

Plug-in Signal Conditioners M-UNIT

DC ALARM

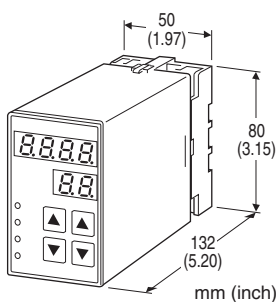
(dual or quad alarm trip; field-configurable)

Functions & Features

- Provides relay outputs at preset DC input levels
- 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: AS4V-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: AS4V-[1][2]-[3][4]
- Specify a code from below for each of [1] through [4].
(e.g. AS4V-S22-R/UL/Q)
- Specify the specification for option code /Q
(e.g. /C01/SET)

[1] INPUT

Current

Z1: Range 0 – 50 mA DC (Input resistance 100 Ω)

Voltage

S1: Range -1 – +1 V DC (Input resistance 1 M Ω min.)

S2: Range -10 – +10 V DC (Input resistance 1 M Ω min.)

[2] OUTPUT

2: 4 points; N.O. or make contact

3: 4 points; N.C. or break contact

5: 2 points; SPDT or transfer contact

2A: 4 points; N.O. or make contact (small load current)
(CE not available. Option /UL Not selectable.)

3A: 4 points; N.C. or break contact (small load current)
(CE not available. Option /UL Not selectable.)

5A: 2 points; SPDT or transfer contact (small load current)
(CE not available. Option /UL Not selectable.)

[3] 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 $\pm$ 10 %, ripple 10 %p-p max.)

P: 110 V DC

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

[4] 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 M-System's 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-1609)

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 key pad

- 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

■ **DC Current:** 0 – 50 mA DC; shunt resistor attached to input terminals (0.5 W)

Operational range: 0 – 70 mA DC (with 100 Ω / 0.5 W)

Minimum increment: 0.1 mA

Default setting: 4 – 20 mA DC

■ **DC Voltage:** -1 – +1 V DC for S1;

-10 – +10 V DC for S2

Operational range: -1.15 – +1.15 V DC for S1;

-11.5 – +11.5 V DC for S2

Minimum increment: 10 mV for S1; 100 mV for S2

Default setting: -1 – +1 V DC for S1;

-10 – +10 V DC for S2

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

■ Small load current type

Relay rating: 30 V DC @ 1 A (resistive load)

Maximum switching voltage(Note): 220 V DC

Maximum switching power(Note): 30 W (resistive load)

Minimum load: 1 V DC @ 1 mA

Mechanical life: 5×10^7 cycles

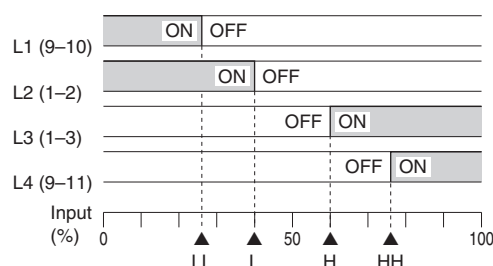
(Note): The value indicate capacity of output relay in equipment.

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, 2A: All relays turn off.
- Output code 3, 3A: All relays turn on.
- Output code 5, 5A: 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): $\pm(0.1 \% \text{ of FS} + 1 \text{ digit})$

Display accuracy: $\pm(0.1 \% \text{ of FS} + 1 \text{ digit})$

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: ≥ 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 to output to power: Basic insulation (300 V)

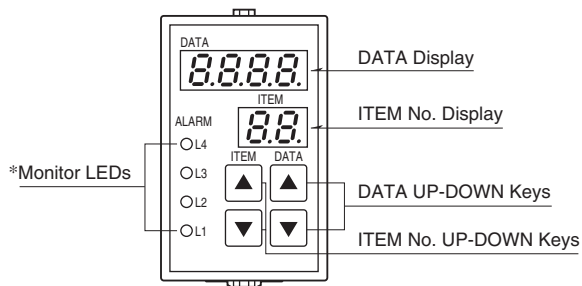
RoHS Directive

Approval:

UL/C-UL general safety requirements

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

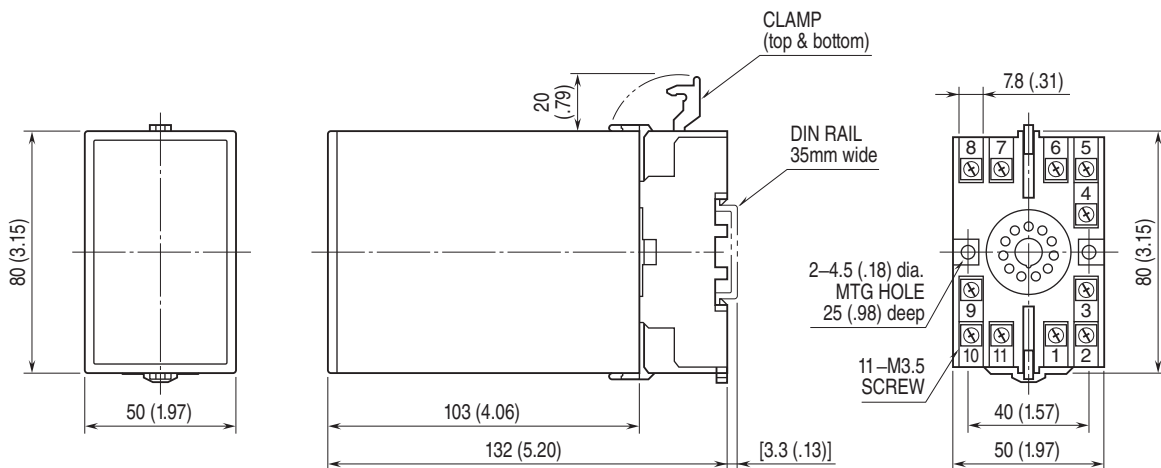
EXTERNAL VIEW



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

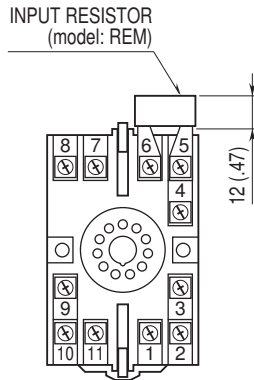
Refer to the instruction manual for detailed procedures.

EXTERNAL DIMENSIONS unit: mm [inch]



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

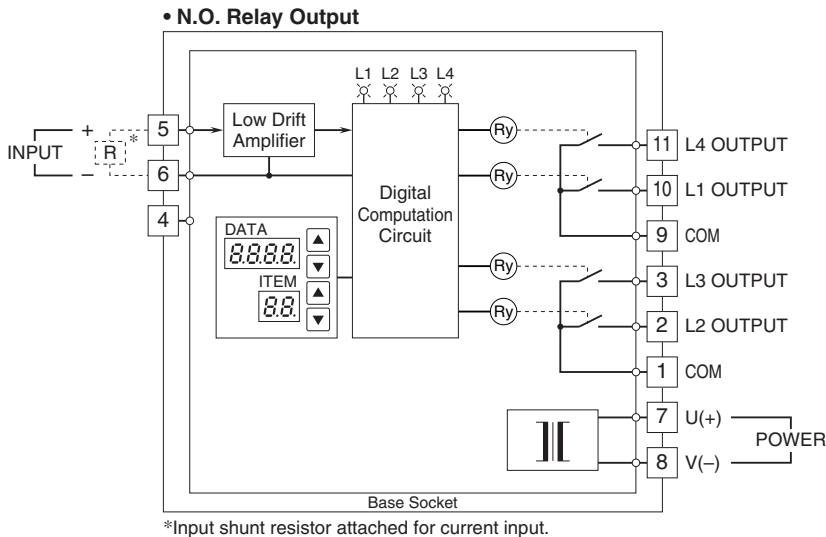
TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached for current input.

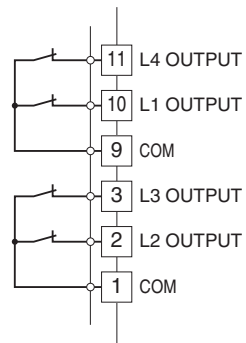
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ OUTPUT CODE: 2, 2A

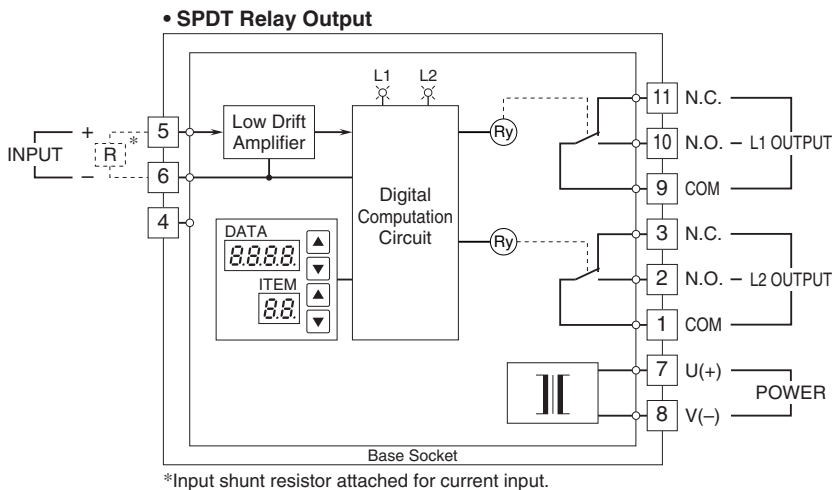


■ OUTPUT CODE: 3, 3A

• N.C. Relay Output

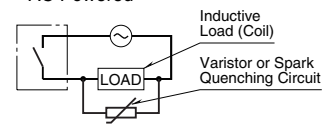


■ OUTPUT CODE: 5, 5A

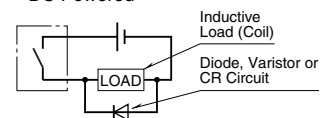


■ Relay Protection

• AC Powered



• DC Powered





Specifications are subject to change without notice.