

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

**DC ALARM**

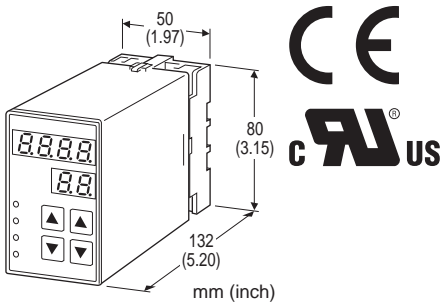
(dual or quad alarm trip; field-configurable)

**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
- CE marking
- UL approval

**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. /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**

**EX-FACTORY SETTING**

**/SET:** Preset according to the Ordering Information Sheet (No. ESU-1609)

**GENERAL SPECIFICATIONS**

**Construction:** Plug-in

**Connection:** M3.5 screw terminals

**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

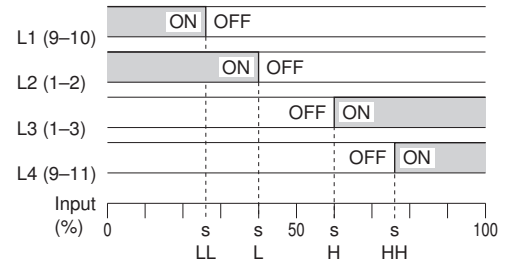
- Coil at alarm
  - Hysteresis (deadband)
  - 0 %, 100 % input setting
  - Latching control
  - Others
- (Refer to the instruction manual)

## ■ 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.)

**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:** 220 V DC  
**Maximum switching power:** 30 W (resistive load)  
**Minimum load:** 1 V DC @ 1 mA  
**Mechanical life:**  $5 \times 10^7$  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, 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 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:**  $5 \times 10^7$  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

## 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)

## STANDARDS & APPROVALS

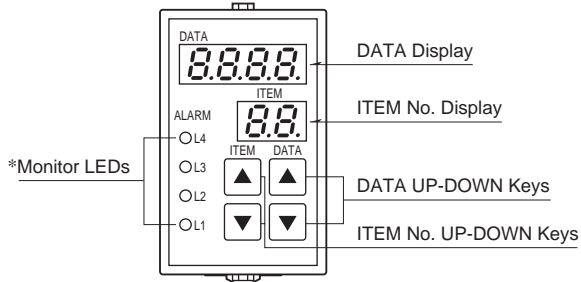
**CE conformity:**  
 EMC Directive (2004/108/EC)  
 EMI EN 61000-6-4: 2007  
 EMS EN 61000-6-2: 2005  
 Low Voltage Directive (2006/95/EC)  
 EN 61010-1: 2001  
 Measurement Category II (output)

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, CAN/CSA-C22.2 No.1010-1)

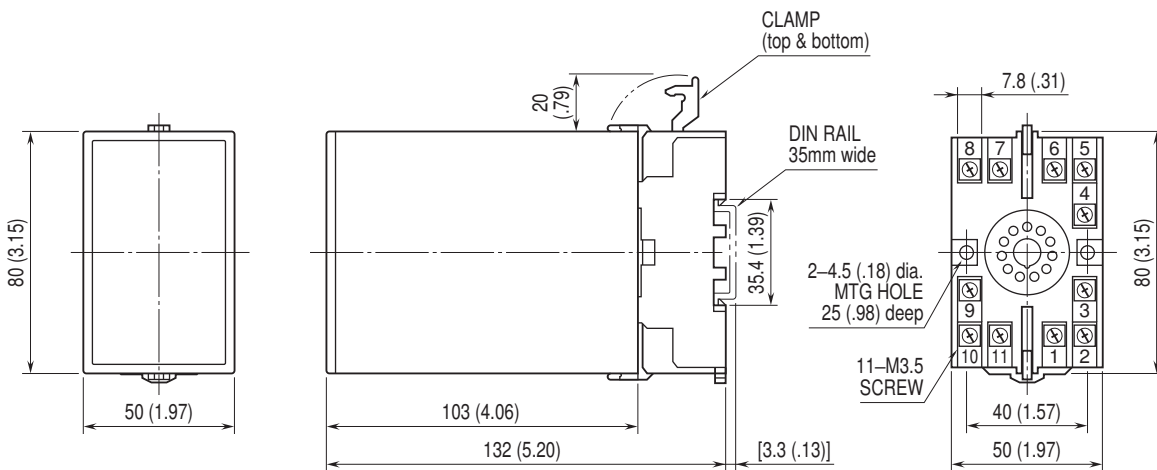
**EXTERNAL VIEW**



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

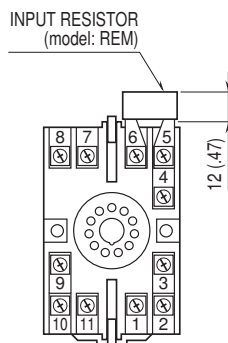
Refer to the instruction manual for detailed procedures.

**DIMENSIONS unit: mm (inch)**



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

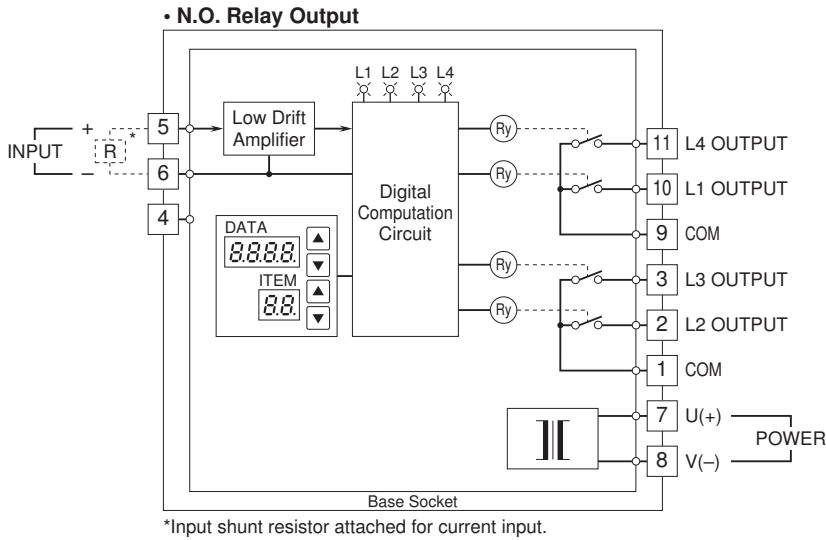
**TERMINAL ASSIGNMENTS unit: mm (inch)**



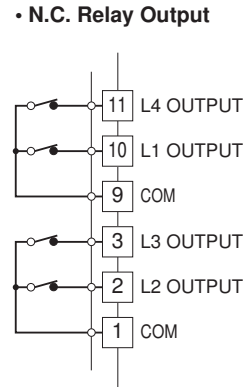
Input shunt resistor attached for current input.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

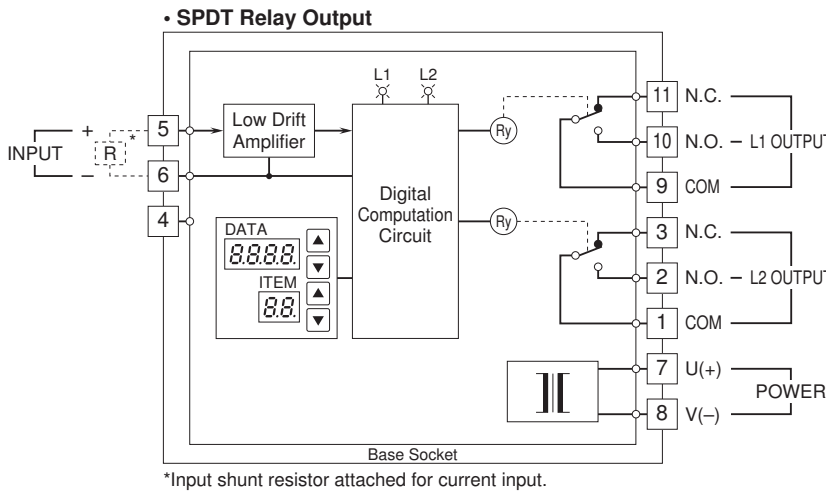
### ■ OUTPUT SUFFIX CODE: 2, 2A



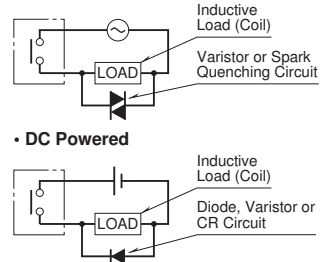
### ■ OUTPUT SUFFIX CODE: 3, 3A



### ■ OUTPUT SUFFIX CODE: 5, 5A



### ■ Relay Protection



Specifications are subject to change without notice.