

# MTL5023 SOLENOID/ ALARM DRIVER

powered, with line fault detection and phase reversal



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

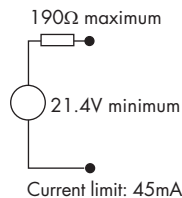
### Number of channels

One

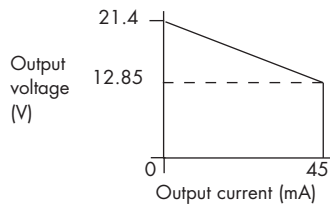
### Location of load

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

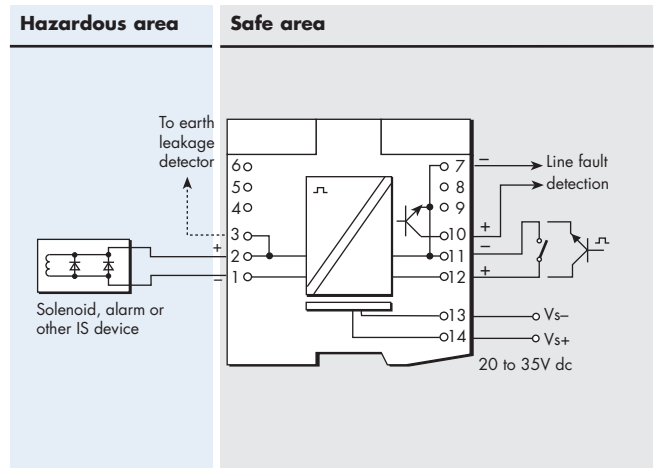
Open or short circuit in the field de-energises solid-state line-fault signal.  
No line fault will be signalled while the field-circuit impedance stays within the range 50Ω to 7kΩ.

### Line fault signal characteristics

Maximum off-state voltage: 35V  
Maximum off-state leakage current: 10μA  
Maximum on-state voltage drop:  $[1 + (0.08 \times \text{current in mA})] \text{ V}$   
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

