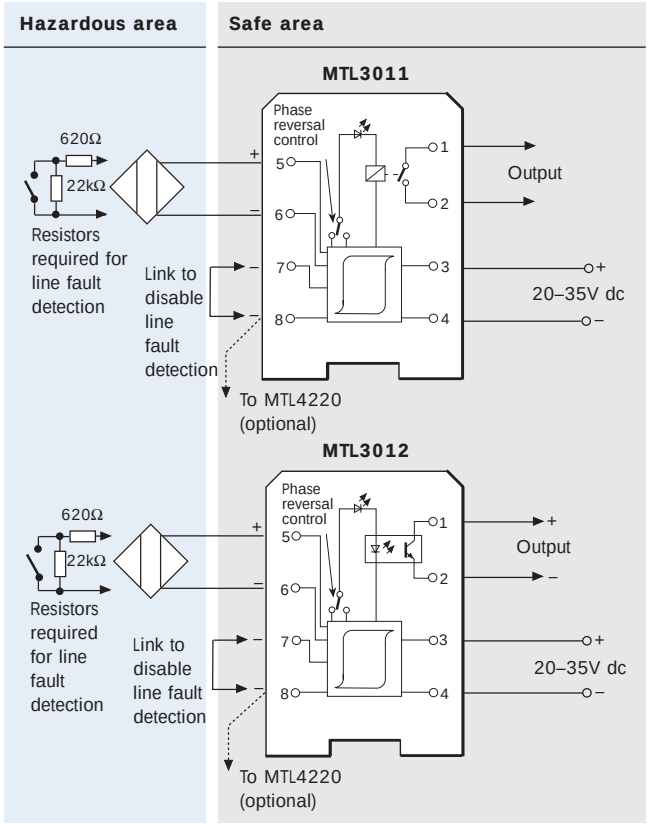
# MTL3011 AND 3012 SWITCH /PROXIMITY DETECTOR RELAYS

## MTL3011 – volt-free contacts
## MTL3012 – solid state

These basically similar units both enable a safe-area load to be controlled by a proximity detector or switch located in a hazardous area, the MTL3011 having a relay output for general use, and the MTL3012 a floating solid-state on/off switch compatible with logic circuits. In both units a built-in phase-reverse control allows an alarm condition (output open) to be signalled for either state of the sensor. A line-fault detection feature opens the output in the event of short or open-circuit lines: intended for use primarily with proximity detectors, it can also be used with switches made to resemble them electrically by adding two resistors, or disabled by a link if not required.




## 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 if suitably certified
Div 1, Group A, hazardous location

**Voltage applied to sensor**
7.7 to 9.0V dc from 1kΩ

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

**Phase reverse facility**
Operation reversed by switch on top of unit

**Power supply failure protection**
Output circuit opens if supply fails

**Broken/shorted lines protection**
By built-in line-fault detection feature (LFD)
Output open if input current <100µA (broken line)
Output open if input current >6.5mA (shorted lines)
*Note: to prevent false triggering of LFD, switch-type sensors must be fitted with resistors as shown or LFD be disabled by linking terminals 7 and 8*

**Output characteristics, MTL3011**
Response time: 1ms typical
Contact rating: 200V, 0.5A, 10VA (ac); 200V, 0.5A, 10W (dc) (USA: 60V) individual maxima, resistive loads
Contact life expectancy: 0.75 x $10^6$ operations at max. load
*Note: reactive loads must be adequately suppressed to protect the light-duty contacts in this unit*

**Output characteristics, MTL3012**
Operating frequency: typically dc to 2kHz
Maximum off-state voltage: 35V
Maximum off-state leakage current: 10µA
Maximum on-state voltage drop: 1+ (0.13 x current in mA) V
Maximum on-state current: 50mA
*Note: the solid-state output is Zener-diode protected against inductive loads*

**LED indicator**
ON when output circuit is closed

**Power requirement**
25mA typical at 24V
35mA maximum at 20 to 35V

**Power dissipation within unit**
0.6W typical at 24V
1.3W maximum at 35V

**Replaceable fuse**
50mA, 5 x 20mm glass to DIN 41571 sht. 2, semi-time-lag (M)

**Safety description**
10.5V, 800Ω, 14mA, $U_m$ = 250V rms or dc

**FM max entity parameters**
$V_{oc}$ =10.5V, $I_{sc}$ =10.7mA, $C_a$ = 3.0µF, $L_a$ = 300mH

**Weight**
140g

## OTHER APPLICATIONS

The MTL3012 can be used in some flowmeter applications. The frequency response of dc to 2kHz and its ability to accept proximity type inputs make it ideal for positive displacement (PD) meters and some turbine meters.


**EUROPE (EMEA)** Tel: +44 (0)1582 723633 Fax: +44 (0)1582 422283
**AMERICAS** Tel: +1 603 926 0090 Fax: +1 603 926 1899
**ASIA PACIFIC** Tel: +65 487 7887 Fax: +65 487 7997
**E-mail: enquiry@mtl-inst.com** **Web site: www.mtl-inst.com**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