

Linearized Velocity Sensor

LVS-301 Omnidirectional

FEATURES

- Frequency response down to 0.5Hz
- Built-in linearization micro-electronics circuit for low frequency amplitude and phase compensation
- Models for horizontal and vertical mounting position
- Stainless steel body
- Dynamic signal carried on DC bias voltage
- Push-Pull Connector or integral cable



Monitoring solution



Shaft & bearing vibration - absolute

Typical applications



Hydrogenerators



Pumps, fan, cooling towers...



Gas & steam turbines

DESCRIPTION

The LVS-301 velocity sensors have been designed for low frequency vibration monitoring applications of rotating machines. More specifically, the sensors fulfil the special low frequency requirements of very low speed hydroelectric machines.

The LVS sensors operate in accordance with the electrodynamic principle and are used for measuring the bearing absolute vibration of the machines.

The sensing element of the sensor is a coil supported by high precision springs moving around a permanent magnet which produces a voltage directly proportional to the vibration velocity.

By design, the sensor has an excellent sensitivity and linearity down to very low vibration levels. The built-in electronics allows the sensor to accurately monitor vibration frequency down to 0.5Hz.

The sensor provides two voltage outputs proportional to the vibration velocity :

- A raw output corresponding to buffered non-linearized signal
- The low frequency linearized vibration signal for monitoring purposes down to 0.5 Hz
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The sensor can be powered with +24VDC or -24VDC depending on the ordered version.

The sensor can be wired by push-pull connector (C3), so the extension cable can be detached during installation. Or by integral cable (C1).

GLOBAL SPECIFICATIONS

OPERATION

Sensitivity	100mV/mm/s $\pm 5\%$ (Vertical)	
Transverse sensitivity	< 7% max. of nominal	
Horizontal vs Vertical sensitivity	0.5-28Hz < +10%, 28-1500 Hz < +2%	
Maximum displacement	1.52mm peak-peak	
Natural frequency	28Hz typ.	
Resonance Frequency	>4kHz	
Output	Linearized	Raw
Impedance	100 Ω	
Output bias voltage	+12V or +6V for +24V _{DC} / -12V or -6V for -24V _{DC}	
Output bias voltage tolerance	$\pm 5\%$ of bias voltage	
Maximum output voltage	10V peak for 12V bias / 5V peak for 6V bias	
Temperature coefficient	0.1%/°C (<0.3%/°C @ 28Hz)	n/a
Typical frequency response at 2mm/s	$\pm 5\%$ of sensitivity 2Hz to 450Hz	28Hz to 1.5kHz (<-3dB)
Analog band pass filter	0.5Hz to 1.5kHz -3dB	
Power	+24V _{DC} $\pm 10\%$ or -24V _{DC} $\pm 10\%$ (approx. 15mA)	

ENVIRONMENTAL

Temperature range	
Operation	-20° to +80°C
Storage	-40° to +80°C
Humidity	resistant to 100% RH
Acceleration limit	
Shock	50g
Continuous vibration	5g
EMC	acc. to EN 61326-2-3:2006
Fluid compatibility	withstands contact with water, oil, solvents
Ingress Protection	IP68 as per DIN 40 050

PHYSICAL

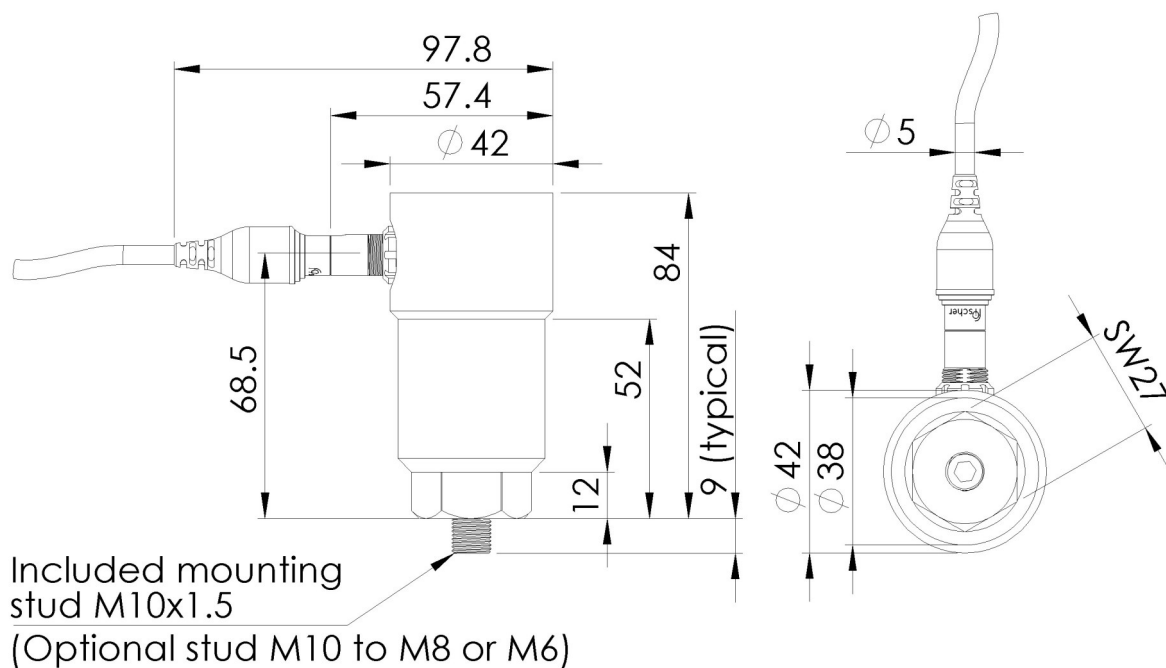
Sensor dimensions [mm]	ø42 x 84
Body material	Stainless steel 1.4313
Weight	450g
Output cable	ø5mm cable with top radial exit via push-pull connector or cable gland with ø10mm flexible metal conduit covered by PVC IP68. All version finished by open end termination.
Mounting stud (included)	M10x1.5, length 20mm, stainless steel or adapter in option

FIELD WIRING

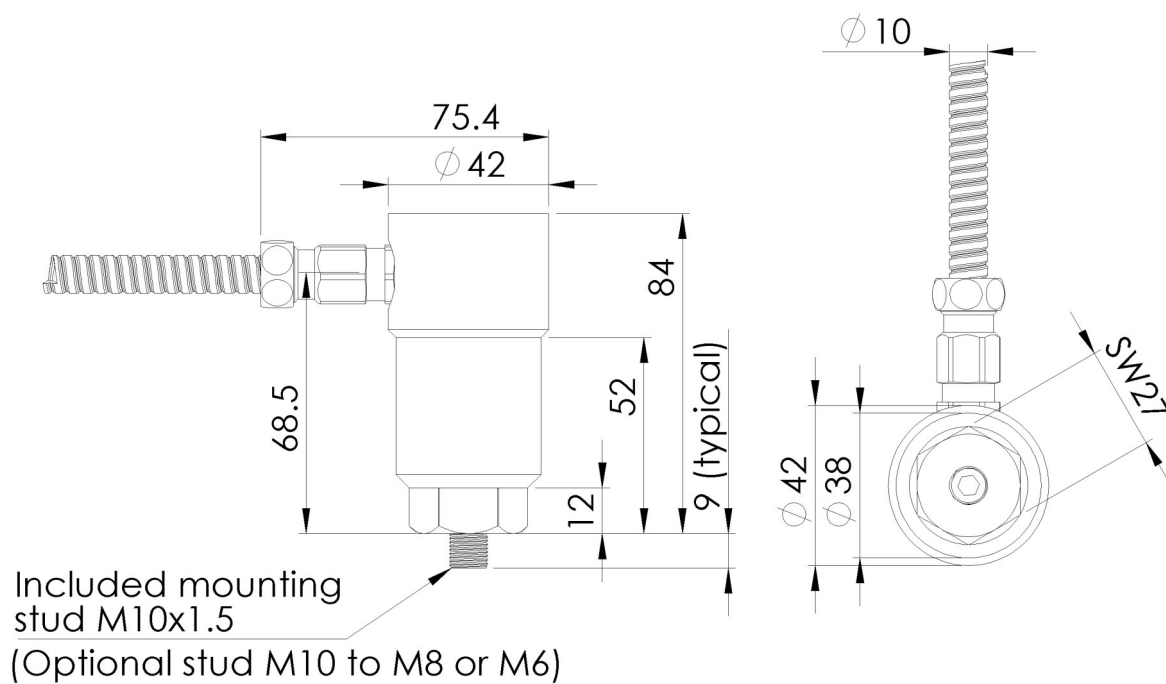
Termination colour	+24V _{DC} version	-24V _{DC} version
Brown	+24V	0V
White	0V	-24V
Green	Linearized output	
Yellow	Non-linearized output (raw)	
Clear	Shield	

MECHANICAL DRAWING

C3 Version



C1 Version



ORDERING INFORMATION

Ordering code 05.301.028 **C Y L****C** - Cable Options

- 1 Integral cable
- 3 Push-pull connector

Y - power supply

- 0 +24V / +12V Bias
- 1 -24V / -12V Bias
- 2 +24V / +6V Bias
- 3 -24V / -6V Bias

L - extension cable length

- 5m
 - 10m
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AVAILABLE ACCESSORIES

Part

Stud M10 to M8

Stud M10 to M6

Temporary mounting magnet : See PMH-140

Ordering code

901.0751

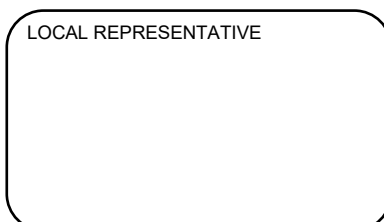
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MC-monitoring Quality certifications



LOCAL REPRESENTATIVE



MC-monitoring SA
Route André Piller 19
CH-1762 Givisiez | Switzerland
Phone : +41 58 411 54 00
Fax : +41 58 411 54 10
Mail : info@mc-monitoring.com
sales@mc-monitoring.com
Web : mc-monitoring.com