set with the monitor tool and the project in the CPU module is checked.	Appendix 1.7
	Monitor tool startup option	The monitor tool can be started up by the mode that matches the authority of the user. (The user name and password can be specified with the arguments for monitor tool startup.)	Appendix 2.3

*: The compatible version can be confirmed within About PX Developer.
For details, refer to "6.3.1 (5) Display button of help menu".

Compatible version*	Added/changed function	Addition/change	Reference
Version 1.06G	Supported CPU	The Redundant CPU is supported.	Section 2.1.1
	Monitor tool startup	The monitor tool can be started without GX Developer.	Section 5.1 Appendix 3.1
	Alarm list screen	The following system alarms have been added. ● Redundant system PLC parameter read error ● Redundant system A/B decision error ● Redundant system operation status error ● PLC type inconsistency ● Event notification source error ● Event notification data receiving error	Section 7.3.1
	Even list screen	The following system events have been added. ● Redundant system control switching history ● Redundant system operation mode switching history	Section 7.4.1
	Communication condition screen	The display of redundant system status has been added.	Section 8.5
	Monitor target project setting screen	"Transfer Setup" dialog box varies with the CPU type.	Section 9.3
	Communication function	In the redundant system, event notification is issued when the operation status or operation mode is changed.	Appendix 1.2
Version 1.10L	Communication route	The following communication route are extended. ● C24 connection, MELSECNET/H remote connection and G4 module connection in serial/USB ● CC-Link connection ● Coexistence network connection of other station	Section 2.1.2 Section 9.3
	Changing the I/O mode	The mode selection in the change I/O mode dialog box is changed to a toggle button.	Section 10.3.2
	Changing the control mode	● The mode selection in the change control mode dialog box is changed to a toggle button ● No restrictions on control mode transition	Section 10.3.3 Section 10.5
	Changing the motion type	The mode selection in the change motion type dialog box is changed to a toggle button.	Section 10.3.4
	Tag data access control	The Visual Basic® .NET is supported.	Appendix 3.1.1
	Faceplate Control	● The Visual Basic® .NET is supported ● Tag name change during execution is enabled ● Error contents of an error object have been added	Appendix 3.1.2
	Event notification	The unreceivable cases of event notification have been added. ● CC-Link connection ● When connecting a PLC via MELSECNET/10(H) and Ethernet in single network connection or connecting in coexistence network connection ● When performing a monitor tool in a PC CPU, a PLC CPU is connected using MELSECNET/H module	Section 8.5.1
	Alarm list	SVLA and SVHA of ALM2 item have been added (changed with the addition of 2PIDH).	Section 7.3
	Event list	Tag stop has been added to the status change history for I/O mode (changed with the addition of 2PIDH).	Section 7.4

*: The compatible version can be confirmed within About PX Developer.
For details, refer to "6.3.1 (5) Display button of help menu".

Compatible version*	Added/changed function	Addition/change	Reference
Version 1.10L	Pop-up tuning	The tag monitor is changed to a tab display (Basic/All tab). Only highly used tag items are displayed in the Basic tab.	Section 7.7
		Changed the specifications of the tuning trend collection instructions button and the status display (enabled to restart tuning trend without clearing the data).	Section 7.7.3
		2PIDH has been added to auto tuning target.	Section 7.7.5
	Setting window	The status bar has been added. If the × icon is displayed in the setting item, an error message will be displayed in the status bar.	Section 9.1.1 Section 9.3 Section 9.4 Section 9.5 Section 9.11
	Option setting (Faceplate)	SV limit excess setting, SV Pointer Color (2PIDH) and MV status color have been added to the setting item.	Section 9.14
	Faceplate	2PIDH (2-degree-of-freedom Advanced PID control) has been added to the tag type.	Section 10.5 Section 10.5.2
		SVA has been added to the alarm display (changed with the addition of 2PIDH).	Section 10.1
		Tag stop (TAG STOP) mode has been added to the I/O mode (changed with the addition of 2PIDH).	Section 10.3.2 Section 10.3.3
		The restriction on the I/O mode transition by operation mode is added.	
		CASCADE DIRECT mode has been added to the control mode (changed with the addition of 2PIDH).	Section 10.3.3 Section 10.3.1
		The restriction on the control mode transition by I/O mode has been added.	
		The PV setting button has been added to the operation display type. PV value can be set in a faceplate.	Section 10.3.7
		SV limit excess setting has been added to the SV setting.	Section 10.3.8
Version 1.14Q	Monitor toolbar	Tag comment is added for alarm/event.	Section 6.3.1
		Event is added for the target of the faceplate screen display button.	Section 6.3.1
		The alarm list screen/event list screen are changed to be displayed by double-clicking.	Section 6.3.1
	Event list	Faceplate is changed to be displayed by double-clicking.	Section 7.4.1
		Status change record for PGS2 is added.	Section 7.4.1
	Pop-up tuning	Descriptions for PGS2 are added.	Section 7.7.1
	Option setting	Alarm/event display format of monitor tool bar is added.	Section 9.14
	Operation display type	The executing step No. setting button, time in the step setting button, and pattern graph display have been added.	Section 10.3.1 Section 10.3.12 Section 10.3.13
	Faceplate	PGS2 (Multi-point program setter) has been added to the tag type.	Section 10.5.5
	Auto tuning	Limit Cycle method is added. An existing method is defined as Step Response, enabling users to select the method.	Section 3.2 Section 7.7.5
	User-created	The detail setting for interacting with GT SoftGOT1000 has been added. The MonCtrl command option for controlling the monitor tool from Microsoft® Visual Basic® application has been added.	Chapter 11 Appendix 3.2

*: The compatible version can be confirmed within About PX Developer.
For details, refer to "6.3.1 (5) Display button of help menu".

Compatible version*	Added/changed function	Addition/change	Reference
Version 1.14Q	Communication route	Specifications of redundant type extension base unit are added.	Section 2.1.2
	Trend graph	"Displays tag comment instead of tag name" checkbox has been added and the display can be switched between tag name and tag comment.	Section 7.2
	Alarm List screen	Tag Comment has been added to the display item. Tag Comment has been added to Print and Export to CSV file.	Section 7.3
	Event List screen	Tag Comment has been added to the display item. Tag Comment has been added to Print and Export to CSV file.	Section 7.4
	Automatic alarm CSV file export	Tag Comment has been added to the export item.	Section 8.6.2
	Automatic event CSV file export	Tag Comment has been added to the export item.	Section 8.6.3
	Option setting	Item Name Display Format has been added to an item in Trend Graph.	Section 9.14
Version 1.18U	Generate GOT Screen	GOT screen generator function has been added.	Section 9.1
	Supported OS	Windows Vista® is supported.	Section 2.1.4 Section 2.2 Section 6.3.1 Section 9.8 Appendix 1.2 Appendix 3
	SCADA Interaction	Interaction function with InTouch has been added.	PX Developer Operating Manual (SCADA Interaction)
	Supported CPU	Q02PHCPU and Q06PHCPU are supported.	Section 2.1.1
	Communication route	CC-Link IE controller network is supported.	Chapter 2 Section 9.3
	Faceplate	00A has been added to the alarm display.	Section 10.1
		The scale high/low limit display area illuminates when the PV value is outside the range of engineering high/low limit.	Section 10.3.7

*: The compatible version can be confirmed within About PX Developer.
For details, refer to "6.3.1 (5) Display button of help menu".

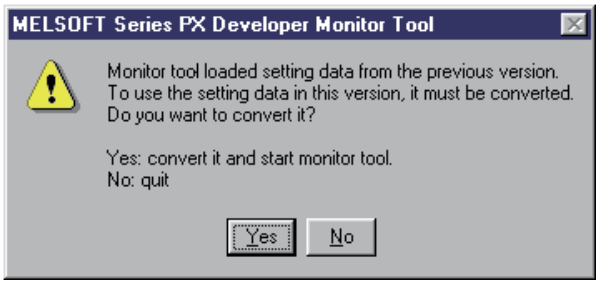
Appendix 6 Version Compatibility

The following shows the monitor tool version compatibility, version compatibility between the programming tool and monitor tool, and version compatibility between GX Developer and monitor tool.

Appendix 6.1 Monitor tool version compatibility

(1) Setting data file

When an access is made to the setting data file of old version (when the monitor tool is started), the following dialog box appears.



Clicking "Yes" button converts the setting data file.
Clicking "No" button closes the dialog box without converting the setting data file. (The monitor tool is not started.)

If the setting data file includes the data of unsupported PLC CPU, the following dialog box appears and the monitor tool is not started.

POINT

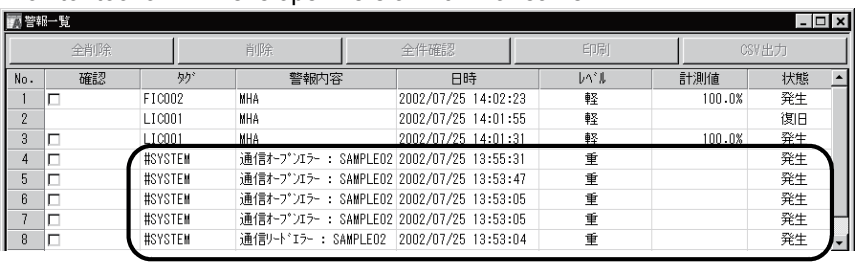
- When using the Version 1.04E or earlier monitor tool to communicate the setting data file created using the PX Developer Version 1.06G or later, set the PLC connection target in the monitor target project setting screen again.
- For details of setting data file, refer to Section 2.3.

(2) Alarm list data files

When alarm list data files saved with the Monitor tool of PX Developer Version1.01B or earlier are accessed using the Monitor tool of Version1.02C or later, data files are converted as follows.

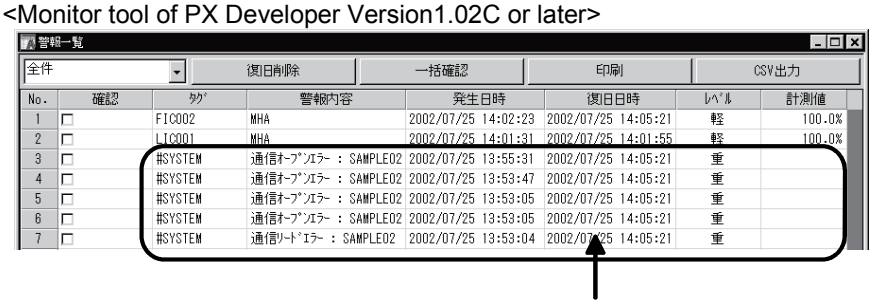
(a) When alarms are not recovered

<Monitor tool of PX Developer Version1.01B or earlier>



Convert

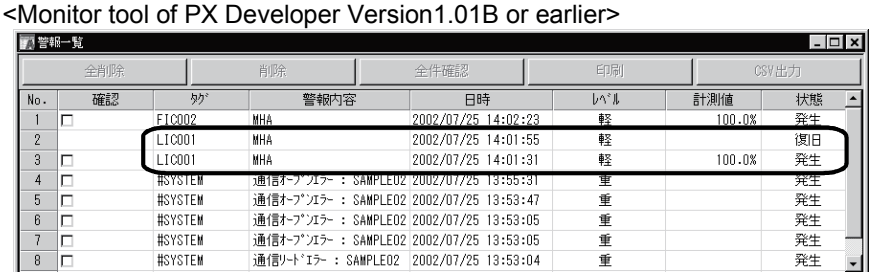
<Monitor tool of PX Developer Version1.02C or later>



All alarms will be recovered once at the Monitor tool start-up.
(Recovered data is set to the date and time when the Monitor tool is started up.)
Note, however, that file errors, memory errors, and exception errors of system alarm are not recovered until checking the corresponding check boxes in the Confirm field.
For files in the alarm occurred status when converted, new alarms are displayed.

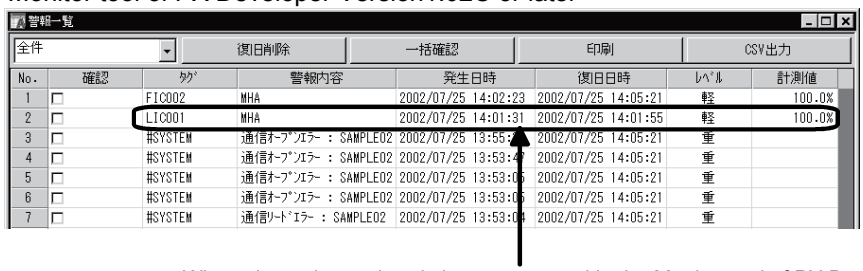
(b) When alarms are recovered

<Monitor tool of PX Developer Version1.01B or earlier>



Convert

<Monitor tool of PX Developer Version1.02C or later>



When alarms have already been recovered in the Monitor tool of PX Developer Version1.01B or earlier, alarm list data files are combined and displayed in one line.

POINT

Alarm list data files saved with the Monitor tool of PX Developer Version1.02C or later cannot be used on the Monitor tool of PX Developer Version1.01B or earlier because those data files are all improperly displayed as the alarm occurred status.

(3) ActiveX Control

This section explains the compatibility between the old version monitor tool and ActiveX control.

If the user graphic screen that uses the ActiveX control provided by the monitor tool is started using the old version monitor tool, the screen may not operate correctly.

When the method that does not exist in the ActiveX control provided by the old version monitor tool is called, the created user graphic will not operate correctly.

Appendix 6.2 Version compatibility between monitor tool and programming tool

(1) Assignment information database file

The following table shows the version compatibility between the monitor tool and the assignment information database file compiled using the programming tool.

Assignment information database file version compatibility

Monitor tool version	Programming tool version used to compile				
	1.00A to 1.01B	1.02C to 1.04E	1.05F to 1.09K	1.10L to 1.12N	1.13P or later
1.00A to 1.01B	○	×	×	×	×
1.02C to 1.03D	○	○	×	×	×
1.04E	△ *1	○	×	×	×
1.05F to 1.09K	△ *1	○	○	△ *2	△ *2
1.10L to 1.12N	△ *1	○	○	○	○
1.13P or later	△ *1 *3	△ *3	△ *3	△ *3	○

○: Usable

△: Usable with restrictions

*1: Can be used if assignment information database files are compiled using the Programming tool of PX Developer Version1.02C or later. Assignment information database file is compiled automatically when starting online monitor from the [Online] menu of the Programming tool.

*2: Can be used if tags with tag type added in PX Developer Version 1.10L or later are not set to assignment information database files. The following shows the tag types added for each version.

Version	Tag type
1.10L	2PIDH
1.11M	PGS2

*3: Auto tuning by the Limit Cycle method cannot be used.

× : Not compatible

(2) Event notification

When the Version 1.04E or earlier monitor tool is used to monitor the PLC CPU that includes projects compiled with the Version 1.06G or later programming tool, the event notification cannot be received.

*: To receive the event notification, use the Version 1.06G or later monitor tool.

Appendix 6.3 Combined use of monitor tool and GX Developer

The following table shows the combined use of the monitor tool and GX Developer.

Monitor tool version	Restrictions on monitor tool startup
1.02C to 1.04E	GX Developer Version 7.20W or later must be installed.
1.06G or later	GX Developer is not required*1.

*1: GX Developer must be installed only when displaying CPU error help. The help details of the installed GX Developer will be displayed.

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SH (NA)-080370E-G

PX Developer Version 1

Operating Manual (Monitor Tool)

MODEL	SW1D5C-FBDQ-O-MON-E
MODEL CODE	13JU39
SH(NA)-080370E-G(0806)MEE	

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