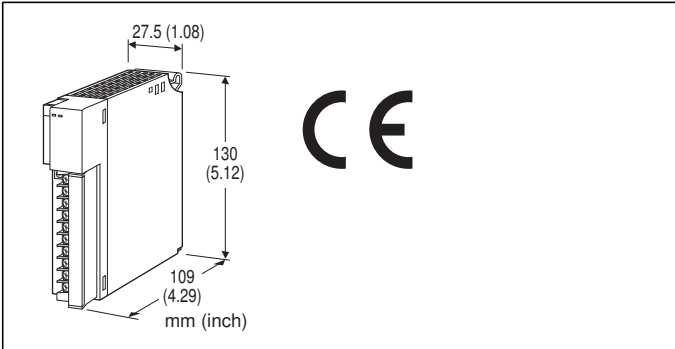


## Remote I/O R3 Series

### 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 [1] and [2].  
(e.g. R3-TS4W/CE/Q)
- Specify the specification for option code /Q  
(e.g. /C01)

#### 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

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

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

#### 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 the input circuit abnormality (AD converter response failure);

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 +1020	-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 +600	-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 +1868	-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 +1112	-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)

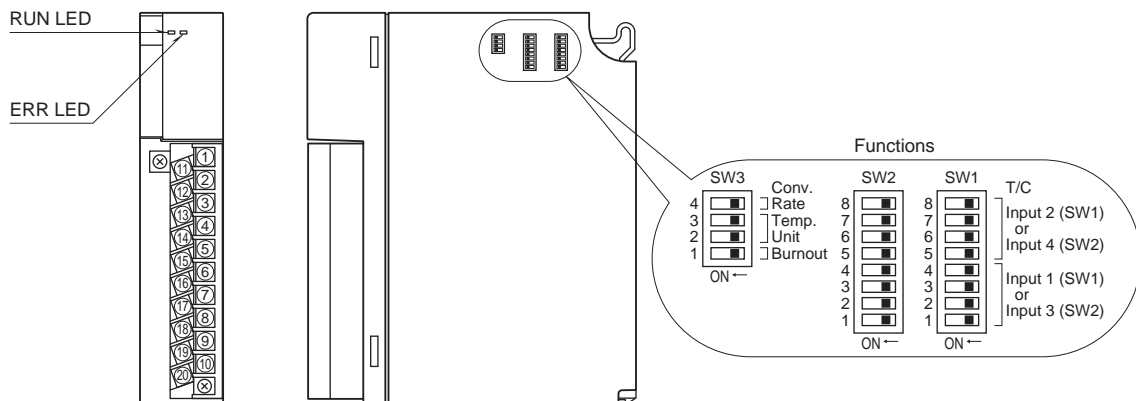
## STANDARDS & APPROVALS

**CE conformity:**  
 EMC Directive (2004/108/EC)  
 EMI EN 61000-6-4: 2007/A1: 2011  
 EMS EN 61000-6-2: 2005

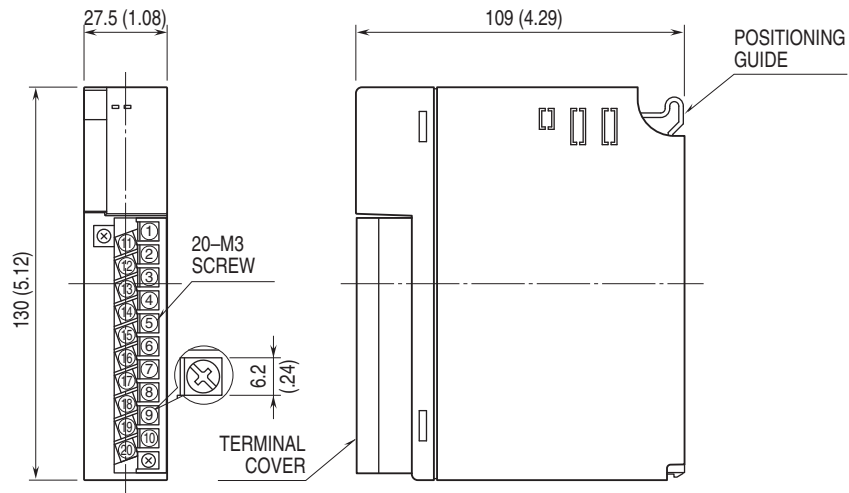
## EXTERNAL VIEW

■ FRONT VIEW

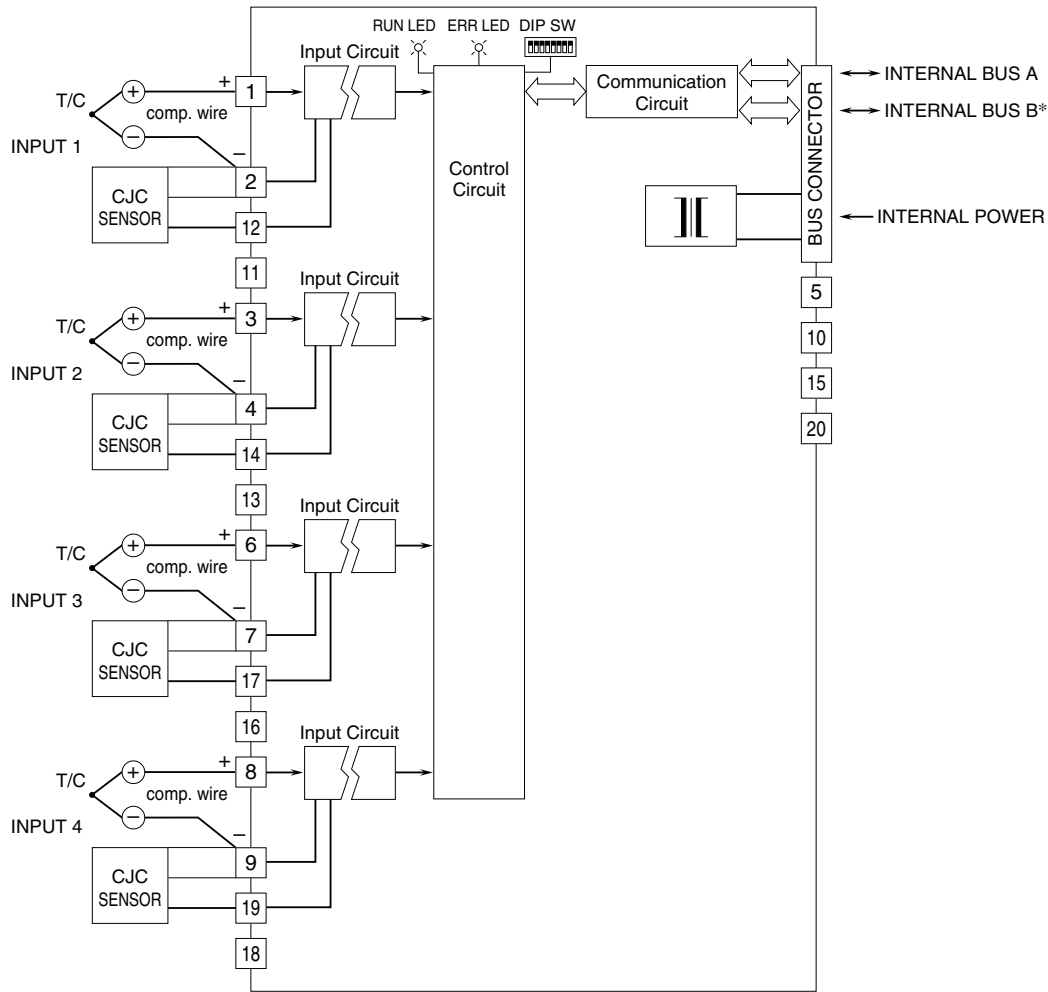
■ SIDE VIEW



**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)**



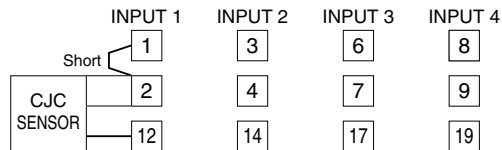
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



\*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.