



Brüel & Kjær Vibro





Vibration Monitoring for Rotating and Reciprocating Machines

Transmitters and Monitors

Reliable and cost-effective solutions to protect your machines

Individual machines considered important, essential or even critical for the plant or the process are expected to be monitored and protected. To do so, many different monitoring philosophies can be considered. However, regardless of the philosophy, Brüel & Kjær Vibro have a solution to match your monitoring requirements and ensure optimal protection from potential failures and consequential machine damage.

No matter whether you are looking to monitor the status of your turbines, generators, centrifuges, fans/coolers, motors, pumps, or gearboxes, it is important to choose the right measurements based on the machine bearing types:

Bearing Type		Typical Vibration Measurements
Rolling Element Bearings		Casing vibration Bearing condition
Sleeve Bearings		Relative shaft vibration Axial position

For the most appropriate way to monitor and protect your machines, choose from our extensive portfolio:

TRANSMITTERS (velocity or displacement)

A simple and low-cost entry for general vibration monitoring of rotating equipment. They supply an analog output to existing PLC or DCS systems and allow vibration levels to be externally trended in other systems.

VIBRATION MONITORS

From the simplest single-channel to four-channel monitors with enhanced functionality. Multi-channel devices can be a very cost effective method to monitor multiple machines or parameters on a single monitoring device. Vibration monitors can often be the optimal solution for varied machines.

Global Industry First

Unique, simple installation without the need for an external vibration monitor: It is no longer necessary to worry about a safe, protected location for the driver/signal conditioning unit for your displacement transmitter. Uniquely, Brüel & Kjær Vibro can offer **the world's first fully integrated displacement transmitter providing analog output (e.g. 4-20 mA)** and allowing for simplified and significantly lower cost of installation and reduced space requirements. The integrated displacement transmitter is an effective and extremely economic solution for displacement monitoring requirements.



NEW
Integrated solution providing analog output (e.g. 4-20 mA)

COMBINING 3 INTO 1

Current transmitter solution



1 Sensor + 2 Cable + 3 Signal conditioning device providing analog output (e.g. 4-20 mA)

Vibration transmitter and compact monitor portfolio and features – choose your solution...



Rolling Element Bearings

Selection criteria

Selection criteria		Case Vibration Transmitter VT-110/120	VIBROCONTROL 850	VIBROCONTROL 950 / 960
Machine application	Rolling element bearings	●	●	●
	Sleeve bearings			
Maximum no. of vibration channels		1	1	1
Machine protection via limit values, OK and alarm relays			●	●
Measurements	Absolute casing vibration	●	●	●
	Rolling element bearing condition			
	Relative shaft vibration			
	Axial shaft position			
Analog output (e.g. 4-20 mA)		mm/s	mm/s	m/s ² ; mm/s (VC-950) mm/s (VC-960)
No. of alarm relays + OK relays			2	2 + 1
Installation / DIN rail mounting				●
Installation in field housing			●	optional
Relay types and ratings			Relay driver, 30 Vdc / 100 mA	Relay driver, 30 Vdc / 100 mA

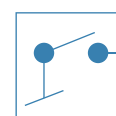
Hazardous areas: Please contact us for explosion-proof versions or consultancy on installation

Vibration sensors	Power supply for sensors	Loop-powered	Integrated	CCS*
	Vibration sensor types	Accelerometer integrated	Accelerometer integrated	Accelerometers (CCS); Velocity sensors
	Recommended Brüel & Kjær Vibro sensors			AS-062; VS-068/69

★ Highlights

Super relay compliant to ISO/EN13849-1

The VIBROCONTROL 18xx series of compact monitors provide exceptionally reliable machine protection by offering two mechanical relays that are coupled in series for redundancy. This configuration allows the unit to be set up specifically as a Safety Monitor in accordance with ISO/EN13849-1 (Safety of Machinery – Safety-related parts of control system). Both danger alarms and system failure alarms can be forwarded to the relays.





Sleeve Bearings

VIBROCONTROL 1000	VIBROCONTROL 1100	VIBROCONTROL 1500	VIBROCONTROL 6000® Compact monitor	VIBROCONTROL 1850 / 1860 / 1870	Displacement Transmitter DT-121-RV; DT-121-AP
●	●	●	●	●	●
1	2	2	3	4	1
●	●	●	●	●	
●	●	●	●	●	
	●	●	●	●	●
			●	●	●
mm/s	mm/s; bearing condition	mm/s; bearing condition	m/s ² ; mm/s; μm AP mm; bearing condition	m/s ² ; mm/s; μm AP mm; bearing condition	μm; AP mm
2 + 1	3 + 1	2 + 1	1...12 + 1	4 + 1 add 12 via extension	
●	●	optional	●	●	
Mechanical relay, 150 Vdc / 500 mA; 250 Vac / 1 A	Mechanical relay, 24 Vdc / 400 mA; 48 Vdc / 200 mA; 250 Vac / 5 A	Mechanical relay, 24 Vdc / 5A	Mechanical relay, 50 Vdc / 500 mA	Relay driver for alarm relays 30 Vdc / 100 mA; redundant mechanical relay for Ok +/-28V dc / 100 mA	

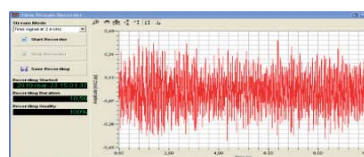
Not applicable	CCS*, -24 Vdc	CCS*	CCS*, -24Vdc	CCS*, -24Vdc	Loop powered
Velocity sensors	Accelerometers Velocity sensors	Accelerometers	Accelerometers Velocity sensors Displacement sensors	Accelerometers Velocity sensors Displacement sensors	Displacement sensor integrated
VS-68/69	AS-062; VS-068/69	AS-062	AS-062, VS-068; ds-821	AS-062, VS-068; ds-821; TS-012 (tacho/speed)	

★ Highlights

Vibration analysis

In addition to reliable machine protection, the VIBROCONTROL 18xx series of compact monitors offers condition monitoring and diagnostics functionality. Scalar vibration and process data can be stored and trended as well as the original time waveform signals. Moreover, vibration frequency spectrum plots can be post-processed from the time signals using FFT analysis.

All of this data can be remotely accessed for early fault detection and diagnosis of potential failure modes of the machine.



Case Vibration Transmitter VT-110 and VT-120

The easiest and lowest-installed-cost solution for DCS / PLC based vibration measurement and trending of the case vibration level of a machine

- Loop powered
- Simple mounting
- Ex-proof versions available

Unique Innovation Fully integrated Displacement Transmitter DT-121-RV and DT-121-AP

The easiest and lowest-installed-cost way to monitor shaft vibration and axial positioning. The fully integrated displacement transmitters DT-121-RV and DT-121-AP combining all components of an eddy-current measuring chain and a signal conditioning device providing analog output (e.g. 4-20 mA).

- Reduced cost for wiring and installation based on unique single-unit design
- No need for additional housings/ mounting space and protection
- Buffered output
- Loop-powered
- Installation: forward; reverse mounted; angled
- Ex-proof versions available

VIBROCONTROL 850:

Vibration monitor for low-cost monitoring of rotating equipment

- Integrated capacitive accelerometer
- 2 alarm relays and 1 analog output in a single simple device
- Simple onsite configuration possibilities; no additional tools needed
- Machine protection according DIN/ISO 10816
- IP 68 Housing

VIBROCONTROL 950 / 960:

Single-channel machine protection units for case vibration monitoring.

- Accelerometers CCS* (VIBROCONTROL 950) or velocity sensors (VIBROCONTROL 960) can be connected.
- DIN rail mounting in machine cabinets or in optional field housings.

VIBROCONTROL 1000:

Single-channel machine protection system.

- Casing vibration monitoring
- Input from velocity sensors
- Field housing (IP 65)

VIBROCONTROL 1800 Series:

Cost-effective protection for most rotating equipment with either rolling element bearings or sleeve bearings.

- Up to four vibration channels,
- Additional two channels (one process data channel and one tacho/speed reference channel)
- Time waveform recording and data storage on PC/Server
- Four outputs configurable between relays and analog outputs
- Communication via Ethernet, USB, RS-485 and offering OPC UA, Modbus TCP/RTU protocol
- Extremely flexible with modular link concept for process inputs, buffered output, communication options
- User-definable frequency bands
- Optional software giving a wide range of vibration analyzing and diagnostic functions

VIBROCONTROL 1850

- Casing vibration (acceleration sensors CCS*)

VIBROCONTROL 1860

- Casing vibration (velocity sensors)

VIBROCONTROL 1870

- Relative shaft vibration, axial position

VIBROCONTROL 1500:

Protection of two bearings of rolling element bearing machines by monitoring of up to six machine condition parameters: absolute casing vibration, rolling element bearing condition and temperature with just two accelerometers using integrated temperature sensors.

- Input: Two accelerometers (CCS*) with integrated temperature elements (AS-062T1)
- Measurement: Casing vibration overall values in mm/s rms according to ISO 10816; bearing condition unit, temperature
- Two alarm and danger limit (shutdown) relays
- Frequency analysis of casing vibration
- Internal trend measurement
- Post mortem analysis
- Remote monitoring via Control-Center-Software

VIBROCONTROL 1100:

Casing vibration monitoring with accelerometers or velocity sensors. A dual-channel protection system which covers the most critical parameters on rolling element bearing machines.

- Two-channel input of accelerometers or velocity sensors
- Rolling element bearing condition unit – BCU
- Two limit relays, one OK relay
- Flexible, freely programmable outputs (limit values and analog outputs)

VIBROCONTROL 6000® Compact monitor:

Sophisticated, flexible three-channel diagnostic machine protection system for all types of rotating equipment.

- Casing vibration, shaft vibration (relative and absolute), axial position
- Variable band pass filtering
- Tracking filters for 1X, 2X, nX
- Measuring of process parameters such as temperature or pressure (up to six channels)
- Up to 12 analog outputs or relays
- Variable number of alarm and danger limits which can be assigned to relays
- 2oo3 voting logic
- Remote monitoring via OPC

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