

# MTL5012S

solid-state output with phase reversal and line fault detection for use with United Electric One series 2-wire sensor/switch



The MTL5012S enables a solid-state output in the safe area to be controlled by a switch or United Electric One series 2-wire sensor located in the hazardous area. Independent output phase reversal and line fault detection are provided.

## SPECIFICATION

See also common specification

### Number of channels

One

### Location of switch

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

### Location of sensor

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

### Safe-area output

Floating solid-state output compatible with logic circuits

### Hazardous-area input

Designed to match United Electric One series 2-wire sensors

### Voltage applied to sensor

7 to 9V from  $500\Omega \pm 10\%$

### Input/output characteristics

Normal (reverse) phase:

output on (off) if  $I_{in} > 3.8\text{mA}$  or  $R_{in} < 1.3\text{k}\Omega$

output off (on) if  $I_{in} < 2.5\text{mA}$  or  $R_{in} > 3.1\text{k}\Omega$

Hysteresis: 0.5mA, typical

### Line fault detection (LFD)

User-selectable. Line faults are indicated by an LED. A detected line fault switches off the output.

Open-circuit alarm on if  $I_{in} < 50\mu\text{A}$

Open-circuit alarm off if  $I_{in} > 150\mu\text{A}$

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

$500\Omega$  to  $1\text{k}\Omega$  in series with switch

$20\text{k}\Omega$  to  $25\text{k}\Omega$  in parallel with switch

### Phase reversal

User-selectable

### Output characteristics

Operating frequency: dc to 5kHz

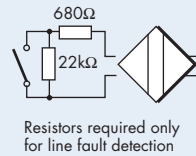
Max. off-state voltage: 35V

Max. off-state leakage current:  $10\mu\text{A}$

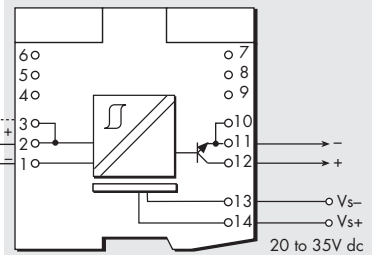
Max. on-state voltage drop:  $1 + (0.13 \times \text{current in mA}) \text{V}$

Max. on-state current: 50mA

## Hazardous area



## Safe area



Terminal	Function
1	Input -ve
2	Input +ve
3	Earth leakage detection
10, 11	Output -ve
12	Output +ve
13	Supply -ve
14	Supply +ve

### LED indicators

Green: power indication

Yellow: status (on when output is on)

Red: LFD indication (on when line fault detected)

### Maximum current consumption

33mA at 20V

35mA at 24V

38mA at 35V

### Maximum power dissipation

0.9W at 24V

1.4W at 35V

### Isolation

250V ac or dc between power supply, input and output

### Safety description

$10.5\text{V}$ ,  $480\Omega$ ,  $22\text{mA}$ ,  $U_m = 250\text{V rms}$  or dc



EUROPE (EMEA)

AMERICAS

ASIA PACIFIC

E-mail: [enquiry@mtl-inst.com](mailto:enquiry@mtl-inst.com)

Tel: +44 (0)1582 723633

Tel: +1 281 571 8065

Tel: +65 6 487 7887

Web site: [www.mtl-inst.com](http://www.mtl-inst.com)

Fax: +44 (0)1582 422283

Fax: +1 281 571 8069

Fax: +65 6 487 7997