

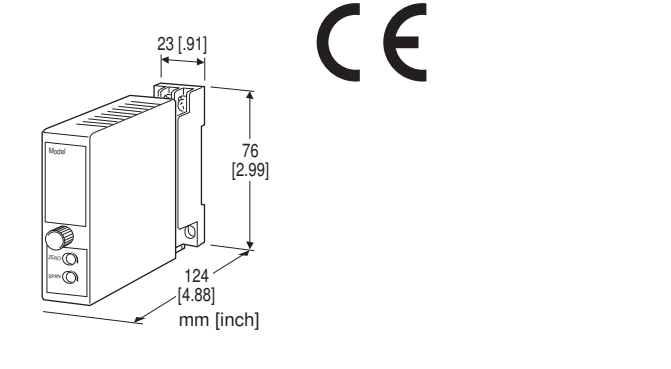
## Super-mini Signal Conditioners Mini-M Series

### SIGNAL TRANSMITTER

(photovoltaic system, instrument shelter)

#### Functions & Features

- Converts DC input from a sensor into a standard process signal
- Fast response type available



### MODEL: M2VT-[1][2]-[3][4]

#### ORDERING INFORMATION

- Code number: M2VT-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4]. (e.g. M2VT-6A-M2/K/CE/Q)
- Special input and output ranges (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

#### [1] INPUT

##### Current

- A: 4 - 20 mA DC (Input resistance 250 Ω)
- A1: 4 - 20 mA DC (Input resistance 50 Ω)
- B: 2 - 10 mA DC (Input resistance 500 Ω)
- C: 1 - 5 mA DC (Input resistance 1000 Ω)
- D: 0 - 20 mA DC (Input resistance 50 Ω)
- E: 0 - 16 mA DC (Input resistance 62.5 Ω)
- F: 0 - 10 mA DC (Input resistance 100 Ω)
- G: 0 - 1 mA DC (Input resistance 1000 Ω)
- H: 10 - 50 mA DC (Input resistance 100 Ω)
- J: 0 - 10 μA DC (Input resistance 1000 Ω)
- K: 0 - 100 μA DC (Input resistance 1000 Ω)
- GW: -1 - +1 mA DC (Input resistance 1000 Ω)
- FW: -10 - +10 mA DC (Input resistance 100 Ω)
- Z: Specify current (See INPUT SPECIFICATIONS)

##### Voltage

- 1: 0 - 10 mV DC (Input resistance 10 kΩ min.)
- 15: 0 - 50 mV DC (Input resistance 10 kΩ min.)
- 16: 0 - 60 mV DC (Input resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Input resistance 100 kΩ min.)

- 3: 0 - 1 V DC (Input resistance 1 MΩ min.)
- 4: 0 - 10 V DC (Input resistance 1 MΩ min.)
- 5: 0 - 5 V DC (Input resistance 1 MΩ min.)
- 6: 1 - 5 V DC (Input resistance 1 MΩ min.)
- 4W: -10 - +10 V DC (Input resistance 1 MΩ min.)
- 5W: -5 - +5 V DC (Input resistance 1 MΩ min.)
- 0: Specify voltage (See INPUT SPECIFICATIONS)

#### [2] OUTPUT

##### Current

- A: 4 - 20 mA DC (Load resistance 750 Ω max.)
- B: 2 - 10 mA DC (Load resistance 1500 Ω max.)
- C: 1 - 5 mA DC (Load resistance 3000 Ω max.)
- D: 0 - 20 mA DC (Load resistance 750 Ω max.)
- E: 0 - 16 mA DC (Load resistance 900 Ω max.)
- F: 0 - 10 mA DC (Load resistance 1500 Ω max.)
- G: 0 - 1 mA DC (Load resistance 15 kΩ max.)

##### Voltage

- 1: 0 - 10 mV DC (Load resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Load resistance 100 kΩ min.)
- 3: 0 - 1 V DC (Load resistance 1000 Ω min.)
- 4: 0 - 10 V DC (Load resistance 10 kΩ min.)
- 5: 0 - 5 V DC (Load resistance 5000 Ω min.)
- 6: 1 - 5 V DC (Load resistance 5000 Ω min.)
- 4W: -10 - +10 V DC (Load resistance 10 kΩ min.)
- 5W: -5 - +5 V DC (Load resistance 5000 Ω min.)
- 0: Specify voltage (See OUTPUT SPECIFICATIONS)

#### [3] POWER INPUT

##### AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

##### DC Power

- R: 24 V DC (Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)
- R2: 11 - 27 V DC (Operational voltage range 11 - 27 V, ripple 10 %p-p max.) (Select '/N' for 'Standards & Approvals' code.)
- P: 110 V DC (Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

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

##### Response Time (0 - 90 %)

- blank: Standard (≤ 0.5 sec.)
- /K: Fast Response (Approx. 25 msec.)

##### Standards & Approvals (must be specified)

- /N: Without CE
- /CE: CE marking

##### Other Options

- blank: none
- /Q: Option other than the above (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
- /C04: Polyolefin coating

### TERMINAL SCREW MATERIAL

- /S01: Stainless steel

## GENERAL SPECIFICATIONS

- Construction:** Plug-in
- Connection:** M3 screw terminals (torque 0.8 N·m)
- Screw terminal:** Chromated steel (standard) or stainless steel
- Housing material:** Flame-resistant resin (black)
- Isolation:** Input to output to power
- Overrange output:** Approx. -10 to +120 % at 1 - 5 V
- Zero adjustment:** -5 to +5 % (front)
- Span adjustment:** 95 to 105 % (front)

## INPUT SPECIFICATIONS

- **DC Current:**  
Shunt resistor attached to the input terminals (0.5 W)  
Specify input resistance value for code Z.
- **DC Voltage:** -300 - +300 V DC
- Minimum span:** 3 mV
- Offset:** Max. 1.5 times span
- Input resistance**
  - Span 3 - 10 mV :  $\geq 10 \text{ k}\Omega$
  - Span 10 - 100 mV :  $\geq 10 \text{ k}\Omega$
  - Span 0.1 - 1 V :  $\geq 100 \text{ k}\Omega$
  - Span  $\geq 1 \text{ V}$  :  $\geq 1 \text{ M}\Omega$

## OUTPUT SPECIFICATIONS

- **DC Voltage:** -10 - +15 V DC
- Minimum span:** 5 mV
- Maximum span:** 22 V
- Offset:** Max. 1.5 times span
- Load resistance:** Output drive 1 mA max.; at  $\geq 0.5 \text{ V}$

## INSTALLATION

- Power Consumption**
  - AC:
    - Approx. 3 VA at 100 V
    - Approx. 4 VA at 200 V
    - Approx. 5 VA at 264 V
  - DC: Approx. 3 W
- Performance-guaranteed temperature:** -15 to + 65°C (5 to 149 °F)
- Operating temperature:** -20 to +80 °C (-4 to +176°F);

- must be higher than -10°C (14°F) at power on
- Operating humidity:** 10 to 90 %RH (non-condensing)
- Mounting:** Surface or DIN rail
- Weight:** 150 g (0.33 lb)

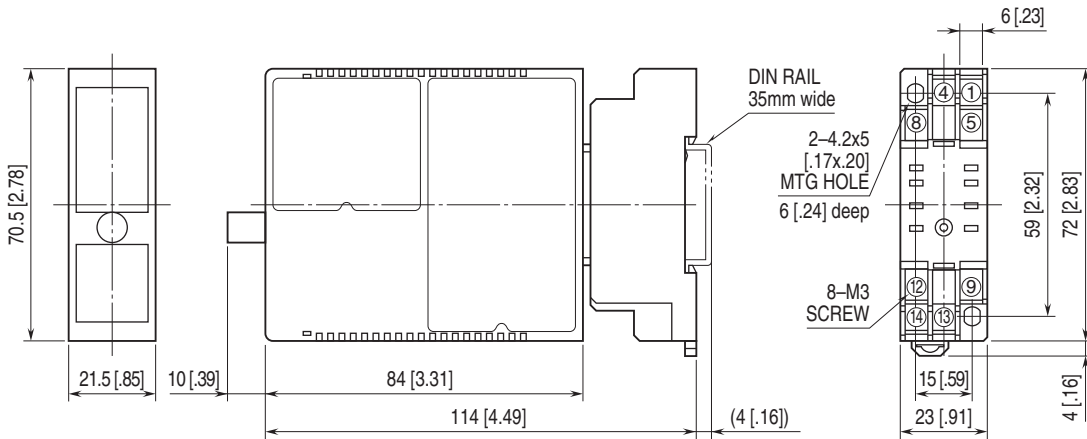
## PERFORMANCE in percentage of span

- Accuracy:**  $\pm 0.1 \%$
- Temp. coefficient:**  $\pm 0.015 \%/^{\circ}\text{C}$  ( $\pm 0.008 \%/^{\circ}\text{F}$ )  
( $\pm 0.03 \%/^{\circ}\text{C}$  ( $\pm 0.02 \%/^{\circ}\text{F}$ ) for outside of the performance-guaranteed temperature range)
- Line voltage effect:**  $\pm 0.1 \%$  over voltage range
- Insulation resistance:**  $\geq 100 \text{ M}\Omega$  with 500 V DC
- Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)

## STANDARDS & APPROVALS

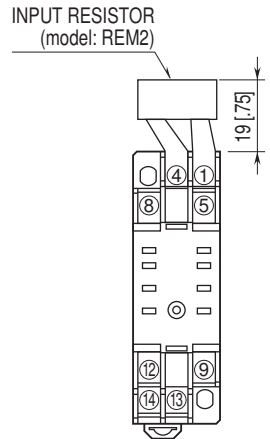
- EU conformity:**
  - EMC Directive
    - EMI EN 61000-6-4
    - EMS EN 61000-6-2
  - Low Voltage Directive
    - EN 61010-1
  - Measurement Category II (input)
  - Installation Category II (power)
  - Pollution Degree 2
- (Operational Temperature must be with -5 to +55°C (23 to 131°F))
  - Input or output to power: Reinforced insulation (300 V)
  - Input to output: Basic insulation (300 V)
- RoHS Directive

## EXTERNAL DIMENSIONS unit: mm [inch]



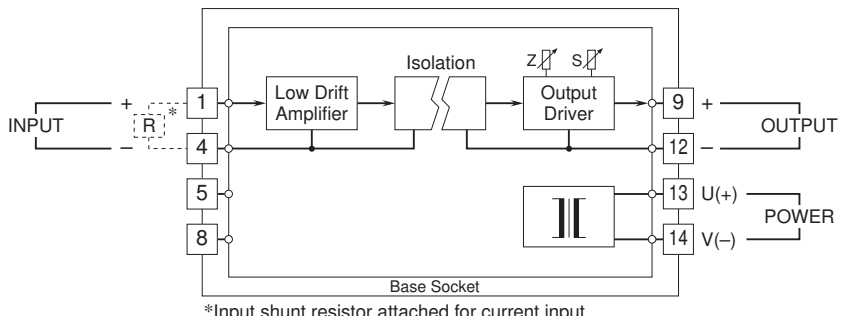
• When mounting, no extra space is needed between units.

## TERMINAL ASSIGNMENTS unit: mm [inch]



Input shunt resistor attached for current input.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



\*Input shunt resistor attached for current input.

Specifications are subject to change without notice.