

MTL3014 SWITCH/ PROXIMITY DETECTOR RELAY

dual outputs

The MTL3014 enables two safe-area loads to be controlled by a single proximity detector or switch located in a hazardous area. It is ideal for applications where the switch status is to be fed to two separate systems, such as control and logging or control and shutdown installations. The unit – a dual-output version of the MTL3011 – features two isolated relay outputs. Relay A reflects the status of the hazardous-area sensor, and relay B is selected by a switch in the top of the unit to operate either in parallel with relay A, or independently to provide a line-fault output when the connections to the sensor go open or short circuit. The status of each relay is indicated by an LED in the top of the unit, and an additional terminal block is fitted on the safe-area side of the unit to accommodate the connections from the two sets of relay contacts. The output phase of relay A (and relay B when 'slave' mode is selected) can be reversed by a link to allow an alarm condition (output open) to be signalled for either state of the sensor. The outputs cannot be used as if they were changeover contacts from a relay.

SPECIFICATION

See also 'Common specification'

Number of channels

One, fully floating

Location of switch

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

Location of proximity detector

Zone 0, IIC, T4–6 hazardous area if suitably certified
Div 1, Group A, hazardous location

Voltage applied to sensor

7.7 to 9.0V dc from 1k Ω

Modes of operation

'Slave' or 'Line fault' mode selected by switch in top of unit

Slave mode operation

Both relays energised (outputs closed) if $>2.1\text{mA}$ ($<2\text{k}\Omega$) in sensor circuit
Both relays de-energised (outputs open) 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

Line fault mode operation

Relay B de-energised (output open) if current in sensor circuit is $<100\mu\text{A}$ (broken line) or $>6.5\text{mA}$ (shorted lines).
Relay A operates as in 'Slave mode' above.

Phase reverse facility

Operation of relay A (and relay B if 'slave' mode selected) reversed by linking terminals 7 & 8

Power supply failure protection

Relays de-energise (outputs open) if supply fails

LED indicators

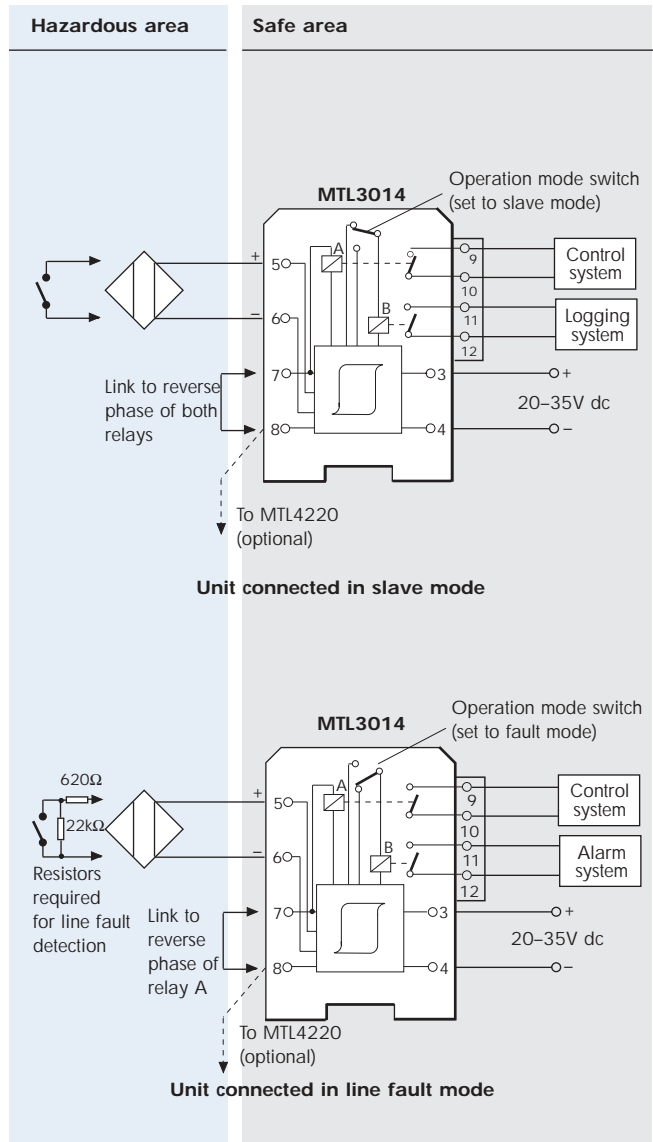
One provided for each relay. ON when relay energised (output closed)

Relay characteristics

Each single-pole on/off, open when relay de-energised
Response time: 15ms typical
Contact rating: 250V 5A 100VA (ac); 250V 5A 100W (dc)
Contact life expectancy: 1.5×10^5 operations at max. load, $>10^6$ operations at 200V ac peak or dc, 10VA (resistive load)
Note: reactive loads must be adequately suppressed

Power requirement

42mA typical at 24V
50mA maximum at 20 to 35V



Power dissipation within unit

1.1W typical at 24V
1.3W maximum at 35V

Replaceable fuse

63mA, 5 x 20mm glass to DIN 41571 sht. 2, semi-time-lag (M)

Safety description

10.5V, 800 Ω , 14mA, $U_m = 250\text{V}$ rms or dc

FM max entity parameters

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

Weight

170g

