

MTL4510B SWITCH/ PROXIMITY DETECTOR INTERFACE

four-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 1kΩ ±10%

Input/output characteristics

Normal phase

Outputs closed if input > 2.1mA (< 2kΩ in input circuit)

Outputs open if input < 1.2mA (> 10kΩ in input circuit)

Hysteresis: 200µA (650Ω) 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
500Ω to 1kΩ in series with switch
20kΩ to 25kΩ in parallel with switch

Safe-area outputs

Floating solid-state outputs compatible with logic circuits

Operating frequency: dc to 500Hz

Max. off-state voltage: ± 35V

Max. off-state leakage current: ± 50µA

Max. on-state resistance: 65Ω

Max. on-state current: ± 50mA

LED indicators

Green: power indication

Yellow: four: indicates output active

Red: LFD indication + faulty channel's yellow LED flashes

Maximum current consumption

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

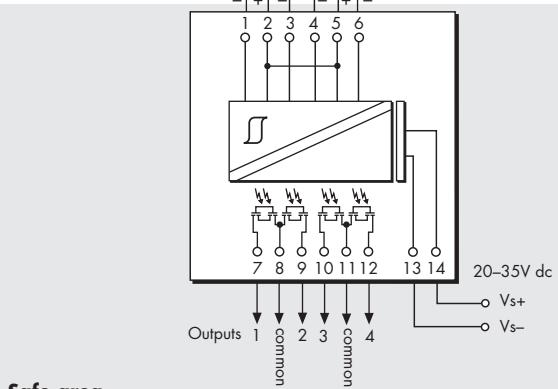
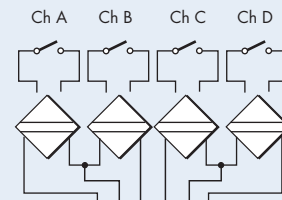
Power dissipation within unit

0.96 W at 24V

Safety description (each channel)

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

Hazardous area



Safe area

Terminal	Function
1	Input channel A
2	Input channel AB common (+)
3	Input channel B
4	Input channel C
5	Input channel CD common (+)
6	Input channel D
7	Output channel 1
8	Output channel 1/2 common
9	Output channel 2
10	Output channel 3
11	Output channel 3/4 common
12	Output channel 4
13	Supply -ve
14	Supply +ve

Table 1 - Mode options

MODE	Function	Equivalent
0	4-ch switch input,	MTL4510
1	2-ch each channel one input, two outputs	MTL4016
2	Same as mode 1 with phase reversed	MTL4016
3	2-ch, 2-pole changeover output	
4	1-ch with line fault output	MTL4014
5	As mode 4 with changeover outputs	
6	1-ch with start-stop latch	MTL2210B
7	4-ch switch input,	MTL4510
8	4-ch switch input,	MTL4510
9	2-ch with line fault output	MTL4017
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	MTL4510

See Instruction Manual INM4500 for further mode information.

