

Plug-in Signal Conditioners M-UNIT

POTENTIOMETER ALARM

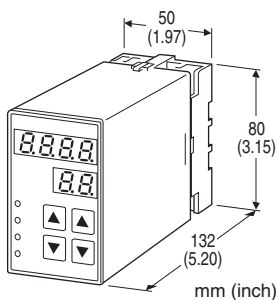
(dual or quad alarm trip; field-configurable)

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 of [1] through [3].
(e.g. AS4M-2-R/UL/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

INPUT POTENTIOMETER

Total resistance 100 Ω - 10 kΩ

[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, 50 - 60 Hz

(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.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

[3] OPTIONS (multiple selections)

Standards & Approvals

blank: CE marking

/UL: UL approval, 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 our web site.)

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating (UL not available)

TERMINAL SCREW MATERIAL

/S01: Stainless steel (UL not available)

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

Sampling cycle: 100 msec.

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 LEDs 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 ($\cos \phi = 1$)
 240 V AC @ 0.5 A ($\cos \phi = 1$)
 30 V DC @ 1 A (resistive load)

Maximum switching voltage(Note): 380 V AC or 125 V DC

Maximum switching power(Note): 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 ($\cos \phi = 1$)
 240 V AC @ 2.5 A ($\cos \phi = 1$)
 30 V DC @ 5 A (resistive load)

Maximum switching voltage(Note): 380 V AC or 125 V DC

Maximum switching power(Note): 600 VA or 150 W

Minimum load: 5 V DC @ 10 mA

Mechanical life: 5×10^7 cycles

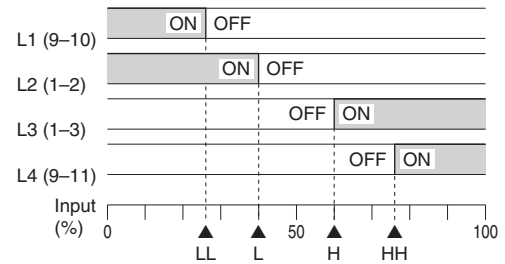
(Note): The value indicate capacity of output relay in equipment.

Use within relay rating for EU and UL.

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: ≤ 6 VA
- DC: ≤ 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 lb)

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: $\pm 0.015 \%$ /°C ($\pm 0.008 \%$ /°F)

Response time: ≤ 0.5 sec. (0 - 100 % at 90 % setpoint)

Line voltage effect: $\pm 0.1 \%$ over voltage range

Insulation resistance: ≥ 100 M Ω 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 to output to power: Basic insulation (300 V)

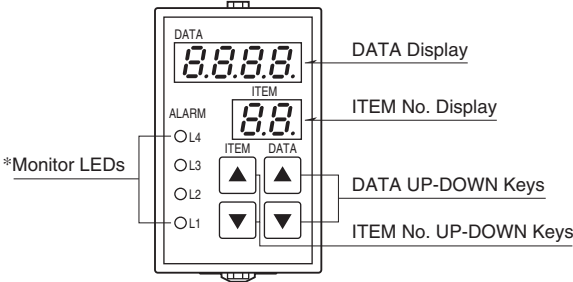
RoHS Directive

Approval:

UL/C-UL general safety requirements

(UL 61010-1, CAN/CSA-C22.2 No.61010-1)

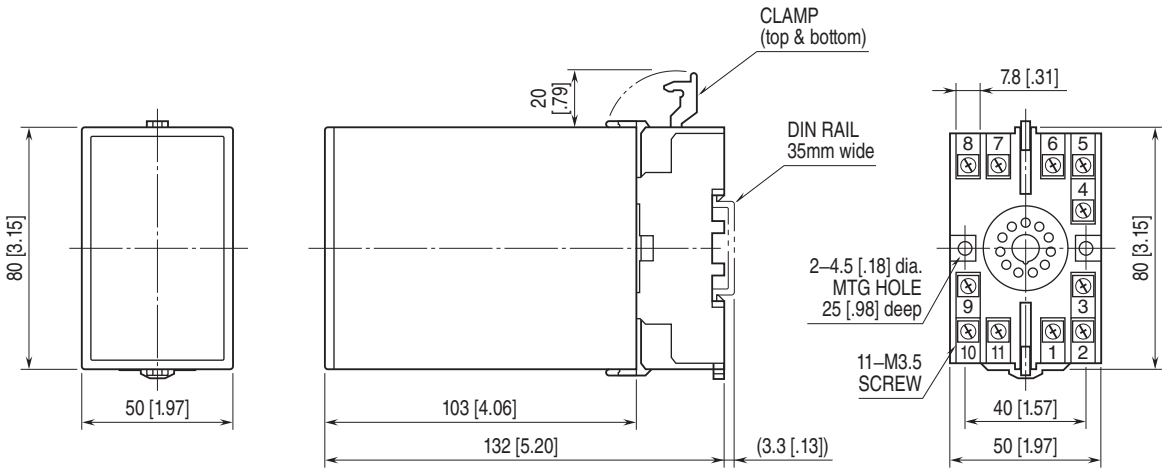
EXTERNAL VIEW



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

Refer to the instruction manual for detailed procedures.

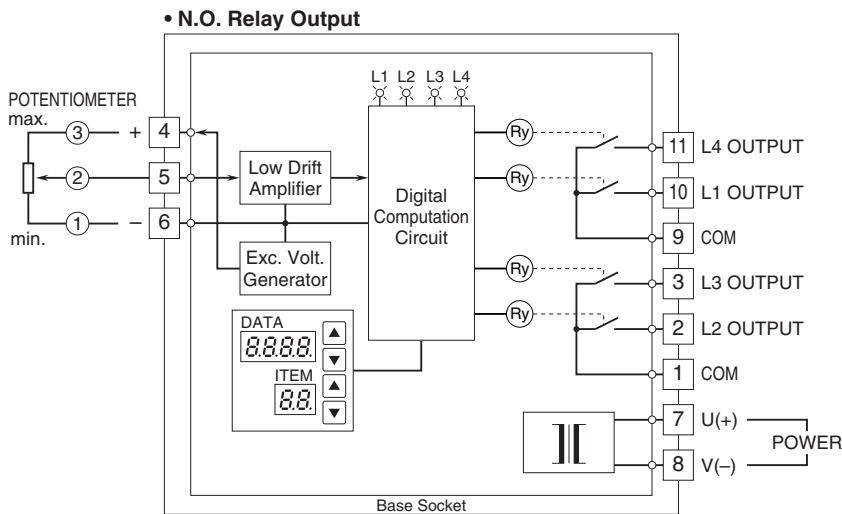
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

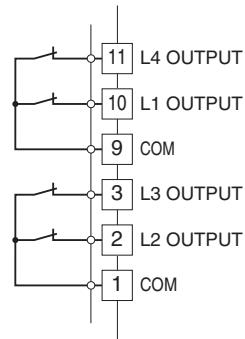
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ OUTPUT CODE: 2

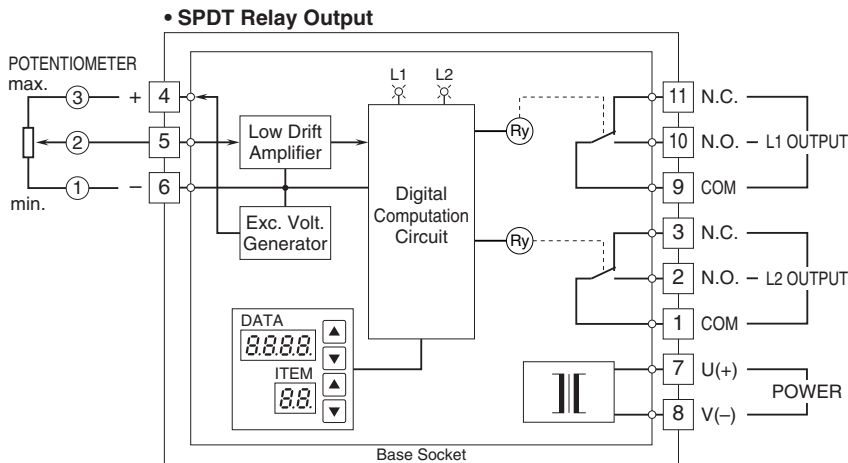


■ OUTPUT CODE: 3

• N.C. Relay Output

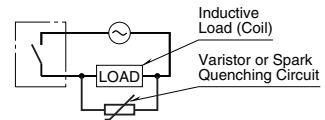


■ OUTPUT CODE: 5

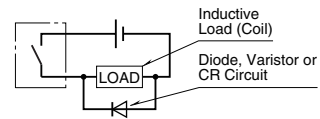


■ Relay Protection

• AC Powered



• DC Powered



Specifications are subject to change without notice.