

## Limit Alarms (rotary switch adj.) AL-UNIT

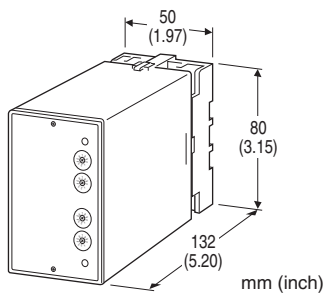
### AC ALARM

#### 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]

### ORDERING INFORMATION

- Code number: ALAC-[1][2][3]-[4]
- Specify a code from below for each [1] through [4]. (e.g. ALAC-AA11-B)
- Special input range (For codes AZ & A8)

#### [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

### GENERAL SPECIFICATIONS

- Construction:** Plug-in
- Connection:** M3.5 screw terminals
- 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 lights turn on when the coils are 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 k $\Omega$   
 Span  $\leq$  2 mA: 500  $\Omega$   
 Span  $\leq$  5 mA: 200  $\Omega$   
 Span  $\leq$  10 mA: 100  $\Omega$   
 Span  $\leq$  20 mA: 50  $\Omega$   
 Span  $\leq$  50 mA: 20  $\Omega$   
 Span  $\leq$  100 mA: 10  $\Omega$   
 Span  $\leq$  500 mA: 1  $\Omega$   
 Span  $\leq$  1 A: 0.5  $\Omega$

■ **AC Voltage:** 0 - 250 V AC

**Minimum span:** 50 mV

**Input resistance:** 100 k $\Omega$  min.

## PERFORMANCE in percentage of span

**Setpoint accuracy:**  $\pm 0.9\%$

**Trip point repeatability:**  $\pm 0.05\%$

**Temp. coefficient:**  $\pm 0.015\%/^{\circ}\text{C}$  ( $\pm 0.008\%/^{\circ}\text{F}$ )

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

**Line voltage effect:**  $\pm 0.1\%$  over voltage range

**Insulation resistance:**  $\geq 100\text{ M}\Omega$  with 500 V DC

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

## 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

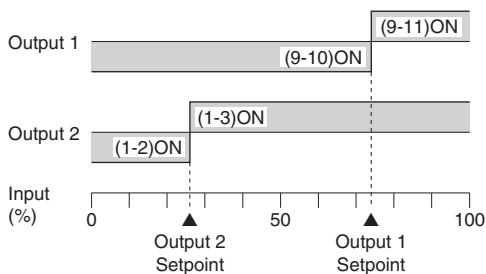
**Maximum switching power:** 120 VA or 30 W

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

**Mechanical life:**  $5 \times 10^7$  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  $\pm 10\%$ ,

50/60  $\pm 2$  Hz, approx. 2 VA

• **DC:** Operational voltage range: rating  $\pm 10\%$ , 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 $^{\circ}\text{C}$  (23 to 140 $^{\circ}\text{F}$ )

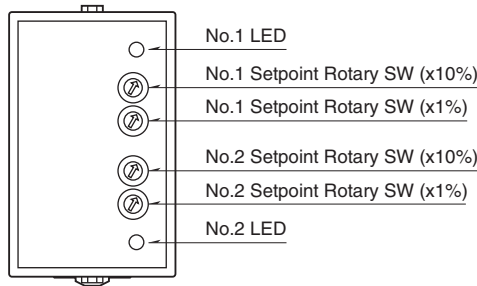
**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Surface or DIN rail

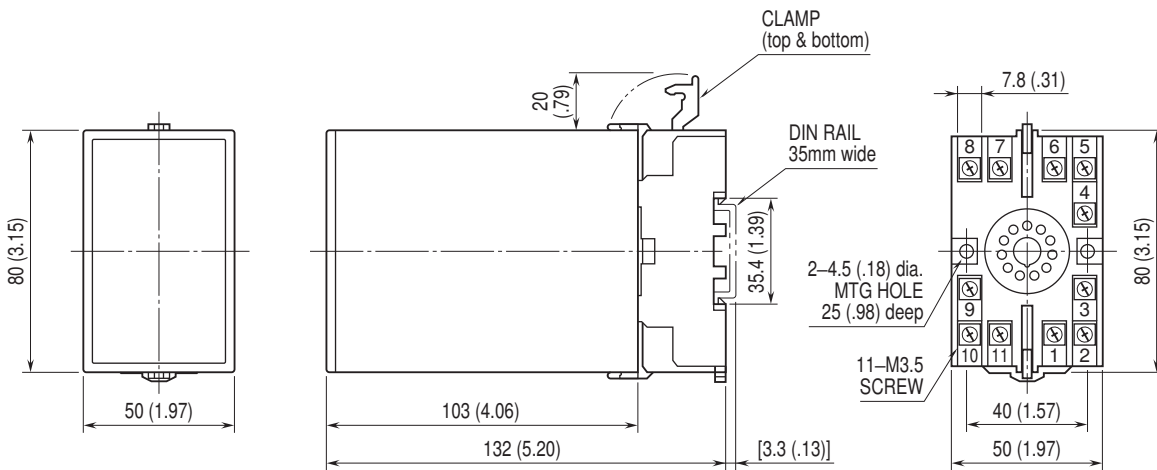
**Weight:** 370 g (0.82 lbs)



## EXTERNAL VIEW

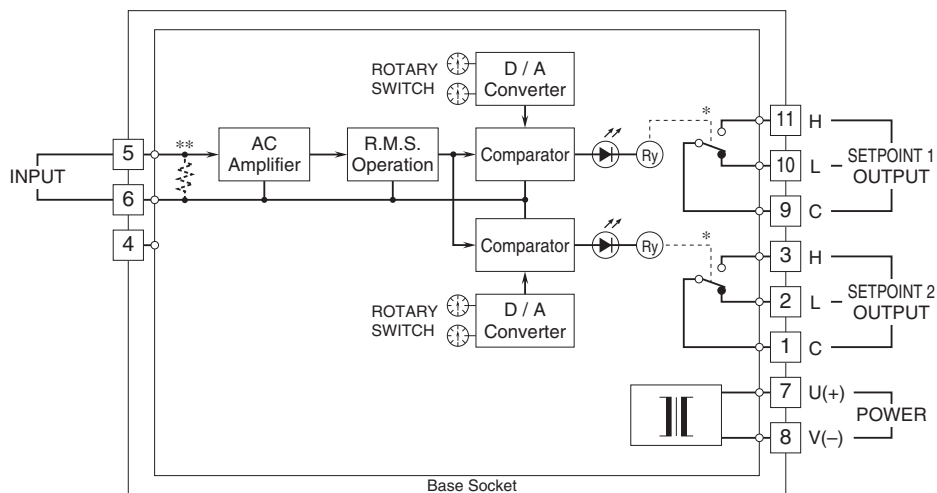


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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

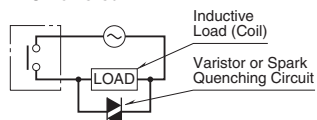
## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



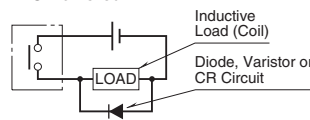
\* Relay status for output codes "1" & "4", at power OFF.  
 \*\*Input resistor incorporated for current input.

### Relay Protection

•AC Powered



### DC Powered





Specifications are subject to change without notice.

