

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

<b>RTD ALARM</b>	MODEL <b>ALR</b>
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**MODEL & SUFFIX CODE SELECTION**

ALR-□□□-□□

MODEL \_\_\_\_\_

INPUT RTD (2- or 3-wire) \_\_\_\_\_

1 : JPt 100 (JIS '89)  
 3 : Pt 100 (JIS '89)  
 4 : Pt 100 (JIS '97, DIN, IEC751)  
 5 : Pt 50Ω (JIS '81)  
 6 : Ni 508.4Ω  
 0 : Specify

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)

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)

POWER INPUT \_\_\_\_\_

<b>AC Power</b>	<b>DC Power</b>
B : 100V AC    G : 200V AC	S : 12V DC
C : 110V AC    H : 220V AC	R : 24V DC
D : 115V AC    J : 240V AC	V : 48V DC
F : 120V AC	P : 110V DC

OPTIONS \_\_\_\_\_

/BL : Downscale burnout

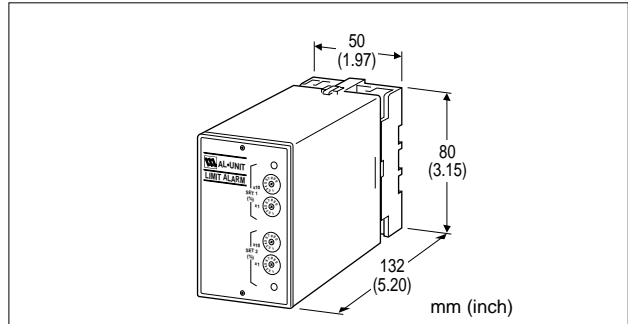
**ORDERING INFORMATION**

Specify code number and variables.

- **Code number** (e.g. ALR-421-B/BL)
- **Temperature range** (e.g. 0 – 200°C)

**GENERAL SPECIFICATIONS**

**Construction:** plug-in  
**Connection:** M3.5 screw terminals  
**Housing material:** flame-resistant resin (black)  
**Isolation:** input to output to power  
**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 coils are energized.  
**Burnout protection:** upscale standard; downscale optional  
**Linearization:** standard  
**Power ON timer:** relays de-energized for approx. 2 seconds after power is turned on.



**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 200Ω
- Energized or de-energized coil at a tripped condition selectable
- Rotary switch setpoint adjustments
- Enclosed relays
- Relays can be powered 110V DC
- High-density mounting

**Typical Applications**

- Annunciator
- Various alarm applications

**INPUT & OUTPUT**

■ **INPUT:** 2- or 3-wire RTDs  
**Maximum leadwire resistance:** 200Ω per wire (3-wire)  
**Sensing current:** 2mA (Pt)  
**Temperature range**

RTD	USABLE RANGE		MIN. SPAN	
	°C	°F	°C	°F
JPt 100 (JIS '89)	-200 to +500	-328 to +932	50	90
Pt 100 (JIS '89)	-200 to +650	-328 to +1202	50	90
Pt 100 (JIS '97/DIN/IEC)	-200 to +650	-328 to +1202	50	90
Pt 50Ω (JIS '81)	-200 to +500	-328 to +932	100	180
Ni 508.4Ω	-50 to +200	-58 to +392	30	54

■ **OUTPUT**

**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

- Relay Contact:** 120V AC @1A (cosφ=1)  
240V AC @0.5A (cosφ=1)  
30V DC @1A (resistive load)  
electrical life  $5 \times 10^5$  cycles (rate 30/min.)
- Maximum switching voltage:** 380V AC or 125V DC
- Maximum switching power:** 100VA or 30W
- Minimum load:** 5V DC @10mA
- Mechanical life:**  $5 \times 10^7$  cycles  
For maximum relay life with inductive loads, external protection is recommended.

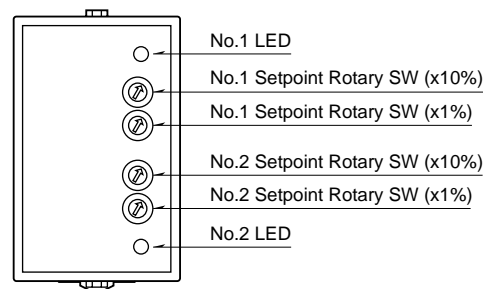
**INSTALLATION**

- Power input**
- AC:** rating  $\pm 10\%$ , 50/60  $\pm 2$  Hz, approx. 2VA
  - DC:** rating  $\pm 10\%$ , or 85 – 150V for 110V rating (ripple 10% p-p max.)  
approx. 2W (80mA at 24V)
- Operating temperature:** -5 to +60°C (23 to 140°F)  
**Operating humidity:** 30 to 90% RH (non-condensing)  
**Mounting:** surface or DIN rail  
**Dimensions:** W50×H80×D132 mm (1.97"×3.15"×5.20")  
 See General Spec. Sheet Figure A.  
**Weight:** 370 g (0.82 lbs)  
**Terminal assignment:** See General Spec. Sheet Figure B-1.

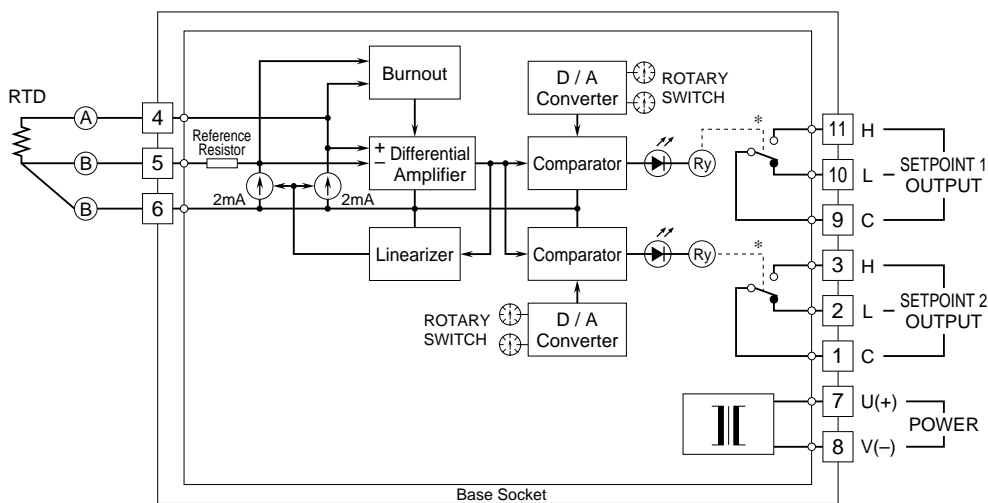
**PERFORMANCE in percentage of span**

- 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:** approx. 0.5 sec. (0 – 100% at 90% setpoint)
- Burnout response:**  $\leq 10$  seconds
- Line voltage effect:**  $\pm 0.1\%$  over voltage range
- Insulation resistance:**  $\geq 100\text{M}\Omega$  with 500V DC
- Dielectric strength:** 2000V AC @1 minute (input to output 1 to output 2 to power to ground)

**FRONT PANEL CONFIGURATION**

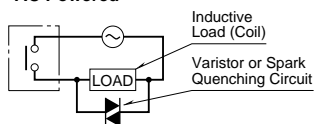


**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



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

■**Relay Protection**  
•**AC Powered**



•**DC Powered**

