MTL MTL Series Service Manual

MTL4014

1. Description

The MTL4014 enables a safe-area load to be controlled by a proximity

3. Product Information

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The MTL4014 enables a safe-area load to be controlled by a proximity detector or switch located in a hazardous area through a reed relay. Line faults are signalled through a separate reed relay. The line fault detection (LFD) function can be used with both proximity detectors and switches, provided that for switches suitable resistors are added as shown in the circuit diagram. ‘No-fail’ earth fault detection on either line can be provided by connecting an MTL4220 earth leakage detector to terminal 6.

SPECIFICATION

See also common specification, cable parameters and approvals

Number of channels

One

Location of switch

Zone 0, IIC, T6 hazardous area

Div.1, Group A, hazardous location

Location of proximity detector

Zone 0, IIC, T4–6 if suitably certified

Div.1, Group A, hazardous location

Voltage applied to sensor

7.0V – 9.0V dc from 1kΩ nominal

Input/output characteristics

Output closed if input >2.1mA* (<2kΩ)

Output open if input <1.2mA* (>10kΩ)

Hysteresis: 200µA (650Ω) nominal

*NAMUR and DIN 19234 standards for proximity detectors

Line fault detection (LFD)

Line fault relay and channel relay open if input

<50µA (broken line)

or <100Ω (shorted line)

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Note: switch-type sensors must be fitted with resistors as shown in the diagram. LFD cannot be disabled.

‘No-fail’ earth fault protection

Enabled by connecting terminal 6 to an MTL4220 earth leakage detector

Fault on either line proclaimed: unit continues working

Relay output characteristics

Single-pole on/off, open when relay de-energised

Response time: 2ms maximum

Contact rating: 10W, 0.5A, 35V (dc)

Contact life expectancy: 107 operations at maximum load

Note: reactive loads must be adequately suppressed

LED indicators

Amber: one provided for input, ON when output circuit is closed

Red: one provided for LFD, ON when line fault is detected

Green: one provided for power indication

Power requirement, Vs

45mA at 24V dc

50mA at 20V dc

36mA at 35V dc

Power dissipation within unit

1.1W at 24V

1.3W at 35V

Isolation

250V ac between safe and hazardous area circuits

Safety description

10.5V, 800Ω, 14mA

FM entity parameters

Voc = 10.5V dc, Isc = 14mA, Ca = 2.4µF, La = 165mH

Terminal	Function
1	Input –ve
2	Input +ve
6	Optional link to MTL4220
7, 8	Output
10, 11	Line fault signal
13	Supply –ve
14	Supply +ve

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