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 [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

MODEL: M2AS1

ES-5064 Rev.11 Page 1/5
**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 × 10⁷ 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 +65°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

### STANDARDS & APPROVALS

**EU conformity:**

- **EMC Directive**
  - EMI EN 61000-6-4
  - EMS EN 61000-6-2
- **Low Voltage Directive**
  - EN 61010-1
  - Installation Category II
  - 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**

- Output Setpoint Adj.
- Deadband Adj.
- Output Monitor LED
- Reset Control

**DIMENSIONS unit: mm (inch)**

![Diagram of dimensions](image)

- DIN RAIL 35mm wide
- 4 (.16)
- 8–M3 SCREW
- 6 (.24) deep
- 116.7 (4.59)

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

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

![Diagram of terminal assignments](image)

- INPUT RESISTOR (model: REM2)
- 10.7 (0.42)

*Input shunt resistor attached for current input.*
FUNCTIONS

- **HIGH ALARM**: When the signal input exceeds the preset setpoint, the relay provides a tripped condition.
  - Hi Alarm
    - Input
    - Setpoint
    - Deadband
    - 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
    - Input
    - Setpoint
    - Deadband
    - 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
    - Input
    - TD
    - T<TD
    - Setpoint
    - TD
    - 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
    - Input
    - TDP
    - Setpoint
    - Deadband
    - 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
    - Input
    - Setpoint
    - Reset Command
    - Bold Line: Coil Energized
Specifications are subject to change without notice.