

# 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

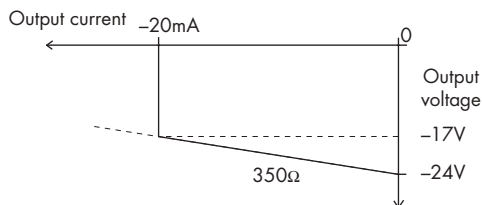
### Location of signal source

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 $\Omega$

### 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 $\mu$ 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

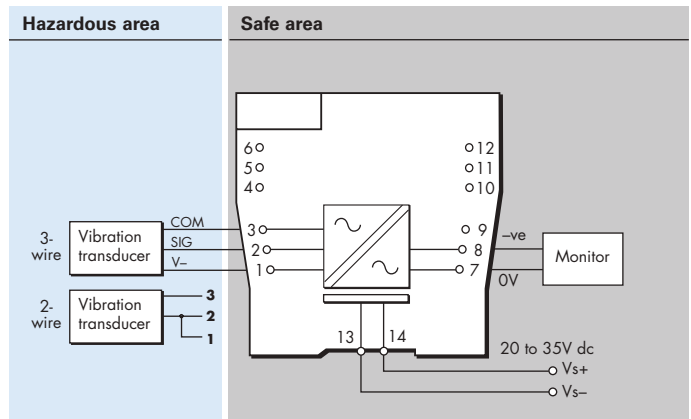
<20 $\Omega$

### LED indicator

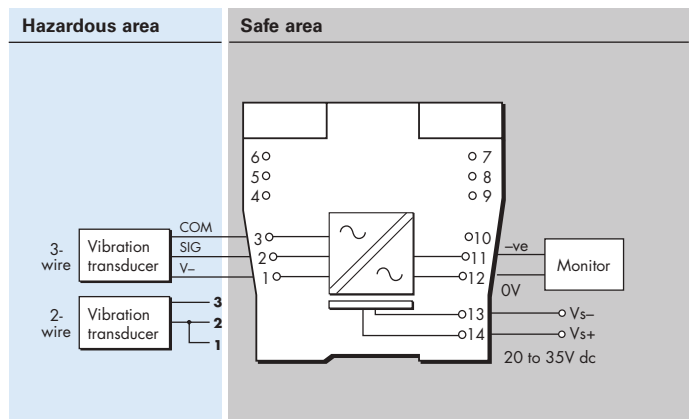
Green: power indication



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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

$U_o=26.6V$   $I_o=94mA$   $P_o=0.66W$   $U_m = 253V$  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.