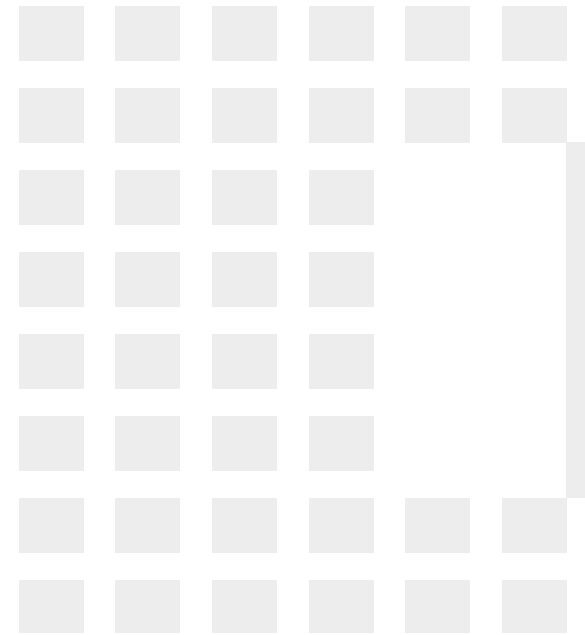




Think Automation and beyond...

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PLC & SX8R Communication Parameter Setting Procedure 1.0



1. FC6A Plus and SX8R: Modbus TCP Protocol
2. FC6A Plus and SX8R: EtherNet/IP protocol
3. Mitsubishi PLC and SX8R: CC-Link IEF Basic protocol
4. KV Nano PLC and SX8R: EtherNet/IP protocol

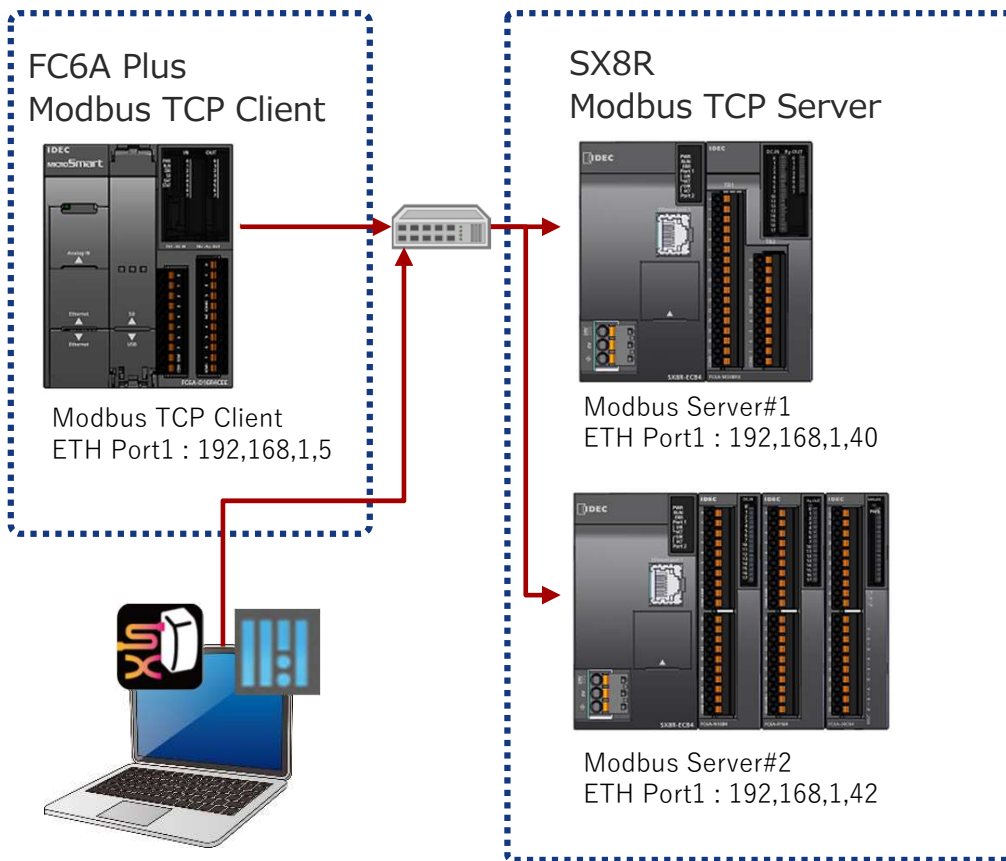
FC6A Plus and SX8R: Modbus TCP Protocol

FC6A Plus and SX8R: Modbus TCP Protocol



Step1: Define shared memory allocation between client and server according to the remote IO system configuration

■ System Configuration



■ Shared memory setting

Modbus Client FC6A Plus CPU			
D100			←
D101			→
M100-M117			←
M120-M127			→
D200			←
D210			→
M200-M217			←
M220-M237			→
D201			←
D202			←
D203			←
D204			←
D205			←
D206			←
D207			←
D208			←

Modbus Server#1			
SX8R-ECB4			
System Status	1-word		Slot #0
Control Register	1-word		
FC6A-M24BR4			
INPUT	Data	16-bit	Slot #1
OUTPUT	Data	8-bit	

Modbus Server#2			
SX8R-ECB4			
System Status	1-word		Slot #0
Control Register	1-word		
FC6A-N16B4			
INPUT	Data	16-bit	Slot #1
FC6A-R164			
OUTPUT	Data	16-bit	Slot #2
FC6A-J4CN4			
AI Ch.0	Data	1-word	Slot #3
	Status	1-word	
AI Ch.1	Data	1-word	
	Status	1-word	
AI Ch.2	Data	1-word	
	Status	1-word	
AI Ch.3	Data	1-word	
	Status	1-word	

FC6A Plus and SX8R: Modbus TCP Protocol



Step2: Configure communication settings for SX8R (Modbus Server#1) using SX8R Configurator

1

Click the Read Module Configuration button to read the connected IO module configuration.
(The IO module must be connected to the SX8R and the PC must be connected to the SX8R with a LAN cable.)

2

Sets the administrative name of the SX8R Remote IO system. The maximum number of characters is 16. Alphabets, numbers, and symbols may be used.

3

Set the IP address of Ethernet Port 1 / 2.

4

Select Modbus TCP from the Communication Mode pull-down menu.

5

Write and read passwords can be set for SX8R setting data. Since we are not setting passwords this time, we will turn off the check box for password setting.

No.	Communication Mode	Port Number	Access	Allow Access by IP Address
1	Modbus TCP Server	Port 1	502	<input type="checkbox"/> Restrict
2	Modbus TCP Server			
3	EtherNet/IP Adaptor			
4	CC-Link IE Field Basic Slave			
	Unused			
4	Maintenance Communication Server			

FC6A Plus and SX8R: Modbus TCP Protocol



Step3: Check the Modbus address allocation of the shared memory of SX8R (Modbus Server#1)



Modbus Server#1			
SX8R-ECB4			
System Satus		1-word	Slot #0
Control Register		1-word	
FC6A-M24BR4			
INPUT	Data	16-bit	Slot #1
OUTPUT	Data	8-bit	

The screenshot shows the 'Modbus TCP Server' configuration window. A red box with the number '1' points to the 'Modbus TCP Server' tab. Another red box with the number '2' points to the 'Save Shared Memory list' button.

Shared Memory

Input Relay:

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)
1	FC6A-M24BR4	I0000 - I0017		100001 - 100016	16
Total					16

Input Register:

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)
0	SX8R	D8020	System Status	300001	1
Total					1

Coil Relay:

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)
1	FC6A-M24BR4	Q0000 - Q0007		000001 - 000008	8
Total					8

Holding Register:

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)
0	SX8R	D8021	Upper Controller Control Register	400001	1
Total					1

Save Shared Memory list

Click the Save Shared Memory List button to save the file as an image file.

FC6A Plus and SX8R: Modbus TCP Protocol



Step4: Download the setting data to SX8R (Modbus Server#1)

1 Download the setting data to the SX8R from the Download menu.

2 Click the Download button to start downloading to SX8R.

Name	IP Address	Port Number	MAC Address
Modbus Server#1	192.168.1.40	2102	00:03:7B:AC:00:44

3 If the download is successful, a completion screen will pop up. Click the OK button to complete.

FC6A Plus and SX8R: Modbus TCP Protocol



Step5: Configure communication settings for SX8R (Modbus Server#2) using SX8R Configurator

1 Click the Read Module Configuration button to read the connected IO module configuration.
(The IO module must be connected to the SX8R and the PC must be connected to the SX8R with a LAN cable.)

2 Sets the administrative name of the SX8R Remote IO system. The maximum number of characters is 16. Alphabets, numbers, and symbols may be used.

3 Set the IP address of Ethernet Port 1 / 2.

4 Select Modbus TCP from the Communication Mode pull-down menu.

5 Write and read passwords can be set for SX8R setting data. Since we are not setting passwords this time, we will turn off the check box for password setting.

No.	Communication Mode	IP Address	Port Number	Access	Allow Access by IP Address
1	Modbus TCP Server	192.168.1.42	502	<input type="checkbox"/> Restrict	
2	Modbus TCP Server	192.168.1.43			
3	EtherNet/IP Adaptor				
4	CC-Link IE Field Basic Slave				
5	Unused				
6	Maintenance Communication Server				

FC6A Plus and SX8R: Modbus TCP Protocol



Step6: Check the Modbus address allocation of the shared memory of SX8R (Modbus Server#2)



Modbus Server#2			
SX8R-ECB4			
System Status	1-word		Slot #0
Control Register	1-word		
FC6A-N16B4			
INPUT	Data	16-bit	Slot #1
FC6A-R164			
OUTPUT	Data	16-bit	Slot #2
FC6A-J4CN4			
AI Ch.0	Data	1-word	Slot #3
	Status	1-word	
AI Ch.1	Data	1-word	
	Status	1-word	
AI Ch.2	Data	1-word	
	Status	1-word	
AI Ch.3	Data	1-word	
	Status	1-word	

1 Select the Modbus TCP Server tab and check the address allocation of the shared memory.

2 Click the Save Shared Memory List button to save the file as an image file.

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)
1	FC6A-N16B4	I0000 - I0017		100001 - 100016	16
				Total	16

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)
0	SX8R	D8020	System Status	300001	1
		D0040	AI0:Data	300002	1
		D0041	AI0:Status	300003	1
		D0042	AI1:Data	300004	1
3	FC6A-J4CN4	D0043	AI1:Status	300005	1
		D0044	AI2:Data	300006	1
		D0045	AI2:Status	300007	1
		D0046	AI3:Data	300008	1
		D0047	AI3:Status	300009	1
			Total		9

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)
2	FC6A-R164	Q0000 - Q0017		000001 - 000016	16
				Total	16

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)
0	SX8R	1	Upper Controller Control Register	400001	1
				Total	1

FC6A Plus and SX8R: Modbus TCP Protocol



Step7: Download the setting data to SX8R (Modbus Server#2)

1

Download the setting data to the SX8R from the Download menu.

2

Click the Download button to start downloading to SX8R.

The screenshot shows the 'Project.mcp - SX8R Configurator' window. The 'Download' button in the top toolbar is highlighted with a red arrow and the number '1'. A red callout box points to it with the text 'Download the setting data to the SX8R from the Download menu.' Below the toolbar, the 'IP Settings' section is visible, showing a table with columns for Name, IP Address, Port Number, and MAC Address. The table contains one entry: 'Modbus Server #2' with IP Address '192.168.1.42', Port Number '2102', and MAC Address '00:03:78:F0:17:44'. The 'Download' button in the bottom right of the dialog box is highlighted with a red arrow and the number '2'. A red callout box points to it with the text 'Click the Download button to start downloading to SX8R.'

3

If the download is successful, a completion screen will pop up. Click the OK button to complete.

The screenshot shows the 'Project.mcp - SX8R Configurator' window. The 'Download' button in the top toolbar is highlighted with a red arrow and the number '3'. A red callout box points to it with the text 'If the download is successful, a completion screen will pop up. Click the OK button to complete.' Below the toolbar, the 'IP Settings' section is visible, showing a table with columns for Name, IP Address, Port Number, and MAC Address. The table contains one entry: 'Modbus Server #2' with IP Address '192.168.1.42', Port Number '2102', and MAC Address '00:03:78:F0:17:44'. A small dialog box titled 'SX8R Configurator' is open in the foreground, displaying the message 'Download has been completed successfully.' and 'OK' and 'Cancel' buttons. The 'OK' button is highlighted with a red arrow and the number '3'.

FC6A Plus and SX8R: Modbus TCP Protocol



Step 8: Configure communication settings for FC6A Plus CPU (Modbus TCP Client) using WindLDR

1 Select Connection Setting from the Configuration menu to set the communication mode.

2

3 Select "Modbus TCP Client" for Ethernet port 1 from the communication mode pull-down menu.

4 The Modbus TCP client configuration screen will pop up and set each parameter. (Step9-10)

No.	Communication Mode	Protocol	Action	Interface
1	Maintenance Communication Server	TCP	Configure	Ethernet Port 1
2	Unused	TCP	Configure	Ethernet Port 1
3	Maintenance Communication Server	TCP	Configure	Ethernet Port 1
4	User Communication Server	TCP	Configure	Ethernet Port 1
5	User Communication Client	TCP	Configure	Ethernet Port 1
6	User Communication (UDP)	TCP	Configure	Ethernet Port 1
7	Modbus TCP Server	TCP	Configure	Ethernet Port 1
8	Modbus TCP Client	TCP	Configure	Ethernet Port 1
9	MC Protocol Client	TCP	Configure	Ethernet Port 1
10	Maintenance Communication Server	TCP	Configure	Ethernet Port 2
11	Maintenance Communication Server	TCP	Configure	Ethernet Port 2
12	Maintenance Communication Server	TCP	Configure	Ethernet Port 2
13	Maintenance Communication Server	TCP	Configure	Ethernet Port 2
14	Maintenance Communication Server	TCP	Configure	Ethernet Port 2
15	Maintenance Communication Server	TCP	Configure	Ethernet Port 2
16	Maintenance Communication Server	TCP	Configure	Ethernet Port 2

Req. No.	Function Code	Master Device Address	Data Size	Word/Bit	Remote Host No.	Slave Number (0 to 255)	Modbus Slave Address	Req. Execution Device	Online Status	Error Status
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

FC6A Plus and SX8R: Modbus TCP Protocol



Step9: Configure Modbus TCP client settings for Modbus Server#1

1 Configure the Modbus TCP client settings while checking the shared memory list created by SX8R Configuraor. Register the IP address of Modbus Server#1 as the remote host number. (After registration, it can be selected.)

Req. No.	Function Code	Master Device Address	Data Size	Word/Bit	Remote Host No.	Slave (0 to 255)
1	02 Read Input Status	M0100	16	Bit	New Remote Host...	

Remote Host: IP Address: 192.168.1.40

Port: 502

Shared Memory

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)
1	FC6A-M24BR4	I0000 - I0017		100001 - 100016	16
				Total	16

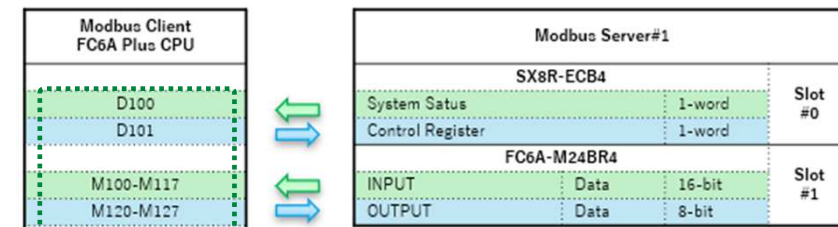
Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)
0	SX8R	D8020	System Status	300001	1
				Total	1

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)
1	FC6A-M24BR4	Q0000 - Q0007		000001 - 000008	8
				Total	8

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)
0	SX8R	D8021	Upper Controller Control Register	400001	1
				Total	1

2 Assign the device address of the PLC according to the shared memory created by SX8R Configuraor.

Req. No.	Function Code	Master Device Address	Data Size	Word/Bit	Remote Host No.	Slave Number (0 to 255)	Modbus Slave Address
1	02 Read Input Status	M0100	16	Bit	1: 192.168.1.40 (502)	1	100001
2	04 Read Input Registers	D0100	1	Word	1: 192.168.1.40 (502)	1	300001
3	15 Force Multiple Coils	M0120	16	Bit	1: 192.168.1.40 (502)	1	000001
4	03 Read Holding Registers	D0101	1	Word	1: 192.168.1.40 (502)	1	400001



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FC6A Plus and SX8R: Modbus TCP Protocol



Step10: Configure Modbus TCP client settings for Modbus Server#2

1

Configure the Modbus TCP client settings while checking the shared memory list created by SX8R Configuraor. Register the IP address of Modbus Server#2 as the remote host number. (After registration, it can be selected.)

Req. No.	Function Code	Master Device Address	Data Size	Word/Bit	Remote Host No.	Slave Number (0 to 255)	Modbus Slave Address
1	02 Read Input Status	M0100	16	Bit	1: 192.168.1.40 (502)	1	100001
2	04 Read Input Registers	D0100	1	Word	1: 192.168.1.40 (502)	1	300001
3	15 Force Multiple Coils	M0120	16	Bit	1: 192.168.1.40 (502)	1	000001
4	03 Read Holding Registers	D0101	1	Word	1: 192.168.1.40 (502)	1	400001
5	02 Read Input Status	M0200	16	Bit	New Remote Host...		

Remote Host

Remote Host:

IP Address: 192.168.1.42

Host Name:

Data Register:

Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)	
1	FC6A-N16B4	I0000 - I0017		100001 - 100016	16	
					Total	16
Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)	
0	SX8R	D8020	System Status	300001	1	
		D0040	A0:Data	300002	1	
		D0041	A0:Status	300003	1	
		D0042	A1:Data	300004	1	
		D0043	A1:Status	300005	1	
		D0044	A2:Data	300006	1	
		D0045	A2:Status	300007	1	
		D0046	A3:Data	300008	1	
		D0047	A3:Status	300009	1	
					Total	9
Slot	I/O Module	Device Address	Description	Modbus Address	Size (Bits)	
2	FC6A-R164	Q0000 - Q0017		000001 - 000016	16	
					Total	16
Slot	I/O Module	Device Address	Description	Modbus Address	Size (Words)	
0	SX8R	D8021	Upper Controller Control Register	400001	1	
					Total	1

Modbus TCP Client

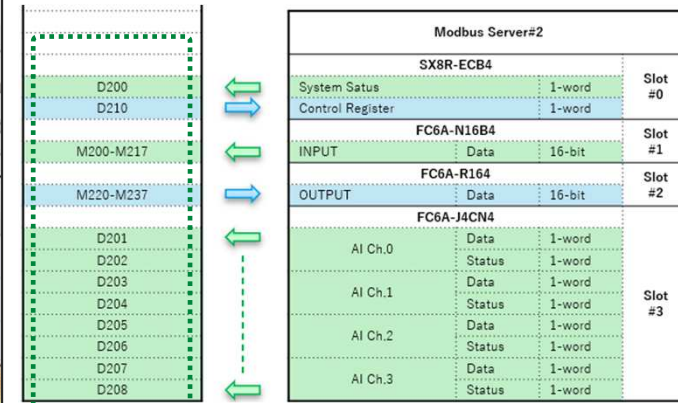
Request Execution Settings

- Request Execut
- Synchronize with auto

2

Assign the device address of the PLC according to the shared memory created by SX8R Configuraor.

Req. No.	Function Code	Master Device Address	Data Size	Word/Bit	Remote Host No.	Slave Number (0 to 255)	Modbus Slave Address
5	02 Read Input Status	M0200	16	Bit	2: 192.168.1.42 (502)	2	100001
6	04 Read Input Registers	D0202	9	Word	2: 192.168.1.42 (502)	2	300001
7	15 Force Multiple Coils	M0220	16	Bit	2: 192.168.1.42 (502)	2	000001
8	03 Read Holding Registers	D0210	1	Word	2: 192.168.1.42 (502)	2	400001



FC6A Plus and SX8R: Modbus TCP communication settings have been completed.

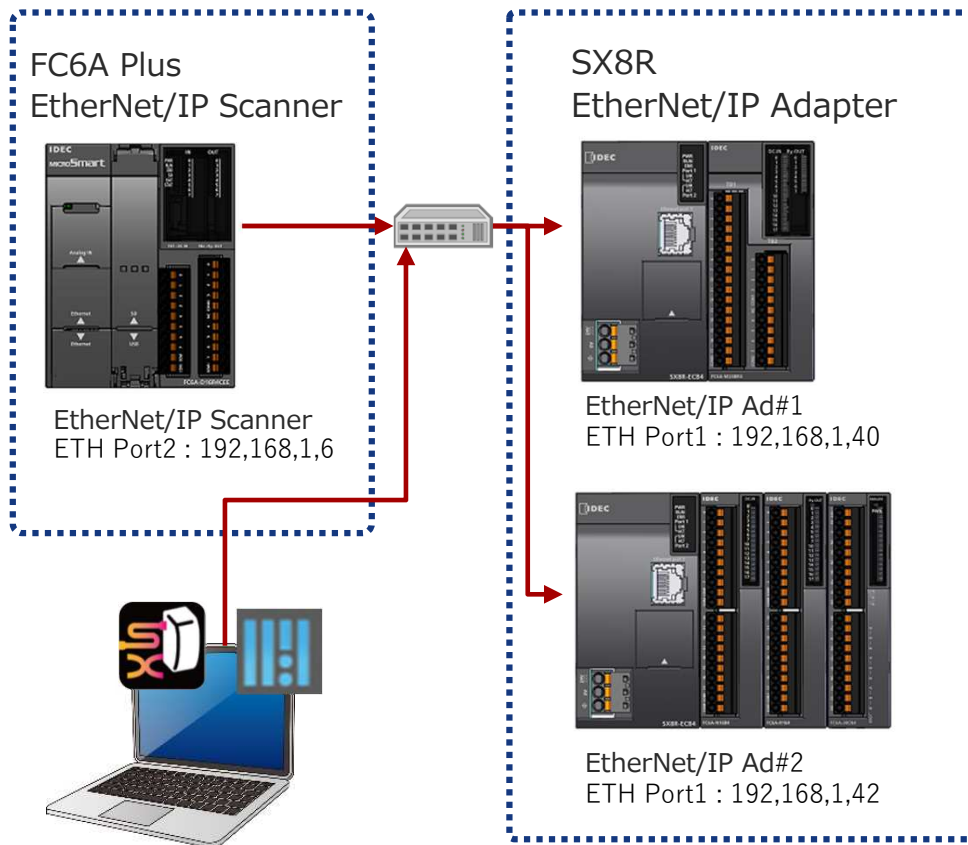
FC6A Plus and SX8R: EtherNet/IP protocol

FC6A Plus and SX8R: EtherNet/IP protocol



Step1: Define shared memory allocation between scanner and adapter according to remote IO system configuration

System Configuration



Shared memory setting

EtherNET/IP Scanner FC6A Plus CPU			
D0			
D1			
D2			
D3			
D100			
D101			
D102			
D103			
D104			
D105			
D106			
D107			
D108			
D109			
D110			
D111			

EtherNET/IP Ad#1			
Status	2 byte	SX8R-ECB4	
INPUT	2 byte	FC6A-M24BR1	Slot #1
Control	2 byte	SX8R-ECB4	
OUTPUT	2 byte (1byte Reserved)	FC6A-M24BR1	Slot #1

EtherNET/IP Ad#2			
Status	2 byte	SX8R-ECB4	
INPUT	2 byte	FC6A-N16B4	Slot #1
AD Ch.0	DATA 2 byte	FC6A-J4CN4	Slot #3
	Status 2 byte		
AD Ch.1	DATA 2 byte		
	Status 2 byte		
AD Ch.2	DATA 2 byte		
	Status 2 byte		
AD Ch.3	DATA 2 byte		
	Status 2 byte		
Control	2 byte	SX8R-ECB4	
OUTPUT	2 byte	FC6A-R164	Slot #2

FC6A Plus and SX8R: EtherNet/IP protocol



Step2: Configure communication settings for SX8R (EtherNet/IP Adpter#1) using SX8R Configurator

1

Click the Read Module Configuration button to read the connected IO module configuration.
(The IO module must be connected to the SX8R and the PC must be connected to the SX8R with a LAN cable.)

Project.mcp - SX8R Configurator

File Online English

Download Upload Monitor Batch Monitor Factory Reset Communication Settings

Module Configuration Basic Settings

Verify Read Module Configuration

Total Lateral Dimension: Approximately 86.4mm

SX8R-ECB4

Configure

Mode : Edit

2

3

4

5

Sets the administrative name of the SX8R Remote IO system. The maximum number of characters is 16. Alphabets, numbers, and symbols may be used.

Set the IP address of Ethernet Port 1 /2.

Select EtherNet/IP Adaptor from the Communication Mode pull-down menu.

Write and read passwords can be set for SX8R setting data. Since we are not setting passwords this time, we will turn off the check box for password setting.

Project.mcp - SX8R Configurator

File Online English

Download Upload Monitor Batch Monitor Factory Reset Communication Settings

Module Configuration Basic Settings EtherNet/IP Adaptor

Name: EtherNet/IP Ad#1

IP Settings

Ethernet Port 1:

IP Address: 192.168.1.40

Subnet Mask: 255.255.255.0

Default gateway: 0.0.0.0

Ethernet Port 2:

IP Address: 192.168.1.41

Subnet Mask: 255.255.255.0

Default gateway: 0.0.0.0

Connection

No.	Communication Mode	Interface	Port Number	Access	Allow Access by IP Address
1	EtherNet/IP Adaptor	Et	Port 1	2222	
2	Modbus TCP Server	Et	Port 2	502	
3	CC-Link IE Field Basic Slave	Et			
4	Maintenance Communication Server	Et			

Password

Download Password Password: Confirm Password:

Upload Password Password: Confirm Password:

Self Diagnostic

Turn off digital output when communication timeout occurs

Turn off analog output when communication timeout occurs

Analog I/O Module Status

Include status of analog inputs in shared memory

Include status of analog outputs in shared memory

Mode : Edit

FC6A Plus and SX8R: EtherNet/IP protocol



Step3: Check the address allocation of the EtherNet/IP shared memory in SX8R (EtherNet/IP Adpter#1)



EtherNET/IP Ad#1			
Status	2 byte	SX8R-ECB4	
INPUT	2 byte	FC6A-M24BR1	Slot #1
Control	2 byte	SX8R-ECB4	
OUTPUT	2 byte (1byte Reserved)	FC6A-M24BR1	Slot #1

Project.rmcp - SX8R Configurator

File Online English

Download Upload Monitor Batch Monitor Factory Reset Communication Settings

Module Configuration Basic Settings **EtherNet/IP Adaptor**

Shared Memory

IN (T->O):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status		2
1	FC6A-M24BR4	I0000 - I0017			2
				Total	4

OUT (O->T):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8021	Upper Controller Control Register		2
1	FC6A-M24BR4	Q0000 - Q0007 Reserved area			2
				Total	4

Save Shared Memory list Save EDS file

Mode : Edit 135%

1 Select the EtherNet/IP Adpter tab and check the address allocation of the shared memory.

2 Click on the Save Shared Memory List button to save the file as an image file.EDS files can be saved, but for this setup procedure, we will use the EDS files available on IDEC's EC site.

FC6A Plus and SX8R: EtherNet/IP protocol



Step4: Download the setting data to SX8R (EtherNet/IP Adpter# 1)

Download the setting data to the SX8R from the Download menu.

Click the Download button to start downloading to SX8R.

No.	Communication	Name	IP Address	Port Number	MAC Address
1	EtherNet/IP Ad#1	EtherNet/IP Ad#1	192.168.1.40	2102	00:03:7B:AC:00:44
2	EtherNet/IP Ad#2				
3	Maintenance Co				
4	Maintenance Co				

Download has been completed successfully.

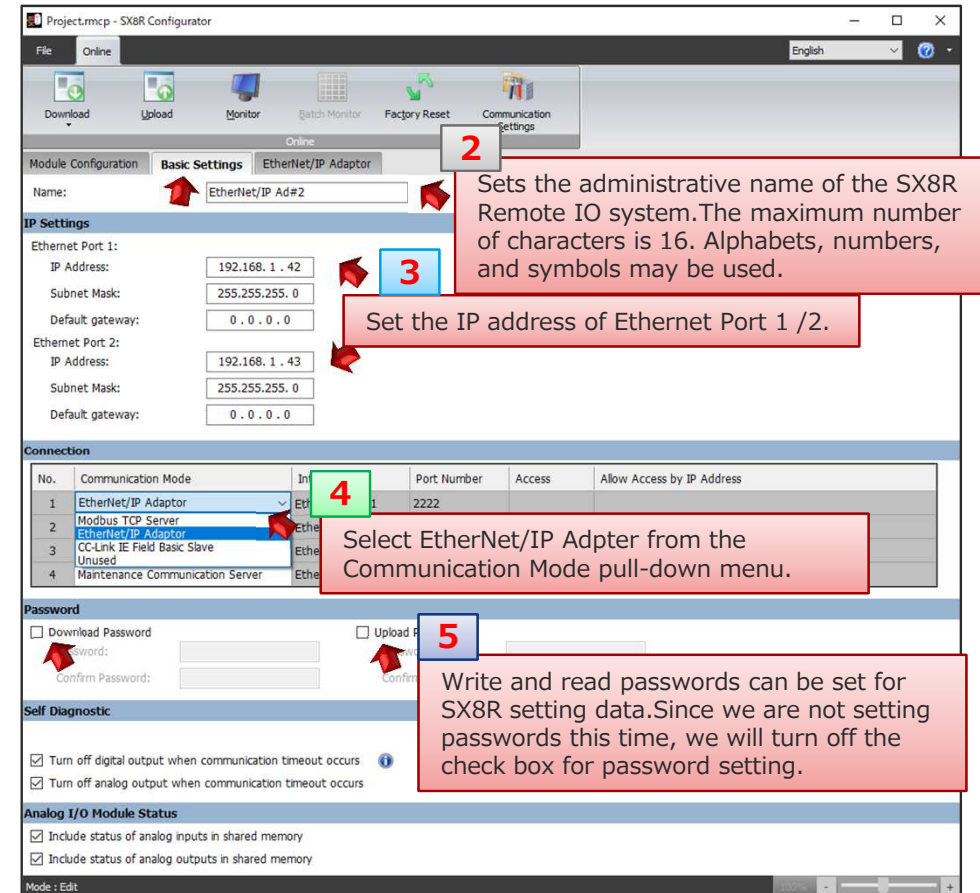
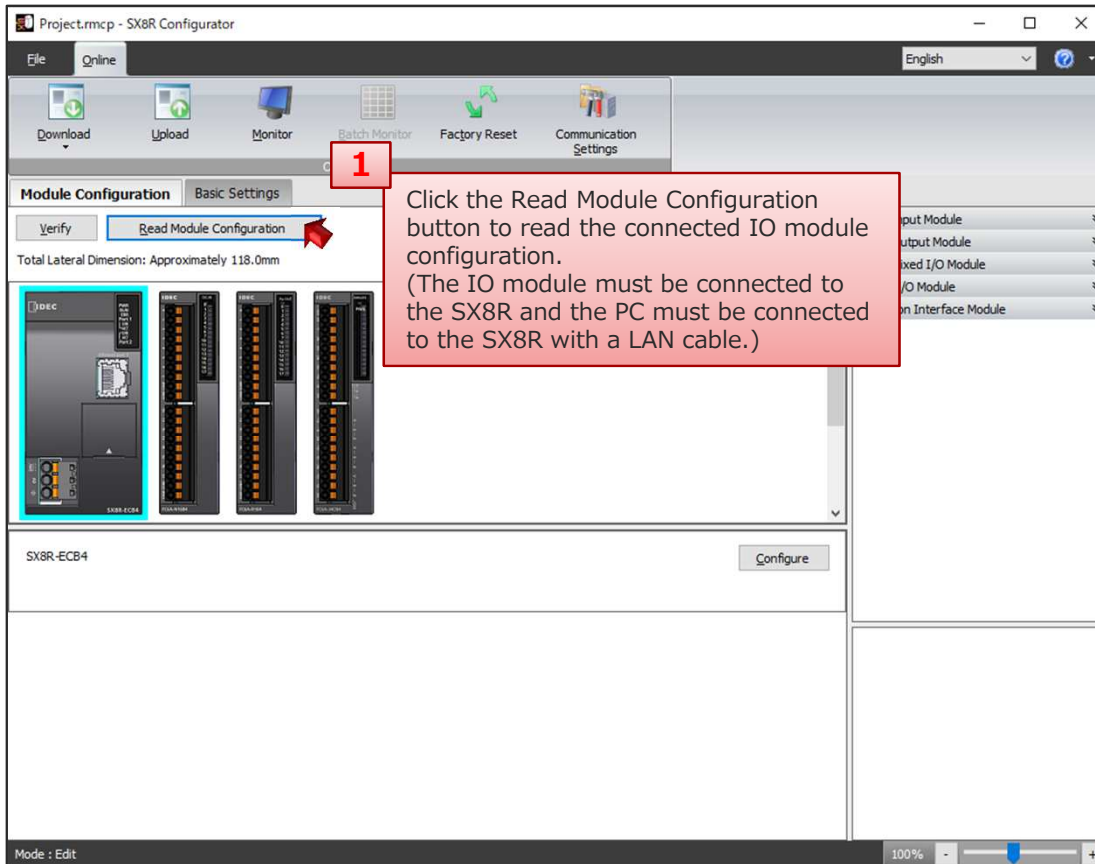
If the download is successful, a completion screen will pop up. Click the OK button to complete.

No.	Communication	Name	IP Address	Port Number	MAC Address
1	EtherNet/IP Ad#1	EtherNet/IP Ad#1	192.168.1.40	2102	00:03:7B:AC:00:44
2	EtherNet/IP Ad#2				
3	Maintenance Co				
4	Maintenance Co				

FC6A Plus and SX8R: EtherNet/IP protocol



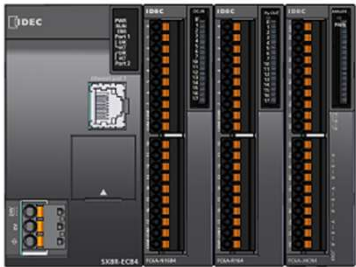
Step5: Configure communication settings for SX8R (EtherNet/IP Adpter#1) using SX8R Configurator



FC6A Plus and SX8R: EtherNet/IP protocol



Step6: Check the address allocation of the EtherNet/IP shared memory in SX8R (EtherNet/IP Adpter#1)



EtherNET/IP Ad#2				
Status	2 byte	SX8R-ECB4		
INPUT	2 byte	FC6A-N16B4	Slot #1	
AD Ch.0	DATA 2 byte	FC6A-J4CN4	Slot #3	
	Status 2 byte			
AD Ch.1	DATA 2 byte			
	Status 2 byte			
AD Ch.2	DATA 2 byte			
	Status 2 byte			
AD Ch.3	DATA 2 byte			
	Status 2 byte			
Control	2 byte	SX8R-ECB4		
OUTPUT	2 byte	FC6A-R164	Slot #2	

The screenshot shows the 'EtherNet/IP Adaptor' configuration page in the 'Project.mcp - SX8R Configurator' software. The 'Shared Memory' section is expanded, showing two tables: 'IN (T->O):' and 'OUT (O->T):'. A red box with the number '1' points to the 'EtherNet/IP Adaptor' tab, with the instruction: 'Select the EtherNet/IP Server tab and check the address allocation of the shared memory.' Another red box with the number '2' points to the 'Save Shared Memory list' button, with the instruction: 'Click on the Save Shared Memory List button to save the file as an image file. EDS files can be saved, but for this setup procedure, we will use the EDS files available on IDEC's EC site.'

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status		2
1	FC6A-N16B4	I0000 - I0017			2
3	FC6A-J4CN4	D0040	AI0:Data	4	2
		D0041	AI0:Status	6	2
		D0042	AI1:Data	8	2
		D0043	AI1:Status	10	2
		D0044	AI2:Data	12	2
		D0045	AI2:Status	14	2
		D0046	AI3:Data	16	2
		D0047	AI3:Status	18	2
Total					20

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8021	Upper Controller Control Register	0	2
2	FC6A-R164	Q0000 - Q0017			2
Total					4

FC6A Plus and SX8R: EtherNet/IP protocol



Step7: Download the setting data to SX8R (EtherNet/IP Adpater#2)

1 Download the setting data to the SX8R from the Download menu.

2 Click the Download button to start downloading to SX8R.

3 If the download is successful, a completion screen will pop up. Click the OK button to complete.

The screenshots show the 'SX8R Configurator' interface. The left screenshot shows the 'Download' button in the top toolbar being clicked. The right screenshot shows a 'Download' dialog box with a table of network adapters. The table has the following data:

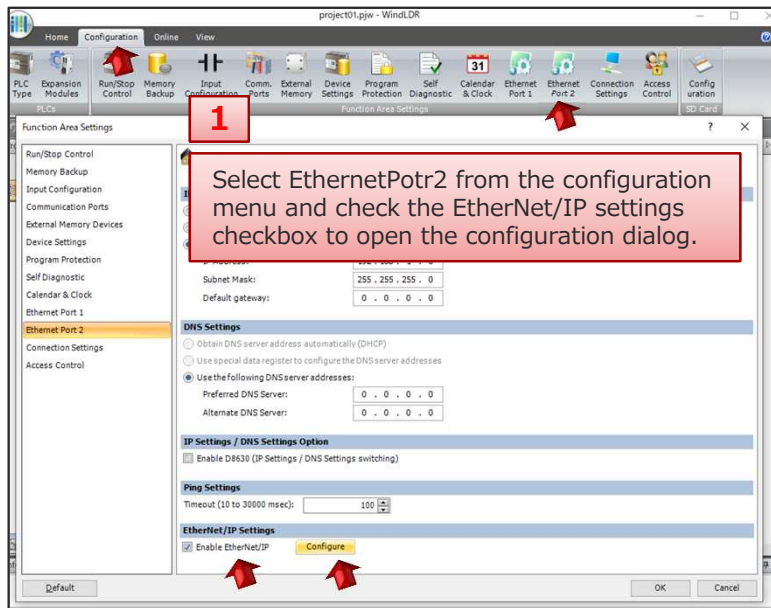
Name	IP Address	Port Number	MAC Address
EtherNET/IP Ad#2	192.168.1.42	2102	00:03:7B:F0:17:44

The right screenshot also shows a 'Download has been completed successfully' message box with an 'OK' button.

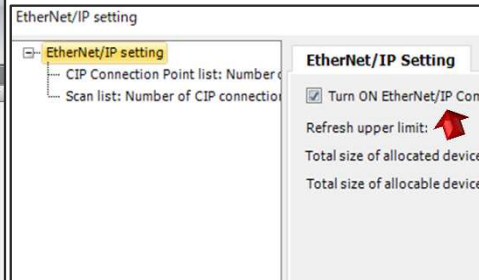
FC6A Plus and SX8R: EtherNet/IP protocol



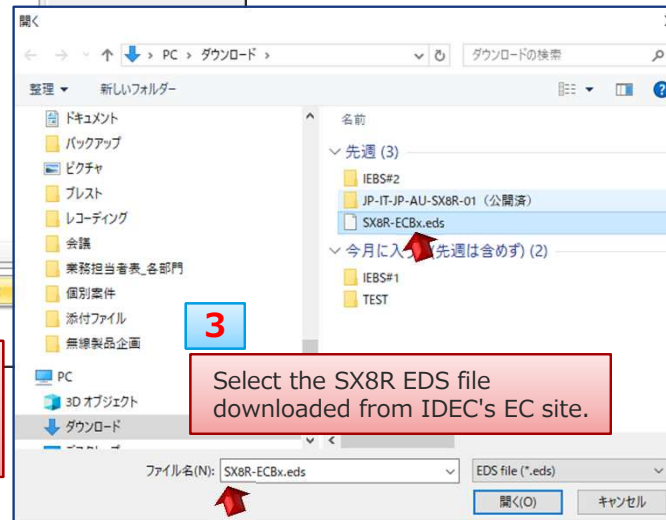
Step8: Configure communication settings for FC6A Plus CPU (EtherNet/IP Scanner) using WindLDR
Download the EDS file from the IDEC EC site and import the EDS file into WindLDR.



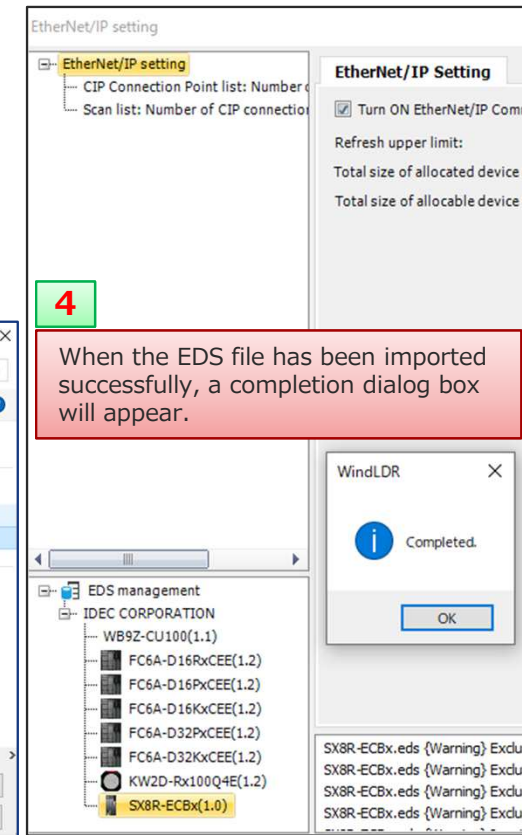
1
Select EthernetPort2 from the configuration menu and check the EtherNet/IP settings checkbox to open the configuration dialog.



2
Right-click on the EDS Management menu and turn on the Import button. Turn ON EtherNet/IP communication permission to automatic.



3
Select the SX8R EDS file downloaded from IDEC's EC site.



4
When the EDS file has been imported successfully, a completion dialog box will appear.

FC6A Plus and SX8R: EtherNet/IP protocol



Step9: Add SX8R EDS file to the scan list and configure CIP connection settings for EtherNet/IP Adpter#1

EtherNet/IP Adapter#1

2

CIP connection settings (control register, first device, size).

The screenshot shows the 'EtherNet/IP setting' window. On the left, a tree view shows the scan list with '1. SX8R-ECBx (0.0.0.0)' selected. The main area is divided into 'CIP Connection Setting' and 'Shared Memory' sections.

CIP Connection Setting:

- Node name: SX8R-ECBx
- Trigger of send: Cyclic
- CIP Connection name: Exclusive Owner(exclusive-)
- Control Register: D0010 - D0014
- Configuration table:

No.	Top of device address	Size[word]	Occupied device address
1	D0000	5	D0000 - D0004
2			
3			
4			

Shared Memory:

IN (T->O):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status	0	2
1	FC6A-M24BR4	I0000 - I0017			2
Total					4

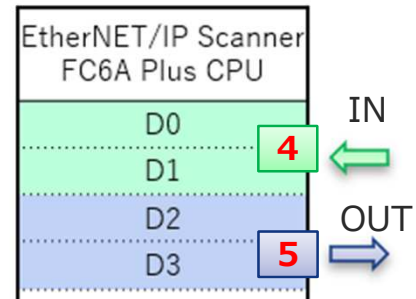
OUT (O->T):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8021	Upper Controller Control Register	0	2
1	FC6A-M24BR4	Q0000 - Q0007	Reserved area		2
Total					4

Sets the top address of the control register, which occupies 5 words.

Sets the IN data top address and **data size in words** according to the memory map created by the SX8R Configurator.

Sets the OUT data top address and **data size in words** according to the memory map created by the SX8R Configurator.



1

Drag and drop the imported eds file (SX8R-ECBx) and add it to the scan list.

FC6A Plus and SX8R: EtherNet/IP protocol



Step10: Configure target settings for EtherNet/IP Adpter#1 from scanlist

1

Set the Name and IP address set in the SX8R Configurator.

2

3

1

Click OK button (1), a warning message will be displayed, but click OK button (2) to complete the setting.

Click OK button (1), a warning message will be displayed, but click OK button (2) to complete the setting.

FC6A Plus and SX8R: EtherNet/IP protocol



Step11: Add SX8R EDS file to the scan list and configure CIP connection settings for EtherNet/IP Adpater#2

2

CIP connection settings (control register, first device, size).

The screenshot shows the 'EtherNet/IP setting' window. The 'CIP Connection Setting' tab is active, showing configuration for 'Node name: SX8R-ECBx'. The 'Control Register' is set to 'D0120' and 'D0120 - D0124'. Below this, there are two tables for 'OUT (O->T)'. The first table has columns 'No.', 'Top of device address', 'Size[word]', and 'Occupied device address'. It lists one entry: '1 D0100 10 D0100 - D0109'. The second table lists one entry: '1 D0110 2 D0110 - D0111'. The 'EDS management' tree on the left shows 'SX8R-ECBx(1.0)' selected.

Sets the top address of the control register, which occupies 5 words.

Sets the IN data top address and **data size in words** according to the memory map created by the SX8R Configurator.

Sets the OUT data top address and **data size in words** according to the memory map created by the SX8R Configurator.

1 Drag and drop the imported eds file (SX8R-ECBx) and add it to the scan list.

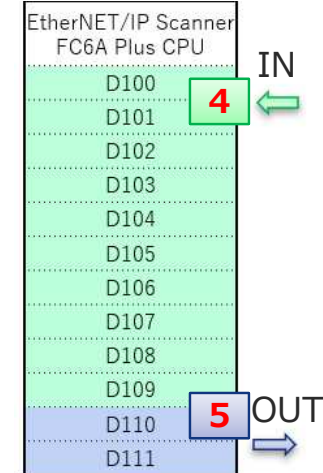
Shared Memory EtherNet/IP Adapter#2

IN (I->O):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status	0	2
1	FC6A-N16B4	I0000 - I0017			2
		D0040	AI0:Data	4	2
		D0041	AI0:Status	6	2
		D0042	AI1:Data	8	2
		D0043	AI1:Status	10	2
		D0044	AI2:Data	12	2
		D0045	AI2:Status	14	2
		D0046	AI3:Data	16	2
		D0047	AI3:Status	18	2
			Total		20

OUT (O->T):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8021	Upper Controller Control Register	0	2
2	FC6A-R164	Q0000 - Q0017			2
			Total		4



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FC6A Plus and SX8R: EtherNet/IP protocol



Step12: Configure target settings for EtherNet/IP Adpter#1 from scanlist

1 Set the Name and IP address set in the SX8R Configurator.

2 Click OK button (①), a warning message will be displayed, but click OK button (②) to complete the setting.

3

1

1

FC6A Plus and SX8R: EtherNet/IP communication settings have been completed.

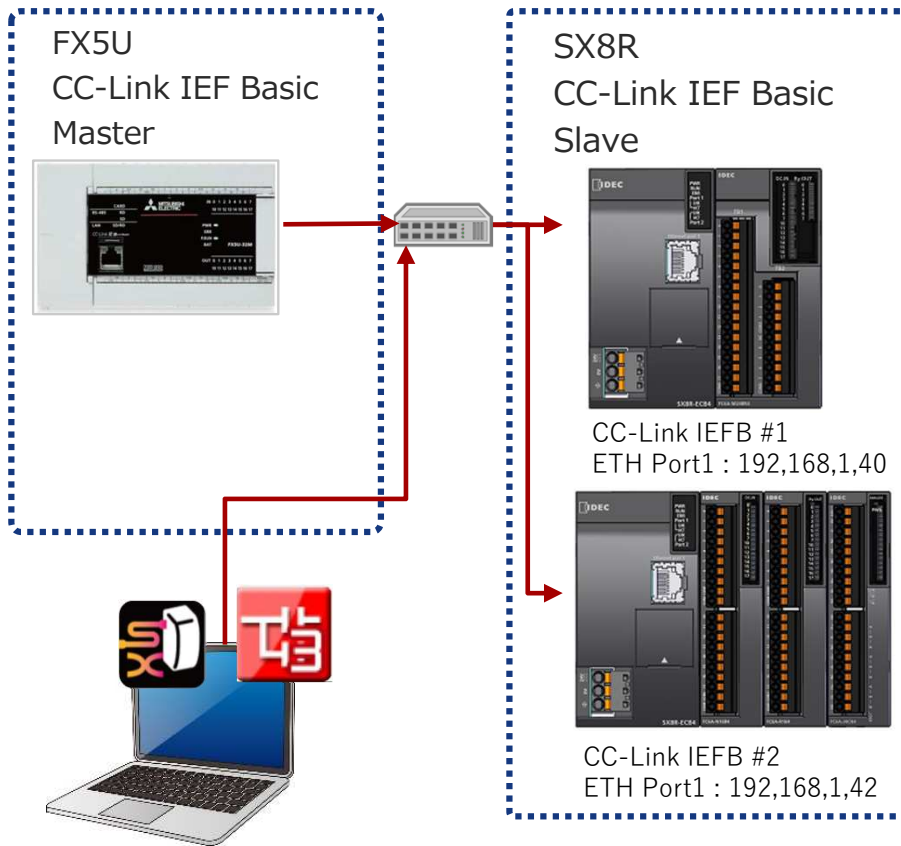
Mitsubishi PLC and SX8R:CC-Link IE Field Basic protocol

FX5U and SX8R: CC-Link IE Field Basic protocol



Step 1: Define shared memory allocation between master and slave according to the remote IO system configuration

System Configuration



Shared memory setting

CC-Link IEFB Master FX5U CPU		CC-Link IEFB #1					
RX	M0-15	1	INPUT	16-bit	FC6A-M24BR1	Slot #1	
128	M16-63	2	(Reserved)	48-bit			
bit	M64-79	3	OUTPUT	8-bit	FC6A-M24BR1	Slot #1	
	M80-127	4	(Reserved)	56-bit			
RY	M128-135	5	Status	1-word	SX8R-ECB4	Slot #0	
128	M136-191	6	(Reserved)	31-word			
bit	M192-207	7	Control Register	1-word	SX8R-ECB4	Slot #0	
	M208-255	8	(Reserved)	31-word			
	D0	9	CC-Link IEFB #2				
	D1-31	10	3	INPUT	16-bit	FC6A-N16B4	Slot #1
	D32	11	4	(Reserved)	48-bit		
RWr	D33	12	7	OUTPUT	16-bit	FC6A-R164	Slot #2
64	D34	13	8	(Reserved)	48-bit		
word	D35	13	11	Status	1-word	SX8R-ECB4	Slot #0
	D36	14	12	AD	DATA	FC6A-J4CN4	Slot #3
	D37	14		Ch.0	Status		
	D38	15	13	AD	DATA		
	D39	15		Ch.1	Status		
	D40	16	14	AD	DATA		
	D41-63	16	15	Ch.2	Status		
RWw	D64	17	16	(Reserved)	23-word		
64	D65-95	18	19	Control Register	1-word	SX8R-ECB4	Slot #0
word	D96	19	20	(Reserved)	31-word		
	D97-127	20					

FX5U and SX8R: CC-Link IE Field Basic protocol



Step 2: Configure communication settings for SX8R (CC-Link IE Field Basic Slave #1) using SX8R Configurator

1

Click the Read Module Configuration button to read the connected IO module configuration. (The IO module must be connected to the SX8R and the PC must be connected to the SX8R with a LAN cable.)

Project.mcp - SX8R Configurator

File Online English

Download Upload Monitor Batch Monitor Factory Reset Communication Settings

Module Configuration Basic Settings

Verify Read Module Configuration

Total Lateral Dimension: Approximately 86.4mm

SX8R-ECB4

Configure

Mode : Edit

2

3

4

5

Sets the administrative name of the SX8R Remote IO system. The maximum number of characters is 16. Alphabets, numbers, and symbols may be used.

Set the IP address of Ethernet Port 1 /2.

Select CC-Link IE Field Basic Slave from the Communication Mode pull-down menu.

Write and read passwords can be set for SX8R setting data. Since we are not setting passwords this time, we will turn off the check box for password setting.

Project.mcp - SX8R Configurator

File Online

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Module Configuration Basic Settings CC-Link IE Field Basic Slave

Name: CC-Link IEFB #1

IP Settings

Ethernet Port 1:

IP Address: 192.168.1.40

Subnet Mask: 255.255.255.0

Default gateway: 0.0.0.0

Ethernet Port 2:

IP Address: 192.168.1.41

Subnet Mask: 255.255.255.0

Default gateway: 0.0.0.0

Connection

No.	Communication Mode	Send wait time [ms]	Interface	Port Number	Access	Allow Access by IP Address
1	CC-Link IE Field Basic Slave		Ethernet Port 1	61450		
2	Modbus TCP Server					
3	EtherNet/IP Adaptor					
4	CC-Link IE Field Basic Slave					
5	Maintenance Communication Server					

Password

Download Password

Upload Password

Self Diagnostic

Turn off digital output when communication timeout occurs

Turn off analog output when communication timeout occurs

Analog I/O Module Status

Include status of analog inputs in shared memory

Include status of analog outputs in shared memory

Mode : Edit

FX5U and SX8R: CC-Link IE Field Basic protocol



Step 3: Check the address allocation of the shared memory of SX8R (CC-Link IE Field Basic Slave #1)



CC-Link IEFB #1				
1	INPUT	16-bit	FC6A-M24BR1	Slot #1
2	(Reserved)	48-bit		
5	OUTPUT	8-bit	FC6A-M24BR1	Slot #1
6	(Reserved)	56-bit		
9	Status	1-word	SX8R-ECB4	Slot #0
10	(Reserved)	31-word		
17	Control Register	1-word	SX8R-ECB4	Slot #0
18	(Reserved)	31-word		

Project.mcp - SX8R Configurator

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Module Configuration Basic Settings **CC-Link IE Field Basic Slave**

Shared Memory

RX:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Bits)
1	FC6A-M24BR4	I0000 - I0017		0 - F	16
		Reserved area			48
				Total	64

RWr:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Words)
0	SX8R	D8020	System Status	0	1
		Reserved area			31
				Total	32

RY:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Bits)
1	FC6A-M24BR4	Q0000 - Q0007		0 - 7	8
		Reserved area			56
				Total	64

RWw:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Words)
0	SX8R	D8021	Upper Controller Control Register	0	1
		Reserved area			31
				Total	32

Number of occupied station: 1 station(s)

Save Shared Memory list Save CSP+ file

1 Select the CC-Link IE Field Basic Slave tab and check the address allocation of the shared memory.

2 Click the Save Shared Memory List button to save the file as an image file. Click on the CSP+ File Save button to save the file. The CSP+ file is saved in ZIP format.

FX5U and SX8R: CC-Link IE Field Basic



Step4: Download the setting data to SX8R (CC-Link IE Field Basic Slave #1)

1

Download the setting data to the SX8R from the Download menu.

2

Click the Download button to start downloading to SX8R.

The screenshot shows the 'Project.mcp - SX8R Configurator' window. The 'Download' button in the top toolbar is highlighted with a red box and the number '1'. A dialog box titled 'Download' is open, showing a table of network adapters. The 'Download' button at the bottom of this dialog is highlighted with a red box and the number '2'. The dialog box contains the following table:

Name	IP Address	Port Number	MAC Address
EtherNet/IP Ad#1	192.168.1.40	2102	00:03:7B:AC:00:44

3

If the download is successful, a completion screen will pop up. Click the OK button to complete.

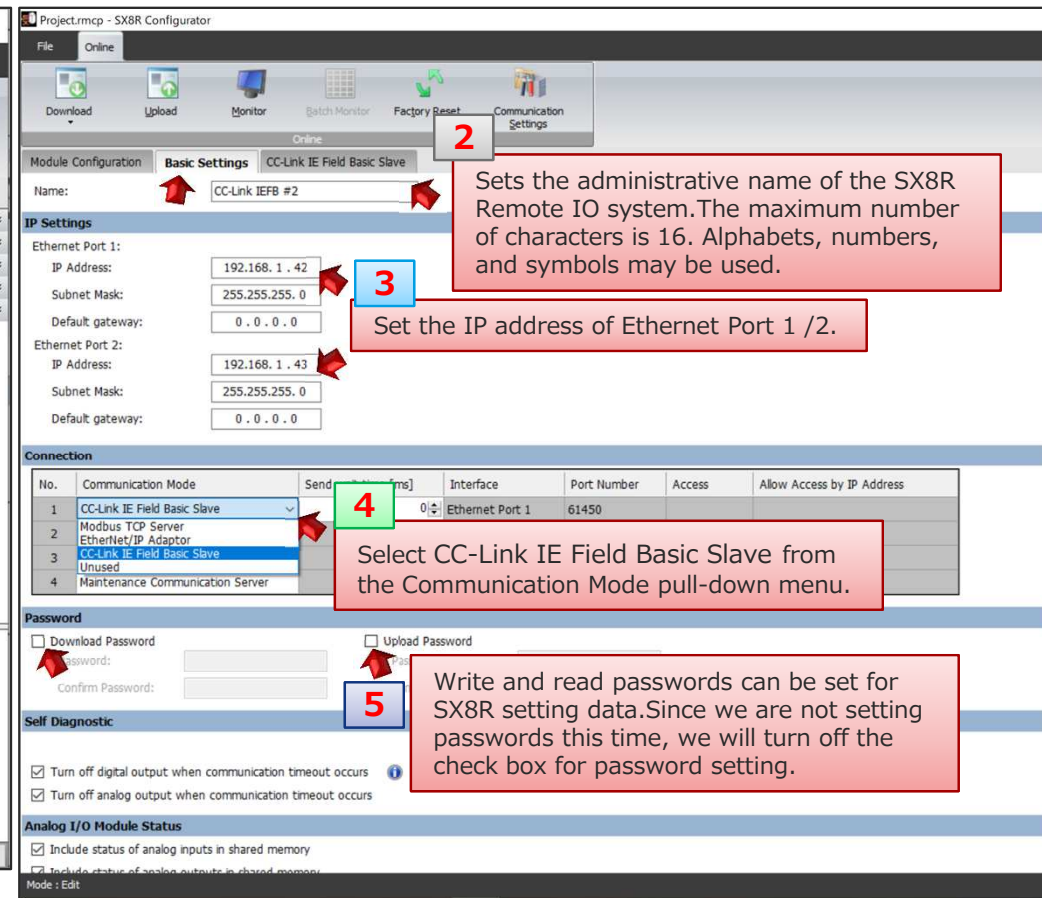
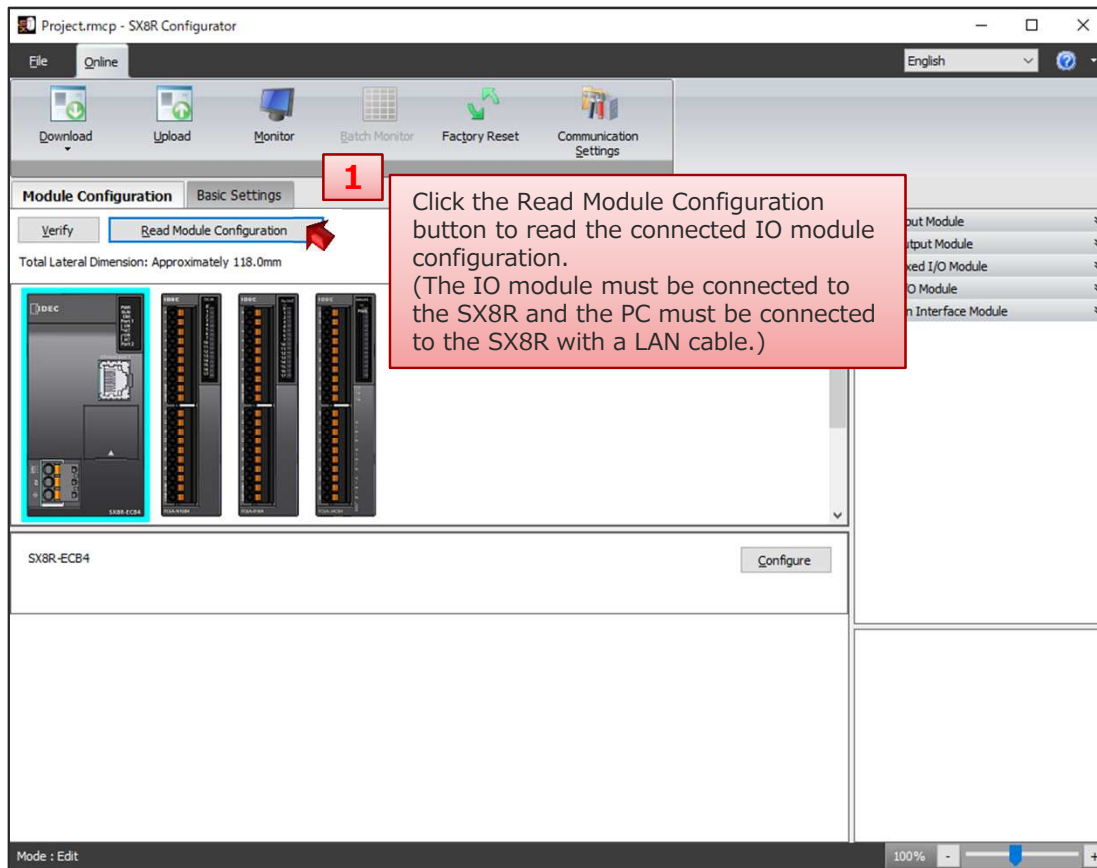
The screenshot shows the 'Project.mcp - SX8R Configurator' window with the 'CC-Link IE Field Basic Slave' configuration selected. A 'Download' dialog box is open, and a smaller 'SX8R Configurator' dialog box is overlaid on top, displaying the message 'Download has been completed successfully.' with an 'OK' button. The 'OK' button is highlighted with a red box and the number '3'. The background window shows a table of network adapters with the following data:

Name	IP Address	Port Number	MAC Address
EtherNet/IP Ad#2	192.168.1.42	2102	00:03:7B:F0:17:44
EtherNet/IP Ad#1	192.168.1.40	2102	00:03:7B:AC:00:44

FX5U and SX8R: CC-Link IE Field Basic protocol



Step 5: Configure communication settings for SX8R (CC-Link IE Field Basic Slave #2) using SX8R Configurator



FX5U and SX8R: CC-Link IE Field Basic protocol



Step 6: Check the address allocation of the shared memory of SX8R (CC-Link IE Field Basic Slave #2)



CC-Link IEFB #2				
3	INPUT	16-bit	FC6A-N16B4	Slot #1
4	(Reserved)	48-bit		
7	OUTPUT	16-bit	FC6A-R164	Slot #2
8	(Reserved)	48-bit		
11	Status	1-word	SX8R-ECB4	Slot #0
12	AD Ch.0	DATA 1-word	FC6A-J4CN4	Slot #3
		Status 1-word		
13	AD Ch.1	DATA 1-word		
		Status 1-word		
14	AD Ch.2	DATA 1-word		
		Status 1-word		
15	AD Ch.3	DATA 1-word		
		Status 1-word		
16	(Reserved)	23-word		
19	Control Register	1-word	SX8R-ECB4	Slot #0
20	(Reserved)	31-word		

Project.rmpc - SX8R Configurator

File Online

Download Upload Monitor Batch Monitor Factory Re Communication Settings

Module Configuration Basic Settings **CC-Link IE Field Basic Slave**

1 Select the CC-Link IE Field Basic Slave tab and check the address allocation of the shared memory.

Shared Memory

RX:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Bits)
1	FC6A-N16B4	I0000 - I0017		0 - F	16
		Reserved area			48
				Total	64

RWr:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Words)
0	SX8R	D8020	System Status	0	1
		D0040	AI0:Data	1	1
		D0041	AI0:Status	2	1
		D0042	AI1:Data	3	1
		D0043	AI1:Status	4	1
		D0044	AI2:Data	5	1
		D0045	AI2:Status	6	1
		D0046	AI3:Data	7	1
		D0047	AI3:Status	8	1
		Reserved area			23
				Total	32

RY:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Bits)
2	FC6A-R164	Q0000 - Q0017		0 - F	16
		Reserved area			48
				Total	64

RWw:

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Words)
0	SX8R	D8021	Upper Controller Control Register	0	1
		Reserved area			31
				Total	32

Number of occupied station: 1 station(s)

2 Click the Save Shared Memory List button to save the file as an image file. Click on the CSP+ File Save button to save the file. The CSP+ file is saved in ZIP format.

Save Shared Memory list Save CSP+ file

FX5U and SX8R: CC-Link IE Field Basic protocol



Step4: Download the setting data to SX8R (CC-Link IE Field Basic Slave #2)

1 Download the setting data to the SX8R from the Download menu.

2 Click the Download button to start downloading to SX8R.

The screenshot shows the 'Project.rmcip - SX8R Configurator' window. The 'Download' button in the top toolbar is highlighted with a red arrow and the number '1'. A red callout box contains the text 'Download the setting data to the SX8R from the Download menu.' Below this, the 'IP Settings' dialog is open, showing a table of network adapters. The 'Download' button at the bottom of the dialog is highlighted with a red arrow and the number '2'. A second red callout box contains the text 'Click the Download button to start downloading to SX8R.'

Name	IP Address	Port Number	MAC Address
EtherNET/IP Ad#2	192.168.1.42	2102	00:03:7B:F0:17:44

3 If the download is successful, a completion screen will pop up. Click the OK button to complete.

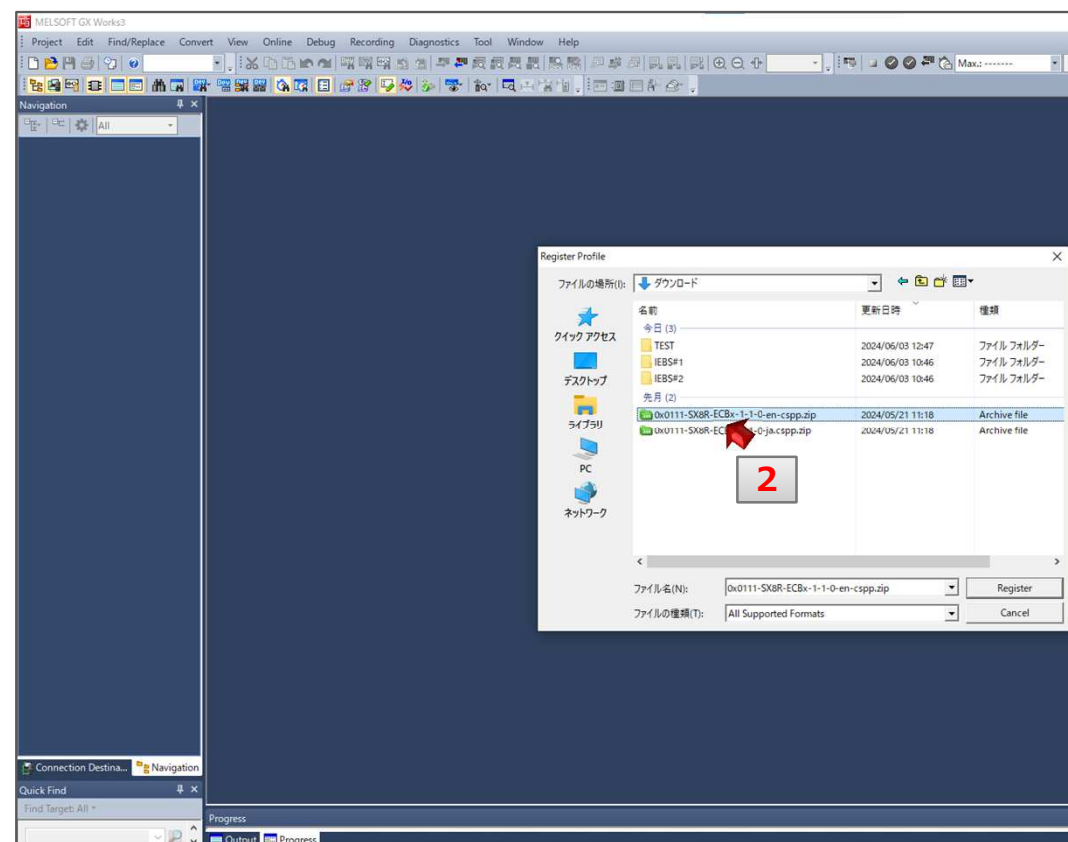
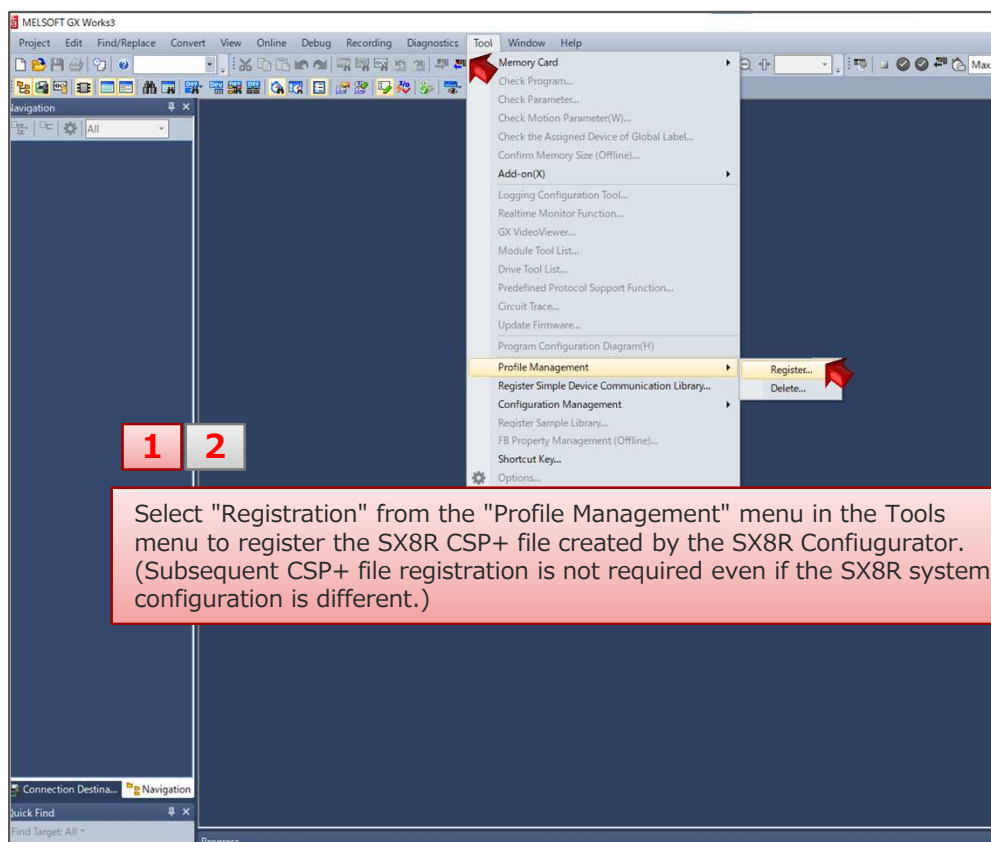
The screenshot shows the 'Project.rmcip - SX8R Configurator' window with the 'Shared Memory' section expanded. A table lists RX and RW modules. A 'Download' dialog is open, and a 'SX8R Configurator' completion dialog is also visible, showing a message 'Download has been completed successfully.' and an 'OK' button. A red arrow and the number '3' point to the 'OK' button. A red callout box contains the text 'If the download is successful, a completion screen will pop up. Click the OK button to complete.'

Slot	I/O Module	Device Address	Description	Link Device Address Number	Size (Bits)
1	FC6A-N16B4	I0000 - I0007	Reserved area		
0	SX8R	D8020	CC-Link IEFB #1	192.168.1.40	2102
		D0041	CC-Link IEFB #2	192.168.1.42	2102
3	FC6A-J4CN4	D0042			
		D0043			
		D0044			
		D0045			
		D0046			
		D0047			
		Reserved area			
2	FC6A-R164	Q0000 - Q0007	Reserved area		

FX5U and SX8R: CC-Link IE Field Basic



Step8: Import the SX8R CSP+ file created by SX8R Configurator into GX Works
(SX8R CSP+ files can also be downloaded from IDEC's EC site)



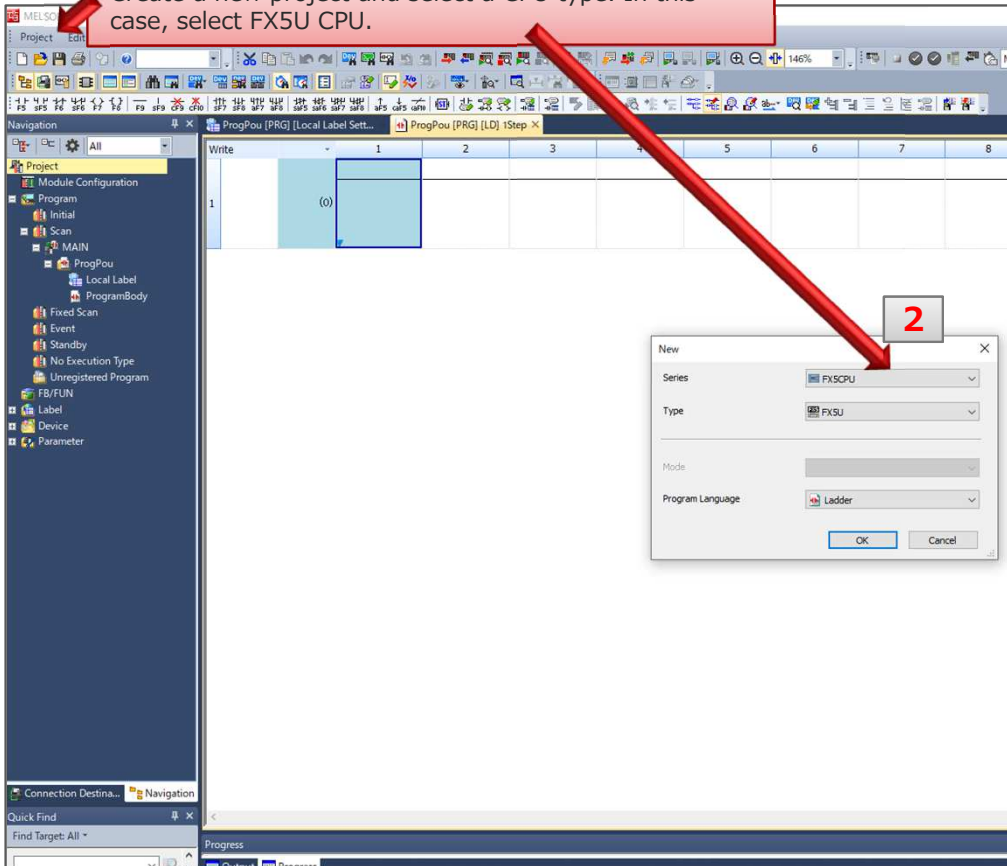
FX5U and SX8R: CC-Link IE Field Basic protocol



Step 9: Create a new project and enable CC-Link IFE Basic settings.

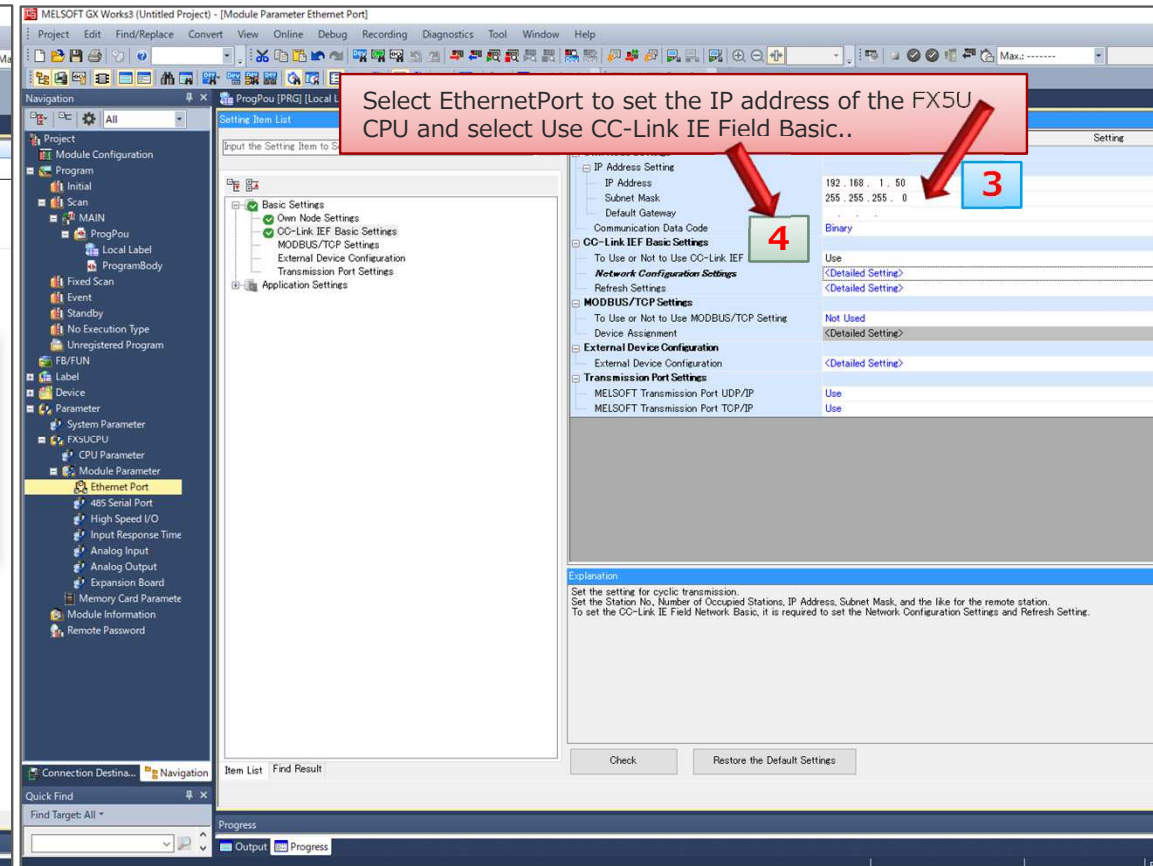
1

Create a new project and select a CPU type. In this case, select FX5U CPU.



2

Select EthernetPort to set the IP address of the FX5U CPU and select Use CC-Link IE Field Basic..



3

4

FX5U and SX8R: CC-Link IE Field Basic protocol



Step10: Select SX8R from the module list and configure the network connection.

1 Select Detailed Setting in Network Configuration Settings to open the configuration screen.

2 Select the SX8R-ECBx from the unit list and drag & drop it to the host station. This operation is performed for the number of slave stations.

No.	Model Name	STA#	Station Type	RX/Ry Setting			RWw/RWr Setting		
				Points	Start	End	Points	Start	End
0	Host Station	0	Master Station						
1	SX8R-ECBx	1	Remote Station	64 (1 Occupied Station)	0000	003F	32	0000	1F
2	SX8R-ECBx	2	Remote Station	64 (1 Occupied Station)	0040	007F	32	0020	3F

Host Station
STA#0
All Connected Count:2
Total STA#:2

SX8R-ECBx SX8R-ECBx

Module List
CC-Link IEF Basic Selection | Find Module | My 4
CC-Link IEF Basic Module (General)
CC-Link IEF Basic Module (Mitsubishi El)
Input Module
Output Module
I/O Combined Module
Servo Amplifier(MELSERVO-J4 Series)
General-Purpose AC Servo
GOT2000Series
Code Reader
Inverter (FR-A800 Series)
Inverter (FR-F800 Series)
RC
Vision Sensor
CCIEF Basic Module (IDEC Corporation)
Ethernet Module
SX8R-ECBx Ethernet.com

[Outline]
Bus coupler(CC-LINK IEF Basic)
[Specification]
Rated Input Voltage 24V DC
Power Supply Fluctuation Range 20.4 to 28.8V DC (including ripple)
0.85 A (24V DC) When maximum number of modules are connected.
Allowable Momentary Power Interruption 10ms
Withstand Voltage --Between power and FE terminals 500V AC, 1 minute --Between LAN port and internal circuit 500V AC 1 minute
Insulation Resistance --Between power and FE

FX5U and SX8R: CC-Link IE Field Basic protocol



Step11: Set the number of occupied stations and IP addresses for each slave

CC-Link IEF Basic Configuration

Connected Count: 2

No.	Model Name	STA#	Station Type	RX/Ry Setting			RWw/RWr Setting			Group No.	RSVD STA	IP Address	Subnet Mask
				Points	Start	End	Points	Start	End				
0	Host Station	0	Master Station										
1	SX8R-ECBx	1	Remote Station	64 (1 Occupied Station)	0000	003F	32	0000	001F	1	No Setting	192.168.3.250	
2	SX8R-ECBx	2	Remote Station	64 (1 Occupied Station)	0040	007F	32	0020	003F	1	No Setting	192.168.3.1	255.255.255.0

Shared Memory Map:

Slot	I/O Module
0	SX8R
1	FC6A-M24BR4
3	FC6A-J4CN4
0	SX8R
1	FC6A-M24BR4
0	SX8R
2	FC6A-R164
0	SX8R

Number of occupied station: 1 station(s)

Number of occupied station: 1 station(s)

Output:
 [Outline]
 Bus coupler(CC-LINK IEF Basic)
 [Specification]
 Rated Input Voltage 24V DC
 Power Supply Fluctuation Range 20.4 to 28.8V

1 Set the number of occupied stations and IP addresses for each slave station according to the shared memory map created by the SX8R Configurator.

FX5U and SX8R: CC-Link IE Field Basic protocol



Step12: Perform memory allocation between SX8R remote IO (link side) and FX5U on the refresh setting screen

1 Select Detailed Setting in Refresh Settings to open the configuration screen.

2 Set the Device Name and Start Address.

Link Side					CPU Side				
Device Name	Points	Start	End		Target	Device Name	Points	Start	End
RX	128	00000	0007F	↔	Specif	M	128	0	127
RY	128	00000	0007F	↔	Specif	M	128	128	255
RWr	64	00000	0003F	↔	Specif	D	64	0	63
RWw	64	00000	0003F	↔	Specif	D	64	64	127

CC-Link IEFB Master		
FX5U CPU		
RX	M0-15	1
128	M16-63	2
bit	M64-79	3
	M80-127	4
Ry	M128-135	5
128	M136-191	6
bit	M192-207	7
	M208-255	8
	D0	9
	D1-31	10
	D32	11
	D33	12
	D34	13
RWr	D35	14
64	D36	15
word	D37	16
	D38	17
	D39	18
	D40	19
	D41-63	20
RWw	D64	21
64	D65-95	22
word	D96	23
	D97-127	24

FX5U and SX8R: CC-Link IE Field Basic communication settings have been completed.

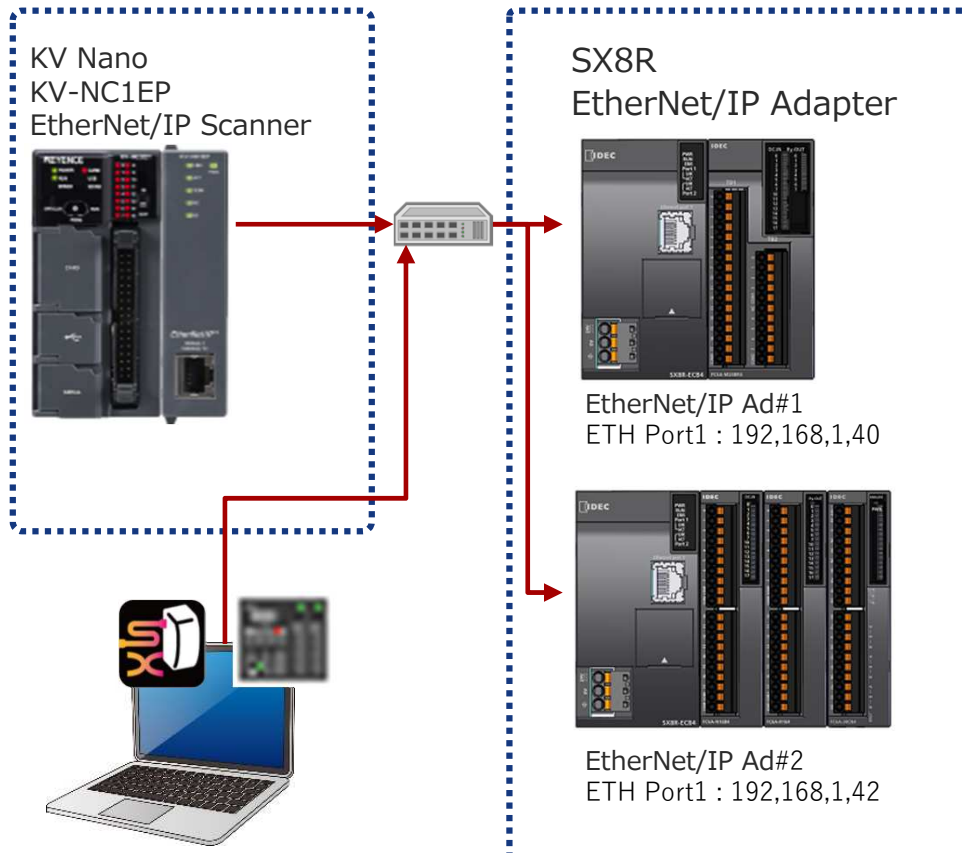
KV Nano PLC and SX8R: EtherNet/IP protocol

KV Nano PLC and SX8R: EtherNet/IP protocol



Step1: Define shared memory allocation between scanner and adapter according to remote IO system configuration

System Configuration



Shared memory setting

EtherNET/IP Scanner KV Nano CPU				
W00				
W01				
W02				
W03				
W04				
W05				
W06				
W07				
W08				
W09				
W0A				
W0B				
W0C				
W0D				
W0E				
W0F				

EtherNET/IP Ad#1				
Status	2 byte	SX8R-ECB4		
INPUT	2 byte	FC6A-M24BR1	Slot #1	
Control	2 byte	SX8R-ECB4		
OUTPUT	2 byte (1byte Reserved)	FC6A-M24BR1	Slot #1	

EtherNET/IP Ad#2				
Status	2 byte	SX8R-ECB4		
INPUT	2 byte	FC6A-N16B4	Slot #1	
AD Ch.0	DATA 2 byte	FC6A-J4CN4	Slot #3	
	Status 2 byte			
AD Ch.1	DATA 2 byte	FC6A-J4CN4	Slot #3	
	Status 2 byte			
AD Ch.2	DATA 2 byte	FC6A-J4CN4	Slot #3	
	Status 2 byte			
AD Ch.3	DATA 2 byte	FC6A-J4CN4	Slot #3	
	Status 2 byte			
Control	2 byte	SX8R-ECB4		
OUTPUT	2 byte	FC6A-R164	Slot #2	

KV Nano PLC and SX8R: EtherNet/IP protocol



Step2: Configure communication settings for SX8R (EtherNet/IP Adpter#1) using SX8R Configurator

1

Click the Read Module Configuration button to read the connected IO module configuration.
(The IO module must be connected to the SX8R and the PC must be connected to the SX8R with a LAN cable.)

Project.mcp - SX8R Configurator

File Online English

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Module Configuration Basic Settings

Verify Read Module Configuration

Total Lateral Dimension: Approximately 86.4mm

SX8R-ECB4

Configure

Mode : Edit

2

3

4

5

Sets the administrative name of the SX8R Remote IO system. The maximum number of characters is 16. Alphabets, numbers, and symbols may be used.

Set the IP address of Ethernet Port 1 /2.

Select EtherNet/IP Adaptor from the Communication Mode pull-down menu.

Write and read passwords can be set for SX8R setting data. Since we are not setting passwords this time, we will turn off the check box for password setting.

Project.mcp - SX8R Configurator

File Online English

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Module Configuration Basic Settings EtherNet/IP Adaptor

Name: EtherNet/IP Ad#1

IP Settings

Ethernet Port 1:

IP Address: 192.168.1.40

Subnet Mask: 255.255.255.0

Default gateway: 0.0.0.0

Ethernet Port 2:

IP Address: 192.168.1.41

Subnet Mask: 255.255.255.0

Default gateway: 0.0.0.0

Connection

No.	Communication Mode	Interface	Port Number	Access	Allow Access by IP Address
1	EtherNet/IP Adaptor	Port 1	2222		
2	Modbus TCP Server				
3	EtherNet/IP Adaptor				
4	CC-Link IE Field Basic Slave				
	Unused				
	Maintenance Communication Server				

Password

Download Password Password: Confirm Password:

Upload Password: Confirm Password:

Self Diagnostic

Turn off digital output when communication timeout occurs

Turn off analog output when communication timeout occurs

Analog I/O Module Status

Include status of analog inputs in shared memory

Include status of analog outputs in shared memory

Mode : Edit

KV Nano PLC and SX8R: EtherNet/IP protocol



Step3: Check the address allocation of the EtherNet/IP shared memory in SX8R (EtherNet/IP Adpter#1)



EtherNET/IP Ad#1				
Status	2 byte	SX8R-ECB4		
INPUT	2 byte	FC6A-M24BR1	Slot #1	
Control	2 byte	SX8R-ECB4		
OUTPUT	2 byte (1byte Reserved)	FC6A-M24BR1	Slot #1	

Project.rmcp - SX8R Configurator

File Online English

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Module Configuration Basic Settings **EtherNet/IP Adaptor**

Shared Memory

IN (T->O):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status		2
1	FC6A-M24BR4	I0000 - I0017			2
				Total	4

OUT (O->T):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8021	Upper Controller Control Register		2
1	FC6A-M24BR4	Q0000 - Q0007 Reserved area			2
				Total	4

Save Shared Memory list Save EDS file

Mode : Edit 135%

1 Select the EtherNet/IP Adpter tab and check the address allocation of the shared memory.

2 Click on the Save Shared Memory List button to save the file as an image file.EDS files can be saved, but for this setup procedure, we will use the EDS files available on IDEC's EC site.

KV Nano PLC and SX8R: EtherNet/IP protocol



Step4: Download the setting data to SX8R (EtherNet/IP Adpter# 1)

1

Download the setting data to the SX8R from the Download menu.

2

Click the Download button to start downloading to SX8R.

The screenshot shows the 'Project.rmpc - SX8R Configurator' window. The 'Download' button in the top toolbar is highlighted with a red arrow and the number '1'. A red callout box points to it with the text 'Download the setting data to the SX8R from the Download menu.' The 'IP Settings' dialog is open, showing a table of network adapters. The 'Download' button at the bottom of the dialog is highlighted with a red arrow and the number '2'. A red callout box points to it with the text 'Click the Download button to start downloading to SX8R.'

Name	IP Address	Port Number	MAC Address
EtherNet/IP Ad#1	192.168.1.40	2102	00:03:78:AC:00:44

3

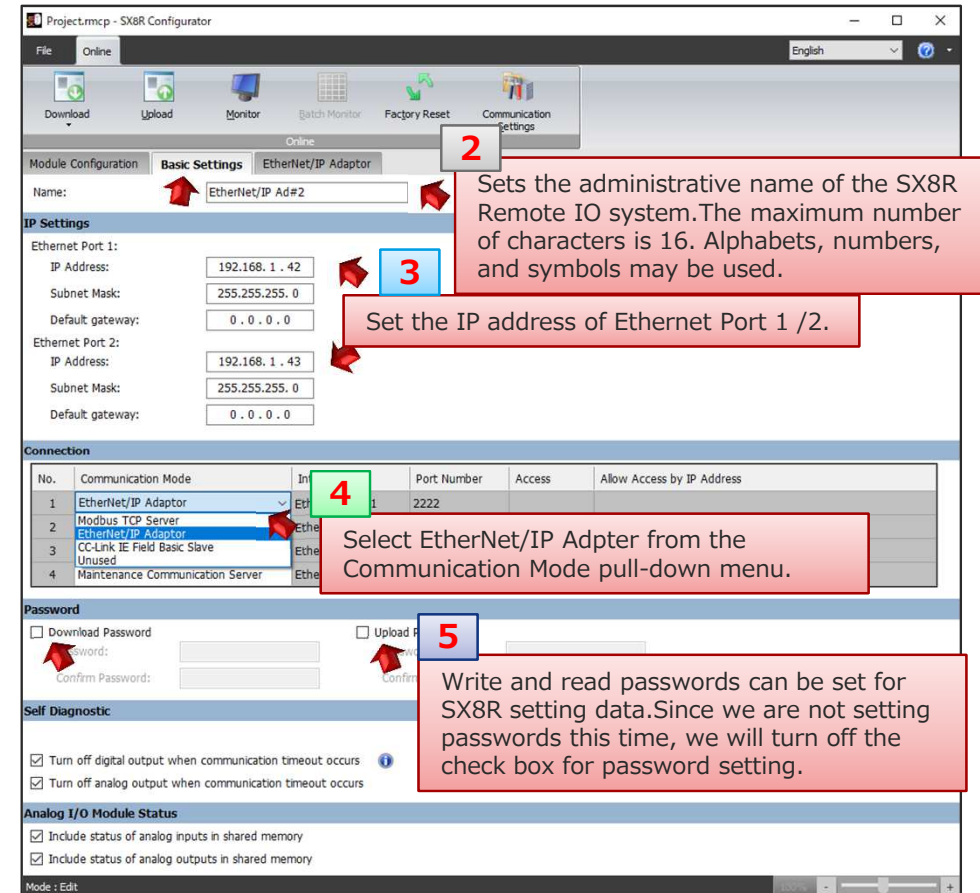
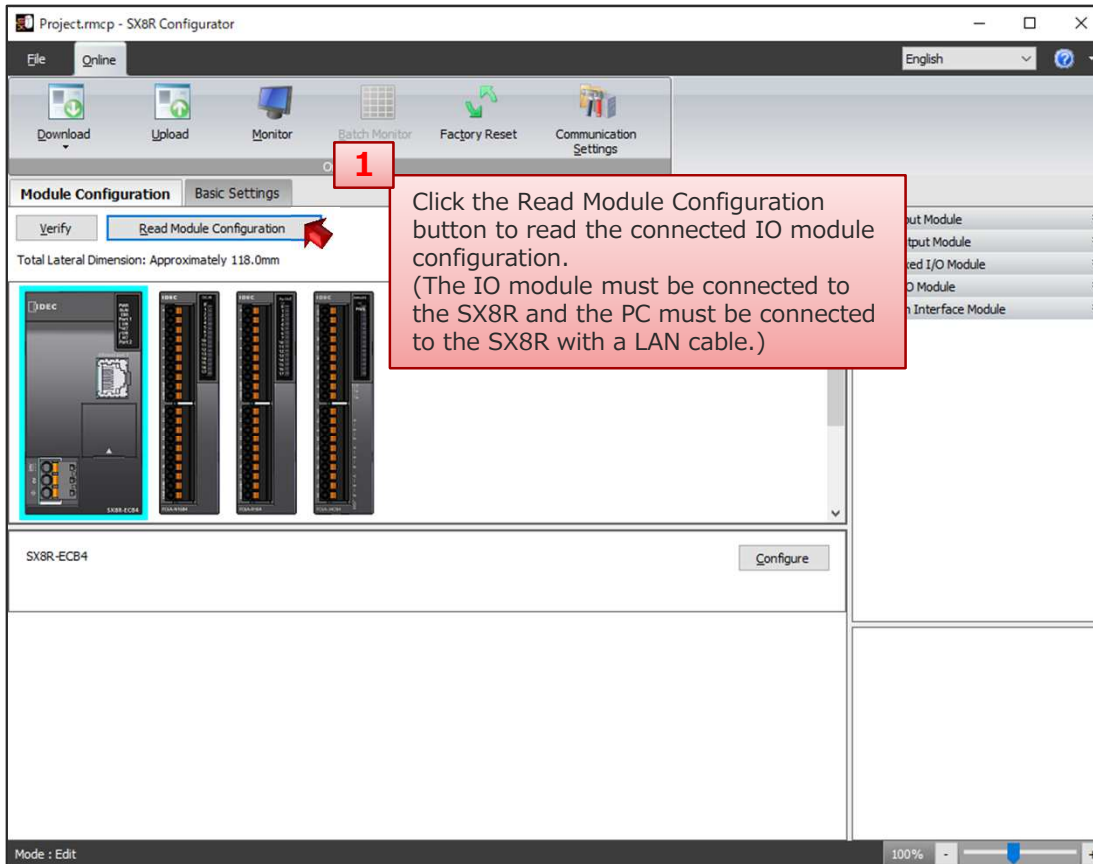
If the download is successful, a completion screen will pop up. Click the OK button to complete.

The screenshot shows the 'Project.rmpc - SX8R Configurator' window. A small dialog box titled 'SX8R Configurator' is open in the center, displaying a blue information icon and the text 'Download has been completed successfully.' with an 'OK' button. A red arrow and the number '3' point to the 'OK' button. A red callout box points to the dialog with the text 'If the download is successful, a completion screen will pop up. Click the OK button to complete.'

KV Nano PLC and SX8R: EtherNet/IP protocol



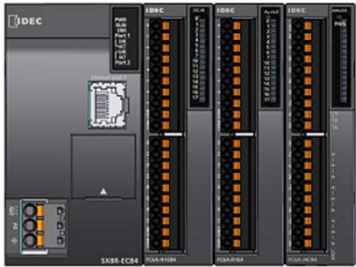
Step5: Configure communication settings for SX8R (EtherNet/IP Adpter#1) using SX8R Configurator



KV Nano PLC and SX8R: EtherNet/IP protocol



Step6: Check the address allocation of the EtherNet/IP shared memory in SX8R (EtherNet/IP Adpter#1)



EtherNET/IP Ad#2				
Status	2 byte	SX8R-ECB4		
INPUT	2 byte	FC6A-N16B4	Slot #1	
AD Ch.0	DATA 2 byte	FC6A-J4CN4	Slot #3	
	Status 2 byte			
AD Ch.1	DATA 2 byte			
	Status 2 byte			
AD Ch.2	DATA 2 byte			
	Status 2 byte			
AD Ch.3	DATA 2 byte			
	Status 2 byte			
Control	2 byte	SX8R-ECB4		
OUTPUT	2 byte	FC6A-R164	Slot #2	

Project.mcp - SX8R Configurator

File Online English

Download Upload Monitor Batch Monitor Factory Reset Communication Settings

Module Configuration Basic Settings **EtherNet/IP Adaptor**

1 Select the EtherNet/IP Server tab and check the address allocation of the shared memory.

Shared Memory

IN (T->O):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status		2
1	FC6A-N16B4	I0000 - I0017			2
3	FC6A-J4CN4	D0040	AI0:Data	4	2
		D0041	AI0:Status	6	2
		D0042	AI1:Data	8	2
		D0043	AI1:Status	10	2
		D0044	AI2:Data	12	2
		D0045	AI2:Status	14	2
		D0046	AI3:Data	16	2
		D0047	AI3:Status	18	2
				Total	20

OUT (O->T):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8021	Upper Controller Control Register	0	2
2	FC6A-R164	Q0000 - Q0017			2
				Total	4

Save Shared Memory list Save EDS file

2 Click on the Save Shared Memory List button to save the file as an image file. EDS files can be saved, but for this setup procedure, we will use the EDS files available on IDEC's EC site.

Mode : Edit

KV Nano PLC and SX8R: EtherNet/IP protocol



Step7: Download the setting data to SX8R (EtherNet/IP Adpter#2)

1 Download the setting data to the SX8R from the Download menu.

2 Click the Download button to start downloading to SX8R.

3 If the download is successful, a completion screen will pop up. Click the OK button to complete.

The screenshots show the 'Project.mcp - SX8R Configurator' interface. The left screenshot shows the 'Download' button in the top toolbar being clicked. The right screenshot shows a dialog box with the message 'Download has been completed successfully.' and an 'OK' button.

Name	IP Address	Port Number	MAC Address
EtherNET/IP Ad#2	192.168.1.42	2102	00:03:7B:F0:17:44

KV Nano PLC and SX8R: EtherNet/IP protocol



Step8: Configure the KV Nano and EtheNet/IP communication module from a new project in KV Studio

The image shows two screenshots from the KV Studio software interface. The left screenshot shows the 'New project' dialog box with the 'Project name(N)' set to 'SX8R_TEST' and the 'PLC model(K)' set to 'KV-NC32'. A red arrow points to the 'File(F) > New Project(N)' menu path, and a red box with the number '1' is next to it. A text box explains: 'Select File (F) → New Project (N), fill in the project name, and determine the corresponding model.' The right screenshot shows the 'Unit Editor' window for the 'KV-NC32' unit. A red arrow points to the 'KV-NC1EP' module in the 'Unit Editor' window, and a red box with the number '2' is next to it. A text box explains: 'Double-click KV-NC32 and configure network units from the unit editor by drag-and-drop operation to configure modules.' The 'Unit Editor' window shows a table of modules:

	0	1
KV-NC32	KV-NC1EP	
R000		
-015		
R500		
-515		
		R1000
		-4915

The 'Unit Editor' window also shows a 'Message' window at the bottom with a table:

Process	Row	No.	Code	Message

KV Nano PLC and SX8R: EtherNet/IP protocol



Step9: Configure EtherNet/IP settings for the EtherNet/IP communication module.

Move the cursor to the network unit (KV-NC1EP), right click and select EtherNet/IP Settings (F).

EtherNET/IP configuration dialog opens, select manual configuration.

KV Nano PLC and SX8R: EtherNet/IP protocol



Step10: Download EDS files from IDEC EC site and import EDS files into KV Studio

1

Click on EDS File (D) ➔ Reg(I) to select and import the SX8R EDS file which is downloaded from IDEC's EC site.

2

When the EDS file is imported correctly, it will appear in the equipment list. (Subsequent EDS file registration is not required, even if the SX8R system configuration is different.)

Unit name	Rev.	EDS fil...
DataMan 400 Ser...	1.5	DataMan...
DataMan 8000 Se...	1.5	DataMan...
In-Sight 2000 S...	11.1	In-Sigh...
In-Sight 5700 S...	11.1	In-Sigh...
In-Sight 7900-7...	11.1	In-Sigh...
In-Sight 8000 S...	11.1	In-Sigh...
In-Sight 9000 S...	11.1	In-Sigh...
IEDEC IZUMI Corpo...		
SX8R-ECBx	1.1	EDS for...

KV Nano PLC and SX8R: EtherNet/IP protocol



Step 11: Configure IP settings for the SX8R bus coupler (EtherNet/IP Adapter#1)

1

Select SX8R-ECBx from the device list and configure the system by drag & drop operation.

The screenshot shows the 'EtherNet/IP settings' window. On the left, a device list contains '1: SX8R-ECBx : 192.168.0.1'. The 'Unit list' on the right shows a table of units:

Unit name	Rev.	EDS fil...
DataMan 400 Ser...	1.5	DataMan...
DataMan 8000 Se...	1.5	DataMan...
In-Sight 2000 S...	11.1	In-Sigh...
In-Sight 5700 S...	11.1	In-Sigh...
In-Sight 7900-7...	11.1	In-Sigh...
In-Sight 8000 S...	11.1	In-Sigh...
In-Sight 9000 S...	11.1	In-Sigh...
IDEC IZUMI Corpo...		
SX8R-ECBx	1.1	EDS for...

The 'Output' table at the bottom is empty.

2

Set the IP address on the adapter initialization screen.

The screenshot shows the same 'EtherNet/IP settings' window, but with an 'Initial adapter settings' dialog box open. The dialog box contains the following fields:

- Node address(A): 1
- IP address(I): 192 . 168 . 1 . 40
- Connection name: I/O
- Exclusive Owner: IN/OUT

The 'Output' table at the bottom is empty.

KV Nano PLC and SX8R: EtherNet/IP protocol



Step12: Set the communication data size (IN/OUT) of the SX8R bus coupler (EtherNet/IP Adapter#1)

1 Right click on SX8R-ECBx (Adpter #1) and select Connection Settings (N).

2 Select Parameter Setting (P) from the Connection Settings dialog to set the communication data size (IN/OUT) in bytes according to the memory map created by the SX8R Configurator.

Shared Memory

EtherNet/IP Adapter#1

IN (T->O):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status	0	2
1	FC6A-M24BR4	I0000 - I0017			2
Total					2

OUT (O->T):

Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8021	Upper Controller Control Register	0	2
1	FC6A-M24BR4	Q0000 - Q0007	Reserved area		2
Total					2

Setup parameter

Parameter(P) SX8R-ECBx

No.	Parameter	Set value	Attribute
0002	Produced Data Size	4	R/W
0003	Consumed Data Size	4	R/W

"Produced Data Size" is the setting for IN data size and "Consumed Data Size" is the setting for Out data size.

KV Nano PLC and SX8R: EtherNet/IP protocol



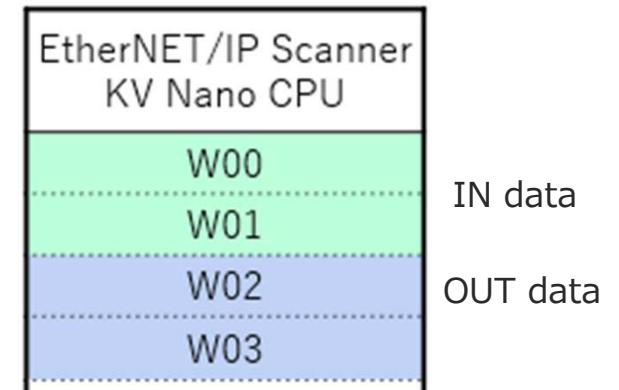
Step13: Setting the device allocation for SX8R bus coupler (EtherNet/IP Adapter#1)

1 Click Assign device(D) in Connection Settings to open the Device assignment settings dialog.

2 Set the first device of IN data.

3 Set the first device of OUT data.

EtherNet/IP Adapter#1



Auto assing (A) automatically allocates the allocation devices in succession.

KV Nano PLC and SX8R: EtherNet/IP protocol



Step 14: Configure IP settings for the SX8R bus coupler (EtherNet/IP Adapter#2)

1

Select SX8R-ECBx from the device list and configure the system by drag & drop operation.

Unit name	Rev.	EDS fil...
DataMan 400 Ser...	1.5	DataMan...
DataMan 8000 Se...	1.5	DataMan...
In-Sight 2000 S...	11.1	In-Sigh...
In-Sight 5700 S...	11.1	In-Sigh...
In-Sight 7900-7...	11.1	In-Sigh...
In-Sight 8000 S...	11.1	In-Sigh...
In-Sight 9000 S...	11.1	In-Sigh...
IDEK IZUMI Corpo...		
SX8R-ECBx	1.1	EDS for...

N...	Node name	IP address	Connection	RPI[IN] (ms)	RPI[OUT] (ms)	Time out	Re pri
1	SX8R-ECBx	192.168....	Exclusive Owner [IN_100...	6.0	6.0	RPI*16	Normal
2	SX8R-ECBx	192.168....	Exclusive Owner [IN_100...	6.0	6.0	RPI*16	Normal

2

Set the IP address on the adapter initialization screen.

Unit name	Rev.	EDS fil...
DataMan 400 Ser...	1.5	DataMan...
DataMan 8000 Se...	1.5	DataMan...
In-Sight 2000 S...	11.1	In-Sigh...
In-Sight 5700 S...	11.1	In-Sigh...
In-Sight 7900-7...	11.1	In-Sigh...
In-Sight 8000 S...	11.1	In-Sigh...
In-Sight 9000 S...	11.1	In-Sigh...
Corpo...		
SX8R-ECBx	1.1	EDS for...

N...	Node name	IP address	Connection	RPI[IN] (ms)	RPI[OUT] (ms)	Time out	Re pri
1	SX8R-ECBx	192.168....	Exclusive Owner [IN_100...	6.0	6.0	RPI*16	Normal
2	SX8R-ECBx	192.168....	Exclusive Owner [IN_100...	6.0	6.0	RPI*16	Normal

KV Nano PLC and SX8R: EtherNet/IP protocol



Step15: Set the communication data size (IN/OUT) of the SX8R bus coupler (EtherNet/IP Adapter#2)

2

Select Parameter Setting (P) from the Connection Settings dialog to set the communication data size (IN/OUT) in bytes according to the memory map created by the SX8R Configurator.

1

Right click on SX8R-ECBx (Adpter #1) and select Connection Settings (N).

EtherNet/IP Adapter#2

Shared Memory					
IN (T->O):					
Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
0	SX8R	D8020	System Status	0	2
1	FC6A-N16B4	I0000 - I0017			2
		D0040	AI0:Data		4
		D0041	AI0:Status		6
		D0042	AI1:Data		8
		D0043	AI1:Status		10
		D0044	AI2:Data		12
		D0045	AI2:Status		14
3	FC6A-J4CN4	D0046	AI3:Data		16
		D0047	AI3:Status		18
		Total			20

Shared Memory					
OUT (O->T):					
Slot	I/O Module	Device Address	Description	Offset (Bytes)	Size (Bytes)
			Parameter Controller Control Register	0	2
			Total		2

Connection settings - 1: SX8R-ECBx

Connection list(L)

No.	Connection	Application type
1	Exclusive Owner [IN_100,OUT_200]	exclusive owner

Setup parameter

Parameter(P) SX8R-ECBx

No.	Parameter	Set value	Attribute
0002	Produced Data Size	20	R/W
0003	Consumed Data Size	4	R/W

“Produced Data Size” is the setting for IN data size and “Consumed Data Size” is the setting for Out data size.

KV Nano PLC and SX8R: EtherNet/IP protocol



Step16: Setting the device allocation for SX8R bus coupler (EtherNet/IP Adapter#2)

1

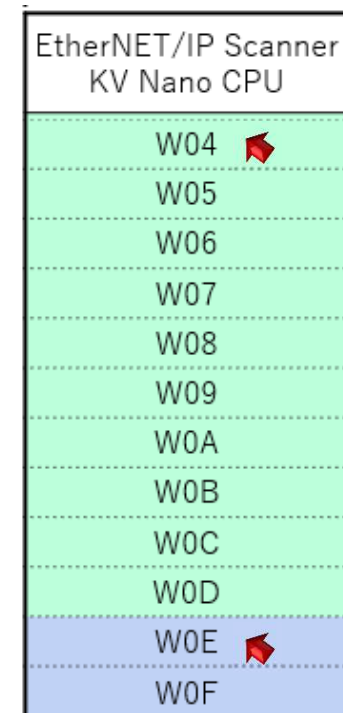
Click Assign device(D) in Connection Settings to open the Device assignment settings dialog.

2

Set the first device of IN data.

3

Set the first device of OUT data.



Auto assign (A) automatically allocates the allocation devices in succession.

KV Nano PLC and SX8R: EtherNet/IP protocol communication settings have been completed.