

# MTL4024

## SOLENOID/ALARM DRIVER



loop powered, for 24V systems

The MTL4024 enables an on/off device in a hazardous area to be controlled by a 24V signal in the safe area. It can drive loads such as solenoids, alarms, LEDs and other low-power devices that are certified as intrinsically safe or are classified as non-energy-storing simple apparatus. Provided that 24V dc is applied to the override input, the solenoid/alarm can be operated by a voltage change in the safe area. However, if the 24V dc override signal is removed, the solenoid/alarm is turned off. Earth fault detection can be provided by connecting an MTL4220 earth leakage detector to terminal 6. The MTL4024R is functionally identical to the MTL4024, but has pin 11 connected internally to pin 13.

### SPECIFICATION

See also common specification, cable parameters and approvals

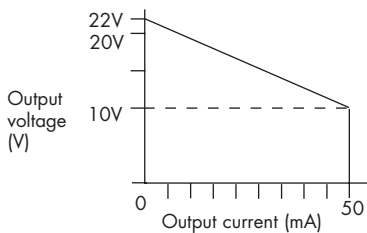
#### Number of channels

One

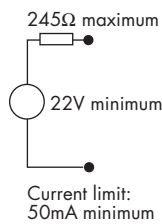
#### Location of signal load

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

#### Minimum output voltage



#### Equivalent output circuit



#### Maximum output voltage

25.5V from 232Ω

#### Output ripple

<0.5% of maximum output, peak-to-peak

#### Override input

A 24V signal applied across terminals 8 and 9 allows the solenoid/alarm to be operated by the supply across terminals 10 and 11. If the 24V signal is disconnected, the solenoid/alarm is off.

Voltage across terminals 8 and 9	State of solenoid/alarm
<2.0V	Off
>9.0V	Controlled by supply across terminals 10 and 11
>2.0V but <9.0V	Undetermined

#### Input impedance at terminal 8

Typically 10kΩ

#### Response time

Output within 10% of final value within 100ms

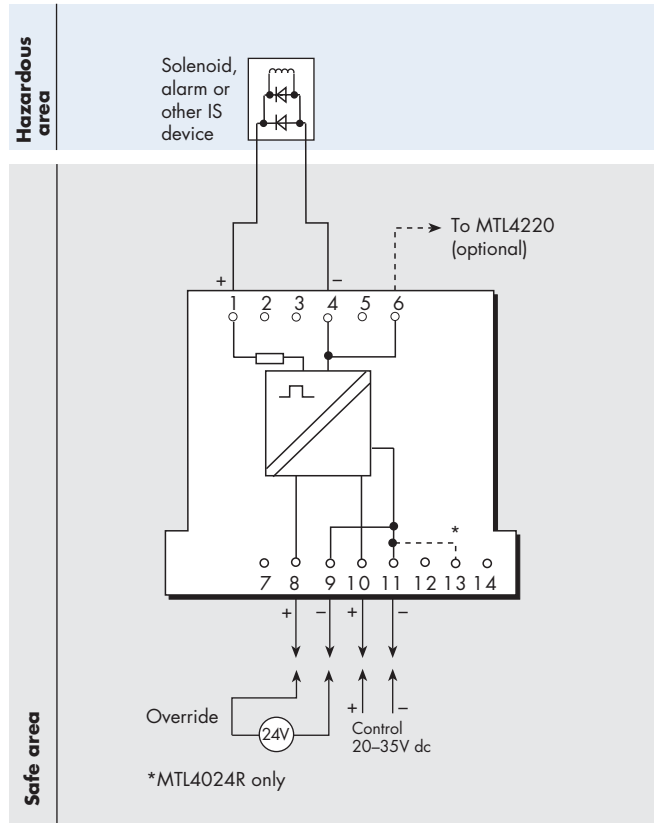
#### 'No-fail' earth fault protection

Enabled by connecting terminal 6 to an MTL4220 earth leakage detector

Fault on either line proclaimed: unit continues working

#### LED indicators

Amber: one provided for status, ON when output circuit is active  
Green: one provided for drive status ON when supply is connected



Terminal	Function
1	Output +ve
4	Output -ve
6	Optional link to MTL4220
8	Override +ve
9	Override -ve
10	Supply +ve
11	Supply -ve

#### Power requirement (control)

100mA at 24V dc

120mA at 20V dc

75mA at 35V dc

#### Power dissipation within unit

1.3W at 24V with typical solenoid valve, output on  
1.9W worst case

#### Isolation

250V ac between safe- and hazardous-area circuits

#### Safety description

25.5V, 232Ω, 110mA

#### FM entity parameters

$V_{oc} = 25.5V$  dc,  $I_{sc} = 110mA$ ,  $C_a = 0.17\mu F$ ,  $L_a = 3mH$



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