

MTL4531 – MTL5531 VIBRATION TRANSDUCER INTERFACE

The MTLx531 repeats a signal from a vibration sensor in a hazardous area, providing an output for a monitoring system in the safe area. The interface is compatible with 3-wire eddy-current probes and accelerometers or 2-wire current sensors; the selection is made by a switch on the side of the module.

SPECIFICATION

See also common specification

Number of channels

One

Sensor type

2- or 3-wire vibration transducer

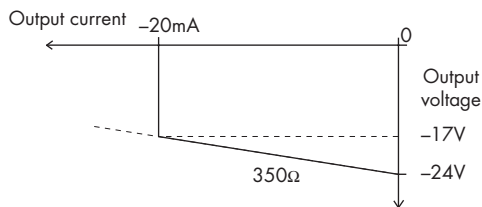
Location of signal source

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

Hazardous-area input

Input impedance
(terminals 2 & 3): 10k Ω

Transducer supply voltage, 3-wire (terminals 3 & 1)



Transducer supply current, 2-wire

3.3mA (nom.) for 2-wire sensors, user selectable by switch

Signal range

Minimum -20V, maximum -0.5V

DC transfer accuracy at 20°C

< \pm 50mV

AC transfer accuracy at 20°C

0Hz to 1kHz: \pm 1%
1kHz to 10kHz: -5% to +1%
10kHz to 20kHz: -10% to +1%

Temperature coefficient

\pm 50ppm/ $^{\circ}$ C (10 to 65 $^{\circ}$ C)
 \pm 100ppm/ $^{\circ}$ C (-20 to 10 $^{\circ}$ C)

Voltage bandwidth

-3dB at 47kHz (typical)

Phase response

<14 μ s, equivalent to:
-1 $^{\circ}$ at 200Hz
-3 $^{\circ}$ at 600Hz
-5 $^{\circ}$ at 1kHz
-50 $^{\circ}$ at 10kHz
-100 $^{\circ}$ at 20kHz

Safe-area output impedance

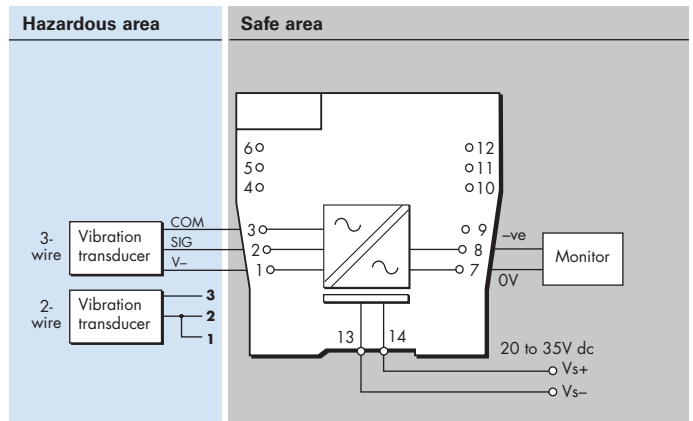
<20 Ω

LED indicator

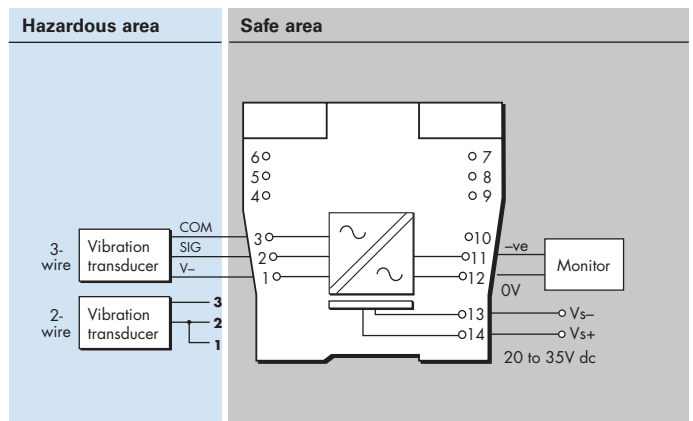
Green: power indication



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Supply voltage

20 to 35V dc

Maximum current consumption (10mA transducer load)

65mA at 24V

Maximum power dissipation within unit

1.33W

Safety description

Terminals 3 to 1

$U_o=26.6V$ $I_o=94mA$ $P_o=0.66W$ $U_m=253V$ rms or dc

Terminals 3 to 2

Non-energy-storing apparatus $\leq 1.5V$, $\leq 0.1A$ and $\leq 25mW$



SIL capable

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

SIL1 capable for a single device (HFT=0)

SIL2 capable for multiple devices in safety redundant configuration (HFT=1)

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



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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.