

Plug-in Signal Conditioners M-UNIT

POTENTIOMETER ALARM

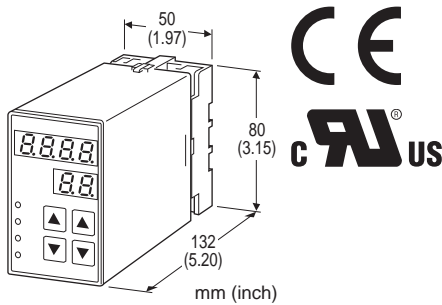
(dual or quad alarm trip; field-configurable)

Functions & Features

- Provides relay outputs at preset potentiometer resistance
- Quad or dual trip
- Setting and display in engineering unit values
- Setpoint adjustments with the front keypad
- Software lock
- Adjustable hysteresis (deadband)
- On-delay timer
- Hi/Lo trip and energized/de-energized coil independently selectable for each setpoint
- Enclosed relays
- Relays can be powered by 200 V AC and 100 V DC
- High-density mounting on DIN rail

Typical Applications

- Annunciator
- Various alarm applications



MODEL: AS4M-[1]-[2][3]

ORDERING INFORMATION

- Code number: AS4M-[1]-[2][3]
- Specify a code from below for each [1] through [3]. (e.g. AS4M-2-R/Q)
- Specify the specification for option code /Q (e.g. /C01/S01/SET)

INPUT POTENTIOMETER

Total resistance 100 Ω - 10 k Ω

[1] OUTPUT

- 2:** 4 points; N.O. or make contact
- 3:** 4 points; N.C. or break contact
- 5:** 2 points; SPDT or transfer contact

[2] POWER INPUT

AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)
(90 - 264 V for UL)

DC Power

R: 24 V DC
(Operational voltage range 24 V \pm 10 %, ripple 10 %p-p max.)
P: 110 V DC
(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)
(110 V \pm 10 % for UL)

[3] OPTIONS

Standards & Approvals

blank: CE marking
/UL: UL approval, CE marking
blank: none
/Q: With options (specify the specification)
(UL not available)

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

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet
(No. ESU-1605)

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

User-configurable items: Front keypad

- Alarm setpoint
- Display range scaling
- Power ON-delay time
- Alarm ON-delay time
- Moving average
- Hi/Lo trip operation
- Coil at alarm
- Hysteresis (deadband)
- 0 %, 100 % input setting
- Latching control
- Others

(Refer to the instruction manual)



■ DISPLAY

LED: 8 mm (.31") 7 segment, red
Number of display digits: 4 digits for DATA display; 2 digits for ITEM display
Range: -1999 to 9999
 (decimal point position selectable)
PV indication: Input signal in engineering unit
Overrange indication: LEDs blinking
Power saving mode: Displays turn off if the keys are untouched for a preset time period
LEDs: Red lights turn on when coils are energized.
 (L1 and L2 for 2-point alarm. L1, L2, L3 and L4 for 4-point alarm.)

INPUT SPECIFICATIONS

Minimum span: 10 % of total resistance
Excitation: 0.5 V DC

OUTPUT SPECIFICATIONS

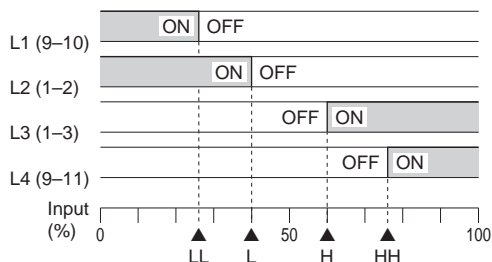
■ Quad Alarm

Relay rating:
 120 V AC @ 1 A (cos ϕ = 1)
 240 V AC @ 0.5 A (cos ϕ = 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: 5×10^7 cycles

• **Dual Alarm**

Relay rating:
 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: 380 V AC or 125 V DC
Maximum switching power: 600 VA or 150 W
Minimum load: 5 V DC @ 10 mA
Mechanical life: 5×10^7 cycles

Alarm Trip Operation Terminal No. in parentheses
 Example with quad N.O. contacts (LL, L, H, HH)



Trip Operation in Power Failure

- Output code 2: All relays turn off.
- Output code 3: All relays turn on.
- Output code 5: Terminals 1 - 3, 9 - 11 turn on.

INSTALLATION

Power Consumption

- **AC:** Approx. 6 VA
- **DC:** Approx. 3.5 W
- Operating temperature:** -5 to +55°C (23 to 131°F)
- Operating humidity:** 30 to 90 %RH (non-condensing)
- Mounting:** Surface or DIN rail
- Weight:** 500 g (1.1 lbs)

PERFORMANCE in percentage of FS input

- Setpoint accuracy (trip point accuracy):** $\pm(0.1 \%$ of FS + 1 digit)
- Display accuracy:** $\pm(0.1 \%$ of FS + 1 digit)
- Temp. coefficient:** $\pm 0.015 \%/^{\circ}\text{C}$ ($\pm 0.008 \%/^{\circ}\text{F}$)
- Response time:** ≤ 0.5 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)

STANDARDS & APPROVALS

CE conformity:

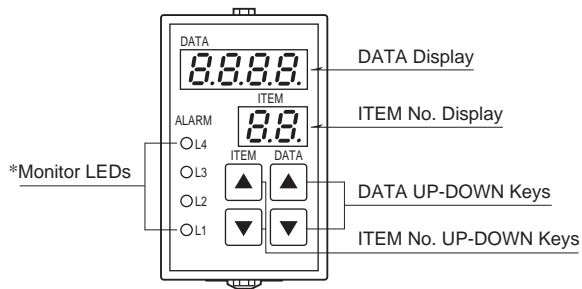
- EMC Directive (2004/108/EC)
- EMI EN 61000-6-4: 2007
- EMS EN 61000-6-2: 2005
- Low Voltage Directive (2006/95/EC)
- EN 61010-1: 2001
- Measurement Category II (output)
- Installation Category II (power)
- Pollution Degree 2
- Input to output to power - Basic insulation (300 V)

Approval:

- UL/C-UL general safety requirements
 (UL 3111-1:1994, CAN/CSA-C22.2 No.1010-1:1992)



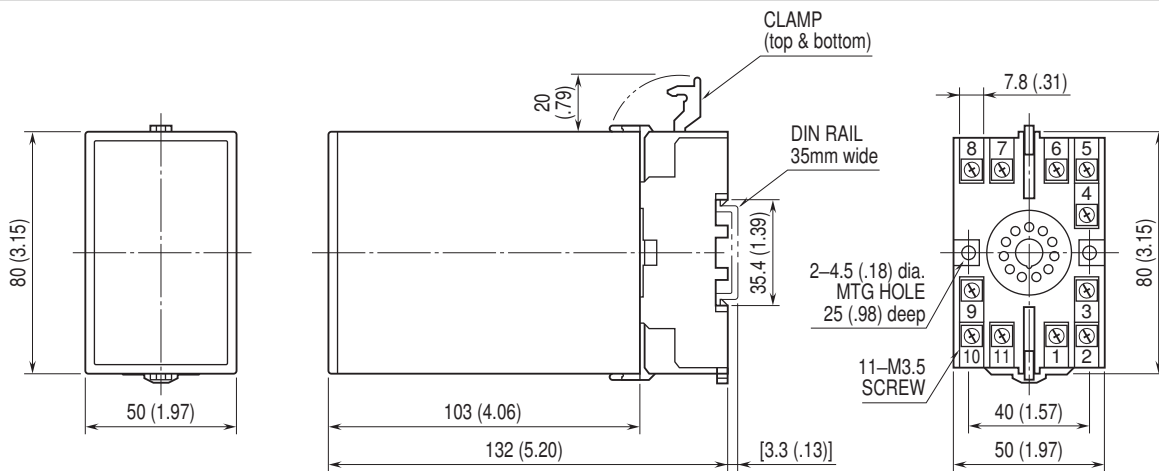
EXTERNAL VIEW



*L3 or L4 does not turn on for dual output type.

Refer to the instruction manual for detailed procedures.

DIMENSIONS unit: mm (inch)

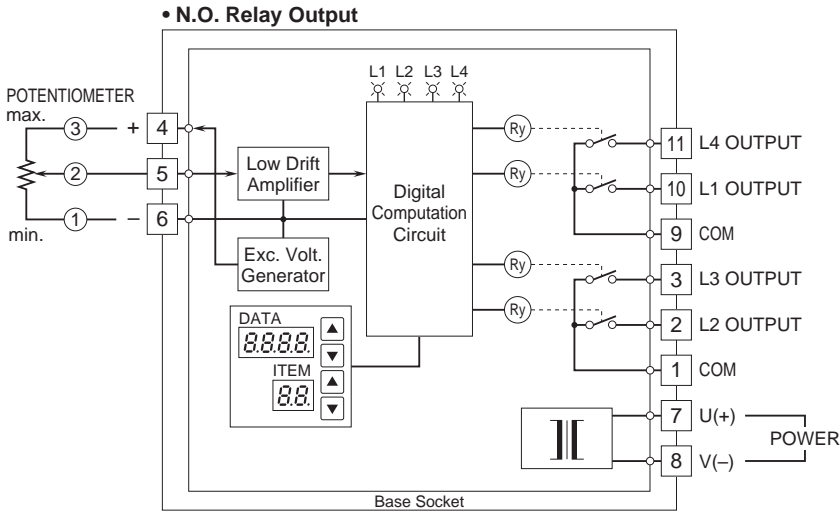


• When mounting, no extra space is needed between units.

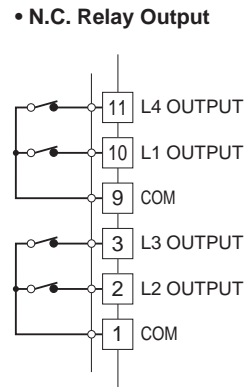


SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

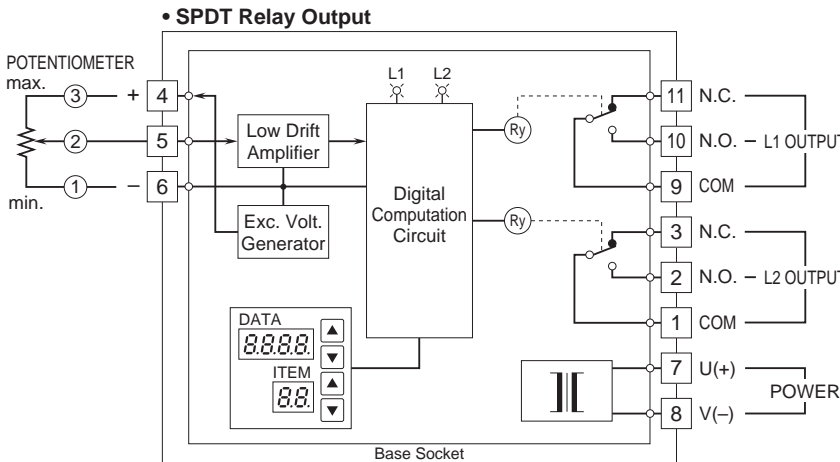
■ OUTPUT SUFFIX CODE: 2



■ OUTPUT SUFFIX CODE: 3

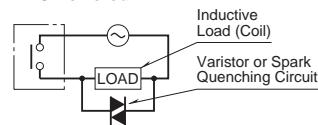


■ OUTPUT SUFFIX CODE: 5

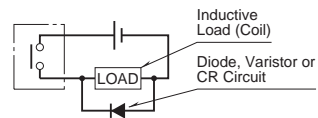


■ Relay Protection

• AC Powered



• DC Powered



Specifications are subject to change without notice.