MTL4016 SWITCH/ PROXIMITY DETECTOR INTERFACE UNIT

CE

two-channel, dual relay output

With the MTL4016, two switches or proximity detectors located in a hazardous area can each control two safe-area loads. The four safe-area outputs are made through reed relays. It is designed for applications where the status of a sensor needs to be fed to two separate systems (eg, control and shutdown). Independent phase-reversal switches for each channel, located on top of the module, allow alarm signals to be signalled for either state of the sensors. Line fault detection (LFD) for broken or shorted lines is provided as also are facilities for earth fault detection. 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
Outputs closed if >2.1mA* (<2kΩ) in sensor circuit
Outputs open if <1.2mA* (>10kΩ) in sensor circuit
Hysteresis: 200µA (650Ω) nominal
**NAMUR and DIN 19234 standards for proximity detectors*

Phase reversal
The operation of each channel can be reversed by independent switches on top of the unit

Line fault detection (LFD)
By built-in line-fault detection (LFD)
Outputs open if input current <100µA (broken line) or >6.5mA (shorted lines)
Note: to prevent false triggering of LFD, switch-type sensors must be fitted with resistors as shown in the diagram or LFD disabled by switches on top of the unit

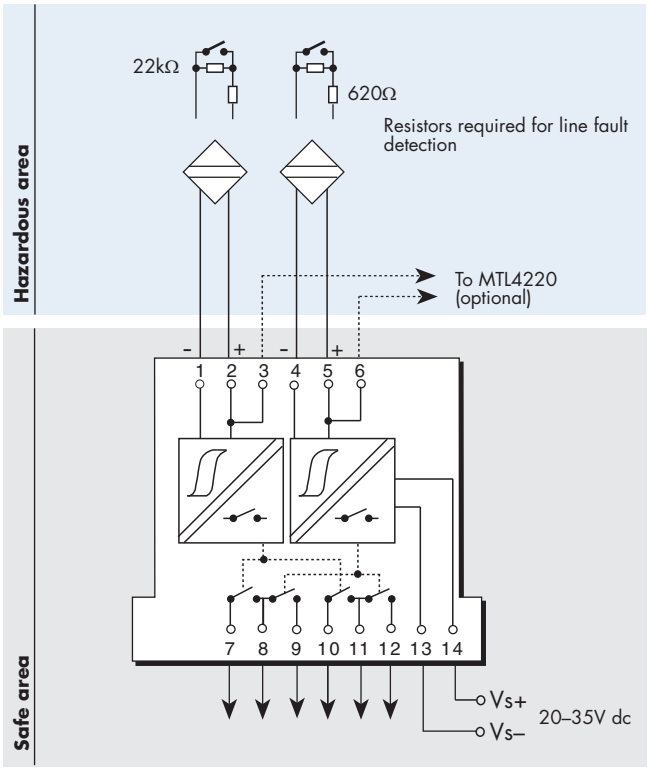
'No-fail' earth fault protection
Enabled by connecting terminals 3 and 6 to an MTL4220 earth leakage detector
Fault on either line of each channel proclaimed: unit continues working
Note: to maintain isolation between the two channels, separate earth leakage detectors are needed

Relay output characteristics
Double-pole on/off, open when relay de-energised
Response time: 2ms maximum
Contact rating: 10W, 0.5A, 35V (dc)
Contact life expectancy: 10^6 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
Green: one provided for power indication

Power requirement, Vs
50mA at 24V dc
60mA at 20V dc
45mA at 35V dc

Power dissipation within unit
1.2W at 24V
1.6W at 35V



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
7,8	Output 1A
8, 9	Output 2A
10, 11	Output 1B
11, 12	Output 2B
13	Supply –ve
14	Supply +ve

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

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