

## Plug-in Signal Conditioners M-UNIT

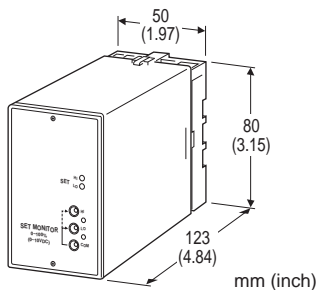
### DC ALARM

#### Functions & Features

- Providing relay contact closures at preset DC input levels
- Dual (Hi/Lo) trip
- Multi-turn screwdriver setpoint adjustments
- Monitor jacks provided for setpoint adjustments
- Enclosed relays
- Relays can be powered 110 V DC
- Isolation up to 2000 V AC
- High-density mounting

#### Typical Applications

- Annunciator
- Various alarm applications



### MODEL: AS-[1][2]-[3][4]

#### ORDERING INFORMATION

- Code number: AS-[1][2]-[3][4]

Specify a code from below for each [1] through [4].

- (e.g. AS-62-B/Q)
- Special input range (For codes Z & 0)
- Specify the specification for option code /Q (e.g. /C01/S01)

#### [1] INPUT

##### Current

- A: 4 - 20 mA DC (Input resistance 250 Ω)
- A1: 4 - 20 mA DC (Input resistance 50 Ω)
- B: 2 - 10 mA DC (Input resistance 500 Ω)
- C: 1 - 5 mA DC (Input resistance 1000 Ω)
- D: 0 - 20 mA DC (Input resistance 50 Ω)
- E: 0 - 16 mA DC (Input resistance 62.5 Ω)
- F: 0 - 10 mA DC (Input resistance 100 Ω)
- G: 0 - 1 mA DC (Input resistance 1000 Ω)
- H: 10 - 50 mA DC (Input resistance 100 Ω)
- J: 0 - 10 μA DC (Input resistance 1000 Ω)
- K: 0 - 100 μA DC (Input resistance 1000 Ω)

GW: -1 - +1 mA DC (Input resistance 1000 Ω)

FW: -10 - +10 mA DC (Input resistance 100 Ω)

Z: Specify current (See INPUT SPECIFICATIONS)

##### Voltage

- 1: 0 - 10 mV DC (Input resistance 10 kΩ min.)
- 15: 0 - 50 mV DC (Input resistance 10 kΩ min.)
- 16: 0 - 60 mV DC (Input resistance 10 kΩ min.)
- 2: 0 - 100 mV DC (Input resistance 100 kΩ min.)
- 3: 0 - 1 V DC (Input resistance 1 MΩ min.)
- 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.)
- 4W: -10 - +10 V DC (Input resistance 1 MΩ min.)
- 5W: -5 - +5 V DC (Input resistance 1 MΩ min.)
- 0: Specify voltage (See INPUT SPECIFICATIONS)

#### [2] OUTPUT

- 1: Open collector
- 2: Relay; N.O. or make contact
- 3: Relay; N.C. or break contact
- 4: SSR

#### [3] POWER INPUT

##### AC Power

- B: 100 V AC
- C: 110 V AC
- D: 115 V AC
- F: 120 V AC
- G: 200 V AC
- H: 220 V AC
- J: 240 V AC

##### DC Power

- S: 12 V DC
- R: 24 V DC
- V: 48 V DC
- P: 110 V DC

#### [4] OPTIONS

/Q: With options (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:** M3.5 screw terminals  
**Screw terminal:** Chromated steel (standard) or stainless steel  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input to output to power  
**Setpoint adjustments:** Multi-turn screwdriver adjustments (front); 0 - 100% independently  
**Monitor jacks:** Output 0 - 10 V for 0 - 100 % setpoints  
**Hysteresis (deadband):** 0.5 - 1.0 %  
**Front LEDs:** Red lights turn on in tripped conditions  
**Power ON timer:** The output devices will not be driven for approx. 2 sec. after the power is turned on.

## INPUT SPECIFICATIONS

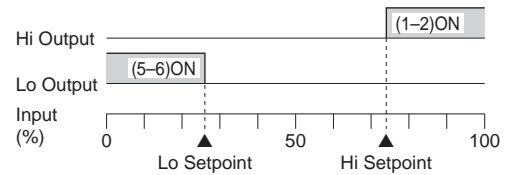
■ **DC Current:**  
 Shunt resistor attached to the input terminals (0.5 W)  
 Specify input resistance value for code Z.  
 ■ **DC Voltage:** -300 - +300 V DC  
**Minimum span:** 10 mV  
**Offset:** Max. 1.5 times span  
**Input resistance**  
 Span 10 - 100 mV :  $\geq 10 \text{ k}\Omega$   
 Span 0.1 - 1 V :  $\geq 100 \text{ k}\Omega$   
 Span  $\geq 1 \text{ V}$  :  $\geq 1 \text{ M}\Omega$

## OUTPUT SPECIFICATIONS

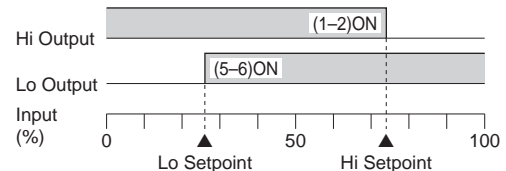
■ **Open Collector:** 50 V DC @100 mA  
**Voltage drop:**  $\leq 2 \text{ V}$   
 ■ **Relay Contact:** 100 V AC @1 A ( $\cos \phi = 1$ )  
 120 V AC @1 A ( $\cos \phi = 1$ )  
 240 V AC @0.5 A ( $\cos \phi = 1$ )  
 30 V DC @1 A (resistive load)  
**Maximum switching voltage:** 380 V AC or 125 V DC  
**Maximum switching power:** 120 VA or 30 W  
**Minimum load:** 5 V DC @10 mA  
**Mechanical life:**  $5 \times 10^7$  cycles  
 For maximum relay life with inductive loads, external protection is recommended.  
 ■ **SSR:** 60 - 280 V AC @0.1 - 1 A  
**Leakage current at OFF:** Approx. 10 mA (240 V AC)

## Alarm Trip Operation Terminal No. in parentheses

### •Output Code : 1, 2, 4



### •Output Code : 3



## Trip Operation in Power Failure

• **Output Code: 1, 2, 4:** both relays turn OFF  
 • **Output Code: 3:** both relays turn ON

## INSTALLATION

### Power input

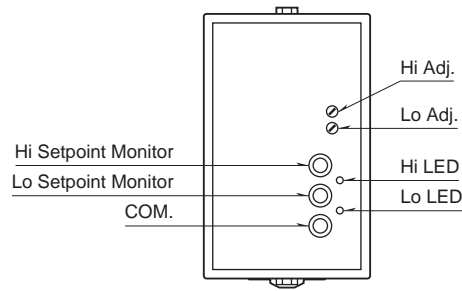
• **AC:** Operational voltage range: rating  $\pm 10 \%$ , 50/60  $\pm 2 \text{ Hz}$ , approx. 2 VA  
 • **DC:** Operational voltage range: rating  $\pm 10 \%$ , or 85 - 150 V for 110 V rating (ripple 10 % p-p max.)  
 Approx. 2 W (80 mA at 24 V)  
**Operating temperature:** -5 to +60°C (23 to 140°F)  
**Operating humidity:** 30 to 90 %RH (non-condensing)  
**Mounting:** Surface or DIN rail  
**Weight:** 400 g (0.88 lbs)

## PERFORMANCE in percentage of span

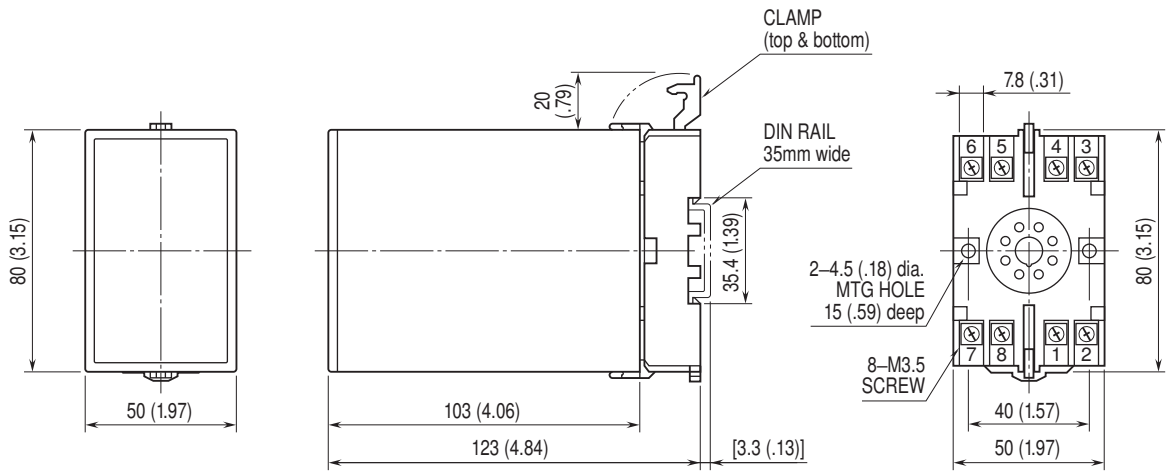
**Setpoint monitor accuracy:**  $\pm 0.5 \%$   
**Temp. coefficient:**  $\pm 0.015 \%/^{\circ}\text{C}$  ( $\pm 0.008 \%/^{\circ}\text{F}$ )  
**Response time:**  $\leq 0.5 \text{ sec.}$  (0 - 100 % at 90 % setpoint)  
**Line voltage effect:**  $\pm 0.1 \%$  over voltage range  
**Insulation resistance:**  $\geq 100 \text{ M}\Omega$  with 500 V DC  
**Dielectric strength:** 2000 V AC @1 minute (input to output to power to ground)



## EXTERNAL VIEW

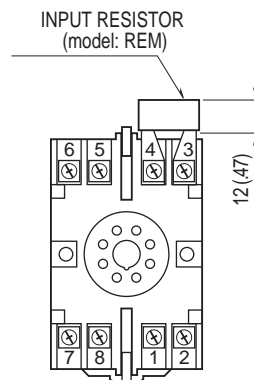


## DIMENSIONS unit: mm (inch)



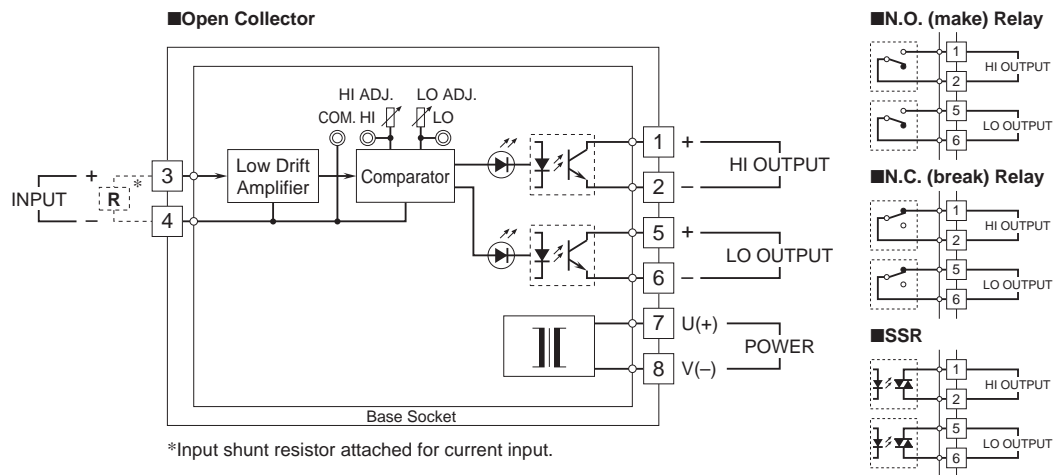
• When mounting, no extra space is needed between units.

## TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached for current input.

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.

