

# MTL4017 SWITCH/ PROXIMITY DETECTOR INTERFACE



two-channel with line fault detection

With the MTL4017, two switches or proximity detectors located in a hazardous area can each control a safe-area load through a relay. Line faults are signalled through a separate relay. Line fault detection (LFD) can be used with proximity detectors or switches provided in the latter case suitable resistors are added as shown in the circuit diagram. 'No-fail' earth fault detection on either line of each channel can be provided by connecting an MTL4220 earth leakage detector to terminal 6.

## SPECIFICATION

See also common specification, cable parameters and approvals

### Number of channels

Two

### Location of switch

Zone 0, IIC, T6 hazardous area  
Div.1, Group A, hazardous location

### Location of proximity detector

Zone 0, IIC, T4-6 if suitably certified  
Div.1, Group A, hazardous location

### Voltage applied to sensor

7.0V – 9.0V dc from 1k $\Omega$  nominal

### Input/output characteristics

Output closed if input >2.1mA\* (<2k $\Omega$ )

Output open if input <1.2mA\* (>10k $\Omega$ )

Hysteresis: 200 $\mu$ A (650 $\Omega$ ) nominal

\*NAMUR and DIN 19234 standards for proximity detectors

### Line fault detection (LFD)

Line fault relay and channel relay open if input  
<50 $\mu$ A (broken line)

or <100 $\Omega$  (shorted lines)

Note: switch-type sensors must be fitted with resistors as shown in the diagram. LFD cannot be disabled.

### 'No-fail' earth fault protection

Enabled by connecting terminal 6 to an MTL4220 earth leakage detector

Fault on either line of each channel proclaimed: unit continues working

### Relay output characteristics

Single-pole on/off, open when relay de-energised

Response time: 2ms maximum

Contact rating: 10W, 0.5A, 35V (dc)

Contact life expectancy: 10<sup>7</sup> operations at maximum load

Note: reactive loads must be adequately suppressed

### LED indicators

Amber: one provided for each channel, ON when output circuit is closed

Red: one provided for each channel, ON when line fault is detected

Green: one provided for power indication

### Power requirement, V<sub>s</sub>

52mA at 24V dc

62mA at 20V dc

42mA at 35V dc

### Power dissipation within unit

1.25W at 24V

1.5W at 35V

### Isolation

250V ac between safe and hazardous area circuits

### Safety description for each channel

10.5V, 800 $\Omega$ , 14mA

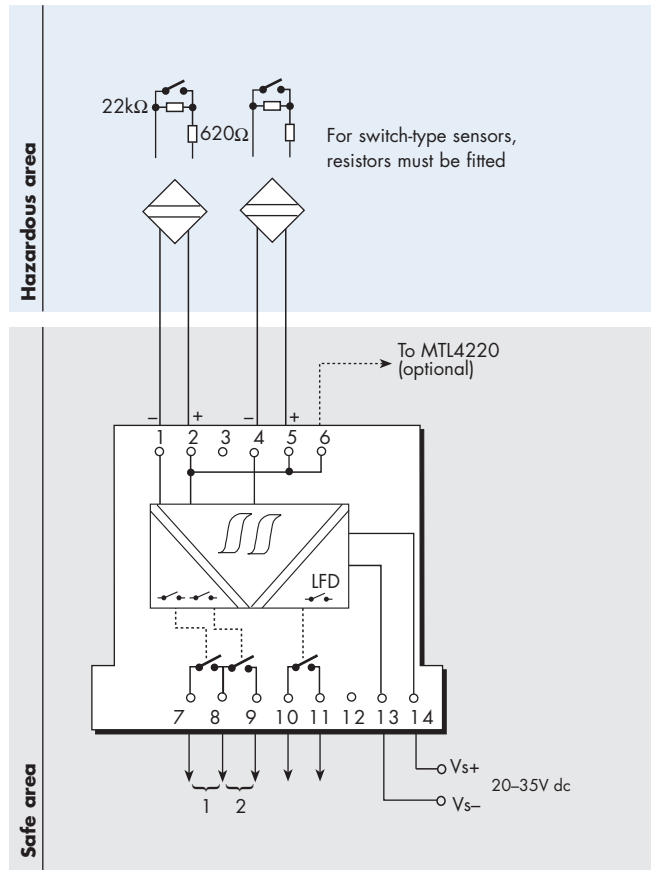
### FM entity parameters

Each channel without line fault detection:

V<sub>oc</sub> = 10.5 V dc, I<sub>sc</sub> = 14mA, C<sub>a</sub> = 2.4 $\mu$ F, L<sub>a</sub> = 165mH

Each channel with earth leakage detection:

V<sub>t</sub> = 17.4 V dc, I<sub>t</sub> = 14mA, C<sub>a</sub> = 0.36 $\mu$ F, L<sub>a</sub> = 165mH



Terminal	Function
1	Input 1 -ve
2	Input 1 +ve
4	Input 2 -ve
5	Input 2 +ve
6	Optional link to MTL4220
7,8	Output 1
8,9	Output 2
10,11	Line fault signal
13	Supply -ve
14	Supply +ve



EUROPE (EMEA)  
AMERICAS  
ASIA PACIFIC  
E-mail: enquiry@mtl-inst.com

Tel: +44 (0)1582 723633  
Tel: +1 603 926 0090  
Tel: +65 487 7887

Fax: +44 (0)1582 422283  
Fax: +1 603 926 1899  
Fax: +65 487 7997

Web site: www.mtl-inst.com