

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

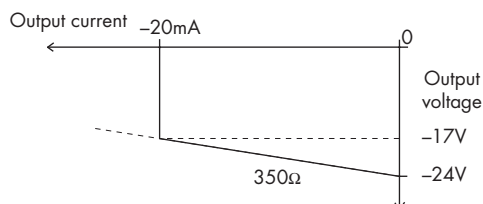
Location of signal source

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

$\leq \pm 50\text{mV}$

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

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

Voltage bandwidth

-3dB at 47kHz (typical)

Phase response

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

Safe-area output impedance

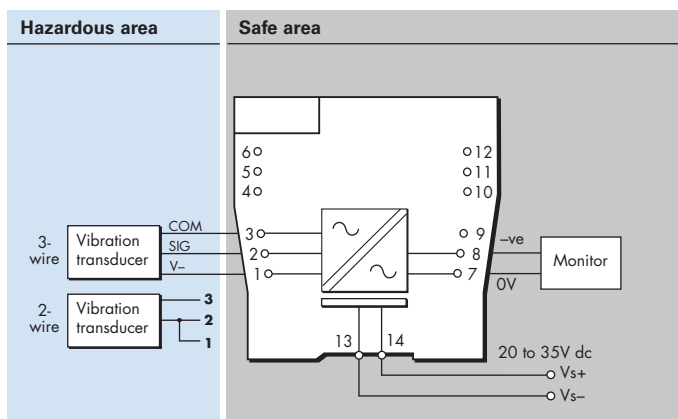
$< 20\Omega$

LED indicator

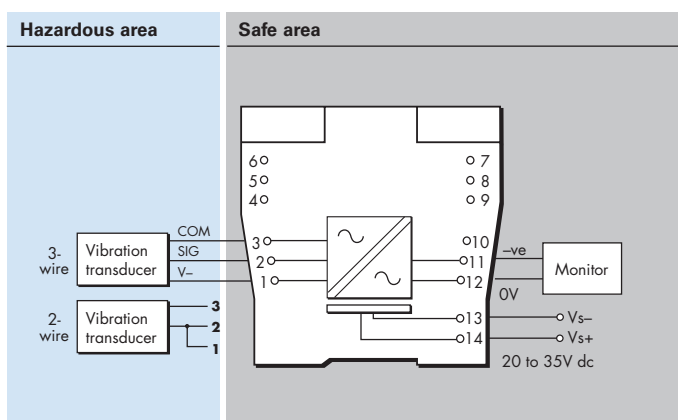
Green: power indication



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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

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

Terminals 3 to 2

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



SIL capable

These models have been assessed for use in IEC 61508 functional safety applications up to SIL2.

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



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Publication No.
EPSx531 Rev10 281118

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