

Limit Alarms (rotary switch adj.) AL-UNIT

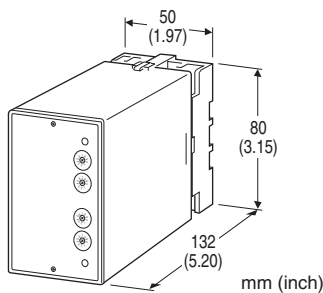
AC ALARM

Functions & Features

- Providing SPDT relay outputs at preset AC current/voltage levels
- True RMS sensing
- Dual (Hi/Lo) trip
- 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: ALAC-[1][2][3]-[4][5]

ORDERING INFORMATION

- Code number: ALAC-[1][2][3]-[4][5]
- Specify a code from below for each of [1] through [5]. (e.g. ALAC-AA11-B/Q)
- Special input range (For codes AZ & A8)
- Specify the specification for option code /Q (e.g. /C01/S01)

[1] INPUT

Current

- AA: 0 - 10 mA AC (Input resistance 100 Ω)
- AB: 0 - 50 mA AC (Input resistance 20 Ω)
- AC: 0 - 100 mA AC (Input resistance 10 Ω)
- AD: 0 - 500 mA AC (Input resistance 1 Ω)
- AZ: Specify current (See INPUT SPECIFICATIONS)
- (0 % input must be 0 mA.)

Voltage

- A1: 0 - 100 mV AC (Input resistance 100 kΩ min.)
- A2: 0 - 500 mV AC (Input resistance 100 kΩ min.)

- A3: 0 - 1 V AC (Input resistance 100 kΩ min.)
- A4: 0 - 5 V AC (Input resistance 100 kΩ min.)
- A5: 0 - 10 V AC (Input resistance 100 kΩ min.)
- A6: 0 - 120 V AC (Input resistance 100 kΩ min.)
- A7: 0 - 150 V AC (Input resistance 100 kΩ min.)
- A8: Specify voltage (See INPUT SPECIFICATIONS)
- (0 % input must be 0 V.)

[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

- blank: none
- /Q: With options (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

Input waveform: Up to 15 % of 3rd harmonic content

Setpoint adjustments: 10-position rotary switches (front); 0 – 99 % independently; 1 % increments

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

Frequency: 40 Hz min., 1 kHz max.

■ **AC Current:** 0 – 1 A AC; input resistor incorporated

Minimum span: 1 mA

Input resistance

Span 1 mA: 1 kΩ

Span ≤ 2 mA: 500 Ω

Span ≤ 5 mA: 200 Ω

Span ≤ 10 mA: 100 Ω

Span ≤ 20 mA: 50 Ω

Span ≤ 50 mA: 20 Ω

Span ≤ 100 mA: 10 Ω

Span ≤ 500 mA: 1 Ω

Span ≤ 1 A: 0.5 Ω

■ **AC Voltage:** 0 – 250 V AC

Minimum span: 50 mV

Input resistance: 100 kΩ min.

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

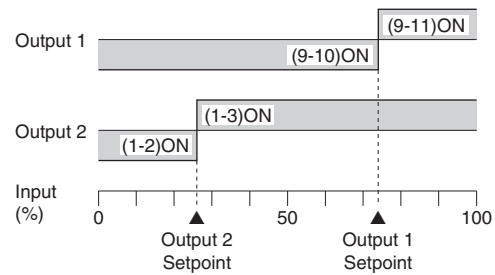
Maximum switching power: 120 VA or 30 W

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

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.) 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: ± 0.9 %

Trip point repeatability: ± 0.05 %

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

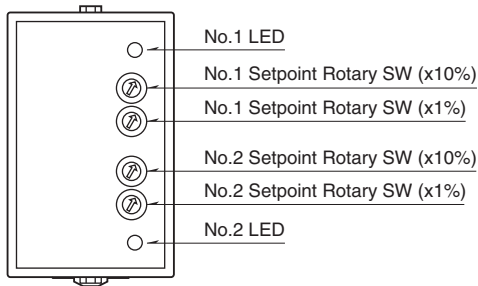
Response time: Approx. 0.7 sec. (0 – 100 % at 90 % setpoint)

Line voltage effect: ± 0.1 % over voltage range

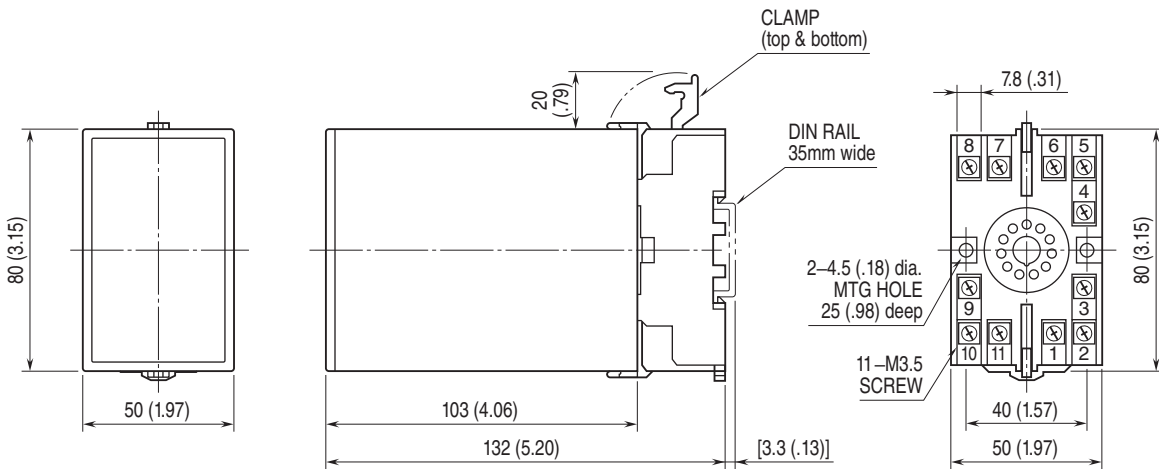
Insulation resistance: ≥ 100 MΩ with 500 V DC

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

EXTERNAL VIEW

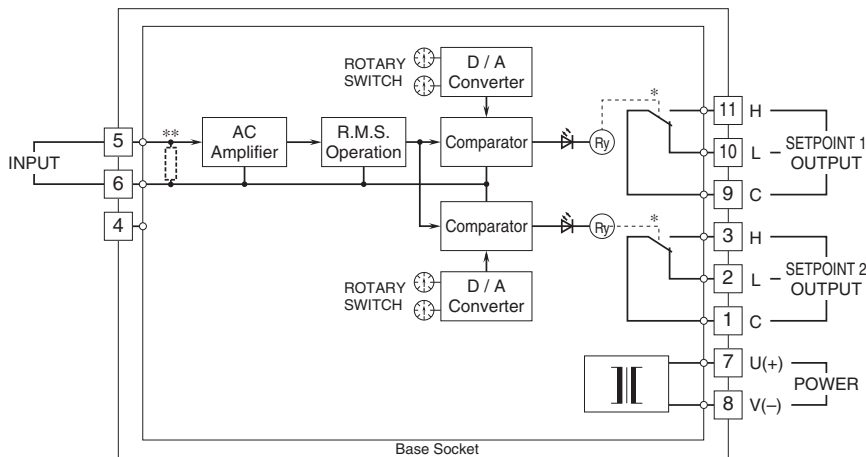


EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

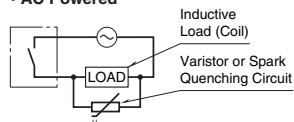
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



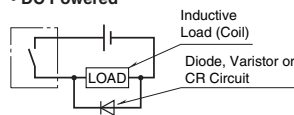
* Relay status for output codes "1" & "4", at power OFF.
 **Input resistor incorporated for current input.

■ Relay Protection

• AC Powered



• DC Powered





Specifications are subject to change without notice.