

MTL4513 SWITCH/ PROXIMITY DETECTOR INTERFACE

two-channel, with line fault detection
and phase reversal

The MTL4513 enables two solid-state outputs in the safe area to be controlled by two switches or proximity detectors located in the hazardous area. The Ch1/Ch2 output transistors share a common terminal and can switch +ve or -ve polarity signals. Independent output phase reversal and line fault detection are enabled via switches for each output. LFD indication is provided on the top of the module.

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

Hazardous-area inputs

Inputs conforming to BS EN60947-5-6:2001 standards for proximity detectors (NAMUR)

Voltage applied to sensor

7 to 9V dc from 1k Ω \pm 10%

Input/output characteristics

Normal phase

Outputs closed if input > 2.1mA (< 2k Ω in input circuit)

Outputs open if input < 1.2mA (> 10k Ω in input circuit)

Hysteresis: 200 μ A (650 Ω) nominal

Line fault detection (LFD) (when selected)

User-selectable for each channel via switches on the side of the unit. Line faults are indicated by an LED for each channel.

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

Safe-area outputs

Floating solid-state outputs compatible with logic circuits

Operating frequency: dc to 1kHz

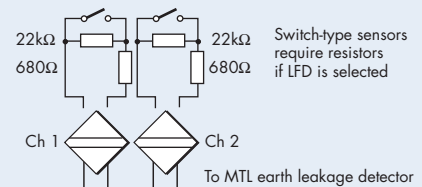
Max. off-state voltage: \pm 35V

Max. off-state leakage current: \pm 50 μ A

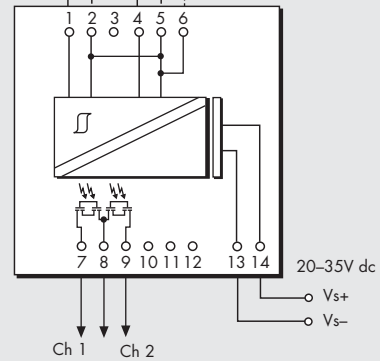
Max. on-state resistance: 65 Ω

Max. on-state current: \pm 50mA

Hazardous area



Safe area



Terminal	Function
1	Input -ve (Ch 1)
2	Input +ve (Ch 1)
4	Input -ve (Ch 2)
5	Input +ve (Ch 2)
6	To earth leakage detector
7	Output (Ch 1)
8	Output (Ch 1/Ch 2)
9	Output (Ch 2)
13	Supply -ve
14	Supply +ve

LED indicators

Green: power indication

Yellow: two: channel status, on when outputs are on

Red: two: LFD indication, on when line fault detected

Maximum current consumption

30mA at 24V

Power dissipation within unit

0.9W typical at 24V with 10mA loads-

1.2W max. with 50mA loads

Safety description (each channel)

$V_o=10.5V$ $I_o=14mA$ $P_o=37mW$ $U_m = 253V$ rms or dc