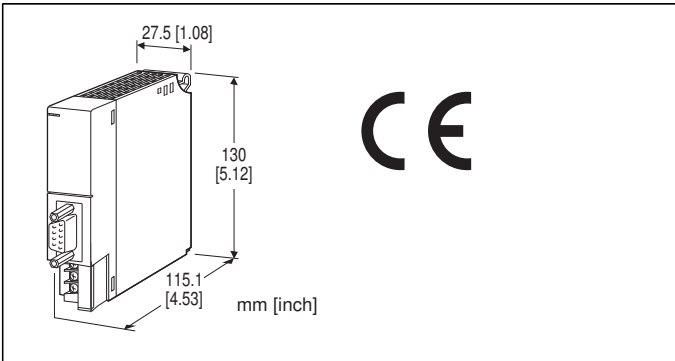


Remote I/O R3 Series

PROFIBUS-DP INTERFACE MODULE



MODEL: R3-NP1-[1][2]

ORDERING INFORMATION

- Code number: R3-NP1-[1][2]
- Specify a code from below for each of [1] and [2].
(e.g. R3-NP1-R/CE/Q)
- Specify the specification for option code /Q
(e.g. /C01)

[1] POWER INPUT

N: No power supply

AC Power

K3: 100 - 120 V AC

(Operational voltage range 85 - 132 V, 47 - 66 Hz) *
(CE not available)

L3: 200 - 240 V AC

(Operational voltage range 170 - 264 V, 47 - 66 Hz) *
(CE not available)

DC Power

R: 24 V DC

(Operational voltage range 24 V \pm 10 %, ripple 10 %p-p max.) *

* Not selectable for use with independent power modules or network modules with the internal power input options.

[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

CAUTION

■ Mounting on 2-slot base

Use a dedicated base (R3-BS02P) for R3-NP1.

GENERAL SPECIFICATIONS

Connection

PROFIBUS: 9-pin D-sub connector, female

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

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

Power input, RUN contact output: M3 separable screw terminal (torque 0.5 N·m)

Screw terminal: Nickel-plated steel

Isolation: PROFIBUS to internal bus or internal power to power supply to RUN contact output to FG

Input error data setting: Input value setting at input module error with side DIP SW

Dual communication setting: Set with the side DIP switch

RUN indicator: Bi-color (green/Amber) LED

(Function selected with DIP SW)

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

(Function selected with DIP SW)

■ RUN CONTACT OUTPUT

RUN contact: Turns ON while the green RUN LED is ON.

(PROFIBUS in normal communication)

Rated load: 250 V AC @ 0.5 A (cos ϕ = 1)

30 V DC @ 0.5 A (resistive load)

(Less than 50 V AC to conform with EU Directive)

Maximum switching voltage: 250 V AC or 30 V DC

Maximum switching power: 250 VA or 150 W

Minimum load: 1 V DC @ 1 mA

Mechanical life: 2×10^7 cycles (300 cycles/min.)

When driving an inductive load, external contact protection and noise quenching recommended.

PROFIBUS COMMUNICATION

Interface: PROFIBUS-DP, slave (RS-485 isolation)

Max. baud rate: 12 Mbps

Protocol: DPV1

Station No. setting: Rotary switch; 00 - 7D

(Address is 7D even setting greater value)

GSD file: Msys093F.GSD

GSD files are downloadable at M-System's web site or at PROFIBUS International site (www.profibus.com).

Input data: Max. 240 bytes

Output data: Max. 240 bytes

Total I/O data: Max. 480 bytes

Diagnostics: Module-related, Status (device-related),
Channel-related (max. 32 channels, maskable)

Acyclic communication (MSAC2): 2 channels

INSTALLATION

Power consumption

•AC: Approx. 20 VA

•DC: Approx. 12 W

Current consumption (no power supply): 130 mA

Output current (power supply): 220 mA continuous at 20 V
DC; 370 mA for 10 minutes

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

Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC

Dielectric strength: 1500 V AC @ 1 minute (PROFIBUS to
internal bus or internal power to power input to RUN output
to FG)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

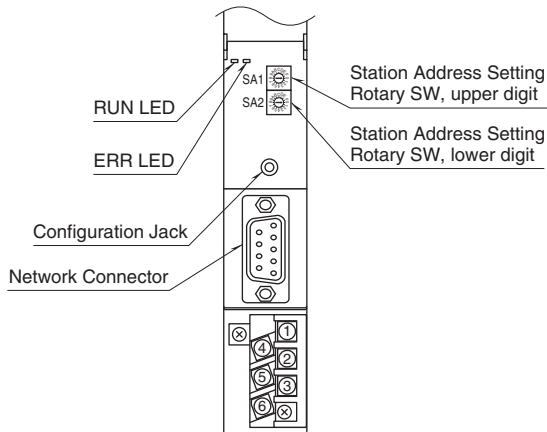
EMI EN 61000-6-4

EMS EN 61000-6-2

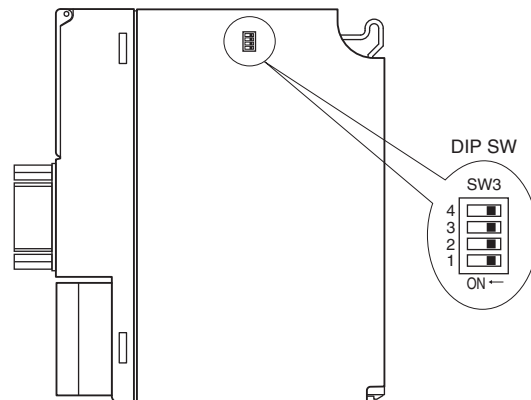
RoHS Directive

EXTERNAL VIEW

FRONT VIEW



SIDE VIEW



PROFIBUS INTERFACE

PIN No.	SIGNAL	SIGNIFICANCE
1	NC	Not used
2	NC	Not used
3	B_line	Network, B-line
4	RTS	RTS signal
5	GND	0V
6	P5V	5V
7	NC	Not used
8	A_line	Network, A-line
9	NC	Not used

I/O DATA DESCRIPTIONS

The data allocations for typical I/O modules are shown below.
Refer to the manual for each module for detailed data allocations.

ANALOG DATA (16-bit data, models: R3-SV4, YV4, DS4, YS4, US4, etc.)

16-bit binary data.
Basically, 0 to 100% of the selected I/O range is converted into 0 to 10000 (binary).
-15 to 0 % is a negative range represented in 2's complement.
In case of R3-US4, -10 to 0% is a negative range represented in 2's complement.



TEMPERATURE DATA (16-bit data, models: R3-RS4, TS4, US4, etc.)

16-bit binary data.
With °C temperature unit, raw data is multiplied by 10. For example, 25.5°C is converted into 255.
With °F temperature unit, the integer section of raw data is directly converted into the data.
For example, 135.4°F is converted into 135.
Minus temperature is converted into negative values, represented in 2's complements.

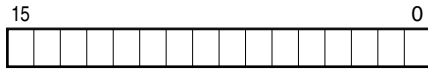


■ **ANALOG DATA (16-bit data, models: R3-CT4A, CT4B, etc.)**

16-bit binary data.

Integer obtained by multiplying unit value (A) by 100.

In case of CLSE-R5, integer obtained by multiplying unit value (A) by 1000.



■ **ACCUMULATED COUNT DATA (32-bit data, models: R3-PA2, PA4A, WT1, WT4, etc.)**

32-bit binary data is used for accumulated counts and encoder positions.

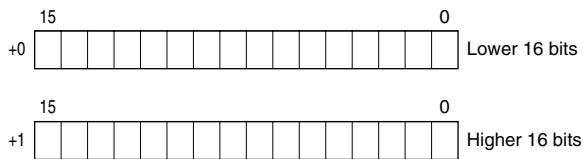
Lower 16 bits are allocated from the lowest address to higher ones, higher 16 bits in turn.



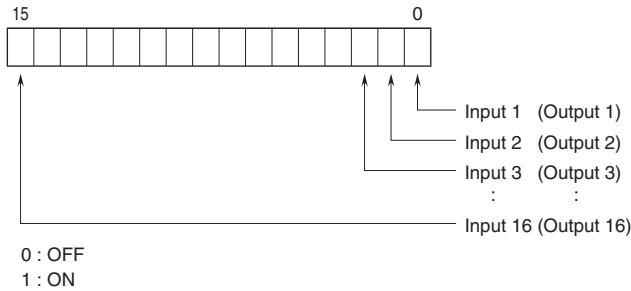
■ **BCD DATA (32-bit data, models: R3-BA32A, BC32A, etc.)**

32-bit binary data is used for BCD.

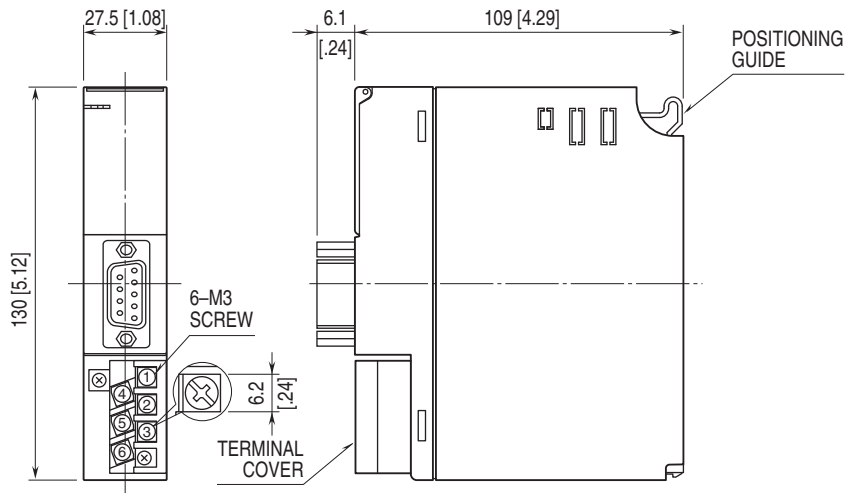
Lower 16 bits are allocated from the lowest address to higher ones, higher 16 bits in turn.



■ **16-POINT DISCRETE DATA (models: R3-DA16, DC16, etc.)**



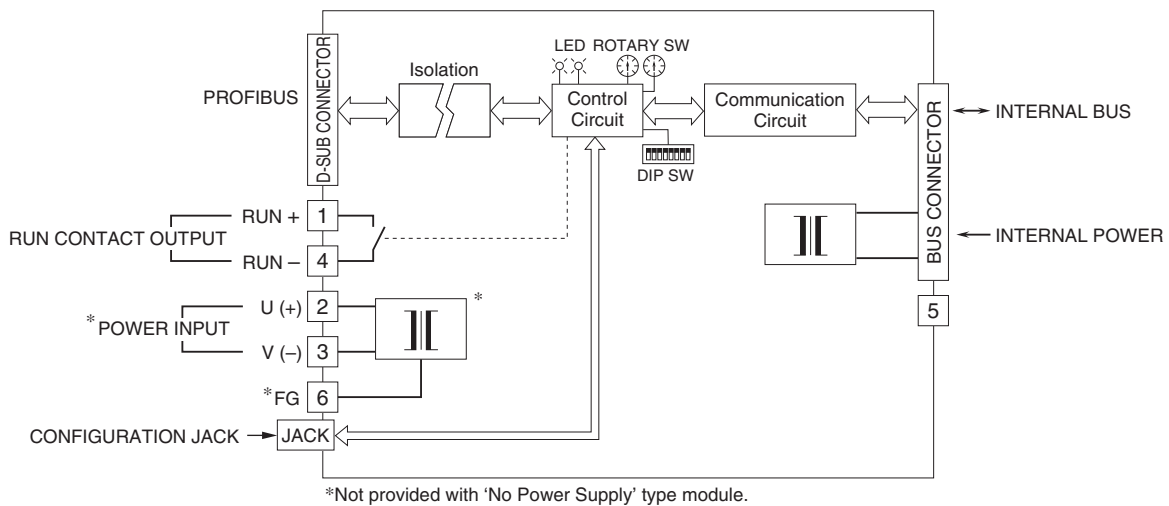
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

Note: In order to improve EMC performance, bond the FG terminal to ground.

Caution: FG terminal is NOT a protective conductor terminal.



Specifications are subject to change without notice.