Remote I/O R3 Series

DC VOLTAGE INPUT ALARM MODULE
(8 points, isolated)

27.5 (1.08)
130 (5.12)
109 (4.29)
mm (inch)
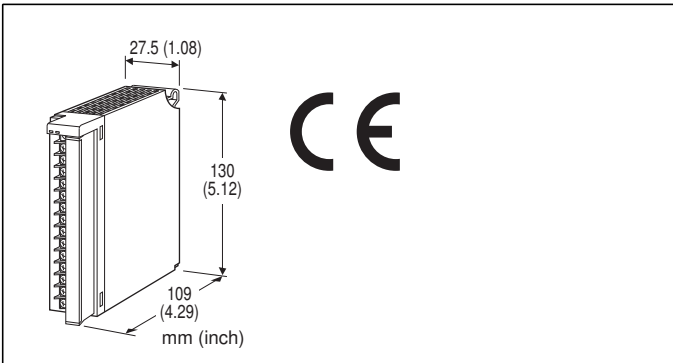
MODEL: R3–AV8[1][2]

ORDERING INFORMATION

• Code number: R3-AV8[1][2]
Specify a code from below for each [1] and [2].
(e.g. R3-AV8W/CE/Q)
• Specify the specification for option code /Q
(e.g. /C01)

NO. OF CHANNELS

8: 8

[1] COMMUNICATION MODE

S: Single
W: Dual

[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

■UNUSED INPUT CHANNELS

Set the unused input channels to ±10 V range. Unused channels left open with other settings may be equal to the input lower than -15 %, which sets a data abnormality at the PLC or the host device.
Open circuit with the input range set to ±10 V means 50 % of the full-scale. An alarm setpoint must be set to a value that does not trip an unwanted alarm.
Unused channels can be specified and set so on the PC Configurator Software (model: R3CON) without needing the above mentioned setting.

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 input 5 to input 6 to input 7 to input 8 to internal bus or internal power
Input range: Selectable with the side DIP SW (per 4 channels)
Conversion rate: 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 the input circuit abnormality (AD converter response failure);
Green in normal operating conditions.

INPUT SPECIFICATIONS

■ **Narrow Span**: -1 – +1 V, 0 – 1 V DC
Input resistance: 100 kΩ min.
■ **Wide Span**: -10 – +10 V, -5 – +5 V, 0 – 10 V, 0 – 5 V, 1 – 5 V DC
Input resistance: 1 MΩ min.

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: 250 g (0.55 lb)

PERFORMANCE

Conversion accuracy: Refer to the table at the end of this section.
Conversion rate: 160 / 80 / 40 / 20 msec. selectable
Data range: 0 – 10000 of the input range
Data allocation: 4

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Current consumption: 100 mA

Temp. coefficient: ±0.015 % /°C (±0.008 %/°F)
(±0.03 % /°C [±0.02 %/°F] with 0 – 5 V or 1 – 5 V range)

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 1000 V AC @ 1 minute (input 1 to input 2 to input 3 to input 4 to input 5 to input 6 to input 7 to input 8 to internal bus or internal power)
2000 V AC @ 1 minute (power input to FG; isolated on the power supply module)

Conversion accuracy

RANGE RATE	160 msec.	80 msec.	40 msec.	20 msec.
All ranges	±0.1%	±0.2%	±0.4%	±0.8%

STANDARDS & APPROVALS

CE conformity:
EMC Directive (2004/108/EC)
  EMI EN 61000-6-4: 2007/A1: 2011
  EMS EN 61000-6-2: 2005

ALARM SETTING

The following parameters are programmable using the PC Configurator Software (model: R3CON).

■**ALARM TRIP POINT** (-15.00 to +115.00 %)
Four alarm setpoints are selectable per each input.

■**ALARM TYPE (High or Low)**
High or Low alarm is selectable for each alarm trip point.
High alarm: An alarm is set when the input signal goes above the setpoint.
Low alarm: An alarm is set when the input signal goes below the setpoint.

■**DEADBAND (HYSTERESIS)**
(0.00 to 100.00 %; factory set to 5.00)
Deadband (deviation between the points where the alarm is set and reset) is selectable for each alarm trip point.

■**ALARM ON DELAY TIME**
(0.0 to 99.0 seconds; factory set to 1.0)
The alarm output is set when the preset time elapses after the input has entered in the alarm range.
This setting is common to all 8 points.

■**POWER ON DELAY TIME**
(0.0 to 99.0 seconds; factory set to 5.0)
The alarm output start functioning in the preset time after the power has been turned on.
This setting is common to all 8 points.

■**ALARM HOLD TIME**
(0.0 to 99.0 seconds; factory set to 1.0)
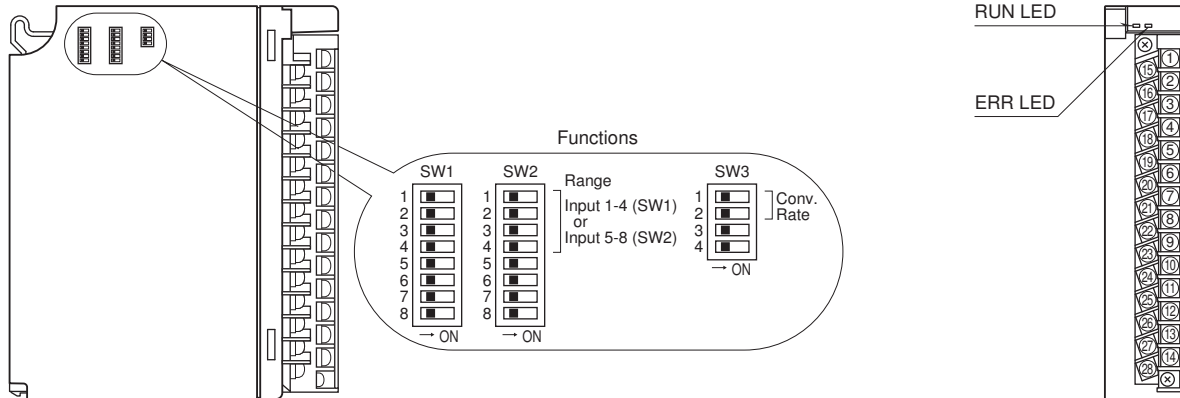The alarm output is held for the preset time even if it is reset in shorter time.
This setting is common to all 8 points.
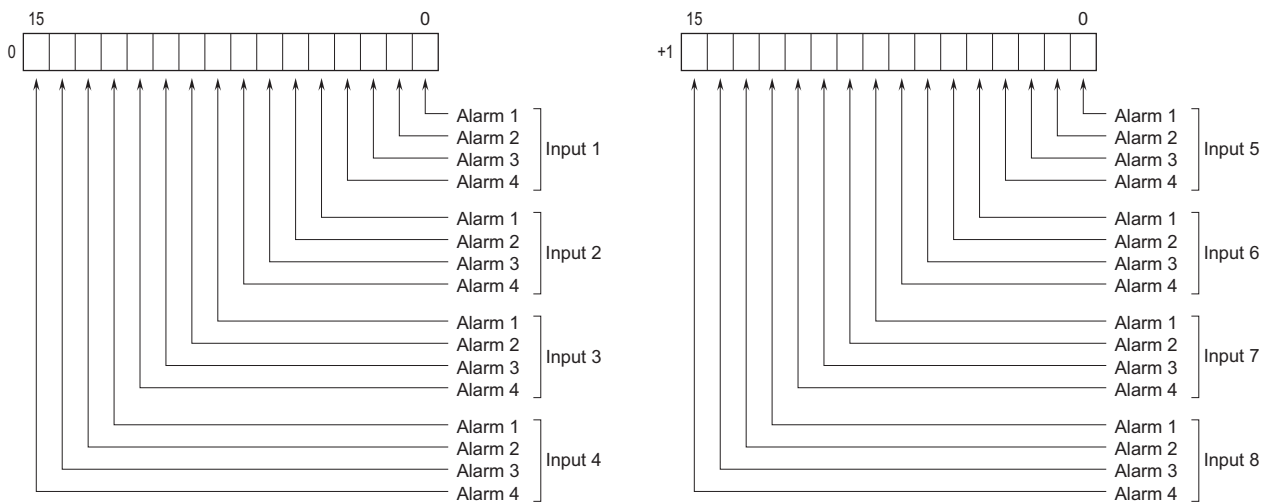
EXTERNAL VIEW

SIDE VIEW

FRONT VIEW

Functions

SW1 SW2 Range
Input 1-4 (SW1)
or
Input 5-8 (SW2)
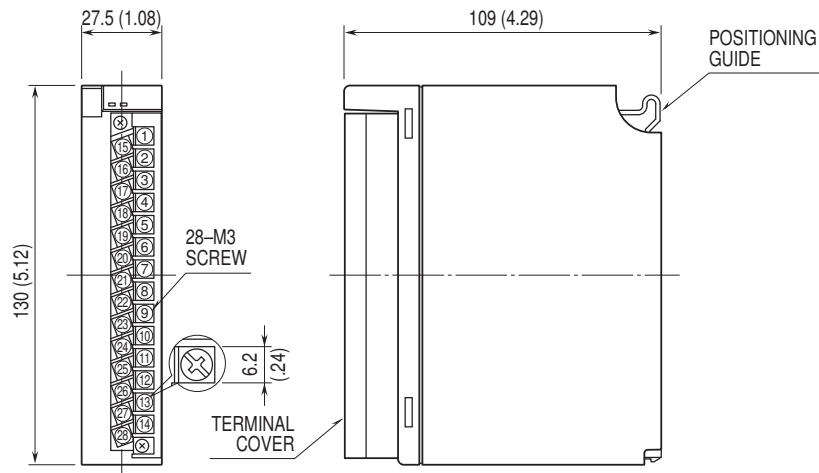
SW3 Conv. Rate

→ ON

RUN LED

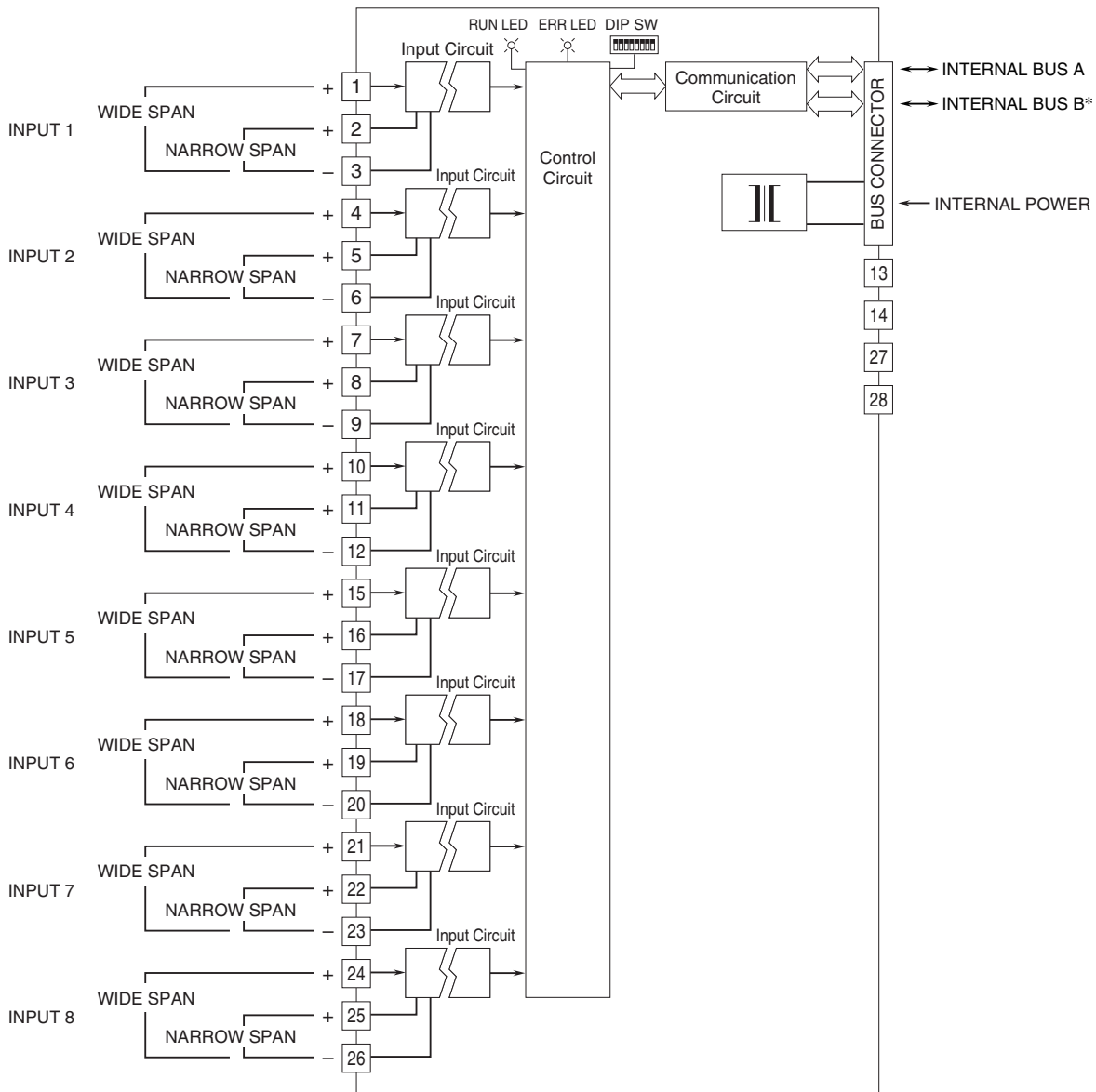ERR LED

OUTPUT DATA DESCRIPTIONS

Four alarm setpoints are selectable per each input. Two (2) word (16 bits × 2) data is transmitterd to the PLC or the host device via the R3 network module.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

*For dual redundant communication.
NOTE: Connect either wide or narrow span terminals for each channel.

⚠ Specifications are subject to change without notice.