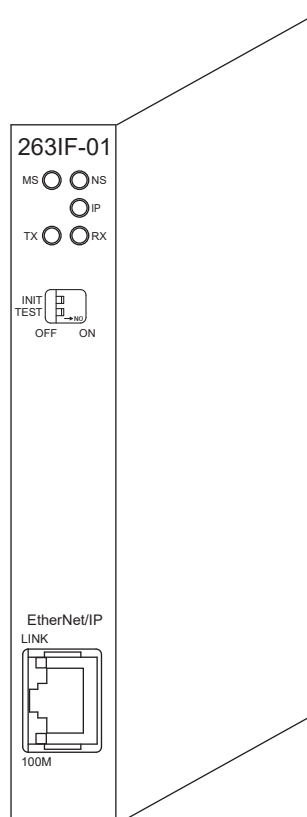


Machine Controller MP2000 Series

263IF-01

EtherNet/IP Communication Module USER'S MANUAL

Model: JAPMC-CM2304-E



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Using this Manual

This manual describes EtherNet/IP Communication Module 263IF-01 for the MP2000-series Machine Controller. Read this manual thoroughly before using the 263IF-01. Keep this manual in a safe place for future reference.

■ Basic Terms

Unless otherwise specified, the following definitions are used:

- MP2000-series Machine Controllers: MP2100M, MP2200, MP2300, MP2310, and MP2300S Machine Controllers
- PLC: Programmable Logic Controller
- MPE720: The Programming Device Software or a personal computer running the Programming Device Software
- Engineering: The setup, adjustment, programming, maintenance, and management of devices used to create the system.

■ Manual Configuration

This manual consists of the chapters listed in the following table. Read the chapters of this manual as required by the purpose.

Chapter	Purpose	Selecting Models and Peripheral Devices	Studying Specifications and Ratings	Designing the System	Panel Installation and Wiring	Trial Operation	Maintenance and Inspection
Chapter 1	EtherNet/IP Communication	✓		✓			
Chapter 2	263IF-01 Module	✓	✓	✓	✓	✓	✓
Chapter 3	Mounting and Starting the Module		✓	✓	✓	✓	✓
Chapter 4	Description of the EtherNet/IP Transmission Definition		✓	✓		✓	✓
Chapter 5	Examples of EtherNet/IP Transmission Definition Settings			✓		✓	
Chapter 6	Explicit Message and Explicit Message Send Function			✓		✓	
Chapter 7	Troubleshooting		✓	✓	✓	✓	✓

■ Graphic Symbols Used in this Manual

The graphic symbols used in this manual indicate the following type of information.



- This symbol is used to indicate important information that should be memorized or minor precautions, such as precautions that will result in alarms if not heeded.

■ Indication of Reverse Signals

In this manual, the names of reverse signals (ones that are valid when low) are written with a forward slash (/) before the signal name, as shown in the following example:

<Notation Examples> $\overline{\text{S-ON}}$ = /S-ON
 $\overline{\text{P-CON}}$ = /P-CON

■ Related Manuals

The following table lists the manuals relating to the 263IF-01 Module for the MP2000-series Machine Controller. Refer to these manuals as needed.

Manual Name	Manual Number	Contents
Machine Controller MP2100/MP2100M User's Manual Design and Maintenance	SIEP C880700 01	Describes how to use the MP2100 and MP2100M Machine Controllers.
Machine Controller MP2200 User's Manual	SIEP C880700 14	Describes how to use the MP2200 Machine Controller and the modules that can be connected.
Machine Controller MP2300 Basic Module User's Manual	SIEP C880700 03	Describes how to use the MP2300 Basic Module and the modules that can be connected.
Machine Controller MP2310 Basic Module User's Manual	SIEP C880732 01	Describes how to use the MP2310 Basic Module and the modules that can be connected.
Machine Controller MP2300S Basic Module User's Manual	SIEP C880732 00	Describes how to use the MP2300S Basic Module and the modules that can be connected.
Machine Controller MP2000 Series Motion Module Built-in SVB/SVB-01 User's Manual	SIEP C880700 33	Provides a detailed description on the MP2000 Series Machine Controller built-in SVB Module and slot-mounting optional SVB-01 Module.
Machine Controller MP2000 Series Communication Module User's Manual	SIEP C880700 04	Provides the information on the Communication Module that can be connected to MP2000 Series Machine Controller and the communication methods.
Machine Controller MP2000 Series 262IF-01 FL-net Communication Module User's Manual	SIEP C880700 36	Provides a detailed description of the FL-net Communication Module 262IF-01 that can be connected to an MP2000-series Machine Controller.
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 MP900/MP2000 Series User's Manual: Motion Programming	SIEZ-C887-1.3	Describes the instructions used in MP900/MP2000 motion programming.
Machine Controller MP2000 Series MPE720 Programming Device Version 6 User's Manual	SIEP C880700 30	Describes how to install and operate the programming tool MPE720 version 6 for MP2000 Series Machine Controllers.
Machine Controller MP900/MP2000 Series MPE720 Software for Programming Device User's Manual	SIEP C880700 05	Describes how to install and operate the MP900/MP2000 Series programming system (MPE720).
Machine Controller MP900/MP2000 Series New Ladder Editor Programming Manual	SIEZ-C887-13.1	Describes the programming instructions of the New Ladder Editor, which assists MP900/MP2000 Series design and maintenance.
Machine Controller MP900/MP2000 Series New Ladder Editor User's Manual	SIEZ-C887-13.2	Describes the operating methods of the New Ladder Editor, which assists design and maintenance of the MP900/MP2000 series Machine Controllers.
Machine Controller MP920 User's Manual Communication Modules	SIEZ-C887-2.6	Describes the functions, specifications, and application methods of the MP920 Communication Modules (217IF, 215IF, and 218IF).

■ Copyrights

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- Ethernet is a registered trademark of the Xerox Corporation.
- Other product names and company names are the trademarks or registered trademarks of the respective company. "TM" and the ® mark do not appear with product or company names in this manual.

Safety Information


The following conventions are used to indicate precautions in this manual. Information marked as shown below is important for the safety of the user. Always read this information and heed the precautions that are provided. The conventions are as follows:




Indicates precautions that, if not heeded, could possibly result in loss of life or serious injury.




Indicates precautions that, if not heeded, could result in relatively serious or minor injury, or property damage.


If not heeded, even precautions classified under  CAUTION can lead to serious results depending on circumstances.




Indicates prohibited actions. Specific prohibitions are indicated inside .

For example,  indicates no fire or open flame.



Indicates mandatory actions. Specific actions are indicated inside .

For example,  indicates that grounding is required.

Safety Precautions

The following precautions are for checking products on delivery, storage, transportation, installation, wiring, operation, application, inspection, and disposal. These precautions are important and must be observed.

■ General Precautions

WARNING

- Before starting operation while connected to the machine, ensure that an emergency stop procedure has been provided and is working correctly.
There is a risk of injury.
- Do not touch anything inside the product.
There is a risk of electrical shock.
- Always keep the front cover attached when power is being supplied.
There is a risk of electrical shock.
- Observe all procedures and precautions given in this manual for trial operation.
Operating mistakes while the Servomotor and machine are connected can cause damage to the machine or even accidents resulting in injury or death.
- Do not remove the front cover, cables, connector, or options while power is being supplied.
There is a risk of electrical shock.
- Do not damage, pull on, apply excessive force to, place heavy objects on, or pinch cables.
There is a risk of electrical shock, operational failure of the product, or burning.
- Do not attempt to modify the product in any way.
There is a risk of injury or device damage.
- Do not approach the machine when there is a momentary interruption to the power supply. When power is restored, the MP2000-series Machine Controller or machine connected to it may start operation suddenly. Provide suitable safety measures to protect people when operation restarts.
There is a risk of injury.
- Do not allow installation, disassembly, or repairs to be performed by anyone other than specified personnel.
There is a risk of electrical shock or injury.

■ Storage and Transportation



CAUTION

- ♦ Do not store or install the product in locations subject to the following. There is a risk of fire, electric shock, and machine product damage.
 - ♦ Direct sunlight
 - ♦ Ambient temperatures exceeding the storage or operating conditions
 - ♦ Ambient humidity exceeding the storage or operating conditions
 - ♦ Extreme changes in temperature that would result in condensation
 - ♦ Corrosive or flammable gas
 - ♦ Excessive dust, dirt, salt, or metallic powder
 - ♦ Water, oil, or chemicals
 - ♦ Vibration or shock

- ♦ Do not overload the product during transportation.

There is a risk of injury or an accident.

- ♦ Never subject the product to an atmosphere containing halogen (fluorine, chlorine, bromine, or iodine) during transportation or installation.

There is a risk of device damage or an accident.

- ♦ If disinfectants or insecticides must be used to treat packing materials such as wooden frames, pallets, or plywood, the packing materials must be treated before the product is packaged, and methods other than fumigation must be used.

Example: Heat treatment, where materials are kiln-dried to a core temperature of 56°C for 30 minutes or more.

If the electronic products, which include stand-alone products and products installed in machines, are packed with fumigated wooden materials, the electrical components may be greatly damaged by the gases or fumes resulting from the fumigation process. In particular, disinfectants containing halogen, which includes chlorine, fluorine, bromine, or iodine can contribute to the erosion of the capacitors.

■ Installation



CAUTION

- ♦ Never use the product in locations subject to water, corrosive atmospheres, or flammable gas, or near burnable objects.

There is a risk of electrical shock or fire.

- ♦ Do not step on the product or place heavy objects on the product.

There is a risk of injury.

- ♦ Do not block the air exhaust port on the product. Do not allow foreign objects to enter the product.

There is a risk of element deterioration inside, an accident, or fire.

- ♦ Always mount the product in the specified orientation.

There is a risk of an accident.

- ♦ Do not subject the product to strong shock.

There is a risk of an accident.

■ Wiring

CAUTION

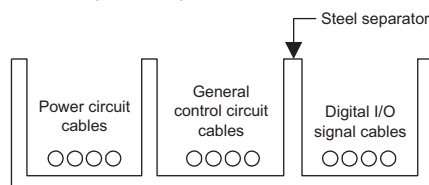
- ♦ Check the wiring to be sure it has been performed correctly.
There is a risk of motor run-away, injury, or an accident.
- ♦ Always use a power supply of the specified voltage.
There is a risk of burning.
- ♦ In places with poor power supply conditions, take all steps necessary to ensure that the input power is supplied within the specified voltage range.
There is a risk of device damage.
- ♦ Install breakers and other safety measures to provide protection against shorts in external wiring.
There is a risk of fire.
- ♦ Provide sufficient shielding when using the product in the locations subject to the following.
There is a risk of device damage.
 - ♦ Noise, such as from static electricity
 - ♦ Strong electromagnetic or magnetic fields
 - ♦ Radiation
 - ♦ Near power lines

■ Selecting, Separating, and Laying External Cables

CAUTION

- ♦ Consider the following items when selecting the I/O signal lines (external cables) to connect the product to external devices.
 - ♦ Mechanical strength
 - ♦ Noise interference
 - ♦ Wiring distance
 - ♦ Signal voltage, etc.
- ♦ Separate the I/O signal lines from the power lines both inside and outside the control box to reduce the influence of noise from the power lines.
If the I/O signal lines and power lines are not separated properly, malfunctioning may result.

Example of Separated External Cables



■ Maintenance and Inspection Precautions

CAUTION

- ♦ Do not attempt to disassemble the product.
There is a risk of electrical shock or injury.
- ♦ Do not change wiring while power is being supplied.
There is a risk of electrical shock or injury.

■ Disposal Precautions



CAUTION

- ♦ Dispose of the product as general industrial waste.

■ General Precautions

Observe the following general precautions to ensure safe application.

- ♦ The products shown in illustrations in this manual are sometimes shown without covers or protective guards. Always replace the cover or protective guard as specified first, and then operate the products in accordance with the manual.
- ♦ The drawings presented in this manual are typical examples and may not match the product you received.
- ♦ If the manual must be ordered due to loss or damage, inform your nearest Yaskawa representative or one of the offices listed on the back of this manual.

Warranty

(1) Details of Warranty

■ Warranty Period

The warranty period for a product that was purchased (hereinafter 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

(2) 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.

(3) 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.

(4) 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

EtherNet/IP Communication

This chapter gives an overview of EtherNet/IP communication.

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1.1 What is EtherNet/IP?

EtherNet/IP is a standard network in which the CIP (Common Industrial Protocol), defined by EN50170 and IEC61158 standards and proven in DeviceNet, is implemented over standard Ethernet and TCP/IP protocols. EtherNet/IP can handle the I/O messages that are used to control devices or to perform interlock communication between the controllers in real time, and also the explicit messages that check the configuration of and diagnose field devices. Since EtherNet/IP uses routing technology that is compatible with DeviceNet, it is possible to send and receive messages between devices in different networks by simply connecting EtherNet/IP and DeviceNet with a CIP router (gateway), without using additional networking and programs. The following figures show the protocol stack configuration of EtherNet/IP (includes DeviceNet) and the protocol stack concept of EtherNet/IP.

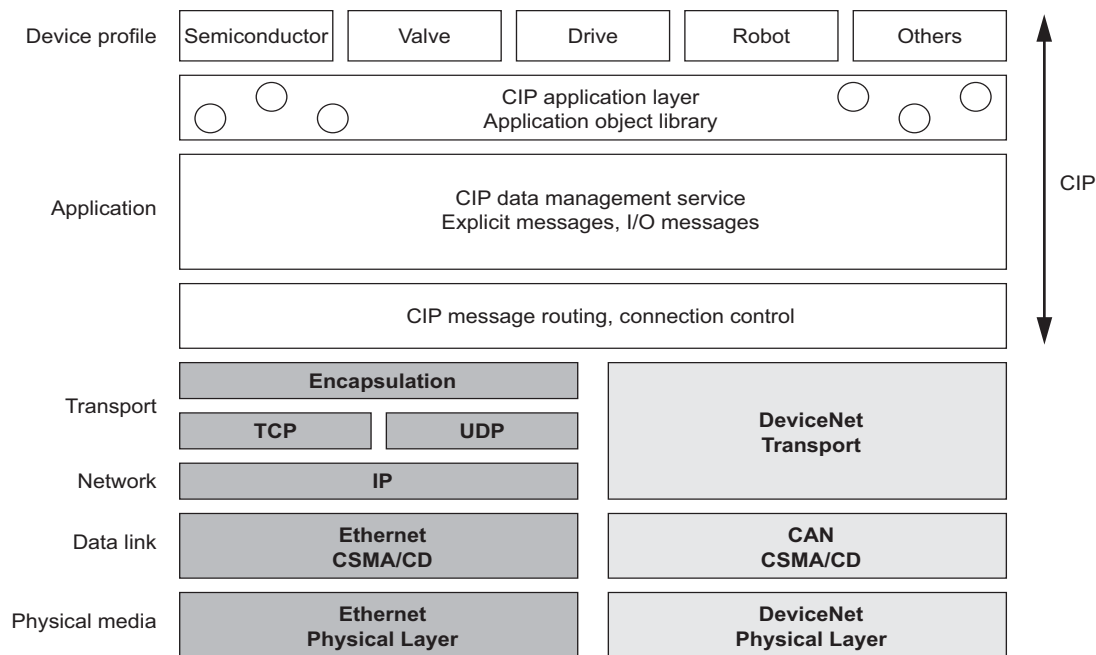


Fig. 1.1 Protocol Stack Configuration of EtherNet/IP (Includes DeviceNet)

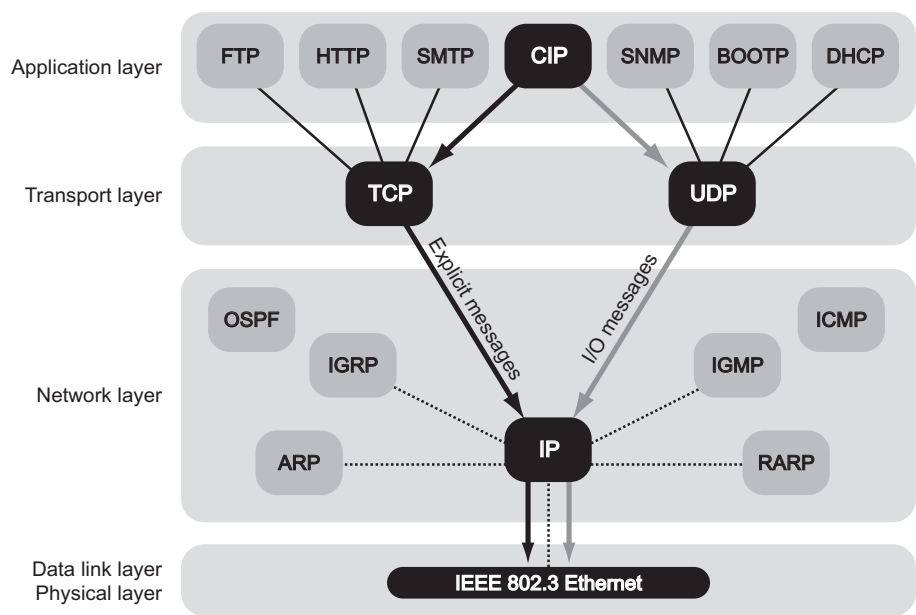


Fig. 1.2 Protocol Stack of EtherNet/IP

1.2 EtherNet/IP Features

EtherNet/IP is a standard network configured with standard worldwide protocols (Ethernet, TCP/IP, and CIP), it has the following features since it uses standard protocols.

- Can manage and integrate entire production systems, from field devices to the internet.
- Can control, set, diagnose the device and collect data on the same Ethernet.
- Can use a previously installed Ethernet for the information system.

The following figure illustrates how a system that connects EtherNet/IP devices and DeviceNet using EtherNet/IP may be arrayed.

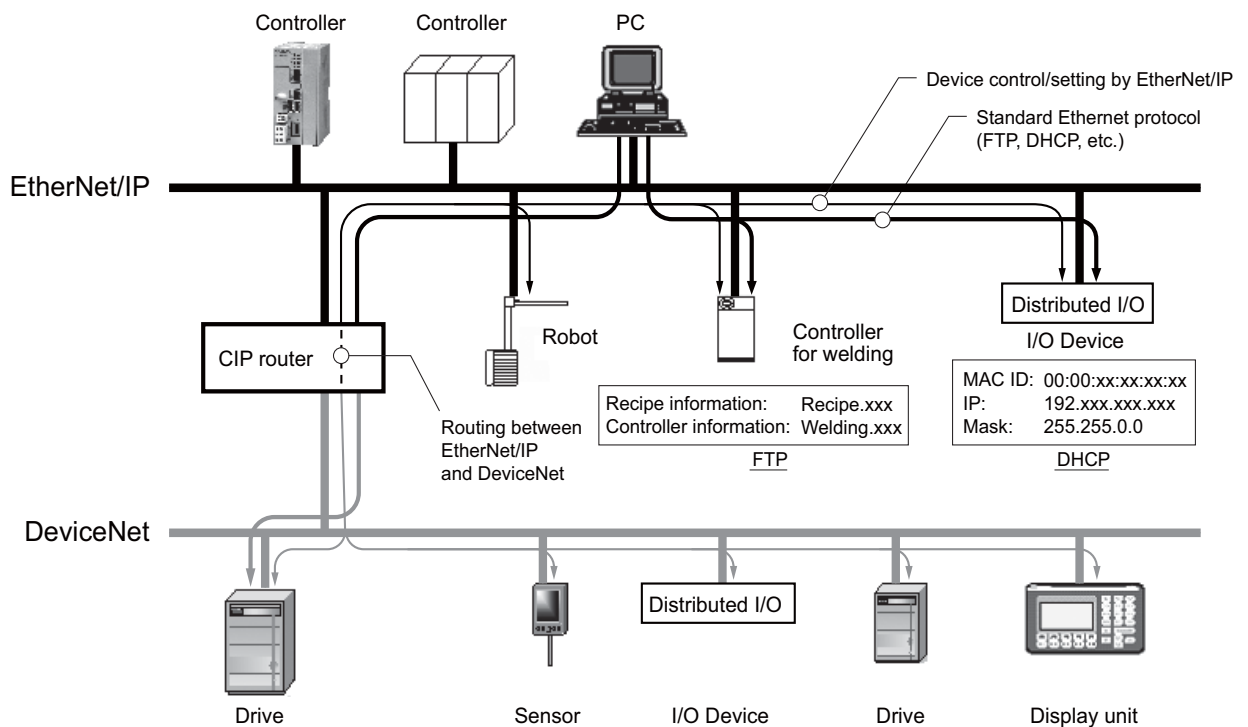


Fig. 1.3 Example of EtherNet/IP (Includes DeviceNet) System Configuration

1.3 EtherNet/IP (CIP) Communication Types

There are two kinds of CIP communication: Explicit message communication and I/O communication.

1.3.1 Explicit Message Communication

Explicit messages are used in general message communication between the client and the server (peer-to-peer communication).

- Two types of message communication is available, namely, connected message communication and unconnected message communication.
- An explicit message contains the communication destination object information and the request details.

■ Major Applications

Program uploading/downloading, device setting, data collection, diagnosing, etc.

1.3.2 I/O Communication

I/O communication is used for time-critical control data communication.

- Efficient communication is possible since only data is sent/received in I/O communication.
- The meaning of the data is pre-defined for each connection (communication target application object).

■ Major Applications

Transmission of control data for individual devices, etc.

1.4 Basic EtherNet/IP Terms

The following table gives basic EtherNet/IP terms that are used in this manual.

Term	Description	
Scanner	The master (referring to the side that transmits requests (commands)).	In EtherNet/IP I/O communication, the terms "scanner" and "adapter" are used instead of "master" and "slave".
Adapter	The slave (referring to the side that receives requests (commands)).	
Client	The master (referring to the side that transmits requests (commands)).	In EtherNet/IP explicit message communication, the terms "client" and "server" are used instead of "master" and "slave".
Server	The slave (referring to the side that receives requests (commands)).	
Object	A group of processing and data of a specific element of a device. It abstracts the functions of that element.	
Device	A model created as a collection of objects. Think of this as the actual device.	
Instance	The entity of an object. In other words, the instance indicates specifically what the object does. It is also called an object instance.	
Class	A collection of objects that have been generalized.	
Class ID	The code (ID) that identifies a class. ODVA has unified ID definitions, and each device vendor has unique ID definitions.	
Attribute	A description that can identify a function, characteristic, or other information of an object.	
Attribute ID	The code (ID) that identifies an attribute.	
Service	A request from outside an object to that object. This can also refer to the functions supported by an object. Example: Read data and vendor ID	
Instance No.	The number that identifies an object.	
Instance ID	The identification code (ID) that identifies an object. ODVA has unified ID definitions, and each device vendor has unique ID definitions.	
Request service code	Equivalent to the command in a message in normal message communications.	
Object address	Specified by the following three IDs: class ID, instance ID, and attribute ID. The destination to access that is the target of service is specified with this set of IDs.	
Request path	Same meaning as object address.	

263IF-01 Module

This chapter describes the external appearance and specifications of the 263IF-01 Module.

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2.1 Features

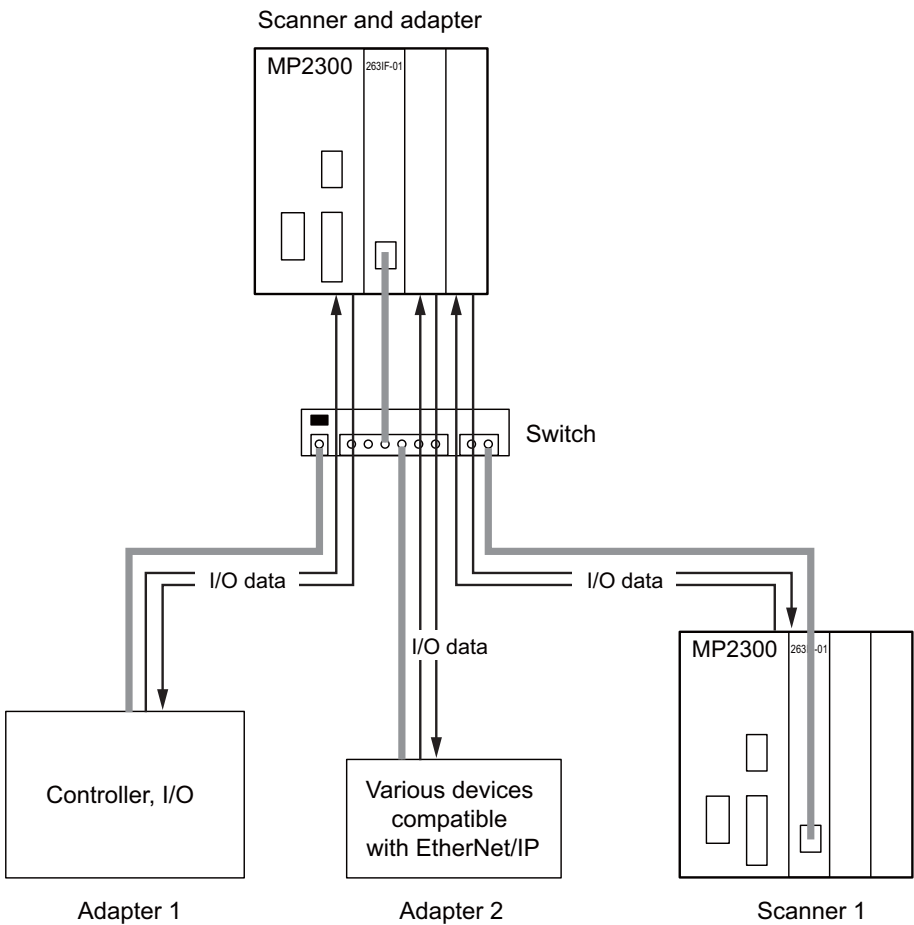
A 263IF-01 Module can perform I/O communication, explicit message communication and engineering communication.

2.1.1 I/O Communication

In I/O communication (Class 1), communication of time-critical control data is possible. This type of communication is mainly used between scanners and adapters in a 1:1 or 1:N configuration.

I/O communication using the 263IF-01 Module provides both the scanner and adapter functions and supports a maximum of 64 connected devices (scanner devices and adapter devices). The scanner and adapter functions operate simultaneously.

The following figure illustrates communication between scanners and adapters.



The communication trigger for an I/O communication is as follows.

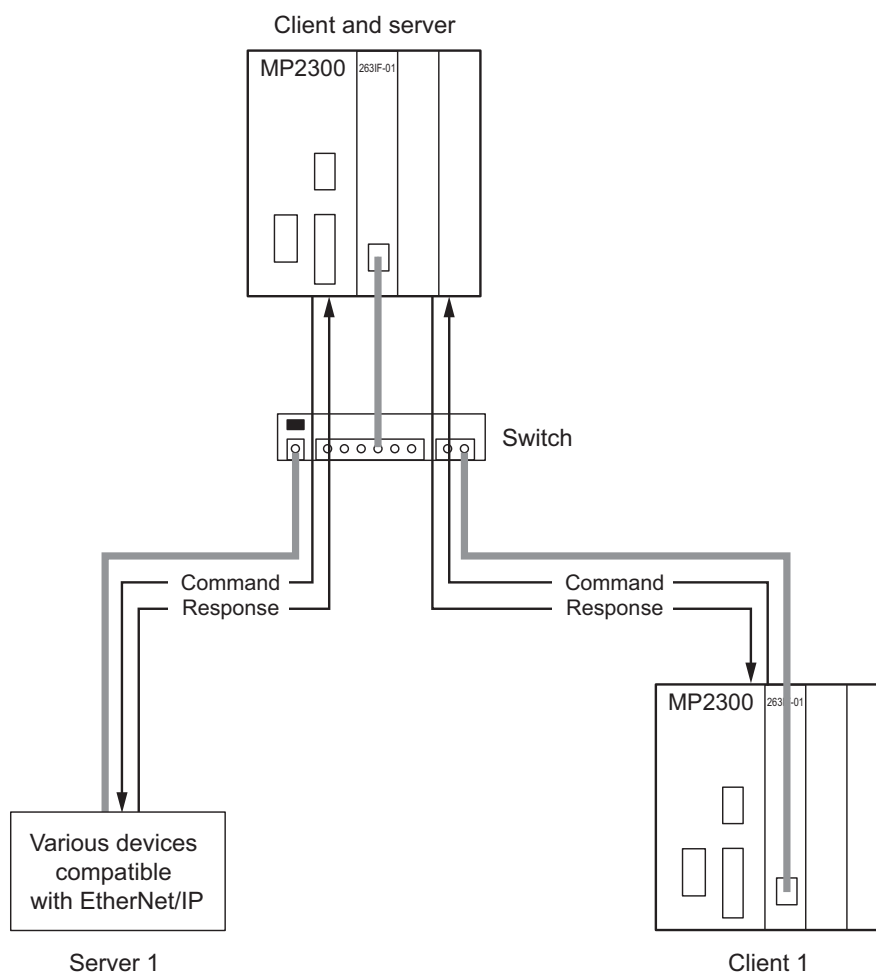
Type	Scanner/Adapter	Remarks
Cyclic	Scanner, adapter	Sends the data at specified intervals (at each timeup).

2.1.2 Explicit Message Communication

In explicit message communication, general message communication is possible.

In explicit message communication using the 263IF-01 Module, the Module provides both the client (UCMM) and server (Class 3, UCMM) functions, and is mainly used in communication between the client and server (maximum number of connected devices = 64) in 1:1 (peer-to-peer) configuration.

The following figure illustrates a layout for communication between clients and a server.



The following table shows the types of message communication and their communication triggers.

Communication Type		Remarks
Message Communication	Connected message communication	Performs message communication after establishing a CIP connection. Server: Supported Client: Not supported
	Unconnected (UCMM) message communication	Performs message communication without establishing a CIP connection.
Communication Trigger	Driven by application object (event)	Sends a message upon occurrence of an event. (Uses a message send function.)

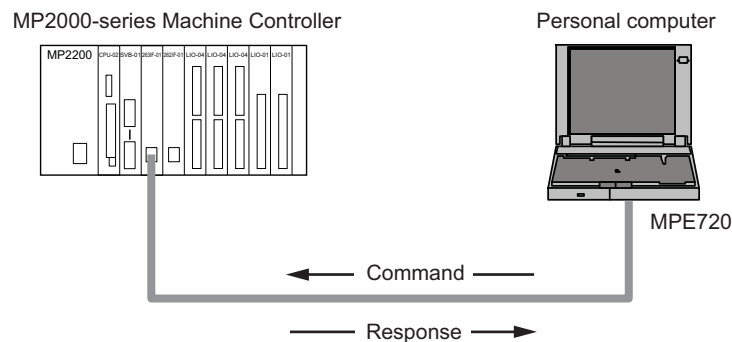
2.1.3 Engineering Communication

By connecting the 263IF-01 Module to the Programming Device MPE720, ladder programming and monitoring are possible through engineering communication.

The self configuration function of the MP2000-series Machine Controller enables an Ethernet connection between the personal computer where MPE720 is installed and the 263IF-01 Module, without requiring settings for connections at the 263IF-01 Module.

- However, the Communication Platform or Communication Manager settings on the computer and MPE720 connection settings must be configured. For details, refer to 3.3.2 *Setting the Communication Platform/Communication Manager* on page 3-12, 3.5 *Starting the MPE720*, and *Setting Communication or Network Parameters* on page 3-18.

The following figure illustrates a layout for connection with the MPE720.



2.2 Specifications

This section provides specifications for the 263IF-01 Module.

2.2.1 Hardware Specifications

Item	Specification
Name	263IF-01
Model	JAPMC-CM2304-E
Communication Port	EtherNet/IP: 1 port
Indicators	Module status indicators LED
	MS (red/green) NS (red/green)
	TX (green) IP (green)
Indicators	RX (green)
	EtherNet/IP status indicator LED
	LINK (yellow)
	100M (green/orange)
Switch	INIT
	TEST
Dimensions (mm)	125 × 95 mm (H × D)
Mass	80 g

2.2.2 Transmission Specifications

Item		Specifications	
		100BASE-TX	10BASE-T
Ethernet Transmission Specifications	Interface	RJ-45 connector	
	Compliance Standard	IEEE802.3u	IEEE802.3i
	Media Access Mode	CSMA/CD	
	Communication Mode	Full duplex/half duplex	
	Modulation Method	Baseband	
	Topology	Bus	
	Communication Protocol	TCP/UDP/IP/ICMP/IGMP	
	Baud Rate	100 Mbps	10 Mbps
	Maximum Number of Cascade Connections* ¹	2 levels	4 levels
	Transmission Path Length (Full length at repeater usage)	100 m (205 m max. ^{*2})	100 m (500 m max. ^{*2})
	Transmission Media	Twisted-pair cable (UTP) Category 5 or 5e Twisted-pair cable (STP) Category 5 or 5e (100 Ω)	Twisted-pair cable (UTP) Category 3, 4, 5, or 5e Twisted-pair cable (STP) Category 3, 4, 5, or 5e (100 Ω)
	Maximum Segment Length	100 m (distance between hub and node at UTP usage)	
	Link Function	Support for auto-negotiation	
		Support for Auto MDI/MDI-X	
EtherNet/IP Specifications	IP Address	To be set by Programming Device (DHCP and BOOTP are not supported.)	
	Port Number	I/O communication: The system uses one port at 2222 (0x08AE). ^{*3} Explicit message communication: The system uses one port at 44818 (0xAF12). ^{*3}	
	Communication Protocol	Conforms to EtherNet/IP (CIP)	
	Device Type	Communication adapter	
	Supported Objects ^{*5}	Mandatory objects • Identity • Message Router • Ethernet Link • TCP/IP Interface • Connection Manager Optional objects • Assembly • UCMM (Unconnected Message Manager; Non-object) • Port	
	Product Level	Level 4 I/O communication: Scanner and adapter Explicit message communication: Client and server	
	Conformance Test	A5 conformance: Ver. 1.04 or earlier and A5 mode in Ver. 1.06 or later CT15 conformance: Ver. 1.05 and CT15 mode in Ver. 1.06 or later • Refer to <i>Chapter 8 Differences by 263IF-01 Software Version</i> for the differences in Functions by 263IF-01 Software Version.	
I/O Communication Specifications	Maximum Number of Connectable I/O Devices	64 units ^{*4} (Does not include the devices used for explicit message communication)	
	Max. Number of I/O Bytes	Inputs/outputs: 8192 bytes each ^{*4} per system (Total number of bytes of input/output data exchanged among all connected devices) Ver.1.04 or earlier: Inputs/outputs: 500 bytes each ^{*3} per device Ver.1.05 or later: Inputs/outputs: 1440 bytes each per device	
	Communication Mode	Scanner, adapter	
	Communication Mode at Startup	Simultaneous start of scanners and adapters	
	Communication Trigger	Cyclic	

Item		Specifications	
		100BASE-TX	10BASE-T
Explicit Message Specifications	Max. Number of Connectable Devices for Explicit Message Communication	64 units* ⁴ (Number of devices that can communicate simultaneously: 10)	
	Number of Message Channels	10	
	Max. Number of Message Bytes	504 bytes* ³	
	Function for Execution	MSG-SND Function	
	Communication Mode	Client and server	
	Connection Type	Unconnected type (UCMM) • When the Module functions as a server, connected type (class 3) is also supported.	
	Communication Trigger	Application object driven	

* 1. There is no limit on the number of cascade connections when a switching hub is used.

* 2. The maximum transmission path length when a repeater hub is used.

* 3. EtherNet/IP (CIP) standard specifications

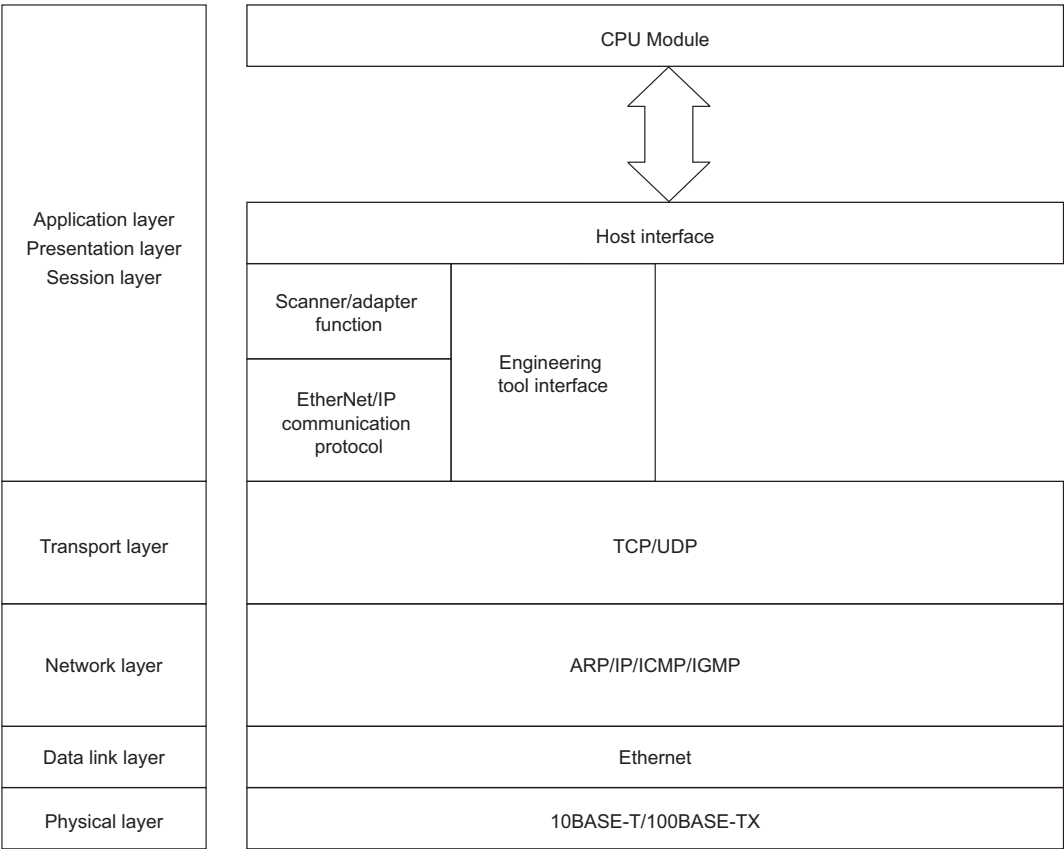
* 4. Restrictions due to MP2000-series Machine Controller specifications

* 5. The following table describes objects in detail.

Object Name	Class ID	Optional/ Mandatory (See* ² above)	Description
Identity	0x01	Mandatory	<ul style="list-style-type: none"> Retains the identification information of a device. The device identification information can be obtained by reading the attributes of an Identity object. Supports device reset processing to be activated through the network. <Attributes> Vendor ID, device type, product code, revision, status, product serial number, product name, state, etc.
Message Router	0x02	Mandatory	<ul style="list-style-type: none"> Transfers the received explicit request to the specified object. To be specified in the connection path used when establishing the connection for explicit message communication.
Assembly	0x04	Optional	Provides the access map for accessing attributes or I/O data in a device.
Connection Manager	0x06	Mandatory (conditional)	<ul style="list-style-type: none"> Issues and receives the Forward_Open service and creates the CIP connection. Retains the CIP connection information and secures the necessary internal resources.
Port	0xF4	Optional	<ul style="list-style-type: none"> Retains the information of the connection ports that can be used in the CIP network. Used when searching for the CIP routing information.
Ethernet Link	0xF5	Mandatory (conditional)	Provides the EtherNet/IP interface.
TCP/IP Interface	0xF6	Mandatory (conditional)	Provides the EtherNet/IP interface.

2.2.3 Software Configuration

The following figure illustrates the software configuration that provides the 263IF-01 Module functions.



The following table provides the details of the individual protocols.

Protocol	Details
TCP (Transmission Control Protocol)	Connection type transport layer protocol
UDP (User Datagram Protocol)	Connection less type transport layer protocol
IP (Internet Protocol)	Protocol that establishes the communication path between computers
ICPM (Internet Control Message Protocol)	Protocol that handles error control in the IP protocol
IGMP (Internet Group Management Protocol)	Protocol used for IP multicast
ARP (Address Resolution Protocol)	Converts an IP address into a MAC address.

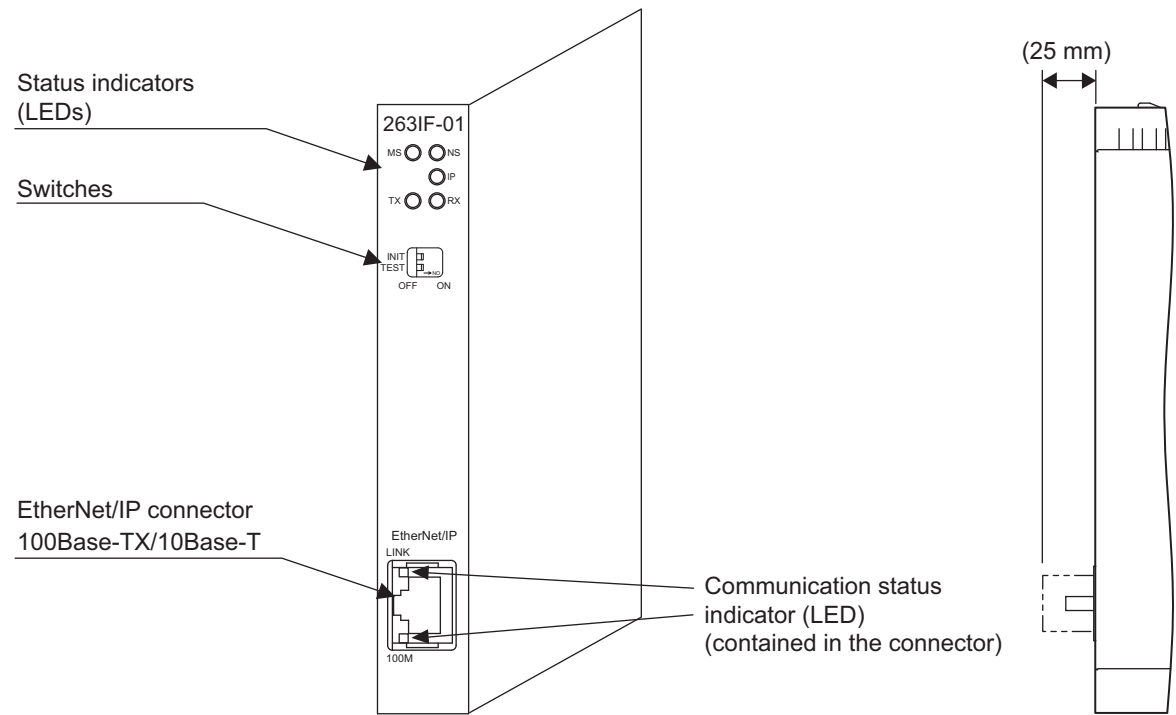
2.2.4 Operating Environment Specifications

Item		Specifications
Environmental Conditions	Ambient Operating Temperature	0 to +55 °C
	Ambient Storage Temperature	-25 to +85°C
	Ambient Operating Humidity	30% to 95% RH (with no condensation)
	Ambient Storage Humidity	5% to 95% RH (with no condensation)
	Pollution Level	Pollution level: 2 (conforming to JIS B3502)
	Corrosion Resistance	There must be no combustible or corrosive gas.
	Operating Altitude	2,000 m above sea level or lower
Mechanical Operating Conditions	Vibration Resistance	Conforming to JIS B3502 (1) Frequency: 16.7 Hz Vibration strength: 14.7 m/s ² (2) Frequency: 10 to 57 Hz Vibration strength: 0.075 mm of single-amplitude (3) Frequency: 57 to 150 Hz Vibration strength: 9.8 m/s ² of fixed acceleration
	Shock Resistance	Conforming to JIS B3502 Peak acceleration of 147 m/s ² (15G) twice for 11 ms each in the X, Y, and Z directions
Electrical Operating Conditions	Noise Resistance	Conforming to EN 61000-6-2, EN 61000-6-4, EN 55011 (Group 1 Class A)
Installation Requirements	Ground	Ground to 100 Ω max.
	Cooling Method	Natural cooling

2.3 Overview



2.3.1 Appearance and Connectors


The following illustration shows the appearance of the 263IF-01 Module and provides the external dimensions of the connector.





2.3.2 Status Indicators (LEDs)

The following table shows the status of the 263IF-01 Module indicated by the LED indicators.

MS   NS

 IP

TX   RX

Indicator	Color	Meaning When Lit	Meaning When Flashing	Meaning When Not Lit
MS	Green	Operating normally	Device not set	Module power supply disconnected/Startup failure
	Red	Module error (Unrecoverable)	Module error (Recoverable)	
	Alternately flashing green/red		During self-testing	
NS	Green	Operating normally	Connection being established, or no I/O allocations	Communication power supply disconnected/No IP address
	Red	Error (Duplicated IP address)	Communication error (Timeout)	
	Alternately flashing green/red		During self-testing	
IP	Green	IP address acquisition completed	—	IP address acquisition not completed
TX	Green	Sending data	—	Not sending data
RX	Green	Receiving data	—	Not receiving data

- ♦ For details on the Module status indicated by the LED indicators, refer to 7.1 Status Indication by LED Indicators on page 7-2.

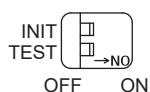
2.3.3 Communication Status Indicators (LEDs) (Contained in the Ethernet Connector)

The indicators (LEDs) contained in the EtherNet/IP connector indicate the status of EtherNet/IP communication.

Indicator	Color	Meaning When Lit	Meaning When Not Lit
LINK	Yellow	EtherNet/IP link established	EtherNet/IP link not established
100M	Green/orange	Green: 100 Mbps (Orange: 1 Gbps)	10 Mbps or not connected

2.3.4 Switch Settings

The following table shows the 263IF-01 Module switch settings.



Label (Switch No.)	Name	Status	Function	Factory Setting
INIT (2)	Transmission Parameters Startup Selection (For Programming Device)	ON	Initial startup	OFF
		OFF	Normal operation mode	
TEST (1)	Operating Mode Selection	ON	Reserved by the system. • Always set to OFF.	OFF
		OFF		

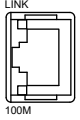
- Always leave the unused switches (Nos. 3 and 4), located behind the faceplate, OFF.

2.4 Connection Specifications

2.4.1 Connector Specifications

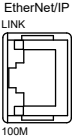
This section explains the connector specifications for the 263IF-01 Module.

(1) Connector Specifications

Connector Shape	Name	Connector Name	No. of Pins	Connector Model		
				Module	Cable	Manufacturer
	EtherNet/IP	EtherNet/IP	8	J0G-0001NL (LED/Pulse transformer built-in modular jack)	—	Pulse Engineering

(2) Connector Pin Arrangement

The connector is used to connect the 263IF-01 Module to the devices in the EtherNet/IP network via an EtherNet/IP connection.

	Pin Number	Signal Name	I/O	Description
	1	TXD+	O	Send data +side
	2	TXD-	O	Send data -side
	3	RXD+	I	Receive data +side
	4	—	—	—
	5	—	—	—
	6	RXD-	I	Receive data -side
	7	—	—	—
	8	—	—	—

2.4.2 Cable Specifications

Yaskawa does not provide EtherNet/IP cables. Obtain commercially available category 5 cross or straight cables.

- The AUTO MDI/MDI-X function of the 263IF-01 Module automatically distinguishes between cross and straight cables.

Mounting and Starting the Module

This chapter describes how to connect the 263IF-01 Module and start the system, focusing on mounting the 263IF-01 Module, communication process setting, and self-configuration.

3.1 Applicable Machine Controllers and Supported Versions	3-2
3.1.1 Applicable Machine Controllers	3-2
3.2 Mounting and Removing a Module on the Machine Controller	3-3
3.2.1 Mounting a 263IF-01 Module	3-3
3.2.2 Removing a 263IF-01 Module	3-7
3.3 Setting the Communication Platform and Communication Manager	3-10
3.3.1 Preparation of the Personal Computer	3-10
3.3.2 Setting the Communication Platform/Communication Manager	3-12
3.4 Self-configuration	3-17
3.4.1 Executing Self-configuration	3-17
3.5 Starting the MPE720, and Setting Communication or Network Parameters	3-18
3.5.1 Starting MPE720 Ver. 7 and Ver. 6, and Setting Communication Parameters	3-18
3.5.2 Starting MPE720 Ver. 5 and Setting Network Parameters	3-19

3.1 Applicable Machine Controllers and Supported Versions

3.1.1 Applicable Machine Controllers

The MP2000-series Machine Controllers to which the 2631F-01 Modules can be mounted are listed in the following table.

Name		Model	Max. No. of Connectable Modules	Applicable Version		Remarks
				CPU Module	MPE720	
MP2300		JEPMC-MP2300 (-E)	2 modules	Ver. 2.64 or later	Ver.5.42 Ver.6.08 Ver.7.10 or later	—
MP2310		JEPMC-MP2310 (-E)	3 modules			—
MP2300S		JEPMC-MP2300S (-E)	1 module			—
MP2200 *1	CPU-01	JAPMC-CP2200 (-E)	8 modules	All versions	Ver.5.50 Ver.6.20 Ver.7.10 or later	The maximum number of connectable Modules is the total for the maximum expansion to four racks.*2
	CPU-02	JAPMC-CP2210 (-E)				
	CPU-03	JAPMC-CP2220-E			Ver.5.52 Ver.6.22 Ver.7.10 or later	
	CPU-04	JAPMC-CP2230-E				
MP2100M		JAPMC-MC2140 (-E)	8 modules	Ver. 2.64 or later	Ver.5.42 Ver.6.08 Ver.7.10 or later	The maximum number of connectable Modules is the total for the maximum expansion to three racks.*2
MP2101M		JAPMC-MC2142-E				
MP2101TM		JAPMC-MC2142T-E				

* 1. Mount a CPU module on the following base units.

Name	Model	Remarks
MBU-01	JEPMC-BU2200 (-E)	100/200-VAC input base unit (9 slots)
MBU-02	JEPMC-BU2210 (-E)	24-VDC input base unit (9 slots)
MBU-03	JEPMC-BU2220-E	24-VDC input base unit (4 slots)

* 2. The following module or board is required between racks.

Name	Model	Remarks
EXIOIF	JAPMC-EX2200 (-E)	Inter-rack connection module
MP2100MEX	JAPMC-EX2100 (-E)	I/F board for MP2100M, MP2101M, and MP2101TM

3.2 Mounting and Removing a Module on the Machine Controller

This section explains the procedure for mounting and removing a 263IF-01 Module.

3.2.1 Mounting a 263IF-01 Module

Use the following procedure to mount a 263IF-01 Module.

- Before replacing a 263IF-01 Module, remove the 263IF-01 Module that needs to be replaced referring to 3.2.2 *Removing a 263IF-01 Module* on page 3-7.

(1) Preparation

1. Backup the Programs.

Save the programs written to the Machine Controller in the personal computer using MPE720.

- ♦ MPE720 Ver. 7, Ver. 6: Open the project file and then select **Online - Transfer - Read from Controller**.
MPE720 Ver. 5: Right-click the PLC folder and then select **Transfer - All Files - From Controller to MPE720**.

2. Save in the Flash Memory.

Save the programs written to the Machine Controller in the flash memory using the MPE720.

- ♦ MPE720 Ver. 7, Ver. 6: Open the project file and then select **Online - Transfer - Save to Flash**.
MPE720 Ver. 5: Right-click the PLC folder and then select **Transfer - Other - Save to Flash**.

3. Remove the Machine Controller and Expansion Rack.

Turn OFF the power supply and remove all the cables connected to the Machine Controller or Expansion Rack (MP2200 Base Unit). Then, remove the Machine Controller and Expansion Rack from the panel or rack, and place them where there is sufficient space, such as on a work table.

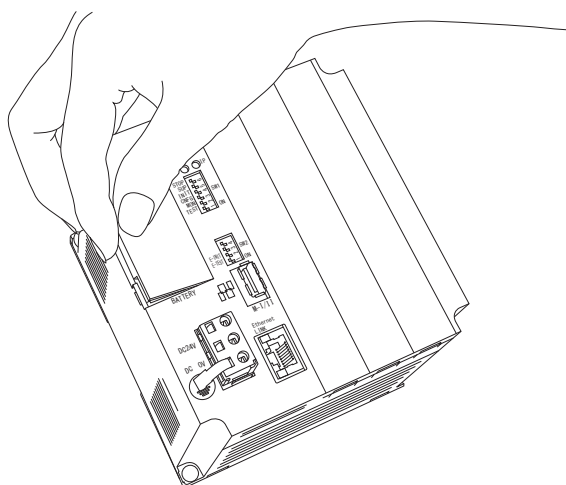
(2) Removing the Option Cover

If an Option Cover is attached to the slot into which the 263IF-01 Module is to be mounted, remove it using the following procedure.

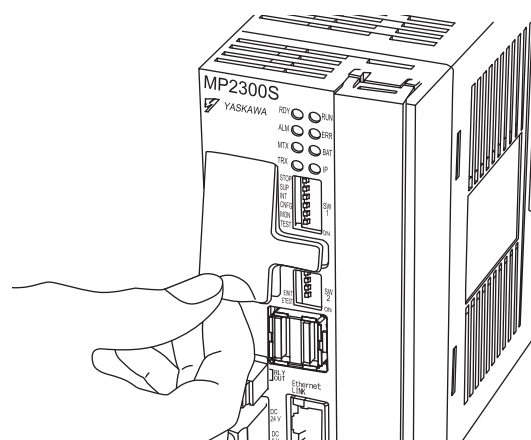
1. Turn OFF the power supply and disconnect all cables from the Machine Controller.

2. Pull the notch on the side toward you to remove the battery cover.

<MP2200/MP2300>

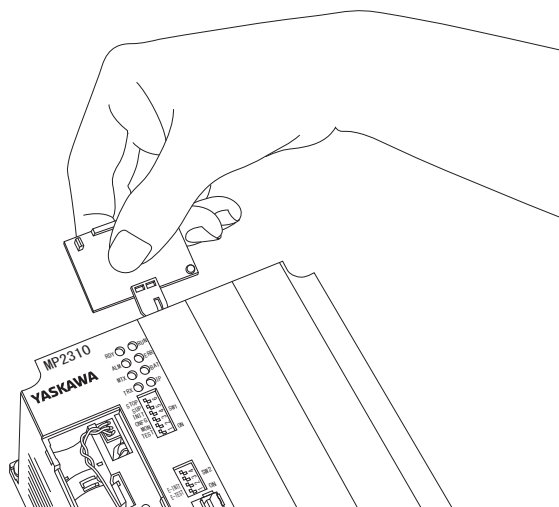


<MP2310/MP2300S>



3.2.1 Mounting a 263IF-01 Module

3. Insert the protruding part of the battery cover into the slot on top of the Optional Module cover to unhook the tab. Face the front of the battery cover toward you for this operation.



Unhook the bottom tab in the same way.

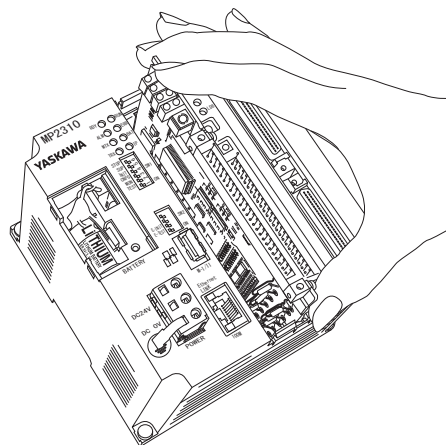
(3) Mounting a 263IF-01 Module

Use the following procedure to install Optional Modules.

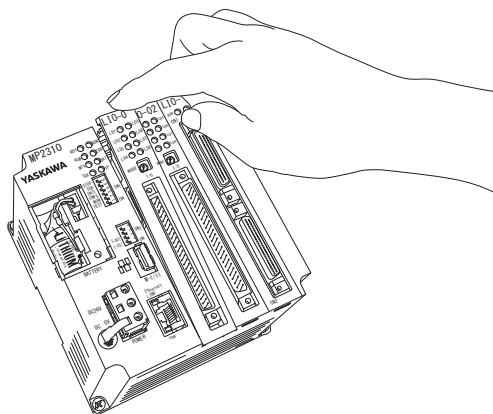
1. Hold the top and bottom of the Optional Module to be installed, line up the Module with the left side of the guide rail inside the option slot, and then insert the Module straight in.



- The FG bar inside and on the bottom may be damaged if the Module is not inserted along the guide rail.



2. After the Optional Module is completely inserted, place your hand on the front of the Optional Module and press the Optional Module firmly until it mates with the Mounting Base connectors in the Unit. The front of the Optional Module and the tabs will be aligned if the Optional Module has been installed properly.
3. Place the hole on the bottom of the panel of the Optional Module onto the tab on the bottom of the Unit. Next, hook the hole at the top of the panel of the Optional Module onto the tab on the Unit.



This completes the installation procedure.



- Always use Option Covers (model: JEPMC-OP2300) to cover unused slots.

(4) After Mounting the Module

[a] When New Modules Are Mounted

1. Connect to the Hub

Connect the 263IF-01 Module and the hub using the Ethernet cable.

- Refer to 2.4.2 *Cable Specifications* on page 2-12 for cables that can be used.

2. Create Module Configuration Definitions

Execute self-configuration for each slot in which a 263IF-01 Module has been mounted.

- Refer to 3.4 *Self-configuration* on page 3-17 for more information on self-configuration.

3. Setting the Communication Platform or Communication Manager

- Refer to 3.3 *Setting the Communication Platform and Communication Manager* on page 3-10 for more information.

4. Object File Communication Settings (MPE720 Ver. 7 and Ver. 6), or PLC Folder Network Settings (MPE720 Ver. 5)

- Refer to 3.5 *Starting the MPE720, and Setting Communication or Network Parameters* on page 3-18 for more information.

5. Setting the EtherNet/IP Transmission Definition

- Refer to *Chapter 4 Description of the EtherNet/IP Transmission Definition* and *Chapter 5 Examples of EtherNet/IP Transmission Definition Settings* for more information.

[b] When Modules Are Replaced

1. Connect to the Hub

Connect the 263IF-01 Module and the hub using the Ethernet cable.

- Refer to 2.4.2 *Cable Specifications* on page 2-12 for cables that can be used.

2. Create Module Configuration Definitions

Turn OFF the CNFG and INIT DIP switches on the Machine Controller and turn ON the power supply. After turning ON the power, modify the module configuration definitions as required.

- Refer to 4.1.1 *Displaying the Module Configuration Window* on page 4-2 for information on the module configuration definitions.

3. Run/Idle Header Setting

- If the Scanner Is the 263IF-01 Module:

Configure the setting with MPE720.

- Refer to *Run/Idle Header* on page 5-15 for more information.

- If the Scanner Is a Device Other Than the 263IF-01 Module:

Load an EDS file with your tool.

Prepare an EDS file for the version of the 263IF-01.

Refer to 8.1 *Differences in Functions by 263IF-01 Software Version* on page 8-2 for the combinations of 263IF-01 versions and EDS files.

3.2.2 Removing a 263IF-01 Module

Use the following procedure to remove a 263IF-01 Module.

(1) Preparation

1. Backup the Programs.

Save the programs written to the Machine Controller in the personal computer using MPE720.

- ♦ MPE720 Ver. 7, Ver. 6: Open the project file and then select **Online - Transfer - Read from Controller**.
MPE720 Ver. 5: Right-click the PLC folder and then select **Transfer - All Files - From Controller to MPE720**.

2. Remove the Machine Controller and Expansion Rack.

Turn OFF the power supply and remove the cables connected to the Machine Controller or Expansion Rack.

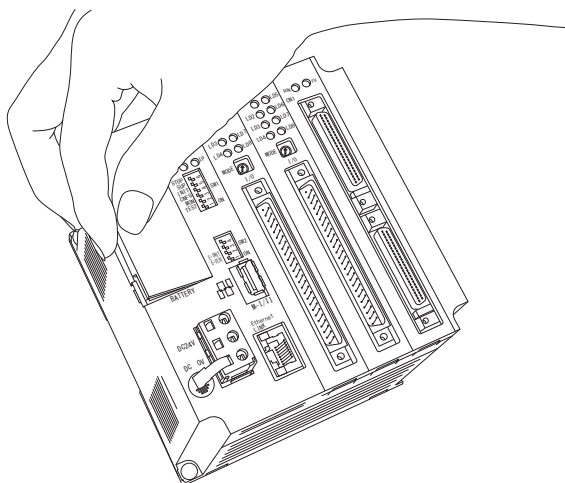
Then, remove the Machine Controller and Expansion Rack from the panel or rack and place them where there is sufficient space, such as on a work table.

(2) Removing Procedures

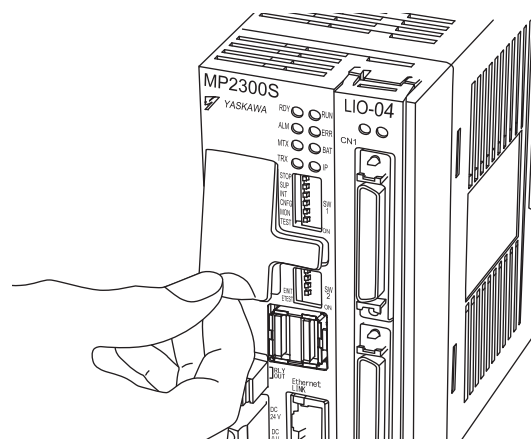
1. Turn OFF the power supply and disconnect all cables from the Machine Controller.

2. Pull the notch on the side toward you to remove the battery cover.

<MP2200/MP2300>



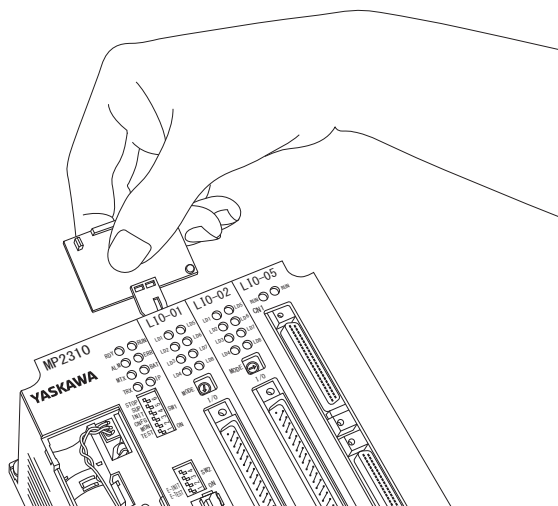
<MP2310/MP2300S>



3. Insert the protruding part of the battery cover into the slot on top of the Optional Module panel to unhook the tab. Face the front of the battery cover toward you for this operation.

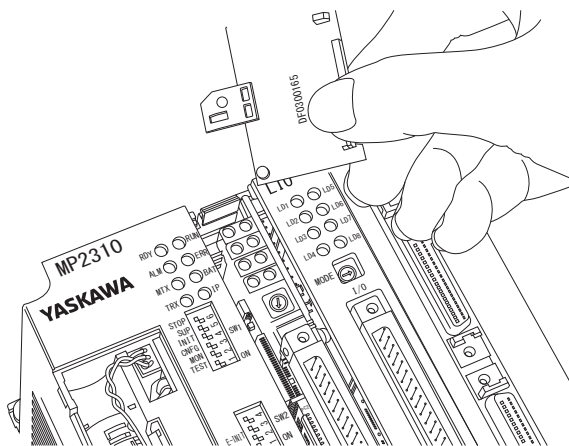


♦ Use the same method to remove the Option Cover from an unused slot before adding an Optional Module.

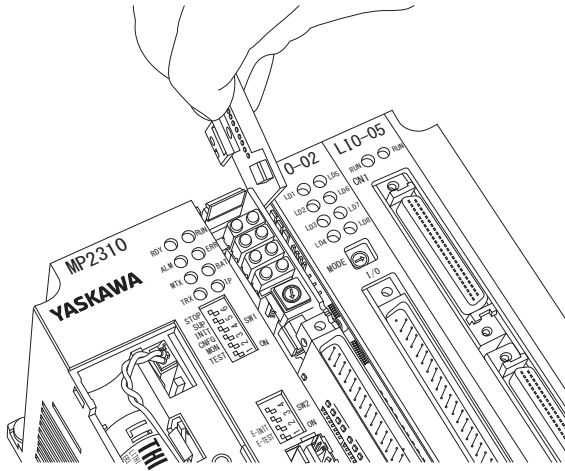


Unhook the bottom tab in the same way.

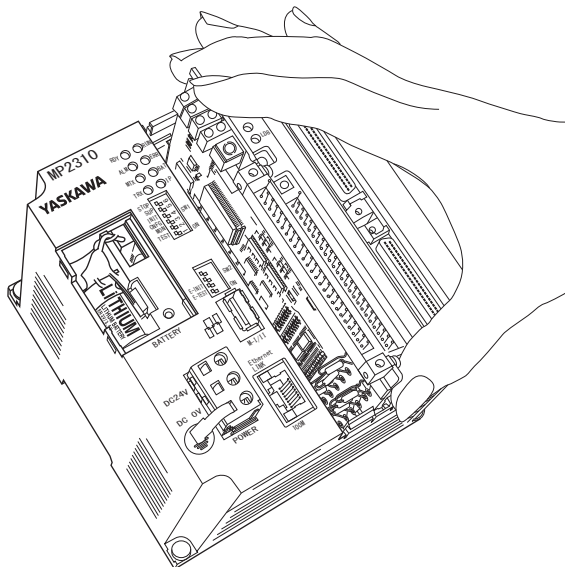
4. Pull the top of the Optional Module panel toward you and remove it. A notch on the Optional Module will be visible from the gap with the panel. Hook the round knob on the battery cover into the notch in the Optional Module.



5. Hold the center of the battery cover, and turn it around the round knob while pushing it toward the back to disconnect the Module from the Mounting Base connectors. Then, pull the Module forward.



6. Hold the Optional Module at the top and bottom and pull it straight out. Hold the edges of the Module and avoid touching the components on the Module.



- * Put the Module that you removed into the bag that was supplied when you purchased it and store the Module in this bag.



- Always attach an Option Cover (JEPMC-OP2300) to any unused slot.

3.3 Setting the Communication Platform and Communication Manager

This section describes how to connect the computer (MPE720) and Machine Controller.

3.3.1 Preparation of the Personal Computer

(1) Check the Ethernet Port on the Computer

When connecting the computer and Machine Controller, use an Ethernet port on the computer. If the computer does not have an Ethernet port, install a general-purpose Ethernet board or a PCMCIA Ethernet card into the specified connector on the computer. In addition, install the drivers that are included with the Ethernet card.

(2) Setting the IP Address

The IP address of the computer must be set in advance. This section gives the procedure to set the IP address.

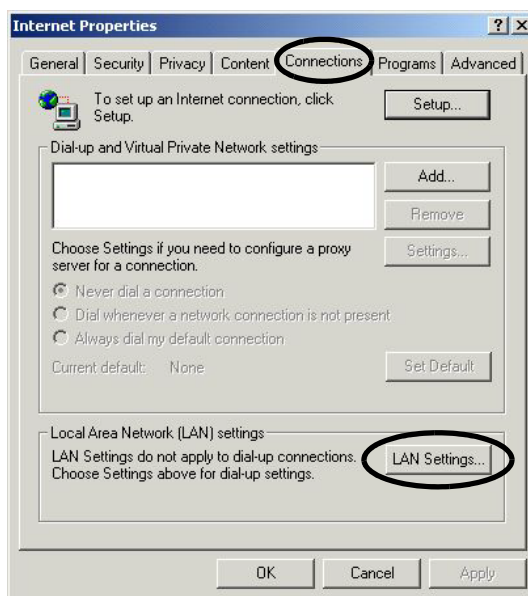
- Configure the following settings with the LAN cable connected to the computer.

1. Click the Windows **Start** button and select **Settings* - Control Panel - Internet Options**.

The **Internet Properties** dialog box will be displayed.

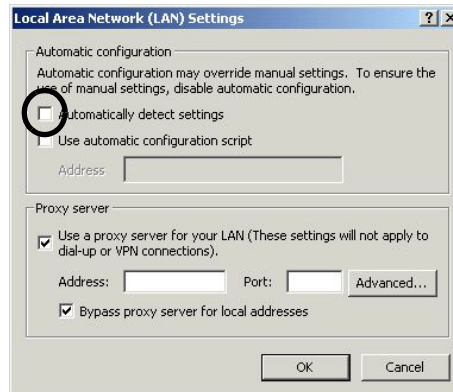
- * Depending on the version of Windows, this dialog box may not be displayed.

2. Click the **Connections** tab to display the tab page. Click the **LAN Settings...** button.



The **Local Area Network (LAN) Settings** dialog box will be displayed.

3. Check that the **Automatically detect settings** check box is cleared, and click the **OK** button to close the dialog box.



4. Open the **Local Area Connection Properties** dialog box with one of the following methods.

OS	Procedure
Windows 10	Click the Windows Start button and select Network Connections . Double-click EtherNet and click Properties .
Windows 8	Click the Windows Start button and select Control Panel - View network status and tasks . Click Change adapter settings on the left side of the screen, double-click EtherNet , and click Properties .
Windows 8.1	Click the Windows Start button and select Network Connections . Click EtherNet and then click Change settings of this connection .
Windows 7	Click the Windows Start button and select Control Panel . Click Network and Sharing Center , Local Area Connection , and then Properties .
Windows Vista	Click the Windows Start button and select Control Panel - View network status and tasks . Click Manage network connections on the left side of the screen, double-click Local Area Connection , and click Properties .
Windows XP	Click the Windows Start button and select Settings - Control Panel - Network Connections - Local Area Connection and click Change settings of this connection in the Network Tasks menu.
Windows 2000	Click the Windows Start button and select Settings - Control Panel - Network and Dial-up Connections - Local Area Connection .

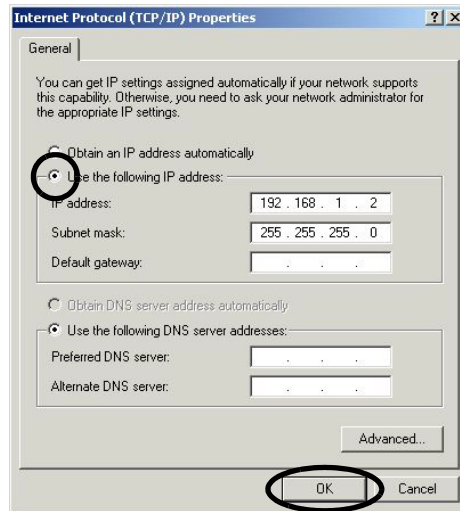
♦ This table lists typical operation methods. Refer to the manual for your computer for more information.

5. Select **Internet Protocol (TCP/IP)** and click the **Properties** button.



The **Internet Protocol (TCP/IP) Properties** dialog box will be displayed.

6. Select **Use the following IP address** and enter “192.168.1.2” for **IP address** and “255.255.255.0” for **Subnet mask**. Then click the **OK** button to close the dialog box.



3.3.2 Setting the Communication Platform/Communication Manager

After installing the MPE720 Engineering Tool, be sure to set the communication conditions one time in the Communication Platform/Communication Manager. Once the communication conditions have been set, they do not need to be set subsequent times, unless a communication condition will be added.

(1) Opening the Communication Platform/Communication Manager

1. Click the Windows **Start** button and select **Programs - YE_Applications - Communication Platform*** or **Communication Manager***.

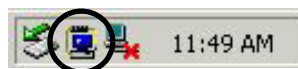
The **Communication Platform** icon* or the **Communication Manager** icon* will be displayed in the task tray at the right bottom of the window.

* Communication Platform when using MPE720 Ver. 7.
Communication Manager when using MPE720 Ver. 6 and older.

2. Double-click the **Communication Platform** icon or the **Communication Manager** icon.



Communication Platform icon



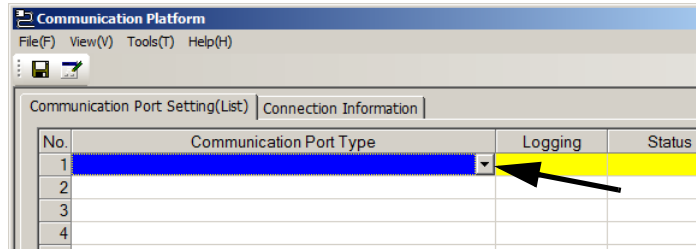
Communication Manager icon

The **Communication Platform** window or the **Communication Manager** window will be displayed. Logical ports for up to 16 channels can be set in this window.

(2) Setting the Communication Port

[a] MPE720 Ver. 7

1. In the **Communication Platform** window, click the [▼] button in the Communication Port Type column on a line which has not been set, and select the communication port type from the options.

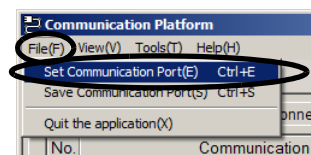


- ♦ The connector on the Machine Controller side can also be connected to a computer (MPE720) using an Ethernet communication port other than that on the 263IF-01 Module. Select the communication port type according to the connector on the Machine Controller side that will be used.

Connector Used on Machine Controller Side	Communication Port Type
Ethernet communication connector other than that on the 218IF-01 Module	Select one of the following options. <ul style="list-style-type: none"> • Ethernet (LP)*¹ • Ethernet*¹, *² • CP-218*²
Ethernet communication connector on the 218IF-01 Module	Select one of the following options. <ul style="list-style-type: none"> • Ethernet*² • CP-218*²

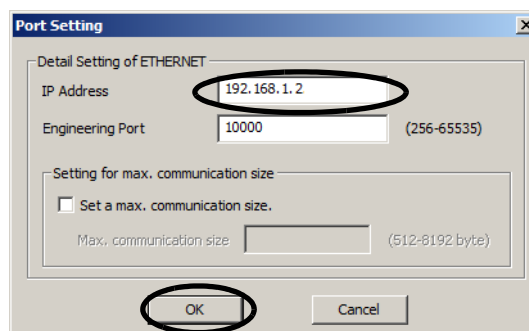
- * 1. High-speed engineering communication is possible with the Ethernet (LP) communication port because the engineering message size has been expanded when compared to the Ethernet communication port. For this reason, selecting **Ethernet(LP)** is recommended.
- * 2. The specifications for **Ethernet** and **CP-218** are the same. No matter which option is selected, there are no differences in the communication specifications.

2. Confirm that the line set in step 1 is highlighted, and then click **File - Set Communication Port**.

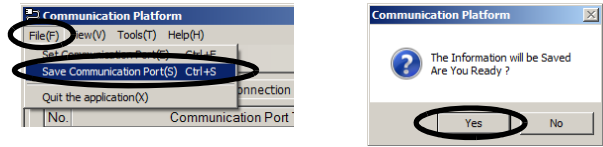


The **Port Setting** dialog box will be displayed.

3. For **IP Address**, enter the IP address of the computer, and then click the **OK** button to close the dialog box.



4. Click **File - Save Communication Port**. A confirmation dialog box will be displayed. Click the **Yes** button to save the communication port settings.



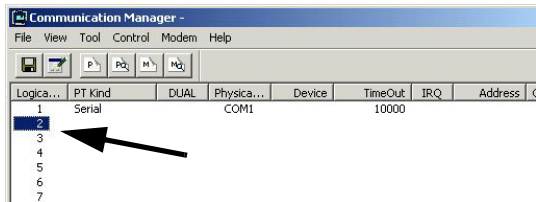
These settings will be used as the communication port information whenever the Communication Platform is started.

5. Click **File - Quit the Application** to close the **Communication Platform** window. A confirmation dialog box will be displayed. Click the **Yes** button to close the **Communication Platform** window.

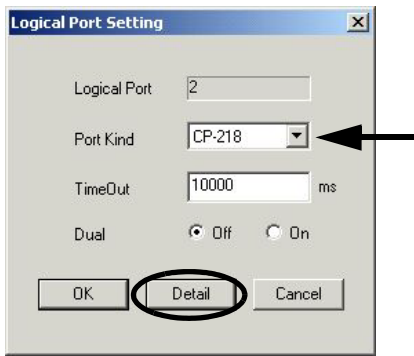


[b] MPE720 Ver. 6 and Older

1. In the **Communication Manager** window, double-click a number in the Logical PT column of a line which has not been set to view the **Logical Port Setting** dialog box.



2. In the **Logical Port Setting** dialog box, select **Port Kind** from the options, and then click the **Detail** button.



- The connector on the Machine Controller side can also be connected to a computer (MPE720) using an Ethernet communication port other than that on the 263IF-01 Module. Select the communication port type according to the connector on the Machine Controller side that will be used.

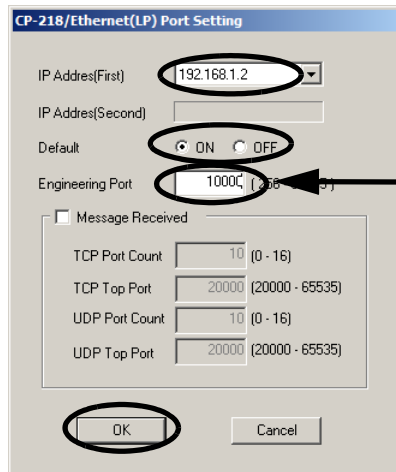
Connector Used on Machine Controller Side	Communication Port Type
Ethernet communication connector other than that on the 218IF-01 Module	Select one of the following options. <ul style="list-style-type: none">• Ethernet (LP) *1• Ethernet *1, *2• CP-218 *2
Ethernet communication connector on the 218IF-01 Module	Select one of the following options. <ul style="list-style-type: none">• Ethernet *2• CP-218 *2

- * 1. High-speed engineering communication is possible with the Ethernet (LP) communication port because the engineering message size has been expanded when compared to the Ethernet communication port. For this reason, selecting **Ethernet(LP)** is recommended.
- * 2. The specifications for **Ethernet** and **CP-218** are the same. No matter which option is selected, there are no differences in the communication specifications.

The **Port Setting** dialog box will be displayed.

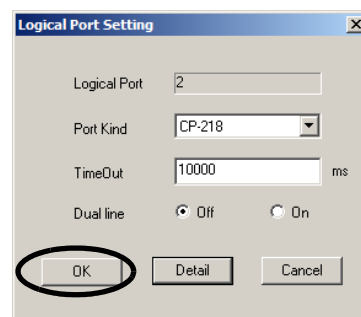
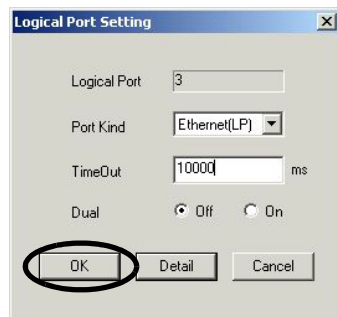
- ♦ The name of the dialog box will depend on the type of port that was selected.

3. For **IP Address (First)**, enter the IP address of the computer. Set the rest of the items as shown in the following screenshot, and then click the **OK** button.



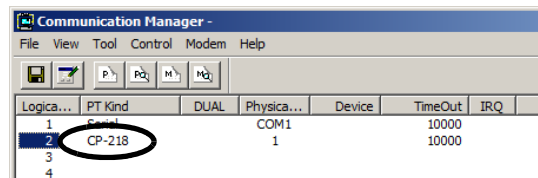
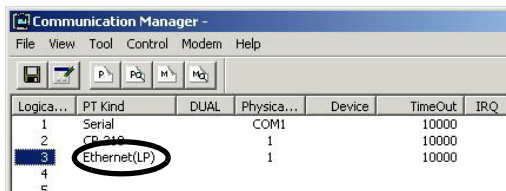
- If **Ethernet(LP)** was selected for **Port Kind**: 9999
- If a port other than **Ethernet(LP)** was selected for **Port Kind**: 10000

4. Click the **OK** button in the **Logical Port Setting** dialog box.

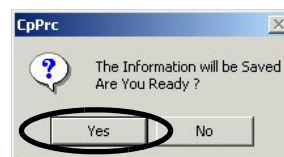
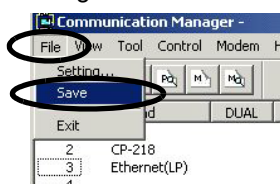


The display will return to the **Communication Manager** window.

5. Confirm that the type of port you selected is allocated to the logical port number you selected.

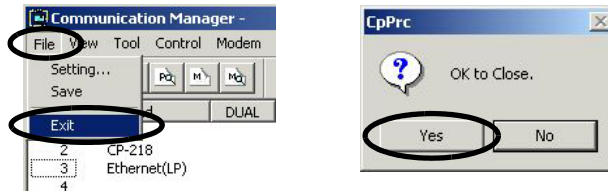


6. Click **File - Save**. A confirmation dialog box will be displayed. Click the **Yes** button to save the communication port setting values.

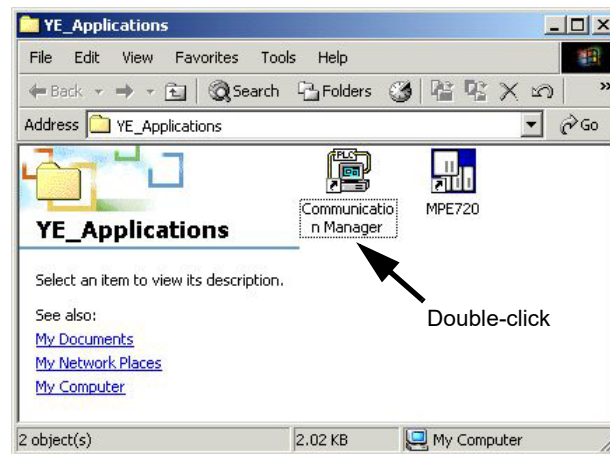


These settings will be used as the communication port information whenever the Communication Manager is started.

7. Click **File - Exit** to close the **Communication Manager** window. A confirmation dialog box will be displayed. Click the **Yes** button to close the **Communication Manager** window.



8. Double-click the **Communication Manager** icon in the **YE_Applications** folder to restart the Communication Manager.



The Communication Manager settings will be enabled when Communication Manager is restarted.

3.4 Self-configuration

The self-configuration function automatically detects the Option Modules connected to the Machine Controller and automatically generates the files for the Module configuration definitions and the detailed definition of each Module. Executing self-configuration will greatly reduce the system startup procedure.



- After executing self-configuration, always save data to flash memory so that the results of self-configuration are saved to the Machine Controller.

3.4.1 Executing Self-configuration

The methods used to execute self-configuration are described below.

(1) Setting the CNFG DIP Switch Pin and Turning the Power ON (MP2200/MP2300/MP2310/MP2300S)

Self-configuration can be executed by turning ON the CNFG DIP switch pin on the Machine Controller and then turning the power ON. The result will depend on the setting of the INIT DIP switch pin.

CNFG	INIT	Result
ON	ON	<ul style="list-style-type: none"> • The Module configuration definitions are updated. • The default values are allocated in the definitions for all of the Modules that are detected.
ON	OFF	<ul style="list-style-type: none"> • The Module configuration definitions are updated. • The definitions for any Modules for which definitions already exist are not changed. • The default values are allocated in the definitions for any new Modules that are detected.

- The DIP switch is not normally used for the MP2100M. For these Machine Controllers, execute self-configuration by following the procedure described in (2) *Using the MPE720 (MP2100M)* below.

(2) Using the MPE720 (MP2100M)

Start the MPE720 and perform one of the following operations on the **Module Configuration** Window.

The operation procedures will depend on the range of self-configuration and the version of the MPE720.

- Refer to 4.1.1 *Displaying the Module Configuration Window* on page 4-2 for the procedure to display the **Module Configuration** window.

Command	MPE720 Operation Procedures	Result
Self-configuration for all Modules	<ul style="list-style-type: none"> ■ MPE720 Ver.7 At the top of the window, select Self Configuration - All modules. ■ MPE720 Ver. 6 and Older Select Order - Self Configure All Modules from the Main Menu. 	<ul style="list-style-type: none"> • The Module configuration definitions are updated. • The definitions for any Modules for which there are already definitions are not changed. • The default values are allocated in the definitions for any new Modules that are detected.
Module Self-configuration	<ul style="list-style-type: none"> ■ MPE720 Ver.7 First select the module for self-configuration. Then at the top of the window, select Self Configuration - Specified modules. ■ MPE720 Ver. 6 and Older Select Order - Self Configure All Modules from the Main Menu. 	<ul style="list-style-type: none"> • Definitions are allocated only for the selected Module. • The definitions for any Modules for which there are already definitions are not changed. • The default values are allocated in the definitions for any new Modules that are detected.

3.5 Starting the MPE720, and Setting Communication or Network Parameters

This section describes how to start the MPE720, and how to set the communication parameters in the object file (MPE720 Ver. 7, Ver. 6) or the network parameters in the PLC folder (MPE720 Ver. 5).

3.5.1 Starting MPE720 Ver. 7 and Ver. 6, and Setting Communication Parameters

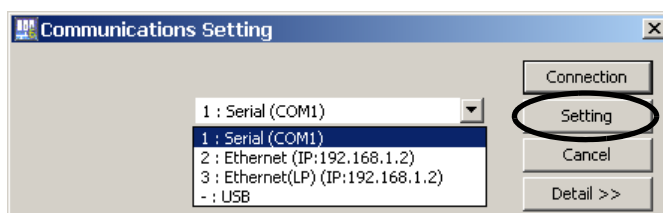
This section describes how to start MPE720 Ver. 7 or Ver. 6 and set the communication parameters in the object file.

- Disconnect the Machine Controller when setting the parameters.
- Create the object file in advance.

1. Select **Online - Communications Setting** from the Main Menu. Or, select **Controller - Communications Setting** (or **Project - Communications Setting** in the Start window).

The **Communications Setting** dialog box will be displayed.

2. Select the logical port number to connect to the Machine Controller, and click the **Setting** button.
 - Settings for the logical port numbers are made with the Communication Manager. Refer to 3.3 *Setting the Communication Platform and Communication Manager* on page 3-10 for the Communication Manager setting procedure.



Communication will be set and the dialog box will close.

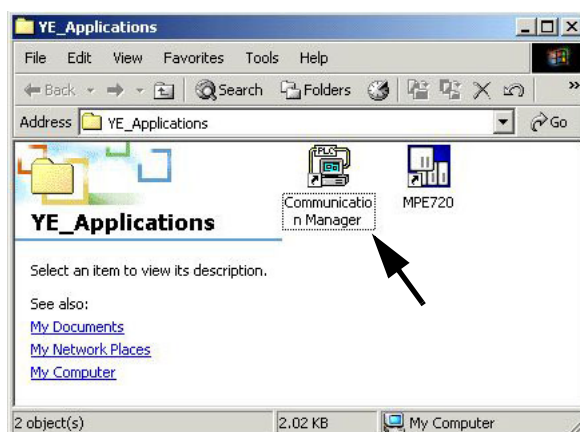
- The **Connection** and **Setting** buttons will be disabled while the Machine Controller is connected, preventing communication settings from being made.

Be sure to continue the setting of the transmission definition for the 263IF-01 Module. For details of the transmission definition setting, refer to *Chapter 4 Description of the EtherNet/IP Transmission Definition*.

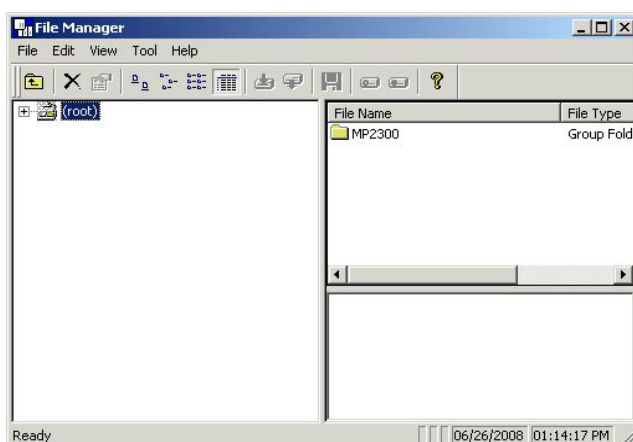
3.5.2 Starting MPE720 Ver. 5 and Setting Network Parameters

This section describes how to start the MPE720 Ver. 5 and set the network parameters in the PLC folder.

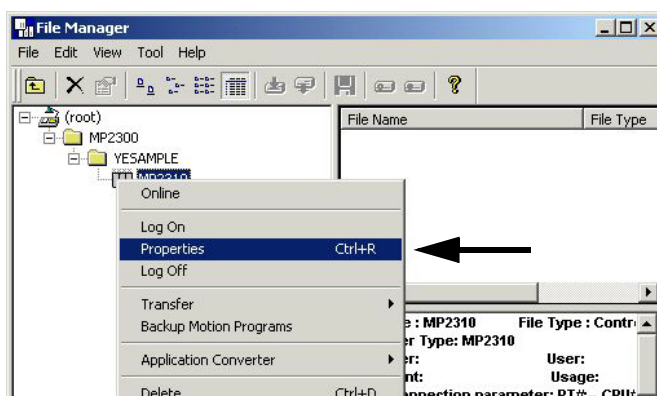
- ♦ Create the PLC folder in advance.
1. Open the **YE_Applications** folder and double-click the **MPE720** icon.
Alternatively, select **MPE720** from the **Start** menu.
 - ♦ The procedure for selecting the network will vary, depending on the operating system.



The MPE720 will start and the **File Manager** window will be displayed.

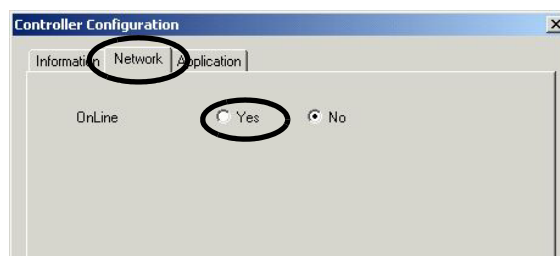


2. Open the root, group, and then order folder, right-click the desired PLC folder, and select **Properties** from the pop-up menu that is displayed.



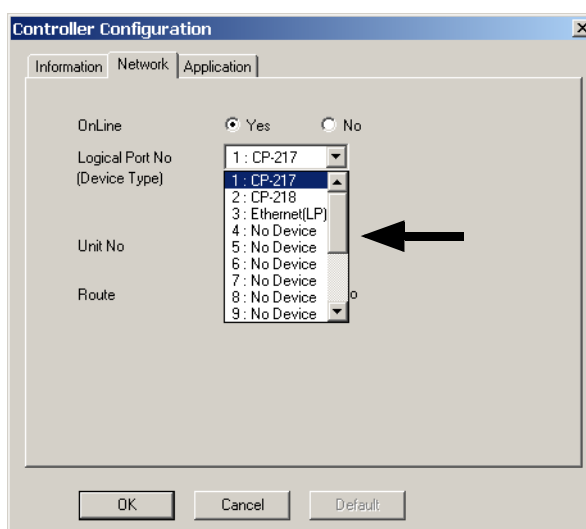
The **Controller Configuration** dialog box will be displayed.

3. Click the **Network** tab and select **Yes** for **OnLine**.



Fields will be displayed for the logical port number, unit number, and route so that they can be set.

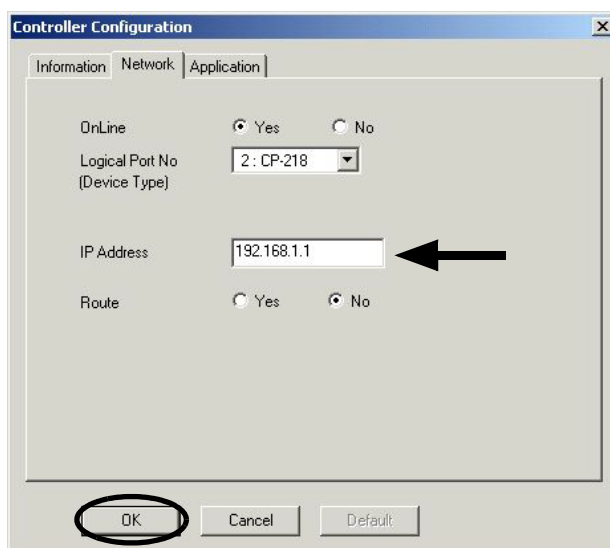
4. For **Logical Port No. (Device Type)**, select the logical port number to be used from the logical port numbers that were set with the Communication Manager.



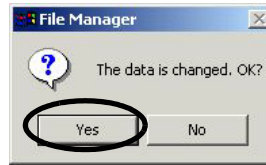
The contents display on the tab page may change depending on the port that is selected.

<Ethernet/EtherNet(LP) Connection>

Enter the IP address of the personal computer, and click the **OK** button.



5. A confirmation dialog box will be displayed. Click the **Yes** button. This completes selecting the logical port.



Be sure to continue the setting of the transmission definition for the 263IF-01 Module. For details of the transmission definition setting, refer to *Chapter 4 Description of the EtherNet/IP Transmission Definition*.

Description of the EtherNet/IP Transmission Definition

To perform EtherNet/IP communication with the 263IF-01 using an MP2000-series Machine Controller, an EtherNet/IP transmission definition file must be created. This chapter describes how to set the EtherNet/IP transmission definition on the MPE720 screen.

4.1 Displaying the EtherNet/IP Transmission Configuration Window	4-2
4.1.1 Displaying the Module Configuration Window	4-2
4.1.2 Displaying the EtherNet/IP Transmission Configuration Window from the Module Configuration Window	4-3
4.2 EtherNet/IP Transmission Definition	4-5
4.2.1 EtherNet/IP Transmission Definition Window Configuration and Settings	4-5
4.2.2 Network Parameter Tab Page	4-6
4.2.3 Connection List Tab Page	4-8
4.2.4 IO Communication Detail Setting Window	4-13
4.2.5 NetWork Configuration Search Window	4-14
4.2.6 Status Detail Window	4-15
4.2.7 I/O Status Tab Page	4-16
4.2.8 Status Detail Window	4-17
4.2.9 Module Information Tab Page	4-19

4.1 Displaying the EtherNet/IP Transmission Configuration Window

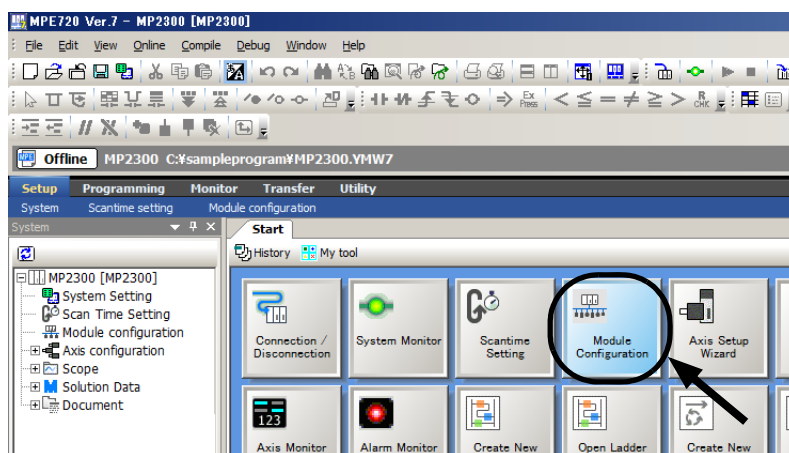
This section describes how to open the **Module Configuration** window from the MPE720, open the **EtherNet/IP Transmission Configuration** window from the **Module Configuration** window, and set the transmission definition for the EtherNet/IP Module.

4.1.1 Displaying the Module Configuration Window

Use the following procedure to display the **Module Configuration** window.

(1) MPE720 Ver. 7

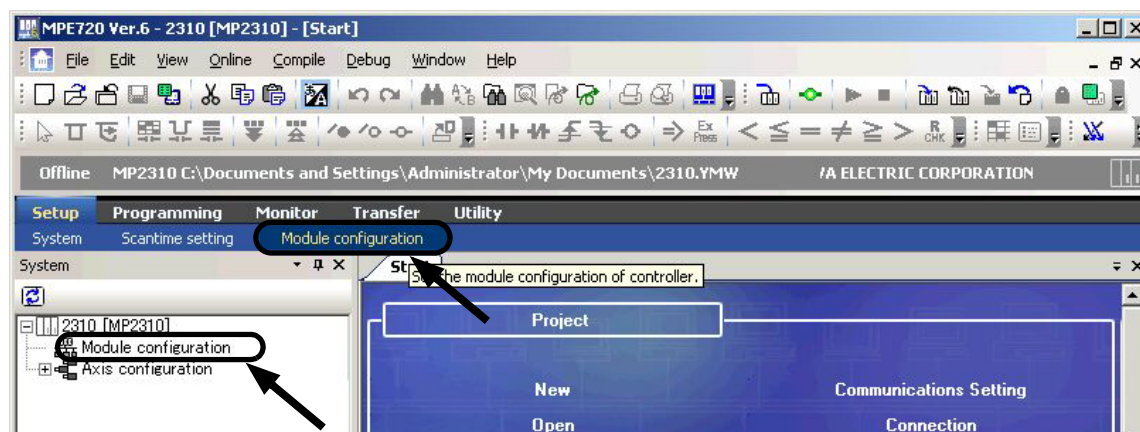
1. Start the MPE720 on the personal computer connected to the Machine Controller and open the project file.
 - For information on starting the MPE720 and logging on, refer to *Machine Controller MP2000/MP3000 Series Engineering Tool MPE720 Version 7 User's Manual (Manual No.: SIEPC88076103)*
2. Click the **Module Configuration** Button on the My Tool View.



The **Module Configuration** Window will be displayed (see page 4-3).

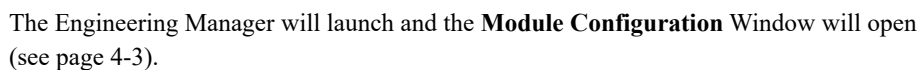
(2) MPE720 Ver. 6

1. Start the MPE720 on the personal computer connected to the Machine Controller, and open the project file.
 - For information on starting the MPE720, refer to *Engineering Tool for MP2000 Series Machine Controller MPE720 Version 6 User's Manual (Manual No.: SIEPC88070030)*.
2. Select **Setup - Module configuration** in the Launcher, or double-click the **Module configuration** icon in the system subprogram.



The Engineering Manager will launch and the **Module Configuration** window will open (see page 4-3).

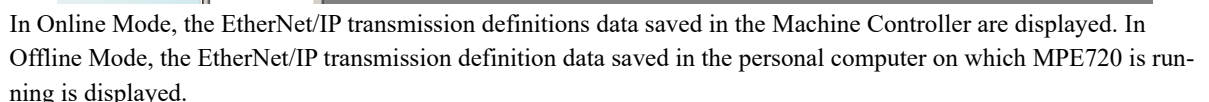
1. Start the MPE720 on the personal computer connected to the Machine Controller and use the File Manager to log in and go online with the application for the Machine Controller.
 - For information on starting the MPE720 and logging on, refer to *Machine Controller MP900/MP2000 Series MPE720 Software for Programming Device User's Manual* (Manual No.: SIEPC88070005).
2. Double-click the **Module Configuration** icon in the **Definition Folder**.



(1) MPE720 Ver. 7

Double-click **EtherNet/IP** on the **Module Configuration** Window, and the **EtherNet/IP Transmission Configuration** Window (see page 4-5) will be displayed.

- If the **Transmission Configuration** Window is being opened for the first time, a “new file” message box will be displayed and the **EtherNet/IP Transmission Configuration** Window will be displayed when the **OK** Button is clicked.



Refer to *4.2 EtherNet/IP Transmission Definition* on page 4-5 to perform EtherNet/IP transmission definition settings.

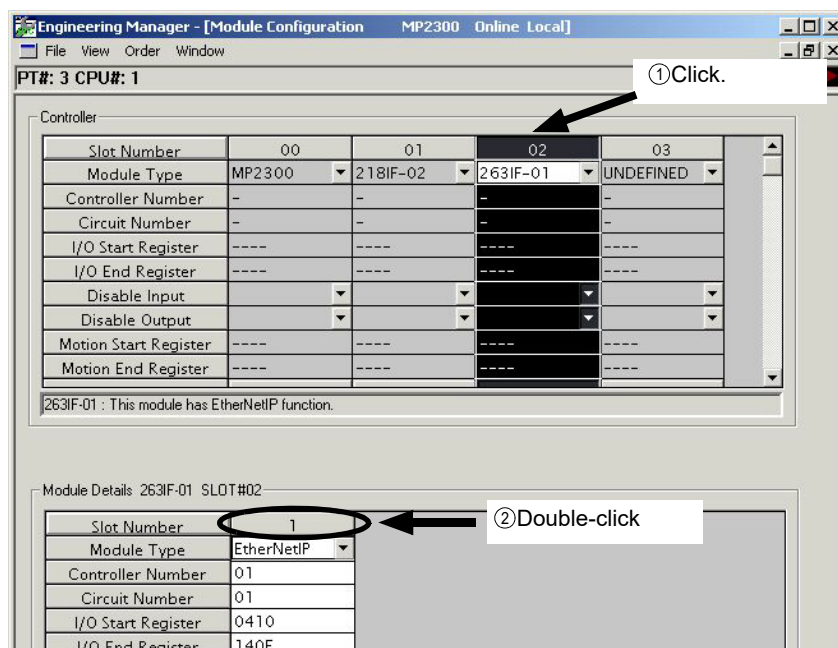
(2) MPE720 Ver. 6 and Ver. 5

As the result of executing self-configuration, all Option Modules connected to the Machine Controller will be displayed in the **Controller** area of the **Module Configuration** window. (Refer to 3.4.1 *Executing Self-configuration* on page 3-17.)

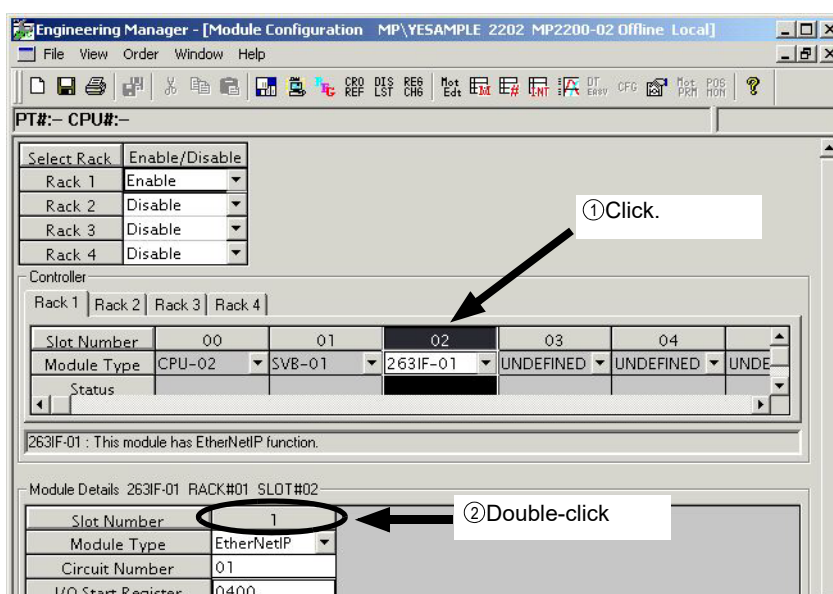
In the **Controller** area, select the 263IF-01 cell and then double-click the slot number cell of EtherNet/IP in the **Module Details** area. The **EtherNet/IP Transmission Configuration** window (see page 4-5) will then open.

- If the **Transmission Configuration** window is being opened for the first time, a “new file” message box will be displayed and the **EtherNet/IP Transmission Configuration** window will open when the **OK** button is clicked.

<MP2300/MP2310/MP2300S Module Configuration Window>



<MP2100M, MP2200 Module Configuration Window>



In Online Mode, the EtherNet/IP transmission definition data saved in the Machine Controller is displayed. In Offline Mode, the EtherNet/IP transmission definition data saved in the personal computer on which MPE720 is running is displayed.

Refer to 4.2 *EtherNet/IP Transmission Definition* on page 4-5 to perform EtherNet/IP transmission definition settings.

4.2 EtherNet/IP Transmission Definition

4.2.1 EtherNet/IP Transmission Definition Window Configuration and Settings

The **EtherNet/IP Transmission Definition** window consists of four tab pages. Switch between these tab pages to configure settings and perform monitoring. The following table describes the configuration of the **EtherNet/IP Transmission Definition** window and details about each tab page.

Tab Configuration	Description	Type of Page	Reference
Network Parameter tab page	This tab page is used to set the network parameters that are required to use EtherNet/IP communication.	Settings	page 4-5
Connection List tab page	This tab page is used to create a list of devices that will join the EtherNet/IP network.	Settings	page 4-8
IO Communication Detail Setting window	This window is used for settings related to I/O communication of a scanner device.	Settings	page 4-13
NetWork Configuration Search window	This window is used to check the IP addresses of devices that have joined the EtherNet/IP network.	Monitor	page 4-14
Status Detail window	This window is used to check the status of a device that has joined the EtherNet/IP network.	Monitor	page 4-15
I/O Status tab page	This tab page is used to check the I/O status of devices assigned on the Connection List tab page.	Monitor	page 4-16
Status Detail window	This window is used to check details of the I/O status of a device assigned on the Connection List tab page.	Monitor	page 4-17
Module Information tab page	This tab page is used to check EtherNet/IP Module (local station) information.	Monitor	page 4-19

The following table gives the tab pages and windows that must be set depending on the type of EtherNet/IP communication and the role of the EtherNet/IP Module (local station).

Tab Configuration	Communication Type/Local Station Role			
	I/O Communication*		Message Communication	
	Scanner	Adapter	Client	Server
Network Parameter tab page	○	○	○	○
Connection List tab page	○	○	○	○
IO Communication Detail Setting window	○	×	○	○

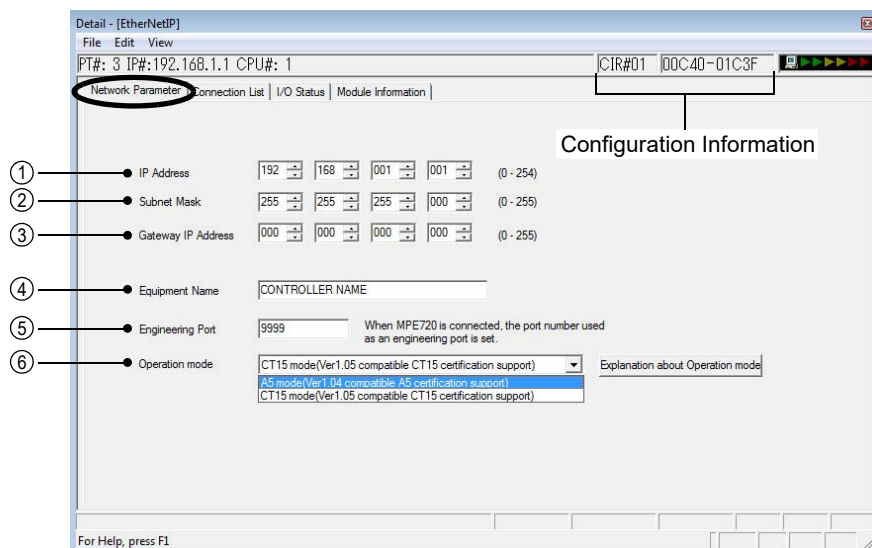
○: Settings required, ×: Settings not required

* Refer to *Chapter 5 Examples of EtherNet/IP Transmission Definition Settings* for example settings on each tab page and window.

4.2.2 Network Parameter Tab Page

On the Network Parameter tab page, set the network parameters required to perform EtherNet/IP communication. The following explains the details of the network parameter setting.

- After changing the setting on the Network Parameter Setting tab page, save the definition data by selecting **File - Save to Flash** from the Main Menu. If not saved, the set content will not be enabled.



■ Configuration Information

Displays the 263IF-01 Module configuration information. The configuration information is the same as the information displayed in the **Module Details** area in the **Module Configuration** window.

CIR#: The circuit number of the EtherNet/IP port on the 263IF-01.

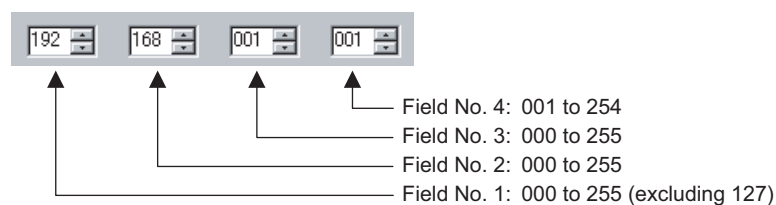
- When the MSG-SND function is used, set the circuit number displayed here for Circuit Number.

■ Network Parameters

① IP Address

Set the IP address of the local station.

There are four 8-bit fields delimited by periods (.). Input a decimal number for each field.



- Contact the network administrator for the available IP address.
- Do not use an address already set for another station. If an IP address is duplicated, the Network Status will be set to **IP Duplicated** on the **Module Information** screen (refer to page 4-19). If this happens, the module cannot join the network.

② Subnet Mask

Enter the subnet mask for the IP address of the local station.

The range that can be entered in fields 1 to 3 is 0 to 255. The range that can be entered in field 4 is 0 to 254.

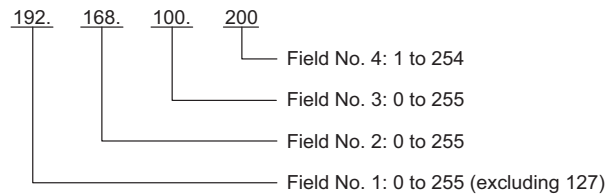
③ Gateway IP Address

When communication is performed with other networks connected through a gateway (router), enter the IP address of the gateway.

If there is no gateway or a gateway is not used, enter 0 for fields No. 1 to No. 4 of the gateway IP address.

The data input range for the gateway IP address varies according to the field.

Setting example



- ♦ Do not set the same address for the IP addresses and the gateway IP address.

④ Equipment Name

Any desired name can be set for a local station within 16 characters.

⑤ Engineering Port

Enter the port number of the engineering port (communication port of the Machine Controller used for communication with the MPE720) in the range of 256 to 65535. Remember that 2222, 9998, and 10000 cannot be used.

⑥ Operation Mode

Select whether to use the 263IF-01 in A5 Mode (Ver. 1.04 Compatibility, A5 Certified) operation mode or CT15 Mode (Ver. 1.05 Compatibility, CT15 Certified) operation mode.

The selection of this operation mode is supported in MPE720 Ver. 7.62 or later only.

Refer to *8.1 Differences in Functions by 263IF-01 Software Version* on page 8-2 for details on the operation modes.

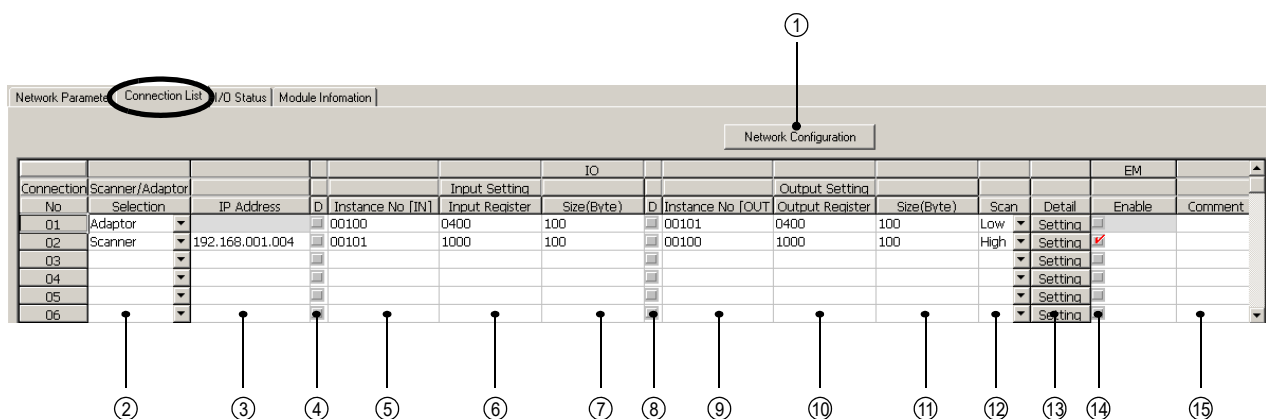
Refer to *8.3 263IF-01 and MPE720 Versions Table* on page 8-5 for combinations of 263IF-01 and MPE720.

4.2.3 Connection List Tab Page

(1) Details of the Connection List Tab Page

Make a list of devices connected to the EtherNet/IP on the **Connection List** tab page.

- The IP address of the device that is assigned to the list as a scanner must be identical to the IP address actually set for that device. Before assigning a scanner to the list, get the IP address of that device or confirm the IP address of that device by opening the **Network Configuration Search** window (refer to page 4-14) while the device is connected to the EtherNet/IP.
- After changing the setting on the **Connection List** tab page, save the definition data by selecting **File - Save to Flash** from the Main Menu. If not saved, the set content will not be enabled.



The following shows the details of the items.

① Network Configuration Button

Valid only in Online Mode.

When the button is clicked, the **Network Configuration Search** window that shows what devices are connected to the EtherNet/IP opens.

Selecting **Edit - Network Configuration** from the Main Menu will also open the **Network Configuration Search** window.

- For details of the **Network Configuration Search** window, refer to 4.2.5 *NetWork Configuration Search Window* on page 4-14.

② Scanner/Adapter Selection

Select whether to operate the 263IF-01 Module, which is the local station, as a **Scanner** or **Adapter**.

Select **Adapter** when using the 263IF-01 Module as the adapter of another station. Multiple adapters can be set. Configure settings for the number of scanners that will communicate with the adapter.

Select **Scanner** when using the 263IF-01 Module as a scanner. In this case, the other station specified by ③ **IP Address** is the adapter. Multiple scanners can be set. Configure settings for the number of adapters that will communicate with the scanner.

- If the setting is changed after setting Scanner or Adapter, the message box shown to the right will be displayed. Clicking the **Yes** button will delete the contents that have been assigned to the Connection No. whose setting has been changed.

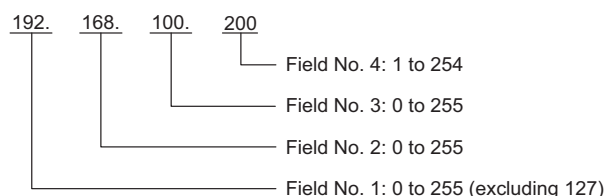


③ IP Address

The IP address can be entered only if **Scanner** is selected for ②. Enter the IP address of the other station that is the adapter for the 263IF-01 Module used as a scanner.

The data input range for the IP address varies in accordance with the field used as shown here.

Setting example



- The IP address cannot be entered when **Adapter** is selected for ②.

■ I/O Communication Setting – Input Setting

④ D

Set whether the controller CPU exchanges the input data with the EtherNet/IP.

When a checkmark is entered, data exchange is not performed.

- For example, when replacing the adapter, select this check box and you can replace the adapter without turning OFF the power supply and without any errors occurring. Clear the check box after replacing the adapter and that adapter will exchange input data normally.

⑤ Instance No. [IN]

Set an input instance number in the following range.

Scanner: 1 to 65534

Adapter: 100 to 199, and 768 to 1279

- When 198 is set for the device set as Adapter, entry in the Size field is disabled and 0 (bytes) is assigned.
- Duplication of the input instance numbers and output instance numbers is checked. When Scanner is selected, the instance number and the size must agree with those set at the remote station. For details, refer to 4.2.3 (2) *Cautions on Setting Instance No. [IN] and Instance No. [OUT]* on page 4-11.

⑥ Input Register

Set the leading address (word) of the input area (input register IWxxxx) to be allocated to the corresponding device as a hexadecimal number. The setting range is 0 to 7FFF.

⑦ Size (Byte)

Set the size of the input area (input registers IWxxxx to IWyyyy) to be allocated to the corresponding device in bytes. The setting range depends on the software version of the 263IF-01 Module.

Ver.1.04 or earlier: 1 to 500 bytes

Ver.1.05 or later: 1 to 1440 bytes

- If the size exceeds 500 bytes, use a 263IF-01 with Ver. 1.05 or later. Additionally, use MPE720 Ver. 7.47 or later.
- When using a 263IF-01 with Ver. 1.06 or later, use MPE720 Ver. 7.62 or later.

■ I/O Communication Setting – Output Setting

⑧ D

Set whether the controller CPU exchanges the output data with the EtherNet/IP.

When a check mark is entered, data exchange is not performed.

- For example, when replacing the adapter, select this check box and you can replace the adapter without turning OFF the power supply and without any errors occurring. Clear the check box after replacing the adapter and that adapter will exchange output data normally.

⑨ Instance No. [OUT]

Set an output instance number in the following range.

Scanner: 1 to 65534

Adapter: 100 to 199, and 768 to 1279

- When 198 is set for the device set as Adapter, entry in the Size field is disabled and 0 (bytes) is assigned.

- Duplication of the input instance numbers and output instance numbers is checked. When Scanner is selected, the instance number and the size must agree with those set at the remote station. For details, refer to 4.2.3 (2) *Cautions on Setting Instance No. [IN] and Instance No. [OUT]* on page 4-11.

⑩ Output Register

Set the leading address (word) of the output area (output register OWxxxx) to be allocated to the corresponding device as a hexadecimal number. The setting range is 0 to 7FFF.

⑪ Size (Byte)

Set the size of the output area (output registers OWxxxx to OWyyyy) to be allocated to the corresponding device in bytes. The setting range depends on the software version of the 263IF-01 Module.

Ver.1.04 or earlier: 1 to 500 bytes

Ver.1.05 or later: 1 to 1440 bytes

- If the size exceeds 500 bytes, use a 263IF-01 with Ver. 1.05 or later. Additionally, use MPE720 Ver. 7.47 or later


■ I/O Communication Setting – Others

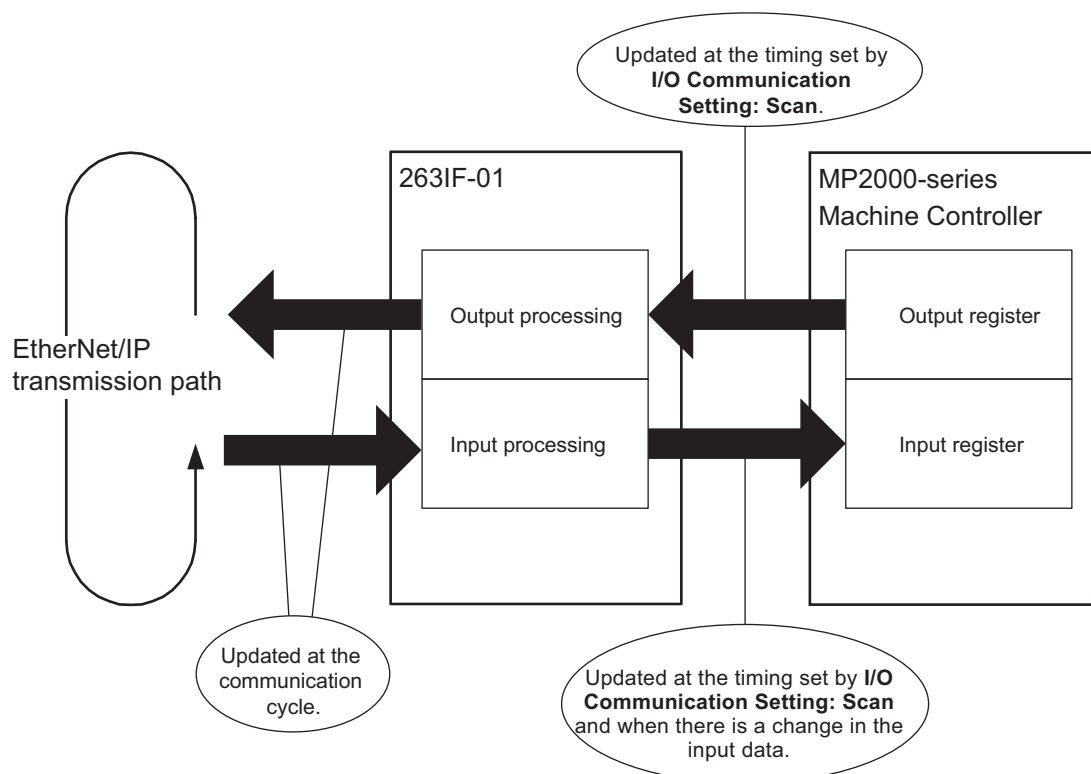
⑫ Scan

Select the scan timing with which the controller CPU exchanges the I/O data with the EtherNet/IP from High and Low. The data exchange cycle of the controller CPU and the communication cycle of I/O transmissions are not synchronized.

High: The I/O data is exchanged at the start of the high-speed scan of the controller CPU.

Low: The I/O data is exchanged at the start of the low-speed scan of the controller CPU.

-  The controller CPU updates the input registers at the timing set by **I/O Communication Setting: Scan** only when there is a change in the input data of the 263IF-01. For this reason, even if the relevant input registers are mistakenly overwritten by an application or something else, they will not be updated until the next change in the input data. The following diagram shows the data update timing between the MP2000-series Machine Controller and the EtherNet/IP transmission path.



⑬ Setting (Detail) button

When Scanner is selected, clicking this button will open the **IO Communication Detail Setting** window where I/O communication details are set for the selected device.

When Adapter is selected, the **IO Communication Detail Setting** window is not displayed even if this button is clicked.

- For details of the **IO Communication Detail Setting** window, refer to 4.2.4 *IO Communication Detail Setting Window* on page 4-13.

■ EM Communication Setting

⑭ Enable

Set enable or disable for explicit message communication. Entering a check mark in this field will enable explicit message communication. This option cannot be set when **Adapter** is selected for ②.

⑮ Comment

A comment within 16 characters can be entered as desired.

(2) Cautions on Setting Instance No. [IN] and Instance No. [OUT]

■ Restrictions on Duplication

The following restrictions are applied to the instance numbers.

- The input instance number and output instance number must not be duplicated at the same connection number.
- For Scanner, duplication of input and output instance numbers is permitted if the connection number differs.
- For Adapter, duplication of input and output instance numbers is not permitted even if the connection number differs.

An error will occur when saving the settings if the restrictions above are not observed.

■ Instance Number and Size for Scanner

When setting the instance number and size for Scanner, the input/output instance numbers and sizes must agree with those set for Adapter at the remote station. The setting is replaced as shown in examples below. That is, the input setting of Adapter at the remote station is replaced with the Scanner output setting, and the output setting of Adapter at the remote station is replaced with the Scanner input setting.

<Examples>

If the Adapter setting at remote station is: Input instance number 100 and Size 100, Output instance number 101 and Size 50,

then, the Scanner setting must be: Input instance number 101 and Size 50, Output instance number 100 and Size 100.

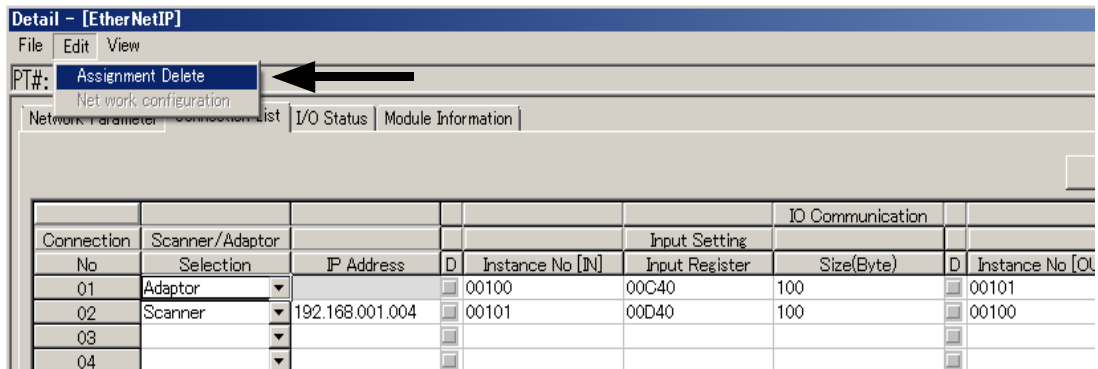
(3) Deleting the Assigned Devices

The following explains the procedure for deleting the devices assigned to the list.

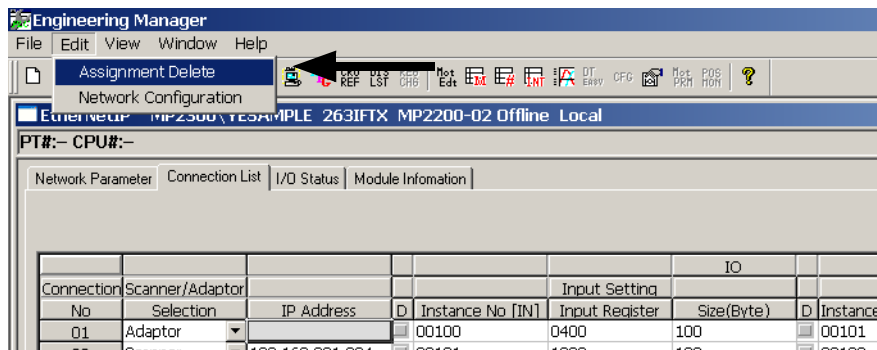
- Care should be taken in assignment deletion. The deleted assignment cannot be restored.

1. Click any cell of the device to be deleted on the **Connection List** tab page.
2. Select **Edit - Assignment Delete** from the Main Menu.

<MPE720 Ver. 7>



<MPE720 Ver. 6 and Ver. 5>



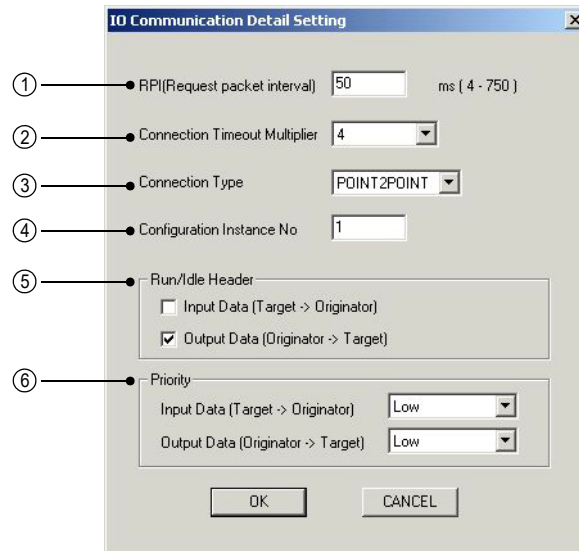
The assignment of the selected device is deleted and the line is left blank.

4.2.4 IO Communication Detail Setting Window

The **IO Communication Detail Setting** window opens when the **Setting** button of Scanner is clicked on the **Connection List** tab page.

- If Adapter is selected, this window does not open even if the **Setting** button is clicked.

The following explains the details of the **IO Communication Detail Setting** window and the setting details.



① RPI (Request packet interval)

Set the request packet interval of the CIP connection in units of “ms”. The value set for this item is also used as the RPI value of adapter devices.

The setting range is 4 to 750 (ms).

② Connection Timeout Multiplier

The CIP connection timeout value is calculated by multiplying the RPI value by the value set for Connection Timeout Multiplier. The timeout value is also used as the timeout value of adapter devices.

The CIP connection is shut off when timeout is detected.

The setting range is 4 to 64.

③ Connection Type

Select the CIP connection type for I/O communication from [POINT2PONT] (1 to 1 communication) and [MULTICAST] (1 to n communication).

④ Configuration Instance No.

Set the number for the instance to be set in this window within the range of 1 to 65534. Duplication of the instance number with the number of another configuration instance and input/output instance is permitted.

The size of the configuration instance to be set is fixed at 2 bytes.

⑤ Run/Idle Header

Select the validity or invalidity of Run/Idle Header at input data (Target → Originator) and output data (Originator → Target) of I/O communication following each adapter device.

Communication may not be possible if this setting does not match the adapter device of the remote station.

⑥ Priority

Select the priority of input data (Target → Originator) and output data (Originator → Target) of I/O communication from [Low], [High], and [Scheduled] following each adapter device.

Click the **OK** button after completely setting the items above. The window will close and the display will return to the **Connection List** tab page.



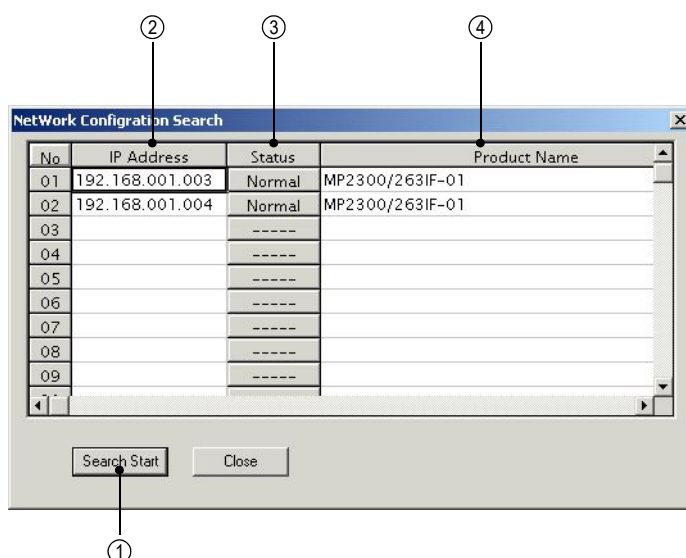
- A switching hub delay of 1 ms to 10 ms can occur, depending on the number of connected devices and the amount of communication data. (The delay time differs according to the manufacturer of the switching hub to be used). If connection timeouts occur frequently during I/O communication, adjust the RPI and Connection Timeout Multiplier values in accordance with the network system configuration.
- If engineering communication and I/O communication are performed simultaneously by connecting the Programming Device (MPE720) to the EtherNet/IP port of the 263IF-01 Module, the I/O transmission interval may become greater than the RPI value by up to about 5 ms.

4.2.5 NetWork Configuration Search Window

The **NetWork Configuration Search** window opens when the **Network Configuration** button is clicked on the **Connection List** tab page.

- In offline mode, the **Network Configuration** button is disabled.

The following explains the details of the **NetWork Configuration Search** window.



① Search Start Button

Displays the information for all EtherNet/IP devices currently connected to the same network when clicked. The information is updated to the latest data each time the **Search Start** button is clicked.

② IP Address

Displays the IP address of the EtherNet/IP device found.

③ Status (button)

Displays the status (Normal/Abnormal) of the EtherNet/IP device found in the form of a button.

Clicking the button that shows the status will open the **Status Detail** window to allow monitoring of the detailed status of the device.

- For details on the **Status Detail** window, refer to 4.2.6 *Status Detail Window* on page 4-15.

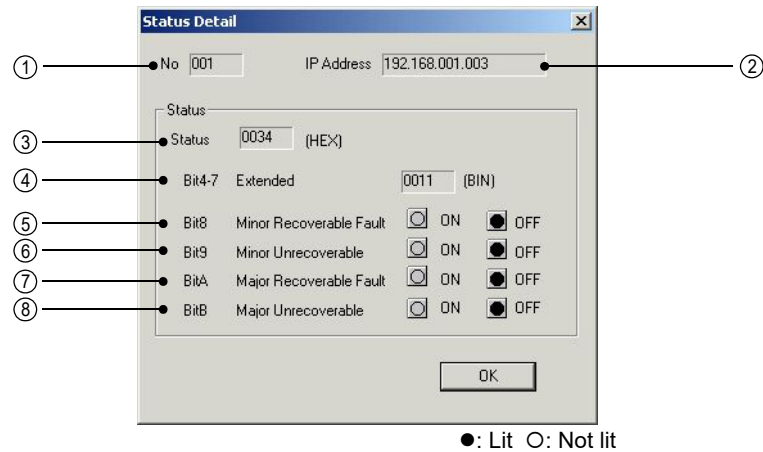
④ Product Name

Displays the product name (Machine Controller name/communication module name) of the EtherNet/IP device found.

When the **Close** button is clicked, the **NetWork Configuration Search** window will close and the display will return to the **Connection List** tab page.

4.2.6 Status Detail Window

The **Status Detail** window opens when the status button (Normal/Abnormal) is clicked on the **Network Configuration Search** window. Details of the status of the corresponding device can be monitored on the **Status Detail** window.



The following explains each item displayed in the **Status Detail** window.

① No

Displays the connection number of the selected device.

② IP Address

Displays the IP address of the selected device.

③ Status

Displays the status of the Identity object of the selected device as set in hexadecimal.

- ♦ For details of the code, refer to the EtherNet/IP (CIP) Specifications.

④ Bit4-7 Extended Device Status

Indicates the extended status of the selected device in binary code.

- ♦ For details of the code, refer to the EtherNet/IP (CIP) Specifications or the specifications of the device.

⑤ Bit8 Minor Recoverable Fault

The ON lamp lights when a minor recoverable fault has occurred.

⑥ Bit9 Minor Unrecoverable Fault

The ON lamp lights when a minor unrecoverable fault has occurred.

⑦ BitA Major Recoverable Fault

The ON lamp lights when a major recoverable fault has occurred.

⑧ BitB Major Unrecoverable Fault

The ON lamp lights when a major unrecoverable fault has occurred.

When the **OK** button is clicked, the **Status Detail** window will close and the display will return to the **Network Configuration Search** window.

4.2.7 I/O Status Tab Page

The **I/O Status** tab page displays the I/O status of the devices assigned on the **Connection List** tab page. On this tab page, setting is not possible.

No.	IP Address	Instance No. [IN]	Size(Byte)	Instance No.	Size(Byte)	Status	Comment
01		00100	100	00101	100	Wait	
02	192.168.001.004	00101	100	00100	100	Connect	
03						Wait	
04						Wait	
05						Wait	
06						Wait	
07						Wait	
08						Wait	
09						Wait	
10						Wait	

The following explains each item displayed on the **I/O Status** tab page.

① IP Address

Displays the IP address of the corresponding device.
For devices set as Adapter, IP address is not displayed.

② Instance No. [IN]

Displays the input instance number assigned to the corresponding device.

③ Size (Byte)

Displays the size of the input area (IWxxxx to IWyyyy) allocated to the corresponding device in bytes.

④ Instance No. [OUT]

Displays the output instance number assigned to the corresponding device.

⑤ Size (Byte)

Displays the size of the output area (OWxxxx to OWyyyy) allocated to the corresponding device in bytes.

⑥ Status (button)

Displays the I/O status of the devices in the form of a button.

The status is displayed as shown below.

Wait: The status in which communication has not started.

Connect: The status in which communication is in progress.

Pause: The status in which communication has stopped for some reason, although it did start.

The **Status Detail** window opens when the status button (Wait/Connect/Pause) is clicked. Details of the I/O status of the corresponding device can be monitored in the **Status Detail** window.

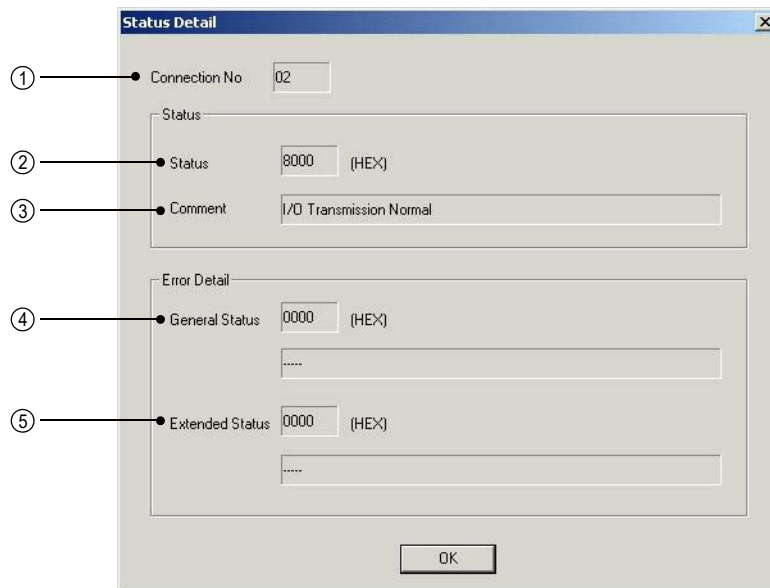
- For details on the **Status Detail** window, refer to 4.2.8 *Status Detail Window* on page 4-17.

⑦ Comment

Displays the comment set for the corresponding device.

4.2.8 Status Detail Window

The **Status Detail** window will open when the status button (Wait/Connect/Pause) is clicked on the **I/O Status** tab page. Details of the I/O status of the corresponding device can be monitored in the **Status Detail** window.



(1) Details of Status Display Window

The following explains each item displayed in the **Status Detail** window.

① Connection No.

Displays the connection number of the selected device.

② Status

Displays the status code of the selected device in hexadecimal.

③ Comment

Displays the details of the status code in text.

- ♦ For details of the contents of the status code, refer to 4.2.8 (2) *Status Code Table* on page 4-18.

④ General Status and ⑤ Extended Status

If the status code of ② is *4003H (error details returned from the target)*, more details will be indicated in the status code (hexadecimal) and text. In other cases, *0000* is displayed as the status code.

- ♦ For details of the code displayed at **General Status**, refer to A.1 *General Status Code Table* on page A-2.
- ♦ For details of the code displayed at **Extended Status**, refer to A.2 *Extended Status Code Table* on page A-3.

When the **OK** button is clicked, the **Status Detail** window will close and the display will return to the **I/O Status** tab page.

(2) Status Code Table

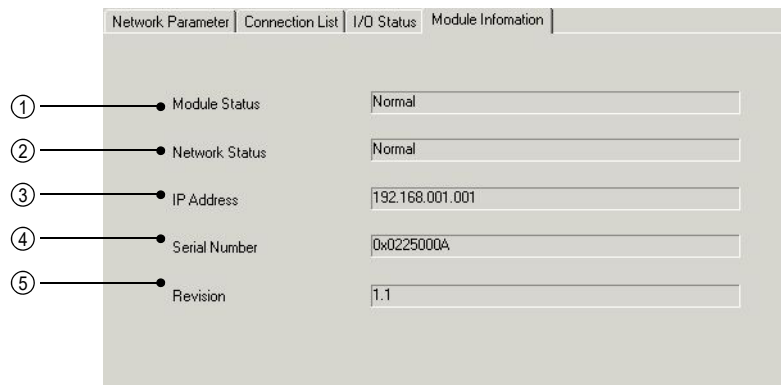
The following table lists the status codes and their details.

Status Code	Contents	Description
0000H	Waiting	I/O communication has not been started.
8000H	I/O communication normal	I/O communication is being correctly performed.
4001H	Connection error	Connection to the target failed.
4002H	Connection timeout	Although connection to the target was successful, no response for the ForwardOpen service was returned.
4003H	Error details returned from the target	Although connection to the target was successful, an error response was received for the ForwardOpen service.
4004H	Connection shutoff	Timeout was detected while establishing the connection
4005H	Request send error	Sending the request to the specified path failed.
4006H	Request timeout	No response was returned for the request. (After establishing the session)
4007H	Memory error	Failed to secure memory.
4008H	Socket error	An error occurred with the socket function.
4009H	Session number error	The number of sessions exceeded the limit.
400AH	Connection number error	The number of connections exceeded the limit.
400BH	Request number error	The number of requests exceeded the limit.
400CH	Request receiving error	The device is not in response receivable status, or the request transmission target remote station does not exist.

- If the status code is "4003H," more details are displayed in the **General Status** and **Extended Status** fields. For details of the code displayed in these fields, refer to *A.1 General Status Code Table* on page A-2 and *A.2 Extended Status Code Table* on page A-3.

4.2.9 Module Information Tab Page

The **Module Information** tab page displays the information of the EtherNet/IP Module (local station). On this tab page, setting is not possible.



The following explains each item displayed on the **Module Information** tab page.

① Module Status

Displays information that shows the current status of the local station.

The module status will be displayed in one of the five categories shown below.

- Operating normally
- Device not set
- Module error (unrecoverable)
- Module error (recoverable)
- Self-testing

② Network Status

Displays the current status of the EtherNet/IP network.

The network status will be displayed in one of the five categories shown below.

- Operating normally
- No I/O allocations or connection being established
- IP duplicated
- Communication timeout
- Self-testing

③ IP Address

Displays the IP address of the local station.

④ Serial Number

Displays the serial number of EtherNet/IP.

⑤ Revision

Displays the revision number of EtherNet/IP.

Examples of EtherNet/IP Transmission Definition Settings

This chapter describes examples of EtherNet/IP transmission definition settings in the MPE720 for performing I/O communication.

I/O communication operates automatically simply by configuring the cyclic transmission settings (EtherNet/IP transmission definition settings). For this reason, it is not necessary to create a program, such as one for explicit messages.

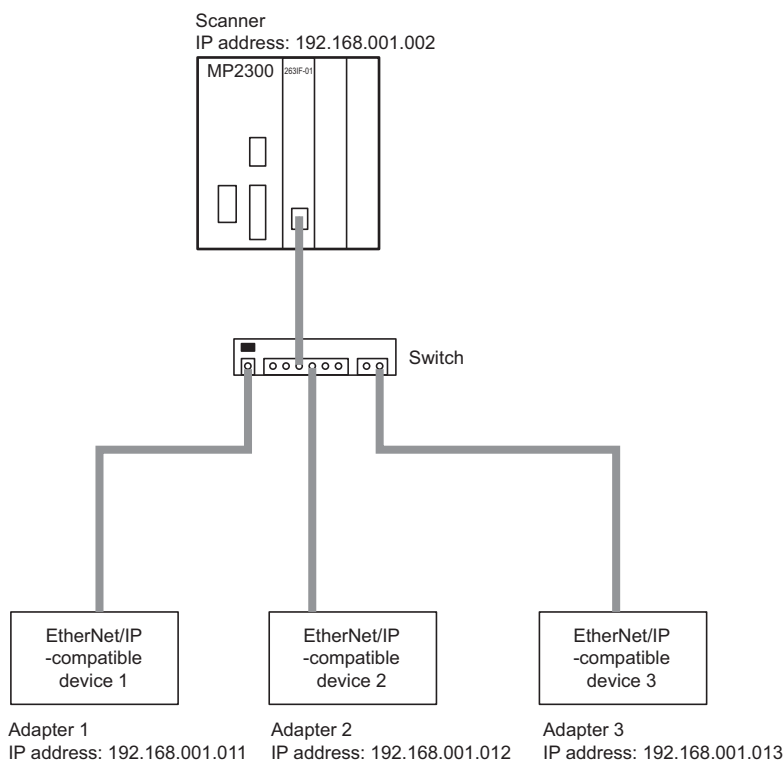
The settings depend on whether the 263IF-01 will be used as a scanner or an adapter.

5.1 Using the 263IF-01 as a Scanner	5-2
5.1.1 System Configuration Example	5-2
5.1.2 Examples of EtherNet/IP Transmission Definition Settings	5-2
5.2 Using the 263IF-01 as an Adapter	5-18
5.2.1 System Configuration Example	5-18
5.2.2 Examples of EtherNet/IP Transmission Definition Settings	5-18

5.1 Using the 263IF-01 as a Scanner

5.1.1 System Configuration Example

This section describes the settings using the following system configuration as an example.



5.1.2 Examples of EtherNet/IP Transmission Definition Settings

When performing I/O communication using the 263IF-01 as a scanner, you must configure the following EtherNet/IP transmission definition tab pages and windows in the MPE720.

- **Network Parameter** tab page
- **Connection List** tab page
- **IO Communication Detail Setting** window

(1) Interpreting the EDS File

For configuring the input and output settings on the **Connection List** tab page and the **IO Communication Detail Setting** window, refer to the [Connection Manager] section in the EDS file.

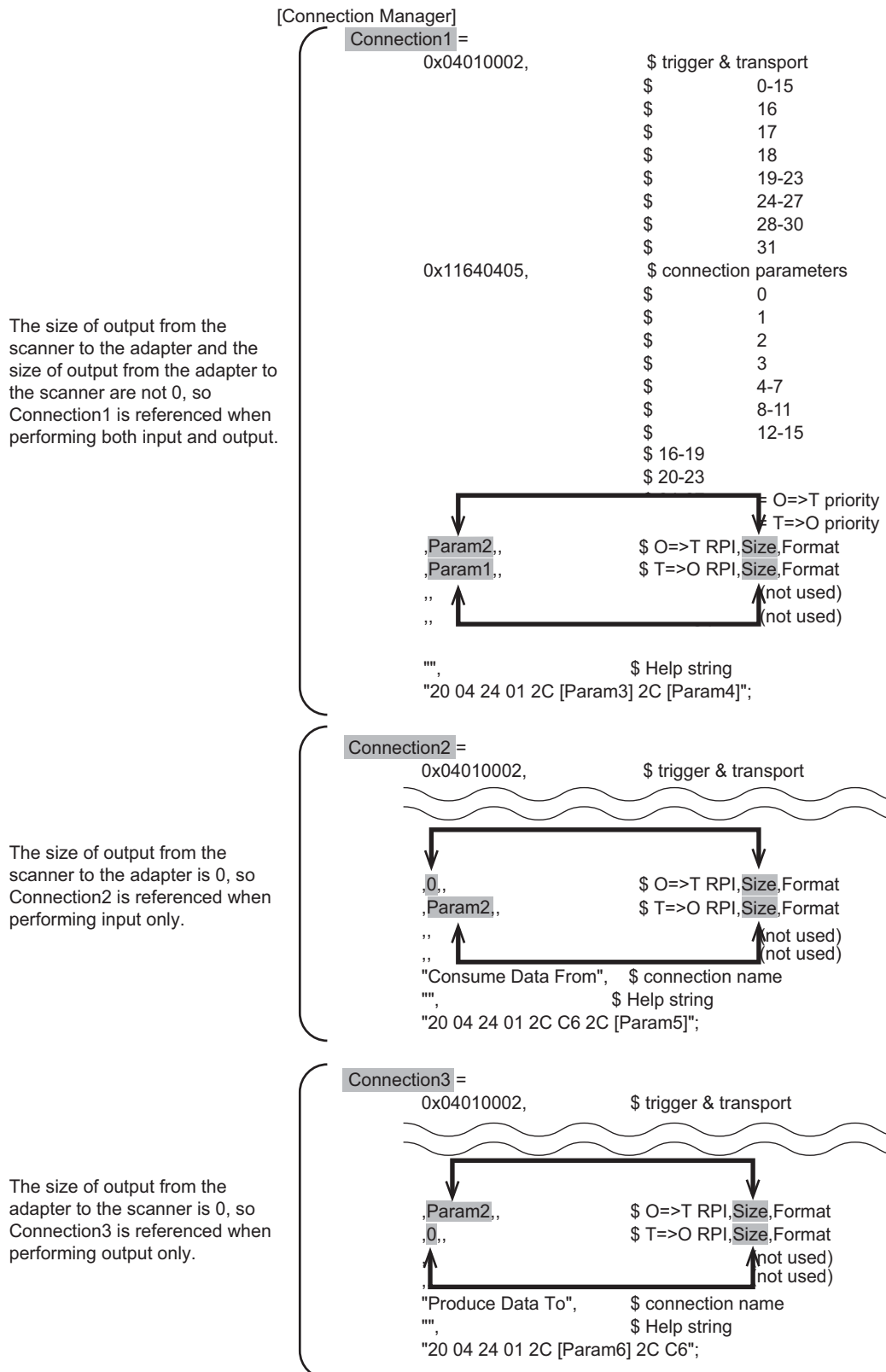
To set the 263IF-01 as the adapter, refer to the EDS file for the 263IF-01.

- The EDS file for the 263IF-01 can be downloaded from the YASKAWA E-Mechatronics website (<http://www.e-mechatronics.com>), or it can be obtained from the MPE720 installation disc.

The section to reference will depend on what you want to do.

An excerpt of the EDS file for the 263IF-01 is shown below.

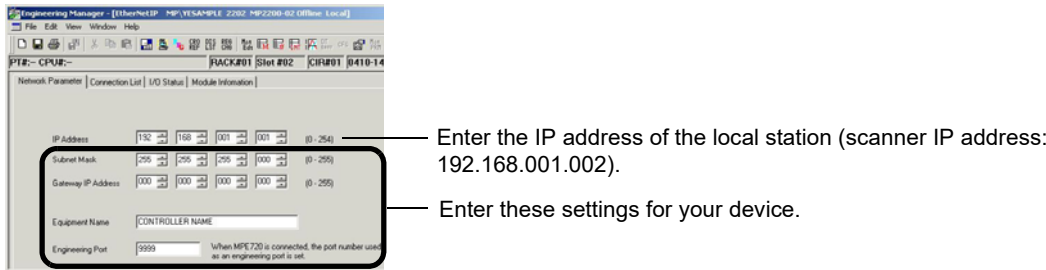
- O=>T: Represents output from the scanner to the adapter.
T=>O: Represents output from the adapter to the scanner (input from the adapter when viewed from the scanner).



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

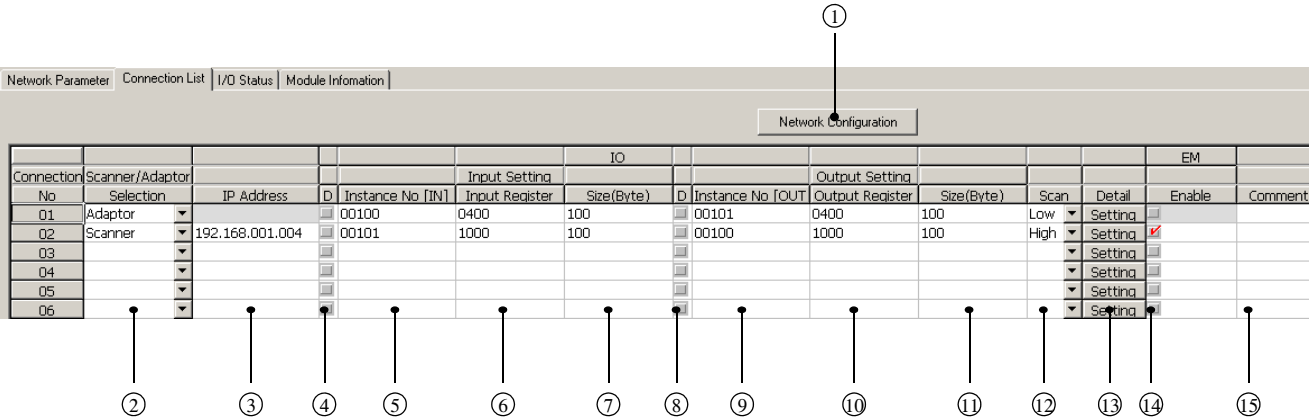
(2) Network Parameter Tab Page

This section describes the settings on the **Network Parameter** tab page when performing I/O communication using the 263IF-01 as a scanner. The settings and setting values are examples for the system configuration shown in 5.1.1 *System Configuration Example* on page 5-2.



(3) Connection List Tab Page

This section describes the settings on the **Connection List** tab page when performing I/O communication using the 263IF-01 as a scanner. The settings and setting values are examples for the system configuration shown in 5.1.1 *System Configuration Example* on page 5-2.



The following shows the details of items.

① **Network Configuration Button**

This button is valid only when online. When this button is clicked, the **NetWork Configuration Search** window is displayed. You can check information on devices that have currently joined the EtherNet/IP network on this window.

② **Scanner/Adapter Selection**

Select **Scanner** for all three devices here because the other devices that perform I/O communication are scanners.

③ **IP Address**

Enter the IP address of the other device.

■ I/O Communication - Input Setting

④ D

Select this check box if the controller CPU will not exchange input data with the EtherNet/IP network.

- ♦ For example, when replacing the adapter, select this check box and you can replace the adapter without turning OFF the power supply and without any errors occurring. Clear the check box after replacing the adapter and that adapter will exchange input data normally.

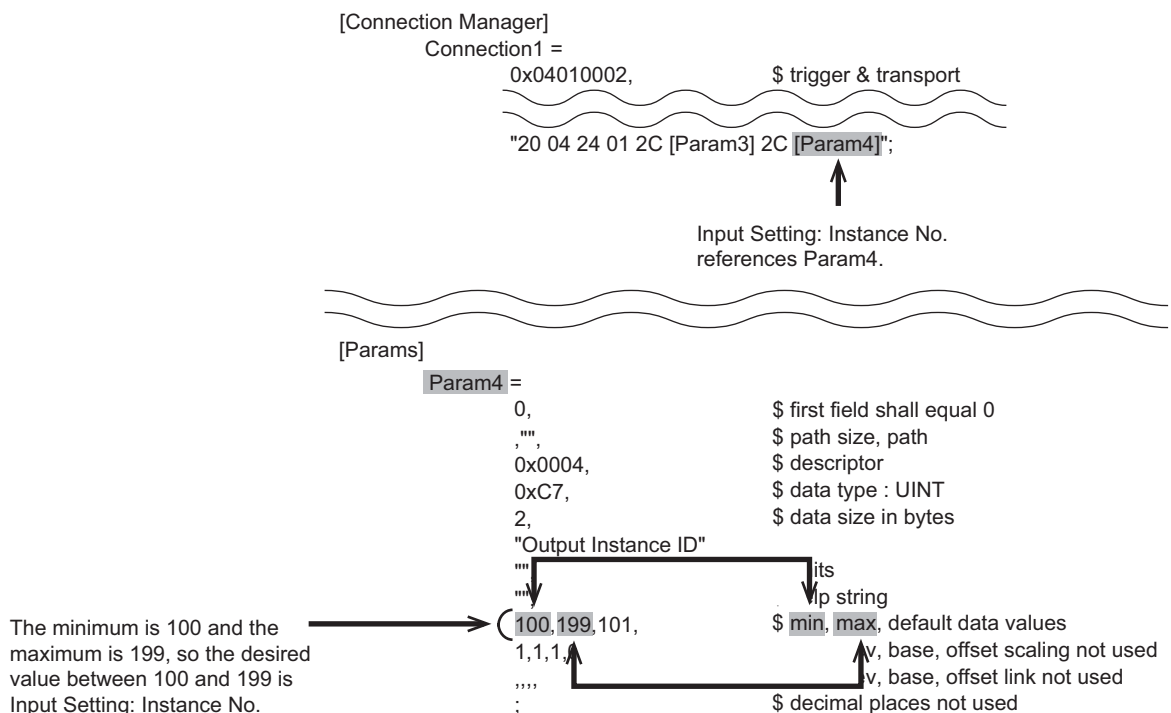
⑤ Instance No. [IN]

■Description

Set the same number as Instance No. [OUT] of the other device.

On the last line of Connection□ in the EDS file, the content immediately after "2C" that appears the second time is the input settings instance number.

■Specific Example



- ♦ Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.
- ♦ In the actual EDS file, the [Params] section comes before the [Connection Manager] section.

⑥ Input Register

Set the leading address of the IW registers of the machine controller.

Set the leading address to a unique value in the range displayed at the top right of the **Connection List** tab page.



⑦ Size (Byte)

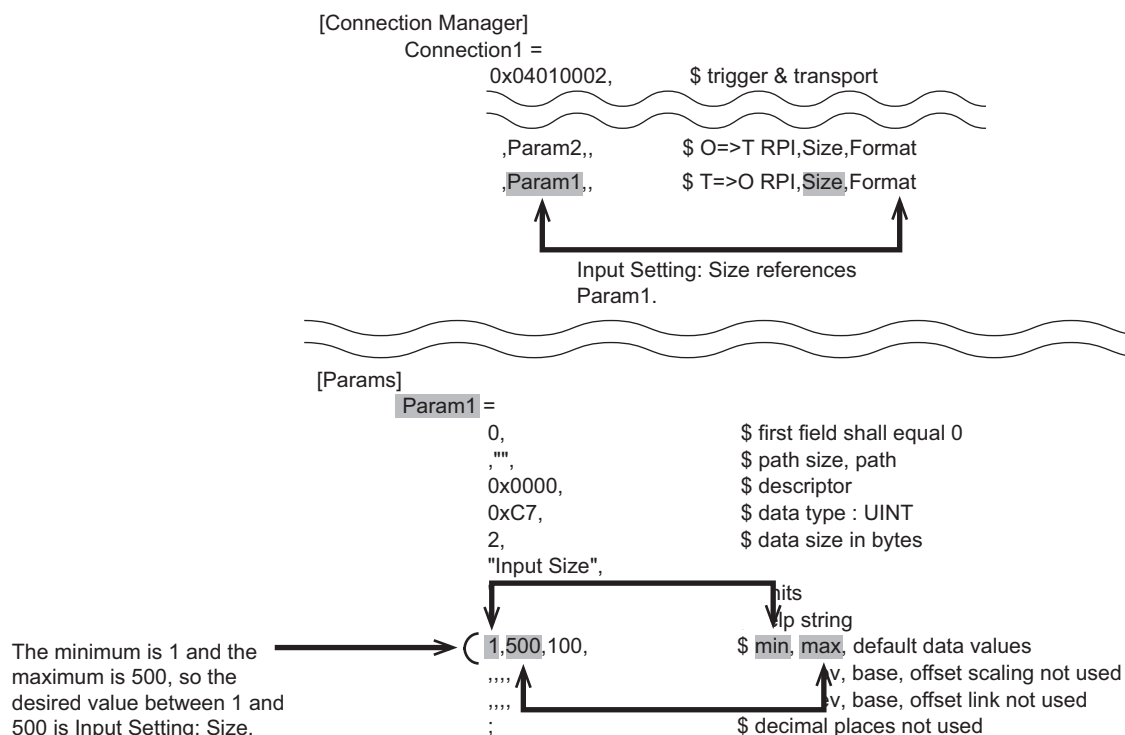
■Description

Set the same size as Output Size [Byte] of the other device.

The content separated by commas (,) in the string to the left of "\$ T=>O RPI,Size,Format" in the EDS file represents RPI, size, and format.

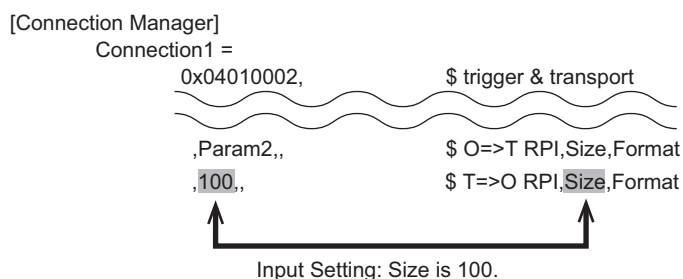
The string in between the first and second commas (,) is the size.

■Specific Example 1



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.
- In the actual EDS file, the [Params] section comes before the [Connection Manager] section.

■Specific Example 2



■ I/O Communication - Output Setting

⑧ D

Select this check box if the controller CPU will not exchange output data with the EtherNet/IP network.

- For example, when replacing the adapter, select this check box and you can replace the adapter without turning OFF the power supply and without any errors occurring. Clear the check box after replacing the adapter and that adapter will exchange input data normally.

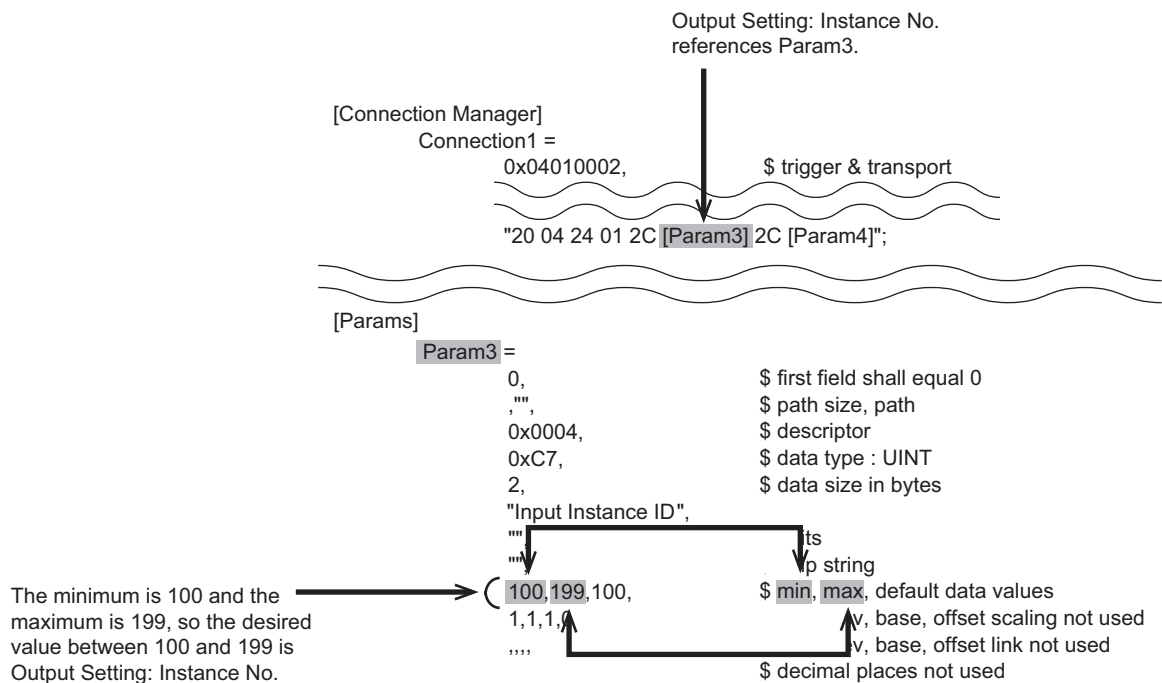
⑨ Instance No. [OUT]

■Description

Set the same number as Instance No. [IN] of the other device.

On the last line of Connection□ in the EDS file, the content immediately after "2C" that first appears is the output settings instance number.

■Specific Example



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.
- In the actual EDS file, the [Params] section comes before the [Connection Manager] section.

⑩ Output Register

Set the leading address of the OW registers of the machine controller.

Set the leading address to a unique value in the range displayed at the top right of the **Connection List** tab page.



① Size (Byte)

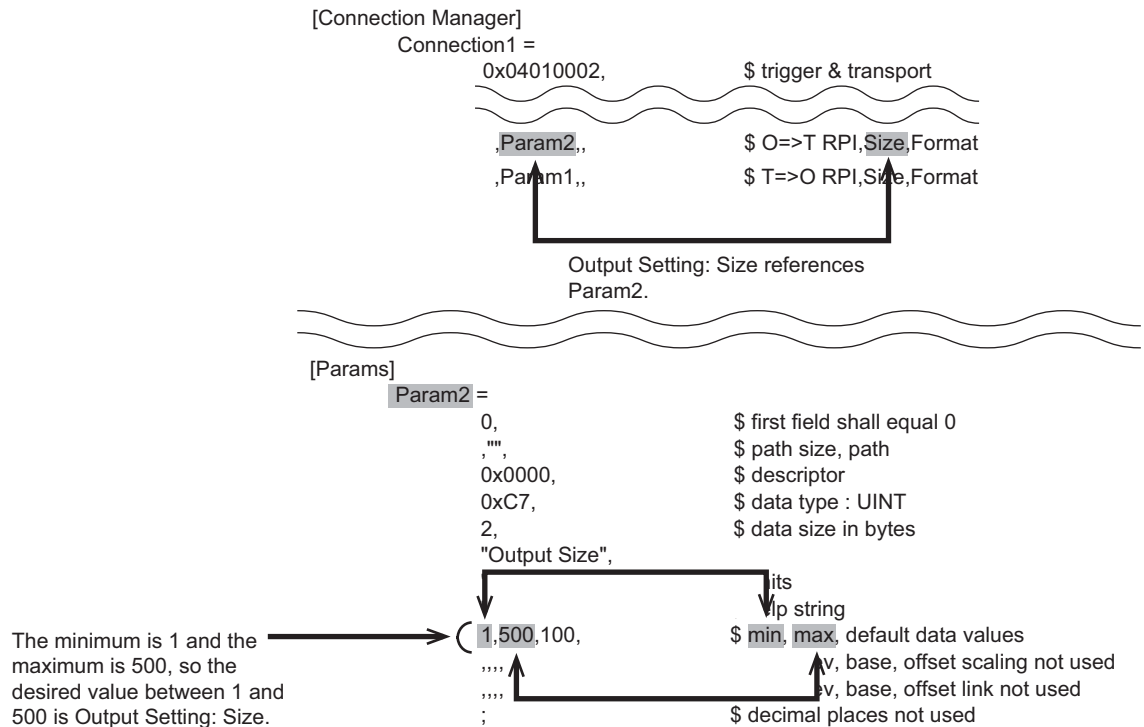
■Description

Set the same size as Input Size [Byte] of the other device.

The content separated by commas (,) in the string to the left of "\$ O=>T RPI,Size,Format" in the EDS file represents RPI, size, and format.

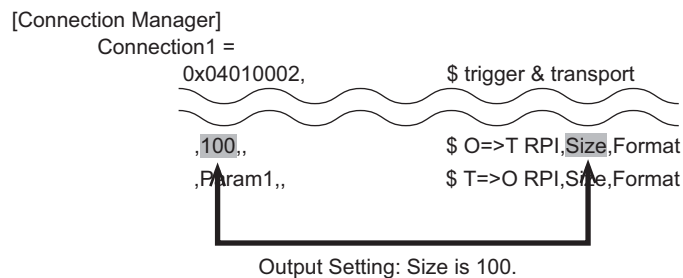
The string in between the first and second commas (,) is the size.

■Specific Example 1



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.
- In the actual EDS file, the [Params] section comes before the [Connection Manager] section.

■Specific Example 2



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

■ I/O Communication Setting – Others

⑫ Scan

Select the scan timing with which the controller CPU exchanges the I/O data with the EtherNet/IP from High and Low. The data exchange cycle of the controller CPU and the communication cycle of I/O transmissions are not synchronized.

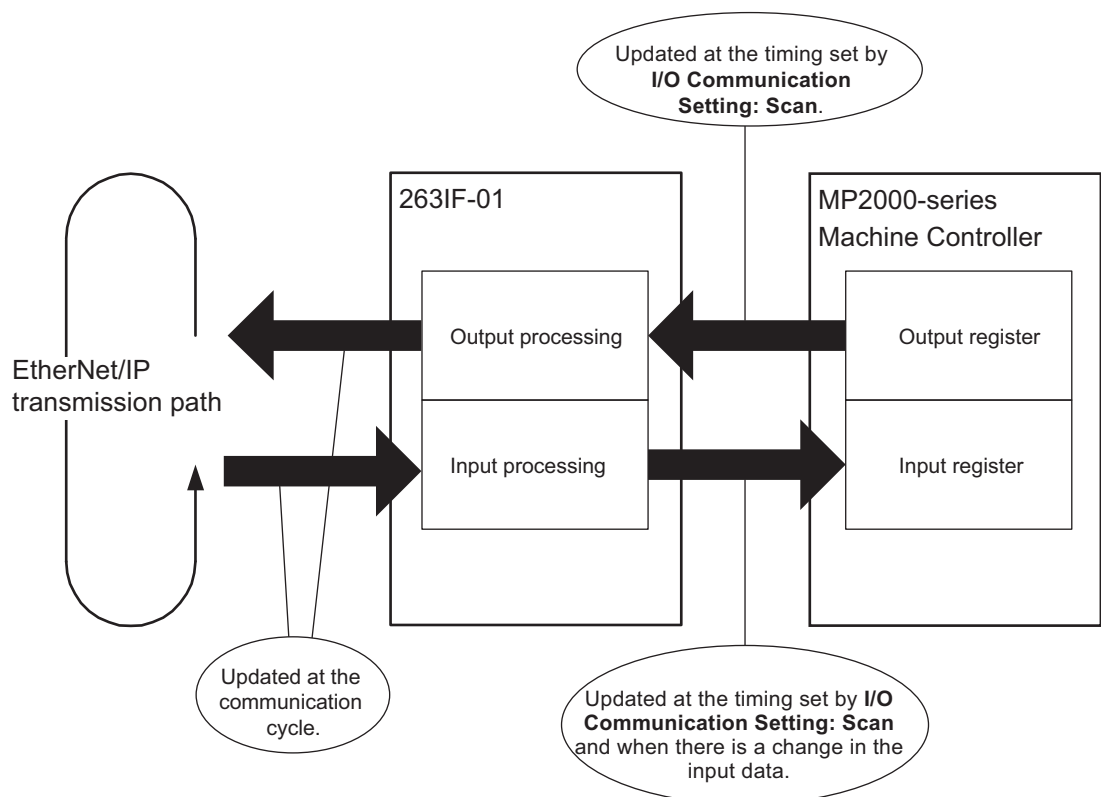
High: The I/O data is exchanged at the start of the high-speed scan of the controller CPU.

Low: The I/O data is exchanged at the start of the low-speed scan of the controller CPU.



- The controller CPU updates the input registers at the timing set by **I/O Communication Setting: Scan** only when there is a change in the input data of the 263IF-01. For this reason, even if the relevant input registers are mistakenly overwritten by an application or something else, they will not be updated until the next change in the input data.

The following diagram shows the data update timing between the MP2000-series Machine Controller and the EtherNet/IP transmission path.



⑬ Setting (Detail) button

Clicking this button will open the **IO Communication Detail Setting** window where I/O communication details are set for the selected device.

- For details of the **IO Communication Detail Setting** window, refer to *4.2.4 IO Communication Detail Setting Window* on page 4-13.

■ EM Communication Setting

⑭ Enable

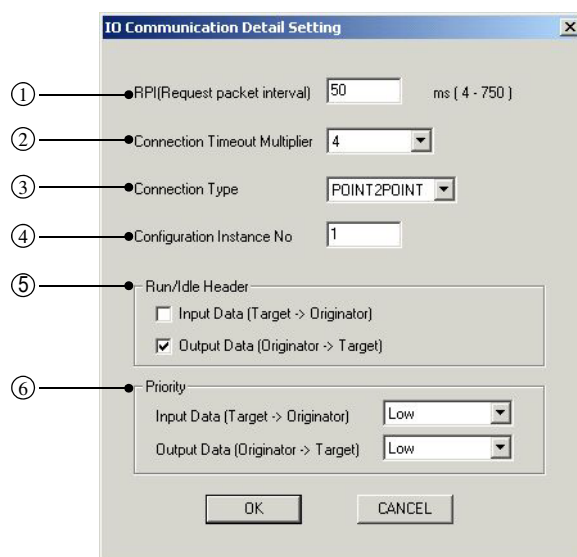
Set enable or disable for explicit message communication. Entering a check mark in this field will enable explicit message communication.

⑮ Comment

A comment within 16 characters can be entered as desired.

[c] I/O Communication Detail Setting Window

This section describes the settings on the **IO Communication Detail** window when performing I/O communication using the 263IF-01 as a scanner.



① RPI (Request Packet Interval)

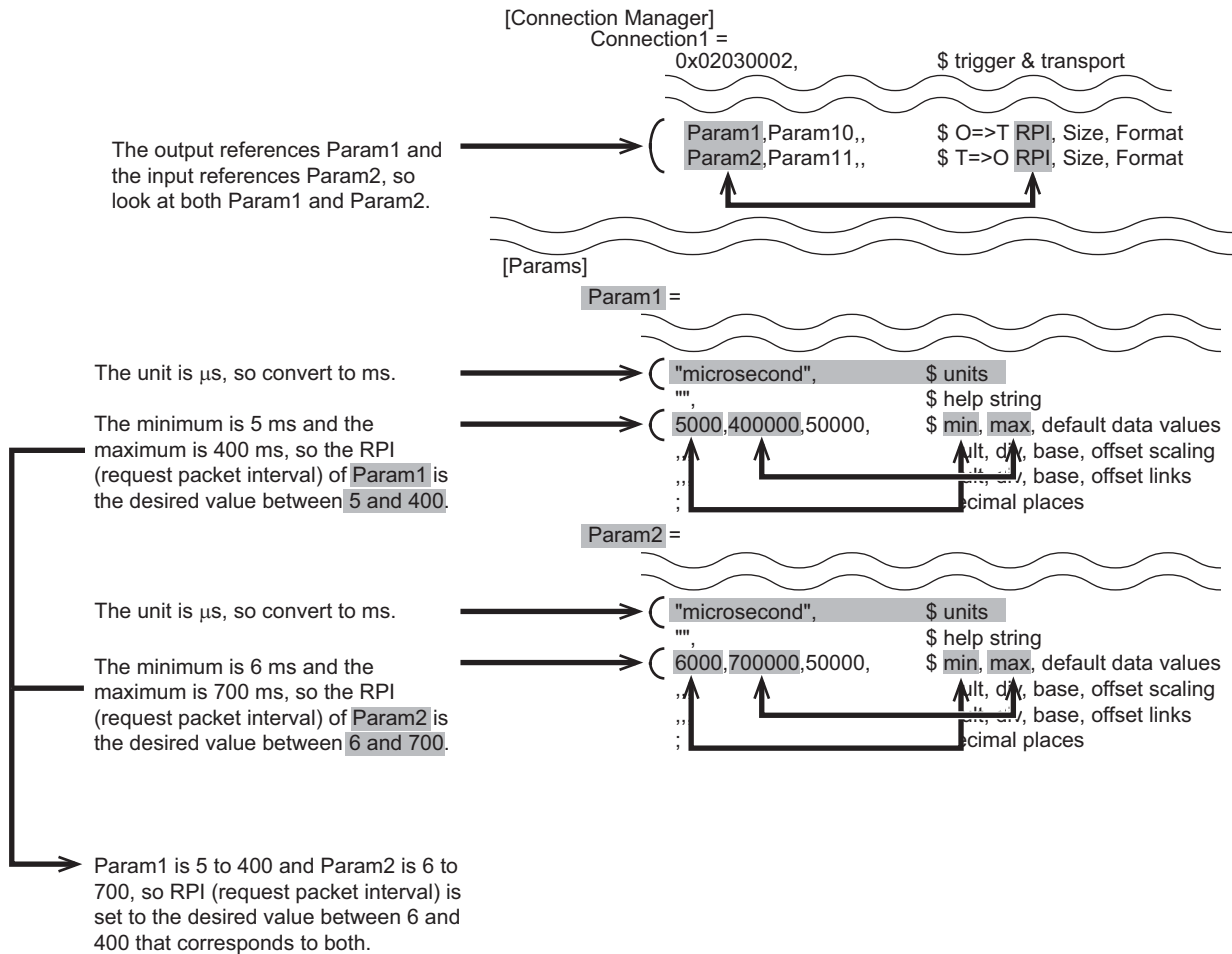
■Description

The content separated by commas (,) in the string to the left of "\$ O=>T RPI,Size,Format" or "\$ T=>O RPI,Size,Format" in the EDS file represents RPI, size, and format.

The string before the first comma (,) is the RPI (request packet interval) setting value.

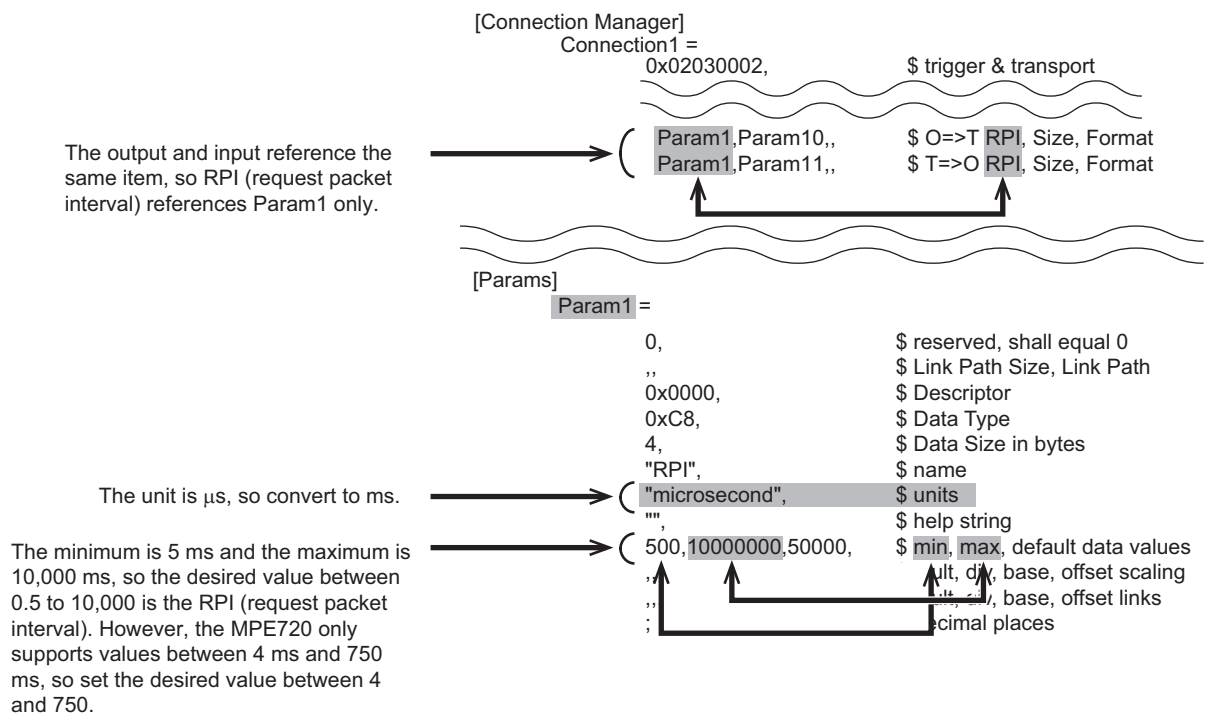
The RPI (request packet interval) setting value is not split between input and output. Set the numeric value in either "\$ O=>T RPI,Size,Format" or "\$ T=>O RPI,Size,Format".

■ Specific Example 1



- ♦ Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.
- ♦ In the actual EDS file, the [Params] section comes before the [Connection Manager] section.

■ Specific Example 2



- ♦ Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.
- ♦ In the actual EDS file, the [Params] section comes before the [Connection Manager] section.

■ Specific Example 3

[Connection Manager]

Connection1 =

0x04010002,	\$ trigger & transport
,100,,	\$ O=>T RPI,Size,Format
5000,Param1,,	\$ T=>O RPI,Size,Format

The RPI (request packet interval) setting value is 5 ms.

- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

■ Specific Example 4

[Connection Manager]

Connection1 =

0x04010002,	\$ trigger & transport
,100,,	\$ O=>T RPI,Size,Format
□,Param1,,	\$ T=>O RPI,Size,Format

The RPI (request packet interval) setting value is not specified.

- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

② Connection Timeout Multiplier

There is no specified value for the setting value. Set the connection timeout multiplier according to the network load.

③ Connection Type

■Description

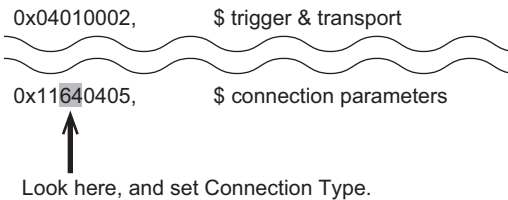
The following table gives the structure of the string to the left of "\$ connection parameters" in the EDS file.

Item	Input Connection Type				Output Connection Type			
Bit No.	23	22	21	20	19	18	17	16
How to Check the Setting Content	<ul style="list-style-type: none">• Bit 21 = 1 (binary): MULTICAST• Bit 22 = 1 (binary): POINT2POINT				<ul style="list-style-type: none">• Bit 17 = 1 (binary): MULTICAST• Bit 18 = 1 (binary): POINT2POINT			
	<ul style="list-style-type: none">• Either connection type can be selected if both bits within the same connection type are 1, or if the connection type is different between the input and output.• Bits 16, 19, 20, and 23 are not used.							

■Specific Example

[Connection Manager]

Connection1 =



- ♦ Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

Item	Input Connection Type				Output Connection Type			
Hexadecimal Notation	6				4			
Binary Notation	0	1	1	0	0	1	0	0
Bit No.	23	22	21	20	19	18	17	16

The input connection type is [MULTICAST] or [POINT2POINT] because bit 22 = 1 (binary) and bit 21 = 1 (binary).

The output connection type is [POINT2POINT] because bit 18 = 1 (binary) and bit 17 = 0 (binary).

However, since the connection types that can be set for input and output are different, either [MULTICAST] or [POINT2POINT] can be set for **Connection Type**.

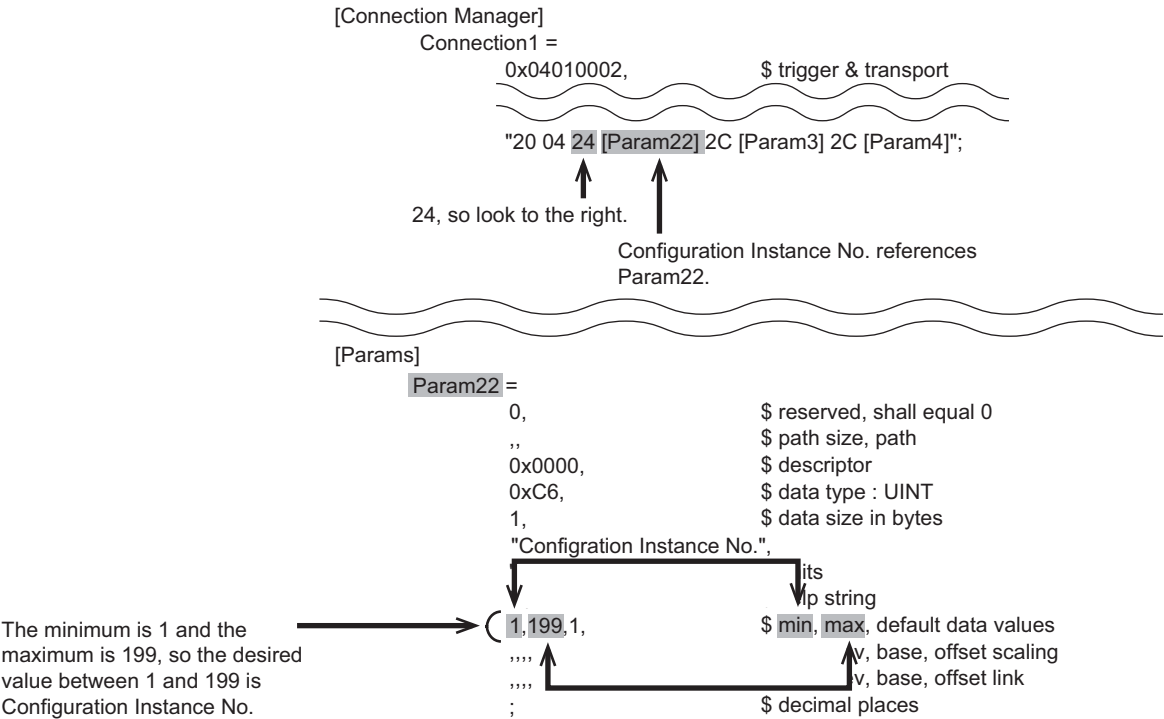
④ Configuration Instance No.

■Description

Check the content set for the configuration instance number based on the information on the last line of "Connec-tion□" under the [Connection Manager] section in the EDS file.

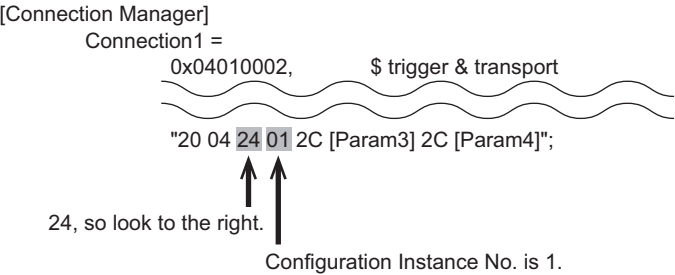
String Elemental		Description
Has "24"	Right of "24" is "[Param□]"	Numeric value within the range of "\$min,max" in the corresponding "[Param□]" section in the EDS file.
	Right of "24" is numeric value	2-digit numeric value to the right of "24"
"24" is missing		Same numeric value as the value set for Input Setting: Instance No. [IN] or Output Setting: Instance No. [OUT] on the Connection List tab page

■Specific Example 1



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.
- In the actual EDS file, the [Params] section comes before the [Connection Manager] section.

■Specific Example 2



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

⑤ Run/Idle Header

<When Using a 263IF-01 as an Adapter with Software Ver. 1.05 or Later or Ver. 1.06 or later (CT15 Mode)>

On the **Connection List** tab page, check the input settings and output settings.

If both input and output are set or if only output is set, clear the **Input Data** check box and select the **Output Data** check box in the **Run/Idle Header** area.

Connection List Tab Page

Connection No.	Scanner/Adapter Selection	IP Address	Input Setting	IO Communication	Output Setting	EM Communication
01	Scanner	192.168.001.002	00101	00000	0100	Low
02						

Connection No.	Scanner/Adapter Selection	IP Address	Input Setting	IO Communication	Output Setting	EM Communication
01	Scanner	192.168.001.002	00198	00000	0100	Low
02						

IO Communication Detail Setting

RPI(Request packet interval) 50 ms (4 - 750)

Connection Timeout 4

Connection Type POINT2POINT

Configuration Instance No 1

Run/Idle Header

☐ Input Data (Target -> Originator)

☒ Output Data (Originator -> Target)

Priority

Input Data (Target -> Originator) Low

Output Data (Originator -> Target) Low

OK CANCEL

If only input is set, clear the **Input Data** and **Output Data** check boxes in the **Run/Idle Header** area.

Connection List Tab Page

Connection No.	Scanner/Adapter Selection	IP Address	Input Setting	IO Communication	Output Setting	EM Communication
01	Scanner	192.168.001.002	00101	00000	0100	Low
02						

IO Communication Detail Setting

RPI(Request packet interval) 50 ms (4 - 750)

Connection Timeout 4

Connection Type POINT2POINT

Configuration Instance No 1

Run/Idle Header

☐ Input Data (Target -> Originator)

☐ Output Data (Originator -> Target)

Priority

Input Data (Target -> Originator) Low

Output Data (Originator -> Target) Low

OK CANCEL

<When Using a 263IF-01 as an Adapter with Software Ver. 1.04 or Earlier or Ver. 1.06 or later (A5 Mode)>

Clear the **Input Data** check box and select the **Output Data** check box in the **Run/Idle Header** area.

<When Using Another Company's Module As an Adapter>

■Description

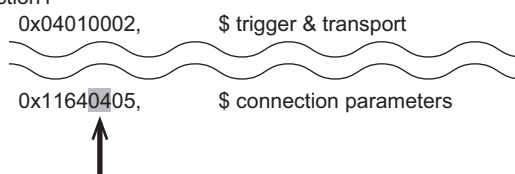
The following table gives the structure of the string to the left of "\$ connection parameters" in the EDS file.

Item	Run/Idle Header: Input Data (Target → Originator)				Run/Idle Header: Output Data (Originator → Target)			
Bit No.	15	14	13	12	11	10	9	8
How to Check the Setting Content	<ul style="list-style-type: none"> • Bit 15 to bit 12 = 4 (hexadecimal) Run/Idle Header: Input data is valid (check box is selected) • Bit 15 to bit 12 ≠ 4 (hexadecimal) Run/Idle Header: Input data is invalid (check box is cleared) 				<ul style="list-style-type: none"> • Bit 11 to bit 8 = 4 (hexadecimal) Run/Idle Header: Output data is valid (check box is selected) • Bit 11 to bit 8 ≠ 4 (hexadecimal) Run/Idle Header: Output data is invalid (check box is cleared) 			

■Specific Example

[Connection Manager]

Connection1 =



- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

Item	Run/Idle Header: Input Data (Target → Originator)				Run/Idle Header: Output Data (Originator → Target)			
Hexadecimal Notation	0				4			
Bit No.	15	14	13	12	11	10	9	8

Since bit 15 to bit 12 ≠ 4 (hexadecimal), invalidate (clear the check box of) Run/Idle Header: Input Data (Target → Originator).

Since bit 11 to bit 8 = 4 (hexadecimal), validate (select the check box of) Run/Idle Header: Output Data (Originator → Target).

⑥ Priority

■Description

The following table gives the structure of the string to the left of “\$ connection parameters” in the EDS file.

Item	Priority: Input Data (Target → Originator)				Priority: Output Data (Originator → Target)			
Bit No.	31	30	29	28	27	26	25	24
How to Check the Setting Content	<ul style="list-style-type: none">• Bit 28 = 1 (binary): Low• Bit 29 = 1 (binary): High• Bit 30 = 1 (binary): Schedule				<ul style="list-style-type: none">• Bit 24 = 1 (binary): Low• Bit 25 = 1 (binary): High• Bit 26 = 1 (binary): Schedule			
	<ul style="list-style-type: none">♦ If multiple bits are 1, select the priority from those bits.♦ Bits 27 and 31 are not used.							

■Specific Example

[Connection Manager]

Connection1 =

0x04010002, \$ trigger & transport



0x11640405, \$ connection parameters



Look here, and set Priority.

- Revision 3 of MP2000_263IF.eds is given here as an example of the EDS file.

Item	Priority: Input Data (Target → Originator)				Priority: Output Data (Originator → Target)			
Hexadecimal Notation	1				1			
Binary Notation	0	0	0	1	0	0	0	1
Bit No.	31	30	29	28	27	26	25	24

Since bit 30 = 0 (binary), bit 29 = 0 (binary), and bit 28 = 1 (binary), set Priority: Input Data (Target → Originator) to [Low].

Since bit 26 = 0 (binary), bit 25 = 0 (binary), and bit 24 = 1 (binary), set Priority: Output Data (Originator → Target) to [Low].

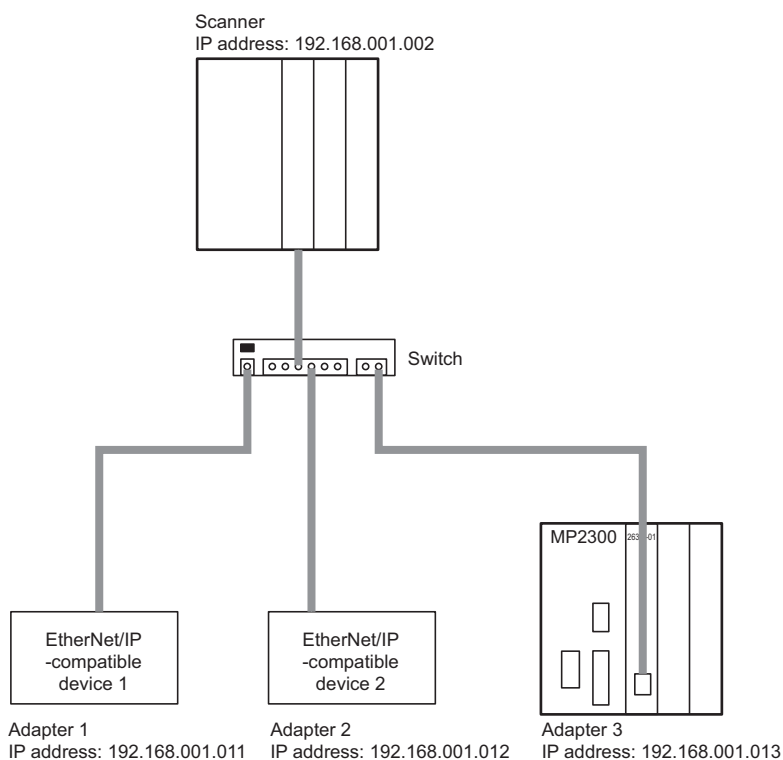
5.2 Using the 263IF-01 as an Adapter



- When using a 263IF-01 Module with software version 1.05 or later as an adapter, use revision 4 of the EDS file. The EDS file for the 263IF-01 Module can be obtained on the MPE720 installation disk.

5.2.1 System Configuration Example

This section describes the settings using the following system configuration as an example.



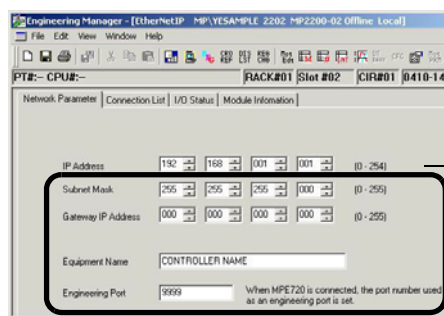
5.2.2 Examples of EtherNet/IP Transmission Definition Settings

When performing I/O communication using the 263IF-01 as an adapter, you must configure the following EtherNet/IP transmission definition tab pages and windows in the MPE720.

- **Network Parameter** tab page
- **Connection List** tab page
- When performing I/O communication using the 263IF-01 as an adapter, the **IO Communication Detail Setting** window is not displayed. Those settings do not need to be configured.

(1) Network Parameter Tab Page

This section describes the settings on the **Network Parameter** tab page when performing I/O communication using the 263IF-01 as an adapter. The settings and setting values are examples for the system configuration shown in 5.2.1 *System Configuration Example* on page 5-18.

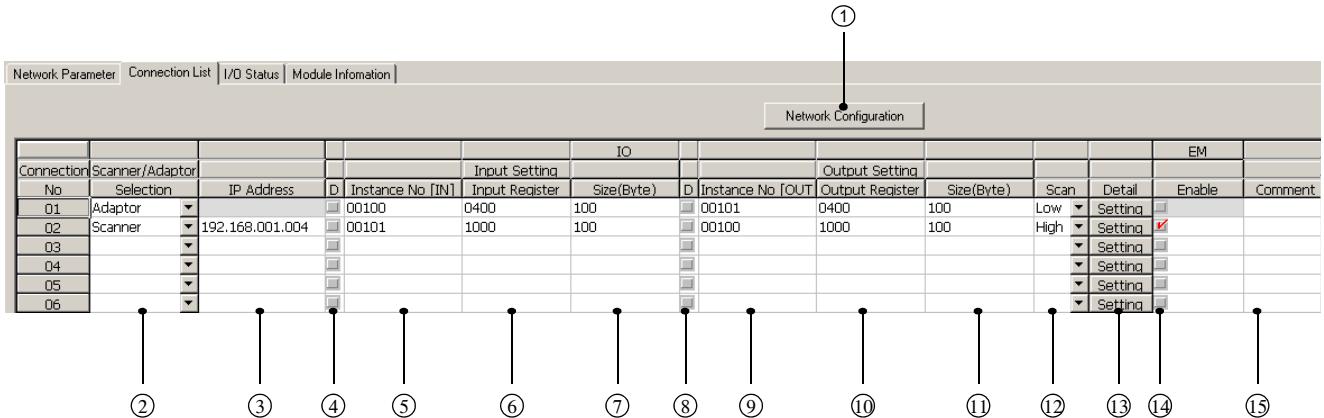


Enter the IP address of the local station (adapter 3 IP address: 192.168.001.013).

Enter these settings for your device.

(2) Connection List tab page

This section describes the settings on the **Connection List** tab page when performing I/O communication using the 263IF-01 as an adapter. The settings and setting values are examples for the system configuration shown in 5.2.1 *System Configuration Example* on page 5-18.



The following shows the details of items.

① Network Configuration Button

This button is valid only when online. When this button is clicked, the **NetWork Configuration Search** window is displayed. You can check information on devices that have currently joined the EtherNet/IP network on this window.

② Scanner/Adapter Selection

Select **Adapter**.

③ IP Address

The IP address cannot be entered if **Adapter** is selected.

Set the IP address of the adapter on the **Network Parameter** tab page.

■ I/O Communication - Input Setting

④ D

Select this check box if the controller CPU will not exchange input data with the EtherNet/IP network.

- For example, when replacing the adapter, select this check box and you can replace the adapter without turning OFF the power supply and without any errors occurring. Clear the check box after replacing the adapter and that adapter will exchange input data normally.

⑤ Instance No. [IN]

Set the same number as Instance No. [OUT] of the other device.

Refer to 4.2.3 (1) *Details of the Connection List Tab Page* on page 4-8 for more information.

⑥ Input Register

Set the leading address of the IW registers of the machine controller.

Set the leading address to a unique value in the range displayed at the top right of the **Connection List** tab page.



⑦ Size (Byte)

Set the same size as Output Size [Byte] of the other device.

The setting range depends on the software version of the 263IF-01.

- Software Ver. 1.04 or earlier: 1 to 500 bytes
- Software Ver. 1.05 or later: 1 to 1,440 bytes
- If the size exceeds 500 bytes, use a 263IF-01 with Ver. 1.05 or later. Additionally, use MPE720 Ver. 7.47 or later.
- When using a 263IF-01 with Ver. 1.06 or later, use MPE720 Ver. 7.62 or later.

■ I/O Communication - Output Setting

⑧ D

Select this check box if the controller CPU will not exchange output data with the EtherNet/IP network.

- For example, when replacing the adapter, select this check box and you can replace the adapter without turning OFF the power supply and without any errors occurring. Clear the check box after replacing the adapter and that adapter will exchange input data normally.

⑨ Instance No. [OUT]

Set the same number as Instance No. [IN] of the other device.

Refer to 4.2.3 (1) *Details of the Connection List Tab Page* on page 4-8 for more information.

⑩ Output Register

Set the leading address of the OW registers of the machine controller.

Set the leading address to a unique value in the range displayed at the top right of the **Connection List** tab page.



⑪ Size (Byte)

Set the same size as Input Size [Byte] of the other device.

The setting range depends on the software version of the 263IF-01.

- Software Ver. 1.04 or earlier: 1 to 500 bytes
- Software Ver. 1.05 or later: 1 to 1,440 bytes
- If the size exceeds 500 bytes, use a 263IF-01 with Ver. 1.05 or later. Additionally, use MPE720 Ver. 7.47 or later.
- When using a 263IF-01 with Ver. 1.06 or later, use MPE720 Ver. 7.62 or later.

■ I/O Communication Setting – Others

⑫ Scan

Select the scan timing with which the controller CPU exchanges the I/O data with the EtherNet/IP from High and Low. The data exchange cycle of the controller CPU and the communication cycle of I/O transmissions are not synchronized.

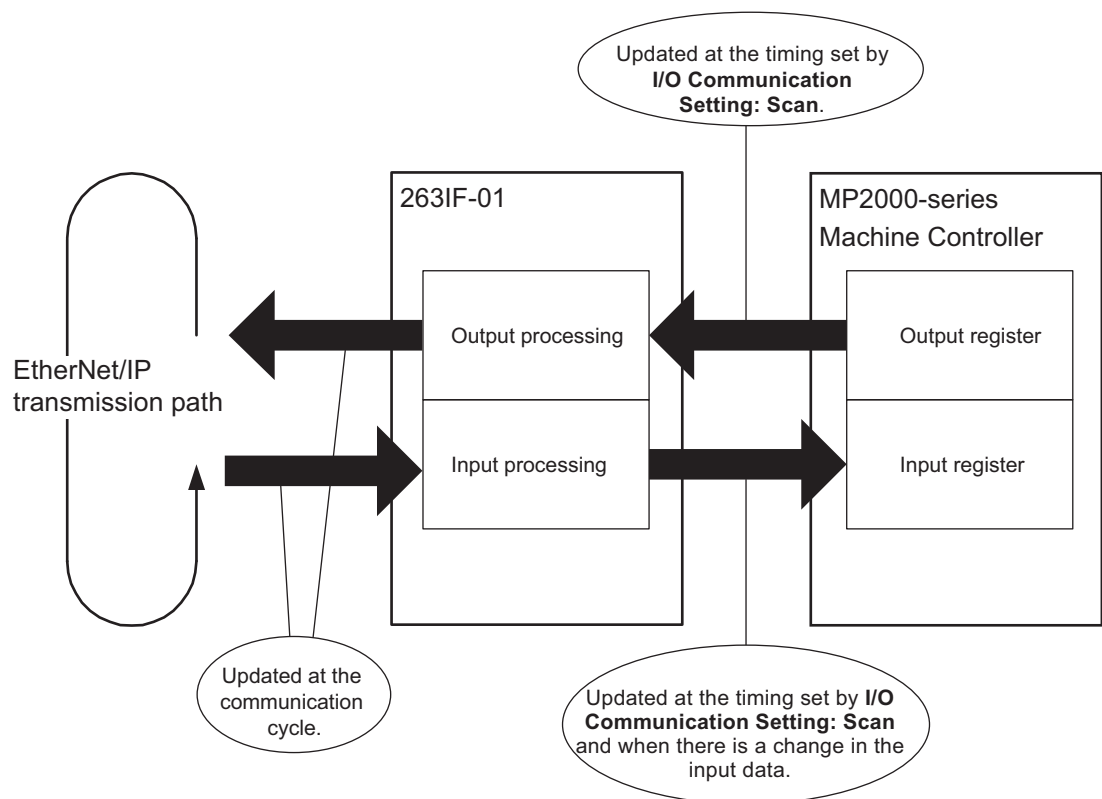
High: The I/O data is exchanged at the start of the high-speed scan of the controller CPU.

Low: The I/O data is exchanged at the start of the low-speed scan of the controller CPU.



- The controller CPU updates the input registers at the timing set by **I/O Communication Setting: Scan** only when there is a change in the input data of the 263IF-01. For this reason, even if the relevant input registers are mistakenly overwritten by an application or something else, they will not be updated until the next change in the input data.

The following diagram shows the data update timing between the MP2000-series Machine Controller and the EtherNet/IP transmission path.



⑬ Setting (Detail) Button

When **Adapter** is selected, the **IO Communication Detail Setting** window is not displayed even if this button is clicked.

■ EM Communication Setting

⑭ Enable

This item cannot be set.

⑮ Comment

A comment within 16 characters can be entered as desired.

Explicit Message and Explicit Message Send Function

This chapter describes explicit messages and the message send function (MSG-SND) used to send and receive explicit messages in detail, and shows examples of the programs required for transmission.

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6.1.1 Explicit Request Message	6-2
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6.1 Explicit Messages

The message send function (MSG-SND) is used to send and receive explicit messages. The MSG-SND function sends a request message and receives a response message when it is executed once.

The following explains the explicit request and response messages.

6.1.1 Explicit Request Message

An explicit request message is sent with the MSG-SND function described later. The message is stored (written) in the register area specified by parameter PARAM05 of the MSG-SND function with the following format.

The setting range of the instance ID and attribute ID depends on the software version of the 263IF-01 Module.

Offset Word Address	Meaning
00000	Request service code
00001	Class ID
00002	Instance ID Ver.1.04 or earlier: 0 to FFH Ver.1.05 or later: 0 to FFFFH
00003	Attribute ID Ver.1.04 or earlier: 0 to FFH Ver.1.05 or later: 0 to FFFFH
00004	(Message data to write service code)
•	
•	

- For details, refer to the EtherNet/IP Specifications.

Request service codes include Read (0EH) and Write (10H).

If Read request service code is used, set 8 to PARAM06 (data size) in the parameter list*.

If Write request service code is used, set 8 + (write data size) to PARAM06 (data size) in the parameter list*.

- * Refer to 6.2.4 *Parameter List for MSG-SND Function* on page 6-10 for information on the parameter list.

■ Example of Vendor ID Read Request Message

The following is an example of an explicit request message for reading the vendor ID when 1000 is set to PARAM05 (data address).

Word Address	Explicit Request Message
MW01000	000EH (Get_Attribute_Single service code)
MW01001	0001H (Class ID)
MW01002	0001H (Instance ID)
MW01003	0001H (Attribute ID)

The upper byte of the instance ID and attribute ID is ignored in Ver. 1.04 or earlier, so these IDs are handled as 1 byte. If upper byte = 00 in Ver. 1.05 and CT15 mode in Ver. 1.06 or later, the IDs are handled as 1 byte. If upper byte ≠ 00, the IDs are handled as 2 bytes.

6.1.2 Explicit Response Message

The explicit response message is written to the area set by PARAM05 (data address) in the parameter list* in the following format.

Offset Word Address	Meaning
00000	Response service code
00001	General error code
00002	Extended error code
00003	Response message data
•	
•	

• For details, refer to the EtherNet/IP Specifications.

* Refer to 6.2.4 *Parameter List for MSG-SND Function* on page 6-10 for information on the parameter list.

■ Example of Vendor ID Read Response Message

The following is an example of an explicit response message for reading the vendor ID when 1000 is set at PARAM05 (data address).

Word Address	Explicit Response Message
MW01000	008EH
MW01001	0000H
MW01002	0000H
MW01003	002CH (Vendor ID)

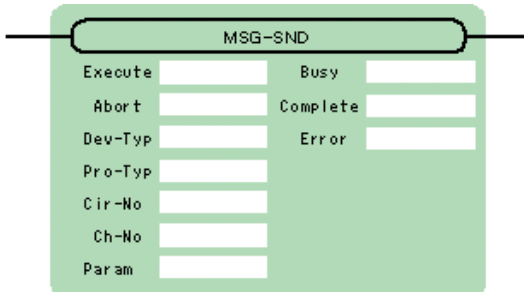
In this case, 8 which includes 6 bytes of response service code, general error code, and extended error code, is written to PARAM06 (data size).

6.2 Message Send Function

If a request is sent assuming that the 263IF-01 is a client for explicit message transmission or a response is sent as a server, the message send function (MSG-SND) is used.

If a response is not returned from the remote station within 10 seconds after sending a message, the 263IF-01 detects a timeout and the MSG-SND function ends abnormally.

6.2.1 Outline Specifications

Function Name	MSG-SND			
Function	Sends a message to a remote station on the circuit specified by the Transmission Device Type (Dev-Typ). The Execute command must be held ON until the Complete or Error output turns ON.			
Function Definition				
I/O Definitions	No.	Name	I/O Designation*	Description
Inputs	1	Execute	B-VAL	Send Message command
	2	Abort	B-VAL	Send Message Abort command
	3	Dev-Typ	I-REG	Transmission Device Type EtherNet/IP = 17
	4	Pro-Typ	I-REG	Communication Protocol MEMOBUS = 1 ♦ Non-procedure protocols 1 and 2 are not used.
	5	Cir-No	I-REG	Circuit Number EtherNet/IP = 1 to 8
	6	Ch-No	I-REG	Transmission Buffer Channel Number EtherNet/IP = 1 to 10
	7	Param	Address input	Parameter list leading address (MA, DA)
Outputs	8	Busy	B-VAL	Actively Processing
	9	Complete	B-VAL	Processing completed
	10	Error	B-VAL	Error occurred

* The I/O designations are as follows:

B-VAL: I/O is specified as bit data.

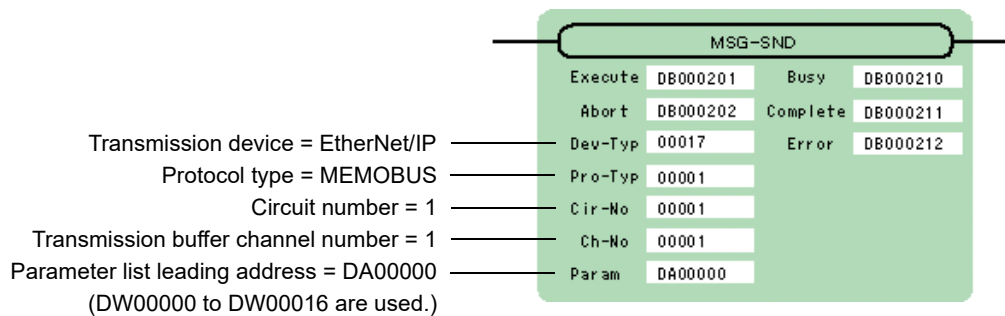
I-REG: I/O is specified as integer data. Specify the number of an integer register.

Constants (immediate data) can also be specified for inputs.

Address input: The address of the specified register (any integer register) is passed to the function.

6.2.2 MSG-SND Function Setting Example

This example illustrates the settings needed when using the EtherNet/IP as the transmission device.



The protocol type is set to MEMOBUS.

Set the circuit number in accordance with the circuit number assigned to the corresponding 263IF-01 Module.

Transmission buffer channel numbers in the same circuit must all be unique.

For details on settings, refer to *6.2.3 Inputs and Outputs for the Message Send Function* on page 6-5.

6.2.3 Inputs and Outputs for the Message Send Function

The following table lists the registers that can be used for the inputs and outputs.

	Item	I/O Designation	Applicable Registers
Input	Execute Abort	B-VAL	Any bit registers (including those with subscripts) except for # and C registers
	Dev-Typ Pro-Typ Cir-No Ch-No	I-REG	Any integer registers (including those with subscripts) and constants
	Param	Address input	Any register addresses (including those with subscripts) except for # and C registers
Output	Busy Complete Error	B-VAL	Any bit registers (including those with subscripts) except for # and C registers

The following describes the inputs and outputs in more detail.

(1) Execute (Send Message Execute Command)

Specify the bit that will be used to control execution of the Message Send function.

Message send processing is started when the Execute command turns ON. To execute processing, this bit must be turned ON and OFF from the ladder program or other programs.

- The Execute command must be held ON until the Complete or Error output turns ON. The message is sent when the Execute command turns ON. To send another message consecutively, always turn OFF the Execute command for at least one scan.

(2) Abort (Send Message Abort Command)

Specify the bit that will be used to abort the Message Send function.

Sending the message will be aborted when the Abort command turns ON. The Abort command takes priority over the Execute command.

To abort processing, this bit must be turned ON and OFF from the ladder program or other programs.

(3) Dev-Typ (Transmission Device Type)

Specify the Dev-Typ to specify the transmission device type.

The transmission device type of EtherNet/IP is 17.

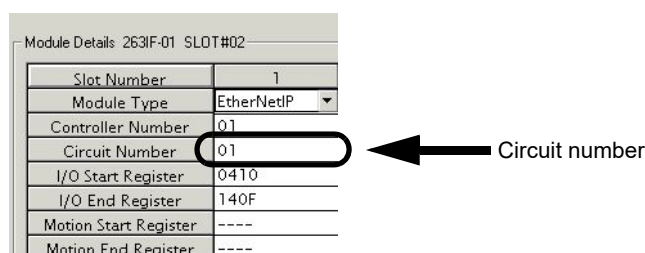
(4) Pro-Typ (Communication Protocol)

The Pro-Typ input specifies the communication protocol as shown in the following table.
For EtherNet/IP, select 1 (MEMOBUS).

Type Code	Communication Protocol	Remarks
1	MEMOBUS	Used for performing explicit message communication with EtherNet/IP.
2	Non-procedure 1 (in units of words)	Not used in EtherNet/IP.
3	Non-procedure 2 (in units of bytes)	Not used in EtherNet/IP.

(5) Cir-No (Circuit Number)

The Cir-No input specifies the circuit number of the transmission device.
Set the circuit number to the value displayed in the **MPE720 Module Configuration** window.



The valid range of EtherNet/IP circuit numbers is 1 to 8.

(6) Ch-No (Transmission Buffer Channel Number)

The Ch-No input specifies the channel number of the transmission buffer.

Any channel number can be specified, as long as it is within the valid range. If more than one function is being executed at the same time, do not specify the same channel number more than once for the same circuit number. (The same channel number can be used as long as the functions are not executed at the same time.)

The valid range of EtherNet/IP channel numbers is 1 to 10.

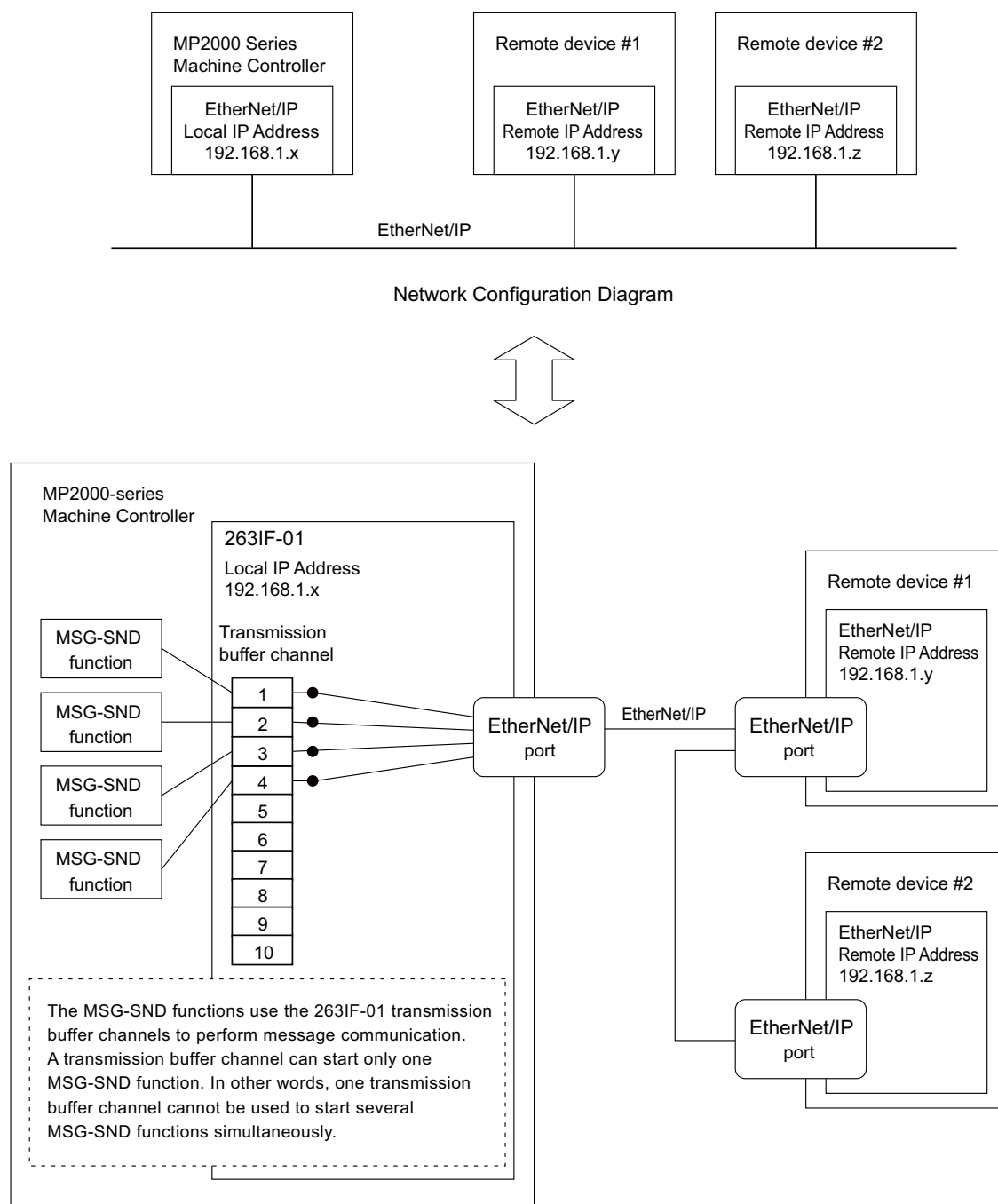
<Examples>

EtherNet/IP (263IF-01) has 10 transmission buffer channels, so simultaneous transmission on 10 channels is made possible by using 10 channel numbers (1 to 10).

- One MSG-SND function must be programmed for each of the circuits being used at the same time.

■ Conceptual Diagram of Transmission Buffer Channels

The following is a conceptual diagram of the transmission buffer channels.



- Even if different transmission buffer channels are used, it is not possible to start the MSG-SND functions simultaneously for one device (IP address). If this is attempted, an error occurs when the MSG-SND function is executed.

(7) Param (Parameter List Leading Address)

The PARAM input specifies the leading address of the parameter list. A parameter list will be automatically created from the 17 words starting with the specified address. Use the parameter list to input the function code and other related parameters. The processing results and status are also output to the parameter list.

- Refer to 6.2.4 *Parameter List for MSG-SND Function* on page 6-10 for information on the parameter list.

Example: The following parameter list will be created when the Parameter List Leading Address is set to DA000000.

Register	Parameter F 0
DW00000	PARAM00
DW00001	PARAM01
DW00002	PARAM02
DW00003	PARAM03
DW00004	PARAM04
DW00005	PARAM05
DW00006	PARAM06
DW00007	PARAM07
DW00008	PARAM08
DW00009	PARAM09
DW00010	PARAM10
DW00011	PARAM11
DW00012	PARAM12
DW00013	PARAM13
DW00014	PARAM14
DW00015	PARAM15
DW00016	PARAM16

(8) Busy (Processing in Progress)

Specify the bit that will report when sending the message is being processed.

The Busy output will be ON while message send processing or abort processing is in progress.

Keep the Execute command or Abort command ON while the Busy output is ON.

(9) Complete (Processing Completed)

Specify the bit that will report when processing to send the message has been completed.

The Complete output will be ON for only one scan after message send processing or abort processing has been completed normally.

(10) Error (Error Occurred)

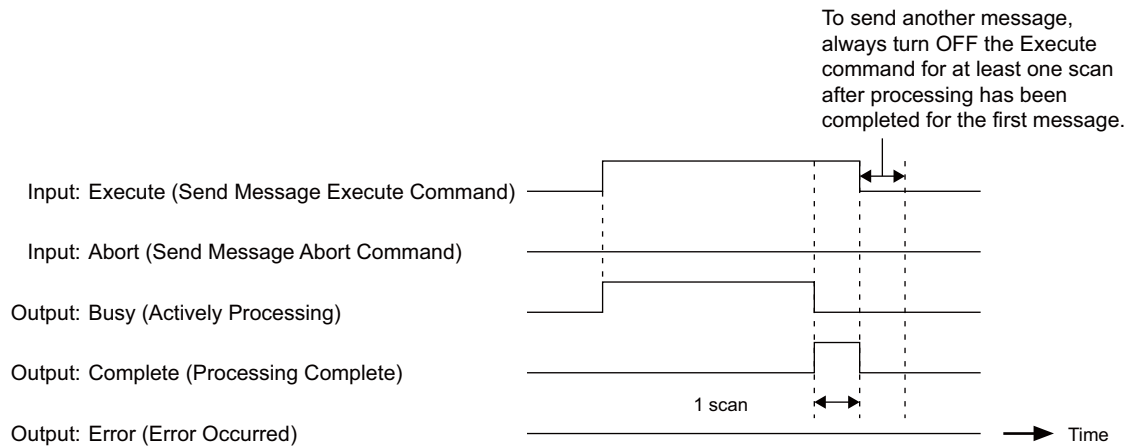
Specify the bit that will report when an error has occurred while sending the message.

The Error output will turn ON for only one scan when an error occurs.

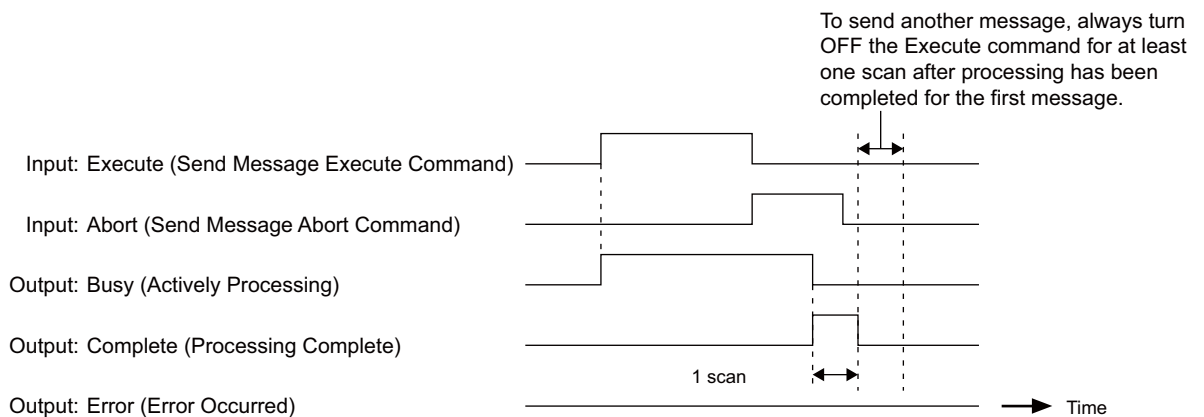
(11) I/O Timing Chart

The following timing charts show the bit inputs and outputs used with the MSG-SND function.

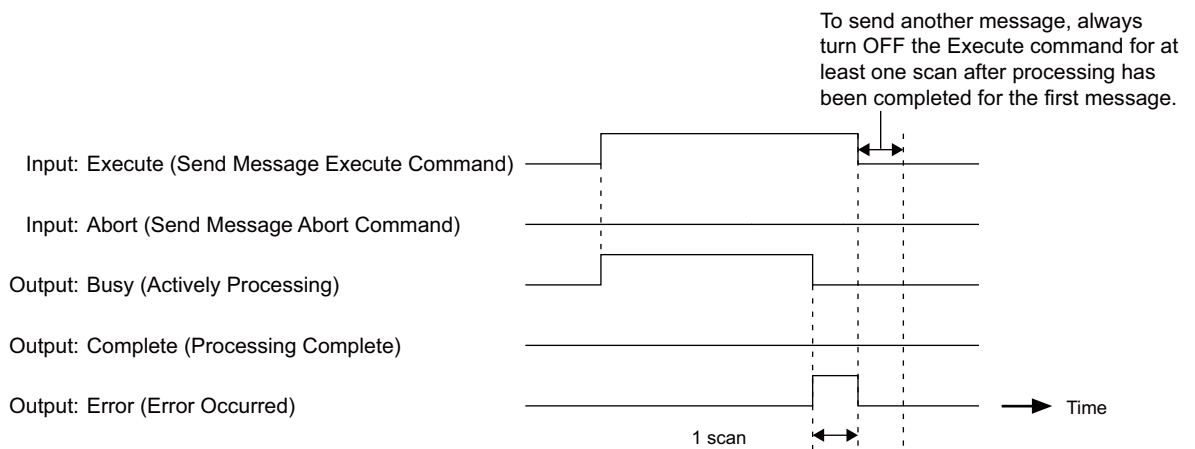
<Normal Processing>



<Abort Processing>



<Error Processing>



6.2.4 Parameter List for MSG-SND Function

The Param input to the MSG-SND function is a parameter list structure consisting of 17 words. The value of the Param input is the leading address (MA or DA) of the parameter list.

Use the parameter list to input the connection number, function code, and other related parameters. The processing results and status are also output to the parameter list.

The following table shows the parameters to be used when MEMOBUS is used as the transmission protocol for Ether-Net/IP.

Param No.	IN/OUT	Contents	Description
00	OUT	Processing result	The processing results are output here.
01	OUT	Status	The status of the current MSG-SND function is output here.
02	IN	Remote connection number	The connection number of the remote station is set.
03	IN	Option	Not used
04	IN	Function code	For explicit message communication, set 03H. <ul style="list-style-type: none"> Usually, function code 03H is used to read the contents of holding registers. With explicit messages, however, it does not have that function.
05	IN	Data address	PARAM05 sets the leading address of the M registers used in explicit message communication within the range of 0 to 65535.
06	IN	Data size	Data size is set within the range of 1 to 504 bytes.
07	IN	Remote CPU number	Not used
08	IN	Coil offset	Not used
09	IN	Input relay offset	Not used
10	IN	Input register offset	Not used
11	IN	Holding register offset	Not used
12 to 16	SYS	Reserved by the system	

- IN: Input, OUT: Output, SYS: Used by the system.
- Refer to 6.2.5 *Details of Parameters Used in Explicit Message* on page 6-11 for details on the parameters.

6.2.5 Details of Parameters Used in Explicit Message

This section explains the parameters used as explicit message in EtherNet/IP transmission.

(1) PARAM00: Processing Result

The processing result is output to the upper-place byte of PARAM00. The lower-place byte is for system analysis.

Value of Processing Result	Meaning
00xxH	Processing in progress (Busy)
10xxH	Processing completed (Complete)
8yxxH	Error occurred (Error)

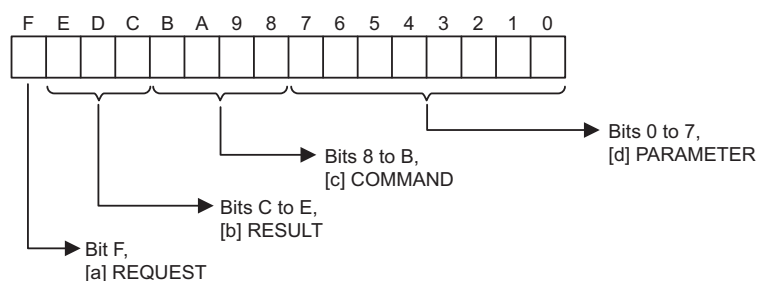
If an error occurs, troubleshoot the problem according to the value of the processing result as listed below.

Error	Error Contents	Description
80xxH	–	Reserved by the system.
81xxH	Function code error	An undefined function code was sent or received. Check PARAM04 (function code).
82xxH	Address setting error	One of the following settings is not within the valid range. Check the settings. PARAM05 (data address) PARAM11 (holding register offset)
83xxH	Data size error	The size of the sent or received data is not within the allowable range. Check PARAM06 (data size).
84xxH	Circuit number setting error	The circuit number is not within the allowable range. Check the circuit number in the MSG-SND function.
85xxH	Channel number setting error	The transmission buffer channel number is not within the allowable range. Check the transmission buffer channel number in the MSG-SND function.
86xxH	Remote connection error	The remote connection number is not within the allowable range. Check PARAM02 (remote connection number).
87xxH	–	Reserved by the system.
88xxH	Transmission device error	An error response was returned from the transmission device. Check the connection to the equipment. Also, be sure that the remote device is ready for communication.
89xxH	Device selection error	An unavailable device was set. Check the transmission device type in the MSG-SND function.

(2) PARAM01: Status

The status of the transmission device is output to PARAM01.

The following diagram illustrates bit allocation.



Items [a] to [d] below describe the details of bit allocation.

[a] REQUEST

The status of the processing request for the MSG-SND function is output to this bit.

Bit Status	Meaning
1	Processing is being requested.
0	Processing request has been accepted.

[b] RESULT

The result of executing MSG-SND function is output to these bits.

Code	Abbreviation	Meaning
1	SEND_OK	Sending has been completed normally.
2	REC_OK	Receiving has been completed normally.
3	ABORT_OK	Abort completed.
4	FMT_NG	Parameter format error
5	SEQ_NG	Command sequence error
6	RESET_NG	Reset status
7	REC_NG	Data receive error (Error detected by a lower-layer program.)

[c] COMMAND

The processing command for the MSG-SND function is output to these bits. The executed process is indicated by the COMMAND bits.

Code (Hex)	Abbreviation	Meaning
3	ABORT	Abort
8	M_SEND	Send MEMOBUS command; execution of the command is completed upon reception of a response.
9	M_REC	Receive MEMOBUS command; execution of the command is followed by the sending of a response.
C	MR_SEND	Send MEMOBUS response

[d] PARAMETER

The following error code is output if RESULT (Processing result) is set to 4 (FMT_NG: parameter format error). In other cases, the remote connection number is output.

RESULT	Code	Meaning
RESULT = 4 (FMT_NG: parameter format error)	00	No errors
	01	Remote connection number out of range
	02	MEMOBUS response receive monitor time error
	03	Retry count setting error
	04	Cyclic area setting error
	05	Not used
	06	Data address error
	07	Data size error
	08	Function code error
	10H	Function code error or format conversion error
Other values of RESULT	XX	Remote connection number

(3) PARAM02: Remote Connection Number

PARAM02 specifies the remote connection number.

The following table provides the valid setting range.

Transmission Device	Remote connection number	Remarks
EtherNet/IP (263IF)	1 to 64	The message is sent to the remote station set in the designated connection number

(4) PARAM03: Option

PARAM03 sets options specific to each transmission device.

PARAM03 is not used for explicit messages. Setting is not necessary.

(5) PARAM04: Function Code

PARAM04 sets the function code to be sent.

Explicit messages use only function code 03H.

- Usually, function code 03H is used to read the contents of holding registers. With explicit messages, however, it does not have that function.

(6) PARAM05: Data Address

PARAM05 sets the leading address of the M registers storing the explicit request message. The received explicit response message is also stored in the same area.

The address is input as a decimal or hexadecimal value.

- Example: To set a leading address of MW01000, set 1000 (decimal) or 3E8H (hexadecimal).

The following table provides the data address setting ranges used for explicit messages.

<Data Address Setting Ranges for Explicit Messages>

Function Code	Applicable Data Type	Function	Data Address Setting Range
03H	–	Explicit Messages	0 to 65534 (0 to FFEH)

(7) PARAM06: Data Size

PARAM06 sets the data size (number of bytes) for explicit request messages. When an explicit response message is received, the data size (number of bytes) of the response message is displayed.

Do not allow the final address of the data, which is determined by the data address and data size, to exceed the valid range of addresses.

The data size varies according to the request service code, class ID, instance ID, and attribute ID of the explicit message. They are specific to EtherNet/IP devices. For details, contact the manufacturer of the EtherNet/IP device to be used. The following table provides the data size setting ranges used for explicit messages.

<Data Size Setting Ranges for Explicit Messages>

Function Code	Applicable Data Type	Function	Data Size Setting Range
03H	–	Explicit Messages	1 to 504 bytes

(8) PARAM07 to PARAM16

Not used for explicit messages. Setting is not necessary.

6.3 Displaying a Register List and Notes at Register Input

When a message send function is used in a ladder program, access and input to the DW or MW register are required. The following describes how to display the register list and notes during register input.

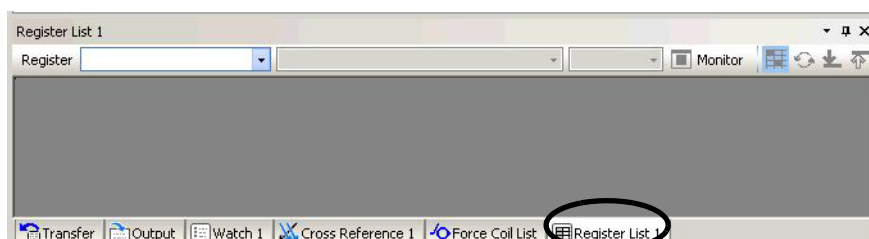
6.3.1 Displaying a Register List

(1) MPE720 Ver. 7 and Ver. 6

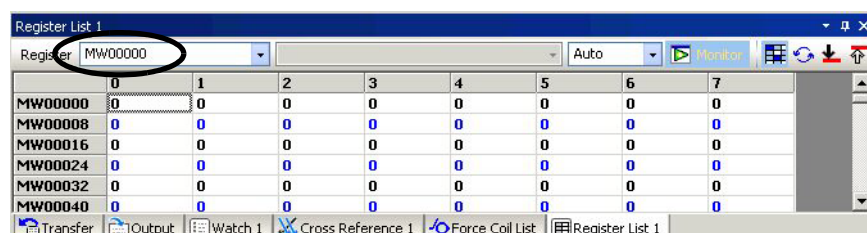
Use the following procedure to display the MPE720 Ver. 7 or Ver. 6 register list.

1. Open the **Register List** Sub-window from the **MPE720 Ver. 7** or **Ver. 6** Main Window.

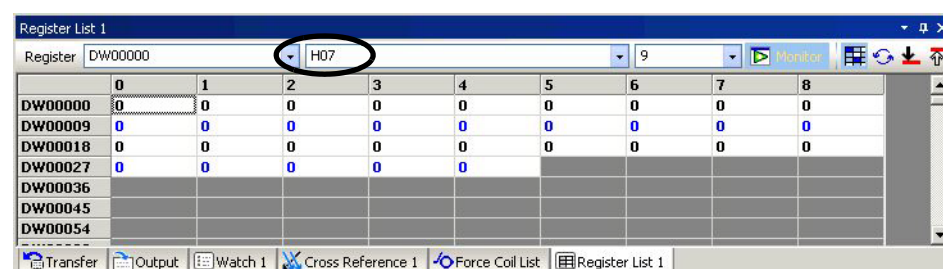
The **Register List 1** tab is provided by default in the sub-window displayed on the bottom of the screen.



2. Enter the leading register number of the system register "MWxxxxx" (or "DWxxxxx") to be accessed in the **Register** input field and press the **ENTER** key. The contents of the system register will be displayed starting from the leading register number.



- Enter the drawing number for the D register as follows.

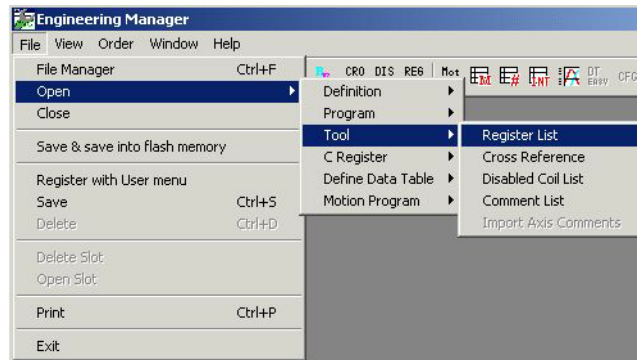


- The data type is set by default to decimal. Place the cursor anywhere in the list, and then right-click. Select **Hex** (hexadecimal) from the pop-up menu that appears. The data will then be displayed in hexadecimal.

(2) MPE720 Ver. 5

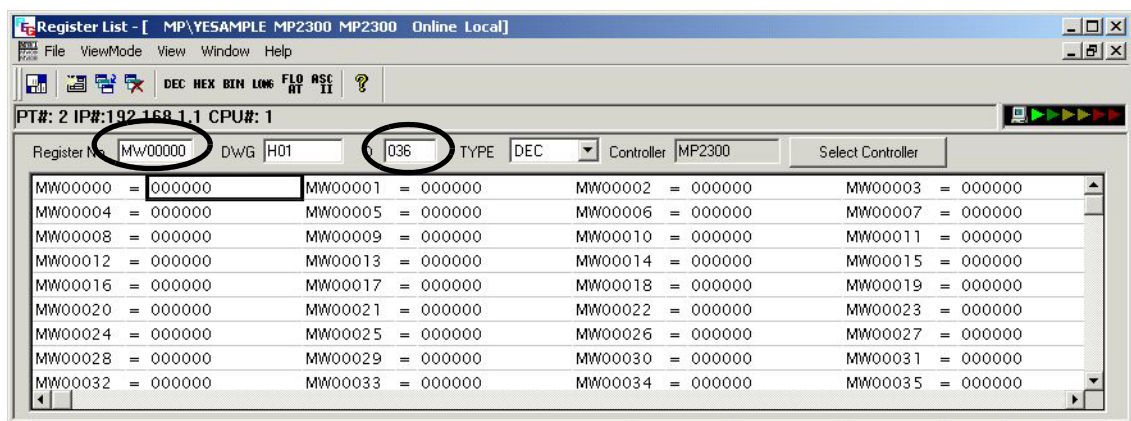
Use the following procedure to display the MPE720 Ver. 5 register list.

1. Select **File – Open – Tool – Register List** from the MPE720 Ver. 5 Main Menu of **Engineering Manager** window to open the **Register List** window.



- ♦ Refer to 4.1.1 *Displaying the Module Configuration Window* on page 4-2 for details on how to display the **Engineering Manager** window.

2. Enter the leading register number “MWxxxxx” (or “DWxxxxx”) to be accessed in the **Register No.** input field, enter the final register number to be accessed in the **D** input field, and click anywhere in the list. The contents of the specified range of register numbers will be displayed.

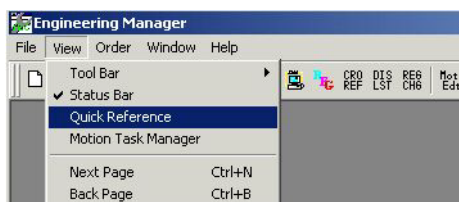


- ♦ Clicking the **DEC** button will display the list in decimal values. Clicking the **HEX** button will display the list in hexadecimal values.

(3) Displaying a Register List with the Quick Reference (MPE720 Ver. 5)

Register lists can also be accessed with the Quick Reference.

1. Select **View – Quick Reference** from the Main Menu of MPE720 **Engineering Manager** window.

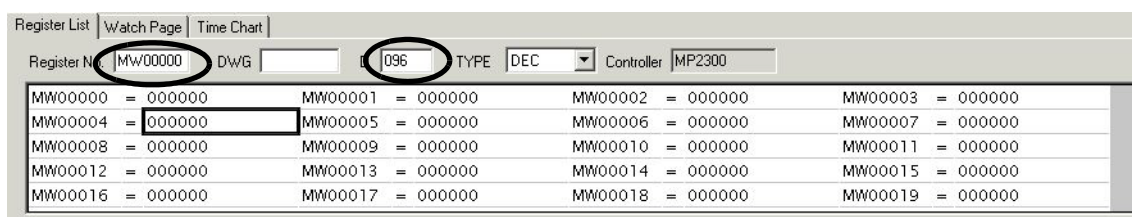


The Quick Reference will be displayed at the bottom of the **Engineering Manager** window.

- ♦ Refer to 4.1.1 *Displaying the Module Configuration Window* on page 4-2 for details on how to display the **Engineering Manager** window.

2. Click the **Register List** tab to switch to the register list.

3. Enter the leading register number “MWxxxxx” to be accessed in the **Register No.** input field, enter the final register number to be accessed in the **D** input field, and click anywhere in the list. The contents of the specified range of register numbers will be displayed.



6.3.2 Notes at Register Input

(1) Decimal/Hexadecimal Number

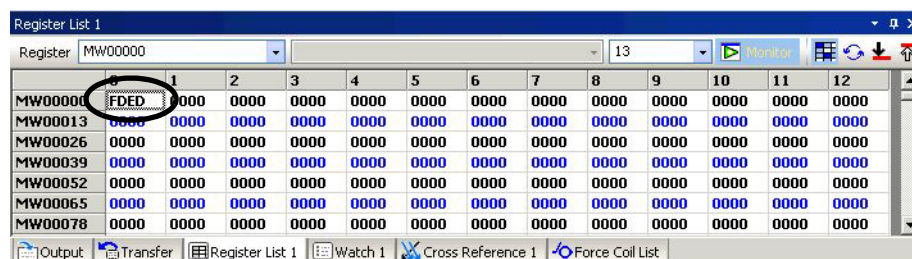
DW and MW registers are signed integer registers, and their input ranges in decimal notation are from -32768 to +32767. (Hexadecimal: 0 to FFFFH)

Because integers greater than or equal to +32768 cannot be input to these registers as decimal numbers, set the display mode to “HEX” (hexadecimal) and input them in hexadecimal notation for entry of a remote address or transaction code.

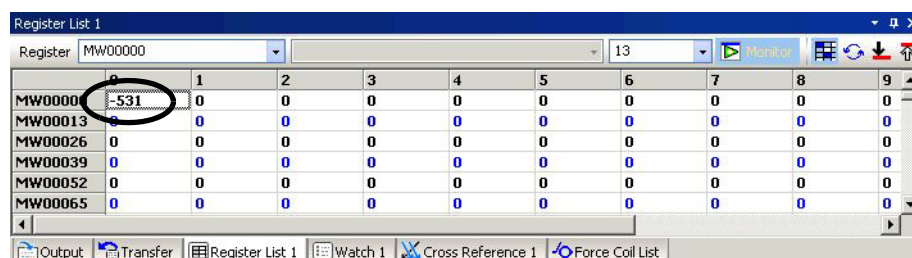
(2) Negative Value Representation in Decimal Numbers

When a register input with a hexadecimal value is displayed as a decimal number, its value may be represented as a negative value as shown below.

Hexadecimal



Decimal



This is because a hexadecimal input value is greater than +32768 (decimal number) and it is represented as a negative value through bit inversion. In spite of negative value representation, processing is performed as a positive value. To convert a negative decimal number into a positive decimal number, the following expression is used.

$$|-32768| + 32767 + 1 + (\text{displayed negative value})$$

In the above screen example (-531), the following is used.

$$|-32768| + 32767 + 1 + (-531) = 65005$$

6.4 Programming Example

This section shows examples of programs used for sending explicit messages.

6.4.1 Procedure to Start Communication

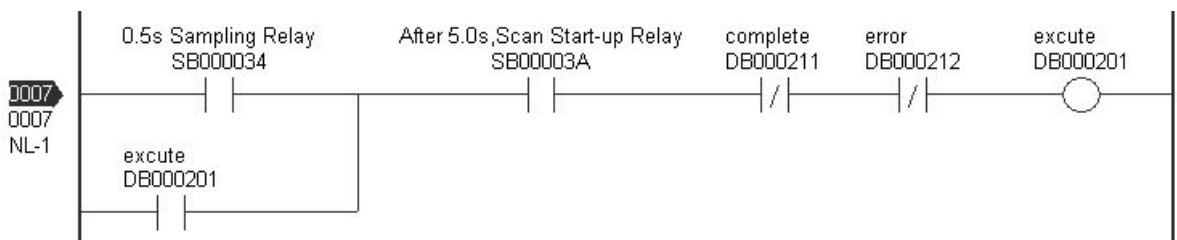
Use the following procedure to start communication.

1. Start the EtherNet/IP server device.
2. Turn ON the Execute command in the MSG-SND function in the 263IF Module on the EtherNet/IP client to send a message.

An example of ladder programming using the MSG-SND function is shown in 6.4.2 *Programming Example* on page 6-18. In 6.4.2 *Programming Example* on page 6-18, a message will be sent as soon as DB000201 (the register set for Execute in the MSG-SND function) is turned ON, thus starting communication with the client side device.

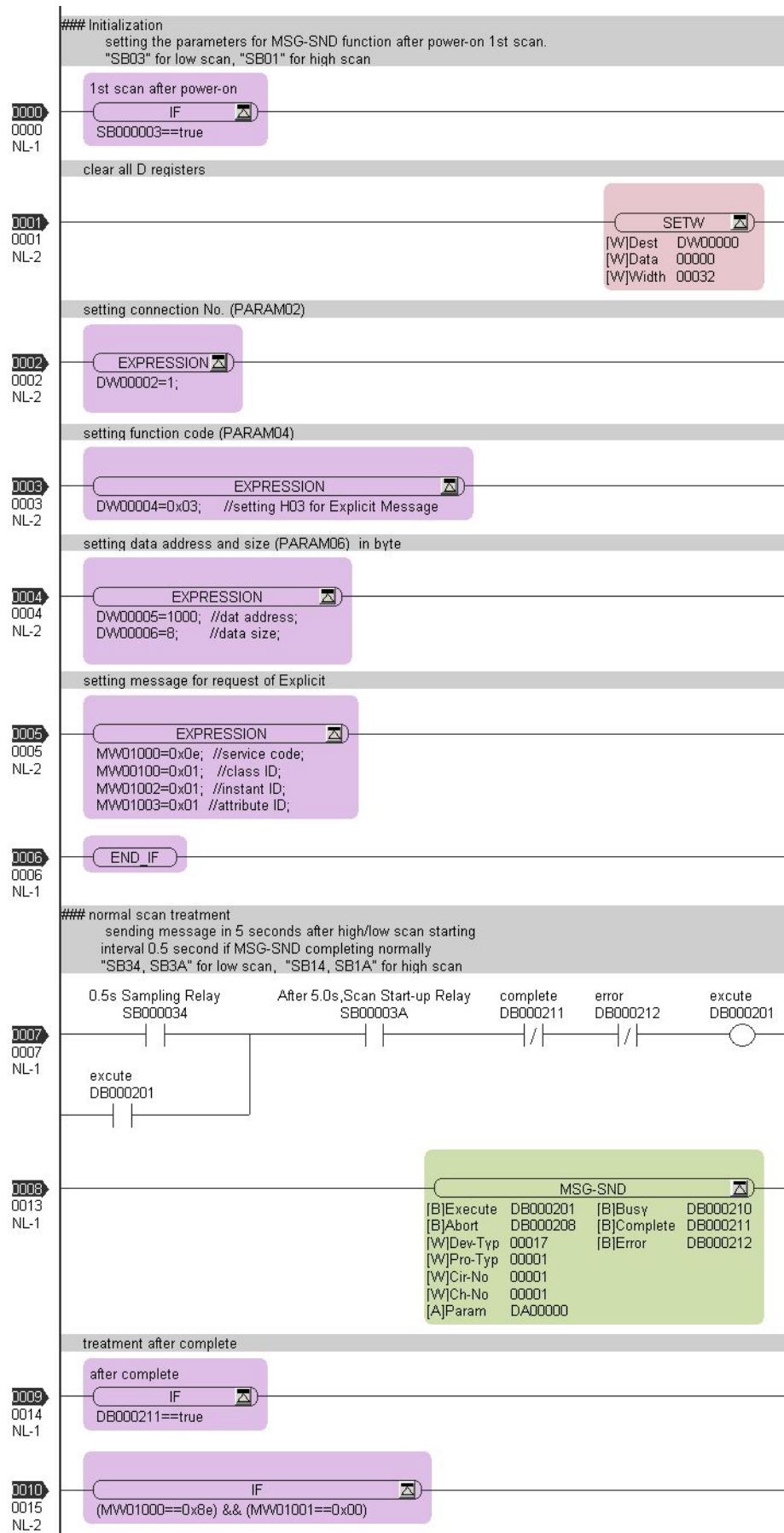
I/O Definition	No.	Name	Setting Example	Description
Input	1	Execute	DB000201	Message send processing is started when the send command (Execute) is turned ON.

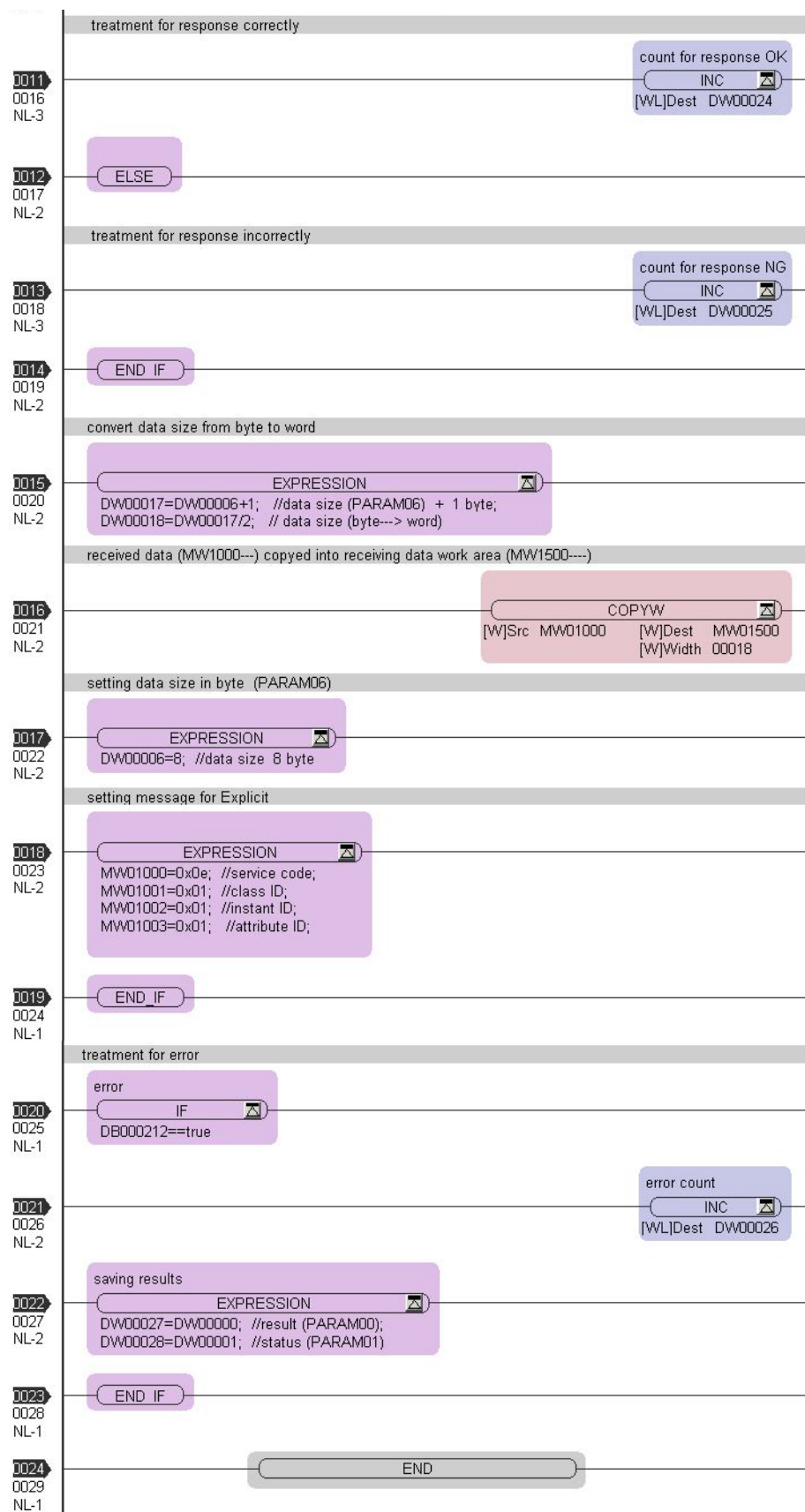
- In 6.4.2 *Programming Example* on page 6-18, the programming is written so that a message will be sent after the elapse of five seconds from the start of the low-speed scan. When the MSG-SND function has been completed normally, execution of the MSG-SND function will be started again by the SB000034 0.5-s sampling relay, repeatedly sending a message 0.5 s after sending of the previous message has been completed normally.



6.4.2 Programming Example

■ Example of L01 diagram





Troubleshooting

This chapter describes how to troubleshoot problems and take countermeasures against them.

7.1 Status Indication by LED Indicators	7-2
7.2 System I/O Error Status	7-3
7.2.1 System I/O Error Status by Controllers	7-3
7.2.2 Details on I/O Error Status	7-6
7.3 I/O Communications Errors	7-7

7.1 Status Indication by LED Indicators

The following table provides a description of the 263IF-01 Module status indicated by each LED indicator.

Classification	LED Indicator Status					Meaning	Description
	MS	NS	IP	TX	RX		
Power ON	○	○	–	–	–	The power is turned ON	The status immediately after the power is turned ON. Module initialization processing is in progress. After the completion of processing, the Module is placed in the initial status.
LED Test	–	–	–	–	–	LED test	When Module initialization is completed, the LED test is performed.
Self-diagnosis	★ Red Green	★ Red Green	–	–	–	Self diagnosis in progress	After the completion of the LED test, self-diagnosis is performed.
Initial status	★ Green	★ Green	–	–	–	Waiting for initial settings	The status in which the Module, started normally, is waiting for initialization by the CPU. The 100M, TX and RX indicators light according to the connection status.
Normal	● Green	● Green	● Green	–	–	Operating normally	The status in which the Module is performing Ethernet communication normally. The TX and RX indicators flash during Ethernet communication. The 100M indicator is lit during 100M communication.
Other	● Green	★ Green	● Green	–	–	No connection	The status in which the device has obtained the IP address but the connection has not been established.
Error	● Green	★ Red	–	–	–	Connection timeout	Timeout is detected on at least one connection where a device is the target of connection.
	● Green	● Red	–	–	–	IP address duplication	The IP address is already being used in another device.
	★ Red	–	–	–	–	Minor fault status	The status in which a device has detected a recoverable minor fault. A setting error will be the cause of the problem.
	● Red	–	–	–	–	Major fault status	The status in which a device has detected an unrecoverable major fault. If the error status does not clear even if the power is shut off and turned on again, the Module must be replaced.

• ●: Lit, ○: Not lit, ★: Flashing, –: Indefinite

7.2 System I/O Error Status

7.2.1 System I/O Error Status by Controllers

The following shows the system I/O error status of the MP2000 Series Machine Controller.

Refer to 6.3.1 *Displaying a Register List* on page 6-14 and specify a system register number “SWxxxxx” to access.

(1) MP2100M Machine Controller

Name	Register No.	Remarks
I/O Error Count	SW00200	Number of I/O error occurrences
Number of Input Errors	SW00201	Number of input error occurrences
Input Error Address	SW00202	Address of the latest input error (IWxxxx register number)
Number of Output Errors	SW00203	Number of output error occurrences
Output Error Address	SW00204	Address of the latest output error (OWxxxx register number)
Reserved by System	SW00205	(Not used)
	SW00206	
	SW00207	
I/O Error Status	SW00208 to SW00215	MP2100M Machine Controller error status
	SW00216 to SW00223	Reserved by the system
	SW00224 to SW00228	SVB-01 Module error status
	SW00229 to SW00239	Reserved by the system
	SW00240 to SW00247	Error status of slot 1 of rack 2* (Depends on the mounted module and error code.)
	SW00248 to SW00255	Error status of slot 2 of rack 2* (Depends on the mounted module and error code.)
	SW00256 to SW00263	Error status of slot 3 of rack 2* (Depends on the mounted module and error code.)
	SW00264 to SW00271	Error status of slot 4 of rack 2* (Depends on the mounted module and error code.)

	SW00448 to SW00455	Error status of slot 9 of rack 4* (Depends on the mounted module and error code.)

* Racks 2 to 4 can be used only when using MP2100MEX.

(2) MP2200 Machine Controller

Name	Register No.	Remarks
I/O Error Count	SW00200	Number of I/O error occurrences
Number of Input Errors	SW00201	Number of input error occurrences
Input Error Address	SW00202	Address of the latest input error (IWxxxx register number)
Number of Output Errors	SW00203	Number of output error occurrences
Output Error Address	SW00204	Address of the latest output error (OWxxxx register number)
Reserved by System	SW00205	(Not used)
	SW00206	
	SW00207	
I/O Error Status	SW00208 to SW00215	(Not used)
	SW00216 to SW00223	Reserved by the system
	SW00224 to SW00228	Error status of slot 1 of rack 1 (Depends on the mounted module and error code.)
	SW00229 to SW00239	Error status of slot 2 of rack 1 (Depends on the mounted module and error code.)
	SW00240 to SW00247	Error status of slot 3 of rack 1 (Depends on the mounted module and error code.)
	SW00248 to SW00255	Error status of slot 4 of rack 1 (Depends on the mounted module and error code.)

	SW00496 to SW00503	Error status of slot 9 of rack 4* (Depends on the mounted module and error code.)

* Racks 2 to 4 can be used only when using EXIOIF.

(3) MP2300 Machine Controller

Name	Register No.	Remarks
I/O Error Count	SW00200	Number of I/O error occurrences
Number of Input Errors	SW00201	Number of input error occurrences
Input Error Address	SW00202	Address of the latest input error (IWxxxx register number)
Number of Output Errors	SW00203	Number of output error occurrences
Output Error Address	SW00204	Address of the latest output error (OWxxxx register number)
Reserved by System	SW00205	(Not used)
	SW00206	
	SW00207	
I/O Error Status	SW00208 to SW00215	Slot 0 error status (Depends on the mounted module and error code.)
	SW00216 to SW00223	Reserved by the system
	SW00224 to SW00231	Slot 1 error status (Depends on the mounted module and error code.)
	SW00232 to SW00239	Slot 2 error status (Depends on the mounted module and error code.)
	SW00240 to SW00247	Slot 3 error status (Depends on the mounted module and error code.)

(4) MP2310 Machine Controller

Name	Register No.	Remarks
I/O Error Count	SW00200	Number of I/O error occurrences
Number of Input Errors	SW00201	Number of input error occurrences
Input Error Address	SW00202	Address of the latest input error (IWxxxx register number)
Number of Output Errors	SW00203	Number of output error occurrences
Output Error Address	SW00204	Address of the latest output error (OWxxxx register number)
Reserved by System	SW00205	(Not used)
	SW00206	
	SW00207	
I/O Error Status	SW00208 to SW00215	Slot 0 error status
	SW00216 to SW00223	Reserved by the system
	SW00224 to SW00231	Slot 1 error status
	SW00232 to SW00239	Slot 2 error status
	SW00240 to SW00247	Slot 3 error status
	SW00248 to SW00255	Reserved by the system (Slot 4 error status)
	...	
	SW00456 to SW00463	Reserved by the system (Slot 30 error status)

(5) MP2300S Machine Controller

Name	Register No.	Remarks
I/O Error Count	SW00200	Number of I/O error occurrences
Number of Input Errors	SW00201	Number of input error occurrences
Input Error Address	SW00202	Address of the latest input error (IWxxxx register number)
Number of Output Errors	SW00203	Number of Output Errors
Output Error Address	SW00204	Address of the latest output error (OWxxxx register number)
Reserved by System	SW00205	(Not used)
	SW00206	
	SW00207	
I/O Error Status	SW00208 to SW00215	Slot 0 error status
	SW00216 to SW00223	Reserved by the system
	SW00224 to SW00231	Slot 1 error status
	SW00232 to SW00239	Reserved by the system (Slot 2 error status)
	SW00240 to SW00247	Reserved by the system (Slot 3 error status)
	SW00248 to SW00255	Reserved by the system (Slot 4 error status)
	...	
	SW00456 to SW00463	Reserved by the system (Slot 30 error status)

7.2.2 Details on I/O Error Status

When a system I/O error occurs, the error status will be written in the system register.

The following shows the register allocation of the error status when the I/O Module (LIO-01/02), the EtherNet/IP Communication Module (263IF-01), and the DeviceNet Communication Module (260IF-01) are set at slots 1, 2 and 3 of the MP2300 Machine Controller, respectively.

(1) MP2300 Machine Controller Basic Module Error Status

Name	Register No.	Remarks
Slot 0 error status	SW00208 to SW00215	(Depends on the mounted module and error code.)
Reserved by System	SW00216 to SW00223	(Depends on the mounted module and error code.)
Slot 1 error status	SW00224 to SW00231	(Depends on the mounted module and error code.)
Slot 2 error status	SW00232 to SW00239	(Depends on the mounted module and error code.)
Slot 3 error status	SW00240 to SW00247	(Depends on the mounted module and error code.)

■ Register Allocation: Slot 0 (Reserved for Basic Module)

(Bit No.)	F	.....	8	7	.....	0
SW00208	Error code (I/O error = 2)				Subslot No. (= 2)	
SW00209	Error code (Station error = 1)				Subslot No. (= 3)	
SW00210	ST#15	.....		ST#2	ST#1	Not used
SW00211	Not used	ST#30	.....		ST#17	ST#16
SW00212	Not used	.....				Not used
SW00213	Not used	.....				Not used
SW00214	Not used	.....				Not used
SW00215	Not used	.....				Not used

(2) LIO-01/LIO-02 Module Error Status (Slot 1)

(Bit No.)	F	.....	8	7	.....	0
SW00224	Error code (I/O error = 2)				Subslot No. (= 1)	
SW00225	Error code (I/O error = 2)				Subslot No. (= 2)	
SW00226	ST#15	.....		ST#2	ST#1	Not used
SW00227	Not used	.....				Not used
SW00228	Not used	.....				Not used
SW00229	Not used	.....				Not used
SW00230	Not used	.....				Not used
SW00231	Not used	.....				Not used

(3) 263IF-01 Module Error Status (Slot 2)

(Bit No.)	F	.....	8	7	.....	0
SW00232	Error code (Station error = 1)				Subslot No. (= 2)	
SW00233	CNO#16	.....				CNO#1
SW00234	CNO#32	.....				CNO#17
SW00235	CNO#48	.....				CNO#33
SW00236	CNO#64	.....				CNO#49

<Error Status Details>

Item	Code	Description
CNO#n	0	Normal communication
	1	Communication error at the station n

- CNO corresponds to the number in the Connection No. field on the **Connection List** tab page of the 263IF-01 Module configuration definition.

(4) 260IF-01 Module Error Status (Slot 3)

(Bit No.)	F	.....	8	7	.....	0
SW00240	Error code (Station error = 1)				Subslot No. (= 2)	
SW00241	ST#15	.....				ST#0
SW00242	ST#31	.....				ST#16
SW00243	ST#47	.....				ST#32
SW00244	ST#63	.....				ST#48

<Error Status Details>

Item	Code	Description
ST#n	0	Normal communication
	1	Communication error at the station n (n = local station number in slave mode)

7.3 I/O Communications Errors

Check the error information on the Status Detail window.

Refer to 4.2.8 *Status Detail Window* on page 4-17 for more information on the Status Detail window.

Differences by 263IF-01 Software Version

The functions in the 263IF-01 have differences that depend on the software version. There are also precautions when using the 263IF-01 in combinations of different versions.

This chapter describes the differences in functions by 263IF-01 software version and precautions when different versions are used in combination.

8.1 Differences in Functions by 263IF-01 Software Version	-----8-2
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8.1 Differences in Functions by 263IF-01 Software Version

The software of the 263IF-01 has been upgraded to support extended I/O data sizes in I/O communication and extended byte counts for IDs (attribute and instance) in explicit message communication. For this reason, EtherNet/IP conformance test certification was also obtained again. The operation modes are described below to differentiate between the product before certification was obtained again and the product after certification was obtained again.

- A5 mode: Conformance test A5 certified mode. Ver. 1.04 compatibility.
- CT15 mode: Conformance test CT15 certified mode. Ver. 1.05 compatibility.

The following table gives the differences in functions by 263IF-01 software version.

Function Item	263IF-01 Software Version			
	Ver. 1.04 or Earlier	Ver. 1.05 or Later	Ver. 1.06 or Later (A5 Mode)	Ver. 1.06 or Later (CT15 Mode)
Conformance Test	A5 conformance	CT15 conformance	A5 conformance	CT15 conformance
I/O Data Size	Input/output size: 500 bytes or less each	Input/output size: 1440 bytes or less each	Input/output size: 500 bytes or less each	Input/output size: 1440 bytes or less each
Explicit Messages	Explicit request message: • Instance ID specification range: 1 byte • Attribute ID specification range: 1 byte	Explicit request message: • Instance ID specification range: 2 bytes • Attribute ID specification range: 2 bytes	Explicit request message: • Instance ID specification range: 1 byte • Attribute ID specification range: 1 byte	Explicit request message: • Instance ID specification range: 2 bytes • Attribute ID specification range: 2 bytes
Encapsulation	Supports an extended status code of 1 word	Supports an extended status code of 2 words	Supports an extended status code of 1 word	Supports an extended status code of 2 words
Objects	—	<ul style="list-style-type: none"> • Added get/set processing for TCP/IP Interface object instance attribute 13 • Added get processing for Ethernet Link object instance attribute 11 • Added get processing for Port object 3 instance attribute 10 	—	<ul style="list-style-type: none"> • Added get/set processing for TCP/IP Interface object instance attribute 13 • Added get processing for Ethernet Link object instance attribute 11 • Added get processing for Port object 3 instance attribute 10
EDS File	<ul style="list-style-type: none"> • Use MP2000_263IF.eds revision 3 or earlier • Input/output size selectable up to 500 bytes • Has Run/Idle Header when Input Only is set 	<ul style="list-style-type: none"> • Use MP2000_263IF.eds revision 4 • Input/output size selectable up to 1440 bytes • Does not have Run/Idle Header when Input Only is set 	<ul style="list-style-type: none"> • Use MP2000_263IF.eds revision 3 or earlier • Input/output size selectable up to 500 bytes • Has Run/Idle Header when Input Only is set 	<ul style="list-style-type: none"> • Use MP2000_263IF.eds revision 4 • Input/output size selectable up to 1440 bytes • Does not have Run/Idle Header when Input Only is set

8.2 263IF-01 Software Version Combinations and Precautions

This section describes precautions for performing EtherNet/IP communication between different versions of 263IF-01 Modules.

The adapter 263IF-01 (Ver. 1.05 or CT15 mode in Ver. 1.06 or later) checks the consistency of its own I/O communication input settings and the settings of the remote station. If there are mismatched settings, an error occurs and communication cannot be performed. The 263IF-01 (adapter) in Ver. 1.04 or earlier and A5 mode in Ver. 1.06 or later does not perform this consistency check, so an error will not occur even when there are mismatched settings.

This section describes cases in which this problem (error) occurs and how to resolve it. The explanation is applicable only when the 263IF-01 is used under the following conditions.

- The I/O communication input/output size is 500 bytes or less each
- The instance ID and attribute ID in explicit message communication are 1 byte

8.2.1 263IF-01 Software Version Combinations and Ability to Communicate

When a 263IF-01 with Ver. 1.05 is used in combination with an earlier version of the 263IF-01 (e.g., Ver. 1.04), EtherNet/IP communication may not be possible.

Communication cannot be performed when the following two conditions are satisfied.

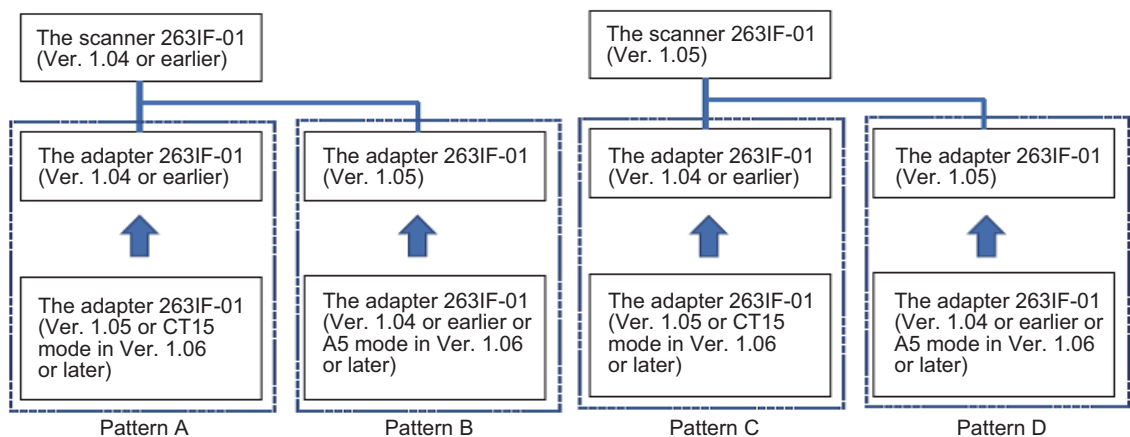
- A 263IF-01 (Ver. 1.04) in an existing system is replaced with a newer version 263IF-01 (Ver. 1.05)
- When the I/O communication Run/Idle Header setting does not match in the 263IF-01 when used as a scanner and in the 263IF-01 when used as the adapter

The following section shows a diagram of possible cases when replacing the 263IF-01 with a different version and describes whether communication can be performed.

(1) When Replacing an Adapter

When replacing a 263IF-01 used as an adapter, the I/O communication Run/Idle Header setting in the 263IF-01 used as the scanner may not match the setting of the adapter 263IF-01 and communication may not be possible.

The below diagram shows the ability to communicate by combination.



■ Pattern A or Pattern C

Communication cannot be performed when the I/O communication Run/Idle Header setting does not match.

An error occurs on the adapter 263IF-01 (Ver. 1.05) when the Run/Idle Header setting does not match.

The next section describes a method to perform communication without errors.

■ Pattern B or Pattern D

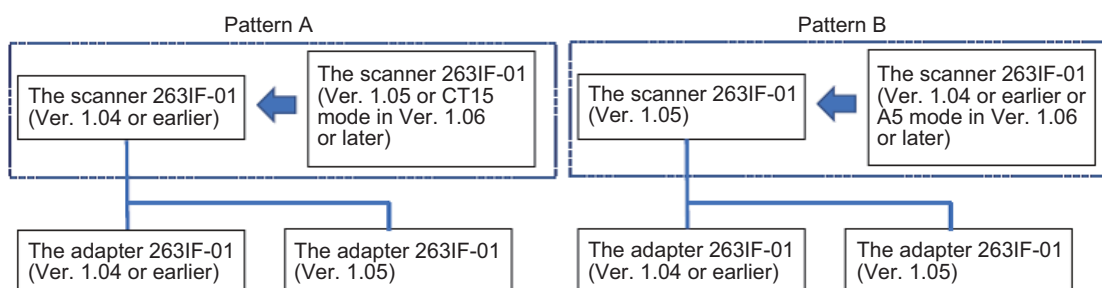
Communication can be performed even when the I/O communication Run/Idle Header setting does not match.

An error does not occur on the adapter 263IF-01 (Ver. 1.04 or earlier or A5 mode in Ver. 1.06 or later) when the Run/Idle Header setting does not match.

Communication can be performed with this combination, but setting the correct Run/Idle Header for the scanner according to the EDS file of the adapter is recommended.

(2) When Replacing a Scanner

When replacing a 263IF-01 used as a scanner, set the replaced scanner to the same I/O communication Run/Idle Header setting to allow communication in both pattern A and pattern B shown in the following diagram.



8.2.2 How to Resolve Problems to Perform Communication

This section shows how to resolve problems when communication cannot be performed in pattern A and pattern C in 8.2.1 (1).

(1) Match the I/O communication Run/Idle Header settings

Match the I/O communication Run/Idle Header settings to resolve mismatched settings.

Set Run/Idle Header in the I/O communication detail settings of the scanner 263IF-01 as shown below.

■ When There Is Output Data in the Scanner Assignments

Input Data: Cleared

Output Data: Selected

■ When There Is No Output Data in the Scanner Assignments

Input Data: Cleared

Output Data: Cleared

(2) Use a 263IF-01 (Ver. 1.06) for the Adapter

Errors can be avoided by rewriting 263IF-01 (Ver. 1.05) with 263IF-01 (Ver. 1.06) and using the A5 operation mode.

8.3 Versions Tables for 263IF-01, CPU, and MPE720

Use the following tables to check the versions of CPU, MPE720, and 263IF-01 that can be used.

■ MP2000-Series Machine Controller

263IF-01		MP2000 Series CPU	MPE720		
			Ver.5	Ver.6	Ver.7
Ver. 1.04 or earlier (A5 mode only)		○ Ver. 2.64 or later	○ Ver.5.42 or later	○ Ver.6.08 or later	○ Ver.7.10 or later
Ver. 1.05 (CT15 mode only)			△ ^{*1} Ver.5.42 or later	△ ^{*1} Ver.6.08 or later	○ ^{*2} Ver.7.47 or later
Ver. 1.06 or later ^{*3}	A5 mode		△ ^{*1} Ver.5.42 or later	△ ^{*1} Ver.6.08 or later	○ Ver.7.62 or later
	CT15 mode		×	×	

* 1. The I/O size is limited to 500 bytes or less.

* 2. The I/O size is limited to 500 bytes or less in Ver.7.46 or earlier.

* 3. The default setting is A5 mode. If the 263IF-01 module is in A5 mode, MPE720 Ver.7.61 or earlier can be used.

■ MP3000-Series Machine Controller

263IF-01		MP3000 Series CPU	MPE720		
			Ver.5	Ver.6	Ver.7
Ver. 1.04 or earlier (A5 mode only)		○ Ver.1.02 or later	— ^{*1}	— ^{*1}	○ Ver.7.10 or later
Ver. 1.05 (CT15 mode only)		○ Ver.1.02 or later	— ^{*1}	— ^{*1}	○ ^{*2} Ver.7.47 or later
Ver. 1.06 or later ^{*3}	A5 mode	○ Ver.1.46 or later	— ^{*1}	— ^{*1}	○ Ver.7.62 or later
	CT15 mode		— ^{*1}	— ^{*1}	

* 1. MPE720 Ver.5 and Ver.6 are not compatible with the MP3000-series Machine Controller.

* 2. The I/O size is limited to 500 bytes or less in Ver.7.46 or earlier.

* 3. The default setting is A5 mode. If the 263IF-01 module is in A5 mode, MPE720 Ver.7.61 or earlier can be used.

The EDS file loading function can be used in MPE720 Ver. 7.50 or later, irrespective of which 263IF-01 and CPU versions are used. If the I/O data size in I/O communication set in the project file exceeds 500 bytes when the version of 263IF-01 used is Ver. 1.04 or earlier or A5 mode is Ver. 1.06 or later, communication cannot be performed.

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Appendix A Details of Status Codes

In the **Status Detail** window (refer to 4.2.8 *Status Detail Window* on page 4-17), General Status code and Extended Status code are displayed if the status code is “4003H.” The following table explains these codes in detail.

A.1 General Status Code Table

Status Code (Hex)	Text	Details/Description
0000	–	Service has been completed successfully.
0001	ROUTER_ERROR_FAILURE	Details are given by Extended Status code. ♦ Refer to A.2 <i>Extended Status Code Table</i> on page A-3.
0002	ROUTER_ERROR_NO_RESOURCE	The Connection Manager resource necessary for processing the service request cannot be used.
0003	ROUTER_ERROR_INVALID_PARAMETER_VALUE	The connection number specified by Get_Connection_Data service is invalid. If the specified connection is not found, the Search_Connection_Data service will also return this code.
0004	ROUTER_ERROR_INVALID_SEG_TYPE	The segment type in the path is invalid. The word offset (0 base) to the error position in the path is taken as the Extended Status. The offset starts from the word immediately after the path size field. This error code is not returned if the error occurs during syntax analysis of the connection path.
0005	ROUTER_ERROR_INVALID_DESTINATION	The path destination is invalid. The word offset (0 base) to the error position in the path is taken as the Extended Status. The offset starts from the word immediately after the path size field. This error code is not returned if the error occurs during syntax analysis of the connection path.
0007	ROUTER_ERROR_CONN_LOST	Connection was lost. When the Get/Set service is created through the connection, the Get/Set service uses this code.
0008	ROUTER_ERROR_BAD_SERVICE	The Connection Manager does not support the requested service.
0009	ROUTER_ERROR_BAD_ATTR_DATA	Data segment error The Extended Status gives an index that indicates the position where the error occurred in the data segment. The index is “1” when the configuration revision number is present in the data segment. If the error occurs in the Get/Set service, the Extended Status will indicate the failed attribute number.
000C	ROUTER_ERROR_OBJECT_STATE_CONFLICT	With the current state of the object, the requested service cannot be performed. As an option, the first word of the Extended Status can include the current object state.
0010	ROUTER_ERROR_DEV_IN_WRONG_STATE	With the current state of the device, the requested service cannot be performed. As an option, the first word of the Extended Status can include the current device state.
0011	ROUTER_ERROR_REPLY_DATA_TOO_LARGE	The response data volume is too large. The Get service uses this code to indicate that the amount of the request data is too great to be set in the response buffer.
0013	ROUTER_ERROR_NOT_ENOUGH_DATA	Not enough data has been received.
0014	ROUTER_ERROR_ATTR_NOT_SUPPORTED	The Connection Manager does not support the attribute specified in the FIND service.
0015	ROUTER_ERROR_TOO_MUCH_DATA	Too much data has been received.
0025	ROUTER_ERROR_BAD_KEY_IN_PATH	At least one of the following in the key segment does not agree with the device: Vendor ID, product code, product type, and major or minor revision information. This code is used if a key segment is included in the path.
0026	ROUTER_ERROR_BAD_PATH_SIZE	The path size is invalid.

A.2 Extended Status Code Table

Extended Status Code (Hex)	Text	Details
0000	—	<ul style="list-style-type: none"> General Status code is 0000: No error. General Status code is 0001: Data that has an extended status code two words or longer was received with 263IF-01 Module software Ver. 1.04 or earlier. General Status code is 0002 or higher: No particular meaning.
0100	ROUTER_EXT_ERR_DUPLICATE_FWD_OPEN	A duplicate attempt was made to open the same connection. (Error returned by the slave side.)
0103	ROUTER_EXT_ERR_CLASS_TRIGGER_INVALID	There was a request to open the connection with an unsupported transport class. (Error returned by the slave side.)
0106	ROUTER_EXT_ERR_OWNERSHIP_CONFLICT	A duplicate attempt was made to open a connection to the same data.
0107	ROUTER_EXT_ERR_CONNECTION_NOT_FOUND	An attempt was made to close the connection, but it was already closed. (Error returned by the slave side.)
0108	ROUTER_EXT_ERR_INVALID_CONN_TYPE	The connection type is invalid. The connection type or connection priority is incorrect. (Error returned by the slave side.)
0109	ROUTER_EXT_ERR_INVALID_CONN_SIZE	The connection size setting is different on the master and slave. (Error returned by the slave side.)
0110	ROUTER_EXT_ERR_DEVICE_NOT_CONFIGURED	The state of the slave is such that a connection cannot be opened (e.g., the device is not set or settings are being downloaded). (Error returned by the slave side.)
0111	ROUTER_EXT_ERR_RPI_NOT_SUPPORTED	The RPI setting value was set to a value larger than the specification. (Error returned by the slave side.)
0113	ROUTER_EXT_ERR_CONNECTION_LIMIT_REACHED	There was a request to open more connections than permitted by the specification. (Error that occurs on the master side, or error returned by the slave side.)
0114	ROUTER_EXT_ERR_VENDOR_PRODUCT_CODE_MISMATCH	Either the vendor ID or product code in the key segment did not match the device when opening the connection. (Error returned by the slave side.)
0115	ROUTER_EXT_ERR_PRODUCT_TYPE_MISMATCH	The product type in the key segment did not match the device when opening the connection. (Error returned by the slave side.)
0116	ROUTER_EXT_ERR_REVISION_MISMATCH	The major revision or minor revision in the key segment did not match the device when opening the connection. (Error returned by the slave side.)
0117	ROUTER_EXT_ERR_INVALID_CONN_POINT	The connection point is invalid. (Error returned by the slave side.)
0118	ROUTER_EXT_ERR_INVALID_CONFIG_FORMAT	The RPI setting value was set to a value smaller than the specification. (Error returned by the slave side.)
0119	ROUTER_EXT_ERR_NO_CONTROLLING_CONNECTION	The connection request failed because no control connection is currently open.
011A	ROUTER_EXT_ERR_TARGET_CONN_LIMIT_REACHED	The target application cannot support any further connections.
011B	ROUTER_EXT_ERR_RPI_SMALLER_THA_INHIBIT	The RPI value is smaller than the production inhibit time value.
0127	INVALID_ORIGINATOR_TO_TARGET_NETWORK_CONNECTION_SIZE	The output data size or output Run/Idle Header setting does not match. (Error returned by the slave side.)
0128	INVALID_TARGET_TO_ORIGINATOR_NETWORK_CONNECTION_SIZE	The input data size or input Run/Idle Header setting does not match. (Error returned by the slave side.)

Extended Status Code (Hex)	Text	Details
012A	ROUTER_EXT_ERR_CONNECTION_REQUEST	The instance between devices or the detailed setting parameters did not match.
0203	ROUTER_EXT_ERR_CONNECTION_TIMED_OUT	The connection cannot be terminated due to timeout. (Error that occurs on the master side.)
0204	ROUTER_EXT_ERR_UNCONNECTED_SEND_TIMED_OUT	The Unconnected_Send service timed out while waiting for the open connection processing response. (Error that occurs on the master side.)
0205	ROUTER_EXT_ERR_PARAMETER_ERROR	Parameter error in the Unconnected_Send service. (Error returned by the slave side.)
0206	ROUTER_EXT_ERR_MESSAGE_TOO_LARGE	The message for the unconnected message service is too large.
0207	ROUTER_EXT_ERR_UNCONN_ACK_WITHOUT_REPLY	Unconnected type ACK for which a response is not given.
0301	ROUTER_EXT_ERR_NO_BUFFER_MEMORY_AVAILABLE	No available buffer memory.
0302	ROUTER_EXT_ERR_BANDWIDTH_NOT_AVAILABLE	No available network bandwidth for data transmission. (Error that occurs on the master side, or error returned by the slave side.)
0303	ROUTER_EXT_ERR_TAG_FILTERS_NOT_AVAILABLE	No usable tag filter is available.
0304	ROUTER_EXT_ERR_REAL_TIME_DATA_NOT_CONFIG	The system is not configured to send data in real time.
0311	ROUTER_EXT_ERR_PORT_NOT_AVAILABLE	The port specified in the port segment is not available. (Error returned by the slave side.)
0312	ROUTER_EXT_ERR_LINK_ADDR_NOT_AVAILABLE	The link address specified in the port segment is not available. (Error returned by the slave side.)
0315	ROUTER_EXT_ERR_INVALID_SEGMENT_TYPE_VALUE	The segment type or segment value specified in the path is invalid. (Error returned by the slave side.)
0316	ROUTER_EXT_ERR_PATH_CONNECTION_MISMATCH	When the connection is closed, the path and the connection do not agree with each other. (Error returned by the slave side.)
0317	ROUTER_EXT_ERR_INVALID_NETWORK_SEGMENT	The segment does not exist, or the encode value of the network segment is invalid.
0318	ROUTER_EXT_ERR_INVALID_LINK_ADDRESS	The link address to the local station is invalid.
0319	ROUTER_EXT_ERR_SECOND_RESOURCES_NOT_AVAILABLE	The secondary resource is not available.
031A	ROUTER_EXT_ERR_CONNECTION_ALREADY_ESTABLISHED	The connection has already been established.
031B	ROUTER_EXT_ERR_DIRECT_CONN_ALREADY_ESTABLISHED	The direct connection has already been established.
031C	ROUTER_EXT_ERR_MISC	Others (Error that occurs on the master side.)
031D	ROUTER_EXT_ERR_REDUNDANT_CONNECTION_MISMATCH	Mismatch in redundant connection
031E	ROUTER_EXT_ERR_NO_MORE_CONSUMER_RESOURCES	No remaining receive resources that can be used by the transmission module exist.
031F	ROUTER_EXT_ERR_NO_TARGET_PATH_RESOURCES	The connection resource for the target path does not exist.
320 to 7FF	ROUTER_EXT_ERR_VENDOR_SPECIFIC	Vendor specific error

Appendix B Object Definition Lists

This appendix gives the lists of object definitions supported by the 263IF-01 Module.

The 263IF-01 Module supports the following object definitions.

- Class Attributes

Class attributes are set with the attribute ID in an explicit request message.

Set the instance ID to 0 when accessing a class attribute.

- Instance Attributes

Instance attributes are set with the attribute ID in an explicit request message.

Basically, set the instance ID to 1 when accessing an instance attribute, but the setting range of the Assembly Object (04h) is 64h to C7h and 300h to 4FFh.

- Services

Services are set with the request service code in an explicit request message.

Available services depend on the classes and attributes.

B.1 Identity Object (01h)

(1) Class Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Revision	UINT	Revision of the object	1	—
2	Get	Max Instance	UINT	Maximum instance number	1	—
3	Get	Number of Instances	UINT	Number of instances of generated object	1	—
6	Get	Maximum ID Number Class Attributes	UINT	Attribute ID number of class attributes	7	—
7	Get	Maximum ID Number Instance Attributes	UINT	Attribute ID number of instance attributes	7	—

(2) Instance Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Vendor ID	UINT	Vendor identification number	44	—
2	Get	Device Type	UINT	General device type	12 (communication adapter)	—
3	Get	Product Code	UINT	Identification code of the product	549	—
4	Get	Revision	STRUCT of:	Revision of the Identity object	—	Depends on software version
		Major Revision	USINT	Major revision	1	
		Minor Revision	USINT	Minor revision	Ver. 1.04 or earlier or A5 mode: 1 Ver. 1.05 or later or CT15 mode: 2	
5	Get	Status	WORD	Current status of the device	Obtain with the application. CIP specifications (refer to CIP)	—
6	Get	Serial Number	UDINT	Serial number	Obtain with the application.	—
7	Get	Product Name	SHORT_STRING	Product name - ASCII text string: Up to 32 characters (Max: 33 bytes including number of characters at start)	“MP2300/263IF-01”	—

B.2 Message Router Object (02h)

(3) Services

Code	Service Name	Class	Instance	Remarks
01h	Get_Attribute_All	×	○	–
05h	Reset	×	○	Parameter 0: Power cycle (required) / 1: Factory default settings (optional)
0Eh	Get_Attribute_Single	○	○	Required when class attributes are implemented.

B.2 Message Router Object (02h)

(1) Class Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Revision	UINT	Revision of the object	1	–
2	Get	Max Instance	UINT	Maximum instance number	1	–
3	Get	Number of Instances	UINT	Number of instances of generated object	1	–
6	Get	Maximum ID Number Class Attributes	UINT	Attribute ID number of class attributes	7	–
7	Get	Maximum ID Number Instance Attributes	UINT	Attribute ID number of instance attributes	2	–

(2) Instance Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Object_list	STRUCT of:	Object list	–	–
		Number	UINT	Number of classes supported in the class array	7	
		Classes	UINT array	List of class codes	01h 02h 04h 06h F4h F5h F6h	
2	Get	Number Available	UINT	Maximum number of connections	128	–

(3) Services

Code	Service Name	Class	Instance	Remarks
01h	Get_Attribute_All	×	○	–
0Eh	Get_Attribute_Single	○	○	Required when attributes are implemented.

B.3 Connection Manager (06h)

(1) Class Attributes

None

(2) Instance Attributes

None

(3) Services

Services cannot be used by an explicit message that has used the MSG-SND function.

Code	Service Name	Class	Instance	Remarks
4Eh	Forward_Close	×	○	–
54h	Forward_Open	×	○	–
52h	Unconnected Send	×	○	–
5Bh	Large_Forward_Open	×	Ver. 1.04 or earlier or A5 mode: × Ver. 1.05 or later or CT15 mode: ○	Depends on software version

B.4 Port (F4h)

(1) Class Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Revision	UINT	Revision of the object	Ver. 1.04 or earlier or A5 mode: 1 Ver. 1.05 or later or CT15 mode: 2	Depends on software version
2	Get	Max Instance	UINT	Maximum instance number	1	–
3	Get	Number of Instances	UINT	Number of instances of generated object	1	–
6	Get	Maximum ID Number Class Attributes	UINT	Attribute ID number of class attributes	9	–
7	Get	Maximum ID Number Instance Attributes	UINT	Attribute ID number of instance attributes	Ver. 1.04 or earlier or A5 mode: 7 Ver. 1.05 or later or CT15 mode: 10	Depends on software version
8	Get	Entry Port	UINT	Instance of the Port object	1	–
9	Get	Port Instance Info	ARRAY of STRUCT of	An array of structures that contains instance attributes 1 and 2 from each instance	00 00 00 00 04 00 02 00 (the array starts from instance 0, so the first 4 bytes are 00)	–
		Port Type	UINT		4 (Ethernet/IP)	
		Port Number	UINT		2	

(2) Instance Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get/Set	Port Type	UINT	Type of port	4 (EtherNet/IP)	–
2	Get	Port Number	UINT	CIP port number associated with this port	2	–
3	Get	Link Object	STRUCT of:	–	–	–
		Path Length	UINT	16-bit word	2	–
		Link Path	Padded EPATH	Logical path segment	20 F6 24 01	–
4	Get	Port Name	SHORT_STRING	Text string that names the port	“Ethernet Port”	–
7	Get	Node Address	Padded EPATH	The port number of this device on the port	12 0C 31 39 32 2E 31 36 38 2E 31 2E 31 00 • Path segment: 0x12 Bit 5 OFF: Indicates a port segment Bit 4 ON: Includes an IP address Bit 0 to 3: CIP port number (same value as attribute 2) • Link address size: 0x0C (12 characters) • Link address text string: “192.168.1.1”	Example of when the attribute value is the IP address 192.168.1.1
10	Get	Port Routing Capabilities	DWORD	Bits that define the routing function of this port	0x15 Bit 0 ON: Supports received UCM routing Bit 2 ON: Supports received Class 1 routing Bit 4 ON: Supports received Class 3 routing	Can be referenced with software Ver. 1.05 or later or CT15 mode

(3) Services

Code	Service Name	Class	Instance	Remarks
01h	Get_Attribute_All	×	○	–
0Eh	Get_Attribute_Single	○	○	Required when attributes are implemented.

B.5 TCP/IP Interface (F5h)

(1) Class Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Revision	UINT	Revision of the object	Ver. 1.04 or earlier or A5 mode: 1 Ver. 1.05 or later or CT15 mode: 4	Depends on software version
2	Get	Max Instance	UINT	Maximum instance number	1	–
3	Get	Number of Instances	UINT	Number of instances of generated object	1	–
6	Get	Maximum ID Number Class Attributes	UINT	Attribute ID number of class attributes	7	–
7	Get	Maximum ID Number Instance Attributes	UINT	Attribute ID number of instance attributes	Ver. 1.04 or earlier or A5 mode: 6 Ver. 1.05 or later or CT15 mode: 13	Depends on software version

(2) Instance Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Status	DWORD	Interface status	0x001 (Interface Configuration contains settings obtained from BOOTP or non-volatile storage)	—
2	Get	Configuration Capability	DWORD	Interface function flag	0x0000	—
3	Get	Configuration Control	DWORD	Interface control flag	0 (value saved previously)	—
4	Get	Physical Link Object	STRUCT of:	Path to physical layer link object	—	—
		Path size	UINT	Size of the path (WORD)	2	—
		Path	Padded EPATH	Segment to identify the physical layer link object	20 F6 24 01	—
5	Get	Interface Configuration	STRUCT of:	TCP/IP network interface configuration	—	—
		IP Address	UINT	IP address of the device	Obtain with the application.	—
		Network Mask	UINT	Network mask of the device.	—	—
		Gateway Address	UINT	Default gateway address	—	—
		Name Server	UINT	Primary name server	—	—
		Name Server 2	UINT	Secondary name server	—	—
		Domain Name	STRING	Domain name ASCII text string: Up to 48 characters (Max: 50 bytes including number of characters at start (WORD))	—	—
6	Get	Host Name	STRING	Host name ASCII text string: Up to 64 characters (Max: 66 bytes including number of characters at start (WORD))	—	—
13	Get/Set	Encapsulation Inactivity Timeout	UINT	Inactivity time in seconds until the TCP connection or DTLS session is closed	1 to 3600 s (0: No connection timeout) Default 120 s	*

For details, refer to *B.5 (4) Notes on the Encapsulation Inactivity Timeout* on page A-10.

(3) Services

Code	Service Name	Class	Instance	Remarks
01h	Get_Attribute_All	×	○	—
0Eh	Get_Attribute_Single	○	○	—
10h	Set_Attribute_Single	×	○	—

(4) Notes on the Encapsulation Inactivity Timeout

Instance attribute ID 13, the Encapsulation Inactivity Timeout setting, is saved to the CPU of the Machine Controller. The Encapsulation Inactivity Timeout setting is saved for each circuit number, and a maximum of eight setting values can be saved for circuit numbers 1 to 8.

These setting values are initialized when the Machine Controller performs an INIT startup.

- If the project was batch transferred, circuit numbers are initialized that are not defined for the 263IF-01 Module in the source project.

The following table shows availability of this function for combinations of software versions on the 263IF-01 and controller CPU.

Controller CPU		263IF-01	Availability
MP2000 Series	MP3000 Series		
Ver. 3.08 or earlier	Ver. 1.46 or earlier	Ver. 1.04 or earlier or A5 mode in Ver. 1.06 or later	Not available
		Ver. 1.05 or CT15 mode in Ver. 1.06 or later	Not available
Under development	Ver. 1.47 or later	Ver. 1.04 or earlier or A5 mode in Ver. 1.06 or later	Not available
		Ver. 1.05 or CT15 mode in Ver. 1.06 or later	Available

The following table gives the values of Attr#13 Encapsulation Inactivity Timeout for each operation.

Operation	Value of Attr#13 Encapsulation Inactivity Timeout	Remarks
INIT startup	120	The setting values are initialized for circuit numbers that are not defined for the 263IF-01 Module.
FLASH startup	Value before the power supply was shut OFF	—
A setting value was changed by explicit message from the other device.	Changed value	If the setting value is invalid, the original value is used.
A circuit number in the 263IF-01 Module was changed.	<ul style="list-style-type: none"> • If a value was set for the circuit number before it was changed: Keep original value. • If a value was not set for the circuit number before it was changed or if an invalid value was set for the circuit number after it was changed: 120 	—

B.6 Ethernet Link (F6h)

(1) Class Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Revision	UINT	Revision of the object	Ver. 1.04 or earlier or A5 mode: 2 Ver. 1.05 or later or CT15 mode: 4	Depends on software version
2	Get	Max Instance	UINT	Maximum instance number	1	—
3	Get	Number of Instances	UINT	Number of instances of generated object	1	—
6	Get	Maximum ID Number Class Attributes	UINT	Attribute ID number of class attributes	7	—
7	Get	Maximum ID Number Instance Attributes	UINT	Attribute ID number of instance attributes	Ver. 1.04 or earlier or A5 mode: 3 Ver. 1.05 or later or CT15 mode: 11	Depends on software version

(2) Instance Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Interface Speed	UDINT	Interface communications speed	Obtain with the application. CIP specifications (refer to CIP)	—
2	Get	Interface Flags	DWORD	Interface status flags	Obtain with the application. CIP specifications (refer to CIP)	—
3	Get	Physical Address	Array of 6 USINTs	MAC layer address	Obtain with the application.	—
11	Get	Interface Capability	STRUCT of:	Interface function	—	Can be referenced with software Ver. 1.05 or later or CT15 mode
		Capability Bits	DWORD	Interface functions other than speed/duplex Bit 0: Manual Setting Requires Reset Bit 1: Auto-negotiate Bit 2: Auto-MDIX Bit 3: Manual Speed/Duplex Bit 4 to bit 31: Reserved	0x0006 (bit 1 and bit 2 are enabled)	
		Speed/Duplex Options	STRUCT of:	Speed/duplex pair	—	
		Speed/Duplex Array Count	USINT	Number of speed/duplex elements	0	
		Speed/Duplex Array	STRUCT of array	Speed/duplex pair array	—	
		Interface Speed	USINT	Interface communications speed	Obtain with the application. CIP specifications (refer to CIP)	
		Interface Duplex Mode	USINT	Interface status flags	0: Half-duplex 1: Full-duplex 2 to 255 = Reserved for system	

(3) Services

Code	Service Name	Class	Instance	Remarks
01h	Get_Attribute_All	×	○	–
0Eh	Get_Attribute_Single	○	○	–
10h	Set_Attribute_Single	×	×	–

B.7 Assembly Object (04h)

(1) Class Attributes

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
1	Get	Revision	UINT	Revision of the object	2	–
2	Get	Max Instance	UINT	Maximum instance number	Parameter	–
3	Get	Number of Instances	UINT	Number of instances of generated object	Parameter	–
6	Get	Maximum ID Number Class Attributes	UINT	Attribute ID number of class attributes	7	–
7	Get	Maximum ID Number Instance Attributes	UINT	Attribute ID number of instance attributes	4	–

(2) Instance Attributes

Setting range of the instance ID is 64h to C7h and 300h to 4FFh.

ID	Access	Name	Data Type	Description	Attribute Value	Remarks
3	Get	Data	BYTE array	The data format is defined by the application side.	–	–
4	Get	Size	UDINT	Number of bytes	O->T data size: Set before going online	–

(3) Services

Code	Service Name	Class	Instance	Remarks
0Eh	Get_Attribute_Single	○	○	–

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263IF-01

EtherNet/IP Communication Module

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