

MTL4013 SWITCH/ PROXIMITY DETECTOR INTERFACE



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 1k Ω

Input/output characteristics

Output on if $>2.1\text{mA}^*$ ($<2\text{k}\Omega$) in sensor circuit
Output off if $<1.2\text{mA}^*$ ($>10\text{k}\Omega$) in sensor circuit
Hysteresis: 200 μA (650 Ω) 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: 10 μA
Maximum on-state voltage drop: $[1 + (0.1 \times \text{current in mA})]\text{V}$
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, V_s

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

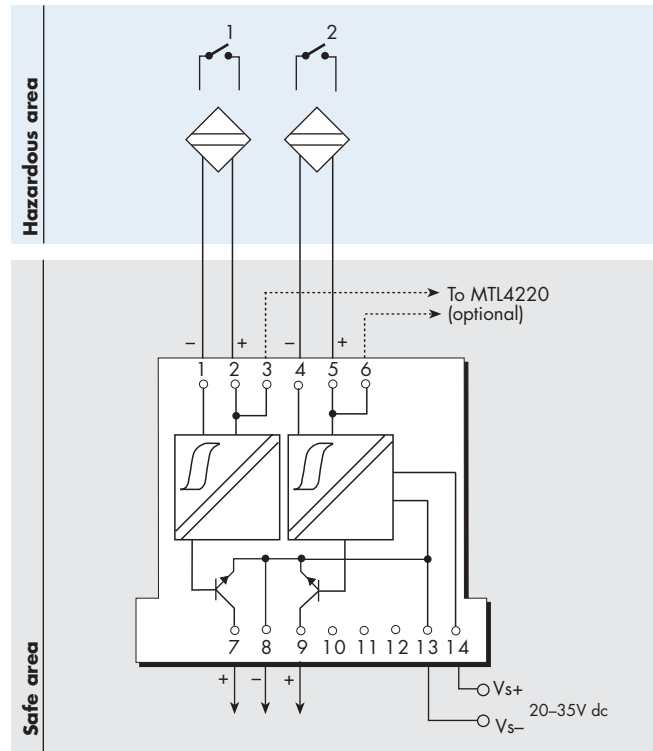
250V ac between safe and hazardous area circuits

Safety description for each channel

10.5V, 800 Ω , 14mA

FM entity parameters

$V_{OC} = 10.5\text{V dc}$, $I_{SC} = 14\text{mA}$, $C_d = 2.4\mu\text{F}$, $L_d = 165\text{mH}$



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

