

MTL5018AC SWITCH/ PROXIMITY DETECTOR INTERFACE

two-channel, with line fault detection
and phase reversal



The MTL5018ac enables two safe-area loads to be controlled by two switches or proximity detectors located in a hazardous area. Two relay outputs are provided. Independent phase reversal control allows an alarm condition to be signalled for either state of the sensor. A selectable line fault detect (LFD) facility detects an open or short circuit in either field circuit.

SPECIFICATION

See also common specification

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 hazardous area if suitably certified
Div. 1, Group A hazardous location

Safe-area output

Two relays with changeover contacts

Hazardous-area inputs

Inputs conforming to NAMUR/DIN 19234 standards for proximity detectors

Voltage applied to sensor

7 to 9V from $1k\Omega \pm 10\%$

Input/output characteristics

Normal (reverse) phase:

output energised (de-energised) if $I_{in} > 2.1mA$ or $R_{in} < 2k\Omega$
output de-energised (energised) if $I_{in} < 1.2mA$ or $R_{in} > 10k\Omega$

Hysteresis: 200 μ A, typical

Line fault detection (LFD)

User-selectable via switches on the top of the unit. Line faults are indicated by an LED for each channel. A detected line fault de-energises the relay.

Open-circuit alarm on if $I_{in} < 100\mu A$

Open-circuit alarm off if $I_{in} > 250\mu A$

Short-circuit alarm on if $R_{in} < 100\Omega$

Short-circuit alarm off if $R_{in} > 360\Omega$

Note: Resistors must be fitted when using the LFD facility with a contact input

500 Ω to 1k Ω in series with switch

20k Ω to 25k Ω in parallel with switch

Phase reversal

Independent for each channel, user-selectable

Relay type

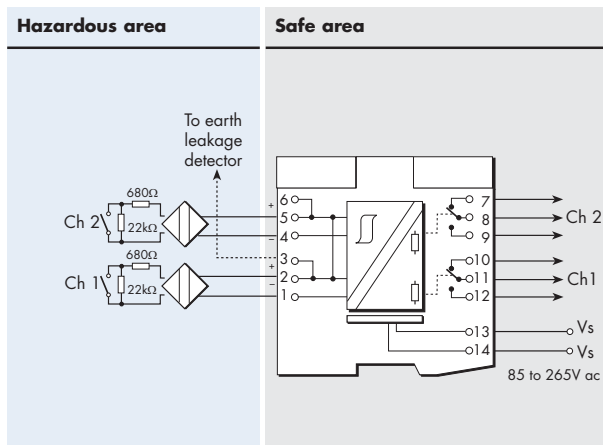
Single pole, changeover contacts

Note: reactive loads must be adequately suppressed

Relay characteristics

Response time: 10ms maximum

Contact rating: 250V ac, 2A, $\cos\phi > 0.7$
40V dc, 2A, resistive load



Terminal	Function
1	Input -ve (Ch 1)
2	Input +ve (Ch 1)
3	Earth leakage detection
4	Input -ve (Ch 2)
5	Input +ve (Ch 2)
6	Earth leakage detection
7	Normally-closed contact (Ch 2)
8	Common (Ch 2)
9	Normally-open contact (Ch 2)
10	Normally-closed contact (Ch 1)
11	Common (Ch 1)
12	Normally-open contact (Ch 1)
13	AC Supply
14	AC Supply

LED indicators

Green: power indication

Yellow: two: status of each channel (on when outputs are energised)

Red: two: LFD indication for each channel (on when line fault detected)

Maximum power dissipation

<2.5W

Isolation

250V ac or dc between power supply, hazardous-area circuits and relay outputs

Safety description (each channel)

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

Power Supply

85 to 265V ac

45 to 65 Hz

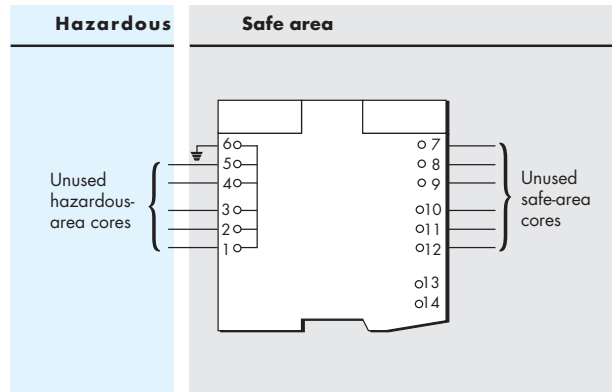


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MTL5099 DUMMY ISOLATOR

The MTL5099 is used with other MTL5000 Series units to provide termination and earthing facilities for, unused cable cores from hazardous areas.



Terminal	Function
1	Hazardous-area core
2	Hazardous-area core
3	Hazardous-area core
4	Hazardous-area core
5	Hazardous-area core
6	Earth
7	Safe-area core
8	Safe-area core
9	Safe-area core
10	Safe-area core
11	Safe-area core
12	Safe-area core

MTL5000 SERIES COMMON SPECIFICATION



Connectors

Each MTL5000 unit is supplied with signal and power connectors, as applicable.

When using crimp ferrules for the hazardous and non-hazardous (safe) signal connectors the metal tube length should be 12mm and the wire trim length 14mm. For the power connectors the metal tube length should be 10mm and the wire trim length 12mm.

See INM5000 for recommended ferrules.

Isolation

250V rms between input, output and power supply terminals, tested at 1500V rms minimum between safe- and hazardous-area terminals. MTL5073, output and power supply not isolated.

Location of units

Safe area

Terminals

Accommodate conductors of up to 2.5mm² stranded or single-core

Mounting

On 35mm (top hat) rail to :
EN 50022-35 x 7.5; BS 5584;
35 x 27 x 7.3 DIN 46277

Ambient temperature limits

-20 to +60°C (-6 to +140°F) operating
-40 to +80°C (-40 to +176°F) storage

Humidity

5 to 95% relative humidity

Weight

110g approx (except where indicated)

DIMENSIONS

