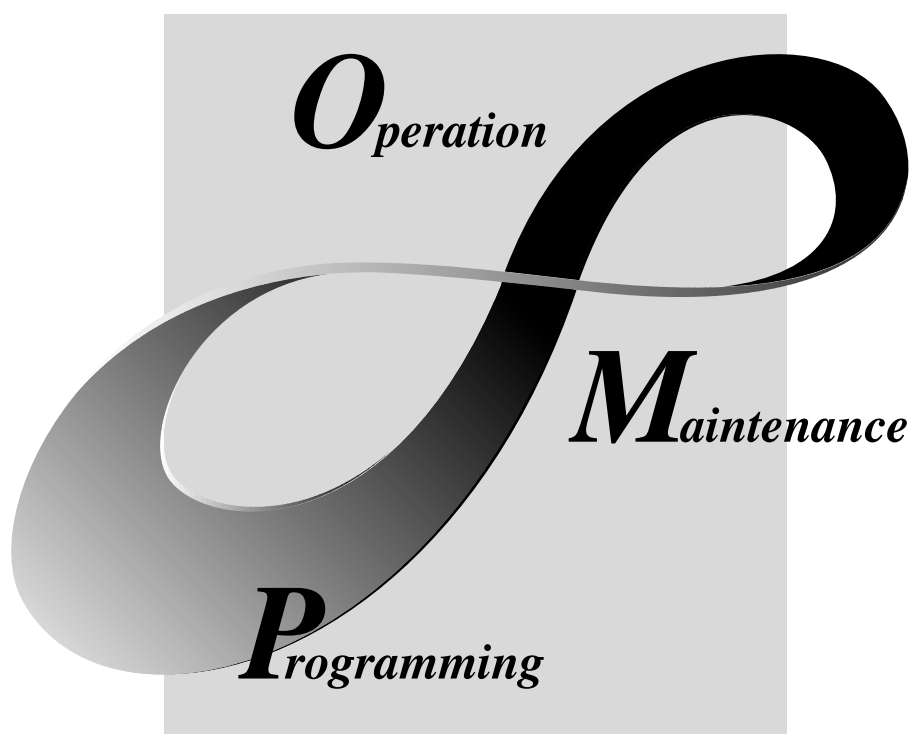


MX Sheet Version 1

Operating Manual

mitsubishi



MELSOFT
Integrated FA Software

SW1D5C-SHEET-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".



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



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 serious consequences according to the circumstances. Always follow the instructions of both levels because they are important to personal safety.

Please keep this manual in a convenient place so that you can refer to it and always forward it to the end user.

[Design Instructions]

DANGER

- Build an interlock circuit outside the PLC system to ensure that the whole system always works safely when changing the data of the running PLC or controlling the PLC status from the personal computer.
In addition, be sure to incorporate the corrective action into the system to deal with the communication error due to the poor cable connection while operating the PLC CPU online from the peripheral device.

[Operating Precautions]

CAUTION

- Read the manual carefully and confirm the safety before connecting a personal computer to the running CPU module to perform the online operation (especially forced output and operating status change).
Misoperation may cause the machine damage and accidents.

REVISIONS

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

Print Date	* Manual Number	Revision
Aug., 2002	SH (NA)-080348E-A	First edition

Japanese Manual Version SH-080346-A

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

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Operating Precautions

This section provides precautions in the following order.

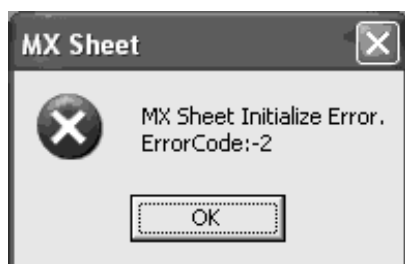
- 1) Precautions on OS and personal computer
- 2) Precautions on setting MX Sheet
- 3) Precautions on editing cells and Excel sheets
- 4) Precautions on communication
- 5) Precautions on use of VBA
- 6) Precautions on use of other MELSOFT products

Precautions on OS and personal computer

- (1) When using of Microsoft® Windows NT® Workstation Operating System Version 4.0, Microsoft® Windows® 2000 Professional Operating System, Microsoft® Windows® XP Professional Operating System and Microsoft® Windows® XP Home Edition

When any of Windows NT® Workstation 4.0, Windows® 2000 Professional, Windows® XP Professional and Microsoft® Windows® XP Home Edition is used, the operating system can be installed and used on the Administrator authority only.

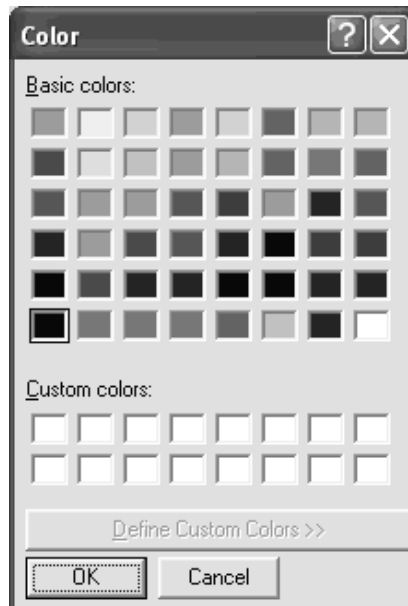
If the user has logged on without the Administrator authority, the following dialog box appears at a start of Excel, and MX Sheet cannot be used.



- (2) Coexistence of Excel 2000 and Excel 2002
MX Sheet will not operate normally if Excel 2000 and Excel 2002 coexist in a single personal computer.
When installing Excel, install either Excel 2000 or Excel 2002.
- (3) Resume function, etc. of personal computer
If any of the following has been set to the personal computer where MX Sheet is installed, a communication error will occur during communication with the PLC.
Do not set the following functions on the personal computer.
 - Resume function
 - Suspend function
 - Power saving function
 - Standby mode

Precautions on setting MX Sheet

- (1) Word designation for bit and bit designation for word
In the following tabs and dialog boxes, word designation for bit (e.g. K4M0) and bit designation for word (e.g. D0.0) cannot be set.
 - 1) <<Access Data>> tab
 - 2) <<Device Trigger>> Tab
 - 3) <<Handshake>> tab
 - 4) "Automatic Save" dialog box
 - 5) "Automatic Print" dialog box
- (2) Reading character strings
When character strings are read from the PLC, the device data which prefix is either of the following characters are not displayed normally on an Excel sheet. When reading character strings from the PLC, make proper setting so that either of the following characters will not be prefixed.
 - 1) = (equal)
 - 2) ' (single quotation)
- (3) Save of Excel sheets
If the file name specified in the "Automatic Save" dialog box or "Operating when cell is full" of the <<Use>> tab already exists, the old data is discarded and overwritten.
Make proper setting so that the file name specified in the "Automatic Save" dialog box or "Operating when cell is full" of the <<Use>> tab does not overlap those of the other Excel books.
- (4) Color designation
 - (a) Color designation
If the following colors are specified in the "Cell Setting" dialog box, the specified colors all turn to gray.



- (b) Color designation from Excel
If the line color and cell filling color have been specified from "Format Cells", of Excel, the colors specified in "Set the Color of Grind line" and "Set the Color for Filling" of the <<Use>> tab are made invalid.

Precautions on editing cells and Excel sheets

(1) Save function

If either of the following settings has been made to the Excel book where the ActiveX controls and forms have been applied, continuous operation of the personal computer will cause insufficient memory.

If insufficient memory has occurred, shut down the personal computer periodically.

- Save function of MX Sheet (automatic save function or save is performed when cell is full)
- Save function is called in a VBA program.

(2) Changing of Excel sheet name

When changing the sheet name of the Excel sheet where MX Sheet has been set, change it from [MX Sheet] → [Change Sheet Name].

(It can also be changed from the toolbar (icons) or a right-click of the mouse.)

If the sheet name is changed directly from Excel or from a VBA program, MX Sheet will not operate normally.

If this happens due to sheet name change, set the previous sheet name again.

(3) ErrorLog sheet

(a) Setting of sheet protection (workbook protection)

Do not set "Protect Sheet" and "Protect Workbook" to the ErrorLog sheet. If such setting is made, the ErrorLog sheet will not operate normally.

(b) Sheet name

In the Excel book where MX Sheet has been set, do not give the name "ErrorLog" to newly created worksheet, chart or dialog sheet.

If this happens, the ErrorLog sheet created by MX Sheet will not operate normally.

(4) Application error occurring during use of Excel 2000

If an application error occurs at an exit from Excel 2000, check the symptoms and corrective measures at the following URL site (as of July, 2002 *1).

<http://www.microsoft.com/JAPAN/support/kb/articles/jp319/8/02.asp>

Document number: JP319802

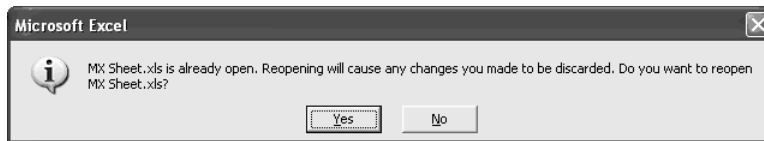
Title: [XL2000] Opening the file that has been sent using Outlook Express results in a forced end at an exit from Excel

*1: The URL is valid as of July, 2002.

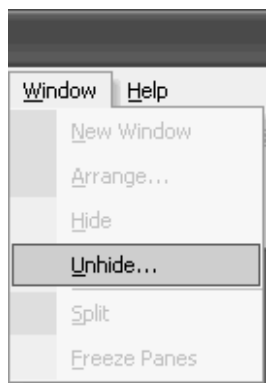
If the URL has been changed, confirm the above document number and title and contact Microsoft Corporation.

Precautions on communication

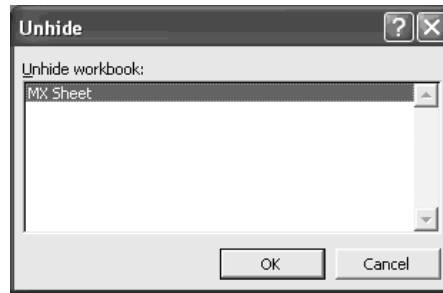
- (1) Communication between personal computer and PLC
When PLC device data are collected/written using MX Sheet, the communication restrictions that apply to MX Component also occur between the personal computer and PLC.
For the restrictions on communications between the personal computer and PLC, refer to the MX Component Operating Manual.
- (2) Preview setting of Excel
When starting the communication of MX Sheet, do not activate the preview setting (print preview, etc.) of Excel.
If the communication of MX Sheet is started with the preview setting of Excel active, a memory leak will occur.
- (3) Simultaneous communication from multiple Excel books
Multiple Excel books where MX Sheet setting has been made cannot be started on a single personal computer to make communication simultaneously.
- (4) When communicating Excel book is double-started
Do not make a double start (restart) of the Excel book that is communicating using MX Sheet.
If such operation is performed, the following dialog box appears.
Click **No** to interrupt a double start (restart).



- (5) When logoff/shutdown is executed during communication
Do not log off or shut down the personal computer during usual communication or 1 shot communication.
Log off or shut down the personal computer after terminating the communication with the PLC and exiting from Excel.
If logoff or shutdown of the personal computer is executed during communication, the following symptoms will be observed.
In this case, take corrective actions to restore the system.
 - (a) Symptom
When MX Sheet setting is made, only the frame of Excel is displayed.
 - (b) Corrective action
In the following procedure, remove the hide attributes of the Excel book and overwrite the Excel book to return to normal.
 - 1) Choose [Window] → [Unhide] in the Excel menu.



2) Choose the hidden Excel book and click **OK**.



3) As the Excel book appears, save the Excel book.

(6) USB communication

If the USB cable is connected/disconnected, the PLC CPU is reset or PLC is powered on/off frequently during communication with the PLC CPU, a communication error occurs and communication cannot be returned to normal. If this happens, disconnect the USB cable completely, leave it for 5 seconds or more and reconnect it. (An error may occur at the time of initial communication after the above operation, however, communication will be made normally at and after the second time.)

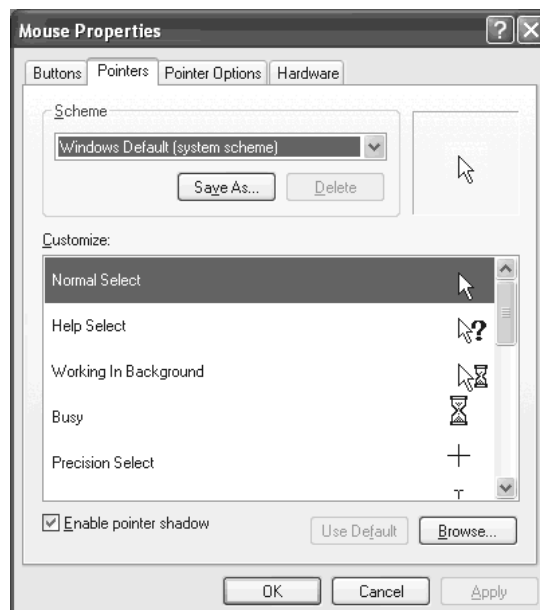
(7) Excel operation during communication

If Excel is in either of the following states, MX Sheet cannot perform operations for Excel (e.g. display into cells, save or print of Excel book).
Minimize direct input to Excel during communication.

- Cell is in an input status (e.g. the cell has been double-clicked or the cursor is at the mathematical expression bar).
- Message box or dialog box is displayed on Excel.

(8) Mouse cursor during communication

While MX Sheet is communicating, the mouse cursor setting of an Excel sheet is fixed to the one of "Normal Select" in "Mouse Properties".



Precautions on use of VBA

- (1) Incorporation of VBA program
When incorporating a user-created VBA program into the Excel sheet where MX Sheet has been set, check the operation of the VBA program first and then perform MX Sheet programming for the Excel sheet.
- (2) VBA program creation
MX Sheet utilizes OLE Automation for communication.
Do not perform the following on VBA programs.
 - 1) Do not execute the DoEvents method in a For-Next loop.
 - 2) FileFilter is ignored in the GetSaveAsFileName method.
 - 3) Do not execute the Reset method in the Excel menu.

Precautions on use of other MELSOFT products

- (1) MX Component version
MX Component Version 3.01B or later is required to use MX Sheet.
If MX Component Version 3.00A or earlier is used, MX Sheet does not operate normally.
- (2) Logical station number
Before deleting the logical station number from the Communication Setup Utility of MX Component, check that the logical station number to be deleted is not used in MX Sheet.
If the logical station number used in MX Sheet is deleted, MX Sheet does not operate normally.
- (3) Coexistence with MX Chart
MX Sheet and MX Chart cannot be installed in a single personal computer to make communication simultaneously.
- (4) Modem communication
When communication via modem is to be made by MX Sheet, MX Sheet, GX Developer and other applications (e.g. user applications utilizing MX Component) cannot perform communication simultaneously.
If simultaneous communication is attempted using MX Sheet, GX Developer and other applications, a fault such as a communication error, telephone line disconnection will occur.
When making communication via modem using MX Sheet, check that GX Developer and other applications do not use modems.

INTRODUCTION

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

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Manuals

The following manuals are relevant to for this software package.
Refer to the table when ordering the manuals.

Revant Manuals

Manual Name	Manual Number (Model Code)
MX Sheet Version 1 Operating Manual (Introduction) Explains the installation method, function outlines and operation methods of MX Sheet Version 1. (Sold separately)	SH-080347E (13JU34)
MX Component Version 3 Operating Manual Explains the setting and operation methods of each utility on MX Component. (Sold separately)	SH-0800271 (13JU32)
MX Component Version 3 Programming Manual Explains the programming procedures, details and error codes for ACT control. (Sold separately)	SH-080272 (13JF66)

Note: The MX Sheet Version 1 Operating Manual (Introduction) is included on the CD-ROM with the corresponding software package as a set.

Any of the manuals is available separately in printed form. Please indicate its manual number (model code) in the above table, when ordering the printed manual.

Generic Terms and Abbreviations

Unless otherwise stated, this manual uses the following abbreviations and terms for the explanation of MX Sheet.

Generic Term/Abbreviation	Description
MX Sheet	Generic product name for product types SW1D5C-SHEET-E and SW1D5C-SHEET-EA. -EA indicates a volume license product.
IBM-PC/AT compatible	Abbreviation of the IBM PC/AT or its compatible personal computer
PC CPU module	Abbreviation of the MELSEC-Q series corresponding PC CPU module (CONTEC CO., LTD.).
Personal computer	Generic term of PC CPU module and IBM-PC/AT compatible Personal computer.
MX Component	Generic product name for product types SW3D5C-ACT-E and SW3D5C-ACT-EA. -EA indicates a volume license product.
MX Links	Generic product name of the product type SW3D5F-CSKP-E.
MX Chart	Generic product name of the product type SW3D5F-OLEX-E.

How to Use This Manual

This manual is organized with sections representing each aspect of MX Sheet. Refer to the respective section when you need to know the following.

- (1) **The features (Section 1.1)**
Section 1.1 gives the features.
- (2) **The system configuration and operating environment (Section 2.1)**
Section 2.1 provides the operating environment.
- (3) **The functions, performance and applicable PLC CPUs of MX Sheet (Sections 3.1 to 3.2)**
Section 3.1 lists the functions of MX Sheet, and Section 3.2 gives information on the applicable PLC CPUs.
- (4) **The operation procedure of MX Sheet (Chapter 4)**
Chapter 4 provides the operation procedure of MX Sheet.
- (5) **The menu of MX Sheet (Chapter 5)**
Chapter 5 describes the MX Sheet menu selection method.
- (6) **The cell setting methods of MX Sheet (Chapter 6)**
Chapter 6 describes the MX Sheet cell setting methods.
- (7) **Automatic save setting (Chapter 7)**
Chapter 7 describes the automatic save setting of each data.
- (8) **Automatic print setting (Chapter 8)**
Chapter 8 describes the automatic print setting of each data.
- (9) **Automatic communication startup setting (Chapter 9)**
Chapter 9 describes the automatic communication startup setting of each function.
- (10) **Communication start and communication end (Chapter 10)**
Chapter 10 describes communication start and communication end.
- (11) **1 shot communication (Chapter 11)**
Chapter 11 describes 1 shot communication.
- (12) **Cell editing (Chapter 12)**
Chapter 12 describes cell editing (cutting, copying, pasting and deletion of cell area).

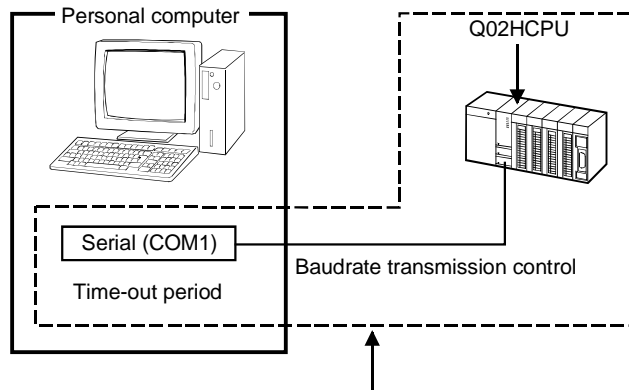
- (13) The sheet name changing method (Chapter 13)
Chapter 13 describes the sheet name changing method.
- (14) The setting data export (Chapter 14)
Chapter 14 describes the setting data export.
- (15) The error log checking method (Chapter 16)
Chapter 16 describes the error log checking method.
- (16) The data utilization method of MX Chart (Chapter 17)
Chapter 17 describes the data utilization method of MX Chart.
- (17) The version confirmation method (Appendix 1)
Appendix 1 describes the version confirmation method of MX Sheet.

Definitions of Terms

The terms used in this manual have the following meanings and definitions.

(1) Logical station number

A number assigned to the group of data that is integrated from the connection target information required for communication within the Communication Setup Utility.



Connection information up to CPU of the communication target station is integrated into one data, to which logical station number is assigned.

Packing List

The MX Sheet consists of the following products.

Type	Product Name	Quantity
SW1D5C-SHEET-E	MX Sheet Version 1(1-license product) (CD-ROM)	1
	End-user software license agreement	1
	Software registration card	1
	License agreement	1
SW1D5C-SHEET-EA	MX Sheet Version 1(Volume license product) (CD-ROM)	1
	End-user software license agreement	1
	Software registration card	n *1
	License agreement	1

*1: The number of software registration cards, which are included with the product, is equivalent to that of licenses.

1 OVERVIEW

1

MX Sheet is a communication support software package that allows device data collection, etc. by simple, program-less setting using Excel.

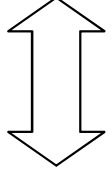
Logging function, monitor function				
Logging				
Date	D0	D1	D2	D3
2002/7/31 Wed 17:00:00	1	2	3	4
2002/7/31 Wed 17:05:00	11	12	13	14
2002/7/31 Wed 17:10:00	21	22	23	24
2002/7/31 Wed 17:15:00	31	32	33	34
2002/7/31 Wed 17:20:00	41	42	43	44
2002/7/31 Wed 17:25:00	51	52	53	54
2002/7/31 Wed 17:30:00	61	62	63	64
2002/7/31 Wed 17:35:00	71	72	73	74
Monitor				
	D0	D1	D2	D3
	1	2	3	4

Write function				
Write				
D0	D1	D2	D3	
101	102	103	104	

Alarm summary function				
Generation	2002/07/31 Wed 16:57:30	Material storage	Minor failure	
Generation	2002/07/31 Wed 16:57:30	Material storage	Minor failure	
Restoration	2002/07/31 Wed 16:59:35	Material storage	Minor failure	

Comment display function				
[Temperature]	within the normal range			
[Temperature]	over the upper limit			

Automatic save function				



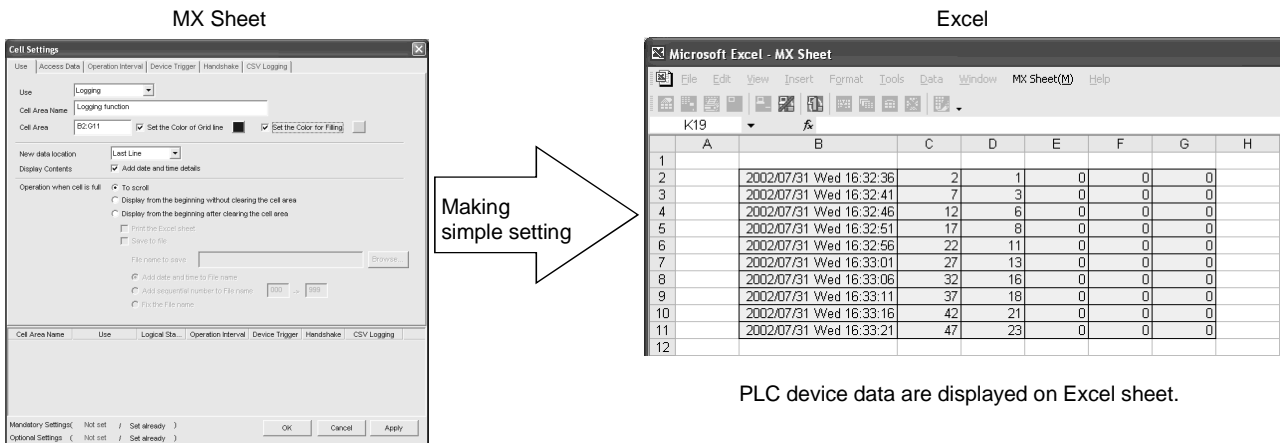
PLC CPU

1.1 Features

This section explains the features of MX Sheet.

(1) Program-less and easy setting

PLC device data can be collected/written by making simple setting without programming.

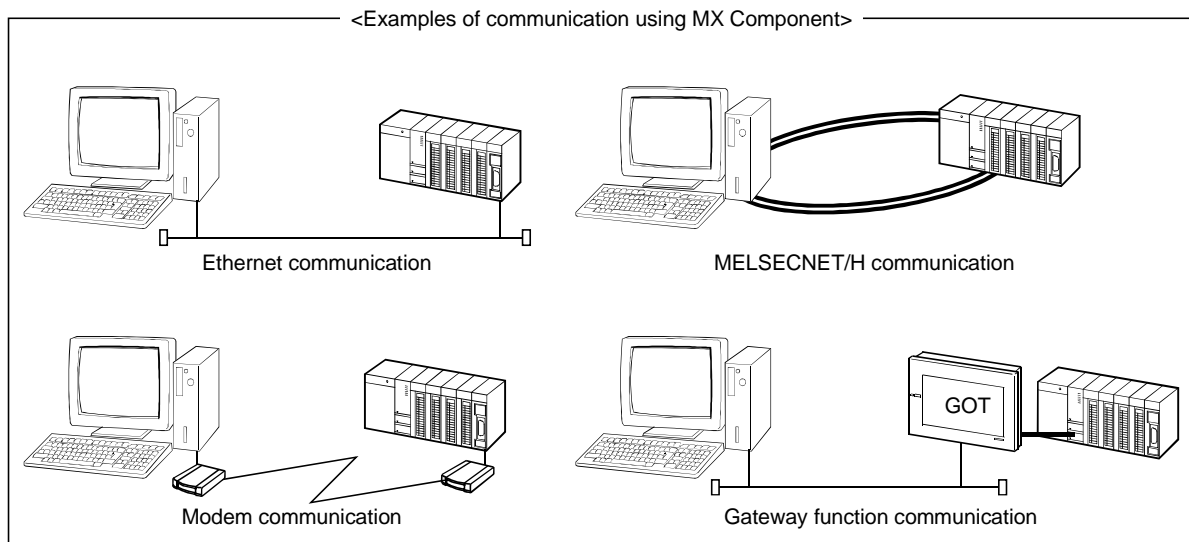


PLC device data are displayed on Excel sheet.

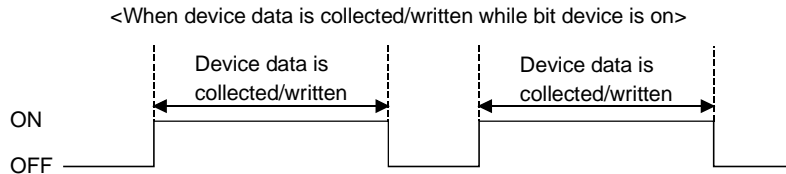
(2) Collection/write of device data using a wide range of communication paths

MX Sheet uses MX Component for communication between the PLC and personal computer.

Using a variety of communication paths supported by MX Component, system configuration that meets user's requirement can be achieved.

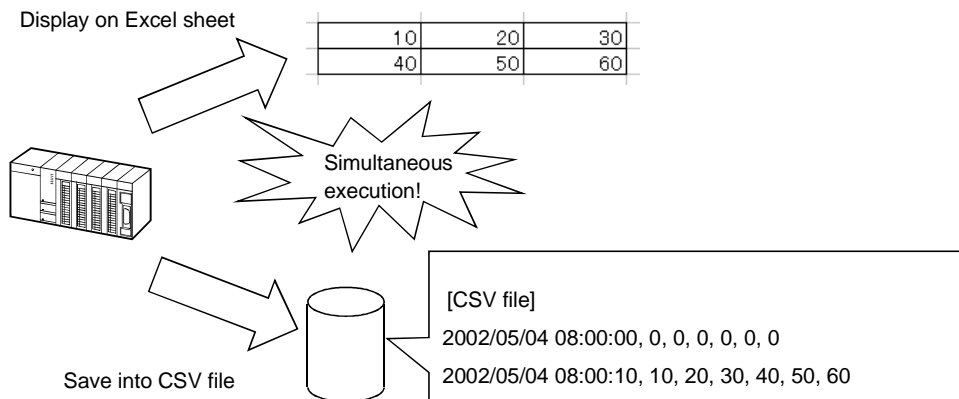


- (3) Each function can be controlled by device condition. The condition of device data collection/write can be set to PLC devices. The execution of any MX Sheet function can be controlled from the PLC side.

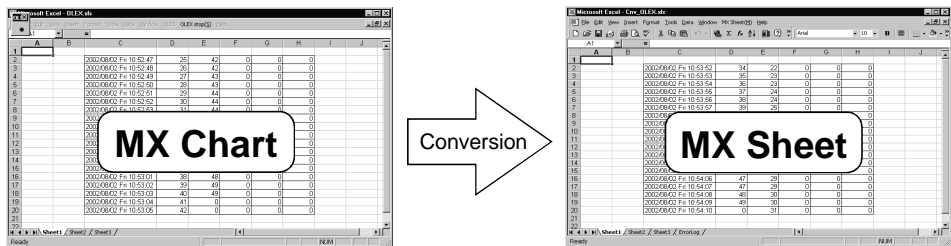


- Corresponding functions
- Logging
 - Write
 - Comment display
 - Automatic print
 - Monitor
 - Alarm summary
 - Automatic save

- (4) Data logging using CSV file
Using the logging or monitor function, device data can be displayed on Excel sheet, and simultaneously, collected data can be saved into a CSV file. Long-term data collection is enabled by a single CSV file.



- (5) Compatibility with MX Chart
MX Sheet can convert the set data of MX Chart into those of MX Sheet. The communication settings of MX Links and various settings of MX Chart can be converted into the logical station numbers of MX Component and cell settings of MX Sheet, respectively, to utilize old assets efficiently.



2 SYSTEM CONFIGURATION

The system configuration for MX Sheet is the same as that for MX Component Version 3.

For details, refer to the MX Component Version 3 Operating Manual.

2.1 Operating Environment

The following table indicates the operating environment of MX Sheet.

Item		Description
Personal computer	IBM PC/AT compatible personal computer	Pentium® 200MHz or higher *1 IBM PC/AT compatible personal computer installed with applicable OS *2
	PC CPU module	MELSEC-Q series compatible PC CPU module (CONTEC CO., LTD.)
OS		Any of Microsoft® Windows® 98 Operating System (English version), Microsoft® Windows® Millennium Edition Operating System (English version), Microsoft® Windows NT® Workstation Operating System Version 4.0 (English version) *3, Microsoft® Windows® 2000 Professional Operating System (English version), Microsoft® Windows® XP Professional Operating System (English version) *4, and Microsoft® Windows® XP Home Edition Operating System (English version) *4
Required memory		64MB or more *5
Hard disk free space		100MB or more
Disk drive		CD-ROM disk drive
Display		1024 x 768 dot or higher resolution
Excel *6		Microsoft® Excel 2000 (English version) or Microsoft® Excel 2002 (English version)
MX Component		MX Component version 3.01B or later

*1: A Pentium® 300MHz processor or higher is recommended when using Windows® XP Professional and Windows® XP Home Edition.

*2: This product does not work with a multiprocessor IBM-PC/AT-compatible personal computer, because the driver is not compatible with it.

*3: Service Pack 3 or more is needed when using Windows NT® Workstation 4.0.

*4: MX Sheet cannot be used in the XP compatibility mode.

*5: 128MB or more is recommended when using Windows® XP Professional and Windows® XP Home Edition.

*6: Excel sheets created in the English environment can be used in the English environment only. They cannot be used in other environment.

3 FUNCTION LIST OF MX Sheet

This chapter describes the functions of MX Sheet, accessible CPUs and accessible devices.

3.1 Function List of MX Sheet

The following table lists the functions of MX Sheet.

Function Name	Description	Available Device Points	Available Cells	Reference Section
Logging	Accumulates device data collected from PLC in cell range selected on Excel as history.	256 points *1, *2	256 columns × 65536 rows	Section 6.2
Monitor	Displays device data collected from PLC in cell range selected on Excel.	1000 points *1, *2	1000	Section 6.3
Write	Writes values entered on Excel to PLC devices.	1000 points *1, *2	1000	Section 6.4
Alarm summary	Converts ON/OFF data of bit devices into alarm comment character strings that are set separately and accumulates them on Excel sheet as alarm history.	300 points *2, *3	4 columns × 65536 rows	Section 6.5
Comment display	Converts bit or word device values into comment character strings that are set separately and displays them on Excel sheet.	1 point *4	1	Section 6.6
Device trigger	Collects/Writes device data when set device conditions set for collection/write are met.	—	—	Section 6.2.4
Handshake	Sets handshake with PLC for secure device data collection/write.	—	—	Section 6.2.5
CSV logging	Displays device data on Excel sheet with logging or monitor function, and simultaneously saves collected data as a CSV file.	—	—	Section 6.2.6
Automatic save	Automatically saves Excel book	—	—	Chapter 7
Automatic print	Automatically prints Excel book.	—	—	Chapter 8
Automatic communication startup	Automatically starts communication with PLC when Excel book is started.	—	—	Chapter 9
1 shot communication	Executes functions set in the selected cell range at any desired timing.	—	—	Chapter 11
Setting data export	Outputs MX Sheet settings in CSV file format.	—	—	Chapter 14
Data conversion	Converts communication settings of MX Links (SW3D5F-CSKPE) and various settings of MX Chart (SW3D5F-OLEXE) into logical station numbers of MX Component and cell settings of MX Sheet respectively.	—	—	Chapter 17

*1: This number of device points refers to the case where word device data are collected/written in single precision.

The number of device points that can be set changes depending on the device data type, etc.

For details, refer to the reference section of the corresponding function.

*2: One Excel file (one Excel book) accepts 1000 - cell - area setting.

*3: Only bit devices can be set.

*4: One Excel file (one Excel book) accepts up to 500 points.

3.2 Accessible CPUs and Accessible Device Ranges

This section describes the accessible CPUs and accessible device ranges of MX Sheet.

(1) Accessible CPUs

The accessible CPUs in MX Sheet are the same as those in MX Component Version 3.

For details, refer to the MX Component Version 3 Operating Manual.

(2) Accessible device ranges

The accessible device ranges in MX Sheet are the same as those in MX Component Version 3, with the exception of the following item.

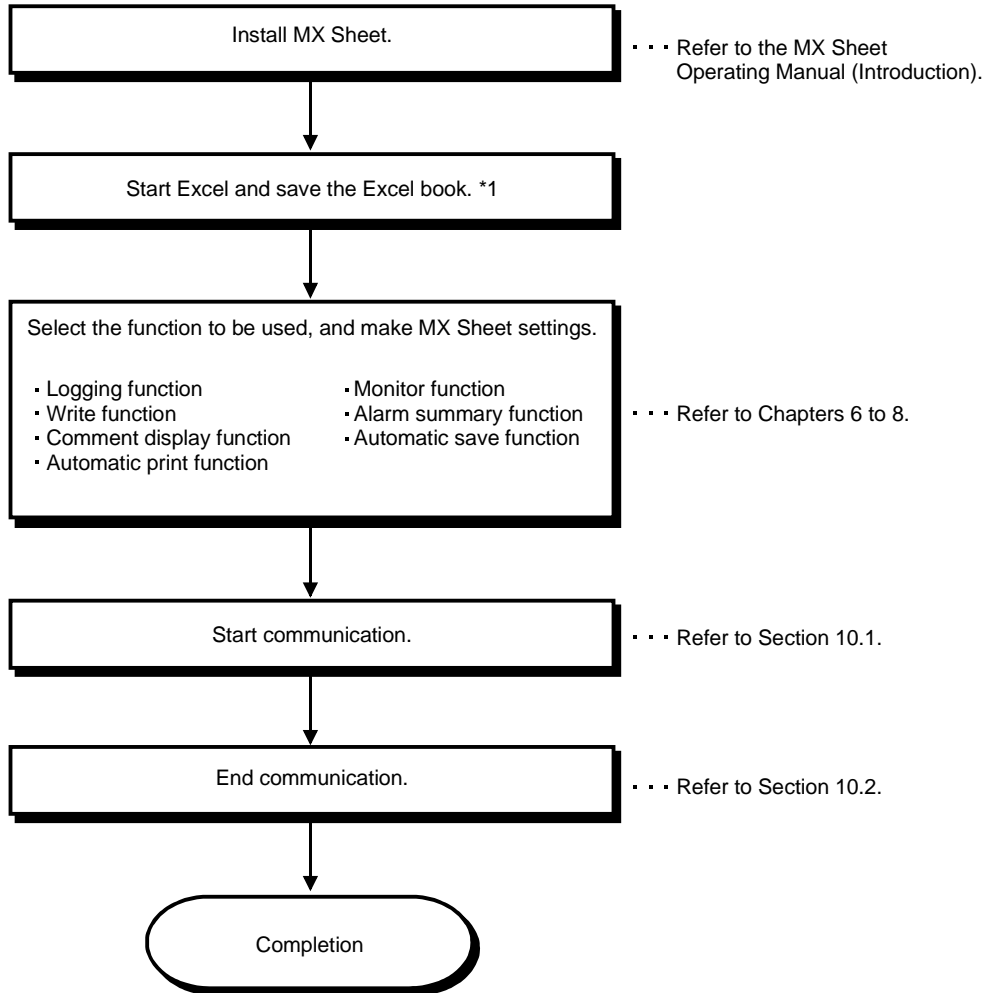
For details, refer to the MX Component Version 3 Operating Manual.

1) Device extension representation

MX Sheet does not allow access to any device by word designation for bit device (e.g. K4X0, K8M0) and bit designation for word device (e.g. D0.0, W.01).

4 MX Sheet OPERATION PROCEDURE

The following indicates the MX Sheet operation procedure.



*1: Before starting MX Sheet settings, save the Excel book. If not, MX Sheet cannot be set.

REMARK

Refer to the Excel manual for how to operate Excel.

5 MX Sheet MENU SELECTION METHOD

MX Sheet can be operated from the menu bar, toolbar (icons) and right-click of the mouse.

This chapter describes the displaying method and details of the MX Sheet menu options.

(1) Displaying method

(a) Using the menu bar

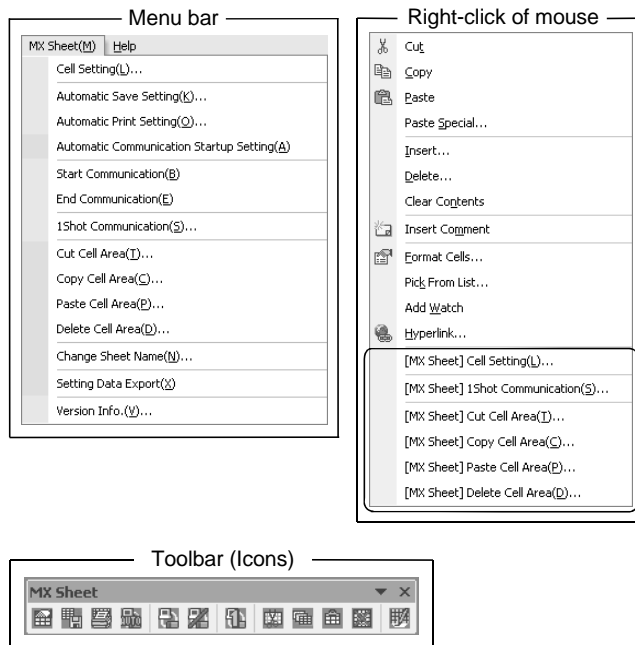
Choose [MX Sheet] from the menu bar.

(b) Using the toolbar (icons)

Choose [View] → [Toolbars] on the menu bar and click on "MX Sheet".

(c) Using the right-click of the mouse













Specify the cell area and right-click the mouse.

**REMARK**

If the Excel sheet type is other than the worksheet, the MX Sheet menu is not displayed. When using MX Sheet, make setting on the worksheet.

(2) MX Sheet menu details

The following table details the items of the MX Sheet menu.

Item			Description	Reference Section
Menu bar	Icon	Right-click		
Cell Setting(L)...		[MX Sheet] Cell Setting(L)...	Used to make cell setting.	Chapter 6
Automatic Save Setting(K)...		—	Used to make automatic save setting.	Chapter 7
Automatic Print Setting(O)...		—	Used to make automatic print setting.	Chapter 8
Automatic Communication Startup Setting(A)		—	Used to make automatic communication startup setting.	Chapter 9
Start Communication(B)		—	Used to start communication.	Section 10.1
End Communication(E)		—	Used to end communication. *1	Section 10.2
1Shot Communication(S)...		[MX Sheet] 1Shot Communication(S)...	Used to make 1 shot communication.	Chapter 11
Cut Cell Area(T)...		[MX Sheet] Cut Cell Area(T)...	Used to cut a cell area	Section 12.1
Copy Cell Area(C)...		[MX Sheet] Copy Cell Area(C)...	Used to copy a cell area.	Section 12.2
Paste Cell Area(P)...		[MX Sheet] Paste Cell Area(P)...	Used to paste a cell area. *2	Section 12.3
Delete Cell Area(D)...		[MX Sheet] Delete Cell Area(D)...	Used to delete a cell area.	Section 12.4
Change Sheet Name(N)...		—	Used to change the Excel sheet name.	Chapter 13
Setting Data Export(X)	—	—	Used to execute setting data export.	Chapter 14
Version Info.(V)...	—	—	Used to display the MX Sheet version.	Appendix 1

*1: Can be selected after start of communication.

*2: Can be selected after the cell area has been cut or copied.

6 CELL SETTING

This chapter describes cell setting required to operate MX Sheet.

6.1 Operation of Cell Setting Dialog Box

This section explains the displaying procedure and setting item change of the "Cell Setting" dialog box.

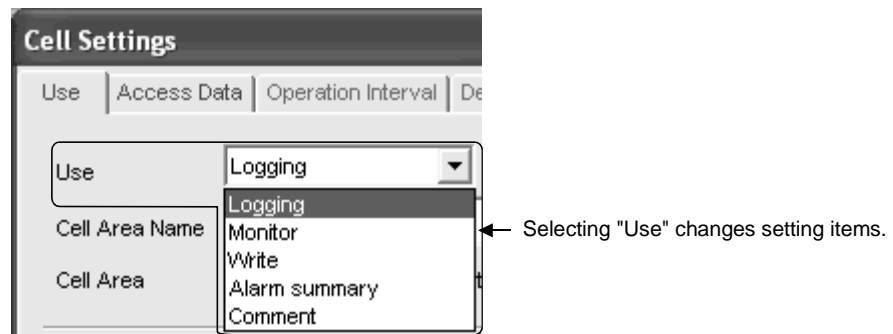
In the "Cell Setting" dialog box, its setting items change automatically depending on the selected function.

(1) Displaying "Cell Setting" dialog box

Choose [MX Sheet] → [Cell Setting] () from the menu bar.

(2) Setting items of "Cell Setting" dialog box

The setting of the "Cell Setting" dialog box can be changed by selecting "Use" of the <<Use>> tab.



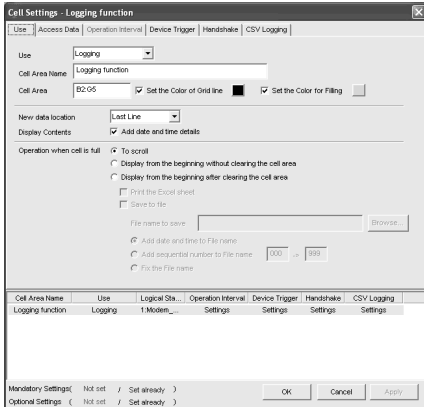
The following table indicates the function outlines and relevant sections for options of "use".

Item	Function	Reference Section
Logging	Set when using the logging function.	Section 6.2
Monitor	Set when using the monitor function.	Section 6.3
Write	Set when using the write function.	Section 6.4
Alarm summary	Set when using the alarm summary function.	Section 6.5
Comment	Set when using the comment display function.	Section 6.6

6.2 When Logging Is Selected

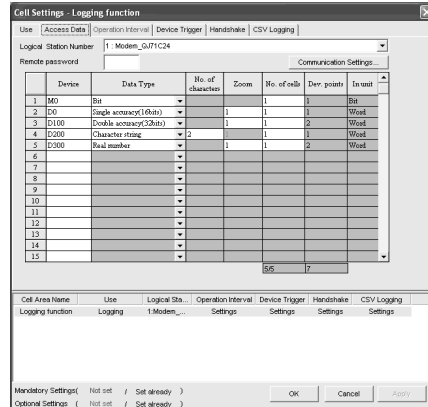
This section describes the "Cell Setting" dialog box when "Logging" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



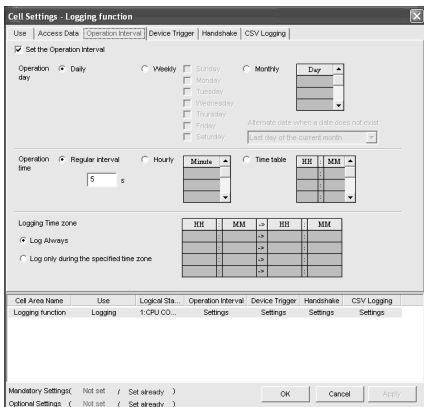
Required setting
Refer to Section
6.2.1.

<<Access Data>> tab



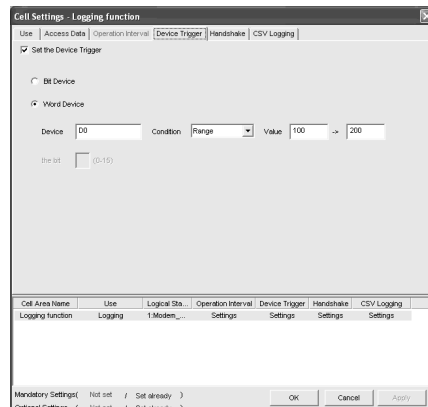
Required setting
Refer to Section
6.2.2.

<<Operation Interval>> tab



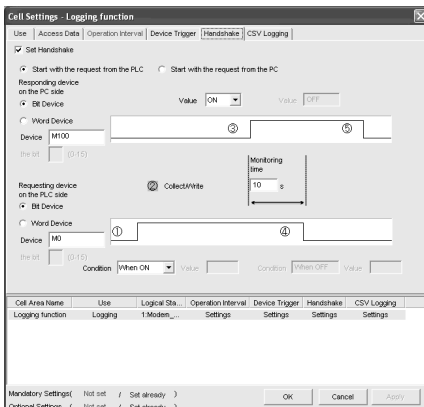
Required setting
Refer to Section
6.2.3.

<<Device Trigger>> tab



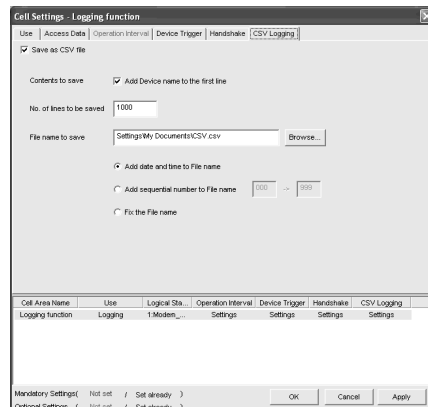
Set as necessary
Refer to Section
6.2.4.

<<Handshake>> tab



Set as necessary
Refer to Section
6.2.5.

<<CSV Logging>> tab

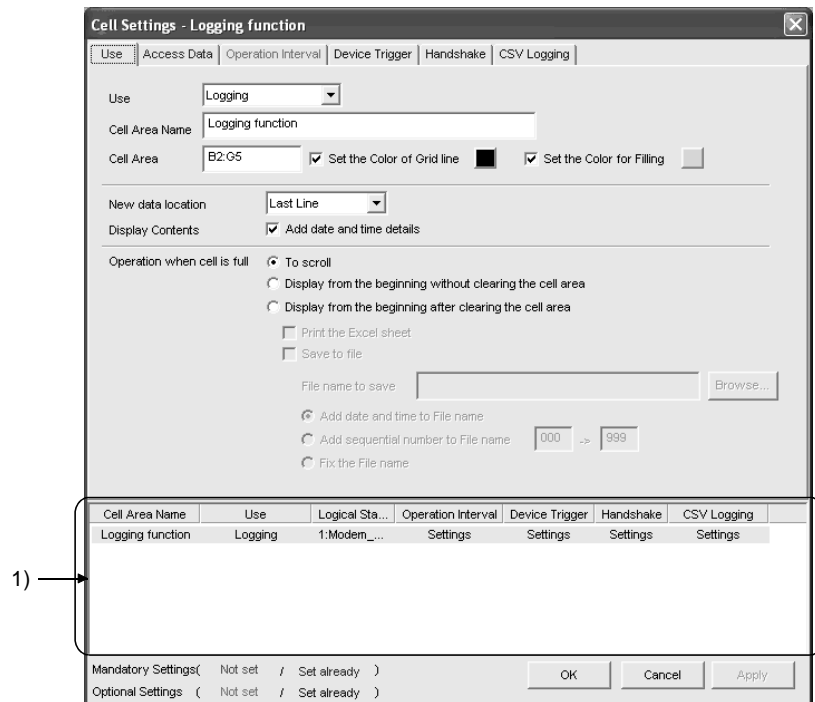


Set as necessary
Refer to Section
6.2.6.

6.2.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the logging function. In the <<Use>> tab, set the cell area, logging data display position, displayed contents, and operation when the cell is full.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Logging" when using the logging function.	—
Cell Area Name	Set the name of the specified cell area.	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	(2) (b)
Set the Color for Filling	Set whether the specified cell area is colored or not.	(2) (b)
New data location	Set the latest data display position of the logging data. <ul style="list-style-type: none"> • Last Line The latest data is displayed at the lost of the specified cell area. • First Line The latest data is displayed at the first of the specified cell area. 	(2) (c)
Displayed Contents	Set whether the date and time are added to the displayed logging data or not.	(2) (d)

(To the next page)

Item	Description	Detailed Explanation
Operating when cell is full	Set the operation to be performed when the specified cell area is full. <ul style="list-style-type: none"> • To scroll The displayed contents are scrolled and displayed. • Display from the first without clearing the cell area The data currently displayed in the cell area are overwritten and logging is resumed. Before logging is resumed, the Excel sheet can be printed and saved. • Display from the first after clearing the cell area The data displayed in the cell area are erased and logging is resumed. Before logging is resumed, the Excel sheet can be printed and saved. 	(2) (e)
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	(2) (f)

(2) Detailed explanation

(a) "Cell Area"

Set the cell area to be used by the logging function.

1) Setting examples

<When a single cell range is specified (B2 to D5)>

B2 : D5

↑ Enter the cell numbers with ":" in between.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						

← Cell area from B2 to D5

<When multiple cell areas are specified (B2 to D5 (cell area 1) and B7 to D11 (cell area 2))>

B2 : D5 , B7 : D11

↑ Cell area 1 ↑ Cell area 2
 ↑ Enter the cell areas with "," in between.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

← Cell areas 1 and 2 are displayed in this order.

2) Setting ranges

The following indicates the available setting ranges for the cell area and number of cell areas.

- Cell area When date and time are added:
 - 255 columns × 65536 rows
 - When date and time are not added: 256 columns × 65536 rows
- Number of cell areas: Up to 16

(b) "Set the Color of Grid line" and "Set the Color for Filling"

Set the colors of cell area grid lines and cell filling.
 Depending on the selection, all area may be colored gray.
 Refer to the Operating Precautions for details.

(c) "New data location"

Set the newest data location when the logging function is used.

1) When "Last Line" is selected

2002/08/01 Thu 15:14:34	21	37	↑ Old data
2002/08/01 Thu 15:14:39	26	39	
2002/08/01 Thu 15:14:44	30	42	
2002/08/01 Thu 15:14:49	35	44	
2002/08/01 Thu 15:14:54	39	46	

2) When "First Line" is selected

2002/08/01 Thu 15:23:39	21	16	↑ New data
2002/08/01 Thu 15:23:34	17	13	
2002/08/01 Thu 15:23:29	12	11	
2002/08/01 Thu 15:23:24	8	9	
2002/08/01 Thu 15:23:19	3	6	

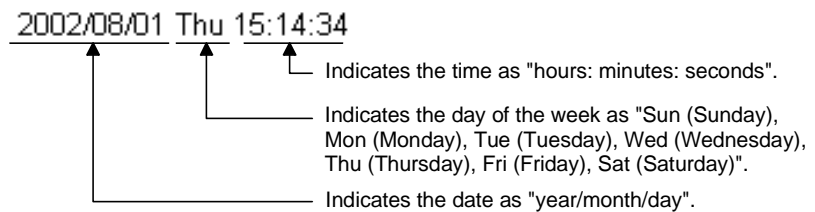
(d) "Displayed Contents"

Set whether the logging date and time are added to the cell area set in the "Cell Area" or not.

When adding the date and time, click the check box.

In this case, the leftmost column of the logging data area is used for the date and time. (One item of logging data decreases.)

The date and time column displays the date and time of the personal computer where MX Sheet has been installed.



REMARK

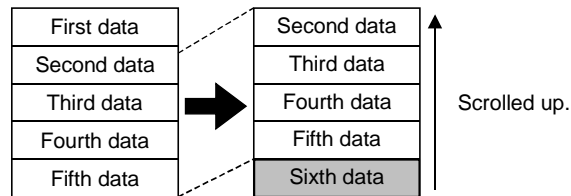
The above date and time can be edited on Excel.
 If the cell setting is edited again after editing on Excel, the setting on Excel are invalid.

(e) "Operating when cell is full"

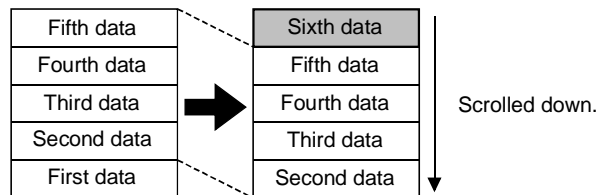
Set the operation to be performed when the cell area is full of logging data. When "New data location" is set for "First Line", "Display from the beginning without clearing the cell area" cannot be chosen.

1) When "To scroll" is selected

<When "New data location" is set for "Last Line">

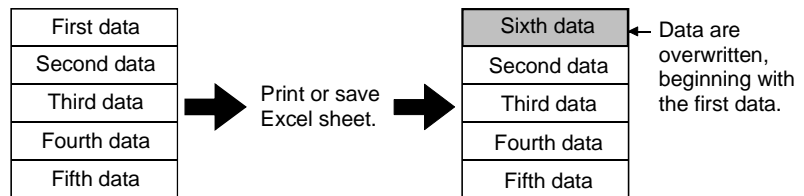


<When "New data location" is set for "First Line">



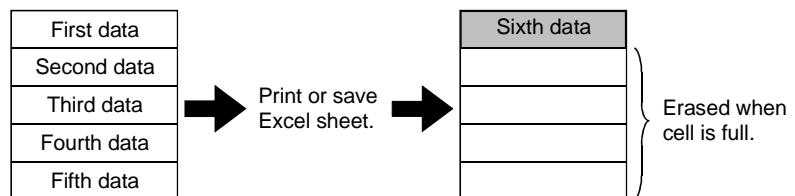
2) When "Display from the beginning without clearing the cell area" is selected

When the cell is full, Excel sheet print or Excel book save can also be performed.



3) When "Display from the beginning after clearing the cell area" is selected

When the cell is full, Excel sheet print or Excel book save can also be performed.



4) When "Print the Excel sheet" is selected

The Excel sheet is printed when the cell is full.

After completion of print, all data are erased and logging is resumed.

This item can be selected when "Operating when cell is full" is set to 2) or 3).

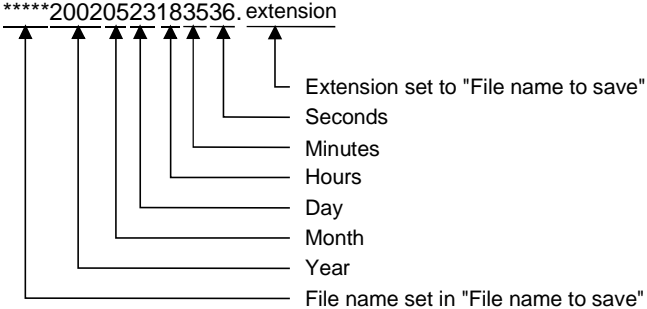
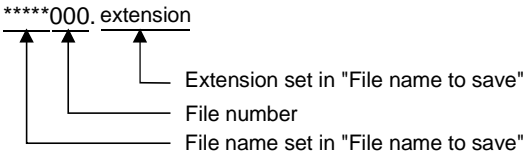
5) When "Save to file" is selected

The Excel book is saved when the cell is full.

After completion of save, all data are erased and logging is resumed.

This item can be selected when "Operating when cell is full" is set to 2) or 3).

When choosing "Save to file", make the following settings for the file where data will be saved.

Item	Description
File name to save	The storage location and file name is set for the Excel book to be saved when the cell is full. The Excel file (.xls) or HTML file (.htm) can be set as the file type.
Add date and time to File name	The file set in "File name to save" saves data with the date and time added to its file name. The following indicates a file name format when data is saved. *****20020523183536.extension 
Add sequential number to File name	The file set in "File name to save" saves data with a number added to its file name. A serial number can be set within the range of 000 to 999. When the number is reached to the last, the file of the first number is overwritten by the newly saving file. The following indicates the file name format when data is saved. *****000.extension 
Fix the File name	The file set in "File name to save" is overwritten by data.

(f) "preset cell areas"

The cell areas already set to the Excel book are displayed.

The following operations are available by selecting the cell area name in the "preset cell areas".

1) Reading the settings

Choose and double-click the cell area name to read the settings of the selected cell area name to the "Cell Setting" dialog box.

2) Deleting the settings

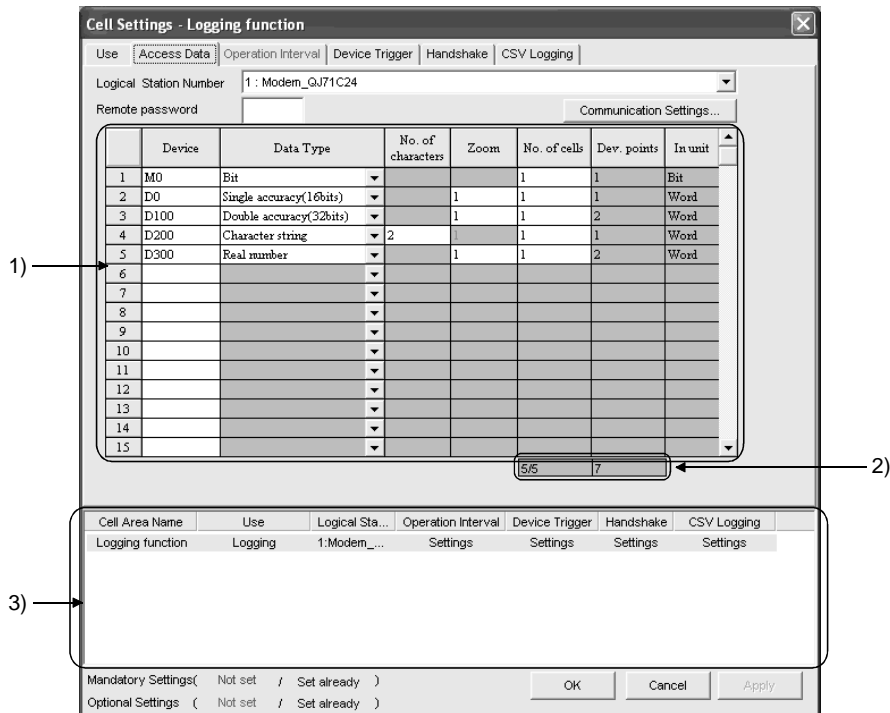
Choose the cell area name and press the Delete key to erase all the settings of the selected cell area name.

6.2.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the logging function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be collected in the cell area.

(1) <<Access Data >> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	(2) (a)
Communication Settings button	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	(2) (b)
Remote password *1	Enter the password when the password has been set to the connection target PLC.	(2) (c)
1) (Access data)	Set the devices to be logged.	(2) (d)
2) (Number of set devices)	The number of devices currently set is displayed.	(2) (e)
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

(a) "Logical Station Number"

Choose the logical station number required for communication.

If the logical station number has already been set, the number appears in the list box and can be selected.

If the logical station number has not been set, click on the

Communication Settings button and set a new logical station number.

(b) **Communication Settings** button

This button is used to start the Communication Setup Utility to set a new logical station number and change the settings.

After starting the Communication Setup Utility, click on the **Wizard** button and set a new logical station number and change the settings with the Communication Setting Wizard.

For the detailed explanation of the Communication Setup Utility and Communication Setting Wizard, refer to the MX Component Operating Manual.

(c) "Remote password"

"Remote password" box appears when the setting of the logical station number selected in "Logical Station Number" includes information on the connection to the module with the password function.

When the password has been set to the connection target PLC, enter the password.

It need not be entered when the password has not been set.

(d) Access data

1) Order of display

Data are displayed in the cell area in the order of the numbers shown on the left of the <<Access Data>> tab.

<Device data display example>

Setting example of <<Access Data>> tab

	Device	Data Type	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	Single accuracy(16bits)		1	3	3	Word
2	W0	Single accuracy(16bits)		1	3	3	Word
3	B0	Bit			3	3	Bit

↑ Data numbers

The device data are displayed on Excel as shown below.

Displayed in order of data numbers.

Data No. 1			Data No. 2			Data No. 3		
D0	D1	D2	W0	W1	W2	B0	B1	B2
18	14	0	0	0	0	0	0	0

2) "Device"

Enter the device to be accessed.

Enter the device name and device number in this order.

Refer to Section 3.2 for the accessible devices.

3) "Data Type"

Set the data type to be displayed in the cell.

Item	Available Device	Description
Bit	Bit device	Displayed in a single cell in units of one bit. "0" or "1" is displayed in the cell when the bit is off or on respectively.
Single accuracy (16 bits) (-32768 to 32767)	Bit device	Displayed in a single cell in units of 1 word (16 bits), starting with the device number set in "Device". *1
	Word device	Displayed in a single cell in units of 1 word, starting with the device number set in "Device". *1
Double accuracy (32 bits) (-2147483648 to 2147483647)	Bit device	Displayed in a single cell in units of 2 words (32 bits), starting with the device number set in "Device". *1
	Word device	Displayed in a single cell in units of 2 words, starting with the device number set in "Device". *1
Character string	Bit device	The data of the device number set in "Device" are displayed in the cell as character strings. *2
	Word device	The data of the device number set in "Device" are displayed in the cell as character strings. *2
Real number ($\pm 2^{-126} \leq \text{value} < \pm 2^{128}, 0$)	Bit device	Displayed in a single cell in units of 2 words (32 bits), starting with the device number set in "Device". *1
	Word device	Displayed in a single cell in units of 2 words, starting with the device number set in "Device". *1

*1: The displayed value changes depending on the "Zoom" setting.

Refer to 5) for details.

*2: The unit and the number of displayed characters of the read data change depending on the "No. of characters" setting.

Refer to 4) for details.

4) "No. of characters"

Set the number of characters to be displayed in a single cell.

Setting range: 40

Depending on the value set in "No. of characters" and device data, the character strings may not be displayed in the cell.

The following are the examples of setting 1 to 4 in "No. of characters".

(Example) When displaying the character strings stored in D0 to D3

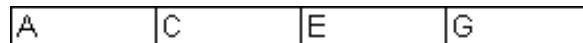
	b15 to b8	b7 to b0
D0	B	A
D1	D	C
D2	F	E
D3	H	G

<When "No. of characters" is set to "1">

The data is displayed in a single cell in units of 1 word (16 bits).

Only the character stored in b0 to b7 of D0 is displayed.

The character stored in b8 to b15 of D0 is not displayed.

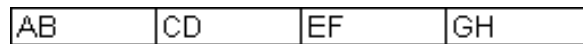


↑ D0 (b0 to b7) data is displayed.

<When "No. of characters" is set to "2">

The data is displayed in a single cell in units of 1 word (16 bits).

The character strings stored in b0 to b7 and b8 to b15 are displayed in this order.



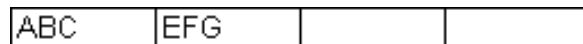
↑ D0 (b0 to b7, b8 to b15) data is displayed.

<When "No. of characters" is set to "3">

The data is displayed in a single cell in units of 2 words (32 bits).

The character strings stored in D0 (b0 to b7, b8 to b15) and D1 (b0 to b7) are displayed.

The character string stored in b8 to b15 of D1 is not displayed.

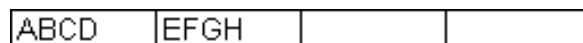


↑ D0 (b0 to b7, b8 to b15) and D1 (b0 to b7) data is displayed.

<When "No. of characters" is set to "4">

The data is displayed in a single cell in units of 2 words (32 bits).

The character strings stored in D0 (b0 to b7, b8 to b15) and D1 (b0 to b7, b8 to b15) are displayed in this order.



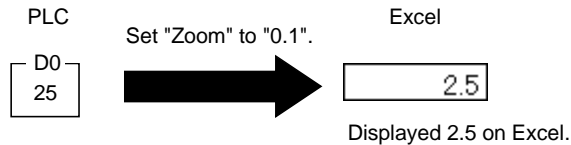
↑ D0 (b0 to b7, b8 to b15) and D1 (b0 to b7, b8 to b15) data is displayed.

5) "Zoom"

The device value read from the PLC is multiplied by the zoom ratio and displayed in the cell.

When "Data Type" has been set to "Bit" or "Character string", the "Zoom" setting is not possible.

Setting range: 0.001 to 1000



6) "No. of cells"

Set the number of cells to be used for the device set in "Device" within the area specified in "Cell Area".

<Device data display example>

Setting example of <<Access Data>> tab

	Device	Data Type	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	Single accuracy(16bits)		1	3	3	Word
2	Device: D0						
3	Data type: Single accuracy (16 bits)						
4	Number of cells: 3						

The device data are displayed on Excel as shown below.

3 points are displayed in order, starting with D0.

D0	D1	D2			
18	14	0			

These are set as the cell area but not used.

7) "Dev. Points"

The points of the devices to be consecutively read starting with the device number set in "Device" are displayed.

8) "In unit"

The unit of the device to be shown in the cell is displayed.

(e) The number of set devices

The number of device points and others set to the cell area are displayed.

	16/32	16	

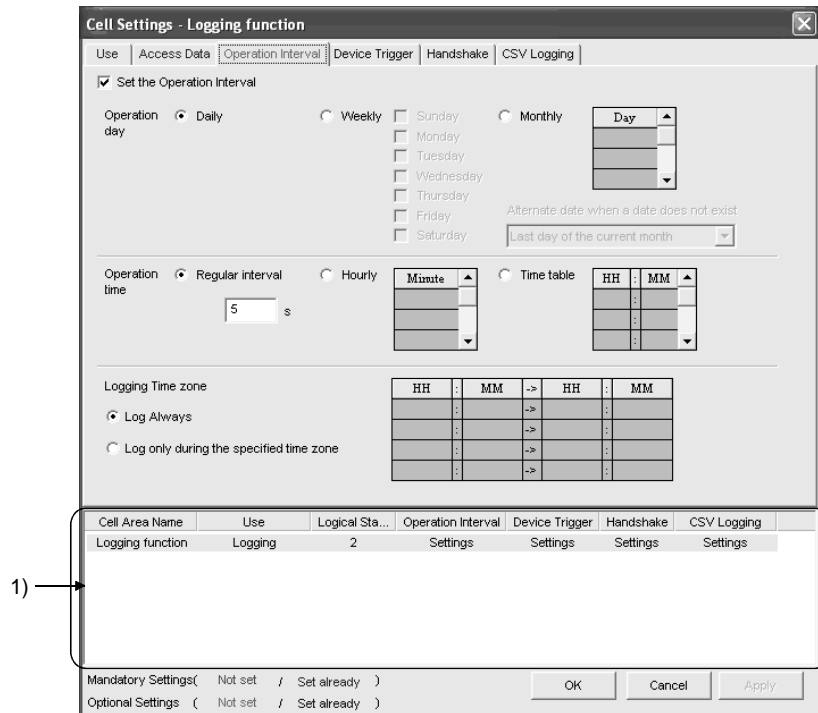
- Indicates the number of device points set for the logging function in the cell area.
- Indicates the number of cells available for the cell area.
- Indicates the number of cells where the device has been set in the cell area.

6.2.3 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the logging function.

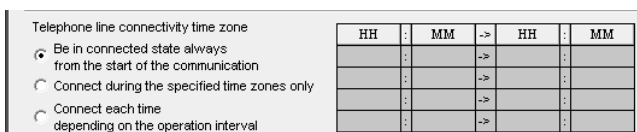
In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	(2) (a)
Operation day	Set the operation day of the logging activation.	(2) (b)
Operation time	Set the operation time of the logging activation.	(2) (c)
Logging Time zone *1	Set the time zone of the logging activation.	(2) (d)
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: If the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication, "Logging Time zone" is switched to "Telephone line connectivity time zone".



Item	Description	Detailed Explanation
Telephone line connectivity time zone	Sets the timing of connection and disconnection of the telephone line.	(2) (e)

(2) Detailed explanation

(a) "Set the Operation Interval"

To make the settings of cell area invalid or to use the function of cell area for 1 shot communication only, remove the check mark. (Do not remove the check mark for the case of ordinary operation.)

(b) "Operation day"

Set the operation day of device data collection.

1) When "Daily" is selected

Operation is performed every day.

2) When "Weekly" is selected

Operation is performed on the specified day of the week only.
Multiple days of the week can be set.

3) When "Monthly" is selected

Operation is performed on the specified days only.

If the specified day does not exist in some months, an alternate day can be specified.

Number of days that can be set: 31

<When "15th" is set>

Operation is performed on the 15th every month, e.g. January 15, February 15, March 15.

<When "31st" is set>

Excepting February, April, June, September and November, operation is performed on the 31st every month.

For February, April, June, September and November, set the alternate day and processing in "Alternate day when a date does not exist".

The following table indicates the setting items of "Alternate day when a date does not exist".

Item	Description
Last day of the current month	Operation is performed on the last day of February, April, June, September or November.
First day of the next month	Operation is performed on the first day of the next month.
No operation	Operation is not performed in February, April, June, September and November.

(c) "Operation time"

Set the operation time of device data collection.

1) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Connect each time depending..." is set in "Telephone line...", set 30 seconds or more to "Regular interval".

Setting range: 1 to 3600 (in units of 1 second)

2) When "Hourly" is selected

Device data is collected at the specified minute every hour.

Number of times that can be set: 60

3) When "Time table" is selected

Device data is collected at the specified time.

Number of times that can be set: 50

(d) "Logging Time zone"

Set the time zone for logging.

1) When "Log Always" is selected

Logging is always performed at the specified operation time of the operation day.

2) When "Log only during the specified time zone" is selected

Logging is performed in the specified time zone only.

Number of settings: 4

When "Operation day" has been set to "Weekly" or "Monthly", do not make the following setting that will span two days.

HH	:	MM	->	HH	:	MM
22	:	00	->	08	:	00
	:		->		:	
	:		->		:	
	:		->		:	

(e) "Telephone line connectivity time zone"

Set the time zone for connection with the telephone line.

1) When "Be in connected state always from the start of the communication" is selected

The telephone line is connected upon start of MX Sheet communication, and is kept connected until termination of MX Sheet communication.

2) When "Connect during the specified time zone only" is selected

The telephone line is connected only in the specified time zone.

Number of settings: 4

When "Operation day" has been set to "Weekly" or "Monthly", do not make the following setting that will span two days.

HH	:	MM	->	HH	:	MM
22	:	00	->	08	:	00
	:		->		:	
	:		->		:	
	:		->		:	

3) When "Connect each time depending on the operation interval" is selected

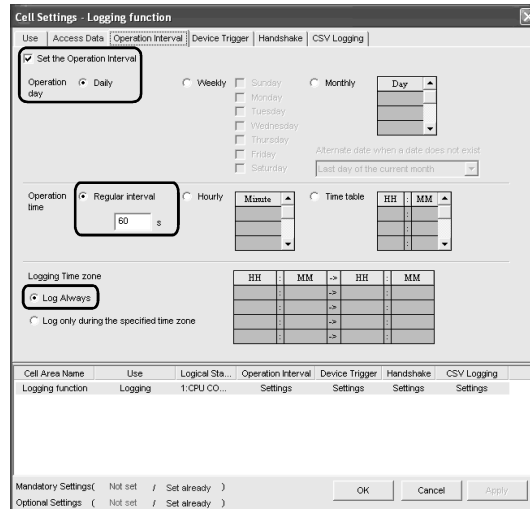
The telephone line is connected and disconnected according to the settings of "Operation day" and "Operation time".

(3) Setting examples

(a) When using communication other than modem communication (Log Always)

1) Setting example

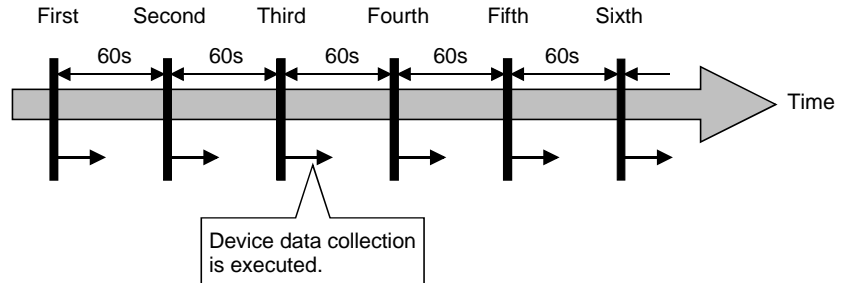
The following setting example shows that logging is always performed at regular intervals.



Set the Operation Interval : Marked
 Operation day : Marked
 Daily : Marked
 Operation time : Marked
 Regular interval : 60 seconds
 Logging Time zone : Marked
 Log Always : Marked

2) Operation timing

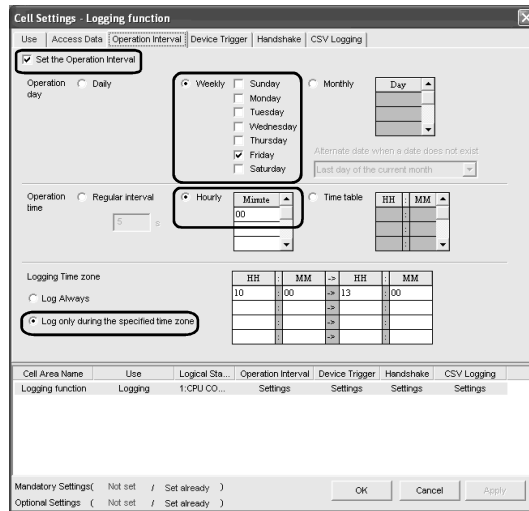
The following shows the operation timings in the setting example.



(b) When using communication other than modem communication
(Log only during the specified time zone)

1) Setting example

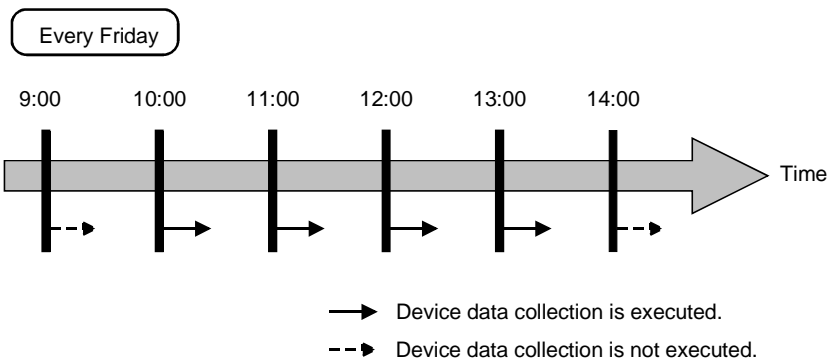
The following setting example shows that logging is performed in the specified time zone only.



- Set the Operation Interval : Marked
- Operation day : Marked
- Weekly : Marked
- Friday : Marked
- Operation time : 0 (minutes)
- Hourly : 0 (minutes)
- Logging Time zone : Marked
- Log only during the specified time zone: Marked
- Time zone : 10:00 to 13:00

2) Operation timing

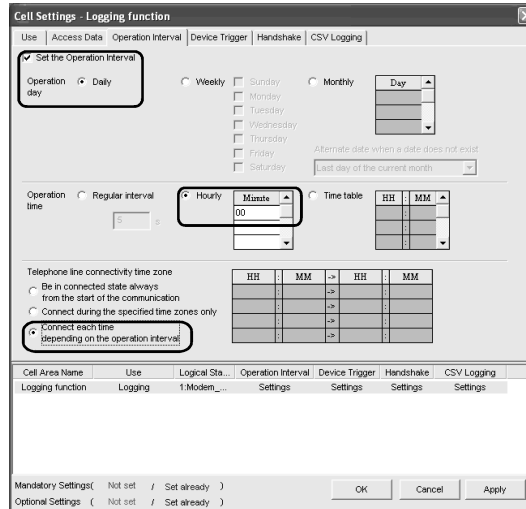
The following shows the operation timing in the setting example.



(c) When using modem communication

1) Setting example

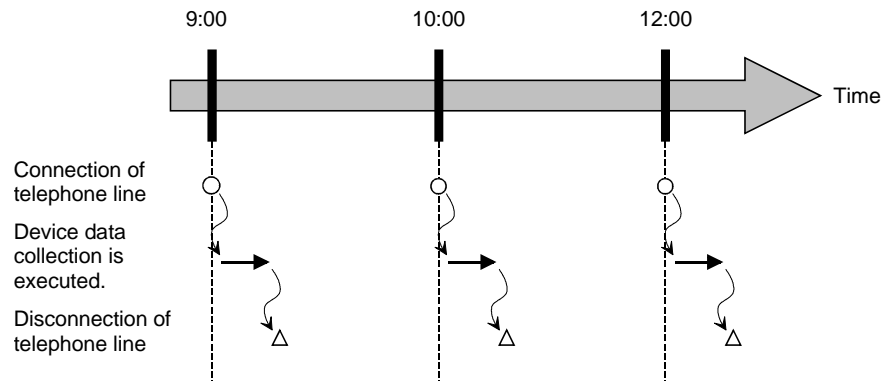
The setting example in the case of modem communication is shown below.



- Set the Operation Interval : Marked
- Operation day : Marked
- Operation time : 0 (minutes)
- Logging Time zone : Marked
- Connect each time depending on the operation interval : Marked

2) Operation timing

The following shows the operation timing in the setting example.

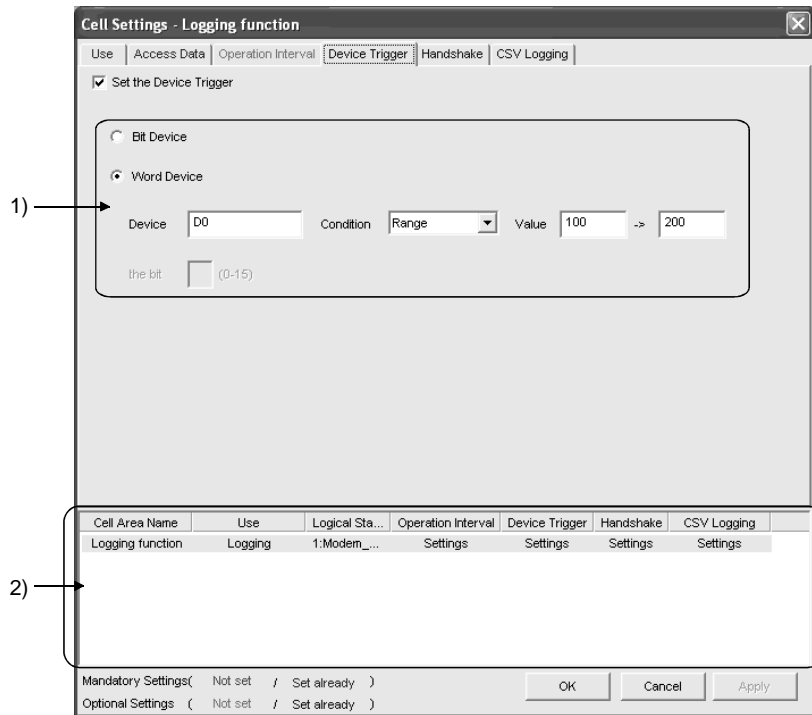


6.2.4 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the logging function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	(2) (a)
1) (Device conditions)	Set the device conditions.	(2) (b)
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

(a) "Set the Device Trigger"

When using the device trigger, be sure to mark "Set the Device Trigger".

(b) Device conditions

Set the device conditions for the device trigger.

1) Device type

Set the type of the device used for the device trigger.

Item	Description
Bit Device	Set when using a bit device for the device trigger.
Word Device	Set when using a word device for the device trigger.

2) "Device"

Enter the device used for the device trigger.

Enter the device name and device number in this order.

3) "the bit"

Set the corresponding bit of the word device.

Setting range: 0 to 15

4) "Condition"

Set the device trigger condition.

Item	Available Device	Description
When ON 	Bit device	Set when operation is to be performed only once when the bit device turns on.
	Word device	Set when operation is to be performed only once when the corresponding bit of the word device turns on (value: 1).
When OFF 	Bit device	Set when operation is to be performed only once when the bit device turns off.
	Word device	Set when operation is to be performed only once when the corresponding bit of the word device turns off (value: 0).
ON 	Bit device	Set when operation is to be performed while the bit device is on.
	Word device	Set when operation is to be performed while the corresponding bit of the word device is on (value: 1).
OFF 	Bit device	Set when operation is to be performed while the bit device is off.
	Word device	Set when operation is to be performed while the corresponding bit of the word device is off (value: 0).
=	Word device	Set when operation is to be performed when the device value is equal to the "Value" setting.
< >	Word device	Set when operation is to be performed when the device value is not equal to the "Value" setting.
< =	Word device	Set when operation is to be performed when the device value is equal to or less than the "Value" setting.
<	Word device	Set when operation is to be performed when the device value is less than the "Value" setting.
> =	Word device	Set when operation is to be performed when the device value is equal to or greater than the "Value" setting.
>	Word device	Set when operation is to be performed when the device value is greater than the "Value" setting.
Range	Word device	Set when operation is to be performed when the device value is within the specified "Value" setting range.

5) "Value"

Enter the values used for "Condition".

Setting range: -32768 to 32767

<When "Range" has been set in "Condition">

When "Range" has been set in "Condition", enter the values in "Value" as shown below.



Word Device

Device: D0 Condition: Range Value: 100 > 200

Enter the upper limit value of the range.

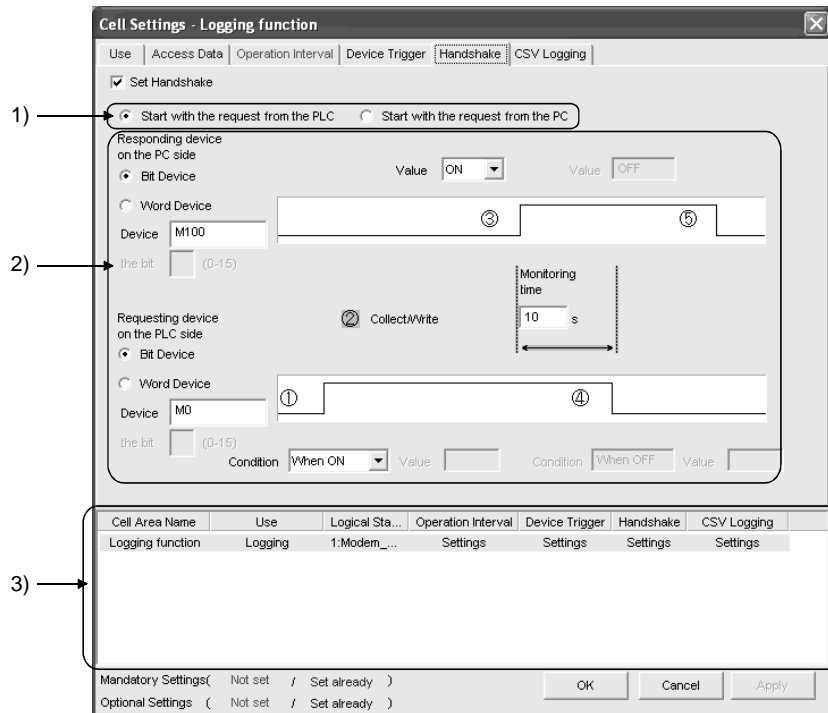
Enter the lower limit value of the range.

6.2.5 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the logging function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



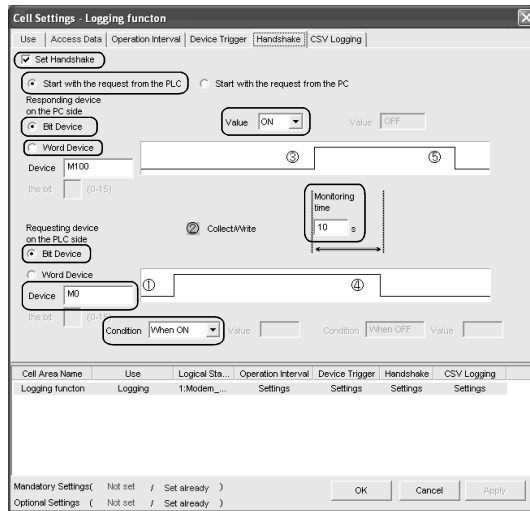
Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	(3) (a)
1) (Requesting source setting)	Set the requesting source of the handshake.	(3) (b)
2) (Handshake processing)	Set the handshake processing.	(3) (c)
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Setting examples and operation timing

The following shows the handshake setting examples and operation timing.

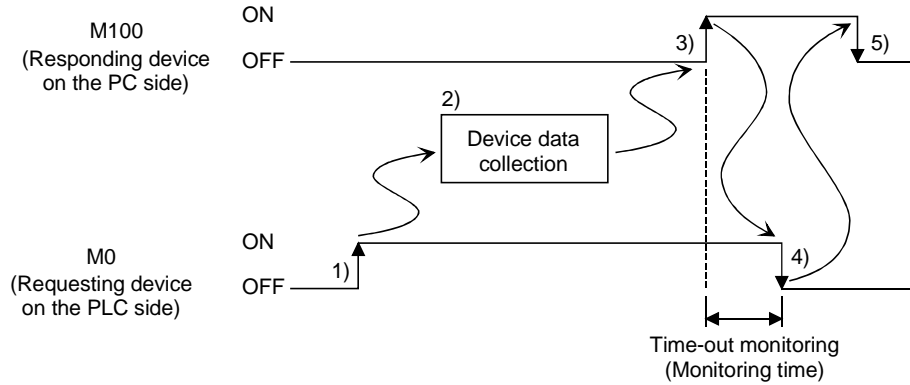
(a) When "Start with the request from the PLC" is selected
(Device: Bit device)

<Setting example>



- Set Handshake : Marked
- Start with the request from the PLC : Marked
- Responding device on the PC side : Marked
- Bit device : Marked
- Device : M100
- Value : ON
- Requesting device on the PLC side : Marked
- Bit device : Marked
- Device : M0
- Condition : When ON
- Monitoring time : 10 seconds

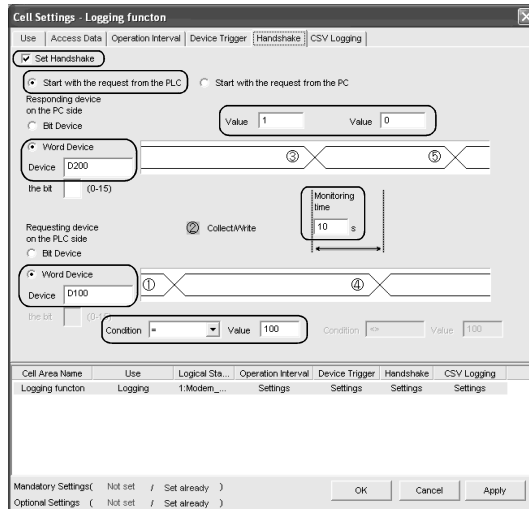
<Operation timing>



- 1) When M0 turns on, processing in 2) is started.
- 2) Device data is collected.
- 3) After device data is collected, M100 is turned on.
- 4) M0 is turned off.
- 5) M100 is turned off.

(b) When "Start with the request from the PLC" is selected
(Device: Word device)

<Setting example>

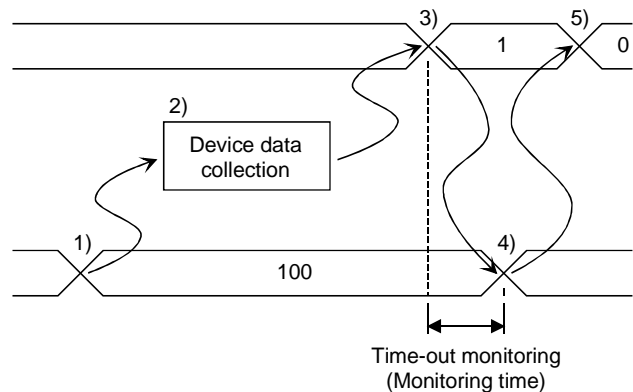


- Set Handshake : Marked
- Start with the request from the PLC : Marked
- Responding device on the PC side
 - Word device : Marked
 - Device : D200
 - Value : 1 (left), 0 (right)
- Requesting device on the PLC side
 - Word device : Marked
 - Device : D100
 - Condition : =
 - Value : 100
 - Monitoring time : 10 seconds

<Operation timing>

D200
(Responding device on the PC side)

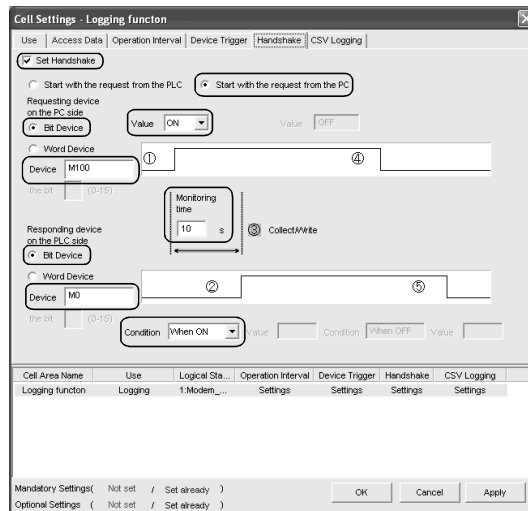
D100
(Requesting device on the PLC side)



- 1) When the D100 value reaches 100, processing in 2) is started.
- 2) Device data is collected.
- 3) After device data is collected, the D200 value is changed to 1.
- 4) The D100 value is changed to other than 100.
- 5) The D200 value is changed to 0.

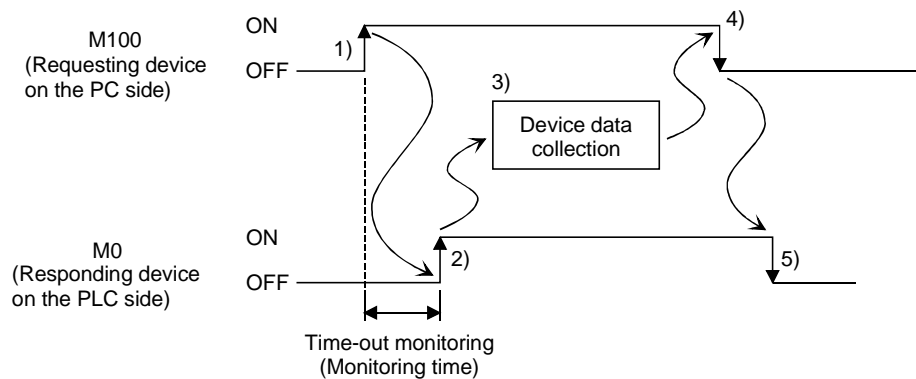
(c) When "Start with the request from the PC" is selected (Device: Bit device)

<Setting example>



- Set Handshake : Marked
- Start with the request from the PC : Marked
- Requesting device on the PC side
- Bit device : Marked
- Device : M100
- Value : ON
- Responding device on the PLC side
- Bit device : Marked
- Device : M0
- Condition : When ON
- Monitoring time : 10 seconds

<Operation timing>



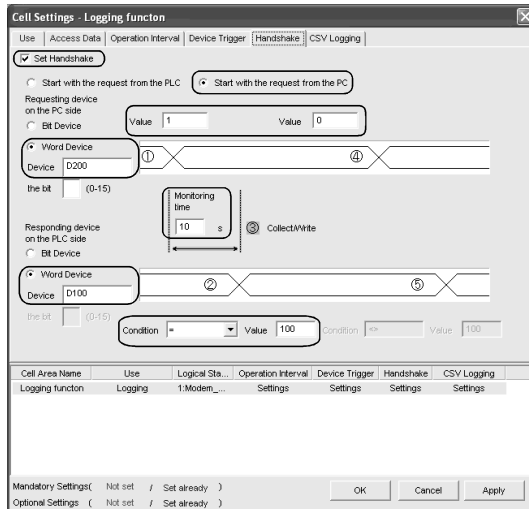
- 1) M100 is turned on.
- 2) When M0 turns on, processing in 3) is started.
- 3) Device data is collected.
- 4) After device data is collected, M100 is turned off.
- 5) M0 is turned off.

REMARK

Time-out monitoring is not executed between 4) and 5) above.
 If the operation in 5) is not performed in the PLC, device data collection is not executed when the handshake conditions are satisfied at the next time.

(d) When "Start with the request from the PC" is selected (Device: Word device)

<Setting example>

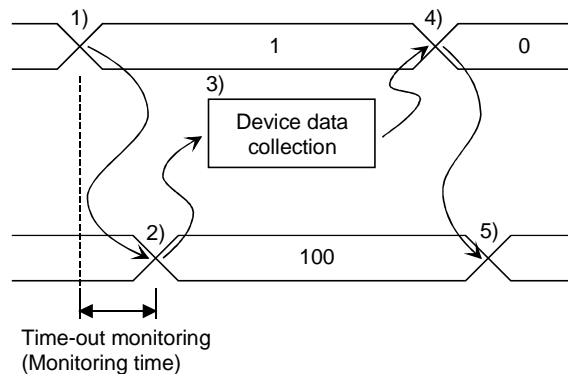


- Set Handshake : Marked
- Start with the request from the PC : Marked
- Requesting device on the PC side
- Word device : Marked
- Device : D200
- Value : 1 (left), 0 (right)
- Responding device on the PLC side
- Word device : Marked
- Device : D100
- Condition : =
- Value : 100
- Monitoring time : 10 seconds

<Operation timing>

D200
(Requesting device on the PC side)

D100
(Responding device on the PLC side)



- 1) The D200 value is changed to 1.
- 2) When the D100 value reaches 100, processing in 3) is started.
- 3) Device data is collected.
- 4) After device data is collected, the D200 value is changed to 0.
- 5) The D100 value is changed to other than 100.

REMARK

Time-out monitoring is not executed between 4) and 5) above.
If the operation in 5) is not performed in the PLC, device data collection is not executed when the handshake conditions are satisfied at the next time.

(3) Detailed explanation

(a) "Set Handshake"

When using a handshake, be sure to mark "Set Handshake".

(b) Requesting source setting

Set the requesting source for a device data collection start.

Item	Description
Start with the request from the PLC	Set when starting device data collection at the request of the PLC.
Start with the request from the PC	Set when starting device data collection at the request of the personal computer.

(c) Handshake processing

Set the handshake processing on the personal computer side and PLC side.

1) PC side processing

• Device type

Set the device type used for PC side processing.

Item	Description
Bit device	Set when a bit device is used for PC side processing.
Word device	Set when a word device is used for PC side processing.

• "Device"

Enter the device used for PC side processing.

Enter the device name and device number in this order.

When specifying a bit of the word device, enter the bit number in "the bit".

• "Value"

Set the value of the device used for PC side processing.

Item	Available Device	Description
ON	Bit device	Set when the value of the device used for PC side processing is set for ON.
	Word device (Bit specification)	
OFF	Bit device	Set when the value of the device used for PC side processing is set for OFF.
	Word device (Bit specification)	
Empty (Value input)	Word device	Set the value of the word device used for PC side processing.

2) PLC side processing

• Device type

Set the device type used for PLC side processing.

Item	Description
Bit device	Set when a bit device is used for PLC side processing.
Word device	Set when a word device is used for PLC side processing.

• "Device"

Enter the device used for PLC side processing.

Enter the device name and device number in this order.

When specifying the bit use of the word device, enter the bit number in "the bit".

• "Condition"

Set the conditions of the device used for PLC side processing.

Item	Available Device	Description
ON	Bit device	Set when the value of the device used for PLC side processing is set for ON.
	Word device (Bit specification)	
OFF	Bit device	Set when the value of the device used for PLC side processing is set for OFF.
	Word device (Bit specification)	
=	Word device	Set when the PLC side device value is equal to the "Value" setting.

• "Value"

Set the value of the device used for PLC side processing.

This can be set only when "=" has been selected in "Condition".

3) Monitoring time

Set the time during which the PC side device monitors the PLC side device.

Setting range: 1 to 3600

The monitoring time changes depending on the requesting source setting.

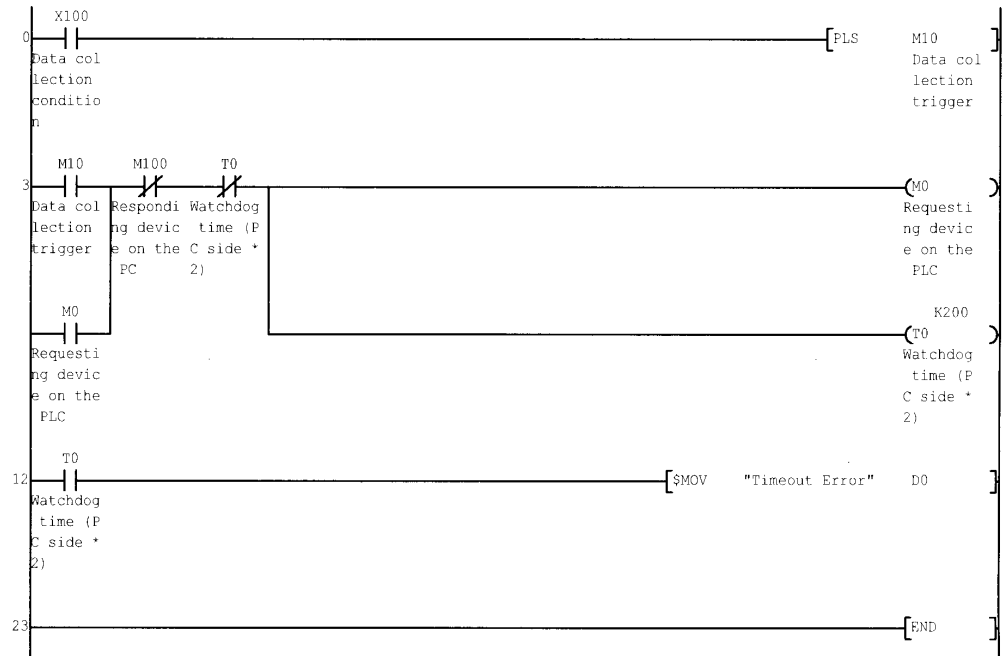
The following table indicates the monitoring time.

Requesting Source Setting	Monitoring time
Start with the request from the PLC	Monitoring is executed from the time when the PC side responding device is set to the time when the PLC side requesting device is reset. If the PLC side responding device is not reset after the elapse of the monitoring time, the collected device data is discarded and the error log is displayed in the ErrorLog sheet.
Start with the request from the PC	Monitoring is executed from the time when the PC side requesting device is set to the time when the PLC side responding device is set. If the PLC side responding device is not set after the elapse of the monitoring time, the error log is displayed in the ErrorLog sheet.

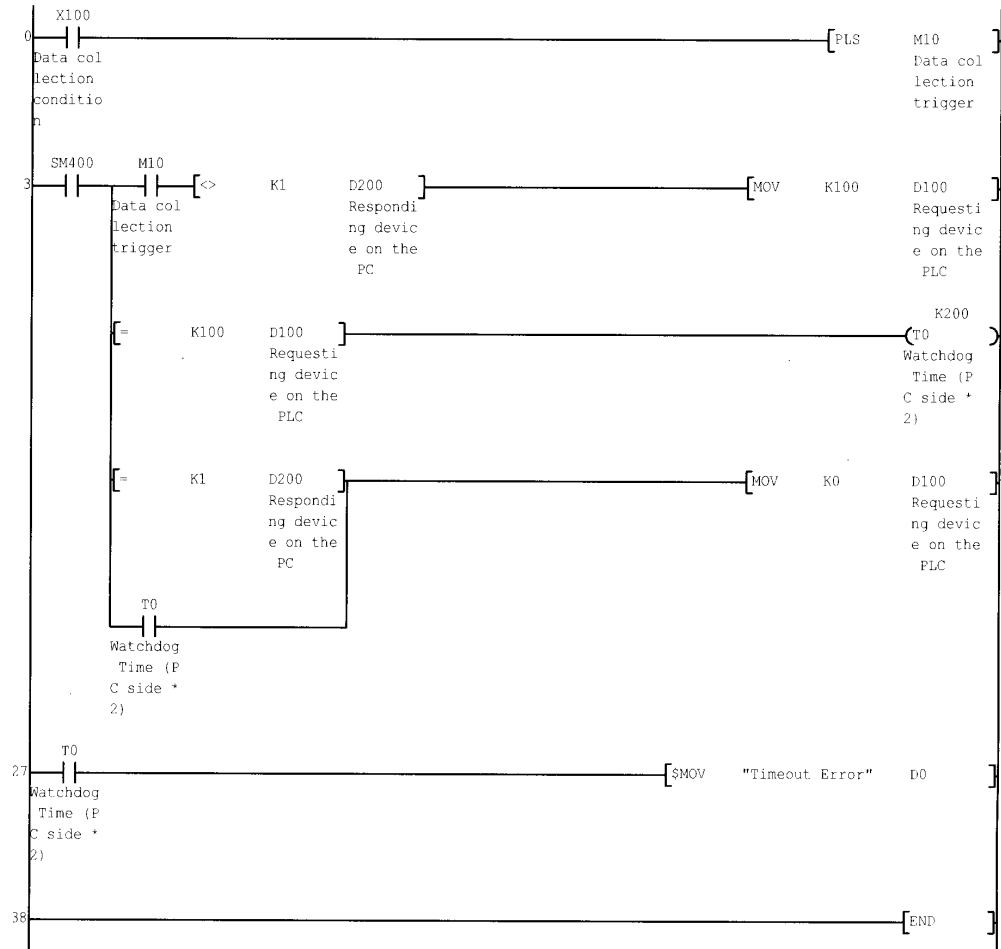
(4) Sample ladders for handshake

The following is the sample ladders for handshake used in the setting examples in (2).

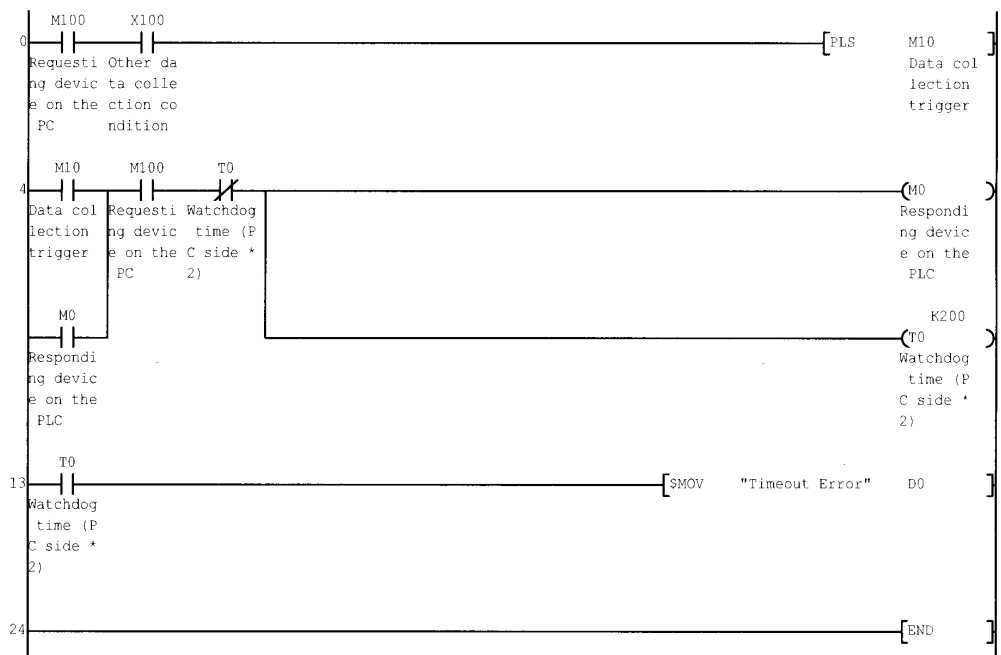
(a) When "Start with the request from the PLC" is selected
(Device: Bit device)



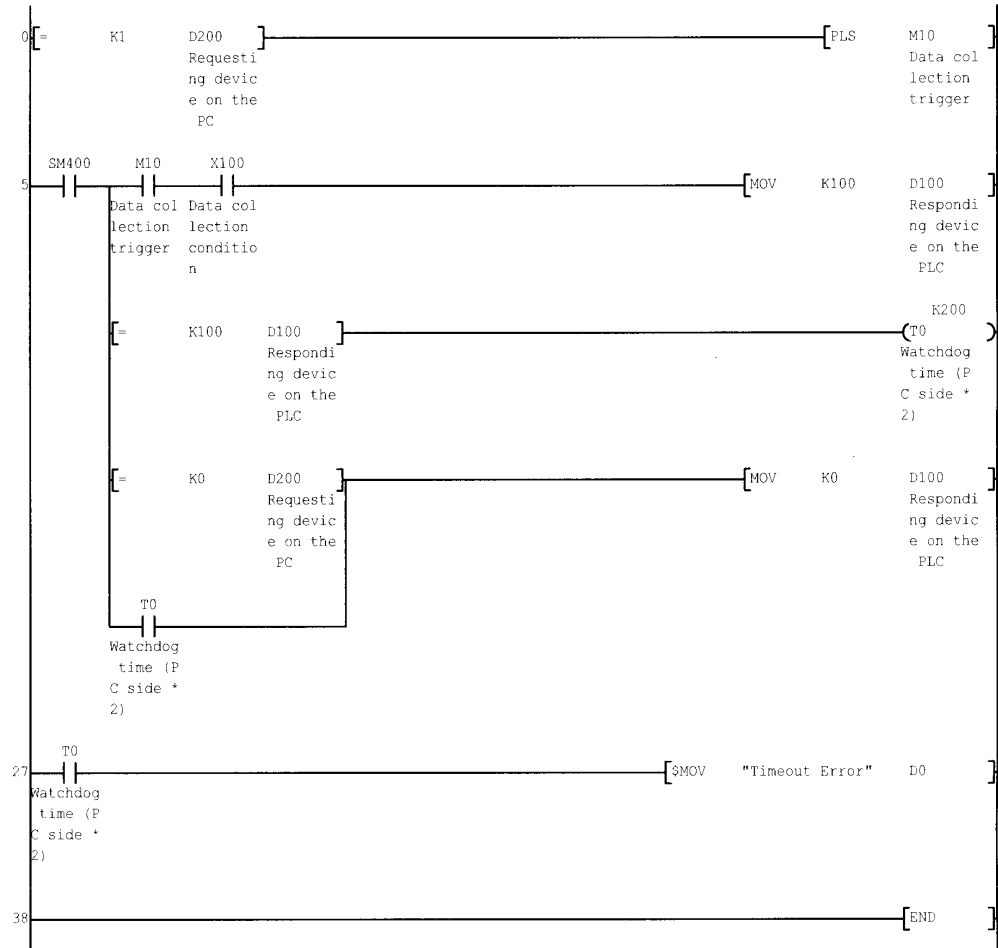
(b) When "Start with the request from the PLC" is selected (Device: Word device)



(c) When "Start with the request from the PC" is selected (Device: Bit device)



(d) When "Start with the request from the PC" is selected (Device: Word device)

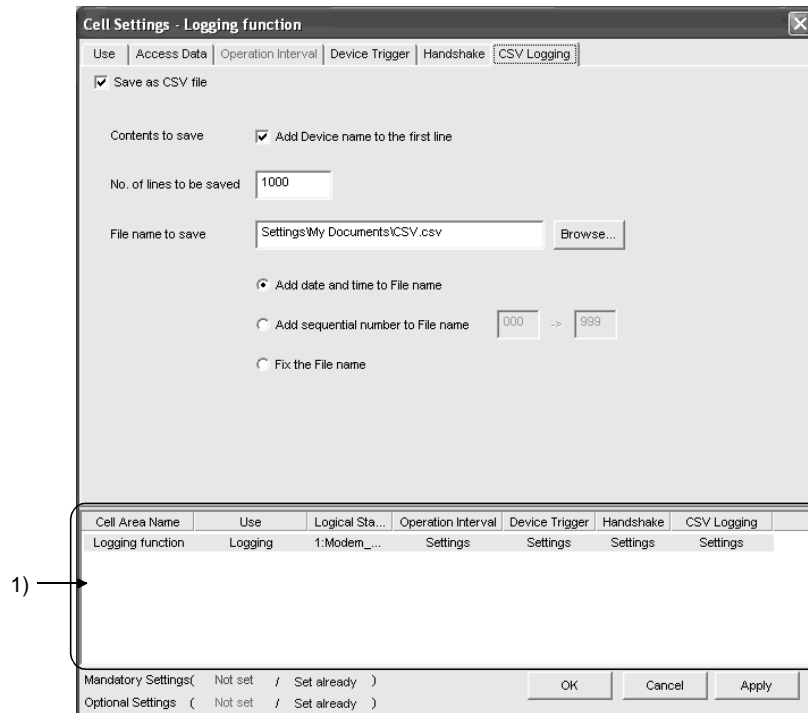


6.2.6 Setting of the CSV Logging tab

This section describes the setting of the <<CSV Logging>> tab for use of the logging function.

In the <<CSV Logging>> tab, the file name and the saving contents with which logging data is saved to CSV file.

(1) <<CSV Logging>> tab



Item	Description	Detailed Explanation
Save as CSV file	Set when using the CSV logging.	(2) (a)
Contents to save	Set when adding the device name to the first line.	(2) (b)
No. of lines to be saved	Set the number of lines to be saved.	(2) (c)
File name to save	Set the file name to save.	(2) (d)
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

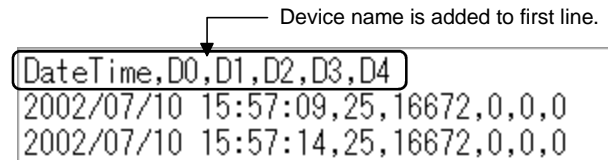
(2) Detailed explanation

(a) "Save as CSV file"

When using the CSV logging, be sure to mark "Save as CSV file".

(b) "Contents to save"

Activate this setting when adding the device name to the first line of the data to be saved into a CSV file.



(c) "No. of lines to be saved"

Set the number of lines to be saved into a single CSV file.

Setting range: 1 to 9999999 *1

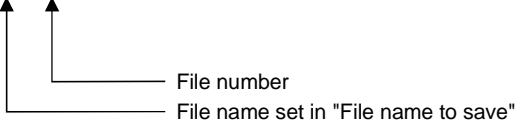
*1: Set any of 1 to 65535 when using the CSV file on Excel.

(d) "File name to save"

Set the CSV file name to save.

Item	Description
File name to save	Sets the saving location and file name of the CSV file.
Add date and time to File name	<p>Adds the date and time data to the file name set in "File name to save" and saves it. In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved". When they reach the set number of lines, a new CSV file is created. The following shows the file name when data are saved.</p> <p>*****20020523183536.csv</p> <p> ↑ File name set in "File name to save" ↑ Year ↑ Month ↑ Day ↑ Hours ↑ Minutes ↑ Seconds </p>

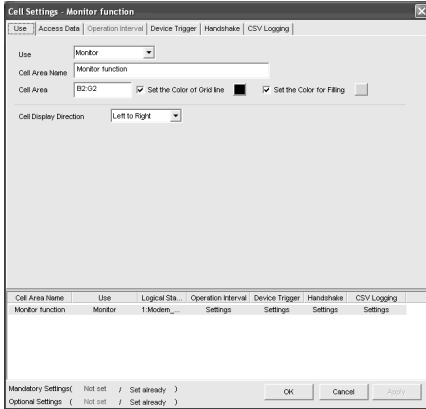
(To the next page)

Item	Description
<p>Add sequential number to File name</p>	<p>Adds the file number to the file name set in "File name to save" and saves it. The serial number can be set in a range from 000 to 999. When the number reaches the last, the data of the next file are overwritten to the file of the first number. In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved". When they reach the set number of lines, a new CSV file is created. The following shows the file name when data are saved.</p> <p>*****000.csv</p> 
<p>Fix the File name</p>	<p>Overwrites data to the CSV file set in "File name to save". In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved".</p>

6.3 When Monitor Is Selected

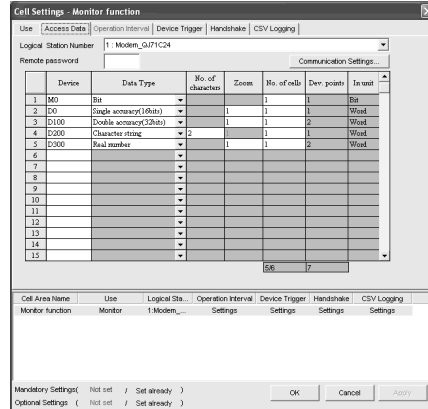
This section describes the "Cell Setting" dialog box when "Monitor" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



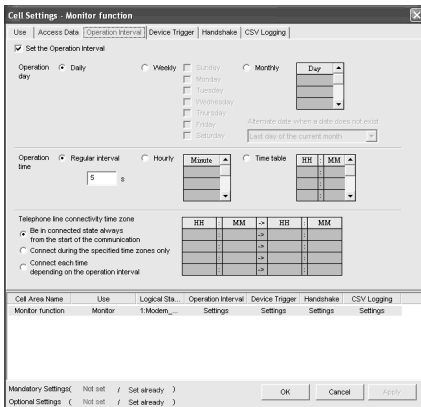
Required setting
Refer to Section 6.3.1.

<<Access Data>> tab



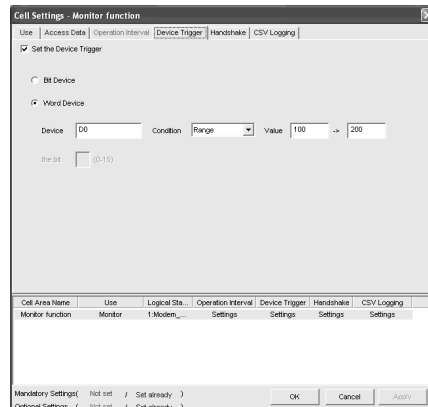
Required setting
Refer to Section 6.3.2.

<<Operation Interval>> tab



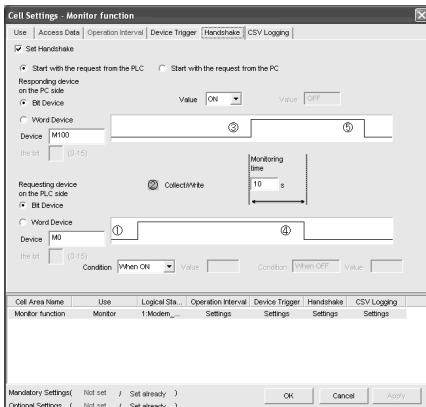
Required setting
Refer to Section 6.3.3.

<<Device Trigger>> tab



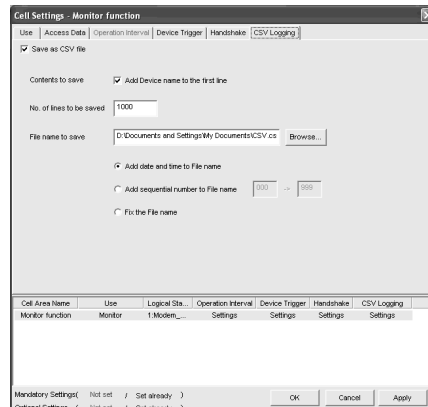
Set as necessary
Refer to Section 6.3.4.

<<Handshake>> tab



Set as necessary
Refer to Section 6.3.5.

<<CSV Logging>> tab

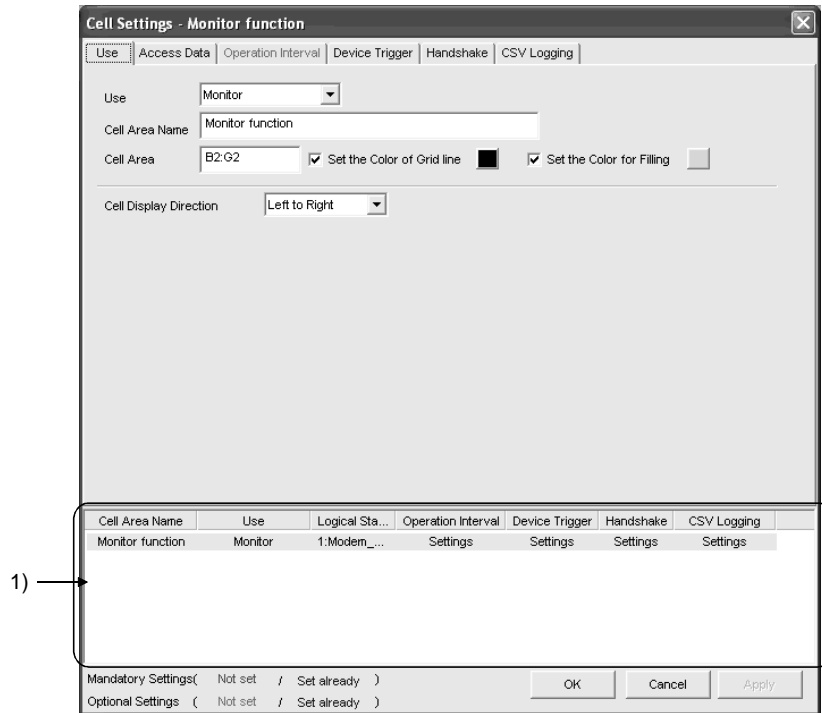


Set as necessary
Refer to Section 6.3.6.

6.3.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the monitor function. In the <<Use>> tab, set the cell area and monitor data display direction.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Monitor" when using the monitor function.	—
Cell Area Name	Set the name of the specified cell area.	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Cell Display Direction	Set the monitor data display sequence. <ul style="list-style-type: none"> • Left to Right Monitor data are displayed from left to right in the specified cell area in order. • Top to Bottom Monitor data are displayed from top to bottom in the specified cell area in order. 	(2) (b)
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

With the exception of the following items, the setting of the <<Use>> tab for use of the monitor function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) "Cell Area"

Set the cell area to be used by the monitor function.

1) Setting examples

Refer to Section 6.2.1 for the "Cell Area" setting examples.

2) Setting ranges

The following indicates the possible setting ranges of the cell area and number of cell areas.

Number of cells : 1000

Number of cell areas : 16

(b) "Cell Display Direction"

Set the monitor data display sequence.

1) When "Left to Right" is selected

<When cell area (B2:D5) is set to "Left to Right">

	A	B	C	D	E
1		→			
2		1	2	3	
3		4	5	6	
4		7	8	9	
5		10	11	12	
6					

Monitor data are displayed in order of 1 to 12.

2) When "Top to Bottom" is selected

<When cell area (B2:D5) is set to "Top to Bottom ">

	A	B	C	D	E
1					
2		1	5	9	
3		2	6	10	
4		3	7	11	
5		4	8	12	
6					

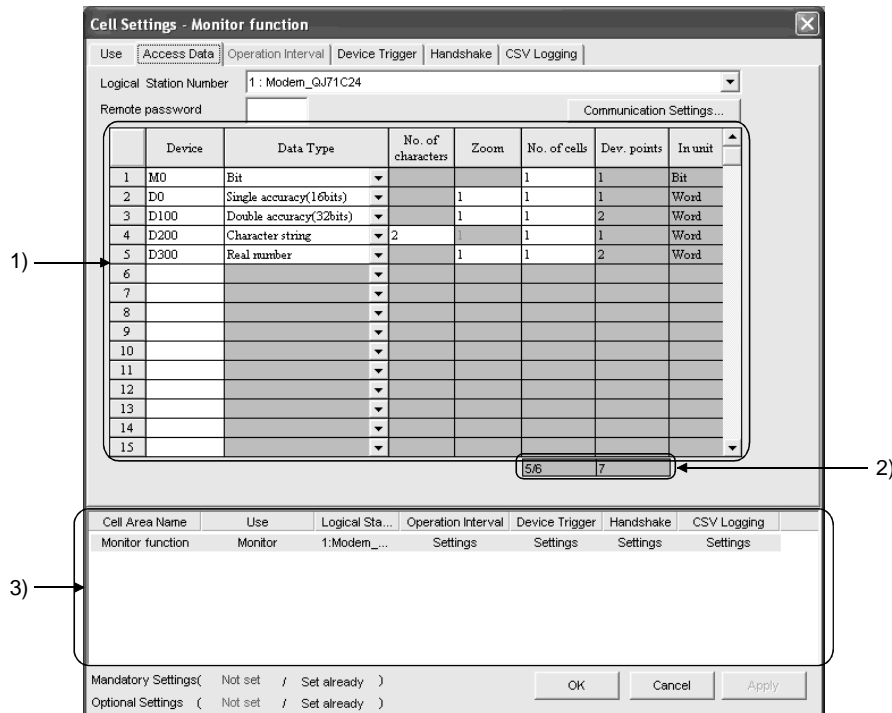
Monitor data are displayed in order of 1 to 12.

6.3.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the monitor function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be collected in the cell area.

(1) <<Access Data >> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication Settings button	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
1) (Access data)	Set the devices to be monitored.	
2) (Number of set devices)	The number of devices currently set is displayed.	
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

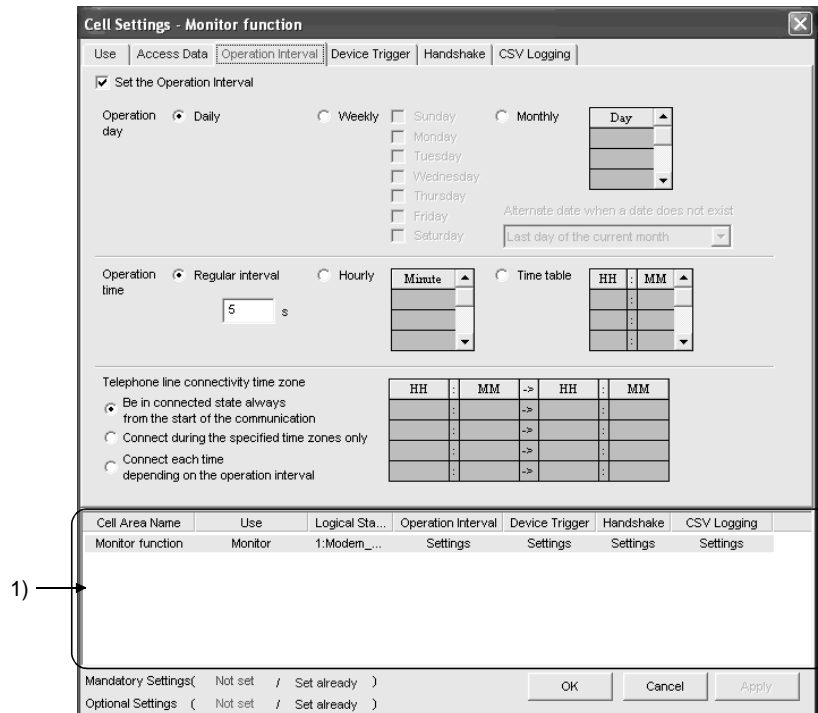
The setting of the <<Access Data>> tab for use of the monitor function is the same as that of the <<Access Data>> tab for use of the logging function. Refer to Section 6.2.2 for details.

6.3.3 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the monitor function.

In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Section 6.2.3
Operation day	Set the operation day of the monitor function activation.	
Operation time	Set the operation time of the monitor function activation.	(2) (a)
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the monitor function is the same as the setting of the <<Operation Interval>> tab for use of the logging function.

Refer to Section 6.2.3 for details.

(a) "Operation time"

The setting except for "Regular interval" is the same as that of the logging function.

Refer to Section 6.2.3 for the setting except for "Regular interval".

1) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.

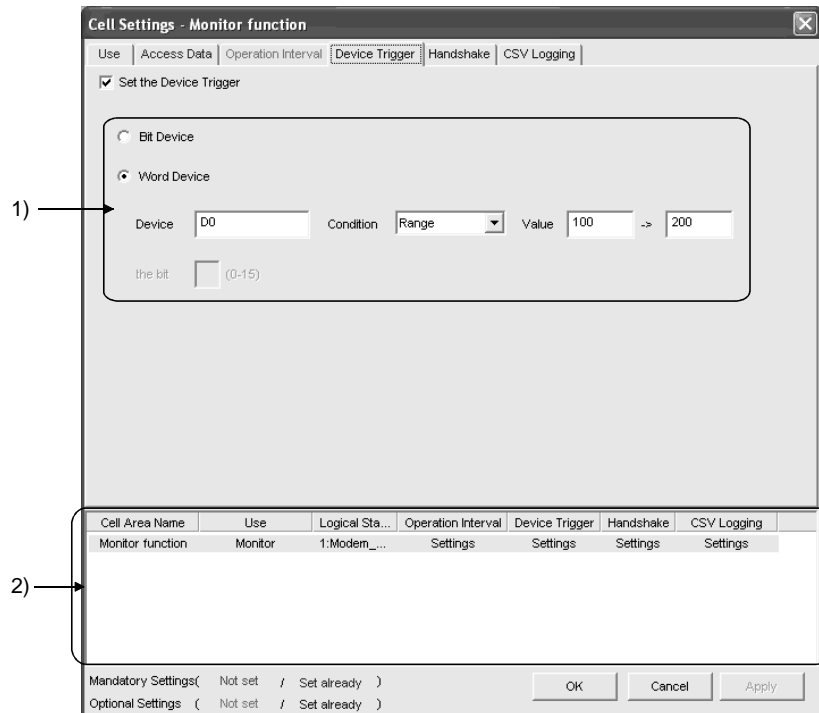
Setting range: 0.5 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

6.3.4 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the monitor function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
1) (Device conditions)	Set the device conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

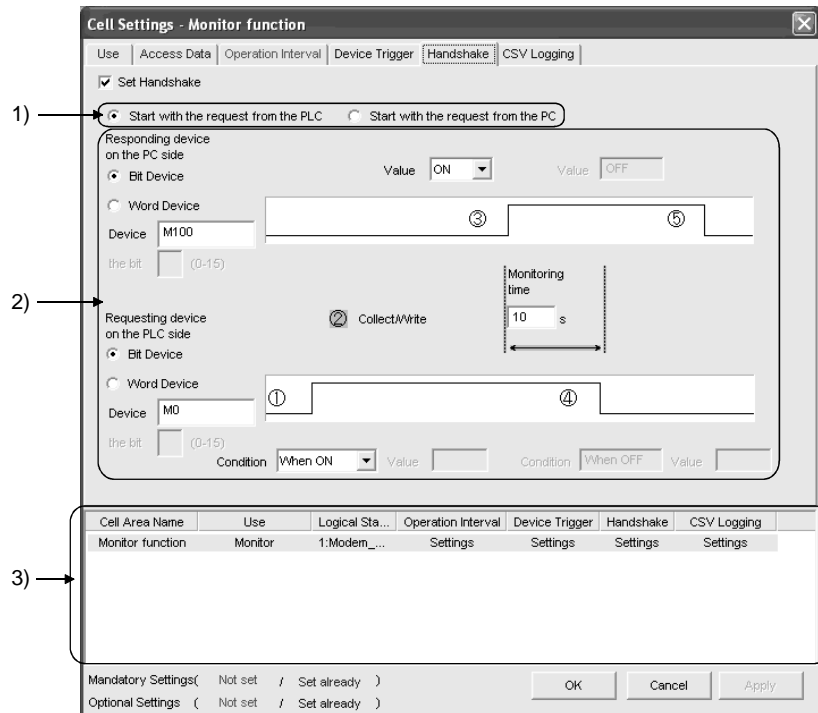
The setting of the <<Device Trigger>> tab for use of the monitor function is the same as that of the <<Device Trigger>> tab for use of the logging function. Refer to Section 6.2.4 for details.

6.3.5 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the monitor function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	
1) (Requesting source setting)	Set the requesting source of the handshake.	Section 6.2.5
2) (Handshake processing)	Set the handshake processing.	
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

The setting of the <<Handshake>> tab for use of the monitor function is the same as that of the <<Handshake>> tab for use of the logging function.

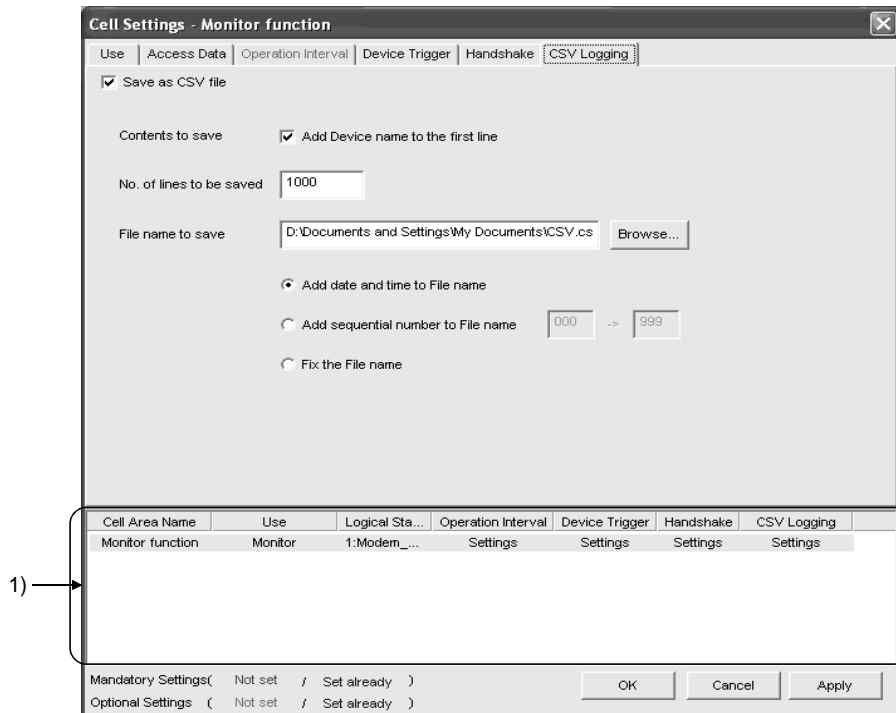
Refer to Section 6.2.5 for details.

6.3.6 Setting of the CSV Logging tab

This section describes the setting of the <<CSV Logging>> tab for use of the monitor function.

In the <<CSV Logging>> tab, set the file name and the saving contents with which the monitor data is saved into the CSV file.

(1) <<CSV Logging>> tab



Item	Description	Detailed Explanation
Save as CSV file	Set when using the CSV logging.	Section 6.2.6
Contents to save	Set when adding the device name to the first line.	
No. of lines to be saved	Set the number of lines to be saved.	
File name to save	Set the file name to save.	
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

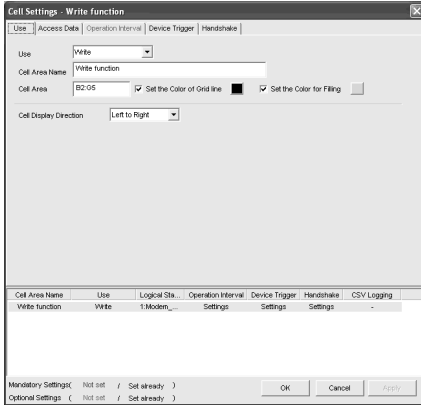
(2) Detailed explanation

The setting of the <<CSV Logging>> tab for use of the monitor function is the same as that of the <<CSV Logging>> tab for use of the logging function. Refer to Section 6.2.6 for details.

6.4 When Write Is Selected

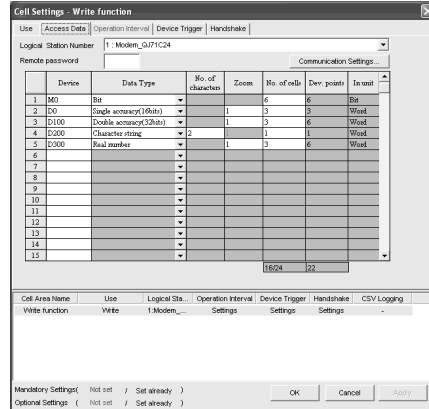
This section describes the "Cell Setting" dialog box when "Write" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



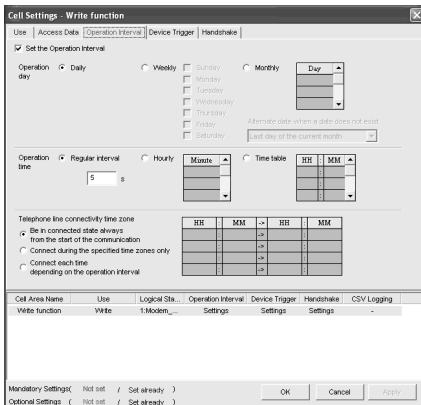
Required setting
Refer to Section
6.4.1.

<<Access Data>> tab



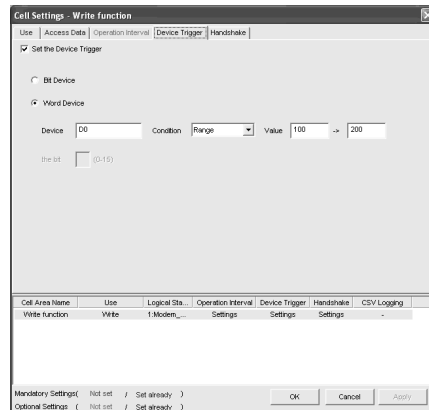
Required setting
Refer to Section
6.4.2.

<<Operation Interval>> tab



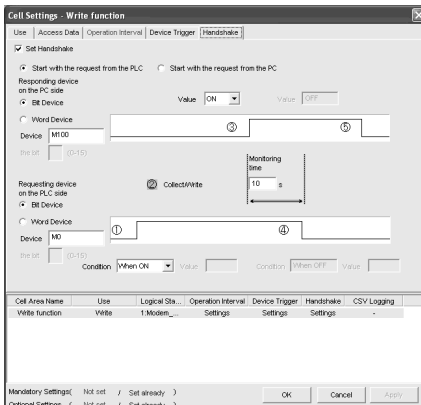
Required setting
Refer to Section
6.4.3.

<<Device Trigger>> tab



Set as necessary
Refer to Section
6.4.4.

<<Handshake>> tab

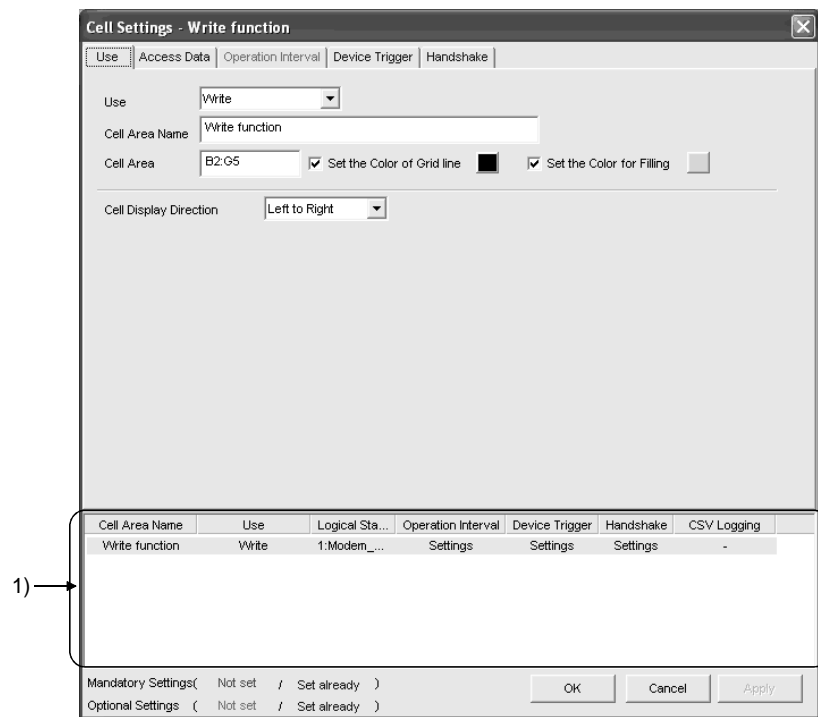


Set as necessary
Refer to Section
6.4.5.

6.4.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the write function. In the <<Use>> tab, set the cell area and display direction of written data.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Write" when using the write function.	—
Cell Area Name	Set the name of the specified cell area.	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Cell Display Direction	Set the input cells for the write data. <ul style="list-style-type: none"> • Left to Right Write data are set from left to right in the specified cell area in order. • Top to Bottom Write data are set from top to bottom in the specified cell area in order. 	(2) (b)
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

With the exception of the following items, the setting of the <<Use>> tab for use of the write function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) The "Cell Area"

Set the cell area to be used by the write function.

1) Setting examples

Refer to Section 6.2.1 for the "Cell Area" setting examples.

2) Setting ranges

The following indicates the possible setting ranges of the cell area and number of cell areas.

Number of cells : 1000

Number of cell areas : 16

(b) "Cell Display Direction"

Set the written data cell sequence.

1) When "Left to Right" is selected

<When cell area (B2:D5) is set to "Left to Right">

	A	B	C	D	E
1		→			
2		1	2	3	
3		4	5	6	
4		7	8	9	
5		10	11	12	
6					

Cell sequence is set in order of 1 to 12.

2) When "Top to Bottom" is selected

<When cell area (B2:D5) is set to "Top to Bottom ">

	A	B	C	D	E
1					
2		1	5	9	
3		2	6	10	
4		3	7	11	
5		4	8	12	
6					

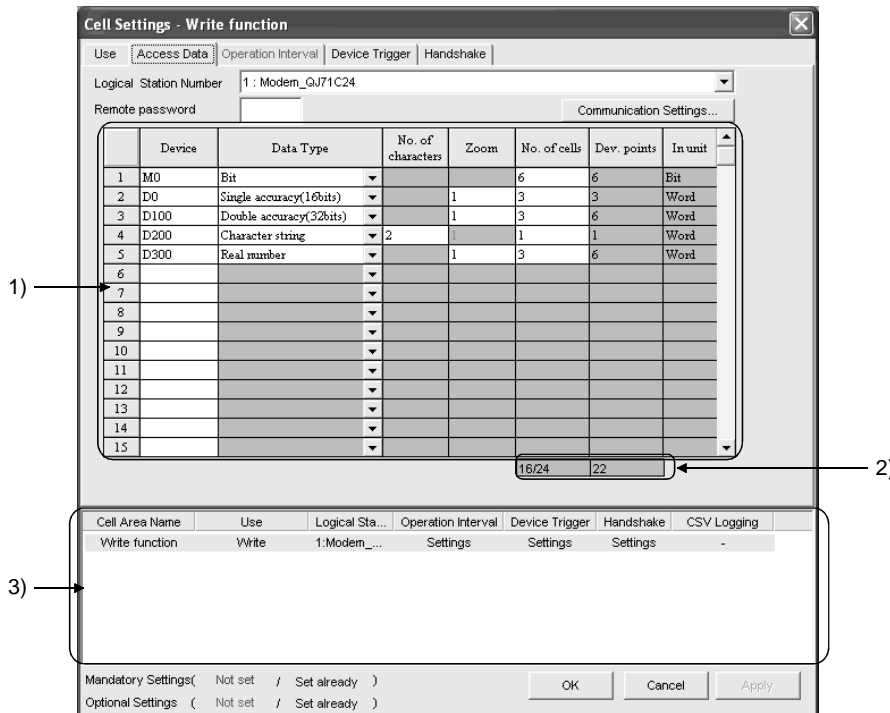
Cell sequence is set in order of 1 to 12.

6.4.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the write function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be written from the cell area.

(1) <<Access Data>> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication Settings button	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
1) (Access data)	Set the devices where data will be written.	(2) (a)
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Access Data>> tab for use of the write function is the same as that of the <<Access Data>> tab for use of the logging function.

Refer to Section 6.2.2 for details.

(a) "Access data"

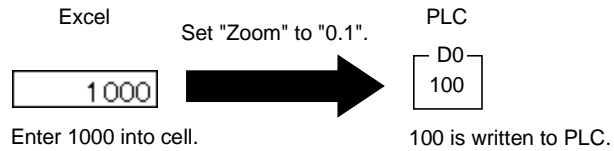
The setting except for "Zoom" is the same as that of the logging function. Refer to Section 6.2.2 for the setting except for "Zoom".

1) "Zoom"

The value entered into the cell is multiplied by the zoom ratio and written to the PLC device.

When "Data Type" has been set to "Bit" or "Character string", the "Zoom" setting is not possible.

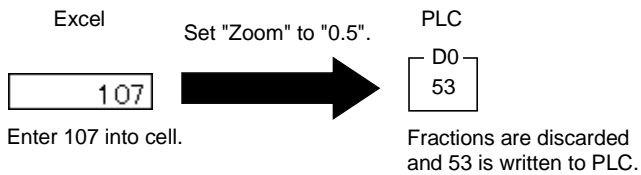
Setting range: 0.001 to 1000



POINT

When "Zoom" is set for the write data and fractional decimals occurs in the data to be actually written to PLC, if "Data type" of the write device is "Single accuracy (16 bits) or "Double accuracy (32 bits), the fractional decimals are omitted.

When a numerical result contains fractions, set "Real number" in "Data type".

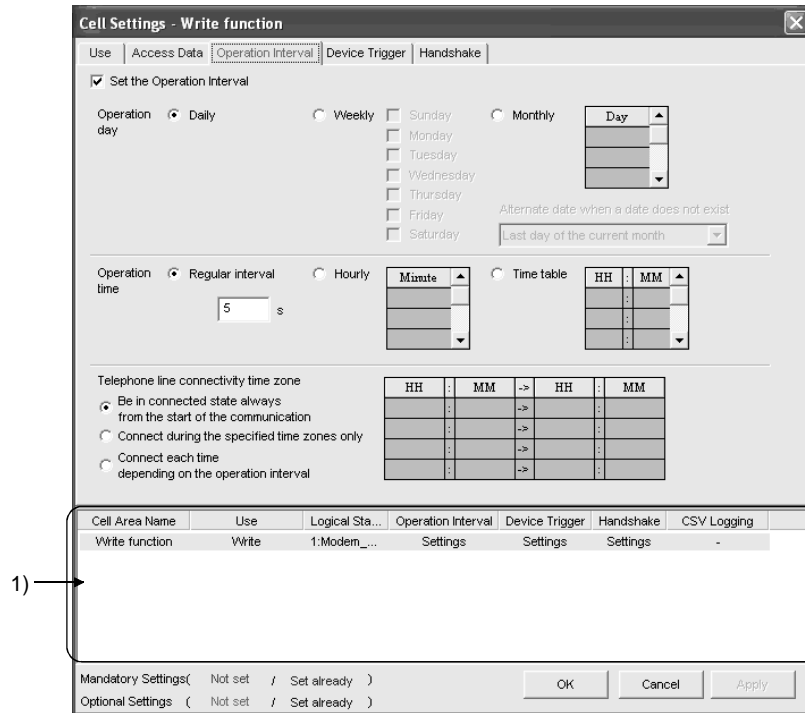


6.4.3 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the write function.

In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area will be activated.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Section 6.2.3
Operation day	Set the operation day of the write function activation.	(2) (a)
Operation time	Set the operation time of the write function activation.	(2) (a)
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the write function is the same as that of the <<Operation Interval>> tab for use of the logging function.

Refer to Section 6.2.3 for details.

(a) "Operation time"

The setting except for "Regular interval" is the same as the that of the logging function.

Refer to Section 6.2.3 for the setting except for "Regular interval".

1) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.

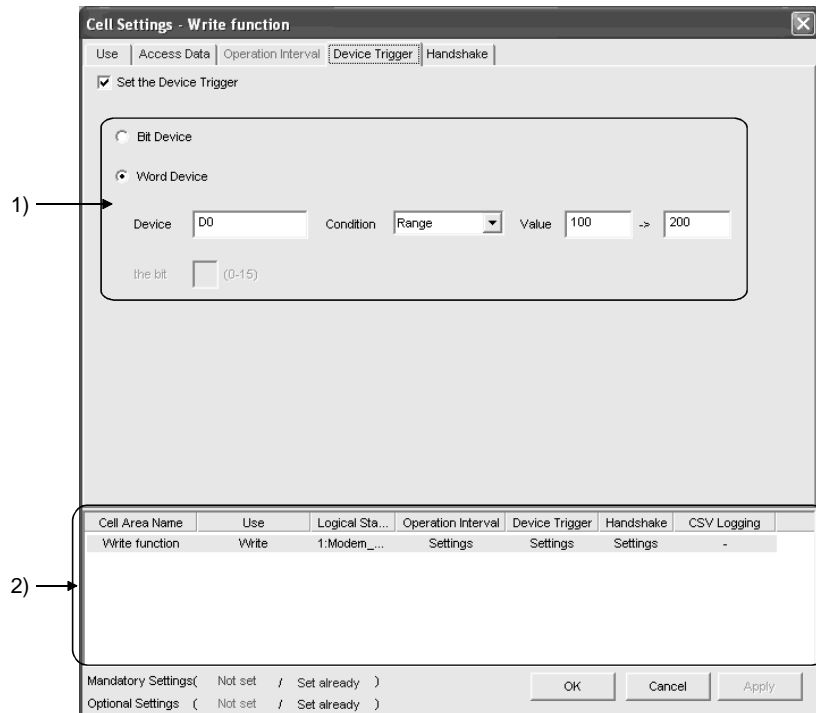
Setting range: 0.5 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

6.4.4 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the write function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
1) (Device conditions)	Set the device conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

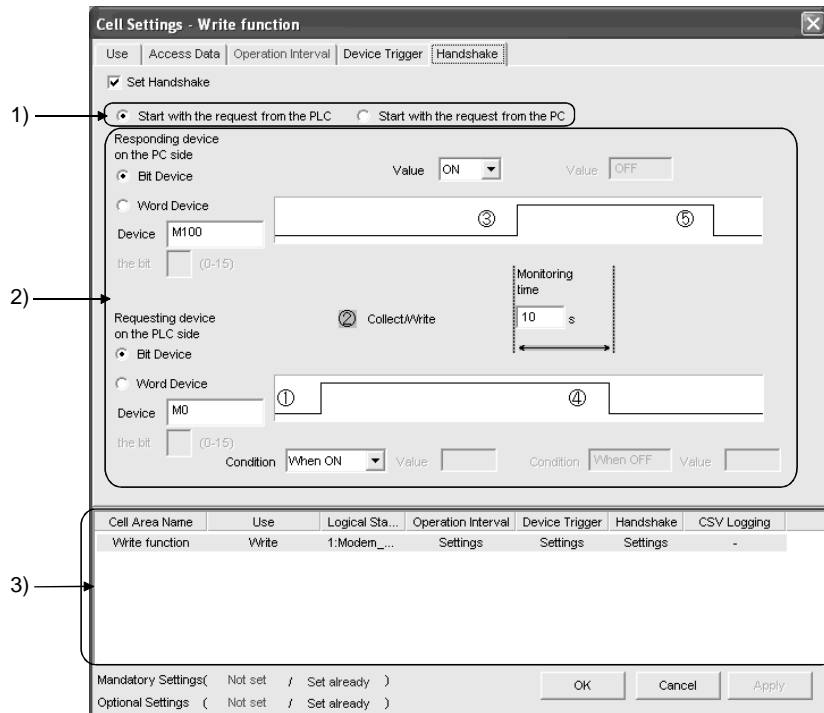
The setting of the <<Device Trigger>> tab for use of the write function is the same as that of the <<Device Trigger>> tab for use of the logging function. Refer to Section 6.2.4 for details.

6.4.5 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the write function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	Section 6.2.5
1) (Requesting source setting)	Set the requesting source of the handshake.	
2) (Handshake processing)	Set the handshake processing.	Section 6.2.1
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	

(2) Detailed explanation

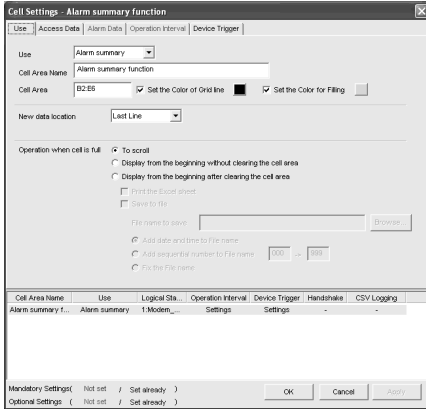
The setting of the <<Handshake>> tab for use of the write function is the same as that of the <<Handshake>> tab for use of the logging function.

Refer to Section 6.2.5 for details.

6.5 When Alarm Summary Is Selected

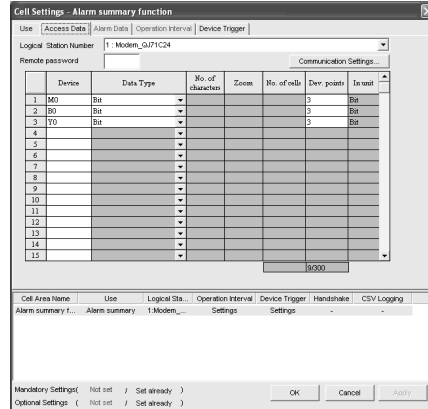
This section describes the "Cell Setting" dialog box when "Alarm summary" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



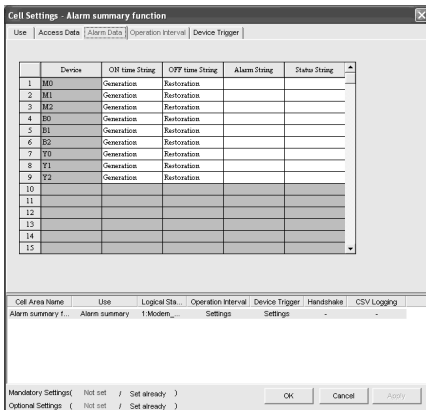
Required setting
Refer to Section 6.5.1.

<<Access Data>> tab



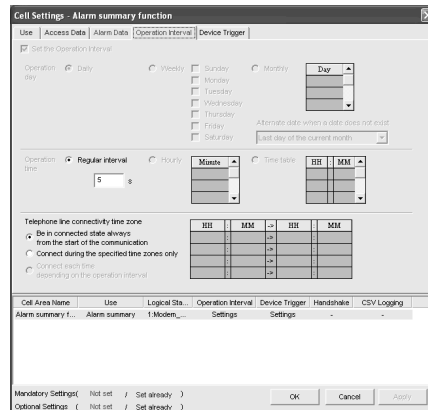
Required setting
Refer to Section 6.5.2.

<<Alarm Data>> tab



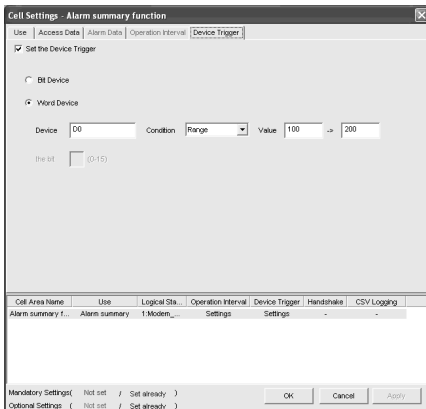
Set as necessary
Refer to Section 6.5.3.

<<Operation Interval>> tab



Set as necessary
Refer to Section 6.5.4.

<<Device Trigger>> tab



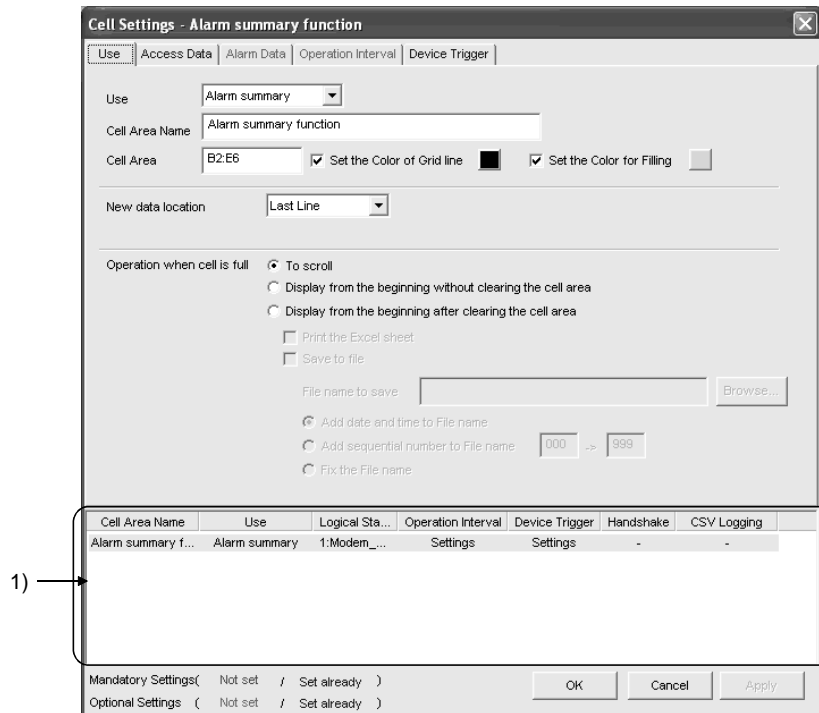
Set as necessary
Refer to Section 6.5.5.

6.5.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the alarm summary function.

In the <<Use>> tab, set the cell area, display position of alarm data and operation in the case where cell is full.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Alarm summary" when using the alarm summary function.	—
Cell Area Name	Set the name of the specified cell area.	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
New data location	Set the latest data display position of the alarm summary. <ul style="list-style-type: none"> • Last Line The latest data is displayed at the last of the specified cell area. • First Line The latest data is displayed at the first of the specified cell area. 	

(To the next page)

Item	Description	Detailed Explanation
Operating when cell is full	Set the operation to be performed when the specified cell area is full. <ul style="list-style-type: none"> • To scroll The displayed contents are scrolled and displayed. • Display from the first without clearing the cell area The data currently displayed in the cell area are overwritten and the alarm summary is resumed. Before the alarm summary is resumed, the Excel sheet can be printed and saved. • Display from the first after clearing the cell area The data displayed in the cell area are erased and the alarm summary is resumed. Before the alarm summary is resumed, the Excel sheet can be printed and saved. 	Section 6.2.1
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

With the exception of the following item, the setting of the <<Use>> tab for use of the alarm summary function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) "Cell Area"

Set the cell area to be used by the alarm summary function.

1) Setting examples

Refer to Section 6.2.1 for the "Cell Area" setting examples.

2) Setting ranges

Possible setting ranges are as follows:

Number of cells : 4 columns (indispensable) × 65536 rows

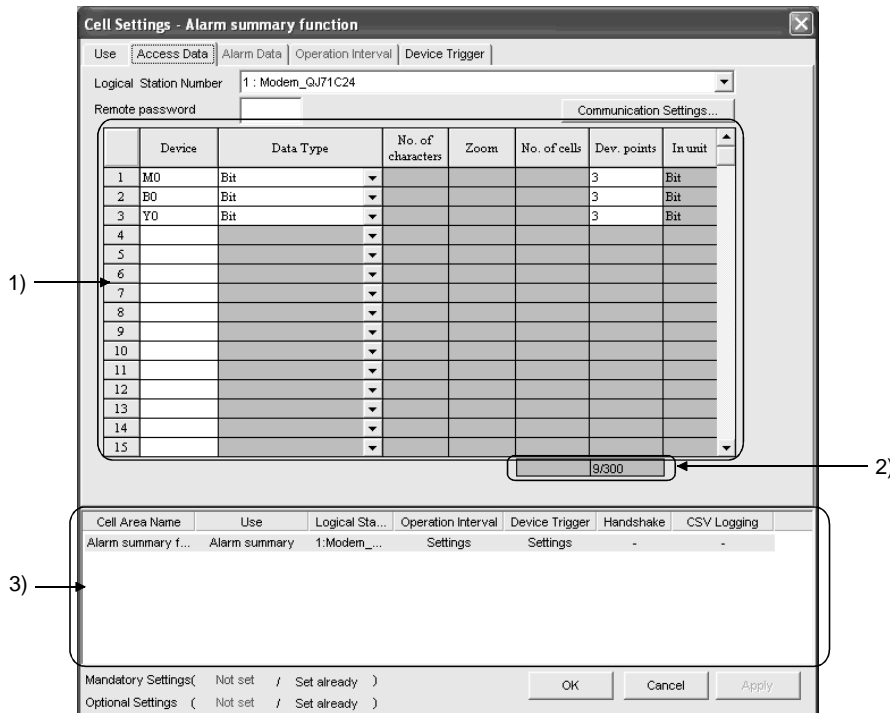
Number of cell areas : 16

6.5.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the alarm summary function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be used for the alarm summary function.

(1) <<Access Data>> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication Settings button	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
1) (Access data)	Set the devices use for the alarm summary function.	(2) (a)
2) (Number of set devices)	The number of devices currently set is displayed.	(2) (b)
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

With the exception of the following items, the setting of the <<Access Data>> tab for use of the alarm summary function is the same as that of the <<Access Data>> tab for use of the logging function.

Refer to Section 6.2.2 for details.

(a) Access data

1) Registration order

Data are displayed in the <<Alarm Data>> tab in the order of the numbers shown on the left of the <<Access Data>> tab.

Setting example of <<Access Data>> tab

	Device	Data Type	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	M0	Bit				3	Bit
2	B0	Bit				3	Bit
3	Y0	Bit				3	Bit

↑ Data numbers

The device data are displayed on the <<Alarm Data>> tab as shown below.

Displayed in order of data numbers.

	Device	ON time String
Data No. 1	1 M0	Generation
	2 M1	Generation
	3 M2	Generation
Data No. 2	4 B0	Generation
	5 B1	Generation
	6 B2	Generation
Data No. 3	7 Y0	Generation
	8 Y1	Generation
	9 Y2	Generation

2) "Device"

Only the bit device can be specified for the alarm summary.

Enter the device name and device number in this order.

3) "Dev. Points"

The points of the devices to be consecutively registered starting with the device number set in "Device" are displayed.

(b) The number of set devices

The number of device points registered to the cell area and the number of device points that can be registered are displayed.

		128/300	

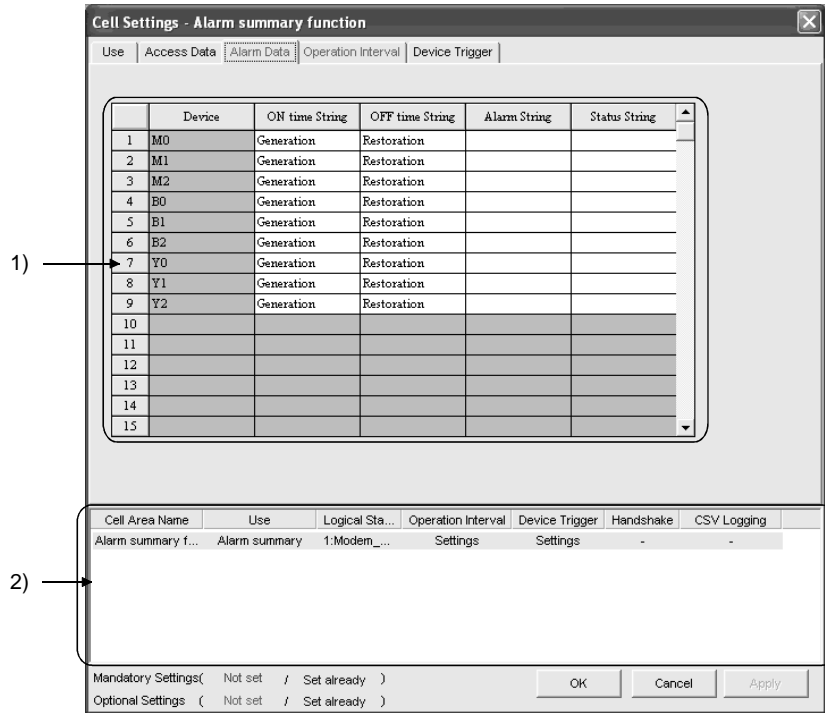
↑ Indicates the number of device points that can be registered to the cell area.

↑ Indicates the number of device points that has been registered to the cell area.

6.5.3 Setting of the Alarm Data tab

This section describes the setting of the <<Alarm Data>> tab for use of the alarm summary function.
 In the <<Alarm Data>> tab, set the character strings to be displayed in the cell area.

(1) <<Alarm Data>> tab



Item	Description	Detailed Explanation
1) (Alarm data)	Set the alarm data to be used for the alarm summary function.	(2) (a) to (e)
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

(a) "Device"

The device registered to the <<Access Data>> tab is displayed.

(b) "ON time String"

Enter the character string to be displayed in the cell when the registered device turns on.

Number of characters: Up to 16

(c) "OFF time String"

Enter the character string to be displayed in the cell when the registered device turns off.

Number of characters: Up to 16

(d) "Alarm String"

Enter an alarm character string.

Number of characters: Up to 40

(e) "Status String"

Enter a status character string.

Number of characters: Up to 16

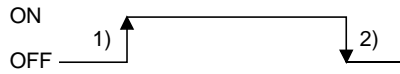
(3) Setting example

The following shows the <<Alarm Data>> tab setting example and the data displayed on the Excel sheet.

<<Alarm Data>> tab setting example

	Device	ON time String	OFF time String	Alarm String	Status String
1	M0	Generation	Restoration	Material storage	Minor failure
2	Device :M0				
3	ON time String : Generation				
4	OFF time String : Restoration				
	Alarm String : Material storage				
	Status String : Minor failure				

<Operation of M0>



<Data displayed on Excel sheet>

Displayed in order of "date and time of occurrence", "alarm character string" and "status character string".

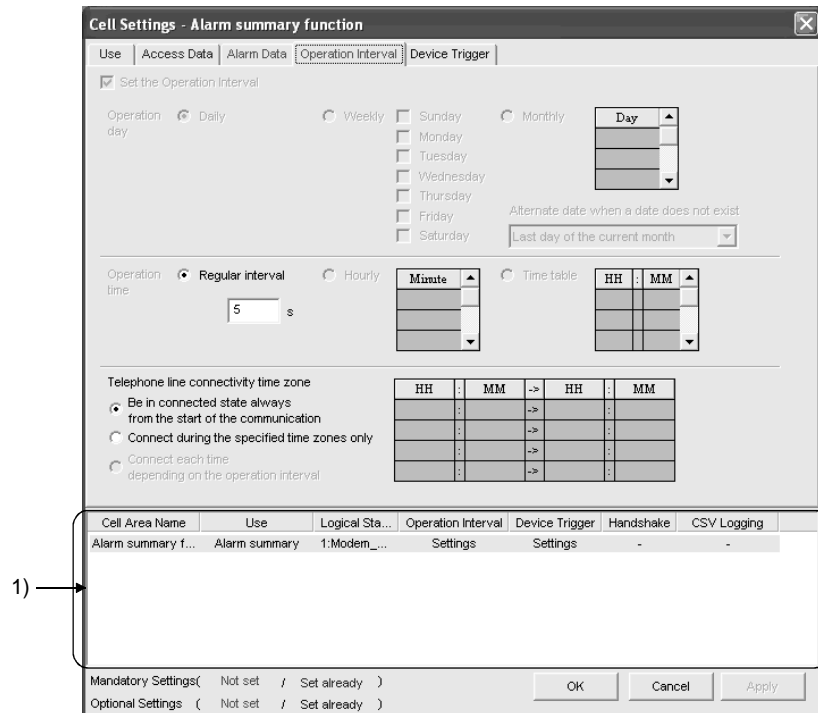
Generation	2002/08/01 Thu 16:18:12	Material storage	Minor failure
Restoration	2002/08/01 Thu 16:18:32	Material storage	Minor failure
1) Displayed in the cell (when M0 is on).			
2) Displayed in the cell (when M0 is off).			

6.5.4 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the alarm summary function.

In the <<Operation Interval>> tab, set the operation interval for the function of the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Regular interval	Set the operation interval of the alarm summary function.	(2) (a)
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the alarm summary function is the same as that of the <<Operation Interval>> tab for use of the logging function.

Refer to Section 6.2.3 for details.

(a) "Regular interval"

Device data is collected at the set second intervals.

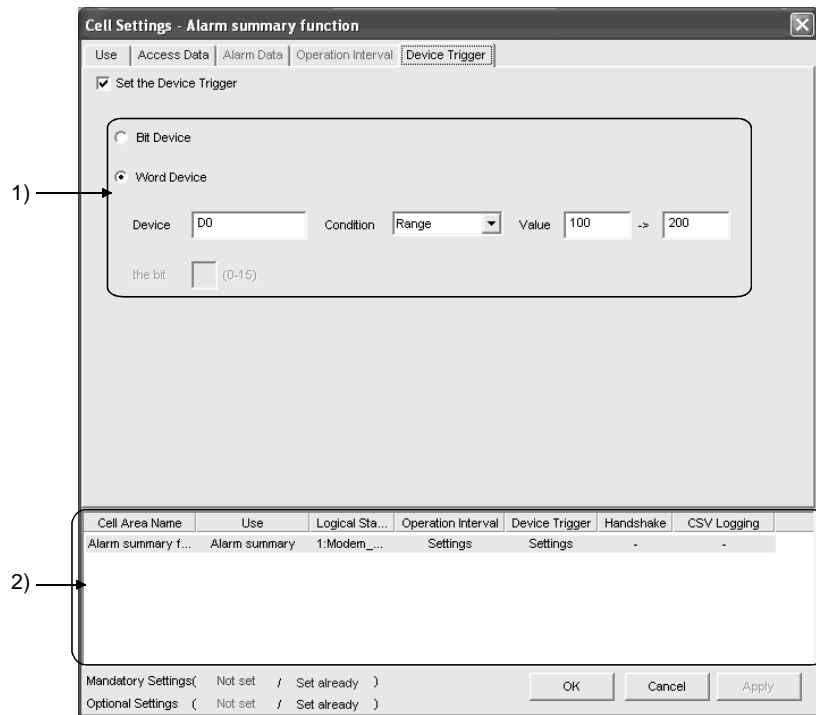
Setting range: 0.5 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

6.5.5 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the alarm summary function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
1) (Device conditions)	Set the device conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

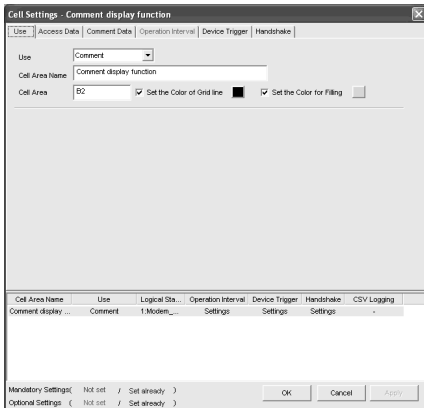
(2) Detailed explanation

The setting of the <<Device Trigger>> tab for use of the alarm summary function is the same as that of the <<Device Trigger>> tab for use of the logging function. Refer to Section 6.2.4 for details.

6.6 When Comment Is Selected

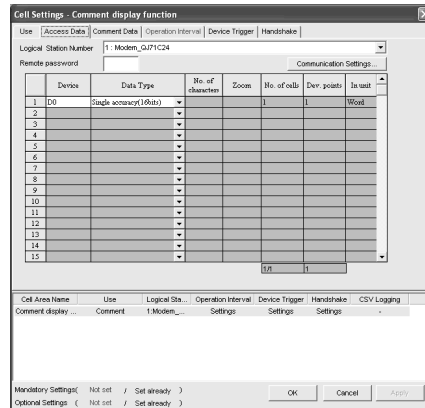
This section describes the "Cell Setting" dialog box when "Comment" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



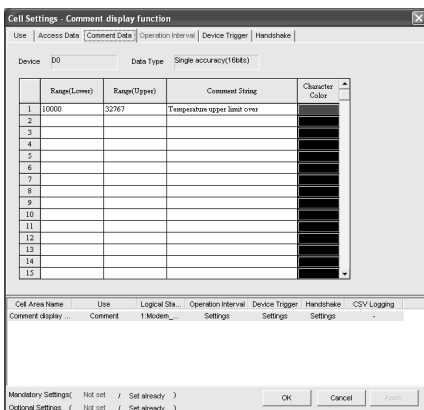
Required setting
Refer to Section 6.6.1.

<<Access Data>> tab



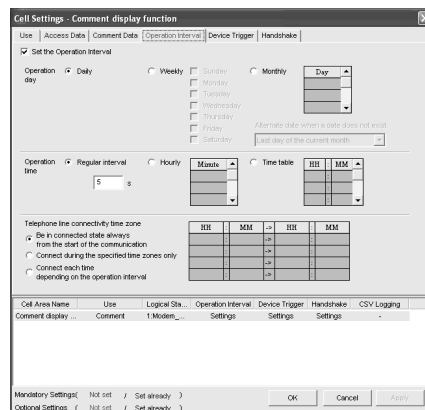
Required setting
Refer to Section 6.6.2.

<<Comment Data>> tab



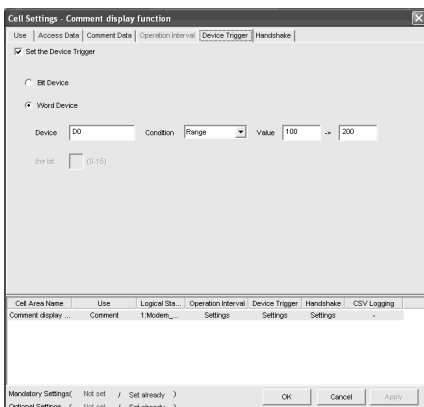
Required setting
Refer to Section 6.6.3.

<<Operation Interval>> tab



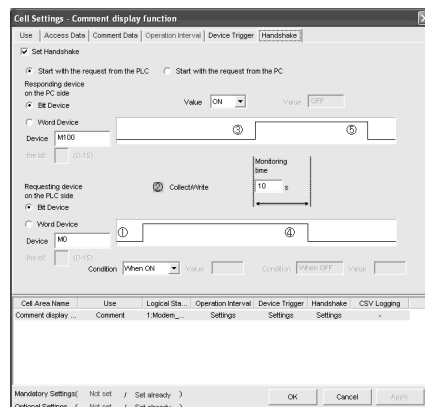
Set as necessary
Refer to Section 6.6.4.

<<Device Trigger>> tab



Set as necessary
Refer to Section 6.6.5.

<<Handshake>> tab



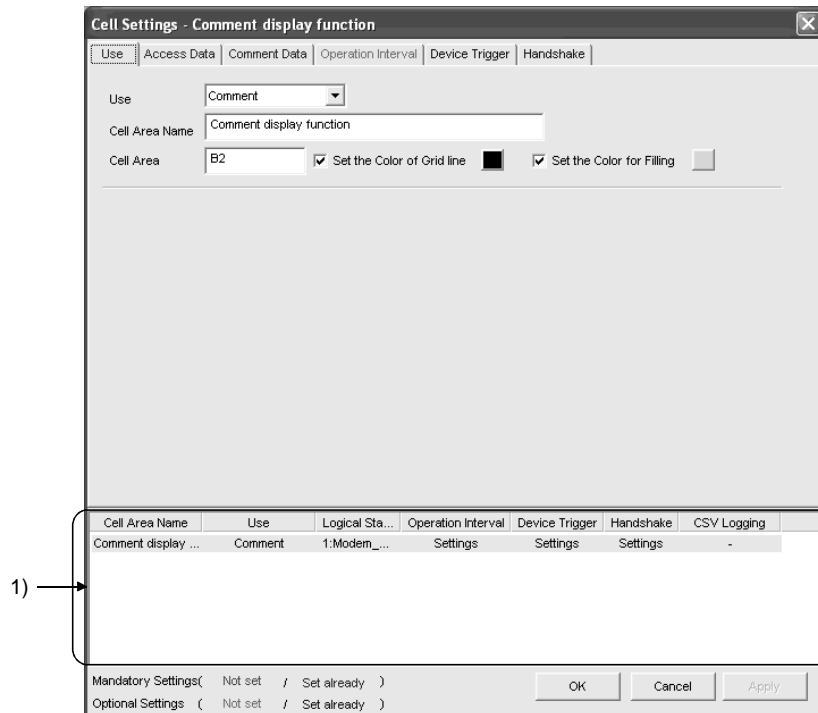
Set as necessary
Refer to Section 6.6.6.

6.6.1 Setting of the Use tab

This section describes the setting of the <<Use>> tab for use of the comment display function.

In the <<Use>> tab, set the cell area.

(1) <<Use>> tab



Item	Description	Detailed Explanation
Use	Set the function to be used for the specified cell area. Choose "Comment" when using the comment display function.	—
Cell Area Name	Set the name of the specified cell area.	—
Cell Area	Enter the value to specify the cell area.	(2) (a)
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	

(2) Detailed explanation

With the exception of the following item, the setting of the <<Use>> tab for use of the comment display function is the same as that of the <<Use>> tab for use of the logging function.

Refer to Section 6.2.1 for details.

(a) "Cell Area"

Set the cell area to be used by the comment display function.

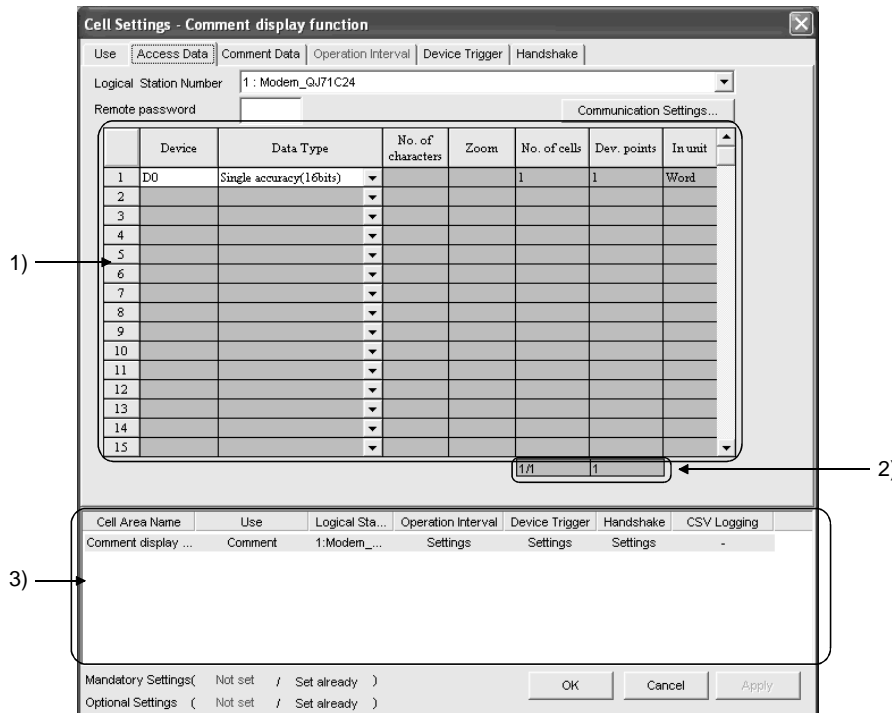
Setting range: 1

6.6.2 Setting of the Access Data tab

This section describes the setting of the <<Access Data>> tab for use of the comment display function.

In the <<Access Data>> tab, set the logical station number required for communication with the PLC and the device data to be used for the comment display function.

(1) <<Access Data >> tab



Item	Description	Detailed Explanation
Logical Station Number	Select the logical station number required for making communication.	Section 6.2.2
Communication Settings button	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password has been set to the connection target PLC.	
1) (Access data)	Set the devices use for the comment display function.	(2) (a)
2) (Number of set devices)	The number of devices currently set is displayed.	Section 6.2.2
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(2) Detailed explanation

With the exception of the following items, the setting of the <<Access Data>> tab for use of the comment display function is the same as that of the <<Access Data>> tab for use of the logging function.

Refer to Section 6.2.2 for details.

(a) Access data

1) "Device"

Set the device used for the comment display function.
 Enter the device name and device number in this order.
 Refer to Section 3.2 for the accessible devices.

2) "Data Type"

Set the data type of the device used for the comment display function.

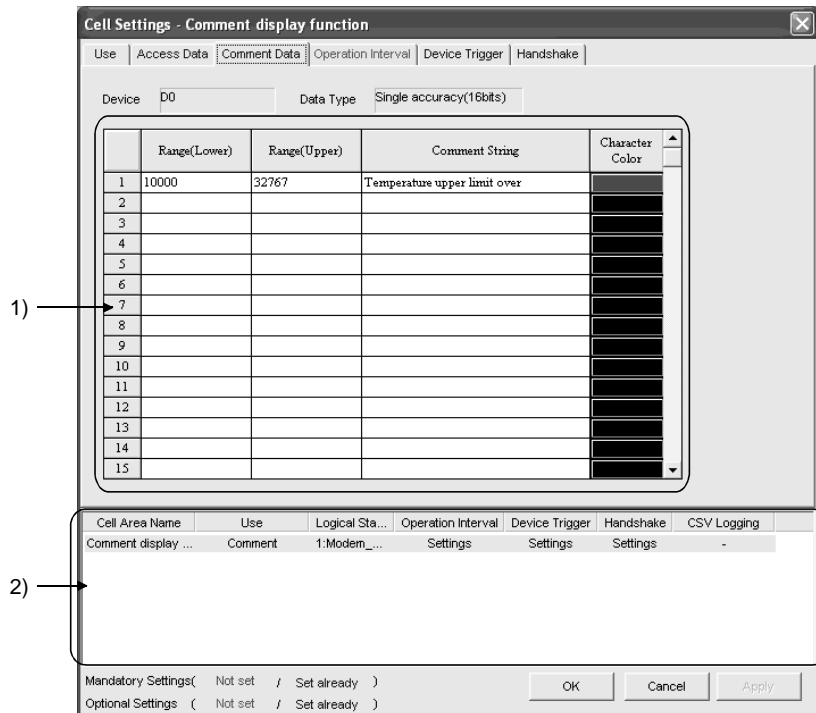
Item	Device That Can be Specified	Description
Bit	Bit device	Set when the bit device set in "Device" is used for the comment display function.
Single accuracy (16 bits) (-32768 to 32767)	Bit device	Set when 1 word (16 bits), starting from the device number set in "Device", is used for the comment display function.
	Word device	Set when the word device set in "Device" is used for the comment display function.
Double accuracy (32 bits) (-2147483648 to 2147483647)	Bit device	Set when 2 words (32 bits), starting from the device number set in "Device", are used for the comment display function.
	Word device	Set when 2 words, starting from the device number set in "Device", are used for the comment display function.

6.6.3 Setting of the Comment Data tab

This section describes the setting of the <<Comment Data>> tab for use of the comment display function.

In the <<Comment Data>> tab, set the comment data to be displayed in the cell area.

(1) <<Comment Data>> tab



Item	Description	Detailed Explanation
Device	The device set in "Device" of the <<Access Data>> tab is displayed.	—
Data Type	The data type set in "Data Type" of the <<Access Data>> tab is displayed.	—
1) (Comment data)	Set the comment data to be used for the comment display function.	(2) (a)
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

(a) Comment data

1) "Range (Lower)" and "Range (Upper)"

Set the lower and upper limit values of the device.

The setting range changes depending on the data type.

The following table indicates the setting range of each data type.

Data Type	Setting Range
Bit	0 (ON), 1 (OFF)
Single accuracy (16 bits)	-32768 to 32767
Double accuracy (32 bits)	-2147483648 to 2147483647

2) "Comment String"

Enter the comment character string to be displayed in the cell.

Number of characters: up to 40

3) "Character Color"

Set the color of the comment character string displayed in the cell.

Depending on the specified colors, all colors may turn to gray.

Refer to the Operating Precautions for details.

POINT

If multiple comment data are set and their setting ranges are overlapped, the comment character string with the lowest data number is displayed.

Be sure to prevent double setting of the setting ranges.

(3) Setting example

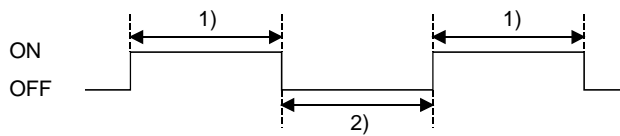
The following shows the setting examples in the cases where the data type is set to "Bit" and "Single accuracy (16 bits)".

(a) When data type is set to "Bit"

<<Comment data>> tab setting example

Device	M0		Data Type	Bit
	Range(Lower)	Range(Upper)	Comment String	Character Color
1	0	0	Normal operation	
2	1	1	Error occurrence	
3				
4				

Operation of M0



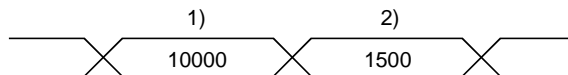
- 1) While M0 is on, "Normal operation" is displayed in the cell.
- 2) While M0 is off, "Error occurrence" is displayed in the cell.

(b) When data type is set to "Single accuracy (16 bits)"

<<Comment data>> tab setting example

Device	D0		Data Type	Single accuracy(16bits)
	Range(Lower)	Range(Upper)	Comment String	Character Color
1	10000	32767	Temperature upper limit over	
2				
3				
4				

Operation of D0

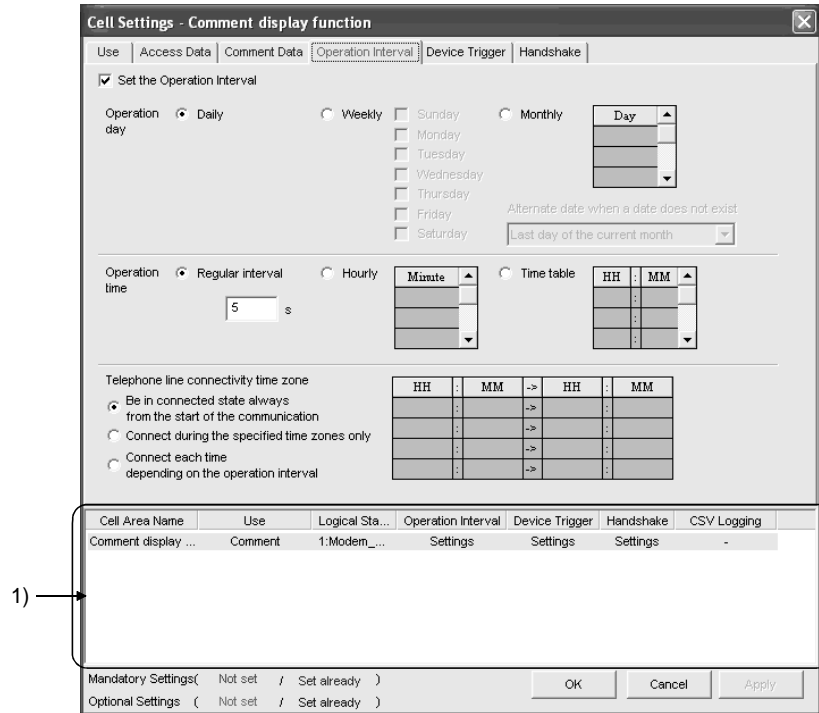


- 1) If the D0 value is 10000 or more, "Temperature upper limit over" is displayed in the cell.
- 2) If the D0 value is less than 10000, no comment character string is displayed.

6.6.4 Setting of the Operation Interval tab

This section describes the setting of the <<Operation Interval>> tab for use of the comment display function.
 In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

(1) <<Operation Interval>> tab



Item	Description	Detailed Explanation
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Section 6.2.3
Operation day	Set the operation day of the comment display function activation.	
Operation time	Set the operation time of the comment display function activation.	(2) (a)
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

*1: "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication.

(2) Detailed explanation

With the exception of the following item, the setting of the <<Operation Interval>> tab for use of the comment display function is the same as that of the <<Operation Interval>> tab for use of the logging function.
 Refer to Section 6.2.3 for details.

(a) "Operation time"

The setting except for "Regular interval" is the same as that of the logging function.

Refer to Section 6.2.3 for the setting except for "Regular interval".

1) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.

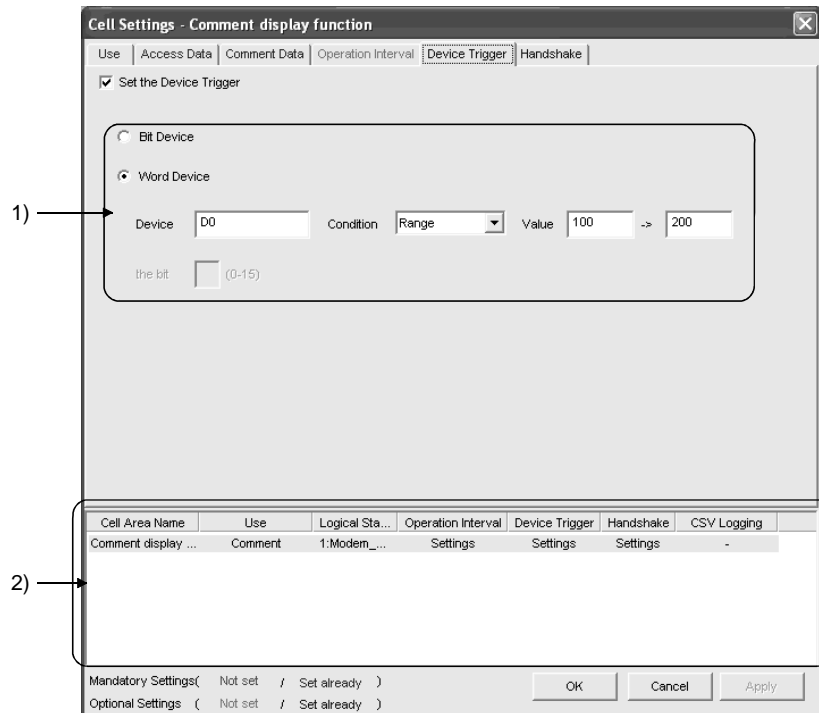
Setting range: 0.5 to 0.9 (in units of 0.1 seconds), 1 to 3600 (in units of 1 second)

6.6.5 Setting of the Device Trigger tab

This section describes the setting of the <<Device Trigger>> tab for use of the comment display function.

In the <<Device Trigger>> tab, set the device conditions for the device trigger.

(1) <<Device Trigger>> tab



Item	Description	Detailed Explanation
Set the Device Trigger	Set when the device trigger is used.	Section 6.2.4
1) (Device conditions)	Set the device conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Section 6.2.1

(2) Detailed explanation

The setting of the <<Device Trigger>> tab for use of the comment display function is the same as that of the <<Device Trigger>> tab for use of the logging function.

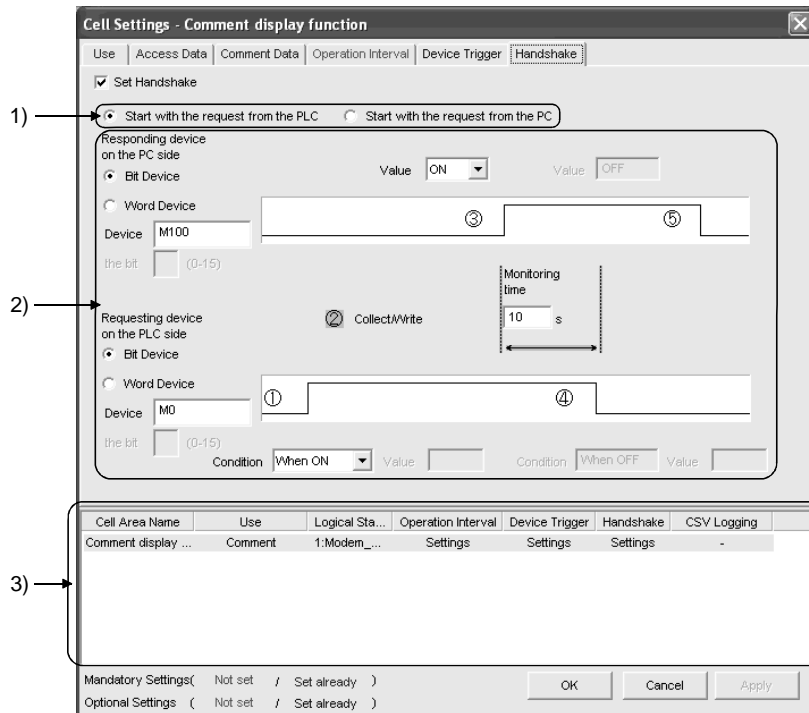
Refer to Section 6.2.4 for details.

6.6.6 Setting of the Handshake tab

This section describes the setting of the <<Handshake>> tab for use of the comment display function.

In the <<Handshake>> tab, set the handshake requesting source and handshake processing.

(1) <<Handshake>> tab



Item	Description	Detailed Explanation
Set Handshake	Set when using a handshake.	Section 6.2.5
1) (Requesting source setting)	Set the requesting source of the handshake.	
2) (Handshake processing)	Set the handshake processing.	Section 6.2.1
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	

(2) Detailed explanation

The setting of the <<Handshake>> tab for use of the comment display function is the same as that of the <<Handshake>> tab for use of the logging function. Refer to Section 6.2.5 for details.

7 AUTOMATIC SAVE SETTING

This chapter describes the settings for saving the Excel book automatically during MX Sheet operation.

In the "Automatic Save" dialog box, set the save timing and file name.

(1) Save timing

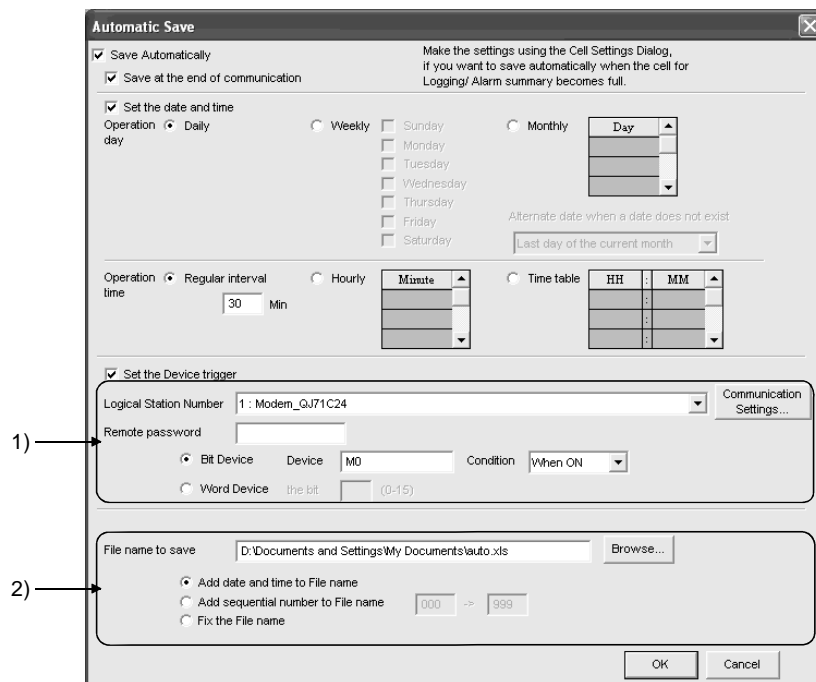
The following 3 save timings are available for the automatic save setting. (All of them can be set at a time.)

- Automatic save is performed at the end of communication. (Detailed explanation: (4) (b))
- Automatic save is performed at a specified time. (Detailed explanation: (4) (c) to (e))
- Automatic save is performed using the device trigger. (Detailed explanation: (4) (f) to (g))

(2) Displaying "Automatic Save" dialog box

Choose [MX Sheet] → [Automatic Save Setting] () from the menu bar.

(3) "Automatic Save" dialog box



Item	Description	Detailed Explanation
Save Automatically	Set when using the automatic save function.	(4) (a)
Save at the end of communication	Set when performing automatic save at the end of communication.	(4) (b)
Set the date and time	Set when performing automatic save at the specified date and time.	(4) (c)
Operation day	Set the operation day when automatic save is performed at the specified date and time.	(4) (d)
Operation time	Set the operation time when automatic save is performed at the specified date and time.	(4) (e)
Set the Device trigger	Set when performing automatic save using the device trigger.	(4) (f)
1) (Device conditions)	Set the device conditions for the device trigger.	(4) (g)
2) (Save file setting)	Set the file name to automatically save data.	(4) (h)

- (4) Detailed explanation
 - (a) "Save Automatically"
When using the automatic save function, be sure to mark "Save Automatically".
 - (b) "Save at the end of communication"
Set this when performing automatic save at the end of communication.

POINT	MX Sheet clears the previous data at the start of communication, and starts data collection. When it is desired to keep the data saved at the end of communication, mark "Save at the end of communication".
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- (c) "Set the date and time"
Set this when performing automatic save at the specified date and time.
- (d) "Operation day"
Set the operation day of the automatic save function.
 - 1) When "Daily" is selected
Save is performed every day.
 - 2) When "Weekly" is selected
Save is performed on the specified day of the week only.
Multiple days of the week can be set.
 - 3) When "Monthly" is selected
Save is performed on the specified days only.
If the specified day does not exist in some months, an alternate day can be specified.
Number of days that can be set: 31

 <When "15th" is set>
Operation is performed on the 15th every month, e.g. January 15, February 15, March 15.

 <When "31st" is set>
Excepting February, April, June, September and November, operation is performed on the 31st every month.
For February, April, June, September and November, set the alternate day and processing in "Alternate day when a date does not exist".
The following table indicates the setting items of "Alternate day when a date does not exist".

Item	Description
Last day of the current month	Operation is performed on the last day of February, April, June, September or November
First day of the next month	Operation is performed on the first day of the next month.
No operation	Operation is not performed in February, April, June, September and November

(e) "Operation time"

Set the operation time of automatic save.

1) When "Regular interval" is selected

The Excel book is saved at the set minute intervals.

Setting range: 0 to 59

<When "Regular interval" is set to "5">

The Excel book is saved at intervals of 5 minutes, e.g. 8:05, 8:10, 8:15.

2) When "Hourly" is selected

Automatic save is performed at the specified minute every hour.

Number of times that can be set: 60

3) When "Time table" is selected

Automatic save is performed at the specified time.

Number of times that can be set: 50

(f) "Set the Device trigger"

Set this when performing automatic save using the device trigger.

Whether the device trigger conditions are satisfied or not is checked at intervals of 1 second.

(g) Device conditions

1) "Logical Station Number"

Choose the logical station number used for the device trigger.

If the logical station number has already been set, the number appears in the list box and can be selected.

If the logical station number has not been set, click on the **Communication Setting** button and set a new logical station number.

2) **Communication Setting** button

This button is used to start the Communication Setup Utility to set a new logical station number and change the settings.

After starting the Communication Setup Utility, click on the **Wizard** button and set a new logical station number and change the settings with the Communication Setting Wizard.

For the detailed explanation of the Communication Setup Utility and Communication Setting Wizard, refer to the MX Component Operating Manual.

3) "Remote password"

"Remote password" box appears when the setting of the logical station number selected in "Logical Station Number" includes information on the connection to the module with the password function.

When the password has been set to the connection target PLC, enter the password.

It need not be entered when the password has not been set.

4) Device type

Set the type of the device used for the device trigger.

Item	Description
Bit Device	Set when using a bit device for the device trigger.
Word Device	Set when using a word device for the device trigger.

5) "Device"

Enter the device used for the device trigger.

Enter the device name and device number in this order.

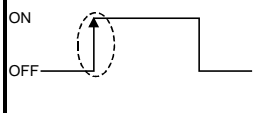
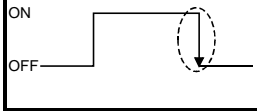
6) "the bit"

Set the corresponding bit of the word device.

Setting range: 0 to 15

7) "Condition"

Set the device trigger conditions.

Item	Available Device	Description
When ON 	Bit device	Set when automatic save is to be performed when the bit device turns on.
	Word device	Set when automatic save is to be performed when the corresponding bit of the word device turns on (value: 1).
When OFF 	Bit device	Set when automatic save is to be performed when the bit device turns off.
	Word device	Set when automatic save is to be performed when the corresponding bit of the word device turns off (value: 0).

(h) Save file setting

1) "File name to save"

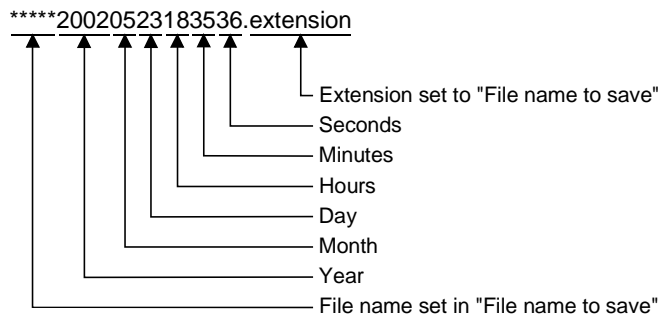
Set the storage location and file name of the Excel book to be saved automatically.

The Excel file (.xls) or HTML file (.htm) is available as the file type.

2) "Add date and time to File name"

The data and time data are added to the file name set in "File name to save".

The following indicates the file name format when data is saved.



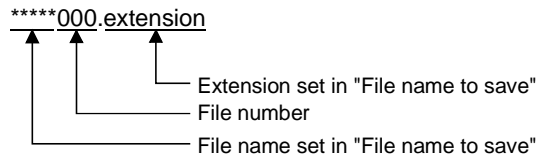
3) "Add sequential number to File name"

The file number is added to the file name set in "File name to save".

A serial number can be set within the range from 000 to 999.

When the number reaches the last, the data of the next file are overwritten to the file of the first number.

The following indicates the file name format when data is saved.



4) "Fix the File name"

Data is overwritten to the file set in "File name to save".

8 AUTOMATIC PRINT SETTING

This chapter describes the settings for printing the Excel book automatically during MX Sheet operation.

In the "Automatic Print" dialog box, set the print timing and print area.

(1) Print timing

The following 3 timings are available for the automatic print setting. (All of them can be set at a time.)

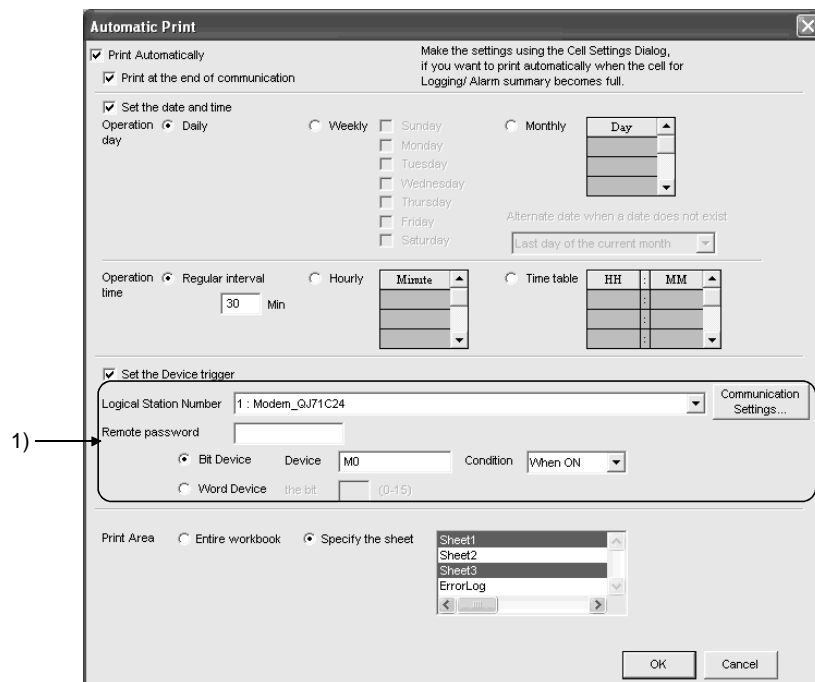
Refer to Chapter 7 for details.

- Automatic print is performed at the end of communication.
- Automatic print is performed at a specified time.
- Automatic print is performed using the device trigger.

(2) Displaying "Automatic Print" dialog box

Choose [MX Sheet] → [Automatic Print Setting] () from the menu bar.

(3) "Automatic Print" dialog box



Item	Description	Detailed Explanation
Print Automatically	Set when using the automatic print function.	(4) (a)
Print at the end of communication	Set when performing automatic print at the end of communication.	Chapter 7
Set the date and time	Set when performing automatic print at the specified date and time.	
Operation day	Set the operation day when automatic print is performed at the specified date and time.	

(To the next page)

Item	Description	Detailed Explanation
Operation time	Set the operation time when automatic print is performed at the specified date and time.	Chapter 7
Set the Device trigger	Set when performing automatic print using the device trigger.	
1) (Device conditions)	Set the device conditions for the device trigger.	
Print Area	Set the area where automatic print will be performed.	(4) (b)

(4) Detailed explanation

With the exception of the following items, the setting of the "Automatic Print" dialog box is the same as that of the "Automatic Save" dialog box.

Refer to Chapter 7 for details.

(a) "Print Automatically"

When using the automatic print function, be sure to mark "Print Automatically".

(b) "Print Area"

Set the area where automatic print will be performed.

1) "Entire workbook"

The entire Excel book (all sheets) where automatic print setting has been made is printed automatically.

2) "Specify the sheet"

Automatic print is executed for the specified sheet only.

Multiple sheets can be selected and printed simultaneously.

POINT
When multiple printers are set to a single personal computer, the Excel sheet where automatic print is set is output from the printer specified to "Set as Default" in [Printers] in [My Computer].

9 AUTOMATIC COMMUNICATION STARTUP SETTING

This chapter describes the settings for starting communication with the PLC automatically at the start of the Excel book.

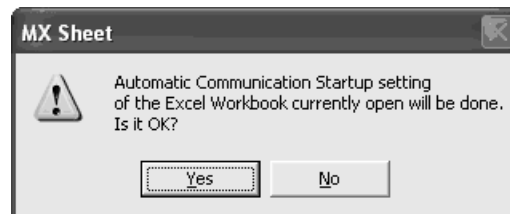
(1) Displaying "Automatic Communication Startup setting/Disabled" dialog box

Choose [MX Sheet] → [Automatic Communication Startup setting] (🔧) from the menu bar.

(2) Dialog boxes

(a) Dialog boxes for "Automatic Communication Startup setting"

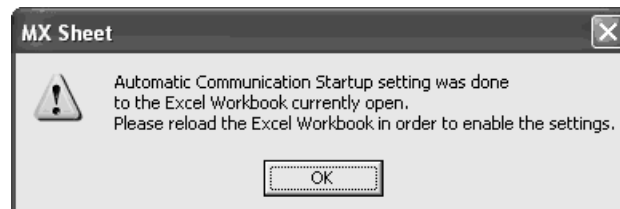
When the automatic communication startup setting has not been set to the Excel book being edited, the following dialog box appears.



Click on **Yes** to set the automatic communication startup setting to the Excel book being edited.

When the automatic communication startup setting has been made, communication with the PLC is started automatically at the start of the set Excel book.

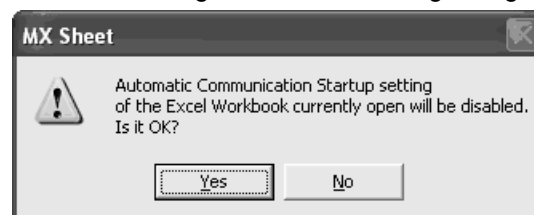
As the following dialog box appears, click on **OK**.



After editing the Excel book, restart the Excel book to make the automatic communication startup setting valid.

(b) "Automatic Communication Startup Disabled" dialog box

When the automatic communication startup setting has been set to the Excel book being edited, the following dialog box appears.



Click on **Yes** to cancel the automatic communication startup setting of the Excel book being edited.

10 COMMUNICATION START AND COMMUNICATION END

This chapter describes the start and end of MX Sheet communication.

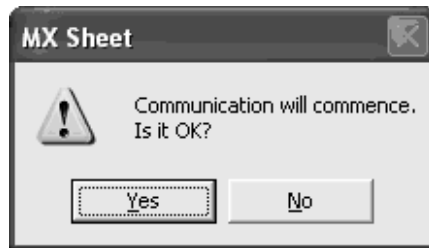
10.1 Communication Start

This section explains the procedure to start MX Sheet communication manually.

(1) Starting communication

Choose [MX Sheet] → [Start Communication] (📄) from the menu bar.

(2) Explanation of "Start Communication" dialog box

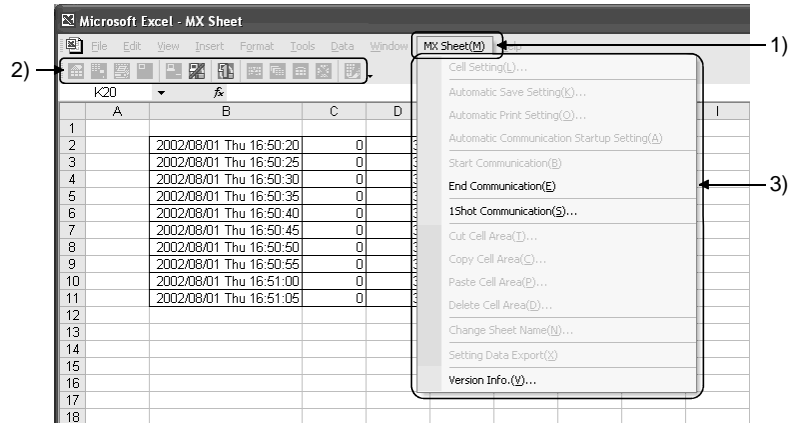


Click on [Yes] to start communication between the Excel book being edited and the PLC and read/write device data.

(3) Display of Excel book and task bar during communication

The following shows how the Excel book, which is communicating with the PLC using MX Sheet, and the task bar are displayed.

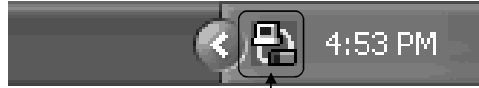
(a) Display of Excel book



Item	Status during Communication
1) (Menu bar)	Only [MX Sheet] can be selected
2) (Icons)	Only the End Communication and 1 Shot Communication icons can be selected.
3) (MX Sheet menu)	Only [End Communication], [1 Shot Communication] and [Version Info.] can be selected.

(b) Display of task bar

During communication with the PLC using MX Sheet, the following icon is displayed on the task bar of Windows® .



Icon is displayed on task bar.

(4) Confirmation at communication error

If an error occurs at the start of communication or during communication, the error information is displayed on the "ErrorLog" sheet.

When a communication error has occurred, end MX Sheet communication and correct the error in accordance with the corrective action on the "ErrorLog" sheet. Refer to Chapter 16 for details of the "ErrorLog" sheet.


1	Kind	Date	Cell Area Name	ErrorNo	Contents
2	Information	2002/07/31 Wed 16:57:23		10000000	Communication was started.
3	Information	2002/07/31 Wed 16:58:14		10000002	Communication was completed.
4	Information	2002/08/01 Thu 14:00:04		10000000	Communication was started.
5	Warning	2002/08/01 Thu 14:00:05	Logging function	e1000021	Communication error has occurred in the open/close of communication. <00010003[Hex],01808502[Hex]> USB driver connect error Connection of the USB driver failed. The corrective action is as follows: Exit the program and restart the IBM-PC/AT compatible. Reinstall MX Component.
6	Warning	2002/08/01 Thu 14:04:06	Logging function	e1000021	Communication error has occurred in the open/close of communication. <00010003[Hex],01808502[Hex]> USB driver connect error Connection of the USB driver failed. The corrective action is as follows: Exit the program and restart the IBM-PC/AT compatible. Reinstall MX Component.
7					<ErrorCode:1808602[Hex]>

At occurrence of communication error, error information is displayed on "ErrorLog" sheet.

10.2 Communication End

This section explains the procedure to end MX Sheet communication.

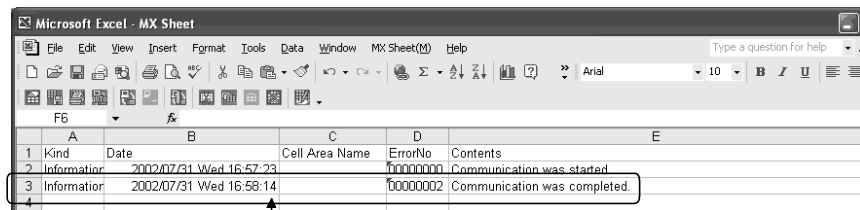
(1) Ending communication

Choose [MX Sheet] → [End Communication] () from the menu bar.

(2) Confirmation at communication end

At the end of communication, MX Sheet displays the communication end message on the "ErrorLog" sheet.

Confirm the message on the "ErrorLog" sheet at the end of communication. Refer to Chapter 16 for details of the "ErrorLog" sheet.



The screenshot shows the Microsoft Excel - MX Sheet interface. The 'ErrorLog' sheet is displayed with the following data:

1	Kind	Date	Cell Area Name	ErrorNo	Contents
2	Information	2002/07/31 Wed 16:57:23		00000000	Communication was started.
3	Information	2002/07/31 Wed 16:58:14		00000002	Communication was completed.
4					

At end of communication, communication end message is displayed on "ErrorLog" sheet.

11 1 SHOT COMMUNICATION

This chapter describes 1 shot communication function that makes communication with the selected cell area only once at any timing.

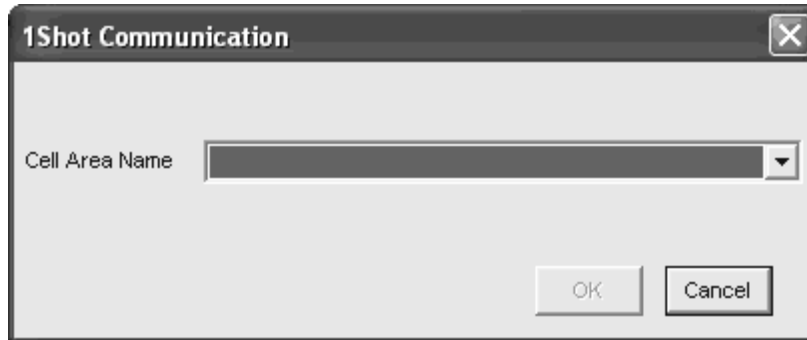
The "1 Shot Communication" dialog box is used to set a cell area and execute 1 shot communication for the cell area.

POINT

- (1) 1 shot communication function ignores the device trigger and handshake settings made to the cell area, and makes communication only once.
- (2) 1 shot communication function cannot work with the alarm summary function.

(1) Displaying "1 Shot Communication" dialog box
 Choose [MX Sheet] → [1 Shot Communication] (F1) from the menu bar.

(2) "1 Shot Communication" dialog box



Item	Description
Cell Area Name	Choose the cell area for 1 shot communication.
[OK] button	The [OK] button can be clicked after the cell area is selected in "Cell Area Name". Click on the [OK] button to execute 1 shot communication.
[Cancel] button	Used to close the "1 Shot Communication" dialog box.

REMARK

- (1) After selecting the cell area set on the Excel sheet with the mouse or similar device, start 1 shot communication by clicking [OK] in the "1 Shot Communication" dialog box. This displays the cell area name specified in "Cell Area Name".
- (2) Setting the cell area name in "Cell Area Name" displays the cell area on the Excel sheet.

12 CELL EDITING

This chapter describes how to edit the cell area set using MX Sheet.

12.1 Cutting the Cell Area

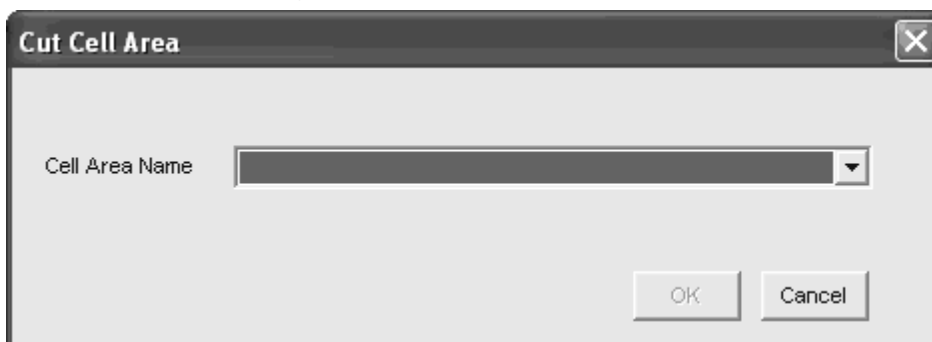
12

This section explains the procedure to delete the settings of the selected cell area and paste them to another cell area.

(1) Displaying "Cut Cell Area" dialog box

Choose [MX Sheet] → [Cut Cell Area] () from the menu bar.

(2) "Cut Cell Area" dialog box



Item	Description
Cell Area Name	Choose the cell area name to be cut.
<input type="button" value="OK"/> button	The <input type="button" value="OK"/> button can be clicked after the cell area name is selected in "Cell Area Name". Click on the <input type="button" value="OK"/> button to cut the cell area.
<input type="button" value="Cancel"/> button	Used to close the "Cut Cell Area" dialog box.


REMARK

Paste the cell area after cutting it.
Refer to Section 12.3 for pasting the cell area.

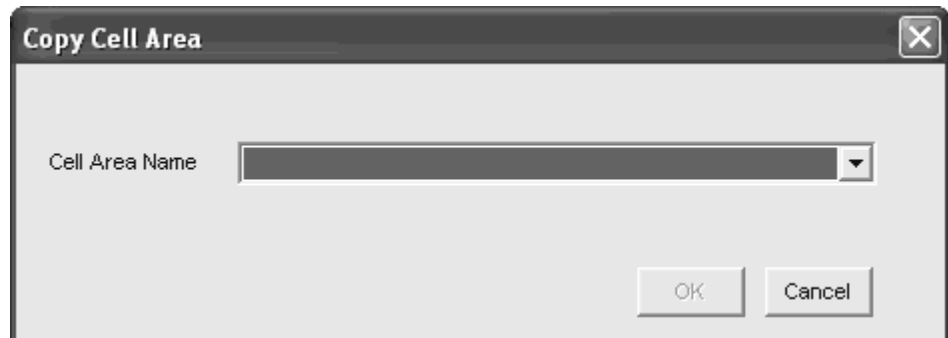
12.2 Copying the Cell Area





This section explains the procedure to copy the settings of the selected cell area to another cell area.

(1) Displaying "Copy Cell Area" dialog box

Choose [MX Sheet] → [Copy Cell Area] () from the menu bar.

(2) "Copy Cell Area" dialog box



Item	Description
Cell Area Name	Choose the cell area name to be cut.
 button	The  button can be clicked after the cell area name is selected in "Cell Area Name". Click on the  button to copy the cell area.
 button	Used to close the "Copy Cell Area" dialog box.

REMARK

Paste the cell area after copying it.
Refer to Section 12.3 for pasting the cell area.

12.3 Pasting the Cell Area





This section explains the procedure to paste the cut or copied cell area to another cell area.

(1) Displaying "Paste Cell Area" dialog box

Choose [MX Sheet] → [Paste Cell Area] () from the menu bar.

(2) "Paste Cell Area" dialog box



Item	Description
Target Cell area for Paste operation	Enter the cell area to be pasted.
Target Cell area name for Paste operation	Enter the cell area name to be pasted. *1
Source Cell area for the Paste operation	The cut or copied cell area is displayed.
 button	The  button can be clicked after the "Target Cell area for Paste operation" and "Target Cell area name for Paste operation" are set. Click on the  button to copy the cell area.
 button	Used to close the "Paste Cell Area" dialog box.

*1: When pasting the cell area after copying it, enter into "Target Cell area name for Paste Operation" the cell area name that differs from the copied cell area name.

REMARK

Paste the cell area after pasting or copying it.

The cell area cannot be pasted unless the cell area has been selected by cutting or copying it.

(3) Precautions for pasting the cell

Paste the cell area while paying attention to the followings:

(a) Paste starting cell in cell area

The paste starting cell in the cell area is the cell selected on the Excel sheet.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

1) Select cell and past cell area.



	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

2) Paste cell area using selected cell as paste starting cell.

(b) Overlap of cell areas

If the paste area overlaps the other cell area that is already set, the selected cell cannot be pasted.

Paste the cell after checking the other cell area.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													

Cell area to be pasted

Already set cell area

As cell area enclosed by dotted lines overlaps, cell area cannot be pasted.

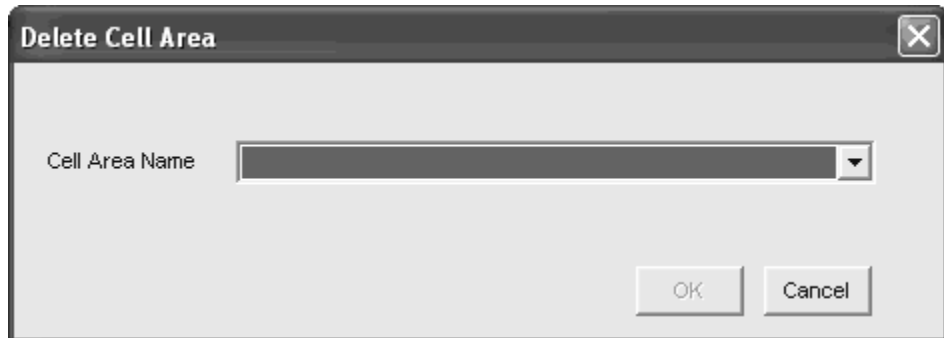
12.4 Deleting the Cell Area





This section explains the procedure to delete the settings of the cell area.

(1) Displaying "Delete Cell Area" dialog box

Choose [MX Sheet] → [Delete Cell Area] () from the menu bar.

(2) "Delete Cell Area" dialog box



Item	Description
Cell Area Name	Choose the cell area name of which settings will be deleted.
 button	The  button can be clicked after the cell area name is selected in "Cell Area Name". Click on the  button to delete the cell area.
 button	Used to close the "Delete Cell Area" dialog box.

13 CHANGING THE SHEET NAME

This chapter describes the changing the sheet name of the Excel sheet where MX Sheet has been set.

In the "Change Sheet Name" dialog box, choose a Excel sheet and set a new name for the sheet.

POINT
<p>Always change the sheet name of the Excel sheet, where MX Sheet has been set, from the "Change Sheet Name" dialog box.</p> <p>If the sheet name is changed from Excel directly or from a VBA program, MX Sheet will not operate normally.</p>

- (1) Displaying "Change Sheet Name" dialog box
 Choose [MX Sheet] → [Change Sheet Name] (📄) from the menu bar.
- (2) "Change Sheet Name" dialog box



Item	Description
Sheet name before change	Select the Excel sheet of which sheet name to be changed.
Sheet name after change	Enter a new sheet name.
[OK] button	The [OK] button can be clicked after the "Sheet name before change" and "Sheet name after change" are selected. Click on the [OK] button to change the sheet name.
[Cancel] button	Used to close the "Change Sheet Name" dialog box.

- (3) Changing the sheet name
 If the sheet name of the Excel sheet, where MX Sheet has been set, is changed from Excel directly or from a VBA program, return the sheet name to the old one from Excel.
 If the sheet name is changed from the VBA program, delete the program part that changes the sheet name.

14 SETTING DATA EXPORT

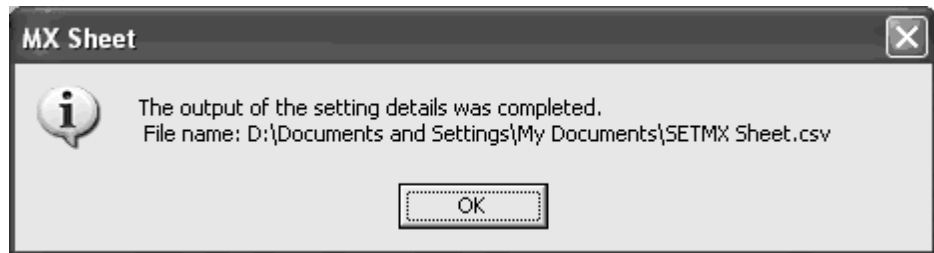
This chapter describes the procedure to output the settings of MX Sheet to a CSV file.

(1) "Setting Data Export" procedure

Choose [MX Sheet] → [Setting Data Export] from the menu bar.

By selecting the above menu, the details of MX Sheet set in the Excel book are output to the CSV file.

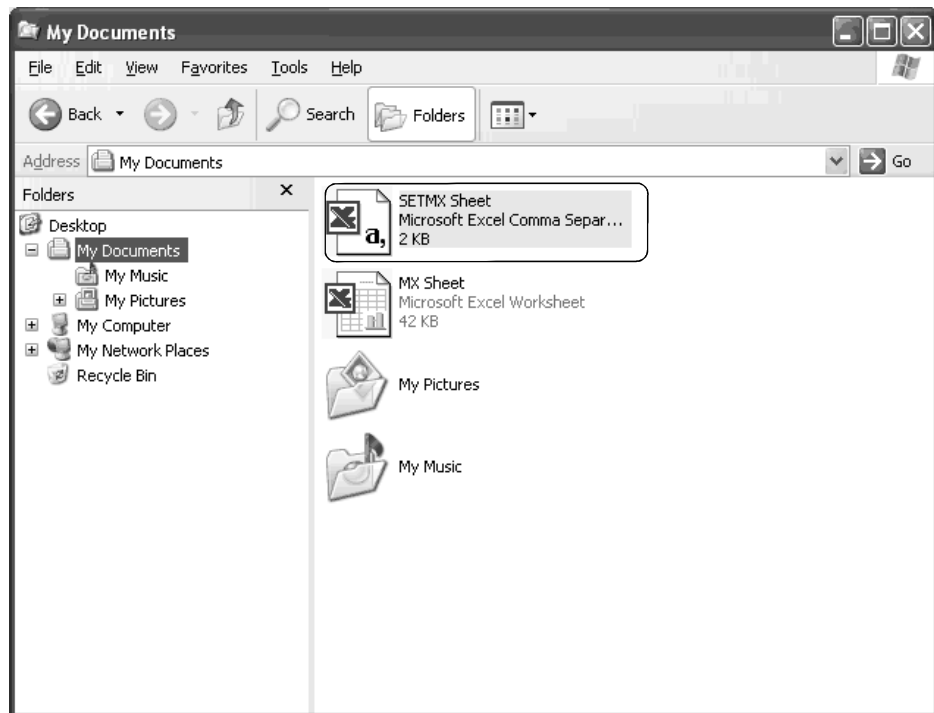
After setting data export, the following dialog box appears.



14

(2) Save destination of CSV file

After setting data export, MX Sheet saves the CSV file in the folder where the original Excel book is saved.



(3) File name of CSV file

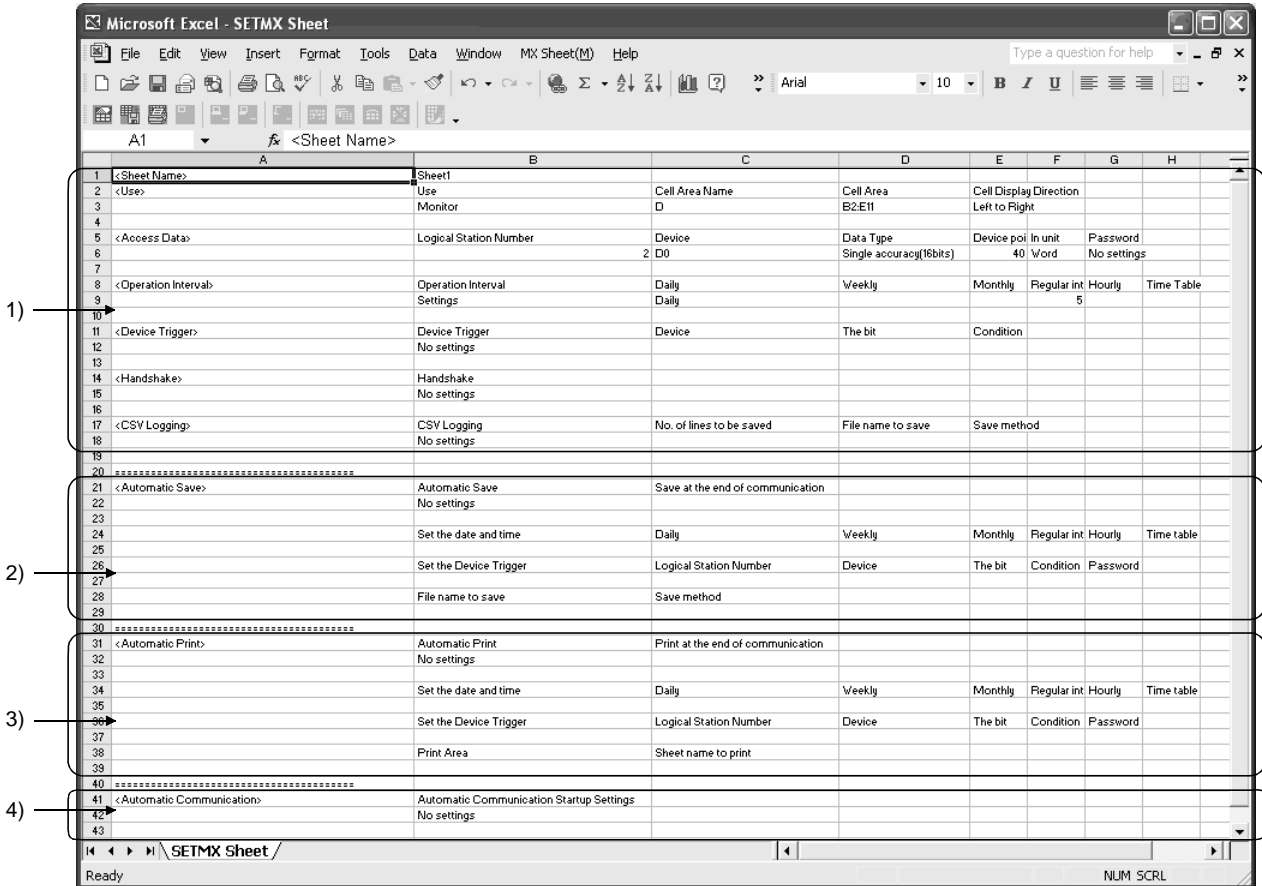
The following indicates the file name of the CSV file.

SET*****.csv

↑
Excel book name that executed setting data export

(4) Saved contents of CSV file

The following shows the contents of the CSV file saved by the setting data export.



14

Item	Description
1) (Cell Setting)	The settings of the sheet name and cell setting are displayed.
2) (Automatic Save)	The settings of automatic save are displayed.
3) (Automatic Print)	The settings of automatic print are displayed.
4) (Automatic Communication Startup)	The settings of automatic communication startup are displayed.

15 SAMPLE PROGRAMS

This chapter describes the sample programs registered at MX Sheet installation.

(1) Sample programs

(a) Sample programs

The sample programs are attached for reference when creating user programs.

Please use them on customer's own responsibility.

(b) Logical station number

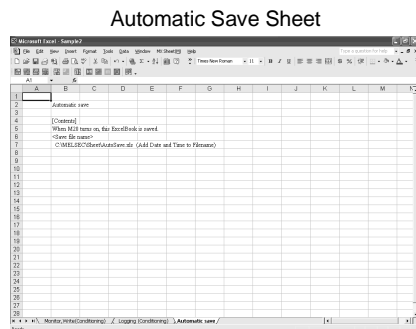
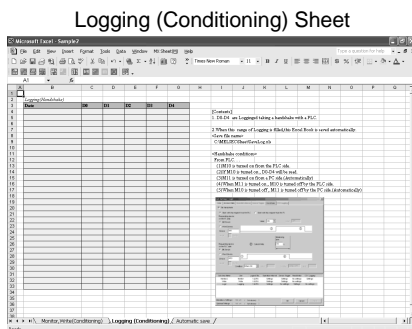
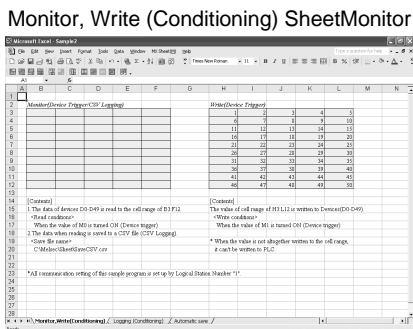
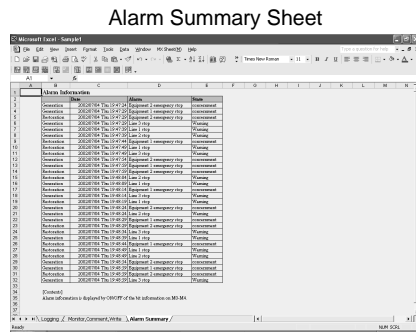
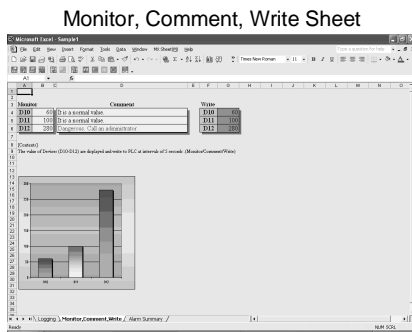
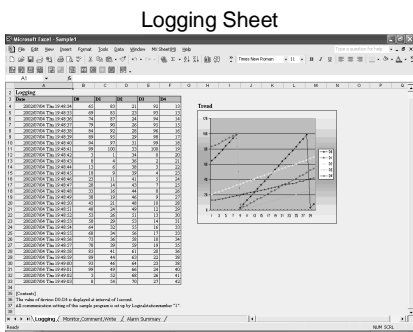
"1" is assigned to all sample programs as logical station number by default.

To use the sample programs, make the settings for the logical station number "1" or assign other logical station number and make the setting for the number.

(2) Sample program list

The following table indicates the sample programs (Sample1.xls, Sample2.xls) that are registered by choosing [User-specified folder] → [Sheet] → [Sample] at MX Sheet installation.

Sample Program		Description
Excel book name	Excel sheet name	
Sample1.xls	Logging	Logging is performed for D0 to D4 at 1 second intervals.
	Monitor, Comment, Write	Monitor, display their assigned comments and write the device data D10 to D12 at intervals of 5 seconds.
	Alarm Summary	Alarm summary is performed using M0 to M4.
Sample2.xls	Monitor, Write (Conditioning)	Monitor and write the device data using device trigger.
	Logging (Conditioning)	Logging is performed using handshake.
	Automatic Save	Save the data on the Excel sheet automatically when M20 turns on. (Automatic save is described in Excel sheet.)



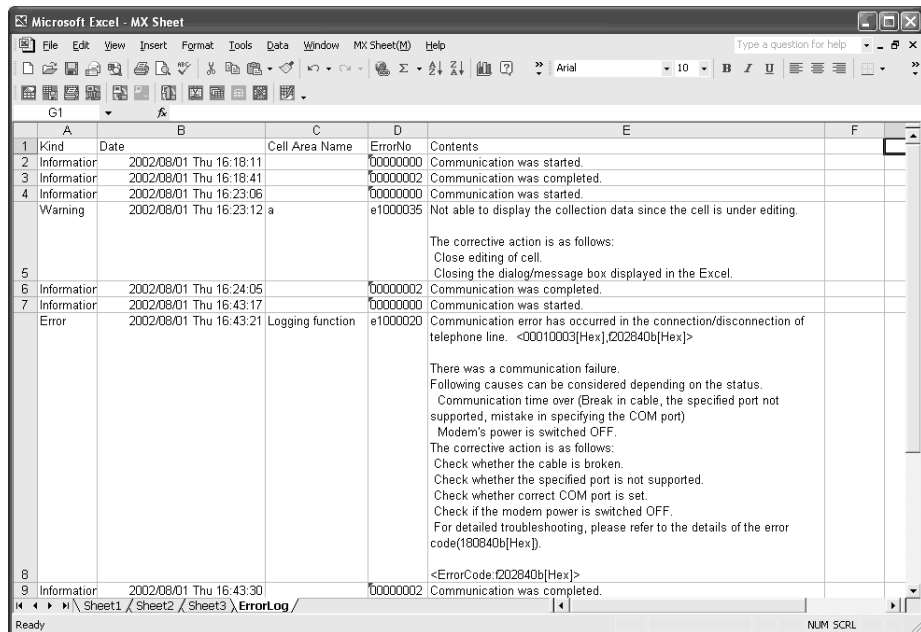
16 ERRORLOG SHEET

This chapter describes the ErrorLog sheet that displays the communication status of MX Sheet.

The communication status, error information and corrective action of MX Sheet are displayed in the ErrorLog sheet.

Troubleshooting can be performed by confirming the corrective action displayed in the ErrorLog sheet.

(1) ErrorLog sheet



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Item	Description	Detailed Explanation
Kind	The type of the communication status is displayed.	(2) (b)
Data	The date and time when the communication status is changed are displayed. The displayed time is the date and time of the personal computer where MX Sheet is operating.	(2) (c)
Cell Name	The cell area name where the communication status is changed is displayed.	(2) (d)
Error No	The error number of the error that has occurred is displayed.	(2) (e)
Contents	The details of the communication status is displayed. The error definition, error code and corrective action are displayed when an error occurs.	(2) (f)

(2) Details

(a) ErrorLog sheet

The following table indicates the ErrorLog sheet specifications.

Item	Description
Maximum number of display lines	2000 lines (fixed)
New data location	The last line has the latest data.
Operating when cell is full	Overwritten in due order, starting with the first line.

(b) "Kind"

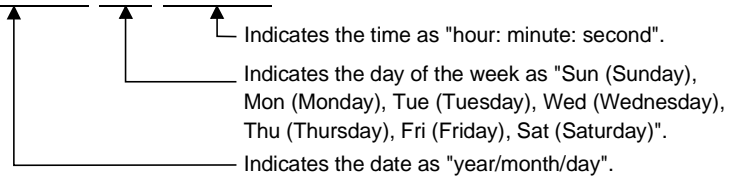
The following table indicates the communication statuses displayed in "Kind".

Communication Status	Description
Information	Displayed when the communication with the PLC starts and ends during 1 shot communication.
Error	Displayed when a fatal error occurred and the function of the cell area stopped.
Warning	Displayed when communication error or collection delay occurs.

(c) "Date"

"Date" displays the date and time of the personal computer at ErrorLog sheet registration.

2002/08/01 Thu 15:14:34



(d) "Cell Name"

The cell area name registered to the ErrorLog sheet is displayed. It is not displayed when the communication starts and ends.

(e) "Error No"

The error number is displayed. Please specify the error number when inquiring about errors.

(f) "Contents"

The data displayed in "Contents" are shown below.

Error definition is displayed.

The communication error has occurred in access data processing.
<00200104[Hex],01808503[Hex]>

USB driver send error
Data send failed.

The corrective action is as follows:

Review the system, e.g. PLC CPU, module setting and cable status.
Make USB setting on the control panel (device manger) of the OS.
Retry the method.
Exit the program and restart the IBM-PC/AT compatible.

Corrective action for error is displayed.

<ErrorCode:1808503[Hex]>

POINT

If the same error occurs twice or more successively in the same cell area, only the error information of the first error will be registered to the ErrorLog sheet. (The error information of the second error or later will not displayed.)

17 DATA CONVERSION FUNCTION

This chapter describes the function to convert the Excel book created using MX Chart into the Excel book for MX Sheet.

17.1 Data Conversion Function

This section explains the data conversion functions, the relevant system configuration and utility.

(1) Function list

The following table lists the data conversion functions.

Function	Description
Conversion of MX Links data	This function converts automatically the communication settings made using the utilities of MX Links into the communication settings (logical station numbers) of MX Component.
Conversion of MX Chart data	This function converts automatically the set data of MX Chart into the cell settings of MX Sheet.

(2) System configuration

The following table indicates the system configuration that executes the data conversion function.

Function	Description
Personal computer	Personal computer where any of the following OSs operates and MX Links and MX Chart have been installed *1 Microsoft® Windows® 98 Operating System (English version) Microsoft® Windows NT® Workstation Operating System Version 4.0 (English version)
MX Links	SW3D5F-CSKP-E Version 10B or later
MX Chart	SW3D5F-OLEX-E Version 00A or later
Conversion source Excel book	Excel book created using Excel 97 (English version) or Excel 2000 (English version) *2

*1: The utilities of MX Links must have been set for communication.

*2: MX Chart must have been set to the Excel book for data conversion.

REMARK

The following OSs and conversion source Excel book do not support the data conversion function.

Item	Compatible Version
OS	Microsoft® Windows® 95 Operating System (English version) Microsoft® Windows® Millennium Edition Operating System (English version) Microsoft® Windows® 2000 Professional Operating System (English version) Microsoft® Windows® XP Professional Operating System (English version) Microsoft® Windows® XP Home Edition Operating System (English version)
Conversion source Excel book	Excel 95 (English version)

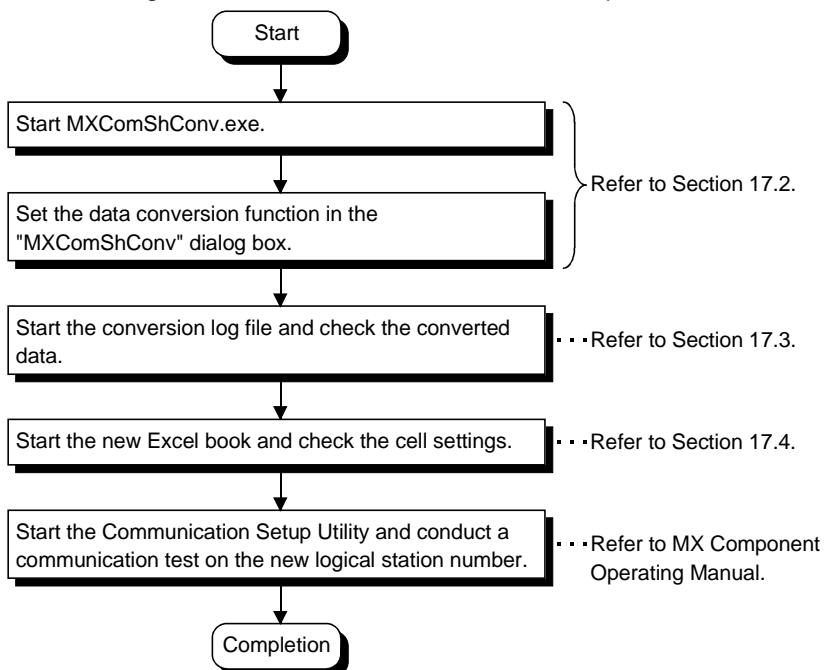
(3) Utility

Data conversion function uses MXComShConv.exe stored in the following folder.
 [User-specified folder *1] → [Sheet] → MXComShConv.exe

*1: This will be "Melsec" when the installation destination folder has not been changed at installation.

(4) Data conversion function procedure

The following indicates the data conversion function procedure.



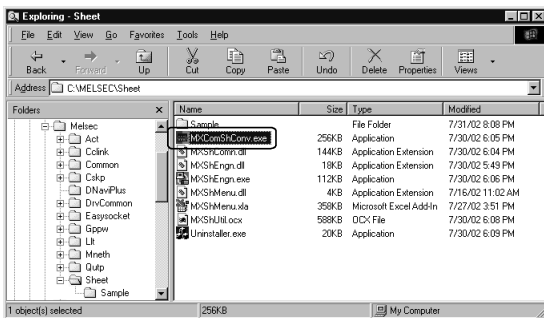
17.2 Operation Procedure of MXComShConv.exe

This section explains the operation procedure of MXComShConv.exe used for the data conversion function.

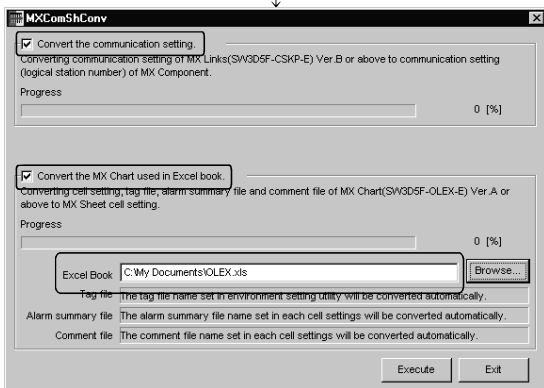
- 1) Install MX Component and MX Sheet into the personal computer where MX Links and MX Chart have been installed.
Set various settings of MX Links and MX Chart correctly.
- 2) Double-click MXComShConv.exe stored in the following folder.

[User-specified folder *1] → [Sheet] →
MXComShConv.exe

*1: This will be "Melsec" when the installation destination folder has not been changed at installation.



- 3) The "MXComShConv" dialog box appears.
Set the following items and click on **Execute**.



"Convert the communication setting"

Mark the check box when converting the set data of MX Links.

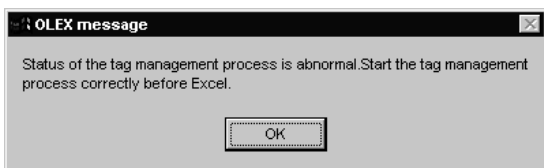
"Convert the MX Chart used in Excel book"

Mark the check box when converting the set data of MX Chart.

"Excel book"

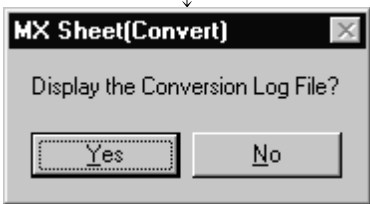
Enter the save place and file name of the Excel book to be converted.

- 4) The left screen appears during conversion of the Excel book for MX Chart.
Click on **OK**.



(To the next page)

(From the previous page)



5) After all data are converted, the left dialog box appears. Click on **Yes** to start the conversion log file. Check the logical station numbers registered to the conversion log file and the log messages such as the error information that occurred during conversion. The conversion log file is saved automatically as a txt file after the data conversion function is executed. Refer to Section 17.3 for the save destination and details of the conversion log file.

(Complete)

Data conversion is complete. The new Excel book is saved under the following file name in the same folder as the conversion source Excel book.

Cnv_*****.xls
 ↑
 └── Conversion source Excel book name

After data conversion, start the new Excel book, and perform a check on the MX Sheet settings and a communication test on the logical station number. Refer to Section 17.4 for the precautions on the new Excel book.

17.3 Conversion Log File

This section explains the save destination and display data of the conversion log file.

(1) Save destination of conversion log file

The conversion log file is saved in the following folder as a txt file.

[Temporary folder *1] → ConvLogMXLinksToMXCom.txt

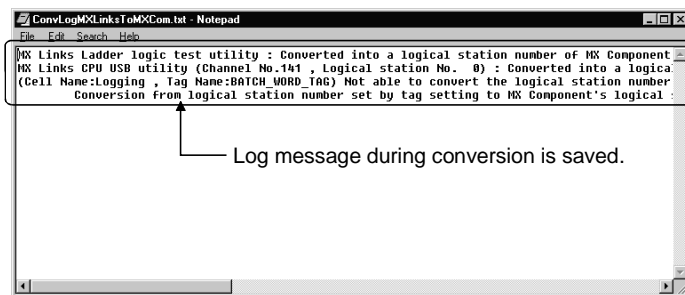
*1: The conversion log file is saved in the following folder when the temporary folder setting has not been changed.

When Windows® 98 is used : [Windows] → [Temp]

When Windows NT® Workstation 4.0 is used: [Temp]

(2) Display data of conversion log file

With the conversion log file, the new logical station numbers and the log messages such as the error information that occurred during conversion can be checked.



17.4 Precautions on Excel Book after Data Conversion Function Execution

After the data conversion function is executed, the settings in the Excel book have been converted for MX Sheet.

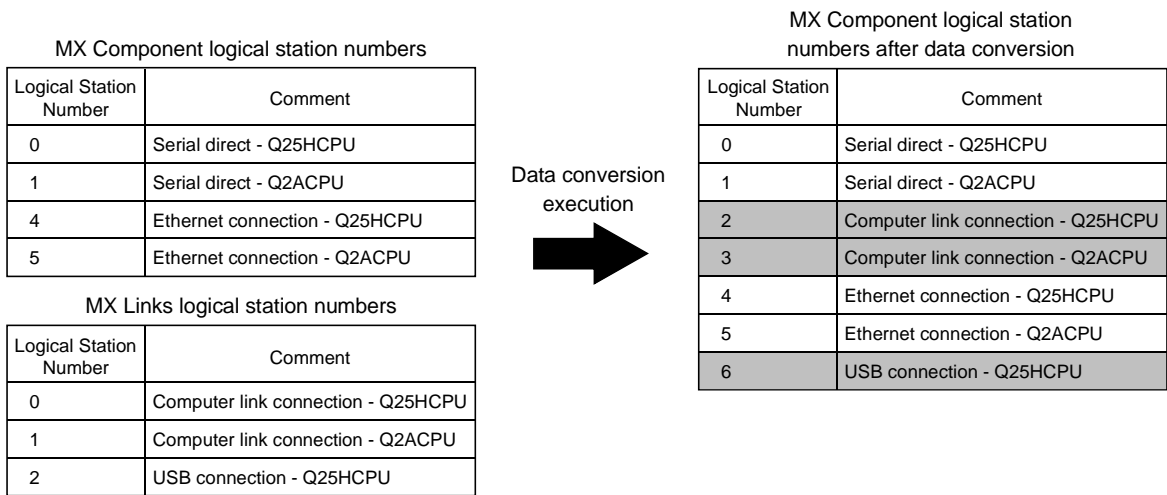
This section describes things to be cautioned. Be sure to start the Excel book and recheck the settings after executing the data conversion function.

This section describes the precautions in the following order.

- 1) Precautions logical station numbers
- 2) Precautions cell areas and sheet names
- 3) Precautions devices
- 4) Precautions alarm summary conversion
- 5) Precautions simple logging conversion
- 6) Precautions automatic save and automatic print conversion
- 7) Precautions tag setup conversion
- 8) Precautions on OLEX functions

Precautions on logical station numbers

- (1) When only the data of MX Chart have been converted by the data conversion function, the "Logical Station Numbers" in the <<Access Data>> tabs are all converted into "0" in the cell settings of MX Sheet.
- (2) When setting has been made using the direct station number system in "Network" of the Tag Setup Utility of MX Chart, the "Logical Station Numbers" in the <<Access Data>> tabs are all converted into "0" in the "Cell Setting" dialog box of MX Sheet.
- (3) When converting the MX Links communication settings for MX Component, data conversion function automatically searches the empty MX Component logical station numbers and assigns the numbers to the communication settings.



Precautions on cell areas and sheet names

- (1) When the cell area name has been set to "invalid" in the "Cell area name valid/invalid" dialog box of MX Chart, the "Set the Operation Interval" checkbox of the <<Operation Interval>> tab is unmarked in the "Cell Setting" dialog box of MX Sheet to make the cell area setting invalid.
- (2) If a non-existing Excel sheet has been set in the "Cell area name valid/invalid" dialog box of MX Chart, data conversion is continued ignoring the settings of the non-existing Excel sheet.

Precautions on devices

- (1) When the data types of the following devices have been set to other than "Bit" on MX Chart, the settings are not converted for MX Sheet.
 - TT (timer contact)
 - TC (timer coil)
 - CT (counter contact)
 - CC (counter coil)
 - STT (retentive timer contact)
 - STC (retentive timer coil)

Precautions on alarm summary conversion

- (1) When a handshake has been set in the cell area used for the alarm summary of MX Chart, the handshake settings are not converted.
The alarm summary function of MX Sheet does not support a handshake.
- (2) If device settings overlap in the cell area for the alarm summary of MX Chart, the settings made second and later are not converted.

Precautions on simple logging conversion

- (1) If "Interrupt logging" has been set in "Display option when reach to the end of cell areas" of the "Logging setup/revision" dialog box of MX Chart, "Operating when cell is full" of the <<Use>> tab is changed to "Display from the beginning after clearing the cell area" in the "Cell Setting" dialog box of MX Sheet.
- (2) "Display option" in the "Logging setup/revision" dialog box of MX Chart is converted into the following display format on MX Sheet.

2002/05/22 Wed 18:31:06

Indicates the time as "hour: minute: second".

Indicates the day of the week as "Sun (Sunday),
Mon (Monday), Tue (Tuesday), Wed (Wednesday),
Thu (Thursday), Fri (Friday), Sat (Saturday)".

Indicates the date as "year/month/day".

- (3) If multiple cells of different column widths have been set in "Cell Area" of the "Logging setup/revision" dialog box of MX Chart, the column widths of the cell area are converted into the same minimum column width in the cell area.

Precautions on automatic save and automatic print conversion

- (1) If "At refresh timing" has been set in "Save timing" of the "Automatic Save Setting" dialog box of MX Chart, "Save Automatically" check box is unmarked to make the automatic save settings invalid in the "Automatic Save" dialog box of MX Sheet.
- (2) If "At refresh timing" has been set in "Print timing" of the "Automatic Print Setting" dialog box of MX Chart, "Print Automatically" check box is unmarked to make the automatic print settings invalid in the "Automatic Print" dialog box of MX Sheet.

Precautions on tag setup conversion

- (1) If "Comm. Status" of the <<Communication settings>> tab has been set to "invalid" in the "Tag setup" utility of MX Chart, the "Set the Operation Interval" check box of the <<Operation Interval>> tab is unmarked to make the cell area settings invalid in the "Cell Setting" dialog box of MX Sheet.
- (2) If the collection conditions and handshake have been set in the "Extended" dialog box of MX Chart, they are converted into the settings of the <<Device Trigger>> tab and <<Handshake>> tab of the "Cell Setting" dialog box of MX Sheet.
Also in the "Extended" dialog box of MX Chart, the logical station numbers in the collection conditions and handshake are not converted for MX Sheet.
- (3) If the ms unit setting has been made in "Comm. Period name" of the "Tag setup" utility of MX Chart, it is rounded up to the second unit and converted into MX Sheet.
However, when the following functions are used, 0.5s to 0.9s settings are not rounded up.
 - Monitor function
 - Write function
 - Alarm summary function
 - Comment function

Precautions on OLEX functions

- (1) Be sure to delete the user program which uses OLEX functions after converting the Excel book which uses the OLEX functions.
OLEX function will not work on MX Sheet.

APPENDICES

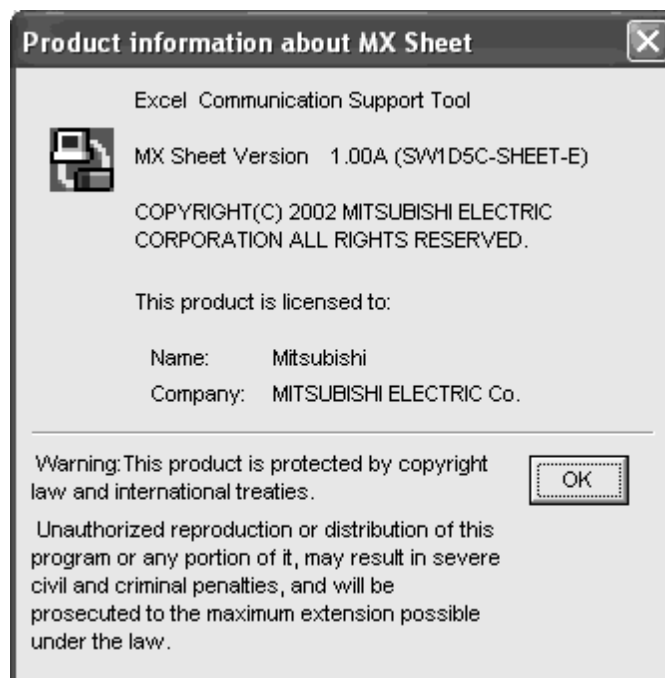
APPENDIX 1 VERSION CONFIRMATION

This section explains how to confirm the MX Sheet version.

Confirm the MX Sheet version in the "Product information about MX Sheet" dialog box.

(1) Displaying "Product information about MX Sheet" dialog box

Choose [MX Sheet] → [Version Info.] from the menu bar.



APPENDIX 2 COMPARISON BETWEEN MX Sheet AND MX Chart

The following table indicates comparison between MX Sheet and MX Chart.

Item		MX Sheet	MX Chart
Logging function	Number of device points	256 points *1	256 points
	Number of logging lines	65536 lines	2000 lines
	Number of cell areas that can be set	1000/1 Excel book	100/1 Excel book
	Communication interval	1s to 3600s, time designation	
	Save, print when cell is full	Available	N/A
	Number of CSV logging save points	256 points	N/A
	Number of CSV logging save lines	9999999 lines	N/A
Monitor function	Number of device points	1000 points *1	1000 points
	Number of cell areas that can be set	1000/1 Excel book	
	Communication interval	0.5s to 3600s, time designation	
	Number of CSV logging save points	1000 points	N/A
	Number of CSV logging save lines	9999999 lines	N/A
Write function	Number of device points	1000 points *1	1000 points
	Number of cell areas that can be set	1000/1 Excel book	
	Communication interval	0.5s to 3600s, time designation	
Alarm summary function	Number of device points	300 points	300 points
	Number of history lines	65536 lines	300 lines
	Number of cell areas that can be set	1000/1 Excel book	100/1 Excel book
	Communication interval	0.5s to 3600s	
Comment display function	Number of device points	1 points	
	Number of comments	1000 comments	
	Maximum number of registered points	500/1 Excel book	
	Communication interval	0.5s to 3600s, time designation	
Automatic save/automatic print function	Time designation	Available	
	Device trigger designation	Available	N/A
	Automatic save format	Excel file, HTML file	Excel file
1 shot communication	For logging function	Available	
	For monitor function	Available	
	For write function	Available	
	For alarm summary function	N/A	
	For comment function	Available	N/A
Macro	Read function	N/A	Available (OLEXRead function)
	Write function	N/A	Available (OLEXWrite function)

*1: This number of device points applies to the case word device data is collected/written in single accuracy.

APPENDIX 3 PROCESSING SPEED OF MX Sheet

This section explains the performance values and the scroll processing performance of Excel when the monitor and logging functions have been executed using the personal computer of the following performance.

The performance values indicate the numbers of device points where no collection delay will occur when only one cell area has been set to the Excel book and the device data of D device are collected by the monitor or logging function. (If multiple cell areas have been set, reduce the number of device points per cell to maintain the same performance.)

The actual performance values vary depending on the performance or similar of the personal computer.

Use the performance values given in this section as reference values.



OS : Windows® XP Professional
 CPU : Pentium III(800MHz)
 Memory : 256MB
 Excel : Excel 2002
 Cell area : Only one

<Setting example 1>

The setting example 1 indicates the case where only one access data is set.

	Device	Data Type	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	Single accuracy(16bits)		1			Word
2							
3							

<Setting example 2>

The setting example 2 indicates the case where two or more access data are set.

	Device	Data Type	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	Single accuracy(16bits)		1			Word
2	D500	Single accuracy(16bits)		1			Word
3							

(1) Performance values for computer link communication

The following table indicates the performance values when the monitor and logging functions are executed using computer link communication.

CPU type: A3ACPU

Connected module: AJ71UC24 (19200bps)

Function	Operation Interval	Number of Device Points	
		Setting example 1	Setting example 2
Monitor function	0.5s	120 points	30 points
	1s	260 points	70 points
	5s	1400 points *1	400 points
Logging function	1s	200 points	70 points
	5s	1024 points *1	400 points *1

*1: This number of device points applies to the case the data type is set to a character string.

(2) Performance values for Ethernet communication

The following table indicates the performance values when the monitor and logging functions are executed using Ethernet communication.

CPU type: Q25HCPU

Connected module: QJ71E71 (10Mbps)

Function	Operation Interval	Number of Device Points	
		Setting example 1	Setting example 2
Monitor function	0.5s	4000 points *1	800 points
	1s	12000 points *1	1792 points *1
	5s	20000 points *1	10000 points *1
Logging function	1s	5120 points *1	1792 points *1
	5s	5120 points *1	5120 points *1

*1: This number of device points applies to the case the data type is set to a character string.

(3) Scroll processing performance of Excel

The following table indicates the times required by Excel for scroll processing when the logging function is used.

The following times applies to the case only Excel has been started on the personal computer.

Scroll Range	Time Required for Scroll Processing
10 columns × 1000 rows	0.95s
10 columns × 2000 rows	1.1s
10 columns × 65536 rows	6.1s
256 columns × 1000 rows	4.5s
256 columns × 2000 rows	6.8s
256 columns × 65536 rows	20min and 30s

APPENDIX 4 PROCESSING MX Sheet

This section explains the processing of MX Sheet.

Appendix 4.1 Collection Delay and Data Dropout

On MX Sheet, collection delay, data dropout or similar problem may occur depending on the communication time with the PLC and the collection timing of device data. The following explains the collection delay and data dropout.

(1) Collection delay

Device data collection delay will occur depending on the communication time with the PLC and the corresponding processing time.

Collection delay occurs only when "Operation time" is set to "Regular interval".

When a collection delay occurs, it will be registered to the ErrorLog sheet as error information.

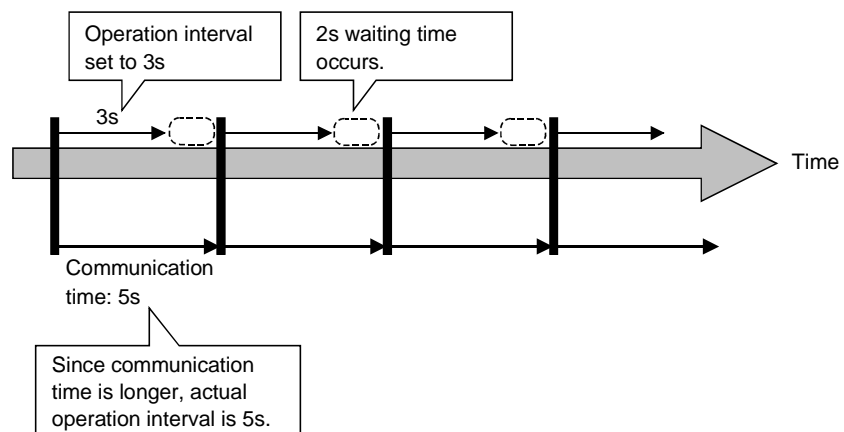
When a collection delay occurs, check the ErrorLog sheet.

The following explains the cases where a collection delay occurs.

(a) When the actual communication time is longer than the specified operation interval

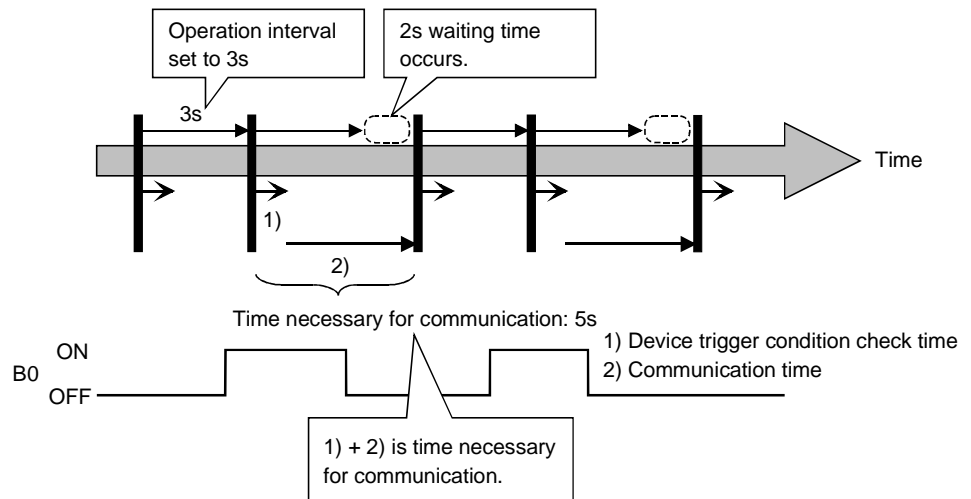
When the communication time with the PLC is longer than the operation interval of MX Sheet, a device data collection delay occurs.

(Example) "Operation time" is set to "Regular interval (3s)" but the communication time with the PLC is 5s



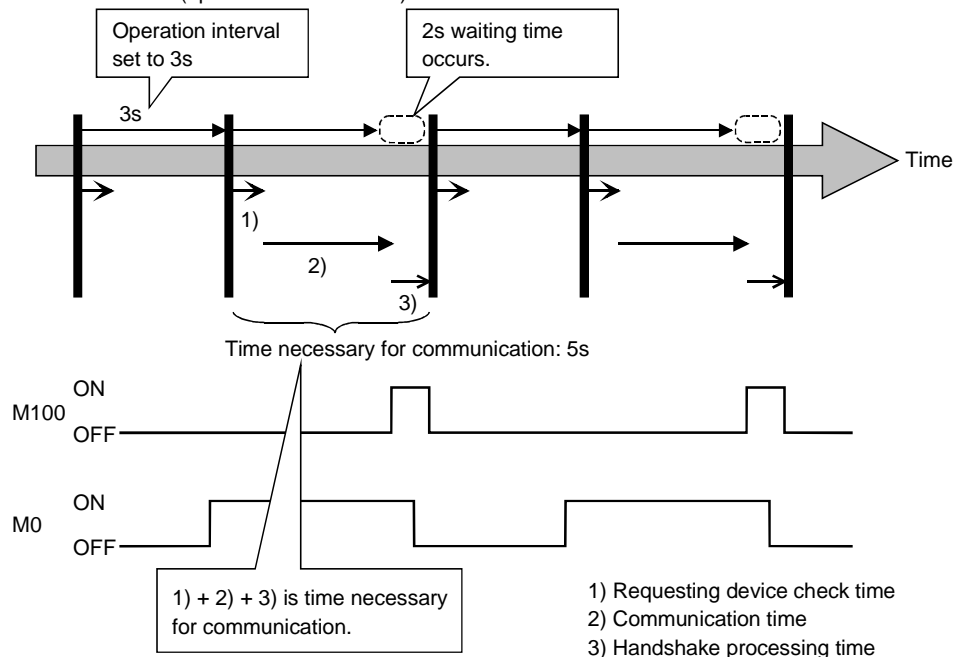
- (b) Collection delay when device trigger function is used
 When the sum of the device trigger condition check time and the communication time with PLC is longer than the operation interval of MX Sheet, a collection delay occurs during the next device trigger condition check.

(Example) When "B0" = "When ON" has been set as the device trigger condition (operation interval is 3s)



- (c) Collection delay when handshake function is used
 When the sum of the requesting device check time, the communication time with PLC and the handshake processing time is longer than the operation interval of MX Sheet, a collection delay occurs during the next requesting device check.

(Example) When the PLC side requesting device has been set to "M0" and the PC side responding device to "M100" (operation interval is 3s)



(2) Data dropout

The data to be collected may dropout depending on the communication time with the PLC and the collection timing of device data.

The following explains the cases where a data dropout occurs.

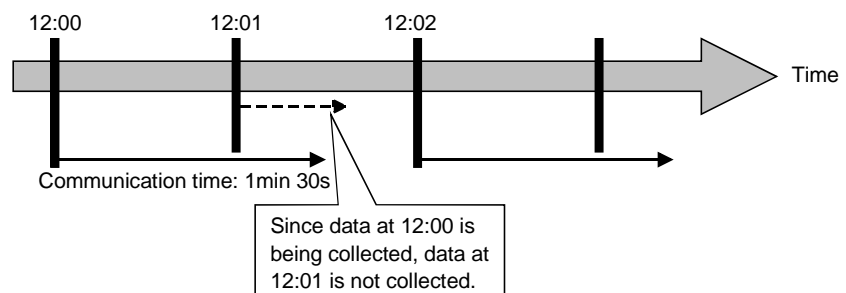
(a) When the actual communication time is longer than the specified operation interval

When the communication time with the PLC is longer than the operation interval, the data to be collected dropouts.

If a data dropout has occurred, increase the operation interval setting of MX Sheet.

(Example) When "Operation time" has been set to "Hourly (0min, 1min, 2min)" but the communication time with the PLC is longer than 1min

If previous data collection is still being executed when it has reached the operation time as shown below, a data dropout occurs on MX Sheet.



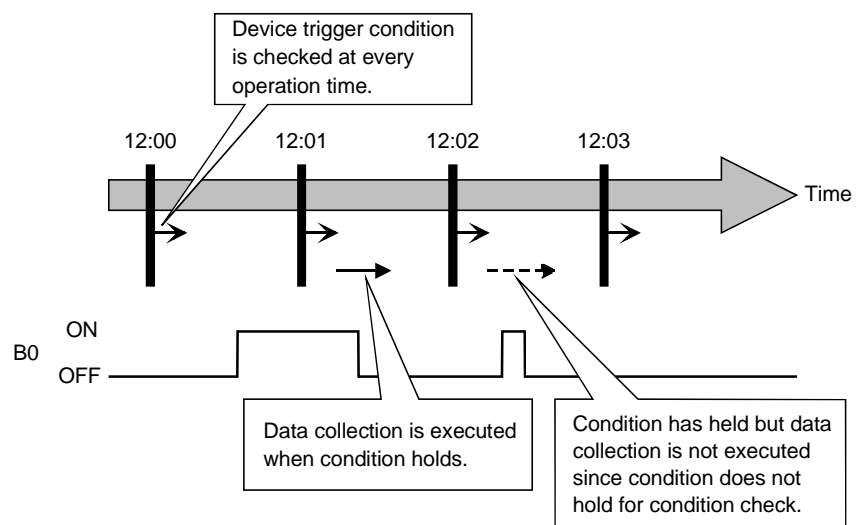
(b) Data dropout when device trigger function is used

When the device trigger condition holds for the specified operation time, the condition cannot be checked and the data to be collected dropouts.

If a data dropout occurs during use of the device trigger, decrease the operation interval setting of MX Sheet.

(Example) When "B0" = "When ON" has been set as the device trigger condition (operation interval is 60s)

If the device trigger condition holds for the specified operation time as shown below, a data dropout occurs on MX Sheet.



REMARK

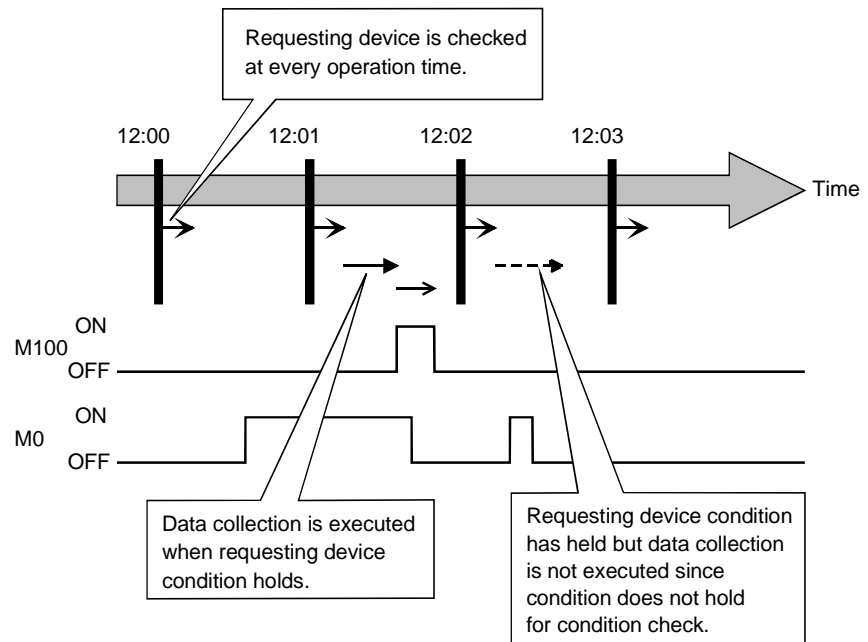
Note that if a data dropout occurs during use of the device trigger, error information is not registered to the ErrorLog sheet.

(c) Data dropout when handshake function is used

When the requesting device condition holds for the specified operation time, the data to be collected dropouts.

If a data dropout occurs during use of the handshake, decrease the operation interval setting of MX Sheet.

(Example) When the PLC side requesting device has been set to "M0" and the PC side responding device to "M100" (operation interval is 60s)
 If the requesting device condition holds for the operation time as shown below, a data dropout occurs on MX Sheet.



REMARK

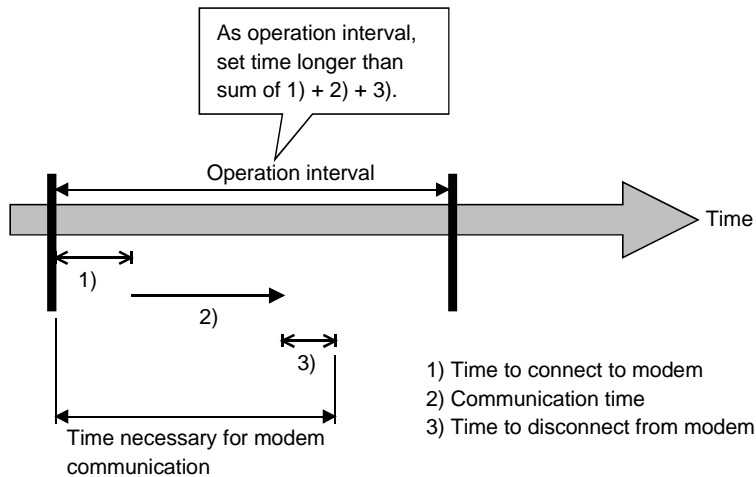
Note that if a data dropout occurs during use of the handshake, error information is not registered to the ErrorLog sheet.

(3) Data dropout when modem communication function is used

When modem communication function is used and "Telephone line connectivity time zone" is set for "Connect each time depending on the operation interval", a data dropout occurs due to use of a modem.

To collect PLC device data using modem communication function, set MX Sheet while considering the modem connection time.

If a data dropout occurs during modem communication, increase the operation interval setting of MX Sheet.



Appendix 4.2 Date and Time

When the logging function and CSV logging are used, the date and time in the cell area and the CSV file may not be displayed correctly.

The following describes an example of the incorrect display, the causes and corrective actions.

<Example (when "Regular interval" is set to 1s)>

Although communication is made at the specified interval, the date and time are not displayed correctly as shown below, since the time when data has been actually read exceeds the regular interval.

(Unlike with collection delay, the error information is not displayed in the ErrorLog sheet.)

2002/08/01 Thu 13:08:25	32	26
2002/08/01 Thu 13:08:26	33	27
2002/08/01 Thu 13:08:28	35	27
2002/08/01 Thu 13:08:29	36	28

Time of 13:08:27 is incorrectly displayed as 13:08:28.

<Causes>

- Multiple cell areas have been set to the Excel book.
- Multiple cell areas use the same communication path.
- "Operation time" of the <<Operation Interval>> tab has been set to "Regular interval".

<Corrective actions>

- Decrease the number of cells set to the Excel book.
- Increase the "Regular interval" setting.
- Reexamine the cell area settings. (Refer to APPENDIX 5.)

APPENDIX 5 CREATING THE Excel SHEET FOR MX Sheet

When collecting/writing device data by using MX Sheet, the efficiency of communication with the PLC varies depending on the cell area settings. The following provides the example of setting cell area for more effective communication.

(1) Communication efficiency and cell area specifying method

When multiple cell areas have been set, MX Sheet executes communication with the PLC in order of the cell areas.

When the same communication path has been set to multiple cell areas, communication efficiency decreases since all cell areas use one communication path to communicate with the PLC.

The following setting example indicates the case where the same communication path has been set to multiple cell areas.

<Setting example>

	A	B	C	D	E	F
1						
2		Model name	D0 to D3			
3		Lot No.	D5 to D8			
4						
5		Maximum value	D10	Maximum value	D13	
6		Minimum value	D11	Minimum value	D14	
7		Current value	D12	Current value	D15	
8						

(a) Inefficient setting

When the above setting example is divided into four cell areas as indicated in the following table, MX Sheet executes communication four times. This causes communication load to increase, decreasing communication efficiency.

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Product type	C2	0: Ethernet	D0 Character string	1	1s interval
Lot No.	C3	0: Ethernet	D5 Character string	1	1s interval
A	C5: C7	0: Ethernet	D10 Single accuracy	3	1s interval
B	E5: E7	0: Ethernet	D20 Single accuracy	3	1s interval

(b) Efficient setting

When the above setting example is integrated into one cell area as indicated in the following table, the collection/write of device data is completed by making communication once. This enables communication load to decrease, improving communication efficiency.

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Product information	C2, C3, C5: C7, E5: E7	0: Ethernet	D0 Character string	1	1s interval
			D5 Character string	1	
			D10 Single accuracy	3	
			D20 Single accuracy	3	

(2) Communication efficiency and access data setting

When one type of device is set as multiple devices, the efficiency of communication with the PLC decreases.

The following setting example indicates the case where one type of device is specified consecutively.

<Setting example>

	A	B	C	D
1				
2		Maximum value	D0	
3		Minimum value	D1	
4		Current value	D2	
5				

(a) Inefficient setting

If the above setting example is divided into three access data as indicated below, MX Sheet recognizes them as three types of devices and executes communication, decreasing communication efficiency.

	Device	Data Type	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	Single accuracy(16bits)		1	1	1	Word
2	D1	Single accuracy(16bits)		1	1	1	Word
3	D2	Single accuracy(16bits)		1	1	1	Word

(b) Efficient setting

If the above setting example is integrated into one access data as indicated below, MX Sheet recognizes it as one type of device and executes communication, improving communication efficiency.

	Device	Data Type	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	Single accuracy(16bits)		1	3	3	Word
2							
3							

REMARK

Any of the following settings prevents the improvement of communication efficiency even if efficient setting has been made.

- (1) When "Data Type" has been set to "Bit", the device number setting of "Device" is not a multiple of 16.
- (2) CN200 (current value of 32-bit counter device) or later of the FXCPU has been set.

(3) Communication efficiency and use of Excel function (cell reference)

When inconsecutive device data are displayed on Excel, the efficiency of communication with the PLC decreases if multiple cell areas are set.

The following setting example indicates the case where inconsecutive device data are displayed on Excel.

<Setting example>

	A	B	C	D	E	F
1						
2			Maximum value	Minimum value	Current value	
3		Line A	D0	D1	D2	
4		Line B	D5	D6	D7	
5		Line C	D10	D11	D12	
6		Line D	D15	D16	D17	
7						

(a) Inefficient setting

When the above setting example is divided into four cell areas as indicated in the following table, MX Sheet executes communication four times. This causes communication load to increase, decreasing communication efficiency.

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Line A	C3:E3	0: Ethernet	D0 Single accuracy	3	1s interval
Line B	C4:E4	0: Ethernet	D5 Single accuracy	3	1s interval
Line C	C5:E5	0: Ethernet	D10 Single accuracy	3	1s interval
Line D	C6:E6	0: Ethernet	D15 Single accuracy	3	1s interval

(b) Efficient setting

When the above setting example is integrated into one cell area as indicated in the following table and device data are collected in the other Excel sheet (Sheet 2), this decreases communication load, improving communication efficiency.

Set cell reference so that Excel sheet 1, which actually displays the device data, will refer to the corresponding cells within Excel sheet2, which collects the device data.

(MX Sheet need not be set in the Excel sheet where device data will be displayed actually (Sheet 1).)

Cell Area Name	Cell Area	Access Data Settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Line information	A2: E5 (Area set to Sheet 2)	0: Ethernet	D0 Single accuracy	20	1s interval

Sheet 1 (Excel sheet where device data will be displayed actually)

	A	B	C	D	E	F
1						
2			Maximum value	Minimum value	Current value	
3		Line A	=Sheet2!A2	=Sheet2!B2	=Sheet2!C2	
4		Line B	=Sheet2!A3	=Sheet2!B3	=Sheet2!C3	
5		Line C	=Sheet2!A4	=Sheet2!B4	=Sheet2!C4	
6		Line D	=Sheet2!A5	=Sheet2!B5	=Sheet2!C5	
7						

Sheet 2 (Excel sheet where device data will be collected)

	A	B	C	D	E	F
1	Line monitor					
2	D0	D1	D2	D3	D4	
3	D5	D6	D7	D8	D9	
4	D10	D11	D12	D13	D14	
5	D15	D16	D17	D18	D19	
6						

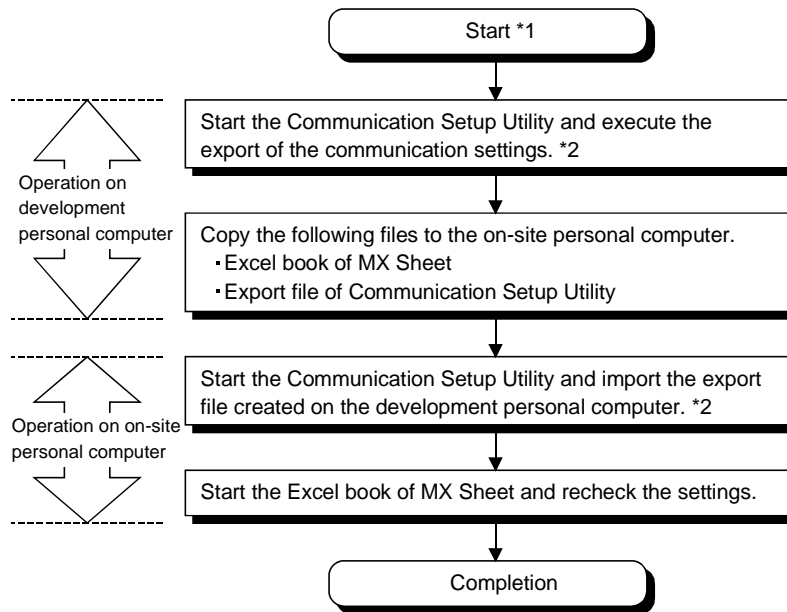


Set Sheet 1 to refer to cells of Sheet 2.

APPENDIX 6 PROCEDURE TO TRANSPORT DATA TO OTHER PERSONAL COMPUTER

This section explains the procedure to transport the settings of MX Sheet from a development personal computer to an on-site personal computer.

POINT
 MX Sheet and MX Component must have been installed in the personal computer where the settings of MX Sheet will be transported.



*1: The Excel book for MX Sheet should have been created on the development personal computer.

*2: For the import and export operations of communication settings, refer to the MX Component Operating Manual.

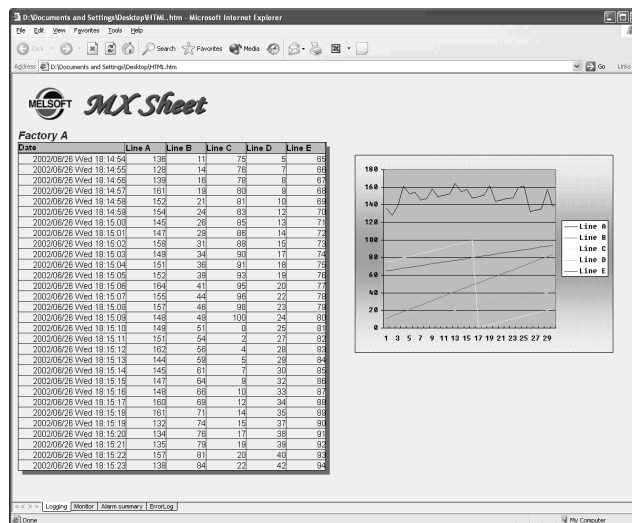
APPENDIX 7 HTML FILE

This section explains the HTML file saved during MX Sheet operation.

(1) HTML file

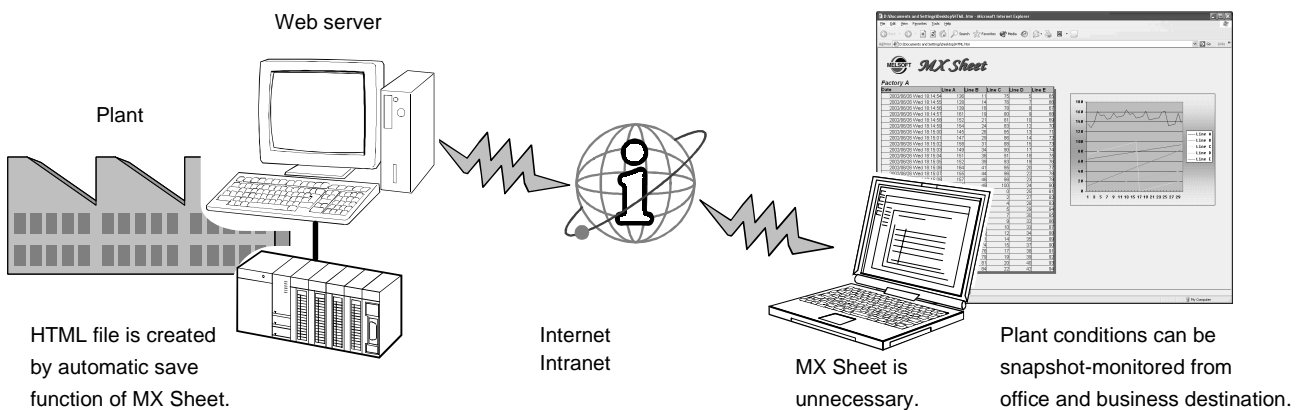
MX Sheet allows an HTML file to be saved automatically into the folder specified when any of the following functions is used.

- Logging function (when cell is full)
- Alarm summary function (when cell is full)
- Automatic save setting



(2) Convenient use of HTML file

The data collected by MX Sheet can be snapshot-monitored from a business destination, office or other place via the Internet/intranet, with the plant side personal computer (personal computer where MX Sheet is operating) used as a Web server.



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MX Sheet Version 1

Operating Manual

MODEL	MELS1-SHEET-O-E
MODEL CODE	13JU35
SH(NA)-080348E-A(0208)MEE	

 **MITSUBISHI ELECTRIC CORPORATION**

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