



Brüel & Kjær Vibro



VIBROCONTROL 920

Reliable prevention of machine damage

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During operation machines are subjected to a number of influences which change the condition of rotating components, bearings, machine casing and foundations and may lead to costly direct and consequential damage. The most common causes of damage are:

- Unbalance of rotating components through manufacturing, material faults and normal wear
- Unbalance from build-up on the blades of exhaust fans, blowers and winnowing machines
- Unbalance due to asymmetric loading in separators and centrifuges
- Unbalance due to eccentric winding of wire coils
- Alignment errors due to assembly faults, thermal growth in bearing supports or through foundation movement
- Rolling-element bearing and gear wear, changes in loading



Almost all causes of damage affect the quiet running of machines and lead immediately to increased mechanical vibrations. Therefore vibrations are a reliable indicator of the condition of the individual components and also the entire machine.

To immediately identify any changes in machine condition with a high degree of safety, the use of vibration monitoring instruments is recommended. At little investment and installation cost, on-going damage can be identified at an early stage by vibration monitoring. Costly damage, consequential damage and production downtime can be prevented this way.

Vibration monitoring

Measurement of bearing vibrations are carried out in accordance with the ISO standard 10816.

Vibration that occurs at the machine surface is converted into electrical signals and from this the RMS-value of the vibration velocity is formed.

This characteristic machine condition value is continuously compared with two preset limit values. At a violation of the limits, the contacts of alarm relays are activated to signal an alarm or shut the machine down.

Through permanent monitoring dangerous changes in machine condition can be reliably identified, regardless whether they are continuous, e.g. due to wear, or precipitous, e.g. due to sudden material break or fly-off of build-up on the rotor.

Monitoring electronics

The monitoring electronics is integrated in a plastic housing with Display for installation into a control cabinet. Mounting the instrument is either by clipping onto a standard profile rail or screwing onto a panel in the cabinet.

Vibration sensor

The vibration sensor converts the vibrations occurring at the machine surface into electrical signals.

Either vibration velocity or acceleration sensors can be connected. The sensor is screwed onto the machine casing, preferably at a bearing location, and connected to the monitoring electronic instrument.



The connecting cable, which is according to the sensor type either 5 m or 10 m in length, can be extended a further 300 m. For this purpose signal cable and terminal protective housings are available as options.

Parameter configuration

Configuration of the monitoring electronics is carried out by software dialogue at the instrument.

Characteristics
<ul style="list-style-type: none"> • Outstanding price/performance ratio
<ul style="list-style-type: none"> • Simple and cost-saving installation
<ul style="list-style-type: none"> • Parameter settings via dialogue/display <ul style="list-style-type: none"> - Measuring range - Frequency range - Limit values - Relay time delays - normally-energized or de-energized relay operation - analogue outputs
<ul style="list-style-type: none"> • Signalling of limit value violations by two relays with switch-over contacts
<ul style="list-style-type: none"> • Display of measured value and limit violation at the instrument front panel
<ul style="list-style-type: none"> • Analogue output for connection to downstream electronics
<ul style="list-style-type: none"> • Buffered output for connection of diagnostic instrument
<ul style="list-style-type: none"> • Self-monitoring of power supply and sensor health
<ul style="list-style-type: none"> • Use of vibration velocity or acceleration sensors
<ul style="list-style-type: none"> • Vibration sensors for hazardous areas can be used

VIBROCONTROL 920 Technical Data

 	
	1-channel absolute bearing vibrations
Order code	VC-920
Inputs	
No. of vibration channels	1
Sensor connections	Acceleration sensor, e.g. AS-022, AS-062 (CCS), ASA-022, etc. Velocity sensor, e.g. VS-068, VS-069, VS-0168, VS-0169
Sensor power	-24 V DC (max. 30 mA) or 4 mA constant-current power (CCS) ¹⁾
Sensor OK monitoring	Velocity sensor : no power required Yes
Measurement types	
Measurement channel	1-channel operation with continuous monitoring
Measuring ranges	Vibration velocity: 0...10/20/50/100 mm/s
Frequency ranges	1/10 ... 1000 Hz
Bearing vibration measurement	RMS value of vibration velocity in mm/s
Measurement accuracy	5% of the measured value
Monitoring	
Alarm signalling	Alert and Danger alarm, adjustable between 0 and measuring range full scale value
Relay delay times	0...100 sec. in steps of 1 sec for Alert and Danger alarms
Limit relays	2 relays, normally energized or normally de-energized, latching or non-latching
Self-monitoring	OK fault signalling with separate OK relay
Signalling display	OK fault with green LED Limit violations: LIM1 amber LED, LIM2 red LED
Outputs	
Analogue signal outputs	0/4 ... 20 mA, Load < 500 Ω or 0...10 V (load resistance R _L > 10 kΩ)
Power supply	
Main power	230/115 V AC, +/- 15%, 50...60 Hz, appr. 12 VA 24 V DC (18...32 V DC), appr. 7 W
Environmental conditions	
Operating temperature range	0° C ... +50° C
Storage temperature range	-10° C ... +70° C
Mechanical data	
Housing	Plastic housing in IP 20 protection class, total weight appr. 900 g
Dimensions	150 x 78 x 115 mm (W x H x D)

¹⁾ only with acceleration sensor with constant-current power (CCS)

Delivery extent and order data

1. Monitoring electronics

consisting of:

1 VIBROCONTROL 920 Vibration monitoring instrument with 2 users instructions, in German, English or French language (please specify the language when ordering).

2. Vibration sensor

Acceleration sensor in standard form	AS-022	Any measurement direction, radial cable exit, 5 m, PVDF cable with open ends
	AS-030	Any measurement direction, axial cable connection, with Fast-On connection lugs
Acceleration sensor in Ex form ¹⁾	ASA-022 ¹⁾	Any measurement direction, 5 m cable, Ex only when used with AC-293 safety barrier set
	AC-293	Safety barrier set for acceleration sensor ASA-022
Vibration velocity sensor in standard form	VS-068	For horizontal measurement, 2-core, PTFE, 5 m cable with steel protective conduit T _A -40° C ... +80° C, ²⁾
	VS-069	For vertical measurement, 2-core, PTFE, 5 m cable with steel protective conduit, T _A -40° C ... +80° C, ²⁾
Vibration velocity sensor in Ex form	VS-0168	For horizontal measurement, 3-core, PVC, 10 m cable T _A -10° C ... +65° C, ²⁾
	VS-0169	For vertical measurement, 3-core, PVC, 10 m cable T _A -10° C ... +65° C, ²⁾

3. Terminal protective housing

Rugged aluminium housing in IP 65 protection class, painted RAL 7001, with cable feed-throughs.

Standard form	AC-2104	For max. 2 vibration sensors VS-068/069 or AS-022/030 Weight appr. 1.25 kg
Ex form	AC-2105	For max. 2 acceleration sensors, e.g. ASA-022 ¹⁾ , Weight appr. 600 g
	AC-2103	For max. 2 vibration velocity sensors, VS-0168, VS-0169, Weight appr. 650 g
4. Signal cable		
Standard form	AC-112	For vibration sensors AS-022/030 and VS-068/069, 4 x 0,5 mm ² , shielded, PVC black LIY (ST) Y, 7 mm Ø T _A -20° C ... +70° C, ²⁾
Ex form	AC-114	For acceleration sensors, e.g. ASA-022 ¹⁾ , 4 x 0,5 mm ² shielded, PVC blue, Li2Y-St / C-Y, 7 mm Ø T _A -25° C ... +70° C, ²⁾
	AC-180	For vibration velocity sensors, e.g. VS-0168/VS-0169 ¹⁾ , 3 x 0,75 mm ² shielded, PVC grey (N) YLHCY-J, 7 mm Ø T _A -10° C ... +80° C, ²⁾

¹⁾ ATEX certification and data sheets are available for download from our website

²⁾ T_A operating temperature range

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