MTL4523/R – MTL5523
SOLENOID/ALARM DRIVER
with line fault detection, IIC

With the MTLx523 interface, an on/off device in a hazardous area can be controlled by a volt-free contact or logic 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 de-energises MTLx523, or energises MTL4523R, 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.

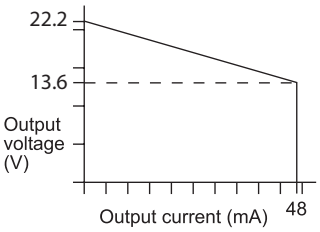
SPECIFICATION

See also common specification

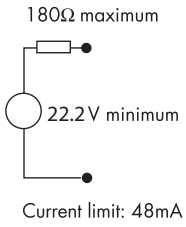
Number of channels
One

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



Hazardous-area output

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

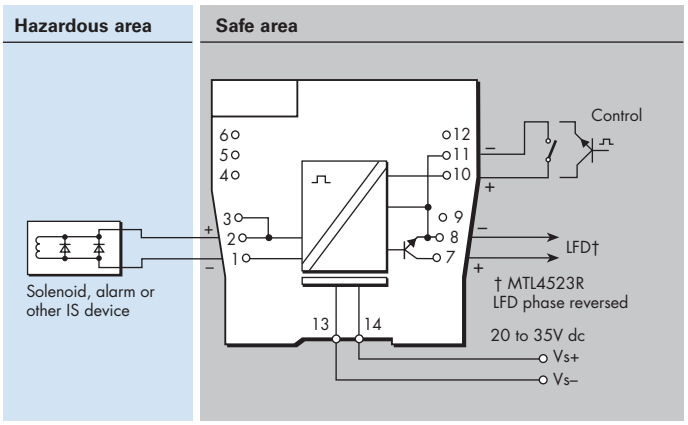
Output ripple
< 0.5% of maximum output, peak to peak

Control input
Suitable for switch contacts, an open collector transistor or logic drive.
(Internal contact wetting voltage 12V @ 0.2mA contact closed.
Not suitable for voltage control via series diode.)
Output turns on if input switch closed, transistor on or
< 1.4V applied across control input
Output turns off if input switch open, transistor off or
> 4.5V applied across control input

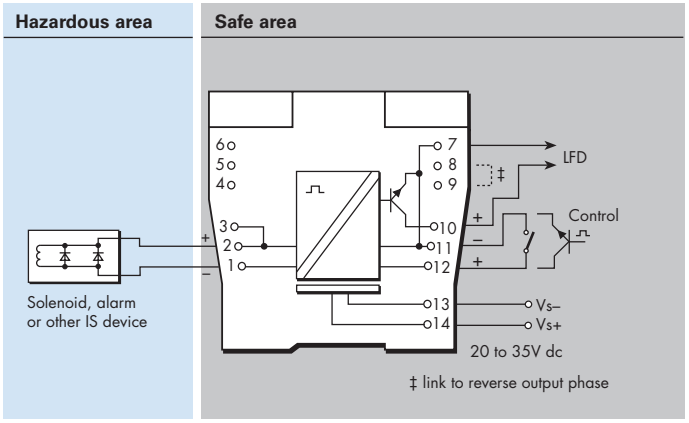
Response time
Output within 10% of final value within 100ms

Line fault detection (LFD)
Open or short circuit in field cabling de-energises* solid state line-fault signal.
LFD transistor is switched on*, provided that the field circuit impedance is > 55Ω and < 4kΩ.
* These conditions are reversed for the MTL4523R. This is to permit parallel connection of alarms between modules to provide a group alarm output.

MTL4523 / MTL4523R



MTL5523



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
U_o=25V I_o=147mA P_o= 0.92W 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.

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee.
In the interest of further technical developments, we reserve the right to make design changes.

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