

# MTL5511 SWITCH/ PROXIMITY DETECTOR INTERFACE

single channel, with line fault detection

The MTL5511 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  $> 2.1mA$  ( $< 2k\Omega$  in input circuit)

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

Hysteresis:  $200\mu A$  ( $650\Omega$ ) 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  $R_{in} > 360\Omega$

Note: Resistors must be fitted when using the LFD facility with a contact input

$500\Omega$  to  $1k\Omega$  in series with switch

$20k\Omega$  to  $25k\Omega$  in parallel with switch

### Safe-area output

Single pole relay with changeover contacts

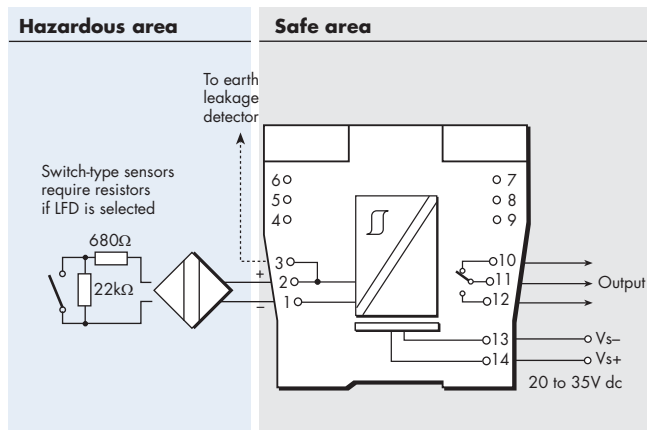
Note: reactive loads must be adequately suppressed

### Relay characteristics

Response time: 10ms maximum

Contact rating: 250V ac, 2A,  $\cos\phi > 0.7$

40V dc, 2A, resistive load



| Terminal | Function                       |
|----------|--------------------------------|
| 1        | Input -ve                      |
| 2        | Input +ve                      |
| 3        | To earth leakage detector*     |
| 10       | Output normally-closed contact |
| 11       | Common                         |
| 12       | Output normally-open contact   |
| 13       | Supply -ve                     |
| 14       | Supply +ve                     |

\* Signal plug HAZ1-3 is required for access to this function

### 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

25mA at 24V

### Power dissipation within unit

0.6W at 24V

### Safety description (each channel)

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

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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# MTL5500 SERIES COMMON SPECIFICATION

Please go to our website at [www.mtl-inst.com](http://www.mtl-inst.com) for the latest information regarding safety approvals, certificates and entity parameters.

## Connectors

Each MTL5500 unit is supplied with signal connectors, as applicable.

When using crimp ferrules for the hazardous and non-hazardous (safe) signal connectors the metal tube length should be 12mm and the wire trim length 14mm.

## Isolation

250V rms, tested at 2200V rms minimum, between safe-area, hazardous-area and power supply terminals

50V ac or dc between safe-area circuits where applicable.

## Supply voltage

20 – 35V dc

## Location of units

Safe area

## Terminals

Accepts conductors of up to 2.5mm<sup>2</sup> stranded or single-core

## Mounting

MTL5500 series backplanes

## Ambient temperature limits

-20 to +60°C (-6 to +140°F) operating

-40 to +80°C (-40 to +176°F) storage

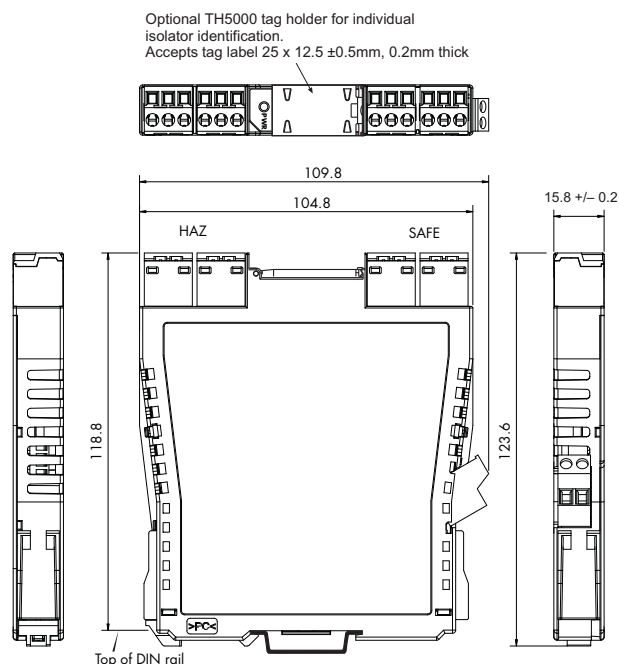
## Humidity

5 to 95% relative humidity

## Weight

110g approximately (except where indicated)

## DIMENSIONS (mm)



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