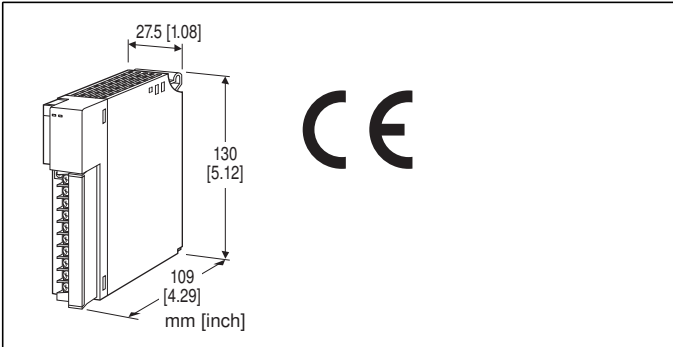


Remote I/O R3 Series

THERMOCOUPLE INPUT MODULE

(4 points, isolated)



MODEL: R3-TS4[1][2]

ORDERING INFORMATION

- Code number: R3-TS4[1][2]
Specify a code from below for each of [1] and [2].
(e.g. R3-TS4W/CE/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

NO. OF CHANNELS

4: 4

[1] COMMUNICATION MODE

S: Single

W: Dual

[2] OPTIONS (multiple selections)

Standards & Approvals

blank: Without CE

/CE: CE marking

Other Options

blank: none

/Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to M-System's web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet

(No. ESU-8362)

GENERAL SPECIFICATIONS

Connection

Internal bus: Via the Installation Base (model: R3-BSx)

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

Internal power: Via the Installation Base (model: R3-BSx)

Screw terminal: Nickel-plated steel

Isolation: Input 1 to input 2 to input 3 to input 4 to internal bus or internal power

Sensor type: Selectable with the side DIP SW

Temperature unit: °C, °F or absolute temperature selectable with the side DIP SW

Conversion rate: Selectable with the side DIP SW

Burnout detection: Upscale or downscale selectable with the side DIP SW

Linearization: Standard

Cold junction compensation: CJC sensor attached to the input terminals

RUN indicator: Bi-color (red/green) LED;

Red when the bus A operates normally;

Green when the bus B operates normally;

Amber when both buses operate normally.

ERR indicator: Bi-color (red/green) LED;

Red with burnout; Green in normal operating conditions.

INPUT SPECIFICATIONS

Input resistance: 30 kΩ min.

Burnout sensing: 0.1 μA

Temperature range

T/C	°C	
	USABLE RANGE	CONFORMANCE RANGE
K (CA)	-272 to +1472	-150 to +1370
E (CRC)	-272 to +1120	-170 to +1000
J (IC)	-260 to +1300	-180 to +1200
T (CC)	-272 to +500	-170 to +400
B (RH)	24 to 1920	400 to 1760
R	-100 to +1860	200 to 1760
S	-100 to +1860	0 to 1760
C (WRe 5-26)	-52 to +2416	0 to 2315
N	-272 to +1400	-130 to +1300
U	-252 to +700	-200 to +600
L	-252 to +1000	-200 to +900
P (Platinel II)	-52 to +1496	0 to 1395
(PR)	-52 to +1860	0 to 1760

T/C	°F	
	USABLE RANGE	CONFORMANCE RANGE
K (CA)	-458 to +2682	-238 to +2498
E (CRC)	-458 to +2048	-274 to +1832
J (IC)	-436 to +2372	-292 to +2192
T (CC)	-458 to +932	-274 to +752
B (RH)	75 to 3488	752 to 3200
R	-148 to +3380	392 to 3200
S	-148 to +3380	32 to 3200
C (WRe 5-26)	-62 to +4381	32 to 4199
N	-458 to +2552	-202 to +2372
U	-422 to +1292	-328 to +1112
L	-422 to +1832	-328 to +1652
P (Platinel II)	-62 to +2725	32 to 2543
(PR)	-62 to +3380	32 to 3200

Max. (upscale) or min. (downscale) value of the usable range when a burnout is detected.

INSTALLATION

Operating temperature: -10 to +55°C (14 to 131°F)

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

Atmosphere: No corrosive gas or heavy dust

Mounting: Installation Base (model: R3-BSx)

Weight: 200 g (0.44 lb)

PERFORMANCE

Conversion accuracy: ±1.0°C (±1.8°F) except ±2.0°C (±3.6°F) for B, R, S, C, PR

Conversion rate: 250 msec. or 1 sec. selectable

Data range

°C, **absolute temperature:** Engineering unit value × 10 (integer)

°F: Engineering unit value (integer)

Data allocation: 4

Current consumption: 70 mA

Cold junction compensation error:

±1.0°C max. (at 25°C ±10°C)

±1.8°F max. (at 77°F ±18°F)

(±1.5°C or ±2.7°F for R, S, PR)

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

Burnout response time: ≤ 2 sec.

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute (input 1 to input 2 to input 3 to input 4 to internal bus or internal power)

2000 V AC @ 1 minute (power input to FG; isolated on the power supply module)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

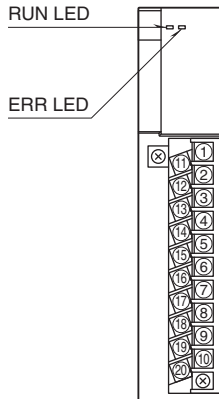
EMI EN 61000-6-4

EMS EN 61000-6-2

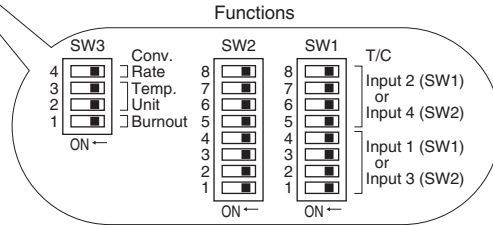
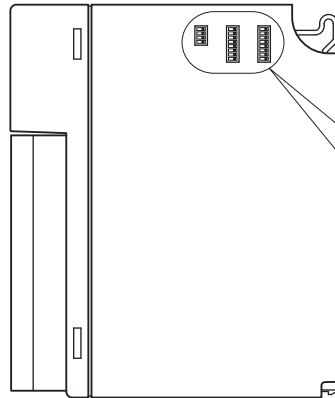
RoHS Directive

EXTERNAL VIEW

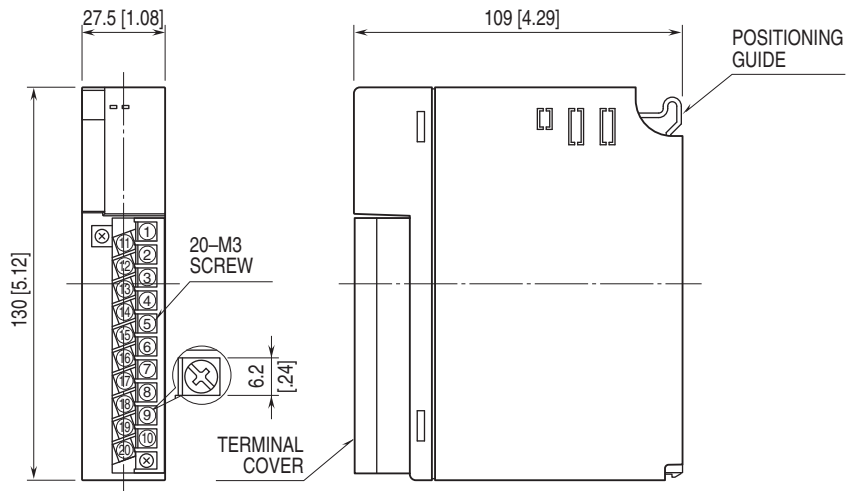
■ FRONT VIEW



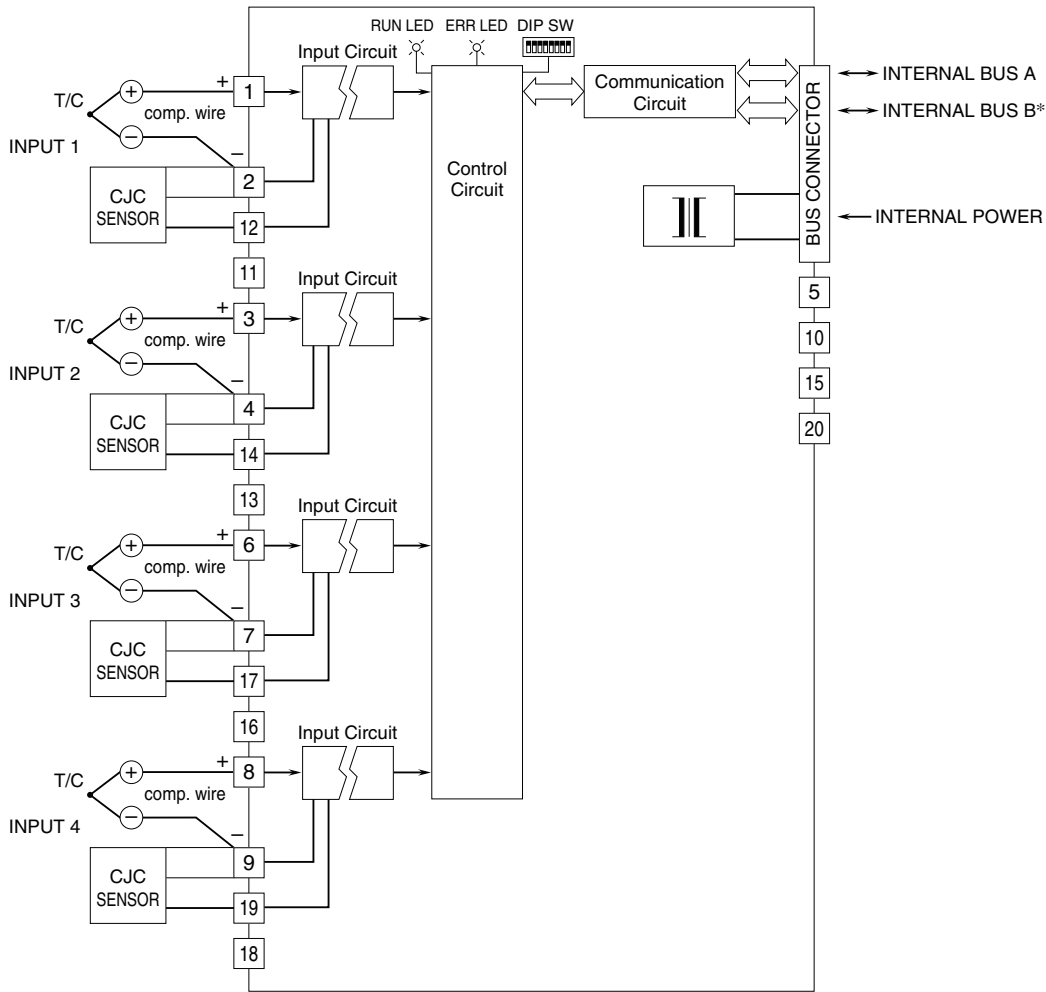
■ SIDE VIEW



EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



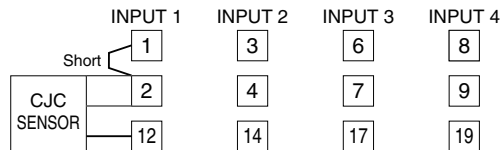
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*For dual redundant communication.

• Unused Input Channels

Close across the unused input terminals as shown below.
(Choose K (CA) thermocouple for unused channels.)



Unused channels left open are equal to the burnout, which turns the red ERR LED on and sets a burnout flag at the PLC or the host device.

Unused channels can be specified and set so on the PC Configurator Software (model: R3CON) without needing to short at the field terminals.



Specifications are subject to change without notice.