

MTL4523V/VL – MTL5523V/VL SOLENOID/ALARM DRIVER with line fault detection, IIC

With the MTLx523V/VL interface, an on/off device in a hazardous area can be controlled by a voltage signal in the safe area. It is suitable for driving loads such as solenoids. Line fault detection (LFD), which operates irrespective of the output state, is signalled by a safe-area solid-state switch which energises if a field line is open or short-circuited. Earth fault detection can be provided by connecting an MTL4220 earth leakage detector to terminal 3.

SPECIFICATION

See also common specification

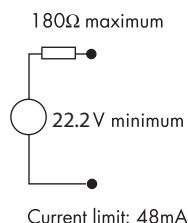
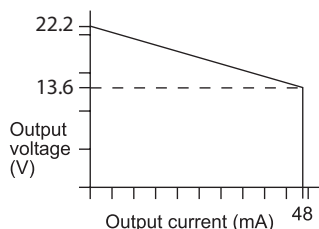
Number of channels

One

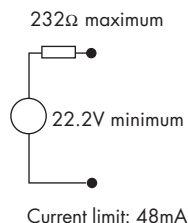
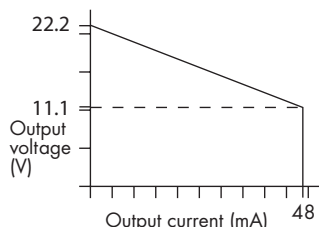
Location of load

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

Minimum output voltage Equivalent output circuit (MTLx523V)



Minimum output voltage Equivalent output circuit (MTLx523VL)



Hazardous-area output (MTLx523V)

Minimum output voltage: 13.6V at 48mA
Maximum output voltage: 24V from 180Ω
Maximum off-state output voltage: 4V from 180Ω
Current limit: 48mA minimum

Hazardous-area output (MTLx523VL)

Minimum output voltage: 11.1V at 48mA
Maximum output voltage: 24V from 232Ω
Maximum off-state output voltage: 4V from 232Ω
Current limit: 48mA minimum

Output ripple

< 0.5% of maximum output, peak to peak

Control input

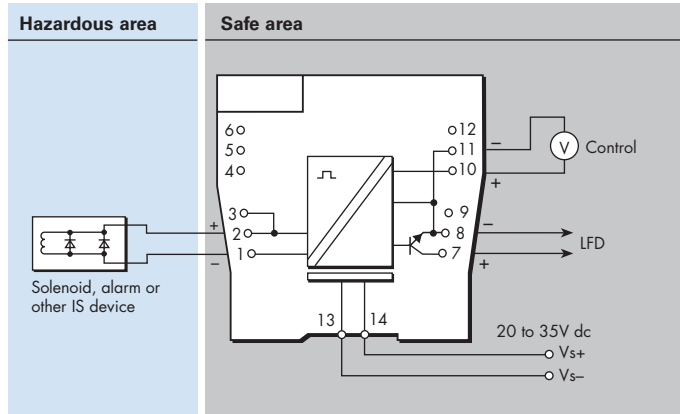
Suitable for 24V logic drive
Output turns on if > 18V applied across control input
Output turns off if < 5V applied across control input
Maximum control input voltage: 28V
Maximum control system output leakage current: 0.5mA

Response time

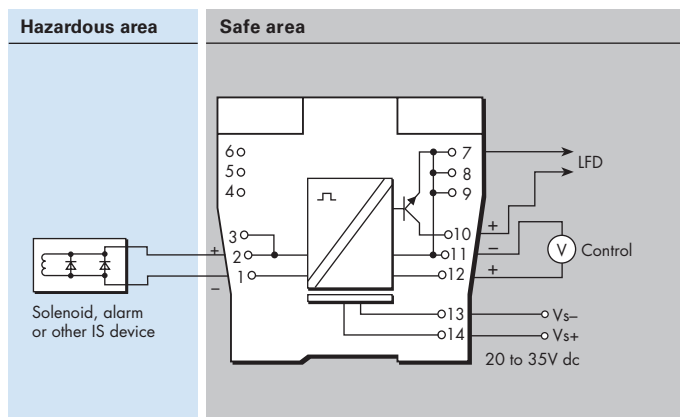
Output within 10% of final value within 100ms



MTL4523V/MTL4523VL



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Line fault detection (LFD)

Open or short circuit in field cabling energises solid state line-fault signal.

LFD transistor is switched off, provided that the field circuit impedance is > 55Ω and < 4kΩ.

Line fault signal characteristics

Maximum off-state voltage: 35V
Maximum off-state leakage current: 10μA
Maximum on-state voltage drop: 2V
Maximum on-state current: 50mA

LED indicators

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

Maximum current consumption

100mA at 24V dc

Power dissipation within unit

1.2W with typical solenoid valve, output on
2.0W worst case

Safety description (MTLx523V)

$V_o=25V$ $I_o=147mA$ $P_o=0.92W$ $U_m=253V$ rms or dc

Safety description (MTLx523VL)

$V_o=25V$ $I_o=108mA$ $P_o=0.68W$ $U_m=253V$ rms or dc



SIL capable

These models have been assessed for use in IEC 61508 functional safety applications.

SIL2 capable for a single device (HFT=0)

SIL3 capable for multiple devices in safety redundant configurations (HFT=1)

See data on MTL web site and refer to the safety manual.



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In the interest of further technical developments, we reserve the right to make design changes.