

## Super-mini Signal Conditioners Mini-M Series

### DC ALARM

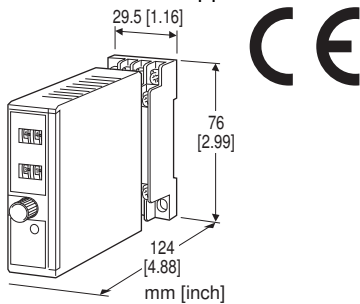
(thumbwheel switch adjustment; DPDT output)

#### 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

#### 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 of [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
- /C04: Polyolefin coating

##### TERMINAL SCREW MATERIAL

- /S01: Stainless steel

## GENERAL SPECIFICATIONS

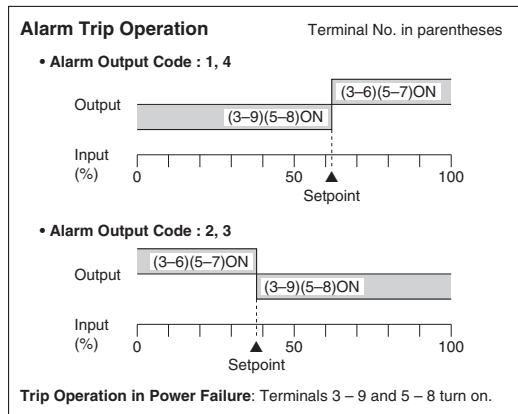
**Construction:** Plug-in  
**Connection:** M3 screw terminals (torque 0.8 N·m)  
**Screw terminal:** Chromated steel (standard) or stainless steel  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to output to power  
**Overrange input:** -14 to +113.5 %  
 When the relay's 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 LED 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  
 Detecting level: ≤ 0.43 V  
**OFF resistance:** ≥ 50 kΩ  
 Detecting level: ≥ 4 V

## 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:**  
 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  
 Installation Base (model: M2BS) is not adaptable.  
**Weight:** 150 g (0.33 lb)

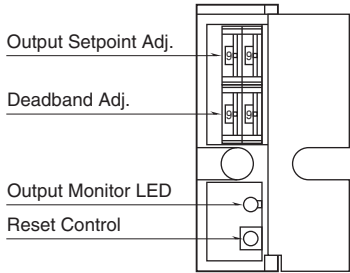
## PERFORMANCE in percentage of span

**Setpoint accuracy:** ±0.5 %  
**Deadband setpoint accuracy:** ±0.5 %  
**Power ON timer:** Rating ±0.5 sec.  
**Trip point repeatability:** ±0.05 %  
**Temp. coefficient:** ±0.015 %/°C (±0.008 %/°F)  
**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 %  
**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)

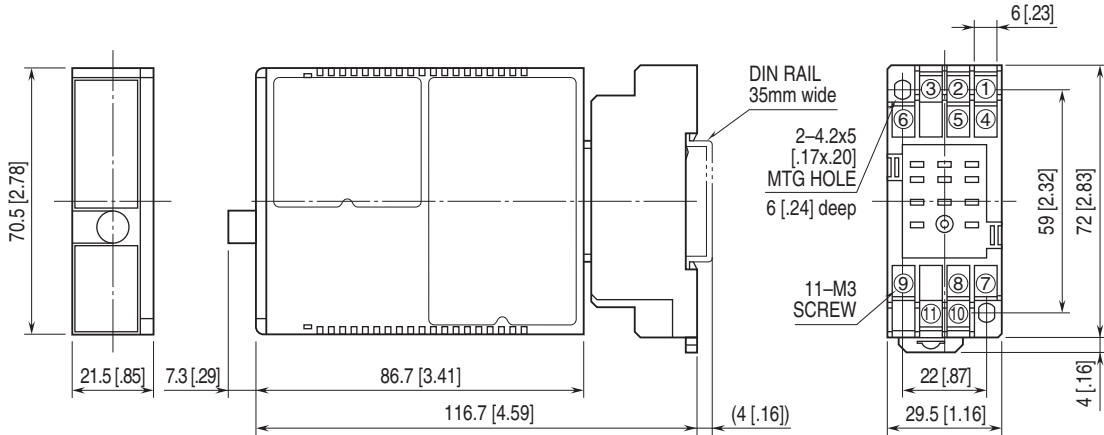
## STANDARDS & APPROVALS

**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 or output to power: Reinforced insulation (300 V)  
 Input to output: Basic insulation (300 V)  
 RoHS Directive

**EXTERNAL VIEW**

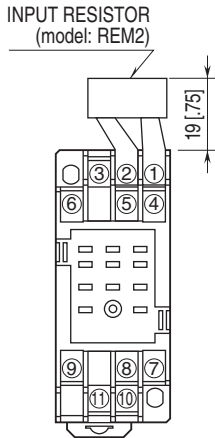


**EXTERNAL DIMENSIONS unit: mm [inch]**



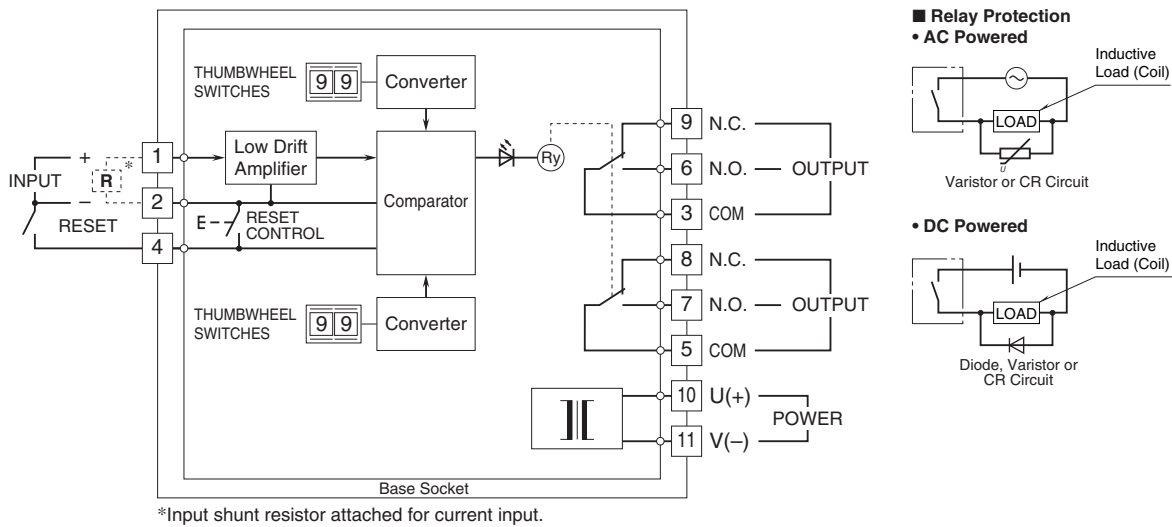
• When mounting, no extra space is needed between units.

**TERMINAL ASSIGNMENTS unit: mm [inch]**



Input shunt resistor attached for current input.

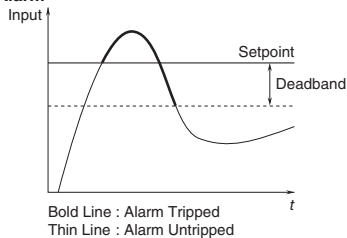
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



## FUNCTIONS

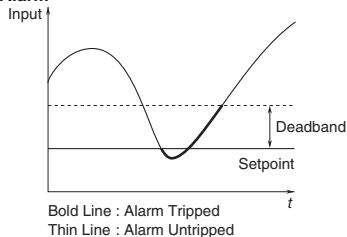
■ **HIGH ALARM:** When the signal input exceeds the preset setpoint, the relay provides a tripped condition.

• **Hi Alarm**



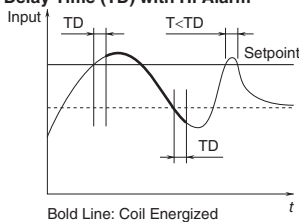
■ **LOW ALARM:** When the signal input goes below the preset setpoint, the relay provides a tripped condition.

• **Lo Alarm**



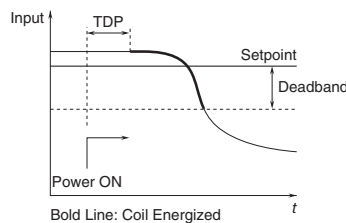
■ **ON DELAY TIME:** The relay status does not change until after the preset ON Delay Time (TD) once the signal input goes across the threshold.

• **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.

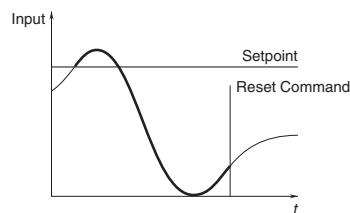
• **Power ON Delay Time (TDP) with Hi Alarm**



■ **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.