

AUTO-ID TECHNICAL GUIDE

SR-X300/X100/5000/2000/1000

Rockwell CompactLogix

Connection Guide: EtherNet/IP™ Communication

This manual explains how to use EtherNet/IP communication to connect to the code reader and the Rockwell CompactLogix Series.



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CHAPTER 1 EQUIPMENT USED

Prepare the following equipment.

CompactLogix (*1) 	USB Cable (*2) 	Code Reader 
Ethernet Cable OP-87230 (2 m) 	Control Cable (*3) 	

(*1) CompactLogix controller is 5069-L306ER.

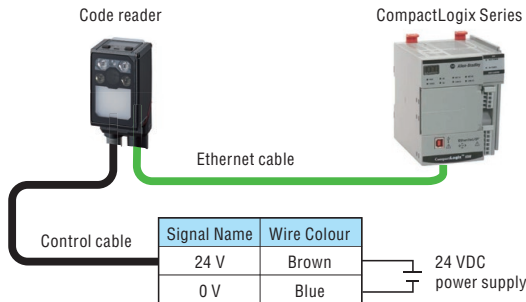
(*2) OP-88569(1.5m) (SR-X300/X100)
OP-51580(2m) (SR-5000/2000/1000)

(*3) OP-88678(2m) (SR-X300/X100)
OP-87353(2m) (SR-2000/1000)
OP-88428(2m) (SR-5000)

CHAPTER 2 CONNECTION METHODS

OVERALL CONNECTION DIAGRAM

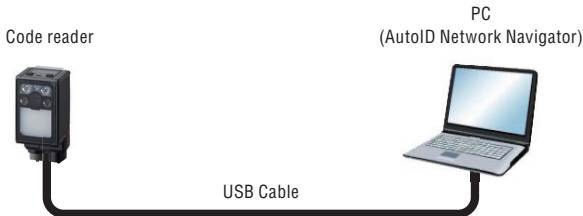
Connect the CompactLogix and the code reader as shown below.



CHAPTER 3 CONFIGURING KEYENCE CODE READER SETTINGS

Use the Auto ID Network Navigator to configure the communication settings for the code reader.

1 Use an USB cable to connect the PC and the code reader.



2 Start AutoID Network Navigator.

When you start AutoID Network Navigator, it will automatically search for the code reader on the network.



When the connection completes successfully, the below image is displayed.



3 Change the settings to those of the desired fixed IP address.

[ETHERNET]

Reading	Bank	RS-232C	Ethernet	Operation	I/O	Saving Images	Misc	Table
SR-1000 IP setting								
IP Address				192	168	100	100	
Subnet Mask				255	255	255	0	24
Default Gateway				0	0	0	0	
<button>Start the setup wizard</button>				<button>Open reader configuration</button>				
Follow the wizard to create the Ethernet communication settings.				View and change created settings.				

4 Click the “Start the setup wizard”, and set as shown below.

The screenshots show the following steps:

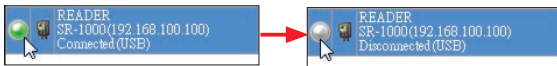
- STEP1 Timing input:** Select the timing input method. Options: I/O terminal input, Timing ON command (tag) input (highlighted).
- STEP2 Output destination:** Select the output destination of the read data. Options: Field network/PLC (highlighted), Computer.
- STEP3 Communication:** Select the communication protocol. Options: Ethernet/IP (highlighted), PROFINET, PLC Link (KV STUDIO), PLC Link (MC protocol), PLC Link (CMR/GK).
- STEP4 Detailed settings:** Communication protocol: Ethernet/IP. Data handshake: Disable. Input assembly data size (sending): 500 byte(40-1400). Output assembly data size (receiving): 500 byte(4-1400). Byte Swapping: Disable (ROCKWELL), Enable (NIZETICE, CMR/GK).

5 Send configuration

Click the send settings button in the upper right of AutoID Network Navigator to send the settings to the code reader.

6 Click on the green light to release the connection to the barcode reader.

When the code reader is connected to AutoID Network Navigator, communication with the PLC is not available.



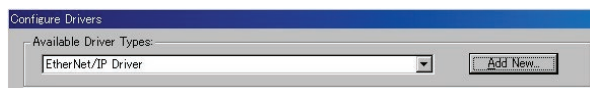
This completes the configuration of the barcode reader.

CHAPTER 4 CONFIGURING ROCKWELL COMPACTLOGIX SERIES SETTINGS

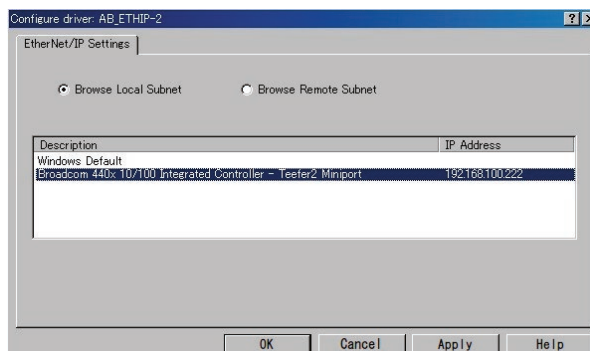
1 Use RSLinx Classic software to recognize PLC

2 Connect the PC installed with Studio5000 and PLC with Ethernet cable

Starting RSLinx and select [Communications] → [ConfigureDriver]. Choose [Ethernet/IP Driver] in available driver types and click [Add new] button.



Name “AB_ETHIP-1” and choose [Browse Local Subnet] → [Your PC interface card].



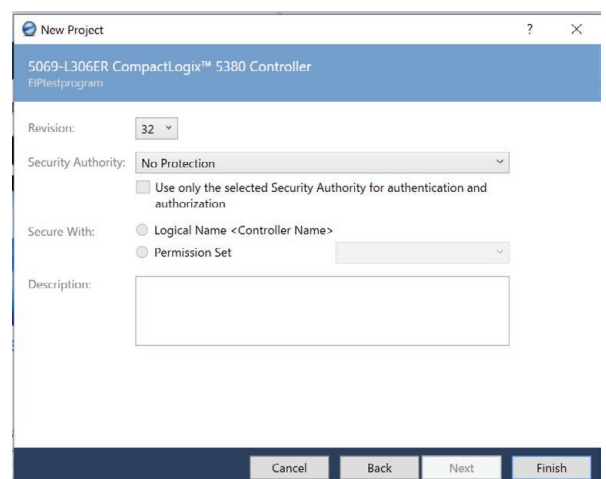
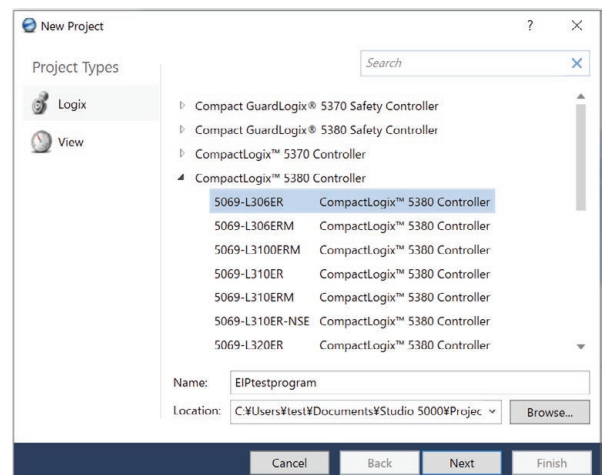
3 New module Registration

Right-click [ABETHIP-1] → [5069-L306ER LOGIX306ER], and set the IP address of PLC.

The 'AB_ETHIP-1\192.168.100.150 5069-L306ER/A Configuration' dialog box shows the 'Advanced Port Configuration' tab. The 'Port' is set to 'A1'. The 'Manually configure IP settings' radio button is selected. The IP Address is 192.168.100.150, Network Mask is 255.255.255.0, Gateway Address is 0.0.0.0, Primary Name Server is 0.0.0.0, Secondary Name Server is 0.0.0.0, Domain Name is empty, and Host Name is empty. The Status is 'Network Interface Configured'.

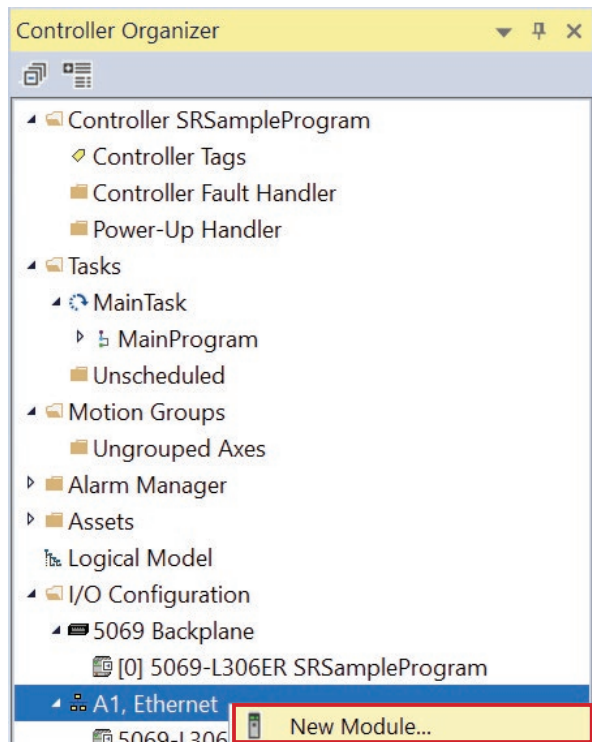
4 Use Studio5000 software to create a new project

Start Studio5000, and the select [New Project] to create a new project. Configure the new project PLC model settings, set as shown below.



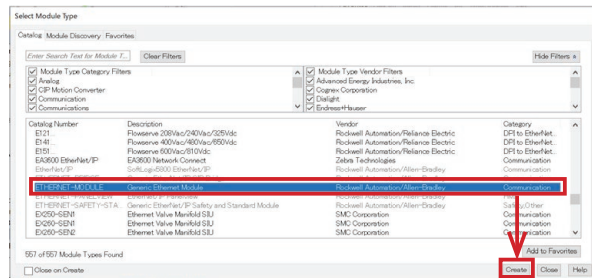
5 Registration of Code reader Series to Studio5000

Right-click [Controller Organizer] → [I/O Configuration] → [A1,Ethernet] and select "New Module".



Once the new module is created click the [+] next to Communication and select General Ethernet Module

(ETHERNET-MODULE)



Set the ETHERNET-MODULE parameters:

a. Name

Optional Setting, use "SR" if using Keyence Tag Description File (CSV file).

b. Comm Format

Optional Setting, choose from Data-INT(integer- 2Bytes), Data-SINT(Single integer- 1Byte), or Data-DINT(Double integer- 4Bytes).

c. IP Address

IP address of the code reader.

d. Input and Output Assembly Instance

100 and 101 respectively (fixed)

e. Input and Output Size

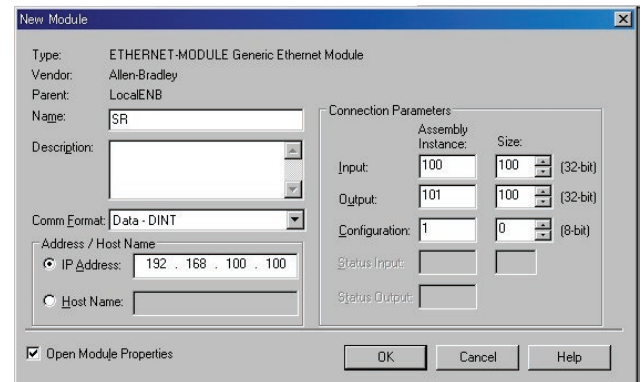
Assembly size, Input and Output should be the SAME for both

Suggested Sizes:

1. DINT 100, 100
2. INT 200, 200
3. SINT 400, 400

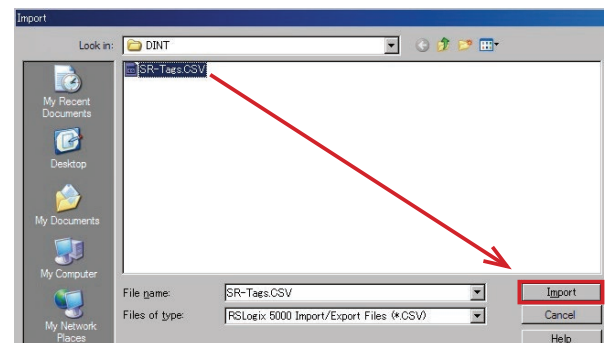
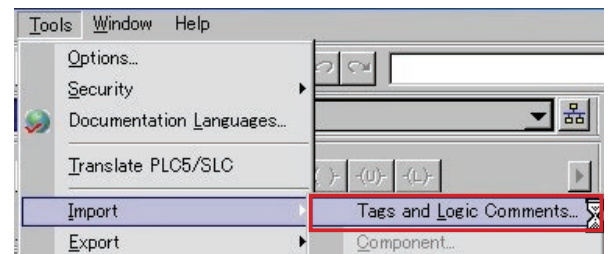
f. Configuration Settings

Assembly instance is 1(fixed) and Size is 0(fixed).



6 How to load TAG Description

You can download the Tag Description CSV file on the WEB (barcodereader.com). Once you receive this just save it to your computer, then you will be ready to load it into your Allen-Bradley software. To do this go to [Tool] → [IMPORT] → [Tags and Logic Comments] and choose the file you were provided.

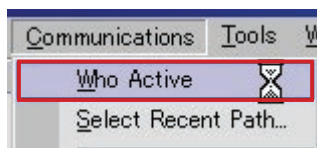


This will populate the bit descriptions like the following.

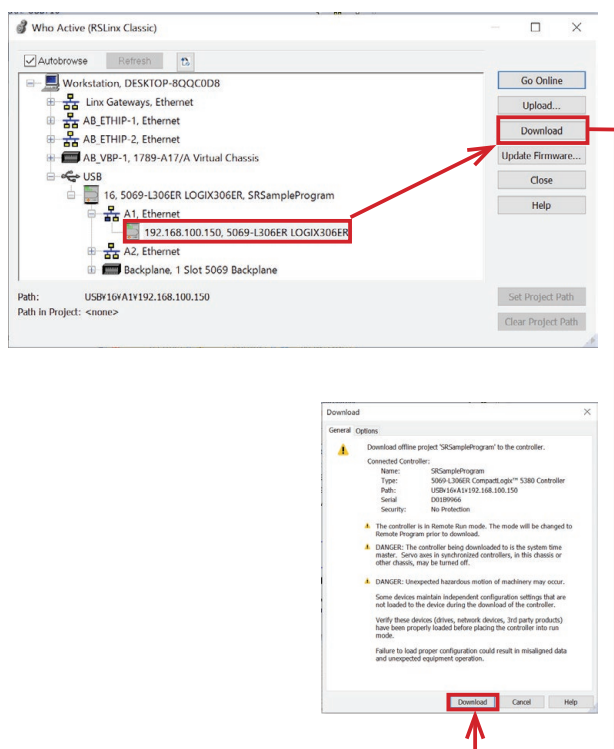
Name	Data Type	Description
SR.I	AB:ETHERNET_MODULE_DINT...	
SR.I.Data	DINT[125]	
SR.I.Data[0]	DINT	
SR.I.Data[0].0	BOOL	Error
SR.I.Data[0].1	BOOL	Result Data Available
SR.I.Data[0].2	BOOL	Result Data Strobe
SR.I.Data[0].3	BOOL	Reserved
SR.I.Data[0].4	BOOL	Reserved
SR.I.Data[0].5	BOOL	Reserved
SR.I.Data[0].6	BOOL	Buffer Overflow Error
SR.I.Data[0].7	BOOL	General Error
SR.I.Data[0].8	BOOL	Busy
SR.I.Data[0].9	BOOL	Trigger Busy

1 Transfer settings to CPU unit

Set the CPU mode key of the CPU unit to "REM" (center position).
Select [Communications] → [Who Active] from the Studio5000 window.



In this example, select [AB_ETHIP-1] → [1769-L32E] → [Backplane] → [1769L32E], and execute [Download].



Checking the CPU status after download is completed.



2 Monitoring Reading data

In [Controller Organizer], double click [Controller Tags].



Switch "SR:O.Data[0].8" (Read Request) bit from 0(OFF) to 1(ON) to start reading. To complete reading without reading the code, switch "SR:O.Data[0].8" bit from 1 to 0.

Name	Value	Style	Data Type	Description
SR:O	(...)	(...)	AB:ETHE...	
SR:O.Data	(...)	(...)	Decimal DINT[100]	
SR:O.Data[0]	256	Decimal	DINT	
SR:O.Data[0].0	0	Decimal	BOOL	Reserved
SR:O.Data[0].1	0	Decimal	BOOL	Result Data Latch
SR:O.Data[0].2	0	Decimal	BOOL	Reserved
SR:O.Data[0].3	0	Decimal	BOOL	Reserved
SR:O.Data[0].4	0	Decimal	BOOL	Reserved
SR:O.Data[0].5	0	Decimal	BOOL	Reserved
SR:O.Data[0].6	0	Decimal	BOOL	Reserved
SR:O.Data[0].7	0	Decimal	BOOL	Error Clear
SR:O.Data[0].8	1	Decimal	BOOL	Read Request
SR:O.Data[0].9	0	Decimal	BOOL	Preset Request

When the sample code is read, the data read is stored in the "Result Data" area as shown below.

Name	Value	Style	Data Type	Description
SR:I	(...)	(...)	AB:ETHE...	
SR:I.Data	(...)	(...)	Decimal DINT[100]	
SR:I.Data[0]	0	Decimal	DINT	
SR:I.Data[1]	0	Decimal	DINT	
SR:I.Data[2]	0	Decimal	DINT	
SR:I.Data[3]	0	Decimal	DINT	Reserved
SR:I.Data[4]	0	Decimal	DINT	Matching Level
SR:I.Data[5]	0	Decimal	DINT	ISO/IEC15415 Grade
SR:I.Data[6]	0	Decimal	DINT	Reserved
SR:I.Data[7]	0	Decimal	DINT	Reserved
SR:I.Data[8]	0	Decimal	DINT	Read Result Code
SR:I.Data[9]	0	Decimal	DINT	Preset Result Code
SR:I.Data[10]	0	Decimal	DINT	Register Preset Data Result Code
SR:I.Data[11]	0	Decimal	DINT	Result Data
SR:I.Data[12]	0	Decimal	DINT	Result Data

Change the data style Decimal to ASCII.

SR:I.Data[11]	'\$00\$00\$00\$00'	ASCII	DINT	Result Data
SR:I.Data[12]	'\$00\$00\$00\$00'	ASCII	DINT	Result Data

[Success to read the sample code]

Name	Value	Force Mask	Style	Data Type	Description
SR:I.Data[11]	'EYER'		ASCII	DINT	Result Data
SR:I.Data[12]	'\$zECN'		ASCII	DINT	Result Data

[Fail to read the sample code]

Name	Value	Force Mask	Style	Data Type	Description
SR:I.Data[11]	'0000'		ASCII	DINT	Result Data
SR:I.Data[12]	'\$00\$00\$00\$00'		ASCII	DINT	Result Data
SR:I.Data[13]	0		Decimal	DINT	Result Data

Sample code



KEYENCE

Specifications are subject to change without notice.

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