

Limit Alarms (rotary switch adj.) AL-UNIT

FREQUENCY ALARM

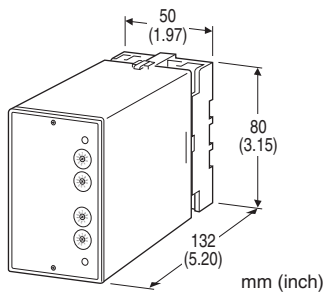
(50 Hz minimum)

Functions & Features

- Providing SPDT relay outputs at preset frequency levels
- Dual (Hi/Lo) trip
- Low-end cutout
- 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: ALSP-[1][2][3]-[4]

ORDERING INFORMATION

- Code number: ALSP-[1][2][3]-[4]
- Specify a code from below for each [1] through [4]. (e.g. ALSP-111-B)
- Frequency range (e.g. 0 - 500 Hz)

[1] INPUT

- 1: Dry contact
- 2: Voltage pulse

[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
- Setpoint adjustments:** 10-position rotary switches (front); 0 - 99 % independently; 1 % increments
- Remark:** The ALSP has low-end cutout function below 2 - 5 % input. A setpoint below this equals 0 %.
- 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.
- Low-end cutout:** 2 to 5 %

INPUT SPECIFICATIONS

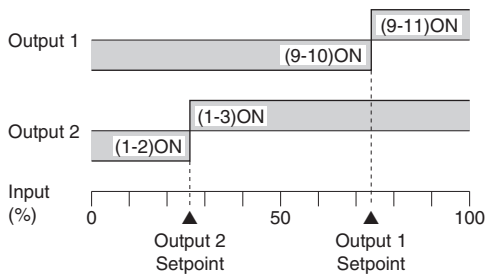
- Frequency range:** 0 - 50 Hz through 10 kHz
- Pulse width (time) requirement:** Duty ratio 20 - 80 % at 100 % input
- **Dry Contact:** Mechanical contact or open collector
- Sensing:** approx. 7.5 V DC @1 mA
- ON/OFF level:** ≤ 200 Ω / 0.6 V for ON, ≥ 100 kΩ / 2 V for OFF
- **Voltage Pulse:** Square or sine waveforms
- Input pulse sensing:** Capacitor coupled; detecting pulse rise
- Input amplitude:** 2 - 50 Vp-p
- Input impedance:** 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

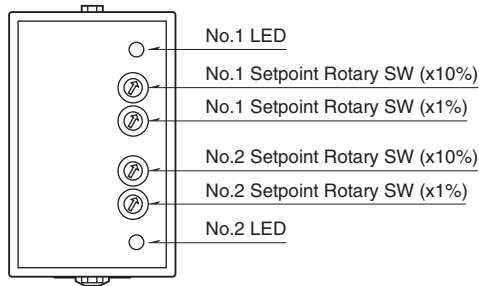
- **AC:** Operational voltage range: rating $\pm 10\%$, 50/60 ± 2 Hz, approx. 2 VA
- **DC:** Operational voltage range: rating $\pm 10\%$, or 85 – 150 V for 110 V rating (ripple 10 % p-p max.)
Approx. 2 W (80 mA at 24 V)
- Operating temperature:** -5 to +60°C (23 to 140°F)
- Operating humidity:** 30 to 90 %RH (non-condensing)
- Mounting:** Surface or DIN rail
- Weight:** 370 g (0.82 lbs)

PERFORMANCE in percentage of span

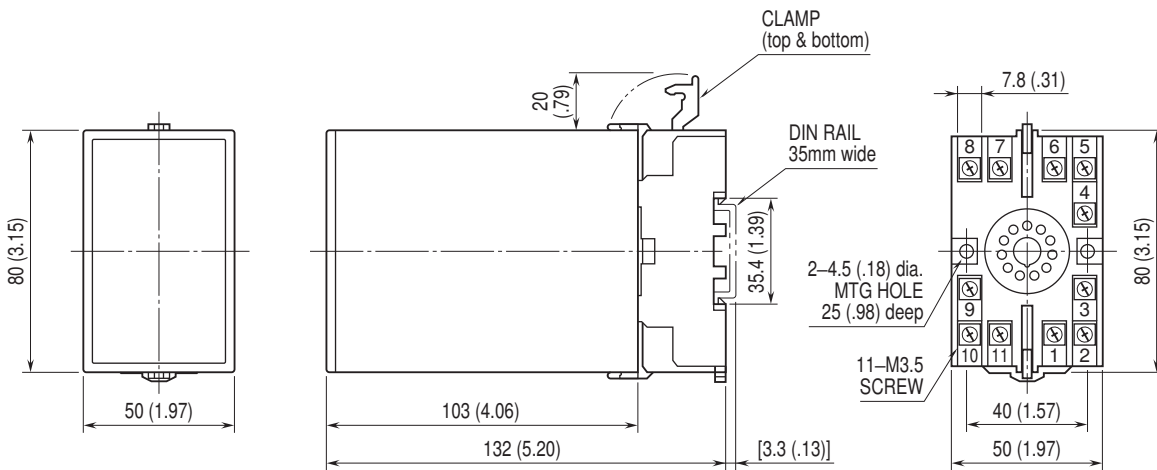
- Setpoint accuracy:** $\pm 0.7\%$
- Trip point repeatability:** $\pm 0.05\%$
- Temp. coefficient:** $\pm 0.015\%/^{\circ}\text{C}$ ($\pm 0.008\%/^{\circ}\text{F}$)
- Response time:** (0 – 100 % at 90 % setpoint)
 approx. 2 seconds for 0 – 50 Hz
 approx. 1 second for 0 – 100 Hz
 approx. 0.5 seconds for 0 – 500 Hz
 approx. 0.5 seconds for 0 – 10 kHz
- 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)



EXTERNAL VIEW



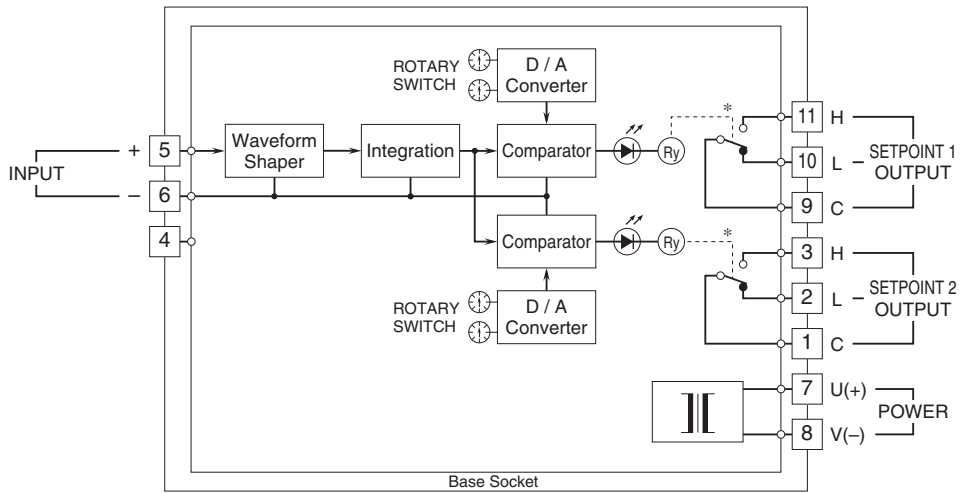
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



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



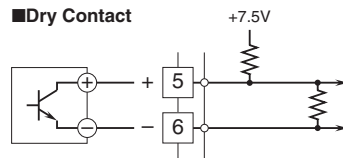
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



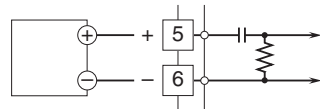
*Relay status for output codes "1" & "4", at power OFF.

Input Connection Examples

■ **Dry Contact**

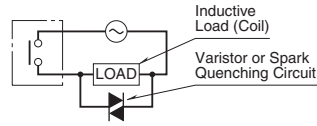


■ **Voltage Pulse**

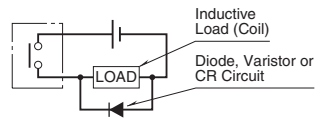


■ **Relay Protection**

• **AC Powered**



• **DC Powered**



Specifications are subject to change without notice.

