MTL2316 BONDING INTEGRITY MONITOR

The MTL2316 continuously monitors a bonding conductor and warns of any significant change in resistance, or of a large current being conducted. The unit is designed for accurate monitoring of clean low-resistance (<1Ω) bonds located in hazardous areas or linked with intrinsically safe circuits and is ideally suited to monitoring 'safety earths' in barrier systems. Loop resistance (bond plus return lead) is monitored by means of a direct current of approximately 0.25mA so that no significant common-mode voltage is imposed on the bonded system.

SPECIFICATION

***See also* 'Common specification'**

Version available
2-alarm

Signal source
Resistance of bonding conductor

Location of bonding conductor
Zone 0, IIC, T6 hazardous area
Div 1, Group A, hazardous location

Input range
0 to 2Ω
Hysteresis: nominally 1% of input range

Energising current
0.25mA dc

Power supply failure protection
Relays de-energised if supply fails

Broken line protection
Relays de-energised if any combination of leads goes open circuit

Trip-point adjustment
Within 10mΩ of input range over whole range (set by multi-turn potentiometer accessible through casing)

Supply voltage effect on trip point
<10mΩ of input range for supply voltage change within the specified limits

Temperature effect on trip point
<10mΩ/°C

Response time
≤5s

Alarm function (selectable)
High alarm: relay energised when input signal <trip point
Low alarm: relay energised when input signal >trip point

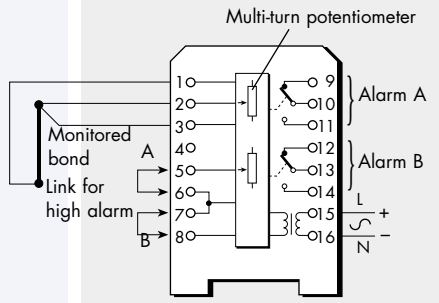
Alarm relay contacts
1-pole changeover (2-alarm version)
2-pole changeover (1-alarm version)

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

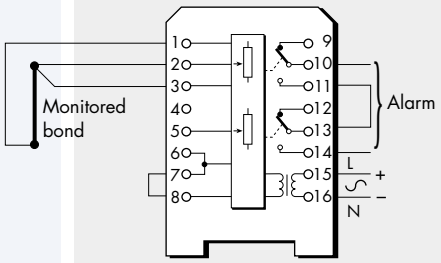
Contact life expectancy
2-alarm versions: 3 x 10^5 operations at maximum load
1-alarm versions: 2 x 10^5 operations at maximum load

LED indicator
ON when relay energised

Hazardous area | **Safe area**



MTL2316 (independent alarms)



MTL2316 (one alarm for any fault)

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

Alarm response to typical faults
Deteriorating bond: high alarm
Bond or leads broken: high and low alarms
DC invasion, polarity as sense current: high alarm
DC invasion, opposite polarity: low alarm
AC invasion: high or low alarm
Monitor lead short circuit: low alarm
Power supply failure: high and low alarms

Series mode rejection
<0.5% error for 40mV 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_a = 2.0μF, L_a = 1000mH

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

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