

Machine Automation Controller NJ/NX-series

# EtherNet/IP<sup>™</sup> Connection Guide

# **OMRON** Corporation

Laser Displacement Sensor (ZP-EIP)

Network Connection Guide

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# 1. Related Manuals

To ensure system safety, make sure to always read and follow the information provided in all Safety Precautions and Precautions for Safe Use in the manuals for each device which is used in the system.

Cat. No.	Model	Manual name
W500	NJ501-000	NJ Series CPU Unit User's Manual
	NJ301-000	(Hardware)
	NJ101-000	
W501	NX701-000	NJ/NX Series CPU Unit User's Manual
	NX502-000	(Software)
	NX102-000	
	NX1P2-000	
	NJ501-000	
	NJ301-000	
	NJ101-000	
W506	NX701-000	NJ/NX Series CPU Unit Built-in
	NX502-000	EtherNet/IP™ Port User's Manual
	NX102-000	
	NX1P2-000	
	NJ501-000	
	NJ301-000	
	NJ101-000	
W504	SYSMAC-SE2	Sysmac Studio Version 1 Operation
		Manual
0969584-7	W4S1-05□	Switching Hub W4S1-series User's Manual
Z495	ZP-Looo	Laser Displacement Sensor User's Manual
Z496	ZP-EIP	EtherNet ∕ IP <sup>™</sup> Communications Unit
		User's Manual

# 2. Terms and Definitions

Term	Explanation and Definition
Node	A controller and a device are connected to an EtherNet/IP network via
	EtherNet/IP ports. EtherNet/IP recognizes each EtherNet/IP port
	connected to the network as one node.
	When a device with two EtherNet/IP ports is connected to the
	EtherNet/IP network, EtherNet/IP recognizes this device as two nodes.
	EtherNet/IP achieves the communications between controllers or the
	communications between a controller and a device by exchanging data
	between these nodes connected to the network.
Тад	A minimum unit of the data that is exchanged on the EtherNet/IP
	network is called a tag. The tag is defined as a network variable or as a
	physical address, and it is assigned to the memory area of each device.
Tag set	In the EtherNet/IP network, a data unit that consists of two or more tags
	can be exchanged. The data unit consisting of two or more tags for the
	data exchange is called a tag set. Up to eight tags can be configured
	per tag set for OMRON controllers.
Tag data link	In EtherNet/IP, the tag and tag set can be exchanged cyclically between
	nodes without using a user program. This standard feature on
	EtherNet/IP is called a tag data link.
Connection	A connection is used to exchange data as a unit within which data
	concurrency is maintained. The connection consists of tags or tag sets.
	Creating the concurrent tag data link between the specified nodes is
	called a "connection establishment". When the connection is
	established, the tags or tag sets that configure the connection are
	exchanged between the specified nodes concurrently.
	There are two ways to specify the connection: one is to specify a tag set
	name (tag name), and the other is to specify an instance number of
	Assembly Object. In Sysmac Studio, the connection is set by specifying
	the instance number.
Connection type	There are two kinds of connection types for the tag data link connection.
	One is a multi-cast connection, and the other is a unicast (point-to-point)
	connection. The multi-cast connection sends an output tag set in one
	packet to more than one node. The unicast connection separately sends
	one output tag set to each node. Therefore, multi-cast connections can
	decrease the communications load if one output tag set is sent to more
	than one node.

Term	Explanation and Definition		
Originator and	To operate tag data links, one node requests the opening of a		
Target	communications line called a "connection".		
	The node that requests to open the connection is called an "originator",		
	and the node that receives the request is called a "target".		
	Each communication data is called an "originator variable" and a "target		
	variable".		
	In Sysmac Studio, the instance number is specified in the target		
	variable.		
Tag data link	A tag data link parameter is the setting data to operate tag data links. It		
parameter	includes the data to set tags, tag sets, and connections.		
EDS file	A file that describes the number of I/O points for the EtherNet/IP device		
	and the parameters that can be set via EtherNet/IP.		
RPI	This is an abbreviation for Requested Packet Interval. RPI indicates the		
	data I/O refresh cycle that is set for each connection between the		
	originator and the target.		

# 3. Precautions

- (1) Understand the specifications of devices which are used in the system. Allow some margin for ratings and performance. Provide safety measures, such as installing a safety circuit, in order to ensure safety and minimize the risk of abnormal occurrence.
- (2) To ensure system safety, make sure to always read and follow the information provided in all Safety Precautions and Precautions for Safe Use in the manuals for each device which is used in the system.
- (3) The user is encouraged to confirm the standards and regulations that the system must conform to.
- (4) It is prohibited to copy, to reproduce, and to distribute a part or the whole of this document without the permission of OMRON Corporation.
- (5) The information contained in this document is current as of December 2024. It is subject to change for improvement without notice.

The following notations are used in this document.

	Indicates a potentially hazardous situation which, if not avoided,
	may result in minor or moderate injury, or may result in serious
	injury or death. Additionally there may be significant property
	damage.
<b>∧</b> Caution	Indicates a potentially hazardous situation which, if not avoided,
	may result in minor or moderate injury or property damage.

### Precautions for Correct Use

Precautions on what to do and what not to do to ensure proper operation and performance.

### Additional Information

Additional information to read as required.

This information is provided to increase understanding or make operation easier.

### Symbol



The filled circle symbol indicates operations that you must do. The specific operation is shown in the circle and explained in the text. This example shows a general precaution for something that you must do.

# 4. Overview

This document describes the procedures for connecting ZP-series EtherNet/IP Communication Unit (hereinafter referred to as Communication Unit) to NJ/NX Series Machine Automation Controller (hereinafter referred to as Controller) via EtherNet/IP, both produced by OMRON Corporation (hereinafter referred to as OMRON), and for checking their connections. Refer to Section 6. EtherNet/IP Settings and Section 7. EtherNet/IP Connection Procedure to understand setting methods and key points to operate EtherNet/IP tag data links.

# 5. Applicable Devices and Device Configuration

### 5.1. Applicable Devices

The applicable devices are as follows:

Manufacturer	Name	Model
OMRON	NJ/NX-series CPU Unit	NX701-□□□
		NX502-□□□
		NX102-□□□
		NX1P2-□□□
		NJ501-□□□
		NJ301-□□□
		NJ101-□□□
OMRON	ZP-series EtherNet/IP	ZP-EIP
	Communication Unit	

### Precautions for Correct Use

In this document, the devices with models and versions listed in *5.2. Device Configuration* are used as examples of applicable devices to describe the procedures for connecting the devices and checking their connections.

You cannot use devices with versions lower than the versions listed in 5.2.

To use the above devices with models not listed in *5.2.* or versions higher than those listed in *5.2.*, check the differences in the specifications by referring to the manuals before operating the devices.



### **Additional Information**

This document describes the procedures for establishing the network connections. It does not provide information on operation, installation, wiring method, device functionality, or device operation, which is not related to the connection procedures. Refer to the manuals or contact your OMRON representative.

### 5.2. Device Configuration

The hardware components to reproduce the connection procedures in this document are as follows:



Manufacturer	Name	Model	Version
OMRON	NX-series CPU Unit	NX102-1100	Ver. 1.48
	(Built-in EtherNet/IP port)		
OMRON	Switching hub	W4S1-05D	Ver. 1.0
-	24 VDC power supply	-	
	(for Switching hub)		
OMRON	Sysmac Studio	SYSMAC-	Ver. 1.54
		SE2	
-	Personal computer (OS: Windows 11)	-	
-	LAN cable (STP (shielded, twisted-pair)	-	
	cable of Ethernet category 5 or higher)		
OMRON	EtherNetIP Communication Unit	ZP-EIP	Ver. 1000
OMRON	Sensor Head	ZP-LS□	
OMRON	Amplifier Unit	ZP-L3	
OMRON	10 to 30 VDC power supply (for Sensor	S8VK-S	
	Head/Amplifier Unit/Communication	S8VK-GDDDDD	
	Unit)		

### Precautions for Correct Use

Update Sysmac Studio to the version specified in this section or to a higher version. If you use a version higher than the one specified, the procedures and related screenshots described in *Section 7.* and subsequent sections may not be applicable. In that case, use the equivalent procedures described in this document by referring to the *Sysmac Studio Version 1 Operation Manual* (Cat. No. W504).

### Additional Information

For specifications of 24 VDC power supply available for Switching hub, refer to the *Ethernet Switching Hub W4S1-series User's Manual* (Cat. No. 0969584-7).



# Additional Information

For specifications of 24 VDC power supply available for Sensor Head/Amplifier Unit/Communication Unit, refer to the Laser Displacement Sensor ZP series User's Manual (Cat. No. Z495).

# 6. EtherNet/IP Settings

This section describes the setting contents of parameters, global variables, tag sets, and tag data link table that are all defined in this document.

### 6.1. Parameters

The parameters that are set in this document are shown below.

### 6.1.1. Communication Settings of Personal Computer

The settings are configured using Ethernet communications with Personal Computer for settings. The parameters required for connecting Personal computer for setting and ZP-EIP using Ethernet communications are shown below.

Item	Personal computer for setting	ZP-EIP	
IP address	192.168.250.100	192.168.250.1 (Default)	
Subnet mask	255.255.255.0	255.255.255.0	

### 6.1.2. EtherNet/IP Communications Settings

The parameters required for connecting Communication Unit via EtherNet/IP are shown below.

Item	Controller	ZP-EIP	Remarks
IP address	192.168.250.2	192.168.250.1	Using Sysmac Studio.
		(Default)	
Subnet mask	255.255.255.0	255.255.255.0	Using Sysmac Studio.

# 6.2. Data Types to Use for Tag Data Links

The following data types are used for tag data links to communicate with the counterpart device.

Defining a data type for signal access (Union)

Data type to access control signals and status signals

Data type name	Data type
EIP_Flg	UNION
F	BOOL[16]
W	WORD

Defining a data type for command area access (Structure)

Data type to access the command area

Data type name		Data type	Counterpart device data
STRUCT EIPOUTPUT		STRUCT	-
	REQUEST_INPUT00	EIP_Flg	External input 1
	REQUEST_INPUT01	EIP_Flg	External input 2
	REQUEST_INPUT02	EIP_Flg	External input 3
	REQUEST_INPUT03	EIP_Flg	External input 4
	RESERVE_OUT00	BOOL[16]	Reserved
	RESERVE_OUT01	BOOL[16]	Reserved
	CONTROL_INPUT	EIP_Flg	Control input
	CMD_DATA	BYTE[10]	Command input

ata type to access the response and output areas				
Data type name	Data type	Counterpart device data		
STRUCT_EIPINPUT	STRUCT	-		
UNIT_STATUS	EIP_Flg	Communication Unit Status		
ERROR_STATUS	EIP_Flg	Sensor Error Status		
WARNING_STATUS	EIP_Flg	Sensor Warning Status		
RESERVE_OUT00	BOOL[16]	Reserved		
RESERVE_OUT01	BOOL[16]	Reserved		
ENABLE_STATUS	EIP_Flg	Enable Status		
RESERVE_OUT02	BOOL[16]	Reserved		
RESERVE_OUT03	BOOL[16]	Reserved		
RESERVE_OUT04	BOOL[16]	Reserved		
HIGH_STATUS	EIP_Flg	HIGH Status		
LOW_STATUS	EIP_Flg	LOW Status		
PASS_STATUS	EIP_Flg	PASS Status		
RESERVE_OUT05	BOOL[16]	Reserved		
RESERVE_OUT06	BOOL[16]	Reserved		
SIGNAL_STATUS00	EIP_Flg	Laser OFF		
SIGNAL_STATUS01	EIP_Flg	Zero Reset		
SIGNAL_STATUS02	EIP_Flg	Timing/Bank A		
SIGNAL_STATUS03	EIP_Flg	Reset/Bank B		
SIGNAL_STATUS04	EIP_Flg	Sensor Busy Status		
RESERVE_OUT07	BOOL[16]	Reserved		
RESERVE_OUT08	BOOL[16]	Reserved		
RESERVE_OUT09	BOOL[16]	Reserved		
RESERVE_OUT10	BOOL[16]	Reserved		
RESERVE_OUT11	BOOL[16]	Reserved		
OUT_DATA	DINT[20]	Output Data		
TIME_DATA	WORD[4]	Time Stamp		
CONDITION_MONITOR	DINT[16]	Channel number for operation		
		status monitoring		
RESERVE_OUT12	DINT[16]	Reserved (for operation status		
CMD	BYTE[12]	Command Response		

Defining a data type for response and output area access (Structure)

### Data type to access the response and output areas

### Additional Information

With Sysmac Studio, two methods can be used to specify an array for a data type. After specifying, (1) is converted to (2), and the data type is always displayed as (2).

(1) BOOL[16] / (2) ARRAY[0..15] OF BOOL

In this document, the data type is simplified by displaying BOOL[16].

(The example above means a BOOL data type with sixteen array elements.)

### 6.3. Global Variables

The Controller treats the data in tag data links as global variables. The content of global variable settings is shown below.

■Output area (Controller to ZP-EIP)						
Variable		Data type	Data size			
	EIP_OUTPUT	STRUCT_EIPOUTPUT	24 bytes			

Counterpart device data	Variable name	Base type
External Input Request 1	EIP_OUTPUT.REQUEST_INPUT00.F *1	BOOL[16]
(Data type: EIP_Flag)	EIP_OUTPUT.REQUEST_INPUT00.W	WORD
External Input Request 2	EIP_OUTPUT.REQUEST_INPUT01.F *1	BOOL[16]
(Data type: EIP_Flag)	EIP_OUTPUT.REQUEST_INPUT01.W	WORD
External Input Request 3	EIP_OUTPUT.REQUEST_INPUT02.F *1	BOOL[16]
(Data type: EIP_Flag)	EIP_OUTPUT.REQUEST_INPUT02.W	WORD
External Input Request 4	EIP_OUTPUT.REQUEST_INPUT03.F *1	BOOL[16]
(Data type: EIP_Flag)	EIP_OUTPUT.REQUEST_INPUT03.W	WORD
Extended area 1	EIP_OUTPUT.RESERVE_OUT00	BOOL[16]
Extended area 2	EIP_OUTPUT.RESERVE_OUT01	BOOL[16]
Control input	EIP_OUTPUT.CONTROL_INPUT.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_OUTPUT.CONTROL_INPUT.W	WORD
Command input	EIP_OUTPUT.CMD_DATA *3	BYTE[10]

### \*1: Assignment of External Input Request

### Variable: EIP\_OUTPUT.REQUEST\_INPUT00.F

_	_			_				
	7	6	5	4	3	2	1	0
(	CH08	CH07	CH06	CH05	CH04	CH03	CH02	CH01
	15	14	13	12	11	10	9	8
(	CH16	CH15	CH14	CH13	CH12	CH11	CH10	CH09

### \*2: Assignment of Control input

### Variable: EIP\_OUTPUT.CONTROL\_INPUT.F

	7	6	5	4	3	2	1	0
								NWU Error Clear
	15	14	13	12	11	10	9	8
	Error Clear	Warning Clear						Command Exe
NWUErrorC	lear	: 0	Clear C	ommui	nicatior	n Unit E	Error	
CommandExe		: Execute Command						
WarningClear		: Clear Amplifier Warning						
ErrorClear	: Clear Amplifier Error							

■Input area (ZP-EIP to Controller)

<u> </u>	/			
Variable	Data type	Data size		
EIP_INPUT	STRUCT_EIPINPUT	276 bytes		

Counterpart device data	Variable name	Base type
Communication Unit Status	EIP_INPUT.UNIT_STATUS.F *1	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.UNIT_STATUS.W	WORD
Sensor Error Status	EIP_INPUT.ERROR_STATUS.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.ERROR_STATUS.W	WORD
Sensor Warning Status	EIP_INPUT.WARNING_STATUS.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.WARNING_STATUS.W	WORD
Reserved	EIP_INPUT.RESERVE_OUT00	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT01	BOOL[16]
Sensor Enable	EIPInput.CommandCodeEcho	DWORD
(Data type: EIP_Flag)	EIPInput.ResponseCode	UDINT
Reserved	EIP_INPUT.RESERVE_OUT02	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT03	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT04	BOOL[16]
Sensor Output 1 (HIGH)	EIP_INPUT.HIGH_STATUS.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.HIGH_STATUS.W	WORD
Sensor Output 2 (LOW)	EIP_INPUT.LOW_STATUS.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.LOW_STATUS.W	WORD
Sensor Output 3 (PASS)	EIP_INPUT.PASS_STATUS.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.PASS_STATUS.W	WORD
Reserved	EIP_INPUT.RESERVE_OUT05	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT06	BOOL[16]
External Input Status 1	EIP_INPUT.SIGNAL_STATUS00.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.SIGNAL_STATUS00.W	WORD
External Input Status 2	EIP_INPUT.SIGNAL_STATUS01.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.SIGNAL_STATUS01.W	WORD
External Input Status 3	EIP_INPUT.SIGNAL_STATUS02.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.SIGNAL_STATUS02.W	WORD
External Input Status 4	EIP_INPUT.SIGNAL_STATUS03.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.SIGNAL_STATUS03.W	WORD
Sensor Busy Status	EIP_INPUT.SIGNAL_STATUS04.F *2	BOOL[16]
(Data type: EIP_Flag)	EIP_INPUT.SIGNAL_STATUS04.W	WORD
Reserved	EIP_INPUT.RESERVE_OUT07	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT08	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT09	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT10	BOOL[16]
Reserved	EIP_INPUT.RESERVE_OUT11	BOOL[16]
Measurement Value	EIP_INPUT.OUT_DATA	DINT[20]
Time Stamp	EIP_INPUT.TIME_DATA	WORD[4]

Measured Real Value CH Data (RV value)	EIP_INPUT.CONDITION_MONITOR	DINT[16]
Reserved	EIP_INPUT.RESERVE_OUT12	DINT[16]
Command	EIP_INPUT.CMD *3	BYTE[12]

\*1: Assignment of Communication Unit Status

7	6	5	4	3	2	1	0
Input Ready Status			Communication Unit External Input IN1	Communication Unit External Input IN2			Communication Unit Error Status
15	14	13	12	11	10	9	8
Overall Error Status	Overall Warning Status		Communication Unit External Output OUT1	Communication Unit External Output OUT2			

### Variable: EIP INPUT.UNIT STATUS.F

\*2: Assignment of Sensor Status (Error/Warning), External Input Status, Sensor Output Status (ENABLE/BUSY/HIGH/LOW/PASS)

		—		—			
7	6	5	4	3	2	1	0
CH08	CH07	CH06	CH05	CH04	CH03	CH02	CH01
15	14	13	12	11	10	9	8
CH16	CH15	CH14	CH13	CH12	CH11	CH10	CH09

### Variable: EIP\_INPUT.ERROR\_STATUS.F

\*3: Assignment of Command

	Variable: EIP_INPUT. CMD							
7	6	5	4	3	2	1	0	
15	14	13	12	11	10	9	8	
							Command Flag	
23	22	21	20	19	18	17	16	
		R	esponse	Command	ł			
			24 t	o 71				
Response Data								
72 to 95								
Reserved								

### Additional Information

For details on command and response codes, refer to 4 Specifications of I/O Data of the ZPseries EtherNet/IP Communication Unit User's Manual (Cat. No. Z496).

### 6.4. Tag Sets

The content of tag set settings to operate tag data links is shown below. The data in the tag sets are assigned with the following OUT No. and IN No.

### ■Output area (Controller to ZP-EIP)

	Origi	Data size (byte)	
0	utput_132	24	
	OUT No.	Global variable name (tag name)	Data size (byte)
	1	EIP_OUTPUT	24

■Input area (ZP-EIP to Controller)

	Origi	Data size (byte)						
In	put_110	276						
	IN No.	Global variable name (tag name)	Data size (byte)					
	1	EIP_INPUT	276					

### 6.5. Tag Data Link Table

The content of tag data link table settings (connection settings) is shown below.

The values marked with red squares are taken from the values defined in the EDS file for ZP-EIP.

Connection Name	Connection I/O Type	RPI (ms)	Timeout Value
dofault 001	Consume Data		
	From/Produce Data To	1.0	NF1X 312

Connection I/O Type	Input / Output	Target Variable (ZP-EIP set value: instance number)	Size (Byte)	Originator Variable (Tag set name)	Size (Byte)	Connection Type
	Input	110	276	Input_110	56	Multi-cast connection
Full	Output	132	24	Output_132	24	Point to Point connection

### Precautions for Correct Use

The RPI and the timeout value are set to 1 ms and RPI x 512 respectively in this document. When you set connections, change them according to your usage environment.



# 7. EtherNet/IP Connection Procedure

This section describes the procedures for connecting ZP-series Communication Unit (ZP-EIP) on the EtherNet/IP network. The explanations of procedures for setting up ZP-EIP given in this document are based on the factory default settings. For the initialization, refer to *Section 8. Initialization Method*.

### 7.1. Work Flow



Take the following steps to operate tag data links by connecting ZP-EIP via EtherNet/IP.

### 7.2. ZP-EIP Setup

Set up ZP-EIP.

### 7.2.1. Hardware Settings

Set the hardware switches on ZP-EIP and connect the cable.

### Precautions for Correct Use

Make sure that the power supply is OFF when you set up.

![](_page_19_Figure_6.jpeg)

![](_page_20_Figure_0.jpeg)

### 7.2.2. Parameter Settings

Set the parameters for ZP-EIP.

The parameters are set using Sysmac Studio.

Install Sysmac Studio on Personal computer beforehand.

Since Personal computer and ZP-EIP are connected with LAN cables, set the IP address of Personal computer to *192.168.250.100*.

![](_page_20_Picture_6.jpeg)

### **Precautions for Correct Use**

The Parameters for ZP-EIP are checked using Ethernet communications with Personal computer.

Note that there may be some changes required for the Personal computer settings depending on the state of Personal computer.

**1** Turn ON ZP Amplifier Unit and Switching hub.

2 Set the IP address of your Personal computer to 192.168.250.100.

> \*The IP address can be changed in the following way.

Dialog box in (2)

IPv4 Connectivity:

IPv6 Connectivity:

Media State:

Details...

Duration:

Speed:

Activity

Bytes:

Properties

Dialog box in (3)

Ethernet Properties

Networking Connect using

•

•

✓

<

Install...

Dialog box in (4)

Obtain an IP address automat
 Ouse the following IP address:

IP address:

Subnet mask:

Default gateway:

Preferred DNS server:

Alternate DNS server:

Validate settings upon exit

Internet Protocol Version 4 (TCP/IPv4) Properties

Obtain DNS server address automatically
 Use the following DNS server addresses:

Description

General

Disable Diagno

Intel(R) 82579LM Gigabit Network Connection

Singlin for Princrosoft Networks
 Pile and Printer Sharing for Microsoft Networks
 Pylon GigE Vision Driver

OMRON SENTECH GigE Vision Driver

crosoft Network Adapter Multip

Uninstall

Transmission Control Protocol/Internet Protocol. The default

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

wide area network protocol that provides communication across diverse interconnected networks.

This connection uses the following items

 Image: Client for Microsoft Networks

OoS Packet Schedule

X

No network access

No network access

Enabled 00:03:51

/ed

850

Close

Configure..

Properties

Cancel

ОК

192 . 168 . 250 . 100

255 . 255 . 255 . 0

Advand

ОК

Cancel

×

100.0 Mbps

Ethernet Status

General

(1) Start Personal computer and log in using an administrator account. From the Windows Start menu, select Control Panel – Network and Sharing Center, and click Change Adapter Settings. Double-click Local Area Connection.

\*The procedure steps may be different depending on the environment settings of Personal computer.

- (2) The Local Area Connection Status Dialog Box is displayed. Click **Properties**.
- (3) The Local Area Connection Properties Dialog Box is displayed. Select Internet Protocol Version 4 (TCP/IPv4), and click
  Properties.
  \*The display differs depending on the configuration of Personal computer.
- (4) The Internet Protocol Version 4 (TCP/IPv4) Properties Dialog Box is displayed. Select Use the following IP address, and set the IP address to 192.168.250.100 and the subnet mask to 255.255.255.0. Click OK.
- (5) Click Close or OK to close all the displayed dialog boxes.
- **3** Start Network Configurator.

\*If a dialog box for confirming access rights is displayed at start, select the option to initiate the startup.

![](_page_21_Picture_10.jpeg)

4	A new project is displayed.	🗣 Untitled - Network Configurator – 🗆 X File Edit View Network Device EDS File Tools Option Help
		□ ☞ ■ = 토   夕   朱 永   ≫ ≫   ダ   ⊕   乂 № 歳 ×   № 話 蕭 甫   昀 钧
		EtherNet/IP_1
		GMRON Corporation     Burg Omron Microscan Systems Inc.
		😑 🧓 DeviceType 🗄 💑 Communications Adapter
		Generic Device
		Power Supply Device     Usage of Device Bandwidth     Usage of Device Bandwidth
		X Message Code Date Description
		Ready LiEtherNet/IP T:Unknown Intel(R) 82579LM Gigabit Network Connection 192.168.250.100 100M @ Off-line
5	Select Ethernet I/F from Select	Option Help
	Interface of Option	Select Interface CI2 USB/Serial Port
		Edit Configuration File
		Setup Monitor Refresh Timer Ethernet -> CS/CJ1 ETN-EIP Unit I/F
		NJ/NX/NY Series Ethernet Direct I/F
		Install Interface Module NJ/NX Series USB Port
•	Select Install of EDS File	EDS File Tools Ontion He
6	Select Install of LDS File.	EDS File Tools Option He
		S 🚰 Install
		<u>C</u> reate
	Install the EDS file downloaded	
		🏭 Install EDS File 🛛 🕹
	from HP.	
		Look in: 🧧 ZP-EIP_EDS 🛛 🗸 🎯 🤣 🔝 🗸
		Name Data medified T
		Name Date modified Ty
		ZP-EIP.eds 1/23/2024 10:02 AM EI
		< >>
		File name: ZP-EIP.eds Open
		Planethers First Dis Classification and Consult
		Files of type: Electronic Data Sheet(".eds)
		Device Information
		Vender OKPON Concerning
		Venuori: Omnon Corporation Device Tupe : Generic Device
		Product Name : ZP-FIP
		Bevision: 1.01
	The dialog hav on the right is	Network Configurator
8	The dialog box of the right is	
	displayed, Click Yes	
		Install the Icon of ZP-EIP?
		Yes No

Q	Select the <b>ZP-EIP</b> icon and click	💐 Install Icon ( ZP-EIP ) X
3	Open.	
		ZP-EIP.ico
		File name: ZP-EIP.ico Open
		Files of type: Icon File(*.ico)  Cancel
10	Check that ZP-EIP is installed in	
	the tree on the left.	🙀 Network Configurator
		Vendor OMRON Corporation Communications Adapter Generic Device FH Series FUV7 FQ Series FZ Series V680S-HMD63 V680S-HMD64 V680S-HMD66 V780-HMD68-EIP-JP V780-HMD68-EIP-JP ZV-7Series ZV-Series ZV-Series Power Supply Device Programmable Logic Controller
11	Select Connect of Network	Network Device EDS File Tools Option Help
		E Connect Ctrl+W E Disconnect Ctrl+O
12	The Select Interface Dialog Box	Select Interface ×
	is displayed. Select the interface	Please select the interface.
	to use and click <b>OK</b> .	ASDX AX88772 USB2.0 to Fast Ethernet Adapter #2 [192.168.250.10 V
		OK

13	The Select Connect Network	Select Connect Network Port
15	Port Dialog Box is displayed.	Select a network port that you would like to connect.
	Click <b>OK</b> .	
		Device Information Vendor ID : Product Name : Device Type : Revision : Refresh Option
		OK Cancel
14	The Select Connected Network Dialog Box is displayed. Click <b>OK</b> as it is.	Select Connected Network X Please select a network where the connected network was supported. Target Network O Create new network.
		Use the existing network.      EtherNet/IP_1      OK Cancel
15	If the online connection is established successfully, the indicated area will turn blue.	EtherNet/IP_1
16	Select <b>Upload</b> of Network.	Network       Device       EDS File       Tools       Option       Help         Image: Connect       Ctrl+W       Ctrl+Q       Image: Ctrl+Q
17	The dialog box on the right is displayed. Click <b>Yes</b> .	Vetwork Contrigurator X Uploading all devices parameters from network will start based on the current document. OK?
		If you select "No", it will start as new document.

18	The Target Device Dialog Box is displayed. Click <b>OK</b> . *Addresses to be displayed vary depending on the operating environment. Operate <b>Add</b> or <b>Edit</b> to display the address you want to connect to in the list.	Address       I 192.168.250.2       I 192.168.250.1         Add       Edit   Delete Off-line Device
19	Device parameter reading is executed, and when completed, the dialog box shown on the right is displayed. Click <b>OK</b> .	Network Configurator X  Network upload was completed.
20	On the network window after the upload, check that the IP addresses have been updated as follows: IP address of ZP-EIP: 192.168.250.1 IP address of PLC: 192.168.250.2	EtherNet/IP_1
21	Select the <b>Tag Sets</b> Tab Page in the Edit Device Parameters Dialog Box.	Edit Device Parameters : 192.168.250.2 NX102-1100         Vregister Device List         #       Product Name         @ 192.168.250.1       ZP-EIP         Connections : 0/32 (0 : 0, T : 0)         Register Device List         Product Name         192.168.250.2 NX102-1100 Variable         Target Variable         New         Edit         Delete       Edit.All         Orange Target Node ID         OK

22	Click Edit Tags.	Edit Device Parameters : 192.168.250.2 NX102-1100
		Connections Tag Sets
		In - Consume Out - Produce
		Name Fault Size Bit ID
		New Edit Delete Expand All Collapse All
		The Taxan Delate of second Tax Data and a second Tax Data of the
		Cox Tags Delete all of unused Tag Sets Usage Count : 0/32 import 10/10m me
		OK Cancel
-		
23	The Edit Tags Dialog Box is	Edit Tags ×
	displayed. Select the <b>In –</b>	In - Consume Out - Produce
		Name Fault Size Bit
	Consume Tab Page and click	
	New	
		New Edit Delete
		Usage count: 0/256 OK Cancel
24	The Edit Tag Dialog Box is	Edit Tag X
24		
	displayed. Enter the parameters	Name : LEP_INPUT
	as follows:	Size: 274 Bute
		Use Bit Data
	Name: EIP_INPUT	Bit Size : 0
	Size: 276 (Byte)	
		Fault Action
	After entering them, click	Regist Close
	Regist.	
25	The Edit Tag Dialog Box is	
23		Edit lag X
	displayed. Click <b>Close</b> .	
		Size : 276 Byte
		Use Bit Data
		Bit Size : 0
		Fault Action
		Regist

26	Select the <b>Out – Produce</b> Tab	Edit Tags ×
20	Page and click <b>New</b> .	In - Consume Out - Produce
	-	Name Fault Size Bit
		New Edit Delete
		Usage count : 1/256 OK Cancel
		E-B T V
27	The Edit Tag Dialog Box is	
	displayed. Enter the parameters	Name: EIP_OUTPUT
	as follows:	Size : 24 Byte
	Name: EIP_OUTPUT	Bit Size : D Bit
	Size: 24 (Byte)	Fault Action
	After entering them, click	Regist
	Regist.	
28	The Edit Tag Dialog Box is	Edit Tag X
	displayed. Click <b>Close</b> .	Name :
		Size : 24 💭 Byte
		Bit Size : 0 = Bit
		Fault Action
29	The dialog box on the right is	Network Configurator X
	displayed. Click <b>Yes</b> .	The new Tags will be registered as Tag sets.
		Yes No
30	The Edit Device Parameters	Edit Device Parameters : 192.168.250.2 NX102-1100
	Dialog Box is displayed.	Connections Tag Sets In - Consume Out - Produce
		Name         Foult         Size         Bit         ID           Witt EIP_INPUT         2768/ye         Auto
		New Edt Delete Espand Al Collapse Al
		Edit Taga
		OK Cancel

![](_page_28_Figure_0.jpeg)

![](_page_29_Figure_0.jpeg)

	If the dialog box abows on the	List of Device that are executing X
39	If the dialog box shown on the	The following devices are not in program mode.
	right is displayed, click	#         Product Name         Comment           Ø 192.168.250.2         N×102-1100
	Download after changed to	
	Program mode.	
		Download after changed to Program mode Download with Current mode Cancel
40	The dialog box shown on the	Network Configurator
TU	right is displayed. Click <b>Yes</b> .	Controller mode will be changed to Program mode. Please confirm that it doesn't influence by mode change. OR?
		Yes No
41	The tag data link parameters will	Resetting Device ( 192.168.250.2 )
	be downloaded from Network	
	Configurator to PLC.	Abort
42	The dialog box shown on the	Network Configurator
	right is displayed. Click <b>Yes</b> .	Controller's mode will be returned to the state before starting download. OK?
		Yes No
43	The dialog box shown on the	Network Configurator X
	right is displayed. Click <b>OK</b> .	Network download was completed.
		ОК

# 7.3. Controller Setup

Set up Controller.

## 7.3.1. IP Address Settings

Set the IP address of Controller.

1	Connect a LAN cable to the built-in EtherNet/IP port (PORT1) on Controller. As shown in <i>5.2. Device</i> <i>Configuration</i> , connect Personal computer and Switching hub to Controller.	Controller Switching Hub PC LAN Cable ZP-EIP
2	The Project Properties Dialog Box is displayed in Sysmac Studio. Select <i>Controller</i> from the pull-down list of Category in the Select Device Area. *In this document, New Project is used as the project name.	Offline       Import_         Import_       Project Nonerties         Import_       Project name         Import_       Project name
3	Select the device to use from the pull-down list of Device. *NX102-1100 is selected as an example of device in this document. Select an applicable version from the pull-down list of Version. *Although 1.48 is selected as an example in this document, select the version you actually use.	Project Project Project   Project name   New Project   Author   Author   Comment   Type   Standard Project     Image: Select Device   Category   Controller   Device   NX102   Version   1.48

	Click <b>Create</b>	
4		Offline       Import.         Import       Project Anna         Import       New Poper         Comment       Comment         Yersion Control       Sandard Project         Uterse       Import         Discrete       Type         Sandard Project       Import         Version Control       Import         Discrete       Import         Discrete <td< th=""></td<>
5	The New Project is displayed. The following panes are displayed in this window. Left: Multiview Explorer Top right: Toolbox Bottom right: Controller Status Pane Middle top: Edit Pane The following tabs are displayed in the bottom middle of this window. Output Tab Page Build Tab Page	Iter Edit Verw Insett Project Controller Smutation Tools Window Help         Ter Edit Verw Insett Project Controller Smutation Tools Window Help         Image: Controller Controler Controller Controller Controller Controller
6	Double-click <b>Built-in</b> <b>EtherNet/IP Port Settings</b> under <b>Configurations and</b> <b>Setup – Controller Setup</b> in the Multiview Explorer.	<ul> <li>Configurations and Setup</li> <li></li></ul>
7	The Built-in EtherNet/IP Port Settings Tab Page is displayed in the Edit Pane. Check that the following settings are made in the <i>IP Address</i> Field. IP address: 192.168.250.2 Subnet mask: 255.255.255.0	Image: Built-in EtherNet/IP Port S ×         Image: Description of the setting of

# 7.3.2. Target Device Registration

Register the target device.

4	Select EtherNet/IP Connection	Tools Window Help
•	Settings from the Tools Menu	Troubleshooting
		Event Log Viewer
		EtherCAT Diagnosis/Statistics Information Viewer
		Backup
		Export Global Variables
		Comments for Variables and Data Types (For switching)
		Export Program Hash Code
		Import ST Program
		IEC 61131-10 XML
		IEC 62714 AutomationML
		Import Motor sizing tool Results
		SYSMAC Gateway
		Update Configurations and Setup Transfer Data
		EtherNet/IP Connection Settings
2	The EtherNet/IP Device List Tab	
_	Page is displayed in the Edit	I = 0 mile the Cale will be AD Date of Cale and Devices 104 M
	Pana	I Node Address I Device Dat A I Description I
		Image: 192.168.250.2         Built-in EtherNet/IP Port Settings - Port 1         NX102-1100           Image: 192.168.251.1         Built-in EtherNet/IP Port Settings - Port 2         Edit         X102-1100
	Right-click and select <b>Edit</b> from	Monitor
	the menu while Built-in	
	EtherNet/IP Port Settings is	
	selected	
	The Duilt in EtherNet/ID Dout	
3	The Built-In Ethennet/IP Port	Built in EtherNet/IP Port S     Coblox     Control     Contro     Control     Cont
	Settings Connection Settings	
	Tab Page is displayed in the	
	Edit Pane.	
	Click the + Butten in the	
4		Toolbox
	Toolbox.	Target Device

# 5 Data fields of the target device registration are displayed. Toolbox Image: Coolbox Node address Image: Coolbox Model name Image: Coolbox Revision Image: Coolbox Enter 192.168.250.1 in the Toolbox

Node address Field.

Select the following values from the pull-down lists of Model name and Revision. Model name: **ZP-EIP** Revision: **1** 

If the above model name is not found in the Model name menu, click **Display EDS Library** in Connection, and install the EDS file.

![](_page_34_Picture_4.jpeg)

# Toolbox- INode address192.168.250.1Model name<br/>RevisionZP-EIP<br/>1IAddCancel

![](_page_34_Picture_6.jpeg)

6	Check the settings and click <b>Add</b> .	Toolbox <ul> <li></li></ul>
7	192.168.250.1 is registered in Target Device of the Toolbox.	Toolbox Target Device 192.168.250.1 ZP-EIP Rev1

### 7.3.3. Setting the Global Variables

Set the global variables to use for tag data links.

![](_page_36_Figure_2.jpeg)

5	In the same way as steps 3 and 4, enter the following data in the newly added row. • Name: <i>W</i> Base type: <i>WORD</i>	V EIP_FIg F W	I Base Type UNION ARRAY[015] OF BOOL WORD	Comment
6	Click the <b>Structures</b> Side Tab. Click on a space in the <i>Name</i> Column to enter a new data type.	Built-in EtherNet/IP Port S Et root Structures I Na Union Enumerated I Name	therNet/IP Device List me I dd Item. I Base Type I STRUCT N	Data Types X Base Type I Offset Type
	Enter STRUCT_EIPINPUT in the Name Column.	I Name	I Base Type I STRUCT N	Offset Type
7	After entering, right-click and select <b>Create New Member</b> from the menu.	I Name STRUCT_EIPINPUT	I Base Type STRUCT Create N Create N Cut	I Offset Type I NJ ew Data Type ew Member
8	Enter <i>UNIT_STATUS</i> in the <i>Name</i> Column.	I Name ▼ STRUCT_EIPINPUT UNIT_STATUS	I Base Type STRUCT COL	I Offset Type
	Enter <i>EIP_Flg</i> in the <i>Base Type</i> Column.	I         Name           ▼         STRUCT_EIPINPUT           UNIT_STATUS	I Base Type STRUCT EIP_FIg	I Offset Type I NJ

9	In the same way as steps 7 and		I Name	I	Base	е Туре				
J	8 enter the name and base type	•	STRUCT_EIPINPUT	STR	RUCT					
		_	UNIT_STATUS	EIP	_Flg					
	shown on the right in the newly	_		EIP	Fla		_			
	added member rows.	_	RESERVE OUT00	AR	_1.9 RAY[015	OF BOOL	-			
			RESERVE_OUT01	AR	RAY[015]	OF BOOL				
			ENABLE_STATUS	EIP	_Flg					
			RESERVE_OUT02	AR	RAY[015]	OF BOOL				
		_	RESERVE_OUT03	AR	RAY[015]	OF BOOL	_			
	*Enter each member following	_	RESERVE_OUT04		KAY[015	OF BOOL	_			
	the order described in 6.2.	_	LOW STATUS	EIP	Fla					
			PASS_STATUS	EIP	_Flg					
			RESERVE_OUT05	AR	RAY[015]	OF BOOL				
			RESERVE_OUT06	AR	RAY[015]	OF BOOL				
		_	SIGNAL_STATUS00	EIP	_Flg		_			
		_		FIP	Fla		_			
		_	SIGNAL STATUS03	EIP	_Flg					
			SIGNAL_STATUS04	EIP	_Flg					
			RESERVE_OUT07	AR	RAY[015]	OF BOOL				
			RESERVE_OUT08	AR	RAY[015]	OF BOOL				
		_	RESERVE_OUT09	AR	RAY[015]		_			
		_	RESERVE_OUT10		RAY[015]		_			
		_	OUT DATA	AR	RAY[019]	OF DINT				
			TIME_DATA	AR	RAY[03]	OF WORD				
			CONDITION_MONITOR	AR	RAY[015]	OF DINT				
			RESERVE_OUT012	AR	RAY[015]	OF DINT	_			
			CMD	AR	RAY[011	OFBAIF				
10	After entering, right-click and		Name	I	Base	Туре	Ι	Offse	t Type	1
10	After entering, right-click and select <b>Create New Data Type</b>	Þ	Name STRUCT_EIPINPUT	I STR	Base UCT	Туре		Offse	t Type	l
10	After entering, right-click and select <i>Create New Data Type</i>	Þ	I Name STRUCT_EIPINPUT	STR	Base UCT	Type Create	New Da	Offse ata Type	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu.	Þ	I Name STRUCT_EIPINPUT	STR	Base UCT	Type Create Create	I New Da	Offse ata Type ember	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu.		I Name STRUCT_EIPINPUT	STR	Base UCT	Type Create Create Cut	New Da	Offse ata Type ember	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in		I Name STRUCT_EIPINPUT Name	STR	Base UCT Base	Type Create Create Cut	New Da	Offse ata Type ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column.		STRUCT_EIPINPUT Name STRUCT_EIPINPUT		Base UCT Base UCT	Type Create Create Cut	New Da	Offse ata Type ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column.		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPOUTPUT	STR	Base UCT Base UCT UCT	Type Create Create Cut	I New Da New M	Offse ata Type ember Offse	et Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column.		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPINPUT	STR	Base UCT Base UCT UCT	Type Create Create Cut	I New Da New M I NJ NJ	Offse ata Type ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPOUTPUT I Name	STR	Base UCT Base UCT UCT	Type Create Create Cut Type Base Type	New Da New M	Offse ata Type ember Offse	t Type	
10 11	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPINPUT I Name STRUCT_EIPINPUT	STR	Base UCT Base UCT UCT I STRUCT	Type Create Create Cut Type Base Type	New Da New M New M	Offse ata Type ember Offse	t Type	
10 11	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPINPUT STRUCT_EIPINPUT STRUCT_EIPOUTPUT	STR	Base UCT Base UCT UCT I STRUCT STRUCT	Type Create Create Cut Type Base Type	New Da New M New M	Offse ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPINPUT STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT REQUEST_INPUT00	STR	Base UCT UCT UCT STRUCT STRUCT EIP_Flg	Type Create Cut Type Base Type	New Da New Ma New Ma	Offse ata Type ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows.		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT REQUEST_INPUT00 REQUEST_INPUT01	STR	Base UCT UCT UCT UCT STRUCT STRUCT EIP_FIg EIP_FIg	Type Create Create Cut Type Base Type	New Da New Ma New Ma NJ NJ	Offse ata Type ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows.		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPINPUT STRUCT_EIPOUTPUT REQUEST_INPUT00 REQUEST_INPUT02 PDECUEST_INPUT02		Base UCT UCT UCT STRUCT STRUCT EIP_FIg EIP_FIg EIP_FIg	Type Create Create Cut Type Base Type	New Da New Mi New Mi	Offse ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows.		Name STRUCT_EIPINPUT Name STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT REQUEST_INPUT00 REQUEST_INPUT01 REQUEST_INPUT02 REQUEST_INPUT03 PESERVIC QUITOD		Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg APPAVL	Type Create Create Cut Type Base Type	New Da New Da New Mi	Offse ata Type ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows.		Name STRUCT_EIPINPUT  Name STRUCT_EIPINPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  REQUEST_INPUT00 REQUEST_INPUT01 REQUEST_INPUT02 REQUEST_INPUT03 RESERVE_OUT00 RESERVE_OUT00 RESERVE_OUT01		Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY]	Type Create Cut Type Base Type		Offse ember Offse	t Type	
10	After entering, right-click and select <b>Create New Data Type</b> from the menu. Enter STRUCT_EIPOUTPUT in the Name Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows.		Name STRUCT_EIPINPUT  Name STRUCT_EIPINPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  REQUEST_INPUT00 REQUEST_INPUT01 REQUEST_INPUT02 REQUEST_INPUT03 RESERVE_OUT00 RESERVE_OUT00 RESERVE_OUT01 CONTROL_INPUT		Base UCT UCT UCT STRUCT STRUCT EIP_FIg EIP_FIg EIP_Fig EIP_Fig ARRAY[ ARRAY[ ARRAY]	Type Create Cut Type Base Type Cut Cut Cut Cut Cut Cut Cut Cut Cut Cut		Offse ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows.		Name STRUCT_EIPINPUT  STRUCT_EIPINPUT  STRUCT_EIPINPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  REQUEST_INPUT00  REQUEST_INPUT02  REQUEST_INPUT03  RESERVE_OUT01  CONTROL_INPUT  CMD_DATA		Base UCT UCT UCT STRUCT STRUCT EIP_FIg EIP_FIg EIP_FIg EIP_FIg ARRAY[ ARRAY] ARRAY[ ARRAY]	Type Create Cut Type Base Type 015] OF B 015] OF B	New Da New Da New Mi NJ NJ NJ SOOL SOOL	Offse ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in <i>6.2</i> .		Name         STRUCT_EIPINPUT         STRUCT_EIPINPUT         STRUCT_EIPOUTPUT         STRUCT_EIPOUTPUT         STRUCT_EIPOUTPUT         REQUEST_INPUT00         REQUEST_INPUT01         REQUEST_INPUT02         REQUEST_INPUT03         RESERVE_OUT00         RESERVE_OUT01         CONTROL_INPUT         CMD_DATA		Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY] ARRAY[	Type Create Cut Type Base Type 015] OF B 015] OF B 015] OF B	New Da New Da New Mi NJ NJ NJ SOOL SOOL	Offse ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in <i>6.2</i> . Double-click <b>Global Variables</b>		Name STRUCT_EIPINPUT  STRUCT_EIPINPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  REQUEST_INPUT00  REQUEST_INPUT01  REQUEST_INPUT02  REQUEST_INPUT03  RESERVE_OUT00  RESERVE_OUT00  RESERVE_OUT01  CONTROL_INPUT  CMD_DATA  Programming		Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY] ARRAY[ ARRAY]	Type Create Cut Type Base Type Cut Cut Cut Cut Cut Cut Cut Cut Cut Cut	New Da New Ma New Ma NJ NJ NJ SOOL	Offse ember Offse	t Type	
10	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in 6.2. Double-click Global Variables		Name STRUCT_EIPINPUT  Name STRUCT_EIPINPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  REQUEST_INPUT00 REQUEST_INPUT01 REQUEST_INPUT02 REQUEST_INPUT02 REQUEST_INPUT03 RESERVE_OUT00 RESERVE_OUT00 RESERVE_OUT01 CONTROL_INPUT CMD_DATA  Programming D In POLIs		Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY[ ARRAY]	Type Create Cut Type Base Type 015] OF B 015] OF B 015] OF B		Offse ember Offse	t Type	
10 11	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in 6.2. Double-click <b>Global Variables</b> under <b>Programming – Data</b> in		Name STRUCT_EIPINPUT  STRUCT_EIPINPUT  STRUCT_EIPINPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  REQUEST_INPUT00  REQUEST_INPUT02  REQUEST_INPUT03  RESERVE_OUT01  CONTROL_INPUT  CMD_DATA  Programming POUs		Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY] ARRAY[	Type Create Cut Type Base Type 015] OF B 015] OF B 015] OF B	New Da New Ma New Ma NJ NJ NJ NJ SOOL SOOL	Offse ember Offse	t Type	
10 11	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in 6.2. Double-click Global Variables under <b>Programming – Data</b> in the Multiview Explorer.		Name STRUCT_EIPINPUT STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT REQUEST_INPUT00 REQUEST_INPUT01 REQUEST_INPUT02 REQUEST_INPUT03 RESERVE_OUT01 CONTROL_INPUT CMD_DATA Programming POUS I Data		Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY]	Type Create Cut Type Base Type 015] OF B 015] OF B 09] OF BY	New Da New Ma New Ma NJ NJ NJ NJ Cool	Offse ember Offse	t Type	
10 11	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in 6.2. Double-click <b>Global Variables</b> under <b>Programming – Data</b> in the Multiview Explorer.		Name STRUCT_EIPINPUT STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT REQUEST_INPUT00 REQUEST_INPUT01 REQUEST_INPUT02 REQUEST_INPUT03 RESERVE_OUT01 CONTROL_INPUT CONTROL_INPUT CMD_DATA Programming Programming Data L PData L Data Type	es	Base UCT UCT UCT STRUCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY] ARRAY[	Type Create Cut Type Base Type 015] OF B 015] OF B 015] OF B	New Da New Ma New Ma NJ NJ NJ NJ Cool Cool TE	Offse ember Offse	t Type	
10 11	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in 6.2. Double-click Global Variables under <b>Programming – Data</b> in the Multiview Explorer.		Name STRUCT_EIPINPUT  STRUCT_EIPINPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  STRUCT_EIPOUTPUT  REQUEST_INPUT00 REQUEST_INPUT01 REQUEST_INPUT02 REQUEST_INPUT03 RESERVE_OUT01 RESERVE_OUT01 CONTROL_INPUT CONTROL_INPUT CMD_DATA  Programming  Programming POUs  Time Data L Time Data L Time Data Type	es ariables	Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY[ ARRAY]	Type Create Cut Type Base Type Cut 015] OF B 015] OF B 015] OF B	New Da New Ma Now Ma NJ NJ NJ SOOL SOOL	Offse ember Offse	t Type	
10 11	After entering, right-click and select <i>Create New Data Type</i> from the menu. Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Name</i> Column. In the same way as steps 7 and 8, enter the name and base type shown on the right in the newly added member rows. *Enter each member following the order described in 6.2. Double-click Global Variables under <b>Programming – Data</b> in the Multiview Explorer.		Name STRUCT_EIPINPUT STRUCT_EIPINPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT STRUCT_EIPOUTPUT REQUEST_INPUT00 REQUEST_INPUT02 REQUEST_INPUT02 REQUEST_INPUT03 RESERVE_OUT01 CONTROL_INPUT CONTROL_INPUT CONTROL_INPUT CMD_DATA Programming POUS Data L C Data Type L Imm Global Va	es ariables	Base UCT UCT UCT STRUCT STRUCT EIP_Flg EIP_Flg EIP_Flg EIP_Flg ARRAY[ ARRAY]	Type Create Cut Type Base Type 015] OF B 015] OF B 015] OF B	New Da New Ma Ny NJ NJ SOOL SOOL	Offse ember Offse	t Type	

13	The Global Variables Tab Page is displayed in the Edit Pane.	The Data Type     Global Variables       Group Filter     No group)       Name     Data Type       Name     Data Type       Initial Value     AT       Retain     Constant       Network Publish     Comment       Empty. Click here to add Item.
	Click on a space in the <i>Name</i> Column to enter a new variable.	Name Data Type Initial Value AT Retain Constant Network Publish Comment
	Enter <i>EIP_OUTPUT</i> in the <i>Name</i> Column.	Name         Data Type         Initial Value         AT         Retain         Constant         Network Publish         Comment           800L         Image: Constant         Do not publish         Image: Constant         Do not publish         Image: Constant         Name         Data Type         Initial Value         AT         Retain         Constant         Network Publish         Comment
	Enter <i>STRUCT_EIPOUTPUT</i> in the <i>Data Type</i> Column.	Name     Data Type     Initial Value     AT     Retain     Constant     Network Publish     Comment       EIP_OUTPUT     STRUCT_EIPOUTPUT     Image: Constant     Do not publish     V
	Select <i>Output</i> from the pull- down list of Network Publish.	Name         Data Type         Initial Value         AT         Retain         Constant         Network Publish         Comment           W         EIP_OUTPUT         Image: Constant
14	After entering, right-click and select <i>Create New</i> from the menu.	Name         Data Type         Initial Value         AT         Retain         Constant         Network Publish         Comment           Image: BLP_OUTPUT         STRUCT_EIPOUTPUT         Image: Output
15	In the same way as step 13, enter the following data in the newly added row. • Name: <i>EIP_INPUT</i> Data type: <i>STRUCT_EIPINPUT</i> Network Publish: <i>Input</i>	Name Data Type Initial Value AT Retain Constant Network Publish Comment III Output STRUCT EIPOUTPUT Output III Output IIII Output IIII Output IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
16	Double-click <b>Task Settings</b> under <b>Configurations and</b> <b>Setup</b> in the Multiview Explorer. The Task Settings Tab Page is displayed in the Edit Pane. Click <b>VAR</b> .	Multiview Explorer  Multiv

![](_page_40_Figure_0.jpeg)

### 7.3.4. Tag Registration

Register the tags and the tag sets.

![](_page_41_Figure_2.jpeg)

5	Select <b>Output</b> Tab. Right-click any open space on the Output Tab Page and select <b>Create New Tag Set</b> from the menu.	Input Output I Tag Set Name   Bit Selection   Size (Byte)   Size (Bit)   Create New Tag Set Create New Tag Cut
6	A new name can be entered in the Tag Set Name Column. In the same way as step 3, enter Output_132.	Input Output I Tag Set Name   Bit Selection   Size (Byte)   Size (Bit) Output_132 0
7	In the same way as step 4, set the global variable of OUT No. 1 as a tag, which is listed in <i>6.4.</i> <i>Tag Sets</i> .	Input     Output       I     Tag Set Name     I Bit Selection     I Size (Byte)     I Size (Bit)       ✓     Output_132     24     24       EIP_OUTPUT     24     0
8	Check that Tag Sets shows 2 and that the number of Tags shows the same as the number of the global variables you set.	▼ Tag Sets Tag Sets/Max: 2 / 32 Tags/Max 2 / 256

### 7.3.5. Setting the Connections

Set the target variables (that receive the open request) and the originator variables (that request for opening), and then set the connections (tag data link table).

![](_page_43_Figure_2.jpeg)

6	Click the entry cell for Input in	Input/Out	Target Variable	Size [Byte]	Originator Variable
	the <i>Target Variable</i> Column.	Input			
		Output			
	When you press Ctrl + Space				
	on the keyboard, an appropriate				
	instance number appears.	Input/Out	Target Variable	Size [Byte]	Originator Variable
		Input			
	*The instance number also	Output	110		
	appears even when the first				
	number "1" is entered.				
		Input/Out	t  Target Variable	Size [Byte]	Originator Variable
	Select the instance number.	Input	110	276	
		Output			
	Likewise, set the target variable	Input/Out	Target Variable	Size [Byte]	Originator Variable
	for Output.	Input	110	276	
		Output	132	24	
7	Click the entry cell for Input in	Input/Out	t  Target Variable	Size [Byte]	Originator Variable
	the Originator Variable Column.	Input	110	276	<u> </u>
	The pull-down list is displayed.	Output	132	24	Input_110
	Select the tag set name to use.				
		) Input/Ou	t  Target Variable	Size [Byte]	Originator Variable
	Likewise, set the originator	Input	110	276	Input_110 👻
	variable for Output.	Output	132	24	Output_132
8	Set the connection type, RPI	Originator	Variable   Size [Byte]	Connection Ty	/pe   RPI [ms]   Timeout Value
	[ms], and timeout value as	Input_110 Output_122	276	Multi-cast connectio	on 1 RPI x 512
	required.	Output_152	24		
	RPI: 1 ms Timeout Value: RP1 x 512				
0	Check that Connections shows		-+:	_	_
Э	2.	Conne	ctions/Mac: 2 ) 32	2	
		Tar	get Device	Connection Na	me

## 7.3.6. Transferring the Project Data

Connect online and transfer the connection settings and the project data to Controller.

When you transfer a user program, configuration data, setup data, device	
variables, or values in memory used for CJ/NX/NJ-series Units from Sysmac	
Studio, the devices or machines may perform unexpected operation regardless	
of the operating mode of CPU Unit.	
Always confirm safety at the destination node before you transfer the project	
data.	

	hub, and ZP-EIP.	
2	Select Check All Programs	Project Controller Simulation Tool
	from the Project Menu.	Check All Programs F7
3	The Build Tab Page is	Build
	displayed.	
	Check that "0 Errors" and "0	i i Description i Program i Location
	Warnings" are displayed.	
		Output
4	Select Rebuild Controller from	Project Controller Simulation Tool
	the Project Menu.	Check All Programs F7
		Check Selected Programs Shift+F7
		Build Controller F8
		Rebuild Controller
5	A confirmation dialog box is displayed. Check the contents and click <b>Yes</b> .	When you execute the Rebuild operation, all programs will be rebuilt. It may take time to complete the operation. Do you wish to continue?
6	Check that "0 Errors" and "0	Build
Ŭ	Warnings" are displayed on the	😧 0 Errors 👔 0 Warnings
	Build Tab Page.	i i Description i Program i Location
		Output Build
7	Select Communications Setup	Controller Simulation Tech Mitchen Hill
	from the Controller Menu.	Controller Simulation Tools Window Help
		Communications Setup

8	The Communications Setup Dialog Box is displayed. Check that the <i>Ethernet</i> <i>connection via a hub</i> Option is selected in Connection type, and that the IP address of the target PLC is input.	Communications Setup – – × Connection type Select a method to connect with the Controller to use every time you go online. Direct connection via Ethernet memote connection via a hub Direct connection via a hub Direct connection via USB Ethernet connection via USB Ethernet connection via a hub Direct connection via a hub Direct connection via use options at every online connection. Direct connection via USB Ethernet connection via a hub Communication via there Communication via there Communication via USB Direct connection via USB Direct
	Click <b>OK</b> .	Kemote IP Address      Specify the remote IP address.      192.168.2502      USB Communications Test     Test OK      Options     Confirm the serial ID when going online.     Check forced refreshing when going offline.     Response Monitor Time     Set the Response Monitor Time in the communications with the Controller.(1-3600sec) Please set a sufficiently large value when connecting to the Controller via multiple networks, such as VPN connection. 2     OK Cancel
9	Select <b>Online</b> from the Controller Menu. A confirmation dialog box is displayed. Check the contents	Controller Simulation Tools Window Help Communications Setup Change Device
	and click <b>Yes</b> . *The displayed dialog depends on the status of Controller. Check the contents and click on an appropriate button to proceed with the processing.	Online     Ctrl+W       Sysmac Studio       The CPU Unit has no name.       Do you want to write the project name [new_Controller_0] to the CPU Unit name? (Y/N)       Yes
10	When an online connection is established, a yellow bar is displayed under the toolbar.	File Edit View Insert Project Controller Simulation Tools Window Help X 圖 圖 ① C 個 回 巴 木 淼 區 眼 鼎 A O I 民 A A M Multiview Explorer Y The Data Types Med Global Variables Built-in EtherNet/IPection Se X

### Additional Information

For details on the online connections to Controller, refer to Section 6. Online Connections to a Controller of the Sysmac Studio Version 1 Operation Manual (Cat. No. W504).

11	Select Synchronize from the	Controller	Simulation	Tools	Window	Help
	Controller Menu.	Commun	ications Setup.			
		Change [	Device			
		Online			Ctr	+W
		Offline			Ctr	l+Shift+W
		Synchron	iize		Ctr	l+M
		Transfer				•

12	The Synchronization Dialog Box	
	is displayed.	Synchronization – – X
	Check that the data to transfer	Computer: Data Name Computer: Update Date Controller: Update Date Controller: Data Name Compare           V         P         NX102         2025/01/14 16:40:57         2025/01/08 13:54:32         NX102
	(NX102 in the right dialog box)	
	is selected.	
	Uncheck <i>Do not transfer the</i>	
	EtherNet/IP connection settings	
	(i.e., tag data link settings).	
	Click Transfer To Controller.	Legend: Synchronized I I III mouth A Exists only on one side I II Not checked
		Clear the present values of variables with Retain attribute (Valid for Transfer to Controller). Const transfer the POLI program course (Valid for Transfer to Controller) All data will be re-transferred when this option is changed
	*After executing Transfer To	<ul> <li>Do not tansfer the FOO program source (value on manufer to container), will data will be re-stansferred when this option is changed.</li> <li>Do not transfer the following. (All items are not transferred.)</li> <li>NX Unit application data on the CPU Rack and EtherCAT slave backup parameters.</li> </ul>
	Controller, the Sysmac Studio	- Unit operation settings and NX Unit application data on Slave Terminals.     Do not transfer the EtherNet/IP connection settings (i.e., tag data link settings).
	Controller, and the data is	<b>Q</b> All data will be transferred because the projects in the computer and the controller are different.
	compared.	
		Transfer To Controller Transfer From Controller Recompare Close
13	A confirmation dialog box is	Sysmac Studio
	displayed. Confirm that there is	Confirm that there is no problem if the controller operation is stopped. The operating mode will be changed to PROGRAM mode. Then, EtherCAT slaves will be reset and forced refreshing will
	no problem, and click <b>Yes</b> .	be cancelled. Are you sure that you want to execute the transfer?(Y/N)
		Ves No
	A screen stating	
	"Synchronizing" is displayed.	Synchronizing
		39%
		Cancel
	A confirmation dialog box is	Sysmac Studio
	displayed. Confirm that there is	
	no problem, and click <b>No</b> .	Confirm that there is no problem if the controller operation is started. The operating mode will be changed to RUN mode.
		Do you want to continue?(Y/N)
	DO NOT RETURN TO KUN MODE.	<u>Y</u> es <u>N</u> o

![](_page_48_Figure_0.jpeg)

### Precautions for Correct Use

[t] Data Typ	pes 🛛 💵 Global Variables	Built-in EtherNet/II	Pection Se	er Built-in	n EtherNet/IP Port S	🔻
<b>□</b> ⊷	∎ □ □ □ □ □ □ □ □	on				
	Connection		_			
- CD	Connections/Max: 2 /	32				
uto	Target Device	Connection Name	Connection I/O	Input/Out	Target Variable	Size [Byte
	192.168.250.1 ZP-EIP Rev	default_001	Full	Input	110	276
				Output	132	24
						>
	+ 0					
	Device Bandwidth	Display EDS	Library			
	Restart				Return All to	Default
	Tra	nsfer to Controller	Transfer from	Controller	Compare	:

If you change the connection settings (tag data link table) after performing the synchronization, the changed connection settings (tag data link table) are not transferred even when performing the synchronization again.

When you transfer the changed connection settings, click **Transfer to Controller** on the Built-in EtherNet/IP Port Settings Connection Settings Tab Page.

### 7.4. EtherNet/IP Communication Status Check

Confirm that the EtherNet/IP tag data links operate normally.

### 7.4.1. Checking the Connection Status

Check the connection status of the EtherNet/IP network.

![](_page_49_Figure_4.jpeg)

6	Select the <b>Status</b> Tab. When the same check boxes are selected as shown on the right, the tag data links are normally in operation.	Status       Connection Status       Tag Status       Output Tag Set       Input Tag Set       Ethernet Informati <ul> <li>Com. Controller Error</li> <li>IP Address Duplication Error</li> <li>Multiple Switches ON Error</li> <li>Online</li> </ul> IP Address Duplication Error <ul> <li>Data Link Status</li> <li>Verification Error</li> <li>All Tag Data Link Communications Status</li> <li>Tag Data Link Error</li> <li>Tag Data Link Communications Parameter</li> </ul> <ul> <li>Configuration Error Status</li> <li>Ethernet Link Status</li> <li>Ethernet Link Status</li> <li>Basic Ethernet Setting Logic Error</li> <li>BOOTP Server Error</li> </ul>
7	Select the <b>Connection Status</b> Tab. Check that a blue circle is displayed next to the applicable connection	IP Router Table Error       Number: Node number         Target Node Status       Blue: Connection normal         001       Status         Status       Connection Status         In Connection Status       Tag Status         Output Tag Set       Input Tag Set         Ethernet Information       Connection Name         In Type       Status         192.168.250.1 (#001) default_001       Out/In
	listed in the <i>Connection Name</i> Column. Check that the Status is 00:0000.	_
8	Select the <b>Tag Status</b> Tab. Check that all the tags in the <i>Tag</i> <i>Name</i> Column are displayed and that blue circles are displayed next to them. Check that the status of all tags is normally resolved	Status       Connection Status       Tag Status       Output Tag Set       Input Tag Set       Etherne         Tag Name       Input/Output       Input/Output       Status         EIP_INPUT       Input       Normally resolved         EIP_OUTPUT       Output       Normally resolved

### 7.4.2. Checking the Sent and Received Data

Check that the correct data are sent and received.

In this section, the measurement cycle Auto setting command is executed on the device variables in the output area to ZP-EIP, and the response data stored in the device variables in the input area from ZP-EIP is checked.

If you change the variable values on a sis online with CPU Unit, the devices concepted and the operating mode of CF Always ensure safety before you change and the operation of	Caution Watch Tab Page when Sysmac nnected to the output unit may o PU Unit. ge the variable values on a Watc	Studio operate ch Tab
Page when Sysmac Studio is online wi	th CPU Unit.	
<b>1</b> Select <i>Watch Tab Page</i> from the View Menu.	View Insert Project Controll Multiview Explorer Project Shortcut View	er Simulation Tools Alt+1 Alt+Shift+1
	Toolbox 3D Visualizer Output Tab Page Watch Tab Page	Alt+2 Alt+Shift+2 Alt+3 Alt+4
2 Select the Watch (Project)1 Tab.	Watch (Project)1         Device name       Name         new_Controller_0       Input Name         Output       Build         Watch (Project)1	• ₽ xalue   Modify   Comment
3 Enter the following INPUT variable names for monitoring. To enter a new name, click <i>Input Name</i> . EIP_INPUT.CMD[0] EIP_INPUT.CMD[1] EIP_INPUT.CMD[2] EIP_INPUT.CMD[3] EIP_INPUT.CMD[4] EIP_INPUT.CMD[5] EIP_INPUT.CMD[6] EIP_INPUT.CMD[7] EIP_INPUT.CMD[8]	Watch (Project)1  Device name new_Controller_0  Name EIP_INPUT.CMD[1] EIP_INPUT.CMD[2] EIP_INPUT.CMD[3] EIP_INPUT.CMD[4] EIP_INPUT.CMD[5] EIP_INPUT.CMD[6] EIP_INPUT.CMD[7] EIP_INPUT.CMD[8]	Name lame

4	Check that the display formats of the variables you set are <i>Hexadecimal</i> .	Wath (Project)1         Device name         Name         Online value         Modify         Comment         Data type         AT         Dirolar format           new_Controller_0         EIP/INPUT.CMD[0]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[0]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[0]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[2]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[3]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[3]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[6]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[6]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[8]         00         BYTE         Hexadecimal         T           new_Controller_0         EIP/INPUT.CMD[8]         00         BYTE         Hexadecimal         T
5	Enter the following OUTPUT variable names for monitoring. To enter a new name, click <i>Input</i> <i>Name</i> . EIP_OUTPUT.CONTROL_INPUT.F[8] EIP_OUTPUT.CMD_DATA[0] EIP_OUTPUT.CMD_DATA[1] EIP_OUTPUT.CMD_DATA[2] EIP_OUTPUT.CMD_DATA[3] EIP_OUTPUT.CMD_DATA[3] EIP_OUTPUT.CMD_DATA[4] EIP_OUTPUT.CMD_DATA[5] EIP_OUTPUT.CMD_DATA[6] EIP_OUTPUT.CMD_DATA[7] EIP_OUTPUT.CMD_DATA[8]	NameEIP_OUTPUT.CONTROL_INPUT.F[8]EIP_OUTPUT.CMD_DATA[0]EIP_OUTPUT.CMD_DATA[1]EIP_OUTPUT.CMD_DATA[2]EIP_OUTPUT.CMD_DATA[3]EIP_OUTPUT.CMD_DATA[4]EIP_OUTPUT.CMD_DATA[5]EIP_OUTPUT.CMD_DATA[6]EIP_OUTPUT.CMD_DATA[7]EIP_OUTPUT.CMD_DATA[8]
6	Check that the display formats of the variables you set are as shown in the figure.	Watch (Project)2         Device name         Name         Online value         Modify         Comment         Data type         AT         Display format           new_Controller_0         EIP_OUTPUT_CONTROL[NPUTE[8]         False         BYTE         Hexadecimal ▼           new_Controller_0         EIP_OUTPUT_CONTROL[NPUTE[8]         oo         BYTE         Hexadecimal ▼           new_Controller_0         EIP_OUTPUT_COND_DATA[2]         oo         BYTE         Hexadecimal ▼           new_Controller_0         EIP_OUTPUT_COND_DATA[3]         oo         BYTE         Hexadecimal ▼           new_Controller_0         EIP_OUTPUT_COND_DATA[5]         oo         BYTE         Hexadecimal ▼           new_Controller_0         EIP_OUTPUT_COND_DATA[6]         oo         BYTE         Hexadecimal ▼           new_Controller_0         EIP_OUTPUT_COND_DATA[6]         oo         BYTE         Hexadecimal ▼           new_Controller_0         EIP_OUTPUT_COND_ATA[6]
7	Enter 01 for <i>EIP_OUTPUT.CMD_DATA[0]</i> in the <i>Modify</i> Column. 01 is displayed for	NameOnline valueModifyEIP_OUTPUT.CONTROL_INPUT.F[8]FalseTRUEEIP_OUTPUT.CMD_DATA[0]0001EIP_OUTPUT.CMD_DATA[1]0000EIP_OUTPUT.CMD_DATA[2]0020
	<i>EIP_OUTPUT.CMD_DATA[0]</i> in the <i>Online value</i> Column. *The command code 01 (destination: ZP-EIP CH1) is set.	Name     Online value     Modify       EIP_OUTPUT.CONTROL_INPUT.F[8]     False     TRUE       FIP_OUTPUT.CMD_DATA[0]     01     01       EIP_OUTPUT.CMD_DATA[1]     00

8	In the same way as the above step,	Name	Online value Modify
	Set 2010		
		EIP_OUTPUT.CMD_DATA[1]	00
	Onine value Column.	EIP_OUTPUT.CMD_DATA[2]	00 20
	*The command 20 (measurement cycle Auto execution) is set.		1
		Name	Online value Modify
		EIP_OUTPUT.CONTROL_INPUT.F[8]	False TRUE FALSE
			01 01
		EIP OUTPUT.CMD DATA[2]	20 20
		ru [oon onemp]orm (c)	20
9	Check that the online value of		
	EIP_OUTPUT.CONTROL_INPUT.F	Name	Online value Modify
	[8] is False. Click <b>TRUE</b> for	EIP_OUTPUT.CONTROL_INPUT.F[8]	TRUE FALSE
	EIP_OUTPUT.CONTROL_INPUT.F	EIP_OUTPUT.CMD_DATA[0]	01 01
	[8] in the <i>Modify</i> Column.	EIP_OUTPUT.CMD_DATA[1]	00
		EIP_OUTPUT.CMD_DATA[2]	20 20
		_	
	True is displayed for		
	EIP_OUTPUT.CONTROL_INPUT.F	Name	Online value
	[8] in the Online value Column, and	EIP_INPUT.CMD[0]	00
	the command is executed.	EIP_INPUT.CMD[1]	01
	When the command execution is	EIP_INPUT.CMD[2]	20
	complete, the response is returned	EIP_INPUT.CMD[3]	00
	to EIP INPUT.CMD in the Online	EIP_INPUT.CMD[4]	03
	<i>value</i> Column.	EIP_INPUT.CMD[5]	00
		EIP_INPUT.CMD[6]	00
		EIP_INPUT.CMD[7]	00
		EIP_INPUT.CMD[8]	00
40	When the process ends, the online	Namo	
10	values of the response variables	EIP INPUT.CMDI01	
	are shown below	EIP INPUT.CMD[1]	01
	EIP INPUT.CMD[1]: 01	EIP INPUT.CMDI21	20
	(Command flag)	EIP INPUT.CMDI31	00
	EIP_INPUT.CMD[2]: 20	EIP INPUT.CMD[4]	03
	(Execution command code)	EIP INPUT.CMD[5]	00
	(Command execution result		00
	(00: OK, F1: Command error,		00
	F2: Status error,		00
	F3. Communications error, F4: Authentication error) is	EN_INFORCEMD[0]	
	reflected.)		
	EIP_INPUT.CMD[4]: 03		
	(03: Measurement cycle 1 ms)		

For details on commands, refer to 4-3 Tag Data Link Commands of the ZP-series EtherNet/IP Communication Unit User's Manual (Cat. No. Z496).

# 8. Initialization Method

The setting procedures in this document are based on the factory default settings. Some settings may not be applicable unless you use the devices with the factory default settings.

### 8.1. Initializing Controller

To initialize the Controller settings, it is necessary to initialize CPU Unit. Change the operating mode of Controller to PROGRAM mode and select *Clear All Memory* from the Controller Menu in Sysmac Studio. The Clear All Memory Dialog Box is displayed. Check the contents and click **OK**.

	S Clear All Memory - C ×				$\times$
 	- Clear All Memory				
	CPU Unit Name: Model:	new_Controller_0 NX102-1100			
	Area:	User Program User-defined Variables Controller Configurations and Setup Security Information Settings of Operation Authority (initializat NX Units on CPU Rack User account settings	tion at the	e next o	online)
<ul> <li>Clear event log</li> <li>Clearing the OPC UA server certificate and security profile.</li> <li>Erase the data completely</li> </ul>					
			OK	C	ancel

Fig. 1 example: Clear All Memory Dialog Box of NX102

### 8.2. Initializing Amplifier and ZP-EIP

For information on how to initialize ZP-EIP, refer to 5-4-2 List of Commands in Section 5 Additional Communication Unit Functions of the ZP-series EtherNet/IP Communication Unit User's Manual (Cat. No. Z496).

# 9. Revision History

Revision code	Date	Description of revision
01	February 2025	First edition

Note: Do not use this document to operate the Unit.

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