

MTL5513 SWITCH/ PROXIMITY DETECTOR INTERFACE

two-channel, with line fault detection
and phase reversal

The MTL5513 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

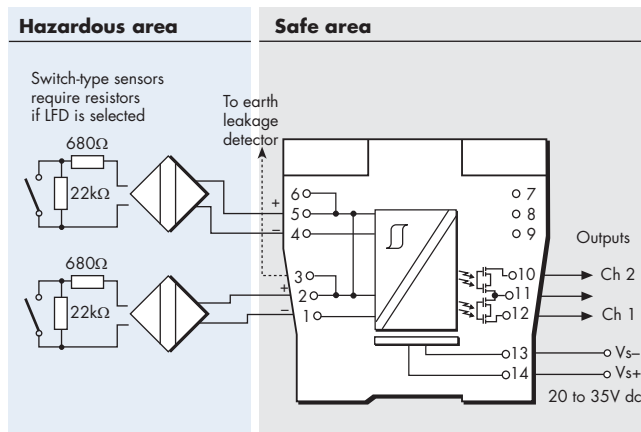
Operating frequency: dc to 500Hz

Max. off-state voltage: ± 35 V

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

Max. on-state resistance: 25 Ω

Max. on-state current: ± 50 mA



Terminal	Function
1	Input -ve (Ch 1)
2	Input +ve (Ch 1)
3	To earth leakage detector*
4	Input -ve (Ch 2)
5	Input +ve (Ch 2)
6	To earth leakage detector*
10	Output (Ch 2)
11	Output (Ch 1/Ch 2)
12	Output (Ch 1)
13	Supply -ve

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

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

27mA at 24V

Power dissipation within unit

0.65W typical at 24V, with 10mA loads

0.78W max. with 50mA loads

Safety description (each channel)

$V_o=10.5$ V $I_o=14$ mA $P_o=37$ mW $U_m=253$ V 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 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 2.5mm² 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

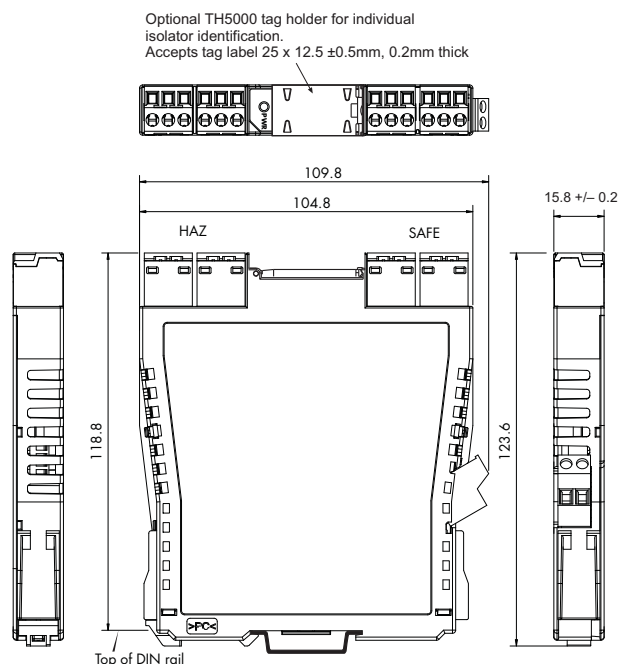
Humidity

5 to 95% relative humidity

Weight

110g approximately (except where indicated)

DIMENSIONS (mm)



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