MTL5014 SWITCH/PROXIMITY DETECTOR INTERFACE

The MTL5014 enables two safe-area loads to be controlled by a single switch or proximity detector located in the hazardous area. The safe-area interface has two changeover relays: output 1 and output 2. The output 1 relay reflects the status of the input and may be configured to operate in reverse phase. The output 2 relay may be configured either to repeat (slave) the output 1 relay, or to act as a line integrity monitor. A selectable line-fault-detect (LFD) facility enables an open- or short-circuit fault to be detected in the field wiring.

**SPECIFICATION**

See also common specification

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LED indicators

Green: power indication

Yellow: illuminated when output 1 is energised

Red: illuminated when LFD is selected and there is an open or short circuit in the field wiring

**Supply voltage**

20 to 35V dc

**Maximum current consumption**

45mA at 24V

50mA at 20V

35mA at 35V

**Maximum power dissipation within unit**

1.1W at 24V

1.3W at 35V

**Safety description**

10.5V, 800Ω, 14mA, Um= 250V rms or dc

**Hazardous area Safe area**

/MT54
/MT53
/MT52
/MT51
/MT49
/MT48
/MT32
/MT116/MT100/MT99
/MT84/MT101/MT97/MT114/MT116/MT104
/MT108/MT101/MT97/MT107/MT97/MT103/MT101
/MT100/MT101/MT116/MT101/MT99/MT116/MT111/MT114
/MT49/MT49/MT48
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/MT79/MT117/MT116/MT112/MT117/MT116/MT32/MT50
/MT79/MT117/MT116/MT112/MT117/MT116/MT32/MT49
/MT108/MT101/MT97/MT107/MT97/MT103/MT101
/MT84/MT101/MT97/MT104
/MT100/MT101/MT116/MT101/MT99/MT116/MT111/MT114
/MT49/MT49/MT48
/MT87
/MT54/MT56/MT48
/MT87
/MT43
/MT150
/MT50/MT48/MT32/MT116/MT111/MT32/MT51/MT53/MT86/MT32/MT100/MT99
/MT86/MT115/MT43
/MT50/MT50/MT107
/MT87
/MT54/MT56/MT48
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/MT79/MT117/MT116/MT112/MT117/MT116/MT32/MT50
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/MT100/MT101/MT116/MT111/MT114
/MT50/MT50/MT107
/MT87
/MT54/MT56/MT48
/MT87
/MT43
/MT150
/MT79/MT117/MT116/MT112/MT117/MT116/MT32/MT50
/MT79/MT117/MT116/MT112/MT117/MT116/MT32/MT49

**Terminal Function**

| 1 Input –ve |
| 2 Input +ve |
| 3 Earth leakage detection |
| 7 Normally closed (output 2) |
| 8 Common (output 2) |
| 9 Normally open (output 2) |
| 10 Normally closed (output 1) |
| 11 Common (output 1) |
| 12 Normally open (output 1) |
| 13 Supply –ve |
| 14 Supply +ve |

**Line fault detection (LFD)**

User selectable: Off or On

A detected line fault de-energises Output 1 relay

Open circuit alarm on if I<100µA

Short circuit alarm on if I>6.5mA

**Relay characteristics**

Response time: 10ms maximum

Contact rating: 250V dc, 2A, cosø >0.7

40V dc, 2A, resistive load

Contact life expectancy: 3 x 10⁵ operations at maximum load

**Relay type**

Single pole, changeover contacts

**Note:** reactive loads must be adequately suppressed

**Input/output characteristics**

Normal (reverse) phase:

output energised (de-energised) if I<2.1mA or R<2kΩ

output de-energised (energised) if I<1.2mA or R<10kΩ

Hysteresis: 250µA typical

**Phase reversal**

User selectable

**Relay characteristic**

Response time: 10ms maximum

Contact rating: 250V dc, 2A, cosø >0.7

40V dc, 2A, resistive load

Contact life expectancy: 3 x 10⁵ operations at maximum load

**Line fault detection (LFD)**

User selectable: Off or On

A detected line fault de-energises Output 1 relay

Open circuit alarm on if I<100µA

Short circuit alarm on if I>6.5mA

**Note:** For contact input, resistors must be fitted

500Ω to 1kΩ in series with switch

20kΩ to 25kΩ in parallel with switch

**Output 2 mode**

User selectable: Slave or LFD mode

In LFD mode, a line fault de-energises Output 2 relay

Open circuit alarm on if I<100µA

Short circuit alarm on if I>6.5mA

See note above on use of resistors

In Slave mode output 2 repeats output 1

**Power supply failure protection**

Relays de-energised if supply fails