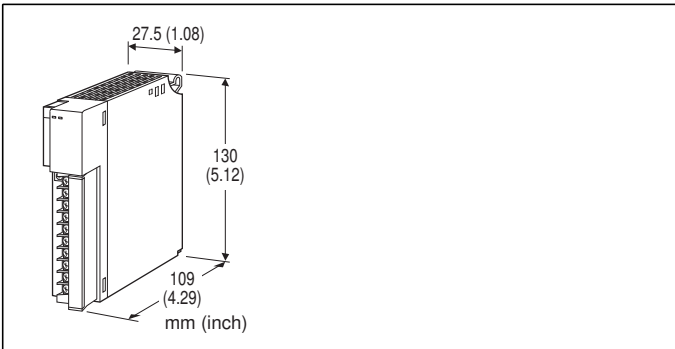


Remote I/O R3 Series

HIGH SPEED PULSE INPUT MODULE

(4 points, isolated)



MODEL: R3-PA4[1][2]

ORDERING INFORMATION

- Code number: R3-PA4[1][2]
- Specify a code from below for each of [1] and [2].
(e.g. R3-PA4W/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

blank: none

/Q: With options (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-8399)

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

Input range & gain: Selectable with the side DIP SW

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 input abnormality;

Green in normal operating conditions.

Low-end cutout: 0.1 %

INPUT SPECIFICATIONS

■ Sensor Excitation

Voltage: 12 V DC ± 10 %

Current: 15 mA

Current limiting circuit: Approx. 30 mA

INPUT RANGE: 0 - 100 kHz, 0 - 10 kHz, 0 - 1 kHz, 0 - 100 Hz, 0 - 10 Hz, 0 - 1 Hz, 0 - 0.1 Hz

Minimum pulse width requirement: 5 μ sec. for both ON and OFF

■ DETECTING LEVEL

Detecting level: 15 - 100 %

(of operational voltage range across the terminals)

Factory setting: 50 % (programmable using the R3CON PC Configurator software)

Note 1. Each channel has three sets of input terminals.

Input terminal 1: 2 - 5, 7 - 10, 12 - 15, 17 - 20

Input terminal 2: 3 - 5, 8 - 10, 13 - 15, 18 - 20

Input terminal 3: 4 - 5, 9 - 10, 14 - 15, 19 - 20

Note 2. Gain 1 or Gain 2 selectable with the side DIP SW.

Note 3. Measured as 0 % below 15 % of the range.

■ Open Collector (input terminal 3, gain 1)

Sensor excitation: 12 V DC

Pull-up resistance: 20 k Ω (shorted across 1 - 3, 6 - 8, 11 - 13, 16 - 18 respectively)

ON voltage: ≤ 1.5 V (≤ 2 k Ω recommended)

OFF voltage: ≥ 2.5 V (≥ 20 k Ω recommended)

(Set detecting level 50 % when the saturation voltage is not greater than 0.8 V, set 70 % when the saturation voltage is between 0.8 to 1.5 V.)

■ Voltage Pulse (input terminals 1 and 2)

Waveform: Square, sine or similar waveforms

Input impedance: 100 k Ω minimum at input terminal 1
20 k Ω minimum at input terminal 2

Operational voltage across the terminals:

0 - 50 V (input terminal 1, gain 1)

0 - 25 V (input terminal 1, gain 2)

0 - 12 V (input terminal 2, gain 1)

0 - 6 V (input terminal 2, gain 2)

Threshold: Pulse logic is detected by comparing input pulse voltage and the detecting level. Detecting 'Rise' or 'Sink' can be switched by using the R3CON PC Configurator software; factory setting 'Rise')

INSTALLATION

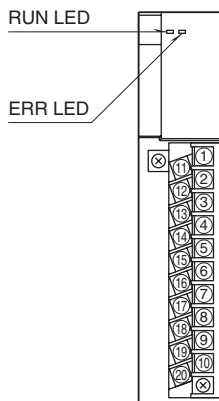
Operating temperature: -10 to +55°C (14 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Atmosphere: No corrosive gas or heavy dust
Mounting: Installation Base (model: R3-BSx)
Weight: 100 g (0.22 lb)

PERFORMANCE

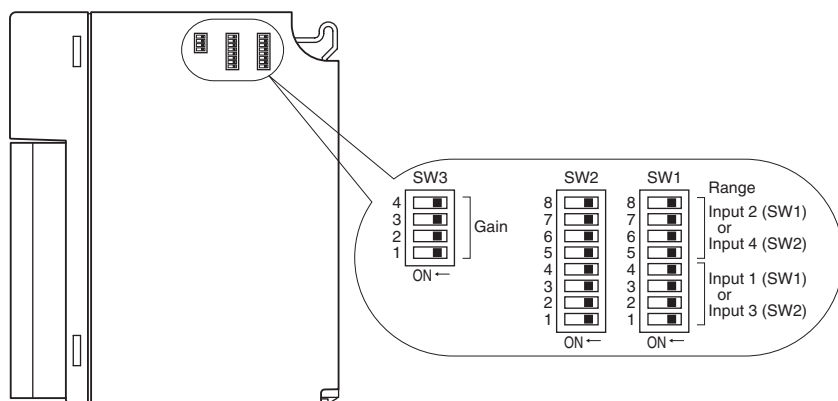
Conversion accuracy: $\pm 0.1\%$
Data range: 0 - 10000 of the input range
Data allocation: 4
Current consumption:
 80 mA (with no load at the sensor excitation)
 130 mA (15 mA at each excitation)
Temp. coefficient: $\pm 0.015\%/^{\circ}\text{C}$ ($\pm 0.008\%/^{\circ}\text{F}$)
Insulation resistance: $\geq 100\text{ M}\Omega$ 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)

EXTERNAL VIEW

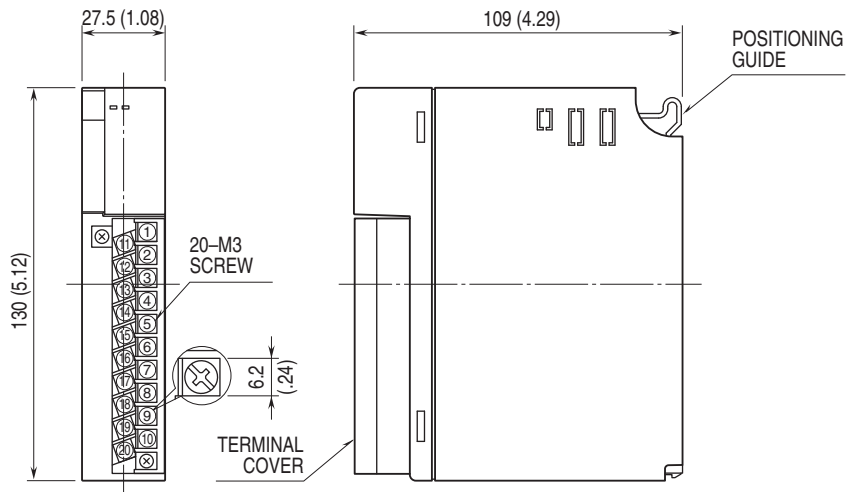
■ FRONT VIEW



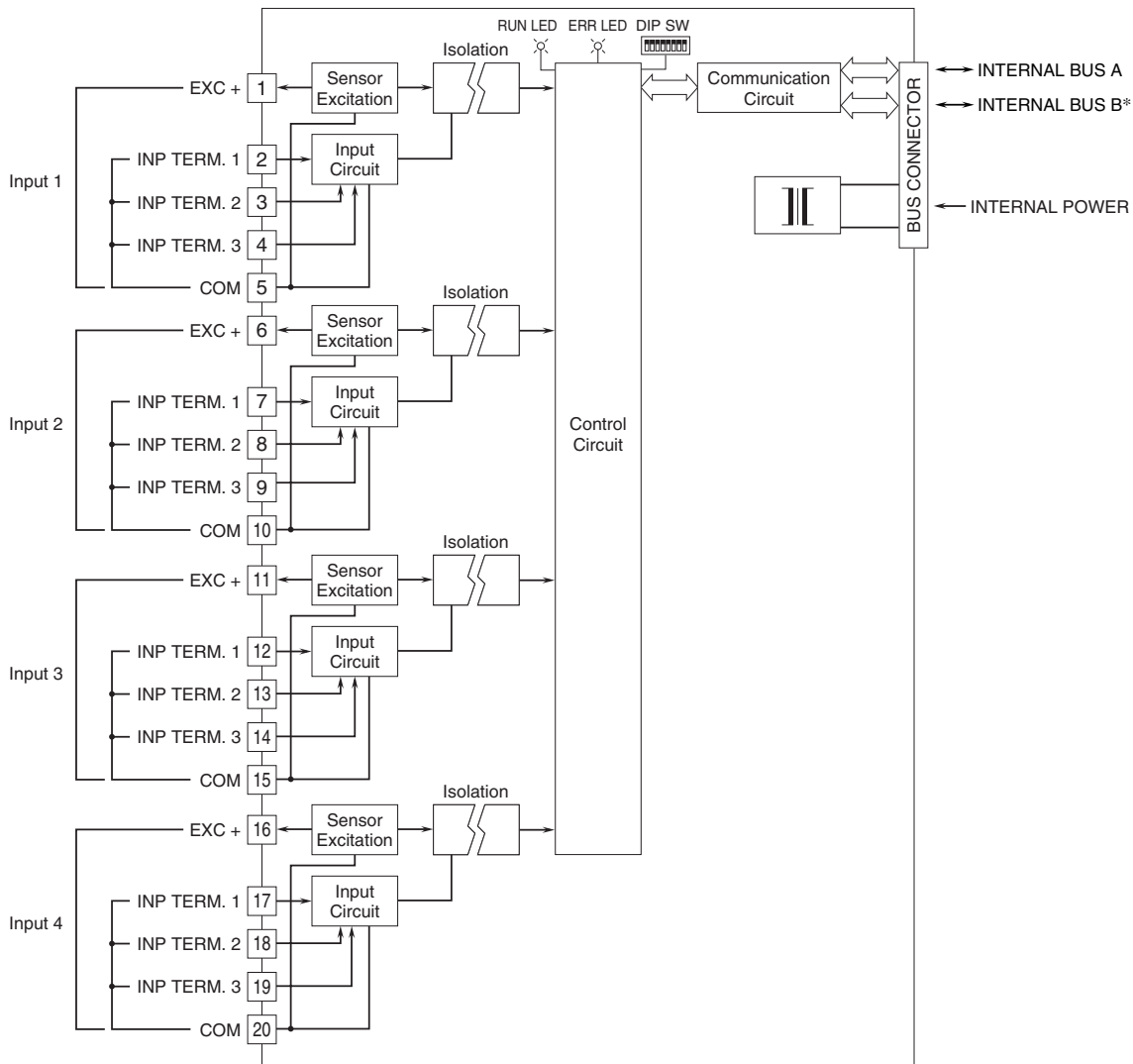
■ SIDE VIEW



EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



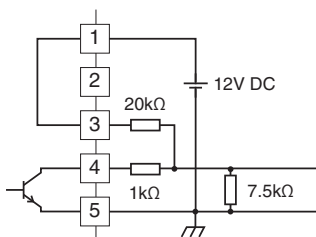
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*For dual redundant communication.

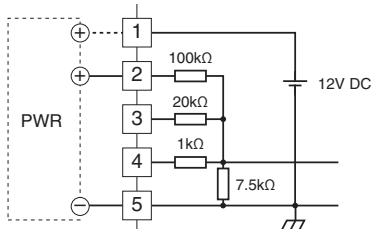
Input Connection Example (Input 1)

■ Open Collector

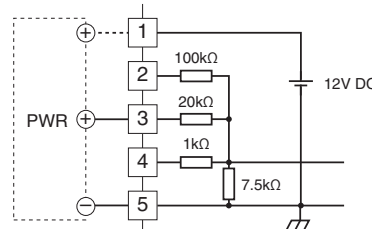


■ Voltage Pulse input

• Operational voltage across the terminals: 0 – 50V, 0 – 25V



• Operational voltage across the terminals: 0 – 12V, 0 – 6V





Specifications are subject to change without notice.