

Limit Alarms (rotary switch adj.) AL-UNIT

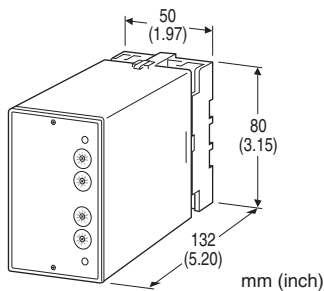
RTD ALARM

Functions & Features

- Providing SPDT relay outputs at preset input levels
- Direct input from an RTD • Dual (Hi/Lo) trip
- Linearization
- Burnout protection
- "Active bridge" circuit containing two constant current sources allows large leadwire resistances up to 200 Ω
- Energized or de-energized coil at a tripped condition selectable
- Rotary switch setpoint adjustments
- Enclosed relays
- Relays can be powered 110 V DC
- High-density mounting

Typical Applications

- Annunciator
- Various alarm applications



MODEL: ALR-[1][2][3]-[4][5]

ORDERING INFORMATION

- Code number: ALR-[1][2][3]-[4][5]
- Specify a code from below for each of [1] through [5].
(e.g. ALR-111-B/BL/Q)
- Temperature range (e.g. 0 - 250°C)
- Specify the specification for option code /Q
(e.g. /C01/S01)

[1] INPUT RTD (2- or 3-wire)

- 1:** JPt 100 (JIS'89)
(Usable range: -200 to +500°C, -328 to +932°F; min.span: 50°C, 90°F)
- 3:** Pt 100 (JIS'89)
(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)
- 4:** Pt 100 (JIS'97, IEC)
(Usable range: -200 to +650°C, -328 to +1202°F; min.span: 50°C, 90°F)
- 5:** Pt 50 Ω (JIS'81)
(Usable range: -200 to +500°C, -328 to +932°F; min.span: 100°C, 180°F)

6: Ni 508.4 Ω

(Usable range: -50 to +200°C, -58 to +392°F; min.span: 30°C, 54°F)

0: Specify

Note: Consult M-System for 2-wire RTD

[2] SETPOINT 1 OUTPUT

- 1:** Hi (coil energized at alarm)
2: Hi (coil de-energized at alarm)
3: Lo (coil energized at alarm)
4: Lo (coil de-energized at alarm)

[3] SETPOINT 2 OUTPUT

- 1:** Hi (coil energized at alarm)
2: Hi (coil de-energized at alarm)
3: Lo (coil energized at alarm)
4: Lo (coil de-energized at alarm)

[4] POWER INPUT

AC Power

- B:** 100 V AC
C: 110 V AC
D: 115 V AC
F: 120 V AC
G: 200 V AC
H: 220 V AC
J: 240 V AC

DC Power

- S:** 12 V DC
R: 24 V DC
V: 48 V DC
P: 110 V DC

[5] OPTIONS (multiple selections)

Burnout

- blank:** Upscale burnout
/BL: Downscale burnout

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

TERMINAL SCREW MATERIAL

- /S01:** Stainless steel

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 1 to output 2 to power
Setpoint adjustments: 10-position rotary switches (front); 0 - 99 % independently; 1 % increments
Linearization: Standard
Hysteresis (deadband): 0.7 - 2.5 %
Front LEDs: Red LED turns on when the coil is energized.
Power ON timer: Relays de-energized for approx. 2 seconds after power is turned on.

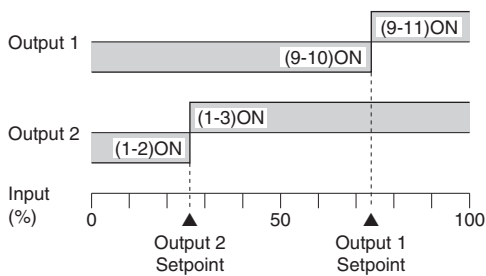
INPUT SPECIFICATIONS

Maximum leadwire resistance: 200 Ω per wire (3-wire)
Sensing current: 2 mA

OUTPUT SPECIFICATIONS

■ **Relay Contact:** 100 V AC @ 1 A ($\cos \phi = 1$)
 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: 380 V AC or 125 V DC
Maximum switching power: 120 VA or 30 W
Minimum load: 5 V DC @ 10 mA
Mechanical life: 5×10^7 cycles
 For maximum relay life with inductive loads, external protection is recommended.

Alarm Trip Operation Terminal No. in parentheses



Trip Operation in Power Failure

- **Output Code: 1 & 4:** Terminals 1 - 2, 9 - 10 turn ON
- **Output Code: 2 & 3:** Terminals 1 - 3, 9 - 11 turn ON

approx. 2 W (80 mA at 24 V)

Operating temperature: -5 to +60°C (23 to 140°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 370 g (0.82 lb)

PERFORMANCE in percentage of span

Setpoint accuracy: ± 0.7 %

Trip point repeatability: ± 0.05 %

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

Response time: Approx. 0.5 sec. (0 - 100 % at 90 % setpoint)

Burnout response: ≤ 10 sec.

Line voltage effect: ± 0.1 % over voltage range

Insulation resistance: ≥ 100 M Ω with 500 V DC

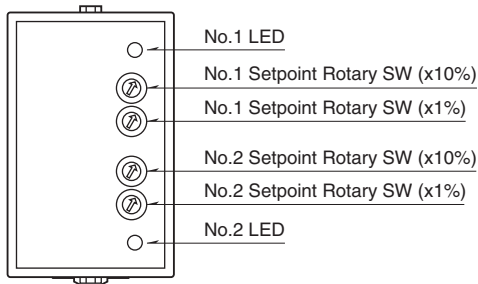
Dielectric strength: 2000 V AC @1 minute (input to output 1 to output 2 to power to ground)

INSTALLATION

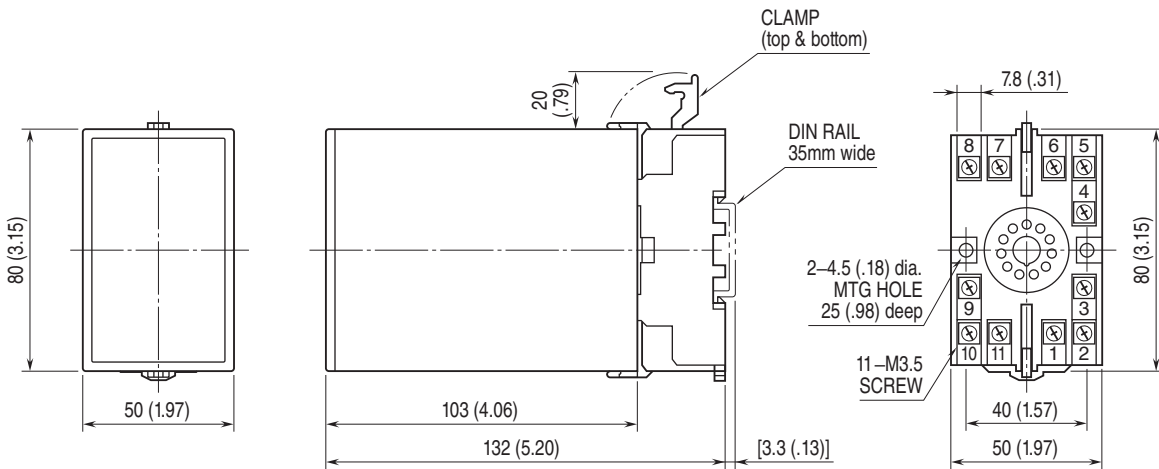
Power input

- **AC:** Operational voltage range: rating ± 10 %, 50/60 ± 2 Hz, approx. 2 VA
- **DC:** Operational voltage range: rating ± 10 %, or 85 - 150 V for 110 V rating (ripple 10 % p-p max.)

EXTERNAL VIEW

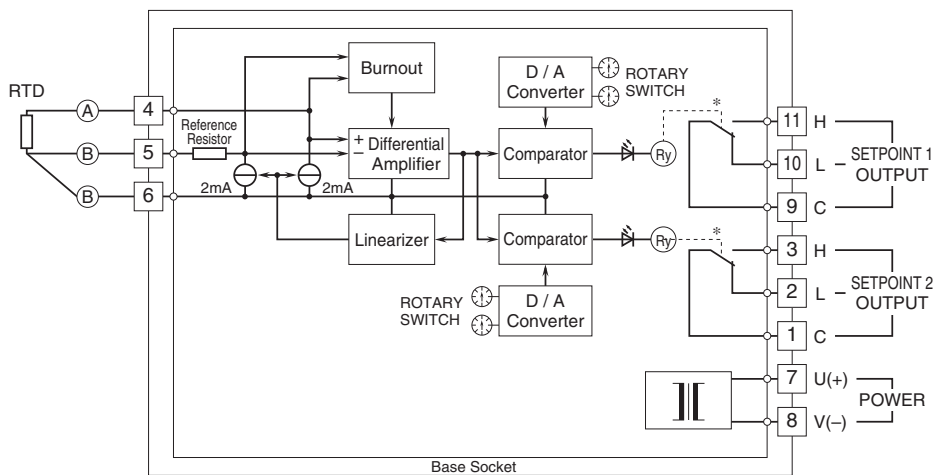


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

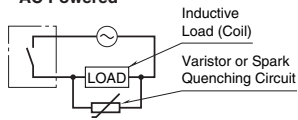
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



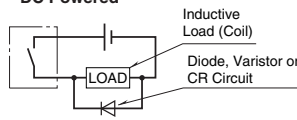
*Relay status for output codes "1" & "4", at power OFF.

■ Relay Protection

• AC Powered



• DC Powered





Specifications are subject to change without notice.