

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 $1k\Omega \pm 10\%$

Input/output characteristics

Normal (reverse) phase:

output energised (de-energised) if $I_{in} > 2.1mA$ or $R_{in} < 2k\Omega$
output de-energised (energised) if $I_{in} < 1.2mA$ or $R_{in} > 10k\Omega$

Hysteresis: 200 μA , 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 $I_{in} < 100\mu A$
Open-circuit alarm off if $I_{in} > 250\mu A$
Short-circuit alarm on if $R_{in} < 100\Omega$
Short-circuit alarm off if $R_{in} > 360\Omega$

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

Phase reversal

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

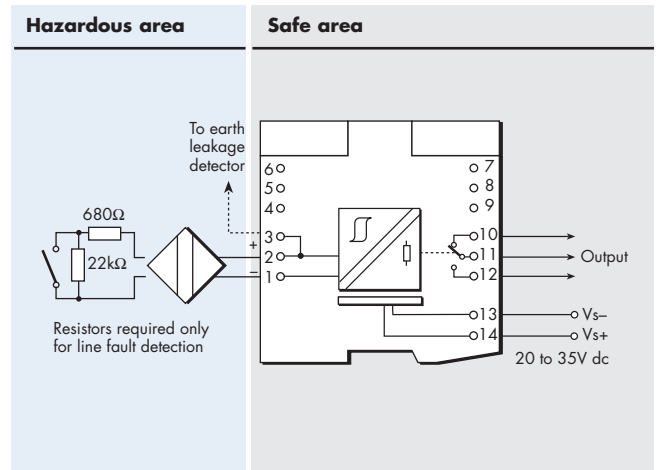
Relay type

Single-pole changeover relay

Note: reactive loads must be adequately suppressed

Relay characteristics

Response time: 10ms maximum
Contact rating: 250V ac, 2A, $\cos\phi > 0.7$
40V dc, 2A, resistive load



Terminal	Function
1	Input -ve
2	Input +ve
3	Earth leakage detection
10	Normally-closed contact
11	Common
12	Normally-open contact
13	Supply -ve
14	Supply +ve

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, 800 Ω , 14mA, $U_m = 250V$ rms or dc

