

MTL2315 RTD TRIP AMPLIFIER



The MTL2315 energises a 3-wire 100Ω platinum resistance temperature detector in a hazardous area, and can be used with earthed or insulated sensors. Alternative versions are available to handle a single direct measurement, temperature difference between two similar sensors, or positional measurement made by a slidewire displacement transducer. Low power dissipation makes sure that self-heating errors in the sensor are negligible. Sensor failure (to open circuit) or any combination of broken leads de-energises the alarm relay(s). On-site alarm setting is made using a decade resistance box.

SPECIFICATION

See also 'Common specification'

Versions available

- A: 1-alarm
- B: 2-alarm

Signal source (factory-set)

- Temperature: 3-wire platinum RTD to BS 1904, DIN 43760 (100Ω at 0°C)
- Differential temperature: two RTD elements as above
- Displacement: 3-wire 100Ω slidewire

Location of RTD or slidewire

- Zone 0, IIC, T4 hazardous area
- Div 1, Group A, hazardous location

Input range (factory-set)

- 20 to +100°C
- 50 to +250°C
- 120 to +600°C
- Displacement: 0 to 100Ω
- Hysteresis: nominally 1% of input range

Power supply failure protection

- Relay(s) de-energised if supply fails

Broken line protection

- Relay(s) de-energised if any combination of leads goes open circuit

Trip-point adjustment

- Within 0.1% of input range over whole range (set by multi-turn potentiometer accessible through casing)

Supply voltage effect on trip point

- <0.1% of input range for supply voltage change within the specified limits

Temperature effect on trip point

- <0.015% of input range/°C

Input line resistance effect on trip point

- <0.03% of setting/1Ω resistance in each line
- 500Ω maximum in each line

Response time

- 500ms, nominal

Alarm function (selectable)

- High alarm: relay energised when input signal <trip point
- Low alarm: relay energised when input signal >trip point

Alarm relay contacts

- 1-pole changeover (2-alarm version)
- 2-pole changeover (1-alarm version)

Contact rating

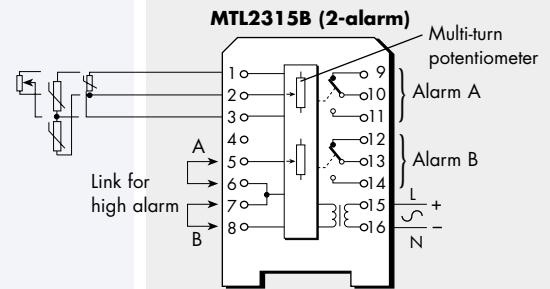
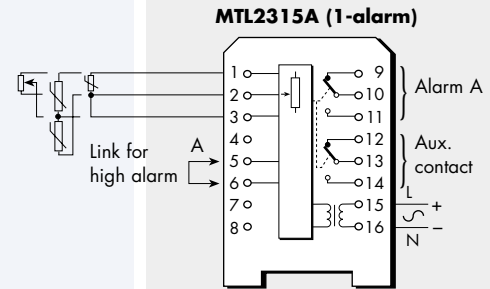
- 250V:5A:500VA (ac), resistive loads, reactive loads must be suppressed
- 250V:5A:250W (dc), resistive loads, reactive loads must be suppressed

Contact life expectancy

- 2-alarm versions: 3×10^5 operations at maximum load
- 1-alarm versions: 2×10^5 operations at maximum load

Hazardous area

Safe area



All contacts shown in alarm condition (relay de-energised)

LED indicator

- ON when relay energised

Series mode rejection

- <0.1% error for 5mV rms 50Hz input

Common mode rejection

- <0.1% error for 250V rms, 50Hz

Consumption

- 1.7 to 2.5W (ac versions)
- 110mA (dc version)

Ambient temperature limits

- 20 to +50°C (ac versions, close packed)
- 20 to +45°C (dc versions at 26V, close packed)
- 20 to +60°C (all versions, at least 5mm apart)
- 40 to +80°C (all versions, storage)

Safety description

- 8.9V, 1000Ω, 8.9mA

FM max entity parameters

- $V_{oc} = 11.4V$, $I_{sc} = 2.8mA$, $C_d = 2.0\mu F$, $L_d = 1000mH$

This unit may show degraded immunity performance under some EMC test conditions – refer to supplementary specification SUP2315 for further details.

See also MTL2000 approvals, maximum cable parameters, dimensions and ordering information

