

Machine Automation Controller NJ-series

EtherNet/IP™


Connection Guide

WAGO Kontakttechnik

GmbH & Co. KG

WAGO - I/O - SYSTEM 750

ETHERNET Fieldbus Coupler



Network
Connection
Guide

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1. Related Manuals

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

The table below lists the manuals of WAGO Kontakttechnik GmbH&Co.KG (hereinafter referred to as WAGO) and OMRON Corporation (hereinafter referred to as OMRON) related to this document.

Manufacturer	Cat. No.	Model	Manual name
OMRON	W500	NJ501-□□□□ NJ301-□□□□	NJ-series CPU Unit Hardware User's Manual
OMRON	W501	NJ501-□□□□ NJ301-□□□□	NJ-series CPU Unit Software User's Manual
OMRON	W506	NJ501-□□□□ NJ301-□□□□	NJ Series CPU Unit Built-in EtherNet/IP™ Port User's Manual
OMRON	W504	SYSMAC-SE2 □□□	Sysmac Studio Version 1 Operation Manual
OMRON	0969584- 7	W4S1-05□ W4S1-03B	Switching Hub W4S1-series Users Manual
WAGO	-	750-352	WAGO-I/O-SYSTEM 750 ETHERNET Fieldbus Coupler 10/100 Mbit/s;digital and analog Signals
WAGO	-	750-852	WAGO-I/O-SYSTEM 750 ETHERNET ECO Controller 100Mbit, 2-Port
WAGO	-	750-881	WAGO-I/O-SYSTEM 750 Programmable Fieldbus Controller ETHERNET 10/100 Mbit/s;digital and analog Signals
WAGO	-	-	Scalable Industrial Ethernet Solutions

2. Terms and Definitions


Term	Explanation and Definition
Node	<p>Controllers and devices are connected to the EtherNet/IP network via the EtherNet/IP ports. The EtherNet/IP recognizes each EtherNet/IP port connected to the network as one node.</p> <p>When a device with two EtherNet/IP ports is connected to the EtherNet/IP network, the EtherNet/IP recognizes this device as two nodes.</p> <p>The EtherNet/IP achieves the communications between controllers or the communications between controllers and devices by exchanging data between these nodes connected to the network.</p>
Tag	<p>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 allocated to the memory area of each device.</p>
Tag Set	<p>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.</p>
Tag data link	<p>In the EtherNet/IP, the tag and tag set can be exchanged cyclically between nodes without using the user program. This standard feature on the EtherNet/IP is called a tag data link.</p>
Connection	<p>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.</p> <p>Specifying the tag set name (tag name) and specifying the instance number of Assembly Object are given as methods to specify the connection. In Sysmac Studio, the connection is set by specifying the instance number.</p>
Connection type	<p>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 multiple nodes. 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 multiple nodes.</p>


Term	Explanation and Definition
Originator and Target	<p>To perform tag data links, one node requests the opening of a communications line called a "connection".</p> <p>The node that requests to open the connection is called an "originator", and the node that receives the request is called a "target".</p> <p>Each data for communications is called an "originator variable" and a "target variable".</p> <p>In Sysmac Studio, the instance number is specified in the target variable.</p>
Tag data link parameter	<p>The tag data link parameter is the setting data to perform the tag data link. It includes the data to set tags, tag sets, and connections.</p>
EDS file	<p>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.</p>

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 safety circuit in order to ensure safety and minimize risks of abnormal occurrence.
- (2) To ensure system safety, make sure to always read and heed the information provided in all Safety Precautions and Precautions for Safe Use of 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 January 2015. It is subject to change without notice for improvement.

The following notation is used in this document.

 WARNING	Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.
--	--

 Caution	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.
--	---



Precautions for Safe Use

Precautions on what to do and what not to do to ensure safe usage of the product.



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 text. This example shows a general precaution for something that must do.

4. Overview

This document describes the procedure for connecting WAGO-I/O-SYSTEM 750 ETHERNET Fieldbus Coupler (hereinafter referred to as Fieldbus Coupler) of WAGO to NJ-series Machine Automation Controller (hereinafter referred to as the Controller) of OMRON, and the procedure to check their connection.

Refer to *Section 6. EtherNet/IP Settings* and *Section 7. EtherNet/IP Connection Procedure* to understand the setting method and key points to perform the tag data links for the EtherNet/IP.



Additional Information

Settings which are described in *Section 7.3. Setting up the Controller* are set in advance into the Sysmac Studio compact project file (hereinafter referred to as project file). Refer to *Section 9. Appendix Procedure Using the Project File* for usage method of the project file. Obtain the latest project file from OMRON.

Name	File name	Version
Sysmac Studio compact project file (Extension: csm2)	WAGO_750_EIP_EV100.csm2	Ver.1.00

5. Applicable Devices and Device Configuration

5.1. Applicable Devices

The applicable devices are as follows:

Manufacturer	Name	Model
OMRON	NJ-series CPU Unit	NJ501-□□□□ NJ301-□□□□
WAGO	WAGO-I/O-SYSTEM 750 ETHERNET Fieldbus Coupler	750-352
WAGO	WAGO-I/O-SYSTEM 750 ETHERNET ECO Controller	750-852
WAGO	WAGO-I/O-SYSTEM 750 Programmable Fieldbus Controller ETHERNET	750-881
WAGO	WAGO-I/O-SYSTEM 750 Modules	-



Precautions for Correct Use

As applicable devices above, the devices with the models and versions listed in *Section 5.2.* are actually used in this document to describe the procedure for connecting devices and checking the connection.

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

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



Additional Information

This document describes the procedure to establish the network connection. It does not provide information on operation, installation or wiring method which is not related to the connection procedure. It also does not describe the functionality or operation of the devices. Refer to the manuals or contact the device manufacturer.

(WAGO Kontakttechnik GmbH & Co. KG <http://global.wago.com/en/index-en.jsp>)

This URL is the latest address at the time of this document creation. Contact each device manufacturer for the latest information.

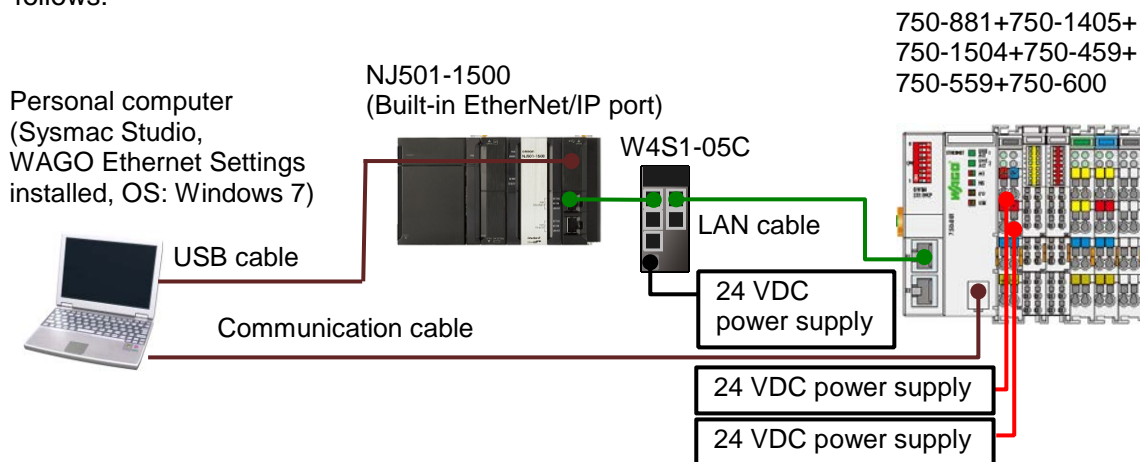


Additional Information

Contact the device manufacturer for modules connectable to the Fieldbus Coupler.

5.2. Device Configuration

The hardware components to reproduce the connection procedure of this document are as follows:



Manufacturer	Name	Model	Version
OMRON	NJ-series CPU Unit (Built-in EtherNet/IP port)	NJ501-1500	Ver.1.09
OMRON	Power Supply Unit	NJ-PA3001	
OMRON	Switching hub	W4S1-05C	Ver.1.00
-	24 VDC power supply (Switching hub)	-	
OMRON	Sysmac Studio	SYSMAC-SE2[] [] [] []	Ver.1.10
-	Personal computer (OS: Windows 7)	-	
-	USB cable (USB 2.0 type B connector)	-	
-	LAN cable (STP (shielded, twisted-pair) cable of Ethernet category 5 or higher)	-	
WAGO	Programmable Fieldbus Controller ETHERNET	750-881	Ver.1.1
WAGO	16-Channel Digital Input Module 24 V DC, High-side switching	750-1405	
WAGO	16-Channel Digital Output Module 24 V DC, High-side switching	750-1504	
WAGO	Fieldbus Independent I/O Modules 4AI DC 0-10 V, Single-Ended	750-459	
WAGO	Fieldbus Independent I/O Modules 4AO DC 0-10 V	750-559	
WAGO	End Module	750-600	
WAGO	EDS file	750-881_1_1.eds	Ver.1.0
WAGO	Communication cable	750-920	
WAGO	WAGO Ethernet Settings	759-316	Ver.5.3.2.6
-	24 VDC power supply (System supply for the Fieldbus Coupler)	-	
-	24 VDC power supply (Field supply).	-	



Precautions for Correct Use

Prepare the corresponding EDS file beforehand. The latest EDS file can be downloaded from the WAGO Kontakttechnik GmbH&Co.KG website.

WAGO Kontakttechnik GmbH & Co. KG

<http://global.wago.com/en/services/downloads/download-search/>

Contact WAGO Kontakttechnik GmbH&Co.KG if the file is not available.



Precautions for Correct Use

The EDS file for the Fieldbus Coupler differs depending on the model.

Use the EDS file according to the device that you use.

Fieldbus Coupler	EDS file
750-352	750-352_1_1.eds
750-852	750-852_1_1.eds
750-881	750-881_1_1.eds



Precautions for Correct Use

Update the Sysmac Studio to the version specified in this section or higher version using the auto update function.

If a version not specified in this section is used, the procedures described in *Section 7.* and subsequent sections may not be applicable. In that case, referring to the *Sysmac Studio Version 1 Operation Manual* (Cat. No. W504), use the equivalent procedures described in this document.



Additional Information

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



Additional Information

For specifications of the power supplies available for the 24 VDC power supply (System supply for the Fieldbus Coupler) and 24 VDC power supply (Field supply), refer to relevant manuals for each Fieldbus Coupler and each module.



Additional Information

The system configuration in this document uses USB for the connection to the Controller. For information on how to install a USB driver, refer to *A-1. Driver Installation for Direct USB Cable Connection* of the *Sysmac Studio Version 1 Operation Manual* (Cat. No. W504).

6. EtherNet/IP Settings

This section describes the specifications such as parameters, global variables, tag sets, and a tag data link table that are all defined in this document.

Hereinafter, the Fieldbus Coupler is referred to as the "Destination Device" in some descriptions.

6.1. Parameters

The parameters required for connecting the Controller and the Destination Device via EtherNet/IP are given below.

Items	Controller	Fieldbus Coupler
IP address	192.168.250.1	192.168.250.2
Subnet mask	255.255.255.0	255.255.255.0
Protocol	-	EtherNet/IP
RUN/IDLE Header	-	Originator to Target
Produced Assembly - Instance	-	101
Consumed Assembly - Instance	-	104

6.2. Global variable

The Controller accesses the data in tag data links as global variables.

6.2.1. Module Configurations of WAGO-I/O-SYSTEM

This section explains the module configurations that are used in this document.

■ Module Configurations and the Number of I/O Points

The number of I/O points to use in the WAGO-I/O-SYSTEM is determined by each module.

Type	Fieldbus Coupler	16 DI	16 DO	4 AI	4 AO	End
Model	750-881	750-1405	750-1504	750-459	750-559	750-600
OUT size	0 byte	0 byte	2 bytes	0 byte	8 bytes	0 byte
IN size	1 byte (ProcessState)	2 bytes	0 byte	8 bytes	0 byte	0 byte

■ Data Arrangement

IN/OUT data on the WAGO-I/O-SYSTEM is arranged in the following order.

- The digital data is appended after the analog data.
- IN/OUT data is allocated from the module data near the Fieldbus Coupler.
- The digital data is allocated from bit 0,, and 8 bits are occupied when the total of IN/OUT data is less than 8 bits.
- The status is allocated to the last byte of IN data.

Word Alignment	OUT data	IN data
+0 to +3	AO1 to AO4 (750-559)	AI1 to AI4 (750-459)
+4	DO1 to DO16 (750-1504)	DI1 to DI16 (750-1405)
+5	Not used	Not used ProcessState

6.2.2. Global variable

The following are the settings of the global variables.

Name	Data type	Network publish	Destination device allocation	Data size (byte)
EIP002_559_AO_OUT	WORD[4]	Output	AO1 to AO4 (750-559)	8
EIP002_1504_DO_OUT	WORD	Output	DO1 to DO16 (750-1504)	2
EIP002_459_AI_IN	WORD[4]	Input	AI1 to AI4 (750-459)	8
EIP002_1405_DI_IN	WORD	Input	DI1 to DI16 (750-1405)	2
EIP002_Status_IN	BYTE	Input	ProcessState Bit0: Internal bus error bit3: Module diagnostics bit7: Fieldbus error	1



Precautions for Correct Use

If the data size of tag data links for the Destination Device is an odd-numbered byte, use BYTE type to define, do not use BOOL type.



Additional Information

With the 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. Tag Sets

This section provides the detailed settings of the tag sets to execute the processing for the tag data links.

Data in the tag sets are allocated in ascending order of OUT No. and IN No. listed below.

■Output area (Controller to Fieldbus Coupler)

Originator variable (tag set name)		Data size (byte)
EIP002_OUT		10
OUT No.	Global variable name (tag name)	Data size (byte)
1	EIP002_559_AO_OUT	8
2	EIP002_1504_DO_OUT	2

■Input area (Fieldbus Coupler to Controller)

Originator variable (tag set name)		Data size (byte)
EIP002_IN		11
IN No.	Global variable name (tag name)	Data size (byte)
1	EIP002_459_AI_IN	8
2	EIP002_1405_DI_IN	2
3	EIP002_Status_IN	1

6.4. Tag Data Link Table

This section describes the detailed settings of the tag data link table (connection settings).

The values in a red frame are taken from the values in EDS file of the Destination Device.

Connection Name	Connection I/O type	RPI (ms)	Timeout value
default_001	class 1 - exclusive owner	50.0	RPI x 4

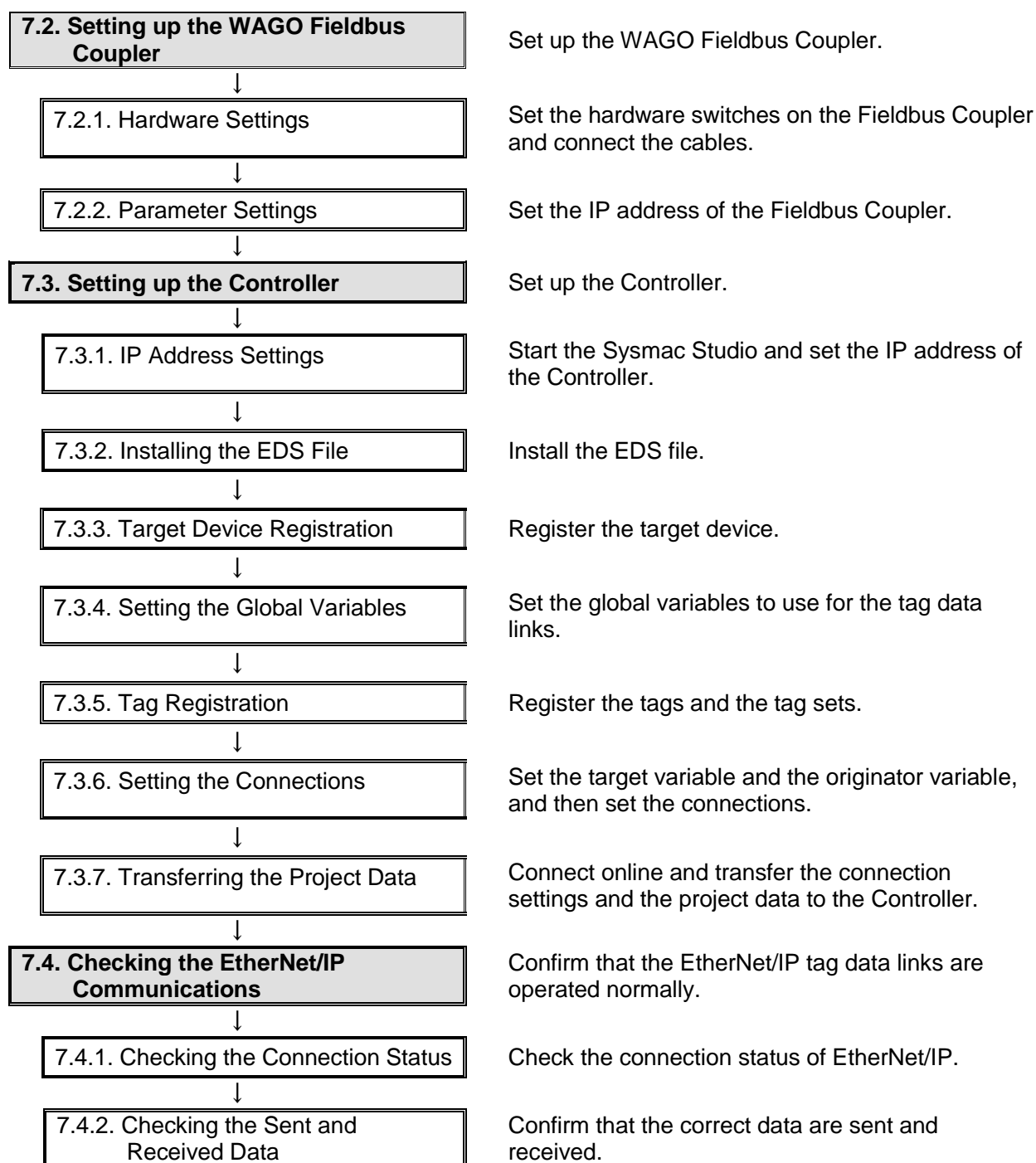
Connection I/O type	Input / Output	Target variable (Set value of Destination Device: instance number)	Size (byte)	Originator variable (tag set name)	Size (byte)	Connection type
class 1 - exclusive owner	Input	104	11	EIP002_IN	11	Multi-cast connection
	Output	101	10	EIP002_OUT	10	Point to Point connection

7. EtherNet/IP Connection Procedure

This section describes the procedure for connecting the Fieldbus Coupler and the Controller on the EtherNet/IP network. This document provides the explanation of the procedure for setting up the Controller and the Fieldbus Coupler based on the factory default setting. For the initialization, refer to *Section 8. Initialization Method*.

7.1. Work Flow

Take the following steps to set the tag data link for EtherNet/IP.



7.2. Setting up the WAGO Fieldbus Coupler

Set up the WAGO Fieldbus Coupler.

7.2.1. Hardware Settings

Set the hardware switches on the Fieldbus Coupler and connect the cables.



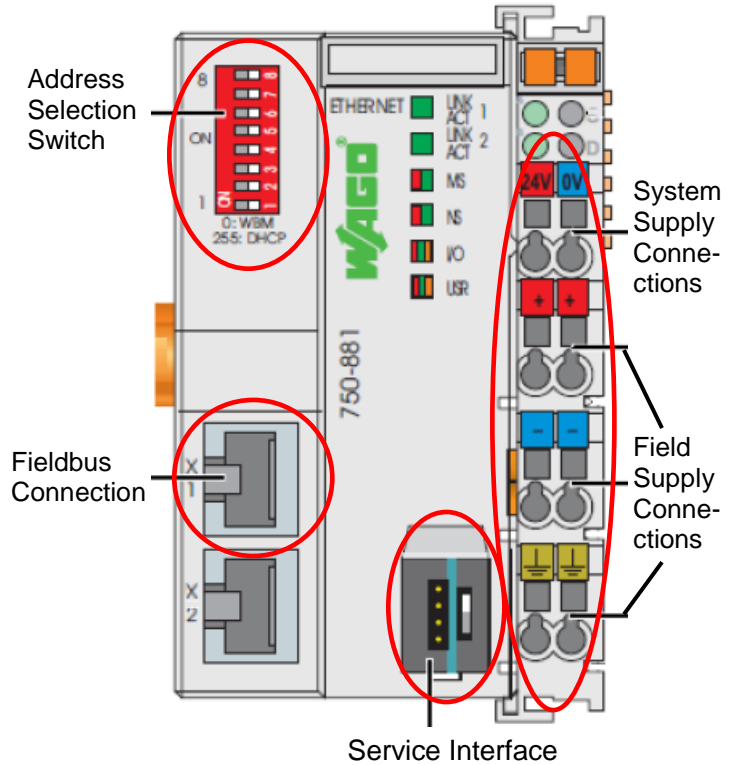
Precautions for Correct Use

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

- 1 Make sure that the power supply to the Fieldbus Coupler is OFF.

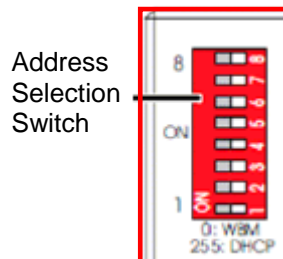
*If the power supply is turned ON, settings may not be applicable as described in the following procedures.

- 2 Check the position of the switches and the connectors by referring to the right figure.



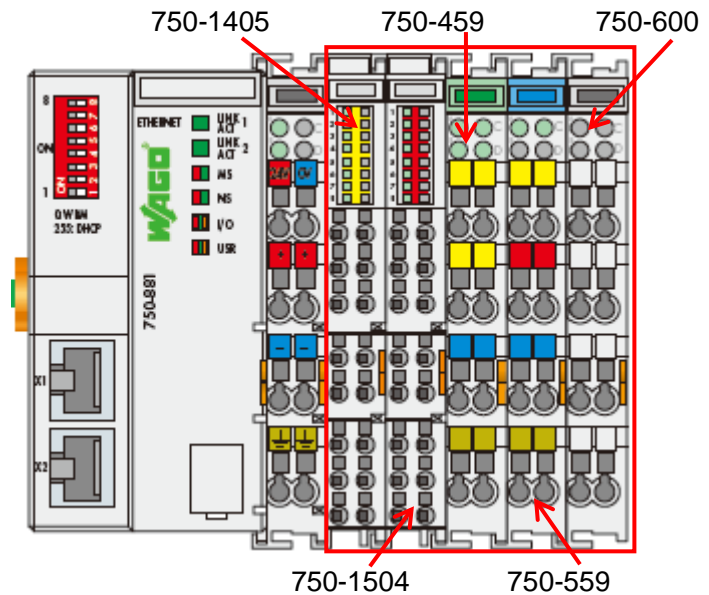
- 3 Set all the Address Selection Switches to OFF.

*Set the IP address by using the WAGO Ethernet Settings.



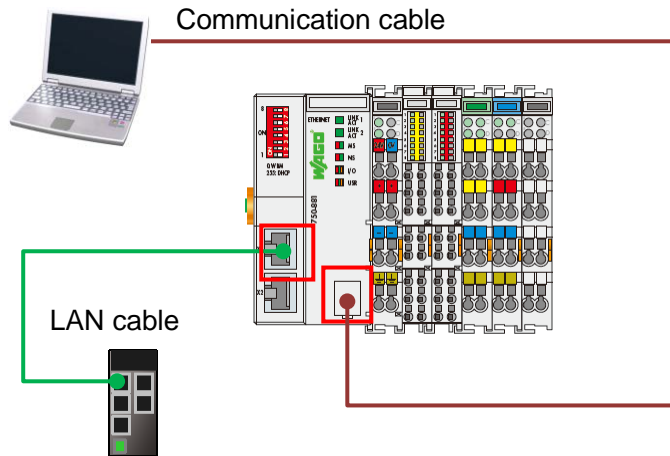
- 4 Connect the modules to the Fieldbus Coupler in the order of the following models as shown in the right figure.

750-1405
750-1504
750-459
750-559
750-600



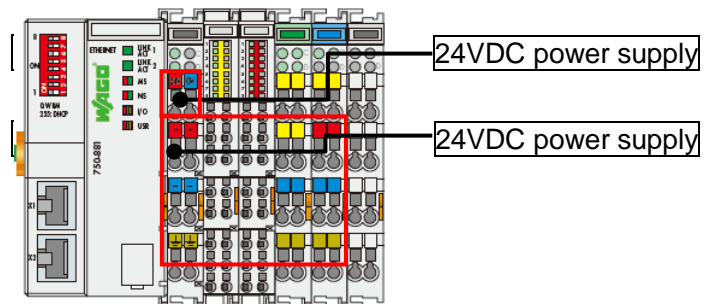
- 5 Connect the LAN cable to the Fieldbus Connection(X1) of the Fieldbus Coupler, and connect to the Switching hub.

Connect the Communication cable to the Service Interface of the Fieldbus Coupler, and connect to the Personal computer.

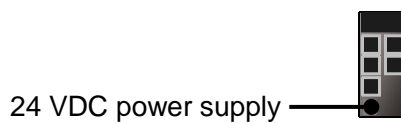


- 6 Connect the 24 VDC power supplies to the System Supply Connections and Field Supply Connections of the Fieldbus Coupler.

*For details on the power supply wiring, refer to the *WAGO-I/O-SYSTEM 750 Programmable Fieldbus Controller ETHERNET 10/100 Mbit/s; digital and analog Signals* and relevant manuals for each module.



- 7 Connect the 24 VDC power supply to the Switching hub.



7.2.2. Parameter Settings


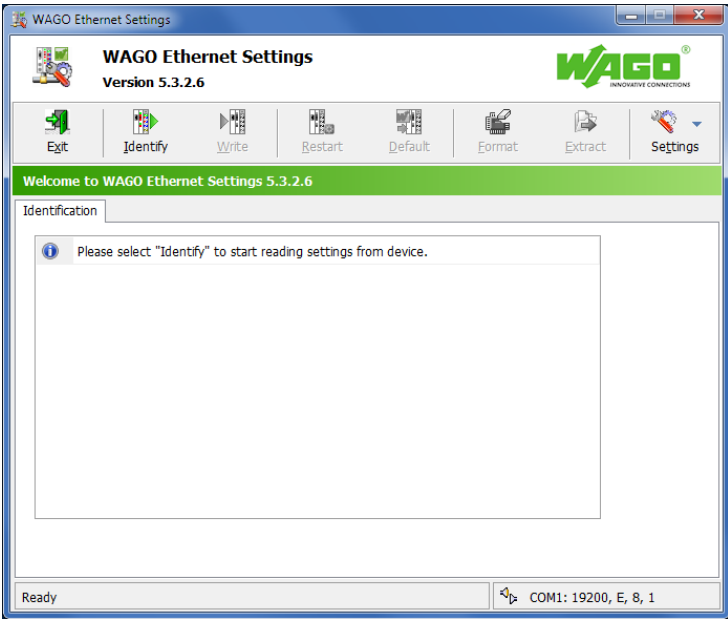
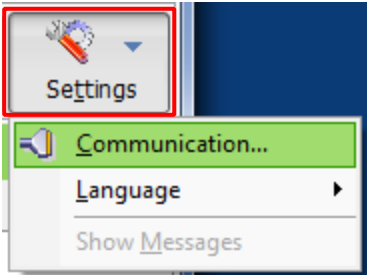
Set the IP address of the Fieldbus Coupler.

Parameters are set by WAGO Ethernet Settings. Install the software to the Personal computer beforehand.

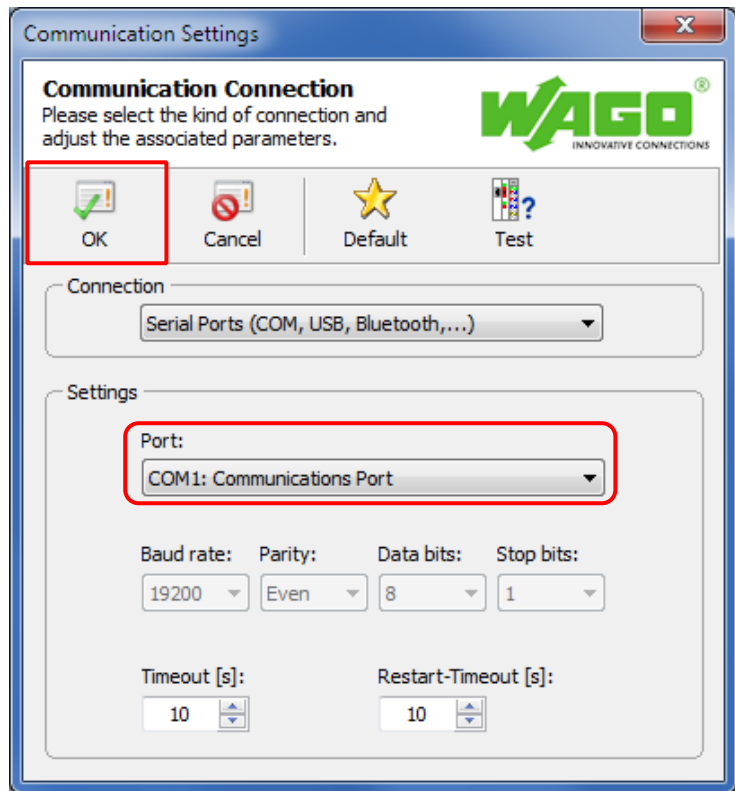


Additional Information

This document describes the procedure using the 750-881. The screens of WAGO Ethernet Settings described in this section are for 750-881. They differ from the screens for other Fieldbus Coupler. If using other Fieldbus Coupler, refer to the manuals for each Fieldbus Coupler by referring to this section.

1	Turn ON the power supply to the Fieldbus Coupler and Switching hub.	
2	Start the WAGO Ethernet Settings.	
3	An initial window of WAGO Ethernet Settings is displayed.	
4	Click the Settings Button and select Communication .	

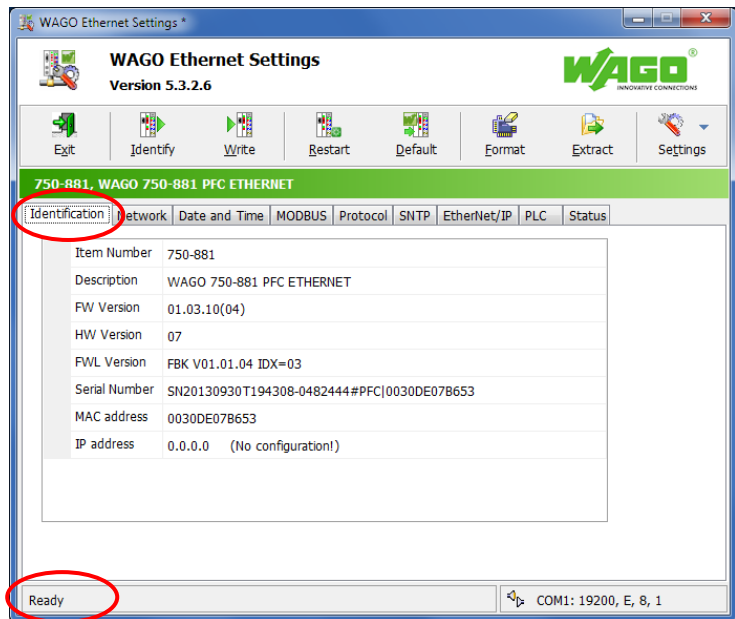
- 5 The Communication Settings Dialog Box is displayed. Check that the port number used is displayed for the Port in the *Settings* Field. Click the **OK** Button.



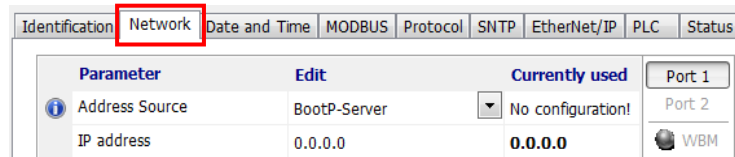
- 6 "Identifying connected device" appears, and the Fieldbus Coupler is connected.



- "Ready" appears. The information on the connected Fieldbus Coupler is displayed in the Identification Tab Page.

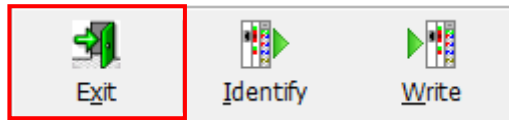


- 7 Select **Network** Tab.



8	Select Static Configuration from the pull-down list of Edit for the Address Source.	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Edit</th> <th>Currently used</th> </tr> </thead> <tbody> <tr> <td>Address Source</td> <td>BootP-Server</td> <td>No configuration!</td> </tr> <tr> <td>IP address</td> <td>BootP-Server</td> <td>0.0.0.0</td> </tr> <tr> <td>Subnet Mask</td> <td>DHCP-Server</td> <td>0.0.0.0</td> </tr> <tr> <td></td> <td>Static Configuration</td> <td></td> </tr> </tbody> </table>	Parameter	Edit	Currently used	Address Source	BootP-Server	No configuration!	IP address	BootP-Server	0.0.0.0	Subnet Mask	DHCP-Server	0.0.0.0		Static Configuration				
Parameter	Edit	Currently used																		
Address Source	BootP-Server	No configuration!																		
IP address	BootP-Server	0.0.0.0																		
Subnet Mask	DHCP-Server	0.0.0.0																		
	Static Configuration																			
9	Enter the following values in the <i>IP address</i> and the <i>Subnet Mask</i> Fields. IP address : 192.168.250.2 Subnet Mask : 255.255.255.0	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Edit</th> </tr> </thead> <tbody> <tr> <td>Address Source</td> <td>Static Configuration</td> </tr> <tr> <td>IP address</td> <td>192.168.250.2</td> </tr> <tr> <td>Subnet Mask</td> <td>255.255.255.0</td> </tr> </tbody> </table>	Parameter	Edit	Address Source	Static Configuration	IP address	192.168.250.2	Subnet Mask	255.255.255.0										
Parameter	Edit																			
Address Source	Static Configuration																			
IP address	192.168.250.2																			
Subnet Mask	255.255.255.0																			
10	Select Protocol Tab. Select the <i>Ethernet/IP (Port 2222/44818)</i> Check Box.	<table border="1"> <thead> <tr> <th>Identification</th> <th>Network</th> <th>Date and Time</th> <th>MODBUS</th> <th>Protocol</th> <th>SNTP</th> <th>EtherNet/IP</th> <th>PLC</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td colspan="9"> <input checked="" type="checkbox"/> Web Server HTTP-Port: 80 <input checked="" type="checkbox"/> Authentication Additional <input type="checkbox"/> FTP (Port 21) <input type="checkbox"/> Modbus TCP (Port 502) <input checked="" type="checkbox"/> Ethernet/IP (Port 2222/44818) <input type="checkbox"/> Modbus UDP (Port 502) <input type="checkbox"/> PLC (Port 2455) </td> </tr> </tbody> </table>	Identification	Network	Date and Time	MODBUS	Protocol	SNTP	EtherNet/IP	PLC	Status	<input checked="" type="checkbox"/> Web Server HTTP-Port: 80 <input checked="" type="checkbox"/> Authentication Additional <input type="checkbox"/> FTP (Port 21) <input type="checkbox"/> Modbus TCP (Port 502) <input checked="" type="checkbox"/> Ethernet/IP (Port 2222/44818) <input type="checkbox"/> Modbus UDP (Port 502) <input type="checkbox"/> PLC (Port 2455)								
Identification	Network	Date and Time	MODBUS	Protocol	SNTP	EtherNet/IP	PLC	Status												
<input checked="" type="checkbox"/> Web Server HTTP-Port: 80 <input checked="" type="checkbox"/> Authentication Additional <input type="checkbox"/> FTP (Port 21) <input type="checkbox"/> Modbus TCP (Port 502) <input checked="" type="checkbox"/> Ethernet/IP (Port 2222/44818) <input type="checkbox"/> Modbus UDP (Port 502) <input type="checkbox"/> PLC (Port 2455)																				
11	Select EtherNet/IP Tab. Check that the Originator to Target Check Box in the <i>RUN/IDLE Header</i> Field is selected. Check that 0 is displayed for both values enclosed in red in the <i>PFC Fieldbus Variables</i> Field.	<table border="1"> <thead> <tr> <th>Identification</th> <th>Network</th> <th>Date and Time</th> <th>MODBUS</th> <th>Protocol</th> <th>SNTP</th> <th>EtherNet/IP</th> <th>PLC</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td colspan="9"> RUN/IDLE Header <input checked="" type="checkbox"/> Originator to Target <input type="checkbox"/> Target to Originator PFC Fieldbus Variables <input checked="" type="text" value="0"/> Bytes of PLC InVar, in addition to Assembly Inst. 101-103, 113 <input checked="" type="text" value="0"/> Bytes of PLC OutVar, in addition to Assembly Inst. 104-109, 112 Bytes of PLC InVar, received via Assembly Inst 111 4 Bytes of PLC OutVar, sent via Assembly Inst 110 4 Byte Offset of PLC InVar, received via Assembly Inst 111 0 Byte Offset of PLC OutVar, sent via Assembly Inst 110 0 </td> </tr> </tbody> </table>	Identification	Network	Date and Time	MODBUS	Protocol	SNTP	EtherNet/IP	PLC	Status	RUN/IDLE Header <input checked="" type="checkbox"/> Originator to Target <input type="checkbox"/> Target to Originator PFC Fieldbus Variables <input checked="" type="text" value="0"/> Bytes of PLC InVar, in addition to Assembly Inst. 101-103, 113 <input checked="" type="text" value="0"/> Bytes of PLC OutVar, in addition to Assembly Inst. 104-109, 112 Bytes of PLC InVar, received via Assembly Inst 111 4 Bytes of PLC OutVar, sent via Assembly Inst 110 4 Byte Offset of PLC InVar, received via Assembly Inst 111 0 Byte Offset of PLC OutVar, sent via Assembly Inst 110 0								
Identification	Network	Date and Time	MODBUS	Protocol	SNTP	EtherNet/IP	PLC	Status												
RUN/IDLE Header <input checked="" type="checkbox"/> Originator to Target <input type="checkbox"/> Target to Originator PFC Fieldbus Variables <input checked="" type="text" value="0"/> Bytes of PLC InVar, in addition to Assembly Inst. 101-103, 113 <input checked="" type="text" value="0"/> Bytes of PLC OutVar, in addition to Assembly Inst. 104-109, 112 Bytes of PLC InVar, received via Assembly Inst 111 4 Bytes of PLC OutVar, sent via Assembly Inst 110 4 Byte Offset of PLC InVar, received via Assembly Inst 111 0 Byte Offset of PLC OutVar, sent via Assembly Inst 110 0																				
12	Click the Write Button.																			
13	"Enabling write access successfully" appears. When the writing process is completed, "Ready" appears.																			
14	Select Network Tab. Check that the values in the <i>Currently used</i> Column are the values set in steps 8 and 9.	<table border="1"> <thead> <tr> <th>Parameter</th> <th>Edit</th> <th>Currently used</th> </tr> </thead> <tbody> <tr> <td>Address Source</td> <td>Static Configuration</td> <td>Static Configura...</td> </tr> <tr> <td>IP address</td> <td>192.168.250.2</td> <td>192.168.250.2</td> </tr> <tr> <td>Subnet Mask</td> <td>255.255.255.0</td> <td>255.255.255.0</td> </tr> </tbody> </table>	Parameter	Edit	Currently used	Address Source	Static Configuration	Static Configura...	IP address	192.168.250.2	192.168.250.2	Subnet Mask	255.255.255.0	255.255.255.0						
Parameter	Edit	Currently used																		
Address Source	Static Configuration	Static Configura...																		
IP address	192.168.250.2	192.168.250.2																		
Subnet Mask	255.255.255.0	255.255.255.0																		

- 15 Click the **Exit** Button to exit the WAGO Ethernet Settings.



- 16 Turn OFF the power supply to the Fieldbus Coupler and the Switching hub.

- 17 Disconnect the Communication cable.

7.3. Setting up the Controller

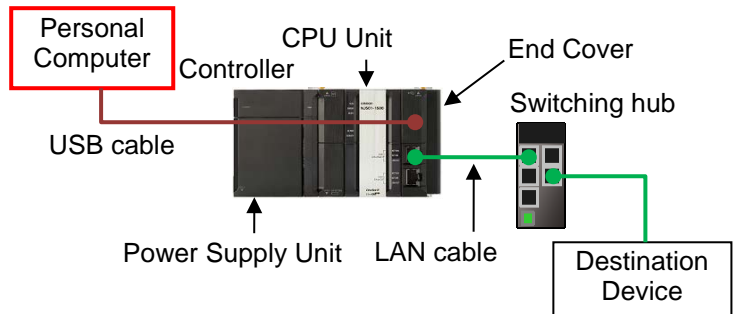
Set up the Controller.

7.3.1. IP Address Settings

Start the Sysmac Studio and set the IP address of the Controller.

Install the Sysmac Studio and USB driver in the Personal computer beforehand.

- 1 Connect the LAN cable to the Built-in EtherNet/IP port (PORT1) of the Controller, and connect the USB cable to the peripheral (USB) port. As shown in 5.2. *Device Configuration*, connect the Personal computer and the Switching hub to the Controller.

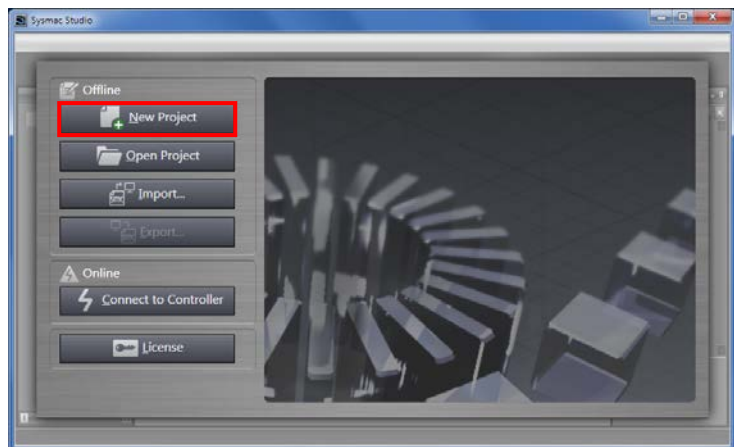


- 2 Start the Sysmac Studio.

*If a confirmation dialog for an access right is displayed at start, execute a selection to start.



- 3 Sysmac Studio starts. Click the **New Project** Button.



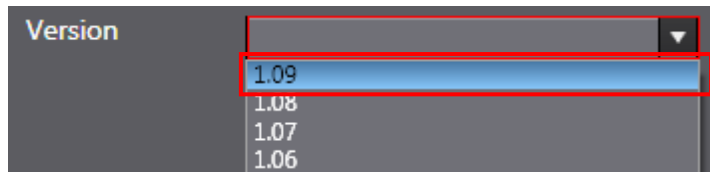
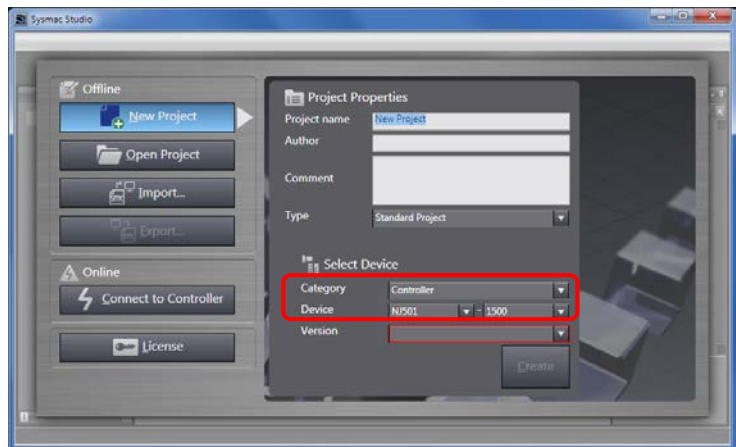
4 The Project Properties Window is displayed.

*In this document, New Project is used as the Project name.

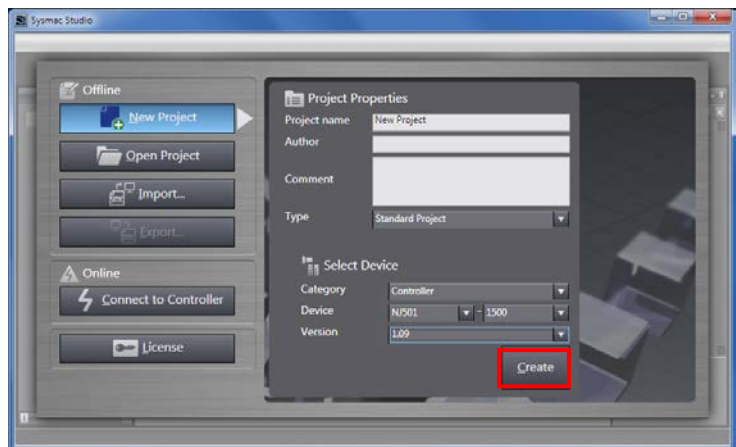
Confirm that the device used is shown in the Category and Device Fields of Select Device.

Select an applicable version from the pull-down list of Version.

* Although 1.09 is selected in this document for example, select the version actually used.



5 Click the **Create** Button.



6 The New Project is displayed.

The following panes are displayed in this window.

Left: Multiview Explorer

Top right: Toolbox

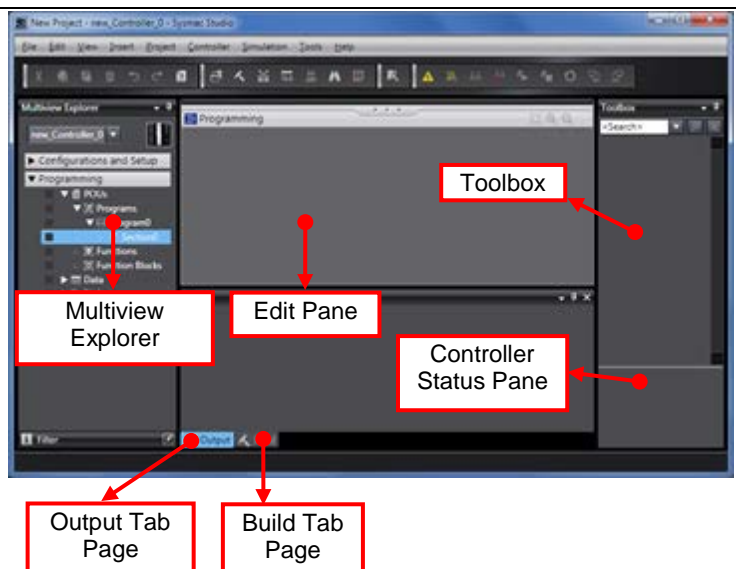
Bottom right: Controller Status Pane

Middle top: Edit Pane

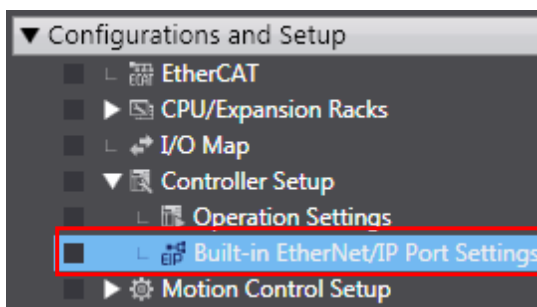
The following tab pages are displayed at the middle bottom of the window.

Output Tab Page

Build Tab Page

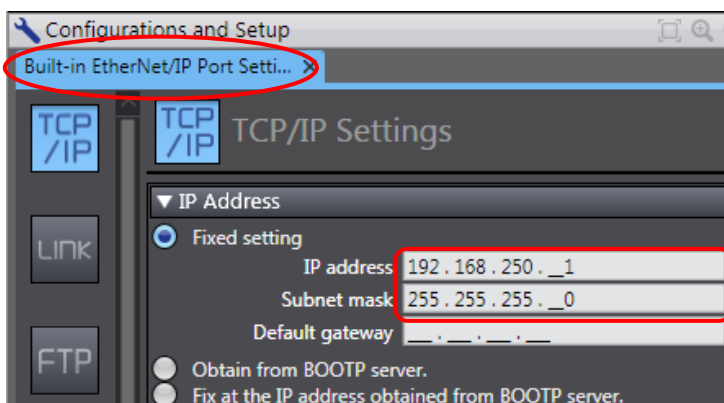


7 Double-click **Built-in EtherNet/IP Port Settings** under **Configurations and Setup - Controller Setup** in the Multiview Explorer.



8 The Built-in EtherNet/IP Port Settings Tab Page is displayed in the Edit Pane. Confirm that the following settings are made in the *IP Address* Field.

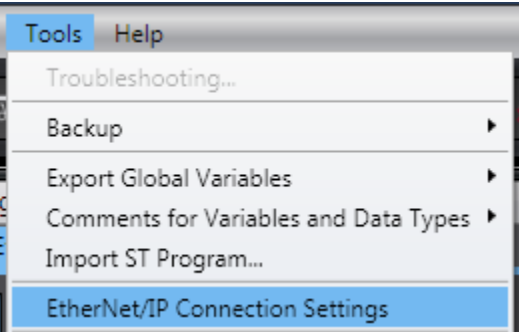
IP address: 192.168.250.1
Subnet mask: 255.255.255.0

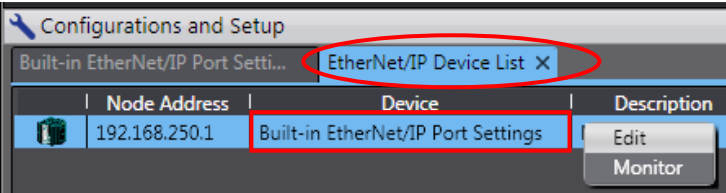


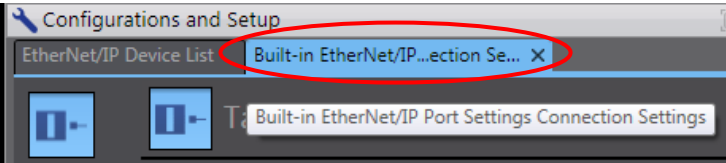
7.3.2. Installing the EDS File

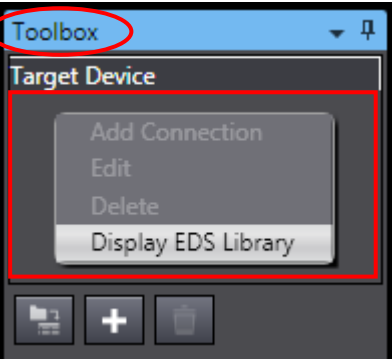
Install the EDS file.

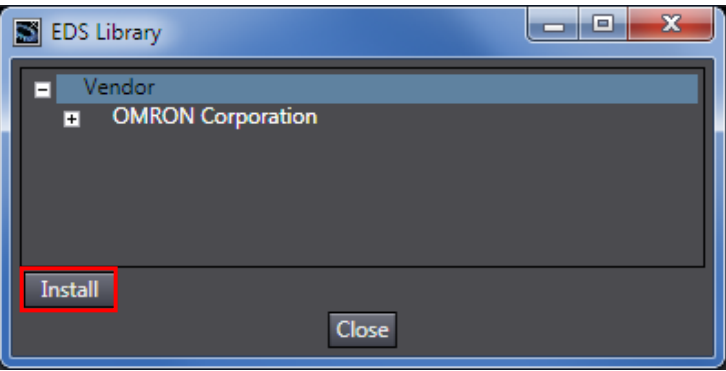
- 1 Select **EtherNet/IP Connection Settings** from the Tools Menu.


- 2 The EtherNet/IP Device List Tab Page is displayed in the Edit Pane. While the Built-in EtherNet/IP Port Settings is being selected, right-click and select **Edit** from the menu.


- 3 The Built-in EtherNet/IP Port Settings Connection Settings Tab Page is displayed in the Edit Pane.

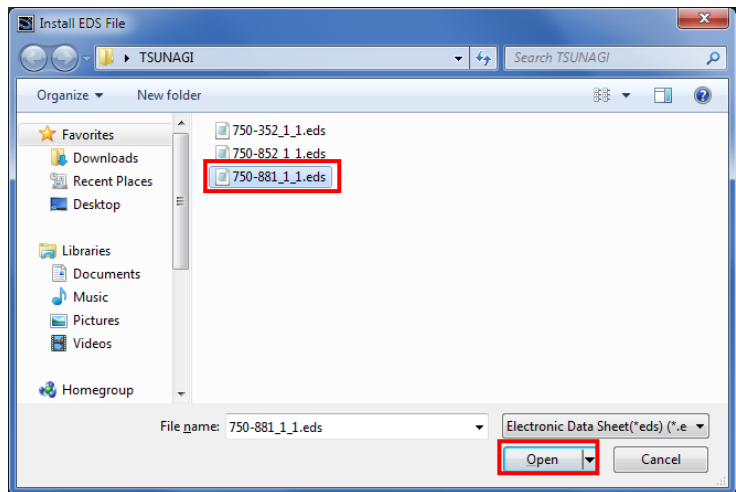

- 4 Under the Target Device in the Toolbox (in a red frame), right-click and select **Display EDS Library** from the menu.


- 5 The EDS Library Dialog Box is displayed. Click the **Install** Button.



6 Select *750-881_1_1.eds* EDS file to install and click the **Open** Button.

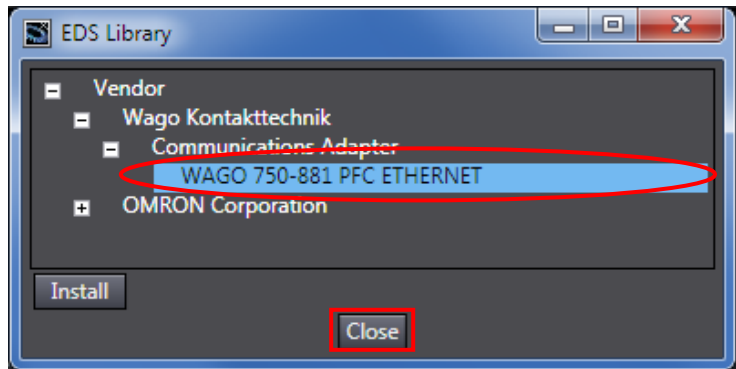
*For how to obtain the EDS file, refer to Precautions for Correct Use in 5.2. *Device Configuration*.



7 When the EDS file is normally installed, check that the device is added in the EDS Library Dialog Box as shown in the right figure.

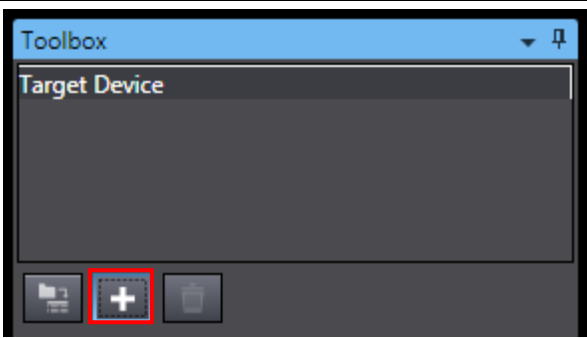
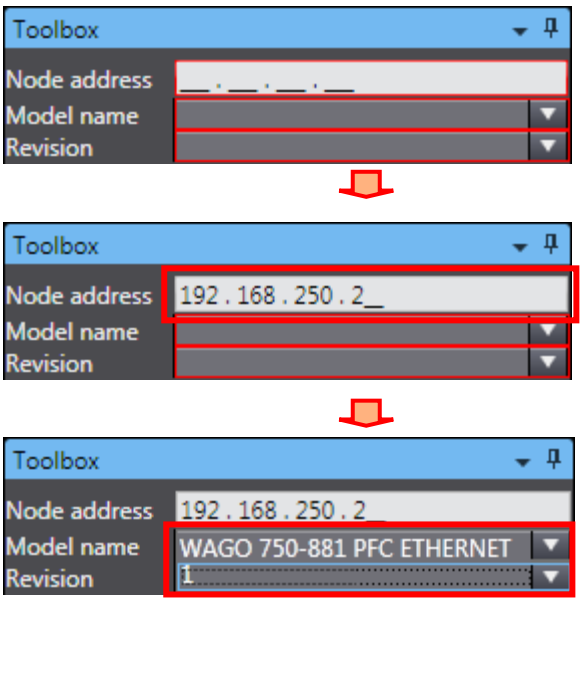
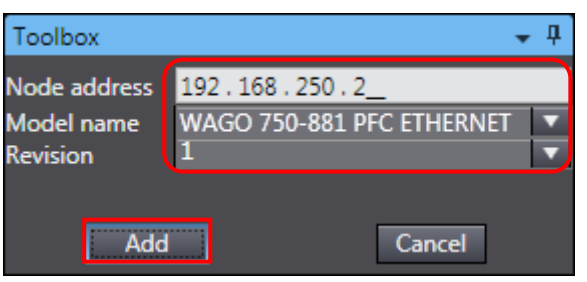

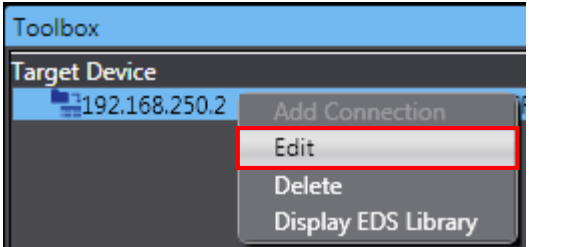
Click the **Close** Button.

*The WAGO 750-881 PFC ETHERNET device is registered when the *750-881_1_1.eds* is installed.

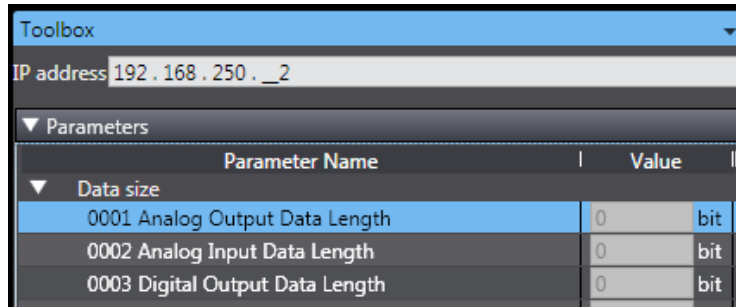


7.3.3. Target Device Registration

Register the target device.

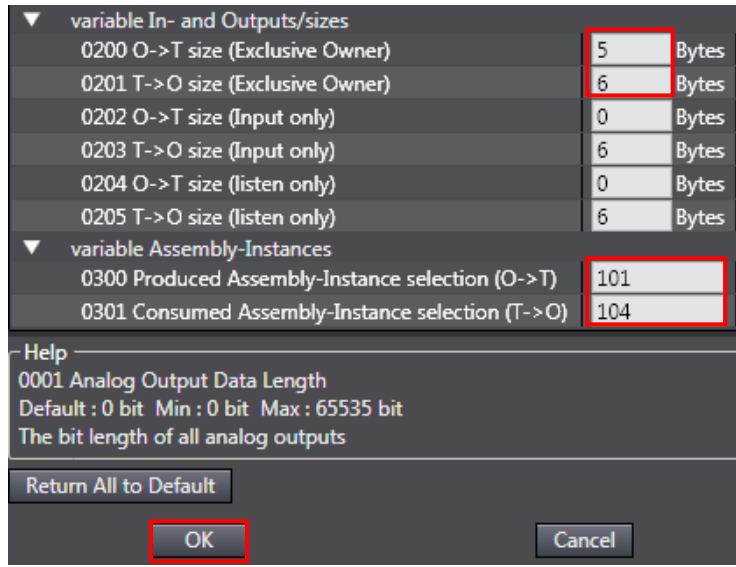
<p>1 Click the + Button in the Toolbox.</p>	
<p>2 Data fields of the target device registration are displayed.</p> <p>Enter 192.168.250.2 as the Node address Field.</p> <p>Select the following values from the pull-down lists of Model name and Revision. Model name: WAGO 750-881 PFC ETHERNET Revision: 1</p>	
<p>3 Check the settings and click the Add Button.</p>	
<p>4 192.168.250.2 is registered in the Target Device in the Toolbox.</p>	
<p>5 While the 192.168.250.2 is being selected, right-click and select Edit from the menu.</p>	

6 Data fields to set the parameters are displayed.



Scroll the screen, and set the following parameters.

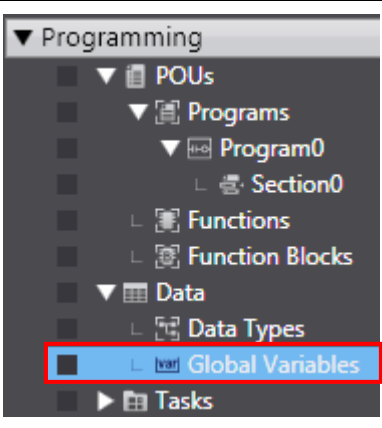
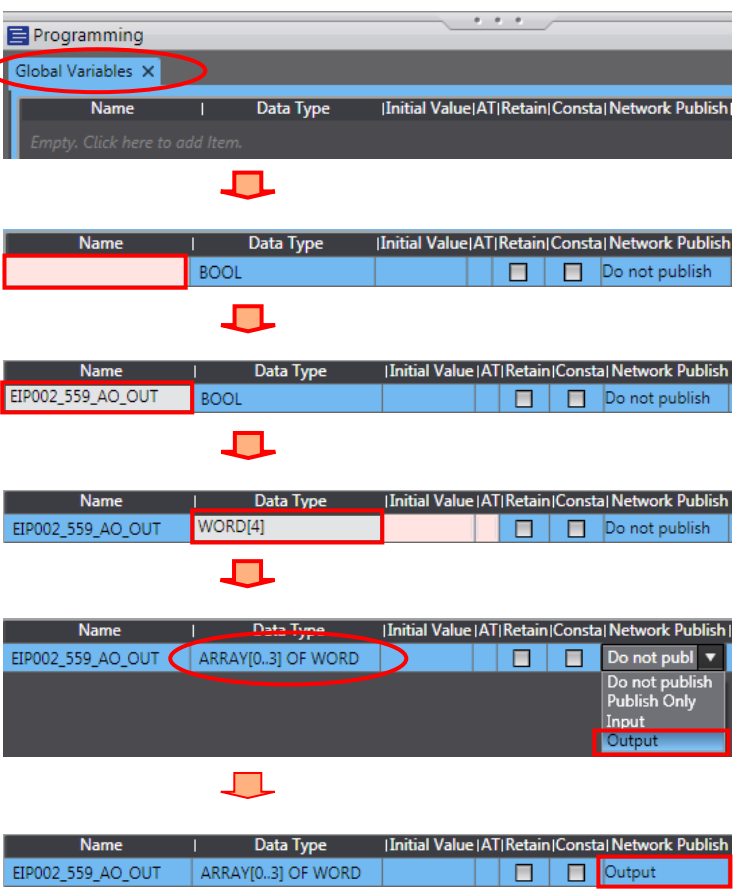
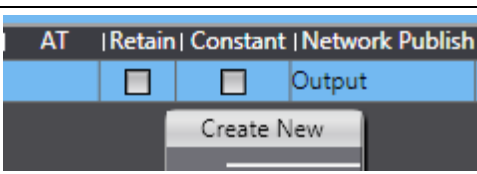
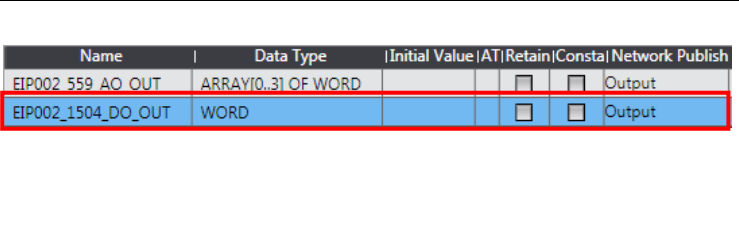
- 0200 O -> T size (Exclusive Owner) : 10
- 0201 T -> O size (Exclusive Owner) : 11
- 0300 Produced Assembly -Instance selection (O -> T) : 101
- 0301 Consumed Assembly -Instance selection (T -> O) : 104



Click the **OK** Button.

7.3.4. Setting the Global Variables

Set the global variables to use for the tag data links.

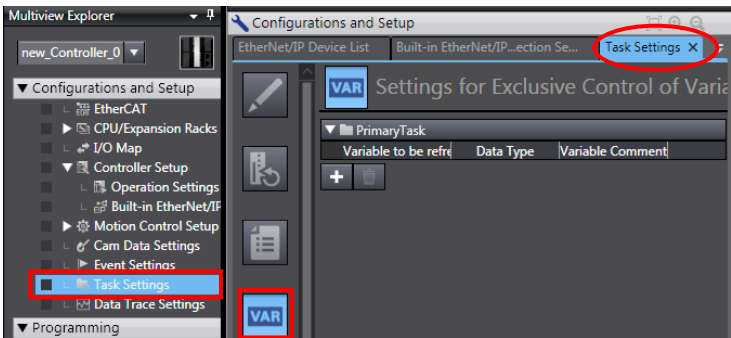
<p>1 Double-click Global Variables under Programming - Data in the Multiview Explorer.</p>	
<p>2 The Global Variables Tab Page is displayed in the Edit Pane.</p> <p>Click a column under the <i>Name</i> Column to enter a new variable.</p> <p>Enter <i>EIP002_559_AO_OUT</i> in the <i>Name</i> Column.</p> <p>Enter <i>WORD[4]</i> in the <i>Data Type</i> Column.</p> <p>After entering, confirm that the Data Type changes to <i>ARRAY[0..3] OF WORD</i>.</p> <p>Select Output from the Network Publish Menu.</p>	
<p>3 After entering, right-click and select Create New from the menu.</p>	
<p>4 In the same way as steps 2, enter the following data in the new columns.</p> <ul style="list-style-type: none"> Name: <i>EIP002_1504_DO_OUT</i> Data type: <i>WORD</i> Network Publish: <i>Output</i> 	

5 In the same way as steps 2 and 3, enter the following data in the new columns.

- Name: *EIP002_459_AI_IN*
Data type: *WORD[4]*
Network Publish: *Input*
- Name: *EIP002_1405_DI_IN*
Data type: *WORD*
Network Publish: *Input*
- Name: *EIP002_Status_IN*
Data type: *BYTE*
Network Publish: *Input*

Name	Data Type	Initial Value	AT	Retain	Const	Network Publish
EIP002_559_AO_OUT	ARRAY[0..3] OF WORD		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Output
EIP002_1504_DO_OUT	WORD		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Output
EIP002_459_AI_IN	ARRAY[0..3] OF WORD		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input
EIP002_1405_DI_IN	WORD		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input
EIP002_Status_IN	BYTE		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input

6 Double-click **Task Settings** under **Configurations and Setup** in the Multiview Explorer. The Task Settings Tab Page is displayed in the Edit Pane. Click the **VAR** Button.



7 Click the **+** Button

A new column is added.

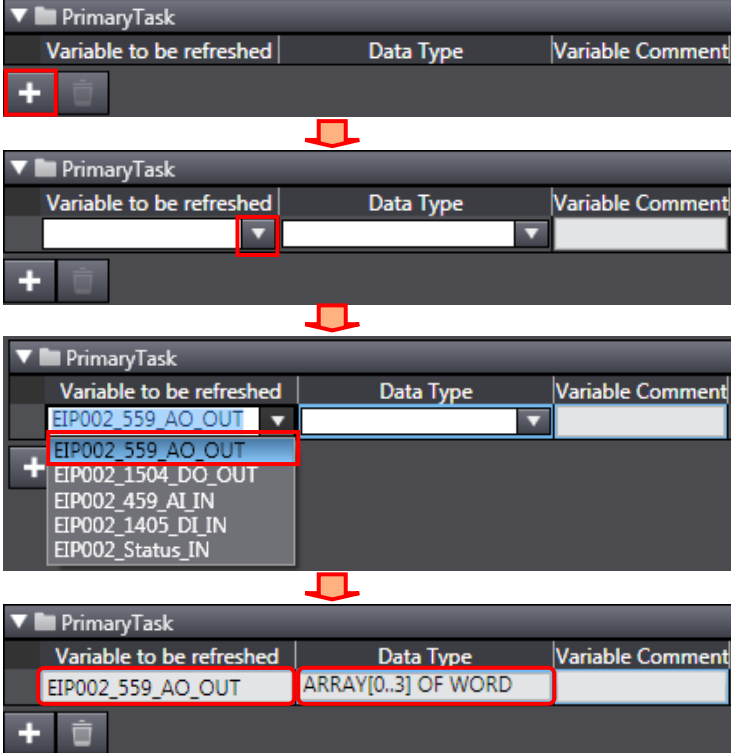
Click the **Down Arrow** Button of *Variable to be refreshed* Field (on the left side).

The variables set in this section are displayed.

Select *EIP002_559_AO_OUT*.

EIP002_559_AO_OUT is added.

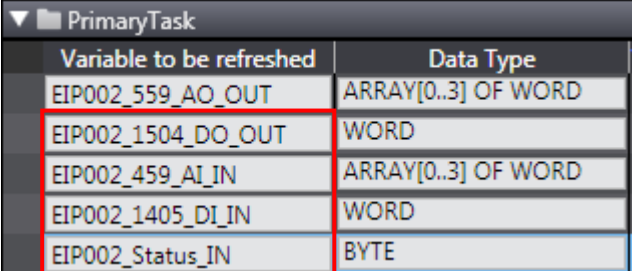
*The data types are displayed automatically, so no need to be set.



Variable to be refreshed	Data Type	Variable Comment
EIP002_559_AO_OUT	ARRAY[0..3] OF WORD	

8 In the same way as step 7, add the all variables set in this section to the *Variable to be refreshed* Field (on the left side).

*The data types are displayed automatically, so no need to be set.



Variable to be refreshed	Data Type
EIP002_559_AO_OUT	ARRAY[0..3] OF WORD
EIP002_1504_DO_OUT	WORD
EIP002_459_AI_IN	ARRAY[0..3] OF WORD
EIP002_1405_DI_IN	WORD
EIP002_Status_IN	BYTE

7.3.5. Tag Registration

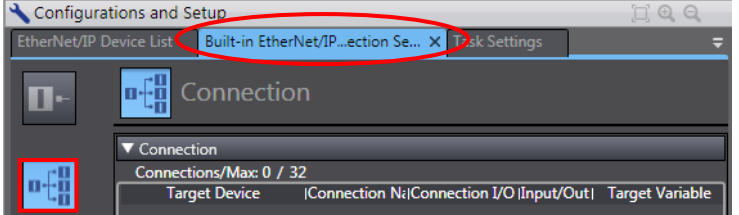
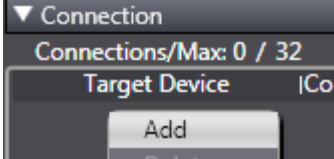
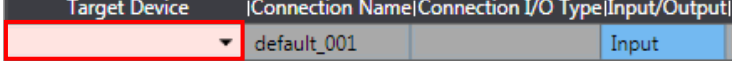
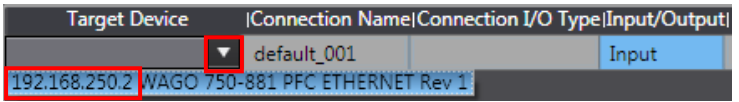
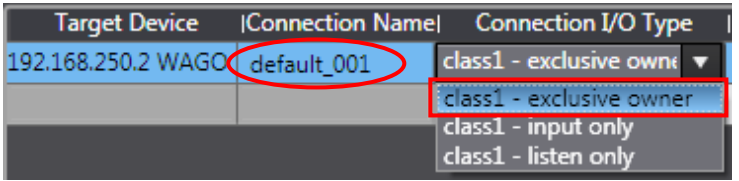
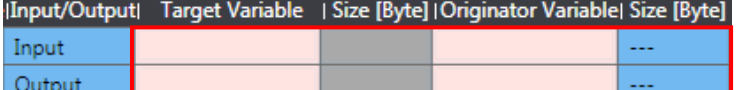
Register the tags and the tag sets.

<p>1 Click the Tag Set Button in the Built-in EtherNet/IP Port Settings Connection Settings Tab Page. Select the Input Tab in the Tag Sets.</p>	
<p>2 Right-click any open space in the Input Tab Page and select Create New Tag Set from the menu.</p>	
<p>3 A new name in the <i>Tag Set Name</i> Column can be entered. Select the input area newly added. Enter <i>EIP002_IN</i>.</p>	
<p>4 While the EIP002_IN is being selected, right-click and select Create New Tag from the menu.</p> <p>A new tag name can be entered in the EIP002_IN. Select the column newly added.</p> <p>Set the global variable of IN No.1 listed in <i>Section 6.3. Tag Sets</i> as a tag.</p> <p>* When the first character of the set variable is entered, the list that starts with the character entered is displayed.</p>	

- 5 In the same way as step 4, set the other global variables as tags in order of IN No. listed in *Section 6.3. Tag Sets*.
- | | Tag Set Name | Bit Selection | Size (Byte) | Size (Bit) |
|---|-------------------|--------------------------|-------------|------------|
| ▼ | EIP002_IN | <input type="checkbox"/> | 11 | |
| | EIP002_459_AI_IN | <input type="checkbox"/> | 8 | 0 |
| | EIP002_1405_DI_IN | <input type="checkbox"/> | 2 | 0 |
| | EIP002_Status_IN | <input type="checkbox"/> | 1 | 0 |
- 6 Select **Output** Tab.
Right-click any open space in the Output Tab Page and select **Create New Tag Set** from the menu.
-
- 7 A new name in the Tag Set Name Column can be entered.
In the same way as step 3, enter *EIP002_OUT*.
- | | Tag Set Name | Bit Selection | Size (Byte) | Size (Bit) |
|--|--------------|--------------------------|-------------|------------|
| | EIP002_OUT | <input type="checkbox"/> | 0 | |
- 8 In the same way as step 4, set the global variables as tags in the order of OUT No. listed in *Section 6.3. Tag Sets*.
- | | Tag Set Name | Bit Selection | Size (Byte) | Size (Bit) |
|---|--------------------|--------------------------|-------------|------------|
| ▼ | EIP002_OUT | <input type="checkbox"/> | 10 | |
| | EIP002_559_AO_OUT | <input type="checkbox"/> | 8 | 0 |
| | EIP002_1504_DO_OUT | <input type="checkbox"/> | 2 | 0 |
- 9 Check that the Tag Sets shows 2 and that the value of Tags shows the same as the number of the global variables set.
-

7.3.6. Setting the Connections

Set the target variable (that receives the open request) and the originator variable (that requests opening), and set the connections (tag data link table).

<p>1 Click the Connection Button in the Built-in EtherNet/IP Port Settings Connection Settings Tab Page.</p>	
<p>2 Right-click any open space in the Connection and select Add from the menu.</p>	
<p>3 A new connection can be entered. Select the column newly added.</p> <p>Select 192.168.250.2 from the pull-down list of <i>Target Device</i> Column.</p>	 
<p>4 The default_001 is created in the <i>Connection Name</i> Column. Select class1 - exclusive owner from the Connection I/O Type pull-down list.</p>	
<p>5 The target variable and the originator variable can be set.</p>	

6 Click a column in the Target Variable of the Input.

Input/Output	Target Variable	Size [Byte]	Originator Variable	Size [Byte]
Input				---
Output				---

If Ctrl + Space keys are pressed on the keyboard, an applicable instance number appears.

Input/Output	Target Variable	Size [Byte]	Originator Variable	Size [Byte]
Input	1			---
Output	104			---

*The instance number 1 so appears even if the first character of the instance number "1" is entered.

Select the instance number.

Input/Output	Target Variable	Size [Byte]	Originator Variable	Size [Byte]
Input	104	11		---
Output				---

In the same way, set the Target Variable of the Output.

Input/Output	Target Variable	Size [Byte]	Originator Variable	Size [Byte]
Input	104	11		---
Output	1			---

7 Click a column in the Originator Variable of the Input.

Input/Output	Target Variable	Size [Byte]	Originator Variable	Size [Byte]
Input	104	11		---
Output	101	10	EIP002_IN	---

The pull-down list is displayed. Select the tag set name to use.

In the same way, set the Originator Variable of the Output.

Input/Output	Target Variable	Size [Byte]	Originator Variable	Size [Byte]
Input	104	11	EIP002_IN	11
Output	101	10	EIP002_OUT	10

8 Set the Connection Type, the RPI[ms], and the Timeout Value as required.

Originator Variable	Size [Byte]	Connection Type	RPI [ms]	Timeout V
EIP002_IN	11	Multi-cast connection	50.0	RPI x 4
EIP002_OUT	10	Point to Point connection		


*In this document, the default values are used for these settings.

9 Check that the Connections shows 1.

▼ Connection
Connections/Max: 1 / 32


7.3.7. Transferring the Project Data

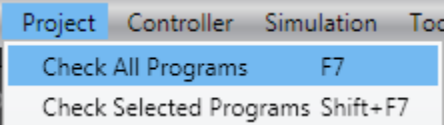
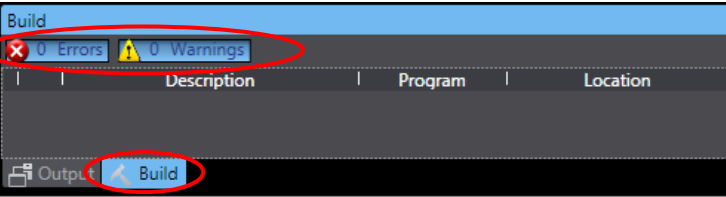
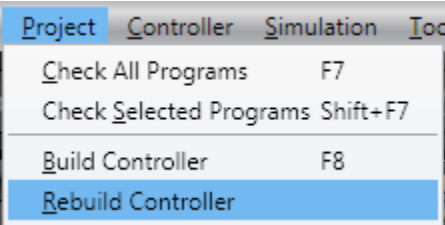
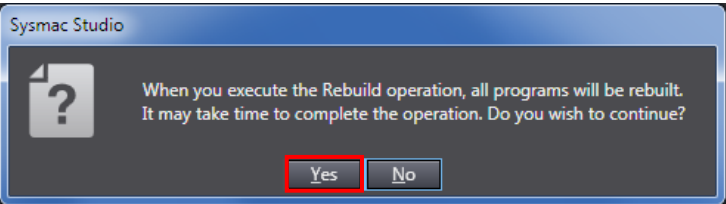
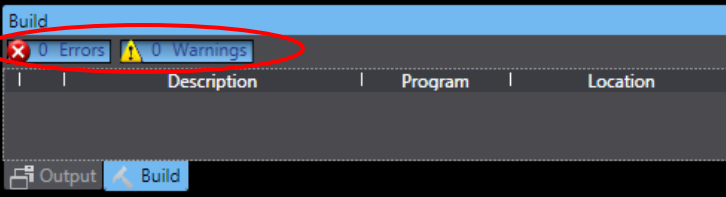
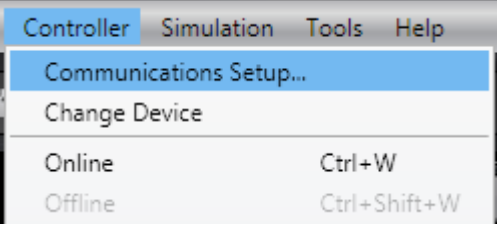
Connect online and transfer the connection settings and the project data to the Controller.


WARNING

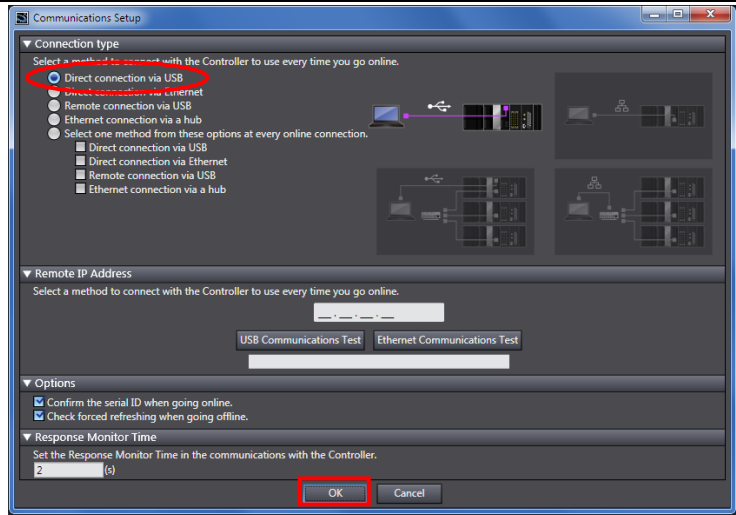
When you transfer a user program, configuration data, setup data, device variables, or values in memory used for CJ-series Units from the Sysmac Studio, the devices or machines may perform unexpected operation regardless of the operating mode of the CPU Unit.

Always confirm safety at the destination node before you transfer the project data.

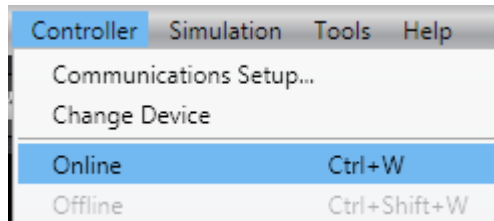


- | | | |
|---|--|--|
| 1 | Turn ON the power supply to the Controller and Switching hub. | |
| 2 | Select Check All Programs from the Project Menu. |  |
| 3 | The Build Tab Page is displayed. Check that "0 Errors" and "0 Warnings" are displayed in the Build Tab Page. |  |
| 4 | Select Rebuild Controller from the Project Menu. |  |
| 5 | A confirmation dialog box is displayed. Check the contents and click the Yes Button. |  |
| 6 | Check that "0 Errors" and "0 Warnings" are displayed in the Build Tab Page. |  |
| 7 | Select Communications Setup from the Controller Menu. |  |

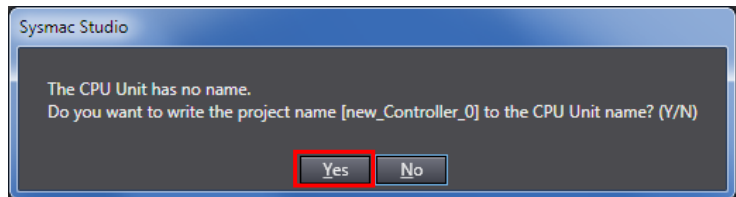
- 8 The Communications Setup Dialog Box is displayed. Confirm that the *Direct Connection via USB* is selected for the Connection Type. Click the **OK** Button.



- 9 Select **Online** from the Controller Menu. A confirmation dialog box is displayed. Check the contents and click the **Yes** Button.



*The displayed dialog depends on the status of the Controller used. Check the contents and click the **OK** or **Yes** Button to proceed with the processing.



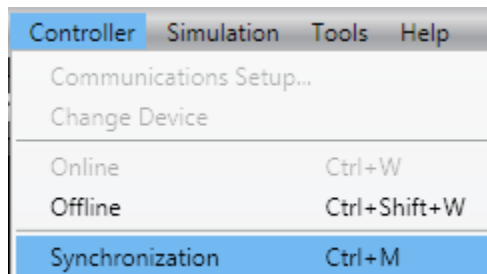
- 10 When an online connection is established, a yellow bar is displayed on the top of the Edit Pane.



Additional Information

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

- 11 Select **Synchronization** from the Controller Menu.

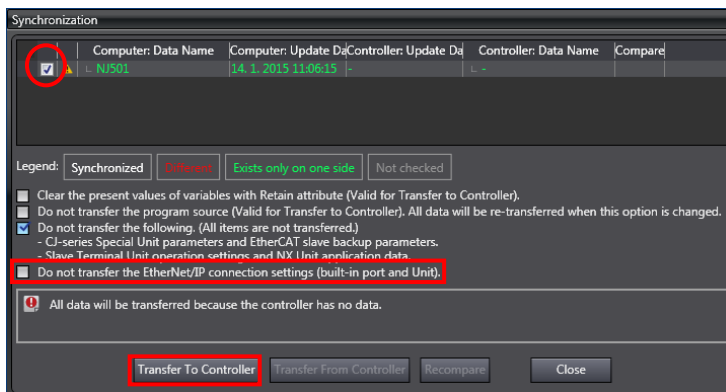


12 The Synchronization Dialog Box is displayed.

Confirm that the data to transfer (NJ501 in the right dialog box) is selected.

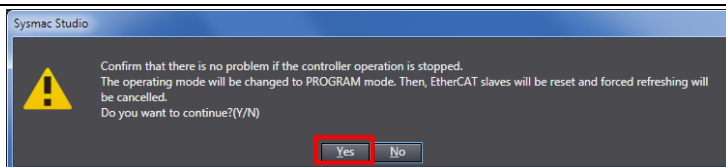
Uncheck the *Do not transfer the EtherNet/IP connection settings (built-in port and Unit)*.

Click the **Transfer To Controller** Button.

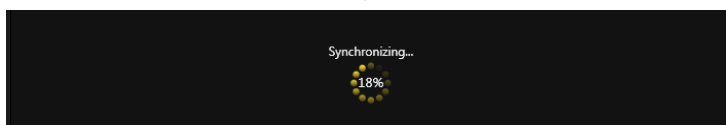


*After executing the Transfer To Controller, the Sysmac Studio data is transferred to the Controller and the data is compared.

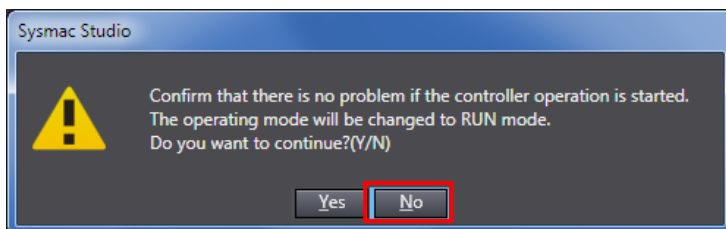
13 A confirmation dialog box on the right is displayed. Confirm that there is no problem and click the **Yes** Button.



A screen stating "Synchronizing" is displayed.

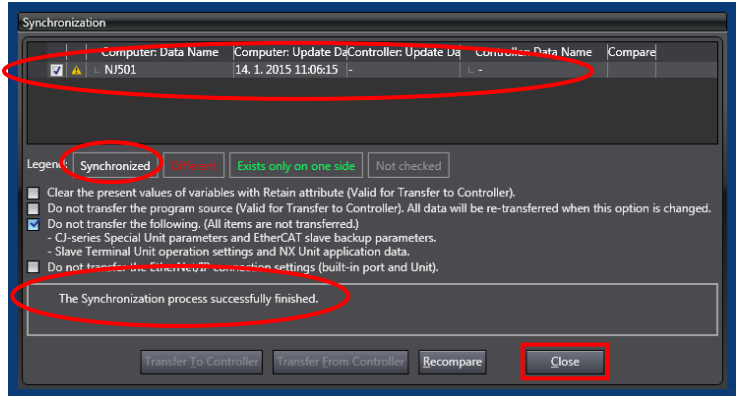


A confirmation dialog box on the right is displayed. Confirm that there is no problem and click the **No** Button.



*Do not return to RUN mode.

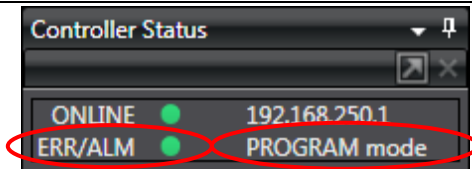
14 Confirm that the synchronized data is displayed with the color specified by "Synchronized", and that a message is displayed stating "The synchronization process successfully finished". If there is no problem, click the **Close Button**.



*A message stating "The synchronization process successfully finished" is displayed if the Sysmac Studio project data coincides with the Controller.

*If the synchronization fails, check the wiring and repeat from step 1.

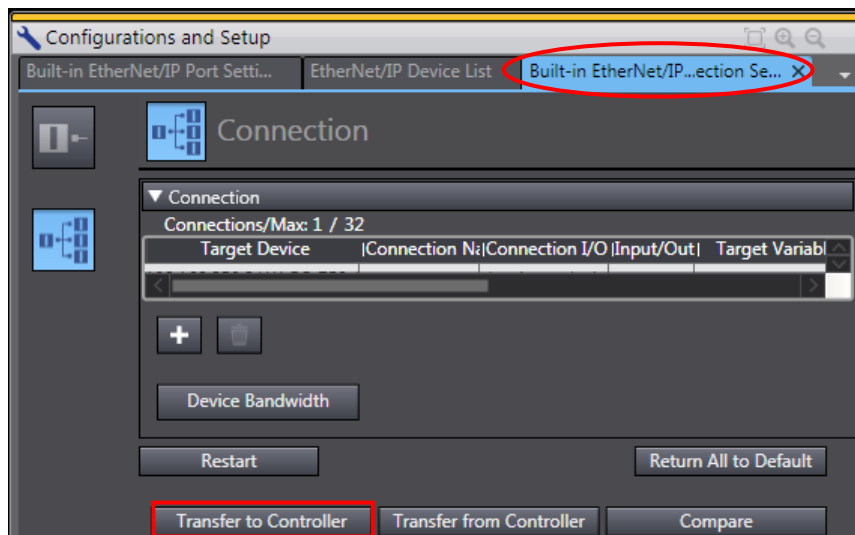
15 Check that ERR/ALM indicator in the Controller Status Pane changes to green color and that PROGRAM mode is displayed.



Precautions for Correct Use

If changing the connection settings (tag data link table) after the synchronization is performed, the connection settings (tag data link table) are not transferred even when performing the synchronization again.

When transferring, click the **Transfer to Controller** in the Built-in EtherNet/IP Port Settings Connection Settings Tab Page to transfer.



7.4. Checking the EtherNet/IP Communications

Confirm that the EtherNet/IP tag data links are operated normally.

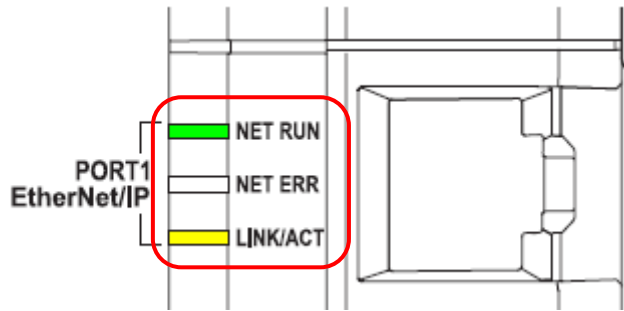
7.4.1. Checking the Connection Status

Check the connection status of EtherNet/IP.

- 1 Check that the tag data links are performed normally by checking the LED indicators on the Controller.

The LED indicators in normal status are as follows:

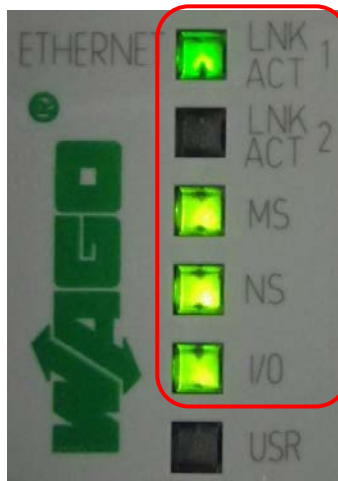
- NET RUN: Green lit
- NET ERR: Not lit
- LINK/ACT: Yellow flashing
(Flashing while packets are being sent and received)



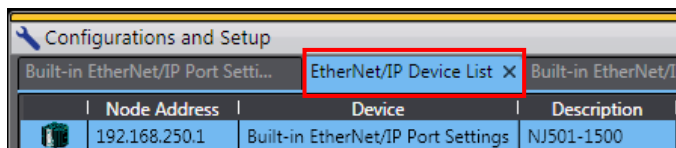
- 2 Check the LEDs of the Fieldbus Coupler.

The LED indicators in normal status are as follows:

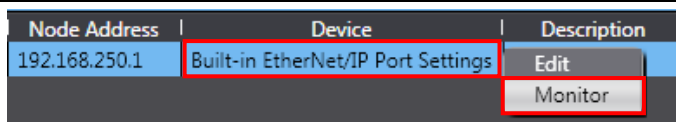
- LINK/ACT 1: Green flashing while packets are being sent and received
- MS: Green lit
- NS: Green lit
- I/O: Green lit



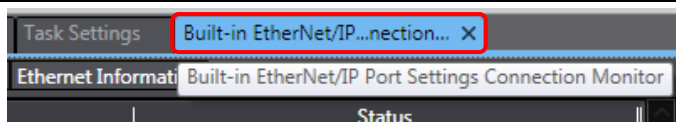
- 3 Select the **EtherNet/IP Device List** Tab.



- 4 While the Built-in EtherNet/IP Port Settings is being selected, right-click and select **Monitor** from the menu.



- 5 The Built-in EtherNet/IP Port Settings Connection Monitor Tab Page is displayed.



- 6 Select the **Connection Status** Tab.
 Check that a blue circle is displayed next to the applicable connection listed in the *Connection Name* Column.
 Check that the Status is 00:0000.

Connection Status	Tag Status	Output Tag Set	Input Tag Set	Ethernet Information
1 2.168.250.2 default_001				Out/In 00:0000

- 7 Select the **Tag Status** Tab.
 Check that all tags in the Tag Name Column are displayed and that green circles are displayed next to them. Check that the Status is Normally resolved.

Connection Status	Tag Status	Output Tag Set	Input Tag Set	Ethernet Information
				Tag Name Input/Output Status
	●			EIP002_459_AI_IN Input Normally resolved
	●			EIP002_1405_DI_IN Input Normally resolved
	●			EIP002_Status_IN Input Normally resolved
	●			EIP002_559_AO_OUT Output Normally resolved
	●			EIP002_1504_DO_OUT Output Normally resolved

7.4.2. Checking the Sent and Received Data

Confirm that the correct data are sent and received.

⚠ Caution

If you change the values of variables on a Watch Tab Page in the online state, the connected devices to the output unit may operate regardless of the operating mode of the CPU Unit.

Sufficiently confirm safety before you change the values of variables on a Watch Tab Page when the Sysmac Studio is online with the CPU Unit.



⚠ Caution

In the procedure of this section, the Fieldbus Coupler is output, which may perform unexpected operation.

Take sufficient safety precautions and proceed to this section. If you cannot confirm safety, do not proceed to this section after completing until *Section 7.4.1*. If you proceed to this section, make sure to complete all the steps and place the Destination Device in the safe state.



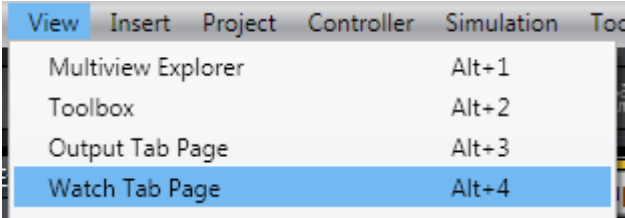
⚠ Caution

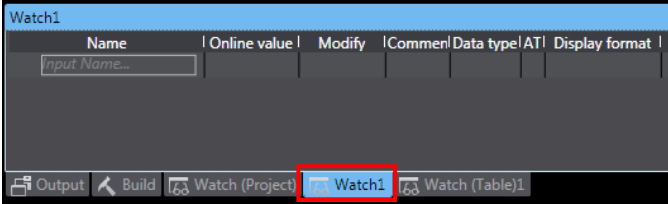
If you wire the I/O in the state that the power supply to the devices is turned ON, doing so may cause damage to the devices.

Always read and heed the information provided in all safety precautions of manuals for each device to be wired.



- 1 Select **Watch Tab Page** from the View Menu.

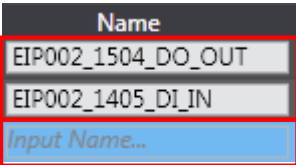

- 2 Select the **Watch1** Tab.

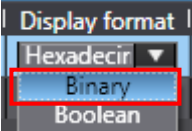
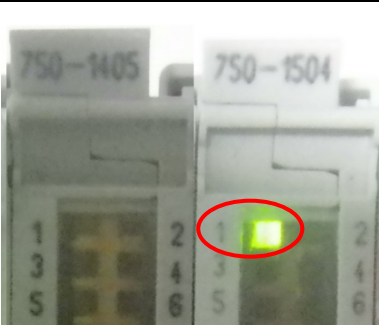

- 3 Click *Input Name*, and enter the following name of the variables for monitoring.

When setting a new variable name, enter the following variable names.

EIP002_1504_DO_OUT

EIP002_1405_DI_IN

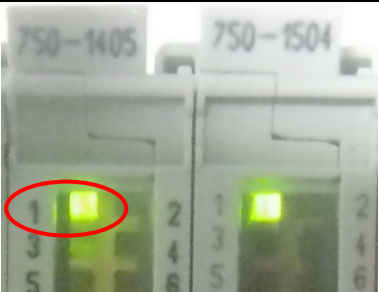


4	Select Binary from the pull-down list of Display format of the variable described in step 3.																			
5	The Online value is displayed in binary..	<table border="1"> <thead> <tr> <th>Name</th> <th>Online value</th> <th>Modify</th> </tr> </thead> <tbody> <tr> <td>EIP002_1504_DO_OUT</td> <td>0000 0000 0000 0000</td> <td></td> </tr> <tr> <td>EIP002_1405_DI_IN</td> <td>0000 0000 0000 0000</td> <td></td> </tr> </tbody> </table>	Name	Online value	Modify	EIP002_1504_DO_OUT	0000 0000 0000 0000		EIP002_1405_DI_IN	0000 0000 0000 0000										
Name	Online value	Modify																		
EIP002_1504_DO_OUT	0000 0000 0000 0000																			
EIP002_1405_DI_IN	0000 0000 0000 0000																			
6	Enter 0001 in the <i>Modify</i> Column of <i>EIP002_1504_DO_OUT</i> . When the values is set, the Online value of <i>EIP002_1504_DO_OUT</i> changes to 0001.	<table border="1"> <thead> <tr> <th>Name</th> <th>Online value</th> <th>Modify</th> </tr> </thead> <tbody> <tr> <td>EIP002_1504_DO_OUT</td> <td>0000 0000 0000 0000</td> <td>0001</td> </tr> <tr> <td>EIP002_1405_DI_IN</td> <td>0000 0000 0000 0000</td> <td></td> </tr> </tbody> </table> <p style="text-align: center;">↓</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Online value</th> <th>Modify</th> </tr> </thead> <tbody> <tr> <td>EIP002_1504_DO_OUT</td> <td>0000 0000 0000 0001</td> <td>0001</td> </tr> <tr> <td>EIP002_1405_DI_IN</td> <td>0000 0000 0000 0000</td> <td></td> </tr> </tbody> </table>	Name	Online value	Modify	EIP002_1504_DO_OUT	0000 0000 0000 0000	0001	EIP002_1405_DI_IN	0000 0000 0000 0000		Name	Online value	Modify	EIP002_1504_DO_OUT	0000 0000 0000 0001	0001	EIP002_1405_DI_IN	0000 0000 0000 0000	
Name	Online value	Modify																		
EIP002_1504_DO_OUT	0000 0000 0000 0000	0001																		
EIP002_1405_DI_IN	0000 0000 0000 0000																			
Name	Online value	Modify																		
EIP002_1504_DO_OUT	0000 0000 0000 0001	0001																		
EIP002_1405_DI_IN	0000 0000 0000 0000																			
7	The LED for the 1 of 750-1504 is lit green.																			

Precautions for Safe Use

Confirm that the power supply to the devices is turned OFF and ensure the safety before wiring the I/O.

Always read and heed the information provided in all safety precautions of manuals for each device to be wired.

8	DI1 of 750-1405 is turned ON. The LED for the 1 of 750-1405 is lit green. *For details on input wiring of 750-1405, refer to the manual for 750-1405.										
9	Confirm that the Online value of <i>EIP002_1405_DI_IN</i> changes to 0001.	<table border="1"> <thead> <tr> <th>Name</th> <th>Online value</th> <th>Modify</th> </tr> </thead> <tbody> <tr> <td>EIP002_1504_DO_OUT</td> <td>0000 0000 0000 0001</td> <td>0001</td> </tr> <tr> <td>EIP002_1405_DI_IN</td> <td>0000 0000 0000 0001</td> <td></td> </tr> </tbody> </table>	Name	Online value	Modify	EIP002_1504_DO_OUT	0000 0000 0000 0001	0001	EIP002_1405_DI_IN	0000 0000 0000 0001	
Name	Online value	Modify									
EIP002_1504_DO_OUT	0000 0000 0000 0001	0001									
EIP002_1405_DI_IN	0000 0000 0000 0001										

10 DI1 of 750-1405 is turned OFF.
The LED for the 1 of 750-1405 is not lit.



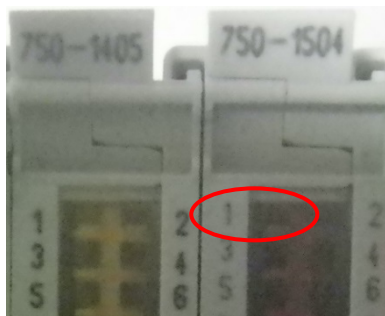
Confirm that the Online value of *EIP002_1405_DI_IN* changes to 0000.

Name	Online value	Modify
EIP002_1504_DO_OUT	0000 0000 0000 0001	0001
EIP002_1405_DI_IN	0000 0000 0000 0000	

11 When you enter 0000 in the *Modify* Column of *EIP002_1504_DO_OUT*, the Outline value changes to 0000.

Name	Online value	Modify
EIP002_1504_DO_OUT	0000 0000 0000 0000	0000
EIP002_1405_DI_IN	0000 0000 0000 0000	

The LED for the 1 of 750-1504 is not lit.



8. Initialization Method

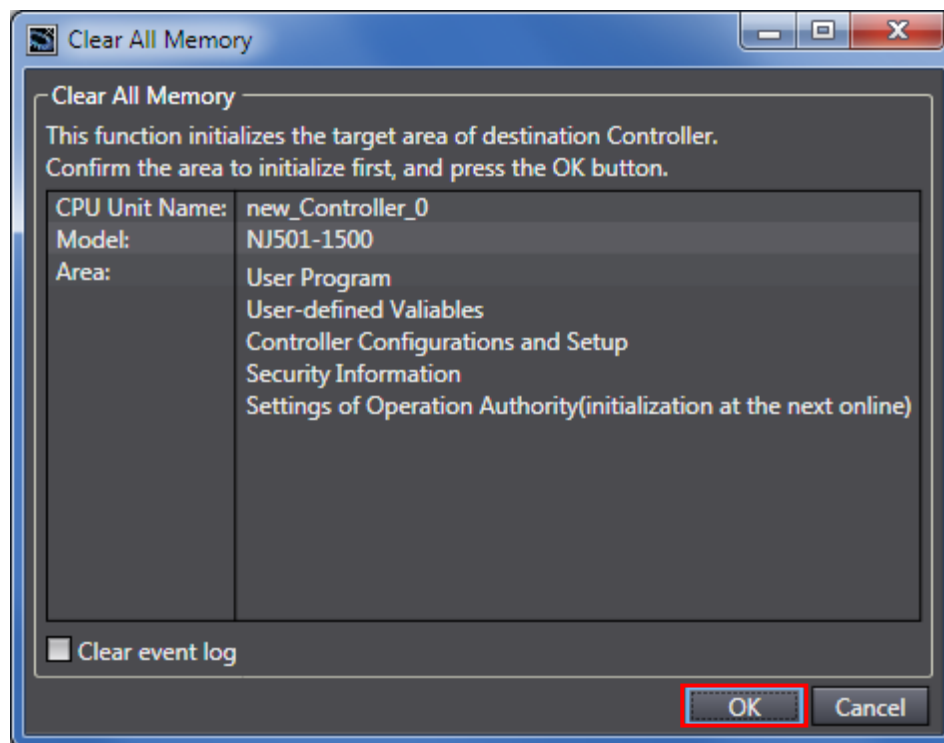
This document explains the setting procedure from the factory default setting.

Some settings may not be applicable as described in this document unless you use the devices with the factory default setting.

8.1. Initializing the Controller

To initialize the settings of the Controller, it is necessary to initialize the CPU Unit.

Change the Controller to PROGRAM mode before the initialization. Select **Clear All Memory** from the Controller Menu of the Sysmac Studio. The Clear All Memory Dialog Box is displayed. Check the contents and click the **OK** Button.



8.2. Initializing the WAGO Fieldbus Coupler

For how to initialize the WAGO Fieldbus Coupler, refer to *Section 8.6. Restoring Factory Settings of the WAGO-I/O-SYSTEM 750 Programmable Fieldbus Controller ETHERNET 10/100 Mbit/s; digital and analog Signals.*

9. Appendix Procedure Using the Project File

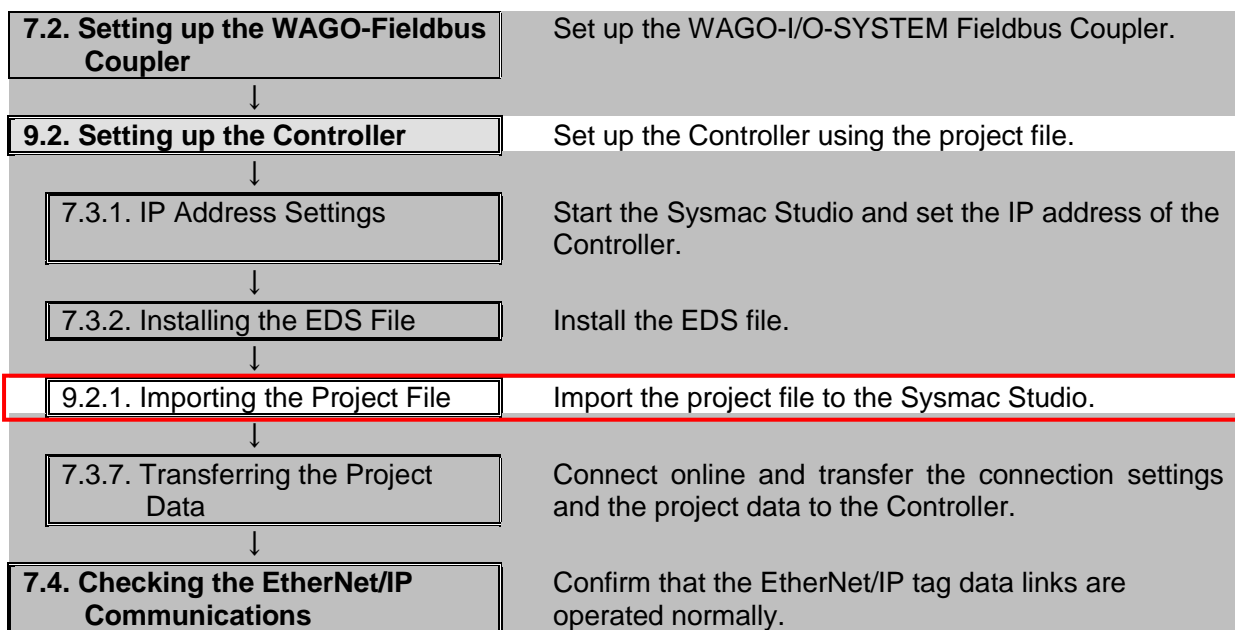
This section describes the procedure where the following project file is used. The project file includes the contents that are set in *Section 7.3. Setting up the Controller*. Obtain the latest project file from OMRON.

Name	File name	Version
Sysmac Studio compact project file (Extension: csm2)	WAGO_750_EIP_EV100.csm2	Ver.1.00

9.1. Work Flow

Take the following steps to make the tag data link settings for EtherNet/IP using the project file.

Except *Section 9.2.1. Importing the Project File* enclosed in red, refer to each appropriate section for further information.



9.2. Setting up the Controller

Set up the Controller using the project file.

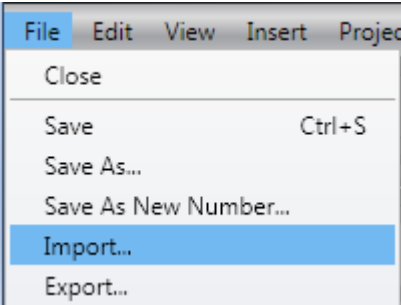
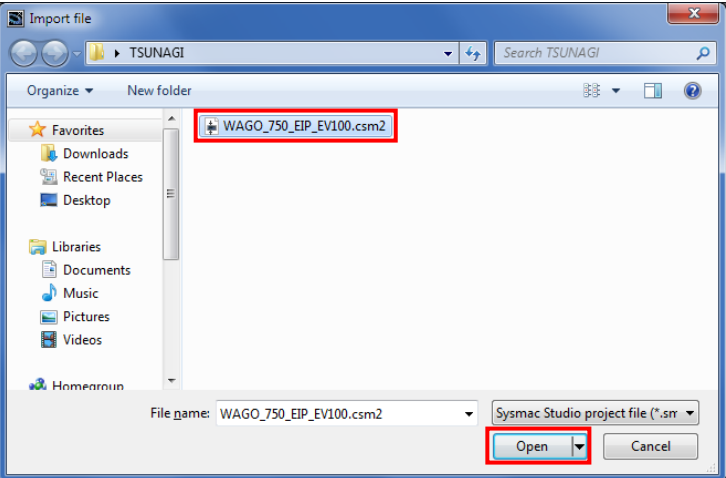
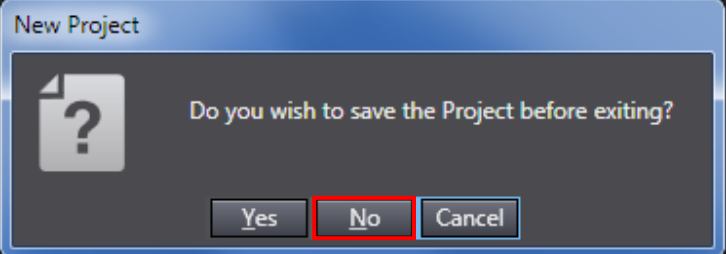
9.2.1. Importing the Project File

Import the Project File to the Sysmac Studio.



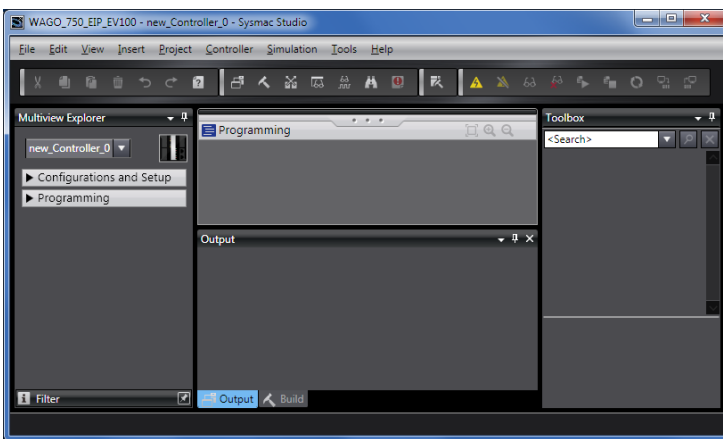
Precautions for Correct Use

Open the project file after executing *Section 7.3.2. Installing the EDS File*. If the project file is opened without installing EDS file, the tag data link parameters that are set cannot be used and need to be reconfigured.

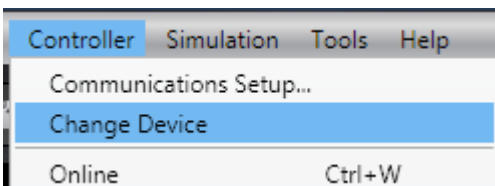
<p>1 Select Import from the File Menu.</p>	
<p>2 The Import file Dialog Box is displayed. Select WAGO_750_EIP_EV100.csm2 (project file) and click the Open Button.</p> <p>*Obtain the project file from OMRON.</p>	
<p>3 The New Project Dialog Box is displayed. Check the contents and click the No Button.</p>	

4 WAGO_750_EIP_EV100 project is displayed.

*If an error message is displayed stating "Failed to Load Descendants", change the version of the Sysmac Studio to the version specified in 5.2. *Device Configuration* or higher version.



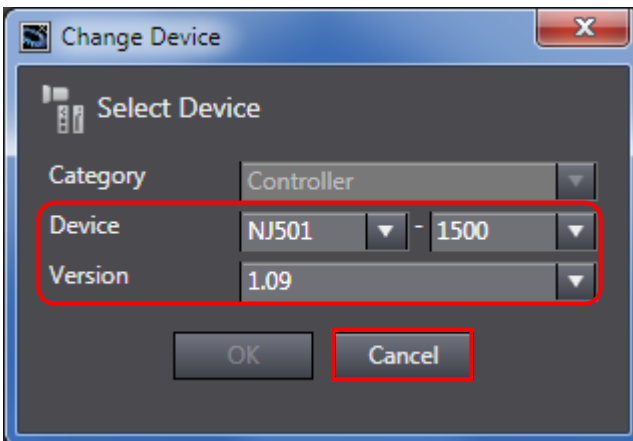
5 Select **Change Device** from the Controller Menu.



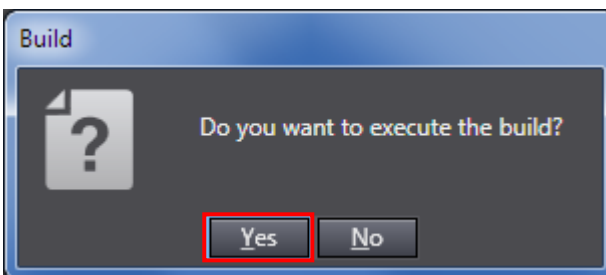
6 The Change Device Dialog Box is displayed. Confirm that the Device and Version Fields are set as shown on the right.

Click the **Cancel** Button.

*If the settings are different, select the setting items from the pull-down list and click the **OK** Button.



7 If you changed the settings in step 6, the Build Dialog Box is displayed. Check the contents and click the **Yes** Button.



10. Revision History

Revision code	Date of revision	Revision reason and revision page
01	January 14, 2015	First edition

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