MTL MTL Series Service Manual

MTL4015

1. Description

With the MTL4015, a switch or proximity detector located in a

3. Product Information

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With the MTL4015, a switch or proximity detector located in a hazardous area can control two safe-area loads. The two safe-area outputs are made through relays. It is designed for applications where the status of a sensor needs to be fed to two separate systems (eg, control and shutdown). A phase-reversal switch, located on top of the module, allows an alarm signal to be signalled for either state of the sensors. Line fault detection (LFD) for broken or shorted lines is provided as also are facilities for earth fault detection. Power and switch status is indicated by LEDs located on top of the module.

SPECIFICATION

See also common specification, cable parameters and approvals

Number of channels

One

Location of switches

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

7.0–9.0V dc from 1kΩ

Input/output characteristics

Outputs closed if >2.1mA* (<2kΩ) in sensor circuit

Outputs open if <1.2mA* (>10kΩ) in sensor circuit

Hysteresis: 200µA (650Ω) nominal

*NAMUR and DIN 19234 standards for proximity detectors

Phase reversal

The operation of the output can be reversed by a switch on top of the unit

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Line fault detection (LFD)

By built-in line-fault detection (LFD)

Output opens if input current <100µA (broken line) or >6.5mA (shorted lines)

Note: to prevent false triggering of LFD, switch-type sensors must be fitted with resistors as shown in the diagram or LFD disabled by the switch on top of the unit

'No-fail' earth fault protection

Enabled by connecting terminal 6 to an MTL4220 earth leakage detector

Fault on either line of each channel proclaimed: unit continues working

Relay output characteristics

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

Response time: 2ms maximum

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

Contact life expectancy: 106 operations at maximum load

Note: reactive loads must be adequately suppressed

LED indicators

Amber: one provided, ON when output circuit is closed

Green: one provided for power indication

Power requirement, Vs

50mA at 24V dc

60mA at 20V dc

45mA at 35V dc

Power dissipation within unit

1.2W at 24V

1.6W at 35V

Isolation

250V ac between safe and hazardous area circuits

Terminal Function

4 Input –ve

5 Input +ve

6 Optional link from input to MTL4220

8, 9 Output A

11, 12 Output B

13 Supply –ve

14 Supply +ve

Safety description for each channel

10.5V, 800Ω, 14mA

FM entity parameters

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

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