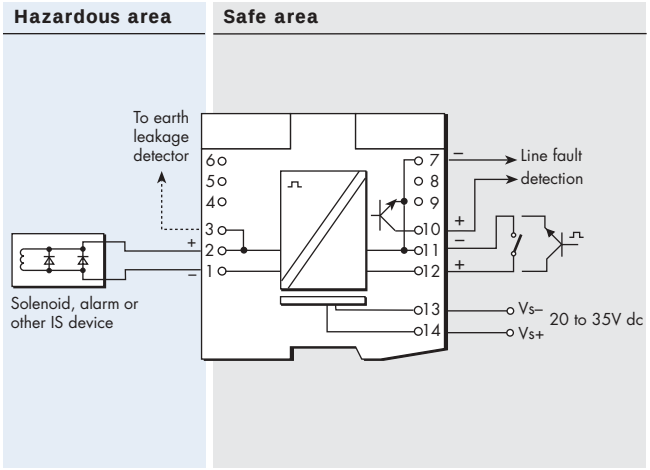
MTL5023 SOLENOID/ ALARM DRIVER

powered, with line fault detection and phase reversal

CE

The MTL5023 enables a device located in the hazardous area to be controlled by a volt-free contact or logic signal in the safe area. It is suitable for driving loads such as solenoids, alarms and other low-powered devices. A line fault is signalled in the safe area by a solid-state switch which de-energises if a field line is open- or short-circuited.



SPECIFICATION

See also common specification

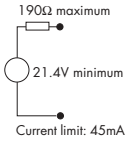
Number of channels

One

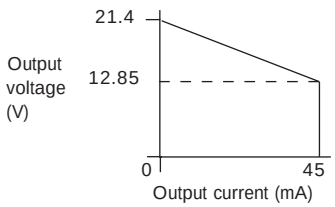
Location of load

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

Equivalent circuit



Minimum output voltage



Hazardous-area output

Minimum voltage: 12.85V at 45mA
Maximum voltage: 25V
Current limit : 45mA

Output ripple

100mV peak-to-peak maximum

Control input

Normal (reverse) phase: Output turns on (off) if input switch closed, transistor on or <1.4V applied across terminals 12 and 11
Output turns off (on) if input switch open, transistor off or >4.5V applied across terminals 12 and 11

Output response time

Within 10% of final value within 50ms

Line fault detection

Open or short circuit in the field de-energises solid-state line-fault signal.
No line fault will be signalled while the field-circuit impedance stays within the range 50Ω to 7kΩ.

Line fault signal characteristics

Maximum off-state voltage: 35V
Maximum off-state leakage current: 10µA
Maximum on-state voltage drop: [1 + (0.08 x current in mA)] V
Maximum on-state current: 50mA

Phase reversal

Selected via a switch on the base of the module

Terminal	Function
1	Output –ve
2	Output +ve
3	Earth leakage detection
7	Line fault signal –ve
10	Line fault signal +ve
11	Control –ve
12	Control +ve
13	Supply –ve
14	Supply +ve

LED indicator

Green: power indication
Yellow: status, on when output circuit is active
Red: line fault detected

Supply voltage

20 to 35V dc

Maximum current consumption

100mA at 24V
120mA at 20V
80mA at 35V

Maximum power dissipation within unit

1.4W with typical solenoid valve, output on
2.0W worst case

Safety description

25V, 170Ω, 147mA, U_m = 250V rms or dc

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