

MTL5501-SR FAILSAFE SWITCH/PROXIMITY DETECTOR INTERFACE with LFD

With the MTL5501-SR, a fail-safe switch/proximity detector located in the hazardous area can control an isolated fail-safe electronic output. The MTL5501-SR units provide line fault detection alarm contacts. The MTL5501-SR is for use with approved fail-safe sensors.

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 location
Div 1, Group A, hazardous location

Voltage applied to sensor

8.6V dc max from 1kΩ

Input/output characteristics

Input value in sensor circuits	Fail-safe output	Operation	LFD contacts
2.9mA < I _s < 3.9mA	ON	Normal	CLOSED
I _s < 1.9mA & I _s > 5.1mA	OFF	Normal	CLOSED
I _s < 50μA	OFF	Broken line	OPEN
R _s < 100Ω	OFF	Shorted line	OPEN

Note: I_s = sensor current

Fail-safe electronic output

Output on: 24V nominal
Output off: 0V dc, max < 5V dc
Load: 750Ω to 10kΩ
Maximum on-state current: 25mA (at 750Ω)
Short-circuit current: 30mA

Line fault detection (LFD)

LFD relay output: contacts open when line fault detected
Switch characteristics: 0.3A 110V ac/dc; 1A 35V dc; 30W/33VA

LED indicators

Yellow: one provided for output status, ON when fail-safe output is energised
Green: one provided for power indication
Red: one provided for LFD, flashing when line fault is detected

Power requirements, V_s

@ Supply voltage	750Ω load	typ. load
20V dc	100mA	70mA
24V dc	90mA	60mA
35V dc	65mA	45mA

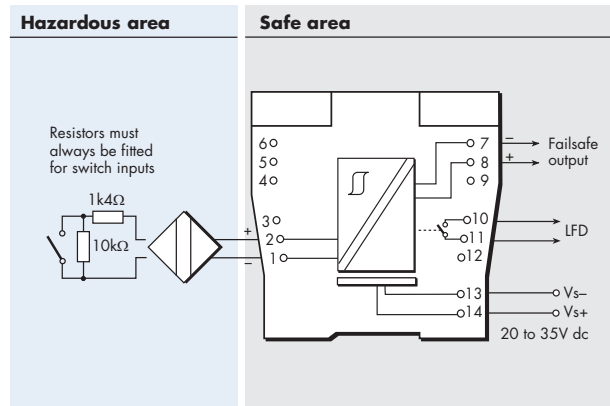
Power dissipation within unit

@ Supply voltage	750Ω load	typ. load
20V dc	1232mW	1160mW
24V dc	1392mW	1200mW
35V dc	1507mW	1335mW

Safety description

U_o = ±9.7V, I_o = 30mA, P_o = 0.07W, C_i = 0nF, L_i = 0mH
U_m = 253V

Note: switch-type sensors must be fitted with resistors as shown



Terminal	Function
1	Input -ve
2	Input +ve
7	Output -ve
8	Output +ve
10	LFD
11	LFD
13	Supply -ve
14	Supply +ve

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.



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

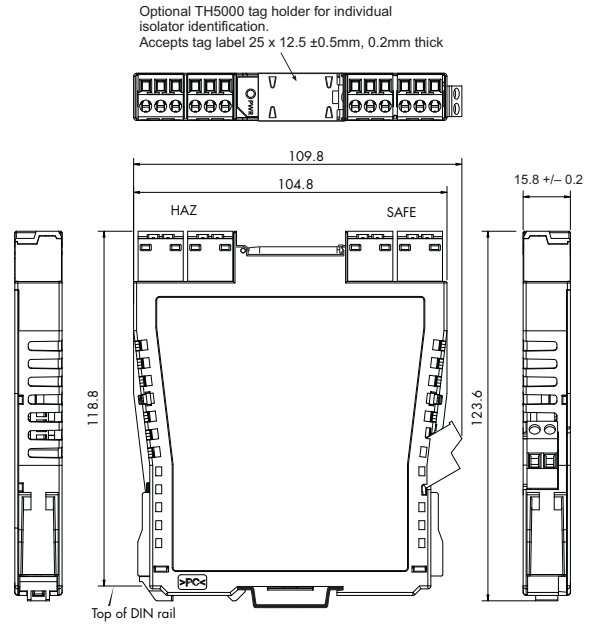
Humidity

5 to 95% relative humidity

Weight

110g approximately (except where indicated)

DIMENSIONS (mm)



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