

**Plug-in Signal Conditioners M-UNIT**

**DC ALARM**

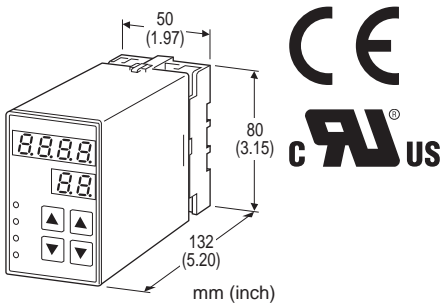
(dual or quad alarm trip; field-configurable)

**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, 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.)

**[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 lights turn on when coils are energized.

(L1 and L2 for 2-point alarm. L1, L2, L3 and L4 for 4-point 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:**  $5 \times 10^7$  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)

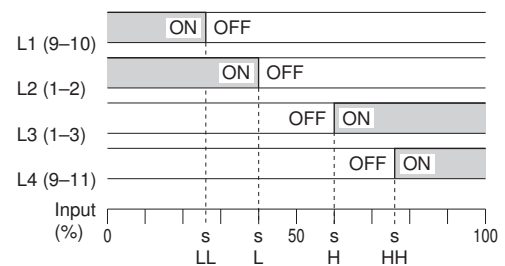
**Minimum load:** 1 V DC @ 1 mA

**Mechanical life:**  $5 \times 10^7$  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.

## 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  $\Omega$  / 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:**  $5 \times 10^7$  cycles

### ■ Dual Alarm

## INSTALLATION

• **AC:** 6 VA max.

• **DC:** 3.5 W max.

**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:**  $\leq 0.5$  sec. (0 - 100 % at 90 % setpoint)

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

**Insulation resistance:**  $\geq 100$  M $\Omega$  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

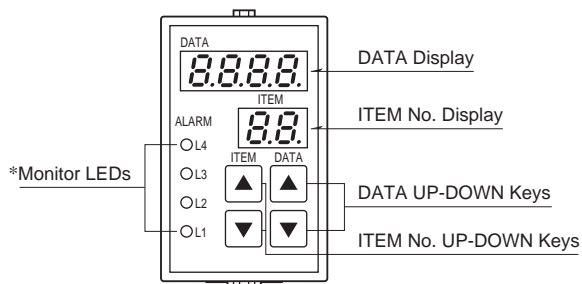
EN 50581

### Approval:

UL/C-UL general safety requirements

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

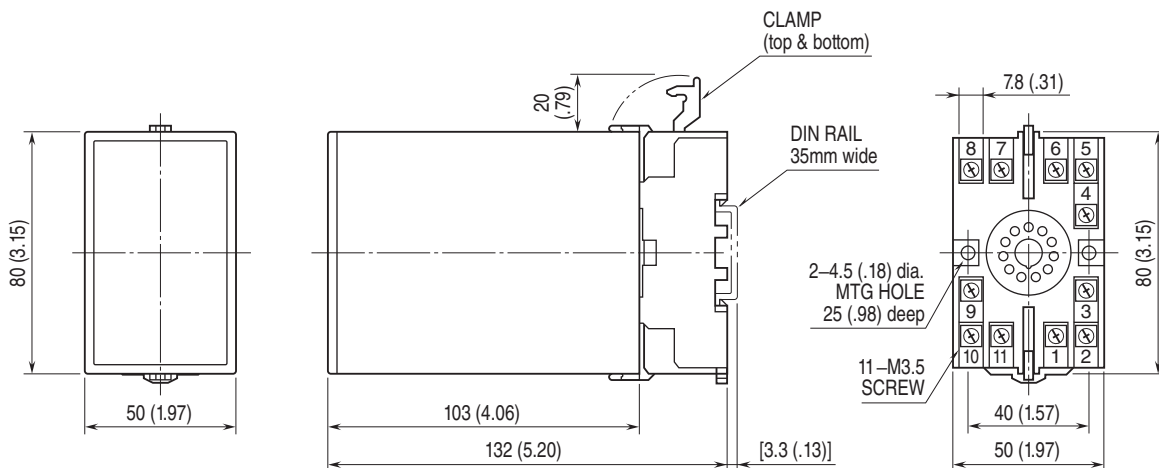
## EXTERNAL VIEW



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

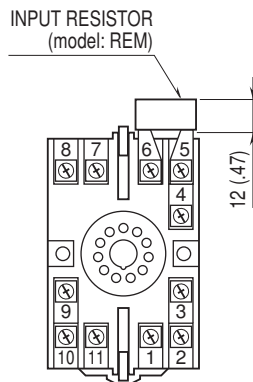
Refer to the instruction manual for detailed procedures.

## DIMENSIONS unit: mm (inch)



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

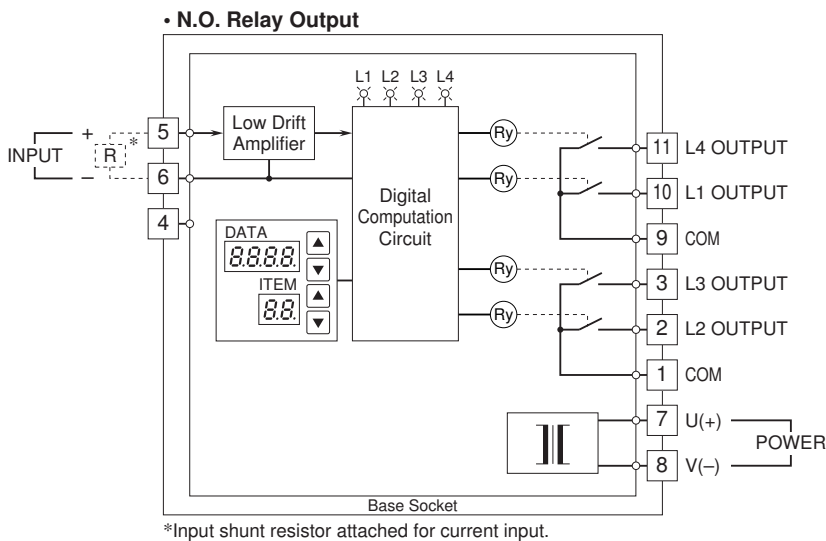
## TERMINAL ASSIGNMENTS unit: mm (inch)



Input shunt resistor attached for current input.

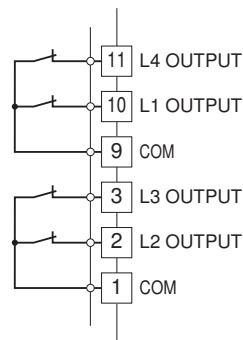
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

### ■ OUTPUT CODE: 2, 2A

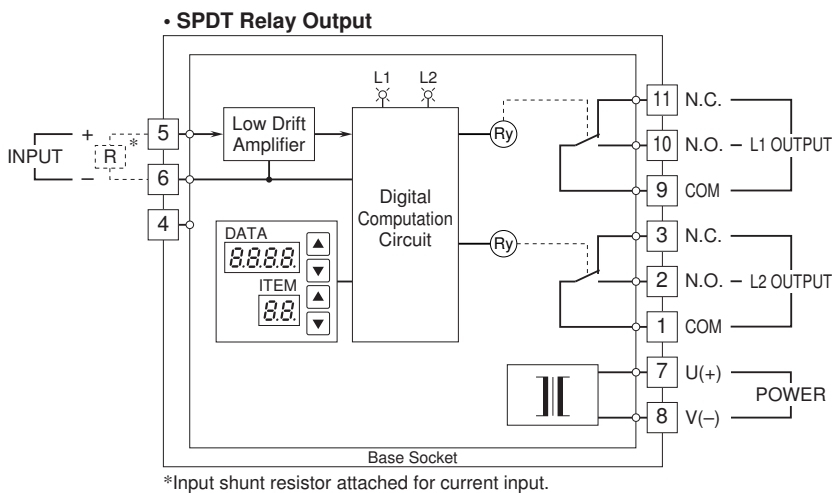


### ■ OUTPUT CODE: 3, 3A

#### • N.C. Relay Output

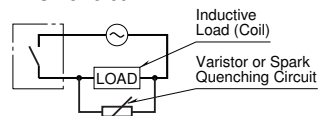


### ■ OUTPUT CODE: 5, 5A

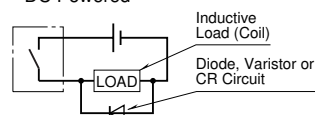


#### Relay Protection

##### • AC Powered



##### • DC Powered





Specifications are subject to change without notice.