

# MTL4510B – MTL5510B SWITCH/ PROXIMITY DETECTOR INTERFACE

4-channel, multi-function, digital input

The MTL4510B 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. These include start/stop operations and pulse output modes.

## 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 $\Omega$   $\pm$ 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.

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 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 $\mu$ A

Max. on-state resistance: 25 $\Omega$

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)

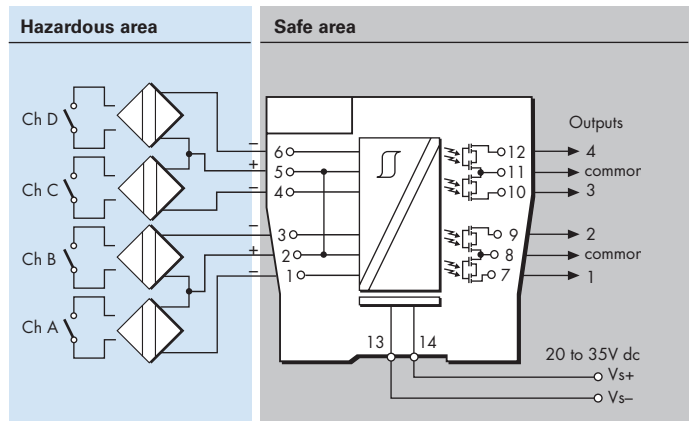
### Power dissipation within unit

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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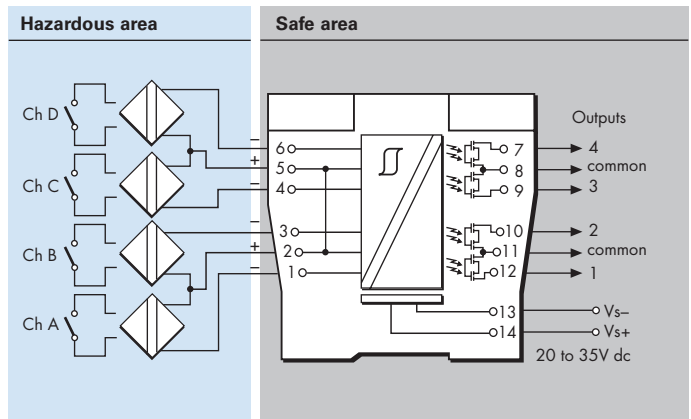


Table 1 - Mode options

MODE	Function	Equivalent*
0	4-ch switch input,	MTLx510
1	2-ch each channel one input, two outputs	MTL4016
2	As mode 1 but with phase reversed on all outputs	MTL4016
3	2-ch, 2-pole changeover output	
4	1-ch with line fault output	MTLx014
5	As mode 4 with changeover outputs	
6	1-ch with start-stop latch	MTL2210B
7	As mode 2 but with LFD enabled on both inputs	MTL4016
8	4-ch switch input,	MTLx510
9	2-ch with line fault output	MTLx017
10	As mode 9 with LFD changeover	
11	As mode 10 with phase reversed	
12	3-ch with normally-open LFD output	
13	3-ch with normally-closed LFD output	
14	2-ch monostable, pulse stretcher	
15	4-ch switch input	MTLx510

\* Note: that terminal connections may not be the same on these models, and x can mean either '4' or '5'.

See Instruction Manual INM4500 or INM5500 for further mode information.



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In the interest of further technical developments, we reserve the right to make design changes.