

## Super-mini Signal Conditioners Mini-M Series

### DC ALARM

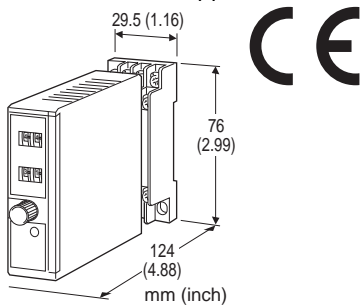
(thumbwheel switch adjustment; DPDT output)

#### Functions & Features

- Provides a DPDT relay output at a preset DC input level
- Thumbwheel switch setpoint adjustments
- Adjustable deadband
- Latching or non-latching output
- Relays energized or de-energized at tripped condition
- CE marking

#### Typical Applications

- Annunciator
- Various alarm applications



### MODEL: M2AS-[1][2][3][4][5]-[6][7]

#### ORDERING INFORMATION

- Code number: M2AS-[1][2][3][4][5]-[6][7]  
Specify a code from below for each [1] through [7].  
(e.g. M2AS-6111S-M2/CE/Q)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

Note: Must be used with its socket. NOT installable to a multi-unit installation base. (e.g. model: M2BS-16)

#### [1] INPUT

##### Current

A: 4 - 20 mA DC (Input resistance 250 Ω)

##### Voltage

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.)

#### [2] ALARM OUTPUT

1: Hi (coil energized at alarm)

2: Hi (coil de-energized at alarm)

3: Lo (coil energized at alarm)

4: Lo (coil de-energized at alarm)

#### [3] ON DELAY TIME

1: 0.05 second

2: 0.1 second

3: 0.2 second

4: 0.5 second

5: 1 second

6: 2 seconds

7: 5 seconds

8: 10 seconds

#### [4] POWER ON DELAY TIME

1: 1 second

2: 2 seconds

3: 3 seconds

4: 4 seconds

#### [5] RELAY TYPE

N: Standard type

S: Enclosed type

#### [6] 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.)

#### [7] 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 M-System's web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

##### TERMINAL SCREW MATERIAL

/S01: Stainless steel

## GENERAL SPECIFICATIONS

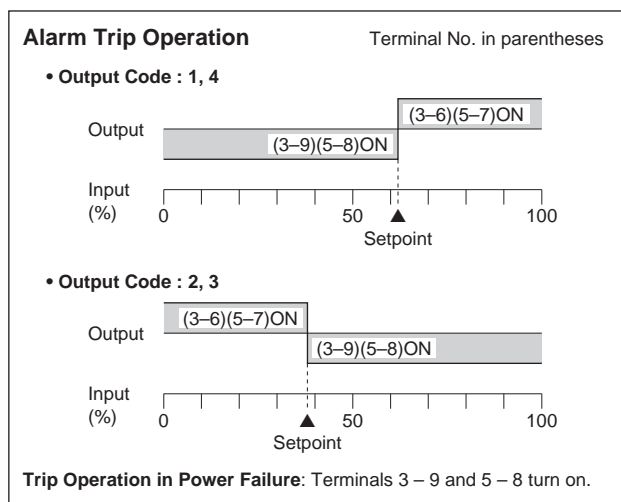
**Construction:** Plug-in  
**Connection:** M3 screw terminals (torque 0.8 N·m)  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to output to power  
**Overrange input:** -14 to +113.5 %  
 When the relay's untripped point relative to the preset alarm setpoint and deadband is out of this range, the relay remains latched.  
**Setpoint adjustments:** Thumbwheel switches (front); 0 - 99 % independently; 1 % increments  
**Deadband (hysteresis) :** Thumbwheel switches (front); 1 - 99 % independently; 1 % increments (latching output when set to 00)  
**Front LEDs:** Red light turns on when the coil is energized.  
**Reset input:** Latched output reset with the front control button or remotely via base socket terminals.

## INPUT SPECIFICATIONS

■ **DC Current:**  
 Shunt resistor attached to the input terminals (0.5 W)  
 ■ **Reset Contact Input**  
**ON resistance:** ≤ 1 kΩ  
**OFF resistance:** ≥ 50 kΩ

## OUTPUT SPECIFICATIONS

■ **Relay Contact:**  
 120 V AC @5 A (cos φ = 1)(120 V @3 A with enclosed relay)  
 240 V AC @2.5 A (cos φ = 1)  
 30 V DC @5 A (resistive load)  
**Maximum switching voltage:** 250 V AC or 30 V DC  
**Maximum switching power:** 600 VA (360 VA with enclosed relay) or 150 W  
**Minimum load:** 5 V DC @10 mA  
**Mechanical life:** 5 × 10<sup>7</sup> cycles



## INSTALLATION

**Power Consumption**  
 • **AC Power input:**  
 Approx. 3 VA at 100 V  
 Approx. 4 VA at 200 V  
 Approx. 5 VA at 264 V  
 • **DC power input:** 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  
 Installation Base (model: M2BS) is not adaptable.  
**Weight:** 150 g (0.33 lbs)

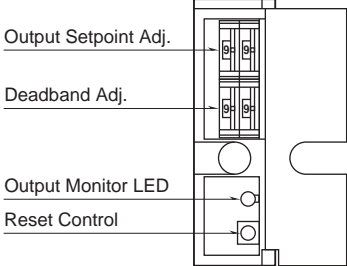
## PERFORMANCE in percentage of span

**Setpoint accuracy:** ±0.5 %  
**Deadband setpoint accuracy:** ±0.5 %  
**Delay time (response time with 90 % setpoint for a step input 0 - 100 %)**  
**Codes 1, 2:** Rating ±25 msec.  
**Codes 3 to 8:** Rating ±20 %  
**Power ON timer:** Rating ±0.5 sec.  
**Trip point repeatability:** ±0.05 %  
**Temp. coefficient:** ±0.015 %/°C (±0.008 %/°F)  
**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 to power to ground)

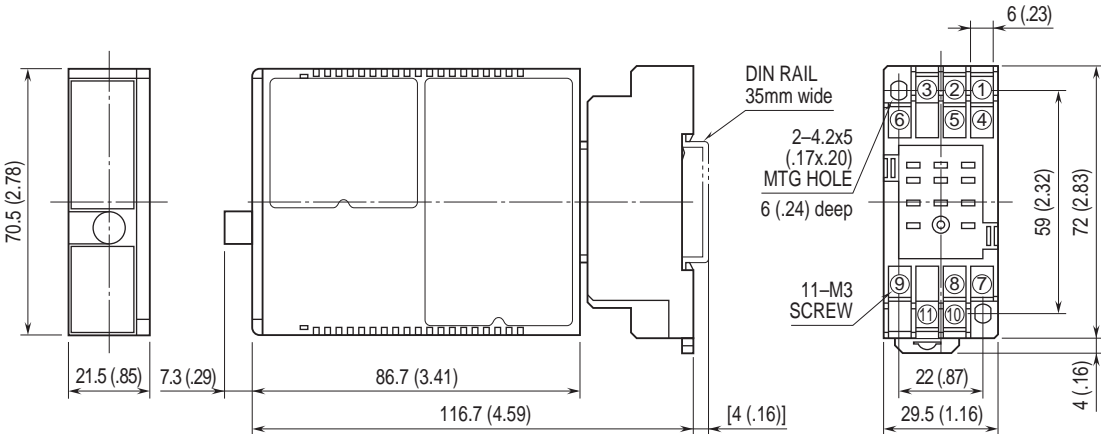
## STANDARDS & APPROVALS

**CE conformity:**  
 EMC Directive (2004/108/EC)  
 EMI EN 61000-6-4: 2007  
 EMS EN 61000-6-2: 2005  
 Low Voltage Directive (2006/95/EC)  
 EN 61010-1: 2001  
 Installation Category II  
 Pollution Degree 2  
 Input or output to power: Reinforced insulation (300 V)  
 Input to output: Basic insulation (300 V)

**EXTERNAL VIEW**

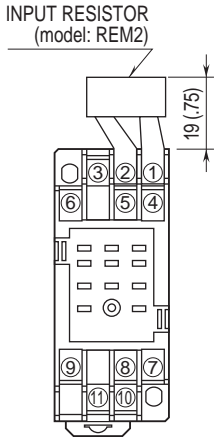


**DIMENSIONS unit: mm (inch)**



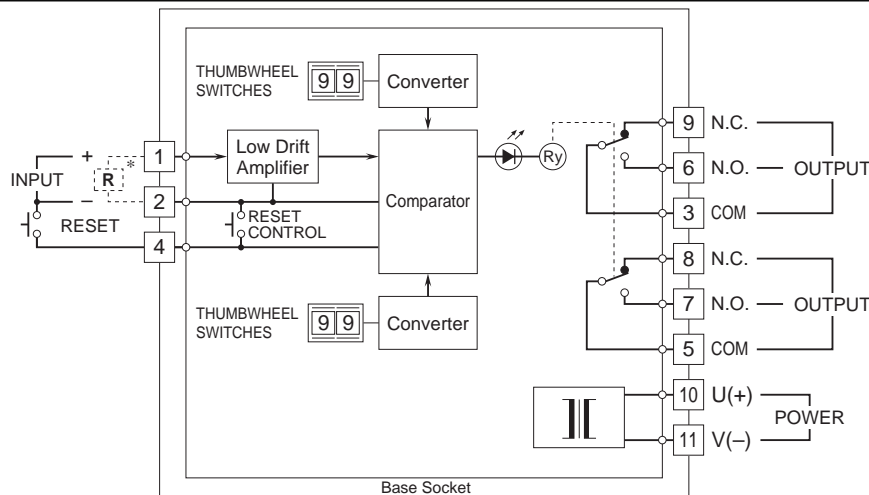
• When mounting, no extra space is needed between units.

**TERMINAL ASSIGNMENTS unit: mm (inch)**



Input shunt resistor attached for current input.

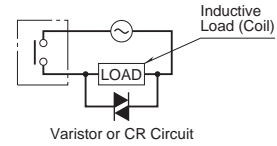
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



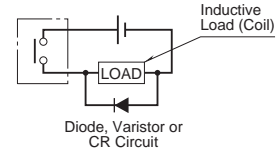
\*Input shunt resistor attached for current input.

### Relay Protection

#### AC Powered



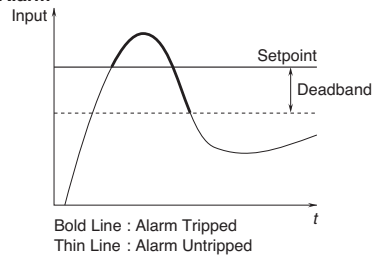
#### DC Powered



## FUNCTIONS

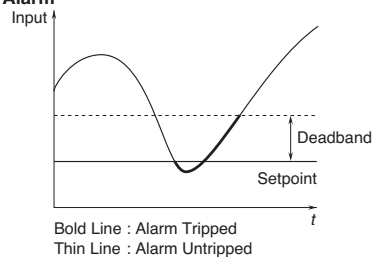
■ **HIGH ALARM:** When the signal input exceeds the preset setpoint, the relay provides a tripped condition.

#### Hi Alarm



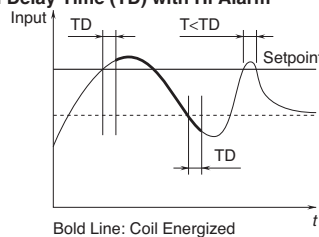
■ **LOW ALARM:** When the signal input goes below the preset setpoint, the relay provides a tripped condition.

#### Lo Alarm



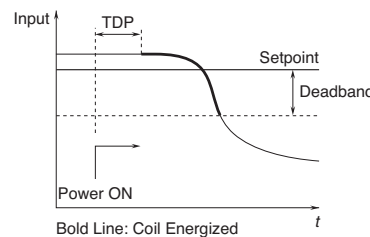
■ **ON DELAY TIME:** The relay status does not change until after the preset ON Delay Time (TD) once the signal input goes across the threshold.

#### ON Delay Time (TD) with Hi Alarm



■ **POWER ON DELAY TIME:** The relay does not provide a tripped condition for a duration of the preset Power ON Delay Time (TDP) after the power supply is turned on, even when the signal input is in an alarm range.

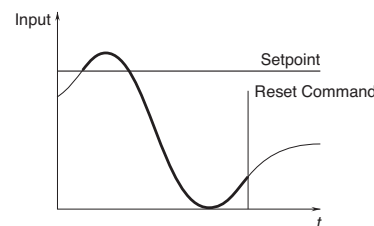
#### Power ON Delay Time (TDP) with Hi Alarm



■ **LATCHING OUTPUT:** The relay does not return to an untripped condition once the signal input goes across the threshold, unless:

- (1) the Reset control button is pressed,
- (2) the Reset input terminal is closed, or
- (3) the power supply is removed.

#### Latching Output with Hi Alarm





Specifications are subject to change without notice.