

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

**RTD ALARM**

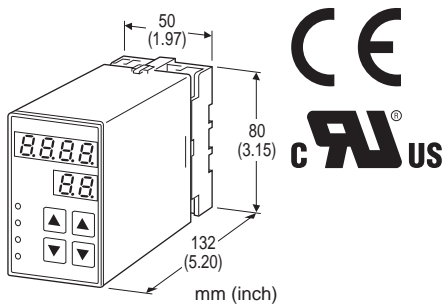
(dual or quad alarm trip; field-configurable)

**Functions & Features**

- Provides relay outputs at preset temperature 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: AS4R-[1]-[2][3]**

**ORDERING INFORMATION**

- Code number: AS4R-[1]-[2][3]
- Specify a code from below for each [1] through [3]. (e.g. AS4R-2-R/Q)
- Specify the specification for option code /Q (e.g. /SET)

**[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 (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)

**[3] OPTIONS (multiple selections)**

**STANDARDS & APPROVALS**

**blank:** CE marking  
**/UL:** UL approval (CE marking)

**Temperature range**

**blank:** -5+55°C  
**/T:** Wide operating temperature range -25 to +55°C  
(Option /T is Not selectable with UL approval.)

**blank:** none  
**/Q:** With options (specify the specification)  
(UL not available)

**SPECIFICATIONS OF OPTION: Q**

**EX-FACTORY SETTING**

**/SET:** Preset according to the Ordering Information Sheet (No. ESU-1606)

**GENERAL SPECIFICATIONS**

- Construction:** Plug-in
- Connection:** M3.5 screw terminals
- Housing material:** Flame-resistant resin (black)
- Isolation:** Input to output to power
- Burnout:** Upscale standard; downscale optional by programming
- Sampling cycle:** 100 msec.
- DISPLAY**
- LED:** 8 mm (.31") 7 segment, red
- Number of display digits:** 4 digits for DATA display; 2 digits for ITEM display
- PV indication:** Temperature 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.
- User-configurable items:** Front key pad
  - Alarm setpoint
  - Power ON-delay time
  - Alarm ON-delay time
  - Moving average

- Hi/Lo trip operation
  - Coil at alarm
  - Hysteresis (deadband)
  - Temperature limit
  - Temperature unit
  - RTD type
  - Others
- (Refer to the instruction manual)

## INPUT SPECIFICATIONS

**Maximum leadwire resistance:** 200 Ω per wire (3-wire)

**Sensing current:** ≤ 1.0 mA

**Default setting:** Pt 100 (JIS '97, IEC) -100 - +500°C

**Temperature range**

RTD	USABLE RANGE	
	°C	°F
JPt 100 (JIS '89)	-235 to +560	-391 to +1040
Pt 100 (JIS '89)	-240 to +900	-400 to +1652
Pt 100 (JIS '97, IEC)	-240 to +900	-400 to +1652
Pt 50Ω (JIS '81)	-235 to +700	-391 to +1292
Ni 508.4Ω	-100 to +330	-148 to +572
Pt 1000	-240 to +900	-400 to +1652
Ni 100	-100 to +250	-148 to +482
Cu 10	-210 to +310	-346 to +590

## OUTPUT SPECIFICATIONS

### • Quad Alarm

**Relay rating:**

120 V AC @ 0.8 A (cos φ = 1)

240 V AC @ 0.4 A (cos φ = 1)

30 V DC @ 1 A (resistive load)

**Maximum switching voltage:** 380 V AC or 125 V DC

**Maximum switching power:** 100 VA or 30 W

**Minimum load:** 5 V DC @ 10 mA

**Mechanical life:** 5 × 10<sup>7</sup> cycles

### • Dual Alarm

**Relay rating:**

120 V AC @ 4.1 A (cos φ = 1)

240 V AC @ 2 A (cos φ = 1)

30 V DC @ 5 A (resistive load)

**Maximum switching voltage:** 380 V AC or 125 V DC

**Maximum switching power:** 500 VA or 150 W

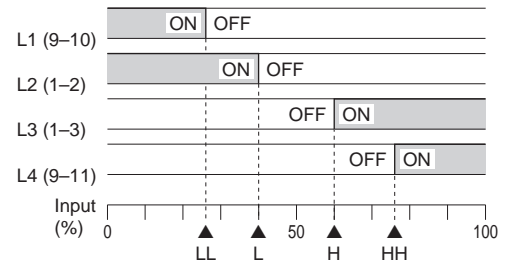
**Minimum load:** 5 V DC @ 10 mA

**Mechanical life:** 5 × 10<sup>7</sup> 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: 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 Power input:** Approx. 6 VA

• **DC power input:** Approx. 3.5 W

**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)

±(0.2% of FS + 1 digit) for Cu 10

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

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

**Response time:** ≤ 1.5 sec. (0 - 100 % at 90 % setpoint)

**Burnout response:** ≤ 5 sec.

**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

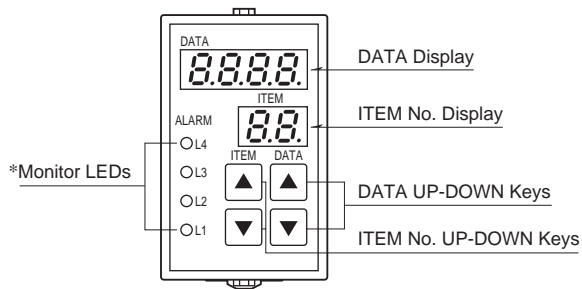
Input to output to power - Basic insulation (300 V)

### Approval:

UL/C-UL general safety requirements

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

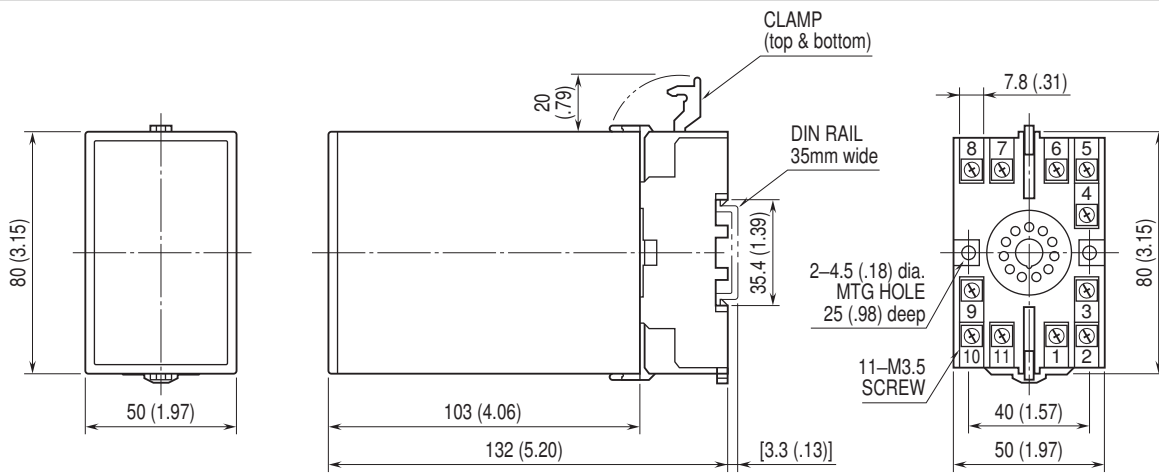
## EXTERNAL VIEW



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

Refer to the instruction manual for detailed procedures.

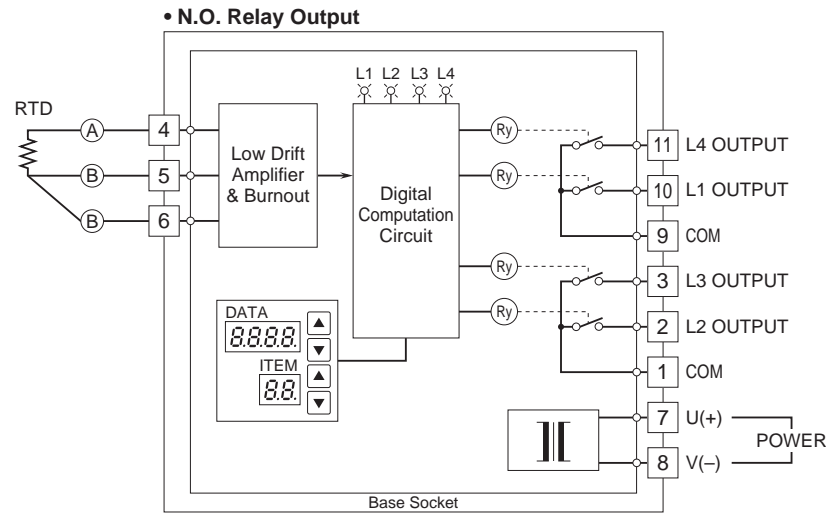
## DIMENSIONS unit: mm (inch)



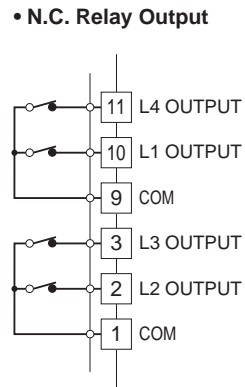
• When mounting, no extra space is needed between units.

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

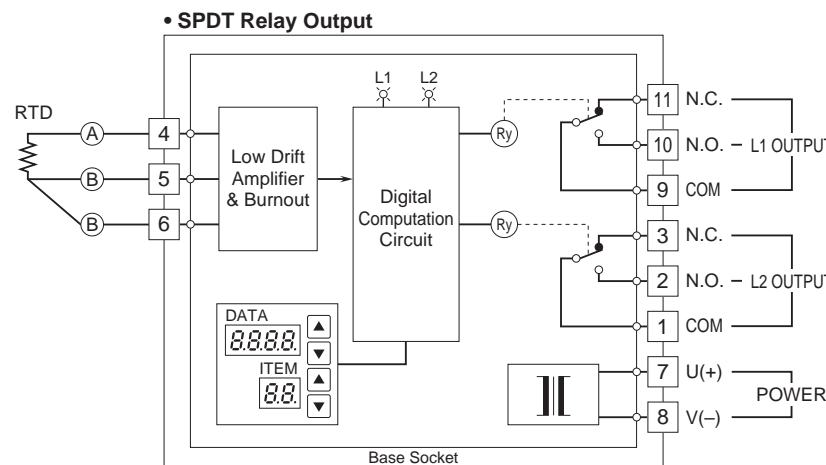
### ■ OUTPUT SUFFIX CODE: 2



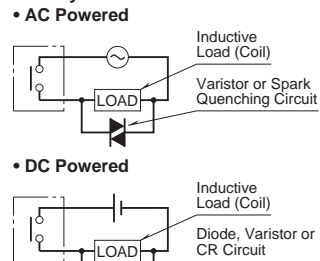
### ■ OUTPUT SUFFIX CODE: 3



### ■ OUTPUT SUFFIX CODE: 5



### ■ Relay Protection



Specifications are subject to change without notice.