

MTL5018 SWITCH/ PROXIMITY DETECTOR INTERFACE

two-channel, with line fault detection
and phase reversal



The MTL5018 enables two safe-area loads to be controlled by two switches or proximity detectors located in a hazardous area. Two relay outputs are provided. Independent 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 either field circuit.

SPECIFICATION

See also common specification

Number of channels

Two

Location of switches

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

Two relays with changeover contacts

Hazardous-area inputs

Inputs 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 the unit. Line faults are indicated by an LED for each channel. 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

Independent for each channel, user-selectable

Relay type

Single pole, changeover contacts

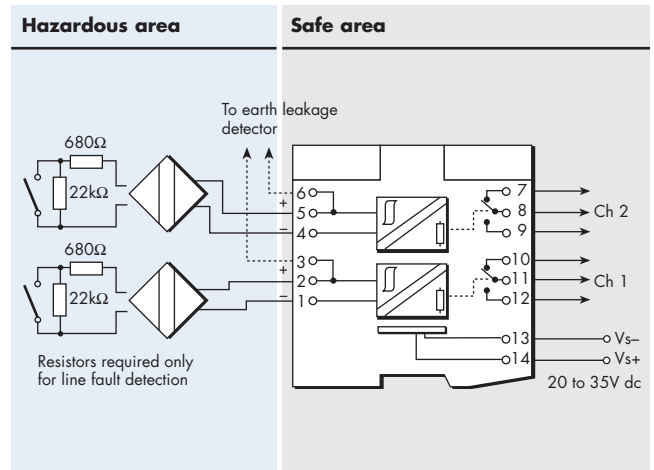
Note: reactive loads must be adequately suppressed

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 (Ch 1)
2	Input +ve (Ch 1)
3	Earth leakage detection
4	Input -ve (Ch 2)
5	Input +ve (Ch 2)
6	Earth leakage detection
7	Normally-closed contact (Ch 2)
8	Common (Ch 2)
9	Normally-open contact (Ch 2)
10	Normally-closed contact (Ch 1)
11	Common (Ch 1)
12	Normally-open contact (Ch 1)
13	Supply -ve
14	Supply +ve

LED indicators

Green: power indication

Yellow: two: status of each channel (on when outputs are energised)

Red: two: LFD indication for each channel (on when line fault detected)

Maximum current consumption

60mA at 20V

60mA at 24V

40mA at 35V

Maximum power dissipation

1.4W at 24V

1.5W 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



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