

MTL4511 SWITCH/ PROXIMITY DETECTOR INTERFACE

single channel, with line fault detection

The MTL4511 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 line-fault-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

One

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 $1k\Omega \pm 10\%$

Input/output characteristics

Normal phase

Outputs closed if input $> 2.1\text{mA}$ ($< 2k\Omega$ in input circuit)

Outputs open if input $< 1.2\text{mA}$ ($> 10k\Omega$ in input circuit)

Hysteresis: $200\mu\text{A}$ (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 $I_{lin} < 50\mu\text{A}$

Open-circuit alarm off if $I_{lin} > 250\mu\text{A}$

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

Safe-area output

Single pole relay with changeover contacts

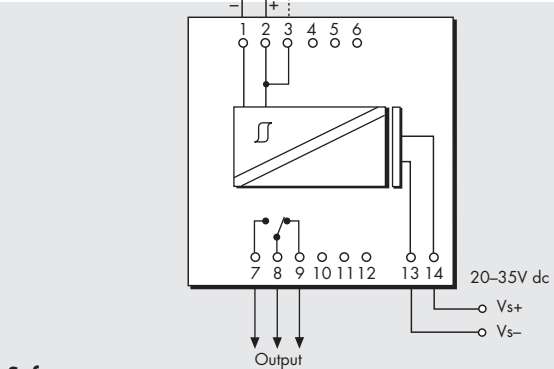
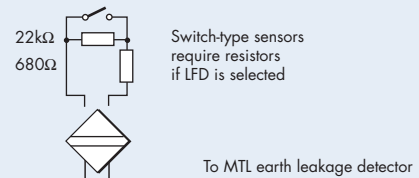
Note: reactive loads must be adequately suppressed

Relay characteristics

Response time: 10ms maximum

Contact rating: 10W, 0.5A, 35V dc

Hazardous area



Safe area

Terminal	Function
1	Input -ve
2	Input +ve
3	To earth leakage detector
7	Output normally-open contact
8	Common
9	Output normally-closed contact
13	Supply -ve
14	Supply +ve

LED indicators

Green: power indication

Yellow: channel status, on when output is energised

Red: LFD indication, on when line fault is detected

Maximum current consumption

30mA at 24V

Power dissipation within unit

0.72W at 24V

Safety description (each channel)

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

