

YASKAWA

Machine Controller MP900/MP2000 Series

MPLOGGER USER'S MANUAL

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Visual Aids

The following aids are used to indicate certain types of information for easier reference.



IMPORTANT

Indicates important information that should be memorized.

Also indicates low-level precautions that, if not heeded, may cause an alarm to sound but will not result in damage to the device.



EXAMPLE

Indicates programming and application examples.



Indicates supplemental information.



Indicates definitions of difficult terms or other terms that have not been previously explained in this manual.

About this Manual

- MPLOGGER software uses Microsoft Excel as an operating platform to enable the monitoring and logging of PLC control system memory information, such as PLC memory information used in control sequences, using the Excel user interface. MPLOGGER can be used to easily monitor trial operation and adjustments, implement data analysis and create spreadsheets after starting actual system operation.
- MPLOGGER supports the following Machine Controller models.
 - All Machine Controllers in the MP900 and MP2000 series
- Read this manual carefully to ensure the proper use of MPLOGGER. Also, keep this manual in a safe place so that it can be referred to whenever necessary.

Manual Structure

- This manual describes the standard functions of MPLOGGER and application methods.
 - Chapter 1 outlines the functions of MPLOGGER.
 - Chapter 2 describes the system requirements.
 - Chapter 3 provides installation methods.
 - Chapter 4 describes how to use the basic applications of MPLOGGER.
 - Chapter 5 describes information required for application, such as monitoring methods.
 - Chapter 6 describes software performance and restrictions.
 - Chapter 7 describes the structure of the log databases.
 - Chapter 8 provides troubleshooting information.
 - Chapter 9 provides communications process settings for reference.

Related Manuals

- The following table lists related MP900/MP2000-series manuals. Refer to these manuals as required.

Manual Name	Manual Number	Contents
Machine Controller MP2200 User's Manual	SIEP C880700 14	Describes the design and maintenance of the MP2200 Machine Controller.
Machine Controller MP2300 Basic Module User's Manual	SIEP C880700 03	Describes the design and maintenance of the MP2300 Basic Module.
Machine Controller MP2000 Series Communications Module User's Manual	SIEP C880700 04	Describes the functions, specifications, and application methods of the MP2300 Communications Modules (217IF, 218IF, 260IF, and 261IF).
Machine Controller MP920 User's Manual Design and Maintenance	SIEZ-C887-2.1	Describes the functions, specifications, and application methods of the MP920 Machine Controller, including setup procedures.
Machine Controller MP930 User's Manual Design and Maintenance	SIEZ-C887-1.1	Describes the functions, specifications, and application methods of the MP930 Machine Controller, including setup procedures.
Machine Controller MP940 User's Manual Design and Maintenance	SIEZ-C887-4.1	Describes the functions, specifications, and application methods of the MP940 Machine Controller, including setup procedures.
Machine Controller MP900/MP2000 Series User's Manual Ladder Programming	SIEZ-C887-1.2	Describes the instructions used in MP900/MP2000 ladder programming.
Machine Controller MP9□□ User's Manual Motion Programming	SIEZ-C887-1.3	Describes the instructions used in MP900/MP2000 motion programming.
Machine Controller MP900/MP2000 Series New Ladder Editor Programming Manual	SIE-C887-13.1	Describes the programming instructions for the New Ladder Editor, which supports design and maintenance for the MP900/MP2000 Series Machine Controllers.
Machine Controller MP900/MP2000 Series New Ladder Editor Operation Manual	SIE-C887-13.2	Describes operating methods for the New Ladder Editor, which supports design and maintenance for the MP900/MP2000 Series Machine Controllers.

Using this Manual

■ Intended Reader

- This manual is intended for engineers constructing systems using MPLOGGER.
- This manual assumes that the reader has a general knowledge of computers and understands how to use the keyboard, mouse, and Microsoft Excel.

■ Description of Technical Terms Used in This Manual

- PC: A personal computer with a Windows OS.
- PC address: A controller address (not a personal computer address).
- MDB: Microsoft Access database.
- DAO: Data Access Object. This programming interface is required to use databases made with Microsoft Access.
- Log: To collect data in a database.
- ADO: ActiveX Data Object. A programming interface that enables using a database with ActiveX controls.
- MDAC: Microsoft Data Access Components. Program components for accessing a database.

About the Software

■ Precautions

- This software is licensed for a single user. For use in multiple computers, purchase this software separately for each computer.
- This software is not to be copied and used for any purpose other than backup.
- Store the CD-ROMs containing the software in a safe place.
- This software is not to be decompiled, disassembled, or reverse engineered.
- This software is not to be given to, loaned to, exchanged with, or otherwise released to a third party without the prior permission of Yaskawa Corporation.

■ Trademarks

- MECHATROLINK is a registered trademark of the MECHATROLINK Members Association.
- Windows 2000, Windows XP, Windows Vista, Excel, and Access are registered trademarks of Microsoft Corporation in the U.S.A.
- Pentium is a registered trademark of Intel Corporation.
- Ethernet is a registered trademark of Xerox Corporation.

Notes for Safe Operation

■ General Precautions

Note the following to ensure safe operation
• MPLOGGER is not designed or manufactured for use in the following equipment or systems, which may affect human life. Always consult with your Yaskawa representative before considering using MPLOGGER in any special application, such as passenger vehicles, medical applications, aerospace applications, nuclear energy, or submarine repeaters. • MPLOGGER is manufactured with strict quality control. Nevertheless, always install safety devices in any application where failure of MPLOGGER may be expected to endanger human life or cause serious loss. • The drawings and photographs presented in this manual are typical examples and may not match the product you received. • If the manual must be replaced due to loss or damage, inform your nearest Yaskawa representative or one of the offices listed on the back of this manual.

Warranty

■ Details of Warranty

Warranty Period

The warranty period for a product that was purchased (hereafter called “delivered product”) is one year from the time of delivery to the location specified by the customer or 18 months from the time of shipment from the Yaskawa factory, whichever is sooner.

Warranty Scope

Yaskawa shall replace or repair a defective product free of charge if a defect attributable to Yaskawa occurs during the warranty period above. This warranty does not cover defects caused by the delivered product reaching the end of its service life and replacement of parts that require replacement or that have a limited service life.

This warranty does not cover failures that result from any of the following causes.

1. Improper handling, abuse, or use in unsuitable conditions or in environments not described in product catalogs or manuals, or in any separately agreed-upon specifications
2. Causes not attributable to the delivered product itself
3. Modifications or repairs not performed by Yaskawa
4. Abuse of the delivered product in a manner in which it was not originally intended
5. Causes that were not foreseeable with the scientific and technological understanding at the time of shipment from Yaskawa
6. Events for which Yaskawa is not responsible, such as natural or human-made disasters

■ Limitations of Liability

1. Yaskawa shall in no event be responsible for any damage or loss of opportunity to the customer that arises due to failure of the delivered product.
2. Yaskawa shall not be responsible for any programs (including parameter settings) or the results of program execution of the programs provided by the user or by a third party for use with programmable Yaskawa products.
3. The information described in product catalogs or manuals is provided for the purpose of the customer purchasing the appropriate product for the intended application. The use thereof does not guarantee that there are no infringements of intellectual property rights or other proprietary rights of Yaskawa or third parties, nor does it construe a license.
4. Yaskawa shall not be responsible for any damage arising from infringements of intellectual property rights or other proprietary rights of third parties as a result of using the information described in catalogs or manuals.

■ Suitability for Use

1. It is the customer's responsibility to confirm conformity with any standards, codes, or regulations that apply if the Yaskawa product is used in combination with any other products.
2. The customer must confirm that the Yaskawa product is suitable for the systems, machines, and equipment used by the customer.
3. Consult with Yaskawa to determine whether use in the following applications is acceptable. If use in the application is acceptable, use the product with extra allowance in ratings and specifications, and provide safety measures to minimize hazards in the event of failure.
 - Outdoor use, use involving potential chemical contamination or electrical interference, or use in conditions or environments not described in product catalogs or manuals
 - Nuclear energy control systems, combustion systems, railroad systems, aviation systems, vehicle systems, medical equipment, amusement machines, and installations subject to separate industry or government regulations
 - Systems, machines, and equipment that may present a risk to life or property
 - Systems that require a high degree of reliability, such as systems that supply gas, water, or electricity, or systems that operate continuously 24 hours a day
 - Other systems that require a similar high degree of safety
4. Never use the product for an application involving serious risk to life or property without first ensuring that the system is designed to secure the required level of safety with risk warnings and redundancy, and that the Yaskawa product is properly rated and installed.
5. The circuit examples and other application examples described in product catalogs and manuals are for reference. Check the functionality and safety of the actual devices and equipment to be used before using the product.
6. Read and understand all use prohibitions and precautions, and operate the Yaskawa product correctly to prevent accidental harm to third parties.

■ Specifications Change

The names, specifications, appearance, and accessories of products in product catalogs and manuals may be changed at any time based on improvements and other reasons. The next editions of the revised catalogs or manuals will be published with updated code numbers. Consult with your Yaskawa representative to confirm the actual specifications before purchasing a product.

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Revision History

Overview of MPLOGGER

This chapter gives an overview of the main functions and module configuration of MPLOGGER.

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1.1 Main Functions

MPLOGGER is an add-in software for Microsoft Excel that enables data from external devices, such as controllers, to be displayed on a standard Excel spreadsheet. The data collected from controllers can be displayed in tables, used in calculations, or graphed using standard Excel functions.

MPLOGGER has two main functions, which can be selected from the special MPLOGGER Menu added to Excel. The basic operation of MPLOGGER is easy to follow because it is similar to the operation of Excel.

■ Monitoring Function

The **Monitoring Function** is a realtime display function that displays the memory contents of controllers connected to the PC, in Excel cells in the specified data format.

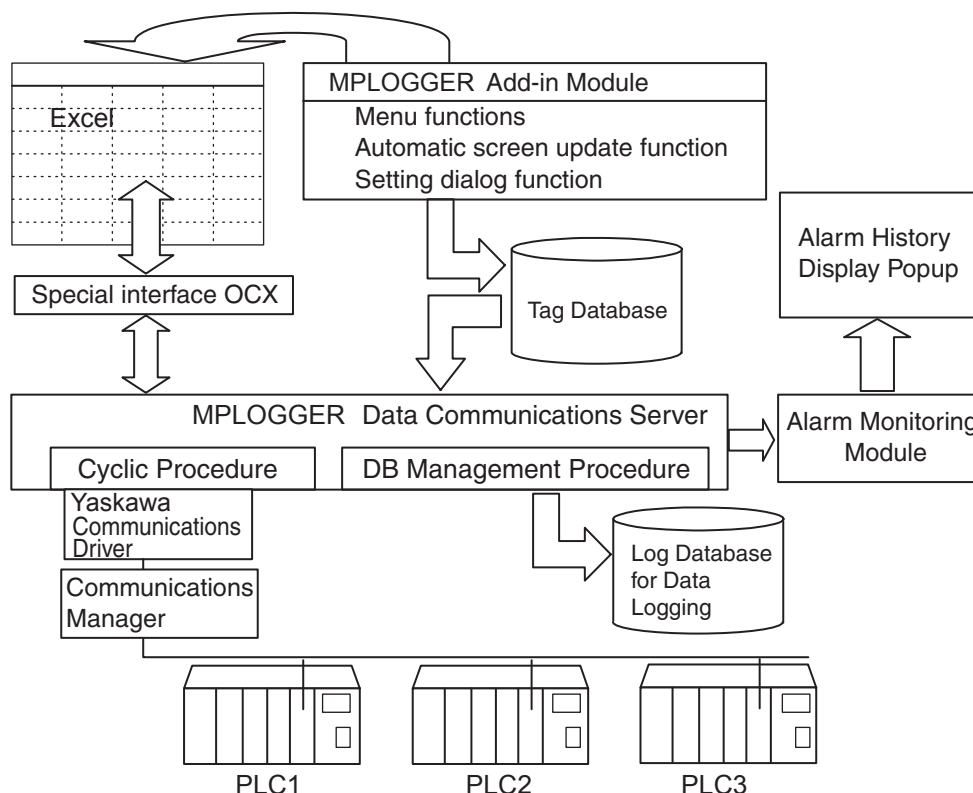
MPLOGGER uses a simple dialog to associate the Excel cells to specific controller addresses to display the data. The data displayed in the cells changes according to the controller address specified in arbitrary cell settings. The controller data displayed in the Excel cells can be manipulated using standard Excel functions, and can be easily converted into graphs or incorporated into calculations. It is also possible to write the data into the controllers.

■ Data Logging Function

The **Data Logging Function** collects controller data in designated groups at specified time intervals from the controller memory, and stores it in a Microsoft Access database file (MDB file). The stored data can be viewed and analyzed using Excel or Access. This function is useful for creating trend graphs or reporting periodic data on a daily or monthly basis.

1.2 Module Configuration

The following illustration shows the module configuration of MPLOGGER.



When MPLOGGER is started, Excel loads the MPLOGGER Add-in Module as a hidden workbook. Special MPLOGGER menus and dialogs are built into the Excel functions.

Any Controller link information in the cell settings is recorded in the Tag Database. The Add-in Module coordinates this task.

Communications with the Controller is carried out by an independent module called the MPLOGGER Data Communications Server. When the MPLOGGER is started, the server icon appears in the windows task bar. It uses a cyclic procedure to periodically collect the data defined by the Tag Database settings.

Part of the memory in the MPLOGGER Data Communications Server is dedicated to managing the current values of each tag. Each cell in Excel uses a special OCX to display the current values corresponding to the server memory. The MPLOGGER Data Communications Server also has a data logging function that collects and stores data in the Log Database for data logging at specified time intervals.

This software package includes supplementary functions, such as Alarm Monitoring and Alarm History Display Modules for communications errors.

System Requirements

This chapter outlines the minimum system requirements needed to run MPLOGGER effectively.

2.1 System Requirements	-----2-2
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2.1 System Requirements

MPLOGGER is an add-in software for Microsoft Excel that enables data from external devices, such as controllers, to be displayed on a standard Excel spreadsheet. The data collected from controllers can be displayed in tables, used in calculations, or graphed using standard Excel functions.

■ Hardware

Unit	Item	Specification
PC	CPU	Pentium II 233 MHz min.
	Memory	64 Mbyte min.
	HD Capacity	1 Gbyte min. available capacity if the logging function is used 100 Mbyte min. available capacity recommended if the logging function is not used
	Display	800 × 600 min. display capability
	CD-ROM Drive	At least 1 CD-ROM Drive (It can be a shared drive on a network.)
Pointing Device	Mouse	Required

■ Software

Software		Specification
Operating System	Supported Operating Systems	Windows 2000 (SP1 or later), Windows XP (SP2 or later), or Windows Vista
Application	Microsoft Excel	Excel 2000, Excel 2002, Excel 2003, or Excel 2007
	DAO (Microsoft)	Ver. 3.5
	CimScope	Ver. 0.34 or later (Yaskawa Communications Driver)
	MDAC	Ver. 2.8 or later

Note: Only the use of the Japanese version of MPLOGGER in a Japanese language environment (standard Japanese OS + Japanese version of Microsoft Office) and the English version of MPLOGGER in an English language environment (standard English OS + English version of Microsoft Office) are supported. The MPLOGGER will not operate correctly in any other system setup.

IMPORTANT

Depending on the security level settings in Excel, the use of macros or VBA code may be disabled. If necessary, reduce the Excel security settings before starting MPLOGGER.

When using Excel 2007

- Start the Option Display of Excel. Select *Trust Center - Trust Center Setting - Macro Settings*. Then change the macro setting to **Disable all macros** with notification.

When using Excel 2002/2003

- Select Macro Security from the Tools Menu, and set *Security Level* to *Medium*.
- Select the following two items on the **Trusted Publishers** Tab Page.

Trust all installed add-in softwares and templates

Trust access to Visual Basic Project

When using Excel 2000

- Select Macro Security from the Tools Menu, and set *Security Level* to *Medium*.
 - Select *Trust all installed add-in and templates* on the **Trusted Publishers** Tab Page.
-

Installation

This chapter explains how to install MPLOGGER. The following three programs must be installed for MPLOGGER to operate correctly. Install these programs in the following order.

1. CimScope: Yaskawa Communications Driver.
2. MDAC2.8 or higher: Microsoft Access Engine Includes ADO
(ActiveX Data Object)
3. MPLOGGER

If the installation of MPLOGGER is attempted before installing MDAC2.8 or higher, a message box will appear instructing you to install the ADO.

In addition, CimScope (the Communication Manager) must be installed to enable connection to controllers.

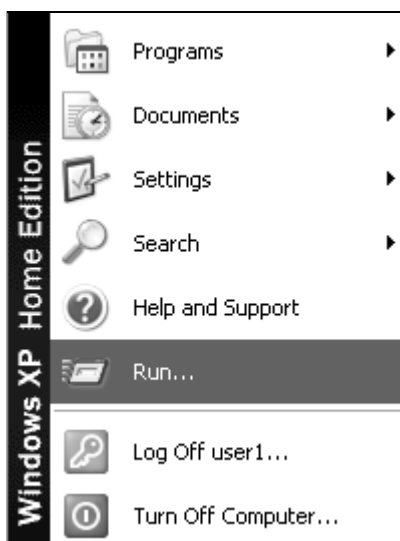
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3.1 CimScope Installation Procedure

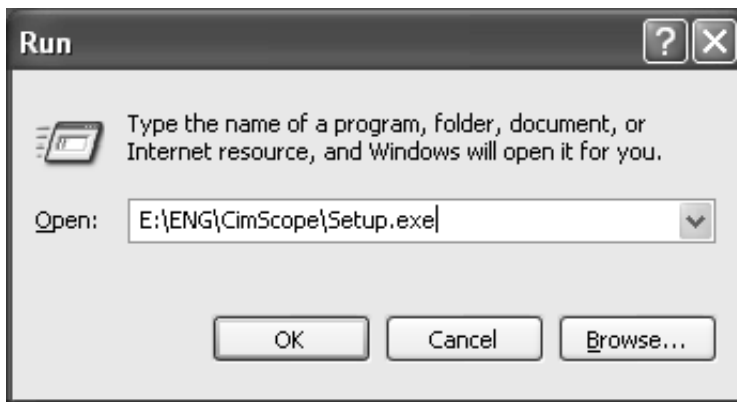
MPLOGGER uses a communications driver called CimScope (the Communication Manager) to communicate with the controllers. This is the first software that needs to be installed. The installation and setup procedure is as follows.

Once the installation has been completed using the Installer, refer to *Chapter 9 Communication Manager Settings* to set up the driver.

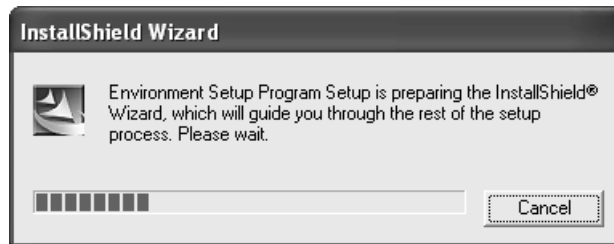
1. Turn ON the personal computer and start Windows.
If Windows is already running, close all open applications on your computer.
2. Insert the MPLOGGER setup CD-ROM into the CD-ROM drive.
3. Click the Windows **Start** Button and select **RUN...**



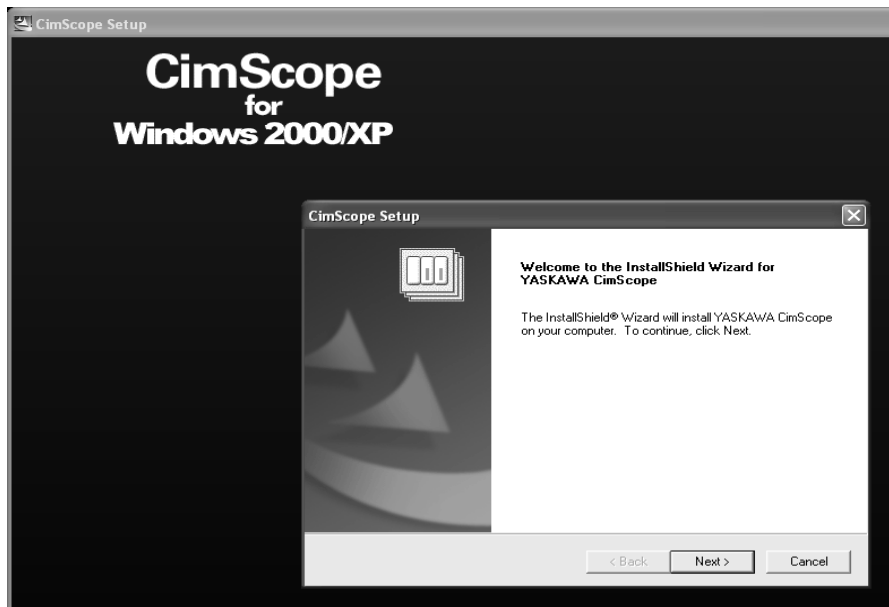
4. Wait until the **Run** Dialog Box is displayed. Enter the CD-ROM drive and the filename as shown below. Then click the **OK** Button. (In the example below, the CD-ROM drive is **E:.**)



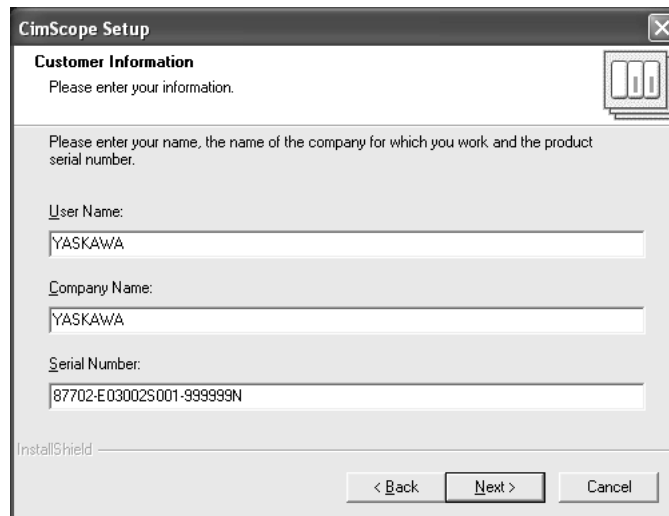
5. The installation program will start.



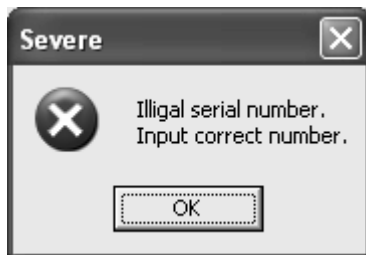
After the above message appears, the Installer will start and the following screen will appear. Click **Next**.



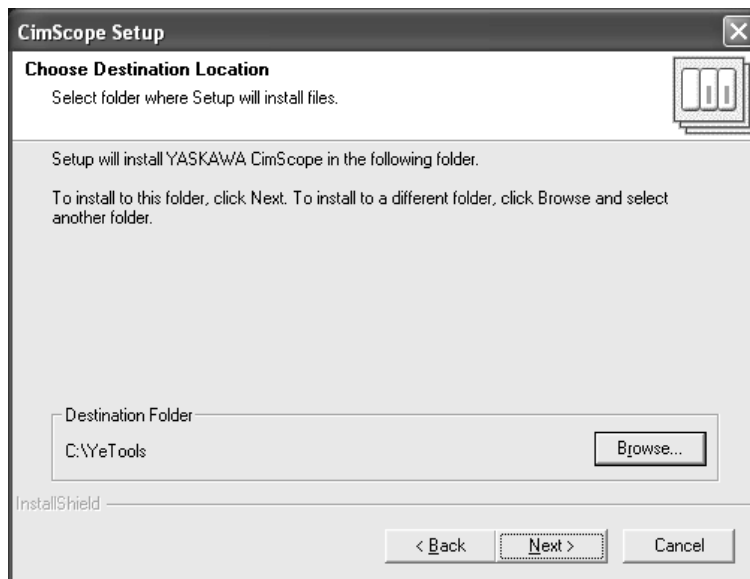
6. Enter the *User Name*, *Company Name*, and *Serial Number*, and then click **Next**. The serial number can be found on the CD-ROM case.



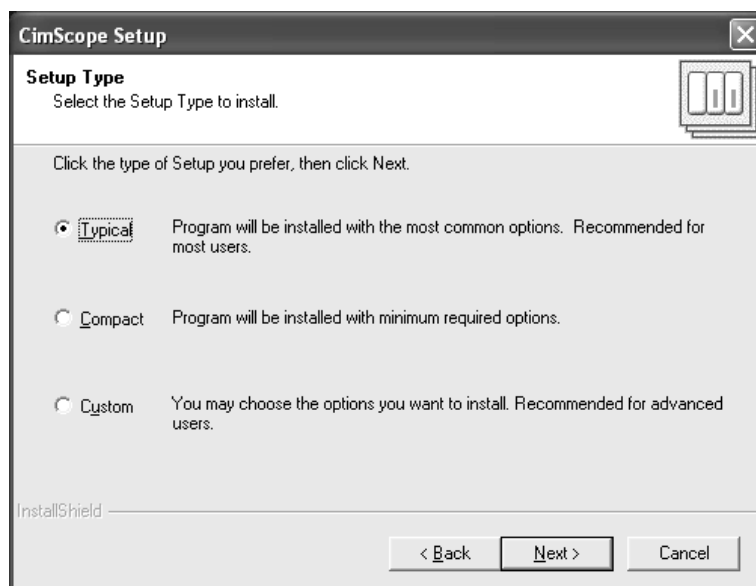
If the serial number is invalid, the following message will appear.



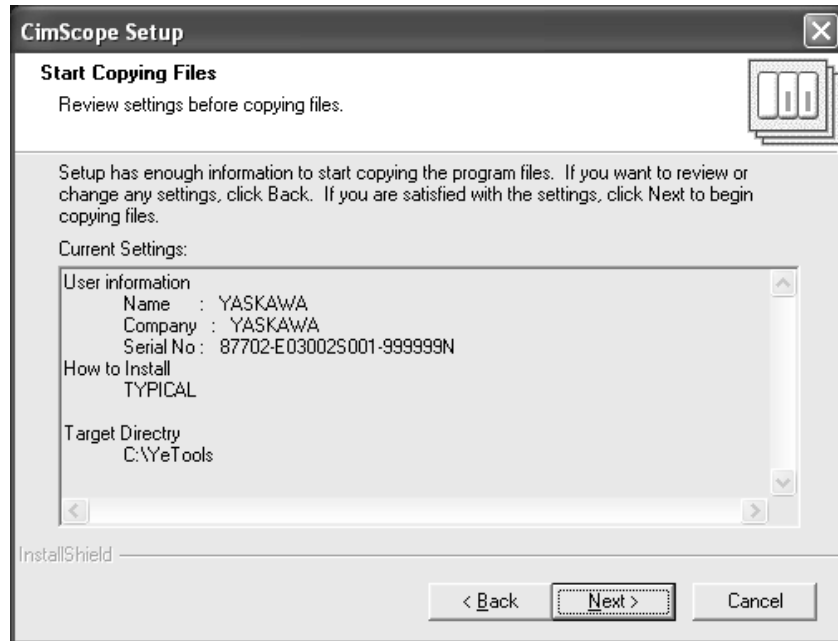
7. Specify the directory where CimScope is to be installed. Leave the default setting as is and click **Next**.



8. Select the *Setup Type*.
Leave the default setting as is and click the **Next**.

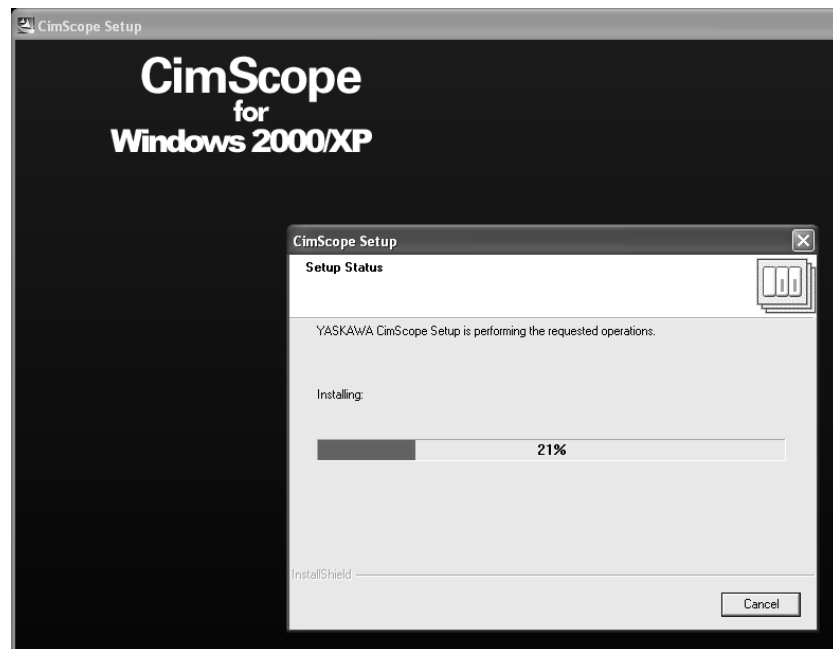


9. Check the installation settings, and then click **Next**.

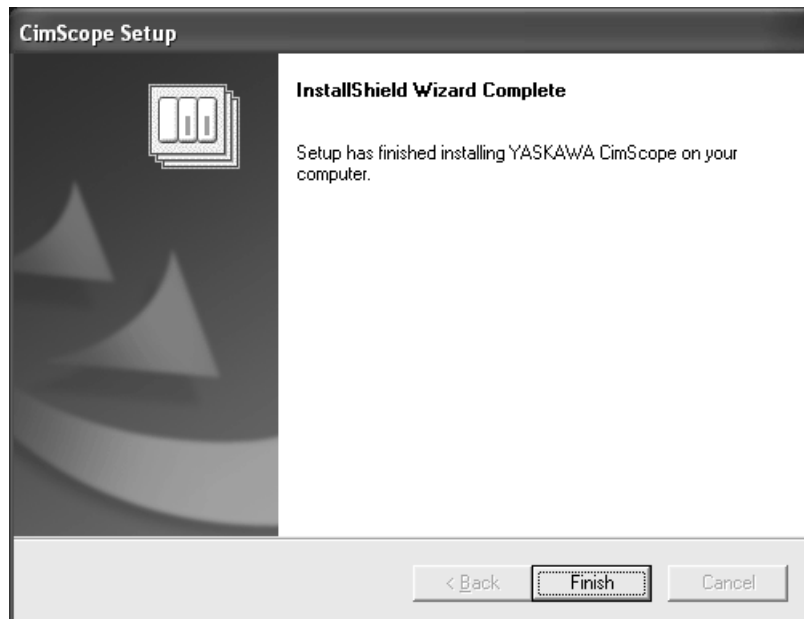


3

10. Installation will begin. The setup status will be shown on a progress bar in the dialog box.



11. When the Installer has completed the installation process, the following dialog box will appear to inform you that the setup has been finished. Click **Finish** to exit the program.

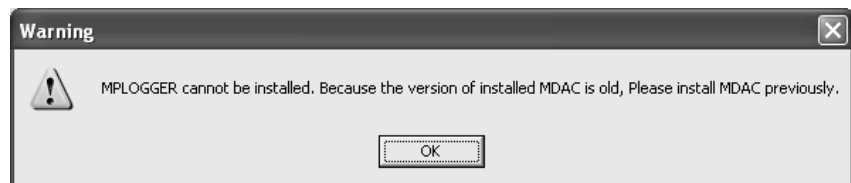


3.2 MPLOGGER Installation Procedure

The installation procedure for MPLOGGER is described below.

Use the MPLOGGER installation CD-ROM for this setup.

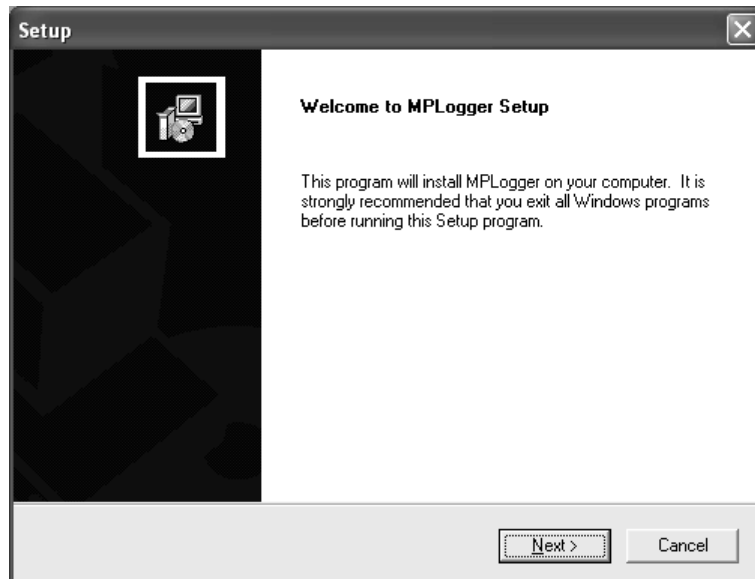
1. Turn on the personal computer and place the installation CD-ROM into the CD-ROM drive.
 - Close all open applications on your computer before inserting the CD-ROM.
 - If the MDAC (Microsoft Data Access Components) is not already installed, the following message will be displayed. If this occurs, install the MDAC first, then install MPLOGGER.



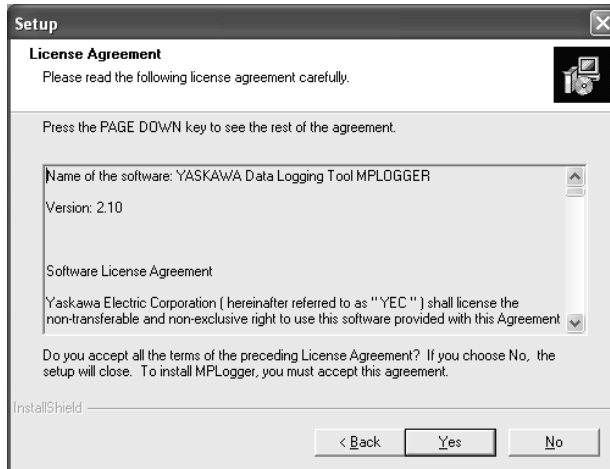
Because Windows XP Service Pack 2 and Windows Vista include functions equivalent to MDAC2.8, MDAC2.8 installation is not needed for Windows XP.

MPLOGGER Installer will start automatically. After the title window appears, the Installation Wizard will appear.

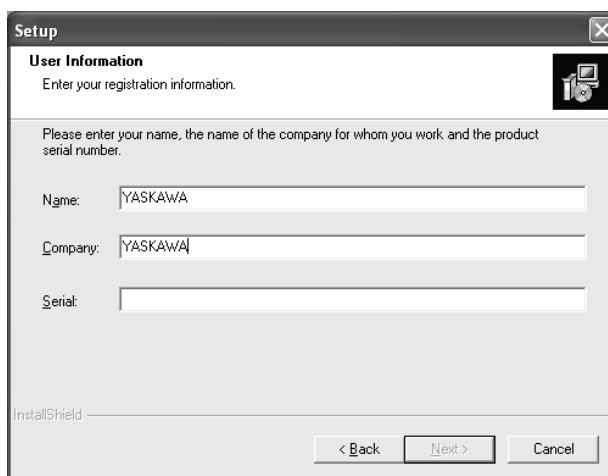
2. Click **Next**.



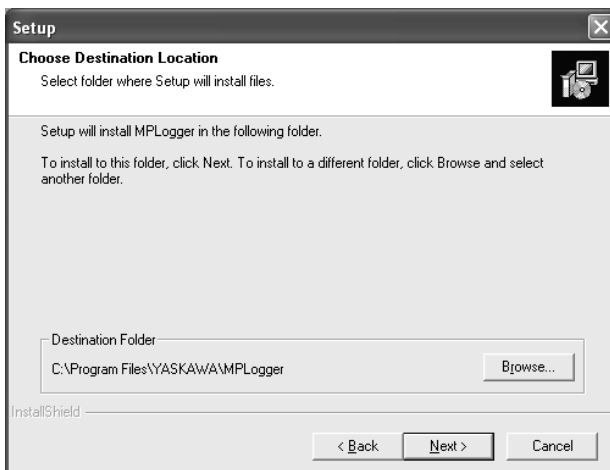
The License Agreement will be displayed.

3. Click **Yes**.

The **User Information** Dialog Box will be displayed.

4. Enter the *Name*, *Company*, and *Serial number*. Then click **Next**.

The **Choose Destination Location** Dialog Box will be displayed.

5. To install the application in the directory and folder shown, click **Next**. To select a different location, click **Browse** and select the desired folder before clicking **Next**.

The **Select Program Folder** Dialog Box will be displayed.

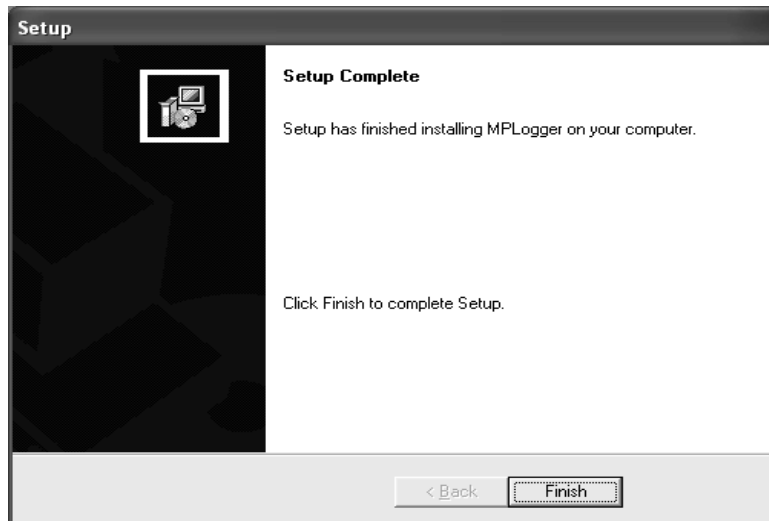
6. Click **Next**.



3

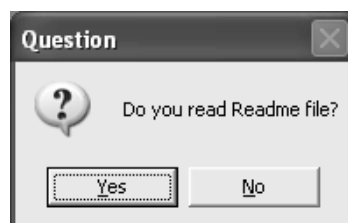
Installation will begin and the setup status will be displayed. When installation has been completed, the final dialog box will appear.

7. Click **Finish** to exit setup.



The Installation Wizard will close. MPLOGGER installation has been completed.

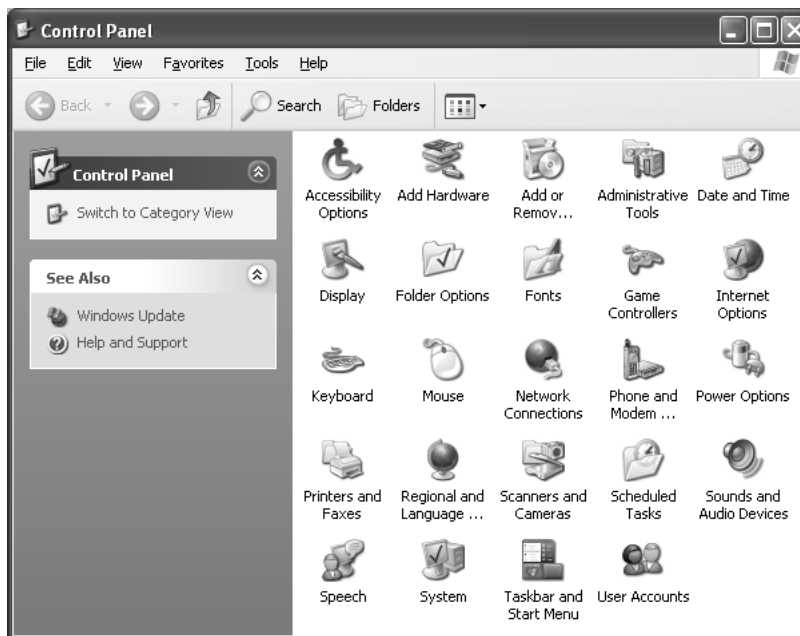
8. A message box will appear asking whether to display the ReadMe file. Click **Yes**.



3.3 Uninstalling MPLOGGER

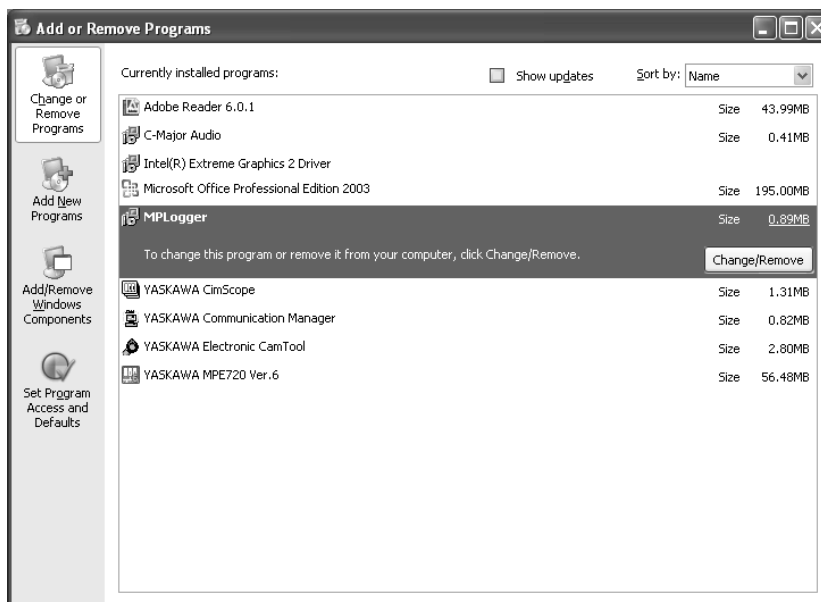
The following procedure can be used to uninstall MPLOGGER.

1. Close MPLOGGER. Click the Windows **Start** Button and select **Settings - Control Panel**.
2. Double-click the **Add or Remove Programs** Icon. (For Windows 2000, double-click the **Add or Remove Applications** Icon.)



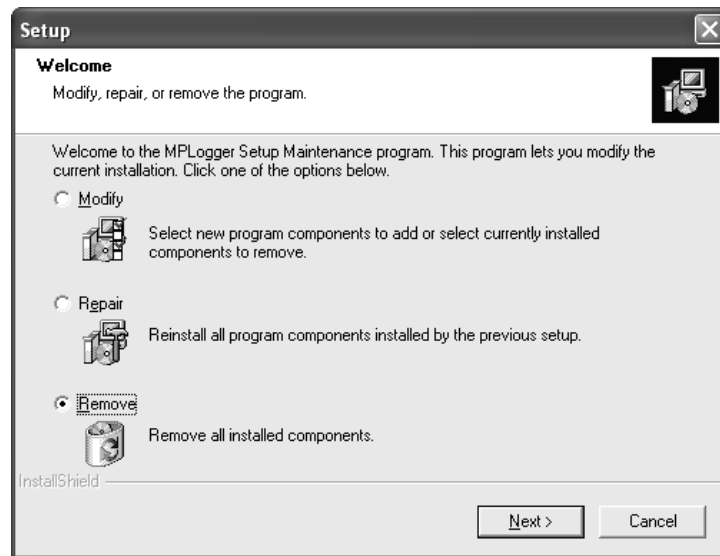
The **Add or Remove Programs** Dialog Box will be displayed.

3. Select **MPLOGGER** from the list of currently installed programs and click the **Change/Remove** Button.

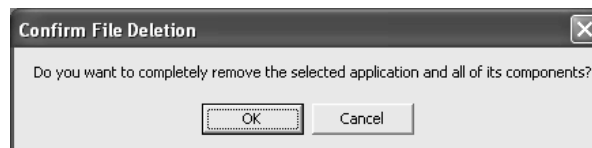


The **Setup** Dialog Box will be displayed.

4. Select *Remove* and click **Next**.

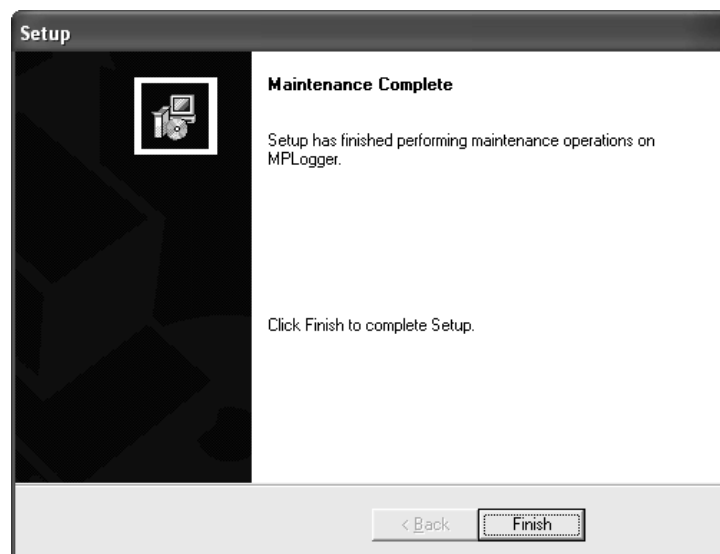


5. Click **OK**.



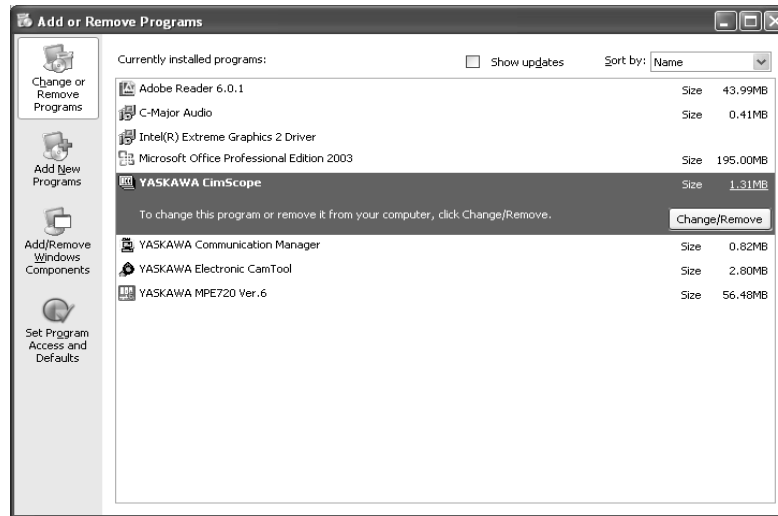
MPLOGGER uninstallation will start. The final dialog box will appear when the process is finished.

6. Click **Finish** to exit.



The display will return to the **Add or Remove Programs** Dialog Box.

7. Close the Control Panel by clicking on the **Close** Button shown below.



Basic Operation

This chapter gives step-by-step instructions on how to set up MPLOGGER and how to use it for daily operation.

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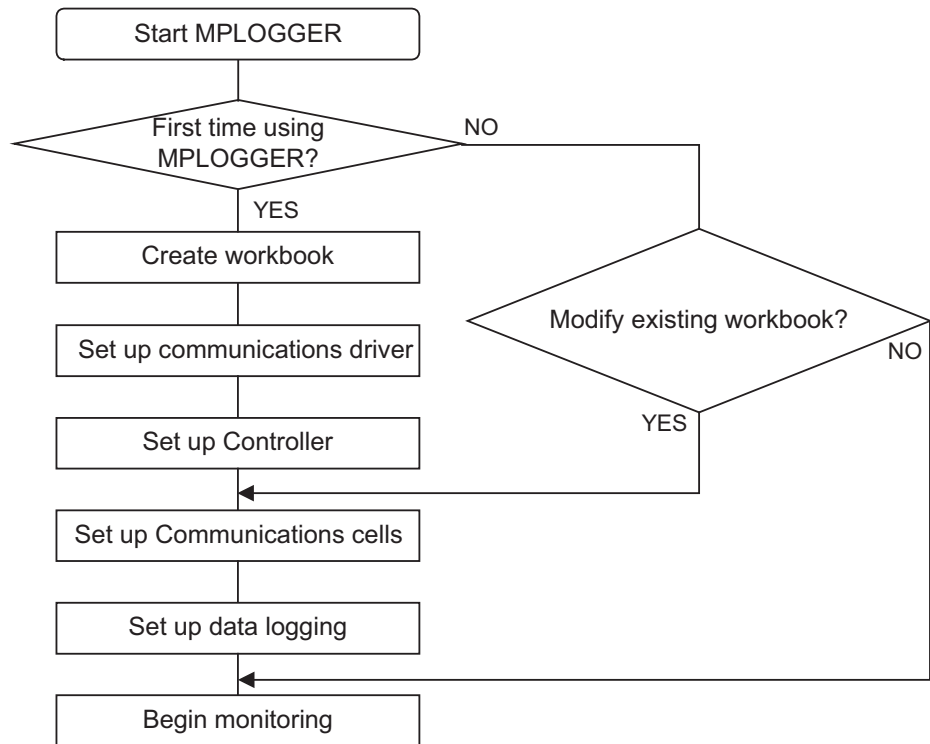
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4.1 Setup Flow Diagram

The following setup is required to operate MPLOGGER.

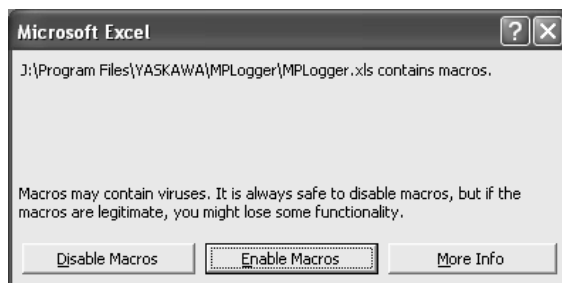


The following sections describe the above procedure in detail.

4.2 Starting MPLOGGER

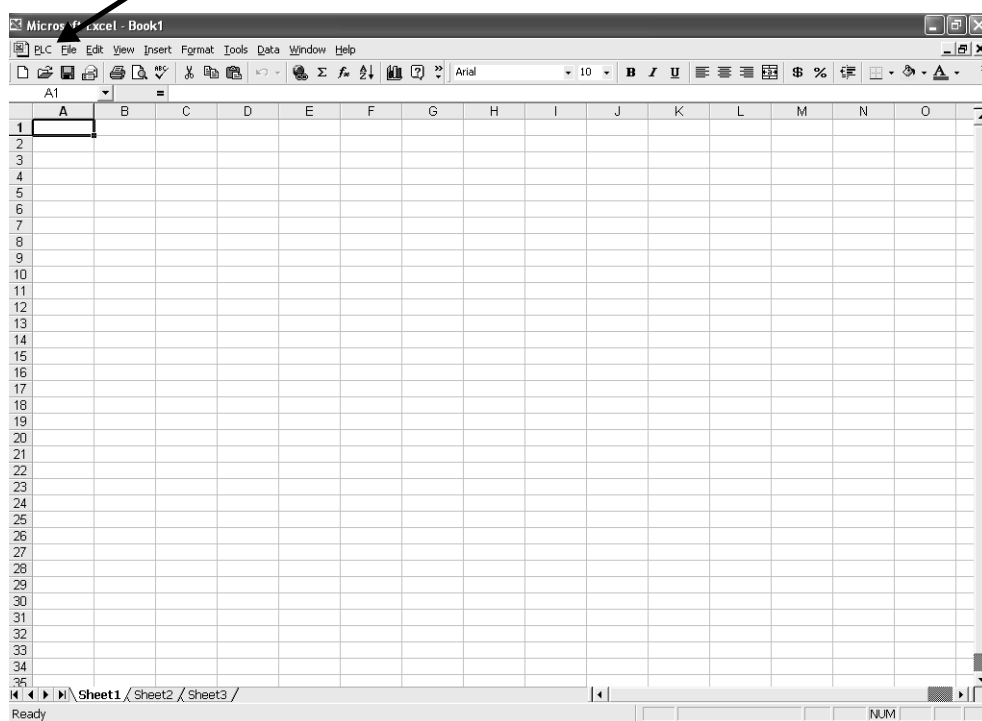
To start MPLOGGER, select **Program - MPLOGGER - MPLOGGER** from the Start Menu. Excel will launch.

The following warning message will be displayed because MPLOGGER uses Excel Macro to run. When this message is displayed, click the **Enable Macros** Button.



After a brief display of the title window, an Excel window will appear as shown below. Confirm that the **PLC** Menu has been added to the Menu bar.

The **PLC** Menu will be added.



If this is the first time using MPLOGGER, a standard Excel workbook will be opened.

If the **PLC** Menu does not appear as shown above or if there is an error when starting the application, refer to *Chapter 8 FAQ* and check the installation procedure.



The PLC Menu is on the **Add-Ins** Menu in Excel 2007.



-
- The MPLOGGER application consists of an Excel file (.xls) and Microsoft Access MDB files (.mdb).
 - To run MPLOGGER, the three files `***.xls`, `***.mdb`, and `***Log.mdb` must be in the same folder. These three files must also have the same names.
-

4.3 Creating a New Workbook

MPLOGGER uses a Microsoft Excel platform and runs from a special workbook. The workbook contains MPLOGGER VBA objects, although it appears the same as a normal workbook. To construct a monitoring system using MPLOGGER, you must create a special workbook for MPLOGGER. This can be done in two ways, either by creating a new workbook, or by copying an existing workbook and modifying it.

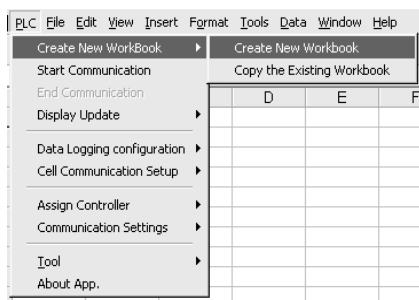


- Unless it is the first time MPLOGGER is being used, the workbook that was most recently used will open automatically when MPLOGGER is started to enable immediate operation.
- Depending on the controller that is connected, multiple workbooks may be required. For example, MPLOGGER could be installed on a laptop that can connect to a variety of controllers, each requiring a unique workbook. The user would switch between the workbooks depending on the work that is being done. To open a special workbook under these circumstances, select **File - Open** from the standard Excel menus.

4.3.1 Creating a Blank Workbook

Use the following procedure to create a blank workbook.

1. Select **Create New WorkBook - Create New Workbook** from **PLC** Menu.



2. The **Create New Monitoring Workbook** Dialog Box will be displayed.



Specify the save folder and file name. Then click the **Save** Button.

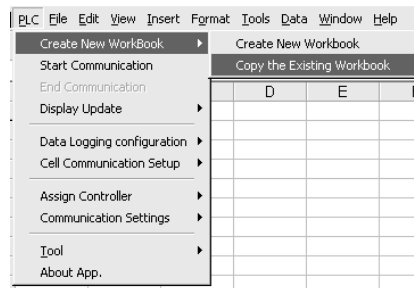
A new workbook for monitoring will be displayed. The first row in the Excel sheet is reserved for displaying the communications and operating status.

4.3.2 Copying an Existing Workbook

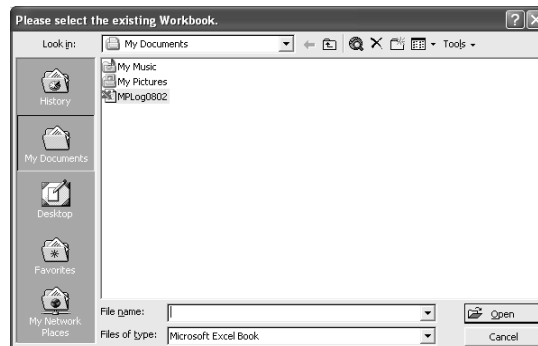
An existing workbook can be copied and saved as a separate workbook. This is useful if you want to modify an existing workbook to create a new workbook, or if you want to modify the layout of the monitoring display without changing the tag or data logging settings.

The Excel menu command **File - Save As** will save only the workbook information and not the tag database or other settings.

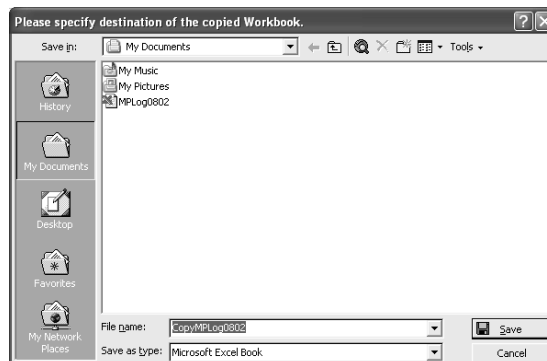
1. Select **Create New Workbook - Copy the Existing Workbook** from the **PLC** Menu.



2. The **Please select the existing Workbook** Dialog Box will be displayed. Select the workbook to be copied.



3. The **Please specify destination of the copied Workbook** Dialog Box will be displayed. Specify the save location and filename. Then click the **Save** Button.



4. The existing workbook will be saved under a new name.
The tag database information will also be copied to the new workbook, so MPLOGGER can be used immediately. The new workbook can be modified, e.g., to add new tags or remove unnecessary cell settings.

4.4 Opening Existing Workbooks

If starting MPLOGGER, the active workbook is opened. So, monitoring, logging, and editing can be done without specifying the workbook.

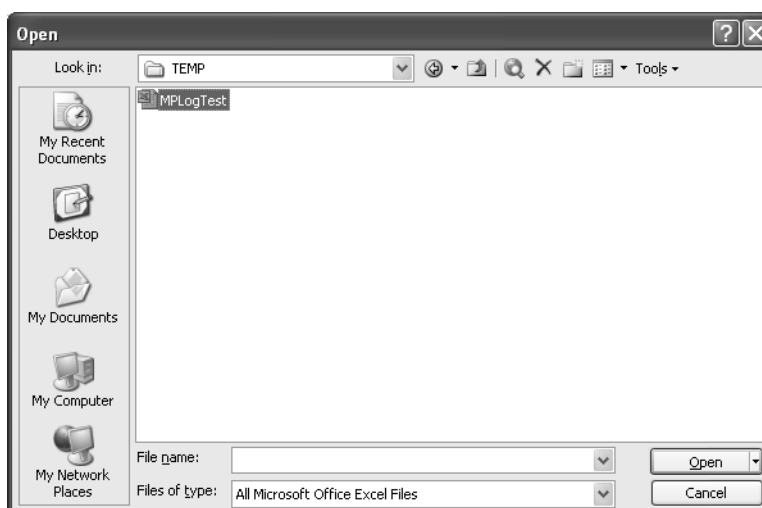
If all workbooks for MPLOGGER are closed or MPLOGGER is closed when the workbook that is not for MPLOGGER is opened, however, MPLOGGER cannot open the workbook that is used last time.

Thus, users have to open the workbooks for monitoring, logging, and editing.

Also, if several workbooks are used, user has to open the existing workbook.

Use the following procedure to open existing workbooks.

1. Start the MPLOGGER.
2. Select **File - Open**.
3. **Open** Dialog Box will appear.



4. Specify the folder and workbook, and click **Open**.

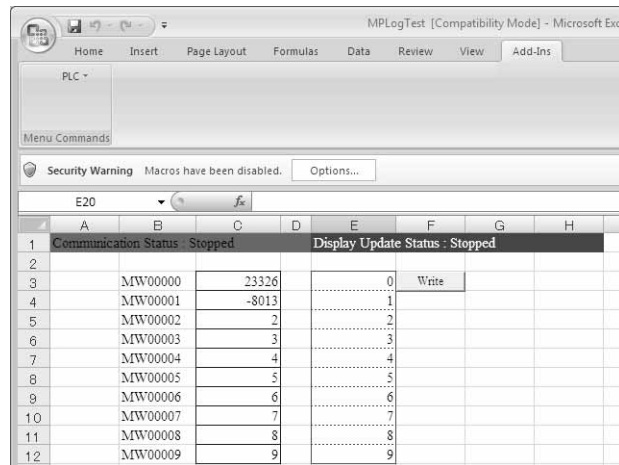
The MPLOGGER workbook includes macros, so the following warning message will appear.

Select **Enable Macros**.





- If an MPLOGGER workbook is opened without starting MPLOGGER, Excel files will open but the PLC Menu will not appear and MPLOGGER cannot be used. Be sure to start MPLOGGER first, and then open the MPLOGGER workbook.
- If a file that includes macros is opened in Excel 2007, the macro is disabled. Use the following procedure to enable macros.
If an MPLOGGER workbook is opened, a **Security Warning** on the message bar will appear.



Click the **Options** Button on the message bar, and **Microsoft Office Security Options** Dialog Box will appear.



Select **Enable this content**, and click **OK**.

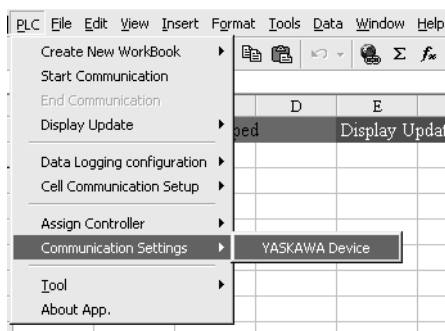
Every time an MPLOGGER workbook is opened, it must be approved.

4.5 Communications Driver Settings

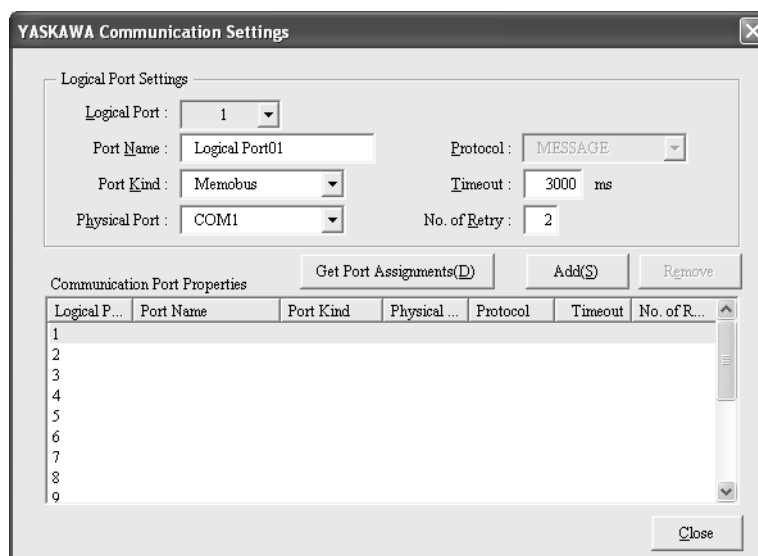
When a new workbook is created, the first task is to set up the communications driver. The communications driver settings include the communication manager logical port specifications, number of communications retry setting, and timeout time setting.

4.5.1 Communication Setting Dialog Box

1. Select **PLC - Communication Settings - YASKAWA Device**.



2. The **YASKAWA Communication Settings** Dialog Box will be displayed.



3. Select a logical port (1 to 16) from the *Communication Port Properties* List in the dialog box. The corresponding parameters will be displayed in the *Logical Port Settings* Area above it. The logical port properties displayed in this dialog box must be the same as the logical port information defined when CimScope was installed. The best way to ensure this is by clicking the **Get Port Assignments** Button and deleting any unnecessary logical ports the Communication Manager settings have been loaded. (Refer to *step 6*.) Clicking the **Get Port Assignments** Button will delete the previous setting information. Multiple logical ports can be used simultaneously when using MPLOGGER. For example, by assigning 32 controllers each to logical port 1 and 2, up to 64 controllers can be monitored simultaneously.

4. Select a desired Communications Port and set the parameters in the Logical Port Settings section of the dialog box.

Description of Parameters

- Port Name

Indicates the communications path. The port name can be up to 20 characters long.

- Port Kind

Select either Memobus or CP-218.

(If the **Get Port Assignments** Button is clicked, this setting is not required.)

- Physical Port

This setting is required if the port kind is set to Memobus. Select the serial port actually used for communications.

Select from COM1 to COM16.

(If the **Get Port Assignments** Button is clicked, this setting is not required.)

- Protocol

Cannot be set. (Applicable only for sending messages.)

- Timeout

Specifies the maximum length of time to wait for a response after sending a command. If there is no response within this time frame, a communications error will occur. The default setting is 3 seconds.

- No. of Retries

Specifies the number of times to attempt to establish communications again when a communications error occurs. The default setting is 2.

5. When all parameters have been entered, click the **Add** Button. The settings will be saved and the information will be displayed in the *Communication Port Properties* List of the dialog box.
6. To delete the driver assignments of redundant communications ports, select the communications port from the *Communication Port Properties* List and click the **Remove** Button. A confirmation message will be displayed and the assignments will be deleted.



The following must be considered when setting the timeout function.

If the timeout is too short for the system configuration, a communications error may occur before all the data is transferred. The timeout setting must be set to approximately three times the length of the actual cycle time.

For more information on the actual cycle time, refer to 5.3.2 *Server Menu*.

4.6 Controller Settings

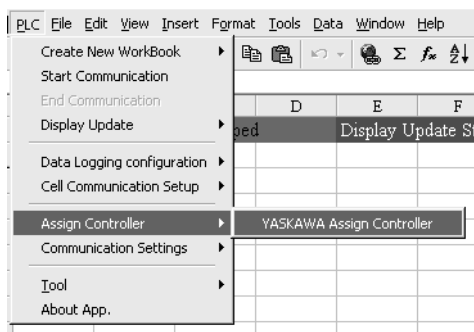
Once the communications driver has been set up, continue with the controller settings.

The controller settings are used to register the controllers connected to each communications driver port. Names can be assigned to each controller.

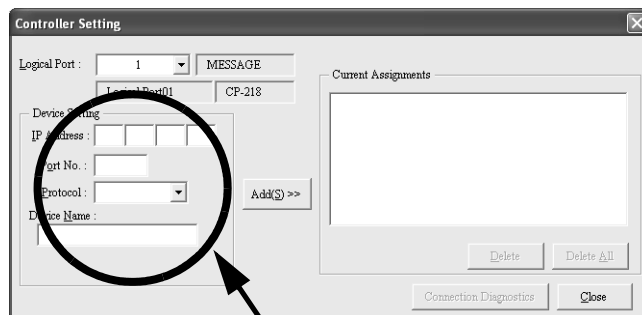
Use the connection diagnosis function to check the controller connection status. For details, refer to 4.6.2 *Connection Diagnosis*.

4.6.1 Controller Setting Dialog Box

1. Select **PLC - Assign Controller - YASKAWA Assign Controller**.



2. The **Controller Setting** Dialog Box will be displayed.



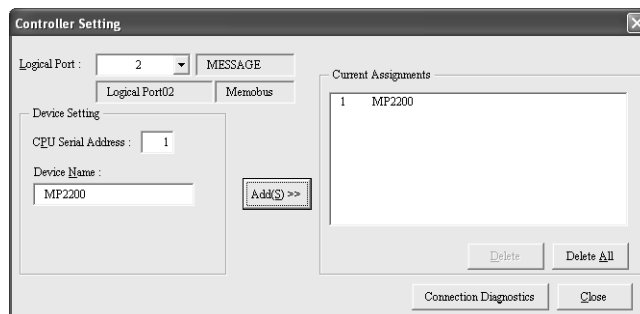
This section depends on the selected communications

3. Registering the controller.

The selected logical port defines the parameters displayed in the section circled in the above dialog box. Click the **Add** Button to add it to the *Current Assignments* List on the right. When all the controllers have been registered, click the **Close** Button to close the dialog box.

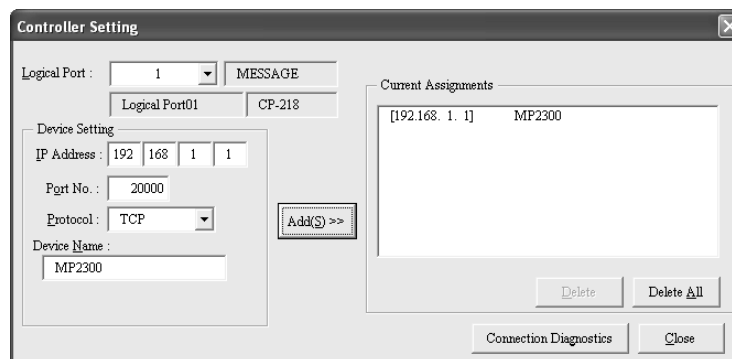
The *Logical Port* Pull-down List lists only ports that were assigned to a driver in 4.5.1 *Communication Setting Dialog Box*.

a) Controller Setting Dialog Box for Memobus



Specify the CPU serial address (Machine No.) of the controller corresponding to the selected port. The CPU serial address can be anything from 1 to 63. It must match the communications settings in the Communications Module of the controller. Each controller can be assigned a device name. The device name can be up to 20 characters long.

b) Controller Setting Dialog Box for CP-218



Specify the IP address of the controller corresponding to the selected port.

Also, specify the port number to be used.

Specify the protocol to be used. (Select from TCP or UDP.) The above settings must match the communications settings of the Communications Module of the controller. Each controller can be assigned a device name. The device name can be up to 20 characters long.

4. Deleting controllers.

A controller that is no longer required can be deleted by selecting it from the *Current Assignments* List Box on the right and then clicking the **Delete** Button.

A confirmation message will appear and the controller will be deleted.

To delete all controllers at once, click the **Delete All** Button. A confirmation message will be displayed and the controllers are deleted.



When a controller is deleted, its corresponding cell settings and data logging settings will be automatically deleted.

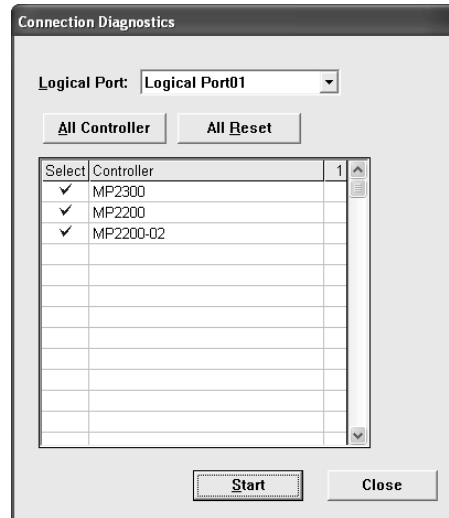
IMPORTANT

Make sure that the controllers are registered correctly. For example, if the CPU serial address is different to the actual controller, it will result in a communications error. The number of retries for communications error will increase and significantly slow down overall performance.

4.6.2 Connection Diagnosis

A connection diagnosis function is provided to check whether the connections between the PC and registered controllers are correct.

1. Click the **Connection Diagnosis** Button in the **Controller Setting** Dialog Box. The following dialog box will be displayed, showing the registered controller information.



Select a logical port from the pull-down list.

Next, select the device names. The default device names will already be selected.

Select	Controller
✓	MP2300
✓	MP2200
✓	MP2200-02

Double-click or highlight the cell and press the **Space** Key to select and de-select a controller. When the controller is selected, a check mark ✓ will be displayed.

2. Click the **Start** Button.

The connection status will be checked for the selected controllers.

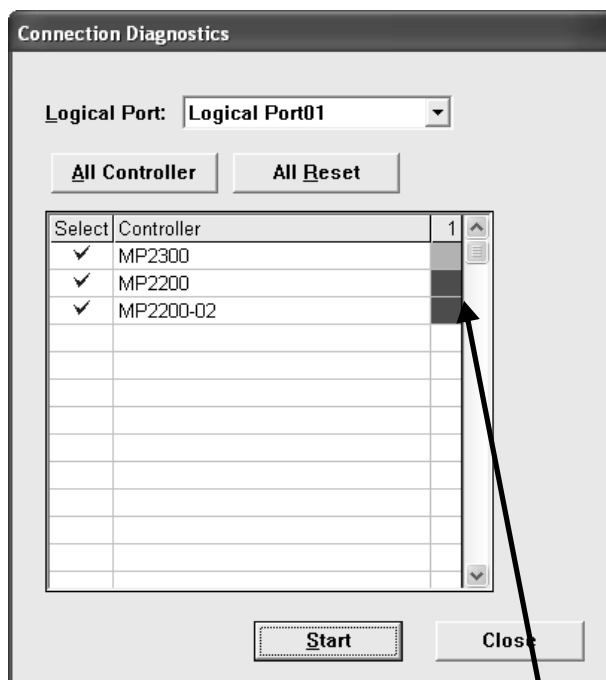
In some cases, the status check may take some time. If this is the case, a dialog box will appear so that you can see which controller is being checked.

Clicking the **Stop** Button will cancel the status check.



3. Connection Status Display.

When the connection diagnosis is finished, the status results will be displayed in the cells on the right. If the connection is normal, the cell will be blue, and if there is a connection error, the cell will be red.



The connection status is displayed here.

If the cell is red, it indicates that there is something preventing communications with the controller. Check that the controller settings and cable connections are correct.

When the problem is found and fixed, click the **Start** Button again to restart the connection diagnosis process. Communications errors affect the overall performance significantly, so it is important to make sure that all connections are working properly.

When finished, close the dialog box by clicking the **Close** Button.



If using a MP920-series controller with a multi-CPU setting, the connection status will be diagnosed as being valid if at least one CPU is set correctly.

4.7 Communications Cell Settings

This section describes how to set up the communications cells for monitoring.

Setting up the Excel workbook cells with the MPLOGGER cell setting function will enable the display of the current value of the controller memory content and allow you to set the values that are written in the cells to the controller.

The cell setting function can be used to create workbooks like the one shown below.

The screenshot shows a Microsoft Excel window titled "Microsoft Excel - MPLog0802". The spreadsheet contains two main sections: "Communication Status" and "Display Update Status".

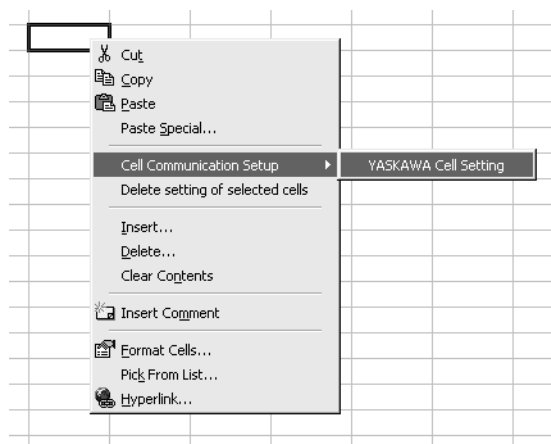
Communication Status				Display Update Status			
Address	Value	Unit	Write	Address	Value	Unit	Write
MW01000	0	Word(signed)		MB020000	0	Boolean	
MW01001	0			MB020001	0		
MW01002	0			MB020002	0		
MW01003	0			MB020003	0		
MW01004	240			MB020004	1		
MW01005	-15			MB020005	0		
MW01006	4095			MB020006	0		
MW01007	-4095			MB020007	0		
MW01008	32767			MB020008	0		
MW01009	-32768			MB020009	1		
MW01010	0			MB02000A	1		
MW01011	0			MB02000B	1		
MW01012	0			MB02000C	0		
MW01013	250			MB02000D	0		
MW01014	0			MB02000E	0		
MW01015	0			MB02000F	1		

4.7.1 Setting Communications Cells

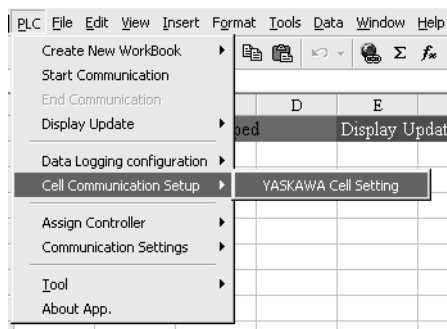
Any cells in the monitoring workbook can be set for communications. Cell settings can be made on multiple sheets as well. Determine the layout for the monitoring window on the Excel spreadsheet.

For information on the layout, refer to *Chapter 5 Application*.

Right-click the cell and select **Cell Communication Setup - YASKAWA Cell Setting** from the pop-up menu.



The same function can be selected from the menu bar by selecting **PLC - Cell Communications Setup - YASKAWA Cell Setting**.

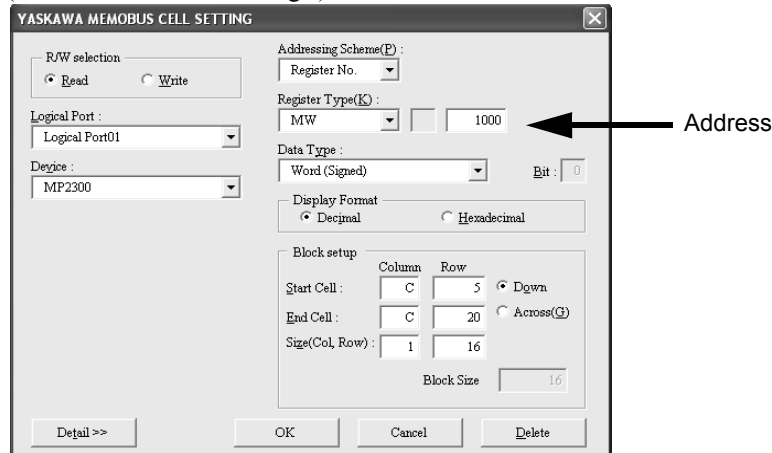


Selecting **YASKAWA Cell Setting** displays the **Cell Setting** Dialog Box.

The actual setup of parameters is described in the following section.

4.7.2 Read Cells

Right-click the cell and select **Cell Communications Setup - YASKAWA Cell Setting** from the pop-up. The a dialog box to set a communications cell will be displayed as shown below. (Shown with default settings.)



The values that are displayed in the dialog box are the previously set values.

1. Check that the *R/W selection* Option is set to *Read*.
2. Set the cell settings so that the desired controller data can be read.
3. When the settings have been completed, click the **OK** Button.
4. The dialog box will close and the cell setting will be saved.
5. If the address setting is incorrect, a message box will appear.
6. Cells that are set to read data will be outlined.

- Logical Port

Select the logical port that connects to the desired controller. Select it from the *Communications Ports* List in the communications driver settings.

- Device

The device name that was assigned in the controller settings will be displayed here.

- CPU No.

The CPU number can be specified by clicking the **Detail** Button. If the MP920 or CP-9200SH is used in a multi-CPU environment, use CPU number 1 or 2. Other controllers should be set to 1.

- Addressing Scheme

Specifies the addressing scheme.

Register Number and *Reference Number* can be selected. The register type and address settings depend on the addressing scheme.

- Register Type

Select the desired register type of the controller. It can be chosen from MB, MW, ML, MF, IB, IW, IL, and IF.

- Address

Specifies the address within each register type.

The range of addresses that can be used depends on the controller. Refer to *6.2 Supported CPU Types and Register Types*.

If the register type is MB or IB, the bit number must be added to end of the address when specifying register numbers.

Example: 001B



Note: If the register type is IB, IW, IL, or IF, the address must be written as a decimal number.

- Data Type

Specifies the data format of data in the controller.

For information on data types, refer to *6.3 Supported Data Formats*.

- Bit

If a Bit-type register (MB or IB) has been selected, bit numbers that were entered in the address will be displayed.

Bit numbers will be displayed in hexadecimal characters from 0 to F.

- Display Format

The controller values can be displayed in the cells as decimal or hexadecimal numbers.

- Block Setup

Start/End Cell: Specifies the start and end position for a block of cells that are set up using the block setup function. When the start and end cells are entered, the column and row size will be automatically adjusted.

Down/Across: Specifies the block setting direction as down or across from the selected cell.

Size (Col, Row): Indicates the number of cells from the start to end cell. If the start cell and the size are entered, the end cell will automatically be updated.

Block Size: Specifies the number of cells to be selected from the current cell in the direction specified (down or across).

7. Block Setup Function

When reading multiple data items from a controller, each data item must be associated with a cell specified by the cell settings. If the data items have consecutive addresses, the cells can be set up in blocks using the block setup function.

The block setup function automatically selects a block of cells starting from the start cell in the direction specified (down or across) before the **Cell Setting** Dialog Box is displayed. The addresses assigned to cells increase in increments according to the type of data contained in the address. For single-words, addresses are incremented by one, and

for double-words, the addresses are incremented by two.

If the data type is BOOL, the bit number is incremented instead of the address. When the bit number exceeds F, the address is automatically incremented.

If a block number is specified, the block setup function selects the cells based on the specified block number.

If the cell block is selected by dragging the cursor in Excel before the **Cell Setting** Dialog Box is opened, the start and end cells will be determined according to the selected area. The column and row size will also be automatically determined.

◀ **EXAMPLE** ▶

■ **Block Setup**

If cells from A4 to C5 are selected with the register set to MW1000 and a block size of 3 set to expand to the right, the following addresses will be assigned to each cell.

	A	B	C
1	Communication Status : Stopped		
2			
3			
4	MW01000	MW01001	MW01002
5	MW01003	MW01004	MW01005
6			

The addresses are incremented to the right.

If cells from A4 to C5 are selected with the register set to MW1000 and a block size of 2 set to expand downward, the following addresses will be assigned to each cell.

	A	B	C
1	Communication Status : Stopped		
2			
3			
4	MW01000	MW01002	MW01004
5	MW01001	MW01003	MW01005
6			

The addresses are incremented to the downward.

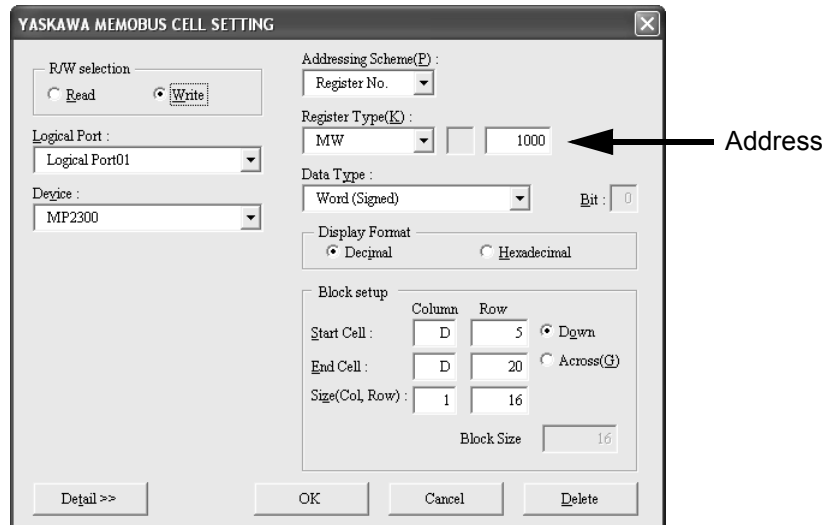
The cell settings give priority to the block size over the selected area. If cells from A4 to C5 are selected with the register set to MW1000 and a block size of 5 set to expand downward, the actual cell setting will be from A4 to C8.



- To modify the settings for cells that have already been set, such as to change the register type or the reference number, right-click the desired cell to open the **Cell Setting** Dialog Box. The current settings will be displayed in the dialog box. Make the desired changes and click the **OK** Button to save them. Only one cell can be modified at a time.
- **Deleting a Cell with Settings**
Select the cell that you want to delete, and then open the **Cell Setting** Dialog Box. The current cell settings will be displayed. Check the content and click the **Delete** Button.
To delete multiple cells at the same time, right-click the desired cells and select **Delete Setting of Selected Cells** from the pop-up menu.
- Changing the data format to hexadecimal will convert the display format to text. Be careful because most Excel calculation functions do not support data in hexadecimal format.

4.7.3 Write Cells

Right-click the desired cell and select **Cell Communications Setup - YASKAWA Cell Setting** from the pop-up menu. The **Cell Setting** Dialog Box will be displayed as shown below. (Shown with default settings.)



The values that are displayed in the dialog box are the previously set values.

1. Check that the *R/W selection* Option is set to *Write*.
2. Set the cell settings so that the desired controller data can be written.
3. When the settings have been completed, click the **OK** Button.
4. The dialog box will close and the cell setting will be saved.
5. If the address setting is incorrect, a message box will appear.
6. Cells that are set to write data will be outlined, and a **Write** Button will be added next to the cell.

- Logical Port

Select the logical port that connects to the desired controller from the *Communications Ports* List in the communications driver settings.

- Device

Select the desired controller.

The device name that was assigned in the controller settings will be displayed here.

- CPU No.

The CPU number can be specified by clicking the **Detail** Button. If the MP920 or CP-9200SH is used in a multi-CPU environment, use CPU number 1 or 2. Other controllers should be set to 1.

- Addressing Scheme

Specifies the addressing scheme.

Register Number and *Reference Number* can be selected. The register type and address depend on the addressing scheme.

- Register Type

Select the desired register type of the controller. It can be chosen from MB, MW, ML, MF, IB, IW, IL, and IF.

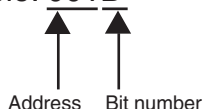
- Address

Specifies the address within each register type.

The range of addresses that can be used depends on the controller. Refer to 6.2 *Supported CPU Types and Register Types*.

If the register type is MB or IB, the bit number must be added to end of the address when specifying register numbers.

Example: 001B



Note: If the register type is IB, IW, IL, or IF, the address must be written as a decimal number.

- Data Type

Specifies the data format of data in the controller.

For information on data types, refer to 6.3 *Supported Data Formats*.

- Bit

If a Bit-type register (MB or IB) has been selected, bit numbers that were entered in the address will be displayed.

Bit numbers will be displayed in hexadecimal characters from 0 to F.

- Display Format

The controller data can be displayed in the cells as decimal or hexadecimal numbers.

- Block Setup

Start/End Cell: Specifies the start and end position for a block of cells that are set up using the block setup function. When the start and end cells are entered, the column and row size will be automatically adjusted.

Down/Across: Specifies the block setup direction as down or across from the selected cell.

Size (Col, Row): Indicates the number of cells from the start to end cell. If the start cell and the size are entered, the end cell will automatically be updated.

Block Size: Specifies the number of cells to be selected from the current cell in the direction specified (down or across).

7. Block Setup Function

When writing multiple data items from a controller, each data item must be associated with a cell specified by the cell settings. If the data items have consecutive addresses, the cells can be setup in blocks using the block setup function.

The block setup function automatically selects a block of cells starting from the start cell in the direction specified (down or across) before the **Cell Setting** Dialog Box is displayed. The addresses assigned to cells increase in increments according to the type of data contained in the address. For single-words, addresses are incremented by one, and for double-words, the addresses are incremented by two.

If the data type is BOOL, the bit number is incremented instead of the address. When the bit number exceeds F, the address is automatically incremented.

If a block number is specified, the block setup function selects the cells based on the specified block number.

If the block of cells are selected by dragging the cursor in Excel before opening the **Cell Setting** Dialog Box, the start and end cells will be determined according to the selected area. The column and row size will also be automatically determined.

◀ EXAMPLE ▶

■ Block Setup

If cells from A4 to C5 are selected with the register set to MW1000 and a block size of 3 set to expand to the right, the following addresses will be assigned to each cell.

	A	B	C	D	
1	Communication Status : Stopped				Dis
2					
3					
4	MW01000	MW01001	MW01002	Write	
5	MW01003	MW01004	MW01005		
6					

The addresses are incremented to the right.

If cells from A4 to C5 are selected with the register set to MW1000 and a block size of 2 set to expand downward, the following addresses will be assigned to each cell.

	A	B	C	D	
1	Communication Status : Stopped				Dis
2					
3					
4	MW01000	MW01002	MW01004	Write	
5	MW01001	MW01003	MW01005		
6					

The addresses are incremented downward.

The cell settings give priority to the block size over the selected area. If cells from A4 to C5 are selected with the register set to MW1000 and a block size of 5 set to expand downward, the actual cell setting will be from A4 to C8.



- The block setup function is not only an efficient way to set up write cells, but it also affects the communications performance.
Cells that have been set up to write to the controller using the block setup function will attempt to send all the data when the **Write** Button is clicked. If there is too much data, one transfer command may not be enough to process all the data. If this occurs, the data will be divided into a number of groups and transferred using as many commands as needed. If each cell is set up individually instead of using the block setup function, a data write command will be sent for each cell, significantly slowing the performance. With individual settings, the concurrency of data may also be lost.
 - To modify the settings for cells that have already been set up, such as to change the register type or the reference number, right-click the desired cell to open the **Cell Setting** Dialog Box. The current settings will be displayed in the dialog box. Make the desired changes and click the **OK** Button to save them. If consecutive write cells have been set, the entire range of cells that was originally set will be modified if one or more of the cells are selected.
 - Deleting a Cell with Settings
Select the cell that you want to delete and open the **Cell Setting** Dialog Box. The current cell settings will be displayed. Check the content and click the **Delete** Button.
If the cell was setup using the block setup function, the whole block will be deleted even if you select only part of the block.
 - Be careful when changing the data format to hexadecimal because it will convert the display format to text. If a decimal number display is selected, data should be 0 to 9 in ASCII. If a hexadecimal number display is selected, data should be 0 to 9, A to F, and a to f (or a to f) in ASCII. If the entered characters or values are invalid, an error will occur when the **Write** Button is clicked.
 - When the data is successfully written to the controller, a message will appear saying that the writing process has been completed.
-

4.8 Tools

The tools supported for the communications cell setup are described in this section. The tools display cell and display settings.

1. Creating a Cell Setup Report

A report of the cell setting parameters can be created.

All the settings can be viewed at once.

2. Optional Features

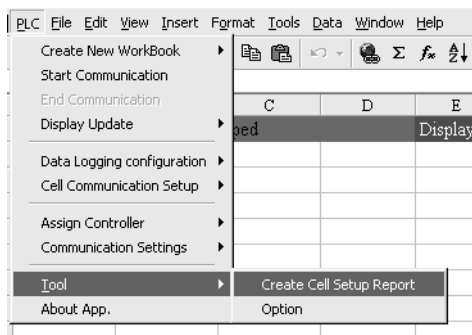
After defining the cell settings, the display format can be changed.

The cell border and color can be specified.

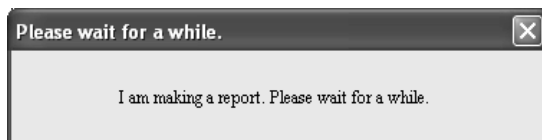
The following pages describe how to implement these features.

4.8.1 Creating a Cell Setup Report

1. Select **PLC - Tool - Create Cell Setup Report**.



2. A progress window dialog box will be displayed as shown below.



3. A report will be created for each driver in the workbook. The name **XXXXXCell Setup Report** will be assigned to each sheet.

The screenshot shows a Microsoft Excel spreadsheet titled 'MPI Log0803'. The spreadsheet contains a table with columns: Value, Cell Name, Sheet Name, Cell Address, Logical Port, Device Name, CPU No., Register Type, Address Code, Address No., Data Type, and Bit R/W selection. The data is organized into rows, with each row representing a specific cell setup configuration. The 'Sheet Name' column shows that each row is associated with a specific sheet, and the 'Cell Name' column shows the name of the cell being configured.

Value	Cell Name	Sheet Name	Cell Address	Logical Port	Device Name	CPU No.	Register Type	Address Code	Address No.	Data Type	Bit R/W selection
0	RD0000007	Sheet1	\$A\$4	Logical Port01	MP2300	1	MW		1000	Word (Signed)	Read
0	RD0000008	Sheet1	\$A\$5	Logical Port01	MP2300	1	MW		1000	Word (Signed)	Read
0	RD0000009	Sheet1	\$A\$6	Logical Port01	MP2300	1	MW		1000	Word (Signed)	Read
0	RD0000010	Sheet1	\$A\$7	Logical Port01	MP2300	1	MW		1000	Word (Signed)	Read
0	RD0000011	Sheet1	\$A\$8	Logical Port01	MP2300	1	MW		1000	Word (Signed)	Read
0	RD0000012	Sheet1	\$B\$4	Logical Port01	MP2300	1	MW		100	Long word (Signed)	Read
0	RD0000013	Sheet1	\$B\$5	Logical Port01	MP2300	1	MW		102	Long word (Signed)	Read
0	RD0000014	Sheet1	\$B\$6	Logical Port01	MP2300	1	MW		104	Long word (Signed)	Read
0	RD0000015	Sheet1	\$B\$7	Logical Port01	MP2300	1	MW		106	Long word (Signed)	Read
0	RD0000016	Sheet1	\$B\$8	Logical Port01	MP2300	1	MW		108	Long word (Signed)	Read
0	RD0000017	Sheet1	\$B\$9	Logical Port01	MP2300	1	MW		110	Long word (Signed)	Read
0	RD0000018	Sheet1	\$B\$10	Logical Port01	MP2300	1	MW		112	Long word (Signed)	Read
0	RD0000019	Sheet1	\$B\$11	Logical Port01	MP2300	1	MW		114	Long word (Signed)	Read
0	RD0000020	Sheet1	\$C\$4	Logical Port01	MP2300	1	MW		500	Floating point	Read
0	RD0000021	Sheet1	\$C\$5	Logical Port01	MP2300	1	MW		502	Floating point	Read
0	RD0000022	Sheet1	\$C\$6	Logical Port01	MP2300	1	MW		504	Floating point	Read
0	RD0000023	Sheet1	\$C\$7	Logical Port01	MP2300	1	MW		506	Floating point	Read
0	RD0000024	Sheet1	\$D\$4	Logical Port01	MP2300	1	MB		000000	Boolean	Write
0	RD0000040	Sheet1	\$F\$4	Logical Port01	MP2300	1	MB		000000	Boolean	Read
0	RD0000041	Sheet1	\$F\$5	Logical Port01	MP2300	1	MB		000001	Boolean	Read
0	RD0000042	Sheet1	\$F\$6	Logical Port01	MP2300	1	MB		000002	Boolean	Read
0	RD0000043	Sheet1	\$F\$7	Logical Port01	MP2300	1	MB		000003	Boolean	Read
0	RD0000044	Sheet1	\$F\$8	Logical Port01	MP2300	1	MB		000004	Boolean	Read
0	RD0000045	Sheet1	\$F\$9	Logical Port01	MP2300	1	MB		000005	Boolean	Read
0	RD0000046	Sheet1	\$F\$10	Logical Port01	MP2300	1	MB		000006	Boolean	Read
0	RD0000047	Sheet1	\$F\$11	Logical Port01	MP2300	1	MB		000007	Boolean	Read
0	RD0000048	Sheet1	\$F\$12	Logical Port01	MP2300	1	MB		000008	Boolean	Read
0	RD0000049	Sheet1	\$F\$13	Logical Port01	MP2300	1	MB		000009	Boolean	Read
0	RD0000050	Sheet1	\$F\$14	Logical Port01	MP2300	1	MB		00000A	Boolean	Read
0	RD0000051	Sheet1	\$F\$15	Logical Port01	MP2300	1	MB		00000B	Boolean	Read
0	RD0000052	Sheet1	\$F\$16	Logical Port01	MP2300	1	MB		00000C	Boolean	Read
0	RD0000053	Sheet1	\$F\$17	Logical Port01	MP2300	1	MB		00000D	Boolean	Read
0	RD0000054	Sheet1	\$F\$18	Logical Port01	MP2300	1	MB		00000E	Boolean	Read
0	RD0000055	Sheet1	\$F\$19	Logical Port01	MP2300	1	MB		00000F	Boolean	Read

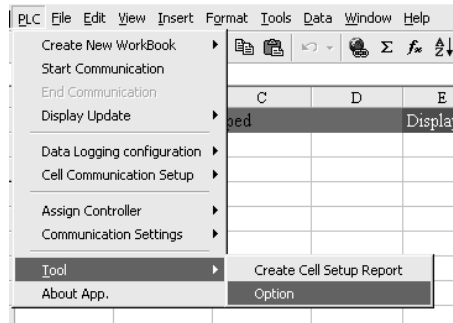
The cell properties for one cell will be displayed in one row.

Clicking on the cell name will transfer you to the cell.

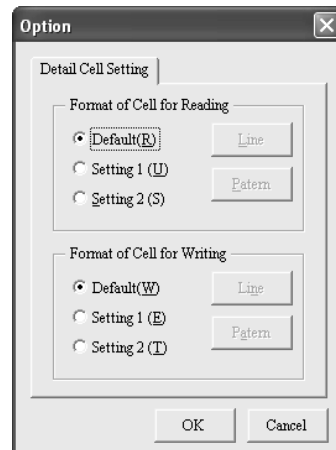
Displayed items: Value, Cell Name, Sheet Name, Cell Address, Logical Port, Device Name, CPU No., Register Type, Address Code, Address No., Data Type, Bit, and R/W Selection

4.8.2 Optional Features

1. Select **PLC - Tool - Option**.

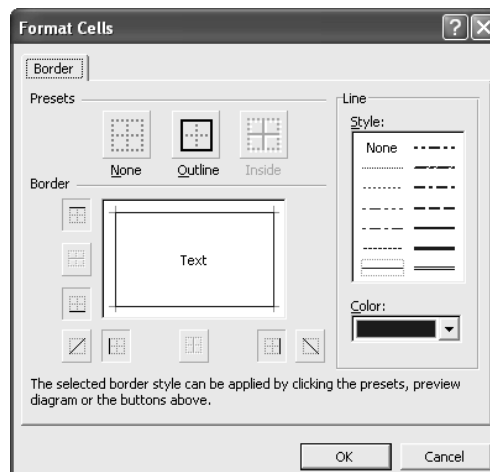


2. The **Option** Dialog Box with the **Detail Cell Setting** Tab Page will be displayed as shown below.

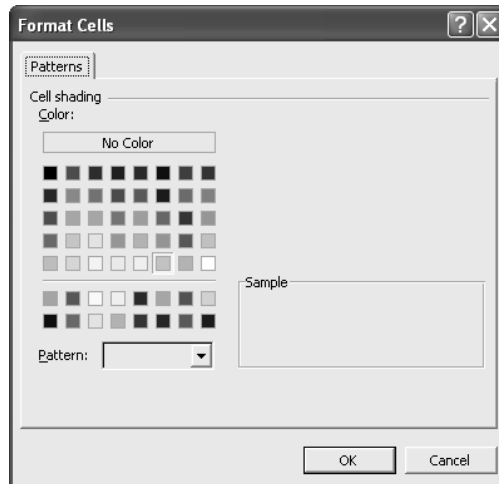


This dialog box enables cell display options to be selected. The display options apply to the read and write cells. There are three formats available: Default, Setting 1, and Setting 2. The default settings cannot be changed. To change the borders and colors, select settings 1 or 2.

3. To modify the settings, select either the *Setting 1* or *Setting 2* Option. The **Line** and **Pattern** Buttons will become active. Clicking the **Line** Button displays the following dialog box.



4. Clicking the **Pattern** Button displays the following dialog box.



The dialog box shown above is the same as that used for Excel cell formatting. The parameters selected in this dialog box can be saved. Any cell with cell settings will be displayed in one of the three formats: Default, Setting 1, or Setting 2.

4.9 Data Logging Settings

In addition to the Monitoring Function, MPLOGGER also has a data logging function. The data logging function collects specified tag groups from the controllers at a specified time interval and stores the data in a Microsoft Access MDB file. This function is useful for creating graphs and daily or monthly reports for tags that require periodical sampling.

To use the data logging function, you need to determine which tag will be sampled at what interval using the following settings.

1. Tag Group Settings

A number of tags are divided into and managed as tag groups. With MPLOGGER, the time interval can be set for data collection for each tag group. The data values are stored in the log database for each tag group. Tags with similar properties can be grouped together.

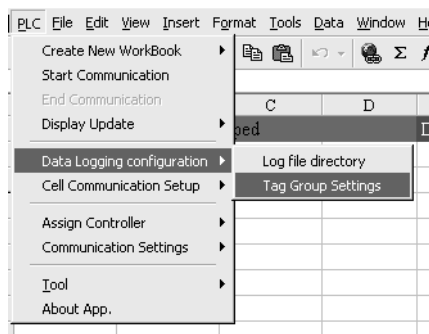
2. Tag Settings

Defines the tags in a tag group. Tags used for monitoring can also be used for data logging.

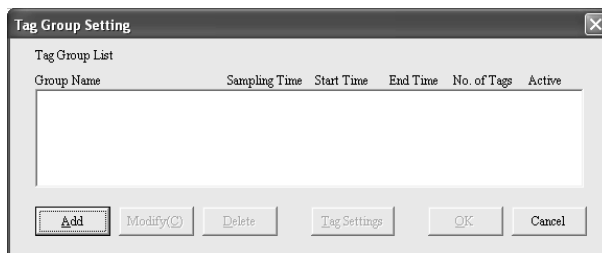
The following pages describe how to setup these settings.

4.9.1 Tag Group Settings

1. Select **PLC - Data Logging Configuration - Tag Group Settings**.

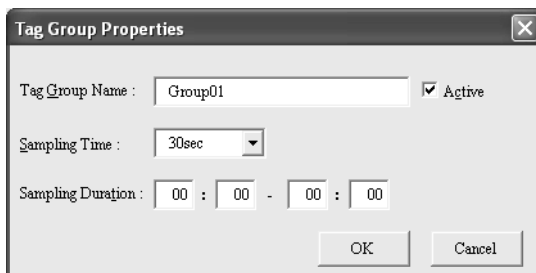


The **Tag Group Setting** Dialog Box will be displayed as shown below.



2. Adding Tag Groups

To add a new tag group, click the **Add** Button in the **Tag Group Setting** Dialog Box. The **Tag Group Properties** Dialog Box will be displayed.



3. Enter the items.

- Tag Group Name (Mandatory)

Tag group names can be up to 20 characters long. This item must be set.

- Sampling Time

Specifies the time interval for data sampling for tags in the tag group.

Options: 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min, 15 min, 30 min, 1 h, 2 h, 4 h, 6 h, 8 h, 12 h, or 24 h.

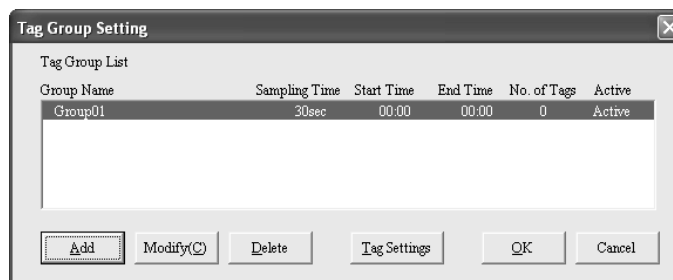
- Sampling Duration

The actual time of data collection can be specified for each tag group. The time must be in 24 hour format from 00:00 to 00:00.

- **Active** Check Box

Data is collected for groups for which the **Active** Check Box is selected. For tags that are used only occasionally, for example, for testing purposes, select the check box only when required.

When all items are entered correctly, click the **OK** Button. The dialog box will close and the group will be added the *Tag Group List*.



4. Modifying Tag Groups

To modify a tag group that is already listed, select the desired tag group from the *Tag Group List* in the dialog box and click the **Modify** Button. The **Tag Group Properties** Dialog Box will be displayed. It contains the current settings as the default parameter values. Modify the items and click the **OK** Button.

5. Deleting Tag Groups

To delete a tag group, select the desired tag group from the *Tag Group List* in the dialog box and click the **Delete** Button. A confirmation message will appear and the tag group will be deleted.



Deleting a tag group will delete all the tags in the tag group. (Tags used for monitoring will not be deleted.) When a tag group is deleted, the internal ID changes so that you cannot add the exact same tag group again. This implies that when you are collecting trend data, you will not be able to continue from the previous data points.

Unless it is absolutely unnecessary, it is recommended that you deselect the collection check box rather than delete the tag group.

6. Saving Tag Groups

When all the tag groups have been added to the list, click the **OK** Button to save them. Until the **OK** Button is clicked, any tag group information that has been added or modified since the dialog box that was opened can be cancelled. If the dialog box is closed without saving the data, the data will be lost.

4.9.2 Tag Settings

1. To add tags to a tag group, select the desired tag group from the *Tag Group List* in the **Tag Group Setting** Dialog Box and click the **Tag Setting** Button. The **Tag Setting** Dialog Box will be displayed.

The lower part of the dialog box will display a list of tags that are registered in that tag group.

Tag Setting

Logical Port : Logical Port01

Controller(N) : MP2300 CPU No. : 1

Tag Name : TEST

Addressing Scheme(P) : Register No.

Register Type(K) : MW

Data Type : Word (Signed) Bit : ☐

Import tag properties from monitor list Add Modify(H) Delete

Logical Port	Controller	CPU	Tag Name	Register ...	Address	Data Type	Bit
Logical Port01	MP2300	1	TEST	MW	01000	Word (Signed)	

Close

New tags can be added or existing tags modified by entering the tag settings in the top half of the dialog box.

2. Adding Tags

Enter the tag settings in the top half of the dialog box, and then click the **Add** Button to add it to the tag list. If the tag name already exists, an error will occur, and you cannot add the tag.

To add another tag, modify the items and click the **Add** Button again. If the parameters are invalid, a message box will appear.

The Tag Setting items are described below.

- Logical Port

Select the logical port that connects to the desired controller. Select it from the *Communications Ports List* in the communications driver settings.

- Controller

The device name that was assigned in the controller settings will be displayed here.

- CPU No.

The CPU number can be specified by clicking the **Detail** Button. If the MP920 or CP-9200SH is used in a multi-CPU environment, use CPU number 1 or 2. Other controllers should be set to 1.

- Tag Name (Mandatory)

Any name can be assigned. Each tag name must be unique within each tag group.

- Addressing Scheme

Specifies the addressing Scheme.

Register Number and *Reference Number* can be selected. The register type and address depends on the addressing scheme.

- Register Type

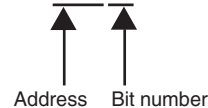
Select the desired register type of the controller.

- Address

Specifies the address within each register type.

The range of addresses that can be used depends on the controller. If the register type is MB or IB, the bit number must be added to end of the address when specifying register numbers.

Example: 001B



Note: If the register type is IB, IW, IL, or IF, the address must be written as a decimal number.

- Data Type

Specifies the data format of data in the controller.

For information on data types, refer to 6.3 *Supported Data Formats*.

- Bit

Only applicable if the specified data type is BOOL.

Hexadecimal numbers from 0 to F can be entered.

3. Modifying Existing Tags

To modify the properties of an existing tag, select the desired tag from the tag list and modify the items in the top half of the dialog box. Click the **Modify** Button to update the tag in the tag list.

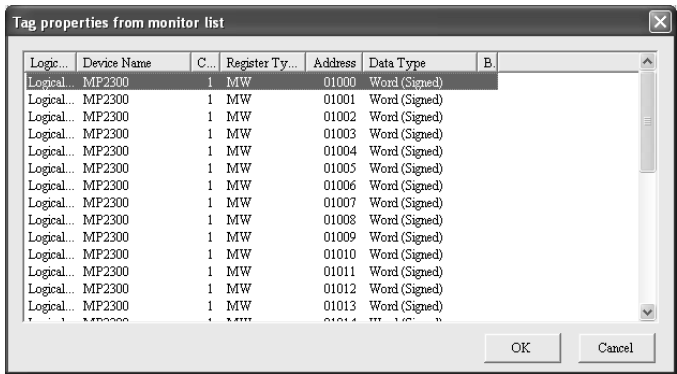
4. Deleting Tags

To delete a tag from a tag group, select the tag from the tag list and click the **Delete** Button. A confirmation message will appear and the tag will be deleted from the tag list.

5. Using Monitoring Tags

If the data logging tag is already being used for monitoring, it can be imported from the monitoring tag list.

Click the **Import tag properties from monitor list** Button in the **Tag Setting** Dialog Box. The **Tag properties from monitor list** Dialog Box will be displayed.

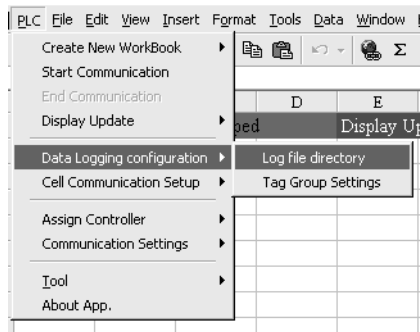


Select the desired tag from the monitor list and click the **OK** Button to add it to the tag list. Multiple tags can be selected and added at once.

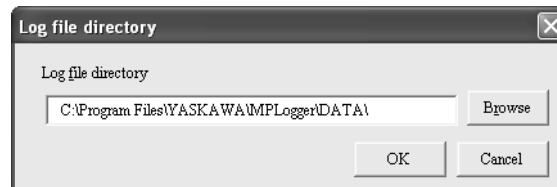
4.10 Saving the Log Data

When saving the data collected by the data logging function, specify the location of the log file. The default is to store the data in an automatically created folder named *Data* in the MPLOGGER installation folder.

1. Select **PLC - Data Logging Configuration - Log File Directory**.

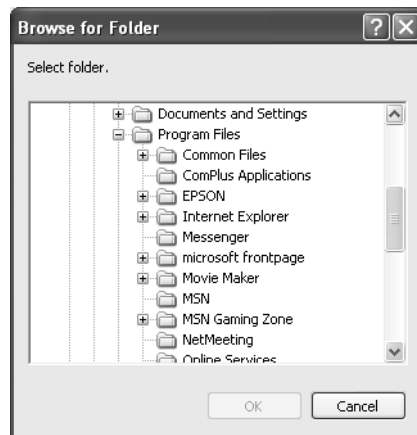


The **Log File Directory** Dialog Box will be displayed as shown below.



2. Specify the log file directory.

You can specify the directory by entering the file location directly or by clicking the **Browse** Button and select it from the **Browse for Folder** Dialog Box.



Select the desired folder and click the **OK** Button to set the log file directory.

4.11 Monitoring

The setup process has been finished when all the monitoring cells and data logging tag group settings have been completed. MPLOGGER is now ready for operation.

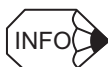
Select the Data Communications Server to start communicating from the Excel menus and data will be updated on the monitoring sheets.

IMPORTANT

MPLOGGER uses Excel as a monitoring application, which does not guarantee 24 hour operation. The Data Communications Server can run continuously for 24 hours.

To achieve smooth operation over 24 hours, use the following suggestions.

1. Start the MPLOGGER Excel sheet only when it is required. Normally, leave only the Data Communications Server running.
 2. If the MPLOGGER data update function is not functioning properly, restart the application.
 3. Periodically restart the MPLOGGER application.
-

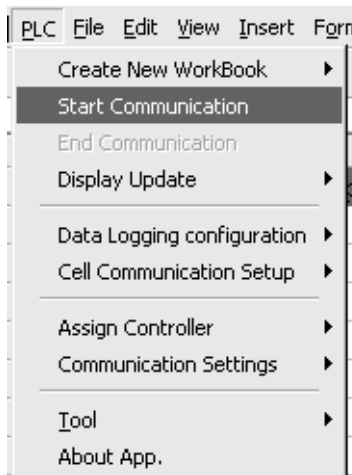


MPLOGGER uses Excel for its data displaying functions. (The user interface is included with VBA add-in module.) The Data Communications Server is used for processing the MPLOGGER's main functions. (Refer to *Chapter 1 Overview of MPLOGGER*.) The fundamental processes are data communications and data logging processes, which need to be started and stopped depending on what the application is doing. These tasks are categorized as start/end communications and Start/End Display Update functions and are described below in brief.

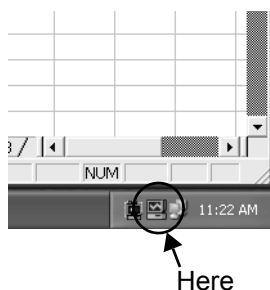
- Start/End Communications
Starts/ends communications by the Communications Server.
 - Start/End Display Update
Starts/ends automatically updating data in Excel (worksheet).
-

4.11.1 Start Communications

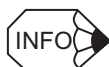
1. To start communicating with the controllers, select **PLC - Start Communication** from the Excel menus.



2. When communications have been established, the Communications Server Icon in the Windows Task Bar will become active. The active icon indicates that communications have started. The Excel sheet will not visibly change.



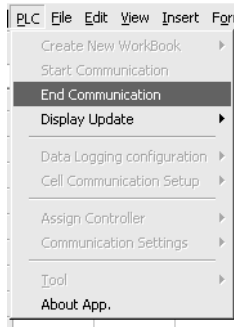
3. When communications have started, the Data Communications Server begins collecting monitoring data and adds it to the server memory. It then stores the data in an MDB file every cycle as defined by the data logging tags.



- To display the controller values on the Excel sheet for monitoring purposes, the display update function needs to be activated. For details, refer to *4.11.4 Start Display Update*.
- Once communications have started, fundamental information, such as cell settings, data logging settings, communications driver settings, and controller settings, cannot be changed. Any menu options that cannot be used are grayed out, indicating that the function is not available.

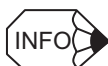
4.11.2 End Communications

1. To end communications with the controllers, select **PLC - End Communication** from the Excel menus.



2. When communications have ended, the icon on the Windows Task Bar will become inactive, indicating that the communications process has stopped.
3. When communications have ended, the Data Communications Server also ends the data logging process. To stop the monitoring display update process only, end the display update function.

For details, refer to *4.11.5 End Display Update*.

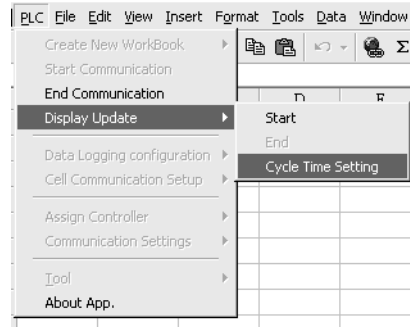


If you attempt to close MPLOGGER (i.e., close Excel) without ending communications, a confirmation message will appear asking whether you want to end the communications process. If this is ok, click the **Yes** Button. To close Excel only, click the **No** Button.

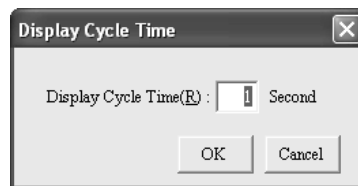
4.11.3 Display Update Cycle Setting

Determine the data update interval before starting the automatic update of monitoring display. Once this parameter is set, there is no need to set it again.

1. Select **PLC - Display Update - Cycle Time Setting**.



2. The **Display Cycle Time** Dialog Box will appear.

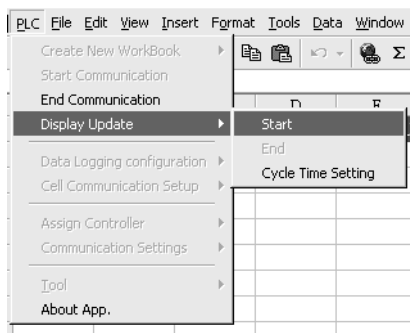


The default display cycle time is 1 second. It can be set to anything from 1 to 60 seconds. If the display cycle time is too short, it may cause the display to flicker. Consider the capabilities of your PC and Excel to determine an appropriate display cycle time.

4.11.4 Start Display Update

To update the data on the Excel monitoring sheet, start the display updating function.

1. Select **PLC - Display Update - Start**.

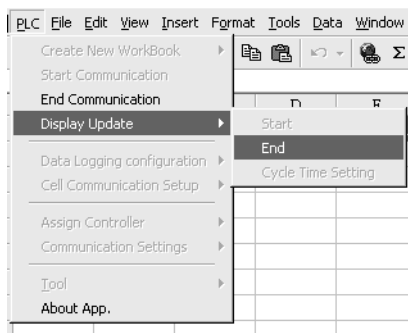


- If the display update function is started when the Data Communications Server has not yet been activated for communications, a confirmation window will appear to prompt the activation and automatically start communications.
- The first data update will take about 30 seconds after the display update function is started. After that, the updates will occur according to the specified cycle time.

4.11.5 End Display Update

To end the data updates on the Excel monitoring sheet, end the display updating function.

1. Select **PLC - Display Update - End**.

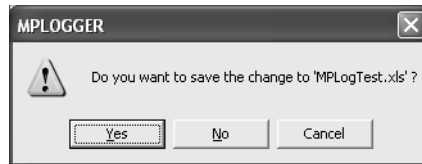


When the display update function is ended, the communications port will still be active. To end the connection, it is necessary to end communications.
Refer to 4.11.2 *End Communications*.

4.12 Closing MPLOGGER

Select **File - Close** to close Excel, and MPLOGGER is also closed.

If closing the MPLOGGER and data files for MPLOGGER selecting **File - Close**, the following dialog box will appear. Select whether to save the file or not.



Yes: Overwrite the file, and then close the file.

No: The file is not overwritten, and the closed.

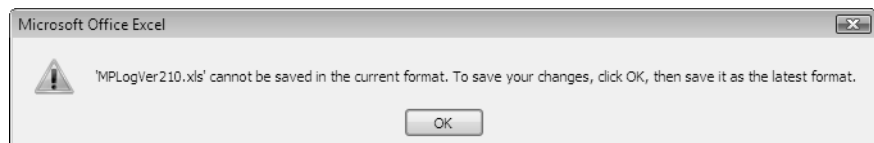
Cancel: The file is not closed, and then display is back to the MPLOGGER.



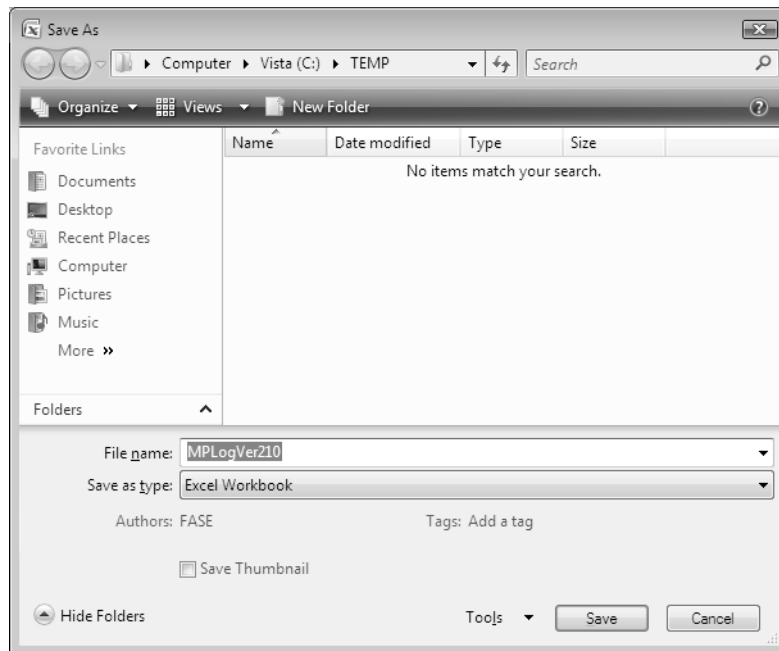
- The MPLOGGER workbook has macros that the versions of them are the one when created. If the workbook that is created with the version 2.10 or earlier is opened the MPLOGGER with version 2.20 or later, the dialog box to confirm saving will not appear and the data is automatically overwritten.
- If the MPLOGGER workbook that is created with version 2.10 or earlier is opened in the MPLOGGER in Excel 2007, be sure to save the data before closing the workbook using the following procedure.

1. Click **Office** Button, and select **Save**.

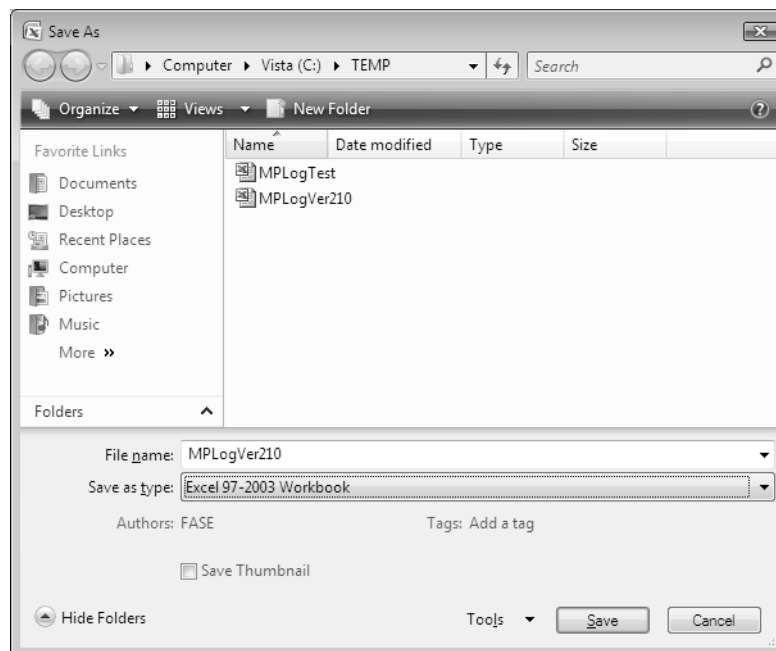
The following dialog box to confirm the saving format of Excel.



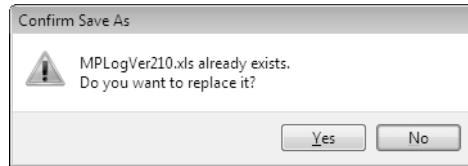
2. Click **OK**. The **Save as** Dialog box will appear.



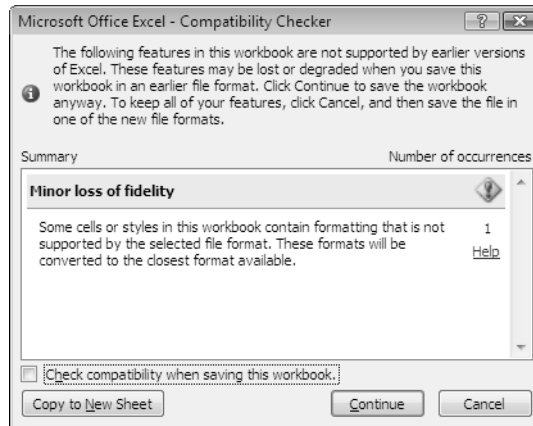
3. Select **Excel 97-2003 Workbook**.



4. Click **Save** without changing the file name.
The **Confirm Save As** Dialog box will appear.



5. Click **Yes**. Then the **Compatibility Checker** Dialog Box will appear.



6. Click to clear **Check compatibility when saving this workbook**, and click **Continue**.
This operation completes the overwriting of the Excel file. The .mdb file is saved as required when closing MPLOGGER.

4.13 Precautions

Observe the following precaution when creating a workbook to ensure that MPLOGGER functions properly.

■ Naming a Workbook Sheet

Only the following characters can be used for sheet names in a workbook.

0 to 9, a to z, A to Z



If the sheet name includes characters other than those listed above, MPLOGGER may not function properly.

Application

This chapter provides information on setup and operation when using MPLOGGER as a comprehensive monitoring system. It provides details not given in *Chapter 4 Basic Operation* that allow MPLOGGER to be used more effectively.

5.1	Cell Settings	-----	5-2
5.2	MPLOGGER and VBA	-----	5-4
5.3	MPLOGGER Data Communications Server	-----	5-5
5.3.1	Activating and Disabling the Server	-----	5-5
5.3.2	Server Menu	-----	5-6
5.4	Event Display Function	-----	5-7
5.4.1	Event Monitoring Module	-----	5-7
5.4.2	Event History Display	-----	5-8
5.5	Data Logging	-----	5-9
5.6	Copying the MPLOGGER Sheet	-----	5-10

5.1 Cell Settings

The main feature of MPLOGGER, the communications cell setup function, has been described in previous chapters. In this section, techniques are introduced to use this function effectively and to create monitoring displays.

MPLOGGER displays controller data in Excel cells. This data can be freely edited using Excel functions. The thoughtful layout of data produces an easy-to-read display and enables the use of Excel functions to extend the display to include colored cells and graphics. Using these functions, the display can be developed to depict a floor plan of a factory process line.

■ Moving Cells

Cells can be moved by selecting and dragging them with a mouse. The cell settings will be transferred when cells are moved. This function is useful in the following situations for setting up cells and determining the layout of the sheet.

◀ EXAMPLE ▶

Displaying Current Values

This example describes the steps for creating a sheet that displays current values using MPLOGGER's monitoring function in a layout that corresponds to a control line.

1. Suppose that the operating status of the controllers in the control line is in MW1001 to MW1010.
2. Create a layout display of the control line. Set up the cells in the empty area of the sheet using the block setup function for MW1001 to MW1010.
3. Move the individual cells to the desired display positions.

■ Cell References

A cell reference allows the access of cell setting information by multiple sheets. It is useful in cases where a number of controllers are monitored and for data maintenance of information.

◀ EXAMPLE ▶

Operating Status Reference

1. Set up a worksheet with the cell settings. This sheet is designated only for cell settings of monitoring data. Do not set up the user interface. Leave the data in a list or table format for easy maintenance, and set cells for all the required data.
2. When the cells have been set for all monitoring data, start designing the user interface sheets. These sheets are different from the cell setting sheet.
3. To display the current operating status of each controller on the control line as in the previous example, select cells to display the operating status after creating a layout display of the control line on the user interface sheet.

4. Enter the reference cells from the cell setting sheet.

For example, to display the contents of sheet 2 cell D4 in sheet 1 cell C3, type
 “=Sheet2!D4” in sheet 1 cell C3.



Copying a cell with settings using the Excel copy function will not copy the settings. The controller data will not be displayed. To display data using the same cell settings in multiple locations, use the cell reference function.

■ Block Setup

The block setup function is useful when creating a sheet to monitor large amounts of data from controllers. When setting up write cells, or when large numbers of cells are being set up using one Block Setup Function, the simultaneity of data needs to be considered.

Write Cells

A write cell is always paired with a **Write** Button.

Both the write cell and the button can be moved to a different position. Also, the button name can be modified. One **Write** Button, however, cannot be shared with cells that have been set up separately.

If the Block Setup Function is used to set up write cells, clicking the **Write** Button will take the data from the cell range and write it to the controller. In this way, it is possible to write a block of data (the cell range setup using Block Setup) to the controller in one cycle.

IMPORTANT

If the amount of data that can be written in one cycle is exceeded, it will automatically divide the information and simultaneity will be lost.

If cells are set up using the Block Setup Function, any corrections or deletion of cells will apply to the whole range. Cells in the range cannot be modified individually. This is done to maintain the simultaneity of the Block Setup Function.



- The process of writing data to the controller begins when the **Write** Button is clicked after the data is input to the cell. If the cell is left blank and does not contain any data, the writing process will not be executed. If write cells are set up using the block setup function and there is a blank cell, the data write command will not be sent to the controller.
- A data input value is checked when the **Write** Button is clicked. If the data is invalid, a message will appeared and the command will not be sent.

5.2 MPLOGGER and VBA

MPLOGGER runs on the Excel platform. Very high quality graphics can be created using VBA and other Excel tools. Some application examples are presented here.

■ Changing from Numerical Values to Character Strings

A system can be set up to detect the operating status of a controller and display it in a cell. By incorporating a macro to create a reference lookup table, the data output to the cells can be converted from numerical values to character strings. Using the Excel conditional formatting function, character style and cell color can also be changed.

■ Displaying a Trend Graph

1. The easiest way to generate a trend graph is to use the functions of the controller program. First, secure a storage area for the latest data in the controller memory (e.g., 100 items) and place the trend data in it using the controller program.
MPLOGGER can read in this data area (100 items) using the block setup function, and generate a graph using Excel functions to create a real-time trend graph.
2. If the trend data cannot be stored using the Controller program, Excel VBA can be used. MPLOGGER reads in the latest data into cells and VBA can be used to periodically move it to a cell area where the trend data can be viewed. Periodic processes can be created using the one-shot timer function in VBA.
By making the trend data into a graph, the real time trend can be monitored.

■ Creating a Historical Trend

By specifying the range of trend data in MPLOGGER data logging function, a historical information MDB file can be created for each day. Excel uses SQL to access these database records and displays the extracted data in cells for viewing or for generating a historical trend graph.

5.3 MPLOGGER Data Communications Server

MPLOGGER has a Data Communications Server which is separate from the Excel Add-in Module. It controls communications with controllers. The Data Communications Server will be displayed in the Windows task bar as an icon.

The Data Communications Server has two main functions:

- Monitoring function: Preserves the new values of specified controller data.
- Data logging function: Periodically collects tag data and stores it in MDB files.

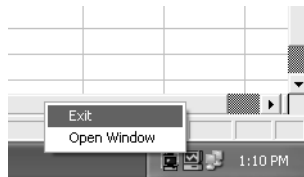
Before using these functions, the Data Communications Server must be activated for communications. The task bar icon is active when communications are active.

5.3.1 Activating and Disabling the Server

The Data Communications Server automatically starts when MPLOGGER (Excel Add-in Module) is started. Similarly, when MPLOGGER is closed, the Data Communications Server is also closed.

The Data Communications Server can be activated or disabled as a stand alone system. If the data logging function is used more than the Monitoring function, there are situations where activating and disabling the Data Communications Server on its own is advantageous. The Communications Data Server is an independent application program. Double-clicking MPLOGGER.EXE file in the MPLOGGER installation folder will launch the application, and an icon will automatically appear in the task bar.

To close the application, right-click the icon and select **Exit** from the pop-up menu.



IMPORTANT

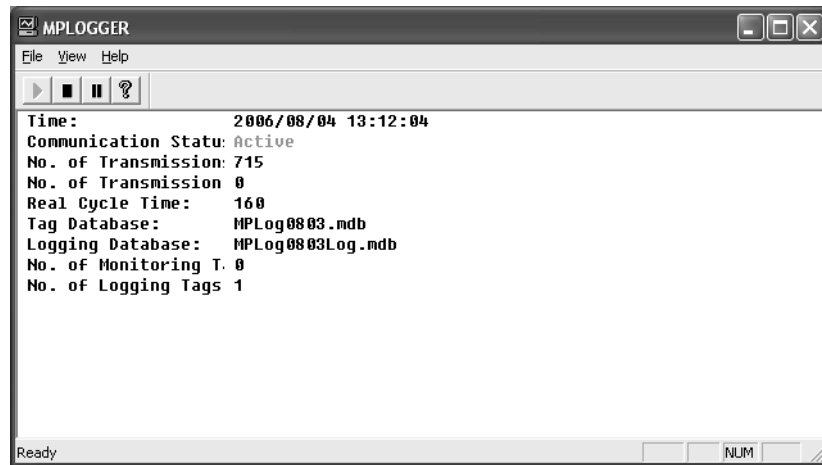
If the Data Communications Server is disabled while MPLOGGER is running, MPLOGGER will not function properly.

5.3.2 Server Menu

■ Data Communications Server Window

When the Data Communications Server is activated alone, communications can be controlled (i.e., started and stopped) using the Data Communications Server Menu.

Right-click the icon on the task bar and select **Open Window** from the pop-up menu. The Data Communications Server Window will be displayed as shown below.



The window contains the following information.

- Time
Displays the current time.
- Communications Status
Displays whether communications are active or not.
- No. of Transmission
Displays the number of commands that have been sent since communications were activated.
- No. of Transmission Errors
Displays the number of communications errors that have occurred since communications were activated.
- Real Cycle Time
Displays the time it takes to collect data for all the tags recognized by the server.
- Tag Database
Name of tag database currently engaged by the server and defined by the cell settings for monitoring.
- Logging Database
Name of the tag database for logging that is currently engaged by the server.

5.4 Event Display Function

MPLOGGER has an Event Monitoring Module that constantly monitors errors such as communications errors. The Event Monitoring Module constantly monitors for errors as long as the Data Communications Server is active. If an error occurs, it displays a warning message in an alarm logging pop-up window.

5.4.1 Event Monitoring Module

The Event Monitoring Module is not actually visible to the user. It is implemented as a function of the Data Communications Server.

When a communications error occurs in the Data Communications Server, the Event Monitoring Module logs the time the error occurred, the controller involved, and the nature of the error. It also uses a pop-up window like the one shown below to notify the user of the error.



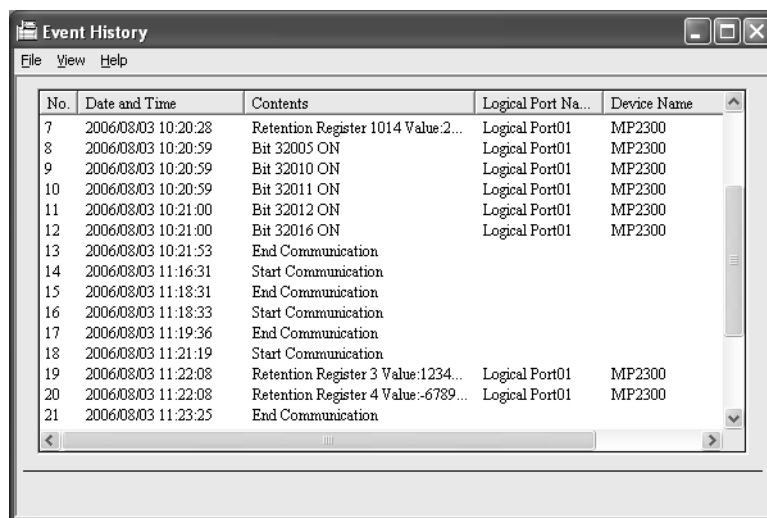
If multiple errors occur at the same time, the error that occurred first will be displayed. Click the **Confirm** Button to check the errors in order of occurrence. When all errors have been checked, the window will close. Clicking the **Confirm All** Button will cause the application to assume that all the errors have been checked, and the window will be closed. Clicking the **End Communication** Button will stop communications. For details about the **Event History** Button, refer to 5.4.2 *Event History Display*.

5.4.2 Event History Display

Alarm information detected by the Event Monitoring Module, such as communications errors, are stored in a log file on the hard disk. The most recent 1,000 errors will be stored as a log. If the number of errors exceeds 1,000, the alarms will be deleted in order starting from the oldest.

The log file can be viewed using the Event History Display Module.

Click the Windows **Start** Button and select **Program - MPLOGGER - Event History**. The following window appear.



The screenshot shows a window titled "Event History" with a menu bar (File, View, Help) and a table of log entries. The table has five columns: No., Date and Time, Contents, Logical Port Na..., and Device Name. The entries include retention register values, bit status changes, and communication events.

No.	Date and Time	Contents	Logical Port Na...	Device Name
7	2006/08/03 10:20:28	Retention Register 1014 Value:2...	Logical Port01	MP2300
8	2006/08/03 10:20:59	Bit 32005 ON	Logical Port01	MP2300
9	2006/08/03 10:20:59	Bit 32010 ON	Logical Port01	MP2300
10	2006/08/03 10:20:59	Bit 32011 ON	Logical Port01	MP2300
11	2006/08/03 10:21:00	Bit 32012 ON	Logical Port01	MP2300
12	2006/08/03 10:21:00	Bit 32016 ON	Logical Port01	MP2300
13	2006/08/03 10:21:53	End Communication		
14	2006/08/03 11:16:31	Start Communication		
15	2006/08/03 11:18:31	End Communication		
16	2006/08/03 11:18:33	Start Communication		
17	2006/08/03 11:19:36	End Communication		
18	2006/08/03 11:21:19	Start Communication		
19	2006/08/03 11:22:08	Retention Register 3 Value:1234...	Logical Port01	MP2300
20	2006/08/03 11:22:08	Retention Register 4 Value:-6789...	Logical Port01	MP2300
21	2006/08/03 11:23:25	End Communication		



When the alarm pop-up window is displayed, click the **Event History** Button to access this window.

5.5 Data Logging

In this section, supplementary information is provided for the MPLOGGER Data Logging Function.

Data logging is managed in tag groups. Multiple tags are assigned to one tag group and data is collected and stored in a file on a cycle specified by each group.

1. Information specified in 4.9 *Data Logging Settings* are stored in MDB files that are generated in a folder named “Data.” The MDB files use the following naming convention.

- Name of special workbook + “Log” + “.MDB”

For example, if a new workbook is created and named “MpLog1”, the MDB file “MpLog1Log.MDB” will be created.

When the Data Communications Server receives a command to begin communications, it retrieves the tags and tag groups, needed to collect data from this file.

2. Collected data is also stored in an MDB file.

The logging data is stored in an MDB file that is generated in the folder specified in 4.10 *Saving the Log Data*. The MDB files use the following naming convention.

- “ML” + YYYYMMDD + “_” + Name of special workbook + “.MDB”

For example, if a new workbook is created and named “MpLog1,” log data for November 20, 1998 will be stored in an MDB file named “ML19981120_MpLog1.MDB.”

Log data collected by the data collection server is temporarily queued in the memory of the Data Communications Server to preserve the overall performance. When the queue exceeds 100, or if one minute passes after queuing begins, the data is output to an MDB file.

Because of this, care must be taken when using the log data as real-time trend data.

MPLOGGER does not have the ability to search or display the logged MDB files. Separate functions, such as the database function in Excel or Access functions, must be used.

For information on the arrangement of log files, refer to *Chapter 7 Log Database Configuration*.

IMPORTANT

When designing an application to access the log data, the MDB file cannot be accessed simultaneously by two or more applications. Minimize the time required to access the database.

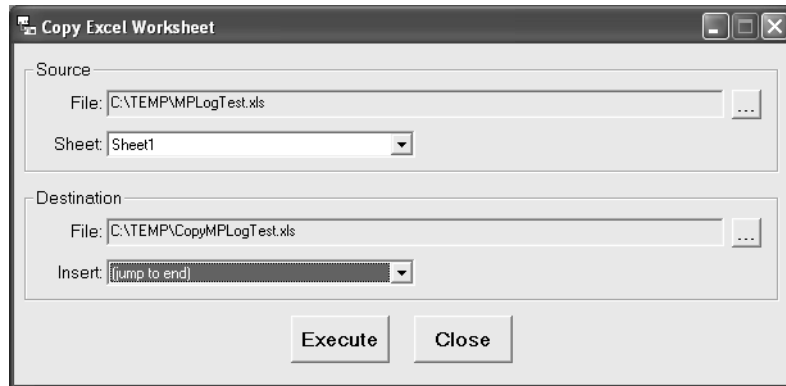
If a log data display program keeps the log database open for a long time, the Data Communications Server cannot output log data and data may be lost.

5.6 Copying the MPLOGGER Sheet

Work sheets can be copied between MPLOGGER workbooks. This function is convenient when using the existing file.

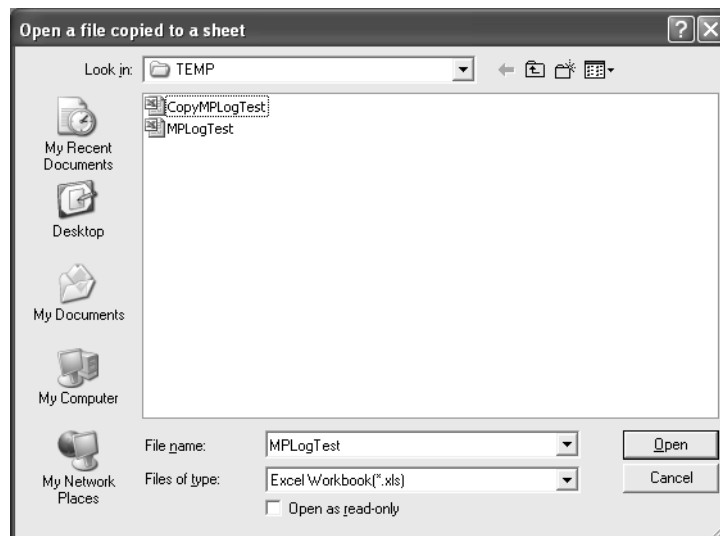
The following conditions, however, have to be satisfied: Both workbooks are the MPLOGGER's workbook and have same settings for communications and equipments.

1. Start the copy tools for MPLOGGER worksheet.
Select **Start – Program – MPLOGGER – Sheet copy tool**.



2. Select the workbook that is copied for.

Click  Button in the original file. **Open a file copied to a sheet** Dialog Box will appear.



3. Select the original sheet that is copied for from the combo box.



4. Select destination workbook.

Click  Button, and then **Open a file pasted up a sheet** Dialog Box will appear.

5. Select the destination from the combo box.

The combo box in the destination has the list of sheets in the workbook and **jump to end** items. If selecting **jump to end**, the data is inserted to the last line. If selecting sheet, the data is inserted to the head of the sheet.

6. Execute copying.

If the **Execute** Button is selected, copy is started. If the copying is finished, the result of the copy will appear.



If the file that has same name exist in the destination, the name of a sheet will automatically changed.

This operation will copy the data to the position in the destination file.

To end the tool for sheet copy, click **Close**.

Software Capabilities

This chapter describes restrictions in using MPLOGGER. Consider the restrictions when designing your system.

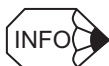
6.1	Maximum Limits	-----	6-2
6.2	Supported CPU Types and Register Types	-----	6-3
6.3	Supported Data Formats	-----	6-4

6.1 Maximum Limits

The capacities of MPLOGGER are listed below.

Item	Maximum/Minimum Values
Number of serial ports that can be connected	4 ports max. (COM1 to COM16)
Number of Controllers that can be connected	32 per port
Number of cell settings	9,999 max.
Number of tag groups for data logging	1,000 groups
Number of tags within one group	100 tags
Data logging collection interval	1 s min.*/24 h max.
Monitoring cycle time	1 s min., 60 s max.
Number of block setup settings	1,000 max.
Event history storage capacity	1,000 events
Communications timeout length	1 s min., 60 s max.

* Depending on the settings of the logging tags and the load on the personal computer, all the data may not be collected within a short cycle time. Set the cycle time according to the scanning speed of the controller and the load on the personal computer.



When specifying addresses using register numbers, consider the following.

- MB, IB, MW, and IW offsets are all treated as zero.
 - The addresses that can be used depend on the controller. If an address is specified outside the allowed range, nothing will be displayed even if communications are active.
-

6.2 Supported CPU Types and Register Types

CPU Type	Reference Designation		Register Designation	
	Data Type	Address Range	Data Type	Address Range
MP2200	Coil	000001 to 065536	MB	MB000000 to MB65534F
	Input relay	100001 to 165536	IB	IB000000 to IB7FFFFF
	Input register	300001 to 305120	IW	IW0000 to IW7FFF
	Holding Register	400001 to 465536	MW	MW0000 to MW65534
MP2200-02	Coil	000001 to 065536	MB	MB000000 to MB65534F
	Input relay	100001 to 165536	IB	IB000000 to IB7FFFFF
	Input register	300001 to 305120	IW	IW0000 to IW7FFF
	Holding Register	400001 to 465536	MW	MW0000 to MW65534
MP2300	Coil	000001 to 065536	MB	MB000000 to MB65534F
	Input relay	100001 to 165536	IB	IB000000 to IB7FFFFF
	Input register	300001 to 305120	IW	IW0000 to IW7FFF
	Holding Register	400001 to 465536	MW	MW0000 to MW65534
MP920	Coil	000001 to 065536	MB	MB000000 to MB32767F
	Input relay	100001 to 165536	IB	IB000000 to IB13FFF
	Input register	300001 to 305120	IW	IW0000 to IW13FF
	Holding Register	400001 to 432768	MW	MW0000 to MW32767
MP930	Coil	000001 to 065536	MB	MB000000 to MB32767F
	Input relay	100001 to 132768	IB	IB000000 to IB07FFF
	Input register	300001 to 302048	IW	IW0000 to IW07FF
	Holding Register	400001 to 432768	MW	MW0000 to MW32767
MP931	Coil	000001 to 065536	MB	MB000000 to MB32767F
	Input relay	100001 to 132768	IB	IB000000 to IB07FFF
	Input register	300001 to 302048	IW	IW0000 to IW07FF
	Holding Register	400001 to 432768	MW	MW0000 to MW32767
MP940	Coil	000001 to 065536	MB	MB000000 to MB32767F
	Input relay	100001 to 132768	IB	IB000000 to IB07FFF
	Input register	300001 to 302048	IW	IW0000 to IW07FF
	Holding Register	400001 to 432768	MW	MW0000 to MW32767
CP9200SH	Coil	000001 to 065536	MB	MB000000 to MB32767F
	Input relay	100001 to 165536	IB	IB000000 to IB13FFF
	Input register	300001 to 305120	IW	IW0000 to IW13FF
	Holding Register	400001 to 432768	MW	MW0000 to MW32767

IMPORTANT

When long or foot-type data is selected under register designation, the maximum value of the address will be the maximum value minus 1 in word format.

6.3 Supported Data Formats

Data Format	Size
Signed word	16 bits
Unsigned word	16 bits
Signed double word	32 bits
Unsigned double word	32 bits
4-digit BCD	16 bits
8-digit BCD	32 bits
Floating point	32 bits
Boolean (BOOL)	1 bit from a 16-bit register

Log Database Configuration

This chapter describes the configuration of each database.

7.1	Controller Information Database	-----7-2
7.2	Data Logging Settings Database	-----7-4
7.3	Log Database	-----7-6
7.4	How to Access the Log Data	-----7-7
7.5	Accessing Log Data Example	-----7-8

7.1 Controller Information Database

Information for the Communications Driver and controller that was set up through the PLC Menu is stored in this database. A folder named “Data” is created in the folder where MPLOGGER is installed. Inside the folder is an MDB file with the same name as the workbook created using the ntlp *Creating a New Workbook* section.

■ ComDeviceTable

This table stores the communications driver settings and is not specifically required to search log data.

Field Name	Data Format	Description
DeviceID	Long integer	Communications port identifier
DeviceType	Integer	Communications device type 1 to 9: COM port, 10: Ethernet, above 20: Assigned special device
DeviceName	Text	Communications port name (e.g., COM1, COM2, or EtherCard.....)
Param0	Text	Communications parameter 0
Param1	Text	Communications parameter 1
Param2	Text	Communications parameter 2
Param3	Text	Communications parameter 3
Param4	Text	Communications parameter 4
Param5	Text	Communications parameter 5
Param6	Text	Communications parameter 6
Param7	Text	Communications parameter 7
Param8	Text	Communications parameter 8
Param9	Text	Communications parameter 9

■ DriverAssignTable

This table stores information for communications driver assignment and is not specifically required to search log data.

Field Name	Data Format	Description
AssignID	Long integer	Communications device assignment list identifier
DriverName	Text	Driver name
DriverShortName	Text	Driver short name
DeviceID	Long integer	Communications port identifier
InitialFile	Text	Initial information file name

■ GokiTable

This table stores controller information. Refer to this table to find the controller name, etc.

Field Name	Data Format	Description
GokiID	Long integer	Machine ID communications device type 1000000* + Controller number
AssignID	Long integer	Communications device assignment list identifier (link to DriverAssignTable)
CPUType	Long integer	Machine type
GokiName	Text	Controller name (defined by user)
Address1	Long integer	PLC address 1 (PLC network number, IP address, etc.)
Address2	Long integer	PLC address 2 (PLC machine number, port number, etc.)
Address3	Long integer	PLC address 3
Address4	Long integer	PLC address 4
Address5	Long integer	PLC address 5

* 1000 + Machine type (lower 3 digits)

■ TagTable

This table stores the tag information used in cell settings for monitoring and is not required for searching log data.

Field Name	Data Format	Description
TagID	Long integer	Tag identifier
InnerTagName	Text	Internal tag name
TagName	Text	External tag name
GokiID	Long integer	Machine ID
MemoryTypeID	Long integer	Memory type ID (Link to the memory type table for each PLC)
Address1	Long integer	Address 1
Address2	Long integer	Address 2
DataTypeID	Long integer	Data type ID (Link to the data type table for each PLC)
Bit	Long integer	Mask data
Size	Integer	Data size
ReserveLong1	Long integer	Reserve 1
ReserveLong2	Long integer	Reserve 2
ReserveText1	Text	Reserve 3
ReserveText2	Text	Reserve 4

7.2 Data Logging Settings Database

This is the master database for log data. It stores the tag groups and tags contained in the groups as specified in the data logging settings made through the PLC Menu. An MDB file is created in a folder named “Data,” which is stored where MPLOGGER is installed. The MDB file uses the following naming convention.

- Name of special workbook + “Log” + “.MDB”

■ GroupIDTable

This table is the change history table for the tag group settings.

If there is a change in the database, an entry is added to this table.

The tag table with a CreateID in the latest table is the tag group for which data is currently being collected.

Field Name	Data Format	Description
CreateDate	Date/Time	Date when the Log Group was created
CreateID	Long integer	Created group ID

■ GroupTable

This table is a tag group table.

Field Name	Data Format	Description
GroupID	Long integer	Group identifier
CreateID	Long integer	Creation history and link
GroupName	Text	Group name
LogUse	Yes/no	Flag whether to collect or not
StartTime	Date/time	Collection start time
EndTime	Date/time	Collection end time
CycleTime	Long integer	Collection cycle

■ TagTable

This is a tag table.

Filed Name	Data Format	Description
TagID	Long integer	Tag identifier
GroupID	Long integer	Group ID
InnerTagName	Text	Internal tag name
TagName	Text	External tag name
GokiID	Long integer	Machine ID
MemoryTypeID	Long integer	Memory type ID (Link to memory type table for each PLC)
Address1	Long integer	Address 1
Address2	Long integer	Address 2
DataTypeID	Long integer	Data type ID (Link with data type table for each PLC)
Bit	Long integer	Master data
ReserveLong1	Long integer	Reserve 1
ReserveLong2	Long integer	Reserve 2
ReserveText1	Text	Reserve 3
ReserveText2	Text	Reserve 4
Size	Integer	Size

7.3 Log Database

The log database contains the actual log data.

An MDB file is stored in the folder that was specified when saving the log data. The MDB file uses the following naming convention.

- “ML” + YYYYMMDD“_” + Name of special workbook + “.MDB”

■ LogDataTable

This table contains the actual log data. The data for one tag is stored as one record.

Field Name	Data Format	Description
TagID	Long integer	Tag definition ID
Data	Text	Actual data
LogicalTime	Date/time	Date and time of collection (logical time)
PhysicalTime	Date/time	Date and time of collection (actual time)

7.4 How to Access the Log Data

The following illustration shows how to access the log data.

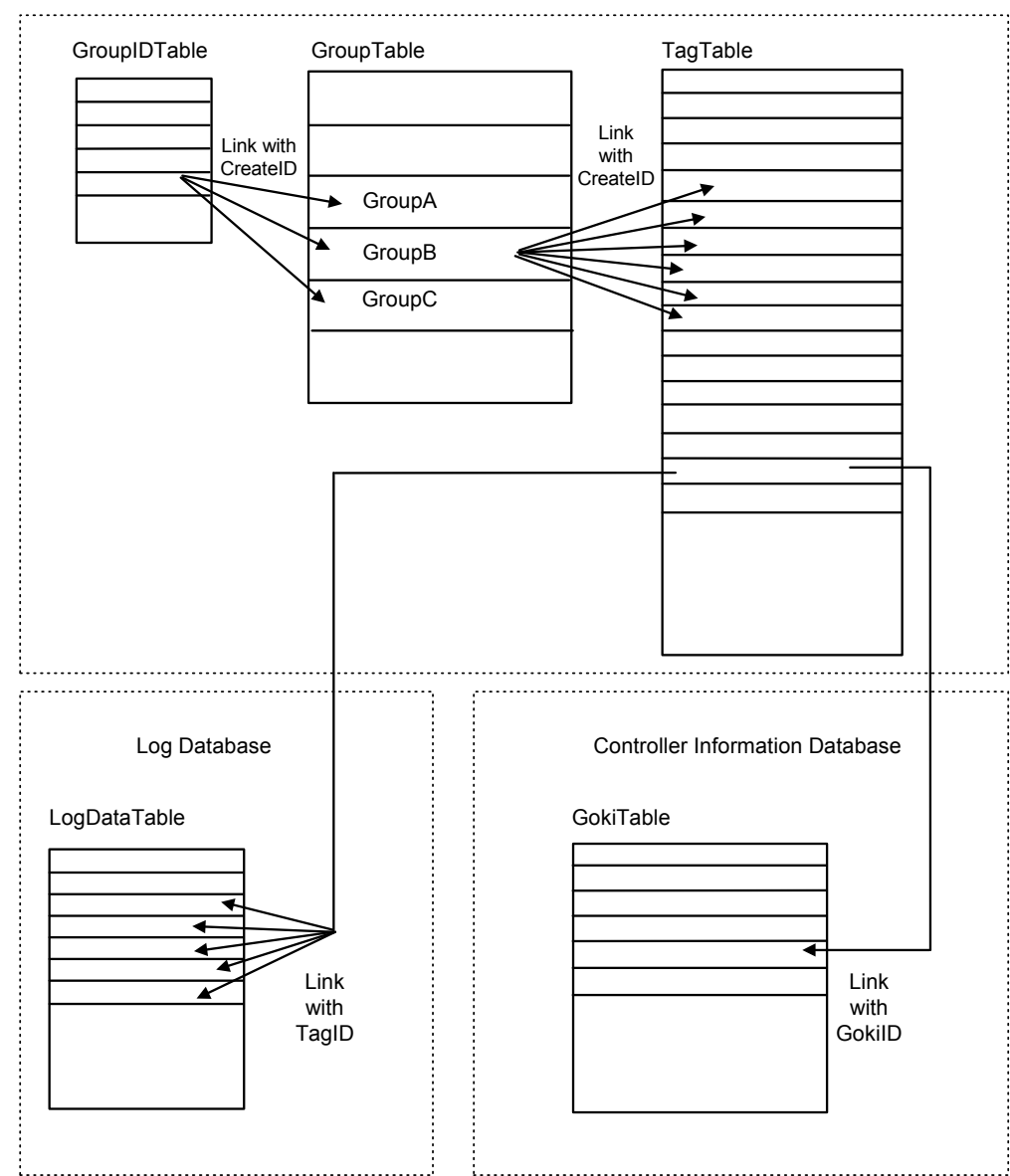


Fig. 7.1 Data Logging Settings Database

7.5 Accessing Log Data Example

Suppose that the tag values from 13:00 to 15:00 contained in tag Group A on November 20, 1998 are required.

1. Open the data logging database and look at the change history.
Sort the GroupIDTable by CreateDate and check which CreateID applies to 13:00 on November 20, 1998.
2. Look at the GroupTable in the data logging database and identify records with the CreateID found in Step 1. From these records, the one with name GroupA is the desired record. Check the GroupID of this group.
3. Look at the TagTable in the data logging database and search for the GroupID found in Step 1. The record with this GroupID is the desired tag in GroupA.
Check the TagID array and the tag name.
Close the data logging database.
4. Open the log database for November 20, 1998.
Search the log data for items with the TagID found in Step 3. Identify items with a LogicalTime between 13:00 and 15:00. This is the desired data.

This chapter discusses frequently experienced problems and provides suggested actions.

Q1 What is ADO?

ADO is a driver software which allows Microsoft Access to read MDB files. The installation of an ADO that is well suited to the Windows environment is necessary because MPLOGGER uses MDB files to store log data.

Q2 Excel has started but the PLC Menu hasn't appeared.

If Excel is started independently or the special workbook is opened directly from Explorer, the MPLOGGER Add-in Module will not start and the PLC Menu will not be added.

Always start the application from the Windows Start Menu by selecting **Program - MPLOGGER - _MPLOGGER**.

Q3 When MPLOGGER starts, a message appears saying the Active-X Module Memosrv.ocx cannot be loaded.

This means that the MPLOGGER Active-X Module was not registered successfully upon installation. You need to re-install the module.

Q4 When Excel starts, a message appears saying that the file contains macros.

The MPLOGGER Add-in Module contains VBA macros. It does not contain macro code that will affect other books. Enable the macros when this message is displayed.

Q5 Not all the cells are updated in one cycle of the display update function for monitoring.

If a large number of tags are set in the cells, MPLOGGER sends a number of communications commands to the PLC to collect all the tag data. In some cases, this process requires a lot of time.

If the display update cycle time is too short, a new update will be requested before all the data from the previous update is collected. The actual cycle time is shown in the Data Communications Server Window. Set the cycle time as this value, and add some leeway.

Q6 Data Logging is not collecting data on the specified cycle.

If there are large numbers of tags assigned for data logging, it may take a long time to collect the data, and MPLOGGER will be unable to complete the collection within the specified time cycle. If the data collection of some tags is more critical than others, separate them into another group and assign a different cycle time.

Q7 The data log is not stored.

Confirm the Data Communications Server is enabled for communications.

If the Data Communications Server is closed together with MPLOGGER (i.e., by closing Excel), log data will not be collected.

Q8 Cannot communicate with the controller.

Check the Communications Server and controller communications settings. The MP920, MP940, MP2300, and MP2200 will automatically receive communications at the serial port, but the MSG-RCV function must be included in the ladder program of the MP930 and CP-218 (Ethernet) to enable communications.

Communication Manager Settings

This chapter describes how to set up the Communication Driver (Communication Manager) when connecting a PC (Windows) and a Yaskawa controller (MP/CP Series).

MPLOGGER uses CimScope as the Communication Driver to communicate with the controllers. It consists of a Communication Manager and an interface. CimScope allows the controllers to be controlled from the PC. If the MPE720 Programming Development Tool is already installed, there is no need to install CimScope. This chapter describes how to set up the Communication Manager.

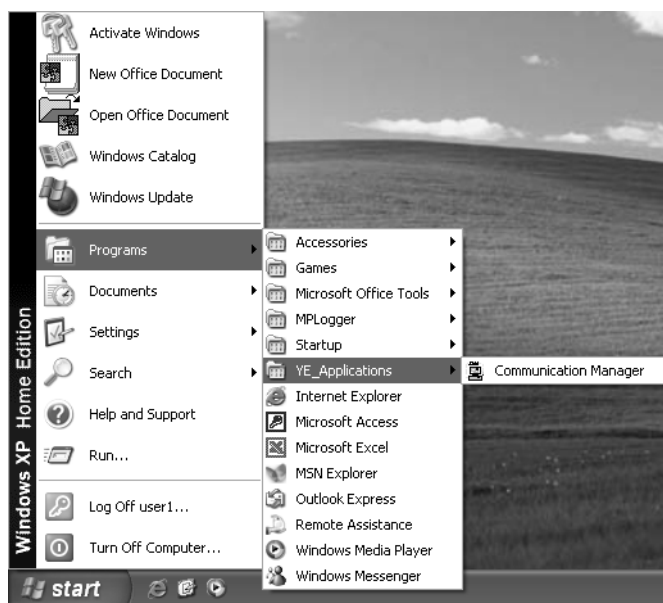
9.1 Starting the Communication Manager	9-2
9.2 Serial (MEMOBUS) Communications Settings	9-4
9.3 CP-218 (Ethernet) Communications Setting	9-7
9.4 Saving the Settings	9-11

9.1 Starting the Communication Manager

To connect MPLOGGER to a controller, the Communication Driver must be set up in the Communication Manager. To set up the Communication Manager, it must first be started. Use the following procedure.

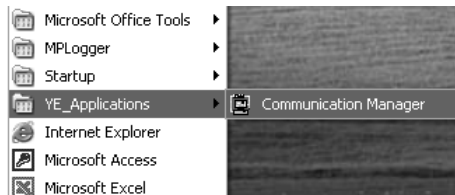
1. Selecting the YE Application

Select ***Programs - YE_Applications*** from the Windows Start Menu.



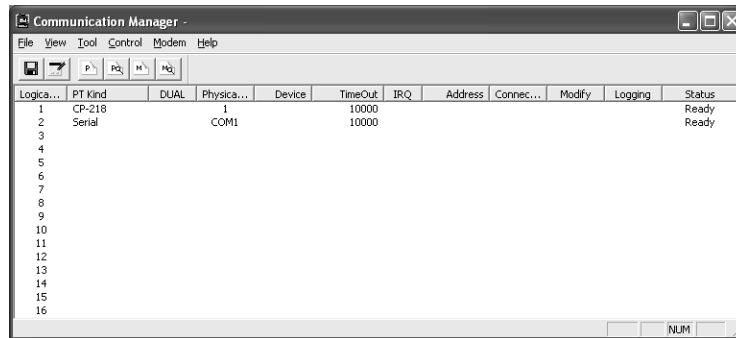
2. Starting the Communication Manager

Select ***YE_Applications - Communication Manager***.



3. Communication Manager Startup

When the Communication Manager is launched, the following window will appear.



Communication Manager parameters can be set in this window.

9.2 Serial (MEMOBUS) Communications Settings

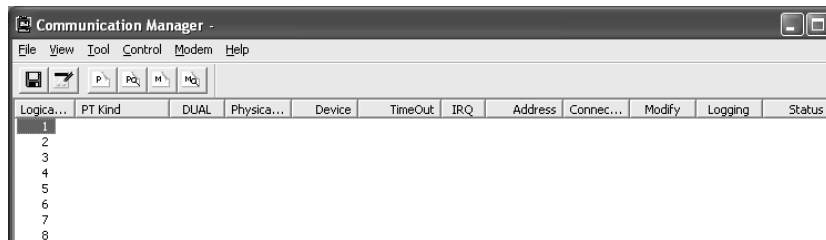
To connect MPLOGGER and a controller with serial communications (MEMOBUS protocol), the RS-232 communications port (COM port) and Communication Manager must be set up.

This section describes how to set up serial communications with the MEMOBUS protocol after the Communication Manager has been started.

1. Logical Port Selection

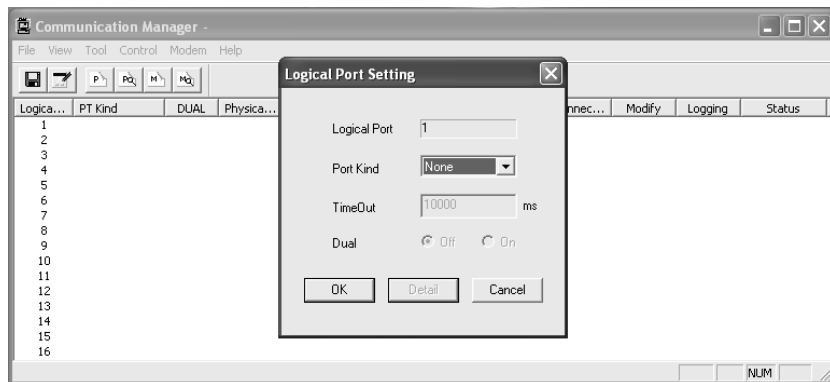
Select a logical port in the **Communication Manager** Window.

(Double-click the number (1 to 16) of the desired logical port. Port 1 is selected in the following example.)



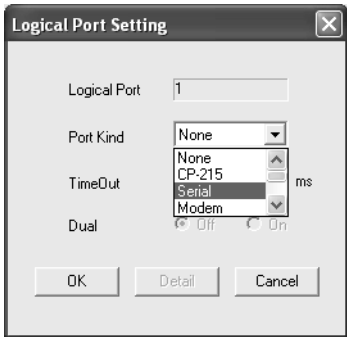
2. Logical Port Settings

When a logical port is selected, the **Logical Port Setting** Dialog Box will appear.



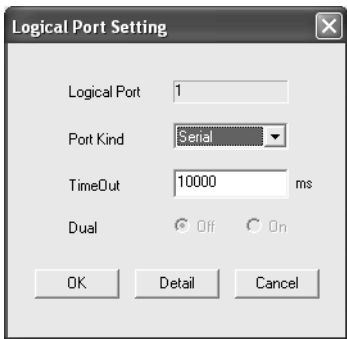
3. Port Kind Settings

Select the port type of the logical port in the *Port Kind* Box. If RS-232C is used for communications, select *Serial*.



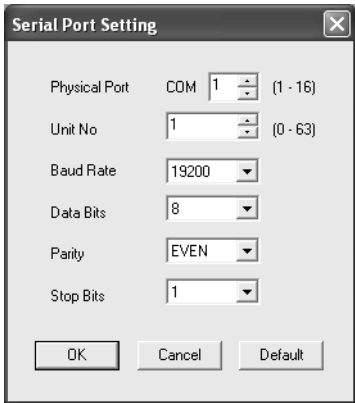
4. Selection Confirmation

If *Serial* was selected, confirm that it is displayed in the *Port Kind* Box as shown below.



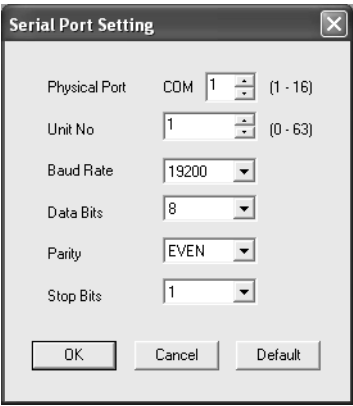
5. Detailed Serial Settings

After selecting the port kind, click the **Detail** Button to display the **Serial Port Setting** Dialog Box shown below.



6. Physical Port Selection

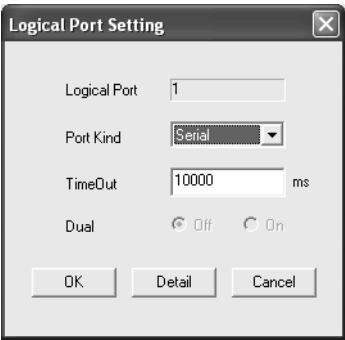
Select the physical port number in the *Physical Port* Box. The physical ports depend on the type of personal computer and application. Select the COM port that connects to the controller. Normally, the other parameters can be left with their default values.



Depending on the model of the personal computer, COM1 and COM2 may be displayed as COM A and B. In this example, the COM1 port is selected.

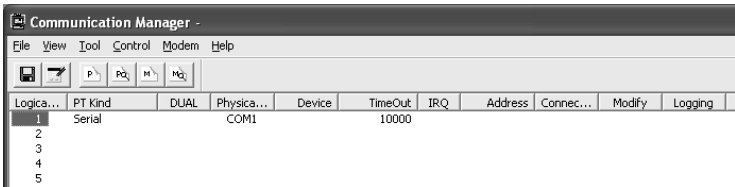
7. Confirming the Detail Settings

Click **OK** in the **Serial Port Setting** Dialog Box to return to the **Logical Port Setting** Dialog Box.



8. Saving the Logical Port Settings

Click **OK** in the **Logical Port Setting** Dialog Box to save the settings and close the dialog box. The parameters will be displayed in the physical port list in the Communication Manager.



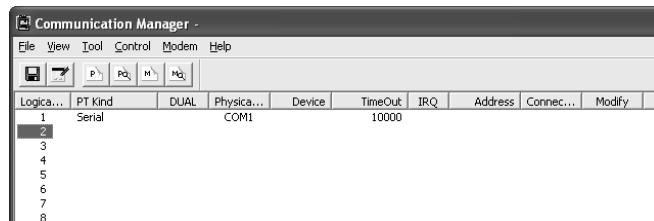
9.3 CP-218 (Ethernet) Communications Setting

To connect MPLOGGER and a controller with Ethernet communications (MEMOBUS protocol), the personal computer Ethernet communications port, controller CP-218 communications port, and Communication Manager must be set up. This section describes how to set up CP-218 communications with the MEMOBUS protocol after the Communication Manager has been started.

1. Logical Port Selection

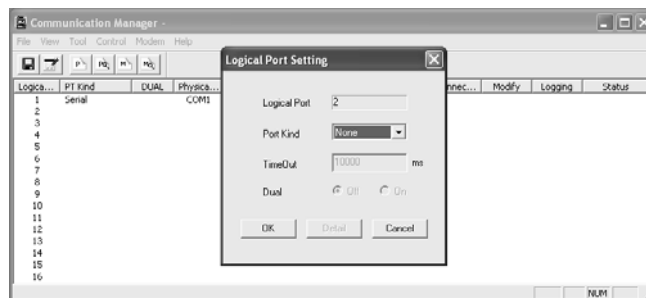
Select a logical port in the **Communication Manager** Window.

(Double-click the number (1 to 16) of the desired logical port. Port 2 is selected in the following example.)



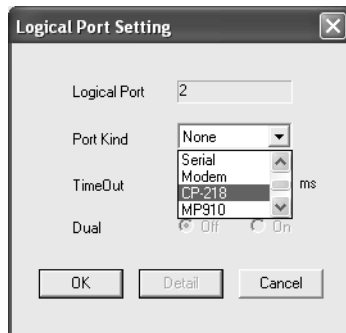
2. Logical Port Settings

When a logical port is selected, the **Logical Port Setting** Dialog Box will appear.



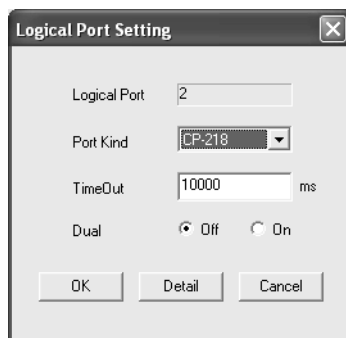
3. Port Kind Setting

Select the port type of the logical port from the *Port Kind* Box. If Ethernet is used for communications, select *CP-218*.



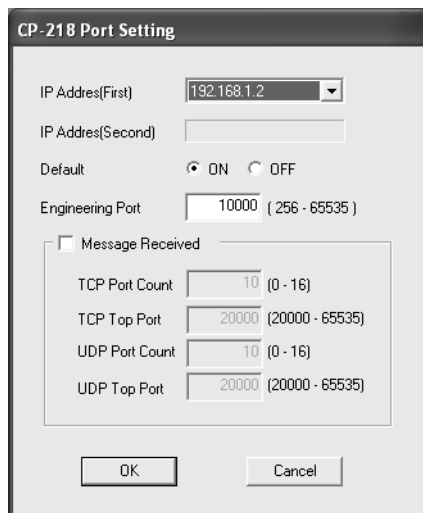
4. Selection Confirmation

If *CP-218* was selected, confirm that it is displayed in the *Port Kind* Box as shown below.



5. CP-218 Option Details.

After selecting the Port Kind, click the **Detail** Button to display the **C-218 Port Setting** Dialog Box as shown below.



6. IP Address Selection

Select an IP address for the first port from the *IP Address (First)* Box in the **CP-218 Port Setting** Dialog Box. The default IP address and the actual IP address will both be displayed. Select the actual IP address that is being used.

(The default setting of 192.168.1.2 is selected in this example.)

The dialog box titled "CP-218 Port Setting" contains the following fields and controls:

- IP Address(First):** A dropdown menu with "192.168.1.2" selected. Below it, a text box displays "127.0.0.1".
- IP Address(Second):** A text box displaying "192.168.1.2".
- Default:** Radio buttons for "ON" (selected) and "OFF".
- Engineering Port:** A text box with "10000" and a range "(256 - 65535)".
- Message Received:** A checkbox that is currently unchecked.
- TCP Port Count:** A text box with "10" and a range "(0 - 16)".
- TCP Top Port:** A text box with "20000" and a range "(20000 - 65535)".
- UDP Port Count:** A text box with "10" and a range "(0 - 16)".
- UDP Top Port:** A text box with "20000" and a range "(20000 - 65535)".
- Buttons:** "OK" and "Cancel" at the bottom.

7. IP Address Confirmation

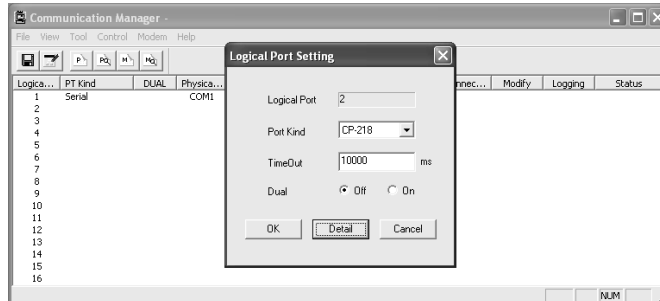
When an IP address has been selected, it will be displayed in *IP Address (First)* Box as shown below.

The dialog box titled "CP-218 Port Setting" contains the following fields and controls:

- IP Address(First):** A dropdown menu with "192.168.1.2" selected.
- IP Address(Second):** An empty text box.
- Default:** Radio buttons for "ON" (selected) and "OFF".
- Engineering Port:** A text box with "10000" and a range "(256 - 65535)".
- Message Received:** A checkbox that is now checked.
- TCP Port Count:** A text box with "10" and a range "(0 - 16)".
- TCP Top Port:** A text box with "20000" and a range "(20000 - 65535)".
- UDP Port Count:** A text box with "10" and a range "(0 - 16)".
- UDP Top Port:** A text box with "20000" and a range "(20000 - 65535)".
- Buttons:** "OK" and "Cancel" at the bottom.

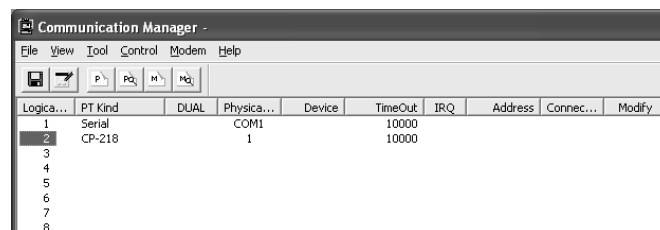
8. Saving the CP-218 Port Settings

Click **OK** in the **CP-218 Port Setting** Dialog Box to return to the **Logical Port Setting** Dialog Box.



9. Saving the Logical Port Settings

Click **OK** in the **Logical Port Setting** Dialog Box to save the settings and close the dialog box. The parameters will be displayed in the physical port list in the Communication Manager.



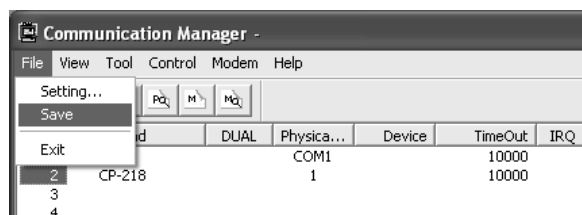
9.4 Saving the Settings

Once the Logical Port settings have been completed, they must be saved. This can be done from the **Communication Manager** Window. For the modifications of the settings to become valid, the Communication Manager must be closed after the parameters are saved. (The new settings will be effective the next time the software is started.)

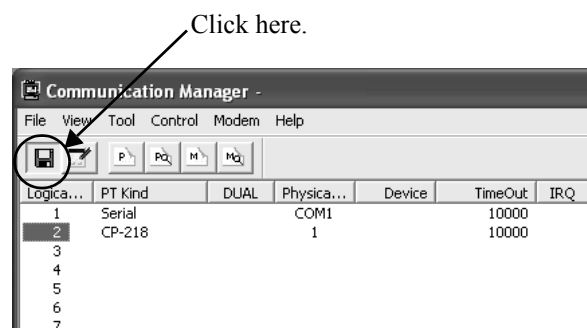
It is possible to add or modify logical ports whenever desired.

1. Saving the Settings

Select **File - Save** from the Communication Manager menus.

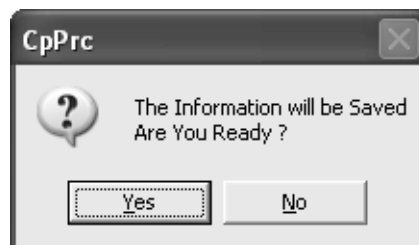


Click the **Save** Icon on the Communication Manager toolbar.



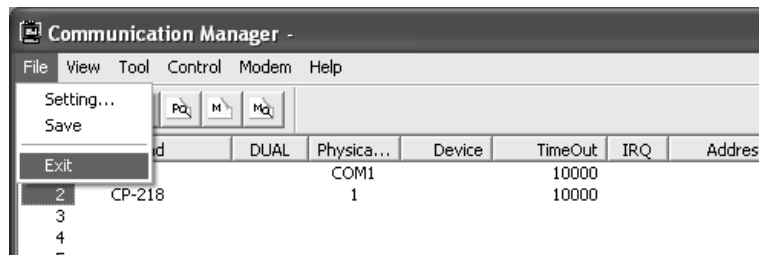
2. Confirming the Save Operation

When saving the settings, a confirmation message will appear as shown below. Click **Yes**.

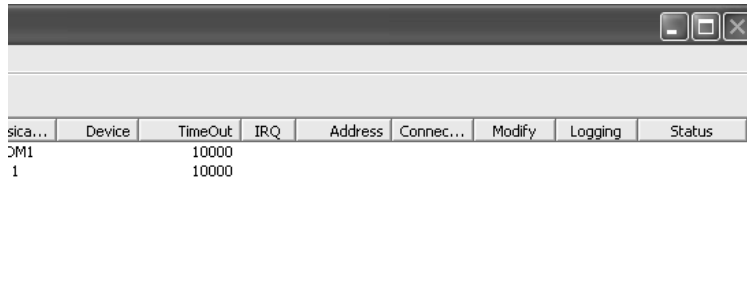


3. Closing the Communication Manager.

Select **File - Exit** from the Communication Manager menus.

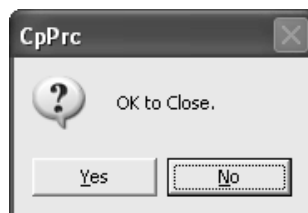


Alternatively, click the Close Button  at the top right corner of the window.



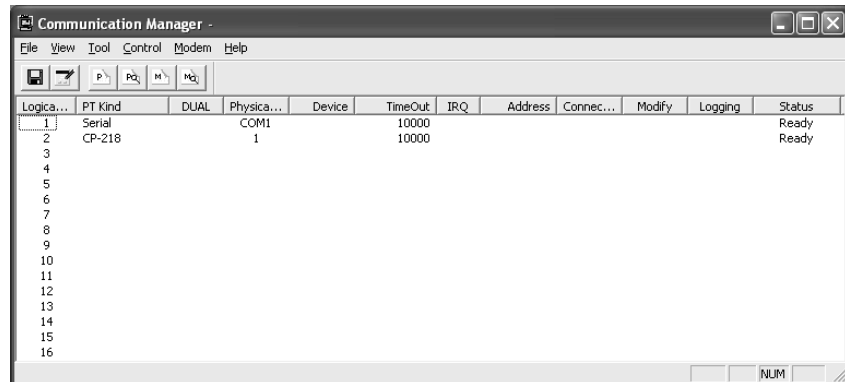
4. Confirming the Close Operation

When closing the window, a confirmation message will appear as shown below. Click **Yes**.



5. Checking the Settings

After closing the Communication Manager, restart it again and confirm that the settings were saved correctly.



Appendix A

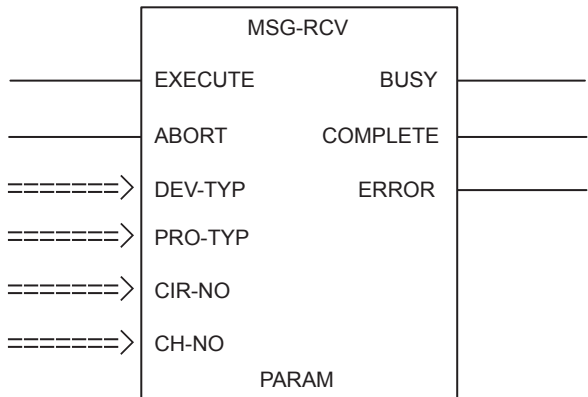
A

A.1	Message Receive Function (MSG-RCV)	-----	A-2
A.1.1	Outline of Message Receive Function Specifications	-----	A-2
A.1.2	Parameter List (PARAM)	-----	A-3
A.1.3	Parameter Details	-----	A-4
A.1.4	Input Parameters	-----	A-8
A.1.5	Output Parameters	-----	A-9

A.1 Message Receive Function (MSG-RCV)

If the controller automatic receive function is not used, a MSG-RSV command must be included in the controller's ladder program.

A.1.1 Outline of Message Receive Function Specifications

Function Name	MSG-RCV			
Function	Receives messages from other terminals on the network, determined by the type of Communications Device. A number of protocols are supported. Keep the EXECUTE command ON until either COMPLETE or ERROR turns ON. Communications Device: 217IF, 218IF, 260IF, SVB Protocol: MEMOBUS, Non-procedure			
Function Definition				
I/O Definition	No.	Name	I/O Designation	Description
Input Parameters	1	EXECUTE	B-VAL	Receive Message Command
	2	ABORT	B-VAL	Abort Receive Message Command
	3	DEV-TYP	I-REG	Communications Device Type 217IF = 5, 218IF = 6, SVB-01 = 10, 260IF = 11
	4	PRO-TYP	I-REG	Communications Protocol MEMOBUS = 1*, Non-procedure 1 = 2, Non-procedure 2 = 3
	5	CIR-NO	I-REG	Circuit Number 217IF = 1 to 24, 218IF = 1 to 8, 260IF = 1 to 8
	6	CH-NO	I-REG	Communications Buffer Channel Number 217IF = 1, 218IF = 1 to 10, 260IF = 1 to 4
	7	PARAM	Address Input	Setting Data Start Address (MW, DW, #W)
Output Parameters	1	BUSY	B-VAL	Receiving Message
	2	COMPLETE	B-VAL	Completed Receiving Message
	3	ERROR	B-VAL	Error Occurred

* To communicate with MELSEC, OMRON, or MODBUS protocols, set the communications protocol (PRO-TYP) to MEMOBUS (= 1). The protocol is converted by the Communications Device (217IF, 218IF).

A.1.2 Parameter List (PARAM)

The input parameter 'PARAM' is a parameter list structure containing 17 words. The actual value of PARAM is an MW, DW or #W start address.

The structure of the parameters are shown below. There is no need to set parameters with a blank entry for the non-procedure communications protocol.

PARAM No.	I/O	Protocol		Comments
		MEMOBUS	Non-Procedure	
00* ¹	OUT	Process result	Process result	
01	OUT	Status	Status	
02	OUT* ²	Partner station number	Partner station number	For DEV-TYP = 218IF, this is the Partner Connection number
03	SYS	Reserved by system.	Reserved by system.	
04	OUT	Function code		
05	OUT	Data address	Data address	
06	OUT	Data size	Data size	
07	OUT	Partner CPU number	Partner CPU number	
08	IN	Coil offset		
09	IN	Input relay offset		
10	IN	Input register offset		
11	IN	Holding register offset	Register offset	
12	IN	Writing range low	Register offset	
13	IN	Writing range high	Register offset	
14	SYS	Reserved by system.	Reserved by system.	
15	SYS	Reserved by system.	Reserved by system.	
16	SYS	Reserved by system.	Reserved by system.	

* 1. PARAM00 is the start address.

* 2. If DEV-TYP = 218IF, this item is input.

A.1.3 Parameter Details

■ Process Result (PARAM00)

Outputs the process result to the upper bytes. The lower bytes are for system analysis.

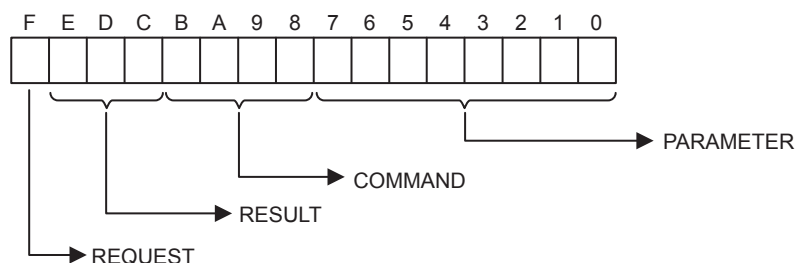
- 00xx: BUSY
- 10xx: COMPLETE
- 8xxx: ERROR

Error code	Error	Description
81xx	Function code error	An invalid function code was sent or received.
82xx	Address setting error	The data address, coil offset, input relay offset, input register offset, or holding register offset is out of range.
83xx	Data size error	The amount of sent or received data is out of range.
84xx	Circuit number setting error	The circuit number is out of range.
85xx	Channel number setting error	The channel number is out of range.
86xx	Station address error	The station number is out of range.
88xx	Transmitter error	An error response was returned from the transmitter.
89xx	Device option error	An invalid device was selected.

■ Status (PARAM01)

Outputs the status of the transmitter.

Bit Assignments



REQUEST

1 = Request

0 = Notification that Reception is Completed

RESULT

Code	Message	Description
1	SEND_OK	Normal transmission end
2	REC_OK	Normal reception end
3	ABORT_OK	Abort end
4	FMT_NG	Parameter format error
5	SEQ_NG, or INIT_NG	Command sequence error Token is still not received. Not connected to the communications system.
6	RESET_NG, or O_RING_NG	Reset status Out of ring. The token monitoring time was exceeded and a token was not received.
7	REC_NG	Data reception error (Error detected in a lower level program.)

Command (COMMAND)

Code	Message	Description
1	U_SEND	Send generic message
2	U_REC	Receive generic message
3	ABORT	Abort
8	M_SEND	Send MEMOBUS command: Completed when a response is received.
9	M_REC	Receive MEMOBUS command: Also sends a response.
C	MR_SEND	Send MEMOBUS response.

Parameter (PARAMETER)

Outputs an error code when RESULT = 4 (FMT_NG). The error codes are listed in the following table. In other situations, it outputs the station address of the communications partner.

CODE	ERROR TYPE
00	NO ERROR
01	STATION ADDRESS OUT OF RANGE
02	MEMOBUS RESPONSE RECEPTION MONITORING TIME ERROR
03	NUMBER OF RE-SEND SETTING ERROR
04	CYCLIC DOMAIN SETTING ERROR
05	Message signal CPU number error
06	Message signal register number error
07	Message signal number of words error

■ Partner Station Number (PARAM02)

Outputs the station number of the transmitter.

For 218IF, specifies (inputs) the connection number (1 to 20).

■ Function Code (PARAM04)

Outputs the received function code.

Function Code	Description	Expansion MEMOBUS Protocol *	MEMOBUS Protocol *
00H	Not used.	×	×
01H	Read Coil Status	○	○
02H	Read Input Relay Status	○	○
03H	Read Content of Holding Register	○	○
04H	Read Content of Input Register	○	○
05H	Change Status of Single Coil	○	○
06H	Write to Single Holding Register	○	○
07H	Not used.	×	×
08H	Loopback Test	○	○
09H	Read Content of Holding Register (Expansion)	○	×
0AH	Read Content of Input Register (Expansion)	○	×
0BH	Write to Holding Register (Expansion)	○	×
0CH	Not used.	×	×
0DH	Discontinuous Reading of Holding Registers (Expansion)	○	×
0EH	Discontinuous Writing to Holding Registers (Expansion)	○	×
0FH	Change Multiple Coil Statuses	○	○
10H	Write to Multiple Holding Registers	○	○
11H to 20H	Not used.	×	×
21H to 30H	Reserved for system.	×	×
31H	MELSEC Fixed Buffer Communications	○	×
32H	MELSEC Random Buffer Read	○	×
33H	MELSEC Random Buffer Write	○	×
34H to 3FH	Reserved for system.	×	×
40H to 4FH	Reserved for system.	×	×
50H and higher	Not used	×	×

* ×: No output, ○: Output.

Note: 1. In master control, the transceiver register must be MW(MB).

2. In slave control, the coils, holding registers, input relays, and input registers correspond to MB, MW, IB, and IW, respectively.

■ Data Address (PARAM05)

Outputs the data address requested from the transmitter.

■ Data Size (PARAM06)

Outputs the data size (number of bits or words) for a read or write request. For non-procedure 2, it outputs the number of bytes.

■ Partner CPU Number (PARAM07)

Outputs the CPU number of the partner CPU.

■ Coil Offset (PARAM08)

Sets the offset word address of the coil.

The offset is effective when the function code is 01H, 05H, or 0FH.

■ Input Relay Offset (PARAM09)

Sets the offset word address of the input relay.

The offset is effective when the function code is 02H.

■ Input Register Offset (PARAM10)

Sets the offset word address of the input register.

The offset is effective when the function code is 04H or 0AH.

■ Holding Register Offset (PARAM11)

Sets the offset word address of the holding register.

The offset is effective when the function code is 03H, 06H, 09H, 0BH, 0DH, 0EH, or 10H.

■ Writing Range Low (PARAM12) and Writing Range High (PARAM13)

Sets the range where writing is permitted in response to a write request. If the request is outside this range, an error will occur.

The range is effective when the function code is 0BH, 0EH, 0FH, or 10H.

$0 \leq \text{Writing Range LO} \leq \text{Writing Range HI} \leq \text{MW Maximum Value of Address}$

■ Reserved for System (PARAM14)

Stores the channel number that is being used. Set PARAM14 to 0000H with the user program in the initial scan when the system is started. This is reserved for system use after that, so do not change the values with the user program.

A.1.4 Input Parameters

■ EXECUTE (Receive Command)

When this command is ON, message reception has started. The command must be held ON until either COMPLETE or ERROR turns ON.

■ ABORT(Abort Reception Command)

When this command is ON, reception is aborted. This command has a higher priority than the EXECUTE command.

■ DEV-TYP (Communications Device Type)

Specifies the communications device type.

Device	Type Code
217IF	5
218IF	6
SVB	10
260IF	11

■ PRO-TYP (Communications Protocol)

Specifies the communications protocol. To communicate with the MELSEC protocol, specify the MEMOBUS protocol to (= 1). The protocol is converted by the Communications Device (217IF and 218IF).

- MEMOBUS: Setting = 1
- Non-procedure 1 : Setting = 2 (Non-procedure, receives data in words.)
- Non-procedure 2 : Setting = 3 (Non-procedure, receives data in bytes.)

Note: Non-procedure communications do not send a response to the other terminal.

■ CIR-NO (Circuit Number)

Specifies the circuit number.

■ CH-NO (Channel Number)

Specifies the channel number. Make sure that each channel number is used only once in the same circuit.

Device	Channel Number
217IF	1
218IF	1 to 10
260IF	1 to 4

■ PARAM (Parameter List Start Address)

Specifies the Start address of the parameter list. For details on the parameters, refer to *A.1.3 Parameter Details*.

Usable Registers	Start Address Examples
MW	MA00000, MA00100,
DW	DA00000, DA00200,
#W	#A00000, #A00300,

A.1.5 Output Parameters

■ BUSY

Indicates that processing is currently in progress. Hold the EXECUTE command in the ON position.

■ COMPLETE

Turns ON with one scan after a normal end.

■ ERROR

Turns ON with one scan of an error end.

To find the cause, refer to PARAM00 and PARAM01, which are explained in *A.1.3 Parameter Details*.

Revision History

The revision dates and numbers of the revised manuals are given on the bottom of the back cover.

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Machine Controller MP900/MP2000 Series

MPLOGGER

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