

Plug-in Signal Conditioners M-UNIT

RTD ALARM

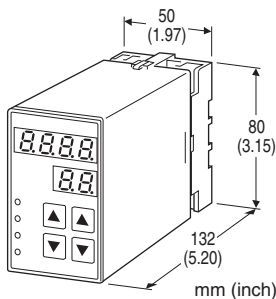
(dual or quad alarm trip; field-configurable)

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

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 of [1] through [3].
(e.g. AS4R-2-R/UL/Q)
- Specify the specification for option code /Q
(e.g. /C01/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, 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.)

[3] OPTIONS (multiple selections)

Standards & Approvals

blank: CE marking

/UL: UL approval, CE marking

Temperature Range

blank: -5 to +55°C

/T: Wide operating temperature range -25 to +55°C

(Option /T is Not selectable with UL approval.)

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 our 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-1606)

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

Burnout: Upscale standard; downscale optional by programming

Sampling cycle: 100 msec.

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)

■ 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 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

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

Sensing current: ≤ 1.0 mA

Default setting: Pt 100 (JIS '97, IEC) -100.0 - +500.0°C

Minimum step:

-199.9 to 999.9: 0.1

Not greater than -200, not lower than 1000: 1

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 @ 25 °C	-210 to +310	-346 to +590

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(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 × 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(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 × 10⁷ cycles

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

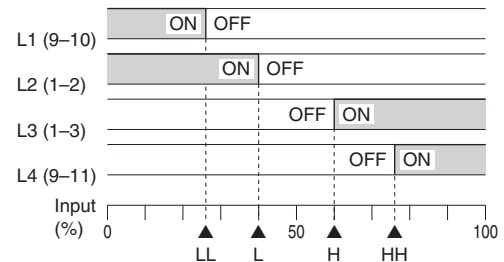
equipment.

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: 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: ≤ 6 VA

•DC: ≤ 3.5 W

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):

±(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

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

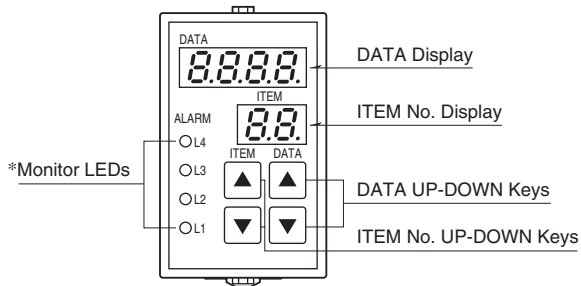
Input to output to power: Basic insulation (300 V)

RoHS Directive

Approval:

UL/C-UL general safety requirements
(UL 61010-1, CAN/CSA-C22.2 No.61010-1)

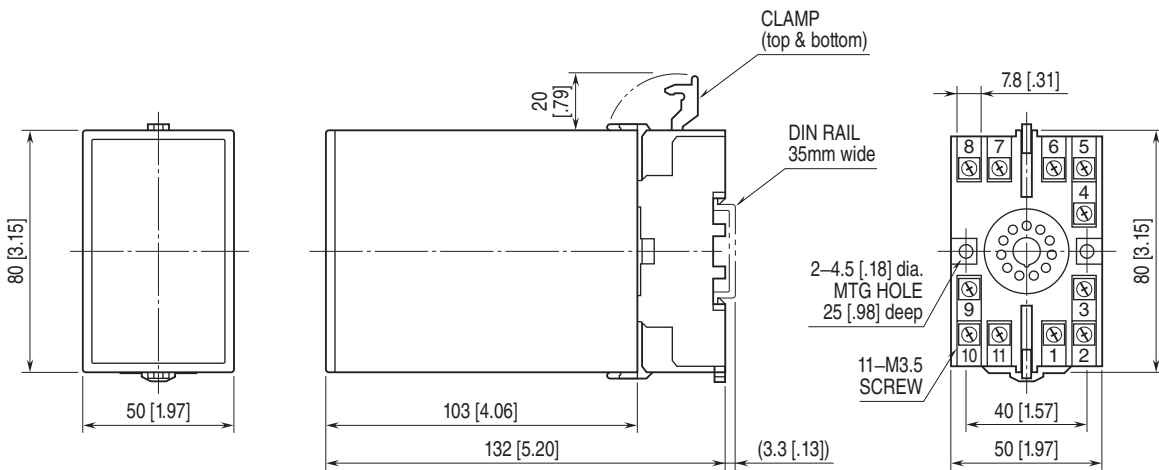
EXTERNAL VIEW



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

Refer to the instruction manual for detailed procedures.

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]

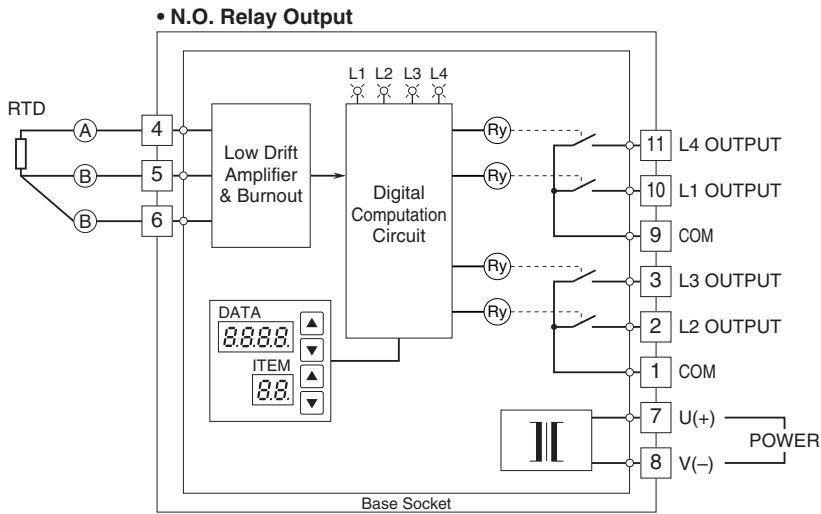


• When mounting, no extra space is needed between units.

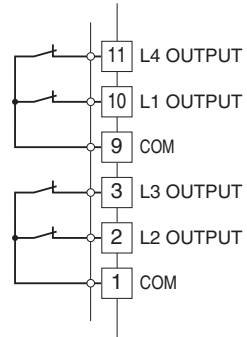
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

■ OUTPUT CODE: 2

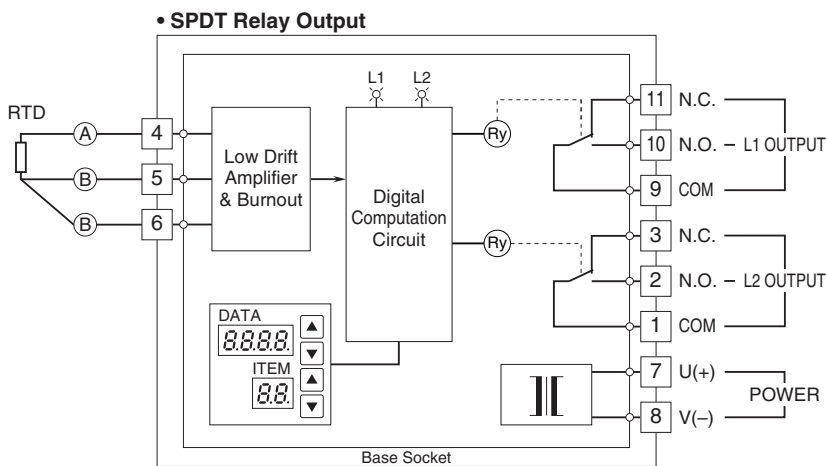
■ OUTPUT CODE: 3



• N.C. Relay Output

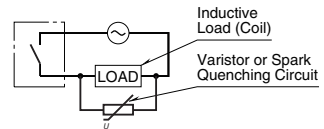


■ OUTPUT CODE: 5

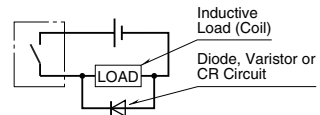


■ Relay Protection

• AC Powered



• DC Powered



Specifications are subject to change without notice.