

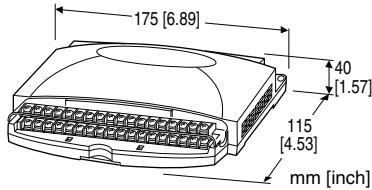
Remote I/O R1X Series

THERMOCOUPLE & DC INPUT MODULE

(16 points; CC-Link Ver.1.10/Ver.2.00)

Functions & Features

- 16-point thermocouple or DC inputs
- CC-Link interface
- CC-Link Version 1.10 and 2.00 can be switched at the startup



MODEL: R1C-GH2T-[1][2]

ORDERING INFORMATION

- Code number: R1C-GH2T-[1][2]
- Specify a code from below for each of [1] and [2].
(e.g. R1C-GH2T-M2/Q)
- Specify the specification for option code /Q
(e.g. /C01)
- Use Ordering Information Sheet (No. ESU-5956). Default setting will be used if not otherwise specified.

Factory default setting

Input type: DC Voltage ± 5 V
Burnout protection: No burnout
Cold junction compensation: No

FIELD TERMINAL TYPE

T: M3 screw terminals

[1] POWER INPUT

AC Power

M2: 100 – 240 V AC (Operational voltage range 85 – 264 V, 47 – 66 Hz)

DC Power

R: 24 V DC
(Operational voltage range 24 V ± 10 %, ripple 10 %p-p max.)

[2] 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

- Resistor module (model: REM3-250)
 - PC Configurator cable (model: MCN-CON or COP-US)
 - R1X configurator software (model: R1CON)
- Downloadable at our web site.

PACKAGE INCLUDES...

- Terminating resistor (110 Ω , 0.5 W)

GENERAL SPECIFICATIONS

Connection

Power input, CC-Link: Euro type connector terminal
(applicable wire size: 0.2 to 2.5 mm² (AWG24 to 12), stripped length 7 mm)

Input: M3 screw terminals (torque 0.6 N·m)

Configurator: 2.5 dia. miniature jack; RS-232-C level

Screw terminal: Nickel-plated steel

Housing material: Flame-resistant resin (gray)

Isolation: Input to CC-Link (FG) to power

PWR indicator: Green LED blinks in normal conditions.

CC-Link COMMUNICATION

Protocol: CC-Link V1.10 / V 2.00

Cable for comm. link: Specified by Mitsubishi Electric

Required nodes

V. 1.10: 4

V. 2.00: 1 (cyclic expansion: 4)

Station No. setting: Rotary switch

V. 1.10: Rotary switch; 1 – 61

V. 2.00: Rotary switch; 1 – 64

Baud rate setting: Rotary switch

L RUN indicator: Red LED turns on in normal conditions.

L ERR. indicator: Red LED turns on or blinks in an abnormality.

SD indicator: Red LED turns on when transmitting.

RD indicator: Red LED turns on when receiving.

INPUT SPECIFICATIONS

■ Thermocouple or DC input, 16 points

(Common negative for DC input)

- Measuring range ± 20 V, ± 5 V, ± 1 V: Atten. SW ON (3)
- Measuring range ± 0.8 V, ± 0.2 V, ± 50 mV, ± 10 mV: Atten. SW OFF (1)

Input resistance: 300 k Ω

Thermocouple types: PR, K, E, J, T, B, R, S, C, N, U, L, P

Sampling rate: 150 millise./16 points

■ **A/D conversion output:** 16-bit signed binary (negative range represented by 2's complements)

Engineering unit value is converted into A/D conversion data as shown below.

Input type & range: A/D data (decimal)

±20 V: ±20000

±5 V: ±5000

±1 V: ±10000

±0.8 V: ±8000

±0.2 V: ±20000

±50 mV: ±5000

±10 mV: ±10000

Thermocouples: Temperature × 10

In order to change input type and range after shipment, the R1X configurator software (model: R1CON) is required.

CC-Link version selector input:

Ver. 1.10 with OFF at the startup.

Ver. 2.00 with ON at the startup.

Dry contact input (ON at detect. level ≤ 1.5 V)

Sensing: approx. 5 V DC, 1 mA

Valid only at the moment of the power supplied to the module. Firmware version 0B.00 or higher required.

Confirm the firmware version using the R1X configurator software (model: R1CON) or consult us.

■ A/D CONVERSION DATA

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
RWr n+0	SIGN BIT	INPUT 1 A/D CONVERSION DATA														
RWr n+1	SIGN BIT	INPUT 2 A/D CONVERSION DATA														
RWr n+2	SIGN BIT	INPUT 3 A/D CONVERSION DATA														
RWr n+3	SIGN BIT	INPUT 4 A/D CONVERSION DATA														
⋮																
RWr n+7	SIGN BIT	INPUT 8 A/D CONVERSION DATA														
⋮																
RWr n+11	SIGN BIT	INPUT 12 A/D CONVERSION DATA														
⋮																
RWr n+15	SIGN BIT	INPUT 16 A/D CONVERSION DATA														

Operating temperature: -5 to +60°C (23 to 140°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 400 g (0.88 lb)

PERFORMANCE (% of measuring range)

Accuracy

DC input: ±0.3 %

Thermocouple input: See the table on the end of this section.

Cold junction compensation error: ±3°C or ±5.4°F max.
(at 20°C ±10°C or 68°F ±18°F)

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

±0.05 %/°C (±0.03 %/°F) for 10 mV range and T/C B (RH)

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 2000 V AC @ 1 minute (input to CC-Link [FG] to power to ground [FG1])

Thermocouple Accuracy

T/C	USABLE RANGE (°C)	ACCURACY (%)	CONFORMANCE RANGE (°C)
(PR)	0 to 1770	±0.5	400 to 1770
K (CA)	-270 to +1370	±0.3	0 to 1370
E (CRC)	-270 to +1000	±0.7	0 to 1000
J (IC)	-210 to +1200	±0.7	0 to 1200
T (CC)	-270 to +400	±1.0	0 to 400
B (RH)	100 to 1820	±0.7	700 to 1820
R	-50 to +1760	±0.7	400 to 1760
S	-50 to +1760	±0.7	400 to 1760
C (WRe 5-26)	0 to 2320	±0.7	0 to 2320
N	-270 to +1300	±0.5	0 to 1300
U	-200 to +600	±0.5	0 to 600
L	-200 to +900	±0.3	0 to 900
P (Platinel II)	0 to 1395	±0.5	0 to 1395

T/C	USABLE RANGE (°F)	ACCURACY (%)	CONFORMANCE RANGE (°F)
(PR)	32 to 3218	±0.5	752 to 3218
K (CA)	-454 to +2498	±0.3	32 to 2498
E (CRC)	-454 to +1832	±0.7	32 to 1832
J (IC)	-346 to +2192	±0.7	32 to 2192
T (CC)	-454 to +752	±1.0	32 to 752
B (RH)	212 to 3308	±0.7	1292 to 3308
R	-58 to +3200	±0.7	752 to 3200
S	-58 to +3200	±0.7	752 to 3200
C (WRe 5-26)	32 to 4208	±0.7	32 to 4208
N	-454 to +2372	±0.5	32 to 2372
U	-328 to +1112	±0.5	32 to 1112
L	-328 to +1652	±0.3	32 to 1652
P (Platinel II)	32 to 1395	±0.5	32 to 1395

Note: CJC error is not included.

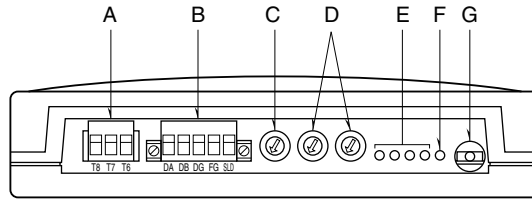
INSTALLATION

Power consumption

•AC: Approx. 10 VA

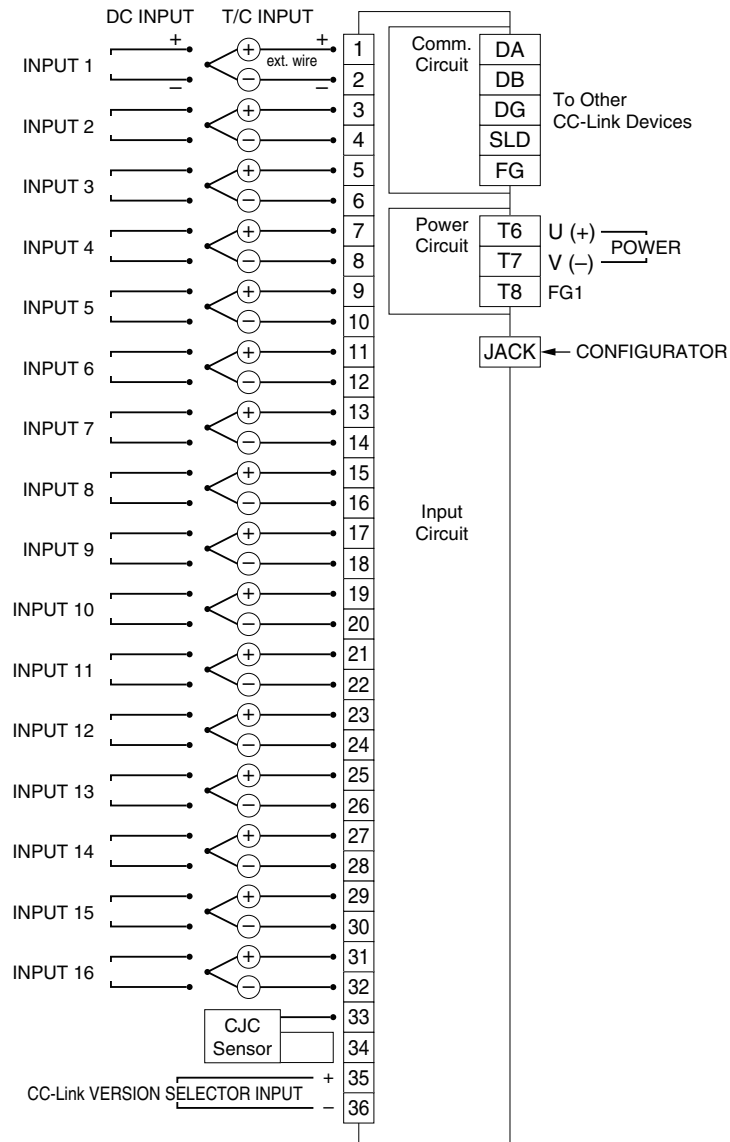
•DC: Approx. 7 W

EXTERNAL VIEW



	NAME	FUNCTIONS	
A	Power terminal block	For power input	
B	Network terminal block	For wiring to CC-Link	
C	Baud rate setting	SETTING	BAUD RATE
		0	156 kbps (factory default)
		1	625 kbps
		2	2.5 Mbps
		3	5 Mbps
		4	10 Mbps
		Other than 0 – 4	Not valid; L ERR. turns on as a transmission error.
D	Station No. setting	V. 1.10: Selectable within 1 – 61. (factory set to: 00)	
		V. 2.00: Selectable within 1 – 64. (factory set to: 00)	
E	Status indicator LED	ID (color)	FUNCTIONS
		L RUN (red)	ON: Normal communication OFF: Communication down (time-out error)
		L ERR. (red)	ON: Transmission data error blinking: Transmission data error OFF: Normal transmission
		SD (red)	ON when transmitting
		RD (red)	ON when receiving
F	Power LED	ID (color)	FUNCTIONS
		PWR (green)	ON: Abnormality blinking, high speed: CC-Link Ver. 1.10 blinking, low speed: CC-Link Ver. 2.00 Master Version 2.00 with long ON time Master Version 1.10 with long OFF time
G	Configurator jack	2.5 dia. miniature jack; RS-232-C level	

CONNECTION DIAGRAM



Note 1: This device is not designed to cancel noise included in the input signals.

Be careful to eliminate such noise by using shielded cables.

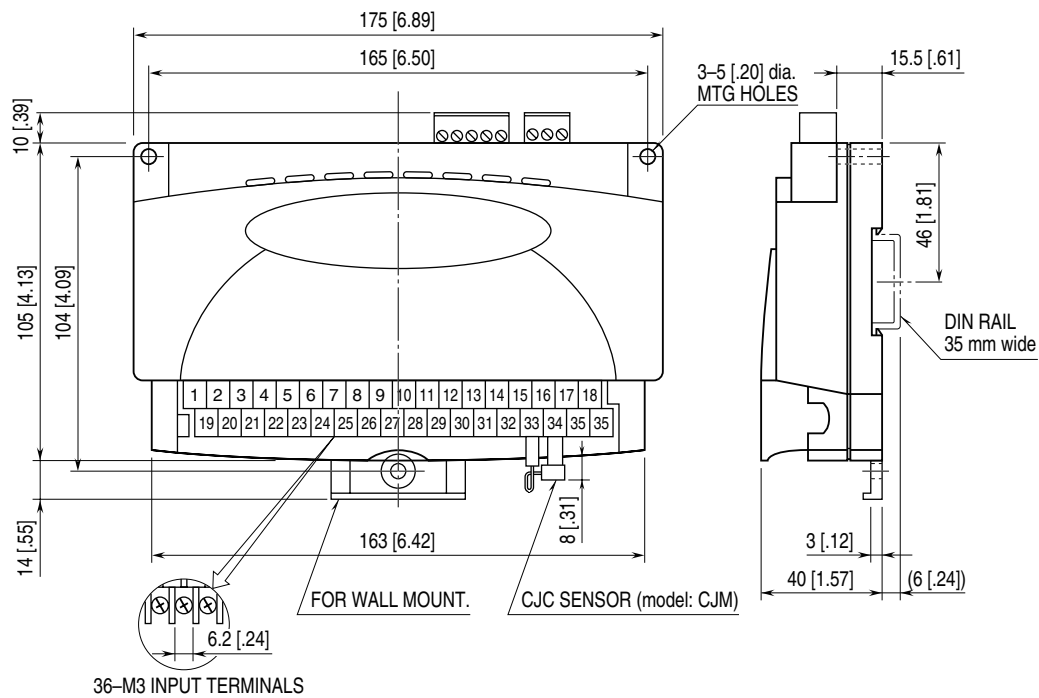
Note 2: Be sure to maintain the same potential at all the common negative terminals for DC input.

Note 3: CC-Link version selector input is valid only at the moment of the power turned on.

Firmware version 0B.00 or higher. Use the R1X Configurator Software (model: R1CON) or consult us to confirm the firmware version.

Caution: FG1 terminal is NOT a protective conductor terminal.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



Specifications are subject to change without notice.