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 [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
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 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)/(120 V @3 A with enclosed relay)
  - 240 V AC @2.5 A (cos ø = 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 × 10^7 cycles

**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)

**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)

**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)

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

TERMINAL ASSIGNMENTS unit: mm (inch)

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
  ![High Alarm Diagram]

■ LOW ALARM: When the signal input goes below the preset setpoint, the relay provides a tripped condition.
  • Lo Alarm
  ![Low Alarm Diagram]

■ 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
  ![On Delay Time Diagram]

■ 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
  ![Power ON Delay Time Diagram]

■ 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
  ![Latching Output Diagram]
⚠ Specifications are subject to change without notice.