

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

500Ω 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

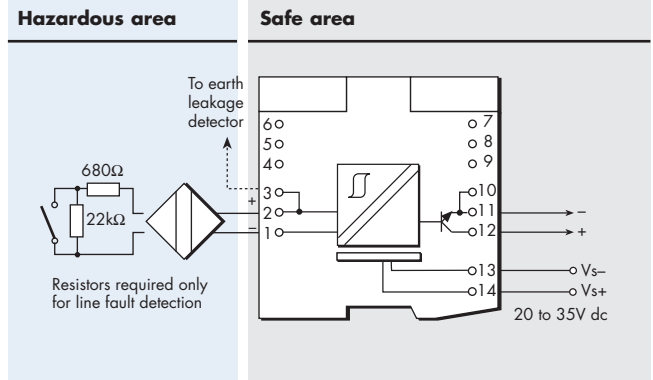
Operating frequency: dc to 5kHz

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



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

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



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