

MTL5031 VIBRATION TRANSDUCER INTERFACE



The MTL5031 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.

SPECIFICATION

See also common specification

Number of channels

One

Location of signal source

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

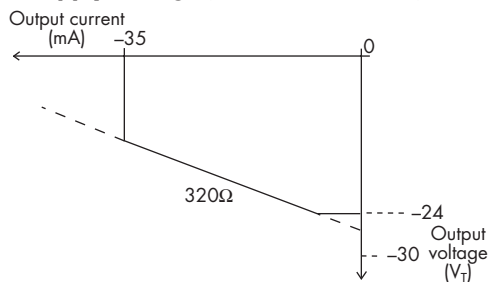
Safe-area output

Output impedance
(terminals 11 and 12): $<20\Omega$

Hazardous-area input

Input impedance
(terminals 1 and 2): $10k\Omega -1\%, +2\%$

Transducer supply voltage (terminals 3 and 1)



Signal range (terminals 1 and 2, 11 and 12)

Minimum $-20V$, maximum $-0.5V$, for dc transfer error $\leq \pm 100mV$

DC transfer accuracy at 20°C

$\leq \pm 100mV$

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 43kHz (typical)

Phase response

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

LED indicator

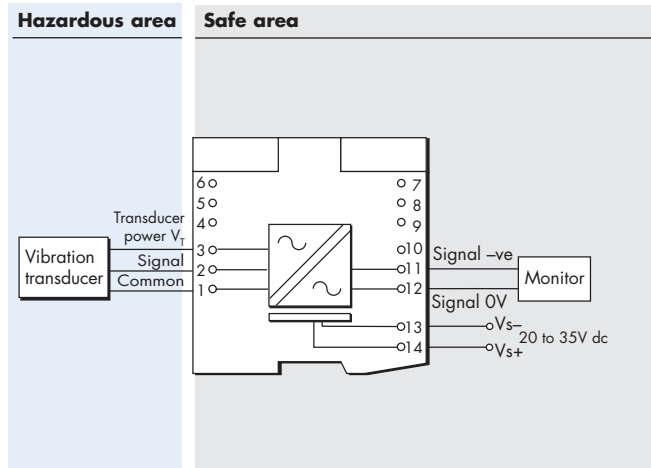
Green: power indication

Supply voltage

20 to 35V dc

Maximum current consumption (with 22mA transducer load)

80mA at 24V
88mA at 20V
63mA at 35V



Terminal	Function
1	Common
2	Signal
3	Transducer power V_T
11	Signal -ve
12	Signal 0V
13	Supply -ve
14	Supply +ve

Maximum power dissipation within unit

$<1.7W$

Safety description

Terminals 3 to 1

26.6V, 94mA, 0.66W

Terminals 2 to 1

Non-energy-storing apparatus $\leq 1.2V$, $\leq 0.1A$, $\leq 20\mu J$ and $\leq 25mW$



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