

**Super-mini Signal Conditioners *Mini-M Series***

**DC ALARM**  
(thumbwheel switch adjustment; DPDT output)

MODEL **M2AS**

**MODEL & SUFFIX CODE SELECTION**

M2AS-□□□□□□□□

MODEL \_\_\_\_\_

INPUT \_\_\_\_\_

<b>Current</b>	<b>Voltage</b>
A : 4 – 20mA DC	4 : 0 – 10V DC
	5 : 0 – 5V DC
	6 : 1 – 5V DC

**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)

**ON DELAY TIME** \_\_\_\_\_

1 : 0.05 second	5 : 1 second
2 : 0.1 second	6 : 2 seconds
3 : 0.2 second	7 : 5 seconds
4 : 0.5 second	8 : 10 seconds

**POWER ON DELAY TIME** \_\_\_\_\_

1 : 1 second  
 2 : 2 seconds  
 3 : 3 seconds  
 4 : 4 seconds

**RELAY TYPE** \_\_\_\_\_

N : Standard type  
 S : Enclosed type

**POWER INPUT** \_\_\_\_\_

<b>AC Power</b>	<b>DC Power</b>
M2 : 100 – 240V AC	R : 24V DC
	R2: 11 – 27V DC*
	P : 110V DC

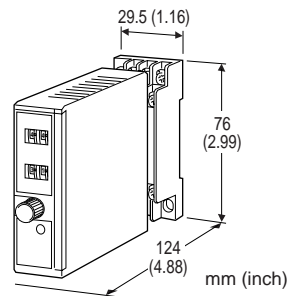
\*CE not available

**STANDARDS & APPROVALS** \_\_\_\_\_

/N : Without CE  
 /CE: CE marking

**ORDERING INFORMATION**

Specify code number. (e.g. M2AS-6111S-M2/CE)



**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
  - Flexible power input
  - High-density mounting
  - CE marking
- Typical Applications**
- Annunciator
  - Various alarm applications

**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
- Setpoint adjustment:** 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.
- 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.
- Reset input:** Latched output reset with the front control button or remotely via base socket terminals.

## INPUT & OUTPUT

### INPUT

• **DC Current:** 4 – 20mA DC; shunt resistor attached to input terminals (0.5W)

**Input resistance:** 250Ω

• **DC Voltage:** 0 – 10V DC, 0 – 5V DC or 1 – 5V DC

**Input resistance:** 1MΩ minimum

### RESET CONTACT INPUT

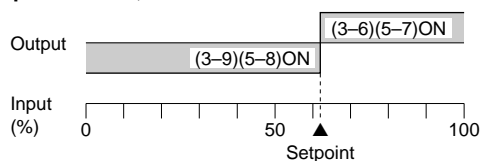
**ON resistance:** ≤1kΩ

**OFF resistance:** ≥50kΩ

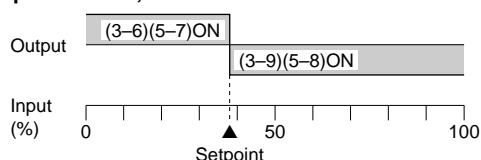
### OUTPUT

**Alarm Trip Operation** Terminal No. in parentheses

• **Output Code : 1, 4**



• **Output Code : 2, 3**



**Trip Operation in Power Failure**

: Terminals 3 – 9, 5 – 8 turn ON.

• **Relay Contact:** 120V AC @5A ( $\cos\phi=1$ )\*

240V AC @2.5A ( $\cos\phi=1$ )

30V DC @5A (resistive load)

Electrical life  $10^5$  cycles (rate 30/min.)

**Maximum switching voltage:** 250V AC or 30V DC

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

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

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

\*120V @3A with enclosed relay

\*\*360VA with enclosed relay

## INSTALLATION

### Power input

**AC:** Operational voltage range 85 – 264V;  
47 – 66 Hz;

approx. 3VA at 100V

approx. 4VA at 200V

approx. 5VA at 264V

**DC:** Operational voltage range for R: 24V

±10%, R2: 11 – 27V, or P: 85 – 150V;

ripple 10% p-p max.; approx. 3W

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

**Operating humidity:** 30 to 90% RH (non-condensing)

**Mounting:** surface or DIN rail

**Dimensions:** W29.5×H76×D124 mm (1.16"×2.99"×4.88")

**Weight:** 150 g (0.33 lbs)

## PERFORMANCE in percentage of span

**Alarm 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 – 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:** ≥100MΩ with 500V DC

**Dielectric strength:** 2000V AC @1 minute

(input to output to power to ground)

## STANDARDS & APPROVALS

**CE conformity:** EMC Directive (89/336/EEC)

EMI EN61000-6-4

EMS EN61000-6-2

Low Voltage Directive (73/23/EEC)

Installation category II

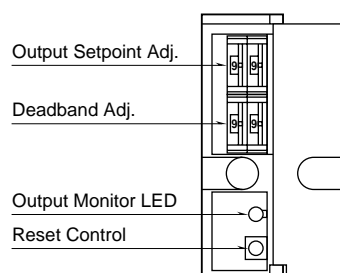
Pollution degree 2

Max. operating voltage 300V

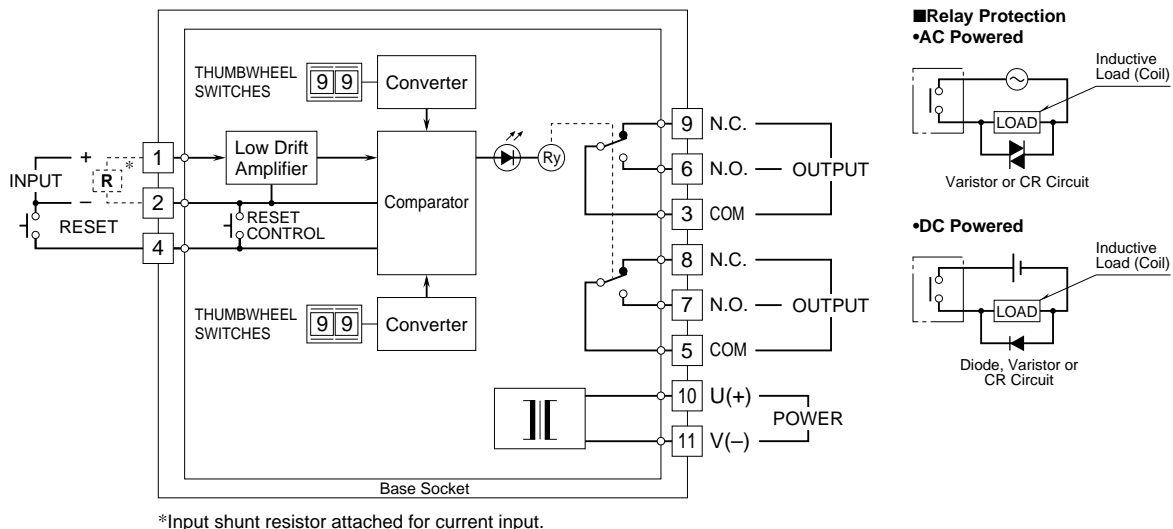
Input or output to power – Reinforced insulation

Input to output – Basic insulation

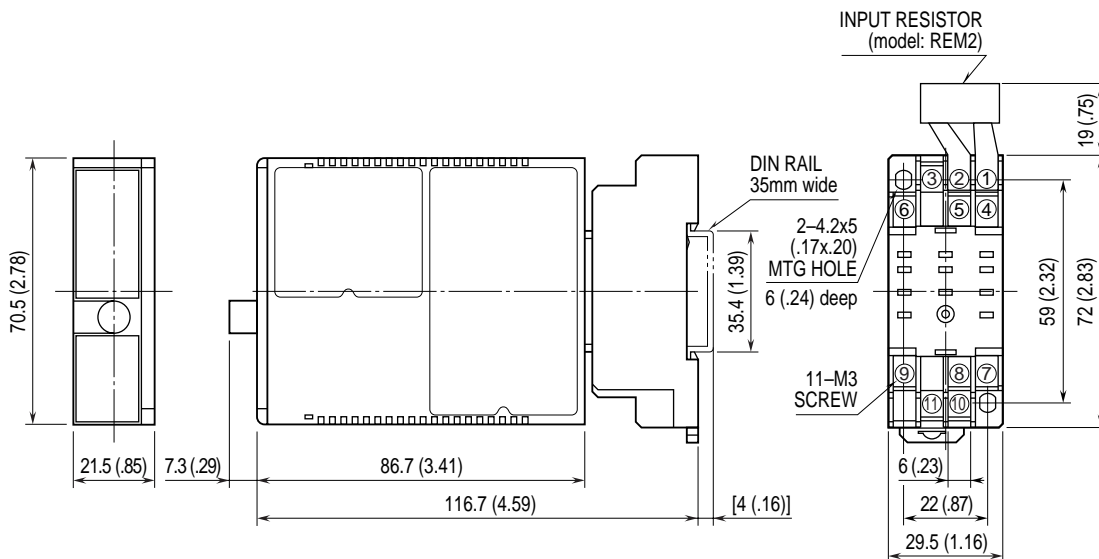
## FRONT PANEL CONFIGURATION



## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS mm (inch)

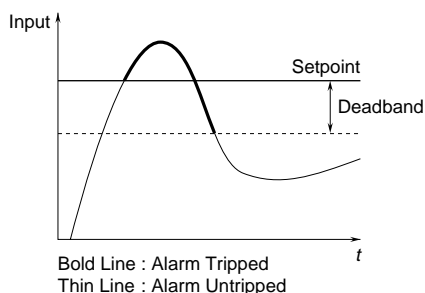


- When mounting, no extra space is needed between units.
- Input shunt resistor attached for current input.

## ALARM OPERATION & EFFECT OF TIMERS

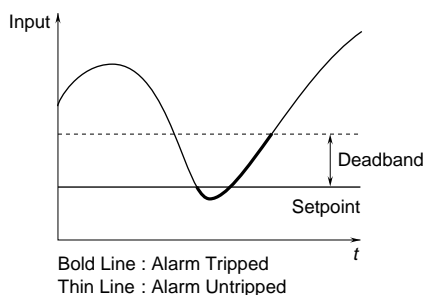
■ **HIGH ALARM:** When the signal input exceeds the preset setpoint, the relay provides a tripped condition.

### • Hi Alarm



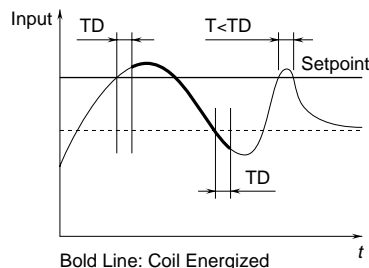
■ **LOW ALARM:** When the signal input goes below the preset setpoint, the relay provides a tripped condition.

### • Lo Alarm



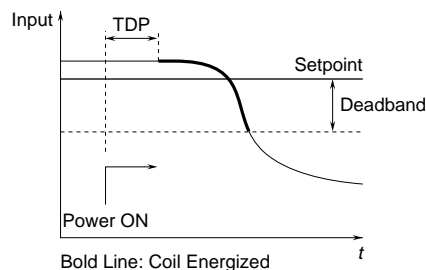
■ **ON DELAY TIME:** The relay status does not change until after the preset ON Delay Time (TD) once the signal input goes across the threshold.

### • 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

