

MTL5015 SWITCH/ PROXIMITY DETECTOR INTERFACE

two-channel, with line fault detection and
phase reversal



The MTL5015 enables two solid-state outputs in the safe area to be controlled by two switches or proximity detectors located in the hazardous area. Independent output phase reversal and line fault detection are provided for each output.

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 detectors

Zone 0, IIC, T4-6 hazardous area if suitably certified
Div. 1, Group A hazardous location

Safe-area outputs

Floating solid-state outputs compatible with logic circuits

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

Hysteresis: 200 μA , typical

Line fault detection (LFD)

User-selectable. Line faults are indicated by an LED for each channel. A detected line fault switches off the output.

Open-circuit alarm on if $I_{in} < 50\mu A$

Open-circuit alarm off if $I_{in} > 150\mu A$

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

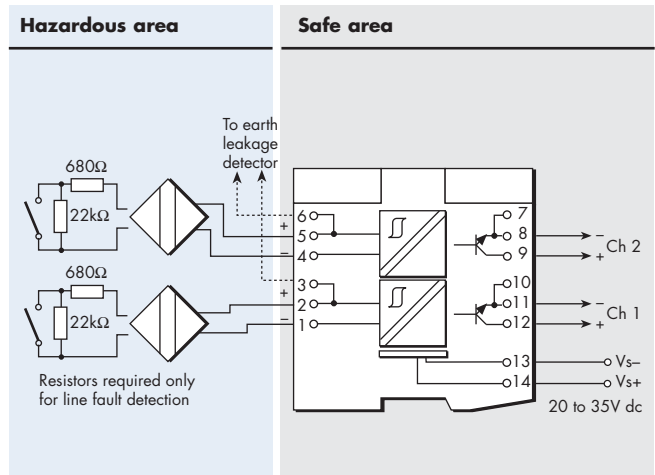
20k Ω to 25k Ω in parallel with switch

Phase reversal

Independent for each channel, user-selectable

Output characteristics

Operating frequency:	dc to 5kHz
Max. off-state voltage:	35V
Max. off-state leakage current:	10 μA
Max. on-state voltage drop:	$1 + (0.13 \times \text{current in mA}) V$
Max. on-state current:	50mA



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
8	Output -ve (Ch 2)
9	Output +ve (Ch 2)
10, 11	Output -ve (Ch 1)
12	Output +ve (Ch 1)
13	Supply -ve
14	Supply +ve

LED indicators

Green: power indication

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

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

Maximum current consumption

42mA at 20V

44mA at 24V

46mA at 35V

Maximum power dissipation

1.1W at 24V

1.6W at 35V

Isolation

250V ac or dc between power supply, hazardous-area circuits and each output. 30V between hazardous-area circuits.

Safety description (each channel)

10.5V, 800 Ω , 14mA, $U_m = 250V$ rms or dc



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