

## Super-mini Signal Conditioners Mini-M Series

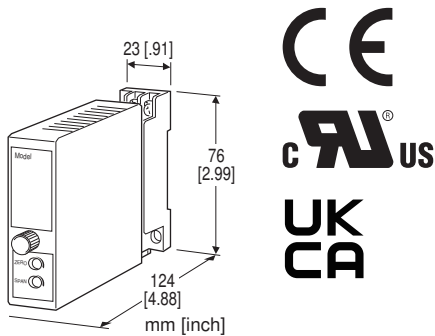
### SIGNAL TRANSMITTER

#### Functions & Features

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

#### Typical Applications

- Isolation between control room and field instrumentation



### MODEL: M2VS-[1][2]-[3][4]

#### ORDERING INFORMATION

- Code number: M2VS-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].  
(e.g. M2VS-6A-M2/K/CE/Q)
- Special input and output ranges (For codes Z & 0)
- Specify the specification for option code /Q  
(e.g. /C01/V01)

#### [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.)
- Z: Specify current (See OUTPUT SPECIFICATIONS)

##### 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

- A: 24 V AC (Operational voltage range 24 V ±10 %, 47 - 66 Hz)  
(Select '/N' for 'Standards & Approvals' code.)
- M: 85 - 264 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)  
(Select '/N' for 'Standards & Approvals' code.)
- M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)  
(90 - 264 V for UL)

##### 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.)

(110 V  $\pm$ 10 % for UL)

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

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

blank: Standard ( $\leq$  0.5 sec.)

/K: Fast Response (Approx. 25 msec.)

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

/N: Without CE, UKCA or UL

/CE: CE marking

/UK: CE, UKCA marking

/UL: UL approval, 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 (UL not available)

/C04: Polyolefin coating (UL not available)

##### ADJUSTMENT

/V01: Multi-turn fine adjustment (UL not available)

##### TERMINAL SCREW MATERIAL

/S01: Stainless steel (UL not available)

#### 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 k $\Omega$

Span 10 - 100 mV :  $\geq$  10 k $\Omega$

Span 0.1 - 1 V :  $\geq$  100 k $\Omega$

Span  $\geq$  1 V :  $\geq$  1 M $\Omega$

#### OUTPUT SPECIFICATIONS

##### DC Current: 0 - 20 mA DC

Minimum span: 1 mA

Offset: Max. 1.5 times span

Load resistance: Output drive 15 V max.

##### 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 V

#### INSTALLATION

##### Power Consumption

###### AC:

Approx. 2.5 VA at 24 V

Approx. 3 VA at 100 V

Approx. 4 VA at 200 V

Approx. 5 VA at 264 V

###### DC: Approx. 3 W

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 30 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 %/°C ( $\pm$ 0.008 %/°F)

Line voltage effect:  $\pm$ 0.1 % over voltage range

Insulation resistance:  $\geq$  100 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

Input or output to power: Reinforced insulation (300 V)

Input to output: Basic insulation (300 V)

RoHS Directive

##### UK conformity (UKCA):

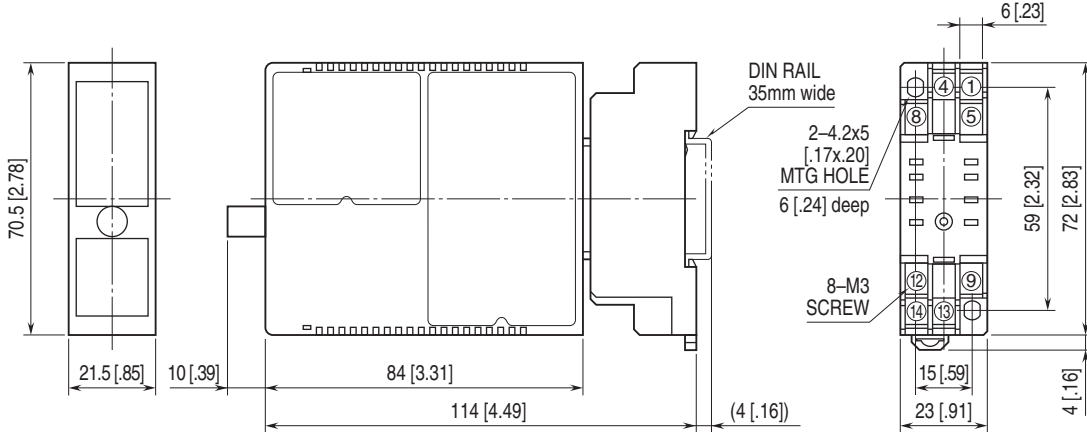
The UK legislations and designated standards are equivalent to the applicable EU directives.

(Refer to M-System's website for more information about the legislations and designated standards.)

Approval:

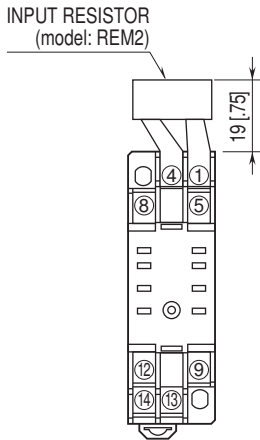
UL/C-UL nonincendive Class I, Division 2,  
 Groups A, B, C, and D  
 (ANSI/ISA-12.12.01, CAN/CSA-C22.2 No.213)  
 UL/C-UL general safety requirements  
 (UL 61010-1, CAN/CSA-C22.2 No.61010-1)

**EXTERNAL DIMENSIONS unit: mm [inch]**



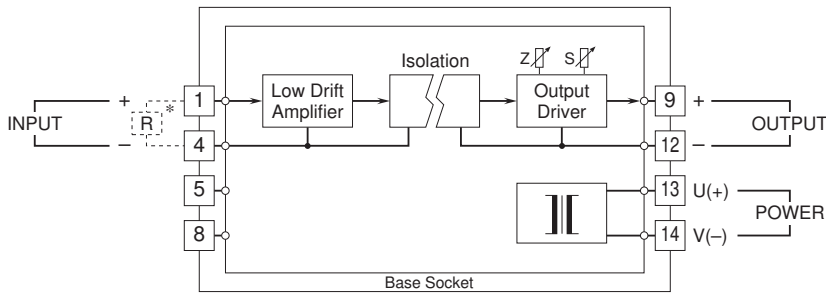
• When mounting, no extra space is needed between units.

**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.