Super-mini Signal Conditioners Mini-M Series

DC ALARM

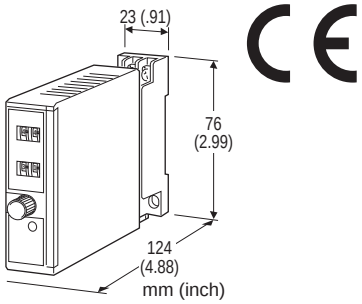
(thumbwheel switch adjustment; single SPDT output)

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

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 of [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)
Screw terminal: Chromated steel (standard) or stainless steel

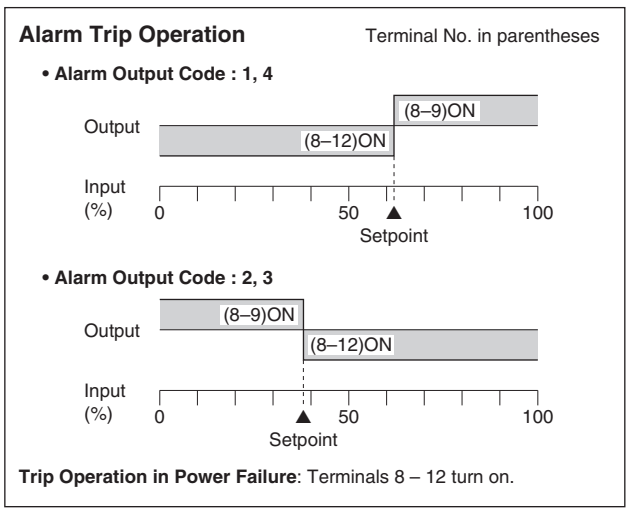
Housing material: Flame-resistant resin (black)
Isolation: Input to output to power
Overrange input: -14 to +113.5 %
When the relay's untripped point relative to the preset alarm setpoint and deadband is out of this range, the relay remains latched.
Setpoint adjustments: Thumbwheel switches (front); 0 – 99 % independently; 1 % increments
Deadband (hysteresis) : Thumbwheel switches (front); 1 – 99 % independently; 1 % increments
(latching output when set to 00)
Front 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
Detecting level: ≤ 0.43 V
OFF resistance: ≥ 50 kΩ
Detecting level: ≥ 4 V

OUTPUT SPECIFICATIONS

■ **Relay Contact:**
120 V AC @5 A (cos ø = 1)
240 V AC @2.5 A (cos ø = 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 × 10^7 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)

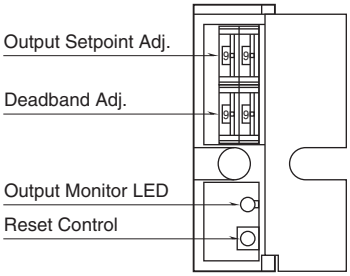
PERFORMANCE in percentage of span

Setpoint accuracy: ±0.5 %
Deadband setpoint accuracy: ±0.5 %
Power ON timer: Rating ±0.5 sec. or 20 %, whichever is greater.
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)

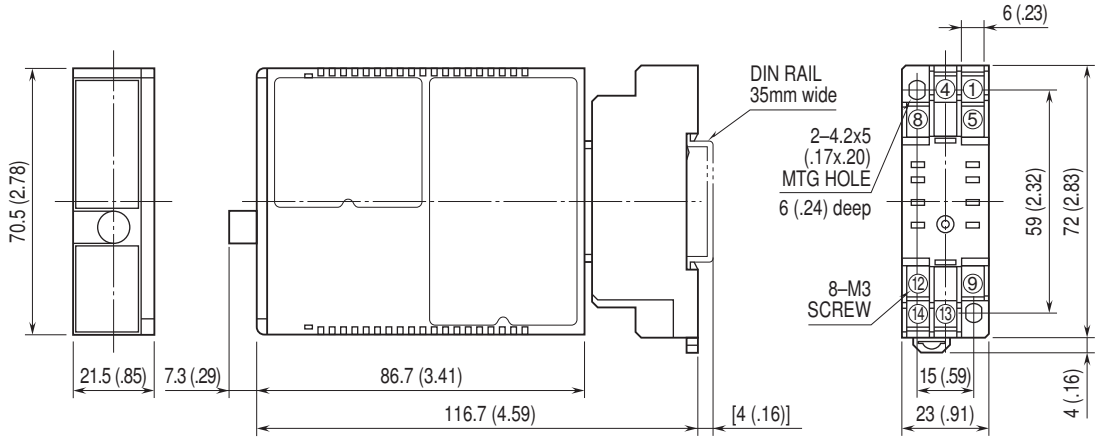
STANDARDS & APPROVALS

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
EN 50581

EXTERNAL VIEW

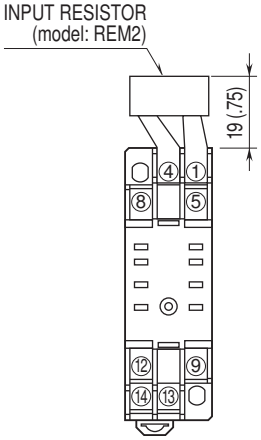


EXTERNAL DIMENSIONS unit: mm (inch)



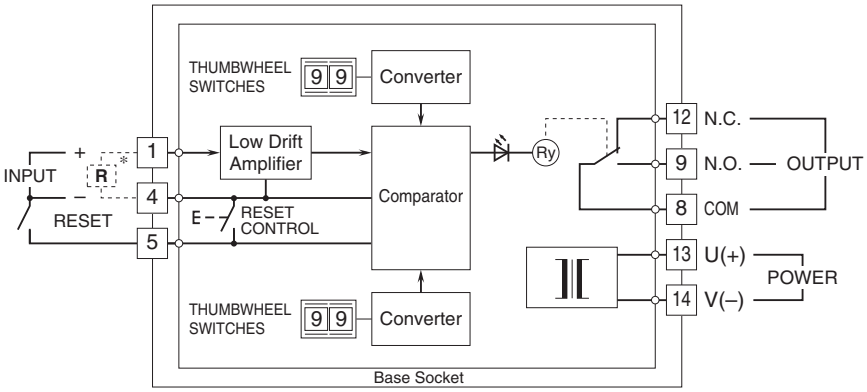
• When mounting, no extra space is needed between units.

TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached
for current input.

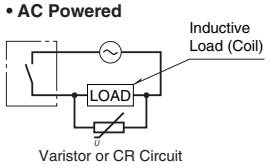
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



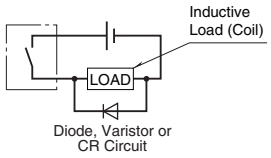
*Input shunt resistor attached for current input.

■ **Relay Protection**

• **AC Powered**



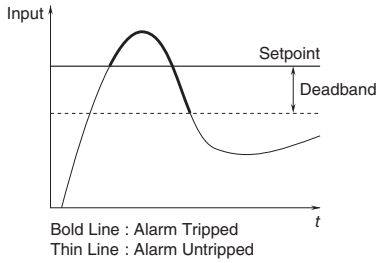
• **DC Powered**



FUNCTIONS

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

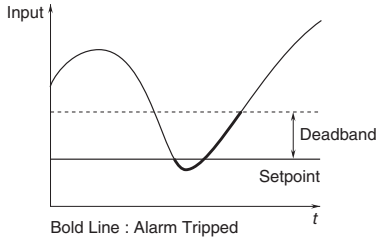
• **Hi Alarm**



Bold Line : Alarm Tripped
Thin Line : Alarm Untripped

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

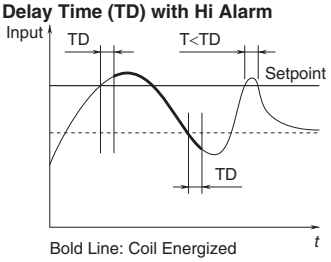
• **Lo Alarm**



Bold Line : Alarm Tripped
Thin Line : Alarm Untripped

■ **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.

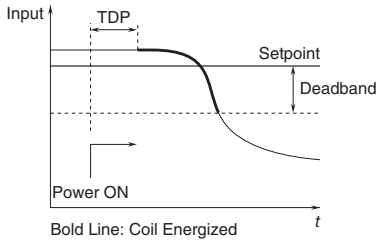
• **ON Delay Time (TD) with Hi Alarm**



Bold Line: Coil Energized

■ **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.

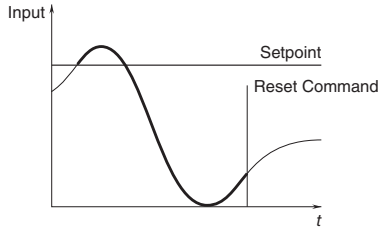
• **Power ON Delay Time (TDP) with Hi Alarm**



Bold Line: Coil Energized

■ **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.

M-SYSTEM CO., LTD.
http://www.m-system.co.jp/