INSTRUCTION MANUAL

NETWORK INTERFACE MODULE (CC-Link IE Field network)

MODEL R3-NCIE1

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:

Network interface module	1)	1
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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

• The module can be replaced while the power is ON. Be sure to replace it when the module is not communicating with a host, as it may affect the system. Replacing multiple modules at once may greatly change line voltage levels. We highly recommend to replace them one by one.

■ GENERAL PRECAUTIONS

• DO NOT set the switches while the power is supplied. The switches are used only for maintenance without the power.

■ 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 $+55^{\circ}$ C (14 to 131°F) with relative humidity within 30 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.

INSTALLATION

Use the Installation Base Model R3-BS, or Model R3-BSW for free I/O address capability.

Before mounting the Network Interface Module onto the Base, be sure to configure the module as explained below.

■ DATA ALLOCATION

The setting determines the data area size assigned to each I/O module mounted on the base.

The data sent/received via CC-Link IE Field is mapped according to this setting.

See "COMPONENT IDENTIFICATION" and "TRANSMIS-SION DATA DESCRIPTIONS".

STATION No., ETC.

See "COMPONENT IDENTIFICATION".

■ NETWORK SLOTS ON THE BASE



With Model R3-BS base, mount the I/O Modules from the left end (I/O 1) to the right in order that the Network Module assigns data areas from I/O 1.

Network Module(s) and Power Module are mounted basically at the right end though technically they could be mounted in any position.

With Model R3-BSW base, there is no limitation in mounting positions as I/O address can be assigned freely to each module using rotary switches equipped on the base.



COMPONENT IDENTIFICATION



STATION NO. SETTING ROTARY SW

The upper side of station No. setting rotary SW set MSB, and the down side of it set LSB. (configurable range is 1 to 120) Confirm configurable station number in the manual of master unit (Factory setting: 01H).

For setting MSB of Station No. (×10) $\begin{pmatrix} 1 & 0 \\ 0 &$

e.g. Setting station No.

Rotary SW of setting station MSB, Indicating A: 10, B: 11, C: 12. For example, in the case of setting station No. 115, Set the Station MSB: B and LSB: 5.

NOT allowed to Set D, E, F they are unused.

■ SIDE DIP SW

(*) Factory setting

Data Allocation: SW1, SW2

Data Allocation Type* must be assigned to each I/O module position to specify how many data areas (four types) are to be occupied by each.

Two bits from SW1 and SW2 are assigned to each position, and data areas can be specified from the module No. 1 through 8. Setting for No. 9 and later modules is identical to No. 8.

SW ASSI	GNMENT	
0111.001		
SW1-1	SW1-2	1
SW1-3	SW1-4	2
SW1-5	SW1-6	3
SW1-7	SW1-8	4
SW2-1	SW2-2	5
SW2-3	SW2-4	6
SW2-5	SW2-6	7
SW2-7	SW2-8	8
SW SE	TTING	DATA ALLOCATION
OFF	OFF	1
ON	OFF	4
OFF	ON	8
ON	ON	16

* Refer to the specifications of the related series for the Data Allocation Type of I/O modules.

• Dual Communication: SW3-1

When two network modules are mounted, one must be 'Main' (OFF) network and the other must be 'Sub' (ON) network. For single communication, the network module must always be set to 'Main' (OFF).

C/M/	DUAL COMMUNICATION MAIN (*) SUB OFF ON	
300	MAIN (*)	SUB
SW3-1	OFF	ON

Input Error Data: SW3-2

Hold: When the communication from an input module is lost due to the input module error, the network module holds the signal and stands by until the communication recovers.

Set to '0': When the communication from an input module is lost due to the input module error, the network module outputs '0.'

C)//	INPUT ERROR DATA					
500	HOLD (*)	SET '0'				
SW3-2	OFF	ON				

Note: Be sure to set unused SW3-3 and 3-4 to OFF.



STATUS INDICATOR LED

ITEM	ID	COLOR	FUNCTION	STATUS	DESCRIPTION
Status	DUN	Conserve	Derrice State	ON	Normal
Indicator	RUN	Green	Device State	OFF	Occurring device error
				ON	Data link in operation (cyclick transmitting)
	D LINK	Green	Data Link Transmitting	Blinking	Data link in operation (stop cyclick transmitting)*1
				OFF	Not in operation, disconnected
				ON	Occurring major error ^{*2}
	ERR	Red	Error	Blinking	Occuring minor error ^{*3}
				OFF	Normal
CN1	I INIZ	C	CN1 Linking Un	ON	Linking up
	LINK	Green	CN1 Linking Op	OFF	Link-down
	тър	Ded	CN1 Receiving Data	ON	Abnormality receiving data, loopback in operation
	LER	neu	CN1 Receiving Data	OFF	Normality receiving data, loopback not in operation
CN2	LINK	Cream	CN9 Linking Un	ON	Linking up
	LINK	Green	CN2 Linking Op	OFF	Link-down
	IFD	Ded	CN9 Passiving Data	ON	Abnormality receiving data, loopback in operation
	LEK	пеа	UN2 Receiving Data	OFF	Normality receiving data, loopback not in operation

*1. Setting as a reserved station, data link stop, etc.

*2. Upper communication error, and internal bus error etc.

*3. Non-volatile memory error, or station no. setting rotary SW has been changed after turning on the power.

PC CONFIGURATOR

The following parameter items can be set with using PC Configurator Software (model: R3CON). Refer to the users manual for the R3CON for detailed operation of the software program.

CC-Link IE SETTING

PARAMETER	SETTING RANGE	DEFAULT SETTING
NetWork No.	1 - 239	1
Main/Sub switching delay time (0 - 5000 msec)	0 - 5000 (msec.)	0

TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

EXTERNAL DIMENSIONS unit: mm [inch]





■ CONNECTION DIAGRAM



Regarding CN1 and CN2 of RJ-45 connector for CC-Link IE Field network, there is no restriction for connection order.

WIRING INSTRUCTIONS

■ M3 SCREW TERMINAL (RUN contact output)

Torque: 0.5 N·m

■ SOLDERLESS TERMINAL

Refer to the drawing below for recommended ring tongue terminal size. Spade tongue type is also applicable. Solderless terminals with insulation sleeve do not fit. Recommended manufacturer: Japan Solderless Terminal MFG.Co.Ltd, Nichifu Co.,ltd

Applicable wire size: 0.75 to 1.25 mm²



TRANSMISSION DATA DESCRIPTIONS

Number of transmission data (data allocation) for each I/O module is set with the DIP switch on the side of the unit. Data allocation is assigned from slot 1 in sequence.

Keep number of transmission data of I/O module under 64, because max. number of transmission data is 64 per a node. Station type: Remote device station

Link device: RX/RY 128 points, RWw/RWr 64 points

E.g. I/O data is assigned as shown below in the case of following configuration.

BASE	SLOT NO.	MODEL	NUMBER OF TRANSMISSION DATA
R3-BS10	1	R3-DA16A	1
	2	R3-DC16A	1
	3	R3-SV4	4
	4	R3-YV4	4
	5	R3-RS8	8
	6	R3-YV8	8
	7	R3-PA16	16
	8	R3-PC16A	16
	9	R3-NCIE1	
	10	R3-PS1	



■ INPUT DATA

The figure below shows the data sent from the device to the master.

OUTPUT DATA

The figure below shows the data received from the master.

HWr-do H83610 Bit 1 B36510 Bit 1 Bit 1 B36510 Bit 1 Bit 1 B36510 Bit 1		15 0					15 0				
	RWr n+0) Slot 1 Slot 2	R3-DA16A B3-DC16A	Di16 points	RWw n+0		R3-BS10	Slot 1 Slot 2	R3-DA16A B3-DC16A	Di16 points
44 CH2 CH2 CH3 CH4	+2		Slot 3	R3-SV4	CH1	+2	=	1	Slot 3	R3-SV4	CH1
					CH2						CH2
He Stot 4 R3-YV4 He Stot 4 R3-YV4 He +8 Stot 4 R3-YV4 GR 46 GR	+4				CH3	+4					CH3
	+6	1	Slot 4	B3-YV4	CH4 CH1	+6		1	Slot 4	B3-YV4	CH4 CH1
					CH2						CH2
10 Slot 5 R3-R3 CH4 10 Slot 5 R3-R3 CH4 12 Slot 5 R3-R3 CH1 10 CH2 CH3 CH4 CH4 <t< td=""><td>+8</td><td></td><td></td><td></td><td>CH3</td><td>+8</td><td></td><td></td><td></td><td></td><td>CH3</td></t<>	+8				CH3	+8					CH3
10 30// 3 16/163 410 410 30// 3 16/163 611 412 0 0 412 0	. 10		Clot F		CH4	. 10	=======================================	J	Clot F		CH4
+12 CH3 +12 CH4 CH4 +14 CH5 CH4 CH5 +16 CH7 +16 CH7 +18 CH4 CH4 CH7 +20 CH5 CH4 CH2 -20 CH5 CH2 CH3 +22 CH5 +22 CH5 CH7 -22 CH5 +22 CH6 CH7 -24 CH6 CH7 CH8 CH7 -24 CH7 F24 CH7 CH8 CH7 -24 CH7 CH8 CH7 CH8 CH7 -24 CH7 F24 CH7 CH8 CH7 -24 CH7 F24 CH7 CH8 CH7 -28 CH7 F34 CH7 CH8 CH7 -28 CH6 CH7 CH8 CH7 CH8 CH7 -28 CH7 F34 CH7 CH8 CH7 CH8 CH7 -29 CH7 CH8 CH7 CH8 C	+10		3101 5	no-noo	CH2	+10			3101 5	n3-n30	CH1 CH2
14 CH4 CH4 CH4 CH4 CH5	+12				CH3	+12					CH3
+14 CH6 +18 CH6 CH7 CH8 CH4 CH7 CH11 CH11 CH11 <t< td=""><td></td><td></td><td></td><td></td><td>CH4</td><td></td><td></td><td></td><td></td><td></td><td>CH4</td></t<>					CH4						CH4
+16 CH7 +16 CH7 CH8 CH8 CH8 CH7 CH8 CH8 CH8 CH8 CH8 CH8 CH8 CH8 CH7 CH8 CH8 <td>+14</td> <td></td> <td></td> <td></td> <td>CH5</td> <td>+14</td> <td></td> <td></td> <td></td> <td></td> <td>CH5</td>	+14				CH5	+14					CH5
HB CHB	+16				CH7	+16					CH7
+18	-				CH8	-					CH8
120 CH2 CH3 CH3 122 CH4 CH4 CH4 122 CH6 CH6 CH6 124 CH6 CH7 CH6 CH6 124 CH6 CH7 CH6 CH6 CH6 124 CH6 CH7 CH6 CH6 CH6 CH6 CH6 124 CH6 CH7 CH2 CH6 C	+18		Slot 6	R3-YV8	CH1	+18			Slot 6	R3-YV8	CH1
120 0.13 420 0.14 0.14 122 0.14 422 0.14 0.14 122 0.14 422 0.14 0.14 124 0.14 422 0.14 0.14 124 0.14 424 0.14 0.14 128 0.17 13.9A16 0.14 24 128 0.17 13.9A16 0.14 24 130 0.14 428 0.14 0.14 142 0.14 140 0.14 0.14 143 0.14 0.14 0.14 0.14 143 0.14 0.14 0.14 0.14 143 0.14 0.14 0.14 0.14 144 0.14 0.14 0.14 0.14 143 0.14 0.14 0.14 0.14 144 0.14 0.14 0.14 144 0.14 0.14 0.14 144 0.14 0.14 0.14 144 0.14 0.14 0.14 144 0.14 0.14 0.14 144 0.14 0.14 0.14 144 0.14 0.14	120				CH2	1.20					CH2
+22	+20				CH4	720					CH4
+24 CH6 CH6 CH6 +24 CH6 CH7 CH8 CH7 +28 CH6 CH2 CH2 CH3 CH4 +30 CH5 +30 CH6 CH5 CH3 +32 CH6 CH7 CH2 CH3 CH4 CH3 +30 CH5 +30 CH6 CH5 CH4 CH3 +34 CH6 CH7 +32 CH7 CH5 CH6 CH5 +34 CH6 CH6 CH7 CH6 CH6 CH6 CH6 +34 CH7 +32 CH11 CH6 CH6 CH7 CH6 CH6 CH7 CH6 CH6 CH6 CH6 CH6 CH6 CH6 CH7 CH6 CH6 CH6 CH6 CH6 CH6 CH6 CH6 CH6 CH7 CH6	+22				CH5	+22					CH5
+24					CH6						CH6
+26	+24				CH7 CH8	+24					CH7 CH8
+28 CH2 CH3 +28	+26	i i i i i i i i i i i i i i i i i i i	Slot 7	R3-PA16	CH1	+26]	Slot 7	R3-PA16	CH1
+28 CH3 +28 CH3 +28 +30 CH4 CH4 CH4 +30 CH5 +30 CH5 +32 CH6 CH6 CH6 +32 CH7 +32 CH6 +34 CH9 +34 CH9 CH9 +34 CH9 +34 CH9 CH1 +36 CH11 +36 CH11 CH11 +38 CH13 CH13 CH14 CH12 CH14 CH14 CH14 CH13 CH13 CH14 CH14 CH14 CH15 CH13 CH14 CH14 CH14 CH14 CH14 +40 CH14 CH14 CH14 CH14 CH14 CH14 CH2 CH15 CH16 CH14 CH2 CH14 CH14 CH14 +44 CH14 CH2 CH2 CH2 CH4 CH4 CH2 CH2 CH2 CH4 CH4 CH4 CH4 CH4 CH2<	-				CH2	-					CH2
+30 CH4 CH4 CH4 +32 CH6 CH6 CH6 +32 CH7 +32 CH7 +34 CH9 +34 CH9 +36 CH11 +36 CH12 CH12 CH13 CH13 CH13 +38 CH14 +40 CH15 CH1 +44 CH15 CH2 CH3 CH2 CH12 CH14 CH12 CH13 CH14 CH2 CH14 CH4 CH2 CH14 CH4 CH2 CH14 CH4 CH2 CH14 CH4 CH2 CH14 CH3 CH4 CH3 CH4 CH3 CH4 CH3 CH4 CH3 CH4 CH3 CH4 CH4 CH3 CH4 CH4 CH3 CH4 CH4 CH3 CH4 <td< td=""><td>+28</td><td></td><td></td><td></td><td>CH3</td><td>+28</td><td></td><td></td><td></td><td></td><td>CH3</td></td<>	+28				CH3	+28					CH3
+30	. 20				CH4	. 20					CH4
+32	+30				CH5 CH6	+30					CH5 CH6
+34 CH8 CH9 +34 CH10 +36 CH11 +38 CH12 CH10 +38 CH12 CH13 CH13 CH13 +40 CH15 H0 CH15 CH16 +42 CH15 CH16 CH16 CH16 +44 CH15 CH14 CH16 CH16 +44 CH15 CH16 CH16 CH16 +44 CH15 CH16 CH16 CH16 +44 CH16 CH16 CH16 CH16 +44 CH16 CH16 CH16 CH16 +44 CH17 +48 CH3 CH3 +46 CH6 CH6 CH5 +48 CH1 CH1 CH3 +50 CH1 CH1 CH1 +51 CH10 CH1 CH1 +52 CH11 +52 CH11 CH12 +54 CH11 +54 CH13 CH14 CH14 CH12 CH11 CH12 CH16 CH16 CH16 CH16 CH11 CH15 CH16 CH16 CH11 CH14 CH16 CH16 CH11 <td>+32</td> <td></td> <td></td> <td></td> <td>CH7</td> <td>+32</td> <td></td> <td></td> <td></td> <td></td> <td>CH7</td>	+32				CH7	+32					CH7
+34 CH9 +34 CH9 +34 +36 CH10 CH10 CH10 +38 CH11 +36 CH11 CH12 +38 CH13 +38 CH13 CH14 CH12 +44 CH15 +40 CH15 CH16 CH16 +42 Slot 8 R3-PC16A CH1 CH2 CH16 CH16 +44 CH15 +44 CH3 CH3 CH4 CH3 +44 CH3 CH4 CH3 CH4 CH3 CH3 +44 CH3 CH4 CH3 CH4 CH3 CH4 +44 CH3 CH4 CH3 CH4 CH3 CH4 +44 CH3 CH4 CH3 CH4 CH3 CH4 CH3 +44 CH4 CH4 CH4 CH4 CH4 CH4 CH4 +44 CH4 CH4 CH4 CH4 CH4 CH4 CH4 +44 CH4 CH4 CH4 CH4 CH4 CH4 CH4					CH8						CH8
+36 CH10 +36 CH11 +36 CH11	+34				CH9	+34					CH9
+38 CH12 CH12 CH13 CH14 CH14 CH14 CH15 CH16 CH12 CH13 CH14 CH14 CH14 CH14 CH13 CH14	+36				CH10 CH11	+36					CH10 CH11
+38 CH13 +38 CH13 +38 CH13 +40 CH14 CH14 CH14 CH14 CH14 +40 CH16 CH16 CH16 CH16 CH16 +42 CH14 CH1 +42 CH16 CH16 CH16 CH16 +44 Slot 8 R3-PC16A CH1 +42 CH2 CH2 CH2 CH3 +44 CH3 +44 CH3 CH4 CH3 CH3 +44 CH5 CH6 CH6 CH6 CH6 CH6 +448 CH7 +48 CH7 +48 CH7 CH8 CH7 +50 CH9 CH11 +52 CH10 CH10 CH10 CH11 +54 CH13 +54 CH13 CH13 CH13 CH13 CH13 +56 CH16 CH16 CH16 CH13 CH14 CH14 CH14 +56 CH16 CH16 CH14 CH14 CH14 CH14 CH14 +56 CH16 CH16 CH16					CH12						CH12
+40 CH14 CH14 CH14 CH15 +40 CH16 CH16 +42 CH16 CH16 CH16 +44 CH1 +42 CH2 CH2 +44 CH3 +44 CH3 CH3 +46 CH5 +46 CH3 CH4	+38				CH13	+38					CH13
Ho CH16 CH16 CH16 H42 Slot 8 R3-PC16A CH1 H42 CH2 H44 CH2 CH2 CH2 H44 CH3 H44 CH3 CH4 CH4 CH4 CH3 H46 CH5 H6 CH4 CH6 CH6 CH6 CH6 CH6 CH6 CH6 CH6 CH6 H48 CH7 H48 CH7 CH9 CH10 CH9 CH9 CH10 CH11 CH2 CH10 F50 CH11 F52 CH11 CH12 CH11 CH12 CH11 CH12 CH11 F54 CH11 F56 CH13 F56 CH13 CH14 CH15 CH16 CH14 CH14 CH14	+40				CH14	+40					CH14
+42	+40				CH16	+40					CH16
	+42	7	Slot 8	R3-PC16A	CH1	+42]	Slot 8	R3-PC16A	CH1
+44 CH3 +44 CH3 +46 CH4 CH4 +46 CH5 +46 CH6 CH6 CH7 +48 CH7 +48 CH9 +50 CH9 CH10 CH10 CH9 +52 CH11 +52 CH11 +52 CH12 +54 CH13 +54 CH14 CH14 CH13 +56 CH15 CH15 CH16 CH16 CH16					CH2						CH2
+46 CH4 CH4 +46 CH5 +46 CH5 +46 CH6 CH6 +48 CH7 +48 CH7 +50 CH9 CH9 +50 CH10 CH10 CH11 +52 CH12 CH12 +54 CH13 +56 CH14 CH15 CH15 CH16 CH15	+44				CH3	+44					CH3
H48 CH6 CH6 +48 CH7 +48	+46				CH4 CH5	+46					CH4 CH5
+48 CH7 +48 CH7 +50 CH8 CH8 +50 CH9 +50 CH10 CH10 +52 CH11 +52 CH12 CH12 +54 CH13 +56 CH15 CH15 +56					CH6						CH6
+50 CH8 CH8 +50 CH9 +50 +52 CH10 CH10 +52 CH11 +52 +54 CH12 CH12 +54 CH13 +54 CH14 CH14 CH15 +56 CH16 CH15	+48				CH7	+48					CH7
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+52 CH11 +52 CH11 +54 CH12 CH12 +54 CH13 +54 CH14 CH15 +56 CH15 CH16 CH16	+50				CH10	+50					CH10
+54 CH12 CH12 CH13 +54 CH13 +54 CH14 CH14 CH14 CH15 +56 CH16 CH16CH16 CH16	+52				CH11	+52					CH11
+54 CH13 +54 CH13 +56 CH14 CH14 +56 CH15 +56 CH15 CH16 CH16					CH12						CH12
+56 CH15 +56 CH15 CH15 CH16 CH16	+54				CH13	+54					CH13
CH16	+56				CH14 CH15	+56					CH14 CH15
					CH16	-					CH16



■ REMOTE INPUT



 \bullet RX(n+0)B is used as Ready signal, the bit is "1" when this module is in normal.

- Redundant Command Read Back (Opt. code: /W Available only for redundant system PLC by Mitsubishi) The bit written to RY(n+1)0 reads back to RX(n+1)0.
- Module Status

RX(n+2)0 to RX(n+2)F indicate whether individual I/O modules of R3 series are mounted or not. The bit corresponding to the mounted slot turns to "1", and the unmounted slot to "0".

• Error Status

RX(n+3)0 to RX(n+3)F indicate error status for each module of R3 series. The bit corresponding to such module turns to "1", as described below. R3-TSx, R3-RSx, R3-US4 input burnout R3-DA16A input power in error or disconnected R3-YSx output current error (e.g load unconnected) R3-PC16A external power supply in error or disconnected

• Data Error Status

 $RX(n\!+\!4)0$ to $RX(n\!+\!4)F$ indicate data error status for each module of R3 series.

The bit corresponding to such module turns to "1", as described below.

Input value is out of -15% to +115%

In the case of R3-US4 (voltage input) input level out of -10% to +110%.

RX(n+2)0, RX(n+3)0, RX(n+4)0	$\operatorname{slot} 1$
RX(n+2)1, RX(n+3)1, RX(n+4)1	$\operatorname{slot} 2$
RX(n+2)2, RX(n+3)2, RX(n+4)2	slot 3
:	:
RX(n+2)F, $RX(n+3)F$, $RX(n+4)F$	slot 16

Link devices other than the above are not in use.

■ REMOTE OUTPUT (Opt. code: /W Available only for redundant system PLC by Mitsubishi)





Redundant Command

Bit 0 of RY(n+1) is assigned to designate control system or standby system. Set this bit from the host PLC to switch from the PLC master control system to the standby system, or vice versa. The R3 module output (slave station) is controlled according to the bit combinations as shown in the table below. No switching is required for the R3 input modules which continuously send out data to both 'main' and 'sub' network modules.

RY(n+1) 0	= 0 :	PLC	master	control	system
					•

RY(n+1) 0 = 1:	PLC standby system	
R3 MAIN (RY(n+1)0)	R3 SUB (RY(n+1)0)	CONTROL
0	0	Output from the 'main' network module
0	1	Output from the 'main' network module
1	0	Output from the 'sub' network module
1	1	Output hold or output off *1

*1. Depending on the setting for the output hold function of output module.

Operation



1) When the redundant command bits are undefined due to no communication, the both PLCs function as standby system for each of R3 main and sub network modules.

The output module's status turns to 'output hold' or 'output off' according to the setting for output hold function.

During no communication just after the power supply, all the channels of the contact output modules are off-state, and analog output modules output -15%.

- 2) The master PLC communicates with the R3 main network module, while the standby PLC communicates with the R3 sub network module.
- 3) When a wire breakdown is detected at the R3 main network, the output signal is held for the preset time period (Timer is programmable with the PC Configurator Software, R3CON). After the time has been elapsed, the output is switched from the R3 main to R3 sub network. Be sure to set an appropriate output signal to the R3 sub network before the switching. The host PLC for the R3 main network is now functioning as standby system.
- 4) Once the PLC control is transferred to the standby system, it is necessary to set RY(n+1) 0 = 1 to the R3 main network in order to prevent R3 output control automatically switched to the main network when the R3 main network is restored. If it is set to RY(n+1) 0 = 0, the R3 output will be switched to the main network even when the PLC control is in the standby system.
- 5) When both R3 main and R3 sub network modules are in communication, the output can be switched without delay by setting RY(n+1) 0 values. Be sure to set an appropriate output signal to the network module before the control is switched to it.



R3-NCIE1

■ CONNECTION EXAMPLE



Link devices other than the above are not in use.

MODULE STATUS, ERROR STATUS, DATA ERROR STATUS

Shows each module's availability and error status.



I/O DATA DESCRIPTIONS

The data allocations for typical I/O modules are shown below. Refer to the manual for each module for detailed data allocations.

OPERATION IN CASE OF A COMMUNICATION ERROR WITH I/O MODULES

When the communication between the network module and the I/O modules is lost due to an error in an input module, the last process values are held until the communication is re-established.

ANALOG DATA (16-bit data, models: R3-SV4, YV4, DS4, YS4, US4, etc.)

16-bit binary data.

Basically, 0 to 100% of the selected I/O range is converted into 0 to 10000 (binary). -15 to 0 % is a negative range represented in 2's complement.

In case of R3-US4, -10 to 0% is a negative range represented in 2's complement.





■ TEMPERATURE DATA (16-bit data, models: R3-RS4, TS4, US4, etc.)

16-bit binary data.

With °C temperature unit, raw data is multiplied by 10. For example, 25.5°C is converted into 255.

With $^{\circ}$ F temperature unit, the integer section of raw data is directly converted into the data. For example, 135.4 $^{\circ}$ F is converted into 135.

Minus temperature is converted into negative values, represented in 2's complements.



ANALOG DATA (16-bit data, models: R3-CT4A, CT4B, etc.)

16-bit binary data.

Integer obtained by multiplying unit value (A) by 100.

In case of CLSE-R5, integer obtained by multiplying unit value (A) by 1000.



■ ACCUMULATED COUNT DATA (32-bit data, models: R3-PA2, PA4A, WT1, WT4, etc.)

32-bit binary data is used for accumulated counts and encoder positions.

Lower 16 bits are allocated from the lowest address to higher ones, higher 16 bits in turn.



■ BCD DATA (32-bit data, models: R3-BA32A, BC32A, etc.)

32-bit binary data is used for BCD.

Lower 16 bits are allocated from the lowest address to higher ones, higher 16 bits in turn.



■ DISCRETE DATA (models: R3-DA16, DC16, etc.)





SETTING by GX Works2

SUMMARY

This section explains the setting of the unit on the premise of using GX Works2 made by Mitsubishi Electric (hereinafter called "GX Works2").

■ REGISTRATION OF PROFILE

R3-NCIE1 supports CC-Link Family system profile (hereinafter called "CSP+"). CSP+ is downloadable at CC-Link Association Home page, www.cc-link.org. * It is not necessary to register CSP+ on a PC. If you skip this procedure, start from [CONSTRUCTION OF SYSTEM].

1) Start GX Works2.



2) Click [Tool] \rightarrow [Resister Profile].

<u>T</u> ool	<u>W</u> indow <u>H</u> elp			
I	C Memory Card	۲		
(Check Program			
<u>(</u>	Eheck Parameter			
(Clear All Parameters(<u>F</u>)			
1	De <u>v</u> ice/Label Automatic-Assign Setting			
I	lock Password			
(Confirm <u>M</u> emory Size			
[Delete Unused Device Comment(<u>J</u>)			
	Vlerge D <u>a</u> ta			
5	Set TEL Data/Connect via Modem	×		
l	ogging Configuration Tool			
F	Real-time Monitor Function(<u>Q</u>)			
E	thernet Adapter Module Configuration Tool			
E	3 <u>u</u> ilt-in I/O Module Tool	•		
(Check Intelligent Function Module Parameter	•		
I	ntelligent Function Module <u>T</u> ool	•		
F	Predefined Protocol Support Function	►	1 Cli	ic
l	.anguage <u>S</u> election			_
F	Register <u>P</u> rofile	/		
ł	<u>k</u> ey Customize			
9	<u>D</u> ptions			

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

Register Profile					×
Look in:	CSP+		•	← 🗈 💣 📰▼	
4	Name	^		Date modified	Туре
Quick accord	🗹 📙 0x0113_F	3-NCIE1_A_en.CSPP		9/13/2017 3:43 PM	Compress
Desktop	<mark>₩</mark> 0x0113_F	I3-NCIE1_A_ja.CSPP		9/13/2017 3:38 PM	I Compress
Libraries					
This PC					
Network					
	<				>
	File name:	0x0113_R3-NCIE1_A_en	.CSPP	•	Register
	Files of type:	All Supported Formats		•	Cancel



■ CONSTRUCTION OF SYSTEM

Here is an example of the configuration of a line connection.



 Connect Master station and Remote Device Station (model: R3-NCIE1) with Ethernet Cable.
 Make sure to turn off the power of each unit before wiring. CN1 and CN2 of modular jack RJ-45 for CC-Link IE Field Network have no limit of wiring connection order.

2) After finishing wiring, turn on the power of each unit.

■ CREATION OF PROJECT

Connect the PC and the master Station, and create a project of the master station by GX Works2 installed on the PC.

1) Start GX Works2.

2) Click [Project] \rightarrow [New] to create a new project.



3) Double-click [Parameter] → [Network Parameter] → [Ethernet/CC IE/MELSECNET] to open the [Network Parameter Ethernet/CC IE/MELSECNET] window.





4) Check [Set network configuration setting in CC IE Field configuration window], and set as below.

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

Retwork Parameter - MELS X		1. Check
Set network configuration setting in CC IE	Field configuration window	
	Module 1	2. Input
Network Type	CC IE Field (Master Station) 🗸	
Start I/O No.	0000	
Network No.	1	
Total Stations	1	
Group No.		
Station No.	0	3. Click
Mode	Online (Normal Mode) -	
	CC IE Field Configuration Setting	
	Network Operation Settings	4. Click
	Refresh Parameters 🚽	
	Interrupt Settings	
	Specify Station No. by Parameter 👻	

5) Click [CC IE Field Configuration Setting] to open the window of configuration setting. According to the real system configuration, select the device from [Module List], and drag and drop it to the device configuration diagram. Input the station number, RX/RY setting (128 points), RWw/RWr setting (64 points), and click [Close with Reflecting the Setting].

* When CSP+ not registered, select [General CC IE Field Module].

CC IE Field Configuration Module 1 (Start I/O: 0000)	3. Click – □ ×
CC IE Field Configuration Edit View Close with Discarding the Setting Close with Reflecting the Setting	
Mode Setting: Online (Standard Mode) Assignment Method: Point/Start V Link Scan Time (Approx. No. Model Name STA# Station Type Points Start End Points Start E	Module List × Select CC 9 2. Input © 9 2. Input © 9 2. Input © 9 2. Correction © 9
Total STAP:1 Image: Stape:	×
Supplementary Information	



6) Click [Refresh Parameter] to open the [Refresh Parameter Setting] window.

After assigning link devices RX/RY/RWr/RWw to devices of the CPU unit, click [End] to close the window.

🖁 Network Paran	neter - MELSE	CNE	Netwo	rk Parame	ter - CC I	E 🗵						
Assignment Method Points/Start Start/End												
		Link S	ide					PLC S	ide		· _	
	Dev. Name	Points	Start	End		Dev. Na	me	Points	Start	End	-	1 Assign
Transfer SB	SB	512	0000	01FF	+	SB	Ŧ	512	0000	01FF		
Transfer SW	SW	512	0000	01FF	++	SW	•	512	0000	01FF		~
Transfer 1	RX 🔻	128	0000	007F	+	х	4	128	0000	007F	-	
Transfer 2	RY 🔻	128	0000	007F		Y	•	128	0000	007F		
Transfer 3	RWr 👻	64	0000	003F	÷	D	•	64	0	63		
Transfer 4	RWw 👻	64	0000	003F	++	D	•	64	100	163		
Transfer 5	4				÷÷		4					
Transfer 6	•				+		٠					
Transfer 7	-				+		Ŧ					
Transfer 8	-				+		Ŧ	0.01:-1			-	
	Defa	ult	Ched	k 🛛	En	₄		Cancel				

7) Click [End] to close the [Network Parameter - MELSECNET/CC IE Ethernet Module Configuration] window.

HELSOFT Series GX Works2 (Untitled Project) - [Net	work Parameter - MELSECNET/CC IE/Ethern	et Module Configuration]			- 0 - X -			
<u>Project Edit Find/Replace Compile View C</u>	<u>-</u> Dnline De <u>b</u> ug <u>D</u> iagnostics <u>T</u> ool <u>W</u> ir	ndow <u>H</u> elp			_ 8 ×			
: n 🍋 🖪 🙈 💿 🔹 📲 😹 🗈	Ta ka an 📴 🖼 🖼 💷 🖉 🐖	u u u u u u u u u u u u u u u u u u u						
12 II	arameter	- [9]	I CIPTIPAL TELELY					
Navigation 7 ×	P. Network Parameter - MELS X]			4 ▷ ▾			
Project	_							
	Set network configuration setting in CC IE	Field configuration window						
		Module 1	Module 2	Module 3	Module 4			
Parameter	Network Type	CC IE Field (Master Station)	None	Vone •	None			
PLC Parameter	Start I/O No.	0000						
E Ethernet / CC IE / MEI SECNET	Network No.	1						
PL CC-Link	Total Stations	1						
Remote Password	Group No.							
Intelligent Function Module	Station No.	0						
	Mode	Online (Normal Mode)		· ·	·			
😐 🔚 Program Setting		CC IE Field Configuration Setting						
🗄 🍯 POU		Network Operation Settings	1					
🗄 國 Device Memory		Refresh Parameters						
		Interrupt Settings			E			
		Specify Station No. by Parameter						
	 CC IE Field (Master Station) Total number of slave stations and station i 	No. are set automatically in the CC IE Field conf	iguration window.					
			galator materi					
			ded(the contrast (there do cont)					
Project	Necessary Setting(N	o Setting / Aiready Set) Set in it is nee	Valid Madula During Other Station Access					
User Library	Interlink Transmission Parameters Please in	• No. : put 16-point unit(HEX) to start I/O No. in which	module is mounted.					
Connection Destination	Acknowledge XY Assignment Routing Parameters	Assignment Image Group Setting	Check End	Cancel				
»								
	English Unlabeled		002U Host		CAP NUM			
	Chighan Officialed		tore ribst		CAP NOW			
				<u></u>				
			1	Click				
			1.	Union _				

8) After creating a program as necessary, write the parameter and the program to the CPU unit.



■ NETWORK DIAGNOSTICS

Diagnostics of GX Works2 CC-Link IE Field Network enables to confirm the status of total network in one glance, the location and the cause of errors and the event history, and to monitor other stations.

1) Select [Diagnostics] \rightarrow [CC IE Field Diagnostics] to open the [CC IE Field Diagnostics] window.



2) Click the station to be diagnosed so that the station status is displayed on the [Selected Station Communication Status Monitor].

CC IE Field Diagnostics			
Select Diagnostics Destination		Monitor Status	
Module Module 1(Network No. 1)	Change Module Select Station No.0	Monitoring Start Monitor Stop	Monitor
Network Status		St. Info By Station Type	▼
Total Slave Stations Total S (Set In Parameter) 1 (Conne	acted) 1 Current Link 1 ms Number of St Scan Time 1 ms Frrors Detect	ation 0 Hide Disconnected Station Legend Data lin	kunperformed 1 Select
Connected St.			
Master:0 St. No.1			
			F
			9 Diamlar
			2. Display
Operation Test		Selected Station Communication Status Monitor (QJ/1GF11-1	
Communication Test	Check the transient communication route from the connected station to the destination station	Station No. 0 No. Error Mode: Online (Normal Mode)	
IP Communication Test	Check the communication route, whether you can reach	MAC Address 10 4P 45 2P 79 54	
Cable Test	communication target station from the specified station. Check the cable status between the connected station and		
Link Cherk/Cher	the destination station.		
	Start or stop the network data link.		
Information Confirmation/Set		DUALNCT	
Network Event History	Access the network the event history log.	MODE TO DLINK	
Reserved Station	View reserved station numbers and temporarily enable reserved stations.	SD B RD	
runcuun chable		ERR. ERR.	
Enable / Disable Temporary Error Invalid Station	temporary error invalid station.		
Selected Station Operation			
System Monitor	CPU status of the selected station can be checked by starting		
	system monitor of the selected station.		
Remote Operation	selected station.		
			Close

3) In the case of errors, the buttons such as [Module Error] are displayed. Click them and perform some troubleshooting according to the content displayed.





SETTING by GX Works3

■ SUMMARY

This section explains the setting of the unit on the premise of using GX Works3 made by Mitsubishi Electric (hereinafter called "GX Works3").

■ REGISTRATION OF PROFILE

R3-NCIE1 supports CC-Link Family system profile (hereinafter called "CSP+"). CSP+ is downloadable at CC-Link Association Home page, www.cc-link.org. * It is not necessary to register CSP+. If you skip this procedure, start from [CONSTRUCTION OF SYSTEM].

1) Start GX Works3.



2) Click [Tool] \rightarrow [Profile Management] \rightarrow [Resister].



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





■ CONSTRUCTION OF SYSTEM

Here is an example of the configuration of a line connection.



1) Connect Master station and Remote Device Station (model: R3-NCIE1) with Ethernet Cable.

Make sure to turn off the power of each unit before wiring. CN1 and CN2 of modular jack RJ-45 for CC-Link IE Field Network have no limit of wiring connection order.

2) After finishing wiring, turn on the power of each unit.

■ CREATION OF PROJECT

Connect the PC and the master Station, and create a project of the master station by GX Works3 installed on the PC.

1) Start GX Works3.

2) Click [Project] \rightarrow [New] to create a new project.

Proj	ect	Edit	Find/Replace	Convert	View	¢
D	Ne	w			Ctrl+N	ł
E)	Ор	en			Ctrl+0	ľ
	Clo	se				
H	Sav	/e			Ctrl+S	
	Sav	/e As				

3) Select [Series], [Type] and [Program Language] of the PLC from each pull-down menu, and click [OK].



4) In the following window, when [Module Label: Not use] is displayed in Module Setting, click [Setting Change] to open the option window, and change to [Yes].





Select [Yes] for [Use Module Label] in [Operation Setting], and click [OK].

Options	×	
		1. Select
Froject	Operation Setting	
Auto-save Device Comment	Use Module Label Yes T	
Reference/Reflection Target	Show the confirmation message in adding module Yes	
Module Label		
Navigation		
🚵 Program Editor		
🚱 Other Editor		
K Edit		
Find/Replace		
👧 Monitor		
P Online	Use Module Label	
R Convert	Select whether to add the module label in adding module.	
Land Intelligent Function Module		
d Works Interaction		
	Import 2. Click	
Back to Default Back to User [Default Set as User Default OK Cancel	

5) Double click [Module Configuration] in the Navigation window to open the [Module Configuration] window. According to the real PLC configuration, select the module from [POU List] of the [Element Selection] window, and drag and drop it to the module configuration diagram.

n MELSOFT GX Works3 (Untitled Project) - [Module Configuration]	– 01 X.
Project Edit Find/Replace Convert View Online Debug Diagnostics Tool Window Help	_ & ×
·DPHS//	⊕ ⊖ +[+ 100% = = = = @ @ ● = Max.:
1 Double click	
	2 Drag & Drop
Piger ^Q C <u>O</u> ptions	2. Diag & Diop
	Display Target: All
Initial	iQ-R Series
🗏 🏥 Scan	Main Base
	Extension Base
🗏 🙋 ProgPou	RQ Extension Base
Teorem Barby	Process CPU
Fixed Scan	Safety CPU
Event	IO-R Series
🛍 Standby	
🚺 No Execution Type	POLITIC Exceptor Madule Library
Linegistered Program	POD List Pavolices History Module Library
E Gabel	Input the Configuration Detailed Information $\# \times$
🗉 🌆 Global Label	
fin Global	
🚹 M-Global	
🖬 🧱 Structured Data Types	
n in Parameter	No configuration detailed information found.
<	>
Progress	
	^
	v
🚰 Connection Destination 🔭 Navigation 🗮 Output 📖 Progress	
	R04EN Host CAP NUM



6) Double click [CC-Link IE Field network module] to open the parameter setting window.



7) Set the Station Type to [Master Station] and the Network No. to 1 in [Required Settings].

🔟 Module Configuration 🚿 🖧 0000:_	RJ71EN71(CCIEF) Module ×	4 ⊳ -	-
Setting Item List	Setting Item		
Input the Setting Item to Search	Item	Setting Master Station 1 Parameter Editor 0 Parameter Editor	1. Input
Item List Find Result	Check Restore the Def	ault Settings	
		Apply	



8) Click <Detailed Setting> of [Network Configuration Settings] in [Basic Settings] to display the [CC IE Field Configuration] window.

Module Configuration 📰 🏭 0000:_RJ71EN71(Co	CIEF) Module ×	4 ۵ -	
Setting Item List	Setting Item		1. Check
46	Item	Settina	
m	Network Configuration Settings		
	Network Configuration Settings	<detailed setting=""></detailed>	
	- Refresh Sewings		
🖃 🛅 Required Settings	Refresh Settings	<detailed setting=""></detailed>	
Station Type	Network Topology		
Network No.	Network Topology	Line/Star	
Parameter Setting Method	Operation of Master Station after Reconnection		
Basic Settings	Operation of Master Station after Reconnection	Return as Master Operation Station	
Overvork Configuration Settings Overvork Topology Operation of Master Station after Reconne Operation of Master Station after Reconne			
	Explanation		
	Set the network configuration.	^	
		~	
Item List Find Result	Check Restore the Default S	Settings	
		Apply	

According to the real system configuration, select the device from [Module List], and drag and drop it to the device configuration diagram.

<u>19</u> (C IE Field C	onfiguration (Start I/O: 0000	D	2. Click $ \square$ \times						
÷ cc	IE Field Cor	figuration Edit View	Tool Close with Discarding the Setting Close with Reflecting the Setting							
		Detect Now		Module List ×						
•	Mode Setting	Conline (Standard Mode)	 Assignment Method: Start/End Link Scan Time (Appro). 	Select CC IE Field Find Module My Favorites						
	No.	Model Name	STA# Station Type RX/RY Setting RWw/RWr Setting	====================================						
		Host Station	Points Start End Points Start End	General CC IE Field Module GO IE Field Module (Mitrubichi Electric Corporation)						
		R3-NCIE1	1 Remote Device Station 1. 1. Drag & Drop 3F	Master/Local Module						
			Head Module							
			GOT2000 Series							
			GOT1000 Series CC IE Field Module (M-SYSTEM CO. LTD.)							
	<		R2-NCIE1 Communication unit							
		07144		R3-NCIE1						
		STA#T		R30NCIE1 communication unit						
Host	Station		L							
				[Outline]						
ST	A#0 Master	8		[Manufacturer Name]						
Tot	al STA#:1			M-SYSTEM CO.,LTD.						
CI II	57 Juli			Remote Device Station						
		R3-NCIE1								
		<	>							
: Out	put			×						
r										

* When CSP+ not registered, select [General CC IE Field Module].

Click [Close with Reflecting the Setting].

R3-NCIE1

9) Click <Detailed Setting> of [Refresh Setting] to display the Refresh Setting window.

Module Configuration	CIEF) Module ×	٩ ۵ -	
Setting Item List	Setting Item		
	Item	Setting	
	Network Configuration Settings		1. Check
	Network Configuration Settings	<detailed setting=""></detailed>	
	😑 Refresh Settings		
🖃 🕞 Required Settings	Refresh Settings	<detailed setting=""></detailed>	
Station Type	нетмотк тороюду		
····· Network No.	Network Topology	Line/Star	
Station No.	Operation of Master Station after Reconnection		
Basic Settings	Operation of Master Station after Reconnection	Return as Master Operation Station	
Orevork Configuration Settings Orevork Configuration Settings Orevork Topology Operation of Master Station after Reconne Operation Settings	Furtheration		
	Set the network configuration.	^	
< >			1
Item List Find Result	Check Restore the Default S	Settings	
		Apply	

After assigning link devices RX/RY/RWr/RWw to devices of the CPU module, click [Apply] to close the window.

Module Configuration	CCIEF) MO	aule ×										N P V	
ung item List ut the Setting item to Search	Setting I	tem											
<u> </u>	No		Link Side					CPU Sid	le			^	
Required Settings Station Type	-	SB ~	Points 512	Start 00000	End 001FF	+	Target Module Lab ~	Device Name	Points	Start	End	Ē	. Assign
Network No. Station No. Parameter Setting Method	- 1	SW × RX ×	512 128	00000	001FF 0007F		Specify Dev ~	X ~	128	00100	0017F		
Basic Settings	2	RY ~ RWr ~	128 64	00000	0007F 0003F	#	Specify Dev ~ Specify Dev ~	Y ~ D ~	128 64	00100 0	0017E		
···· Refresh Setting ···· Network Topology	4	RWw ~	64	00000	0003F	#	Specify Dev ~	D ~	64	100	163		
Operation of Master Station after Reconne 	6	~ ~				#	~ ~					~	
	Explana	tion											
	Select a	device type (RX/H	Y/RWr/RV	Vw).								^	
x >>		Charl			D.C.II	C-11 ¹						~	2. Cli
em List Find Result		Cnec <u>k</u>	К	estore th	e Defa <u>u</u> lt	Settings			_				
										Į	Apply		-

10) Click [Convert] \rightarrow [Convert] to execute conversion.





11) Click [Online] \rightarrow [Write to PLC] to display the Online Data Operation window.



Check necessary items, and click [Execute].

ne Data Operation											
play Setting Related	Functions										
🔜 🌔 🇊 Write	Read	9		Verify	- 🔜 🧳	Dele	ite				
Parameter + Program(F) Select <u>A</u> ll	Legend									
Open/Close All(<u>T</u>)	Deselect All(<u>N</u>)	CPU Builden	ilt-in Memo	ory	SD Me	mory Card	🛅 Int	elligent Function Module			
Module Name/Data Name		*		1	Check	Title		Last Change	Size (Byte)		
🗆 🦣 Untitled Projec	t			<u> </u>							
🗈 🛃 Parameter					T						
🗉 🚹 Global Lab	el										
🕀 🔚 Program					Detail						
🗉 🧟 Device Mer	mory										
🗉 🙆 File Registe	er										
🗉 🤮 Common De	evice Comment										
Display Memory Capa emory Capacity Size Calculation Legend	Program Memory Data Memory									Free 158/160KB Free 1831/2049KB	
Used	Davias/Labal Mamony /Eila Star	Arra)								Erro	
Increased	Device; cape: Melliory (File Stor	aye nied)								256/256KB	
Decreased	SD Memory Card									Free	2 Clic
Free: 5% or Less										0/0KB	
	L								Execute	3	Close

