

Plug-in Signal Conditioners M-UNIT

DC ALARM

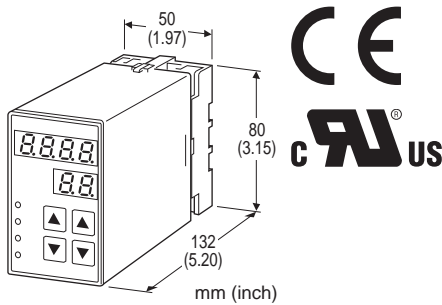
(dual or quad alarm trip; field-configurable)

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 [1] through [4]. (e.g. AS4V-S22-R/Q)
- Specify the specification for option code /Q (e.g. /C01/S01/SET)

[1] INPUT

Current

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

Voltage

S1: Range -1 - +1 V DC (Input resistance 1 MΩ min.)

S2: Range -10 - +10 V DC (Input resistance 1 MΩ 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 (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 ±10 %, ripple 10 %p-p max.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.) (110 V ±10 % for UL)

[4] OPTIONS

Standards & Approvals

blank: CE marking

/UL: UL approval, CE marking

Other Options

blank: none

/Q: Option other than the above (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-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 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

■ **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 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 × 10⁷ 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 × 10⁷ cycles

• Small load current type

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

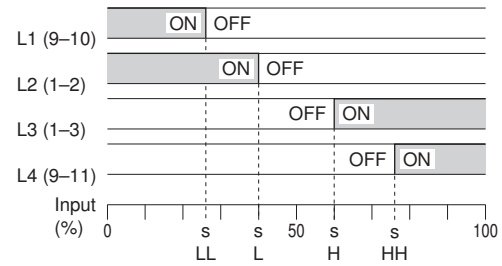
Maximum switching voltage: 220 V DC

Maximum switching power: 30 W (resistive load)

Minimum load: 1 V DC @ 1 mA

Mechanical life: 5 × 10⁷ 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, 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:** 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): ±(0.1 % of FS + 1 digit)

Display accuracy: ±(0.1 % of FS + 1 digit)

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

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

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)



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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

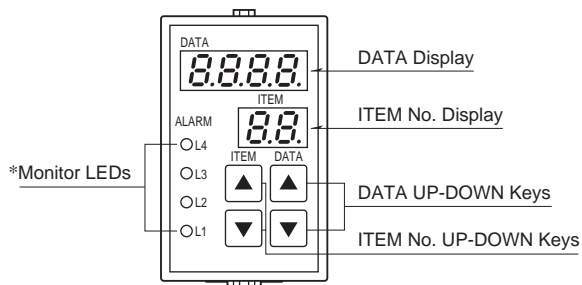
Input to output to power - Basic insulation (300 V)

Approval:

UL/C-UL general safety requirements

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

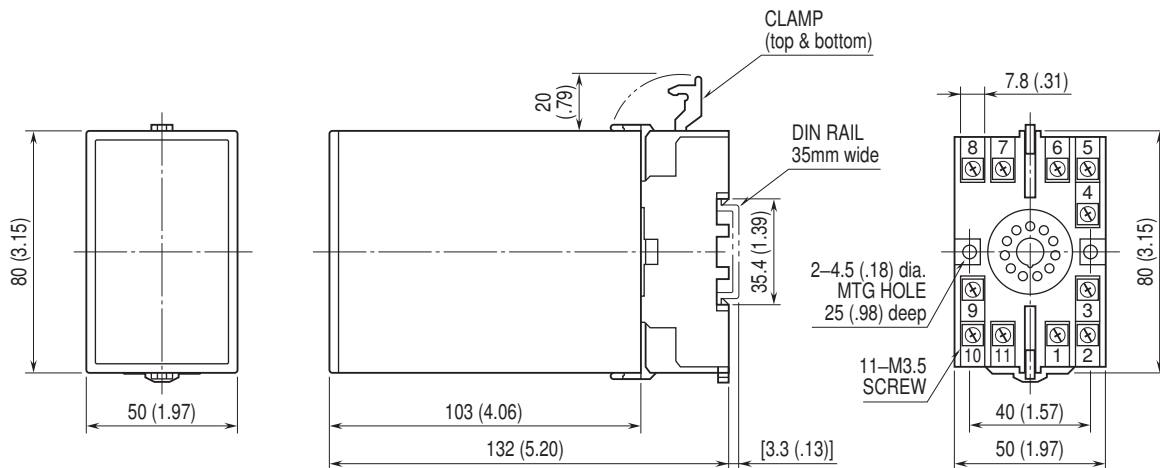
EXTERNAL VIEW



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

Refer to the instruction manual for detailed procedures.

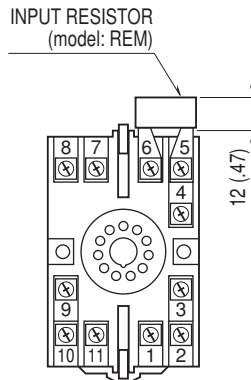
DIMENSIONS unit: mm (inch)



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



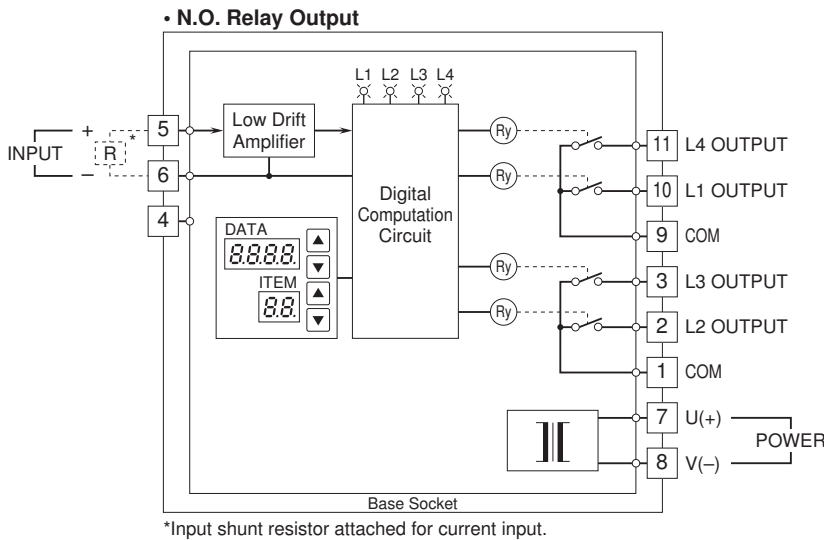
TERMINAL ASSIGNMENTS unit: mm (inch)



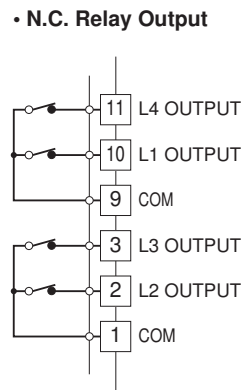
Input shunt resistor attached for current input.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

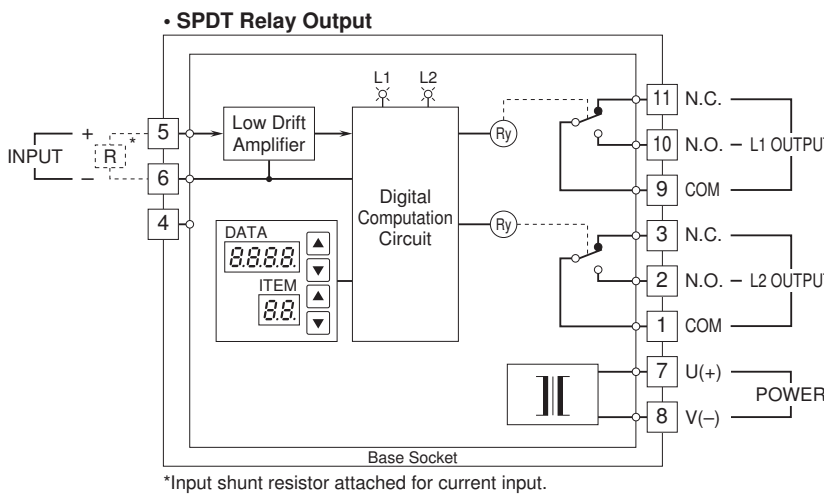
■ OUTPUT SUFFIX CODE: 2, 2A



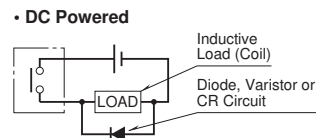
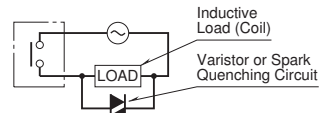
■ OUTPUT SUFFIX CODE: 3, 3A



■ OUTPUT SUFFIX CODE: 5, 5A



■ Relay Protection





Specifications are subject to change without notice.



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