

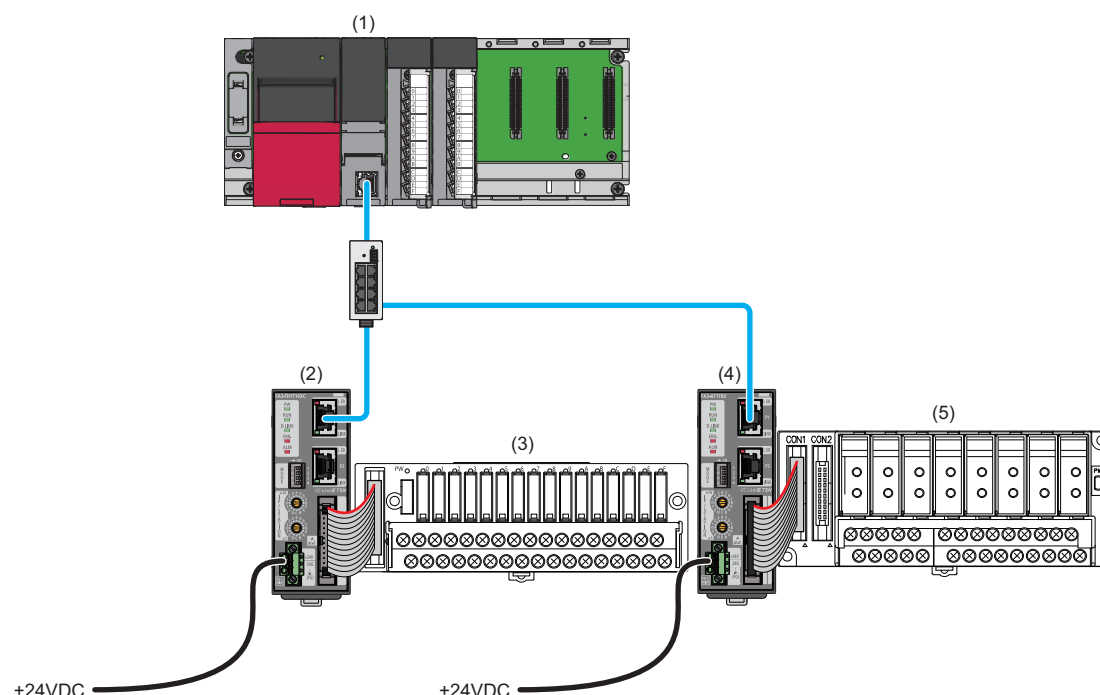
# 8 CC-LINK IE FIELD NETWORK BASIC COMMUNICATIONS

CC-Link IE Field Network Basic is an FA network using standard Ethernet. A function by which data is periodically exchanged among master stations and slave stations (cyclic transmission) using remote I/O signals and remote register.

For details on CC-Link IE Field Network Basic, refer to the following.

📖 CC-Link IE Field Network Basic Reference Manual

## 8.1 CC-Link IE Field Network Basic Configuration



- (1) Master station  
(2), (4) Slave station (network interface module)  
(3), (5) Converter (📖 Page 16 Connectable Devices)

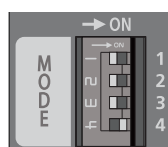
For the system configuration for CC-Link IE Field Network Basic, refer to the following.

📖 CC-Link IE Field Network Basic Reference Manual

### Precautions

#### ■ Network setting switches

Check that the switches are set as follows. (📖 Page 77 Network mode setting)



- Switch 1: Off
- Switch 2: Off
- Switch 3: Off
- Switch 4: On

#### ■ Wiring

Check that the Ethernet cable is connected to P1. (Do not use P2.)

## 8.2 Functions

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This section describes the details on the functions only available in the CC-Link IE Field Network Basic system.

For the common functions of the network interface modules available for CC-Link IE Field Network Basic, refer to the following.


 Page 94 Function List

### SLMP communication function

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In the CC-Link IE Field Network Basic system, an SLMP protocol can be used to configure the network.

For SLMP commands, refer to the following.

 Page 241 Message Format




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If SLMP command needs to be sent from the CPU module to network interface module, use the SP.SLMPSND instruction. For the SP.SLMPSND instruction, refer to the manual for respective series.

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## 8.3 Parameter Setting

Set parameters for the network interface module using the engineering tool connected to the master station.

A profile is required for each of the model names of the network interface modules to be used. (  Page 15 Supported profile)

### Network configuration setting


This processing writes the network interface module parameters to the network interface module directly from the engineering tool of the master station. (The parameters are saved in the non-volatile memory.)

For how to set the network configuration, refer to the following.

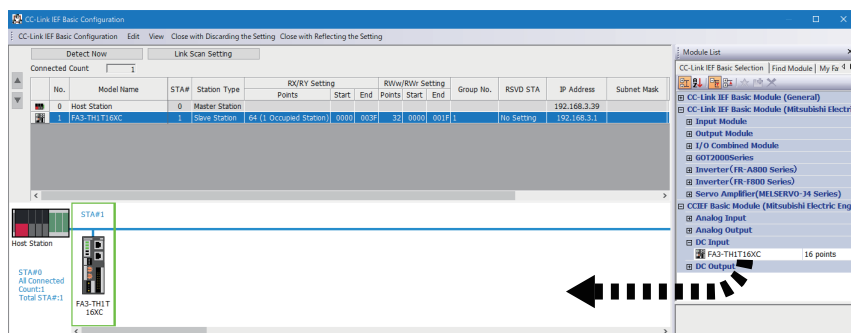
 CC-Link IE Field Network Basic Reference Manual

#### Operating procedure


1. Open the "CC-Link IEF Basic Configuration" window in the engineering tool of the master station.


 [Navigation window] ⇒ [Parameter] ⇒ [CPU module model name] ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [CC-Link IEF Basic Settings] ⇒ [Network Configuration Settings]. Double-click "Detail Setting".

2. Select the network interface module in "Module List" and drag and drop it to the list of stations or the network map.





3. Set the IP address and subnet mask to the added network interface module.

Items to be set for network interface module		Setting details
IP address	First to third octet	Same value as the first to third octet of the IP address of master station
	Fourth octet	Same as the value of IP address/station number setting switches of network interface module (  Page 78 IP address setting)
Subnet mask		255.255.255.0 <sup>*1</sup>

<sup>\*1</sup> The subnet mask for automatic setting of the first to third octet of IP address is 255.255.255.0 (fixed). If the subnet mask needs to be set to the value other than 255.255.255.0, set the IP address and subnet mask manually. (  Page 211 Setting IP addresses and subnet masks)

4. Select the network interface module to set parameters for, and open the "Parameter Processing of Slave Station" window.

 Right-click the network interface module. ⇒ [Online] ⇒ [Parameter Processing of Slave Station]

5. Set "Method selection" in the "Parameter Processing of Slave Station" window to "Parameter write". (  Page 205 "Parameter Processing of Slave Station" window)

To save the parameter setting values in a CSV file, click the [Export] button.

To read the parameter setting values from a CSV file, click the [Import] button.


6. Click the [Execute] button to write the parameter to the network interface module.
7. Select [Close] to close the "Parameter Processing of Slave Station" window.
8. Click [Close with Reflecting the Setting] to close the "CC-Link IEF Basic Configuration" window.

9. Write the IP address and subnet mask set in the "CC-Link IEF Basic Configuration" window to the CPU module of the master station, and reset the CPU module or turn off and on the power supply.


 [Online] ⇄ [Write to PLC]

#### **Point**

- FA3-TH: The parameters are enabled right after the above procedure is complete.
- FA3-AT: The parameters are enabled by turning on Initial data setting request flag (RY9) after the above procedure is complete.

The data saved in the remote buffer memory is saved in the non-volatile memory either automatically or by turning on and off Initial data setting request flag (RY9). ( Page 52 Saving data in the non-volatile memory)

### **Precautions**

Even improper parameters are saved in the non-volatile memory. If the module is powered on or reset in this state, the improper parameters are read from the non-volatile memory and an error occurs. In that case, check the error code and take the corrective actions corresponding to the error code. ( Page 300 How to check an error/alarm)

# "Parameter Processing of Slave Station" window

This section shows the details on the "Parameter Processing of Slave Station" window to set parameters of the network interface module.

Ex.

"Parameter Processing of Slave Station" window of the FA3-TH1T16XC

Parameter Processing of Slave Station

Target Module Information:FA3-TH1T16XC  
Station No.: 1

Method selection:Parameter writeWrite parameter to target module.

Parameter Information

Checked parameters are the targets of selected processes.

Select AllCancel All Selections

Name	Initial Value	Unit	Read Value	Unit	Write Value	Unit	Setting Range	Description
<input checked="" type="checkbox"/> Input response time setting	1	ms		ms		ms		By setting the time until
<input checked="" type="checkbox"/> Relay ON count function								Enable / disable the rela
<input type="checkbox"/> X0 relay ON count valid / in...	Disable							Enable / disable the rela
<input type="checkbox"/> X0 relay ON frequency thre...	0	Count		Count		Count	0 to 4294967295	Set the threshold value f
<input type="checkbox"/> X1 relay ON count valid / in...	Disable							Enable / disable the rela
<input type="checkbox"/> X1 relay ON frequency thre...	0	Count		Count		Count	0 to 4294967295	Set the threshold value f
<input type="checkbox"/> X2 relay ON count valid / in...	Disable							Enable / disable the rela
<input type="checkbox"/> X2 relay ON frequency thre...	0	Count		Count		Count	0 to 4294967295	Set the threshold value f
<input type="checkbox"/> X3 relay ON count valid / in...	Disable							Enable / disable the rela
<input type="checkbox"/> Y1 relay ON frequency thre...	0	Count		Count		Count	0 to 4294967295	Set the threshold value f

Clear All "Read Value"Clear All "Write Value"

Process Option

There is no option in the selected process.

- Process is executed to a module of "Target Module Information".  
- The device is accessed by using "the current connection destination". Please check if there is any problem with the connection destination.  
- For information on items not displayed on the screen, please refer to the Operating Manual.

Execute

Import...Export...




Close

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8 CC-LINK IE FIELD NETWORK BASIC COMMUNICATIONS8.3 Parameter Setting


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







## FA3-TH1T16XC, FA3-TH1M16XC


Item		Description	Setting range	Reference
Input response time setting		Prevents an incorrect input due to noise by setting the response time required for the module to recognize an actual input as the X signal.	<ul style="list-style-type: none"> <li>• 0ms</li> <li>• 0.2ms</li> <li>• 1ms (default)</li> <li>• 1.5ms</li> <li>• 5ms</li> <li>• 10ms</li> <li>• 20ms</li> <li>• 70ms</li> </ul>	 Page 114 Input response time setting function
Relay ON count threshold setting	X□ relay ON count threshold valid/invalid setting	Sets whether the relay ON count of the maintenance alarm function is valid or invalid.	<ul style="list-style-type: none"> <li>• Invalid (default)</li> <li>• Valid</li> </ul>	 Page 110 Relay ON count threshold (FA3-TH)
	X□ relay ON count threshold setting	Sets the threshold of relay ON count of the maintenance alarm function. When Relay ON count threshold valid/invalid setting (4120H) is enabled, this threshold is compared with the count value.	0 to 4294967295 (Default: 0)	
Elapsed operation time threshold setting		This area is used to set the threshold of the elapsed operation time of the maintenance alarm function. Note that, when the setting value is 0, an alarm for the elapsed operation time does not occur.	0 to 4294967295 (Default: 0)	 Page 110 Elapsed operation time threshold

### Point

As the command execution of slave station is not supported in the CC-Link IE Field Network Basic system, data cannot be read/written from/to the remote buffer memory areas using the engineering tool.

To access the following data, use the SP.SLMPSND instruction. ( Page 202 SLMP communication function)

-  Page 55 IP address at next startup setting (0000H, 0001H)
-  Page 56 X□ relay ON count (3B60H to 3B61H, ..., 3B7EH to 3B7FH)
-  Page 56 Elapsed operation time (3B80H, 3B81H)
-  Page 56 Parameter area initialization command (4002H)
-  Page 57 Parameter area initialization completed (4003H)
-  Page 57 Relay ON count reset flag (4121H)
-  Page 57 Elapsed operation time reset flag (4124H)
-  Page 57 Operation start date reset flag (4125H)

To clear an error, turn on and off Error clear request flag (RWw0.b10). ( Page 40 Module operation area (RWw0))

The error history cannot be cleared.

## FA3-TH1T16Y, FA3-TH1T16YE, FA3-TH1M16Y, FA3-TH1M16YE

Item		Description	Setting range	Reference
Output HOLD/CLEAR setting		Set whether to hold or clear the last output value for the case when the I/O module is disconnected from data link, when the CPU module operating status is STOP or RESET, or when the CPU module operation is suspended by an error.	<ul style="list-style-type: none"> <li>• CLEAR (default)</li> <li>• HOLD</li> </ul>	☞ Page 115 Output HOLD/CLEAR setting function
Relay ON count threshold setting	Y□ relay ON count threshold valid/invalid setting	Sets whether the relay ON count of the maintenance alarm function is valid or invalid.	<ul style="list-style-type: none"> <li>• Invalid (default)</li> <li>• Valid</li> </ul>	☞ Page 110 Relay ON count threshold (FA3-TH)
	X□ relay ON count threshold setting	Sets the threshold of relay ON count of the maintenance alarm function. When Relay ON count threshold valid/invalid setting (4120H) is enabled, this threshold is compared with the count value.	0 to 4294967295 (Default: 0)	
Elapsed operation time threshold setting		This area is used to set the threshold of the elapsed operation time of the maintenance alarm function. Note that, when the setting value is 0, an alarm for the elapsed operation time does not occur.	0 to 4294967295 (Default: 0)	☞ Page 110 Elapsed operation time threshold

### Point

As the command execution of slave station is not supported in the CC-Link IE Field Network Basic system, data cannot be read/written from/to the remote buffer memory areas using the engineering tool.

To access the following data, use the SP.SLMPSND instruction. (☞ Page 202 SLMP communication function)

- ☞ Page 55 IP address at next startup setting (0000H, 0001H)
- ☞ Page 60 Y□ relay ON count (3B60H to 3B61H, ..., 3B7EH to 3B7FH)
- ☞ Page 56 Elapsed operation time (3B80H, 3B81H)
- ☞ Page 56 Parameter area initialization command (4002H)
- ☞ Page 57 Parameter area initialization completed (4003H)
- ☞ Page 57 Relay ON count reset flag (4121H)
- ☞ Page 57 Elapsed operation time reset flag (4124H)
- ☞ Page 57 Operation start date reset flag (4125H)

To clear an error, turn on and off Error clear request flag (RWw0.b10). (☞ Page 40 Module operation area (RWw0))

The error history cannot be cleared.

## FA3-AT1T8X, FA3-AT1M8X

Item		Description	Setting range	Reference
A/D conversion enable/disable setting	CH□ A/D conversion enable/disable setting	Set whether to enable or disable A/D conversion for each channel.	<ul style="list-style-type: none"> <li>• Enable (default)</li> <li>• Disable</li> </ul>	☞ Page 119 A/D conversion enable/disable function
Averaging process setting	CH□ Averaging process setting	Set sampling processing or averaging processing for each channel.	<ul style="list-style-type: none"> <li>• Sampling processing (default)</li> <li>• Time average</li> <li>• Count average</li> <li>• Moving average</li> </ul>	☞ Page 119 A/D conversion method
	CH□ Time average/Count average/Moving average	Set the time (for averaging), count (for averaging), and moving average count for each channel to which Averaging process setting is specified.	<ul style="list-style-type: none"> <li>• Time average: 2 to 10000ms</li> <li>• Count average: 4 to 65000 times</li> <li>• Moving average: 2 to 128 times (Default: 0)</li> </ul>	
Input signal error detection function	CH□ Input signal error detection setting	Set the condition ("Disable"/"Input signal error detection") to detect an error.	<ul style="list-style-type: none"> <li>• Invalid (default)</li> <li>• Input signal error detection</li> </ul>	☞ Page 122 Input signal error detection function
Warning output function (process alarm)	CH□ Warning output setting	Set whether to enable or disable process alarm warning output for each channel.	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable (default)</li> </ul>	☞ Page 124 Warning output function (process alarm)
	CH□ Process alarm upper upper limit value	Set any one of Process alarm upper upper limit value, Process alarm upper lower limit value, Process alarm lower upper limit value, or Process alarm lower lower limit value.	-32768 to 32767 (Default: 0)	
	CH□ Process alarm upper lower limit value		-32768 to 32767 (Default: 0)	
	CH□ Process alarm lower upper limit value		-32768 to 32767 (Default: 0)	
	CH□ Process alarm lower lower limit value		-32768 to 32767 (Default: 0)	
Digital clipping function	CH□ Digital clipping enable/disable setting	This area is used to set whether to enable or disable digital clipping for each channel.	<ul style="list-style-type: none"> <li>• Invalid (default)</li> <li>• Valid</li> </ul>	☞ Page 126 Digital clipping function
Scaling function	CH□ Scaling enable/disable setting	Set whether to enable or disable scaling for each channel.	<ul style="list-style-type: none"> <li>• Invalid (default)</li> <li>• Enable</li> </ul>	☞ Page 127 Scaling function
	CH□ Scaling upper limit value	This area is used to set the range of values to be scale-converted for each channel.	-32000 to 32000 (Default: 0)	
	CH□ Scaling lower limit value		-32000 to 32000 (Default: 0)	
Logging cycle setting	CH□ Logging cycle unit setting	Set the unit to be used for setting the logging cycle.	<ul style="list-style-type: none"> <li>• ms: 1 to 32767</li> <li>• s: 1 to 3600</li> </ul>	☞ Page 106 Logging function (FA3-AT)
	CH□ Logging cycle setting	Set the logging cycle.	1 to 32767 (Default: 1)	
Logging data setting	CH□ Logging data setting	Set whether a digital output value or scaling value is collected.	<ul style="list-style-type: none"> <li>• Digital output value (default)</li> <li>• Scaling value</li> </ul>	
Elapsed operation time threshold setting		This area is used to set the threshold of the elapsed operation time of the maintenance alarm function. Note that, when the setting value is 0, an alarm for the elapsed operation time does not occur.	0 to 4294967295 (Default: 0)	☞ Page 110 Elapsed operation time threshold



As the command execution of slave station is not supported in the CC-Link IE Field Network Basic system, data cannot be read/written from/to the remote buffer memory areas using the engineering tool.

To access the following data, use the SP.SLMPSND instruction. (☞ Page 202 SLMP communication function)

- ☞ Page 55 IP address at next startup setting (0000H, 0001H)
- ☞ Page 68 CH□ Maximum value/minimum value (0600H to 060FH)
- ☞ Page 56 Elapsed operation time (3B80H, 3B81H)
- ☞ Page 56 Parameter automatic setting status monitor (3B90H)
- ☞ Page 56 Parameter area initialization command (4002H)
- ☞ Page 57 Parameter area initialization completed (4003H)
- ☞ Page 57 Elapsed operation time reset flag (4124H)
- ☞ Page 57 Operation start date reset flag (4125H)

To clear an error, turn on and off either of the following signals.

- ☞ Page 33 Error clear request flag (RYA)
- ☞ Page 33 Initial data setting request flag (RY9)

The error history cannot be cleared.

## FA3-AT1T8Y, FA3-AT1M8Y

Item		Description	Setting range	Reference
D/A conversion enable/disable setting	CH□ D/A conversion enable/disable setting	Set whether to enable or disable D/A conversion for each channel.	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable (default)</li> </ul>	☞ Page 134 D/A conversion enable/disable function
Analog output HOLD/CLEAR setting	CH□ Analog output HOLD/CLEAR setting	Set whether to hold or clear the last analog value for the case when the module is disconnected from data link, when the CPU module operating status is STOP or RESET, or when the CPU module operation is suspended by an error.	<ul style="list-style-type: none"> <li>• CLEAR (default)</li> <li>• HOLD</li> </ul>	☞ Page 135 Analog output HOLD/CLEAR setting function
Warning output function	CH□ Warning output setting	Set whether to enable or disable warning output for each channel.	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable (default)</li> </ul>	☞ Page 136 Warning output function
	CH□ Warning output upper limit value	Set the range of digital operation values to output a warning for each channel.	-32768 to 32767 (Default: 0)	
	CH□ Warning output lower limit value		-32768 to 32767 (Default: 0)	
Scaling function	CH□ Scaling enable/disable setting	Set whether to enable or disable scaling for each channel.	<ul style="list-style-type: none"> <li>• Invalid (default)</li> <li>• Enable</li> </ul>	☞ Page 138 Scaling function
	CH□ Scaling upper limit value	This area is used to set the range of values to be scale-converted for each channel.	-32000 to 32000 (Default: 0)	
	CH□ Scaling lower limit value		-32000 to 32000 (Default: 0)	
Logging data setting	CH□ Logging data setting	Set whether a digital input value or scaling value is collected.	<ul style="list-style-type: none"> <li>• Digital output value (default)</li> <li>• Scaling value</li> </ul>	☞ Page 106 Logging function (FA3-AT)
Elapsed operation time threshold setting		This area is used to set the threshold of the elapsed operation time of the maintenance alarm function. Note that, when the setting value is 0, an alarm for the elapsed operation time does not occur.	0 to 4294967295 (Default: 0)	☞ Page 110 Elapsed operation time threshold

### Point

As the command execution of slave station is not supported in the CC-Link IE Field Network Basic system, data cannot be read/written from/to the remote buffer memory areas using the engineering tool.

To access the following data, use the SP.SLMPSND instruction. (☞ Page 202 SLMP communication function)

- ☞ Page 55 IP address at next startup setting (0000H, 0001H)
- ☞ Page 56 Elapsed operation time (3B80H, 3B81H)
- ☞ Page 56 Parameter automatic setting status monitor (3B90H)
- ☞ Page 56 Parameter area initialization command (4002H)
- ☞ Page 57 Parameter area initialization completed (4003H)
- ☞ Page 57 Elapsed operation time reset flag (4124H)
- ☞ Page 57 Operation start date reset flag (4125H)

To clear an error, turn on and off either of the following signals.

- ☞ Page 37 Error clear request flag (RYA)
- ☞ Page 37 Initial data setting request flag (RY9)

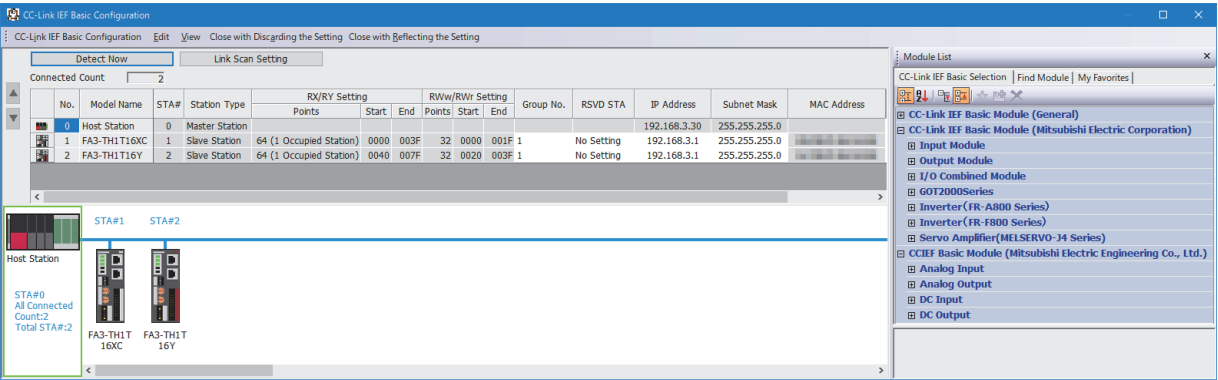
The error history cannot be cleared.

# Setting IP addresses and subnet masks

This section describes the setting procedure of IP addresses and subnet masks.  
 This setting is required when changing IP addresses and subnet masks to specific values. This setting is not required if these values need not be changed.

## Setting procedure

- Record the MAC address for network interface module.  
 For details on the MAC address, refer to the following.  
 Page 318 Rating plate
- Set the IP address/station number setting switches to 0.
- Connect the master station and network interface module, and power them on.
- Open the "CC-Link IEF Basic Configuration" window in the engineering tool of the master station.  
 [Navigation window] ⇒ [Parameter] ⇒ [CPU module model name] ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [CC-Link IEF Basic Settings] ⇒ [Network Configuration Settings]. Double-click "Detail Setting".
- In the "CC-Link IEF Basic Configuration" window, click [Detect Now] to execute the automatic detection of connected device.

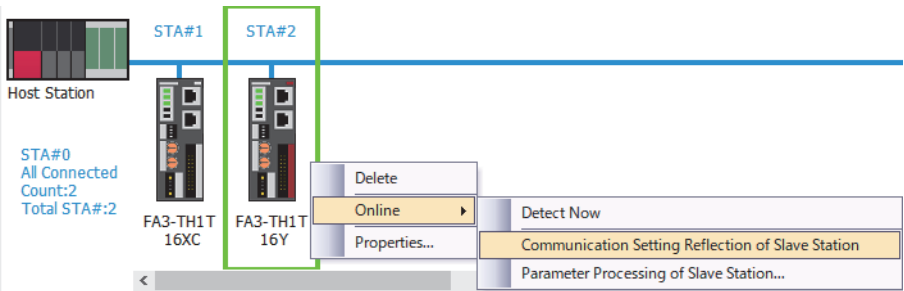


- Select the target network interface module using the MAC address recorded in the step 1, and set an IP address and subnet mask.

No.	Model Name	STA#	Station Type	RX/RX Setting			RWw/RWv Setting			Group No.	RSVD STA	IP Address	Subnet Mask	MAC Address
				Points	Start	End	Points	Start	End					
0	Host Station	0	Master Station									192.168.3.30	255.255.255.0	
1	FA3-TH1T16XC	1	Slave Station	64 (1 Occupied Station)	0000	003F	32	0000	001F	1	No Setting	192.168.3.1	255.255.255.0	
2	FA3-TH1T16Y	2	Slave Station	64 (1 Occupied Station)	0040	007F	32	0020	003F	1	No Setting	192.168.3.2	255.255.255.0	

- Right-click the network interface module in which the setting is reflected, and select "Communication Setting Reflection of Slave Station".

[Online] ⇒ [Communication Setting Reflection of Slave Station]



- The network interface module restarts, and starts operation with the preset IP address and subnet mask.
- Write the IP address and subnet mask set in the "CC-Link IEF Basic Configuration" window to the CPU module of the master station, and reset the CPU module or turn off and on the power supply.

[Online] ⇒ [Write to PLC]

- 
- Set the IP address in the range between 0.0.0.1 and 223.255.255.254.
  - Set the subnet mask in the range between 192.0.0.0 and 255.255.255.252.
  - If the IP address/station number setting switches are not set to 0, the setting is not reflected.
  - Settings other than the IP address and subnet mask are not reflected.
  - If "Communication Setting Reflection of Slave Station" is executed to a network interface module where the IP address/station number setting switches are set to a value other than 0, an error message is displayed.
  - If the subnet mask is not set, only the setting of IP address is reflected.
-

# 8.4 Programming

This chapter describes the programming procedure for the network interface module and an example of program for writing and reading.

When applying the program example provided in this chapter to an actual system, ensure the applicability and confirm that it will not cause system control problems.

This section describes an example of program in which the GX Works3 is used. For the programs in which engineering tools other than GX Works3, refer to the user's manual for the master module to be used.

## Programming precautions

To create a cyclic transmission program, configure an interlock so that the process is executed while the cyclic transmission is normally performed between the master station and slave station.



For details on special relay (SM) and special register (SD), refer to descriptions of the remote device test in the following manual.  
 CC-Link IE Field Network Basic Reference Manual

### Interlock program using labels

This section describes the interlock program using labels.

#### Module label

The following module labels are used.

Module label			Description	Device
MELSEC iQ-R	MELSEC iQ-L	MELSEC iQ-F		
RCPU.stSM.bSts_CyclicTransmission	LHCPU.stSM.bSts_CyclicTransmission	FX5CPU.stSM.bSts_CyclicTransmission	Cyclic transmission status	SM1536
RCPU.stSD.bnSts_CyclicTransmission_Station[1]	LHCPU.stSD.bnSts_CyclicTransmission_Station[1]	FX5CPU.stSD.bnSts_CyclicTransmission_Station[1]	Cyclic transmission status of each station (station number 1)	SD1536.0
RCPU.stSD.bnSts_CyclicTransmission_Station[2]	LHCPU.stSD.bnSts_CyclicTransmission_Station[2]	FX5CPU.stSD.bnSts_CyclicTransmission_Station[2]	Cyclic transmission status of each station (station number 2)	SD1536.1

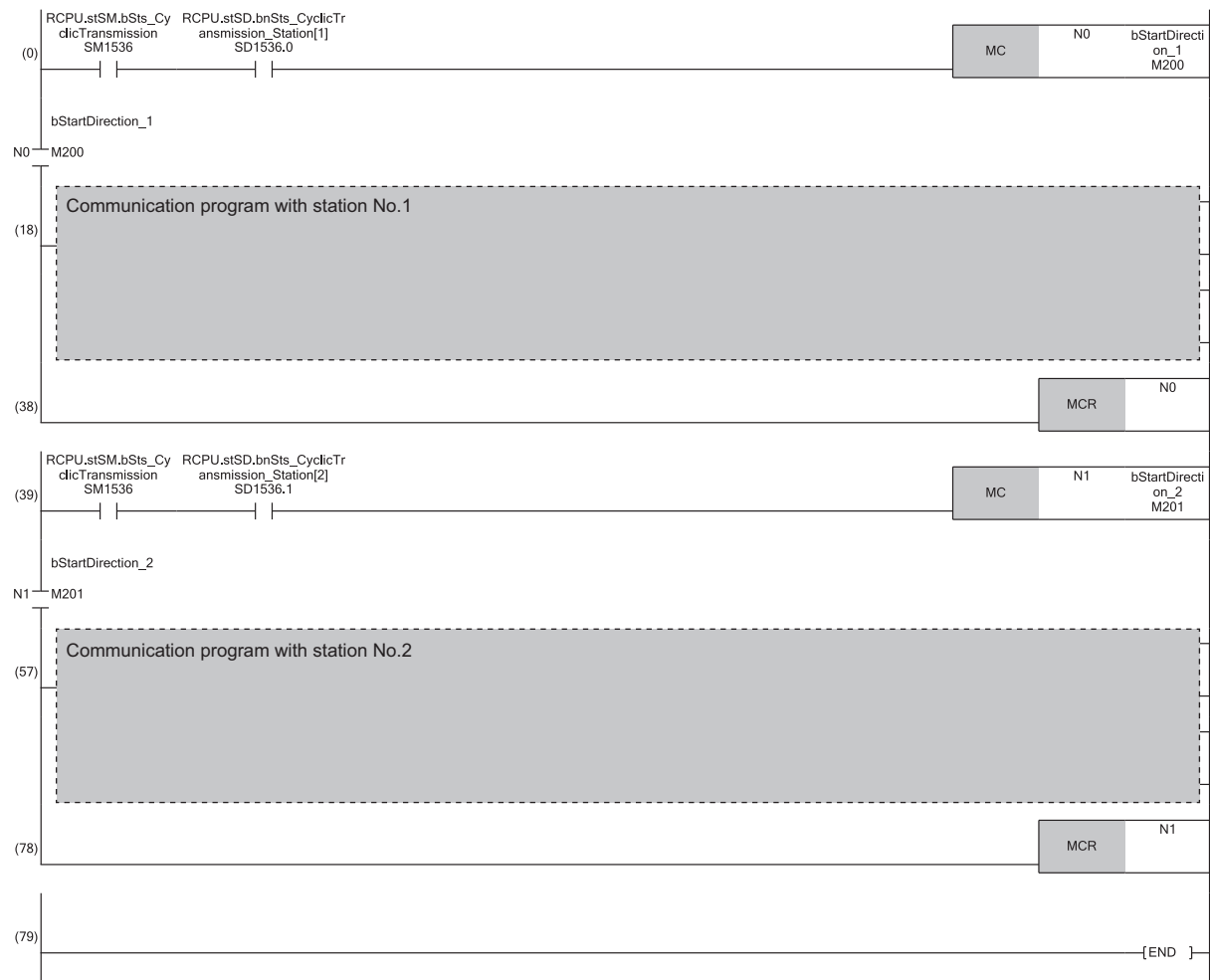
#### Labels to be defined

Define global labels as shown below.

	Label Name	Data Type	Class	Assign (Device/Label)
1	bStartDirection_1	Bit	VAR_GLOBAL	M200
2	bStartDirection_2	Bit	VAR_GLOBAL	M201

■Program example

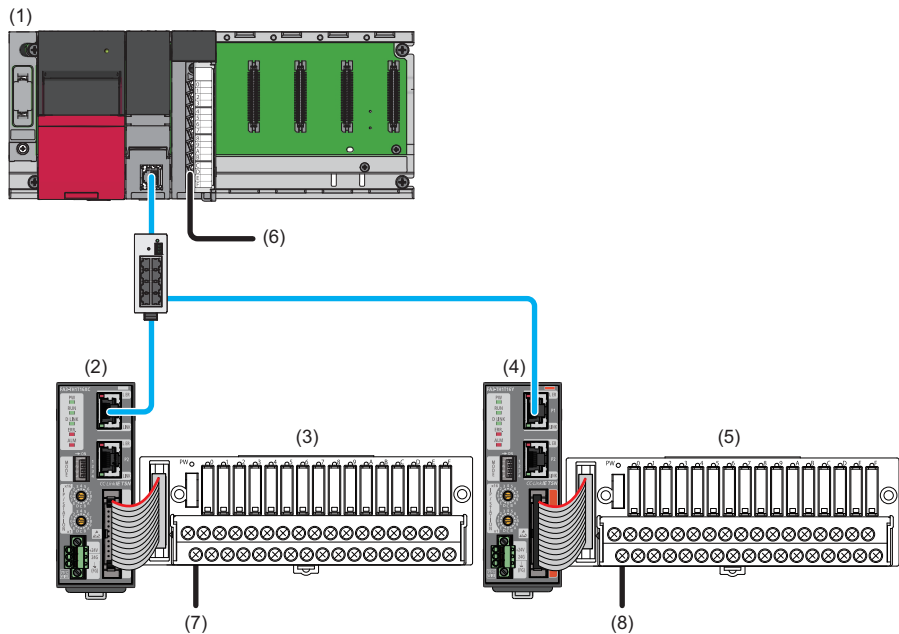
Program example for the MELSEC iQ-R system



# Example for Digital I/O

The following shows an example of the program for turning on/off lamps when the push button switch is turned on/off using the MELSEC iQ-R series CPU module.

## System configuration

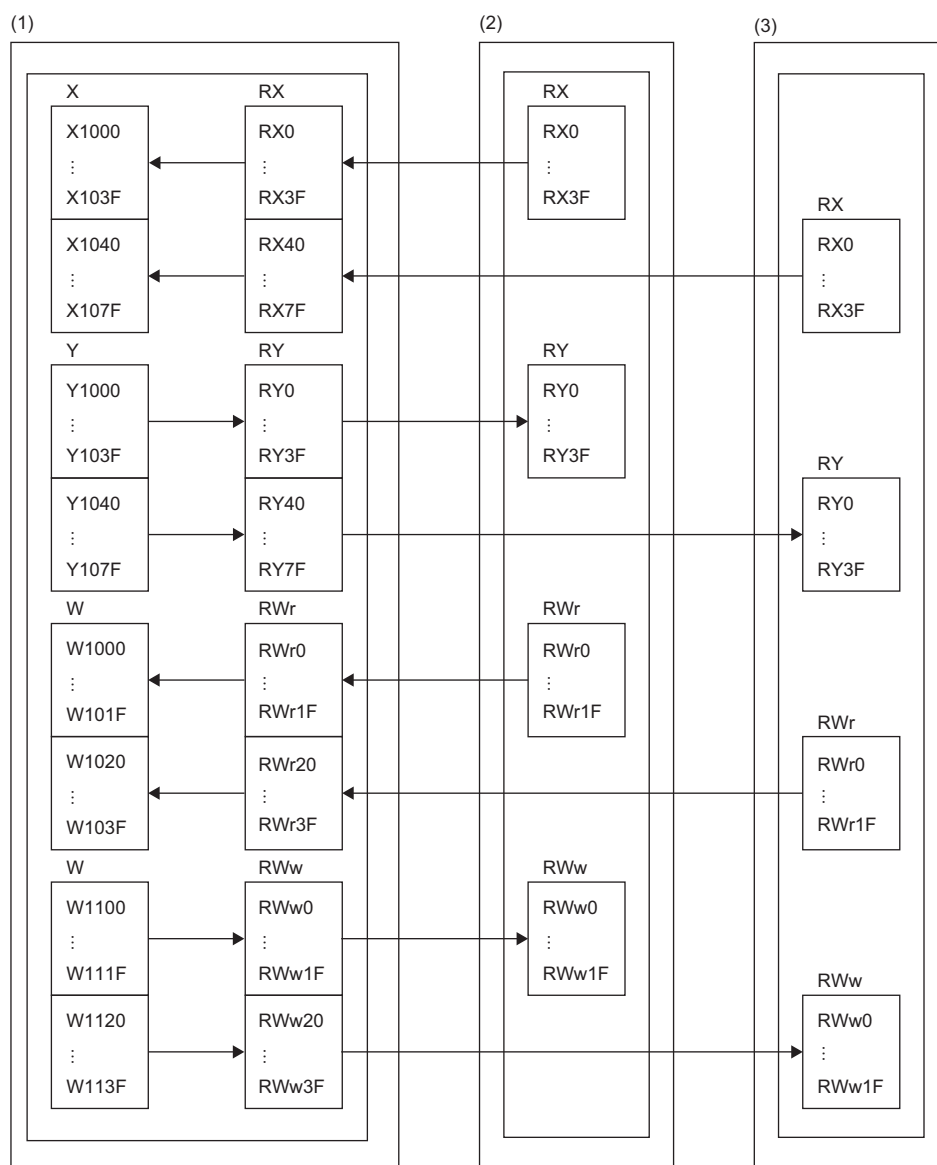


No.	Description		
(1)	Master station	R62P	Power supply module
		R04CPU	CPU module
		RX40C7	Input module (start I/O number: 0020H to 002FH)
(2)	Slave station	FA3-TH1T16XC	Network interface module (digital input) (IP address/station number setting switches: 1)
(3)	Digital signal converter including the FA-TH16XRA20S (input type) <sup>*1</sup>		
(4)	Slave station	FA3-TH1T16Y	Network interface module (digital output) (IP address/station number setting switches: 2)
(5)	Digital signal converter including the FA-TH16YRA11 (output type) <sup>*1</sup>		
(6)	X20	Error clear switch	
(7)	X1000	Push button switch	
(8)	Y1040	Light	

<sup>\*1</sup> For the devices connectable to the network interface module, refer to the following.

📄 Page 16 Connectable Devices

## Assignment of devices



(1) Master station: Compatible CPU module

(2) Slave station (station number 1): Network interface module (digital input)

(3) Slave station (station number 2): Network interface module (digital output)



## Programming conditions

When RX0 of the slave station (station number 1) is turned on, RY0 of the slave station (station number 2) is turned on.

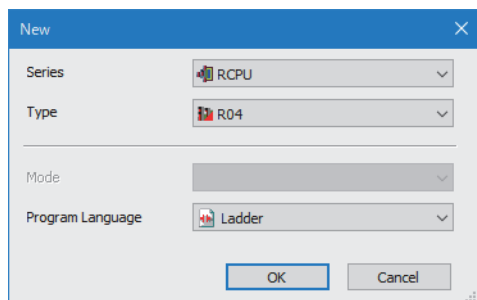
### Devices to be used

Device	Description	
X1000	RX0 input signal (push button) of the slave station (station number 1)	FA3-TH1T16XC (RX0 to RXF)
Y1040	RY0 output signal (lamp) of the slave station (station number 2)	FA3-TH1T16Y (RY0 to RYF)
X20	Error clear switch	Input module (X20 to X2F)
D100	Latest error code (station number 1)	
D101	Latest alarm code (station number 1)	
D102	Latest error code (station number 2)	
D103	Latest alarm code (station number 2)	
M0	Master control contacts	
N0	Nesting	
SM1536	Cyclic transmission status	
SM400	Always ON	
SD1536.0	Cyclic transmission status of slave station (station number 1)	
SD1536.1	Cyclic transmission status of slave station (station number 2)	
W1000	Latest error code (station number 1) (device to be written by link refresh)	
W1001	Latest alarm code (station number 1) (device to be written by link refresh)	
W1020	Latest error code (station number 2) (device to be written by link refresh)	
W1021	Latest alarm code (station number 2) (device to be written by link refresh)	
W1100.A	Error clear request flag (station number 1)	
W1120.A	Error clear request flag (station number 2)	

## Parameter setting

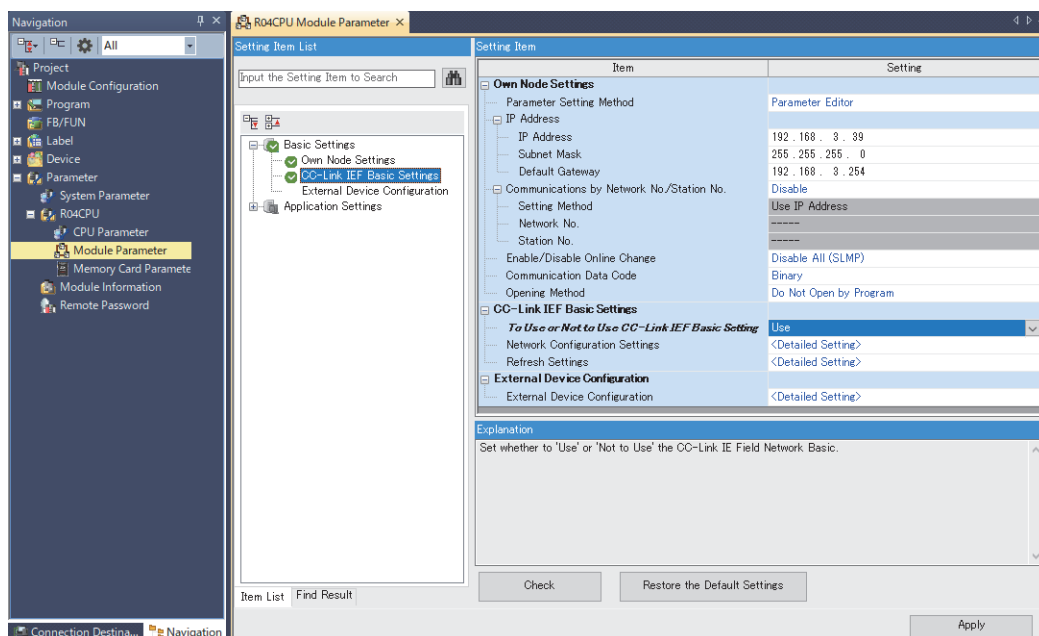
1. Create a project.

[Project] ⇒ [New]



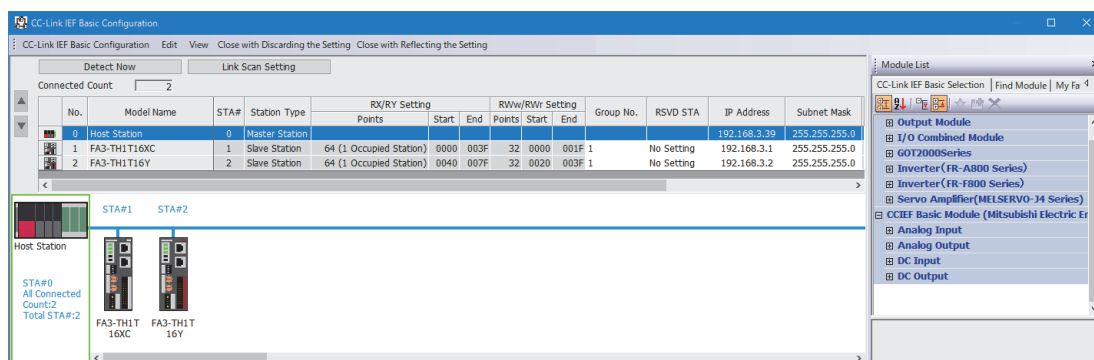
2. Set "To Use or Not to Use CC-Link IEF Basic Setting" to "Use".

[Navigation window] ⇒ [Parameter] ⇒ [CPU module model name] ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [CC-Link IEF Basic Settings]



- Open the "CC-Link IEF Basic Configuration" window and set parameters as follows.

[Navigation window] ⇒ [Parameter] ⇒ [CPU module model name] ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [CC-Link IEF Basic Settings] ⇒ [Network Configuration Settings]. Double-click "Detail Setting".



- Click [Close with Reflecting the Setting] to close the "CC-Link IEF Basic Configuration" window.

- Open the refresh parameter setting window and set as follows.

[Navigation window] ⇒ [Parameter] ⇒ CPU module model name ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [Refresh Settings]

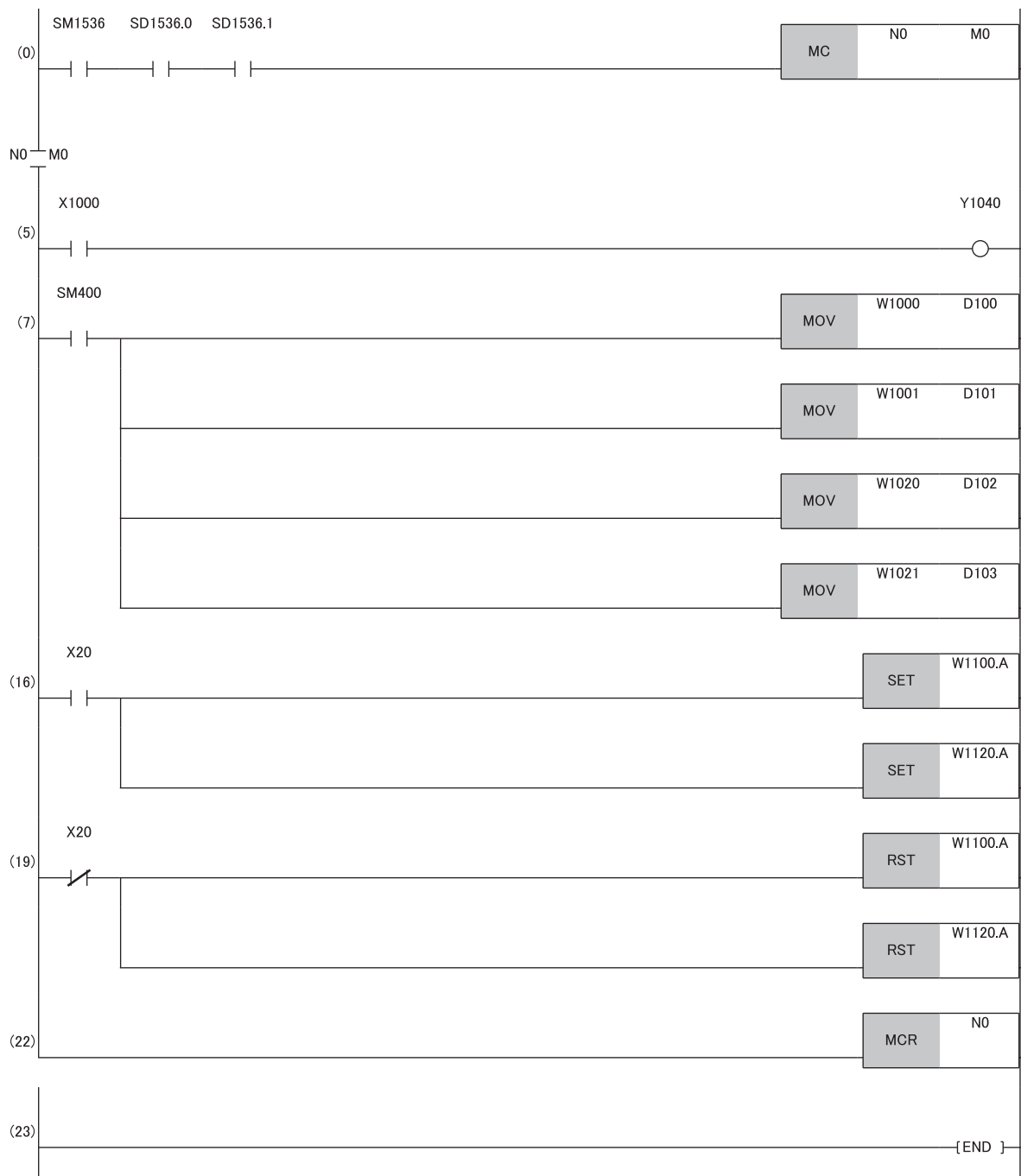
Link Side				CPU Side					
Device Name	Points	Start	End		Target	Device Name	Points	Start	End
RX	128	00000	0007F	↔	Specify Device	X	128	01000	0107F
RY	128	00000	0007F	↔	Specify Device	Y	128	01000	0107F
RW	64	00000	0003F	↔	Specify Device	W	64	01000	0103F
RWw	64	00000	0003F	↔	Specify Device	W	64	01100	0113F

- Click the [Apply] button.
  - Write the set parameters to the CPU module of the master station and reset the CPU module of the master station, or turn off and on the power supply of the programmable controller.
- [Online] ⇒ [Write to PLC]
- Set the CPU module of the master station to RUN, and check that the D LINK LED of the network interface module is turned on.



In the program example, the default settings are used for the parameters other than the above.

Program example



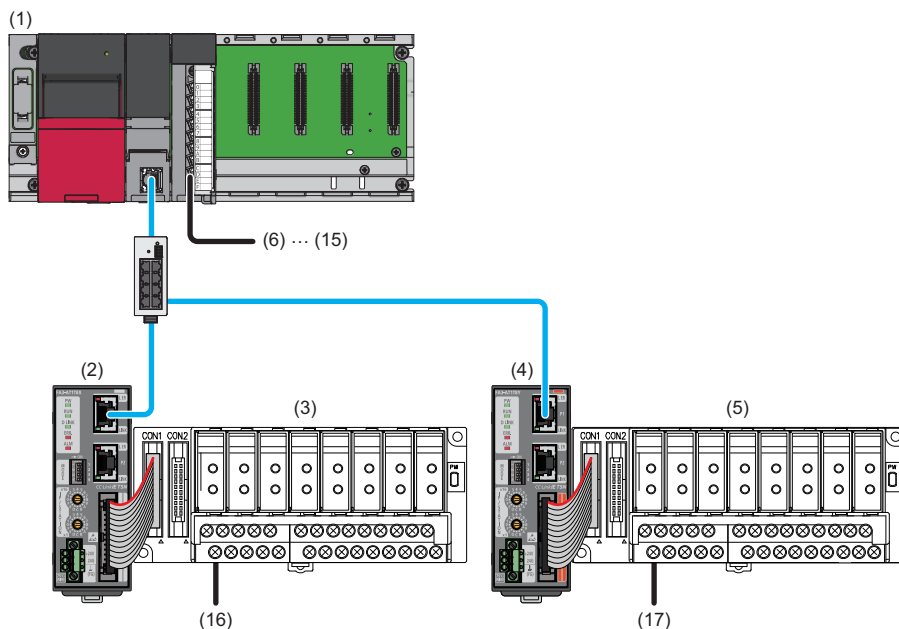
- (0) Data link status of the slave station (station number 1 and 2) is checked.
- (5) When RX0 of the slave station (station number 1) is on, RY0 of the slave station (station number 2) is turned on.
- (7) The latest error code and latest alarm code are read.
- (16), (19) The latest error code and latest alarm code are cleared.

## Program example for A/D conversion

This section shows an example of the program to perform A/D conversion using the MELSEC iQ-R series CPU module. (In this example, the FA3-AT1T8Y is used as well as the FA3-AT1T8X.)

By turning on X28 (Initial data setting request) after parameter setting, the network interface module starts operation with the set parameters.

### System configuration

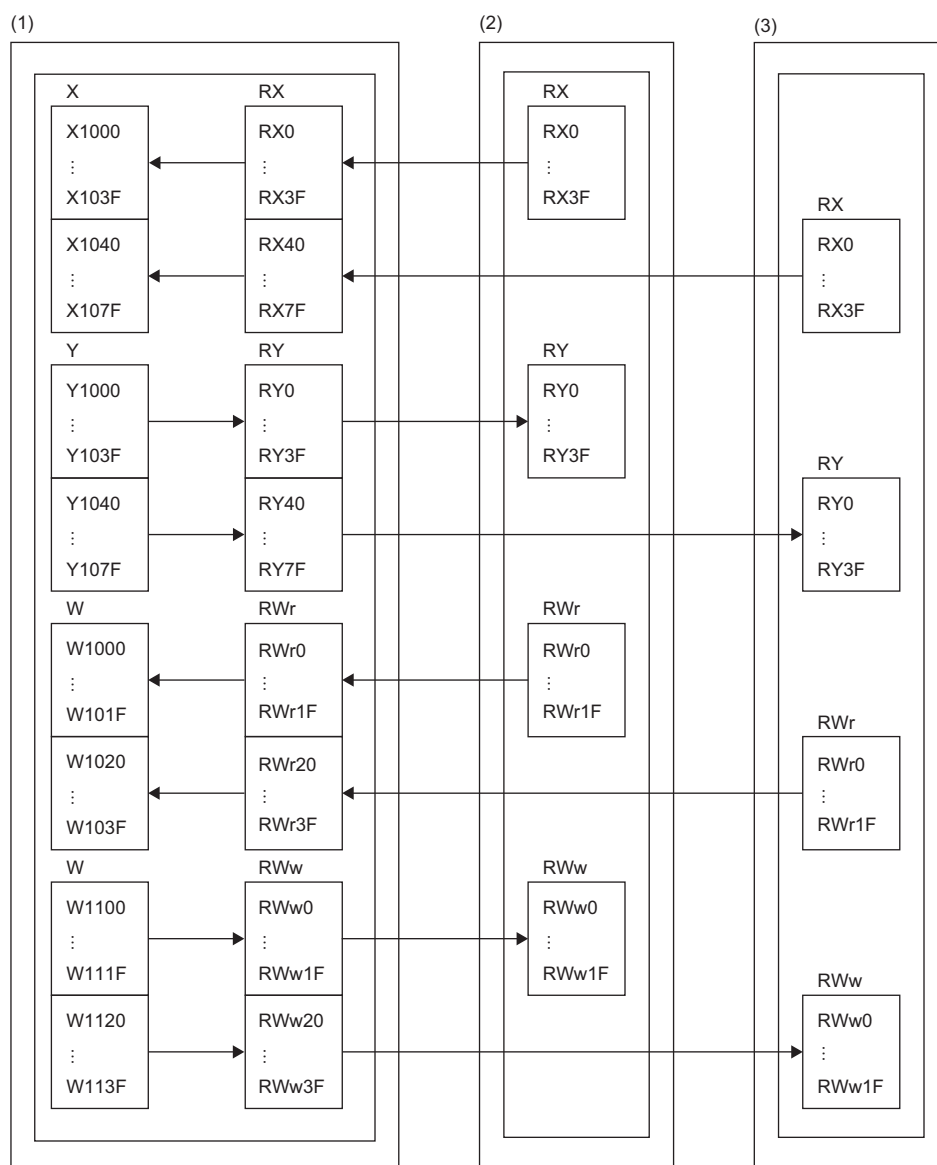


No.	Description		
(1)	Master station	R62P	Power supply module
		R04CPU	CPU module
		RX40C7	Input module (start I/O number: 0020H to 002FH)
(2)	Slave station	FA3-AT1T8X	Network interface module (analog input) (IP address/station number setting switches: 1)
(3)	Analog signal converter including the FA-ATSVM1XV05 (input type)*1		
(4)	Slave station	FA3-AT1T8Y	Network interface module (analog output) (IP address/station number setting switches: 2)
(5)	Analog signal converter including the FA-ATSVM1YV010 (output type)*1		
(6)	X20	Remote station (station number 1) digital operation value read command	
(7)	X21	Remote station (station number 1) error clear command	
(8)	X22	Remote station (station number 1) maximum value/minimum value read command	
(9)	X23	Remote station (station number 1) maximum value/minimum value reset command	
(10)	X24	Remote station (station number 2) digital value write command	
(11)	X25	Remote station (station number 2) batch analog output enable command	
(12)	X26	Remote station (station number 2) warning output clear command	
(13)	X27	Remote station (station number 2) error clear command	
(14)	X28	Remote station (station number 1) initial data setting request	
(15)	X29	Remote station (station number 2) initial data setting request	
(16)	AD	Thermocouple	
(17)	DA	Motor controller	

\*1 For the devices connectable to the network interface module, refer to the following.

☞ Page 16 Connectable Devices

## Assignment of devices



(1) Master station

(2) Slave station (station number 1): Network interface module (analog input)

(3) Slave station (station number 2): Network interface module (analog output)

## Programming conditions

An example of program is created under the following conditions.

### Initial setting description

Remote station	Setting item	Setting details
FA3-AT1T8X (station number 1)	CH□ A/D conversion enable/disable setting	<ul style="list-style-type: none"> <li>CH1 to 4: Enable</li> <li>CH7 to 8: Enable</li> </ul>
	Input signal error detection setting	CH1, 3: Input signal error detection
	Warning output setting	CH2: Enable <ul style="list-style-type: none"> <li>CH2 Process alarm upper upper limit value: 15000</li> <li>CH2 Process alarm upper lower limit value: 14000</li> <li>CH2 Process alarm lower upper limit value: 2000</li> <li>CH2 Process alarm lower lower limit value: -10</li> </ul>
FA3-AT1T8Y (station number 2)	CH□ D/A conversion enable/disable setting	<ul style="list-style-type: none"> <li>CH1 to 4: Enable</li> <li>CH7 to 8: Enable</li> </ul>
	Warning output setting	CH2: Enable <ul style="list-style-type: none"> <li>CH2 Warning output upper limit value: 15000</li> <li>CH2 Warning output lower limit value: -10</li> </ul>

## Devices to be used

Device	Description	
X20	Digital operation value read command	RX40C7 (X20 to X2F)
X21	Error clear command	
X22	Maximum value/minimum value read command	
X23	Maximum value/minimum value reset command	
X28	Initial data setting request	
X1009	Initial data setting completion flag	FA3-AT1T8X (RX0 to RX3F)
X100A	Error status flag	
X100B	Remote READY	
X1010	CH1 A/D conversion completion flag	
X1011	CH2 A/D conversion completion flag	
X1012	CH3 A/D conversion completion flag	
X1013	CH4 A/D conversion completion flag	
X1016	CH7 A/D conversion completion flag	
X1017	CH8 A/D conversion completion flag	
X1018	Warning output signal	
X101C	Input signal error detection signal	
X101D	Maximum value/minimum value reset completed flag	
Y1009	Initial data setting request	FA3-AT1T8X (RY0 to RY3F)
Y100A	Error clear request flag	
Y101D	Maximum value/minimum value reset request	
W1000	Latest error code	FA3-AT1T8X (RW0 to RW1F)
W1001	Latest alarm code	
W1002	CH1 Digital operation value	
W1003	CH2 Digital operation value	
W1004	CH3 Digital operation value	
W1005	CH4 Digital operation value	
W1008	CH7 Digital operation value	
W1009	CH8 Digital operation value	
W100A	Input signal error detection flag	
W100B	Warning output flag	
D2002	CH1 Device for storing digital operation value	
D2003	CH2 Device for storing digital operation value	
D2004	CH3 Device for storing digital operation value	
D2005	CH4 Device for storing digital operation value	

Device	Description
D2008	CH7 Device for storing digital operation value
D2009	CH8 Device for storing digital operation value
D2030	Device for storing the latest error code
D2031	Device for storing the latest alarm code
D2032	Device for storing Input signal error detection flag
D2033	Device for storing Warning output flag
D2050	SLMPSND instruction control data (execution/error completion type)
D2051	SLMPSND instruction control data (completion status)
D2052	SLMPSND instruction control data (channel used by own station)
D2053	SLMPSND instruction control data (external device IP address: third and fourth octets)
D2054	SLMPSND instruction control data (external device IP address: first and second octets)
D2055	SLMPSND instruction control data (external device port number: 45237)
D2056	SLMPSND instruction control data (request destination network number: 0000H (fixed))
D2057	SLMPSND instruction control data (request destination station number: 00FFH (fixed))
D2058	SLMPSND instruction control data (request destination module I/O number: 03FFH (fixed))
D2059	SLMPSND instruction control data (request destination multidrop station number: 0000H (fixed))
D2060	SLMPSND instruction control data (number of resends (times))
D2061	SLMPSND instruction control data (arrival monitoring time (s))
D2100	SLMPSND instruction request frame (request data length)
D2101	SLMPSND instruction request frame (monitoring timer)
D2102	SLMPSND instruction request frame (request data: command (Read: 0613))
D2103	SLMPSND instruction request frame (request data: subcommand)
D2104	SLMPSND instruction request frame (request data: start address 1)
D2105	SLMPSND instruction request frame (request data: start address 2)
D2106	SLMPSND instruction request frame (request data: work length)
D2107	SLMPSND instruction request frame (request data: module number)
D2110	SLMPSND instruction response frame (response data length)
D2111	SLMPSND instruction response frame (end code)
D2112	CH1 Device for storing maximum value (SLMPSND instruction response frame: response data [0])
D2113	CH1 Device for storing minimum value (SLMPSND instruction response frame: response data [1])
D2114	CH2 Device for storing maximum value (SLMPSND instruction response frame: response data [2])
D2115	CH2 Device for storing minimum value (SLMPSND instruction response frame: response data [3])
D2116	CH3 Device for storing maximum value (SLMPSND instruction response frame: response data [4])
D2117	CH3 Device for storing minimum value (SLMPSND instruction response frame: response data [5])
D2118	CH4 Device for storing maximum value (SLMPSND instruction response frame: response data [6])
D2119	CH4 Device for storing minimum value (SLMPSND instruction response frame: response data [7])
D2120	CH5 Device for storing maximum value (SLMPSND instruction response frame: response data [8])
D2121	CH5 Device for storing minimum value (SLMPSND instruction response frame: response data [9])
D2122	CH6 Device for storing maximum value (SLMPSND instruction response frame: response data [10])
D2123	CH6 Device for storing minimum value (SLMPSND instruction response frame: response data [11])
D2124	CH7 Device for storing maximum value (SLMPSND instruction response frame: response data [12])
D2125	CH7 Device for storing minimum value (SLMPSND instruction response frame: response data [13])
D2126	CH8 Device for storing maximum value (SLMPSND instruction response frame: response data [14])
D2127	CH8 Device for storing minimum value (SLMPSND instruction response frame: response data [15])
M0	Communication ready flag
M300	Maximum value/minimum value read flag
M310	SLMPSND instruction completion flag
M311	SLMPSND instruction abnormal completion flag
F1	CH2 Warning output upper limit occurrence
F2	CH2 Warning output lower limit occurrence
F3	CH1 Disconnection occurrence
F4	CH3 Disconnection occurrence
F5	Maximum value/minimum value read failure



Device	Description
SM400	Always ON
SM1536	Cyclic transmission status
SD1536.0	Cyclic transmission status of slave station (station number 1)
N0	Nesting
P0	Pointer for setting SLMPSEND instruction data

## Parameter setting

### 1. Create a project.

[Project] ⇒ [New]

New

Series: RCPU

Type: R04

Mode:

Program Language: Ladder

OK Cancel

### 2. Set "To Use or Not to Use CC-Link IEF Basic Setting" to "Use".

[Navigation window] ⇒ [Parameter] ⇒ [CPU module model name] ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [CC-Link IEF Basic Settings]

R120CPU Module Parameter

Setting Item List

Input the Setting Item to Search

Setting Item

Item	Setting
<b>Own Node Settings</b>	
Parameter Setting Method	Parameter Editor
IP Address	
Subnet Mask	
Default Gateway	
Communications by Network No./Station No.	Disable
Setting Method	Use IP Address
Network No.	
Station No.	
Enable/Disable Online Change	Disable All (SLMP)
Communication Data Code	Binary
Opening Method	Do Not Open by Program
<b>CC-Link IEF Basic Settings</b>	
To Use or Not to Use CC-Link IEF Basic Setting	Use
Network Configuration Settings	<Detailed Setting>
Refresh Settings	<Detailed Setting>
<b>External Device Configuration</b>	
External Device Configuration	<Detailed Setting>

Explanation

Set whether to 'Use' or 'Not to Use' the CC-Link IE Field Network Basic.

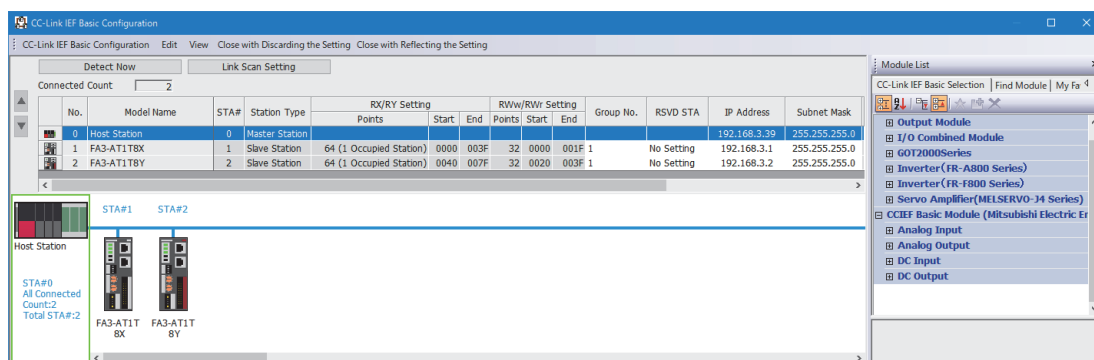
Item List Find Result

Check Restore the Default Settings

Apply

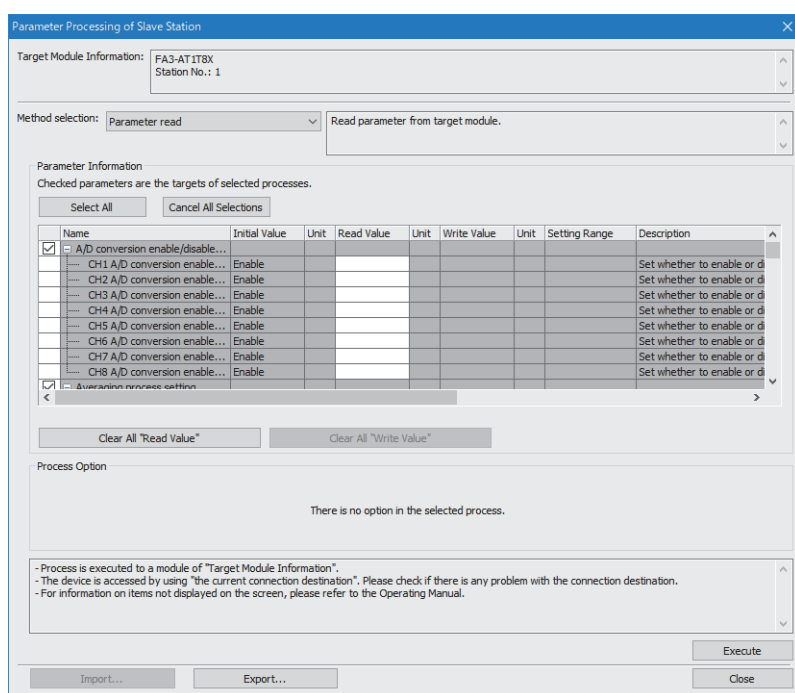
3. Open the "CC-Link IEF Basic Configuration" window and set parameters as follows.

[Navigation window] ⇒ [Parameter] ⇒ [CPU module model name] ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [CC-Link IEF Basic Settings] ⇒ [Network Configuration Settings]. Double-click "Detail Setting".



4. Open the "Parameter Processing of Slave Station" window.

Right-click the network interface module. ⇒ [Online] ⇒ [Parameter Processing of Slave Station]








5. Set "Method selection" to "Parameter write".

6. In the "Parameter Processing of Slave Station" window, set the items as described in Initial settings. (Page 223 Initial setting description) Enter initial values to other parameters.

Name	Initial Value	Unit	Read Value	Unit	Write Value	Unit	Setting Range	Description
<input checked="" type="checkbox"/> A/D conversion enable/disable setting								
CH1 A/D conversion enable/disable setting	Enable				Enable			Set whether to enable or disable CH1 A/D conversion.
CH2 A/D conversion enable/disable setting	Enable				Enable			Set whether to enable or disable CH2 A/D conversion.
CH3 A/D conversion enable/disable setting	Enable				Enable			Set whether to enable or disable CH3 A/D conversion.
CH4 A/D conversion enable/disable setting	Enable				Enable			Set whether to enable or disable CH4 A/D conversion.
CH5 A/D conversion enable/disable setting	Enable				Disable			Set whether to enable or disable CH5 A/D conversion.
CH6 A/D conversion enable/disable setting	Enable				Disable			Set whether to enable or disable CH6 A/D conversion.
CH7 A/D conversion enable/disable setting	Enable				Enable			Set whether to enable or disable CH7 A/D conversion.
CH8 A/D conversion enable/disable setting	Enable				Enable			Set whether to enable or disable CH8 A/D conversion.
<input checked="" type="checkbox"/> Averaging process setting								

7. Click the [Execute] button to write the parameter to the network interface module.
8. Select [Close] to close the "Parameter Processing of Slave Station" window.
9. Click [Close with Reflecting the Setting] to close the "CC-Link IEF Basic Configuration" window.
10. Open the refresh parameter setting window and set as follows.

 [Navigation window] ⇒ [Parameter] ⇒ CPU module model name ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [Refresh Settings]

Link Side					CPU Side				
Device Name	Points	Start	End		Target	Device Name	Points	Start	End
RX	128	00000	0007F		Specify Device	X	128	01000	0107F
RY	128	00000	0007F		Specify Device	Y	128	01000	0107F
RWr	64	00000	0003F		Specify Device	W	64	01000	0103F
RWw	64	00000	0003F		Specify Device	W	64	01100	0113F

11. Click the [Apply] button.
12. Write the set parameters to the CPU module of the master station and reset the CPU module of the master station, or turn off and on the power supply of the programmable controller.

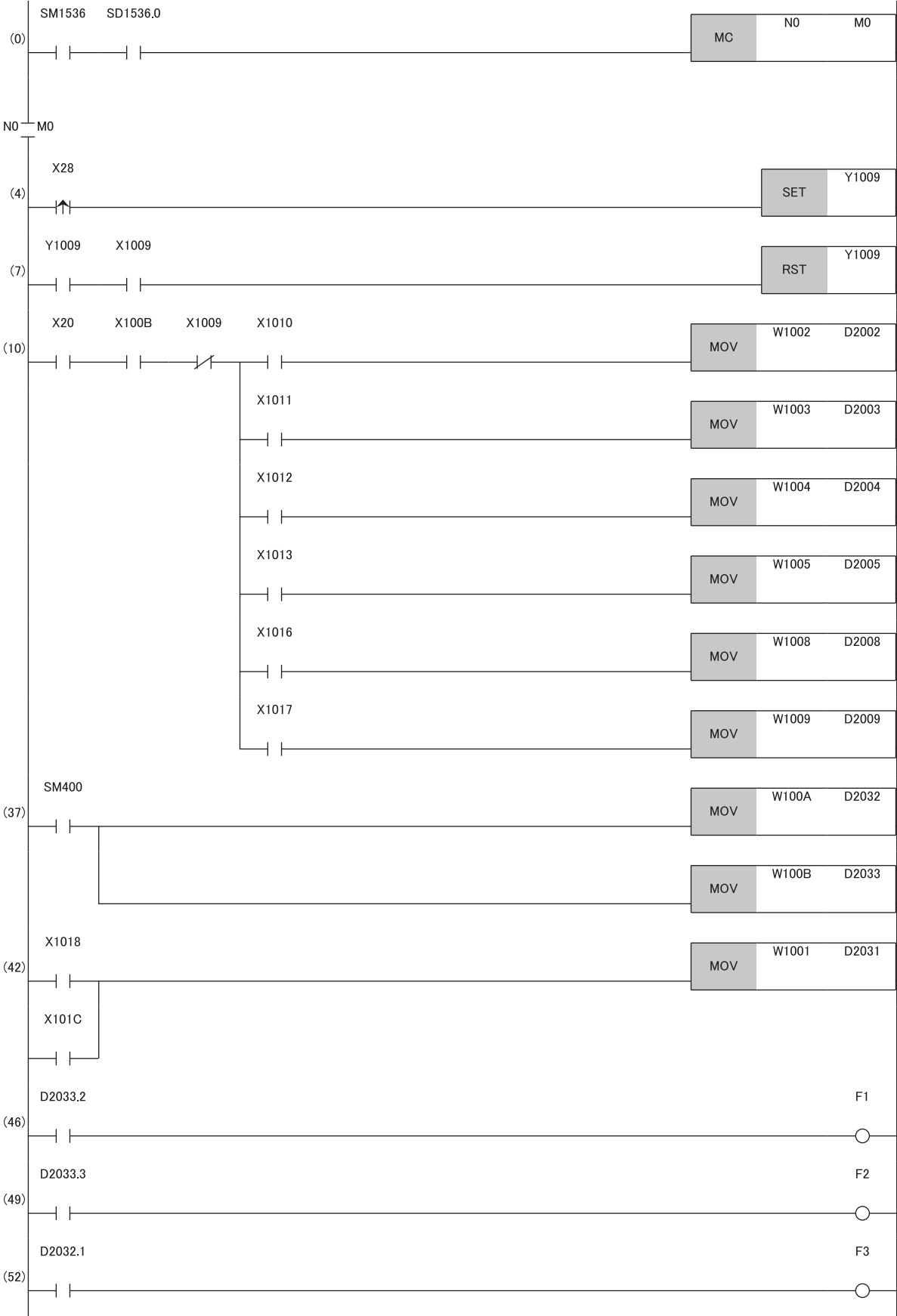
 [Online] ⇒ [Write to PLC]

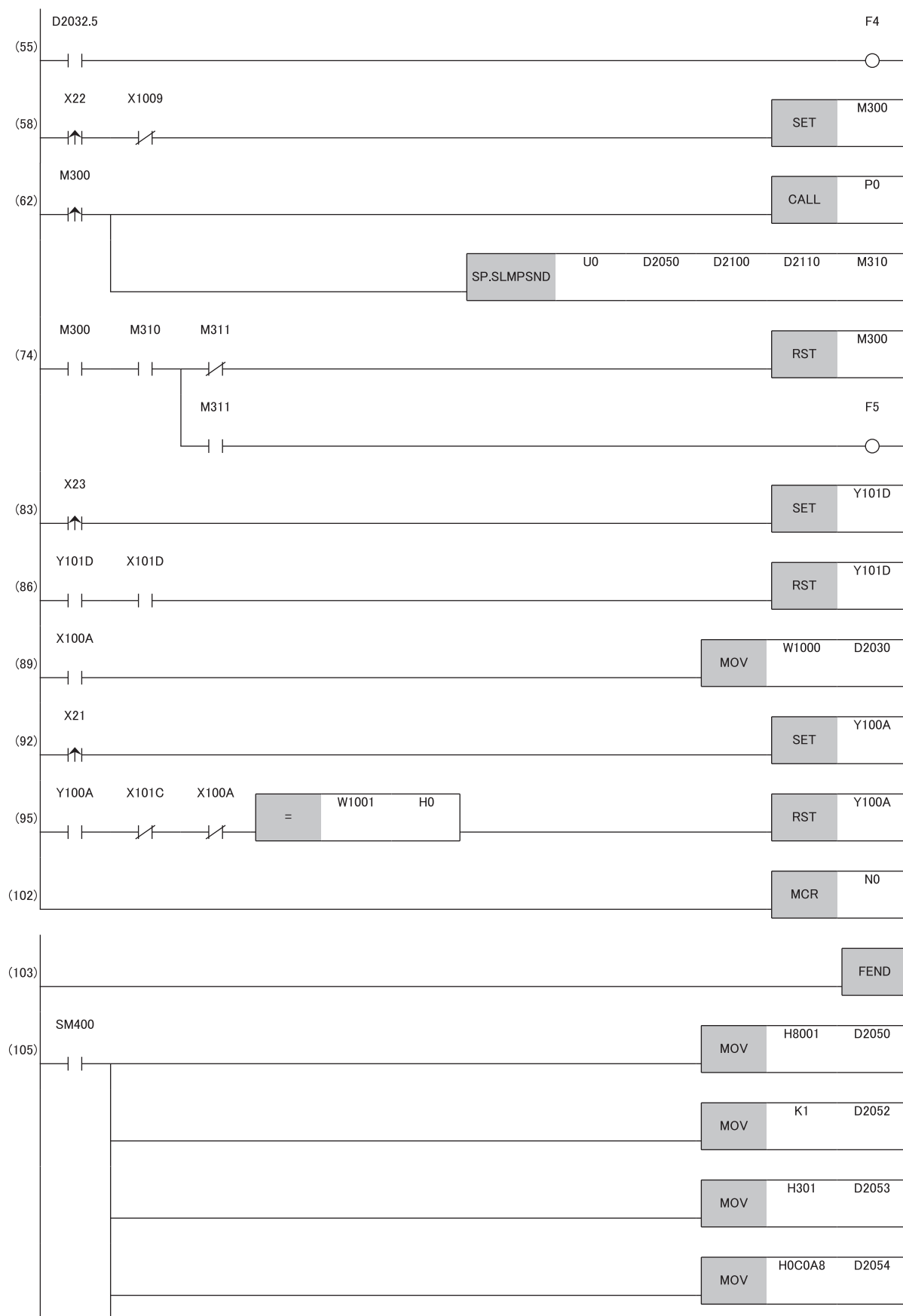
13. Set the CPU module of the master station to RUN, and check that the D LINK LED of the network interface module is turned on.



In the program example, the default settings are used for the parameters other than the above.

Program example





	MOV	H0B0B5	D2055
	MOV	H0	D2056
	MOV	H0FF	D2057
	MOV	H3FF	D2058
	MOV	H0	D2059
	MOV	K5	D2060
	MOV	K5	D2061
	MOV	H0C	D2100
	MOV	H14	D2101
	MOV	H613	D2102
	MOV	H0	D2103
	MOV	H600	D2104
	MOV	H0	D2105
	MOV	H10	D2106
	MOV	H0	D2107
(145)	RET		
(146)	[END ]		

(0) Cyclic transmission status of the slave station (station number 1) is checked.  
(4), (7) Initial data setting request is executed.  
(10) The digital operation value is read.  
(37) Input signal error flag and Warning output flag are detected.  
(42) The latest alarm code is read.  
(46), (49) Processing at warning occurrence  
(52), (55) Processing at input signal error occurrence  
(58), (62), (74) The maximum and minimum values are read.  
(83), (86) The maximum and minimum values are reset.  
(89) The latest error code is read.  
(92), (95) The latest error code and latest alarm code are cleared.  
(105) Data for executing the SLMPSPND instruction is set.




## Program example for D/A Conversion

This section shows an example of the program for performing D/A conversion using the FA3-AT1T8X and FA3-AT1T8Y. The MELSEC iQ-R series CPU modules are used. (In this example, the FA3-AT1T8X is used as well as the FA3-AT1T8Y.) By turning on X29 (Initial data setting request) after parameter setting, the network interface module starts operation with the set parameters.

### System configuration

For details, refer to the following.

 Page 221 System configuration

### Assignment of devices

For details, refer to the following.

 Page 222 Assignment of devices

### Programming conditions

For details, refer to the following.

 Page 223 Programming conditions

## Devices to be used

Device	Description	
X24	Digital value write command	RX40C7 (X20 to X2F)
X25	Batch analog output enable command	
X26	Warning output clear command	
X27	Error clear command	
X29	Initial data setting request	
X1049	Initial data setting completion flag	FA3-AT1T8Y (RX0 to RX3F)
X104A	Error status flag	
X104B	Remote READY	
X105E	Warning output signal	
Y1049	Initial data setting request	A3-AT1T8Y (RY0 to RY3F)
Y104A	Error clear request flag	
Y1050	CH1 Output enable/disable flag	
Y1051	CH2 Output enable/disable flag	
Y1052	CH3 Output enable/disable flag	
Y1053	CH4 Output enable/disable flag	
Y1056	CH7 Output enable/disable flag	
Y1057	CH8 Output enable/disable flag	
W1122	CH1 Digital value	FA3-AT1T8Y (RWw0 to RWw1F)
W1123	CH2 Digital value	
W1124	CH3 Digital value	
W1125	CH4 Digital value	
W1128	CH7 Digital value	
W1129	CH8 Digital value	FA3-AT1T8Y (RWr0 to RWr1F)
W1020	Latest error code	
W1021	Latest alarm code	
W1022	CH1 Set value check code	
W1023	CH2 Set value check code	
W1024	CH3 Set value check code	
W1025	CH4 Set value check code	
W1028	CH7 Set value check code	
W1029	CH8 Set value check code	
W102A	Warning output flag	
D3002	CH1 Device for storing digital value	
D3003	CH2 Device for storing digital value	
D3004	CH3 Device for storing digital value	
D3005	CH4 Device for storing digital value	
D3008	CH7 Device for storing digital value	
D3009	CH8 Device for storing digital value	
D3100	Device for storing the latest error code	
D3110	Device for storing Warning output flag	
D3120	Device for storing the latest alarm code	
D3130	CH1 Device for storing set value check code	
D3131	CH2 Device for storing set value check code	
D3132	CH3 Device for storing set value check code	
D3133	CH4 Device for storing set value check code	
D3136	CH7 Device for storing set value check code	
D3137	CH8 Device for storing set value check code	
F10	CH2 Upper limit warning occurrence	
F11	CH2 Lower limit warning occurrence	
SM400	Always ON	
SM1536	Cyclic transmission status	

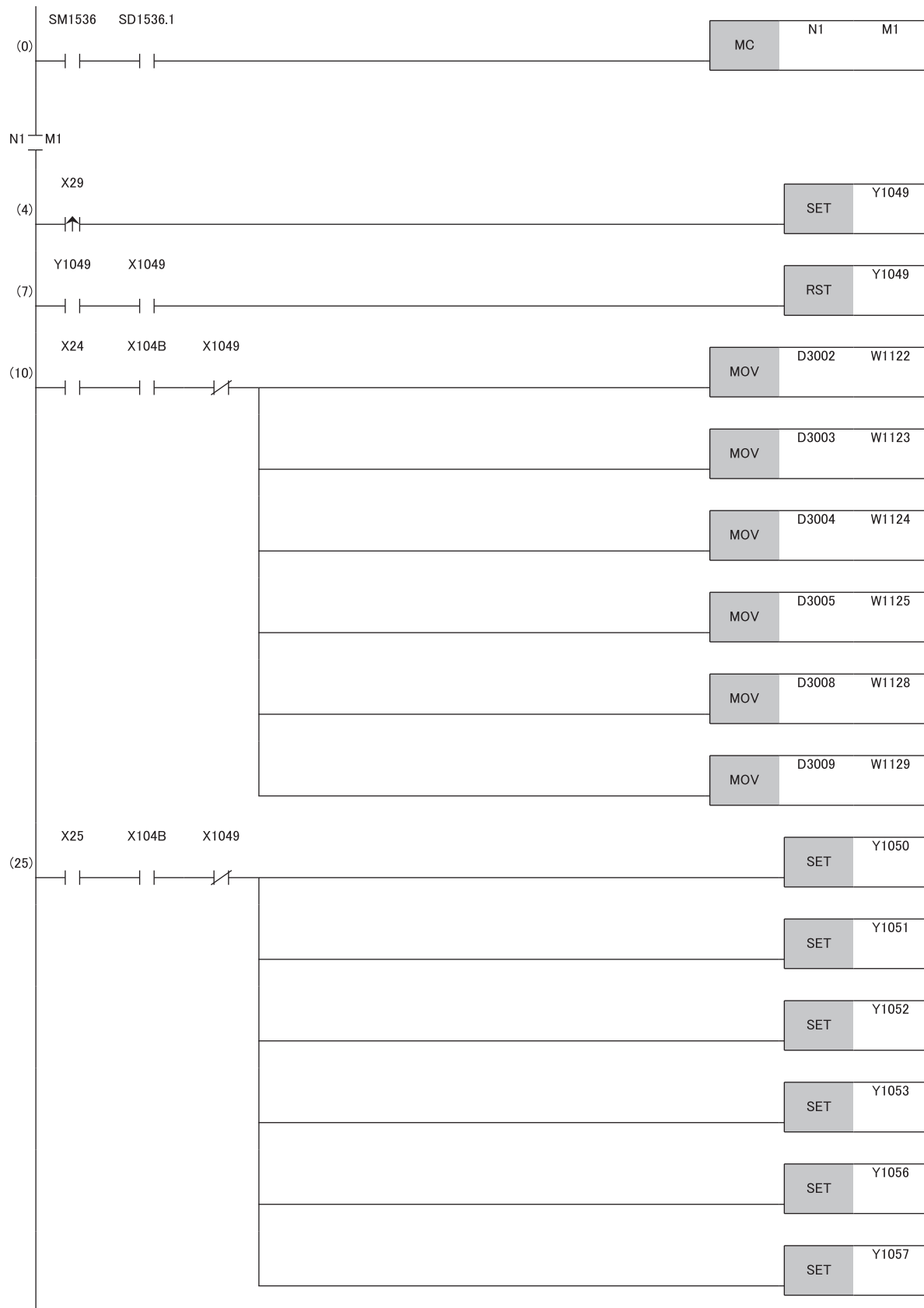
Device	Description
SD1536.1	Cyclic transmission status of slave station (station number 2)
M1	Communication ready flag
N1	Nesting

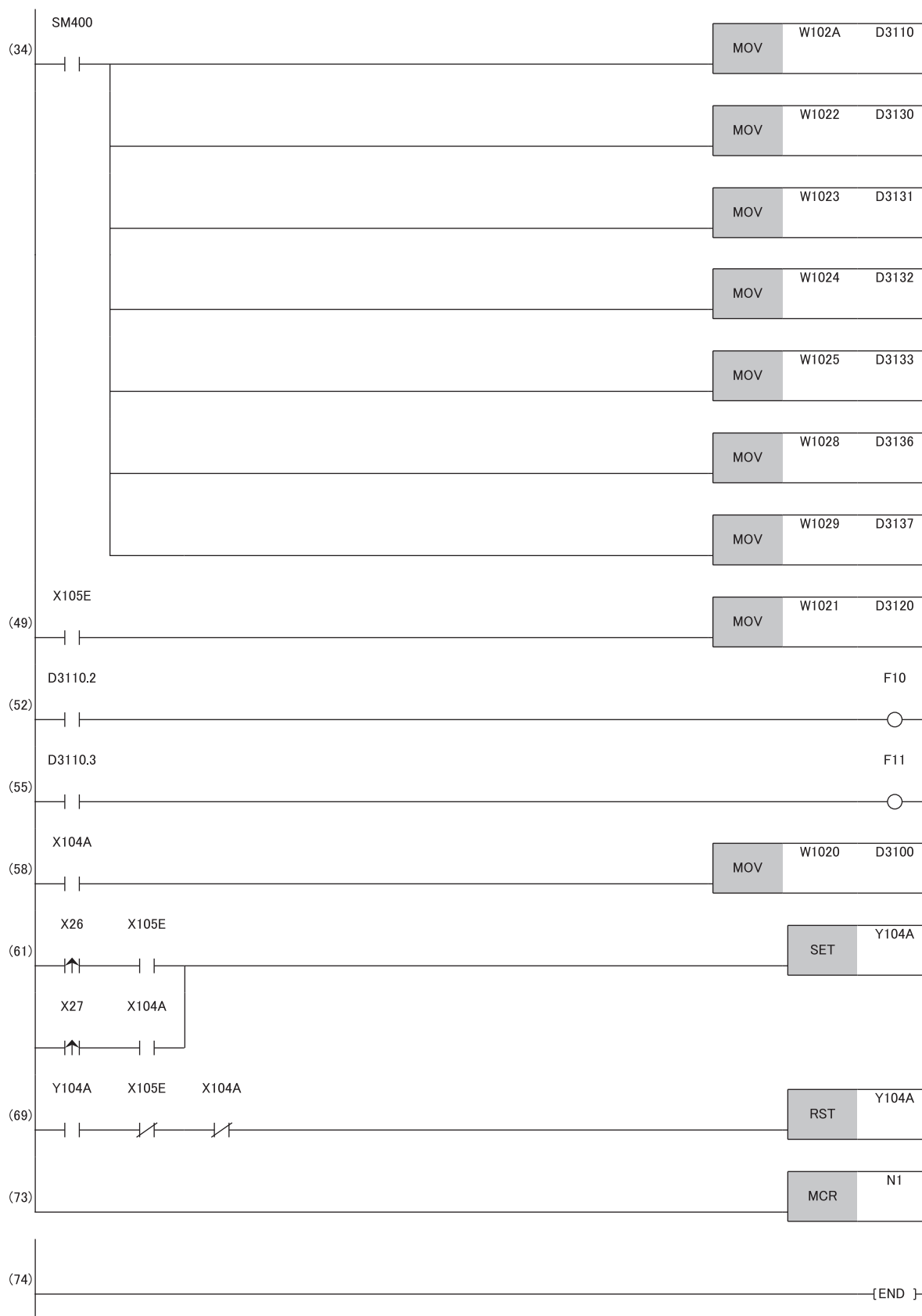
## Parameter setting

For details, refer to the following.

 Page 226 Parameter setting

## Program example





(0) Cyclic transmission status of the slave station (station number 2) is checked.

(4), (7) Initial data setting request is executed.

(10) A digital value is written.

(25) The output of the D/A conversion value is allowed.

(34) Warning output flag and Set value check code are detected.

(49) The latest alarm code is read.

(52), (55) The processing to be performed when a CH2 warning occurs is performed.

(58) The latest error code is read.

(61), (69) The latest error code and latest alarm code are cleared.