

## Super-mini Signal Conditioners Mini-M Series

### DC ALARM

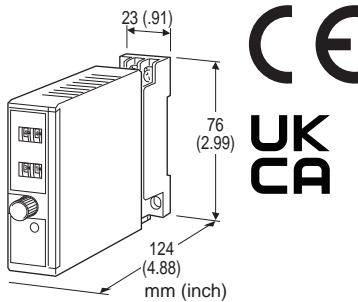
(thumbwheel switch adjustment; single SPDT output)

#### 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 or UKCA

**/CE:** CE marking

**/UK:** CE, UKCA 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 our web site.)

**/C01:** Silicone coating

**/C02:** Polyurethane coating

**/C03:** Rubber coating

**/C04:** Polyolefin 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 LED 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 φ = 1)

240 V AC @2.5 A (cos φ = 1)

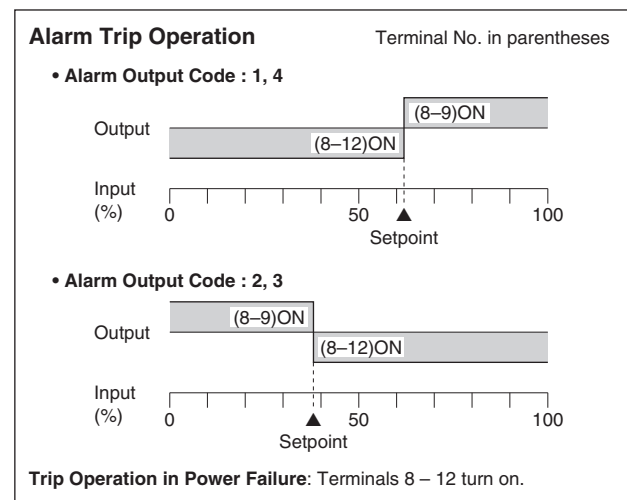
30 V DC @5 A (resistive load)

**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



## 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)

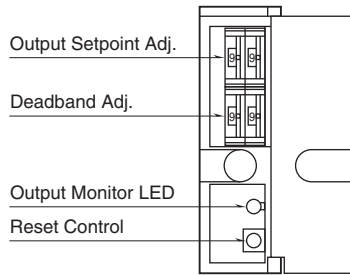
RoHS Directive

### UK conformity (UKCA):

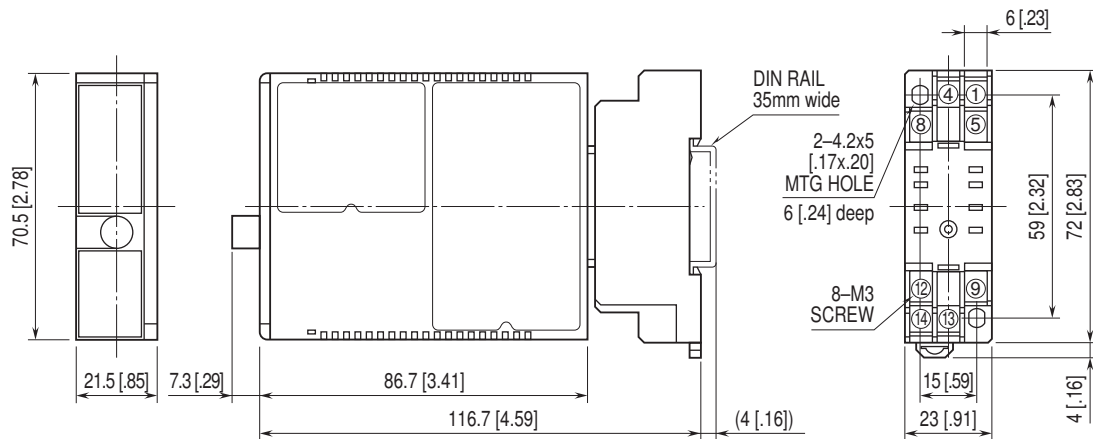
The UK legislations and designated standards are equivalent to the applicable EU directives.

(Refer to our website for more information about the legislations and designated standards.)

## EXTERNAL VIEW

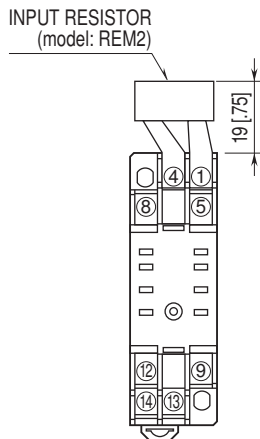


## EXTERNAL DIMENSIONS unit: mm [inch]



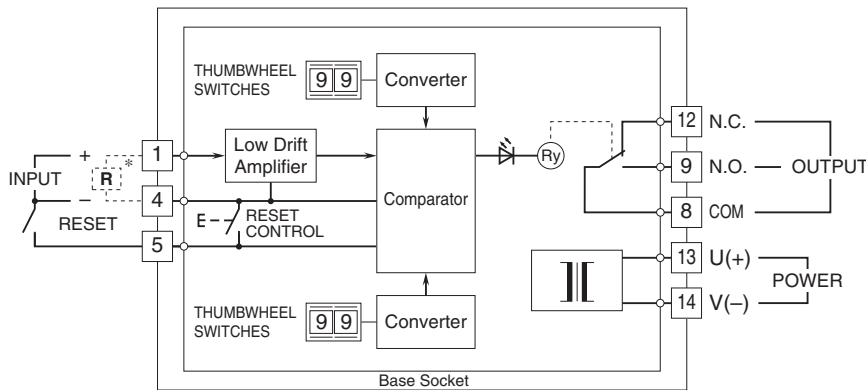
• When mounting, no extra space is needed between units.

## TERMINAL ASSIGNMENTS unit: mm [inch]

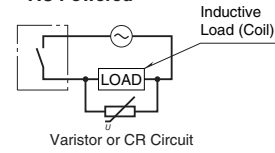


Input shunt resistor attached for current input.

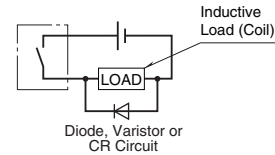
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



### Relay Protection • AC Powered



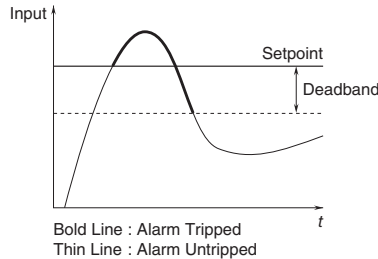
### • DC Powered



## FUNCTIONS

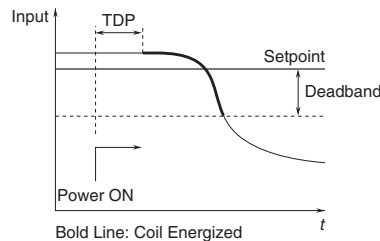
■ **HIGH ALARM:** When the signal input exceeds the preset setpoint, the relay provides a tripped condition.

### • Hi Alarm



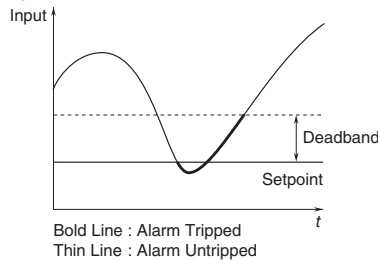
■ **POWER ON DELAY TIME:** The relay does not provide a tripped condition for a duration of the preset Power ON Delay Time (TDP) after the power supply is turned on, even when the signal input is in an alarm range.

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



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

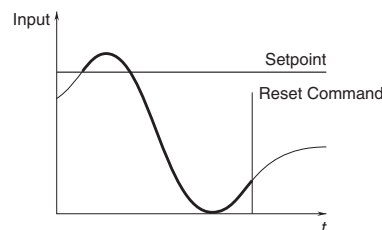
### • Lo Alarm



■ **LATCHING OUTPUT:** The relay does not return to an untripped condition once the signal input goes across the threshold, unless:

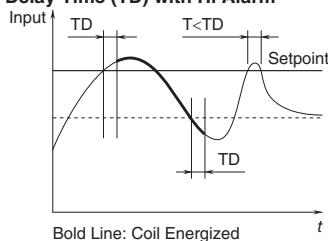
- (1) the Reset control button is pressed,
- (2) the Reset input terminal is closed, or
- (3) the power supply is removed.

### • Latching Output with Hi Alarm



■ **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





Specifications are subject to change without notice.