

Limit Alarms (rotary switch adj.) AL-UNIT

THERMOCOUPLE ALARM

MODEL

ALT

MODEL & SUFFIX CODE SELECTION

MODEL _____ ALT-□□□-□□

INPUT THERMOCOUPLE

1 : (PR)	6 : B (RH)
2 : K (CA)	7 : R
3 : E (CRC)	8 : S
4 : J (IC)	N : N
5 : T (CC)	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

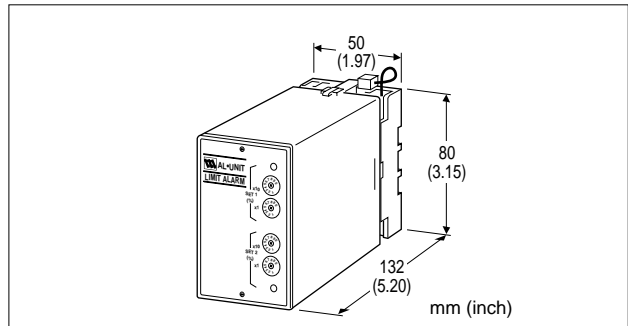
1 : Hi (coil energized at alarm)
2 : Hi (coil de-energized at alarm)
3 : Lo (coil energized at alarm)
4 : Lo (coil de-energized at alarm)

POWER INPUT

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

OPTIONS

/BN: No burnout
/BL : Downscale burnout



Functions & Features

- Providing SPDT relay outputs at preset input levels
- Direct input from a thermocouple
- Dual (Hi/Lo) trip
- 7-segment linearization
- Burnout protection
- High-accuracy cold junction compensation
- 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: thermocouples

Minimum span: 3mV

Zero suppression/elevation: max. 1.5 times span

Input resistance: 30kΩ minimum

Burnout sensing: 0.1μA

Temperature range

T/C	USABLE RANGE		MIN. SPAN	
	°C	°F	°C	°F
(PR)	0 to 1760	32 to 3200	370	670
K (CA)	-270 to +1370	-450 to +2500	75	140
E (CRC)	-270 to +1000	-450 to +1830	50	100
J (IC)	-210 to +1200	-350 to +2190	60	110
T (CC)	-270 to +400	-450 to +750	75	140
B (RH)	0 to 1820	32 to 3300	780	1440
R	-50 to +1760	-50 to +3200	360	680
S	-50 to +1760	-50 to +3200	380	700
N	-270 to +1300	-450 to +2370	110	200

Remark: For the temperatures that range below 0°C, the transmitter may partially not satisfy the described accuracy. Consult factory.

ORDERING INFORMATION

Specify code number and variables.

- Code number (e.g. ALT-221-B/BL)
- Temperature range (e.g. 0 – 800°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.

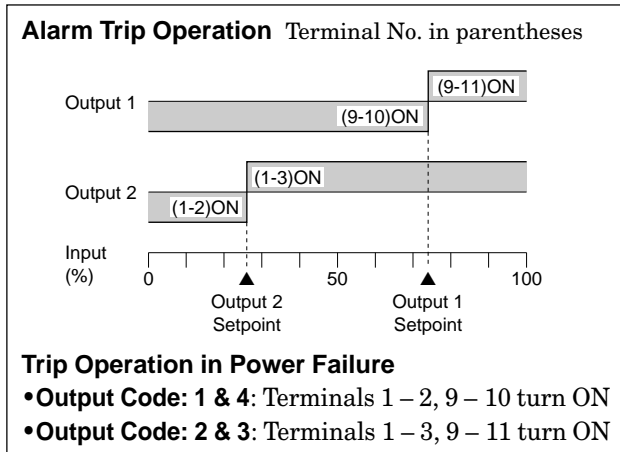
Burnout protection: upscale standard; downscale or
no burnout optional

Linearization: standard

Cold junction compensation: CJC sensor attached
to the input terminals

Power ON timer: relays de-energized for approx. 2
seconds after power is turned on.

OUTPUT



- Relay Contact: 120V AC @1A (cosφ=1)
240V AC @0.5A (cosφ=1)
30V DC @1A (resistive load)
electrical life 5 × 10⁵ 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 × 10⁷ cycles
- For maximum relay life with inductive loads, external protection is recommended.

INSTALLATION

Power input

- AC:** rating ±10%, 50/60 ±2 Hz, approx. 2VA
- DC:** rating ±10%, or 85 – 150V for 110V rating (ripple 10% p-p max.)
approx. 2W (80mA at 24V)

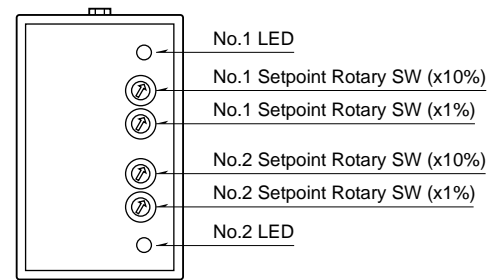
- Operating temperature:** -5 to +60°C (23 to 140°F)
- Operating humidity:** 30 to 90% RH (non-condensing)
- Mounting:** surface or DIN rail

- Dimensions:** W50×H87×D132 mm (1.97"×3.43"×5.20")
See General Spec. Sheet Figure A.
- Weight:** 370 g (0.82 lbs)
- Terminal assignment:** See General Spec. Sheet Figure B-3.

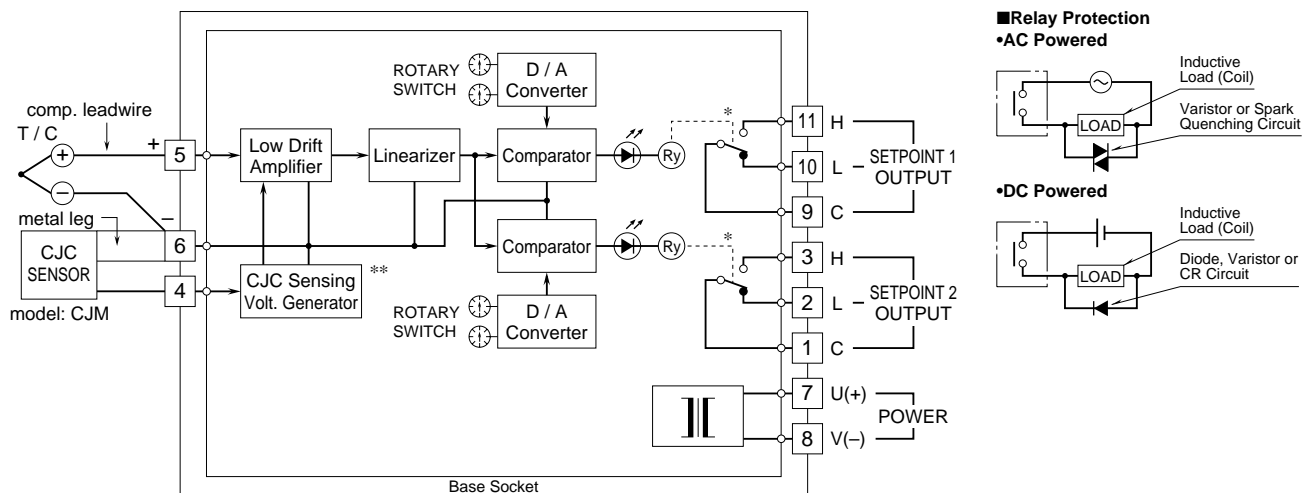
PERFORMANCE in percentage of span

- Setpoint accuracy:** ±0.8%
- Trip point repeatability:** ±0.05%
(at over 400°C or 750°F for R, S and PR;
over 770°C or 1420°F for B)
- Cold junction compensation error**
(at 20°C ±10°C or 68°F ±18°F)
K, E, J, T & N: ±0.5°C or ±0.9°F maximum
S, R & PR: ±1°C or ±1.8°F maximum
- Temp. coefficient:** ±0.015%/°C (±0.008%/°F)
(at over 400°C or 750°F for R, S and PR;
over 770°C or 1420°F for B)
- Response time:** approx. 0.5 sec. (0 – 100% at 90% setpoint)
- Burnout response:** ≤10 seconds
- Line voltage effect:** ±0.1% over voltage range
- Insulation resistance:** ≥100MΩ with 500V DC
- Dielectric strength:** 2000V AC @1 minute (input to output 1 to output 2 to power to ground)

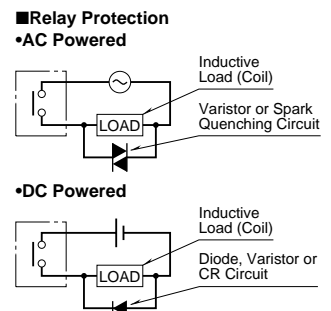
FRONT PANEL CONFIGURATION



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



* Relay status for output codes "1" & "4", at power OFF.
**Deleted with B thermocouple



Specifications subject to change without notice.