MTL5011B SWITCH/PROXIMITY DETECTOR INTERFACE

single-channel, with line fault detection and phase reversal

The MTL5011B enables a safe-area load to be controlled by a switch or proximity detector located in a hazardous area. A relay output is provided. Phase reversal control allows an alarm condition to be signalled for either state of the sensor. A selectable line fault detect (LFD) facility detects an open or short circuit in the field circuit.

SPECIFICATION
See also common specification

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 hazardous area if suitably certified
Div. 1, Group A hazardous location

Safe-area output
One relay with changeover contacts

Hazardous-area input
Input conforming to NAMUR/DIN 19234 standards for proximity detectors

Voltage applied to sensor
7 to 9V from 1kΩ ±10%

Input/output characteristics
Normal (reverse) phase:
output energised (de-energised) if I_in >2.1mA or R_in <2kΩ
output de-energised [energised] if I_in <1.2mA or R_in >10kΩ

Hysteresis: 200µA, typical

Line fault detection (LFD)
User-selectable, via switches on the top of unit. Line faults are indicated by an LED. A detected line fault de-energises the relay.

Open-circuit alarm on if I_in<100µA
Open-circuit alarm off if I_in>250µA
Short-circuit alarm on if R_in<100Ω
Short-circuit alarm off if R_in>360Ω

Note: Resistors must be fitted when using the LFD facility with a contact input
500Ω to 1kΩ in series with switch
20kΩ to 25kΩ in parallel with switch

Phase reversal
User-selectable, via switches on the top of unit.

Relay type
Single-pole changeover relay

Note: reactive loads must be adequately suppressed

Relay characteristics
Response time: 10ms maximum
Contact rating: 250V ac, 2A, cosø >0.7
40V dc, 2A, resistive load

LED indicators
Green: power indication
Yellow: status of channel (on when outputs are energised)
Red: LFD indication (on when line fault detected)

Maximum current consumption
40mA at 20V
35mA at 24V
25mA at 35V

Maximum power dissipation
0.75W at 24V
0.8W at 35V

Isolation
250V ac or dc between power supply, hazardous-area circuits and relay outputs

Safety description (each channel)
10.5V, 800Ω, 14mA, U_m = 250V rms or dc