

# MTL4014 SWITCH/ PROXIMITY DETECTOR INTERFACE

with line fault detection



The MTL4014 enables a safe-area load to be controlled by a proximity detector or switch located in a hazardous area through a reed relay. Line faults are signalled through a separate reed relay. The line fault detection (LFD) function can be used with both proximity detectors and switches, provided that for switches suitable resistors are added as shown in the circuit diagram. 'No-fail' earth fault detection on either line 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

One

### 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 line)

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 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 input, ON when output circuit is closed

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

Green: one provided for power indication

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

45mA at 24V dc

50mA at 20V dc

36mA at 35V dc

### Power dissipation within unit

1.1W at 24V

1.3W at 35V

### Isolation

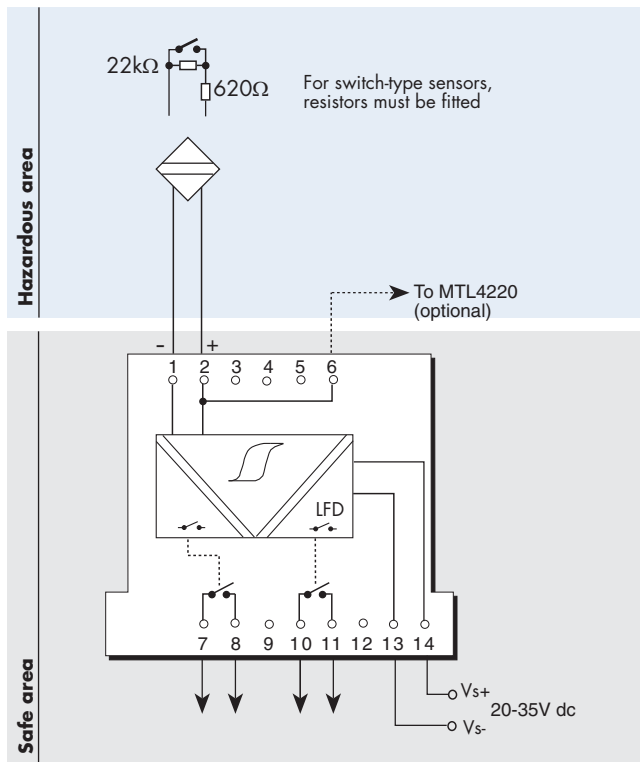
250V ac between safe and hazardous area circuits

### Safety description

10.5V, 800 $\Omega$ , 14mA

### FM entity parameters

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



Terminal	Function
1	Input -ve
2	Input +ve
6	Optional link to MTL4220
7, 8	Output
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 6 487 7887

Fax: +44 (0)1582 422283  
Fax: +1 603 926 1899  
Fax: +65 6 487 7997

Web site: www.mtl-inst.com