

**THERMOCOUPLE INPUT MODULE**  
(4 points, isolated)MODEL **R30TS4****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:**

Thermocouple input module (body + CJC sensor × 4) .....(1)

**■ 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.

**■ GENERAL PRECAUTIONS**

- Before you remove the terminal block or mount it, turn off input signals for safety.

**■ HOT SWAPPABLE MODULES**

- It is possible to replace a module with the power supplied provided that the module is replaced with one with the same model number and installed in the same base slot.
- Turn off input signals before replacing the module for safety. Note that replacing multiple modules at once may greatly change line voltage levels. We highly recommend to replace them one by one.

**■ UNUSED CHANNEL**

- Set unused channels to "CH disabled" with PC Configurator software (model: R30CFG). Otherwise, unused channels left open are to be burnout status, setting a data error at the PLC or other host devices.

**■ 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°C (14 to 131°F) with relative humidity within 10 to 90% RH in order to ensure adequate life span and operation.

**■ WIRING**

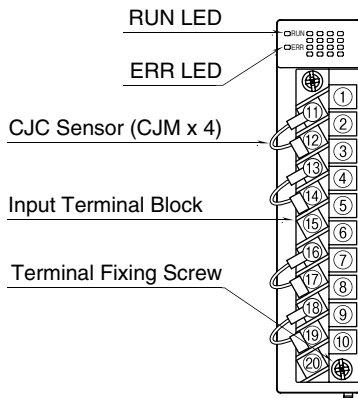
- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.
- Be sure to attach the terminal cover for safety.

**■ AND ....**

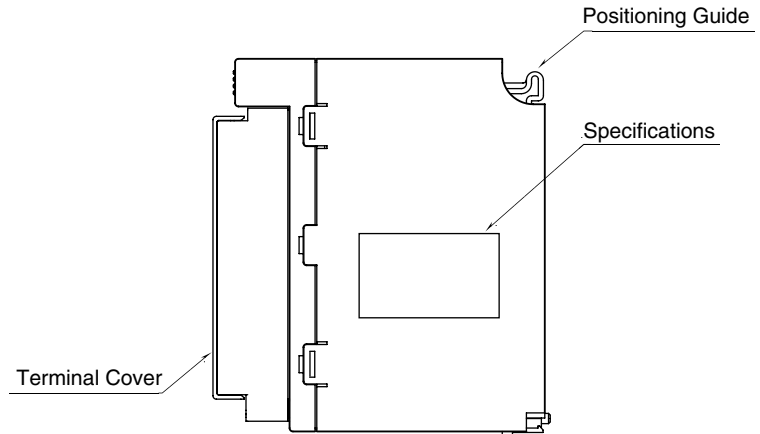
- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

## COMPONENT IDENTIFICATION

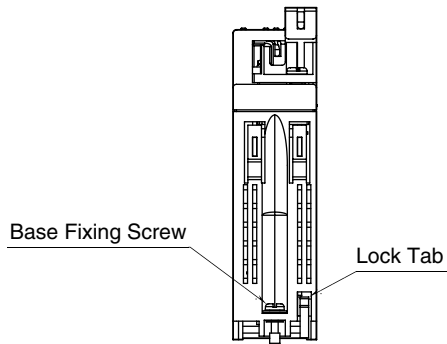
### FRONT VIEW



### SIDE VIEW



### BOTTOM VIEW



### STATUS INDICATOR LED

ID	COLOR	FUNCTION
RUN	Green	ON while network module operates normally OFF in network module error
ERR	Red	OFF when input circuit and internal bus operate normally Blinks in 1 sec. cycles when burnout is detected or with input value error (becomes less than the lower limit or exceeds the upper limit of usable range). Blinks in 400 msec. cycles with input circuit error (AD converter response failure). ON with internal bus error

### TERMINAL ASSIGNMENTS

11	+IN1
+CJ1	2
12	COM1
NC	3
13	+IN2
+CJ2	4
14	COM2
NC	5
15	NC
NC	6
16	+IN3
+CJ3	7
17	COM3
NC	8
18	+IN4
+CJ4	9
19	COM4
NC	10
20	NC
NC	

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	+IN1	T/C 1	11	+CJ1	CJC 1
2	COM1	Common 1	12	NC	No connection
3	+IN2	T/C 2	13	+CJ2	CJC 2
4	COM2	Common 2	14	NC	No connection
5	NC	No connection	15	NC	No connection
6	+IN3	T/C 3	16	+CJ3	CJC 3
7	COM3	Common 3	17	NC	No connection
8	+IN4	T/C 4	18	+CJ4	CJC 4
9	COM4	Common 4	19	NC	No connection
10	NC	No connection	20	NC	No connection

## INSTALLATION

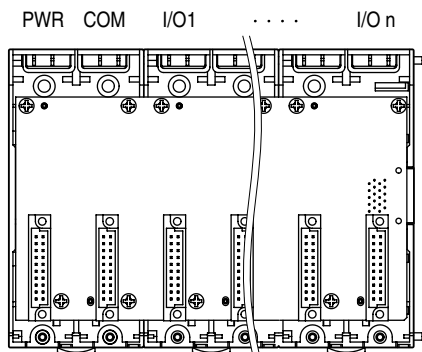
### ■ INSTALLATION TO THE BASE

Use the Installation Base (model: R30BS).

The I/O slots are numbered in the ascending order starting from the one on the immediate right side of the network module (slot 1, slot 2...).

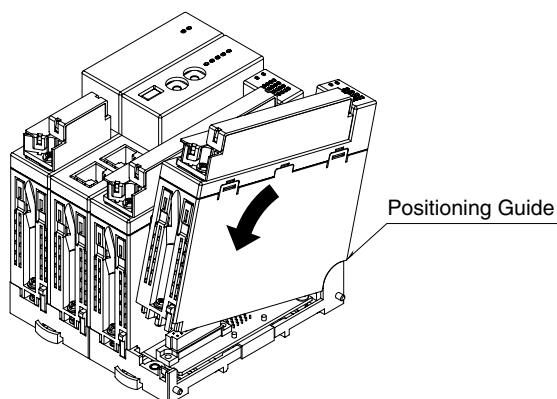
A code indicating the I/O slot number is assigned to each I/O slot and I/O data is allocated in the order of this codes.

When an I/O slot is vacant, blank data is sent or received to/from the PLC, etc.

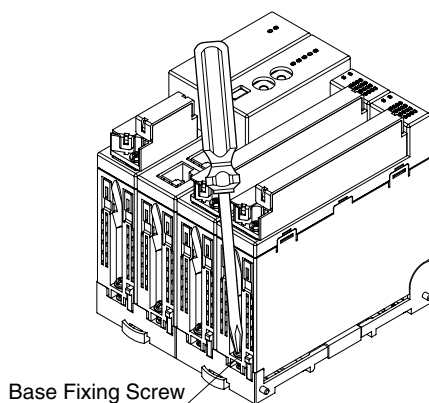


### ■ HOW TO MOUNT THE MODULE

- 1) Engage the positioning guide of the module with the Installation Base.
- 2) Pivot the module on the positioning guide and press it down until the lock tab clicks into place.

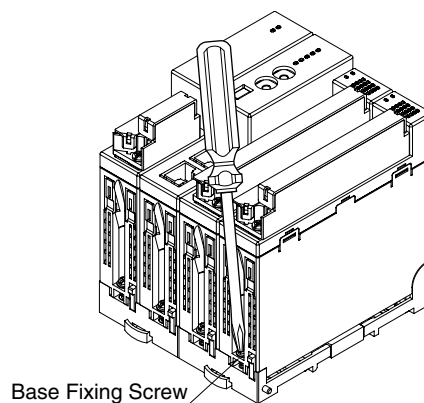


- 3) Tighten the base fixing screw using a screwdriver (stem length: 70 mm/2.76" or more) (torque 0.5 N·m).

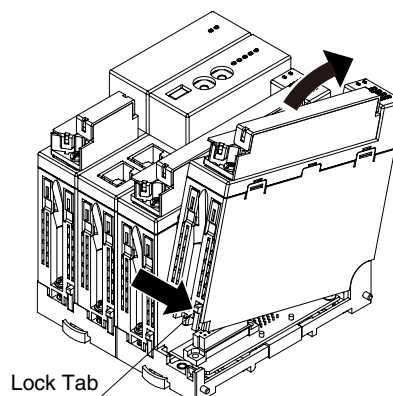


### ■ HOW TO REMOVE THE MODULE

- 1) Loosen the base fixing screw using a screwdriver (stem length: 70 mm/2.76" or more).



- 2) While pressing the projection on the lock tab, push the module upward.
- 3) Detach the positioning guide of the module from the Installation Base.

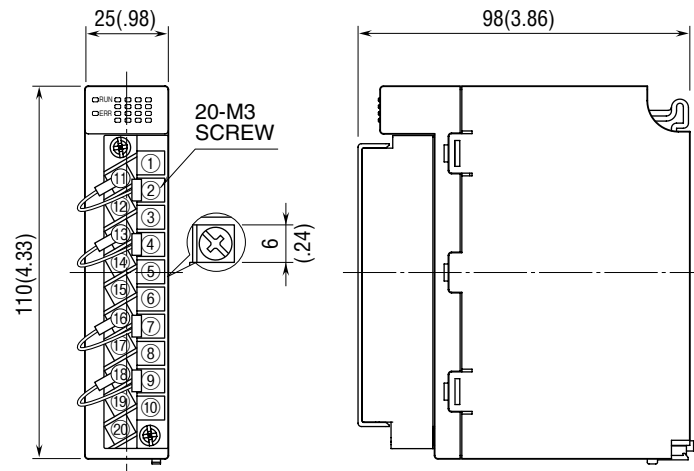


## TERMINAL CONNECTIONS

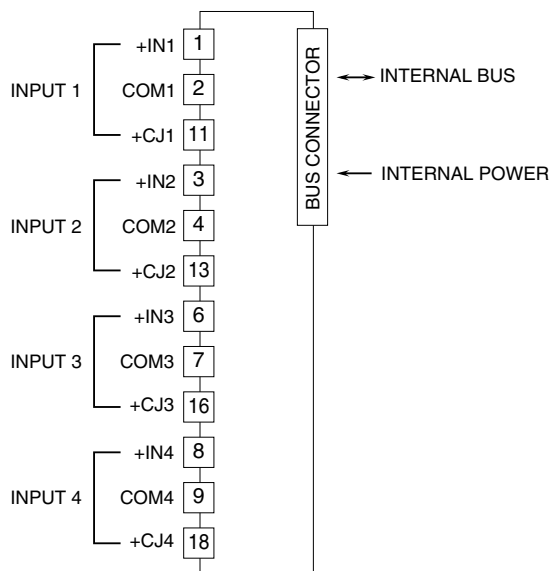
Connect the unit as in the diagram below.

For thermocouple input, attach the CJC sensor together with input wiring to the input screw terminals.

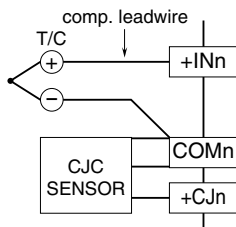
### EXTERNAL DIMENSIONS unit: mm (inch)



### CONNECTION DIAGRAM



### INPUT CONNECTION EXAMPLE



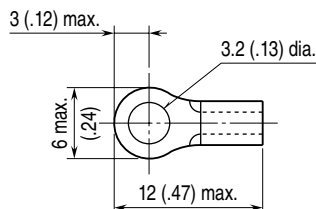
## WIRING INSTRUCTIONS

### ■ TIGHTENING TORQUE

Separable screw terminal wiring screw: 0.5 N·m  
Separable screw terminal fixing screw: 0.5 N·m

### ■ SOLDERLESS TERMINAL unit: mm (inch)

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.  
Applicable wire size: 0.25 to 0.75 mm<sup>2</sup>  
Recommended manufacturer: Japan Solderless Terminal MFG. Co., Ltd., Nichifu Co., Ltd.

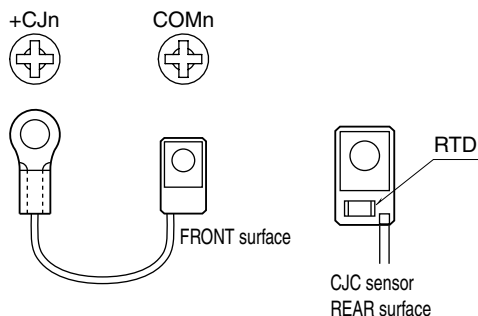


### ■ HOW TO REMOVE SEPARABLE SCREW TERMINAL

The terminal block is separable in two pieces. Evenly loosen two screws on top and bottom of the terminal block to separate.

### ■ HOW TO ATTACH CJC SENSOR

In re-attaching once removed CJC sensor, connect it to terminals +CJn and COMn as shown below.  
A RTD is attached on the REAR surface of the CJC sensor.  
In order to measure accurate reference junction temperature, be sure to connect the sensor to terminal COMn with its upside FRONT surface.



## PC CONFIGURATOR

The following parameter items can be set with using PC Configurator Software (model: R30CFG).

Refer to the users manual for the R30CFG for detailed operation of the software program.

### ■ CHANNEL INDIVIDUAL SETTING

PARAMETER	SETTING RANGE	DEFAULT SETTING
Unused setting	CH enabled CH disabled	CH enabled
Input Type	K (CA) E (CRC) J (IC) T (CC) B (RH) R S C (WRe 5-26) N U L P (Platinel II) (PR)	K (CA)
Burnout	Upscale Downscale None	Upscale
CJC	Enabled Disabled	Enabled
Unit	degC degF K	degC
Fine zero adjustment	-320.00 – +320.00 (%)	0.00 (%)
Fine gain adjustment	-3.2000 – +3.2000	1.0000
Zero base	-3 200.0 – +3 200.0 (degC, K) -32 000 – +32 000 (degF)	0.0
Full base	-3 200.0 – +3 200.0 (degC, K) -32 000 – +32 000 (degF)	0.0
Scaled range Zero	-32 000 – +32 000	0
Scaled range Span	-32 000 – +32 000	10 000

### ■ CHANNEL BATCH SETTING

PARAMETER	SETTING RANGE	DEFAULT SETTING
Conversion rate	250 ms 500 ms	500 ms
Simulate input	Normal input Simulated data	Normal input