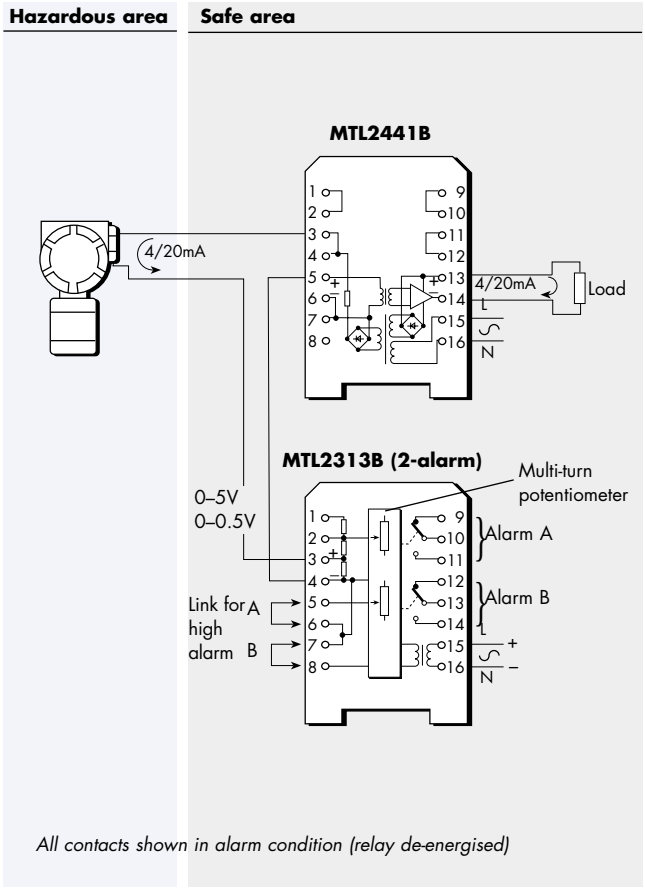
MTL2313
TRIP AMPLIFIER

general purpose

CE

The MTL2313 accepts a standard high-level dc signal of 0/20 mA, 0/5V or 0/0.5V from any circuit in a hazardous area, and is particularly suitable for monitoring the output from a 2-wire transmitter. Since the unit drops less than 0.5V at 20mA across its input terminals (which are certified as 'non-energy-storing' in Europe and regarded as 'non-voltage-producing' in the USA) it can be connected into almost any 4/20mA IS loop without causing this to run out of volts or need further attention by the certifying authorities. The unit operates down to zero input current, hence the low alarm can be set to detect a broken cable. On-site alarm setting is carried out simply with a calibrated voltage or current generator.



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

SPECIFICATION

See also 'Common specification'

Versions available
A: 1-alarm
B: 2-alarm

Signal source
Any intrinsically safe circuit

Location of signal source
Zone 0, IIC, T4–T6 hazardous area
Div 1, Group A, hazardous location

Input range
0 to 20mA into 25Ω nominal (terminals 3 and 4)
0 to 5V at 500kΩ nominal (terminals 1 and 4)
0 to 0.5V at 50kΩ nominal (terminals 2 and 4)
Hysteresis, nominal: 1% of input range

Power supply failure protection
Relay de-energised if supply fails

Broken line protection
Low-alarm relay energised if set to zero

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 (emf input)
<0.02% of input range/°C

Response time
500ms, nominal

Alarm function (selectable by link)
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 x 10^5 operations at maximum load
1-alarm versions: 2 x 10^5 operations at maximum load

LED indicator
ON when relay energised

Series mode rejection
<0.1% error for 50Hz rms input equal to 5% of input span

Common mode rejection
<0.1% error for 250V rms, 50Hz

Consumption
1.7 to 2.5W (ac versions)
110mA (24V 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
Input terminals (1,2,3,and 4): non-energy-storing apparatus (≤1.2V, ≤0.1A, ≤20μJ and ≤25mW); can be connected without further certification into any IS loop -with open circuit voltage less than 75V (in USA, application governed by Entity Concept)

FM max entity parameters
V_{oc} = 11.4V, I_{sc} = 0.017μA, C_a = 2μF, L_a = 1000mH

This unit may show degraded immunity performance under some EMC test conditions – refer to supplementary specification SUP2313 for further details.

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

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