INSTRUCTION MANUAL

CC-LINK INTERFACE MODULE (CC-Link IE Field network)

MODEL R30GCIE1

BEFORE USE

Thank you for choosing M-System. Before use, please check contents of the package you received as outlined below. If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

■ PACKAGE INCLUDES:

Interface module(1)

MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

- The equipment must be mounted inside the instrument panel of a metal enclosure.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures to ensure the CE conformity.

■ HOT-SWAPPABLE MODULES

- It is possible to replace the module with the power supplied, provided that the module is replaced with a module of the same model number and that the same Installation Base slot is used.
- Turn off signals before replacing the module for safety. Note that replacing multiple modules at once may greatly change line voltage levels. We highly recommend to replace them one by one.

ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -10 to +55°C (14 to 131°F) with relative humidity within 10 to 90% RH in order to ensure adequate life span and operation.

■ WIRING

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.
- Be sure to attach the terminal cover for safety.

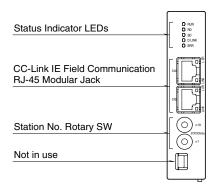
■ AND

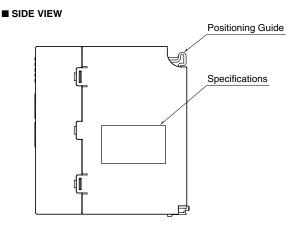
- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.
- Please use this unit with an interface module (model: R30NECT1) of firmware version V1.04.10 or higher, and an interface module (model: R30NCIE1) of firmware version V1.01.13 or higher.



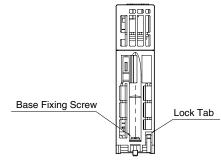
COMPONENT IDENTIFICATION

■ FRONT VIEW





■ BOTTOM VIEW



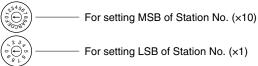
■ STATUS INDICATOR LED

ITEM	ID	COLOR	FUNCTION	STATUS	DESCRIPTION
Status	DUN	Caraca	Derrice State	ON	Normal
Indicator	RUN	Green	Device State	OFF	Indication of abnormality node
	DD	Green	Desci des Dete	ON	Receiving
	RD	Green	Receiving Data	OFF	Unreceived data
	SD	0	San din n Data	ON	Sending
	SD	Green	Sending Data	OFF	Unsent
	D LINK	Green	Correlia Three correct the m	ON	In action
	DLINK	Green	Cyclic Transmitting	OFF	Not complied with
	ERR	Red	D	ON	Abnormality node
	EKK	Red	Error	OFF	Normal
CN1	LINK	Green	CN1 Linking Up	ON	Linking up
	LINK	Green	UNI Linking Up	OFF	Link-down
	L ER	Red	CN1 Dessiring Date	ON	Abnormality receiving data
	LEK	Red	CN1 Receiving Data	OFF	Normality receiving data
CN2	LINIZ	Crear	CNO Linking Un	ON	Linking up
	LINK	Green	CN2 Linking Up	OFF	Link-down
	LED	D.J	(NO Description Deter	ON	Abnormality receiving data
	L ER	Red	CN2 Receiving Data	OFF	Normal

■ STATION NO. SETTING ROTARY SW

The upper rotary SW sets the upper digits (MSB), and the lower rotary SW sets the lowest digit (LSB) (configurable range is 1 to 120).

Confirm available station numbers in the manual of the master unit (Factory setting: 01H).



For setting LSB of Station No. (×1)

Example of Station No. setting

Characters on Rotary SW for MSB represent; A: 10, B: 11, C: 12. For example, to set station No. 115, set the SW for MSB to B and SW for LSB to 5. Do NOT set to D, E, F as they are not in use.



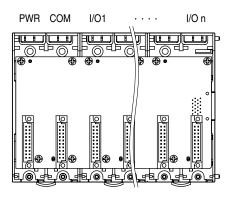
INSTALLATION

■ INSTALLATION TO THE BASE

Use the Installation Base (model: R30BS).

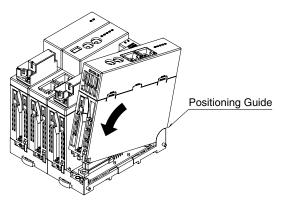
The I/O slots are numbered in the ascending order starting from the one on the immediate right of the interface module (slot 1, slot 2...).

A code indicating the I/O slot number is assigned to each I/O slot and I/O data is allocated in the order of the codes. When an I/O slot is vacant, blank data is sent or received to/ from the PLC, etc.

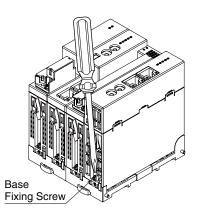


■ HOW TO MOUNT THE MODULE

- 1) Engage the positioning guide of the module with the Installation Base.
- 2) Pivot the module on the positioning guide and press it down until the lock tab sits into place.



3) Tighten the base fixing screw using a screwdriver (stem length: 70 mm/2.76" or more) $\,$ (torque 0.5 $N{\cdot}m).$



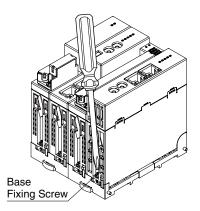


M-SYSTEM CO., LTD.

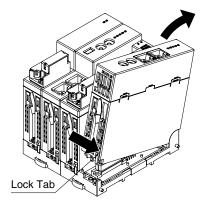
5-2-55, Minamitsumori, Nishinari-ku, Osaka 557-0063 JAPAN Phone: +81(6)6659-8201 Fax: +81(6)6659-8510 E-mail: info@m-system.co.jp

■ HOW TO REMOVE THE MODULE

1) Loosen the base fixing screw using a screwdriver (stem length: 70 mm/2.76" or more).



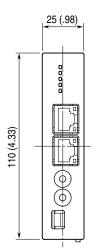
- 2) While pressing the projection on the lock tab, push the module upward.
- 3) Detach the positioning guide of the module from the Installation Base.

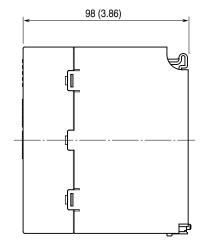


TERMINAL CONNECTIONS

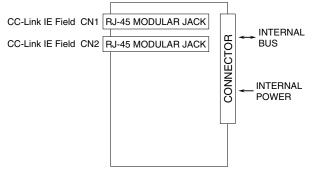
Connect the unit as in the diagram below.

EXTERNAL DIMENSIONS unit: mm (inch)





■ CONNECTION DIAGRAM



CN1 and CN2 of RJ-45 modular jacks for CC-Link IE Field network can be connected in any order.



TRANSMISSION DATA DESCRIPTION

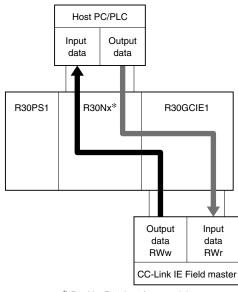
Number of transmission data is 4 points (4 words) for input; and4 points (4 words) for output.

This unit is equivalent to an analog I/O mixed module (AIO4) of R30 series, and is recognized as an I/O module by Interface modules (e.g. models: R30NECT1, TR30, DL30).

Station type: Remote device station

Link device: RX/RY 112 points, RWw/RWr 64 points

• DATA FLOW



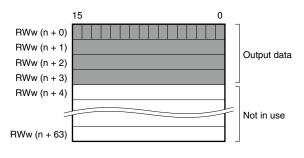
* R30Nx: R30 Interface module

■ OUTPUT DATA

The figure below shows details of data transmitted to Host PC/PLC from Interface module.

[CC-Link IE Field master]—>[R30GCIE1]—>[R30 internal bus] —>[R30 interface module]—>[Host PC/PLC]

Output data (RWw) from CC-Link IE Field master is transmitted as Input data to Host PC/PLC.



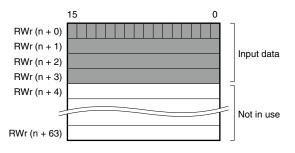
n: initial device

■ INPUT DATA

The figure below shows details of data received by Interface module from Host PC/PLC.

[Host PC/PLC]—>[R30 interface module]—>[R30 internal bus] —>[R30GCIE1]—>[CC-Link IE Field master]

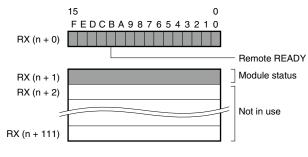
Output data from Host PC/PLC is transmitted as Input data (RWr) to CC-Link IE Field master.



n: initial device



■ STATUS





- RX(n+0)0 to 7 is reservation area, RX(n+0)B is used as Ready signal, and the bit is "1" when this module is operating normally. RX(n+0)8 to A and RX(n+0)C to F are not in use.
- Module Status
- RX(n + 1)0 indicates communication status of this unit.
 - 1 = Normal communication
 - 0 = Communication error / timeout
- RX(n + 1)1 indicates internal communication status.
 - 1 = Normal communication
 - 0 = Communication stop / communication error
- RX(n + 1)2 indicates communication status of field bus built in the interface module.
- 1 = Normal communication
- 0 = Communication stop / communication error / timeout
- RX(n + 1)3 to F are not in use.

Link devices other than the above are not in use.



SETTING PROCEDURE

Follow the setting procedure below for configuring R30GCIE1 by using GX Works2 of Mitsubishi Electric (hereinafter referred to as GX Works2).

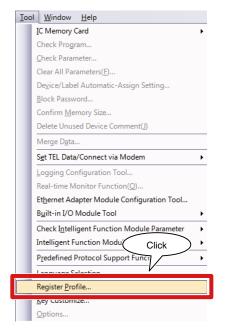
■ REGISTRATION FOR PROFILE

This unit supports CC-Link Family system profile (CSP+). CSP+ can be downloaded from the CC-Link Partner Association's home page (http://www.cc-link.org). However, registration of CSP+ is optional. If CSP+ is not needed, skip this section and move on to [Construction of System].

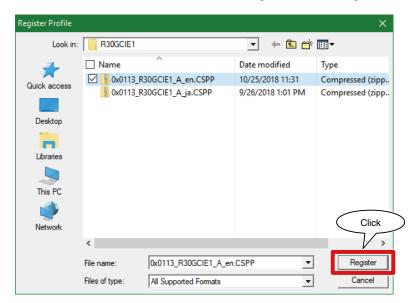
1) Start GX Works2.



2) From the main menu, select [Tool] \rightarrow [Register Profile].



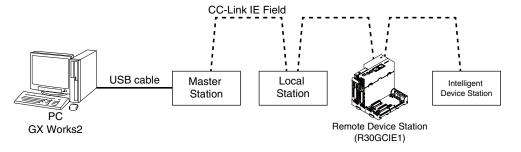
3) Select the downloaded CSP+ file, and click [Register] to finish registration.





■ CONSTRUCTION OF SYSTEM

The below figure shows an exemplary configuration of line connection.



- 1) Master station, Local Station, Remote Device Station (R30GCIE1) and Intelligent device station are connected by Ethernet cable. CN1 and CN2 of CC-Link IE Field Network RJ-45 modular jacks can be connected in any order.
- Before wiring, make sure to turn off the power of each unit. 2) After wiring is completed, turn on each unit.

■ CREATION OF PROJECT

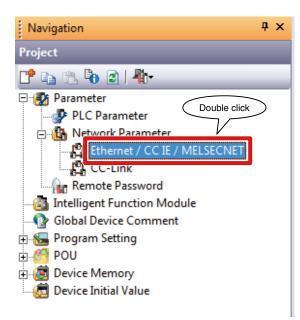
Connect the PC and the master station, and create a project of the master station with GX Works2 installed in the PC.

1) Start GX Works2.

2) From the main menu, select [Project] \rightarrow [New] to create a new project.

	Select		
Project Edit	Find Replace	Compile	View
<u>N</u> ew		Ctrl+I	N
<u>O</u> pen		Ctrl+(° h

3) From the menu tree of Project, select [Parameter] → [Network Parameter], and double click [Ethernet/CC IE/MELSEC-NET] to open the [Network Parameter Ethernet/CC IE/MELSECNET] window.





R30GCIE1

4) Check [Set network configuration setting in CC IE Field configuration window], and follow the steps as instructed in the table below.

SETTING ITEM	DESCRIPTION
Network type	CC IE Field (Master station)
Start I/O No.	0000
Network No.	1

\langle	Check	
	Network Parameter - MELS	X Input
	Set network configuration setting in C	
		Markela 4
	Network Type	CC IE Field (Master Station) 🗸
	Start I/O No.	0000
	Network No.	1
	I OTAI STATIONS	
	Group No.	$($ Click $) \rightarrow 5)$
	Station No.	
	Mode	Online (Normal Mode)
		CC IE Field Configuration Setting
		Network Operation Settings
		Refresh Parameters
		Interrupt Settings
		Specify Station No. by Parameter
		$(Click) \rightarrow 6)$

5) Click [CC IE Field Configuration Setting] to open the window of configuration setting.

In accordance with the actual system configuration, select the model from the unit list on each device's configuration window, and drag and drop it to the image of the device.

Input the station number, RX/RY setting (112 points), RWw/RWr setting (64 points), and click [Close with Reflecting Setting].

If CSP+ of R30GCIE1 is not registered, select [General CC IE Field Module].

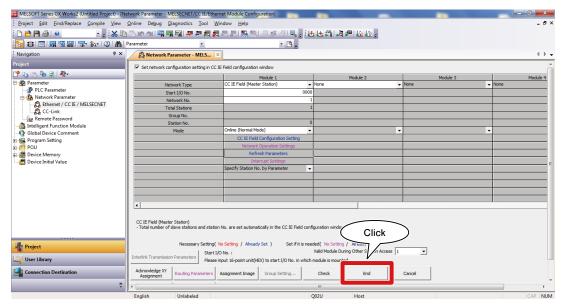
R CC IE Field Configuration Module 1 (Start I/O: 0000)		
CC IE Field Configuration Edit View Close with Discarding the Settin Close with Reflecting the Setting		
Mode Setting: Online (Standard Mode) Assignment Man Link St Input E Field Find Module My Favor No. Model Name STA# Static Click ng RWw/RWr Settar Editation E General CC IE Field Module I R300CIE1 1 Remote Device Station 112 0000 000F 64 0000 003F I R300CIE1 1 Remote Device Station 112 0000 000F 64 0000 003F I R300CIE1 1 Remote Device Station 112 0000 000F 64 0000 003F I R300CIE1 1 Remote Device Station 112 0000 000F 64 0000 003F I R300CIE1 1 Remote Device Station 112 0000 000F 64 0000 003F I R300CIE1 1 R300CIE1 Input Input R300CIE1 Input	ic Corpo	× ration)
STA#0 Master Total STA#1 Lne/Sar R305CIE1		
Supplementary Information		×
Plarteri devices that are assigned to multiple device ranges will appear in light blue. Please refer to the following supplementary information for the device range contents. Supplementary Information:		^
Supplementary Information Output		



6) Click [Refresh Parameter] to open the [Refresh Parameter Setting] window. Assign link devices RX/RY/RWw/RWr to CPU unit, then click [End].

 Points/Start C Start/End 	Paste										
			Link Si	ide					PLC Si	de	
	Dev. N	lame	Points	Start	End		Dev. Na	ame	Points	Start	End
Transfer SB	SB		512	0000	01FF	+	SB	-	512	0000	01FF
Transfer SW	SW		512	0000	01FF	÷	SW	-	512	0000	01FF
Transfer 1	RX	-	112	0000	006F	i ⇔	х	-	112	0000	006F
Transfer 2	RY	-	112	0000	006F	‡ ‡‡	Y	-	112	0000	006F
Transfer 3	RWr	-	64	0000	003F	. ⇔	D	-	64	0	63
Transfer 4	RWw	•	64	0000	003F	. ⇔	D	-	64	100	163
Transfer 5						17					
Transfer 6		-				+		-			
Transfer 7		-				$ \subset $	Click				
Transfer 8		-					JIICK	7.			

7) Click [End] on the [MELSECNET/CC IE Ethernet Module Configuration] window.



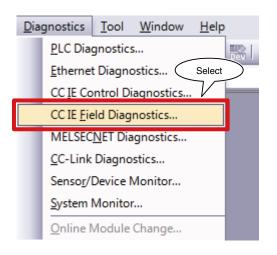
8) After having programmed as necessary, write parameters and programs to CPU unit.



■ NETWORK DIAGNOSTICS

CC-Link IE Field Network Diagnostics of GX Works2 enables to confirm status of the entire network in one glance. Specifically, it is possible to check error point, cause of error, and event history, and to monitor other stations.

1) From the main menu, select [Diagnostics] → [CC IE Field Diagnostics], to display the [CC IE Field Diagnostics] window.



2) Click the station to be diagnosed to display its status on the [Selected Station Communication Status Monitor] window.

CC IE Field Diagnostics				
Select D:			Monitor Status	
(Set to Decempter) (Con Connected St. Master:0 St. No.1	Change Module Select Station No.0 Slave Stations 1 Current Link 1 ms Number of Errors Det		St. Info	art Monitor Stop Monitor 3y Station Type gend Data link unperformed
P1			Disp	lay
Operation Test		Selected Stati	on Communication Status Moni	tor (QJ71GF11-T2)
Communication Test	Check the transient communication route from the connected station to the destination station.	(Station No. 0	No Error Mode: Onlin	e (Normal Mode)
IP Communication Test	Check the communication route, whether you can reach			
-	communication target station from the specified station	MAC Address:1	0-48-46-28-78-54	
Cable Test	communication target station from the specified station. Check the cable status between the connected station and the destination station.	MAC Address:1	U-4B-46-2B-78-54	
-	Check the cable status between the connected station and	MAC Address:1	U-4B-46-2B- /8-54	
Cable Test	Check the cable status between the connected station and the destination station.	MAC Address:1	0-48-46-28-78-54	
Cable Test	Check the cable status between the connected station and the destination station.	MAC Address:1	RUN	MST
Cable Test Link Start/Stop Information Confirmation/Set	Check the cable status between the connected station and the destination station. Start or stop the network data link.	MAC Address:1	RUN MODE SD	D LINK RD
Cable Test Link Start/Stop Information Confirmation/Set Network Event History Reserved Station	Oneck the cable status between the connected station and the destination station. Start or stop the network data link. Access the network the event history log. View reserved station numbers and temporarily enable	MAC Address:1	RUN MODE SD	D LINK
Cable Test Link Start/Stop Information Confirmation/Set Network Event History Reserved Station Function Enable Enable / Disable Temporary	Check the cable status between the connected station and the destination station. Start or stop the network data link. Access the network the event history log. View reserved station numbers and temporarily enable reserved stations. View station numbers set to error invalid station and temporary error invalid station.	MAC Address:1	RUN MODE SD	D LINK RD
Cable Test Link Start/Stop Information Confirmation/Set Network Event History Reserved Station Function Enable Enable / Disable Tempgrary Error Invalid Station	Check the cable status between the connected station and the destination station. Start or stop the network data link. Access the network the event history log. View reserved station numbers and temporarily enable reserved stations. View station numbers set to error invalid station and	MAC Address:1	RUN MODE SD	D LINK RD
Cable Test Link Start/Stop Information Confirmation/Set Network Event History Reserved Station Function Enable Enable / Disable Tempgrary Error Invalid Station Selected Station Operation	Oheck the cable status between the connected station and the destination station. Start or stop the network data link. Access the network the event history log. View reserved station numbers and temporarily enable reserved stations. View station numbers set to error invalid station and temporary error invalid station. (PU status of the selected station can be checked by starting	MAC Address:1	RUN MODE SD	D LINK RD



3) If an error has occurred, the button such as [Module Error] is displayed. Click the button to display the details, and troubleshoot accordingly.

