

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:

High-speed DC voltage/current input module.....(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: R30CFG. When input range is 1 to 5V DC or 4 to 20mA DC, input values of the unused channels left open are to be lower than -15%, which set 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

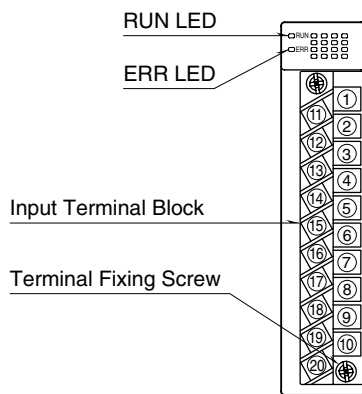
- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.
- Be sure to attach the terminal cover for safety.

■ AND

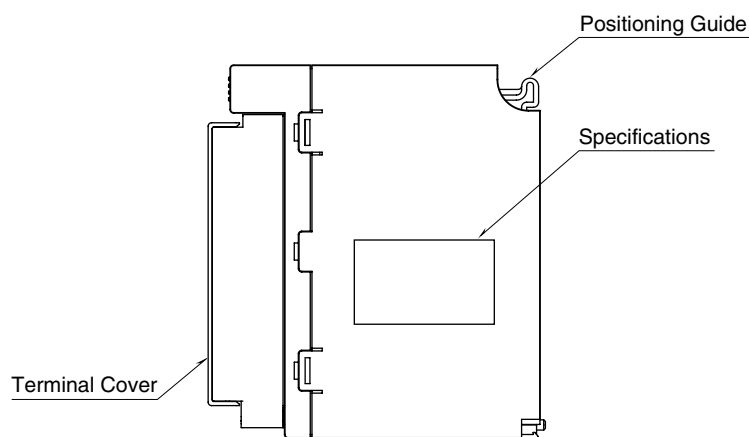
- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION

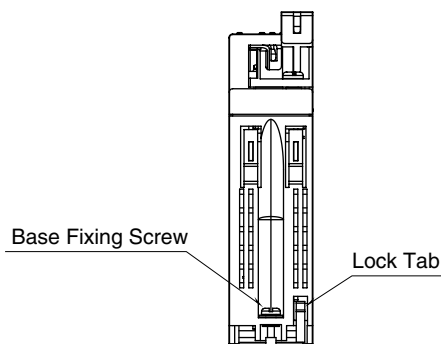
FRONT VIEW



SIDE VIEW



BOTTOM VIEW



STATUS INDICATORS

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 with input value error ($\leq -15\%$, $\geq +115\%$). Blinks in 400 msec. cycles with input circuit error (AD converter response failure). ON with internal bus error

TERMINAL ASSIGNMENTS

11	VH1	1	VL1
12	COM1	2	I1
13	VH2	3	VL2
14	COM2	4	I2
15	NC	5	NC
16	VH3	6	VL3
17	COM3	7	I3
18	VH4	8	VL4
19	COM4	9	I4
20	NC	10	NC

NO.	ID	FUNCTION	NO.	ID	FUNCTION
1	VL1	Narrow span volt. 1	11	VH1	Wide span volt. 1
2	I1	Current 1	12	COM1	Common 1
3	VL2	Narrow span volt. 2	13	VH2	Wide span volt. 2
4	I2	Current 2	14	COM2	Common 2
5	NC	No connection	15	NC	No connection
6	VL3	Narrow span volt. 3	16	VH3	Wide span volt. 3
7	I3	Current 3	17	COM3	Common 3
8	VL4	Narrow span volt. 4	18	VH4	Wide span volt. 4
9	I4	Current 4	19	COM4	Common 4
10	NC	No connection	20	NC	No connection

INSTALLATION

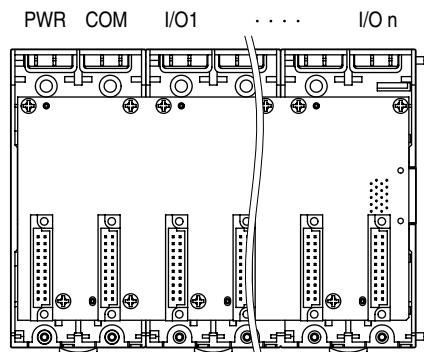
■ INSTALLATION TO THE BASE

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...).

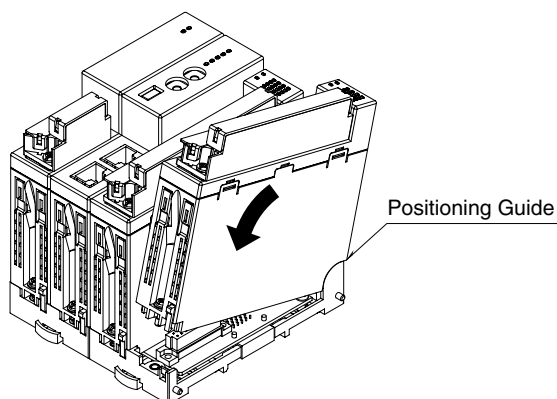
A code indicating the I/O slot number is assigned to each I/O slot and I/O data is allocated in the order of this codes.

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

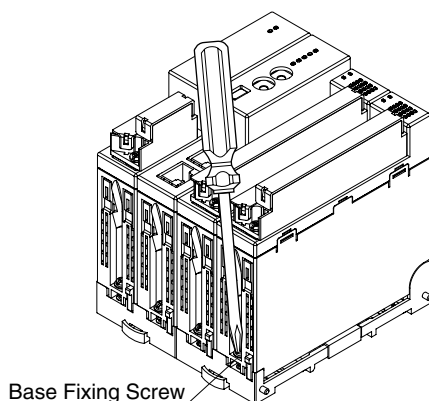


■ HOW TO MOUNT THE MODULE

- 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.

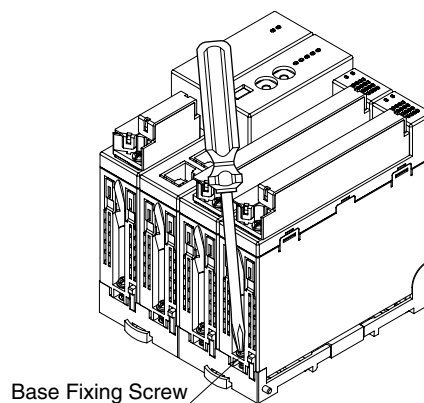


- 3) Tighten the base fixing screw using a screwdriver (stem length: 70 mm/2.76" or more) (torque 0.5 N·m).

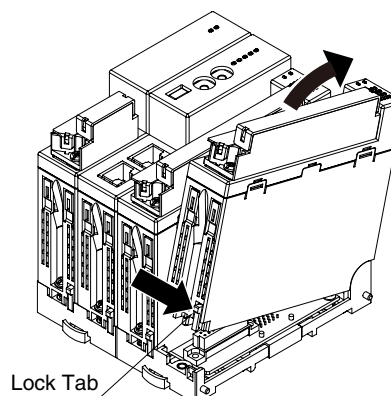


■ HOW TO REMOVE THE MODULE

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



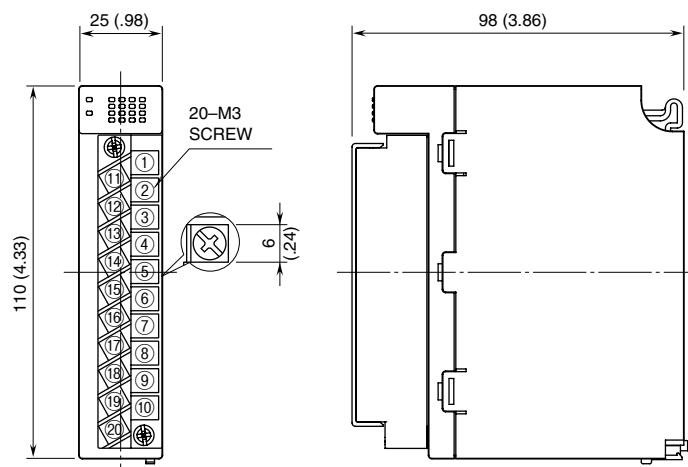
- 2) While pressing the projection on the lock tab, push the module upward.
- 3) Detach the positioning guide of the module from the Installation Base.



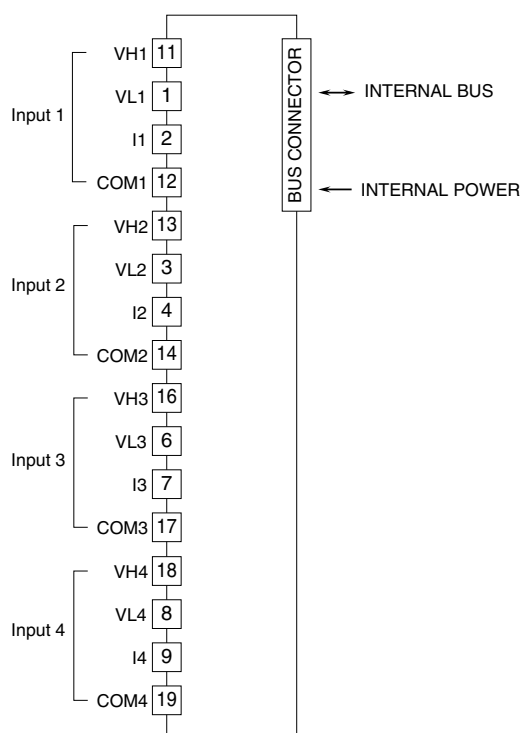
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

EXTERNAL DIMENSIONS unit: mm (inch)

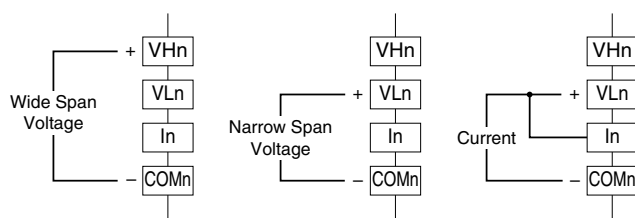


CONNECTION DIAGRAM



Note: Connect either wide or narrow span or current terminals for each channel.

Input Connection Examples



Note: Be sure to close across VLn and In terminals for a current input.

INPUT RANGE

- Wide span voltage: -10 – +10V DC, -5 – +5V DC, 0 – 10V DC, 0 – 5V DC, 1 – 5V DC
- Narrow span voltage: -1 – +1V DC, 0 – 1V DC, -0.5 – +0.5V DC
- Current: -20 – +20mA DC, 0 – 20mA DC, 4 – 20mA DC

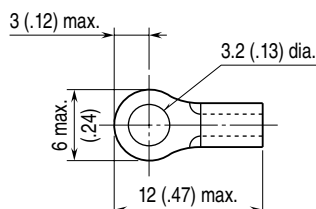
WIRING INSTRUCTIONS

■ 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 mm²
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.

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 range	-10 – +10 V DC -5 – +5 V DC -1 – +1 V DC 0 – 10 V DC 0 – 5 V DC 1 – 5 V DC 0 – 1 V DC -0.5 – +0.5 V DC -20 – +20 mA DC 4 – 20 mA DC 0 – 20 mA DC	-10 – +10 V DC
Fine zero adjustment	-320.00 – +320.00 (%)	0.00 (%)
Fine gain adjustment	-3.2000 – +3.2000	1.0000
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
Averaging number	1, 2, 4, 8, 16, 32, 64, 128, 256	1
Simulate input	Normal input Simulated data	Normal input