

MTL4510 – MTL5510 SWITCH/ PROXIMITY DETECTOR INTERFACE

4-channel, digital input

The MTLx510 enables four solid-state outputs in the safe area to be controlled by up to four switches or proximity detectors located in a hazardous area. Each pair of output transistors shares a common terminal and can switch +ve or –ve polarity signals. A range of module configurations is available (see Table 1) through the use of selector switches. When proximity detector modes are selected, LFD is enabled and the output switches to OFF if a line fault is detected.

SPECIFICATION

See also common specification

Number of channels

4, configured by switches

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 mode 8 to 15 selected)

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

Safe-area outputs

Floating solid-state outputs compatible with logic circuits
Operating frequency: dc to 500Hz
Max. off-state voltage: \pm 35V
Max. off-state leakage current: \pm 50 μ A
Max. on-state resistance: 25 Ω
Max. on-state current: \pm 50mA

LED indicators

Green: power indication
Yellow: four: on when output active
Red: LFD indication + faulty channel's yellow LED flashes

Maximum current consumption

40mA at 24V (with all output channels energised)

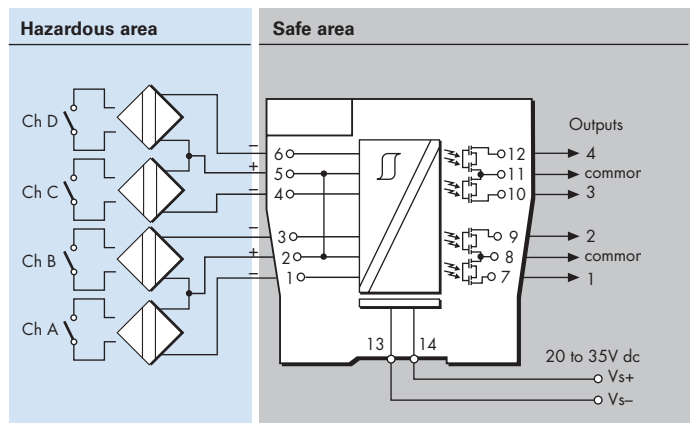
Power dissipation within unit

0.96W at 24V, with 10mA loads

Safety description (each channel)

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

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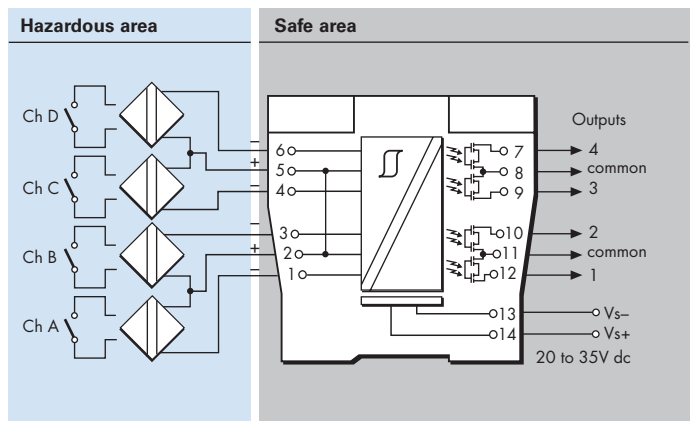


Table 1 - Mode options

MODE	o/p 1	o/p 2	o/p 3	o/p 4	i/p type
0	chA	chB	chC	chD	Switch/Prox. detector
1	chA rev.	chB	chC	chD	
2	chA	chB rev.	chC	chD	
3	chA	chB	chC rev.	chD	
4	chA	chB	chC	chD rev.	
5	chA rev.	chB	chC rev.	chD	
6	chA	chB rev.	chC	chD rev.	
7	chA rev.	chB rev.	chC rev.	chD rev.	Switch/Prox. detector + LFD
8	chA	chB	chC	chD	
9	chA rev.	chB	chC	chD	
10	chA	chB rev.	chC	chD	
11	chA	chB	chC rev.	chD	
12	chA	chB	chC	chD rev.	
13	chA rev.	chB	chC rev.	chD	
14	chA	chB rev.	chC	chD rev.	
15	chA rev.	chB rev.	chC rev.	chD rev.	

See Instruction Manual INM4500 or INM5500 for further mode information.



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