

## Super-mini Signal Conditioners Mini-M Series

### DC ALARM

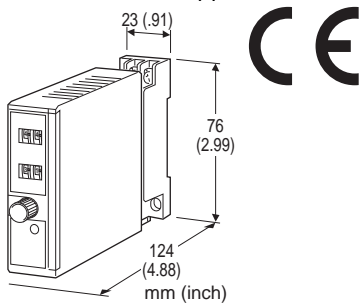
(thumbwheel switch adjustment; single SPDT output)

#### Functions & Features

- Provides a SPDT 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: M2AS1-[1][2][3][4]-[5][6]

### ORDERING INFORMATION

- Code number: M2AS1-[1][2][3][4]-[5][6]  
Specify a code from below for each [1] through [6].  
(e.g. M2AS1-6111-M2/CE/Q)
- Specify the specification for option code /Q  
(e.g. /C01/S01)

### [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] 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.)

### [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 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

**Hysteresis (deadband):** Thumbwheel switches (front);  
1 - 99 % independently; 1 % increments  
(latching output when set to 00)

**Front LED:** 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)

240 V AC @2.5 A (cos φ = 1)

30 V DC @5 A (resistive load)

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

**Maximum switching power:** 600 VA or 150 W

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

**Mechanical life:** 5 × 10<sup>7</sup> cycles

• **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)

EN 61000-6-4 (EMI)

EN 61000-6-2 (EMS)

Low Voltage Directive (2006/95/EC)

EN 61010-1

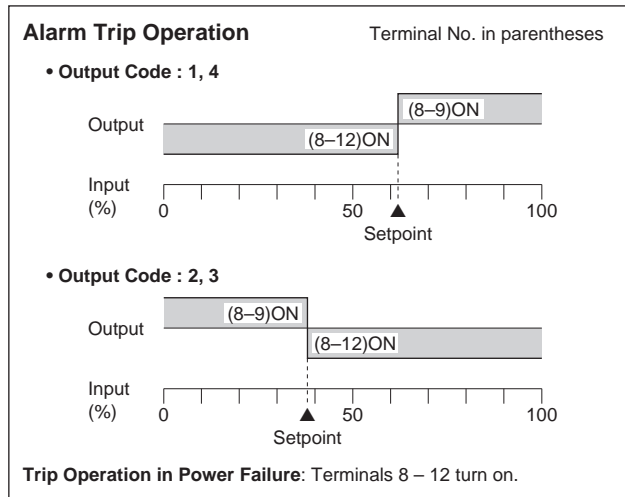
Installation Category II

Pollution Degree 2

Max. operating voltage 300 V

Input or output to power: Reinforced insulation

Input to output: Basic insulation



## INSTALLATION

**Power Consumption**

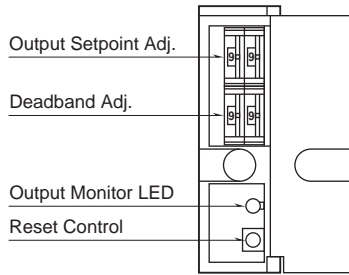
• **AC Power input:**

Approx. 3 VA at 100 V

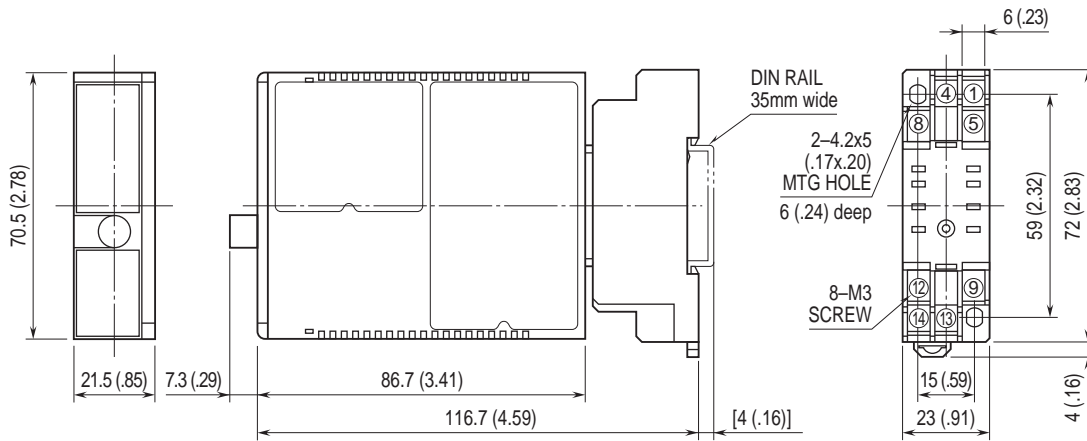
Approx. 4 VA at 200 V

Approx. 5 VA at 264 V

## EXTERNAL VIEW

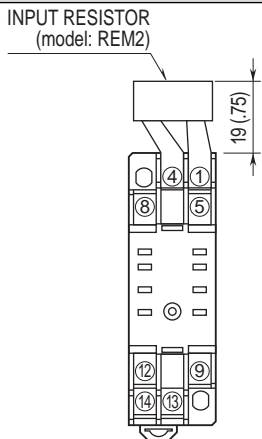


## DIMENSIONS unit: mm (inch)



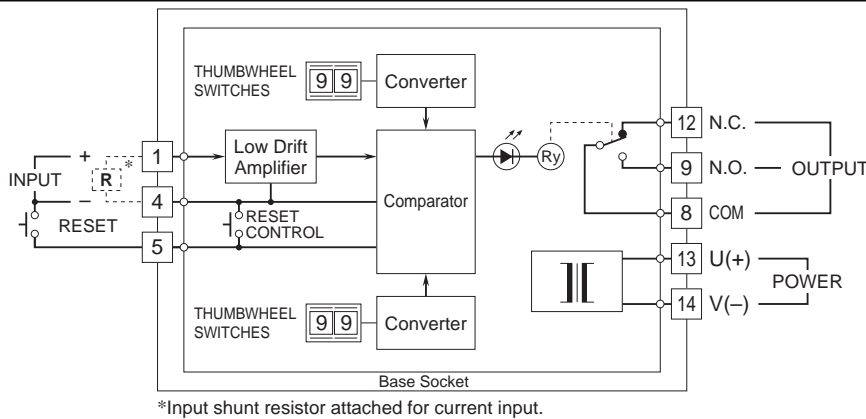
• When mounting, no extra space is needed between units.

## TERMINAL ASSIGNMENTS unit: mm (inch)



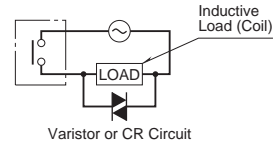
Input shunt resistor attached for current input.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

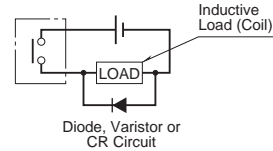


### Relay Protection

#### AC Powered



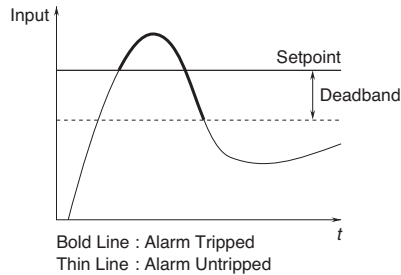
#### DC Powered



## FUNCTIONS

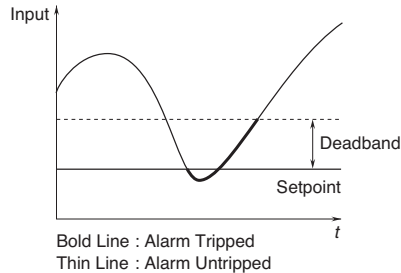
■ **HIGH ALARM:** When the signal input exceeds the preset setpoint, the relay provides a tripped condition.

#### Hi Alarm



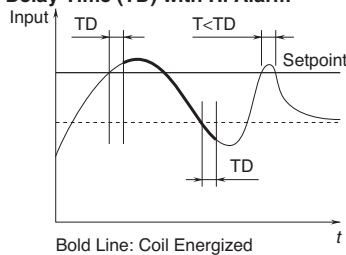
■ **LOW ALARM:** When the signal input goes below the preset setpoint, the relay provides a tripped condition.

#### Lo Alarm



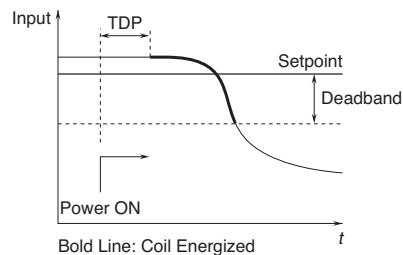
■ **ON DELAY TIME:** The relay status does not change until after the preset ON Delay Time (TD) once the signal input goes across the threshold.

#### 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.

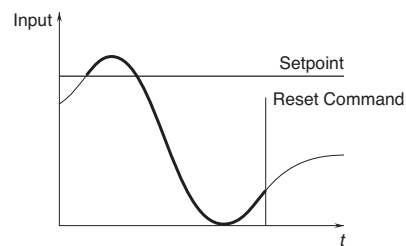
#### Power ON Delay Time (TDP) with Hi Alarm



■ **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.