

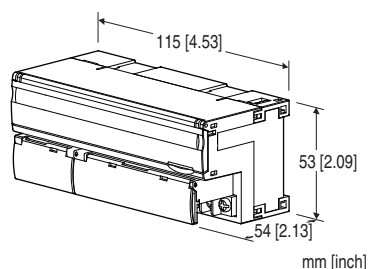
Remote I/O R7 Series

CC-Link I/O MODULE

(CC-Link V.1.10; RTD input, 4 points, isolated)

Functions & Features

- 4 points RTD input module for CC-Link
- Extension module can be connected
- Input sensor type can be selected with the front DIP switches for all channels.
- Individual channels, zero adjustment, span adjustment, scaling, and temperature unit can be set with the configurator software (model: R7CON)



MODEL:R7C-RS4-R[1]

ORDERING INFORMATION

- Code number: R7C-RS4-R[1]

Specify a code from below for [1].

- (e.g. R7C-RS4-R/Q)
- Specify the specification for option code /Q (e.g. /C01)

If you need factory setting, use Ordering Information Sheet (No. ESU-7801-C).

I/O TYPE

RS4: RTD input, 4 points

POWER INPUT

DC Power

R: 24 V DC

(Operational voltage range 24 V $\pm$ 10 %, ripple 10 %p-p max.)

[1] OPTIONS

blank: none

/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to our web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

RELATED PRODUCTS

- PC Configurator cable (model: MCN-CON or COP-US)
- PC configurator software (model: R7CON)
- CSP+ file

The configurator software and CSP+ file are downloadable at our web site.

CSP+ file is also downloadable at CC-Link Partner Association's web site.

- Discrete input extension module (model: R7C-EAx)
- Discrete output extension module (model: R7C-ECx)

PACKAGE INCLUDES...

- Terminating resistor (110 Ω , 0.5 W)

GENERAL SPECIFICATIONS

Connection: M3 separable screw terminal (torque 0.5 N·m)

Solderless terminal: Refer to the drawing at the end of the section.

Recommended manufacturer: Japan Solderless Terminal MFG.Co.Ltd, Nichifu Co.,Ltd

Applicable wire size: 0.25 to 1.65 mm² (AWG 22 to 16)

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (gray)

Isolation: Input 0 to input 1 to input 2 to input 3 to power to CC-Link or FG

Zero adjustments: Configurable via R7CON

Span adjustments: Configurable via R7CON

Extension: No extension (*), Discrete input 8 or 16 points, Discrete output 8 or 16 points

Selectable with the front DIP SW

(*) Factory default setting

Conversion rate: Selectable with the front DIP SW

Burnout setting: Selectable between upscale (*) and downscale with the front DIP switch

(*) Factory default setting

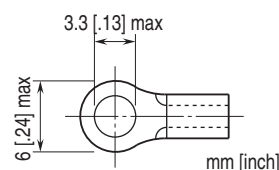
Linearization: Standard

RTD Setting: Configurable via the front DIP switch or R7CON

Status indicator LED: PWR

Configurator connection: 2.5 dia. miniature jack

■Recommended solderless terminal



CC-Link COMMUNICATION**CC-Link:** Ver.1.10**Connector:** M3 screw terminal**Network cable:** CC-Link cable designated by Mitsubishi Electric**Station number:** 1 - 64 (rotary switch, default:00)**Station Type:** Remote device**Data allocation:** 1**Baud rate setting:** 156 kbps (default), 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps (rotary switch)**Status indicator LEDs:** RUN, ERR, SD, RD**INPUT SPECIFICATIONS****Input resistance:** $\geq 1 \text{ M}\Omega$ **Maximum leadwire resistance:** 100 Ω per wire**Sensing current:** $\leq 1 \text{ mA}$

RTD	BURNOUT INDICATION ($^{\circ}\text{C}$)		CONFORMANCE RANGE ($^{\circ}\text{C}$)
	Downscale	Upscale	
Pt 100 (JIS '97, IEC)	-240	+900	-200 to +850
Pt 100 (JIS '89)	-240	+900	-200 to +660
JPt 100 (JIS '89)	-236	+560	-200 to +510
Pt 50 Ω (JIS '81)	-236	+700	-200 to +649
Ni 100	-100	+252	-80 to +250
Cu 10 @ 25 $^{\circ}\text{C}$	-212	+312	-50 to +250
Cu 50	-100	+200	-50 to +150

RTD	BURNOUT INDICATION ($^{\circ}\text{F}$)		CONFORMANCE RANGE ($^{\circ}\text{F}$)
	Downscale	Upscale	
Pt 100 (JIS '97, IEC)	-400	+1652	-328 to +1562
Pt 100 (JIS '89)	-400	+1652	-328 to +1220
JPt 100 (JIS '89)	-393	+1040	-328 to +950
Pt 50 Ω (JIS '81)	-393	+1292	-328 to +1200
Ni 100	-148	+486	-112 to +482
Cu 10 @ 25 $^{\circ}\text{C}$	-350	+594	-58 to +482
Cu 50	-148	+392	-58 to +302

INSTALLATION**Current consumption**

• DC: Approx. 90 mA

Operating temperature: -10 to +55 $^{\circ}\text{C}$ (14 to 131 $^{\circ}\text{F}$)**Storage temperature:** -20 to +65 $^{\circ}\text{C}$ (-4 to +149 $^{\circ}\text{F}$)**Operating humidity:** 30 to 90 %RH (non-condensing)**Atmosphere:** No corrosive gas or heavy dust**Mounting:** DIN rail (35 mm rail)**Weight:** 200 g (0.44 lb)**PERFORMANCE****Conversion accuracy:** $\pm 1^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$)($\pm 3^{\circ}\text{C}$ [$\pm 5.4^{\circ}\text{F}$] for Cu 10 @ 25 $^{\circ}\text{C}$)**Conversion rate:** 250 msec. (*) or 500 msec. selectable

(*) Factory default setting

Converted data range:• Engineering unit value ($^{\circ}\text{C}$, K) $\times 10$ (integer)• Engineering unit value ($^{\circ}\text{F}$)**Temperature coefficient:** $\pm 0.015 \text{ }^{\circ}\text{C}/^{\circ}\text{C}$ ($\pm 0.008 \text{ }^{\circ}\text{F}/^{\circ}\text{F}$) of max. span except $\pm 0.150 \text{ }^{\circ}\text{C}/^{\circ}\text{C}$ ($\pm 0.08 \text{ }^{\circ}\text{F}/^{\circ}\text{F}$) for Cu 10 @ 25 $^{\circ}\text{C}$ **Response time:** Conversion rate $\times 2 + 50 \text{ msec.}$ (0 - 90 %)**Insulation resistance:** $\geq 100 \text{ M}\Omega$ with 500 V DC**Dielectric strength:** 1500 V AC @ 1 minute (input 0 to input 1 to input 2 to input 3 to power to CC-Link or FG)**STANDARDS & APPROVALS****EU conformity:**

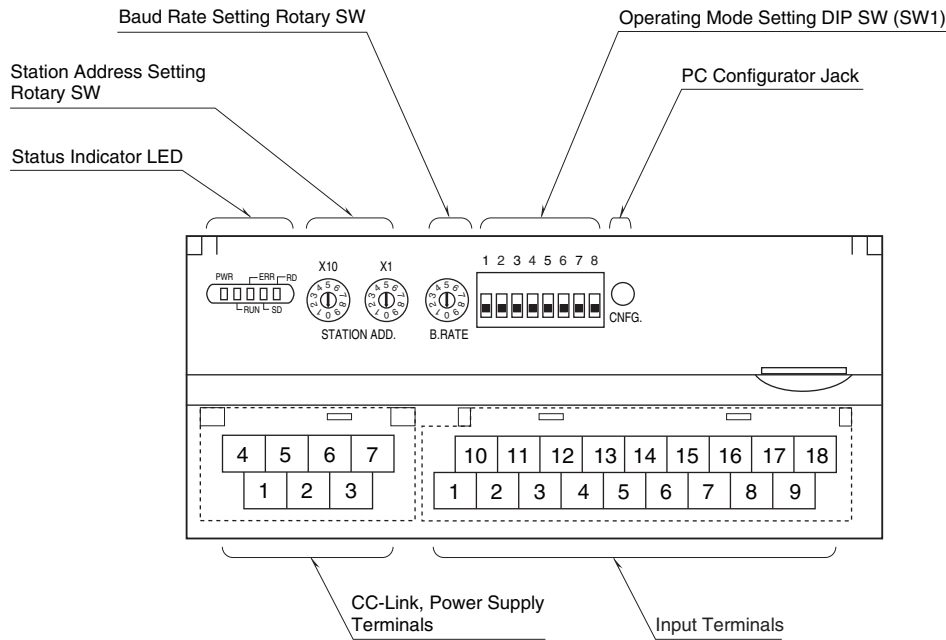
EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

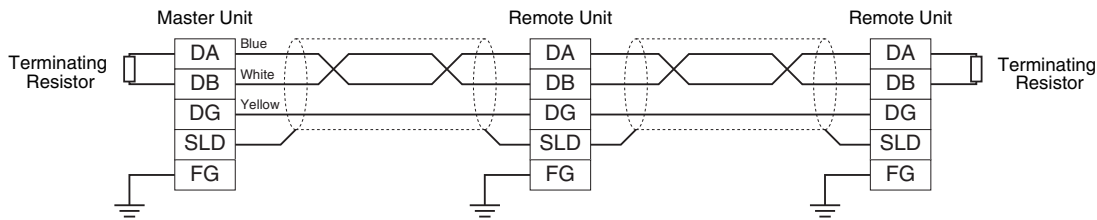
RoHS Directive

EXTERNAL VIEW



COMMUNICATION CABLE CONNECTIONS

■ MASTER CONNECTION



Note: Be sure to connect the terminating resistor included in the product package to the unit at both ends of communication line.
The terminator must be connected across DA and DB.
The Master Unit can be located at not only both ends but also any node of the of communication line.

TERMINAL ASSIGNMENTS

■ INPUT TERMINAL ASSIGNMENT

10	11	12	13	14	15	16	17	18
INA0	INb0	INA1	INb1	NC	INA2	INb2	INA3	INb3
1	2	3	4	5	6	7	8	9
NC	INB0	NC	INB1	NC	NC	INB2	NC	INB3

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	NC	No connection	10	INA0	RTD 0-A
2	INB0	RTD 0-B	11	INb0	RTD 0-b
3	NC	No connection	12	INA1	RTD 1-A
4	INB1	RTD 1-B	13	INb1	RTD 1-b
5	NC	No connection	14	NC	No connection
6	NC	No connection	15	INA2	RTD 2-A
7	INB2	RTD 2-B	16	INb2	RTD 2-b
8	NC	No connection	17	INA3	RTD 3-A
9	INB3	RTD 3-B	18	INb3	RTD 3-b

■ POWER SUPPLY, CC-LINK TERMINAL ASSIGNMENT

4	5	6	7
DA	DG	+24 V	0V
1	2	3	
DB	SLD	FG	

NO.	ID	FUNCTION, NOTES
1	DB	White
2	SLD	Shield
3	FG	FG
4	DA	Blue
5	DG	Yellow
6	+24 V	Power input (24 V DC)
7	0 V	Power input (0 V DC)

INDICATOR LED

■ STATUS INDICATOR LED

PWR	RUN	ERR	SD*1	RD	STATUS*2
ON	ON	BL	BL	ON	Communicates normally with occasional CRC errors due to noise interference.
ON	ON	BL	BL	ON	Communicates normally but the Baud Rate and/or Station Address switches failed. ERR LED blinks approximately in 0.5 seconds intervals.
ON	ON	BL	BL	OFF	----
ON	ON	BL	OFF	ON	CRC error detected in the received data. Unable to respond.
ON	ON	BL	OFF	OFF	----
ON	ON	OFF	BL	ON	Normal communication
ON	ON	OFF	BL	OFF	----
ON	ON	OFF	OFF	ON	Unable to receive data addressed to the station.
ON	ON	OFF	OFF	OFF	----
ON	OFF	BL	BL	ON	Polling response is made but CRC error is detected in received refresh data.
ON	OFF	BL	BL	OFF	----
ON	OFF	BL	OFF	ON	CRC error detected in the data addressed to the station.
ON	OFF	BL	OFF	OFF	----
ON	OFF	OFF	BL	ON	Link is not started.
ON	OFF	OFF	BL	OFF	----
ON	OFF	OFF	OFF	ON	No data addressed to the station. Or unable to receive data addressed to the station due to noise interference. (Missing parts of the data sent from the master)
ON	OFF	OFF	OFF	OFF	Unable to receive data due to wire breakdown
ON	OFF	ON	OFF	ON/OFF	Faulty Baud Rate and/or Station Address setting
OFF	OFF	OFF	OFF	OFF	Power input removed or power supply failure.

OFF = OFF, ON = ON, BL = Blinking

*1. SD LED which is blinking may appear to be ON with high baud rate especially when fewer modules are connected.

*2. LED combinations indicated with "----" do not occur in normal operation unless LED failure or the like occurs.

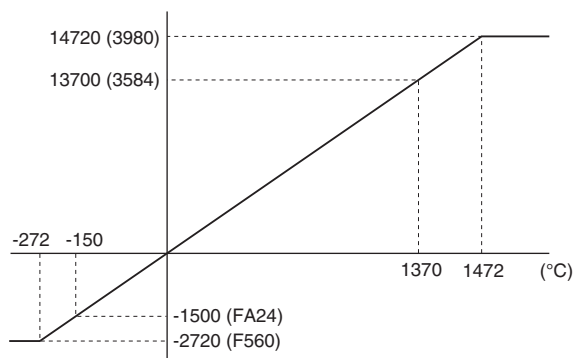
DATA CONVERSION

■ INPUT RANGE AND DATA CONVERSION (FACTORY DEFAULT SETTING)

Engineering unit value °C or K is multiplied by 10 and expressed in 16 bits. °F data is represented in engineering unit value, without multiplication. Negative value is represented in 2's complements.

• Input TYPE K Thermocouple

Input Value	Converted Data, Decimal	Converted Data, Hex
≤ -272°C	-2720	F560
-150°C	-1500	FA24
1370°C	13700	3584
≥ 1472°C	14720	3980



DATA ALLOCATION

■ ANALOG INPUT

Interval-timed Response (X)

RWn n+0	Analog input 0
+1	Analog input 1
+2	Analog input 2
+3	Analog input 3

Refresh Data (Y)

RWw n+0	Unused
+1	Unused
+2	Unused
+3	Unused

• Without Extension Module

Interval-timed Response (X)

RX(n+0)	Status
RX(n+1)	Reserved

Refresh Data (Y)

RY(n+0)	Unused
RY(n+1)	Unused

• With Extension Module R7C-EA16

Interval-timed Response (X)

RX(n+0)	R7C-EA16
RX(n+1)	Reserved

Refresh Data (Y)

RY(n+0)	Unused
RY(n+1)	Unused

• With Extension Module R7C-EC16x

Interval-timed Response (X)

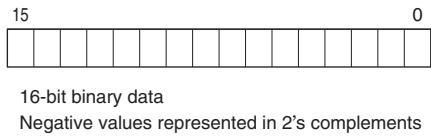
RX(n+0)	Status
RX(n+1)	Reserved

Refresh Data (Y)

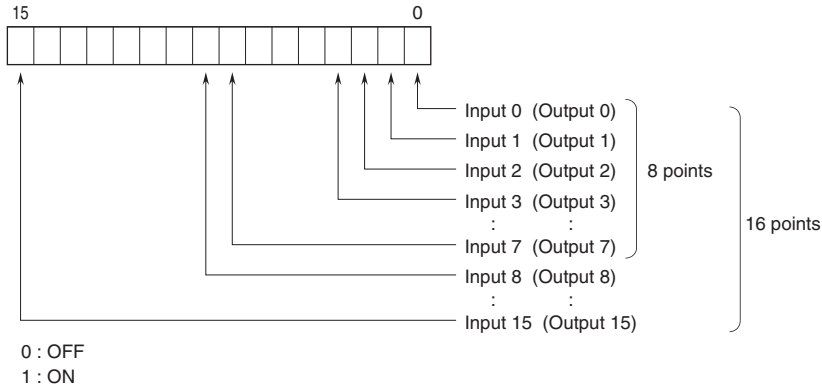
RY(n+0)	R7C-EC16x
RY(n+1)	Unused

I/O DATA DESCRIPTIONS

■ ANALOG INPUT

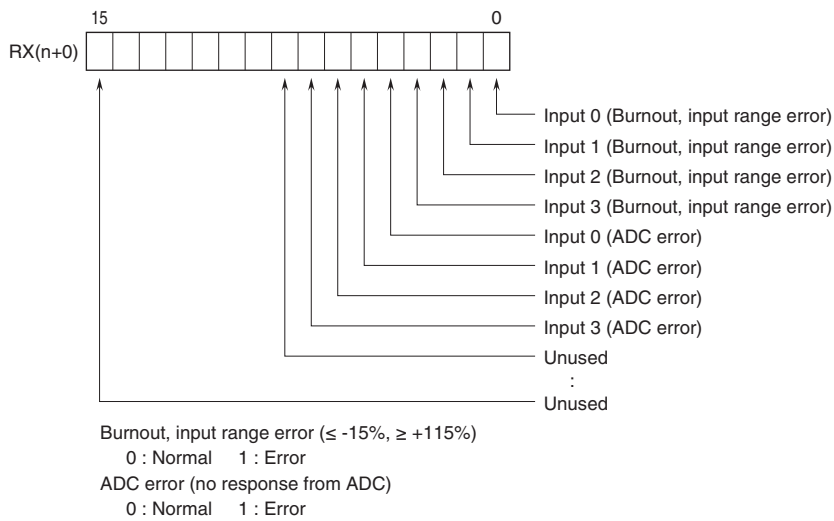


■ DISCRETE I/O

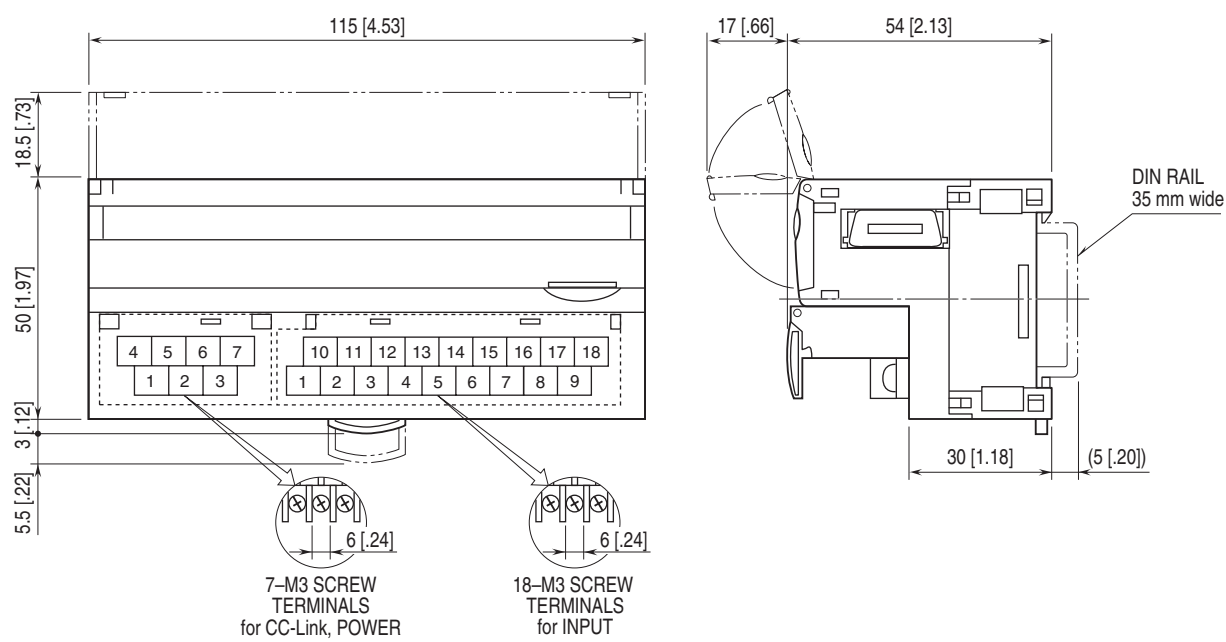


■ STATUS

Analog input module without extension module can show input status of each channel.



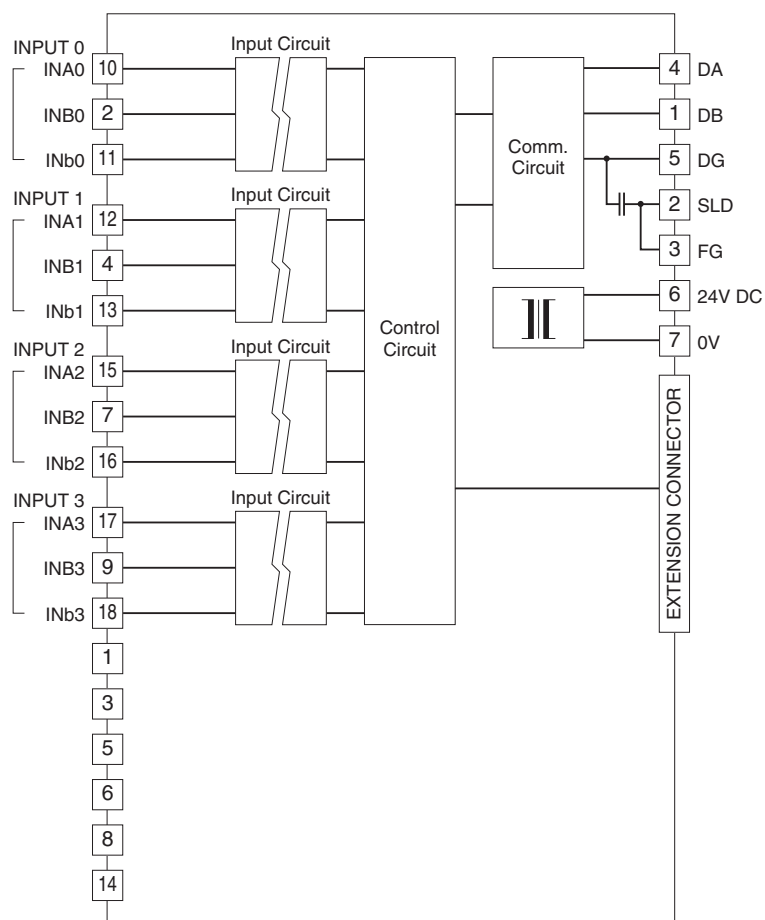
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



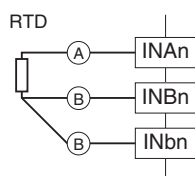
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

Note: In order to improve EMC performance, bond the FG terminal to ground.

Caution: FG terminal is NOT a protective conductor terminal.



■ Input Connection Example



Specifications are subject to change without notice.