

## Super-mini Signal Conditioners Mini-M Series

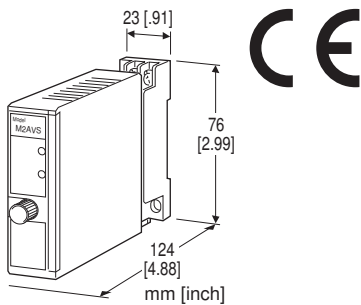
### DC ALARM

#### Functions & Features

- Provides N.O. relay outputs at preset DC input levels
- Dual trip
- Multi-turn potentiometer adj.
- Monitor jacks help setpoint adj.
- Power ON timer
- Relays can be powered 110 V DC

#### Typical Applications

- Annunciator
- Various alarm applications



## MODEL: M2AVS-[1][2][3][4]-[5][6]

### ORDERING INFORMATION

- Code number: M2AVS-[1][2][3][4]-[5][6]
- Specify a code from below for each of [1] through [6].  
(e.g. M2AVS-6112-R/CE/Q)
- Special input range (For codes Z, 0 & 01)
- 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)  
(Select '/N' for 'Standards & Approvals' code.)
- 01:** Specify voltage (See INPUT SPECIFICATIONS)  
(Select '/CE' for 'Standards & Approvals' code.)

### [2] SETPOINT 1 OUTPUT

- 1:** Hi (coil energized at alarm)
- 3:** Lo (coil energized at alarm)

### [3] SETPOINT 2 OUTPUT

- 1:** Hi (coil energized at alarm)
- 3:** Lo (coil energized at alarm)

### [4] OUTPUT

- 2:** Relay; N.O. or make contact
- 6:** Photo MOSFET relay; N.O.

### [5] POWER INPUT

AC Power

**M:** 85 - 264 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

(Select '/N' for 'Standards & Approvals' code.)

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.)

(Select '/N' for 'Standards & Approvals' code.)

### [6] OPTIONS (multiple selections)

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 our 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 1 to output 2 to power

**Setpoint adjustments:** Multi-turn screwdriver adjustments (front); 0 - 100 % independently

**Monitor jacks:** Output 0 - 1 V for 0 - 100 % setpoints

**Hysteresis (deadband):** ≤ 0.5 %

**Front LEDs**

**Output 1:** Red LED turns on when the coil is energized.

**Output 2:** Green LED turns on when the coil is energized.

**Power ON timer:** Relays de-energized for approx. 1 seconds after power is turned on.

## 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

(-30 - +30 V for the input code 01. Span 30 V max.)

**Minimum span:** 3 mV

**Offset:** Max. 1.5 times span

### • Input resistance

Span 3 - 10 mV : ≥ 10 kΩ

Span 10 - 100 mV : ≥ 10 kΩ

Span 0.1 - 1 V : ≥ 100 kΩ

Span ≥ 1 V : ≥ 1 MΩ

## OUTPUT SPECIFICATIONS

### ■ Relay Contact:

120 V AC @0.5 A (cos φ = 1)

240 V AC @0.5 A (cos φ = 1)

30 V DC @0.5 A (resistive load)

**Maximum switching voltage:** 250 V AC or 120 V DC

**Maximum switching power:** 120 VA or 15 W (≤ 0.5 A)

**Minimum load:** 5 V DC @10 mA

**Mechanical life:**  $5 \times 10^7$  cycles

For maximum relay life with inductive loads, external protection is recommended.

### ■ Photo MOSFET Relay

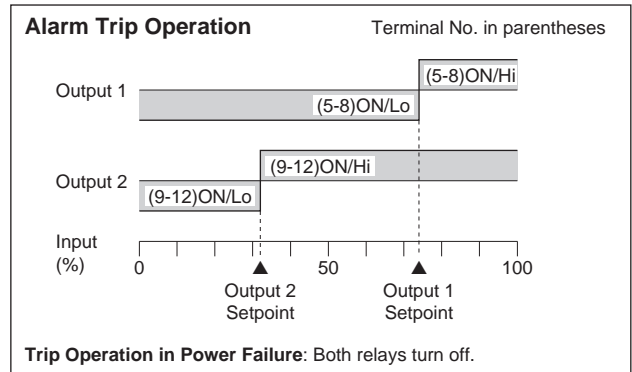
**Maximum switching voltage:** 30 V AC or 50 V DC

**Maximum switching current:** 0.5 A

**ON resistance:** ≤ 2 kΩ

**Leakage current at OFF:** ≤ 10 μA

For maximum relay life with inductive loads, external protection is recommended.



## 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

**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

**Setpoint monitor accuracy:** ±0.5 %

**Temp. coefficient:** ±0.05 %/°C (±0.03 %/°F)

**Response time:** ≤ 0.5 sec. (0 - 100 % at 90 % setpoint)

**Line voltage effect:** ±0.1 % over voltage range

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

**Dielectric strength:** 2000 V AC @1 minute (input to output 1 to output 2 to power to ground)

## STANDARDS & APPROVALS

### EU conformity:

EMC Directive

EMI EN 61000-6-4

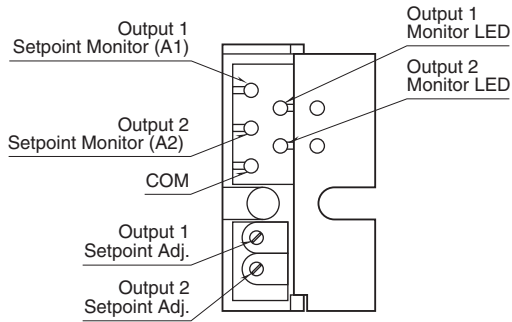
EMS EN 61000-6-2

Low Voltage Directive

EN 61010-1

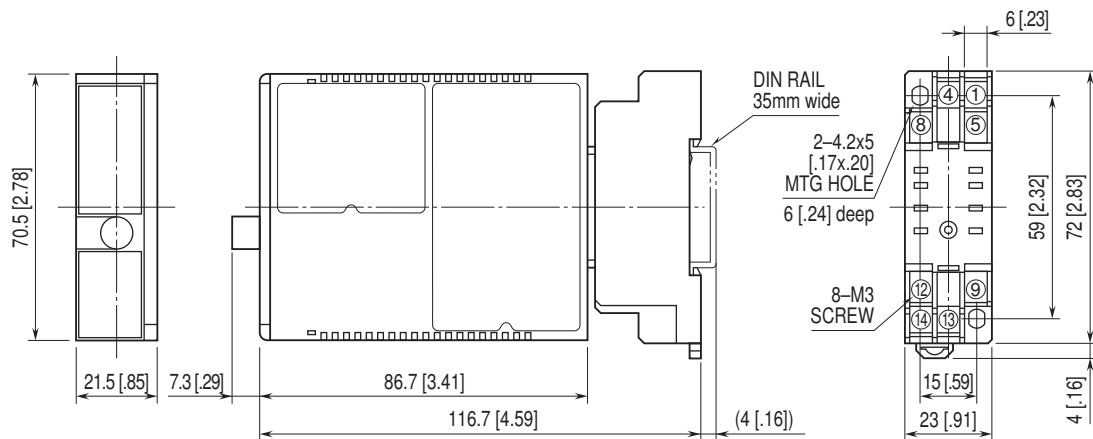
Measurement Category II (output)  
 Installation Category II (power)  
 Pollution Degree 2  
 Input to output to power: Basic insulation (300 V)  
 RoHS Directive

## FRONT VIEW



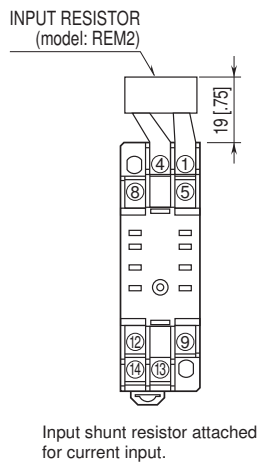
Refer to the instruction manual for detailed procedures.

## EXTERNAL DIMENSIONS unit: mm [inch]

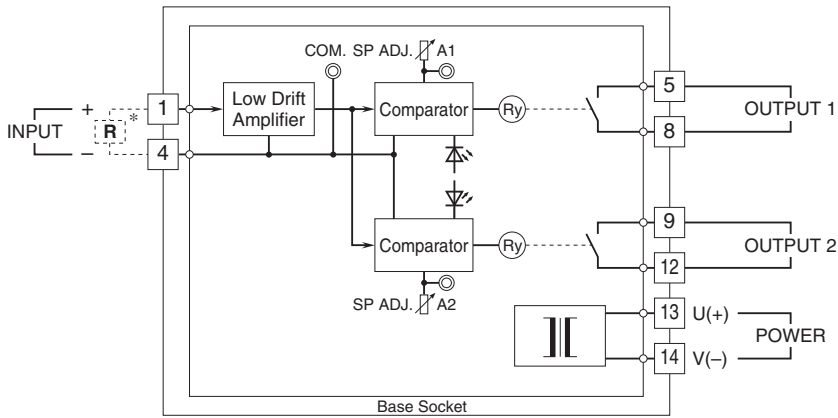


• When mounting, no extra space is needed between units.

## TERMINAL ASSIGNMENTS unit: mm [inch]



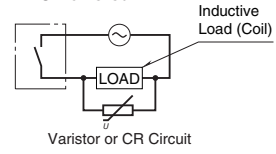
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



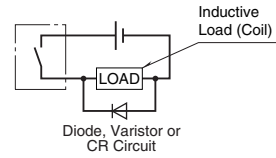
\*Input shunt resistor attached for current input.

### ■ Relay Protection

#### • AC Powered



#### • DC Powered



Specifications are subject to change without notice.