MTL4514D – MTL5514D SWITCH/ PROXIMITY DETECTOR INTERFACE

1-channel, dual output, LFD, phase reversal

The MTLx514D enables two safe–area loads to be controlled, through relays, by a proximity detector or switch 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 indicated on the top of the module. Switches are provided to select phase reversal and to enable the line fault detection.

SPECIFICATION

See also common specification

Number of channels
One

Location of switch
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 (< 2kΩ in input circuit)
Outputs open if input < 1.2mA (> 10kΩ in input circuit)
Hysteresis: 200µA (650Ω) nominal

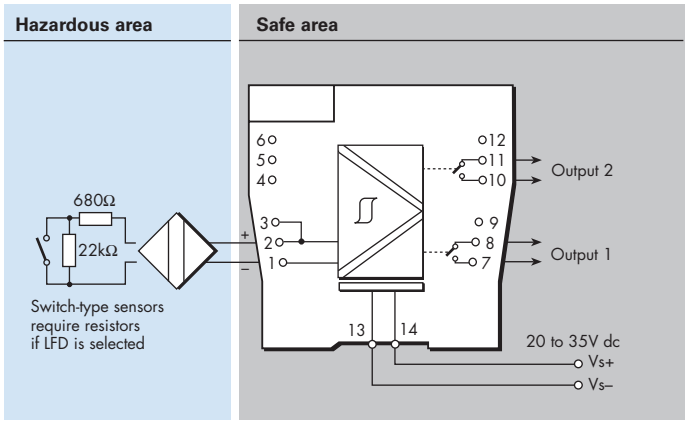
Line fault detection (LFD) (when selected)
User-selectable via switches on the side of the unit. Line faults are indicated by an LED. The channel output relays are de-energised if an input line-fault is detected
Open-circuit alarm on if I_{in} < 50µA
Open-circuit alarm off if I_{in} > 250µA
Short-circuit alarm on if R_{in} < 100Ω
Short-circuit alarm off if R_{in} > 360Ω
Note: Resistors must be fitted when using the LFD facility with a contact input
500Ω to 1kΩ in series with switch
20kΩ to 25kΩ in parallel with switch

Safe-area output
MTL4514D: two, single pole relays with normally-open contacts
MTL5514D: two, single pole relays with changeover contacts
Note: reactive loads must be adequately suppressed

Relay characteristics

	MTL4514D	MTL5514D
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.

MTL4514D



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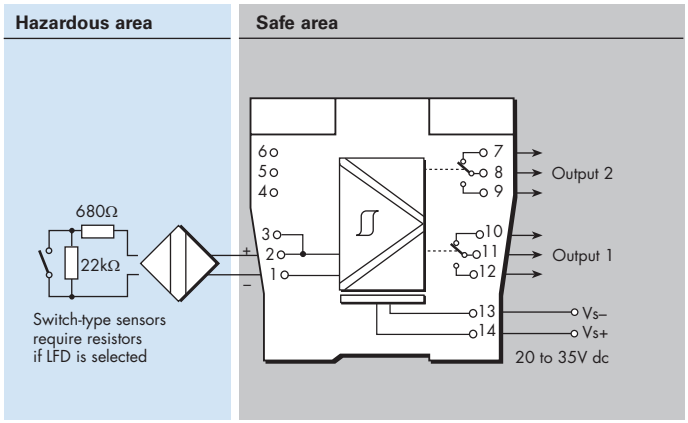

LED indicators
Green: power indication
Yellow: channel status, on when output energised
Red: LFD indication, on when line fault detected

Maximum current consumption
29mA at 24V dc

Power dissipation within unit
0.7W at 24V

Safety description
U_o=10.5V I_o=14mA P_o=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

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee.
In the interest of further technical developments, we reserve the right to make design changes.

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Publication No.
EPSx514D Rev3 010916

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