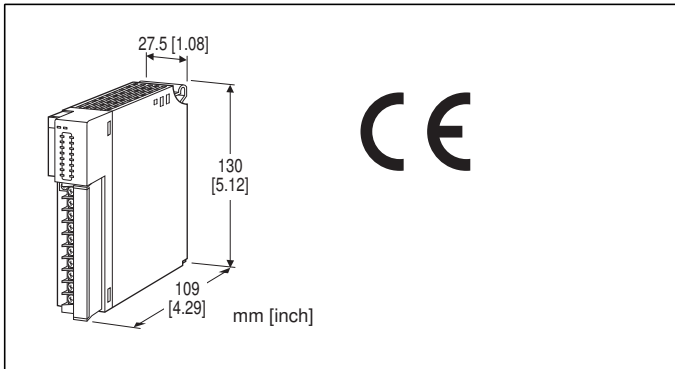


## Remote I/O R3 Series

### DISCRETE INPUT MODULE

(Di 16 points; with external excitation supply)



### MODEL: R3-DA16A[1][2]

#### ORDERING INFORMATION

- Code number: R3-DA16A[1][2]
- Specify a code from below for each of [1] and [2].  
(e.g. R3-DA16AW/110/CE/Q)
- Specify the specification for option code /Q  
(e.g. /C01)

#### NO. OF CHANNELS

16: 16

#### EXCITATION SUPPLY

A: External excitation

#### [1] COMMUNICATION MODE

S: Single

W: Dual

#### [2] OPTIONS (multiple selections)

##### External Excitation

blank: 24 V DC

/12: 12 V DC

/5: 5 V DC

/48: 48 V DC

/110: 110 V DC

##### 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

#### 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 to internal bus or internal power

**Excitation monitor:** Selectable with side DIP switch; ON/OFF setting available

**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 excitation abnormality;

Green in normal operating conditions.

**Input status indicator:** Red LED; turns on with the input ON.

**Read rate:** 1 / 5 / 10 / 20 / 50 / 70 / 100 / 200 msec.  
selectable with DIP SW

#### INPUT SPECIFICATIONS

**Number of input:** 16 points

**Isolation:** Optical isolator

**Input resistance:**

Approx. 4.4 kΩ (24 V DC)

Approx. 2.2 kΩ (12 V DC)

Approx. 800 Ω (5 V DC)

Approx. 22 kΩ (48 V DC)

Approx. 54 kΩ (110 V DC)

**Common:** Positive or negative common (NPN/PNP) per 16 points

**Rated input voltage**

24V exc.: 24 V DC +10/-15 % (ripple 5 %p-p max.)

12V exc.: 12 V DC ±10 % (ripple 5 %p-p max.)

5V exc.: 5 V DC ±10 % (ripple 5 %p-p max.)

48V exc.: 48 V DC ±10 % (ripple 5 %p-p max.)

110V exc.: 110 V DC (90 - 121 V DC, ripple 5 %p-p max.)

**Rated input current:**

Approx. 5 mA (24 V DC, 12 V DC, 5V DC)

Approx. 2 mA (48 V DC, 110 V DC)

**ON voltage/current:**

≥ 11 V, ≥ 2.5 mA (24 V DC)

≥ 5.5 V, ≥ 2.5 mA (12 V DC)

≥ 3V, ≥ 2.5 mA (5 V DC)

≥ 35V, ≥ 1.5 mA (48 V DC)

≥ 85V, ≥ 1.5 mA (110 V DC)

**OFF voltage/current:**

≤ 6 V, ≤ 1.3 mA (24 V DC)

≤ 3 V, ≤ 1.3 mA (12 V DC)

≤ 1 V, ≤ 1.3 mA (5 V DC)

≤ 20 V, ≤ 1.0 mA (48 V DC)

≤ 50 V, ≤ 1.0 mA (110 V DC)

## 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:** 200 g (0.44 lb)

## PERFORMANCE

**Data allocation:** 1

**Current consumption:** 80 mA

**Insulation resistance:** ≥ 100 MΩ with 500 V DC

**Dielectric strength:** 2000 V AC @ 1 minute

(input to internal bus or internal power)

2000 V AC @ 1 minute (power input to FG; isolated on the power supply module)

## STANDARDS & APPROVALS

**EU conformity:**

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

(External excitation 110 V DC only)

EN 61010-1, EN 61010-2-201

Installation Category I (contact input)

Pollution Degree 2

Input to internal bus or internal power: Reinforced insulation (150 V)

RoHS Directive

## FUNCTIONS

**•Excitation Monitor ON**

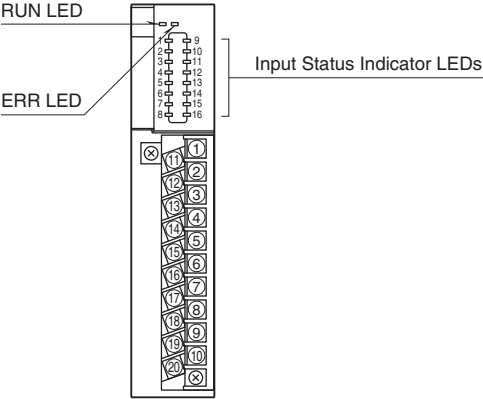
The input is held at the last status when the loss of excitation is detected. The excitation must be connected across the terminal 9 (19) and 10 (20).

**•Excitation Monitor OFF**

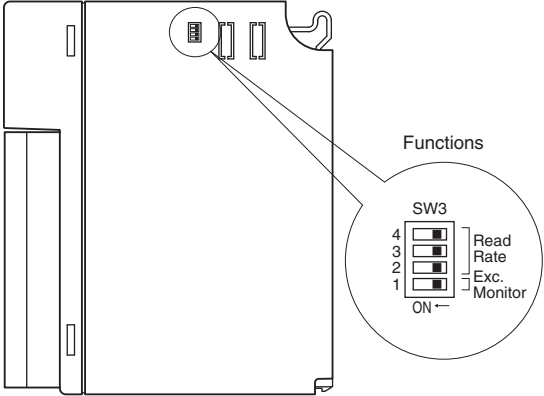
All input signals are turned off when the loss of excitation is detected.

**EXTERNAL VIEW**

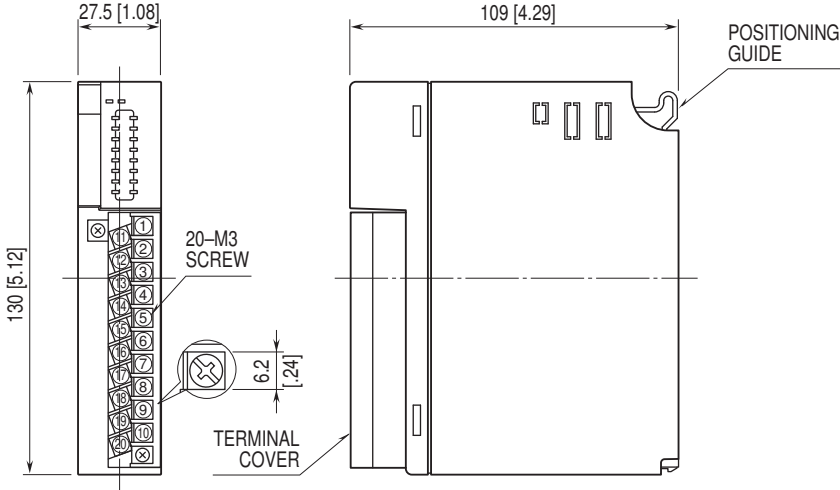
■ FRONT VIEW



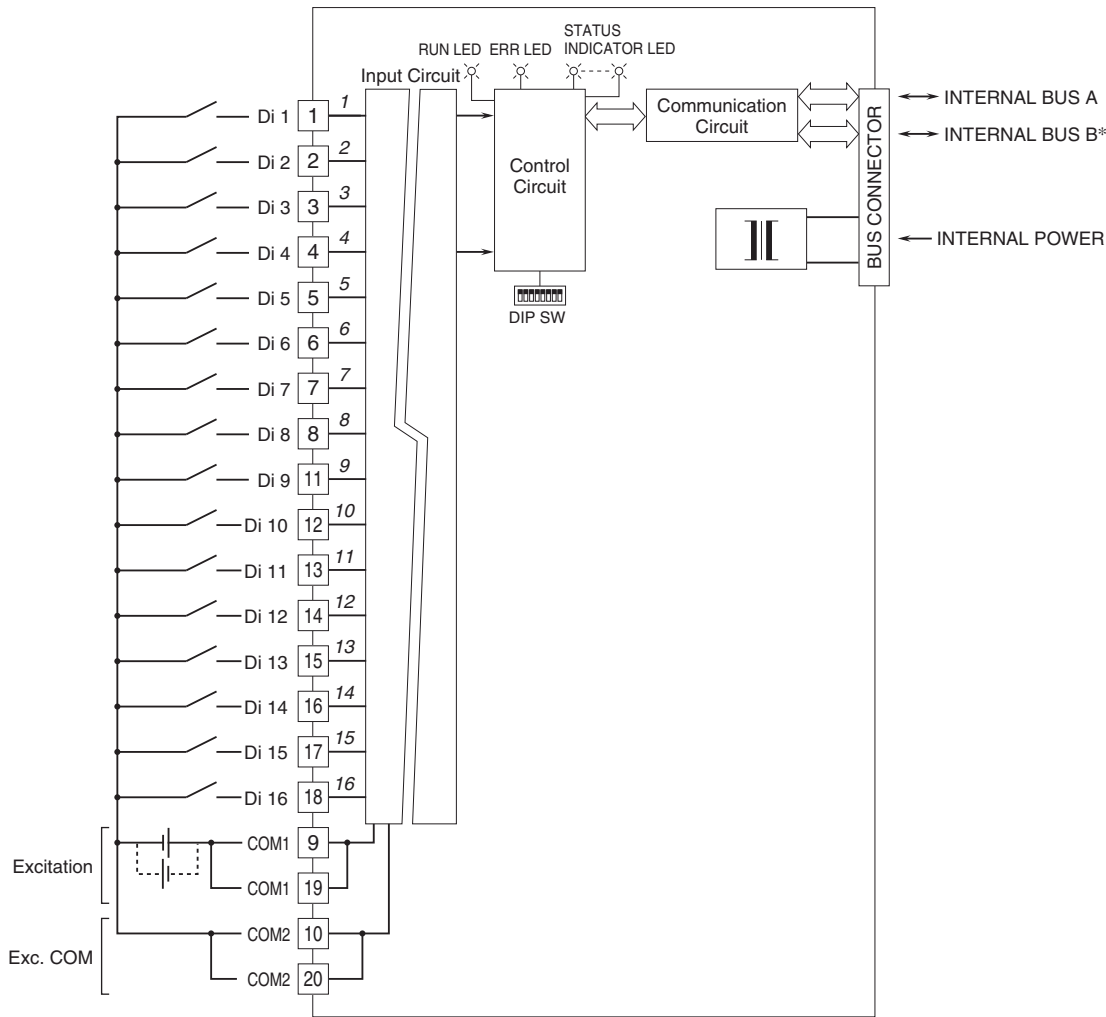
■ SIDE VIEW



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

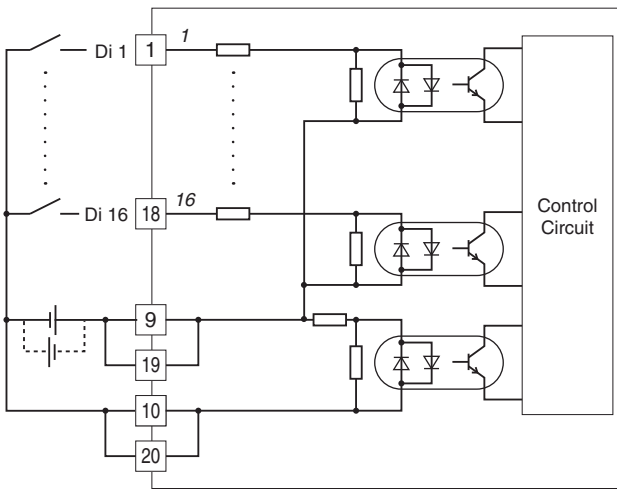


## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

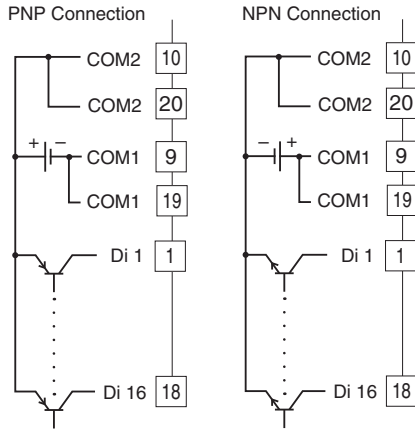


Numbers in italic indicate LED No.s assigned to the front panel LEDs.  
 \*For dual redundant communication.

### Input Circuit



### Input Connection Examples





Specifications are subject to change without notice.