MTL4511 – MTL5511 SWITCH/ PROXIMITY **DETECTOR INTERFACE**

1-channel, with line fault detection

The MTLx511 enables a safe-area load to be controlled by a switch or proximity detector located in a hazardous-area. When selected, open or short circuit conditions in the field wiring are detected by the linefault-detect (LFD) facility and also indicated on the top of the module. Phase reversal for the channel is selected by a switch on the side of the module and output is provided by changeover relay contacts.

SPECIFICATION

See also common specification

Number of channels



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

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 1kΩ ±10%

Input/output characteristics

Normal phase

Outputs closed if input > 2.1mA (< $2k\Omega$ in input circuit) Outputs open if input < 1.2mA (> $10k\Omega$ in input circuit) Hysteresis: 200μA (650Ω) nominal

Line fault detection (LFD) (when selected)

User-selectable via switches on the side of the unit. A line fault is indicated by an LED. The channel output relay is de-energised if an input line fault is detected.

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

Safe-area output

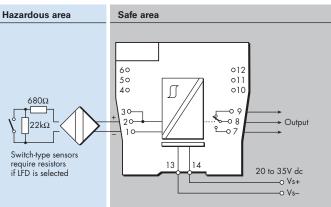
Single pole relay with changeover contacts

Note: reactive loads must be adequately suppressed

Relay characteristics

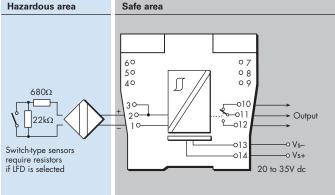
Response time:	10ms maximum	10ms maximum
Contact rating (Safe Area):	10W, 0.5A, 35V dc	250V ac, 2A, cosØ >0.7, 40V dc, 2A, resistive load
Contact rating (Zone 2):	10W, 0.5A, 35V dc	35V, 2A, 100VA.

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Hazardous area



LED indicators

Green: power indication Yellow: channel status, on when output energised Red: LFD indication, on when line fault detected

Maximum current consumption

25mA at 24V

Power dissipation within unit

0.6W at 24V

Safety description (each channel) $U_0 = 10.5V$ $I_0 = 14mA$ $P_0 = 37mW$ $U_m = 253V$ rms or dc

SIL capable



These models have been assessed for use in IEC 61508 functional safety applications. SIL2 capable for a single device (HFT=0) SIL3 capable for multiple devices in safety redundant configurations (HFT=1) See data on MTL web site and refer to the safety manual.



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