MTL4013 SWITCH/ PROXIMITY DETECTOR INTERFACE

CE

two-channel, solid-state output

The MTL4013 is a two-channel unit enabling safe-area loads to be controlled, through logic compatible solid-state outputs, by switches or proximity detectors located in hazardous areas. It can also be used with positive displacement (PD) flowmeters and some turbine meters. Earth fault detection is available optionally by using the MTL4013 with an MTL4220 earth leakage detector. Power and switch status is indicated by LEDs located on top of the module.

SPECIFICATION
See also common specification, cable parameters and approvals

Number of channels
> Two

Location of switches
> 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 1kΩ

Input/output characteristics
> Output on if >2.1mA* (<2kΩ) in sensor circuit
> Output off if <1.2mA* (>10kΩ) in sensor circuit
> Hysteresis: 200µA (650Ω) nominal
> *NAMUR and DIN 19234 standards for proximity detectors

'No-fail' earth fault protection
> Enabled by connecting terminals 3 and 6 to an MTL4220 earth leakage detector
> Fault on either line proclaimed: unit continues working
> *Note: if it is required to maintain isolation between the two channels, separate earth leakage detectors are needed*

Output characteristics
> Operating frequency: dc to 5kHz
> Maximum off-state voltage: 35V
> Maximum off-state leakage current: 10µA
> Maximum on-state voltage drop: [1+ (0.1 x current in mA)] V
> Maximum on-state current: 50mA
> *Note: each output is Zener-diode protected against inductive loads*

LED indicators
> Amber: one provided for each channel, ON when output circuit is closed
> Green: one provided for power indication

Power requirement, Vs
> 47.5mA at 24V dc
> 45mA at 20V dc
> 50mA at 35V dc

Power dissipation within unit
> 1.15W at 24V
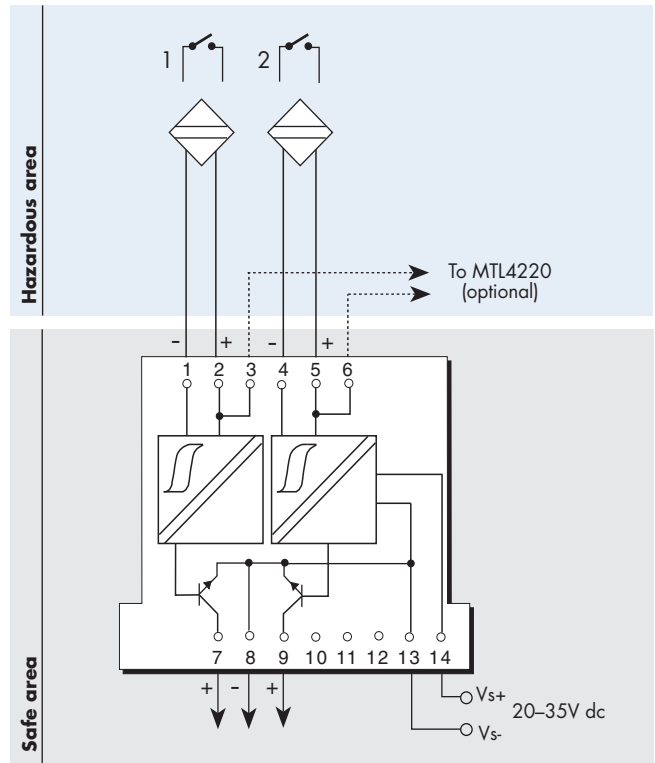> 1.75W at 35V

Isolation
> 250V ac between safe and hazardous area circuits

Safety description for each channel
> 10.5V, 800Ω, 14mA

FM entity parameters
> V_{oc} = 10.5V dc, I_{sc} = 14mA, C_a = 2.4µF, L_a = 165mH

Terminal	Function
1	Input 1 –ve
2	Input 1 +ve
3	Optional link from input 1 to MTL4220
4	Input 2 –ve
5	Input 2 +ve
6	Optional link from input 2 to MTL4220
7	Output 1 +ve
8	Outputs 1/2 –ve
9	Output 2 +ve
13	Supply –ve
14	Supply +ve