Efficient Vibration Measurement
Robust Accelerometer with Transducer

VCS – Vibro Control Solutions

- Robust accelerometer
- Easy installation: M12-thread
- Cable or plug version
- Protection level IP 67
- Transducer in DIN rail housing
- 4...20mA process output for direct connection to PLC, control system or limit value relays
- All-purpose for slide and roller bearings
- Selectable focus on RMS-value or envelope curve
- Interface for FFT-analyzer
- Funktion test during operation
- Supply voltage 24 VDC
- Optional Ex-design
- Made in Germany

Efficient Vibration Measurement
Robust Accelerometer with Transducer

Experience Into Practice:

VCS replaces the former manpower on-site. All impressions the skilled operator heard and felt VCS provides now as a processable 4...20 mA-signal for monitoring.

VCS – Vibro Control Solutions

is an universally applicable measuring system for machine vibrations. It consists of a robust, easy-to-install accelerometer with M12-thread (V-SENS) and a transducer in a DIN rail housing (V-TRANS).

VCS can be used for high-speed units (e.g. turbines) as well as low-speed units (e.g. fans for cooling towers).

Vibration Transducer

Different evaluation modes of the transducer (average or envelope) allow the use for both roller and slide bearings. The signal can be smoothed in seven levels.

The transducer provides a 4...20 mA-signal according to the vibration velocity. This signal can be connected to a PLC or a PCS for visualising and monitoring.

Advantages of the mA-Signal:

1. The vibration level can be shown as a trend. The historic chart gives hints regarding the cause of vibration. For instance a smooth and constant rise in the vibration level indicates a different cause of trouble than a sudden increase.

2. If connected to a PLC or a PCS, numerous limits can be generated out of one mA-signal.

3. Combined with further signals vibration monitoring can be individually adapted to the needs of the customer.

Function Test

VCS offers the unique option of a self test for both sensor and transducer. The function test is activated manually or by a contact from the PLC.

An integrated frequency generator stimulates test impulses in consecutive steps with predefined signal levels.

VCS is predestined for the retrofit of machines

In times of automation more and more plants change to remote control with PCS. The staff is drastically reduced therefore the lack of monitoring manpower has to be compensated by suitable monitoring devices. For new turbo machines the measurement of shaft vibration is common practice. However, this doesn't mean that the monitoring of shaft vibration is always the best solution. Decisive factors are: the bearing type, the speed of the rotor and the relation of rotating to non-rotating mass.
VCS can be used for both roller or slide bearings. It offers a wide frequency range and provides convincing results for nearly all kinds of industrial machines.

The installation of an eddy current probe for shaft vibration requires construction measures which can't be realized at each machine. Retrofit with VCS is always possible and is not restricted by constructive handicaps.
For mobile measurements a magnetic holder is available.

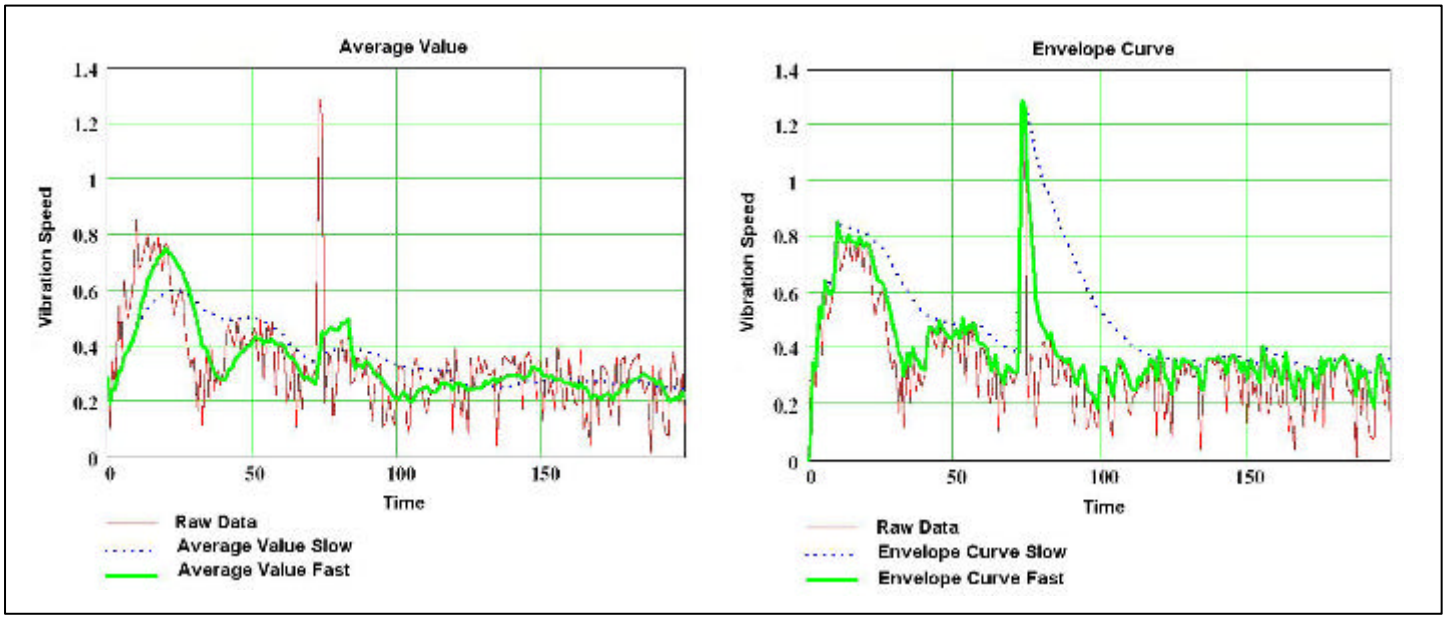
VCS – Vibro Control Solutions

Average Value or Envelope Curve

By a switch the transducer allows to select between two evaluation modes. The average value (RMS) of the vibration velocity is used for the condition valuation of rotors with slide bearings.

The envelope curve has proved reliable to determine the condition of rotors with roller bearings. The impact caused by defective bearings becomes easily recognizable.

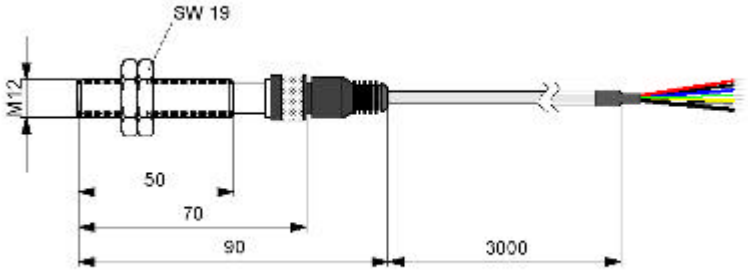
For both evaluation modes the signal can be smoothed in 7 levels. A smoothed signal can be interpreted more easily and is most suitable for data-reduced storage.

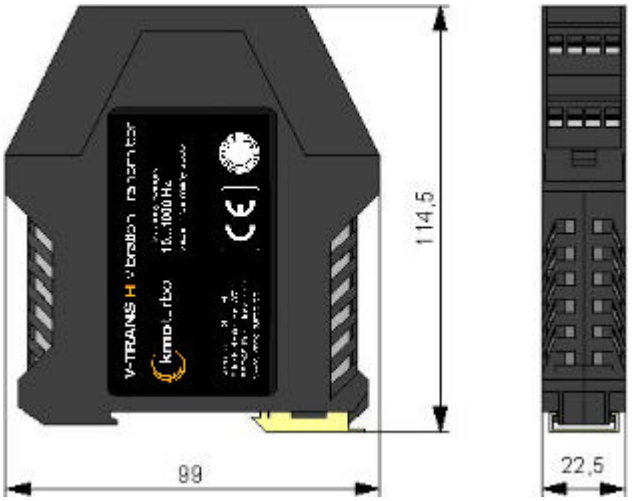


RMS value or envelope curve with different smoothing levels

Various Applications:

- slide beared high-speed machines as big compressors, turbines, generators, gear units, …
- roller beared high-speed machines such as pumps, fans, compressors, gear units, processing machines, …
- roller beared low-speed machines such as cooling tower fans, mills, conveyor belts, rollers,…





VCS - System Components:

VCS-H	V-SENS H + V-TRANS H	(frequency range: 10...1000 Hz)
VCS-L	V-SENS L + V-TRANS L	(frequency range: 1...100 Hz)

Technical Data:

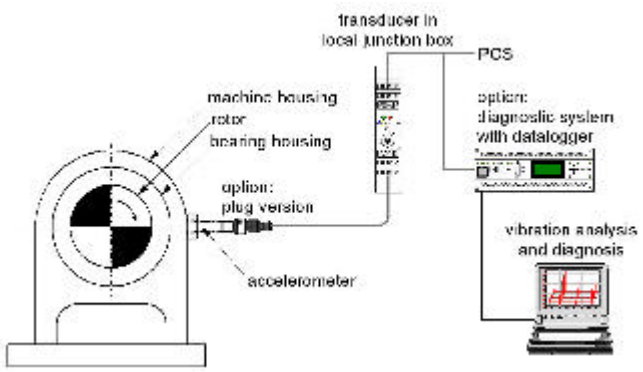
V-SENS

Measuring variable	acceleration
Measuring range	±5 g
Output 1	2,5 V ±100 mV/g (differential)
Output 2	±100 mV/g (single ended)
Function test	in connection with V-TRANS
Voltage supply	24 V DC ±10%, 10 mA
Housing	M12- threat, stainless steel 1.4503 or CuZn39Pb3 nickel-plated
Dimensions	12 x 57 mm
Working temperature	-20°C to +70°C
Storage temperature	-40°C to +85°C
Connection	5 m plug cable, individual lenghts on request
Protection level	IP 67

V-TRANS

Input 1	differential voltage output of sensor (for internal processing)
Input 2	mass-related voltage output of sensor
Output variable 1	RMS value of vibration speed, smoothable in 7 levels
Output variable 2	envelope curve corresponding to velocity, smoothable in 7 levels
Output signal	4...20 mA = 0-10mm/s, maximum load 500 ohm, short-circuit-proof
Function test	integrated test generator, event-controlled stimulation of predefined signal level
Activation function test	external logic signal (24 V DC) or onboard push button
Output self-test	logic signal 24 V DC
Power supply	24 V DC, ±10 %, 50 mA
Housing	DIN rail housing
Dimensions	114,5 x 99 x 22,5 mm
Working temperature	0°C to +55°C
Protection level	IP 20

Typical Installation



More Information:

kmo turbo GmbH

Friedrichstrasse 59
88045 Friedrichshafen
Germany

phone: +49 7541 - 95289-0
fax: +49 7541 - 95289-20
mobile: +49 171 - 7432832

internet: www.kmo-turbo.de