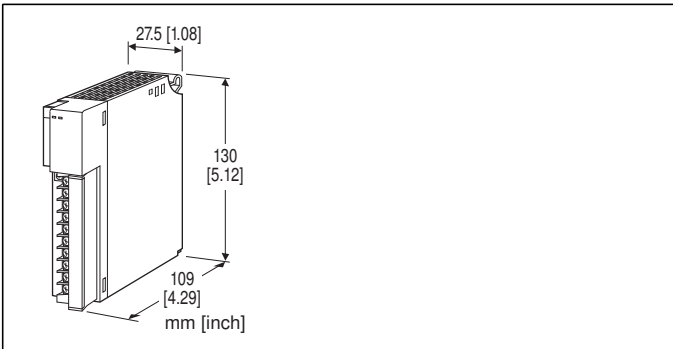


## Remote I/O R3 Series

### 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 our 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  $\pm 10$  %

**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  $\mu$ 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 $\Omega$  (shorted across 1 - 3, 6 - 8, 11 - 13, 16 - 18 respectively)

**ON voltage:**  $\leq 1.5$  V ( $\leq 2$  k $\Omega$  recommended)

**OFF voltage:**  $\geq 2.5$  V ( $\geq 20$  k $\Omega$  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 $\Omega$  minimum at input terminal 1  
20 k $\Omega$  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

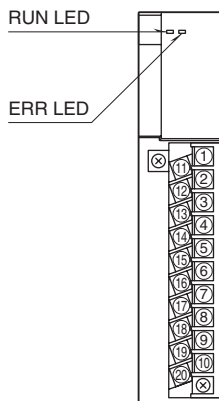
**Operating temperature:** -10 to +55°C (14 to 131°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Atmosphere:** No corrosive gas or heavy dust  
**Mounting:** Installation Base (model: R3-BSx)  
**Weight:** 100 g (0.22 lb)

## PERFORMANCE

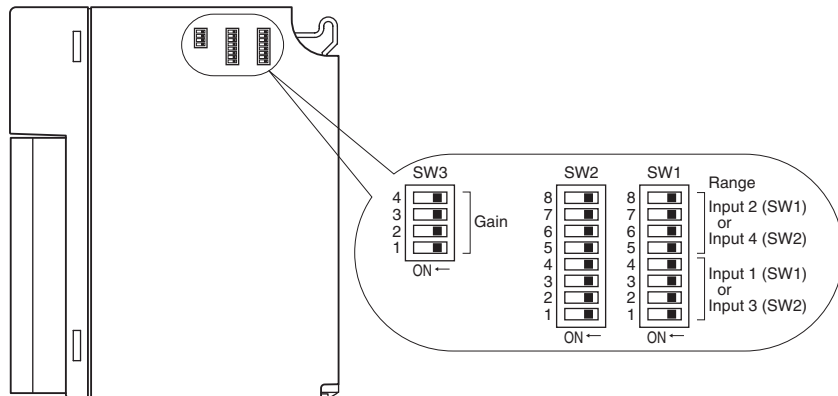
**Conversion accuracy:** ±0.1 %  
**Data range:** 0 - 10000 of the input range  
**Data allocation:** 4  
**Current consumption:**  
 80 mA (with no load at the sensor excitation)  
 130 mA (15 mA at each excitation)  
**Temp. coefficient:** ±0.015 %/°C (±0.008 %/°F)  
**Insulation resistance:** ≥ 100 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)

## EXTERNAL VIEW

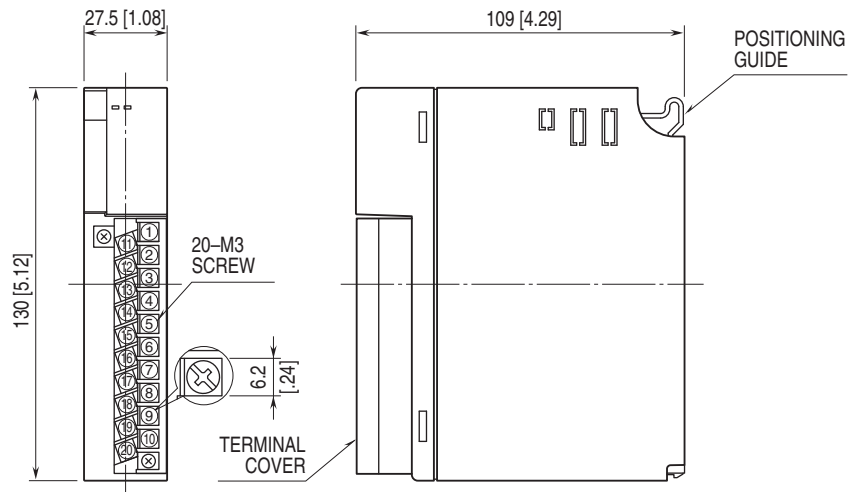
■ FRONT VIEW



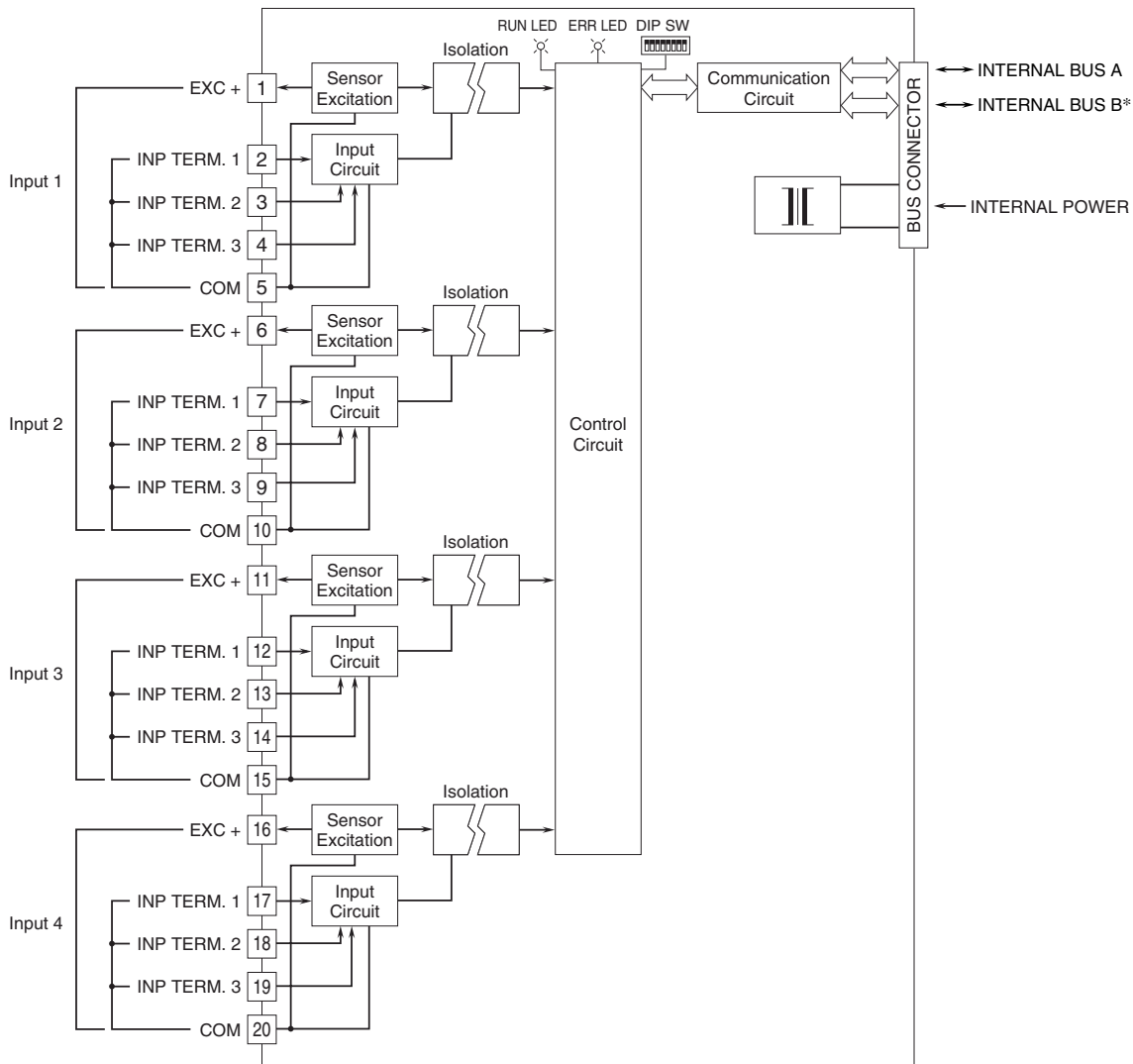
■ SIDE VIEW



**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS** unit: mm [inch]



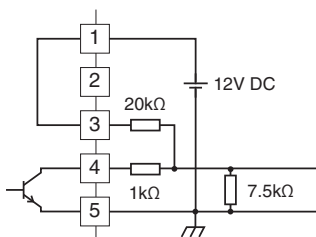
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



\*For dual redundant communication.

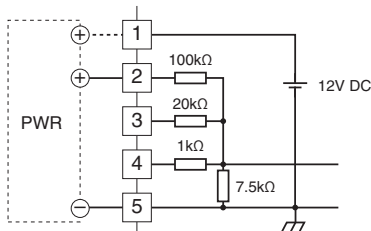
### Input Connection Example (Input 1)

#### ■ Open Collector

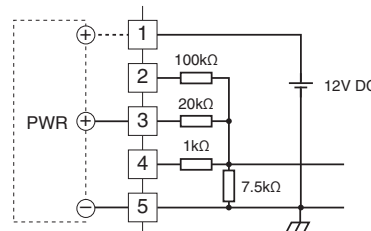


#### ■ Voltage Pulse input

• 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.