

**PRÜFTECHNIK Catalog**

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## What's new

The following additions and changes are reflected in version **06.2018**.

### New

- ["Long Range Laser"](#)
- ["Brackets selection guide"](#)
- ["Overview: Sensors for portable instruments"](#)
- ["Overview: Sensor cables for portable instruments"](#)

### Corrected

- ["Live Trend Add-on"](#)- PERMAFIX case - ALI 2.197 replaces ALI 2.192
- ["USB cables for VIBXPRT II"](#)- Cable for USB pen drive - VIB 5.330AMEM replaces VIB 5.330-MEM
- ["Accessories for VIBCODE measurement studs"](#)- Technical data for protective cap and code ring added.
- "Sensor cable with 2-pin MIL connector", p. 200- Sensor cable replacement - VIB 5.742 replaces VIB 5.740 and VIB 5.741 replaces VIB 5.743.
- sensALIGN sensor ALI 4.900I replaces ALI 4.900 - various delivery packages
- Various corrections and additions.

## PREVIOUS VERSIONS

### 02.2018

#### New

- ["VIBSCANNER 2 – Data acquisition ingeniously simple "](#) - VIB 5.200
- ["Tripod stand for LEVALIGN Laser"](#) - ALI 6.956
- ["Floor stand with rotatable sensor holder "](#) - ALI 6.967
- ["Universal Holder"](#) - ALI BV26.MP
- ["Accelerometer with quick fitting coupling"](#) - VIB 8.666 R
- ["Measurement studs"](#) - VIB 32xxx / VIB 33000
- ["Numerical Index"](#)

#### Corrected

- ["VIBREX – Continuous monitoring of one or two locations"](#)
- ["Dust caps for industrial CLD accelerometers"](#)
- Various corrections and additions



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VIB 5.446 - p. 165	VIB 6.147 DEX - p. 89	VIB 7.780-DR - p. 231	VIB 8.685 A25 - p. 152
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VIB 5.460 EX - p. 40	VIB 6.203 - p. 97	VIB 7.815 - p. 72	VIB 8.694 - p. 159
VIB 5.480-P - p. 231	VIB 6.210 - p. 102	VIB 7.820 - p. 72	VIB 8.696 - p. 159
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# VIBXPert II – Dual channel FFT data collector

VIBXPert II is the expert system for performing vibration analysis, machinery diagnosis and balancing of rotors. This handy and versatile system is easy to operate, and its many functionalities and analysis tools make it unique.



## Application

- Route-based data collection
- Automatic data acquisition with a multiplexer
- Vibration-based condition monitoring
- Field balancing (1 or 2 planes)
- Acceptance measurement with machine templates
- Troubleshooting
- Multimeter
- Data logging
- Visual inspection

## Ordering information

Depending on application and functionalities, VIBXPert II is available in four variants.

Item No.	Variant
<b>VIB 5.310-1E</b>	VIBXPert II data collector, 1 channel
<b>VIB 5.310-1</b>	VIBXPert II data collector and signal analyser, 1 channel
<b>VIB 5.310-2</b>	VIBXPert II data collector and signal analyser, 2 channels
<b>VIB 5.310 B</b>	VIBXPert II Balancer, 2 channels

The items delivered within the box are shown in the following overview.

## Scope of supply

Item No.	Description	Details	Variant			
			Data	Signal 1 ch	Signal 2 ch	Balancer
<b>VIB 5.310</b>	<b>VIBXPert II instrument</b>	<b>p. 18</b>	✓	✓	✓	✓
<b>VIB 5.318-E</b>	<b>Firmware "E-Registration" incl. certificate</b>	<b>---</b>	✓	✗	✗	✗
<b>VIB 5.311</b>	<b>Firmware "1 channel" incl. certificate</b>	<b>p. 20</b>	✗	✓	✓	✗
<b>VIB 5.311-CH2</b>	<b>Firmware "2 channels" incl. certificate</b>	<b>p. 20</b>	✗	✗	✓	✗
<b>VIB 5.317-B</b>	<b>Firmware "Balancer" incl. certificate</b>	<b>p. 20</b>	✗	✗	✗	✓
<b>VIB 5.325</b>	<b>Battery (built-in)</b>	<b>p. 63</b>	✓	✓	✓	✓
<b>VIB 5.327</b>	<b>Wheeled case</b>	<b>p. 52</b>	✓	✓	✓	✓
<b>VIB 5.356</b>	<b>Carrying pouch</b>	<b>p. 56</b>	✓	✓	✓	✓
<b>VIB 5.320-INT</b>	<b>Charger, International</b>	<b>p. 60</b>	✓	✓	✓	✓
<b>VIB 5.330SUSB</b>	<b>USB cabel</b>	<b>p. 171</b>	✓	✓	✓	✓
<b>VIB 5.330-USB</b>	<b>USB pen drive</b>	<b>p. 171</b>	✗	✗	✗	✓

Content			Variant			
Item No.	Description	Details	Data	Signal		Balancer
				1 ch	2 ch	
VIB 5.330AMEM	Connection cable for USB pen drive	p. 171	✗	✗	✗	✓
VIB 6.142 R	Mobile Industrial accelerometer, 1 $\mu\text{A}/\text{ms}^{-2}$	p. 89	✓	✓	✓, 2x	✗
VIB 6.147	Mobile Industrial accelerometer, 5,35 $\mu\text{A}/\text{ms}^{-2}$	p. 89	✗	✗	✗	✓, 2x
VIB 3.420	Magnetic holder for curved surfaces	p. 142	✓	✓	✓, 2x	✓, 2x
VIB 5.436	Sensor cable for CLD-type accelerometer, spirialized	p. 174	✓	✓	✓, 2x	✓
VIB 5.437-2,9	Sensor cable for CLD-type accelerometer, straight, 2.9m/9.5ft	p. 174	✗	✗	✗	✓
VIB 5.339	Cable extension for analog measurement channel, 8 m	p. 174	✗	✗	✗	✓
VIB 6.631	Laser trigger / RPM sensor	p. 123	✗	✗	✗	✓
VIB 6.632	Stand for Laser trigger	p. 150	✗	✗	✗	✓
VIB 5.432-2,9	Sensor cable for laser trigger / RPM sensor, straight, 2.9 m / 9.5 ft	p. 181	✗	✗	✗	✓
VIB 4.750-5	Extension for Laser Trigger sensor cable, straight, 5 m / 16 ft	p. 181	✗	✗	✗	✓
VIB 3.306	Reflective tape, 10 mm wide	p. 150	✗	✗	✗	✓
LIT 53.102	Short instructions, VIBXPERT II	---	✓	✓	✓	✗
LIT 53.103	Short instructions, VIBXPERT II Balancer	---	✗	✗	✗	✓
LIT 01.801	Condition Monitoring Documentation, USB pen drive	---	✓	✓	✓	✓
LIT 66.200	Manual, Laser trigger	---	✗	✗	✗	✓
VIB 9.831	Manual, Industrial accelerometers	---	✓	✓	✓	✓
VIB 2.520.G	VIBXPERT inspection certificate	---	✓	✓	✓	✓
VIB 2.567.G	Inspection certificate for Industrial accelerometer	---	✓	✓	✓, 2x	✓, 2x

**Note:** The items in the box for the four variants are fixed. A customized configuration is possible.

Optional items may be ordered for any of the four variants:

### Optional accessories

Item No.	Description – optional accessories	Note	Details
<b>OMNITREND Center PC software</b>			
VIB 8.200	OMNITREND Center Client Server		p. 230
VIB 8.201/ 8.202	Floating user licences: 1 / 5		p. 230
VIB 8.203 / 8.204	Fix user licences: 1 / 5		p. 230
VIB 8.205	10 additional database licences		p. 230
VIB 8.206	Multi server licence		p. 230
VIB 8.210	OMNITREND Center single user		p. 230

Item No.	Description – optional accessories	Note	Details
<b>VIBXPERT II Firmware Upgrade</b>			
<b>VIB 5.315-REC</b>	Firmware "Recording"	incl. certificate and USB pen drive. Required: " VIBXPERT-Utility Advanced File Export (PC licence)" for data export (p. 233)	p. 22
<b>VIB 5.316-BAL</b>	Firmware "Balancing"	incl. certificate and USB pen drive.	p. 22
<b>VIB 5.319-ODS</b>	Firmware "ODS - Modal analysis"	incl. certificate and USB pen drive. Only with firmware "2 channels". Required: " VIBXPERT-Utility Advanced File Export (PC licence)" for data export.	p. 22
<b>VIB 5.384-FM</b>	Firmware "Machine Templates"	incl. certificate and USB pen drive.	---
<b>OMNITREND PC software</b>			
<b>VIB 8.981</b>	OMNITREND for VIBXPERT		p. 231
<b>VIB 8.982</b>	OMNITREND View for VIBXPERT		p. 231
<b>VIB 8.982-B</b>	OMNITREND View Basic for VIBXPERT		p. 231
<b>VIB 8.981-OMT</b>	VIBXPERT device driver for OMNITREND	= device type licence	p. 231
<b>VIB 5.312-P</b>	PC licence for VIBXPERT II	= communication licence	p. 231
<b>VIB 8.970</b>	OMNITREND Demo CD		---
<b>VIBXPERT utility PC software</b>			
<b>VIB 8.984</b>	VIBXPERT-Utility Advanced File Export	PC licence	p. 233
<b>VIB 8.986</b>	VIBXPERT-Utility Excel Report module	PC licence	p. 233
<b>Sensors</b>			
<b>VIB 8.660</b>	VIBCODE sensor	w/o connection cable	p. 108
<b>VIB 6.655</b>	Triaxial accelerometer for mobile applications	required: Connection adapter	p. 112
<b>VIB 6.640</b>	Inductive proximity probe	incl. cable	p. 127
<b>VIB 8.607-1,5</b>	Temperature probe with magnetic attachment	incl. connection cable (1.5 m)	p. 135
<b>VIB 8.608</b>	Handheld temperature probe	incl. connection cable	p. 135
<b>VIB 6.172</b>	Accelerometer 100mV/g (IEPE-type) with MIL-type connector		p. 102
<b>Cabels and connection adapters</b>			
<b>VIB 5.331</b>	Ethernet cable		p. 164
<b>VIB 5.332-X</b>	Keyphase adapter for machine protection systems	Required: Sensor cable for laser trigger / RPM sensor	p. 181
<b>VIB 5.333</b>	Connection adapter for LED strobe light	Required: Sensor cable for laser trigger / RPM sensor	p. 181
<b>VIB 5.336</b>	Sensor cable for triaxial accelerometer VIB 6.655		p. 175
<b>VIB 5.345-6</b>	Extension for sensor cable with MIL connector, 6 m, MIL plug to MIL socket		p. 175
<b>VIB 5.346</b>	Connection cable for VIBRONET field multiplexer		p. 187
<b>VIB 5.346-MUX</b>	Cable adapter for the connection cable VIB 5.346		p. 187
<b>VIB 5.422</b>	Sensor cable for accelerometer (IEPE), spiral, 1.8 m, MIL connector to MiniSnap		p. 175



Item No.	Description – optional accessories	Note	Details
VIB 5.430-2	Serial PC cable		p. 169
VIB 5.431	Connection cable for external analyzers to analogOUT		p. 180
VIB 5.433	Sensor cable for measuring low voltage signals		p. 177
VIB 5.434	Sensor cable for measuring low current signals		p. 177
VIB 5.437-5	Sensor cable for CLD-type accelerometer, straight, 5 m / 16 ft		p. 174
VIB 5.438-0.5	Sensor cable for IEPE-type accelerometer		p. 175
VIB 5.443	Sensor cable for TTL trigger (foreign manufacturer)		p. 181
VIB 5.444-5	Cable extension for analog channel, 5 m / 16 ft		p. 188
VIB 5.449-CLD	Connection adapter for CLD-type accelerometer (VIB 6.195)		p. 174
VIB 6.675	Connection cable for Mono headphones		p. 180
<b>Miscellany</b>			
VIB 3.450	Probe tip for Mobile Industrial accelerometer VIB 6.14x		p. 142
VIB 5.324	Charging station		p. 61
VIB 5.354-GT	Carrying strap		p. 56
VIB 5.354-HS	Hand strap for VIBXPERT pouch		p. 56
VIB 5.354-CL	Sensor clip for VIBXPERT pouch		p. 56
VIB 6.671	Mono headphones, jack 3.5 m	Required: Connection cable for Mono headphones	p. 114
VIB 6.672	LED-Stroboscope	Required: Connection adapter for LED strobe light and sensor cable for laser trigger	p. 125
VIB 6.673	Current clamp 600A DC	Required: Sensor cable for measuring low voltage signals	p. 133

## TECHNICAL INFORMATION

### Technical data

Parameter	Technical data VIBXPERT II instrument (VIB 5.310)
<b>INPUT</b>	
<b>Analog, Vibration, 2x</b>	Voltage (AC/DC, ±30 V max.) Current (AC/DC, ±30 mA max.) IEPE-type accelerometer (2 mA, 24 V max.) Current Linedrive (CLD) accelerometer (10 V, 10 mA max.)
<b>Frequency range</b>	DC ... 51.2 kHz (Acceleration from 0.5 Hz)
<b>Dynamic range</b>	96 dB (measurement) / 136 dB (total)
<b>Sampling frequency</b>	up to 131 kHz per channel

Parameter	Technical data VIBXPERT II instrument (VIB 5.310)
<b>Impedance</b>	90 kOhm, with cable VIB 5.433
<b>Analog, Temperature, 1x</b>	Thermocouple (type K)
<b>Digital, Pulse/ Tacho, 1x</b>	RPM, Trigger, Keyphaser with pulse and AC signals: 0 V ... +26 V or -26 V ... 0 V
<b>Max. input voltage</b>	± 26 V
<b>Switching threshold for 0 V ...+26 V signal</b>	max. 2.5 V rising, min. 0.6 V falling
<b>Switching threshold for -26 V ...0 V signal</b>	min. -8 V rising, max. -10 V falling
<b>Pulse width</b>	< 0.1 ms
<b>OUTPUT</b>	
<b>Stroboscope control</b>	TTL-Ausgangsspiegel
<b>Frequency range</b>	0 - 500 Hz
<b>Resolution</b>	0.05 Hz
<b>Signal-Out</b>	Connection for headphones to listen to the analog input signal; signal processing (oscilloscope)
<b>Frequency range</b>	0.5 Hz - 40 kHz
<b>Output impedance</b>	100 Ohm
<b>MEASUREMENT RANGE / ACCURACY</b>	
<b>Vibration acceleration</b>	depends on the sensor connected
<b>Shock pulse</b>	-10 ...80 dBsv / ± 3dBsv
<b>RPM</b>	10 ... 200 000 min <sup>-1</sup> / ±0.1‰ or ± 1 min <sup>-1</sup> (the lower accuracy is applicable)
<b>Temperature, type K</b>	-50 ... +1000°C / 1% or ±1°C (the lower accuracy is applicable)
<b>Standards fulfilled</b>	Frequency response acc to ISO 2954
<b>DISPLAY</b>	
<b>Type</b>	TFT-LCD, backlit
<b>Pixel area</b>	116 x 87 mm
<b>Resolution</b>	VGA (640 x 480 pixel) with 140 ppi
<b>Color depth</b>	18 bit (262144 colors)
<b>POWER SUPPLY</b>	
<b>Battery type</b>	Li Ion rechargeable battery pack (7.2V / 4.8Ah - 34 Wh)
<b>Charging time</b>	< 5 hours in the instrument
<b>Charger, input</b>	110-240 V / 50-60 Hz
<b>Charging temperature</b>	0°C ... +50°C [ 32 °F ... 122°F]
<b>COMPUTER</b>	
<b>Processor</b>	Marvell PXA320 806 MHz
<b>Keyboard</b>	1 navigation pad and 7 keys (Zoom, Escape, Function, Help, Menu, On/Off); Keyboard illumination controlled by ambient light.
<b>Memory</b>	Internal: 128 MB DDR RAM; Compact Flash: 2 GB to 8 GB (interchangeable)
<b>Serial interface</b>	RS 232, <115 kBaud
<b>USB interface</b>	USB 2.0

Parameter	Technical data VIBXPART II instrument (VIB 5.310)
<b>Ethernet interface</b>	100 Mbit (100Base T), 10 Mbit (10Base T)
<b>ENVIRONMENT / GENERAL</b>	
<b>Connectors</b>	Analog / Digital channels: MiniSnap socket Thermocouple (type K): QLA socket; all compatible to VIBSCANNER
<b>Housing</b>	ABS plastics
<b>Dimensions</b>	186 x 162 x 52 mm (LxWxH), [ 7 5/16" x 6 3/8" x 2 1/16" ]
<b>Weight</b>	approx. 1.1 kg [39 oz]
<b>Environmental protection</b>	IP65, dust and splash-proofed
<b>Temperature range</b>	-10°C ... +60°C (Operation), [ 14 °F ... 140°F] -20°C ... +60°C (Storage), [ -4 °F ... 140°F]

### Firmware features

Parameter	Standard firmware 1 channel/ 2 channels (VIB 5.311 / VIB 5.311-CH2)	Balancer firmware (VIB 5.317-B)
<b>OPERATING MODES</b>		
<b>Multimode, Characteristic Overall Values</b>	<ul style="list-style-type: none"> <li>• Vibration (Acceleration, Velocity, Displacement)</li> <li>• Current, Voltage (AC / DC)</li> <li>• Shock pulse (bearing condition)</li> <li>• Temperature</li> <li>• Rotational speed</li> </ul>	<ul style="list-style-type: none"> <li>• Vibration (Acceleration, Velocity, Displacement)</li> <li>• Temperature</li> <li>• Overall value for user-defined quantity (AC)</li> </ul>

Parameter	Standard firmware 1 channel/ 2 channels (VIB 5.311 / VIB 5.311-CH2)	Balancer firmware (VIB 5.317-B)
<b>Multimode, Signals</b>	<ul style="list-style-type: none"> <li>• Amplitude spectrum for accel., velocity, displacement, current, voltage</li> <li>• Envelope spectrum for acceleration, velocity, shock pulse, current, voltage</li> <li>• Time waveform for acceleration, velocity, displacement, current, voltage</li> <li>• Phase measurement (polar diagram)</li> <li>• Impact test w/o recording of the exciting force</li> <li>• Run-up/ Coast-down analysis for acceptance checks and for the evaluation of resonances; phase over RPM (Bode or Nyquist diagram); overall value over RPM (RMS and either 0-p, p-p or crest factor).</li> </ul> <p>with 2-channel firmware only (VIB 5.311-CH2):</p> <ul style="list-style-type: none"> <li>• 2-channel measurements with trigger</li> <li>• Orbit (filtered / unfiltered)</li> <li>• Cepstrum</li> <li>• Cross channel phase measurement</li> <li>• Impact test for natural frequency analysis on a shutdown or running machine*</li> <li>• ODS - Operation deflecting shape analysis*</li> </ul> <p>* requires optional firmware module VIB 5.319-ODS</p>	<ul style="list-style-type: none"> <li>• Amplitude spectrum w/ fixed parameters for accel., velocity, displacement</li> <li>• Run-up/ Coast-down analysis for acceptance checks and for the evaluation of resonances; phase over RPM (Bode or Nyquist diagram); overall value over RPM (RMS and either 0-p, p-p or crest factor)</li> <li>• Vibration pointer (phase - speed) with recording function for the evaluation and documentation of the time response, the speed dependency of vibrations and for the quick evaluation of the phase reference of measurement points.</li> <li>• Time waveform for acceleration, velocity, displacement</li> <li>• Time waveform for user-defined quantity (AC)</li> <li>• Phase measurement w/ recording</li> <li>• Impact test w/o recording of the exciting force, 1 channel</li> <li>• Amplitude spectrum w/ fixed parameters for user-defined quantity (AC)</li> <li>• Envelope spectrum of acceleration (fmax.: 800 Hz / HP: 10kHz) for bearing analysis and analysis of shock-excited vibrations.</li> </ul>
<b>Balancing</b>	---	<ul style="list-style-type: none"> <li>• One-plane balancing; optional: vibration minimization in the second plane</li> <li>• Balancing in two planes under operating conditions</li> <li>• Correction type: Fixed location, Fixed mass, Tape measure, Free correction</li> <li>• Calculation of balancing grade and residual centrifugal force</li> <li>• Balancing speed: 30-199,000 1/min</li> <li>• Balancing report with selectable options</li> </ul>
<b>Machine templates</b>	Machine-specific templates for repetitive measurement tasks used for acceptance tests or service measurements.	---
<b>Route</b>	<ul style="list-style-type: none"> <li>• Set of measurement tasks for machine condition monitoring and diagnosis</li> <li>• Route guidance via tree / list view or machine graphics</li> <li>• Optimizer levels, TrendingSpectrum, 'Near location' mode for rapid data collection</li> </ul>	---
<b>ANALYSIS FUNCTIONS</b>		
<b>Cursor</b>	single, delta, harmonics, sub harmonics, sideband cursor	

Parameter	Standard firmware 1 channel/ 2 channels (VIB 5.311 / VIB 5.311-CH2)	Balancer firmware (VIB 5.317-B)
<b>Frequency markers</b>	Fixed and RPM-variable characteristic frequencies for machines, roller bearings and gearboxes can be displayed in 'Template' and 'Route' mode	---
<b>Alarm bands</b>	Narrow band monitoring of damage frequencies (route mode only)	---
<b>Max 10 values</b>	List of the 10 highest amplitudes in the spectrum	
<b>Results display</b>	<ul style="list-style-type: none"> <li>• Linear scaling, Logarithmic scaling (Y axis)</li> <li>• Trend, Cascade diagram (waterfall), Polar plot</li> <li>• Order scaling for amplitude / envelope spectrum</li> <li>• Sound spectrum (octave / third octave bars), not for balancing</li> </ul>	
<b>MEASUREMENT FUNCTIONS</b>		
<b>Multi Meas. tasks</b>	Combination of several measurements in one task.	---
<b>Averaging</b>	<ul style="list-style-type: none"> <li>• none (not for temperature),</li> <li>• linear (not for time waveform),</li> <li>• peak hold (not for time waveform and temperature),</li> <li>• exponential (not for time waveform &amp; temperature),</li> <li>• time-synchronous (time waveform, spectrum, balancing)</li> <li>• Unlimited averaging if the imbalance pointer is unstable (balancing)</li> </ul>	
<b>Trigger modes</b>	<ul style="list-style-type: none"> <li>• Free running, external (time-synchronous), internal</li> <li>• Amplitude, Edge, Pre and post triggered.</li> </ul>	
<b>FFT</b>	<ul style="list-style-type: none"> <li>• Fmin: between 0.5 Hz and 10 Hz programmable</li> <li>• Fmax: between 200 Hz and 51.2 kHz programmable</li> <li>• Lines: 400, 800, 1600, 3200, 6400, 12800, 25600, 51200, 102400</li> <li>• Window: Rectangular, Hanning, Hamming, Blackman, Bartlett, Flattop, Kaiser</li> </ul>	<ul style="list-style-type: none"> <li>• Fmin: 1 / 2 / 10 Hz, selectable acc. to meas. quantity</li> <li>• Fmax: 0,2 / 0,4 / 0,8 / 1,6 / 12,8 kHz, selectable acc. to meas. quantity</li> <li>• Lines: 800 / 1600 / 3200 / 6400, selectable acc. to meas. quantity</li> <li>• Window: Hanning</li> </ul>

Parameter	Optional firmware modules
<b>RECORDING - VIB 5.315-REC</b>	
<b>Short-term recording</b>	<ul style="list-style-type: none"> <li>• Characteristic overall values, phase, spectrum and time waveform</li> <li>• Pre- and post history</li> </ul>
<b>Start / stop triggering</b>	time, rpm, threshold, manual
<b>Recording duration</b>	approx. 10 minutes for time waveform with 512 Hz sampling rate
<b>Time waveform recorder</b>	Continuous long-term signal recording.
<b>Recording duration</b>	approx. 132 hours with 512 Hz sampling rate and 2 GB CF card
<b>Requirements</b>	Use of the time waveform recorder requires registration of either the "E-Registration" firmware (VIB 5.318-E) or the 1-channel firmware (VIB 5.311). The software module "VIBXPERT utility - Advanced file export - VIB 8.984" is required for data export.
<b>BALANCING - VIB 5.316-BAL</b>	

Parameter	Optional firmware modules
<b>Meas. quantities</b>	Vibration velocity, acceleration, displacement
<b>Balancing modes</b>	One-plane balancing with vibration minimization in the second plane Balancing in two planes under operating conditions
<b>RPM range</b>	30 to 199.000 min <sup>-1</sup>
<b>Correction type</b>	Fixed location, Fixed mass, Tape measure, Free correction
<b>Operation</b>	Graphical user interface with machine icons and on-screen instructions
<b>Additional measurement tasks</b>	Diagnosis measurements for detecting an imbalance (characteristic overall value, spectrum, time waveform, phase)
<b>Add. averaging type</b>	Unlimited averaging if the imbalance pointer is unstable
<b>ODS / MODALANALYSIS - VIB 5.319-ODS</b>	
<b>Bump test with modal hammer</b>	Analysis of operation-critical mode shapes, Visualization of the dynamic behavior of a structure
<b>Results display</b>	Transmission function, Coherence function
<b>Add. averaging type</b>	Negative averaging for measurements on a running machine
<b>ODS</b>	Structure analysis on running machine
<b>Requirements</b>	Standard firmware "1-channel" and "2 channels " must be registered; The software module "VIBXPERT utility - Advanced file export - VIB 8.984" is required for data export.

## VIBXPert EX – Condition monitoring in explosive atmospheres (Zone 1)

The intrinsically safe VIBXPert is the expert system for performing vibration analysis, machinery diagnosis and balancing of rotors within "hazardous areas". This robust and versatile system is easy to operate, and its many functionalities and analysis tools make it unique.



### Application

- Route-based data collection
- Vibration-based condition monitoring
- Field balancing (1 or 2 planes)
- Acceptance measurement with machine templates
- Troubleshooting
- Multimeter
- Data logging
- Visual inspection

### Ordering information

Depending on application and functionalities, the intrinsically safe VIBXPert is available in three variants.

Item No.	Variant
<b>VIB 5.360-1EEX</b>	VIBXPert EX data collector, 1 channel
<b>VIB 5.360-1EX</b>	VIBXPert EX data collector and signal analyser, 1 channel
<b>VIB 5.360-2EX</b>	VIBXPert EX data collector and signal analyser, 2 channels

The items delivered within the box are shown in the following overview.:

### Scope of supply

Content			Variants		
Item No.	Description	Details	Data collector	Signal analyser	
			1 ch	1 ch	2 ch
VIB 5.300 EX	VIBXPERT EX instrument incl. battery and 1 GB CF card*, fix installed	p. 29	✓	✓	✓
VIB 5.382-FM	Firmware "FFT analysis" incl. certificate	---	✓	✗	✗
VIB 5.383-FM	Firmware "Route" incl. certificate	---	✓	✗	✗
VIB 5.387-FM	Firmware "Time waveform analysis" incl. certificate	---	✓	✗	✗
VIB 5.380	Firmware "1 channel" incl. certificate	p. 31	✗	✓	✓
VIB 5.382	Firmware "2 channels " incl. certificate	p. 31	✗	✗	✓
VIB 5.329-X	Case	p. 55	✓	✓	✓
VIB 5.354-LD	Leather carrying strap	p. 55	✓	✓	✓
VIB 5.322-INT	Charger, International	p. 59	✓	✓	✓
VIB 5.330-UNV	Universal communication adapter	p. 167	✓	✓	✓
VIB 5.338	USB cabel	p. 167	✓	✓	✓
VIB 6.142 DEX	Mobile Industrial accelerometer, standard version, intrinsically safe	p. 89	✓	✓	✓, 2x
VIB 3.420	Magnetic holder for curved surfaces	p. 142	✓	✓	✓, 2x
VIB 5.436	Sensor cable for CLD-type accelerometer, spirialized	p. 174	✓	✓	✓, 2x
LIT 53.101	Short instructions, VIBXPERT EX	---	✓	✓	✓
LIT 01.801	Condition Monitoring Documentation, USB pen drive	---	✓	✓	✓
VIB 9.831	Manual, Industrial accelerometers	---	✓	✓	✓
VIB 2.520.G	VIBXPERT inspection certificate	---	✓	✓	✓
VIB 2.567.G	Inspection certificate for Industrial accelerometer	---	✓	✓	✓, 2x
LIT 53.501	EC Declaration of conformity, VIBXPERT EX	---	✓	✓	✓
LIT 61.501	EC Declaration of conformity, accelerometer	---	✓	✓	✓

**Note:** The items in the box for the three variants are fixed. A customized configuration is possible.

\*The intrinsically safe VIBXPERT may also be delivered with a larger storage CF memory card (4 GB) – refer to optional accessories.



Optional items may be ordered for any of the three variants.

### Optional accessories

Item No.	Description - optional Accessories	Notes	Details
<b>VIBXPERT EX instrument</b>			
<b>VIB 5.300 EX-4</b>	VIBXPERT EX instrument with 4 GB CF card	Alternative for instrument with 1 GB CF card	---
<b>OMNITREND Center PC software</b>			
<b>VIB 8.200</b>	OMNITREND Center Client Server		p. 230
<b>VIB 8.201/ 8.202</b>	Floating user licences: 1 / 5		p. 230
<b>VIB 8.203 / 8.204</b>	Fix user licences: 1 / 5		p. 230
<b>VIB 8.205</b>	10 additional database licences		p. 230
<b>VIB 8.206</b>	Multi server licence		p. 230
<b>VIB 8.210</b>	OMNITREND Center single user		p. 230
<b>Firmware Upgrade</b>			
<b>VIB 5.384-FM</b>	Firmware "Machine Templates"	incl. certificate and USB pen drive. Included in firmware "1-channel".	p. 32
<b>VIB 5.390-FM</b>	Firmware "Coastdown analysis"	incl. certificate and USB pen drive. Included in firmware "1-channel".	p. 32
<b>VIB 5.391-FM</b>	Firmware "Analysis Tools Professional"	incl. certificate and USB pen drive. Included in firmware "1-channel".	p. 32
<b>VIB 5.385-FM</b>	Firmware "Recording"	incl. certificate and USB pen drive. Required: " VIBXPERT-Utility Advanced File Export (PC licence)" for data export (p. 233)	p. 32
<b>VIB 5.386-FM</b>	Firmware "Balancing"	incl. certificate and USB pen drive.	p. 32
<b>VIB 5.389-FM</b>	Firmware "ODS - Modal analysis"	incl. certificate and USB pen drive. Only with firmware "2 channels" and firmware "Analysis Tools Professional,".  Required: " VIBXPERT-Utility Advanced File Export (PC licence)" for data export.	p. 32
<b>OMNITREND PC software</b>			
<b>VIB 8.981</b>	OMNITREND for VIBXPERT		p. 231
<b>VIB 8.982</b>	OMNITREND View for VIBXPERT		p. 231
<b>VIB 8.982-B</b>	OMNITREND View Basic for VIBXPERT		p. 231
<b>VIB 8.981-OMT</b>	VIBXPERT device driver for OMNITREND	= device type licence	p. 231
<b>VIB 8.981-P</b>	PC licence for VIBXPERT EX	= communication licence	p. 231
<b>VIB 8.970</b>	OMNITREND Demo CD		---
<b>VIBXPERT utility PC software</b>			
<b>VIB 8.984</b>	VIBXPERT-Utility Advanced File Export	PC licence	p. 233
<b>VIB 8.986</b>	VIBXPERT-Utility Excel Report module	PC licence	p. 233

Item No.	Description - optional Accessories	Notes	Details
<b>Sensors</b>			
<b>VIB 8.660 HEX</b>	VIBCODE sensor, intrinsically safe	w/o connection cable	p. 108
<b>VIB 6.147 DEX</b>	Mobile Industrial accelerometer, intrinsically safe	Sensitivity: 5,35 $\mu\text{A}/\text{ms}^{-2}$	p. 89
<b>VIB 6.631 EX</b>	Laser trigger / RPM sensor, intrinsically safe		p. 123
<b>VIB 6.632</b>	Stand for Laser trigger		p. 150
<b>VIB 8.607-1,5</b>	Temperature probe with magnetic attachment	incl. connection cable (1.5 m)	p. 135
<b>VIB 8.608</b>	Handheld temperature probe	incl. connection cable	p. 135
<b>Cabels and connection adapters</b>			
<b>VIB 5.332 X</b>	Keyphase adapter for machine protection systems	Required: Sensor cable for laser trigger / RPM sensor	p. 181
<b>VIB 5.433 X</b>	Sensor cable for measuring low voltage signals		p. 177
<b>VIB 5.339</b>	Cable extension for analog measurement channel, 8 m		p. 174
<b>VIB 5.422</b>	Sensor cable for IEPE-type accelerometers		p. 175
<b>VIB 5.431</b>	Connection cable for external analyzers to analogOUT		p. 180
<b>VIB 5.443</b>	Sensor cable for TTL trigger (foreign manufacturer)		p. 181
<b>VIB 5.437-2,9</b>	Sensor cable for CLD-type accelerometer, straight, 2.9m/9.5ft		p. 174
<b>VIB 5.437-5</b>	Sensor cable for CLD-type accelerometer, straight, 5 m / 16 ft		p. 174
<b>VIB 5.444-5</b>	Cable extension for analog channel, 5 m / 16 ft		p. 188
<b>VIB 5.432-2,9</b>	Sensor cable for laser trigger / RPM sensor, straight, 2.9 m / 9.5 ft		p. 181
<b>VIB 4.750-5</b>	Extension for Laser Trigger sensor cable, straight, 5 m / 16 ft		p. 181
<b>Miscellany</b>			
<b>VIB 3.450</b>	Probe tip for Mobile Industrial accelerometer VIB 6.14x		p. 142
<b>VIB 3.306</b>	Reflective tape, 10 mm wide		p. 150
<b>VIB 5.355</b>	Leather carrying bag for VIBXPERT EX		p. 55

## TECHNICAL INFORMATION

### Technical data

Parameter	Technical data VIBXPERT EX instrument (VIB 5.300 EX)
<b>INPUT</b>	
<b>Analog, Vibration, 2x</b>	Voltage (AC/DC, $\pm 30$ V max.) Current (AC/DC, $\pm 30$ mA max.) IEPE-type accelerometer (2 mA, 24 V max.) Current Linedrive (CLD) accelerometer (10 V, 10 mA max.)
<b>Frequency range</b>	DC ... 51.2 kHz (Acceleration from 0.5 Hz)
<b>Dynamic range</b>	96 dB (measurement) / 136 dB (total)
<b>Sampling frequency</b>	up to 131 kHz per channel
<b>Analog, Temperature, 1x</b>	Thermocouple (type K)
<b>Digital, Pulse/ Tacho, 1x</b>	RPM, Trigger, Keyphaser with pulse and AC signals: 0 V ... +26 V or -26 V ... 0 V
<b>Max. input voltage</b>	$\pm 26$ V
<b>Switching threshold for 0 V ... +26 V signal</b>	max. 2.5 V rising, min. 0.6 V falling
<b>Switching threshold for -26 V ... 0 V signal</b>	min. -8 V rising, max. -10 V falling
<b>Pulse width</b>	< 0.1 ms
<b>OUTPUT</b>	
<b>Stroboscope control</b>	TTL output level
<b>Frequency range</b>	0 - 500 Hz
<b>Resolution</b>	0.05 Hz
<b>Signal-Out</b>	Connection for headphones to listen to the analog input signal; signal processing (oscilloscope)
<b>Frequency range</b>	0.5 Hz - 40 kHz
<b>Output impedance</b>	100 Ohm
<b>MEASUREMENT RANGE / ACCURACY</b>	
<b>Vibration acceleration</b>	depends on the sensor connected
<b>Shock pulse</b>	-10 ... 80 dBsv / $\pm 3$ dBsv
<b>RPM</b>	10 ... 200 000 min <sup>-1</sup> / $\pm 0.1\%$ or $\pm 1$ min <sup>-1</sup> (the lower accuracy is applicable)
<b>Temperature, type K</b>	-50 ... +1000°C / 1% or $\pm 1$ °C (the lower accuracy is applicable)
<b>Standards fulfilled</b>	Frequency response acc to ISO 2954
<b>DISPLAY</b>	
<b>Type</b>	LCD, backlit
<b>Pixel area</b>	115 x 78 mm [ 4 1/2" x 3 1/16"]
<b>Resolution</b>	1/2 VGA (480 x 320 pixel)
<b>Color depth</b>	16 grey scales

Parameter	Technical data VIBXPert EX instrument (VIB 5.300 EX)
<b>POWER SUPPLY</b>	
<b>Battery type</b>	Li Ion rechargeable battery pack (7.2V / 4.8Ah - 34 Wh)
<b>Charging time</b>	< 5 hours in the instrument
<b>Charger, input</b>	110-240 V / 50-60 Hz
<b>Charging temperature</b>	0°C ... +50°C [ 32 °F ... 122 °F]
<b>COMPUTER</b>	
<b>Processor</b>	Intel Strong ARM 206 MHz
<b>Keyboard</b>	2 joysticks and 12 keys for right-hand or left-hand operation. Keyboard illumination controlled by ambient light.
<b>Memory</b>	Internal: 64 MB RAM; Compact Flash: 1 GB or 4 GB
<b>Serial interface</b>	RS 232, <115 kBaud
<b>USB interface</b>	USB host for printing; USB slave for data exchange with OMNITREND
<b>Ethernet interface</b>	10 Mbit (10Base T), 10 Mbit (10Base T)
<b>ENVIRONMENT / GENERAL</b>	
<b>Connectors</b>	Analog / Digital channels: MiniSnap socket Thermocouple (type K): QLA socket; all compatible to VIBSCANNER
<b>Housing</b>	Aluminium
<b>Dimensions</b>	250 x 220 x 37 mm [ 9 13/16" x 8 11/16" x 1 7/16" ] (LxWxH)
<b>Weight</b>	approx. 2.3 kg [81 oz]
<b>Environmental protection</b>	IP65, dust and splash-proofed
<b>Temperature range</b>	-10°C ... +60°C (Operation), [ 14 °F ... 140°F] -20°C ... +60°C (Storage), [ -4 °F ... 140°F]

### Intrinsic safety details

VIBXPert EX, Typ VIB 5.300 EX	
Marking 	II 2G Ex ib IIC T4
Temperature range	-10 °C ...+60 °C

## Firmware features

Parameter	Standard firmware 1 channel/ 2 channels (VIB 5.380 / VIB 5.382)
<b>OPERATING MODES</b>	
<b>Multimode, Characteristic Overall Values</b>	<ul style="list-style-type: none"> <li>• Vibration (Acceleration, Velocity, Displacement)</li> <li>• Current, Voltage (AC / DC)</li> <li>• Shock pulse (bearing condition)</li> <li>• Temperature</li> <li>• Rotational speed</li> </ul>
<b>Multimode, Signals</b>	<ul style="list-style-type: none"> <li>• Amplitude spectrum for accel., velocity, displacement, current, voltage</li> <li>• Envelope spectrum for acceleration, velocity, shock pulse, current, voltage</li> <li>• Time waveform for acceleration, velocity, displacement, current, voltage</li> <li>• Phase measurement (polar diagram)</li> <li>• Impact test w/o recording of the exciting force</li> <li>• Runup/ Coast down analysis as phase / overall value/ spectrum over RPM (display as Bode or Nyquist diagram (phase - RPM))</li> </ul> <p>with 2-channel firmware only (VIB 5.382):</p> <ul style="list-style-type: none"> <li>• 2-channel measurements with trigger</li> <li>• Orbit (filtered / unfiltered)</li> <li>• Cepstrum</li> <li>• Cross channel phase measurement</li> <li>• Impact test for natural frequency analysis on a shutdown or running machine*</li> <li>• ODS - Operation deflecting shape analysis*</li> </ul> <p>* requires optional firmware module VIB 5.389-FM</p>
<b>Machine templates</b>	Machine-specific templates for repetitive measurement tasks used for acceptance tests or service measurements.
<b>Route</b>	<ul style="list-style-type: none"> <li>• Set of measurement tasks for machine condition monitoring and diagnosis</li> <li>• Route guidance via tree / list view or machine graphics</li> <li>• Optimizer levels, TrendingSpectrum, 'Near location' mode for rapid data collection</li> </ul>
<b>ANALYSIS FUNCTIONS</b>	
<b>Cursor</b>	single, delta, harmonics, sub harmonics, sideband cursor
<b>Frequency markers</b>	Fixed and RPM-variable characteristic frequencies for machines, roller bearings and gearboxes can be displayed in 'Multimode' and 'Route' mode
<b>Alarm bands</b>	Narrow band monitoring of damage frequencies (route mode only)
<b>Max 10 values</b>	List of the 10 highest amplitudes in the spectrum
<b>Results display</b>	<ul style="list-style-type: none"> <li>• Linear scaling, Logarithmic scaling (Y axis)</li> <li>• Trend, Cascade diagram (waterfall), Polar plot</li> <li>• Order scaling for amplitude / envelope spectrum</li> </ul>
<b>MEASUREMENT FUNCTIONS</b>	
<b>Multi Meas. tasks</b>	Combination of several measurements in one task.

Parameter	Standard firmware 1 channel/ 2 channels (VIB 5.380 / VIB 5.382)
<b>Averaging</b>	<ul style="list-style-type: none"> <li>• none (not for temperature),</li> <li>• linear (not for time waveform),</li> <li>• peak hold (not for time waveform and temperature),</li> <li>• exponential (not for time waveform &amp; temperature),</li> <li>• time-synchronous (time waveform, spectrum, balancing)</li> </ul>
<b>Trigger modes</b>	<ul style="list-style-type: none"> <li>• Free running, external (time-synchronous), internal</li> <li>• Amplitude, Edge, Pre and post triggered.</li> </ul>
<b>FFT</b>	<ul style="list-style-type: none"> <li>• Fmin: between 0.5 Hz and 10 Hz programmable</li> <li>• Fmax: between 200 Hz and 51.2 kHz programmable</li> <li>• Lines: 400, 800, 1600, 3200, 6400, 12800, 25600, 51200, 102400</li> <li>• Window: Rectangular, Hanning, Hamming, Blackman, Bartlett, Flattop, Kaiser</li> </ul>

Parameter	Optional firmware modules
<b>RECORDING - VIB 5.385-FM</b>	
<b>Short-term recording</b>	<ul style="list-style-type: none"> <li>• Characteristic overall values, phase, spectrum and time waveform</li> <li>• Pre- and post history</li> </ul>
<b>Start / stop triggering</b>	time, rpm, threshold, manual
<b>Recording duration</b>	approx. 10 minutes for time waveform with 512 Hz sampling rate
<b>Time waveform recorder</b>	Continuous long-term signal recording
<b>Recording duration</b>	approx. 132 hours with 512 Hz sampling rate and 2 GB CF card
<b>Requirements</b>	Use of the time waveform recorder requires registration of the 'Time waveform' module (VIB 5.387-FM), which is included in the standard firmware (VIB 5.380); The software module "VIBXPERT utility - Advanced file export - VIB 8.984" is required for data export.
<b>BALANCING- VIB 5.386-FM</b>	
<b>Meas. quantities</b>	Vibration velocity, acceleration, displacement
<b>Balancing modes</b>	One-plane balancing with vibration minimization in the second plane Balancing in two planes under operating conditions
<b>RPM range</b>	30 to 199.000 min <sup>-1</sup>
<b>Correction type</b>	Fixed location, Fixed mass, Tape measure, Free correction
<b>Operation</b>	Graphical user interface with machine icons and on-screen instructions
<b>Additional measurement tasks</b>	Diagnosis measurements for detecting an imbalance (characteristic overall value, spectrum, time waveform, phase)
<b>Add. averaging type</b>	Unlimited averaging if the imbalance pointer is unstable
<b>ODS / MODALANALYSIS - VIB 5.389-FM</b>	
<b>Bump test with modal hammer</b>	Analysis of operation-critical mode shapes, Visualization of the dynamic behavior of a structure
<b>Results display</b>	Transmission function, Coherence function
<b>Add. averaging type</b>	Negative averaging for measurements on a running machine
<b>ODS</b>	Structure analysis on running machine

Parameter	Optional firmware modules
<b>Requirements</b>	Standard firmware "2 channels" (VIB 5.381) and firmware module "Special analyses" (VIB 5.391-FM) must be registered; The software module "VIBXPRT utility - Advanced file export - VIB 8.984" is required for data export.

# VIBSCANNER 2 – Data acquisition ingeniously simple

VIBSCANNER 2 is the new PRÜFTECHNIK data collector for preventive machine condition monitoring. The handy device convinces with a simple intuitive operation and very short measuring times.



## Applications

- Data acquisition with guided routine measurement tasks.

## Features

- Intuitive operation
- Fast measurement and signal processing
- Comprehensive data acquisition for maximum status information
- Automatic identification of measurement location (RFID, VIBCODE)
- Shockproofed, waterproofed housing (IP65)
- Speed determination without tachometer
- Triaxial accelerometer

## Ordering information

VIBSCANNER 2 is available in the following variants.

Item No.	Variant
VIB 5.210	VIBSCANNER 2, Data Collector
VIB 5.212	VIBSCANNER 2, Triaxial
VIB 5.214	VIBSCANNER 2, VIBCODE

The items delivered within the box are shown in the following overview.

## Scope of supply

Item No.	Content		Variant		
	Description	Details	Data Collector	Triaxial	VIBCODE
VIB 5.200	VIBSCANNER 2 instrument incl. battery	p. 37	✓	✓	✓
VIB 2.581.G	VIBSCANNER 2 inspection certificate	---	✓	✓	✓
VIB 5.256	VIBSCANNER 2 pouch	p. 54	✓	✓	✓
VIB 5.228	VIBSCANNER 2 case	p. 51	✓	✓	✓
ALI 3.952	Micro USB cable		✓	✓	✓
ALI 50.651	Power supply / Charger	p. 34	✓	✓	✓
ALI 50.628-25	RFID transponder / tags - 25 pieces		✓	✓	✓
VIB 5.239	VIBSCANNER 2 safety release cable	p. 189	✓	✓	✓
LIT 52.100	VIBSCANNER 2 short instructions	---	✓	✓	✓



Content			Variant		
Item No.	Description	Details	Data Collector	Triaxial	VIBCODE
VIB 6.142 R	Mobile Industrial accelerometer, standard version,	p. 89	✓	✗	✗
VIB 3.420	Magnetic adapter for curved surfaces	p. 142	✓	✗	✗
VIB 5.236	Sensor cable for CLD-type accelerometer, TNC connector, spiralized	p. 189	✓	✗	✓
VIB 6.655	Triaxial accelerometer for mobile applications	p. 112	✗	✓	✗
VIB 6.657	Magnetic holder for Triaxial accelerometer VIB 6.655	p. 144	✗	✓	✗
VIB 5.237	Sensor cable for triaxial accelerometer, 4P Mini-MIL connector, spiralized	p. 189	✗	✓	✗
VIB 8.660	VIBCODE accelerometer without cable	p. 108	✗	✗	✓

**Note:** The items in the box for both variants are fixed.

Optional items may be ordered for either variant.:

#### Optional accessories

Item No.	Description- optional accessories	Details
<b>OMNITREND Center PC software</b>		
VIB 8.200	OMNITREND Center Client Server	p. 230
VIB 8.201/ 8.202	Floating user licences: 1 / 5	p. 230
VIB 8.203 / 8.204	Fix user licences: 1 / 5	p. 230
VIB 8.205	10 additional database licences	p. 230
VIB 8.206	Multi server licence	p. 230
VIB 8.210	OMNITREND Center single user	p. 230
<b>Cabels and connection adapters</b>		
VIB 5.222	Sensor cable for IEPE-type accelerometer, MIL connector, spiralized	p. 189
VIB 5.234	Sensor cable for measuring low voltage signals with VIBSCANNER 2, spiralized	p. 189
VIB 5.238	Sensor cable for IEPE-type accelerometer, BNC connector, spiralized	p. 189

## TECHNICAL INFORMATION

### Technical data

Parameter	VIBSCANNER 2
	<b>Measurement channels</b>
<b>Number</b>	3 synchronous analog channels (X/Y/Z)
<b>Z channel (0 ... 50 kHz)</b>	-20 .. +20 V, input impedance: 78 kOhm IEPE Linedrive
<b>X/Y channel (0 ... 10 kHz)</b>	-20 .. +20 V, input impedance: 78 kOhm IEPE
<b>Dynamic range</b>	109.5 dB (total)
<b>Sampling rate</b>	up to 131 kHz per channel
<b>Signal processing</b>	3 x 24 bit ADCs
<b>Measuring range / Accuracy</b>	Vibration acceleration: dependent on used sensor Shock pulse: -10 dBsv to 80 dBsv +/- 2 dBsv
<b>Fulfilled standard</b>	DIN ISO 2954:2012 (2-1 kHz, 10 Hz -1 kHz, 10-10 KHz)
	<b>Display</b>
<b>Type</b>	Capacitive touchscreen Optically bonded for high contrast and increased shock resistance
<b>Active area</b>	95 x 54 mm [3 3/4" x 2 1/8"]
<b>Size</b>	10.9 cm [4 1/3"]
<b>Color depth</b>	16 million colors
<b>Viewing angle</b>	< 140°
<b>Operation</b>	Multi touch – gesture control Glove-compatible
<b>Illumination</b>	Background lighting, adjustable
<b>Ambient light sensor</b>	Yes
	<b>Supply</b>
<b>Type</b>	Li ion rechargeable battery
<b>Rated voltage</b>	7.2 V
<b>Energy density</b>	72 Wh
<b>Charge time, typical</b>	5.0 h (0 ... 100 % @ 25 °C / 77 °F) 3.5 h (0 ... 80 % @ 25 °C / 77 °F)
<b>Charging temperature</b>	10 °C ... 40 °C [ 50 °F ... 104 °F]
<b>Operating time, typical</b>	12 h (continuous operation, rechargeable battery 100 %) 6 h (continuous operation, rechargeable battery 50 %)
<b>Power adapter</b>	100-240 V~, 50-60 Hz (input) 12 V 3 A (output)
<b>Energy saving mode</b>	Yes

Parameter	VIBSCANNER 2
	<b>Computer</b>
<b>Processor</b>	ARM A9 - Quadcore 1 GHz
<b>Operating elements</b>	Touchscreen, ON/OFF key, Enter key
<b>Memory</b>	microSD card, 32 GB for measurement data, permanently installed 2 GB RAM
<b>USB</b>	1 x USB 2.0, device interface
<b>RFID</b>	RFID reader module for PRÜFTECHNIK transponder ALI 50.628-25 Complies with ISO 14443a and ISO 15693 Reading distance: 2...3 cm (13/16" ... 1 3/16")
<b>WiFi</b>	IEEE 802.11a/b/g/n/ac Throughput: < 200 Mbps Security: WPA2
<b>Stroboscope</b>	Frequency range: 0.1 – 1000 Hz Resolution: 0.06 1/min. LEDs: Risk group 1 per IEC 62471
<b>LED</b>	1x RGB LED (display for battery status and charging process)
	<b>Environment / Mechanical system</b>
<b>Connections</b>	Socket for power adapter Micro USB for data cable Plug-in connector (8-pole) for signal cable
<b>Housing</b>	2-component housing: PC and ABS Sheath: TPE, black
<b>Dimensions</b>	203 x 143 x 76mm (LxWxH) [8 x 5 5/8 x 3"]
<b>Weight</b>	approx. 1.0 kg [35.3 oz]
<b>Degree of protection</b>	IP65, dust-proof and spray water-protected
<b>Temperature range</b>	Operation: -10 °C ... +50 °C [ 14 °F ...122°F ] Storage: -20 °C ... +60 °C [-4 °F ... +140°F ]
<b>Air humidity</b>	0 ... 90 %, non-condensing
<b>Certifications</b>	CE, RoHS, FCC, FCC/IC

## Firmware features

Parameter	Standard firmware (VIB 5.283-FM)
<b>Route</b>	<ul style="list-style-type: none"> <li>• Set of measurement tasks for machine condition monitoring and diagnosis.</li> <li>• Automatic identification of the measurement location using RFID transponder tags or VIBCODE sensor system.</li> <li>• Determining the rotational speed without tachometer via evaluation of the measured vibration signal. Verification of the speed value via integrated stroboscope.</li> </ul>
<b>Measuring parameters and signals</b>	<ul style="list-style-type: none"> <li>• Vibration acceleration, velocity, displacement</li> <li>• Shock pulse (bearing condition)</li> <li>• Amplitude Trending Spectrum for machine diagnosis</li> <li>• Envelope Trending Spectrum for bearing condition diagnosis and analysis of shock-excited vibration</li> <li>• Time waveform</li> </ul>
<b>Process parameters and visual inspection</b>	<ul style="list-style-type: none"> <li>• Low-voltage signal (AC/DC: <math>\pm 20</math> V) as user-defined measurement task</li> <li>• Manual input of reading values</li> <li>• Checklists for visual inspection tasks</li> </ul>
<b>Averaging</b>	linear, exponential, peak-hold
<b>Alarm bands</b>	Monitoring of narrow band characteristic defect frequencies
<b>FFT</b>	<ul style="list-style-type: none"> <li>• <math>F_{\min}</math>: between 0.5 Hz and 10 Hz programmable</li> <li>• <math>F_{\max}</math>: between 100 Hz and 51.2 kHz programmable</li> <li>• Lines: 400, 800, 1600, 3200, 6400, 12800, 25600, 51200, 102400</li> <li>• Window: Rectangular, Hanning, Hamming, Flattop, Kaiser</li> </ul>
<b>SETUP &amp; EVALUATION</b>	
<b>Units</b>	ISO and US units, selectable
<b>Comments</b>	Given events with editable comments
<b>OPERATION</b>	
<b>User interface</b>	<ul style="list-style-type: none"> <li>• Touchscreen with gesture control</li> <li>• User guidance via graphical interface with realistic machine images and display of the measurement location position.</li> <li>• Online help</li> </ul>
<b>Languages</b>	German, English, French, Spanish,

# VIBSCANNER – Data collector and signal analyzer

VIBSCANNER is a multi-purpose measurement and analysis device used for monitoring vibrations and for the inspection of machines. The operation of this handy device is intuitive, and its many functionalities and analysis tools make it unique.



## Application

- Route-based data collection
- Vibration-based condition monitoring
- Field balancing
- Multimeter
- Visual inspection

## Features

- Intuitive single-handed operation using joystick
- Built-in sensors for vibration, rpm and temperature
- FFT spectrum, time waveform and recording
- Housing is shockproof and water jets resistant (IP65)
- VIBCODE-compatible with automatic location recognition
- ATEX certified for Zone 1

## Ordering information

Depending on application and functionalities, VIBSCANNER is available in two variants.

Item No.	Variant
<b>VIB 5.460</b>	VIBSCANNER standard
<b>VIB 5.460 EX</b>	Intrinsically safe VIBSCANNER

The items delivered within the box are shown in the following overview.

## Scope of supply

Item No.	Description	Details	Variant	
			Standard	Intrinsically safe
<b>VIB 5.400</b>	<b>VIBSCANNER device without rechargeable battery</b>	p. 43	✓	✗
<b>VIB 5.425</b>	<b>VIBSCANNER rechargeable battery</b>	p. 62	✓	✗
<b>VIB 5.400 EX</b>	<b>Intrinsically safe VIBSCANNER device without rechargeable battery</b>	p. 43	✗	✓
<b>VIB 5.425 EX</b>	<b>Intrinsically safe VIBSCANNER rechargeable battery</b>	p. 62	✗	✓
<b>VIB 5.420-INT</b>	<b>Universal battery charger</b>	p. 58	✓	✓
<b>VIB 5.485-FM</b>	<b>"FFT Analysis" firmware including certificate</b>	p. 46	✓	✓

Item No.	Content		Variant	
	Description	Details	Standard	Intrinsically safe
VIB 5.428	Case	p. 50	✓	✓
VIB 5.430-2	PC cable (serial)	p. 169	✓	✗
VIB 5.448	Adapter cable USB to serial ( VIBSCANNER)	p. 169	✓	✗
VIB 5.430-USB	Adapter cable USB to serial (Intrinsically safe VIBSCANNER)	p. 169	✗	✓
VIB 9.669	Short instructions	---	✓	✓
VIB 9.638	Operating instructions	---	✓	✓
VIB 9.664	Operating instructions for 'Balancing, FFT and signal analysis'	---	✓	✓
PT 99.402	Seminar schedule	---	✓	✓
LIT 54.500	Declaration of conformity for intrinsically safe VIBSCANNER	---	✗	✓

**Note:** The items in the box for both variants are fixed.

Optional items may be ordered for either variant.:

#### Optional accessories

Item No.	Description - optional accessories	Note	Details
<b>Firmware upgrade</b>			
VIB 5.486-FM	"Balancing" firmware	Includes certificate and a USB memory stick	p. 46
VIB 5.488-FM	"Signal analysis" firmware	Includes certificate and a USB memory stick	p. 46
<b>OMNITREND PC software</b>			
VIB 8.955	OMNITREND for VIBSCANNER		p. 231
VIB 8.956	OMNITREND View for VIBSCANNER		p. 231
VIB 5.481	VIBSCANNER device driver for OMNITREND	= Device license	p. 231
VIB 5.480-P	PC license for VIBSCANNER	= Communication password	p. 231
VIB 8.961	OMNITREND "Gear Editor" module		---
VIB 8.962	OMNITREND "Signal Analysis" module	Includes "Gear Editor"	p. 231
VIB 8.970	OMNITREND demo CD		---
<b>Sensors</b>			
VIB 8.660	VIBCODE sensor	Without connection cable; for VIBSCANNER standard	p. 108
VIB 6.142 R	Mobile accelerometer, 1 $\mu\text{A}/\text{ms}^{-2}$	For VIBSCANNER standard	p. 89
VIB 6.147	Mobile accelerometer, 5.35 $\mu\text{A}/\text{ms}^{-2}$	For VIBSCANNER standard	p. 89
VIB 3.420	Magnetic holder for ridged mounting surfaces		p. 142
VIB 8.660 HEX	Intrinsically safe VIBCODE sensor	Without connection cable; for intrinsically safe VIBSCANNER	p. 108

Item No.	Description - optional accessories	Note	Details
<b>VIB 6.142 DEX</b>	Intrinsically safe mobile accelerometer, 1 $\mu\text{A}/\text{ms}^{-2}$	For intrinsically safe VIBSCANNER	p. 89
<b>VIB 6.147 DEX</b>	Intrinsically safe mobile accelerometer, 5.35 $\mu\text{A}/\text{ms}^{-2}$	For intrinsically safe VIBSCANNER	p. 89
<b>VIB 6.631</b>	Laser trigger / RPM sensor	For VIBSCANNER standard	p. 123
<b>VIB 6.631 EX</b>	Intrinsically safe laser trigger / RPM sensor	For intrinsically safe VIBSCANNER	p. 123
<b>VIB 6.632</b>	Laser trigger stand		p. 150
<b>VIB 8.607-1,5</b>	Temperature probe with magnetic holder	Includes connection cable (1.5 m)	p. 135
<b>VIB 8.608</b>	Handheld temperature detector	Includes connection cable	p. 135
<b>Cables and connection adapters</b>			
<b>VIB 5.436</b>	Spiral connection cable for CLD accelerometers		p. 174
<b>VIB 5.437-2,9</b>	Straight connection cable for CLD accelerometers, 2.9 m (9 ft 6")		p. 174
<b>VIB 5.437-5</b>	Straight connection cable for CLD accelerometers, 5 m (16 ft 5")		p. 174
<b>VIB 5.444-5</b>	Universal extension cable for analog measurement channel 5 m (16 ft 5")		p. 188
<b>VIB 5.339</b>	Extension cable for CLD accelerometer cables, 8 m (26 ft 3")		p. 174
<b>VIB 5.432-2,9</b>	Connection cable for laser trigger, 2.9 m (9 ft 6")		p. 181
<b>VIB 4.750-5</b>	Extension for laser trigger cable 5 m (16 ft 5")		p. 181
<b>VIB 5.443</b>	Connection cable for TTL trigger sensor (third party manufacturer)		p. 181
<b>VIB 5.332</b>	Keyphaser adapter for machine protection systems	For VIBSCANNER standard; requires sensor cable for laser trigger	p. 181
<b>VIB 5.332 X</b>	Keyphaser adapter for machine protection systems	For intrinsically safe VIBSCANNER; requires sensor cable for laser trigger	p. 181
<b>VIB 5.445</b>	Manual channel switch for 2-plane balancing		p. 165
<b>VIB 5.446</b>	Automatic channel switch for 2-plane balancing	For VIBSCANNER standard only	p. 165
<b>VIB 5.433</b>	Sensor cable adapter for the measurement of signal-low voltage	For VIBSCANNER standard	p. 177
<b>VIB 5.433 X</b>	Sensor cable adapter for the measurement of signal-low voltage	For intrinsically safe VIBSCANNER	p. 177
<b>VIB 5.434</b>	Sensor cable adapter for the measurement of signal-low current	For VIBSCANNER standard only	p. 177
<b>VIB 5.438-0.5</b>	Straight connection cable for 100mV/g sensor (IEPE); 0.5 m (1 ft 8"); BNC	For VIBSCANNER standard only	p. 175
<b>VIB 5.422</b>	Spiral connection cable for accelerometer (IEPE), MIL connector	For VIBSCANNER standard only	p. 175
<b>VIB 5.345-6</b>	Extension cable for sensor cables using MIL connector	For VIBSCANNER standard only	p. 175

Item No.	Description - optional accessories	Note	Details
VIB 5.431	Connection cable for analog signal output	For VIBSCANNER standard only	p. 180
VIB 5.443	Connection cable for TTL trigger sensor (third party manufacturer)		p. 181
VIB 6.675	Cable adapter for headphones	Used with headphones only	p. 180
<b>Miscellany</b>			
VIB 3.450	Probe tip for mobile industrial sensors type VIB 6.14x		p. 142
VIB 3.306	Reflective tape, width 10 mm (25/64")		p. 150
VIB 5.454	VIBSCANNER carrying pouch		p. 57
VIB 6.671	Mono headphones	Requires an adapter cable for headphones	p. 114
VIB 5.429	Case for accessories		p. 50

## TECHNICAL INFORMATION

### Technical data


Parameter	VIBSCANNER technical data
<b>INTERFACES</b>	
<b>Analog</b>	Vibration sensors (CLD, IEPE) Temperature probe (Pt100, NiCrNi) Current/Voltage: AC ( $\pm 30$ V; 0 - 20 mA) DC ( $\pm 30$ V; 0 - 20 mA)
<b>Digital</b>	Laser trigger/ RPM sensor; 5 V TTL (optical or inductive sensors)
<b>Output</b>	Serial (RS 232), Headphones, Analog signal (4 Vpp; Rout= 200 Ohm)
<b>INTERNAL SENSORS</b>	
<b>Vibration / Shock pulse</b>	Tandem piezo accelerometer (CLD)
<b>Frequency range</b>	10 Hz to 10 kHz (in cone sinking)
<b>Resonance frequency</b>	36 kHz (in cone sinking)
<b>Electrical noise, as from 10 Hz</b>	0.1 mm/s effective; 2 $\mu$ m effective (instrument + sensor); < 0 dBsv , peak value
<b>RPM</b>	IR sensor with pointer for adjustment
<b>Temperature</b>	NiCrNi temperature probe
<b>SIGNAL PROCESSING</b>	
<b>Quantities / Methods</b>	r.m.s., 0-p, p-p, max/carpet, envelope, rectification
<b>High pass filter</b>	2 Hz / 10 Hz; 1 kHz / 5 kHz
<b>Low pass filter</b>	1 / 5 / 10 / 40 kHz (For intrinsically safe VIBSCANNER, 10 kHz is an option)
<b>Sampling frequency</b>	Up to 64 kHz (depends on the measurement range)
<b>Integrator</b>	Two stages (switchable)
<b>MEASUREMENT RANGE / ACCURACY</b>	



Parameter	VIBSCANNER technical data
<b>Vibration</b>	The following applies to internal and external sensors (CLD: 1 $\mu\text{A}/\text{ms}^{-2}$ ; IEPE: 100 mV/g) as well as external measurement devices (1 mV/ $\text{ms}^{-2}$ ):
<b>Acceleration</b>	< 961 $\text{m}/\text{s}^2$ (p-p) / 1% (internal sensor) < 6000 $\text{m}/\text{s}^2$ (p-p) / 1% (external sensor)
<b>Velocity</b>	< 9000 $\text{mm}/\text{s}$ (p-p) / 1%
<b>Displacement</b>	< 9000 $\mu\text{m}$ (p-p) / 1%
<b>Shock pulse</b>	< 81 dBsv / $\pm 3$ dB
<b>RPM</b>	60 to 60000 $\text{min}^{-1}$ / 0.1‰
<b>Temperature</b>	
<b>NiCrNi internal</b>	-50 °C to 100 °C / 0.5° + 3%
<b>NiCrNi external</b>	-50 °C to 100°C / 0.5° + Sensor% 100 °C to 1000 °C / 1° + Sensor%
<b>Pt 100</b>	-50 °C to 600 °C / 1°+ Sensor%
<b>Extra-low voltage</b>	-30 V to +30 V / 2% ( $R_i = 100$ kOhm, using the cable VIB 5.433)
<b>Extra-low current</b>	-20 mA to +20 mA; 4 to 20 mA / 2% ( $R_i = 100$ kOhm, using the cable VIB 5.433)
<b>Fulfilled standards</b>	Frequency response according to ISO 2954; other parameters and measured quantities according to DIN 45662 class 1
<b>DISPLAY</b>	
<b>Type</b>	Pixel display with background illumination
<b>Dimensions</b>	54 x 27 mm [ 2 1/8" x 1 1/16" ] / 128 x 64 px
<b>Contrast und illumination</b>	Adjustable
<b>POWER SUPPLY</b>	
<b>Rechargeable battery</b>	NiMH battery pack (7.2 V / 1.5 Ah)
<b>Charging time</b>	< 6 h (intrinsically safe VIBSCANNER < 10 h)
<b>Operating time</b>	> 10 hours for alternating operation > 6 hours for continuous use with illumination
<b>Charging status display</b>	2 LEDs (green, red)
<b>Charging temperature</b>	10 °C to 40 °C [50 °F to 104 °F]
<b>Sleep mode</b>	Adjustable
<b>COMPUTER</b>	
<b>Operating elements</b>	1 joystick and 2 function keys
<b>Display indicators</b>	4 LEDs for device status and signal evaluation
<b>Connectors</b>	Analog and digital channels: MiniSnap connector Temperature probe (NiCrNi): QLA connector
<b>Data storage</b>	512 MB (intrinsically safe VIBSCANNER: 4 MB)
<b>ENVIRONMENT / GENERAL</b>	
<b>Housing</b>	ABS, reinforced with steel fibre

Parameter	VIBSCANNER technical data
Relative humidity	10% to 90%
Environmental protection	IP65, dustproof and water jets resistant
Temperature range	Operation: 0 °C to 60 °C [32 °F to 140 °F] Storage: -20 °C to 60 °C [-4 °F to 140 °F]
Weight	approx. 690 g [24 oz]
Dimensions	250 x 100 x 55 mm [9 27/32" x 3 15/16" x 2 11/64"] LxWxH

### Intrinsic safety details

VIBSCANNER EX, Typ VIB 5.400 EX	
Marking 	II 2 G Ex eb ib mb IIC T4 Gb
Temperature range	0 °C to 45 °C [32 °F to 113 °F]

### Firmware features

Parameter	Basic firmware (VIB 5.480)
<b>MEASUREMENT</b>	
Measurement quantities	<ul style="list-style-type: none"> <li>• Velocity, displacement, acceleration as machine-specific measurement tasks</li> <li>• Shock pulse (bearing condition)</li> <li>• Cavitation</li> <li>• Temperature</li> <li>• RPM</li> </ul>
Process parameters	<ul style="list-style-type: none"> <li>• Manual input of parameter values</li> <li>• Extra-low voltage/current (AC/DC: ±30 V; -20 to +20 mA) as user-defined measurement tasks</li> </ul>
Averaging	Free-running, linear, exponential, peak hold, time synchronous (signal analysis module)
Averaging number and time	Adjustable
Measurement range	Adjustable
Amplitude range	Autorange
<b>SETUP AND EVALUATION</b>	
Measurement setups	<ul style="list-style-type: none"> <li>• Predefined, knowledge-based measurement settings for the diagnosis of machines, bearings and gear</li> <li>• Freely selectable measurement functions</li> </ul>
Data processing	<ul style="list-style-type: none"> <li>• Evaluation functions for characteristic overall values</li> <li>• Bearing diagnosis with shock pulse measurement</li> <li>• Machine condition evaluation according to ISO 10816-3</li> <li>• Data collection function for characteristic overall values and for machine inspection</li> </ul>
Units	ISO and US units, selectable
Comments	User-defined events with comments
<b>OPERATION</b>	

Parameter	Basic firmware (VIB 5.480)
User interface	<ul style="list-style-type: none"> <li>• Icons for measurement tasks</li> <li>• Graphic route guidance using machine graphics (machine scan)</li> <li>• On-board help</li> </ul>
Languages	English, German, French, Italian, Spanish, Polish, Swedish

Parameter	Optional firmware modules
<b>FFT-ANALYSIS VIB 5.485-FM</b>	
Measurement quantities	Velocity, displacement, acceleration as machine-specific measurement tasks
Signal processing	Amplitude and envelope spectra
Frequency range	5 ranges: 0.1 / 0.2 / 0.4 / 1 / 5 / 10 kHz (10 kHz is an option for intrinsically safe VIBSCANNER)
Number of lines	400 to 6400 lines
Line width	> 0.03 Hz
Display	Linear axes in the frequency range
Zoom	X/ Y axis, continuously scalable
Envelope	For the diagnosis of bearings, gears and machines
Measurement setups	Optimized setups for various machine types
<b>BALANCING VIB 5.486-FM</b>	
Measurement quantities	Velocity, displacement, acceleration
Types of balancing	1-plane balancing; sequential 2-plane balancing
Types of correction	Free, fixed location, fixed weight, tape measure
Operation	Graphical operator guidance with machine images and instructive text
<b>SIGNAL ANALYSIS VIB 5.488-FM</b>	
Time waveform	
<b>fmax.</b>	200/ 500/ 1000/ 2000/ 5000 Hz
Measurement time	[125 - 4000] ... [7.8 - 250] ms
Additional averaging	Time synchronous
Measurement types	Time waveform, Phase, Orbit (sequential)
Recording	
<b>Start delay</b>	Adjustable
<b>Repetitions</b>	Adjustable (limited by data storage capacity)
<b>Pause</b>	Adjustable
Measurement types	May be activated for overall values and spectra

# SONOCHEK - Digital Ultrasonic Measuring Device

SONOCHEK is a handy digital measuring device for detecting, recording and evaluating ultrasonic signals. Applications range from the "simple" leak check to the monitoring tasks of complex processes.

SONOCHEK saves different readings and records spectra as a function over time (spectrograms). In addition, photos, voice memos or comments can be saved for each process. An individual measurement report can be compiled with just a few clicks. Each application is optimally supported by software tailored to the measurement task in combination with the adjusted sensor system.



## Features


- Detection and evaluation of leaks on compressed air, gas and vacuum systems
- Detection of leaks on windows, doors, cabins, vehicles or containers
- Detection of electrical partial discharges and insulation damage
- Intuitive operation per touchscreen
- Broadband air- and structure-borne sound sensors
- Frequency range: 20 kHz to 100 kHz
- Saving of readings and spectrograms
- Photos, voice memos, and comments
- Measurement reports with a few clicks
- Temperature measurement via IR sensor
- Multilingual user interface and documentation in 12 languages

## Order information

Item No.	Name
SON 6.000	SONOCHEK Ultrasonic measurement system Standard

## Scope of delivery - SON 6.000

Item No.	Name	Details
SON 6.200	SONOCHEK Digital ultrasonic measuring device with sensor module, 1 channel,	p. 51
SON 6.401	SONOCHEK Rechargeable Li-ion battery, 7.75 Wh (installed in measuring device)	---
SON 6.600	SONOCHEK Power adapter, 2 A, including international plug adapters and sensor cables	---
SON 6.601	Micro-USB cable for SONOCHEK power adapter	---
SON 6.402	SONOCHEK Lanyard (attached to measuring device)	---
SON 6.403	SONOCHEK Bumper, red (attached to measuring device)	---

Item No.	Name	Details
<b>SON 6.110</b>	SONOCHEK DBS10 Broadband airborne sound sensor	p. 64
<b>SON 6.111</b>	Calibration certificate for DBS10 sensor	---
<b>SON 6.510</b>	SONOCHEK Sensor cable, DBS10	---
<b>SON 6.110-1</b>	SONOCHEK Seaker: precision locator DBS10-1 including adapter cap	p. 64
<b>SON 6.110-2</b>	SONOCHEK Small seaker: small acoustic horn DBS10-2	p. 64
<b>SON 6.110-3</b>	SONOCHEK Large seaker: large acoustic horn DBS10-3	p. 64
<b>SON 6.120</b>	SONOCHEK DBS20 broadband structure-borne sound and temperature sensor	p. 66
<b>SON 6.121</b>	Calibration certificate for DBS20 sensor	---
<b>SON 6.120-1</b>	SONOCHEK Waveguide 22 mm (7/8 inch), DBS20-1	p. 66
<b>SON 6.120-2</b>	SONOCHEK Waveguide 150 mm (5 7/8 inch), DBS20-2	p. 66
<b>SON 6.120-3</b>	SONOCHEK Magnetic waveguide DBS20-3	p. 66
<b>SON 6.120-4</b>	SONOCHEK Tools for changing the waveguides	p. 66
<b>SON 6.701</b>	SONOLEAK app, measurement software	p. 51
<b>SON 6.702</b>	SONOLEVEL app, measurement software	p. 51
<b>SON 6.703</b>	SONOCHEK Config app, software manager to install and deinstall the apps	
<b>SON 6.501</b>	SONOCHEK headphones	
<b>SON 6.502</b>	Audio cable for SONOCHEK headphones	
<b>LIT 06.100</b>	SONOCHEK pocket guide	
<b>LIT 06.200</b>	SONOCHEK Operating instructions (in PDF format available on measuring device)	
<b>SON 6.800</b>	SONOCHEK ruggedized case	
<b>Overview</b>		

### Optional accessories

Item No.	Name	Notes	Details
<b>SON 6.010</b>	SONOCHECK Parabolic sensor DBS30, set	Localization of damaged points across large distances up to 25 meters (82 ft)	p. 68

## TECHNICAL INFORMATION

### SONOCHEK technical data

Parameter	Digital ultrasonic measuring device - SONOCHEK
<b>Display</b>	5" TFT display, resolution WVGA 800 x 480 pixels
<b>Touchscreen</b>	PCT, 5-point multi-touch controller
<b>Acoustic output of the signals</b>	Via speaker or wired headphones
<b>Memory</b>	8 GB flash system memory; 16 GB flash internal measurement data memory; 2 GB SDRAM
<b>Connections and interfaces</b>	Ultrasonic sensors: Lemo; Charger: USB 2.0 Micro-B; Jack for stereo headphones: 3.5 mm; Memory for data export: Slot for micro SD card (up to 32 GB)
<b>Operating system</b>	Android 4.4.2
<b>Application software</b>	"SONOLEVEL App" for basic maintenance tasks "SONOLEAK App" for leak detection and evaluation
<b>Other</b>	5 megapixel camera on the back side of the device; integrated microphone; integrated position sensor
<b>Rechargeable battery</b>	Type: Lithium polymer battery; 3.7 V; 4.05 Ah (7.75 Wh)
<b>Power supply</b>	Charger with micro USB connection (5 V, 2 A)
<b>Operating time</b>	8 ... 12 h in practical use, 4 h in continuous operation
<b>Charge duration</b>	Typically 4 hours
<b>Dimensions (W x H x D)</b>	90 x 174 x 25 mm [3 <sup>9/16</sup> x 6 <sup>7/8</sup> x 1 inch]
<b>Weight</b>	370 g / 13.1 oz (including rechargeable battery)
<b>Material</b>	Plastic (polycarbonate: ABS); chemically hardened glass
<b>Ambient conditions</b>	Temperature range: -10 ... + 40 °C (operation); -20 ... + 60 °C (storage); 0 ... + 20 °C (charging) 14 ... + 104 °F (operation); -4 ... + 140 °F (storage); 32 ... + 68°F (charging) Degree of protection: IP 40

### SONOLEVEL app – technical data

Parameter	SONOLEVEL measurement software
<b>Functions</b>	<ul style="list-style-type: none"> <li>• Taking photos to add to data sets or measurements</li> <li>• Inserting markers immediately after taking photos</li> <li>• Recording voice memos to add to data sets and measurements</li> <li>• Storing text comments</li> <li>• Selection of the current application (leak, storage, etc.) as context for measurements</li> <li>• Creation of PDF reports of selected data sets</li> <li>• Exporting selected data sets for further processing on the computer</li> </ul>

Parameter	SONOLEVEL measurement software
<b>Saving and recording</b>	Audio data: Format: *.wav Storage location: Internal measurement memory
<b>Displays</b>	<ul style="list-style-type: none"> <li>• Level profile (only "main" level - marked in green, freely selectable)</li> <li>• Level wheel and level bar (only current level)</li> <li>• Level table, configurable with respect to arrangement, number (max. 5) and type of the displayed level</li> </ul> <p>The following sound pressure level and the temperature can be shown (T, only active with structure-borne sound sensor DBS20):</p> <ul style="list-style-type: none"> <li>• L – Current level</li> <li>• LF – Time-evaluated current level (smoothed)</li> <li>• Lpk – Peak level</li> <li>• Leq – Energy-equivalent continuous sound pressure level</li> <li>• Lmin – Minimum level of the current level</li> <li>• Lmax – Maximum level of the current level</li> </ul> <p>(in dB, reference p0 = 20 µPa, temporal resolution: 16 ms per level value)</p> <ul style="list-style-type: none"> <li>• Spectrogram (temporal resolution: 16 ms per frequency spectrum)</li> <li>• Change from portrait / landscape</li> <li>• Measurement time, playback position</li> </ul>
<b>Operating modes</b>	<ul style="list-style-type: none"> <li>• Live – Display of the current readings</li> <li>• Recording – Display and saving of the current readings</li> <li>• Playback – Playing back the saved readings</li> </ul>
<b>Languages</b>	German, English, Spanish, French, Portuguese, Turkish, Italian, Chinese, Dutch, Russian, Polish, Japanese

### SONOLEAK app – technical data

Parameter	SONOLEAK measurement software
<b>Functions</b>	<ul style="list-style-type: none"> <li>• Taking photos to add to data sets or measurements</li> <li>• Inserting markers immediately after taking photos</li> <li>• Recording voice memos to add to data sets and measurements</li> <li>• Input of pressure and gas of the system to be measured</li> <li>• Setting the audio mode heterodyne/phasevocoder</li> <li>• Creation of PDF reports of selected data sets</li> <li>• Exporting selected data sets for further processing on the computer</li> </ul>
<b>Saving and recording</b>	Audio data: Format: *.wav Storage location: Internal measurement memory
<b>Displays</b>	<ul style="list-style-type: none"> <li>• Level wheel and level bar (only current level)</li> <li>• L – Current level table</li> </ul> <p>(in dB, reference p0 = 20 µPa, temporal resolution: 16 ms per level value)</p> <ul style="list-style-type: none"> <li>• Spectrogram (temporal resolution: 16 ms per frequency spectrum)</li> </ul>
<b>Operating modes</b>	<ul style="list-style-type: none"> <li>• Live – Display of the current readings</li> <li>• Recording – Display and saving of the current readings</li> </ul>
<b>Languages</b>	German, English, Spanish, French, Portuguese, Turkish, Italian, Chinese, Dutch, Russian, Polish, Japanese

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## Spare parts for portable measuring devices

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## Case for VIBSCANNER

These robust cases are intended for storage and transportation of the measuring equipment. The unbreakable hard shells and shock absorbing insert foam ensure safe protection of the components.



Standard case (left) and accessories case (right). The contents of the cases are exemplary.

### Overview

- Standard case contains scope of delivery from the variants
- Accessories case offers space for additional accessories

### Ordering information

Item No.	Description
VIB 5.428	VIBSCANNER standard case
VIB 5.429	VIBSCANNER accessories case

Note: The cases may not be entered into the EX zone.

## TECHNICAL INFORMATION

### Technical data

Parameter	Standard case	Accessories case
<b>Material</b>	Polypropylene (PP)	ABS plastic
<b>Dimensions</b>	approx. 390 x 340 x 90 mm [ 15 3/8" x 13 3/8" x 3 9/16" ]	approx. 470 x 400 x 195 mm [ 18 1/2" x 15 3/4" x 7 11/16" ]
<b>Weight (empty)</b>	approx 1 kg [ 35.3 oz ]	approx 3 kg [ 105,8 oz ]

## Case for VIBSCANNER 2

This robust case is intended for storage and transportation of the measuring equipment. The unbreakable hard shells and shock absorbing insert foam ensure safe protection of the components.



### Features

- Lightweight strong HPX® resin
- Watertight
- Meets Carry-on regulations
- Vortex® valve
- Padlockable hasp
- Lifetime guarantee
- Weight (empty): 2.7 kg (6 lb)
- Dimensions: 411 x 322 x 168 mm  
[ 16 3/16" x 12 11/16" x 6 5/8" ]

### Ordering information

Item No.	Description
VIB 5.228	VIBSCANNER 2 ruggedized case

## Wheeled case for VIBXPERT II

This robust wheeled case is intended for storage and transportation of the measuring equipment. The unbreakable hard shells and shock absorbing insert foam ensure safe protection of the components.



Wheeled case for VIBXPERT II.

### Features

- Lightweight strong HPX® resin
- Watertight
- Meets Carry-on regulations
- Vortex® valve
- Padlockable hasp
- Lifetime guarantee
- In-line wheels
- Telescopic pull-out handle
- Weight (empty): 5.8 kg (12.8 lb)
- Dimensions: 551 x 358 x 226 mm [ 21 11/16" x 14 1/8" x 8 7/8" ]

### Ordering information

Item No.	Description
VIB 5.327	Wheeled case for VIBXPERT II

## Case for VIBXPERT EX

This robust case is intended for storage and transportation of the measuring equipment. The unbreakable hard shells and shock absorbing insert foam ensure safe protection of the components.



VIBXPERT EX case.

### Features

- Case shells made of unbreakable plastic (ABS).
- Low empty weight (3 kg / 105,8 oz )
- Passed drop test from 2 meters
- Dimensions: 470 x 400 x 195  
[ 18 1/2" x 15 3/4" x 7 11/16" ]

### Ordering information

Item No.	Description
<b>VIB 5.329-X</b>	Case for VIBXPERT EX

Note: The case may not be entered into the EX zone.

## Carrying pouch for VIBSCANNER 2

The robust carrying pouch protects the instrument in an industrial environment. The carrying strap and the hand strap can be adjusted continuously via Velcro fastener.



### Features

- Nylon blended fabric
- Velcro fastener
- Sturdy
- Washable

### Ordering information

Item No.	Description
VIB 5.256	VIBSCANNER 2 pouch

## Carrying bag, strap for VIBXPERT EX

Carrying case and strap are made of sturdy leather and approved for the EX zone. The carrying strap can be adjusted continuously via Velcro fastener.



### Features

- Leather
- Velcro fastener
- Sturdy
- Washable

VIBXPERT EX with carrying bag and shoulder strap.

### Ordering information

Item No.	Description
<b>VIB 5.355</b>	VIBXPERT EX carrying bag, leather
<b>VIB 5.354-LD</b>	VIBXPERT EX carrying strap, leather

## Carrying pouch with accessories for VIBXPert II

The robust carrying pouch features a side pocket for sensors, cables, and tools. The carrying strap and hand strap can be adjusted continuously via Velcro fastener.



### Features

- Nylon blended fabric
- Velcro fastener
- Sturdy
- Washable

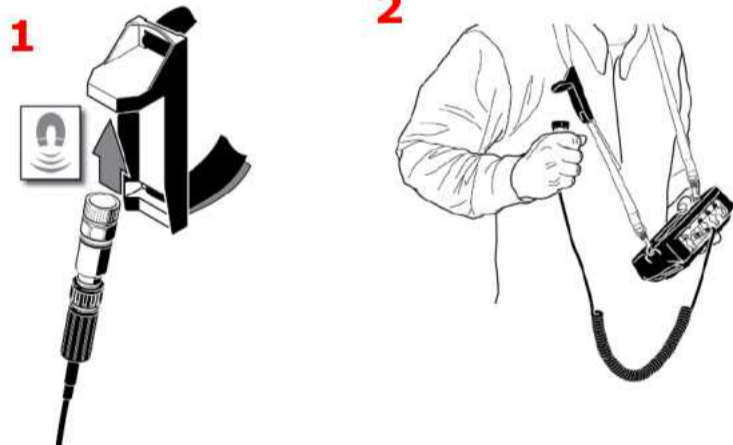
Carrying pouch (A) with shoulder strap (B) and hand strap (C).

### Ordering information

Item No.	Description
VIB 5.356	VIBXPert II carrying pouch
VIB 5.354-GT	VIBXPert II shoulder strap
VIB 5.354-HS	VIBXPert II hand strap
VIB 5.354-CL	Sensor clip for VIBXPert pouch

### Application example

#### Sensor clip for VIBXPert pouch



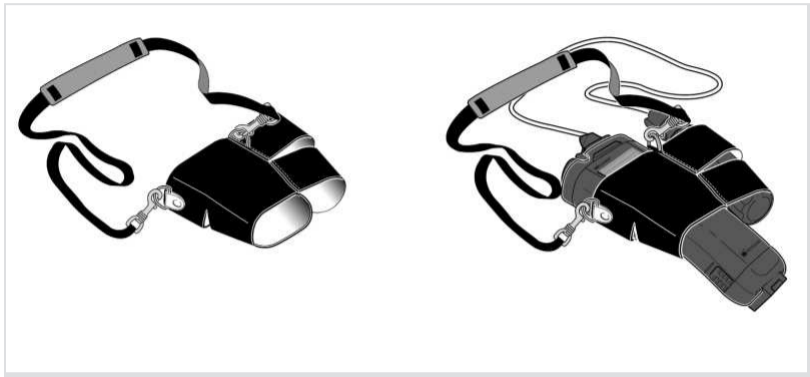
1: Sensor connects magnetically to the sensor clip.

2: Sensor clip is a practical sensor holder between the measurements.



## VIBSCANNER pouch

The robust pouch features a side pocket for the VIBCODE sensor. The carrying strap can be adjusted continuously via Velcro fastener.



Pouch without content (left) and with VIBSCANNER and VIBCODE (right).

### Features

- Polyamide fabric (CORDURA)
- Side pocket for VIBCODE sensor
- Sturdy
- Washable

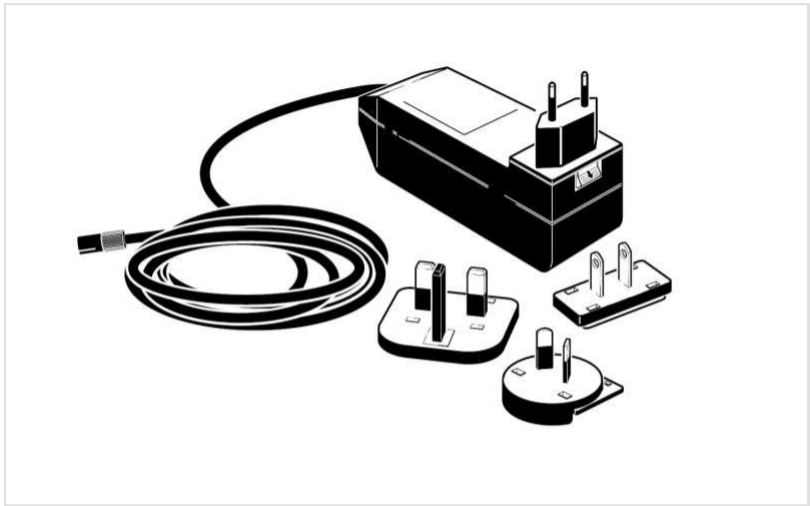
### Ordering information

Item No.	Description
VIB 5.454	VIBSCANNER pouch

Note: The pouch may not be entered into the EX zone.

## Charger for VIBSCANNER

Using this charger, the rechargeable battery is charged in the measuring device. The charger is also suited for the rechargeable battery with explosion protection.



Charger for VIBSCANNER including plug adapter.

### Features

- Output: 12 V / 250 mA
- Four international plug adapters:
  - North America, Japan
  - Australia
  - UK
  - EU

### Ordering information

Item No.	Description
VIB 5.420-INT	Charger for VIBSCANNER

Note: Only charge rechargeable battery outside of the EX-zone!

## TECHNICAL INFORMATION

### Technical data

Parameter	Charger for VIBSCANNER - VIB 5.420-INT
Input	100 - 240 VAC / 50 - 60 Hz / 620 mA
Output	12.1 VDC / 250 mA
Charge time	< 5 h
Degree of protection	IP 20
Temperature range	Operation: -5°C ... +40°C [23...104 °F] Storage: -30°C ... +80°C [-22...176 °F]
Connection cable, length	approx. 1.5 m (59")

## Charger for VIBXPART EX

Using this charger, the measuring device can be operated with mains power (e.g., in the office) or the rechargeable battery can be charged in the measuring device.



Charger for VIBXPART EX including plug adapter.

### Features

- Protection class II
- Output: 12 V / 3 A
- Five international plug adapters:
  - North America, Japan
  - Australia
  - UK
  - EU
  - China

### Ordering information

Item No.	Description
VIB 5.322-INT	Charger for VIBXPART EX, international
VIB 5.322-X	Adapter cable for VIBXPART EX charger

## TECHNICAL INFORMATION

### Technical data

Parameter	Charger for VIBXPART EX - VIB 5.322-INT
Input	100 - 240 VAC / 50 - 60 Hz / 1.0 A
Output	12 VDC / 3.0 A / 36 W
Connection on measuring device	Analog channel A or B
Protection class	II / IP 52

## Charger for VIBXPART II

Using this charger, the measuring device can be operated with mains power (e.g., in the office) or the rechargeable battery for VIBXPART-II can be charged, either in the measuring device or in the charging station available as accessory item.



Charger for VIBXPART II including plug adapter.

### Features

- Protection class II
- Output: 12 V / 3 A
- Five international plug adapters:
  - North America, Japan
  - Australia
  - UK
  - EU
  - China

### Ordering information

Item No.	Description
VIB 5.320-INT	Charger for VIBXPART II, international

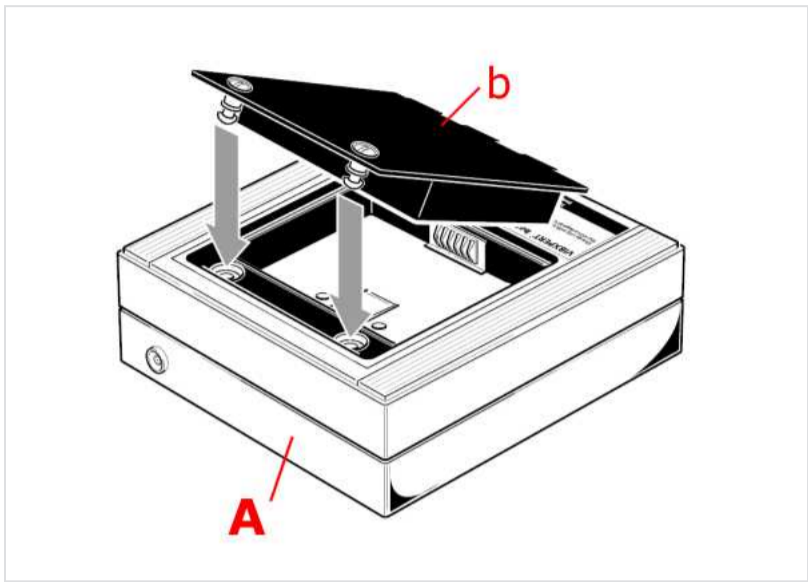
## TECHNICAL INFORMATION

### Technical data

Parameter	Charger for VIBXPART II - VIB 5.320-INT
Input	100 - 240 VAC / 50 - 60 Hz / 1.0 A
Output	12 VDC / 3.0 A / 36 W
Connection on measuring device	Analog channel A or B
Protection class	II / IP 52

## Charging station for VIBXPERT II rechargeable battery

Using this charging station, the VIBXPERT-II rechargeable battery is charged outside of the measuring device, while you can continue working with the VIBXPERT II and a second, fully charged rechargeable battery.



Charging station (A) for VIBXPERT II rechargeable battery (b).

### Features

- LED display for battery status.
- Connection for VIBXPERT II charger
- Compact design
- Spare rechargeable battery available as accessory item

### Ordering information

Item No.	Description
VIB 5.324	Charging station for VIBXPERT II rechargeable battery

## TECHNICAL INFORMATION

### Technical data

Parameter	Charger for VIBXPERT II rechargeable battery - VIB 5.324
<b>Mains connection</b>	MiniSnap socket for VIBXPERT II charger
<b>Battery status displays</b>	3 LEDs: green = charging completed; yellow = rechargeable battery is being charged; red = fault during charging
<b>Charge temperature range</b>	0 °C ... + 50 °C [ 32 ... 122 °F ]
<b>Charge time</b>	< 5 hours
<b>Dimensions</b>	approx. 150 x 150 x 60 mm [ 5 7/8" x 5 7/8" x 2 3/8" ]

## Rechargeable battery for VIBSCANNER

The compact rechargeable battery is integrated in the device handle and supplies VIBSCANNER on your daily inspection route.



### Features

- Easily replaceable
- Status display via LEDs
- Operating time typically 8 hours
- Charge time < 6 hours

The VIBSCANNER rechargeable battery can be easily replaced.

### Ordering information

Item No.	Description
VIB 5.425	VIBSCANNER rechargeable battery
VIB 5.425 EX	VIBSCANNER EX rechargeable battery

Note: Rechargeable batteries may not be charged or replaced in the EX zone!

## TECHNICAL INFORMATION

### Technical data

Parameter	VIBSCANNER rechargeable battery - VIB 5.425 / VIB 5.425 EX
Type	NiMH
Rated voltage	7.2 V
Rated capacitance	1.5 Ah
Rated output	10.8 Wh
Charge temperature range	+10 °C ... + 40 °C [ 50 ... 104°F ]
Operating time	> 10 hours in alternating mode > 6 hours in continuous mode with illumination
Charge time	< 6 h (EX: < 10 h)
Status displays	2 LEDs (red/ green) for charge and rechargeable battery state
Weight	approx 260 g [ 9.2 oz ]

## Rechargeable battery for VIBXPERT II

The powerful rechargeable Li-ion battery supplies VIBXPERT II on your daily measurement route. Intelligent power saving functions in the measuring device preserve rechargeable battery reserves and ensure long operating times. The rechargeable battery can be charged in the measuring device or in the charging station available as accessory item.



Lithium-ion rechargeable battery for VIBXPERT II.

### Features

- Operating time typically 8 hours
- Lithium ion cells
- Charge time < 5 hours

### Ordering information

Item No.	Description
VIB 5.325	VIBXPERT II rechargeable battery

## TECHNICAL INFORMATION

### Technical data

Parameter	VIBXPERT II rechargeable battery - VIB 5.325
Type	Li ion rechargeable battery
Rated voltage	7.3 V
Rated capacitance	5.3 Ah
Rated output	38.7 Wh
Charge temperature range	0 °C ... + 50 °C [32 ... 122 °F]
Charge time	< 5 hours

## Airborne Sound Sensor DBS10

The DBS10 sensor is a sensor to detect airborne ultrasonic signals. The sensor features exchangeable attachments, target laser and LED light to locate damaged points. Depending on the measurement application, it can be used for the following applications:

- Detection and evaluation of leaks on compressed air, gas and vacuum systems.
- Detection of leaks on windows, doors, cabins, vehicles or containers.
- Detection of electrical partial discharges and insulation damage.



Airborne sound sensor DBS10 with attached precision locator DBS10-1. Small acoustic horn DBS10-2 (rear left) and large acoustic horn DBS10-3 (rear right).

### Overview

- Bandwidth 20 ... 100 kHz
- Function keys for remote controlling the SONOCHEK
- Integrated target laser and LED light
- Diverse attachments to increase acoustic signal strength for precise localization of damaged points.

### Order information

Item No.	Name
<b>SON 6.110</b>	SONOCHEK DBS10 Broadband airborne sound sensor
<b>SON 6.110-1</b>	SONOCHEK Sensor attachment: precision locator DBS10-1 including adapter cap
<b>SON 6.110-2</b>	SONOCHEK Sensor attachment: small acoustic horn DBS10-2
<b>SON 6.110-3</b>	SONOCHEK Sensor attachment: large acoustic horn DBS10-3



## TECHNICAL INFORMATION

The volume of the acoustic playback can be controlled via the function keys. The start and stop of the measurement can also be controlled. The integrated target laser and the LED light help to precisely localize the damaged points.

### Technical data

Parameter	Airborne sound sensor DBS10
Frequency range	20 ... 100 kHz
Measurement resolution	1 dB
Dimensions (W x H x D)	30 x 155 x 30 mm (1 3/16 x 6 1/8 x 1 3/16 inch)
Weight	80 g / 2.8 oz (without accessories)
Material	Sensor housing: Plastic (polycarbonate: ABS), gray; Attachments: synthetic rubber (EPDM), black
Ambient conditions	Temperature range: -10 ... + 40 °C (operation); -20 ... + 60 °C (storage) 14 ... + 104 °F (operation); -4 ... + 140 °F (storage) Degree of protection: IP 40

## Structure-borne Sound and Temperature Sensor DBS20

The DBS20 sensor is a contact sensor to detect structure-borne sound signals. The sensor features exchangeable waveguides, an infrared temperature sensor as well as a LED light to illuminate the measured object. Together with the SONOCHEK measuring device, the sensor can be used for the following applications:

- Condition monitoring of machines and plants.
- Functional check of condensate drains and valves.
- Monitoring of bearing wear and malfunctions.
- Monitoring of lubrication conditions



Structure-borne sound and temperature sensor DBS20 with waveguides (short, long) and magnetic adapter in the foreground. Tools for changing the waveguides in the background.

### Overview

- Bandwidth 20 ... 100 kHz
- Function keys for remote controlling the SONOCHEK
- Integrated LED light
- Infrared thermometer for non-contact measurement of the surface temperature
- Exchangeable stainless steel waveguides for measurement of structure-borne sound signals

### Order information

Item No.	Name	Application
<b>SON 6.120</b>	SONOCHEK DBS10 Broadband airborne sound sensor	
<b>SON 6.120-1</b>	SONOCHEK waveguide 22 mm (7/8 inch), DBS20-1	Standard measurements without special requirements
<b>SON 6.120-2</b>	SONOCHEK waveguide 150 mm (5 7/8 inch), DBS20-2	For difficult-to-reach places and high-temperature applications
<b>SON 6.120-3</b>	SONOCHEK Magnetic adapter DBS20-3	Coupling at the measurement location for long-term measurements and for ensuring a uniform contact pressure

## TECHNICAL INFORMATION

The volume of the acoustic playback can be controlled via the function keys. The start and stop of the measurement can also be controlled. The integrated temperature sensor improves the reliability of the measurement data with many measurement procedures, for example for measurements of condensate drains.

### Technical data

Parameter	Structure-borne sound and temperature sensor DBS20
<b>Frequency range</b>	20 ... 100 kHz
<b>Temperature measurement range</b>	-70 ...+380 °C object temperature -94 ...+716 °F
<b>Measurement resolution</b>	Ultrasound: 1 dB; Temperature: 1 °C/ °F
<b>Dimensions (W x H x D)</b>	330 x 155 x 30 mm (1 3/16 x 6 1/8 x 1 3/16 inch)
<b>Weight</b>	140 g / 4.9 oz (without accessories)
<b>Material</b>	Sensor housing: Plastic (polycarbonate: ABS), gray; Waveguides: Stainless steel
<b>Ambient conditions</b>	Temperature range: -10 ... + 40 °C (operation); -20 ... + 60 °C (storage) 14 ... + 104 °F (operation); -4 ... + 140 °F (storage) Degree of protection: IP 40

## SONOCHEK Parabolic Sensor DBS30

The parabolic sensor DBS30 is available as accessory part and is used to precisely detect ultrasound from a distance of up to 25 m. The parabolic sensor is delivered in a transport bag together with a printed pocket guide.



Parabolic sensor DBS30 for the detection of airborne ultrasonic signal across large distances up to 25 meters.

### Overview

- Detection of damaged points across large distances up to 25 meters
- Bandwidth 20 ... 100 kHz
- Function keys for remote controlling the SONOCHEK
- Target laser and light spot target device integrated

### Order information

Item No.	Name	Scope of delivery
SON 6.010	SONOCHEK DBS30 Parabolic sensor, set	SONOCHEK Parabolic Sensor DBS30 Calibration certificate DBS30 pocket guide (operating instructions in PDF format available on measuring device) Transport bag

## TECHNICAL INFORMATION

### Functional principle

The parabolic mirror reflects ultrasonic waves and focuses them on the ultrasonic microphone.

The ultrasonic microphone in the sensor converts sound pressure fluctuations in the air into an electrical signal over a broad frequency range. This electrical signal is already amplified and digitized in the sensor. Further data processing and output is carried out in the measuring device SONOCHEK.

The target laser and the light spot target device assist in precise localization of damaged points: If the sensor points towards the damaged point during the search, this point can be detected by using acoustic signals by pivoting the sensor and searching for a local sound level maximum. The target laser and the light spot target device mark the position of the damaged point.

Measurements can be easily started and stopped using the function key on the sensor handle. The target laser can be switched on via a separate button.

### Technical data

Parameter	Parabolic sensor DBS30
Frequency range	20 ... 100 kHz
Measurement resolution	1 dB
Dimensions (W x H x D)	270 x 440 x 390 mm (10 <sup>5/8</sup> x 17 <sup>5/16</sup> x 15 <sup>3/8</sup> inch)
Mirror diameter	270 mm (10 <sup>5/8</sup> inch)
Weight	750 g / 26.5 oz
Materials	Aluminum, plastic (polycarbonate: ABS)
Ambient conditions	Temperature range: -10 ... + 40 °C (operation); -20 ... + 60 °C (storage) 14 ... + 104 °F (operation); -4 ... + 140 °F (storage) Degree of protection: IP 40

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## Stationary systems

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# VIBGUARD – Simultaneous monitoring and diagnosis

VIBGUARD is a condition monitoring system for monitoring and diagnosis of operating conditions on machines with rotating components. The permanently installed system works continuously and autonomously, and records up to 20 measurement channels simultaneously.



## Features

- Ideal for machines with critical parameters and highly dynamic processes
- Synchronous quick scanning of up to 20 channels
- Up to 6 operation states taken into account
- Variants for voltage and current driven accelerometers (IEPE, CLD) as well as process signals (voltage)
- Mounting with protective housing or on DIN rail inside a switching cabinet
- Intelligent data reduction

## Ordering information

VIBGUARD is available in many variants differentiated by the following features:

- **Channel distribution / Type of signal:** CLD; IEPE; Voltage
- **Mounting:** DIN rail; Standard protective housing; Large protective housing

The following table shows the corresponding **part numbers**.

Channel distribution / Type of signal	Mounting		
	DIN rail	Standard protective housing	Large protective housing
16xU + 4xU/I	VIB 7.800-PS	VIB 7.800-LH	VIB 7.800-SDH
16xIEPE + 4xU/I	VIB 7.810-PS	VIB 7.810-LH	VIB 7.810-SDH
8xIEPE + 8xU + 4xU/I	VIB 7.815-PS	VIB 7.815-LH	VIB 7.815-SDH
16xCLD + 4xU/I	VIB 7.820-PS	VIB 7.820-LH	VIB 7.820-SDH
8xCLD + +8xU + 4xU/I	VIB 7.825-PS	VIB 7.825-LH	VIB 7.825-SDH

## Scope of supply

Item No.	Description	Details
VIB 7.800...7.825	VIBGUARD system module; Channel distribution / Type signal (variable)	p. 73
VIB 7.840	DIN rail OR	
VIB 7.841	Standard protective housing OR	
VIB 7.842	Large protective housing	
VIB 5.965-2,5	VIBGUARD switch-mode power supply	
LIT 78.200	Installation instructions	

Optional items may be ordered for any variant.



## Optional accessories

Item No.	Description	Hint	Details
<b>VIB 7.830-CLD</b>	VIBGUARD connection module for 4 additional CLD-type accelerometers	These modules are used to connect up to four accelerometers on the four current/voltage analog inputs (4xU/I). The modules are universal and can be used with any VIBGUARD variant in any combination.	---
<b>VIB 7.830-ICP</b>	VIBGUARD connection module for 4 additional IEPE (ICP)-type accelerometers		
<b>VIB 7.835</b>	DC-DC converter	required when using an external 24 V DC supply	

## TECHNICAL INFORMATION

### Technical data

Parameter	VIBGUARD system module				
	VIB 7.800	VIB 7.810	VIB 7.815	VIB 7.820	VIB 7.825
<b>INPUTS AND OUTPUTS</b>					
<b>Analog IN</b>	20 synchronous channels: 16 x vibration, 4 x process parameters (Process channels configurable pairwise for voltage or current signal)				
<b>Signal type, Ch. variations</b>	16 x U, 4 x U/I	16 x U (IEPE), 4 x U/I	8 x U (IEPE) + 8 x U, 4 x U/I	16 x I (CLD), 4 x U/I	8 x I (CLD) + 8 x U, 4 x U/I
<b>Sensor type</b>	Sensor w/ current or voltage output, Displacement sensor	IEPE-type sensor, Sensor w/ current or voltage output, Displacement sensor		CLD-type sensor, Sensor w/ current or voltage output, Displacement sensor	
<b>Digital IN</b>	4 optocoupler inputs 0-30V, Threshold 3V				
<b>Tacho-Puls IN</b>	2 frequency inputs $\pm 30V$ DC and AC. Threshold DC: 2.5V (default)				
<b>Digital OUT</b>	3 relay changeover contacts, 30VDC/30VAC/2A				
<b>System OK OUT</b>	Relais NC, 30VDC/30VAC/2A				
<b>Ethernet</b>	Data rate: 100 MBit, half duplex				
<b>Serial ports</b>	2x RS232, 115200 baud				
<b>Services</b>	Modbus/TCP, Modbus RTU				
<b>LED indicators</b>	20x Analog-IN, 1x System, 2x Status, 2x Ethernet, 4x Digital-IN, 2x Tacho-IN				
<b>MEASUREMENT</b>					
<b>Dynamic range</b>	110 dB @ 24 bit				
<b>Sampling rate</b>	131 kHz / 50 kHz band width				
<b>FFT lines</b>	6400 (Standard), 102400 (Analysis)				
<b>Meas. range, process channels</b>	$\pm 24V$ or 4-20 mA, $\pm 20mA$				
<b>Meas. range, vibration channels</b>	$\pm 24V$	---	$\pm 24V$	---	$\pm 24V$
<b>GENERAL</b>					

Parameter	VIBGUARD system module				
	VIB 7.800	VIB 7.810	VIB 7.815	VIB 7.820	VIB 7.825
<b>Ambient temperature</b>	System module: -20°C ... +70°C (-4°F ... + 158°F) System module protective housing: -20°C ... +60°C (-4°F ... + 140°F)				
<b>System supply</b>	24±6 VDC / 0.5 A				
<b>Sensor supply</b>	Current (CLD = Current Linedrive), Voltage (IEPE)				
<b>Memory capacity</b>	Flash: 2 GB (expandable), RAM: 128 MB				
<b>Case material</b>	Aluminum				
<b>Dimensions, prot. housing</b>	Standard: 380 x 380 x 220 mm [ 14 15/16" x 14 15/16" x 8 11/16" ] Large: 400 x 500 x 220 mm [ 15 3/4" x 19 11/16" x 8 11/16" ]				
<b>Weight</b>	approx. 1.2 kg (system module) approx. 13.0 kg (system module in protective housing 'Standard', VIB 7.8 ... SDH)				
<b>Env. protection</b>	IP 20 (IP 65 in protective housing)				

### Information on intrinsic safety

When monitoring machines in explosive atmospheres, intrinsically safe sensors must be used and a limiting device is necessary for every measurement channel. VIBGUARD basic unit must be installed outside the hazardous area.

## VIBGUARD compact – Condition Monitoring for individual assets

VIBGUARD compact is the 6-channel version of the VIBGUARD CMS and ideal for continuous diagnostic monitoring of complex individual assets.



### Features

- 6 fully synchronous measuring channels for continuous data acquisition
- Monitors up to 6 operating conditions
- Stores data trends with adjustable data reduction and Intelligent Event Recording
- Specially for individual assets with high asset value, complex drives, and variable operating conditions
- Wi-Fi Ready Solution

### Ordering information

Item No.	Description
<b>VIB 7.900-PS</b>	VIBGUARD compact, system module, incl power supply; mounted on DIN rail
<b>VIB 7.900-LH</b>	VIBGUARD compact, system module, incl power supply; mounted in protective housing

Items delivered in the box for any given variant is derived from the overview below.

### Scope of supply

CONTENT- VIB 7.900-PS		
Item No.	Description	Details
<b>VIB 7.900</b>	VIBGUARD compact system module	p. 76
---	Power supply, PE clamp, DIN rail	mounted on DIN rail
<b>LIT 79.200</b>	Operating instructions	

CONTENT - VIB 7.900-LH		
Item No.	Description	Details
<b>VIB 7.900</b>	VIBGUARD compact system module	p. 76
---	Power supply, PE clamp, DIN rail	mounted on DIN rail
---	Protective housing	includes DIN rail and mounted components
<b>LIT 79.200</b>	Operating instructions	

## TECHNICAL INFORMATION

### Technical data - VIBGUARD compact system module

Parameter	VIB 7.900
<b>INPUTS AND OUTPUTS</b>	
<b>Analog inputs</b>	6 synchronous channels
<b>Type of signal, channel distribution</b>	6 x U / IEPE (ICP), selectable
<b>Type of sensor</b>	IEPE sensor; Sensor with voltage output
<b>Digital inputs</b>	Optocoupler input: -3V to +30V, switching thresholds 6.5V to 8.5V DIN EN 61131-2 operating range DC 24V type I and II
<b>Tacho / pulse inputs</b>	Frequency input: $\pm 30V$ ; threshold selectable (default: 2.5V)
<b>Digital outputs</b>	Relay turnkey: 30V DC / 30V AC / 2A DIN EN 61131-2 utilization category AC15 and DC13
<b>System OK output</b>	Relay opener: 30V DC / 30V AC / 2A DIN EN 61131-2 utilization category AC15 and DC13
<b>Ethernet</b>	Data rate: 100 MBit, half duplex
<b>Serial interface</b>	RS232, 115200 baud
<b>Services</b>	Modbus/TCP
<b>LED indicators</b>	6x analog IN, 1x tachometer IN, 1x system, 1x event, 2x Ethernet, 1x digital IN, 1x system OK, 1x digital OUT
<b>MEASUREMENT</b>	
<b>Dynamic range</b>	110 dB @ 24 bit
<b>Sampling rate</b>	131 kHz / 50 kHz range
<b>FFT lines</b>	6400 (default), 102400 (analysis)
<b>Measuring range</b>	$\pm 24V$
<b>GENERAL</b>	
<b>Ambient temperature</b>	System module: -20°C ... +70°C [ -4 °F ...+ 158 °F] System module in the protective housing: -20°C ... +60°C [ -4 °F ...+ 140 °F]
<b>System supply</b>	24 $\pm$ 6 VDC / 0.25 A
<b>Memory</b>	Flash: 2 GB, RAM: 256 MB
<b>Housing material</b>	Aluminum
<b>Dimensions, (wxhxd) protective housing</b>	300 x 220 x 120 mm [ 11 13/16" x 8 11/16" x 4 3/4" ]
<b>Weight</b>	approx. 0.7 kg [ 24,7 oz ] (system module) approx. 3.5 kg [ 123,5 oz ] (system module in the protective housing)
<b>Protection class</b>	IP 20 (system module) IP 65 (system module in the protective housing)

### Information on intrinsic safety

When monitoring machines in explosive atmospheres, intrinsically safe sensors must be used and a limiting device is necessary for every measurement channel. VIBGUARD must be installed outside the hazardous area.

## VIBGUARD portable – on the road diagnosis specialist

VIBGUARD portable is the transportable version of VIBGUARD condition monitoring system. It is ideal for troubleshooting, in-depth diagnoses and continuous diagnostics monitoring of complex machinery. It provides service and maintenance specialists with a wide range of means to fast and accurate machine diagnosis.



### Features

- Portable system for machinery diagnosis
- Straightforward and quick to install
- Robust aluminium case (IP 64)
- 20 synchronous measurement channels
- Continuous data collection
- Different configurations are available
- Integrated industrial PC – optional

### Ordering information

Item No.	Description
<b>VIB 7.800-MOB</b>	VIBGUARD portable
<b>VIB 7.800-MOBIPC</b>	VIBGUARD portable with built-in Industrial PC

Items delivered in the box for any given variant is derived from the overview below.

### Scope of supply

Item No.	Description	Details
<b>VIB 7.800...7.825</b>	VIBGUARD system module, channel distribution / type of signal, variable	p. 73
<b>VIB 7.843</b>	VIBGUARD portable case without industrial PC OR	
<b>VIB 7.844</b>	VIBGUARD portable case with industrial PC	
<b>LIT 78.202</b>	Operating manual	

Optional items may be ordered for any variant.

### Optional accessories

Item No.	Description	Hint	Details
<b>VIB 7.830-CLD</b>	VIBGUARD connection module for 4 additional CLD-type accelerometers	These modules are used to connect up to four accelerometers on the four current/voltage analog inputs (4xU/I). The modules are universal and can be used with any VIBGUARD variant in any combination.	---
<b>VIB 7.830-ICP</b>	VIBGUARD connection module for 4 additional IEPE (ICP)-type accelerometers		
<b>VIB 5.933-UMTS</b>	UMTS Router		

## TECHNICAL INFORMATION

### Information on intrinsic safety

When monitoring machines in explosive atmospheres, intrinsically safe sensors must be used and a limiting device is necessary for every measurement channel. VIBGUARD basic unit must be installed outside the hazardous area.

## VIBREX – Continuous monitoring of one or two locations

VIBREX is a compact monitoring system with a modular design. It is used in machines with antifriction bearings and running at constant operating conditions.



### Features

- Machine vibration and bearing condition monitoring
- One or two measurement channels
- Straightforward installation and commissioning
- Analog level outputs (4 – 20 mA)
- Relay outputs
- Signal outputs (mV)
- Sensors and safety barrier for explosive atmospheres

### Ordering information

VIBREX is available in application-dependent variants.

Item No.	Variant
<b>VIB 5.761 V</b>	VIBREX vibration monitor, 1 channel
<b>VIB 5.761 VIP</b>	VIBREX vibration monitor, 1 channel, High-temperature industrial accelerometer for IP68 option
<b>VIB 5.762 V</b>	VIBREX vibration monitor, 2 channels
<b>VIB 5.762 VIP</b>	VIBREX vibration monitor, 2 channels, High-temperature industrial accelerometer for IP68 option
<b>VIB 5.763 B</b>	VIBREX bearing condition monitor, 1 channel
<b>VIB 5.764 B</b>	VIBREX bearing condition monitor, 2 channels
<b>VIB 5.765 VB</b>	VIBREX combined vibration and bearing condition monitor, 1 channel

Items delivered in the box is derived from the overview below.

#### Scope of delivery- VIBREX vibration monitor

CONTENTS			VARIANT			
Item No.	Description	Details	VIB 5.761 ...		VIB 5.762 ...	
			V	VIP	V	VIP
VIB 5.752	Basic unit	p. 83	✓	✓	✓	✓
VIB 5.755 I	Evaluation module for vibration monitoring according to ISO 10816-3, 10 Hz – 1 kHz	p. 84	✓	✓	✓, 2x	✓, 2x
VIB 5.754	Empty module	---	✓	✓	✗	✗
VIB 6.125 RIP	High-temperature industrial accelerometer, permanent installation, for IP 68 option	p. 92	✗	✓	✗	✓, 2x
VIB 5.775-5	Connection cable 5 m (196 7/8")	p. 199	✗	✓	✗	✓, 2x
VIB 5.751 SET	Mounting kit for VIBREX basic unit	p. 85	✓	✓	✓	✓
VIB 9.610	VIBREX operating manual	---	✓	✓	✓	✓
VIB 9.831	Operating manual for accelerometers	---	✗	✓	✗	✓

#### Scope of delivery- VIBREX bearing monitor and combined bearing / vibration monitor

CONTENTS			VARIANT		
Item No.	Description	Details	VIB 5.763 B	VIB 5.764 B	VIB 5.765 VB
			VIB 5.752	Basic unit	p. 83
VIB 5.755 I	Evaluation module for vibration monitoring according to ISO 10816-3, 10 Hz – 1 kHz	p. 84	✗	✗	✓
VIB 5.756 I	Evaluation module for bearing monitoring	p. 84	✓	✓, 2x	✓
VIB 5.751 SET	Mounting kit for VIBREX basic unit	p. 85	✓	✓	✓
VIB 5.754	Empty module	---	✓	✗	✗
VIB 5.751 SET	Mounting kit for VIBREX basic unit	p. 85	✓	✓	✓
VIB 9.610	VIBREX operating manual	---	✓	✓	✓

**Note:** The items in the box for the variants are fixed. A customized configuration is possible. Customized configurations may be created using items from the aforementioned variants and those from the alternative components list below.



## Alternative components for customized configurations

Item No.	Description	Note	Details
<b>Evaluation modules</b>			
<b>VIB 5.755 L</b>	Vibration module for low-speed machines, 1 Hz – 1 kHz	Evaluating vibration velocity in mm/s	p. 84
<b>VIB 5.755 ML</b>	Vibration module for low-speed machines, 2 Hz – 1 kHz	Evaluating vibration velocity in mm/s	p. 84
<b>VIB 5.755 IUS</b>	Vibration module for standard machines according to ISO 10816-3, 10 Hz – 1 kHz (U.S. version)	Evaluating vibration velocity in inch/s	---
<b>VIB 5.757 G</b>	Acceleration module for high-speed machines, 2 Hz – 20 kHz	Evaluating vibration acceleration in m/s <sup>-2</sup>	p. 84
<b>VIB 2.570.G</b>	Calibration certificate for evaluation module		
<b>Sensors</b>			
<b>VIB 6.122 R</b>	Industrial accelerometer, permanent installation, standard		p. 86
<b>VIB 6.125 R</b>	Industrial accelerometer, permanent installation, standard, high temperature		p. 86
<b>VIB 6.122 DEX</b>	Industrial accelerometer, permanent installation, intrinsically safe	Limiting device is necessary	p. 86
<b>VIB 6.125 IDEX</b>	Industrial accelerometer, permanent installation, high temperature, intrinsically safe	For IP 68 option; Limiting device necessary	p. 92
<b>VIB 6.127</b>	Industrial accelerometer for low-speed machines, permanent installation	Bearing condition evaluation and pump cavitation are not possible	p. 86
<b>VIB 6.127 DEX</b>	Industrial accelerometer for low-speed machines, permanent installation, intrinsically safe	Bearing condition evaluation and pump cavitation are not possible; limiting device is necessary	p. 86
<b>VIB 6.129 IP</b>	Industrial accelerometer for low-speed machines, permanent installation	For IP 68 option; Bearing condition evaluation and pump cavitation are not possible	p. 92
<b>VIB 6.129 IDEX</b>	Industrial accelerometer for low-speed machines, permanent installation, intrinsically safe	For IP 68 option; Bearing condition evaluation and pump cavitation are not possible; Limiting device is necessary	p. 92
<b>Cable and installation accessories</b>			
<b>Miscellaneous</b>	Customized VIBREX connection cable	Cable pre-assembly according to cable configurator	
<b>VIB 6.760 / 2</b>	IP 68 option for industrial sensors	Cable pre-assembly according to cable configurator	p. 140
<b>VIB 3.550</b>	Limiting device for CLD-type accelerometers with intrinsic safety	1 per measurement channel	p. 214
<b>VIB 6.770/13</b>	Junction box for the extension of coaxial and triaxial cables; TNC to M20 threaded joints		p. 216
<b>VIB 3.431</b>	Adhesive adapter, M8 on the adhesive mount		p. 142

## TECHNICAL INFORMATION

### Technical data, VIBREX basic unit

Parameter	VIBREX basic unit
<b>INTERFACES</b>	
<b>Slots</b>	1 or 2 modules
<b>Inputs</b>	2 x CLD accelerometer Mains supply 115 / 230 VAC DC source 24VDC
<b>Outputs / module</b>	1 alarm relay 1 OK relay for self monitoring / warnung 1 analog level output (4 – 20 mA) 1 voltage output (mV) for signal analysis
<b>Switching power</b>	Maximum 3 A @ 250 V AC
<b>Operating modes</b>	Combined bearing condition / vibration monitoring (1 or 2 channels); Bearing condition only or vibration monitoring only (1 or 2 channels)
<b>ELECTRICAL</b>	
<b>Power supply</b>	AC: 115V/230V, 6VA switchable; 50/60 Hz, 10-15% (IEC 93) DC: 24V, <300 mA, 10-15% (IEC 93)
<b>Overload protection</b>	Thermal fuse in transformer and resistance fuse (160 mA slow-acting)
<b>Signal output (mV)</b>	Direct sensor signal (buffered, 100 Ohm)
<b>Transmission</b>	1.0 mV <sub>eff.</sub> /ms <sup>-2</sup> (=10 mV/g) for sensors with a sensitivity of 1 μA/ms <sup>-2</sup> 5.35 mV <sub>eff.</sub> /ms <sup>-2</sup> (=52 mV/g) for sensors with a sensitivity of 5.35 μA/ms <sup>-2</sup>
<b>Frequency response</b>	= Frequency response sensor
<b>ENVIRONMENT</b>	
<b>Operating temperature</b>	-10 °C to 60 °C (14 °F to 140 °F)
<b>Environmental protection</b>	IP 65
<b>Vibration limit</b>	< 50 m/s <sup>2</sup> (center frequency: 60 Hz, bandwidth: 100 Hz)
<b>Housing material</b>	Plastic (polycarbonate, Makrolon) with transparent lid, protection class II
<b>Dimensions</b>	200 mm x 120 mm x 77 mm (7 7/8" x 4 23/32" x 3 1/32") — L x B x W

### Information on intrinsic safety

When monitoring machines in explosive atmospheres, intrinsically safe sensors must be used and a limiting device is necessary for every measurement channel. VIBREX basic unit must be installed outside the hazardous area.

## Technical data, VIBREX evaluation modules

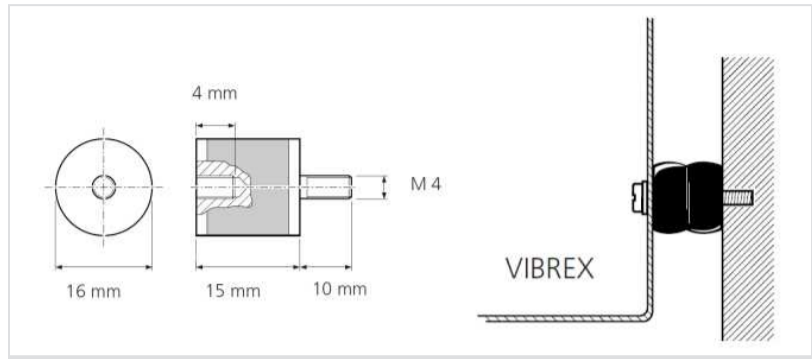
Parameter	VIBREX evaluation module				
	VIB 5.755 I	VIB 5.755 L	VIB 5.755 ML	VIB 5.756 I	VIB 5.757 G
<b>MEASUREMENT</b>					
<b>Measurement quantity</b>	RMS vibration velocity			Shock pulse (Maximum value in dBsv)	RMS vibration acceleration
<b>Frequency range</b>	10 Hz – 1 kHz	1 Hz – 1 kHz	2 Hz – 1 kHz	---	2 Hz – 20 kHz
<b>Measurement range</b>	0 to 10 / 20 / 50 / 100 mm/s			20 - 79 dBsv	0 to 60 / 120 / 300 / 600 m/s <sup>-2</sup>
<b>ELECTRICAL</b>					
<b>Operating voltage</b>	18 – 30 V DC				
<b>Maximum current</b>	approx. 35 mA				
<b>Output</b>	4-20 mA, analog — with basic unit				
<b>SETTINGS</b>					
<b>Status and alarm indicators</b>	5 LEDs for alarm, warning, short circuit, open circuit, and power supply				
<b>Alarm and warning thresholds</b>	10% to 100% of measurement range end value			Alarm: 20 – 79 dBsv. Warning: ‚Alarm‘ – 15 dBsv	10% to 100% of measurement range end value
<b>Alarm and warning delay</b>	5 – 50 s				
<b>Type of industrial sensor</b>	Standard *	Low-speed**	Standard	Standard	Standard

\* Sensitivity: 1,0 µA/ms<sup>-2</sup>

\*\* Sensitivity: 5,35 µA/ms<sup>-2</sup>

## Mounting kit for VIBREX basic unit

The mounting kit comprises four vibration dampers to facilitate a vibration-free mounting of VIBREX basic unit.



Vibration dampers for a vibration-free mounting of the basic unit

### Scope of supply

- Vibration dampers, 4 pieces
- Hex socket head cap screws M4x8, 4 pieces
- Hex nuts DIN 934, 4 pieces
- Spring washers DIN 127 B, 4 pieces
- Flat washers DIN 125 A, 4 pieces

### Ordering information

Item No.	Description
VIB 5.751 SET	Mounting kit for VIBREX basic unit

# Sensors

## Vibration sensors

<b>Industrial CLD accelerometers for permanent installation .....</b>	<b>86</b>
<b>Mobile industrial CLD accelerometer .....</b>	<b>89</b>
<b>Industrial CLD accelerometers for use in liquid media .....</b>	<b>92</b>
<b>Industrial CLD accelerometer with built-in temperature sensor .....</b>	<b>95</b>
<b>Mini CLD accelerometer .....</b>	<b>97</b>
<b>"Wind" CLD accelerometer .....</b>	<b>100</b>
<b>Accelerometer (IEPE) .....</b>	<b>102</b>
<b>Hybrid triaxial accelerometers, permanent mounting .....</b>	<b>105</b>
<b>VIBCODE vibration transducer .....</b>	<b>108</b>
<b>Accelerometer with quick fitting coupling .....</b>	<b>110</b>
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<b>Mono headphones .....</b>	<b>114</b>
<b>VIBROTECTOR vibration transmitters .....</b>	<b>115</b>

## Industrial CLD accelerometers for permanent installation

These robust type of sensors are suited for vibration measurements on industrial machinery. The sensors are permanently installed on the machine measuring point where the signal is acquired using a stationary condition monitoring system.



### Features

- 3-in-1 sensor: housing vibration, shock pulse (condition of roller bearings), cavitation
- $f_{\min.}$ : 0.3 Hz – ideal for machines running at low speeds
- Intrinsic safety, Zone 1
- $T_{\max.}$  : 135°C (275°F)
- Rigid mounting using threaded screws
- Current Line Drive (CLD) output for long cable use
- Immune to interference (Tandem-Piezo)

Industrial accelerometers for permanent installation

### Ordering information

Item No.	Industrial accelerometers for permanent installation
<b>VIB 6.122 R</b>	Standard
<b>VIB 6.122 DEX</b>	Standard, intrinsically safe
<b>VIB 6.125 R</b>	Standard, high temperature
<b>VIB 6.127*</b>	Low speed
<b>VIB 6.127 DEX*</b>	Low speed, intrinsically safe

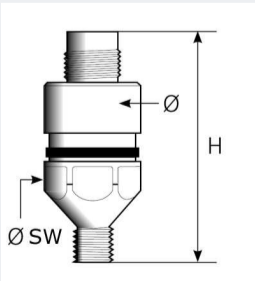
\* Not suitable for shock pulse measurement and pump cavitation.

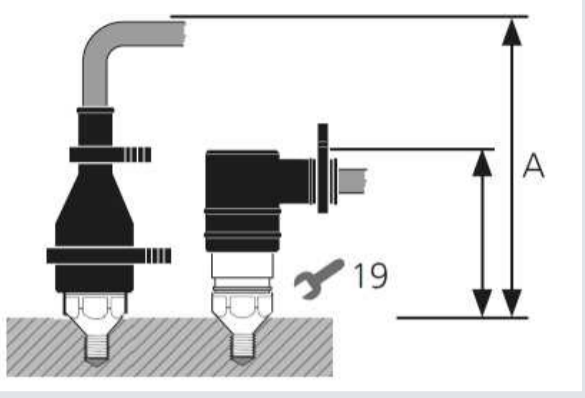
### Accessories

Item No.	Description / Group
Miscellaneous	"Mounting adapters for vibration sensors", p. 142
Miscellaneous	"Dust caps for industrial CLD accelerometers", p. 147
Miscellaneous	"Tools for installation of accelerometers", p. 159
<b>VIB 3.550</b>	"Intrinsic safety barriers", p. 214

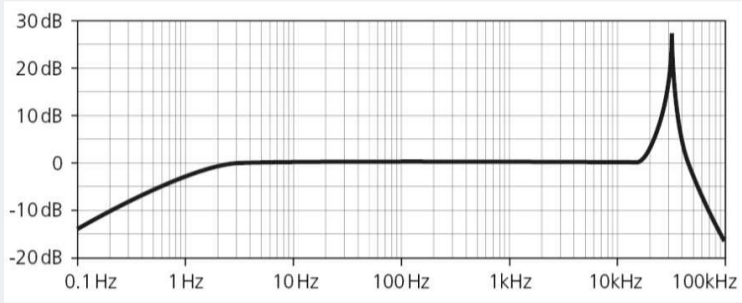
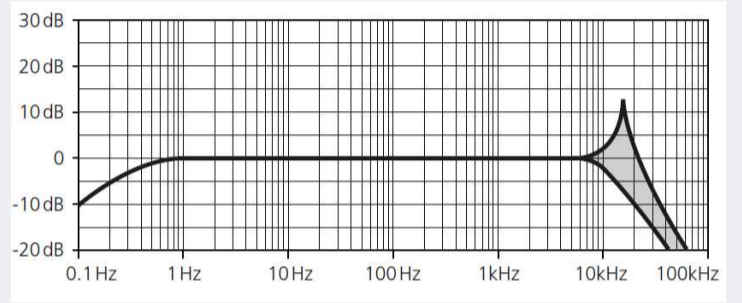
## TECHNICAL INFORMATION

### Technical data - VIB 6.12...


Parameter	VIB 6.122 R	VIB 6.125 R	VIB 6.127
<b>MEASUREMENT</b>			
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal		
<b>Transmission factor</b>	1.0 $\mu\text{A}/\text{ms}^{-2} \pm 3\%$ (Ref.: 159 Hz; 25 °C / 77 °F)		5.35 $\mu\text{A}/\text{ms}^{-2} \pm 4\%$ (Ref.: 159 Hz; 25 °C / 77 °F)
<b>Frequency range <math>\pm 5\%</math></b>	2 Hz to 8 kHz		2 Hz to 4 kHz
<b>Frequency range <math>\pm 3\text{dB}</math></b>	1 Hz to 20 kHz		0.3 Hz to 12 kHz
<b>Resonance frequency</b>	36 kHz		17 kHz; > 20 dB damped
<b>Linearity range, <math>\pm 10\%</math></b>	$\pm 961 \text{ ms}^{-2}$		$\pm 450 \text{ ms}^{-2}$
<b>Temperature range; Cable VIB 90093</b>	-40 °C to 100 °C (-40 °F to 212 °F)	-40 °C to 125 °C (-40 °F to 257 °F) / 135 °C (275 °F); VIB 90007)	-40 °C to 100 °C (-40 °F to 212 °F)
<b>ELECTRICAL</b>			
<b>Power supply</b>	> 10 mA / 7-18 VDC		
<b>Transverse sensitivity</b>	< 5%		
<b>Temperature sensitivity</b>	< 0,05 $\text{ms}^{-2}/\text{K}$		< 0,01 $\text{ms}^{-2}/\text{K}$
<b>Magnetic sensitivity</b>	< 5 $\text{ms}^{-2}/\text{T}$ (at 50 Hz)		< 1 $\text{ms}^{-2}/\text{T}$ (at 50 Hz)
<b>Base strain sensitivity</b>	< 0.1 $\text{ms}^{-2}/\mu\text{m}/\text{m}$		
<b>Electrical noise, rms</b>	< 0.01 $\text{ms}^{-2}$ from 2 Hz		< 0,002 $\text{ms}^{-2}$ from 2 Hz
<b>Output impedance</b>	> 1 MOhm		> 300 kOhm
<b>Insulation</b>	> $10^9$ MOhm		
<b>MECHANICAL</b>			
<b>Case material</b>	Stainless steel VA 1.4305		
<b>Environmental protection</b>	IP 65 with cable connector locked		
<b>Cable connection</b>	TNC socket		
<b>Mounting at measurement point</b>	M8 thread		
<b>Shock limit</b>	< 250 $\text{kms}^{-2}$		< 50 $\text{kms}^{-2}$
<b>Weight</b>	40 g (1.4 oz)		43 g (1.5 oz)
<b>Dimensions</b>	H: 46 mm (1 13/16" ) Ø: 19 mm ( 3/4" ) ØSW: 21 mm ( 13/16" )		H: 49 mm (1 15/16" ) Ø: 19 mm ( 3/4" ) ØSW: 21 mm ( 13/16" )
			

Parameter	VIB 6.122 R	VIB 6.125 R	VIB 6.127
<b>Mounting height A, using straight TNC plug / angled TNC plug</b> 	A > 115 mm / 55 mm ( 4.53" / 2.2")		A > 120 mm / 60 mm (4.72" / 2.36")

### Frequency response

1 Hz - 20 kHz	0.3 Hz - 12 kHz
	
Type of industrial sensor <ul style="list-style-type: none"> <li>• VIB 6.122 R, VIB 6.122 DEX,</li> <li>• VIB 6.125</li> </ul>	Type of industrial sensor <ul style="list-style-type: none"> <li>• VIB 6.127, VIB 6.127 DEX,</li> </ul>

### Intrinsic safety details

Industrial sensor, VIB 6.12..DEX	
Marking 	Gas: II 2G Ex ib IIC T4 / Dust: II 2D Ex ib IIIB T <sub>5</sub> 187°C
Temperature range	-30 °C to +80 °C (-22 °F to 176 °F)



## Mobile industrial CLD accelerometer

This sensor is intended for vibration measurement on machinery within industrial environments using a portable data collector. Optional magnetic adapters for mounting at the measurement points are available.



### Features

- 3-in-1 sensor: housing vibration, shock pulse (condition of roller bearings), cavitation
- Intrinsic safety, Zone 1
- $f_{\min}$ : 0.3 Hz – ideal for machines running at low speeds
- Rigid mounting using threaded screws
- Current Line Drive (CLD) output for long cable use
- Immune to interference (Tandem-Piezo)

Industrial accelerometer for mobile data collection

### Ordering information

Item No.	Industrial accelerometer for mobile data collection
<b>VIB 6.142 R</b>	Standard, mobile
<b>VIB 6.142 DEX</b>	Standard, mobile, intrinsically safe
<b>VIB 6.147</b>	Low speed, mobile
<b>VIB 6.147 DEX</b>	Low speed, mobile, intrinsically safe

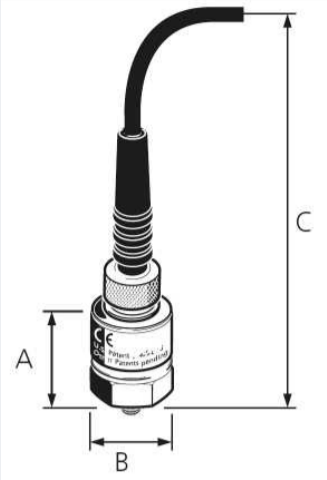
### Accessories

Item No.	Description / Group
Miscellaneous	"Mounting adapters for vibration sensors", p. 142
<b>VIB 3.550</b>	"Intrinsic safety barriers", p. 214

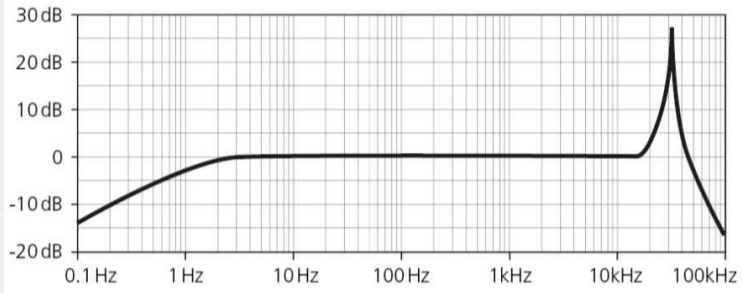
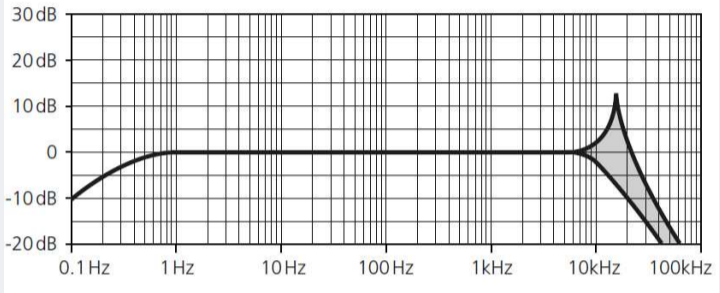
## TECHNICAL INFORMATION

### Technical data - VIB 6.14x (mobile)


Parameter	VIB 6.142	VIB 6.147
<b>MEASUREMENT</b>		
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal	
<b>Transmission factor</b>	1,0 $\mu\text{A}/\text{ms}^{-2} \pm 3\%$ (Ref.: 159 Hz; 25 °C)	5,35 $\mu\text{A}/\text{ms}^{-2} \pm 4\%$ (Ref.: 159 Hz; 25 °C)
<b>Frequency range, <math>\pm 5\%</math></b>	2 Hz to 8 kHz	2 Hz to 4 kHz
<b>Frequency range, <math>\pm 3\text{dB}</math></b>	1 Hz to 20 kHz	0.3 Hz to 12 kHz
<b>Resonance frequency</b>	36 kHz	17 kHz; > 20dB damped
<b>Linearity range, <math>\pm 10\%</math></b>	$\pm 961 \text{ ms}^{-2}$	$\pm 450 \text{ ms}^{-2}$
<b>Temperature range</b>	-40 °C to 100 °C (-40 °F to 212 °F)	
<b>ELECTRICAL</b>		
<b>Power supply</b>	> 10 mA / 7-18 VDC	
<b>Transverse sensitivity</b>	< 5% at 10 kHz	
<b>Temperature sensitivity</b>	< 0.05 $\text{ms}^{-2}/\text{K}$	< 0.01 $\text{ms}^{-2}/\text{K}$
<b>Magnetic sensitivity</b>	< 5 $\text{ms}^{-2}/\text{T}$ (at 50 Hz)	< 1 $\text{ms}^{-2}/\text{T}$ (at 50 Hz)
<b>Base strain sensitivity</b>	< 0.1 $\text{ms}^{-2}/\mu\text{m}/\text{m}$	
<b>Electrical noise, rms</b>	< 0.01 $\text{ms}^{-2}$ from 2 Hz	< 0.002 $\text{ms}^{-2}$ from 2 Hz
<b>Output impedance</b>	> 1 MOhm	> 300 kOhm
<b>Insulation</b>	> 10 <sup>9</sup> MOhm	
<b>MECHANICAL</b>		
<b>Case material</b>	Stainless steel VA 1.4305	
<b>Environmental protection</b>	IP 65 with cable connector locked	
<b>Cable connection</b>	TNC socket	
<b>Mounting at measurement point</b>	M8 thread	
<b>Shock limit</b>	< 250 $\text{kms}^{-2}$	< 50 $\text{kms}^{-2}$
<b>Weight</b>	39 g	38 g

Parameter	VIB 6.142	VIB 6.147
<b>Dimensions</b> 	A = 40 mm / B = 21 mm / C = 120 mm (A = 1.6" / B = 0.8" / C = 4.7")	A = 45 mm / B = 21 mm / C = 125 mm (A = 1.8" / B = 0.8" / C = 4.9")

### Frequency response

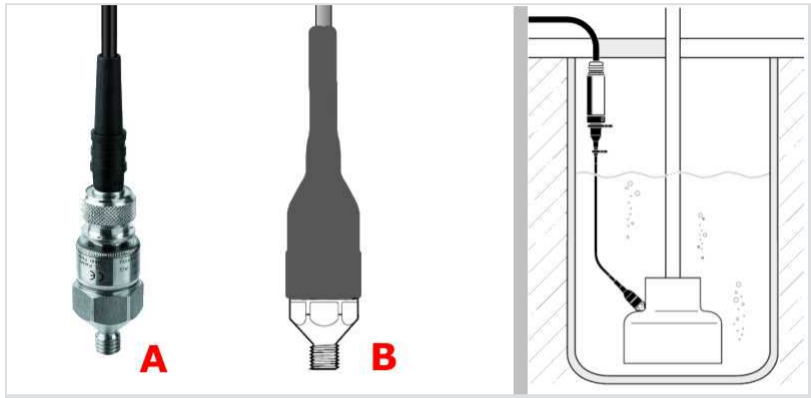
1 Hz - 20 kHz	0.3 Hz - 12 kHz
	
<b>Industrial sensor type</b> <ul style="list-style-type: none"> <li>VIB 6.142 R, VIB 6.142 DEX (screwed or adhesive mounting)*</li> </ul> * Linear frequency range limitation: <ul style="list-style-type: none"> <li>- Magnetic adapter: &lt; 5 to 20 kHz</li> <li>- Probe tip: &lt; 1 kHz</li> </ul>	<b>Industrial sensor type</b> <ul style="list-style-type: none"> <li>VIB 6.147, VIB 6.147 DEX (screwed or adhesive mounting)*</li> </ul> * Linear frequency range limitation: <ul style="list-style-type: none"> <li>- Magnetic adapter: &lt; 5 kHz</li> <li>- Probe tip: &lt; 1 kHz</li> </ul>

### Intrinsic safety details

Industrial sensor type VIB 6.142 DEX / VIB 6.147 DEX	
Marking 	Gas: II 2G Ex ib IIC T4 / Dust: II 2D Ex ib IIIB T <sub>5</sub> 187°C
Temperature range	-30 °C to 80 °C (-22 °F to 176 °F)

## Industrial CLD accelerometers for use in liquid media

These accelerometers are intended for use in liquid media. The connection cable to the sensor is hermetically sealed (IP 68).



Industrial accelerometers for use in liquid media; A – not sealed, B – hermetically sealed (IP 68)

### Features

- Ideal for use in liquid media
- Rating IP 68 optional
- 3-in-1 sensor: housing vibration, shock pulse (condition of roller bearings), cavitation
- Intrinsic safety, Zone 1
- $f_{\min.}$ : 0.3 Hz – ideal for machines running at low speeds
- $T_{\max.}$ : 135°C (275°F)
- Rigid mounting using threaded screws
- Current Line Drive (CLD) output for long cable use
- Immune to interference (Tandem-Piezo)

### Ordering information

Item No.	Industrial accelerometer for use in liquid media
<b>VIB 6.125 RIP</b>	Standard machinery, high temperature, IP 68 option
<b>VIB 6.125 IDEX</b>	Standard machinery, high temperature, IP 68 option, intrinsic safety
<b>VIB 6.129 IP*</b>	Low speed, high temperature, IP 68 option
<b>VIB 6.129 IDEX*</b>	Low speed, high temperature, IP 68 option, intrinsic safety

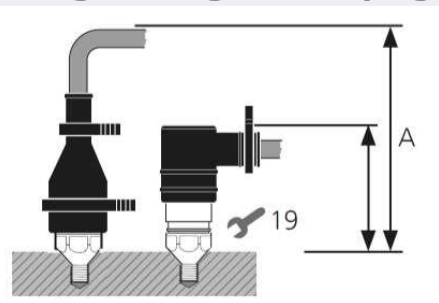
\* Not suited for shock pulse measurements and cavitation measurements.

### Accessories

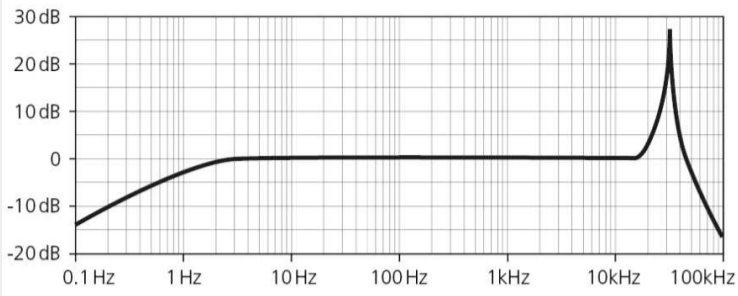
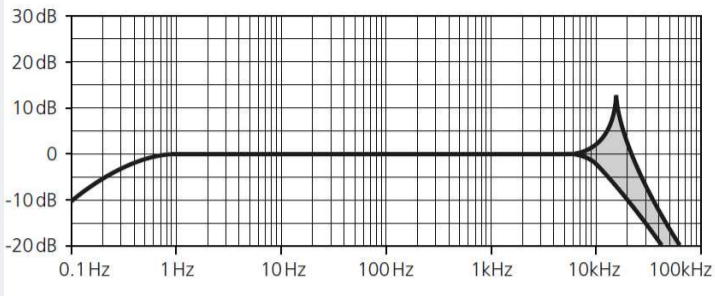
Item No.	Description / Group
Miscellaneous	"Mounting adapters for vibration sensors", p. 142
Miscellaneous	"Dust caps for industrial CLD accelerometers", p. 147
Miscellaneous	"Tools for installation of accelerometers", p. 159
<b>VIB 6.760</b>	"IP68 option for industrial accelerometers", p. 140
<b>VIB 3.550</b>	"Intrinsic safety barriers", p. 214

## TECHNICAL INFORMATION


### Technical data - VIB 6.12...

Parameter	VIB 6.125 RIP	VIB 6.129 IP
<b>MEASUREMENT</b>		
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal	
<b>Transmission factor</b>	1,0 $\mu\text{A}/\text{ms}^{-2} \pm 3\%$ (Ref.: 159 Hz; 25 °C)	5,35 $\mu\text{A}/\text{ms}^{-2} \pm 4\%$ (Ref.: 159 Hz; 25 °C)
<b>Frequency range, <math>\pm 5\%</math></b>	2 Hz to 8 kHz	2 Hz to 4 kHz
<b>Frequency range, <math>\pm 3\text{dB}</math></b>	1 Hz to 20 kHz	0.3 Hz to 12 kHz
<b>Resonance frequency</b>	36 kHz	17 kHz; > 20 dB damped
<b>Linearity range, <math>\pm 10\%</math></b>	$\pm 961 \text{ ms}^{-2}$	$\pm 450 \text{ ms}^{-2}$
<b>Temperature range</b>	-40 °C to 125 °C, with cable type VIB 90093 (-40 °F to +257 °F) -40 °C to 135 °C, with cable type VIB 90007 (-40°F to +275 °F)	
<b>ELECTRICAL</b>		
<b>Power supply</b>	> 10 mA / 7-18 VDC	
<b>Transverse sensitivity</b>	< 5%	
<b>Temperature sensitivity</b>	< 0,05 $\text{ms}^{-2}/\text{K}$	< 0,01 $\text{ms}^{-2}/\text{K}$
<b>Magnetic sensitivity</b>	< 5 $\text{ms}^{-2}/\text{T}$ (at 50 Hz)	< 1 $\text{ms}^{-2}/\text{T}$ (at 50 Hz)
<b>Base strain sensitivity</b>	< 0.1 $\text{ms}^{-2}/\mu\text{m}/\text{m}$	
<b>Electrical noise, rms</b>	< 0.01 $\text{ms}^{-2}$ at 2 Hz	< 0.002 $\text{ms}^{-2}$ at 2 Hz
<b>Output impedance</b>	> 1 MOhm	> 300 kOhm
<b>Insulation</b>	> $10^9$ MOhm	
<b>MECHANICAL</b>		
<b>Case material</b>	Stainless steel VA 1.4571, chemical resistant	
<b>Environmental protection</b>	IP 65 with cable connector locked; IP 68 with VIB 6.760 / VIB 6.761	
<b>Cable connection</b>	TNC socket	
<b>Mounting at measurement point</b>	M8 thread	
<b>Shock limit</b>	< 250 $\text{kms}^{-2}$	< 50 $\text{kms}^{-2}$
<b>Weight</b>	40 g	43 g
<b>Mounting height A, straight / angled TNC plug</b>	A > 115 mm / 55 mm	A > 120 mm / 60 mm
		
<b>Mounting height w/ IP68 option</b>	A > 140 mm (VIB 6.760) A > 120 mm (VIB 6.761)	A > 140 mm (VIB 6.760) A > 120 mm (VIB 6.761)

## Frequency response

1 Hz - 20 kHz	0,3 Hz - 12 kHz
	
<p>Industrial sensor type</p> <ul style="list-style-type: none"> <li>VIB 6.125 RIP, VIB 6.125 IDEX</li> </ul>	<p>Industrial sensor type</p> <ul style="list-style-type: none"> <li>VIB 6.129 IP, VIB 6.129 IDEX</li> </ul>

## Intrinsic safety details

Industrial sensor type VIB 6.125 IDEX / VIB 6.129 IDEX	
Marking 	Gas: II 2G Ex ib IIC T4 / Dust: II 2D Ex ib IIIB T <sub>5</sub> 187°C
Temperature range	-30 °C to 80 °C (-22 °F to 176 °F)

## Industrial CLD accelerometer with built-in temperature sensor

This sensor is suited for both vibration and temperature measurements on industrial machinery. The sensor is installed permanently at the measuring point at the readings acquired using a stationary condition monitoring system.



### Features

- 4-in-1 sensor: housing vibration, shock pulse (condition of roller bearings), cavitation, temperature
- Rigid mounting using threaded screws
- Current Line Drive (CLD) output for long cable use
- Immune to interference (Tandem-Piezo)
- Sensor cable available as an accessory

Industrial sensor for measuring both vibration and temperature

### Ordering information

Item No.	Industrial accelerometer
VIB 6.163	Industrial accelerometer with built-in temperature sensor

## TECHNICAL INFORMATION

### Accessories

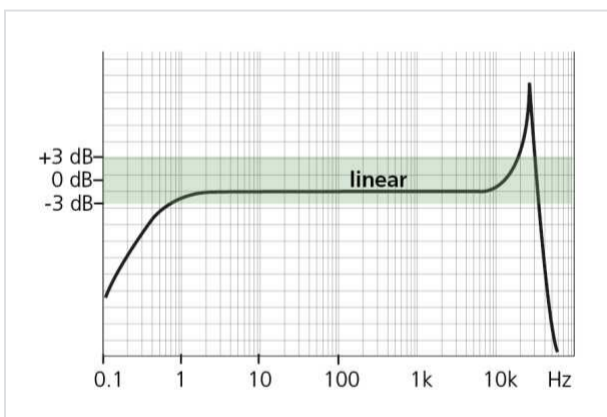
Item No.	Description / Group
VIB 6.164-10	"Partly pre-assembled sensor cable with 4-pole M12 plug-in connector, straight", p. 203
Miscellaneous	"Mounting adapters for vibration sensors", p. 142
Miscellaneous	"Dust caps for industrial CLD accelerometers", p. 147
Miscellaneous	"Tools for installation of accelerometers", p. 159

### Technical data

Parameter	VIB 6.163
<b>MEASUREMENT</b>	
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal
<b>Transmission factor</b>	1.0 $\mu\text{A}/\text{ms}^{-2} \pm 2\%$ (Ref.: 159 Hz; 25 °C)
<b>Frequency range, <math>\pm 10\%</math></b>	1 Hz to 12 kHz
<b>Frequency range, <math>\pm 3\text{dB}</math></b>	0.8 Hz to 20 kHz
<b>Resonance frequency</b>	26 kHz
<b>Linearity range, <math>\pm 10\%</math></b>	$\pm 961 \text{ ms}^{-2}$

Parameter	VIB 6.163
Temperature, measurement range	-20 °C to 100 °C (-4 °F to 212 °F)
Temperature, transmission factor, ± 3%	10 mV/K
Temperature, offset	750 mV at 25 °C
<b>ELECTRICAL</b>	
Operating voltage	8-12 VDC (from current loop)
Carrier current	3.5 mA ± 0.2 mA DC
Electrical noise	< 0.0004 ms <sup>-2</sup> / Hz <sup>1/2</sup> from 50 Hz to 20 kHz < 0.004 ms <sup>-2</sup> at 1 Hz
Output impedance	> 1.6 MOhm
<b>MECHANICAL</b>	
Case material	Stainless steel VA 1.4305
Environmental protection	IP 67 with cable connector locked
Cable connection	M12 connector , 4-pin
Mounting at measurement point	M8 thread
Shock limit	< 250 kms <sup>-2</sup>
Dimensions	Height: 58 mm ( 2 5/16" ) Diameter: 21 mm ( 13/16" ) Width across flat AF: 24
Weight	62 g
Mounting height	> 110 mm

### Frequency response



### Sensor pin allocation



- Pin 1 : GND (shield)
- Pin 2 : GND
- Pin 3 : Vibration
- Pin 4 : Temperature



## Mini CLD accelerometer

This compact sensor is suitable for vibration measurements on industrial machinery. Its shape allows for its installation in limited space.



Mini accelerometer can be installed on limited space

### Features

- 3-in-1 sensor: housing vibration, shock pulse (condition of roller bearings), cavitation
- Intrinsic safety, Zone 1
- $T_{max.} : 120^{\circ}\text{C}$
- Compact shape: 22 x 21 mm
- Sensor cable permanently attached
- Permanent installation on the machine
- Current Line Drive (CLD) output for long cable use
- Immune to interference (Tandem-Piezo)
- Conformity: CE, ATEX, IECEx

### Ordering information


Item No.	Mini accelerometer
<b>VIB 6.202-3</b>	Standard, coaxial cable (RG 174/U), 3 m (9.8 ft)
<b>VIB 6.202-6</b>	Standard, coaxial cable (RG 174/U), 6 m (19.7 ft)
<b>VIB 6.202-20</b>	Standard, coaxial cable (RG 174/U), 20 m (65.6 ft)
<b>VIB 6.202-3XD</b>	Standard, coaxial cable (RG 174/U), 3 m (9.8 ft), intrinsically safe
<b>VIB 6.202-6XD</b>	Standard, coaxial cable (RG 174/U), 6 m (19.7 ft), intrinsically safe
<b>VIB 6.202-10XD</b>	Standard, coaxial cable (RG 174/U), 10 m (32.8 ft), intrinsically safe
<b>VIB 6.202-20XD</b>	Standard, coaxial cable (RG 174/U), 20 m (65.6 ft), EX-Schutz
<b>VIB 6.203-3</b>	High temperature, coaxial cable (Raychem Spec 44), 3 m (9.8 ft)
<b>VIB 6.203-6</b>	High temperature, coaxial cable (Raychem Spec 44), 6 m (19.7 ft)
<b>VIB 6.203-20</b>	High temperature, coaxial cable (Raychem Spec 44), 20 m (65.6 ft)
<b>VIB 6.203-3XD</b>	High temperature, coaxial cable (Raychem Spec 44), 3 m (9.8 ft), intrinsically safe
<b>VIB 6.203-6XD</b>	High temperature, coaxial cable (Raychem Spec 44), 6 m (19.7 ft), intrinsically safe
<b>VIB 6.203-20XD</b>	High temperature, coaxial cable (Raychem Spec 44), 20 m (65.6 ft), intrinsically safe

Note: Intrinsically safe sensors are delivered with the protection cap VIB 6.205. The cap protects the sensor from external impact during installation.

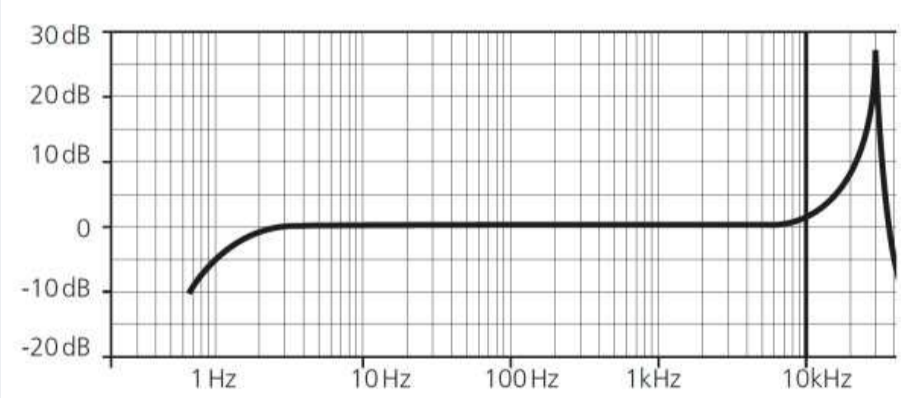
## TECHNICAL INFORMATION

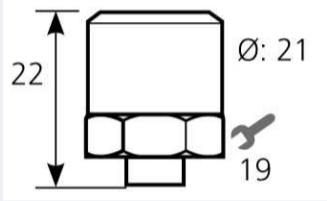
### Accessories

The mini sensor is delivered with an M8 hexagon socket set screw. The set screw may be replaced using the available optional mounting adapters.

Item No.	Description / Group
Miscellaneous	"Mounting adapters for vibration sensors", p. 142
<b>VIB 3.550</b>	"Intrinsic safety barriers", p. 214
<b>Installation material for signal cable</b>	
<b>VIB 93025</b>	TNC plug for coaxial cable (RG 174)
<b>VIB 81015</b>	Protective sleeve for coaxial cable (RG 174)
	 <p>Cable with TNC plug and protective sleeve</p>

### Technical data - VIB 6.20..

Parameter	VIB 6.202-...	VIB 6.203-...
<b>MEASUREMENT</b>		
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal	
<b>Transmission factor</b>	1.0 $\mu\text{A}/\text{ms}^{-2} \pm 3\%$ (Ref.: 159 Hz; 25 °C)	
<b>Frequency range, <math>\pm 10\%</math></b>	4 Hz to 8 kHz	
<b>Frequency range, <math>\pm 3\text{dB}</math></b>	2 Hz to 10 kHz	
<b>Resonance frequency</b>	30 kHz	
<b>Frequency response</b>		
<b>Linearity range, <math>\pm 10\%</math></b>	$\pm 961 \text{ ms}^{-2}$	
<b>Temperature range</b>	-30 °C to 80 °C (-22 °F to 176 °F)	-30 °C to 120 °C (-22 °F to 248 °F)
<b>ELECTRICAL</b>		
<b>Power supply</b>	> 10 mA / 7-18 VDC	
<b>Temperature sensitivity</b>	< 0.08 $\text{ms}^{-2}/\text{K}$	

Parameter	VIB 6.202-...	VIB 6.203-...
<b>Electrical noise, rms</b>	< 0.1 ms <sup>-2</sup> from 2 Hz	
<b>Output impedance</b>	> 250 kOhm	
<b>MECHANICAL</b>		
<b>Case material</b>	Base: Stainless steel VA 1.4305 / Cap: Grivory HTV (resistant to diesel, crude oil, hydraulic and engine oil, lubricants, tar, and turpentine among others)	
<b>Environmental protection</b>	IP 65	
<b>Mounting at measurement point</b>	M8 hexagon socket set screw or mounting adapter	
<b>Connection cable</b>	Structure: coaxial, RG 174/U Diameter: 2.8 mm Outer sheath: PVC - Polyvinyl chloride	Structure: coaxial, Raychem Spec 44 Diameter: 2.4 mm Outer sheath: PVDF - Polyvinylidenfluoride
<b>Protective sleeve</b>	Material: EVA (non-halogen); Temperature range: -40 °C to 70 °C (-40 °F to 158 °F)	---
<b>Shock limit</b>	< 250 kms <sup>-2</sup>	
<b>Weight</b>	22 g	
<b>Dimensions, mm</b>		

### Intrinsic safety details

#### Mini-Sensor, type VIB 6.202..XD / VIB 6.203..XD

Marking 	Gas: II 2G Ex ib IIC T4 Gb/ Dust: II 2D Ex ib IIIC T135°C Db
Temperature range	-30 °C to 80 °C (-22 °F to 176 °F)

## "Wind" CLD accelerometer

This sensor is used for vibration measurement on industrial machinery. Due to the very low lower cut-off frequency, it is suited for very low-speed rotating machine components such as the main bearing in a wind turbine.



"Wind" accelerometer for monitoring vibration on low-speed rotating machine components

### Features

- Current Line Drive output
- $f_{\min.} : 0.1 \text{ Hz}$
- IP 67 when cable connector is locked
- Permanent installation on the machine
- Possible connection to VIBEXPERT II through an adapter

### Ordering information

Item No.	Description
VIB 6.195	"Wind" CLD accelerometer with MIL cable connection

## TECHNICAL INFORMATION

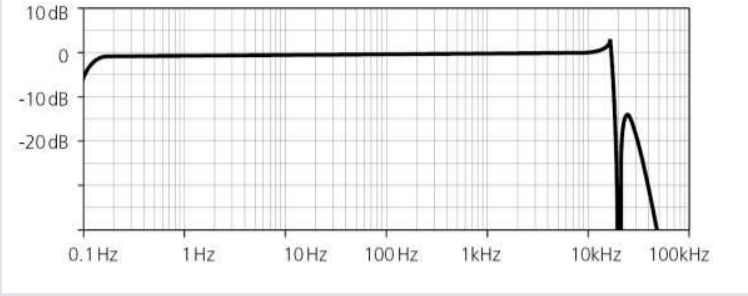
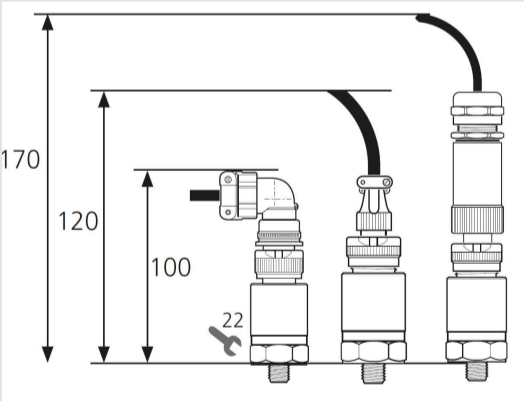
### Accessories

The sensor is delivered with an M8 hexagon socket set screw. The set screw may be replaced using the available optional mounting adapters.

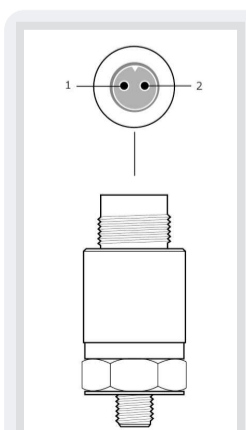
Item No.	Description / Group
Miscellaneous	"Mounting adapters for vibration sensors", p. 142
Miscellaneous	"Sensor cable with 2-pin MIL connector", p. 200
VIB 5.449-CLD	"Extension cable for analog measuring channel, portable devices", p. 188

### Technical data

Parameter	VIB 6.195
<b>MEASUREMENT</b>	
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal
<b>Transmission factor, <math>\pm 4\%</math></b>	$5.35 \mu\text{A}/\text{ms}^{-2}$ (Ref.: 159 Hz; 25 °C)
<b>Frequency range, <math>\pm 3\text{dB}</math></b>	0.1 Hz to 10 kHz
<b>Resonance frequency</b>	17 kHz; > 20 dB damped

Parameter	VIB 6.195
<b>Frequency response</b>	
<b>Linearity range, ± 10%</b>	$\pm 450 \text{ ms}^{-2}$
<b>Temperature range</b>	-30 °C to 80 °C (-22 °F to 176 °F)
<b>ELECTRICAL</b>	
<b>Power supply</b>	> 10 mA / 7-18 VDC
<b>Transverse sensitivity</b>	< 5%
<b>Temperature sensitivity</b>	< 0.01 $\text{ms}^{-2}/\text{K}$
<b>Magnetic sensitivity</b>	< 1 $\text{ms}^{-2}/\text{T}$ (at 50 Hz)
<b>Base strain sensitivity</b>	< 0.1 $\text{ms}^{-2}/\mu\text{m}/\text{m}$
<b>Electrical noise, (0,1 Hz - 20 kHz)</b>	< 0,002 $\text{m}^{\text{s}^{-2}}$ as from 2 Hz
<b>Output impedance</b>	> 300 kOhm
<b>MECHANICAL</b>	
<b>Case material</b>	Stainless steel VA 1.4305 /
<b>Environmental protection</b>	IP 67 when cable connector is locked
<b>Mounting at measurement point</b>	M8 thread or mounting adapter
<b>Connection</b>	2-pin MIL-C5015
<b>Shock limit</b>	< 5000 g
<b>Weight</b>	85 g
<b>Mounting height, mm</b>	

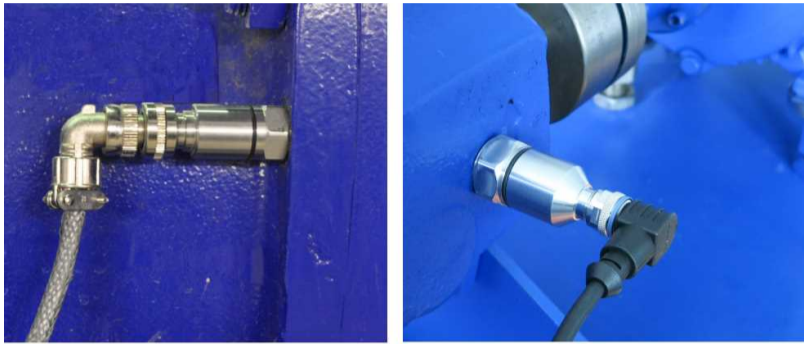
### Pin allocation, sensor



- 1: GND (-)
- 2: Signal (+)

## Accelerometer (IEPE)

This sensor is suited for measurement of absolute machine vibrations in industrial environments. Due to the very low cutoff frequency, it is particularly suitable for very slowly rotating machinery components such as the main bearings of a wind turbine.



Sensor with MIL connector (left) and M12 connector (right).

### Features

- Voltage output according to IEPE standard
- $f_{\min.} : 0.1 \text{ Hz}$
- Two connector types: M12 or MIL
- IP 67 when cable connector is locked
- Permanent installation on the machine
- High temperature version,  $T_{\max.} : 120^{\circ}\text{C}$

### Ordering information

Item No.	Description
<b>VIB 6.172</b>	Accelerometer (IEPE) with MIL connector
<b>VIB 6.210</b>	Accelerometer (IEPE) with M12 connector

## TECHNICAL INFORMATION

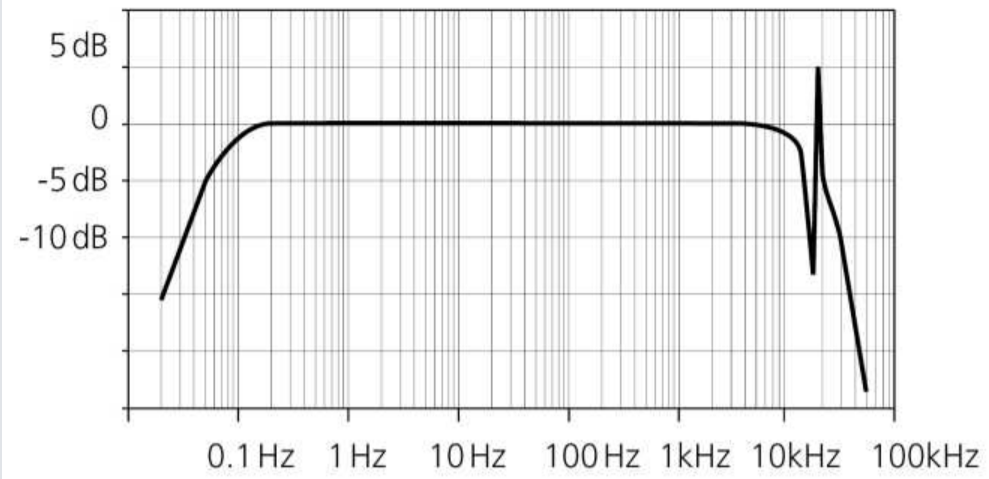
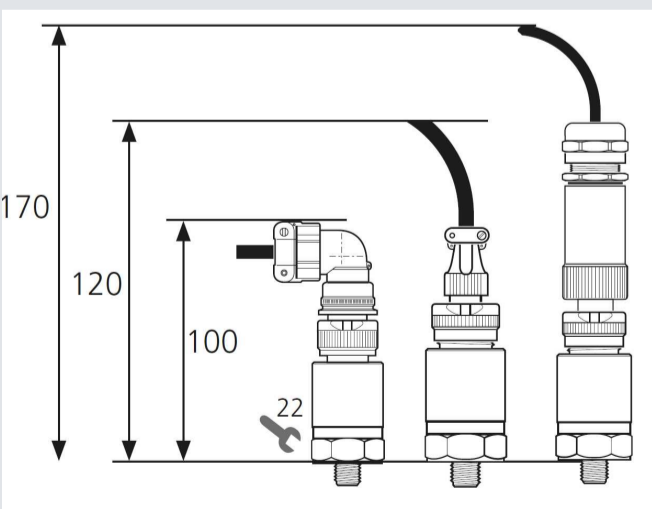
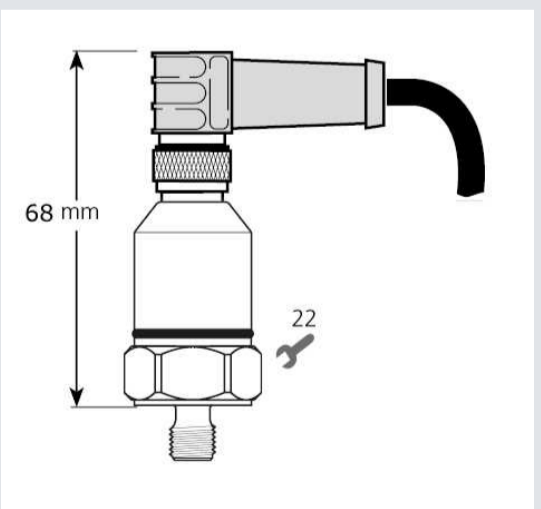
### Accessory

VIB 6.172 is delivered together with an M8 hexagon socket set screw. The set screw may be replaced using the available optional mounting adapters. In VIB 6.210, the mounting threads are fixed to the sensor casing.

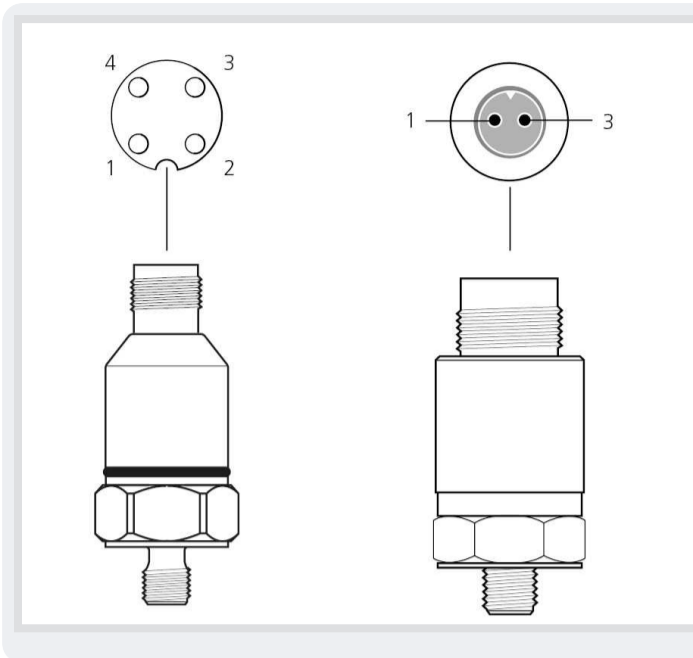
Item No.	Description / Group
Miscellaneous	"Mounting adapters for vibration sensors", p. 142
Miscellaneous	"Sensor cable with 2-pin MIL connector", p. 200 , for VIB 6.172
<b>VIB 3.575-L</b>	"Partly pre-assembled sensor cable with 4-pole M12 plug-in connector, angled", p. 202, for VIB 6.210
<b>VIB 5.449-ICP</b>	"Cable adapter for VIBXPERT II", p. 175

### Technical data

Parameter	VIB 6.172	VIB 6.210
<b>MEASUREMENT</b>		
<b>Signalling system</b>	IEPE	
<b>Transmission factor, <math>\pm 4\%</math></b>	10.2 mV/ $\text{ms}^{-2}$ (100mV/g); Ref.: 159 Hz; 25 °C / 77 °F	
<b>Frequency range <math>\pm 3\text{dB}</math></b>	0.1 Hz to 10 kHz	
<b>Resonance frequency</b>	17 kHz; > 10 dB damped	15 kHz; > 10 dB damped

Parameter	VIB 6.172	VIB 6.210
Frequency response		
Linearity range, $\pm 1\%$	$< 686 \text{ ms}^{-2}$ (70 g)	
Temperature range	-40 °C to 120 °C (-40 °F to 248 °F)	-40 °C to 85 °C (-40 °F to 185 °F)
<b>ELECTRICAL</b>		
Power supply	2 - 10 mA / 24 V DC ( $\pm 10\%$ )	2 - 10 mA / 18 - 30 V DC
Bias, DC output	12 V DC $\pm 0,5$ V	
Grounding	insulated from machine ground, internal shielding	
Transverse sensitivity	$< 5\%$	
Temperature leap sensitivity	$< 0.07\%$ of measured value / K (Reference: 25 °C / 77 °F)	
Magnetic sensitivity	$< 1 \text{ ms}^{-2}/\text{T}$ (at 50 Hz)	
Base strain sensitivity	$< 1 \text{ mm}/\text{s}^2/\mu\text{m}/\text{m}$	
Electrical noise, rms	1 $\text{mm}/\text{s}^2$ (0.1 Hz - 10 kHz)	1.5 $\text{mm}/\text{s}^2$ (0.1 Hz - 10 kHz)
Output impedance	$< 10$ Ohm	$< 100$ Ohm
<b>MECHANICAL</b>		
Case material	Stainless steel VA 1.4305	
Environmental protection	IP 67 with cable connector locked	
Mounting at measurement point	M8 threaded screw or mounting adapter	
Cable connector	2-pin MIL-C5015	M12, 4-pin, A-coded
Shock limit	$< 50 \text{ km}/\text{s}^2$	
Weight	85 g (3 oz)	72 g (2.5 oz)
Mounting height, mm		

## Pin allocation, sensor



1: Signal (+)

3: GND (-)

2,4: nc



## Hybrid triaxial accelerometers, permanent mounting

These voltage output sensors detect low frequency mechanical vibration in three axes simultaneously. Vibrations in the X and Y directions are detected by a **MEMS<sup>1</sup>** sensor. Vibration in the Z direction is measured using a PRUFTECHNIK piezoelectric accelerometer.



Hybrid triaxial accelerometer

### Features

- Simultaneous vibration measurement in the X, Y and Z axes
- Gravitational and vibration acceleration
- MEMS and tandem-piezo sensor element
- Permanent adhesive mounting on machine
- IEPE output voltage
- Only for VIBGUARD CMS

### Ordering information

Item No.	Description
<b>VIB 6.215</b>	Hybrid triaxial accelerometer for standard machines, permanent mounting
<b>VIB 6.216</b>	Hybrid triaxial accelerometer for low-speed machine, permanent mounting

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
<b>VIB 3.575-L</b>	"Partly pre-assembled sensor cable with 4-pole M12 plug-in connector, angled", p. 202

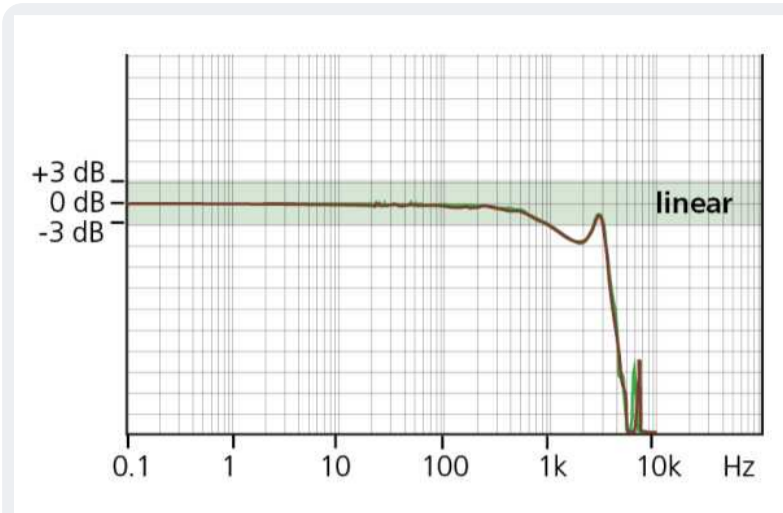
### Technical data

Parameter	VIB 6.215 - X/Y	VIB 6.216 - X/Y	VIB 6.215 - Z	VIB 6.216 - Z
<b>MEASUREMENT</b>				
<b>Signaling system</b>	Voltage		IEPE	
<b>Measuring range (0-p)</b>	19.6 m/s <sup>2</sup> ( 64.3 ft/s <sup>2</sup> )		400 m/s <sup>2</sup> (1312 ft/s <sup>2</sup> )	
<b>Transmission factor</b>	67 mV/ms <sup>-2</sup> , ± 6% @ 159 Hz		20 mV/ms <sup>-2</sup> , ± 3% @ 159 Hz	
<b>Frequency range, ± 3dB</b>	0 Hz ...1 kHz		1 Hz ...10 kHz	0,1 Hz ...10 kHz (± 3dB)
<b>Resonance frequency</b>	2,5 kHz		28 kHz	
<b>Gravitational acceleration voltage</b>	± 660 mV, ±6%		---	---
<b>Maximum deviation from linear average after a 360° rotation</b>	±2% of measured value		---	---

<sup>1</sup>MEMS: Microelectromechanical System

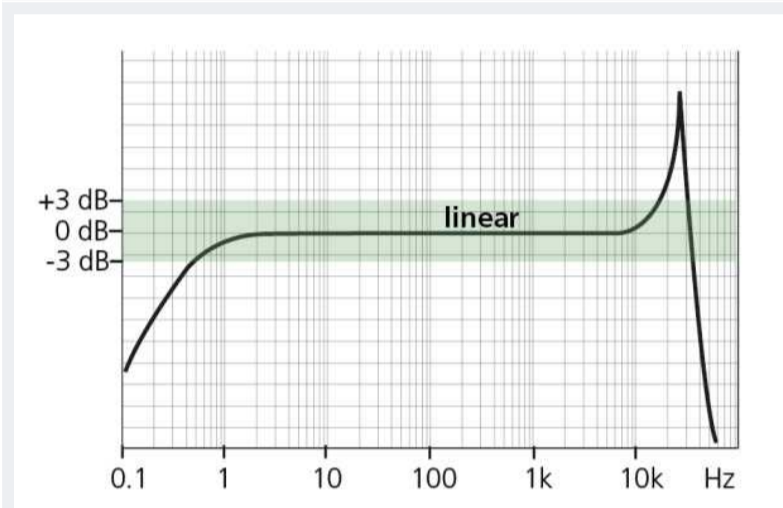
Parameter	VIB 6.215 - X/Y	VIB 6.216 - X/Y	VIB 6.215 - Z	VIB 6.216 - Z
<b>Inaccuracy of axis labeling</b>	< ± 5°			
<b>Temperature sensitivity</b>	X: AC / DC: -0.03% of measured value/K Y: AC: -0.03% of measured value/K; DC: +0.03% of measured value/K		0.1% of measured value/K	
<b>Temperature leap sensitivity</b>	0.015 ms <sup>-2</sup> /K		3.1 ms <sup>-2</sup> /K	
<b>Transverse sensitivity</b>	< 5%			
<b>Sound sensitivity</b>	< 1.5 ms <sup>-2</sup> /mPa		< 0.15 ms <sup>-2</sup> /mPa	
<b>ELECTRICAL</b>				
<b>Power supply</b>	MEMS electronics via Z channel		24 VDC / 3-10 mA ±10%	
<b>Noise</b>	0.0005 ms <sup>-2</sup> /(Hz) <sup>1/2</sup> for 1 Hz to 1 kHz	0.0005 ms <sup>-2</sup> /(Hz) <sup>1/2</sup> for 0.1 Hz to 1 kHz	0.0005 ms <sup>-2</sup> /(Hz) <sup>1/2</sup> for 10 Hz to 10 kHz	
<b>Output impedance</b>	100 Ohm			
<b>Output bias</b>	1.65 VDC		10.5-13.5 VDC	
<b>ENVIRONMENT</b>				
<b>Temperature range</b>	-40°C to 85 °C (-40°F to 185°F)			
<b>Relative humidity</b>	95%, non-condensing			
<b>Chemical resistance, cable</b>	Oil, alcohol			
<b>Environmental protection with cable</b>	IP 65			
<b>Shock limit</b>	< 10000 g			
<b>MECHANICAL</b>				
<b>Case material</b>	Stainless steel VA 1.4305			
<b>Mounting at measurement point</b>	Adhesive mount			
<b>Cable connector</b>	M12, 4-pin, A-coded			
<b>Weight</b>	62 g (2.2 oz)			
<b>Mounting height, mm</b>				

## Frequency response



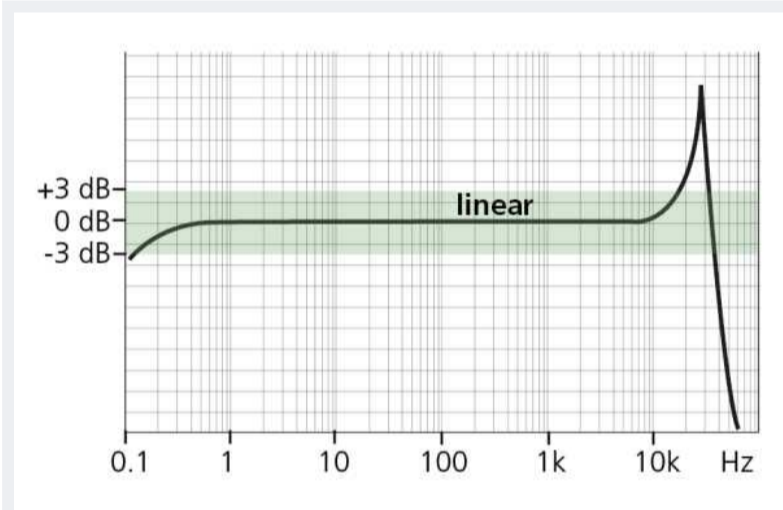
Hybrid triaxial sensor, type: VIB 6.215/ VIB 6.216

- X-axis: green
- Y-axis: brown



Hybrid triaxial sensor, type: VIB 6.215

- Z-axis



Hybrid triaxial sensor, type: VIB 6.216

- Z-axis

## Sensor pin allocation

View	Pin allocation	Color code, connection cable
	<p>1: X-axis 2: Y-axis 3: Z-axis 4: GND</p>	<p>1: brown - BN 2: blue - BU 3: black - BK 4: GND</p>

## VIBCODE vibration transducer

VIBCODE is an intelligent sensor system that identifies measurement points by use of coded measurement studs. The patented VIBCODE transducer is attached to the coded measurement stud locked using a bayonet catch. The rigid connection at the measurement point ensures a loss-free transmission of vibration signals, and bearing signals (shock pulse). The electronics within the handle amplifies the signal and transmits the measurement point data to the measurement device.



VIBCODE transducer with protective cap

### Features

- Reliable identification of measurement point
- Foolproof assignment of measurement tasks
- Rigid mounting at measurement point
- Repeatable measurement results
- 3-in-1 sensor: housing vibration, shock pulse (condition of roller bearings), cavitation
- Intrinsic safety, Zone 1
- VIBCODE measurement points with a various mounting options

### Ordering information

Item No.	Description
VIB 8.660	VIBCODE transducer
VIB 8.660 HEX	VIBCODE transducer (intrinsically safe)

## TECHNICAL INFORMATION

### Accessories


Item No.	Description
Miscellaneous	"VIBCODE measurement studs", p. 152
Miscellaneous	"Pre-assembled sensor cables and adapters for CLD accelerometers (portable devices)", p. 174

### Technical data

Parameter	VIB 8.660
<b>MEASUREMENT</b>	
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal
<b>Transmission factor, ±4%</b>	1.0 $\mu\text{A}/\text{ms}^{-2} \pm 3\%$ (Ref.: 159 Hz; 25 °C)
<b>Frequency range, ± 10%</b>	2 Hz to 10 kHz
<b>Frequency range, ± 3dB</b>	1.5 Hz to 20 kHz

Parameter	VIB 8.660
Resonance frequency	36 kHz
Frequency response	
Linearity range, ± 10%	± 50 ms <sup>-2</sup> (±5 g)
Temperature range	-10 °C to 70 °C (14 °F to 158 °F)
<b>ELECTRICAL</b>	
Power supply	> 10 mA / 7-18 VDC
Temperature sensitivity	< 0.3 ms <sup>-2</sup> /K
Transverse sensitivity	< 10% of axial value
Magnetic sensitivity	< 14 ms <sup>-2</sup> /T (at 50 Hz)
Electrical noise	< 1 mms <sup>-2</sup> / Hz <sup>1/2</sup> at 10 Hz
Output impedance	> 500 kOhm
<b>MECHANICAL</b>	
Environmental protection	IP 65 with cable connector locked
Mounting at measurement point	VIBCODE measurement stud
Cable connection	coaxial, TNC
Weight	390 g
Dimensions	136 x 39 mm (hxd)

### Intrinsic safety details

VIBCODE transducer type VIB 8.660 HEX	
Marking 	II 2G Ex ib IIC T4
Temperature range	-20 °C to 80 °C (-4 °F to 176 °F)

## Accelerometer with quick fitting coupling

This sensor is used for vibration measurements with a portable data collector. The sensor can be easily connected to a location equipped with a suitable measurement stud by means of the quick fitting coupling.



### Features

- 3-in-1 sensor: housing vibration, shock pulse (condition of roller bearings), cavitation
- Robust coupling
- Compact design
- Measurement studs in different versions
- For VIBSCANNER 2 and VIBXPRT II

Accelerometer features a quick fitting coupling for measurement studs.

### Ordering information

Item No.	Description
VIB 8.666 R	Quick fit accelerometer for measurement studs

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
VIB 5.436	CLD accelerometer cable, spiral, 1.8 m, TNC connector to MiniSnap
VIB 5.236	"Sensor cables and adapters for VIBSCANNER 2", p. 189
Miscellaneous	"Measurement studs", p. 157

### Technical data

Parameter	VIB 8.666 R
<b>MEASUREMENT</b>	
<b>Signaling system</b>	Current Line Drive, 3.5 mA static current with superimposed AC signal
<b>Transmission factor</b>	1,0 $\mu\text{A}/\text{ms}^{-2} \pm 2\%$ (Ref.: 159 Hz; 25 °C)
<b>Frequency range, <math>\pm 5\%</math></b>	1 Hz to 10 kHz (short stud)

Parameter	VIB 8.666 R
<b>Resonance frequency</b>	36 kHz (short stud)
<b>Linearity range, ± 10%</b>	± 50 ms <sup>-2</sup>
<b>Temperature range</b>	-30 °C to 100 °C (-22 °F to 212 °F)
<b>ELECTRICAL</b>	
<b>Power supply</b>	> 10 mA / 7-18 VDC
<b>Transverse sensitivity</b>	< 5% at 10 kHz
<b>Temperature sensitivity</b>	< 0.05 ms <sup>-2</sup> /K
<b>Magnetic sensitivity</b>	< 5 ms <sup>-2</sup> /T (at 50 Hz)
<b>Electrical noise, rms</b>	< 0.01 ms <sup>-2</sup> from 2 Hz
<b>Output impedance</b>	> 300 kOhm
<b>MECHANICAL</b>	
<b>Case material</b>	Stainless steel VA 1.4305
<b>Environmental protection</b>	IP 65 with cable connector locked
<b>Cable connection</b>	TNC socket
<b>Mounting</b>	Quick fitting coupling to measurement stud
<b>Shock limit</b>	< 250 kms <sup>-2</sup>
<b>Weight</b>	28 g [ 1 oz ]
<b>Dimensions, D x H</b>	19 x 33 mm [ 3/8" x 1 5/16" ]

## Triaxial accelerometer

This triaxial accelerometer is used for the measurement of machine and component vibrations in the horizontal, vertical and axial directions at a single measurement location. The triaxial accelerometer achieves shorter measuring times with a data collector and is easier to install since only one sensor needs to be mounted.



Triaxial sensor for VIBXPERT II

### Features

- Simultaneous measurement in the X, Y, and Z axes
- Larger temperature range
- $f_{\max}$ : 10 kHz
- For VIBXPERT II and VIBSCANNER 2

### Ordering information

Item No.	Description
VIB 6.655	Triaxial accelerometer for mobile applications

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
VIB 5.336	Sensor cable for triaxial accelerometer VIB 6.655; refer to: " <a href="#">Cable adapter for VIBXPERT II</a> "
VIB 5.237	Sensor cable for triaxial accelerometer, 4P Mini-MIL connector, spiralized, p. 189
VIB 6.657	Magnetic holder, p. 144

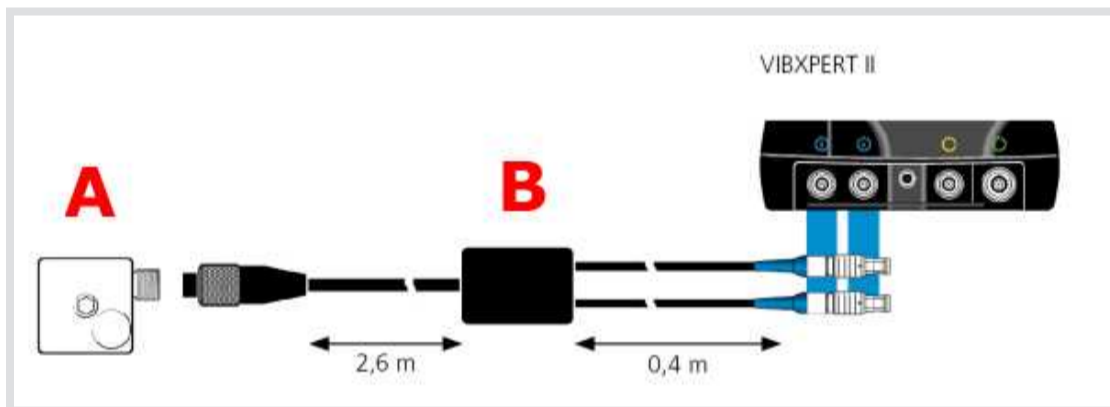
### Technical data

Parameter	VIB 6.655
<b>MEASUREMENT</b>	
Signalling system	IEPE
Measurement range (peak)	$\pm 50$ g
Transmission factor, $\pm 5\%$	100 mV/g
Frequency range, $\pm 3$ dB	0.6 Hz to 10 kHz



Parameter	VIB 6.655
Frequency range, $\pm 3\text{dB}$ (Magnet)	0.6 Hz to 2 kHz
Frequency range, $\pm 10\%$	1 Hz to 6.5 kHz
Temperature range	-54 °C to 121 °C (-65 °F to 250 °F)
<b>ELECTRICAL</b>	
Rise time	< 2.5 s
Power supply	2-10 mA / 18-30 VDC
Electrical noise, @ 10 / 100 / 1000 Hz	27 / 6.5 / 2.5 $\mu\text{g} / (\text{Hz})^{1/2}$
Output impedance	< 100 Ohm
Case insulation	> $10^8$ Ohm
Output bias	11-13 VDC
<b>MECHANICAL</b>	
Case material	Stainless steel 316L
Mounting at measurement point	Magnetic holder
Mounting torque	1.4 to 2.7 Nm
Connection	4-pin cable connector (Mini-MIL)
Weight	200 g
Dimensions	35 x 35 x 24 mm / 1.4" x 1.4" x 0.9" (lxbxh)

### Connection schematic



Triaxial sensor (A) connected to VIBXPERT II via the sensor cable (B)

### Mounting example



## Mono headphones

The mono headphones can be used to listen to the machines and, in particular, roller bearings for the characteristic noises that indicate damage. The buffered sensor signal is picked at the data collectors analog output. The appropriate adapter cable is available as an accessory.



### Features

- Frequency range: 125 Hz to 8000 Hz
- Suitable for VIBXPERT II, VIBSCANNER

Mono headphones for VIBXPERT II and VIBSCANNER.

### Ordering information

Item No.	Description
VIB 6.671	Mono headphones

## TECHNICAL INFORMATION

### Accessory

Item No.	Description / Group
VIB 6.675	"Cables for signal output – handheld devices", p. 180

### Technical data

Parameter	VIB 6.671
<b>ELECTRICAL</b>	
Impedance	230 Ohm
Frequency range	125 - 8000 Hz
Sound pressure level at 198 mV	82 dB (A)
Resonance frequency	17 kHz; > 20 dB damped
<b>GENERAL</b>	
Connection	Adapter cable VIB 6.675 for VIBSCANNER / VIBXPERT II (MiniSnap)
Weight	381 g

## VIBROTECTOR vibration transmitters

This sensor is employed to monitor vibration in industrial machinery. The vibration signal is relayed as a current intensity level ( 4-20 mA) to the machine controls for analysis.



Monitoring vibrations with VIBROTECTOR

### Features

- Current intensity level: 4-20mA
- $f_{\min}$  : 2 Hz or 10 Hz
- Intrinsic safety, Zone 1
- Mounting adapter
- Customized sensor cable
- Installation in liquid media (IP 68)
- Conformity: CE, ATEX, IECEx

### Ordering information

Item No.	VIBROTECTOR vibrations monitor
<b>VIB 5.731</b>	VIBROTECTOR, frequency range: 10 Hz to 1 kHz
<b>VIB 5.731 EX</b>	VIBROTECTOR, intrinsically safe, frequency range: 10 Hz to 1 kHz
<b>VIB 5.736</b>	VIBROTECTOR, frequency range: 2 Hz to 1 kHz
<b>VIB 5.736 EX</b>	VIBROTECTOR, intrinsically safe, frequency range: 2 Hz to 1 kHz

## TECHNICAL INFORMATION

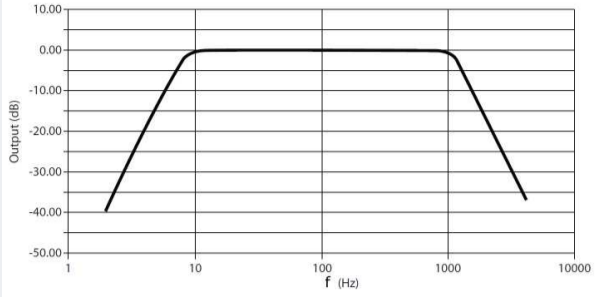
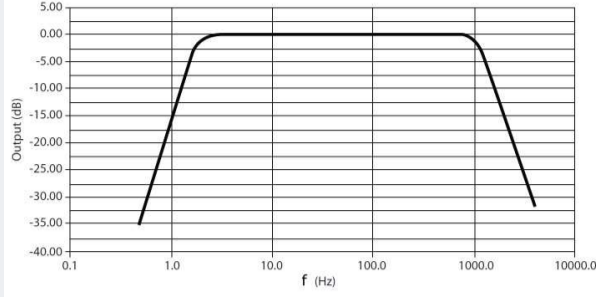
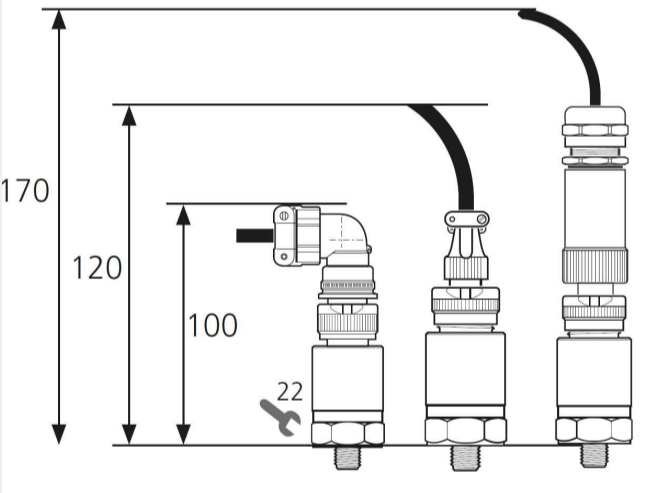
### Accessories

VIBROTECTOR is delivered with M8 hexagon socket set screw. The set screw may be replaced using the available optional mounting adapters. Customized connection cables of different lengths are available.

Item No.	Description / Group
<b>Miscellaneous</b>	"Mounting adapters for vibration sensors", p. 142
<b>Miscellaneous</b>	"Sensor cable with 2-pin MIL connector", p. 200
<b>0 2088 0010</b>	"Intrinsic safety barriers", p. 214

### Technical data

Parameter	VIB 5.731	VIB 5.736
<b>MEASUREMENT</b>		
<b>Output signal</b>	Current intensity level (4-20 mA)	
<b>Offset, ± 4%</b>	4 mA	
<b>Measurement range (RMS)</b>	≤ 20 mm/s	
<b>Accuracy</b>	± 2 of measured value (Reference: 159 Hz)	
<b>Frequency range, ±10%</b>	10 Hz to 1 kHz	2 Hz to 1 kHz

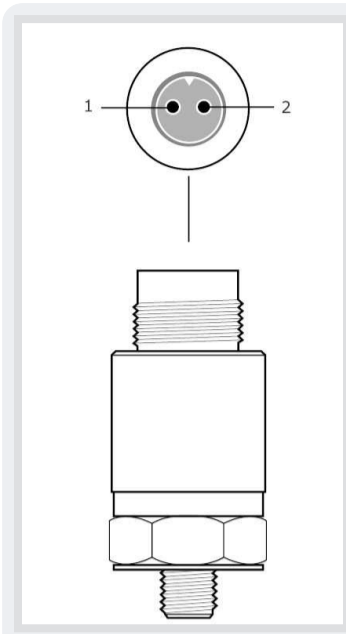
Parameter	VIB 5.731	VIB 5.736
Frequency response		
Temperature range, T <sub>A</sub>	-40 °C to 80 °C (-40 °F to 176 °F)	
Temperature sensitivity	- 0.4 µA/K	
<b>ELECTRICAL</b>		
Power supply	24 V DC (±5%), über Stromschleife	
Loop resistance	90 to 360 Ohm	
Insulation	complete	
<b>MECHANICAL</b>		
Case material	Stainless steel VA 1.4305	
Environmental protection	IP 67; IP 68 with pre-assembled cable VIB 3.570-L; Immersion depth: 10 m (33 ft)	
Mounting at measurement point	M8 hexagon socket set screw or mounting adapter	
Connection	2-pin cable connector (Cannon, MIL-C5015)	
Shock limit	< 250 kms <sup>-2</sup>	
Weight	80 g	
Mounting height, mm		

### Intrinsic safety details

#### VIBROTECTOR EX, type VIB 5.731 EX / VIB 5.736 EX

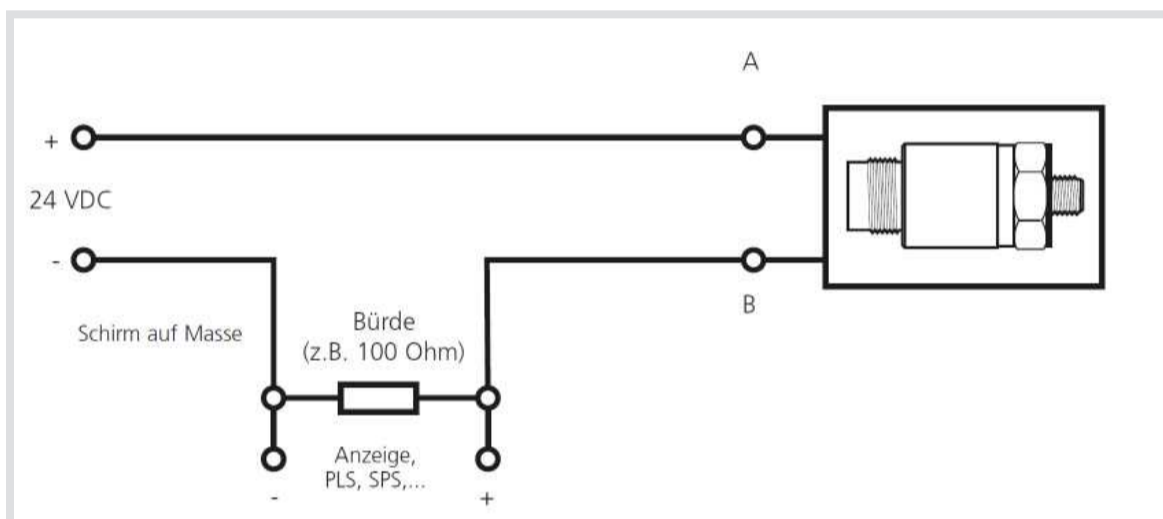
Marking 	Gas: II 2G Ex ib IIC T4 Gb/ Dust: II 2D Ex ib IIIC T135°C Db
Temperature range	-40 °C ...+80 °C

## VIBROTECTOR pin allocation



- 1: Signal (+)
- 2: Shield (-)

## Connection schematic



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# Sensors for process parameters and other measurement variables

<b>RPM sensors for VIBRONET Signalmaster .....</b>	<b>120</b>
<b>Laser trigger / RPM sensor .....</b>	<b>123</b>
<b>LED stroboscope .....</b>	<b>125</b>
<b>Displacement sensor for VIBXPERT II .....</b>	<b>127</b>
<b>Displacement sensor (for VIBGUARD) .....</b>	<b>129</b>
<b>Default RPM sensor for stationary measurement systems .....</b>	<b>131</b>
<b>Current clamp (400 A AC / 600 A DC) .....</b>	<b>133</b>
<b>Temperature probes .....</b>	<b>135</b>
<b>WEARSCANNER particle distribution counter .....</b>	<b>136</b>

## RPM sensors for VIBRONET Signalmaster

These sensors are used in combination with the stationary measurement system VIBRONET Signalmaster to measure RPM contactless. For higher measurement accuracy, a version with a higher with a higher cut-off frequency ( $f_{\max}$ : 1500 Hz) is available.



RPM sensors: VIB 6.620 (left) and VIB 6.622 (right)

### Features

- Inductive measurement
- Maximum switching frequency: 300 Hz / 1500 Hz
- Rated operating distance: 8 mm
- Easy to mount and position
- Intrinsic safety, Zone 1

### Ordering information

Item No.	Description
<b>VIB 6.620</b>	Inductive RPM sensor for VIBRONET Signalmaster, $f < 300$ Hz
<b>VIB 6.622</b>	Inductive RPM sensor for VIBRONET Signalmaster, $f < 1500$ Hz

Note: An appropriate connector is available as an optional accessory.  
The cable required for connection to VIBRONET field multiplexer is not included in the items in the box.

### Accessories

Item No.	Description	View
<b>VIB 6.621</b>	M12 device connector, 4-pin	

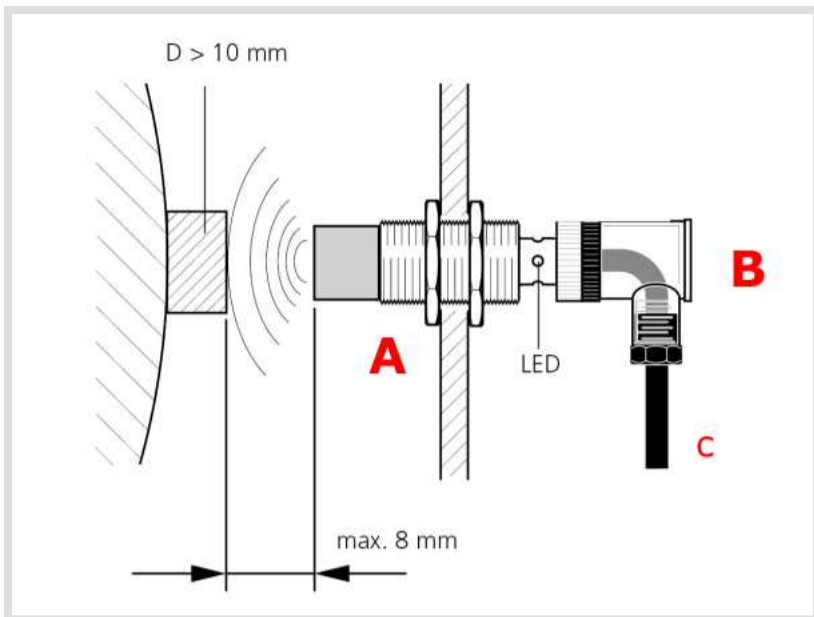


## TECHNICAL INFORMATION

### Technical data

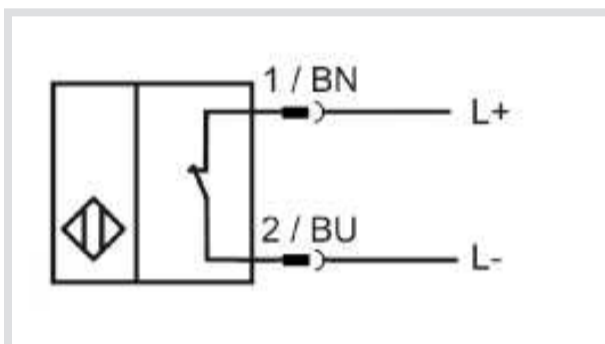
Parameter	VIB 6.620	VIB 6.622
<b>MEASUREMENT</b>		
Measurement principle	Inductive	
Rated operating distance Sn	8 mm	
Assured operating distance Sa	0 – 6.48 mm	
Type of sensor	NAMUR / opener	
Reduction factor r(V2A) / r(Al) / r(Cu)	0.72 / 0.42 / 0.4	0.71 / 0.39 / 0.36
Switching frequency	0 – 300 Hz	0 – 1500 Hz
Hysteresis H	1 – 15 typical 15%	
Operation display	Yes, LED, yellow	
Temperature range	-25 °C to 100 °C (-13 °F to 212 °F)	
<b>ELECTRICAL</b>		
Supply voltage	8 V DC (from RPM module)	
Current drain, measuring plate detected	< 1 mA	
Current drain, measuring plate not detected	> 3 mA	> 2.2 mA
Short circuit protection	Yes	
Reverse-polarity protection	Yes	
<b>MECHANICAL</b>		
Mounting	Non-flush	Flush
Connection	M12 device connector, 4-pin	
Case material	Stainless steel	
Sensing surface material	PBT	
Environmental protection	IP 67	
Marking for intrinsic safety	II 1 G Ex ia IIC T6 Ga	

## Installation example

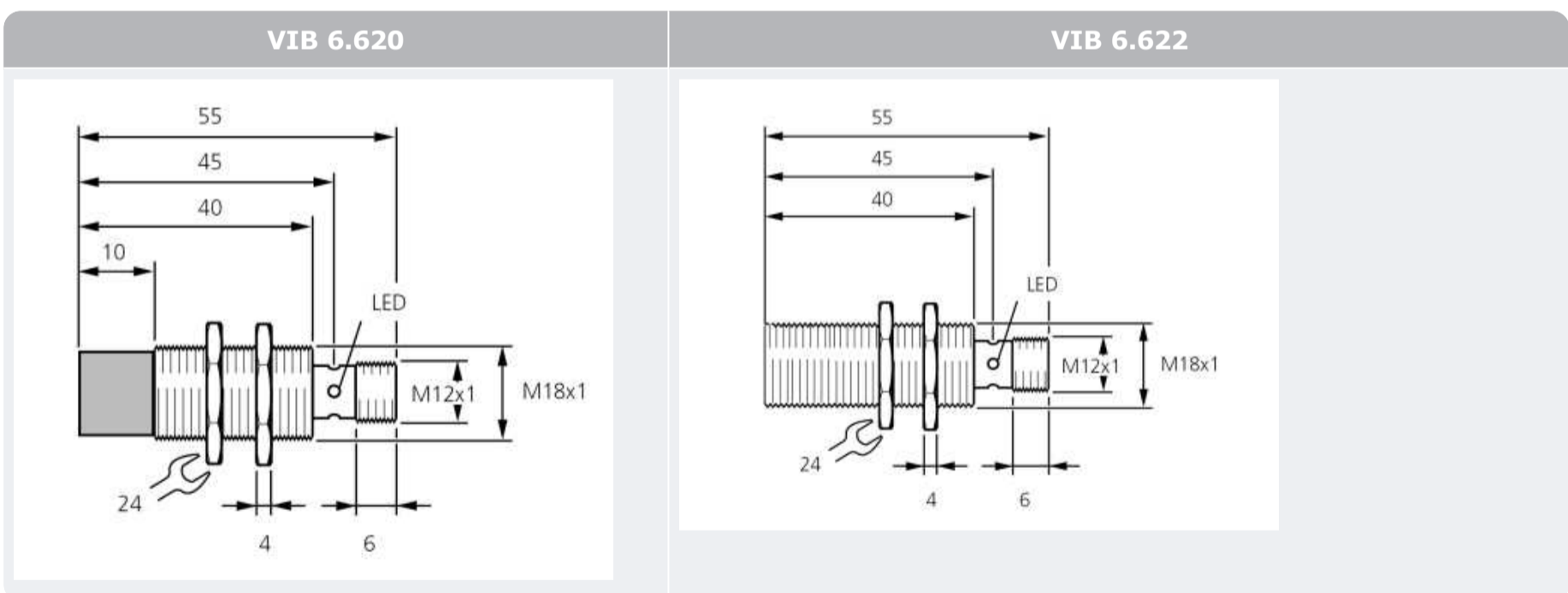


RPM sensor (A), device connector (B, accessories) and sensor cable (not included with items in the box)

## Connection diagram



## Dimensions



## Laser trigger / RPM sensor

This laser optical sensor is used in combination with a handheld device to act as a trigger for vibration measurements and to measure RPM.



### Features

- Optical measurement method
- Contactless measurement
- Wider measurement range
- Measurement distance up to 2 m (6' 6 7/10")
- High accuracy
- Intrinsic safety, Zone 1

### Ordering information

Item No.	Description
VIB 6.631	Laser trigger / RPM sensor
VIB 6.631 EX	Intrinsically safe laser trigger / RPM sensor

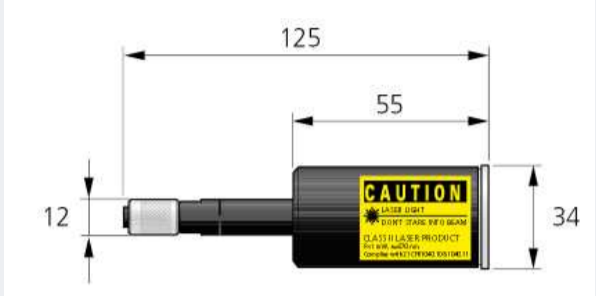
## TECHNICAL INFORMATION

### Accessories


Item No.	Bezeichnung
Miscellaneous	"Pre-assembled sensor cable and adapter for trigger / RPM sensor (portable devices)", p. 181
Miscellaneous	"Stand and accessories for laser trigger / RPM sensor", p. 150

### Technical data

Parameter	VIB 6.631
<b>MEASUREMENT</b>	
Measurement principle	Optical
Measurement range	0.1 to 600'000 1/min.
Measurement distance with reflective mark	0.05 – 2 m
Measurement distance with contrast mark	0.05 – 0.75 m
Temperature range	-20 °C to 50 °C (-4 °F to 122 °F)
<b>ELECTRICAL</b>	
Power supply	< 5.8 V (from device)
Output	5 V (TTL)
Laser wavelength	670 nm (red)
Laser class	2 (DIN EN 60825-1, May 2008)

Parameter	VIB 6.631
<b>MECHANICAL</b>	
<b>Environmental protection</b>	IP 65 with cable connector locked
<b>Mounting at measurement point</b>	With stand and magnetic holder
<b>Cable connection</b>	Binder socket
<b>Weight</b>	72 g
<b>Dimensions</b>	

### Intrinsic safety details

Type of sensor, VIB 6.631 EX	
Marking 	II 2G Ex ib op is IIC T4
Temperature range	-20 °C to 50 °C (-4 °F to 122 °F)

## LED stroboscope

This stroboscope is used in combination with VIBXPERT II to analyze rotary motion as well as measuring phase shift, RPM and velocity. The stroboscope uses high-intensity LEDs. The flash rate may be either controlled internally, or set via an external trigger signal.



LED stroboscope for analysis of rotary motion

### Scope of supply

- LED stroboscope
- Trigger cable 1.5 m, including BNC connector
- Hard shell box
- Set of batteries (2x AA / LR6)
- Operating manual

### Ordering information

Item No.	Description
VIB 6.672	LED stroboscope

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
VIB 5.333	Cable adapter for LED stroboscope (VIBXPERT II), see: "Pre-assembled sensor cable and adapter for trigger / RPM sensor (portable devices)", p. 181

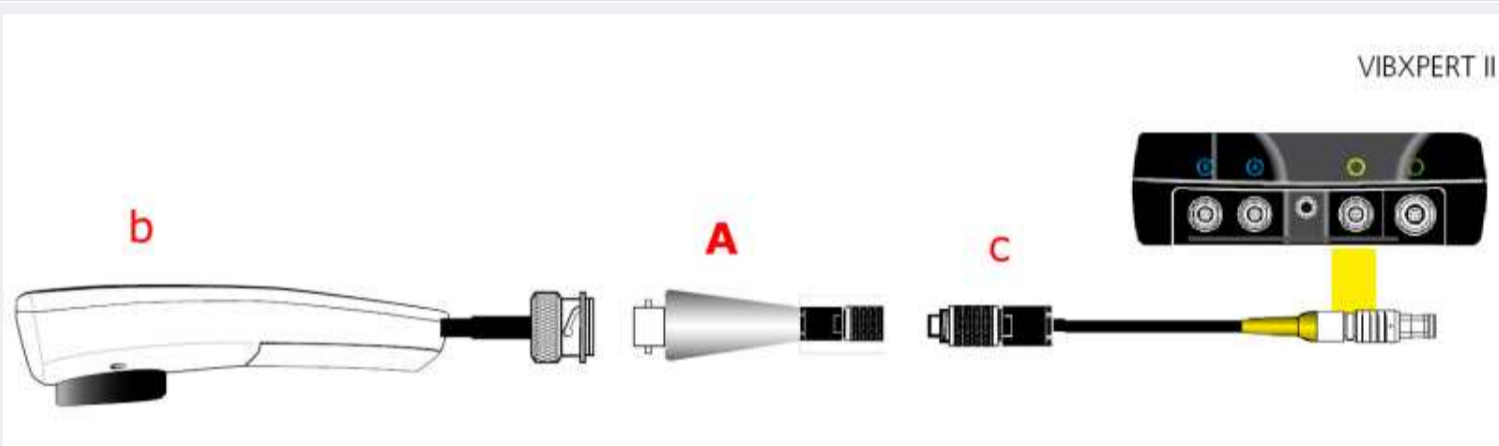
### Technical data

Parameter	VIB 6.672
<b>MEASUREMENT</b>	
<b>Light source</b>	3 CREE LEDs
<b>Light intensity</b>	3800 Lux max. (@ 50 Hz / 20 cm)
<b>Frequency range</b>	1 - 2000 Hz / 60 - 99999 min-1
<b>Control of the flash rate</b>	Internal: Membrane keyboard; External: external trigger signal
<b>Phase shift</b>	0° to 360°
<b>Operating temperature</b>	0 °C to 40 °C (32 °F to 104 °F)

Parameter	VIB 6.672
Operating time	< 15 h
<b>GENERAL</b>	
Dimensions	140 x 63 x 38 mm (5 11/16" x 2 1/2" x 1 1/2")
Weight	175 g (6.2 oz)
Storage temperature	-20 °C to 70 °C (-20 °F to 70 °F)
Relative humidity	< 80% at 30 °C (86 °F)
Environmental protection	IP 40

## Application

### VIBXPRT II: Measuring RPM using the LED stroboscope VIB 6.672



A: Cable adapter for LED stroboscope, VIB 5.333

b: LED stroboscope, VIB 6.672

c: Sensor cable, VIB 5.432-2,9

## Displacement sensor for VIBXPART II

This displacement sensor is used with VIBXPART II to determine the position of metallic objects within close proximity to each other, contactless. A typical application is the detection of the radial and axial motions of a rotating shaft.



Displacement sensor connected to VIBXPART II

### Features

- Inductive measurement
- Working range: 3 - 15 mm
- Easy to mount and position
- Connection cable with device connector
- Linearization of the characteristic curve is automatically done within device

### Ordering information

Item No.	Description
VIB 6.640	Inductive proximity sensor for VIBXPART II

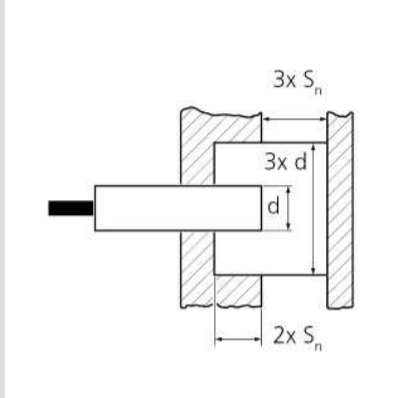
## TECHNICAL INFORMATION

### Technical data

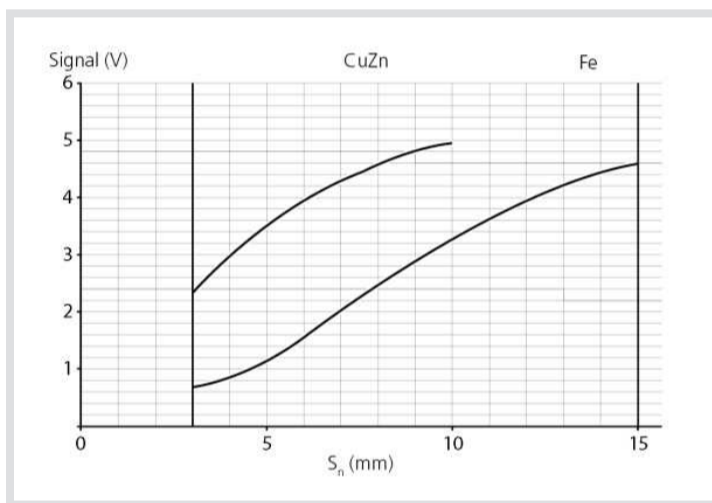
Parameter	VIB 6.640
<b>MEASUREMENT</b>	
Measurement principle	Inductive
Measurement variable	Relative distance / displacement
Working range $S_n$	3 – 15 mm
Linearity	$\leq 5\%$
Repeatability	$\leq 1\%$
Average rise	0.333 V/mm $\pm 5\%$
Cut-off frequency	300 Hz
Influence on the operating voltage $dU_a/dU_b$	approx. 6.7% / 0.1 V
Temperature range	-25 °C to 70 °C (-13 °F to 158 °F)
Temperature drift	$\pm 5\%$
<b>ELECTRICAL</b>	
Operating voltage $U_b$	5 VDC, stabilized
Operating current	$\leq 15\text{mA}$
Output signal $U_a$	approx. 0.5 to 4.5 VDC (refer to characteristic)
Load resistance	$\geq 20\text{k}\Omega$
<b>MECHANICAL</b>	
Case material	Nickel-plated brass

Parameter	VIB 6.640
Material of active surface	PCP
Environmental protection	IP 67
Mounting	Non-flush
Connection cable	cable with MiniSnap device connector, 2.9 m

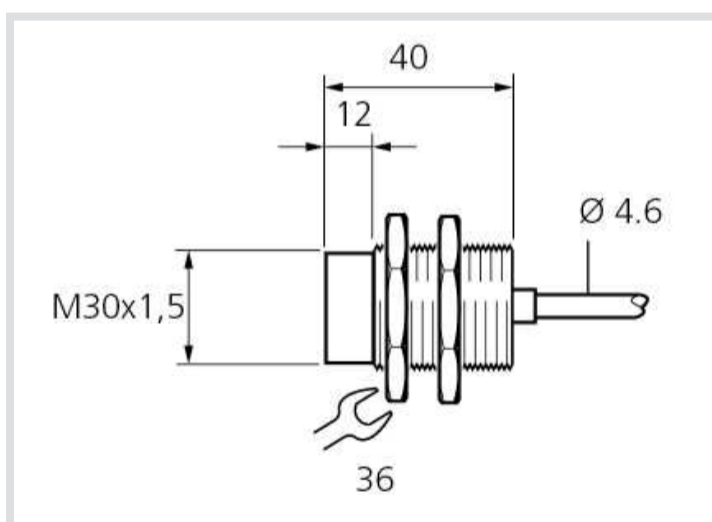
Hint for mounting: When carrying out non-flush mounting on metal surfaces, observe the following hint according to EN 60947-5-2.



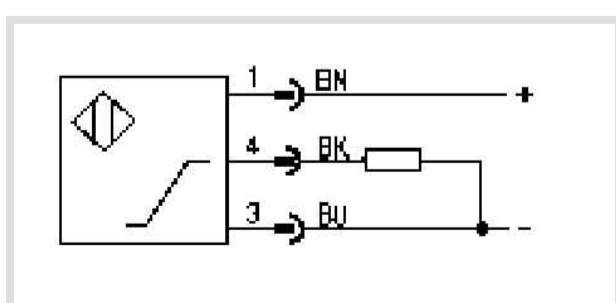
### Characteristic



### Dimensions



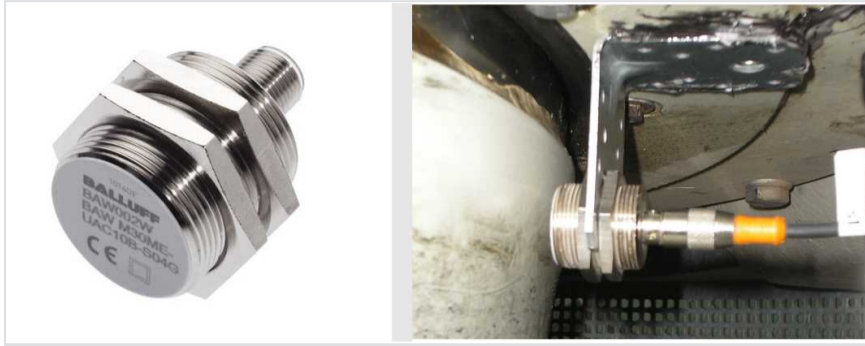
### Connection diagram





## Displacement sensor (for VIBGUARD)

This displacement sensor is used in combination with a stationary measurement system (e.g. VIBGUARD) to determine the position of metallic objects within close proximity to each other, contactless. A typical application is the detection of the radial and axial motions of a rotating shaft.



Displacement sensor for use with a stationary measurement system (left); Detection of radial movement in a shaft (right)

### Features

- Inductive measurement
- Linear characteristic
- Working range: 2 - 10 mm (79 - 394 mils)
- Rated operating distance 6 mm (236 mils)
- Easy to mount and position
- Connection cable (10 m / 32.8 ft) available as optional accessory

### Ordering information

Item No.	Description
VIB 6.645	Inductive displacement sensor for VIBGUARD
VIB 6.646	Connection cable with sensor connector, 10 m (32.8 ft)

## TECHNICAL INFORMATION

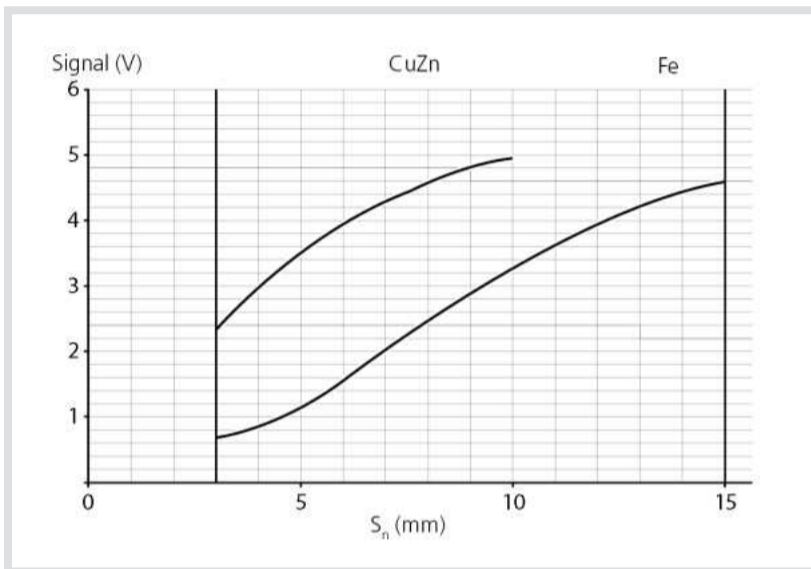
### Technical data

Parameter	VIB 6.645
<b>MEASUREMENT</b>	
Measurement principle	Inductive
Measurement variable	Relative distance / displacement
Linearity range $S_i$	2 - 10 mm
Rated operating distance $S_e$	6 mm
Max. non-linearity at $S_e$	$\pm 3\%$ of $U_a$ max.
Repeating accuracy	$\pm 10\mu\text{m}$
Cut-off frequency	500 Hz
Adjusting indication	Yes, LED
Temperature range	-10 °C to 70 °C (14 °F to 158 °F)
Temperature drift	< 5% of $U_a$ max
<b>ELECTRICAL</b>	
Operating voltage $U_b$	24 VDC
No-load supply current	< 10 mA
Output signal $U_a$	0 - 10 VDC
Load resistance	> 2 kOhm

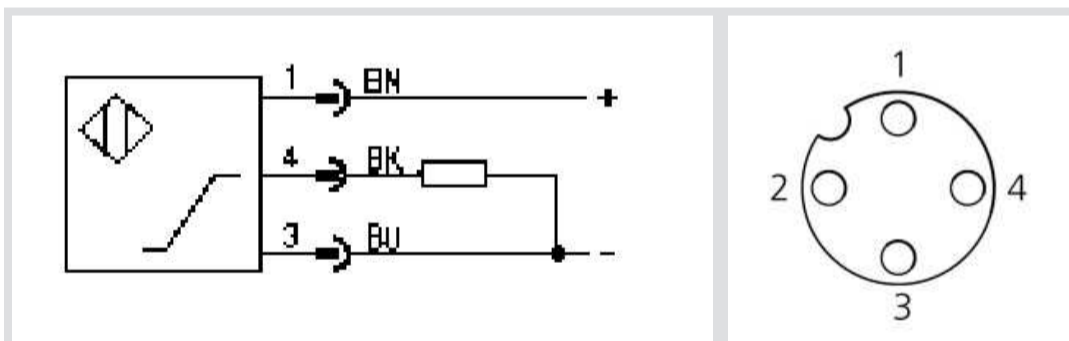
Parameter	VIB 6.645
<b>MECHANICAL</b>	
Case material	Nickel-plated brass
Material of active surface	PBT
Environmental protection	IP 67
Mounting on steel	Flush
Connection cable	PUR cable (10 m ) + plug

Hint for mounting: The minimum distance to any metal surface that is not part of the measurement surface must be 3 times  $S_n$ .

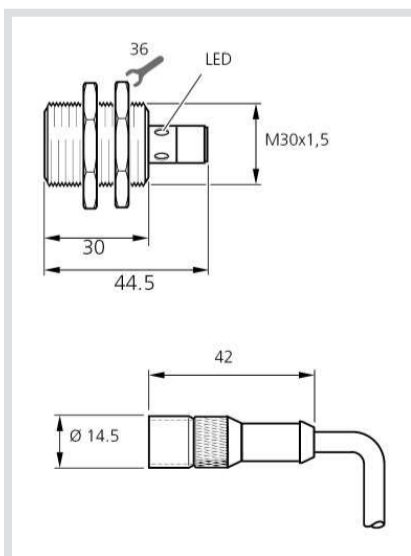
### Characteristic



### Connection diagram and plug pin allocation



### Dimensions



## Default RPM sensor for stationary measurement systems

This is used in combination with a stationary measurement system (e.g. VIBGUARD) to measure the RPM contactless.



Default RPM sensor for stationary measurement systems.

### Features

- Inductive measurement
- Maximum switching frequency: 1000 Hz
- Effective switching distance: 8 mm
- Operating voltage 24 V DC
- Easy to mount and position
- Sensor cable available as optional accessory

### Ordering information

Item No.	Description
VIB 5.992-STD	Default RPM sensor for stationary measurement systems

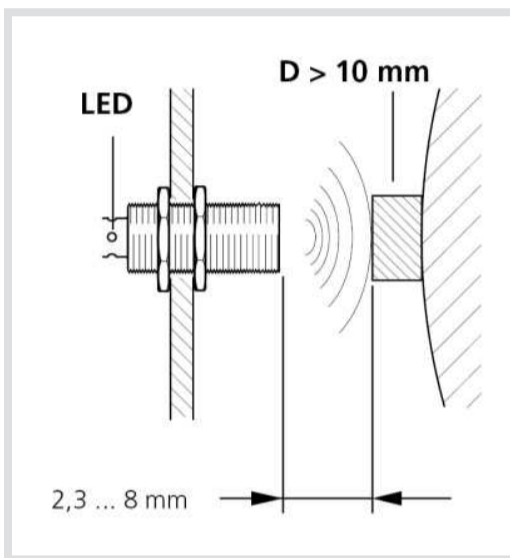
## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 5.992-STD
<b>MEASUREMENT</b>	
Measurement principle	Inductive
Effective switching distance $S_r$	8 mm
Assured operating distance $S_a$	0 – 6.4 mm
Repeating accuracy (% of $S_r$ )	5 %
Switching frequency	0 - 1000 Hz
Switching function	Closer (NO)
Operation display	Yes
Short circuit protection	Yes
Reverse-polarity protection	Yes
Temperature range	-25 °C to 70 °C (-13 °F to 158 °F)
<b>ELECTRICAL</b>	
Operating voltage	10 – 30 V DC
Rated operating voltage $U_e$	24 V DC
Effective operating current $I_e$	200 mA
Potential difference	< 2.5 V

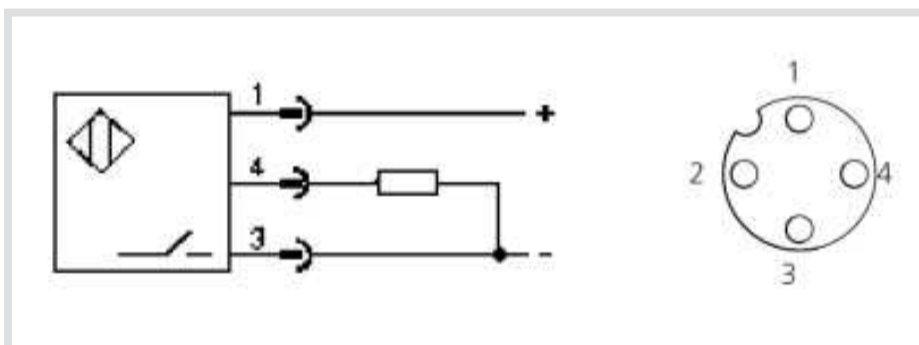
Parameter	VIB 5.992-STD
Cut-off current	< 0.01 mA
<b>MECHANICAL</b>	
Mounting	Flush
Connection	M12 device connector, 4-pin
Case material	CuZn, nickel-free coating
Sensing surface material	PBT
Environmental protection	IP 67

### Installation example

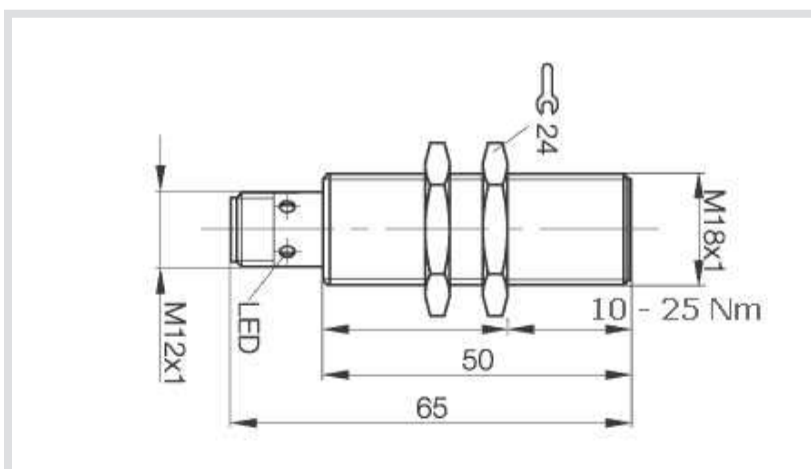


RPM sensor (A), Device connector (B, Optional accessory) and sensor cable (not part of items in the box).

### Connection diagram



### Dimensions



## Current clamp (400 A AC / 600 A DC)

The current clamp is used in combination with VIBXPERT II to measure both AC and DC current. The current clamp can also measure power and true-rms (for nonsinusoidal waveforms). The current clamp works on the principle of the Hall effect. A push button operates the automatic DC zeroing. The cable adapter for signal low voltage is required to connect the current clamp to VIBXPERT II.



### Scope of supply

- Current clamp
- 9 V battery
- Operating manual

### Ordering information

Item No.	Description
VIB 6.673	Current clamp 600 A DC

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
VIB 5.433	"Pre-assembled sensor cables for measuring low signal voltage/low signal current, portable measuring devices", p. 177

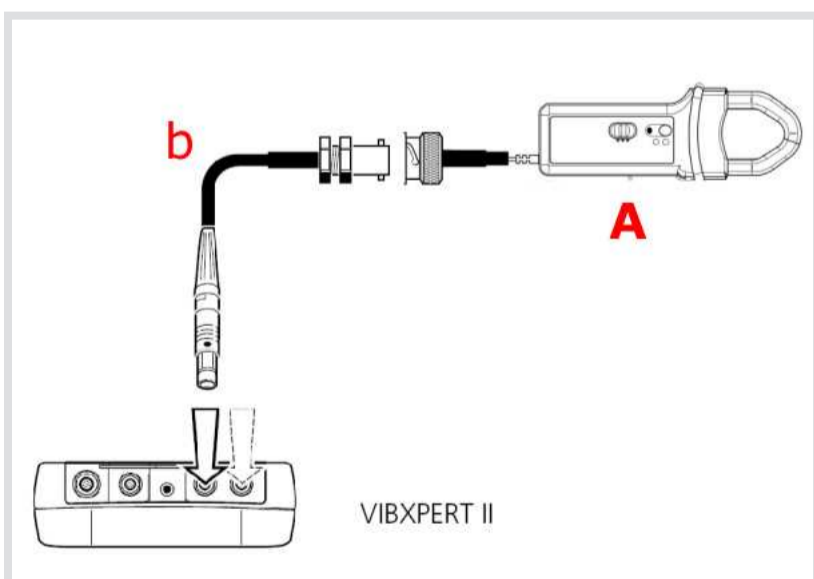
### Technical data

Parameter	VIB 6.673	
<b>ELECTRICAL</b>		
<b>Calibre</b>	60 A	600 A
<b>Current range</b>	0.2 A to 40 A AC 0.4 A to 60 A DC	0.5 A to 400 A AC 0.5 A to 600 A DC
<b>Output signal</b>	10 mV/A	1 mV/A
<b>Accuracy*</b>	0.5 A to 40 A: 1.5% ±5mV 40 A to 60 A DC: 1.5%	0.5 A to 100 A: 1.5% ±1mV 100 A to 400 A DC: 2% 400 A to 600 A DC: 2.5%
<b>Phase shift (45 - 65 Hz)*</b>	10 A to 20 A : < 3° 20 A to 40 A : < 2°	10 A to 100 A : < 2° 100 A to 400 A : < 1.5°
<b>Noise</b>	DC ... 1 kHz : < 8mV DC ... 5 kHz : < 12mV 0.1 Hz ..5 kHz : < 2mV	DC ... 1 kHz : < 1mV DC ... 5 kHz : < 1.5mV 0.1 Hz...5 kHz : < 0.5mV

Parameter	VIB 6.673	
Rise/Fall time	< 100 µs from 10 to 90% of the voltage value	< 70 µs from 10 to 90% of the voltage value
Overload	2000 A DC / 1000 A AC bei 1kHz max.	
Bandwidth	DC ... 10 kHz at -3dB	
Load impedance	> 1 MOhm and < 100 pF	
Operating voltage	600 V RMS	
Power supply	9 V alkaline battery (IEC 6LR61)	
Low battery signal	Green LED when battery voltage > 6.5 V	
Battery life	Approximately 50 hours	
Overload indicator	Red LED	
Automatic turn off	After 10 minutes of inactivity	
<b>MECHANICAL</b>		
Operating temperature	-10 °C to 55 °C (14 °F to 131 °F)	
DC zero adjustment	Automatically operated by a push button (± 10 A)	
Maximum jaw insertion capacity	1 cable Ø 30 mm (1 3/16") or 2 cables Ø 24 mm (15/16")	
Environmental protection	IP 30	
Dimensions	224 x 97 x 44 mm (8 13/16" x 3 13/16" x 1 47/64")	
Weight	440 g (16 oz)	
Connection	Coaxial cable, 2 m; with BNC connector	

\* Conditions of reference: 18° at 28°C, 20 to 75% relative humidity, 48 to 65 Hz, external magnetic field < 40 A/m, no DC component, no current-carrying conductor nearby, centred test sample, charge ≥ 1 MOhm and ≤ 100 pF, reset to zero before measurement (only DC) DC to 65 Hz, batteries 9 V ±0.1 V

### Connection diagram



Current clamp (A) connected to VIBXPART II using the cable adapter for signal low voltage (b)

## Temperature probes

These sensors are used in conjunction with handheld devices to measure temperature also in hazardous areas.



Temperature probe with magnetic holder

### Features

- NiCrNi thermocouple
- Compact shape
- High temperature version,  $T_{max.} : 500^{\circ}\text{C}$  (932 °F)
- Used together with intrinsically safe measurement devices

### Ordering information

Item No.	Illustration	Description
VIB 8.605		Spare temperature probe for VIBSCANNER
VIB 8.607-1,5		Temperature probe with magnetic holder, 1.5 m
VIB 8.608		Temperature handheld probe

## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 8.605	VIB 8.607-1,5	VIB 8.608
<b>MEASUREMENT</b>			
Type of sensor	NiCrNi thermocouple		
Measurement range	-30 °C to 270°C (-22 °F to 518 °F)	-50 °C to 240 °C (-58 °F to 464 °F)	-50 °C to 500 °C (-58 °F to 932 °F)
Sensitivity	---	0.040 mV/°C	
Accuracy	< 3%		
<b>MECHANICAL</b>			
Dimensions (L x Ø)	25 x 11 mm (63/64" x 7/16")	14 mm (35/64") - (Ø)	250 x 3 mm (9 27/32" x 1/8")
Length of cable	---	1.5 m (4' 11")	---
Weight	6 g (0.2 oz)	28 g (1 oz)	83 g (2.9 oz)
Connector	QLA		

Note: When transporting or storing the temperature probe with magnetic holder a steel washer is mounted on the pole pieces to act as a short circuit rail. The relevant safety data sheet is available on [www.pruftechnik.com](http://www.pruftechnik.com)

## WEARSCANNER particle distribution counter

WEARSCANNER is used to detect, count and evaluate electrically conductive particles in lubricating oil circuits. The sensor applies eddy current to detect electrically conductive particles within the medium flowing through.



WEARSCANNER particle distribution counter

### Main features

- Size-based counting and classification of particles
- Size classes are adjustable as specified in ISO 16232
- Modbus TCP communication

### Further key features

- Continuous monitoring with integrated signal processing
- Suitable for lubricating oils
- Records oil temperature
- Large permissible flow rate range
- Internal ring memory for measurement data recording
- Network capability through its own IP address
- Schaltausgang zur Signalisierung von Partikel-Mengenüberschreitungen
- Alive-Schaltausgang zur Signalisierung von Systemstörungen
- Self-monitoring
- Overload protection
- Maintenance-free

### Ordering information

Item No.	Description
<b>VIB 6.411</b>	WEARSCANNER particle counter with switching output

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
Miscellaneous	"Partly pre-assembled connection cable for WEARSCANNER", p. 198
<b>VIB 6.430</b>	WEARSCANNER utility — free software tool for commissioning and maintenance of WEARSCANNER; may be downloaded from the PRÜFTECHNIK website
<b>VIB 8.170...73</b>	Online VIEW 4.0 — software for visualization of measurement data



## Technical data

Parameter	VIB 6.411
<b>MEASUREMENT</b>	
<b>Measurement principle</b>	Eddy current, differential coil principle
<b>Particles</b>	Ferritic or non-ferritic
<b>Particle size</b>	Three size classes are default; up to 4 size classes may be set
<b>Signal processing</b>	Particle distribution counter with integral average determination and classification
<b>Mean flow velocity</b>	0.01 m/s to 5 m/s
<b>Mean flow rate</b>	0.08 l/min to 39 l/min
<b>Types of oil</b>	Mineral, synthetic, biodegradable
<b>Oil pressure</b>	16 bar operating pressure / 30 bar burst pressure (maximum)
<b>Temperature range</b>	Ambient: -20 °C to 80 °C (-4 °F to 176 °F); -20 °C to 60 °C (-4 °F to 140 °F)(no flow) Medium (oil): -20 °C to 80 °C (-4 °F to 176 °F)
<b>ELECTRICAL</b>	
<b>Power supply, Voltage</b>	24 VDC (21 V – 30 V)
<b>Current consumption</b>	approx. 400 mA at 24 V
<b>Power consumption</b>	approx. 9.6 W
<b>Switching capacity, digital switching output</b>	24 VDC (maximum 30 V) / 0.2 A (maximum, permanent load)
<b>Switching capacity, alive output</b>	24 VDC (maximum 30 V) / 0.2 A (maximum, permanent load)
<b>Overload protection</b>	Integrated
<b>Connector, Power supply / LAN</b>	8-pin M12 male connector
<b>Connector, Switching output / alive output</b>	5-pin M12 male connector
<b>Permitted common-mode voltage</b>	50 V (housing / ground) maximum
<b>DATA</b>	
<b>Interface</b>	Ethernet, 100 Mbit/s
<b>Protocols</b>	TCP/IP, Modbus-TCP
<b>Internal memory</b>	64 MB, sufficient for data storage for a period of about 150 days to 10 years, depending on the data logger time interval
<b>Display</b>	System LED 1: green = ready; red = system fault Operation LED 2: orange = particles passing through; red = overload (particles too big/-many, offset voltage too high)
<b>Self-monitoring</b>	Integrated
<b>MECHANICAL</b>	
<b>Case material</b>	Stainless steel 1.4308 (salt water resistant)
<b>Dimensions of fittings</b>	2 x G 1/2" (Whitworth pipe thread DIN ISO 228)
<b>Sensor tube diameter</b>	approx. 13 mm (33/64")

Parameter	VIB 6.411
IP rating	IP 65
Weight	approx. 3.5 kg (7.7 lb)
Maintenance	No moving parts, maintenance-free
Dimensions, WEARSCANNER	approx. 170 x 86 x 102 mm (6 11/16" x 3 25/64" x 4 1/64") [L x B x H]
Dimensions, mounting base (delivered mounted)	approx. 137 x 110 x 3 mm (5 25/64" x 4 21/64" x 1/8") [L x B x H]

#### Particle size classes, ISO 16232

Class	B	C	D	E	F	G	H*	I*	J*	K*
Particle size in $\mu\text{m}$	5 - 15	15 - 25	25 - 50	50 - 100	100 - 150	150 - 200	200 - 400	400 - 600	600 - 1000	> 1000

\*Classes H, I, J and K are covered by WEARSCANNER.

## Sensor accessories

<b>IP68 option for industrial accelerometers .....</b>	<b>140</b>
<b>Mounting adapters for vibration sensors .....</b>	<b>142</b>
<b>Dust caps for industrial CLD accelerometers .....</b>	<b>147</b>
<b>Stand and accessories for laser trigger / RPM sensor .....</b>	<b>150</b>
<b>VIBCODE measurement studs .....</b>	<b>152</b>
<b>Accessories for VIBCODE measurement studs .....</b>	<b>155</b>
<b>Measurement studs .....</b>	<b>157</b>
<b>Tools for installation of accelerometers .....</b>	<b>159</b>

## IP68 option for industrial accelerometers

In this cable option, the connection between the sensor and the cable is hermetically sealed and strain-relieved. The shrink-fit part, the cable and the TNC plug are pre-assembled ex-works together with one of the following sensor types:

- VIB 6.125 RIP, VIB 6.129 IP, VIB 6.125 IDEX, VIB 6.129 IDEX



IP68 option for industrial accelerometers

### Features

- Environmental protection: IP68
- Also used in explosive atmospheres (Zone 1)
- Resistant to chemicals and sea water
- Shorter version for reduced mounting depths

### Ordering information

Item No.	Description
VIB 6.760	IP68 option for industrial accelerometers
VIB 6.761	IP68 option for industrial accelerometers, short version
<b>Ordering example</b>	VIB 6.125 RIP / VIB 6.760 / VIB 90093-10 = Sensor + IP68 + coaxial cable, 10 m (32' 9.7")

Note: The test certificate for the sensor VIB 6.125-RIP may be ordered separately (VIB 2.550).

## TECHNICAL INFORMATION

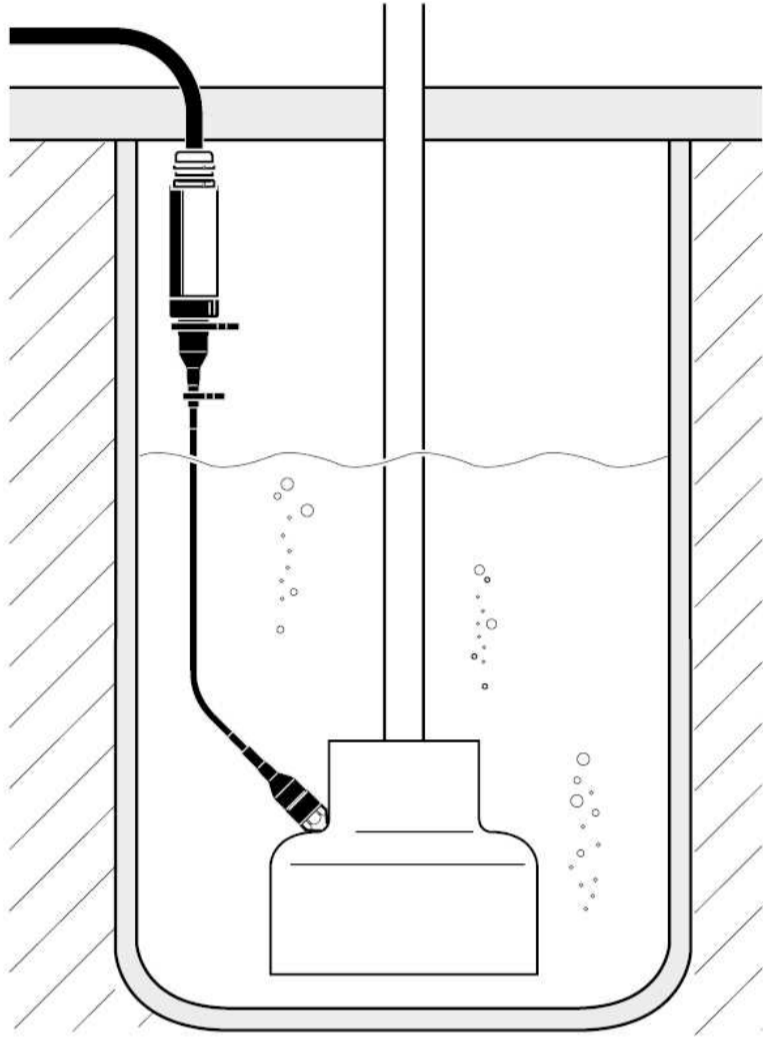
### Technical data

Parameter	VIB 6.760	VIB 6.761
<b>Environmental protection</b>	IP68 (dust tight and waterproof)	
<b>Temperature range</b>	Sensor dependent	
<b>Maximum depth / Pressure</b>	< 8 m (26' 3") in water / zero pressure in oil	
<b>Resistance</b>	Aircraft fuel F40, lubricating oil O-156, hydraulic fluid H515, diesel fuel F54, motor fuel F46, water, seawater	
<b>Mounting height</b>	> 140 mm (5 33/64")	> 120 mm (4 23/32")

### Application example

Vibration measurement on a submersible pump

Extending the sensor cable using the junction box VIB 6.770/13 and the triaxial cable VIB 90080 which both remain above the fluid medium.



## Mounting adapters for vibration sensors

Vibration sensors are mounted using adapters that conform to the structural shape of the sensor. In addition to these, different types of adapters are available. Depending on the application and the on-site requirements, sensors may be fixed to the measurement points by being screwed down or held secure using adhesives or strong magnets.



Mounting options for an "industrial" accelerometer


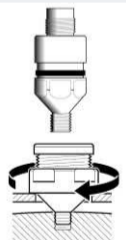
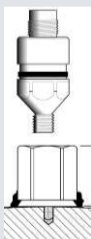

### Fixation options

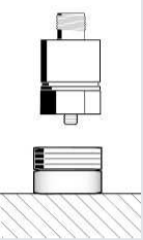
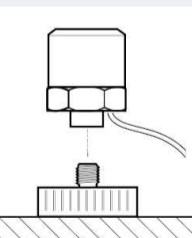
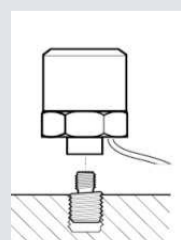
- Screwed mounting
- Glued mounting
- Magnetic connection
- Manual connection using a probe tip


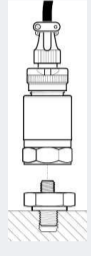
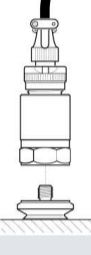
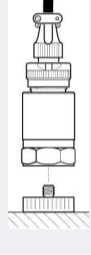
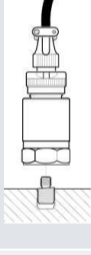

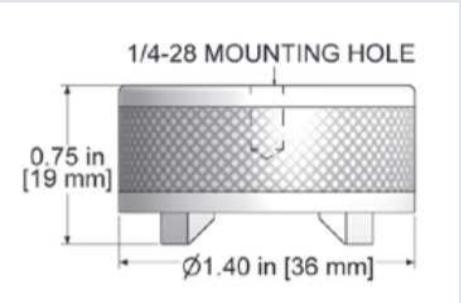
### Suitable for following types of sensors:

- "Industrial" CLD accelerometer
- "Mini" CLD accelerometer
- IEPE accelerometer "100 mV/g",
- "Wind" CLD accelerometer
- VIBROTECTOR vibrations monitor

### Ordering information

Item No.	Illustration	Description	Application / Hint
<b>Mounting adapters for industrial accelerometers VIB 6.12x</b>			
<b>VIB 8.772</b>		Screwed adapter to M10	For installation into an existing M10 hole, e.g. jack ring thread on a motor
<b>VIB 3.411</b> <b>VIB 3.412</b> <b>VIB 3.413</b>		Screwed adapter with locking nut to M8 / M10 / M12	For measurement points located directly under a thin cover (e.g. guard plate, housing). The adapter may be used to replace existing casing screws.
<b>VIB 3.431</b>		Adhesive adapter, M8 to adhesive mount	For measurement points where mounting holes cannot be drilled. Fix using a two-component adhesive (e.g. WEICON HB 300). The adhesive adapter is also suitable for the "100mV/g (IEPE)" accelerometer type VIB 6,210.
<b>VIB 8.586 /</b> <b>VIB 8.587 /</b> <b>VIB 8.588 /</b> <b>VIB 8.589</b>		Extension post, Length: 55 / 95 / 170* / 35 mm (2 11/64" / 3 47/64" / 6 11/16"* / 1 3/8" * 170 mm (6 11/16") for shock pulse measurements only	For measurement points that are difficult to access or located inside a guard plate. Diameter: 12 mm ( 15/32")

Item No.	Illustration	Description	Application / Hint
<b>Mounting adapters for mobile industrial sensors, VIB 6.14x</b>			
<b>VIB 3.420</b>		Magnetic adapter for curved surfaces	For measurement locations made of ferromagnetic material. Shock pulse measurements (roller bearing condition) are not possible with these adapters.
<b>VIB 3.422</b>		Magnetic adapter for flat surfaces	
<b>VIB 3.430</b>		Adhesive adapter	For measurement points where mounting holes cannot be drilled. Fix using a two-component adhesive (e.g. WEICON HB 300).
<b>VIB 3.435 / VIB 3.436 / VIB 3.440</b>		Screw adapter on Screw adapter on	
<b>VIB 3.450</b>		Probe tip	Manual coupling to the measurement location. Material: Aluminium; Dimensions: 19 x 73 mm [ 3/4" x 2 7/8" ] (D x H)
<b>Mounting adapter for mini-sensor, VIB 6.20x</b>			
<b>VIB 3.417-M5 / VIB 3.417-M6</b>		Screw adapter on M5 / M6	
<b>VIB 3.418</b>		Adhesive adapter	For measurement points where mounting holes cannot be drilled. Fix using a two-component adhesive (e.g. WEICON HB 300).
<b>VIB 3.423</b>		Magnetic adapter	
<b>VIB 3.480</b>		M8 threaded pin	Installed in the sensor as standard. Can be replaced if necessary.

Item No.	Illustration	Description	Application / Hint
<b>Mounting adapter for VIBROTECTOR, and sensor "Wind" (VIB 6.195) or "100mV/g" (VIB 6.172)</b>			
VIB 3.437		Screw adapter on M8-90°	
VIB 3.438 / VIB 3.439		Screw adapter on M8 flat	
VIB 3.433		Adhesive adapter	For measurement points where mounting holes cannot be drilled. Fix using a two-component adhesive (e.g. WEICON HB 300).
VIB 3.423		Magnetic adapter	
VIB 3.480		M8 threaded pin	Installed in the sensor as standard. Can be replaced if necessary.
<b>Mounting adapter for Triaxial sensor, VIB 6.555</b>			
VIB 6.657		Magnetic holder	Magnetic coupling to the measurement location. Material: Stainless steel; Max. temperature: + 80°C Dimensions: 



## TECHNICAL INFORMATION

### Accessories

Item No.	Item name / item group
Miscellaneous	"Tools for installation of accelerometers", p. 159

### Technical data, Magnetic adapter

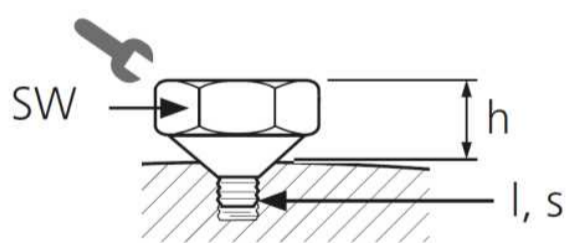
Parameter	VIB 3.420	VIB 3.422	VIB 3.423
Housing, material	Plastic PA6, pole shoe made of steel	Steel	
Block magnet	NdFeB (neodymium iron boron)		
Temperature range (for PA6)	-40°C ... +120°C	---	---
Connection thread	M5	¼-28 UNF	
Weight, total	70 g	27 g	41 g
Weight, magnet	28 g	5 g	7 g
Diameter	34 mm	20 mm	25 mm
Height	23 mm	11 mm	10 mm

Note: During transport/storage, a steel washer needs to be attached to the pole shoes as a short-circuit rail. The safety data sheet is available on the PRUFTECHNIK website.

### Material and dimensions

All of the adapters listed below are made from stainless steel (VA1.4305).

The dimensions are stated in millimeters.

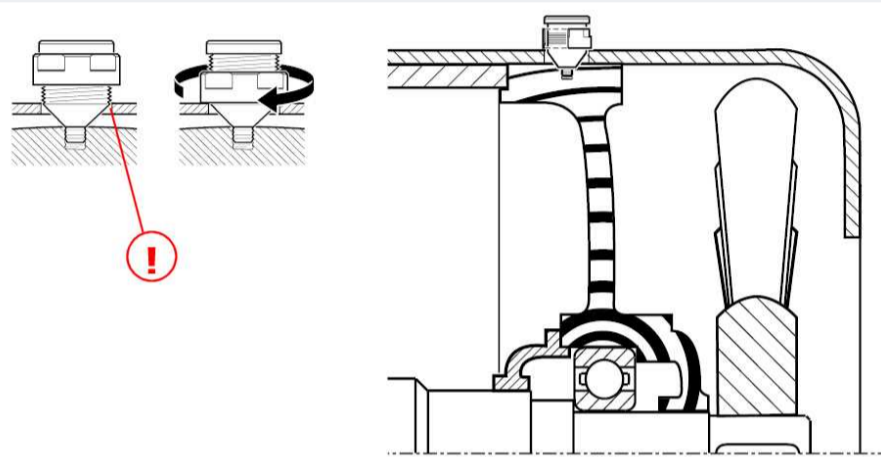


Item No.	Mounting height h	Thread size s	Thread length l	Torque in Nm	Wrench size SW
VIB 3.411	18	M8	6	11	20
VIB 3.412	17	M10	6	22	20
VIB 3.413	16	M12	6	39	20
VIB 3.417-M5	11	M5	5	2.7	13
VIB 3.417-M6	11	M6	6	4.6	13
VIB 3.418	6	---	---	---	---
VIB 3.430	16	---	---	---	---
VIB 3.431 / 3.432	21	---	---	---	---
VIB 3.433	8	---	---	---	---

Item No.	Mounting height h	Thread size s	Thread length l	Torque in Nm	Wrench size SW
VIB 3.435	8	M5-120°	3.5	2.7	19
VIB 3.436	8	M6-90°	6	4.6	19
VIB 3.437	4	M8-90°	5	11	---
VIB 3.438	8	M8	4	11	22
VIB 3.439	1	M5	4	2.7	---
VIB 3.440	9	M8-90°	5	11	19
VIB 3.480	0	M8	11	11	---
VIB 8.772	12	M10-120°	7	22	19

## Mounting examples

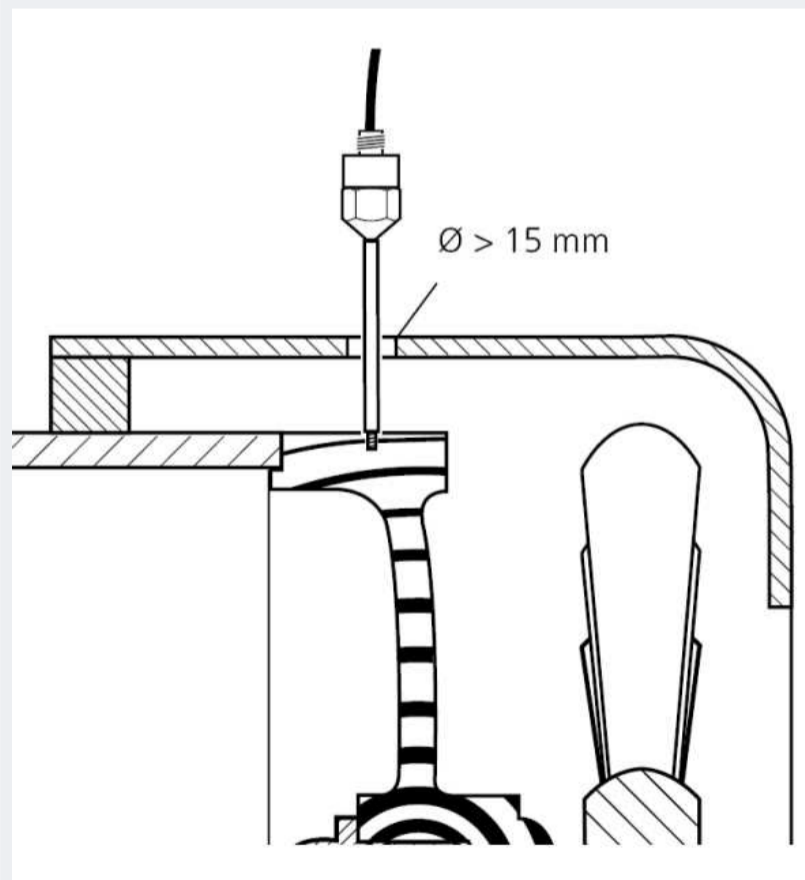
### Screw adapter with lock nut



!: No contact between the adapter and cover.

The lock nut fixes the cover in place while the screw adapter is bolted to the measurement location. For optimum transmission of the signal, the cone must only come in contact with the measurement location and must not come in contact with the cover.

### Extension rod



!: No contact between the extension rod and cover.

## Dust caps for industrial CLD accelerometers

These dust caps and the corresponding clamps are used to seal and relieve the strain at the connection between the sensor and the cable.



### Features

- Design: Straight or angled
- Material: Silicone or Vitone
- Protection: IP 67 or IP 65

### Ordering information

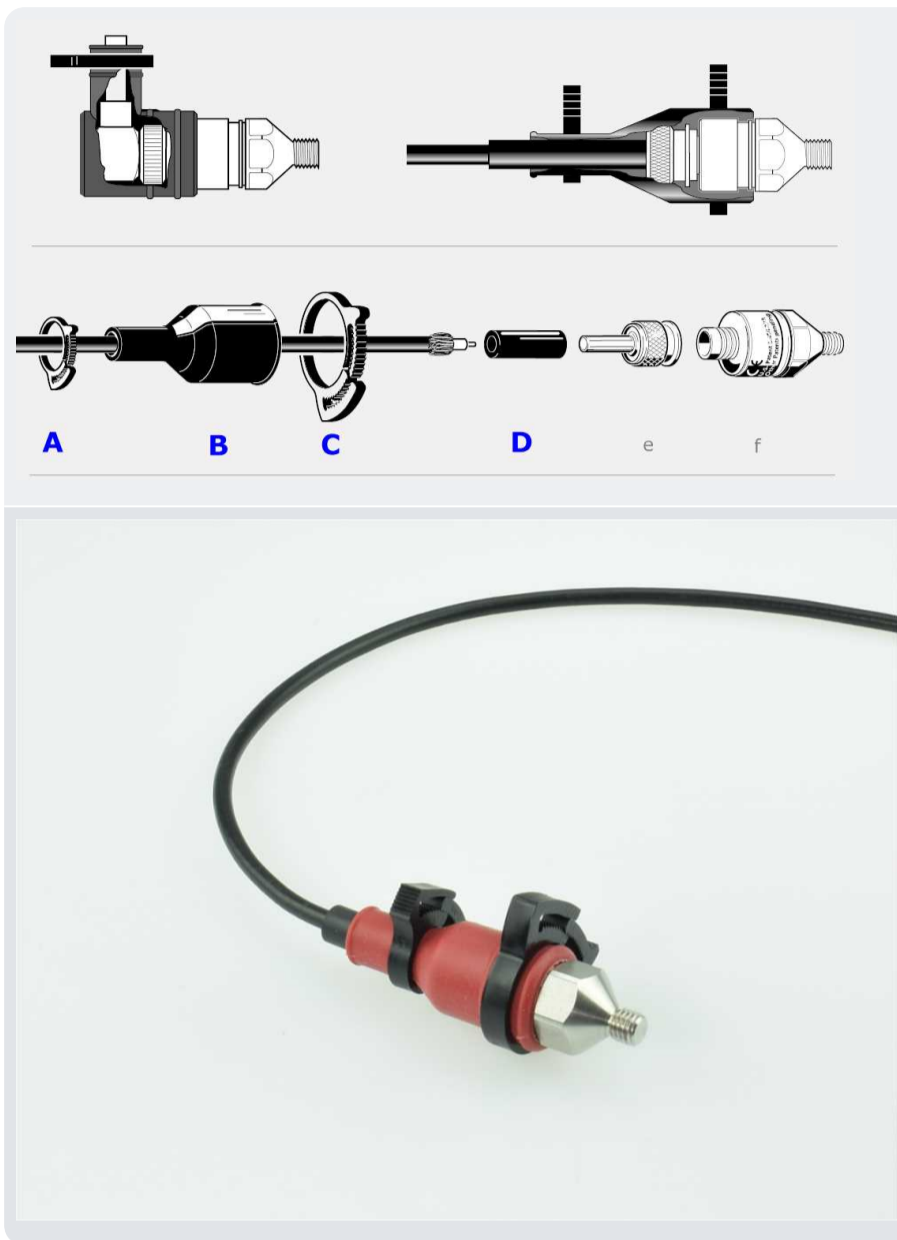
Item No.	Description	Legend
<b>VIB 6.711</b>	Dust caps, angled, oil-resistant, 10 pieces	1
<b>VIB 6.710</b>	Dust caps, angled, 10 pieces	2
<b>VIB 6.700</b>	Dust caps, straight, 10 pieces	3
<b>VIB 6.701</b>	Dust caps, straight, oil-resistant, 10 pieces	4
<b>VIB 6.721</b>	Clamps for dust caps, sensor end, 10 pieces	5
<b>VIB 6.722</b>	Dust cap sleeves, 10 pieces	6
<b>VIB 6.720</b>	Clamps for dust caps, cable end, 10 pieces	7

Note: Rating IP 67 is attained with only straight dust caps used together with dust cap sleeves, protective sheath or triaxial cable. Angled dust caps may be sealed using clamps at only the cable end (IP 65). Only sensors with straight sockets and dust caps may be used in explosive environments.

Only silicone-free dust caps may be used in paint shops.

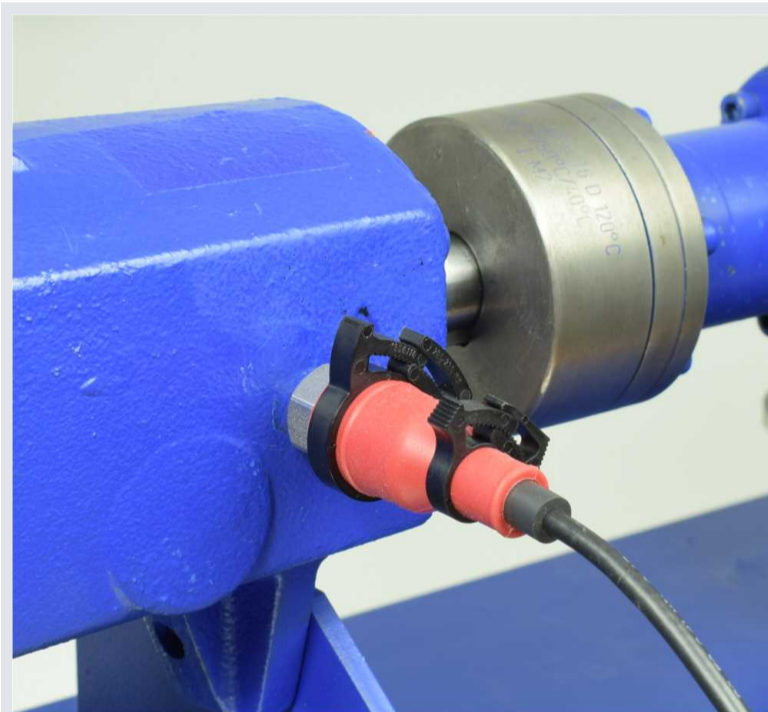
# TECHNICAL INFORMATION

## Overview



### Legend

- **A:** Clamp for dust cap, cable end VIB 6.720
- **B:** Dust cap, straight VIB 6.700
- **C:** Clamp for dust cap, sensor end VIB 6.721
- **D:** Dust cap sleeve VIB 6.722
  - e: TNC plug VIB 93022
  - f: Sensor VIB 6.122 R



## Technical data

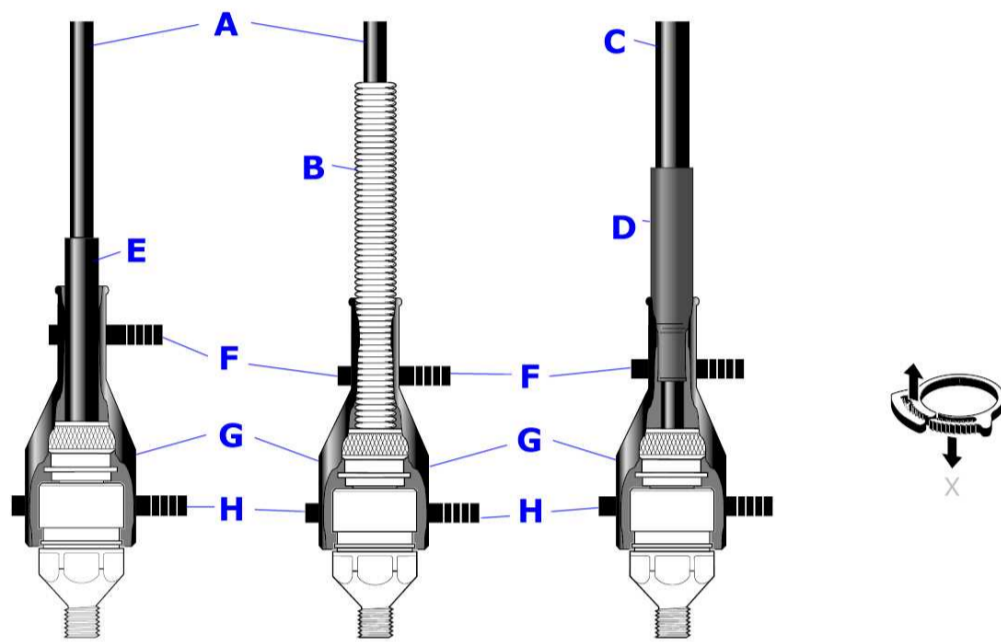
Dust cap	VIB 6.700	VIB 6.710	VIB 6.701	VIB 6.711
<b>Material</b>	Silicone (siloprene HV)		Viton (FKM polymer, P-60 120 black)	
<b>Resistance</b>	Ozone, weathering, aging, UV radiation, hot water, steam (up to 130°C), aliphatic hydrocarbons (mineral oils)		Ozone, weathering, aging, aliphatic, aromatic, chlorinated hydrocarbons (e.g. mineral oils, fats, fuels, mixtures), inorganic acids, chemicals, silicone oils or fats	
<b>Temperature range</b>	-55 °C ... + 180 °C [ -67 °F ... +356°F ]		-30 °C ... + 200 °C [ -22 °F ... +392°F ]	
<b>Environmental protection</b>	IP 67	IP 65	IP 67	IP 65

Clamps, Sleeve	VIB 6.720	VIB 6.721	VIB 6.722
<b>Material</b>	Nylon 66, thermally stabilized		Nitrile rubber (NBR)
<b>Resistance</b>	Industrial solvents, fuels, oils, fats, weathering		Silicone-free, oil-resistant

Clamps, Sleeve	VIB 6.720	VIB 6.721	VIB 6.722
Temperature range	-40°C ... +120°C [ -40 °F ... +248°F ]		-30°C ... +100°C [ -22 °F ... +212°F ]
Clamping range	12.2...14.8 mm	20.5...23 mm	---

### Installation example

- Standard installation using coaxial cable and dust cap sleeve
- Installation using coaxial cable and protective sheath
- Installation using triaxial cable and heat shrink sleeve



- A: Coaxial cable VIB 90008-x  
 B: Protective sheath VIB 6.730  
 C: Coaxial cable VIB 90080-x  
 D: Heat shrink sleeve  
 E: Dust cap sleeve VIB 6.722  
 F: Clamp, cable end VIB 6.720  
 G: Dust cap VIB 6.700  
 H: Clamp, sensor end VIB 6.721  
 X: Open clamp

## Stand and accessories for laser trigger / RPM sensor

This stand is used to mount securely the laser trigger sensor on machines. The sensor may be adjusted to virtually any position using the ball joint on the stand. The magnetic holder on the stand ensures that the setup of the measuring components remains fixed on any magnetic surface. The reflective tape serves as a measurement mark on the rotating shaft.



Stand and reflective tape

### Features

- Secure and stable mounting of sensor
- Mounts readily even on curved surfaces
- 360° sensor adjustment
- Compact structural shape

### Ordering information

Item No.	Description
<b>VIB 6.632</b>	Stand for laser trigger / RPM sensor
<b>VIB 3.306</b>	Reflective tape, 10 mm wide in a roll (4.5 m)

## TECHNICAL INFORMATION

### Technical data

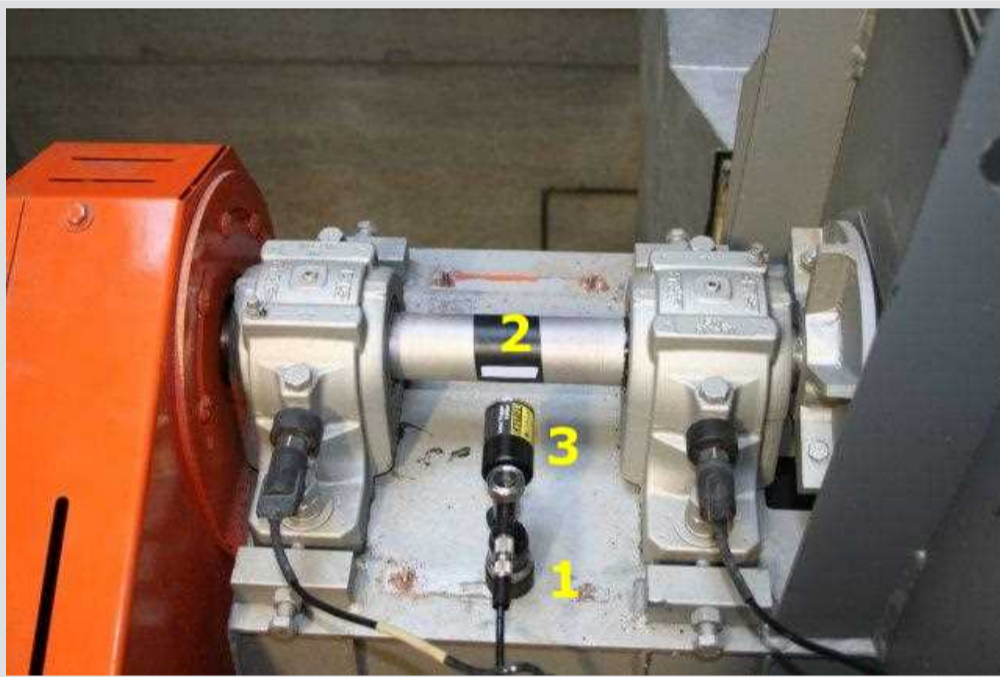
Parameter	VIB 6.632
<b>Weight</b>	approx. 230 g
<b>Mounting height</b>	Max. 116 mm
<b>Fixation</b>	Magnetic; Block magnet: NdFeB

Note: During transportation or storage, a washer-shaped steel plate is placed on the pole pieces to act as a short-circuit rail. The relevant safety data sheet is available for download and reference from the PRÜFTECHNIK website.

## Installation example



RPM sensor mounted on the stand



Measuring RPM: Stand (1), the reflective tape is on the shaft (2) and RPM sensor (3).

## VIBCODE measurement studs

VIBCODE measurement studs are the standard measurement locations used with VIBCODE transducer. They provide a rigid connection to the object being measured, and each has a unique code. They are optimized for a loss-free signal transmission to the transducer. The measurement studs are available in different shapes.



VIBCODE measurement stud comprises stud, code ring and protective cap

### Features:

- Guarantees a rigid connection to the transducer
- Facilitates repeatability in measurement results
- Foolproof identification of measurement points
- Coding of measurement points patented


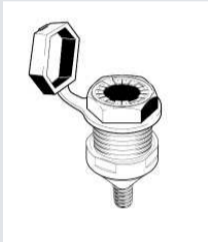
### Mounting options

- Screw mounting
- Glue mounting

### Ordering information

Item No.	Illustration	Description	Application / Hint
<b>VIBCODE measurement studs with threaded bolts</b>			
<b>VIB 8.679 SET</b>		M8, VA 1.4571, 1 x	Standard stud, mounted using M8 threads in aggressive chemical industrial environment
<b>VIB 8.680 SET</b> <b>VIB 8.680 A25</b>		M8, VA 1.4305, 1 x/ M8, VA 1.4305, 25 x	Standard stud, mounted using M8 threads in normal industrial environment
<b>VIB 8.690 SET</b> <b>VIB 8.690 A25</b>		UNC 5/16, VA 1.4305, 1 x/ UNC 5/16, VA 1.4305, 25 x	Standard stud, mounted using UNC 5/16 in normal industrial environment
<b>VIBCODE measurement studs for adhesive mounting</b>			
<b>VIB 8.685 SET</b> <b>VIB 8.685 A25</b>		1 x/ 25 x	For measurement points where mounting holes cannot be drilled. Fix using a two-component adhesive (e.g. WEICON HB 300). Mounting hint: A removable centering pin with self-tapping threads holds the stud in place until the adhesive hardens. Material: Stainless steel, VA1.4305



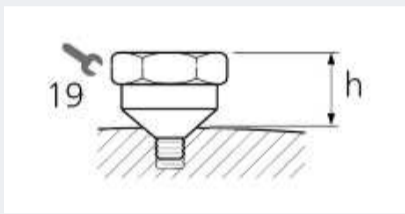
Item No.	Illustration	Description	Application / Hint
<b>VIBCODE measurement studs with extension post</b>			
<b>VIB 8.576</b> <b>VIB 8.577</b> <b>VIB 8.578</b>		M8 x 55 mm (2 3/16")/ M8 x 95 mm (3 3/4")/ M8 x 170 mm (6 11/16")	Measurement stud for measurement points that are difficult to access or where standard studs cannot be directly mounted. The longest version (170 mm / 6 11/16") is suited for shock pulse measurements. Vibration measurements cannot be made using this type of stud as the length of the extension post increases the vibration amplitude. Material: Stainless steel, VA 1.4305
<b>VIBCODE measurement studs with locking nut</b>			
<b>VIB 8.571</b> <b>VIB 8.572</b> <b>VIB 8.573</b>		locking nut, M8 / locking nut, M10 / locking nut, M12 /	Measurement stud for measurement points protected with a thin guard or housing; the locking nut is tightened against the housing (or guard) and the measurement stud is screwed to the measurement position. To ensure optimum signal transmission, the cone of the stud may touch only the measurement point (e.g. the bearing housing), but not the metal casing. The VIBCODE measurement studs may be used to replace the used housing screws. Material: Stainless steel, VA 1.4305

## TECHNICAL INFORMATION

### Accessories

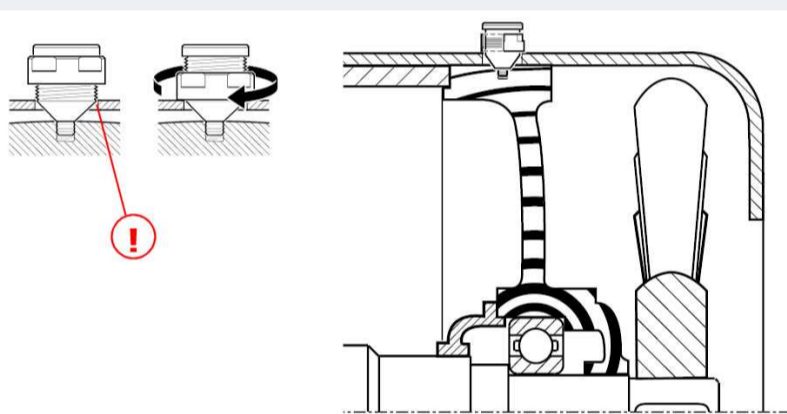
Item No.	Description / Group
Miscellaneous	"Accessories for VIBCODE measurement studs", p. 155
Miscellaneous	"Tools for installation of accelerometers", p. 159

### Mounting height

Item No.	Mounting height h in mm	Illustration
VIB 8.679../680../690..	15	
VIB 8.571 /..72 /..73	28 / 27 / 26	
VIB 8.685..	21	

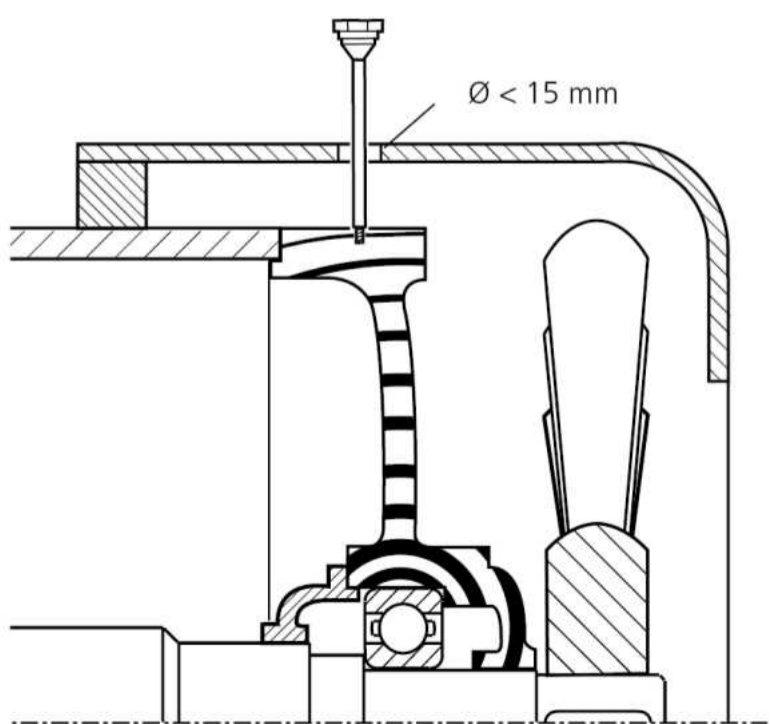
### Mounting example

#### VIBCODE measurement stud with locking nut



!: No contact between measurement point and protective cover  
 The locking nut is tightened against the housing (or guard) and the measurement stud is screwed to the measurement position. To ensure optimum signal transmission, the cone of the stud may touch only the measurement point, but not the metal casing.

#### Extension post



!: No contact between the extension post and the protective cover

## Accessories for VIBCODE measurement studs

These items are used as consumables and to code VIBCODE measurement studs.



Protective cap, code ring, and encoding tool

### Features

- Patented, measurement point coded mechanically
- Over 8000 different coded patterns possible
- Measurement point protected from contamination
- Easy encoding using a cutting tool

### Ordering information

Item No.	Description
VIB 8.563 A25	VIBCODE code ring, 25 pieces
VIB 8.566	Protective cap for VIBCODE stud
VIB 8.692	VIBCODE encoding tool

## TECHNICAL INFORMATION

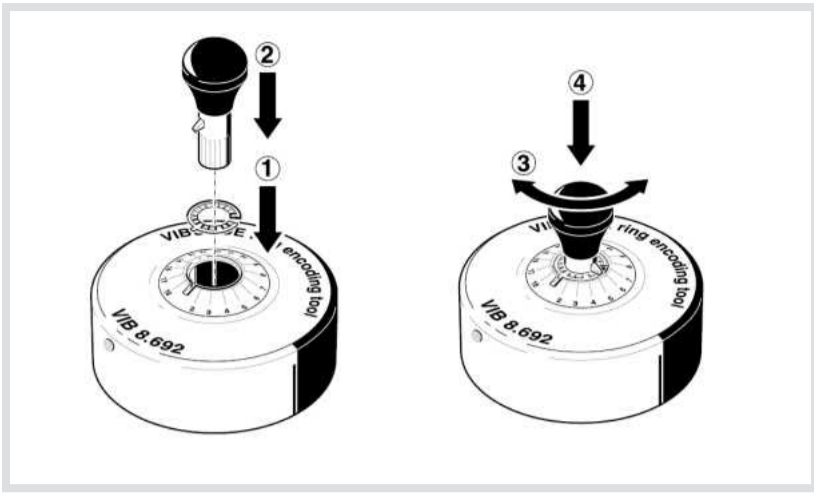
### Technical data

Parameter	Protective cap - VIB 8.566	Code ring - VIB 8.563
Material	Desmopan®	Hostaform®
Temperature range	-30 °C ... + 100 °C [ -22 °F ... + 212 °F ]	-40 °C ... + 130 °C [ -40 °F ... + 266 °F ]
Resistance	Oil, Coolant	

### Application example, encoding tool

How to use the encoding tool:

- Insert code ring
- Insert the cutting tool
- Set code number (issued from OMNITREND software)
- Slowly press down the cutting tool



## Measurement studs

The accelerometer with quick fitting coupling (VIB 8.666 R) is connected to these measurement studs. The stud is connected to the measuring object in a stable manner and optimized for loss-free signal transmission to the sensor. Measurement studs are available in various designs and materials.



Measurement stud with bonding base.

### Features:

- Defined measurement location
- Stable coupling
- Reproducible measurements

### Mounting options

- Threaded mounting
- Adhesive mounting

### Ordering information

Item No.	Description, Mounting x Installation height X [mm], Material	
<b>VIB 32000</b>	Measurement stud for accelerometer type VIB 8.666 R, M8 x 24, <b>free-cutting steel<sup>1</sup></b> , nickel-plated	
<b>VIB 32010</b>	-, M8 x 24, stainless steel (VA 1.4305)	
<b>VIB 32200</b>	-, M8 x 113, free-cutting steel, nickel-plated	
<b>VIB 32210</b>	-, M8 x 113, stainless steel	
<b>VIB 32310</b>	-, M8 x 202, stainless steel	
<b>VIB 32410</b>	-, M8 x 291, stainless steel	
<b>VIB 33000</b>	-, bonding base x 14, stainless steel  For measurement points where mounting holes cannot be drilled. Fix using a two-component adhesive (e.g. WEICON HB 300).	

<sup>1</sup>Material number: 1.0715.07

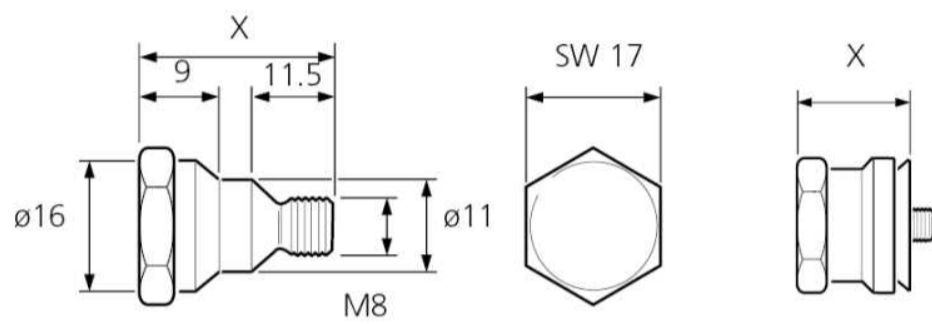
## TECHNICAL INFORMATION

### Accessories

Item No.	Description
<b>VIB 81025</b>	Protective cap for measurement stud (black, LDPE, Ta < 70°C)
Miscellaneous	"Tools for installation of accelerometers", p. 159

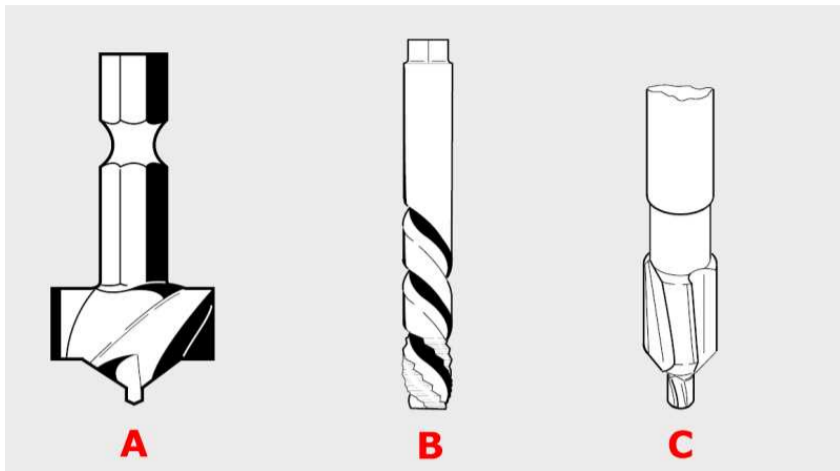
### Dimensions

Values in mm



## Tools for installation of accelerometers

This drilling tool is used when mounting sensors with screw threads. The special countersink is intended to prepare a measurement location for the vibration sensor installed in the VIBSCANNER.



VIBSCANNER special countersink (A), thread cutter (B), 90° countersink (C).

### Overview

- Thread cutter M8 and UNC 5/16
- 90° countersink for sensors with a cone base
- Special countersink for VIBSCANNER sensor

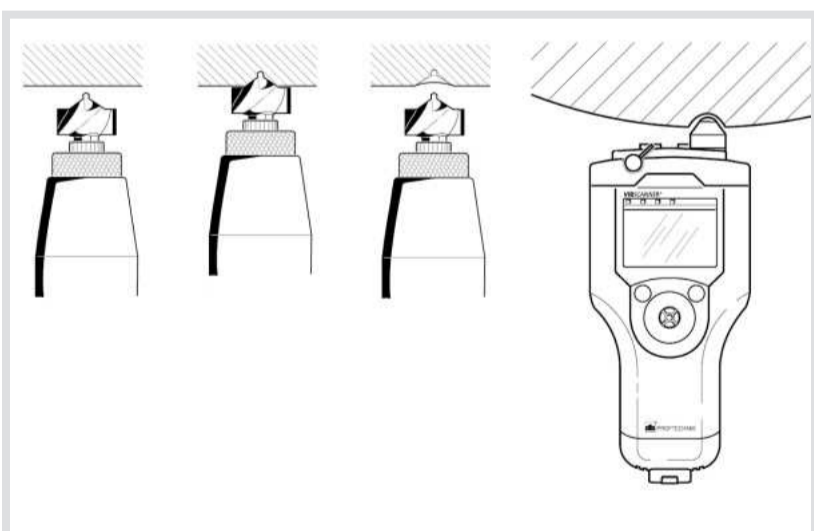
### Ordering information

Item No.	Name
VIB 8.610	Special countersink, VIBSCANNER
VIB 8.693	Thread cutter M8
VIB 8.694	90° countersink
VIB 8.696	Thread cutter UNC 5/16

## TECHNICAL INFORMATION

### Application example

Preparation of a measurement location for the VIBSCANNER vibration sensor with the special countersink.



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## Overview: Sensors for portable instruments

Which sensors can be operated with which instrument? You can find the answer in the following overviews:

### Vibration measurement

Item No.	Sensor	Portable Instrument				Connection to meas. location
		VSC 2	VXP II	VXP EX	VSC EX	
VIB 6.142 R	Industrial, Standard	✓	✓	✗	✗	e.g. Magnetic adapter VIB 3.420
VIB 6.142 DEX	Industrial, Standard, EX	✗	✗	✓	✓	e.g. Magnetic adapter VIB 3.420
VIB 6.147	Industrial, low-speed	✓	✓	✗	✗	e.g. Magnetic adapter VIB 3.420
VIB 6.147 DEX	Industrial, low-speed, EX	✗	✗	✓	✓	e.g. Magnetic adapter VIB 3.420
VIB 8.660	VIBCODE	✓	✓	✗	✗	VIBCODE stud (bayoneted fitting)
VIB 8.660 HEX	VIBCODE EX	✗	✗	✓	✓	VIBCODE stud (bayoneted fitting)
VIB 6.655	Triaxial, IEPE	✓	✓	✗	✗	Magnetic adapter VIB 6.657
VIB 6.172	Monoaxial, IEPE	✓	✓	✗	✗	Magnetic adapter VIB 3.423
VIB 8.666	Quick fit accelerometer	✓	✓	✗	✗	Measurement stud (bayoneted fitting)
VIB 5.731 / 5	VIBROTECTOR	✗	✓	✗	✗	Threaded mount

VSC = VIBSCANNER / VXP = VIBXPART

### Process parameter

Item No.	Sensor	Portable Instrument			Connection to meas. location
		VXP II	VXP EX	VSC EX	
VIB 6.631	Laser trigger / RPM sensor	✓	✗	✗	Optical, reflected laser beam
VIB 6.631 EX	Laser trigger / RPM sensor, EX	✗	✓	✓	Optical, reflected laser beam
VIB 6.672	LED stroboscope (RPM, Phase)	✓	✗	✗	Optical, reflected flash light
VIB 8.607-1,5	Temperature probe	✓	✓	✓	Built-in magnetic holder
VIB 8.608	Temperature handheld probe	✓	✓	✓	Manual contact
VIB 6.640	Inductive proximity sensor	✓	✗	✗	Inductive
VIB 6.673	Current clamp	✓	✗	✗	Clamping around the electrical conductor

VSC = VIBSCANNER / VXP = VIBXPART

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## Cables and installation material

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### Device cables

<b>Ethernet cable for VIBXPART II .....</b>	<b>164</b>
<b>VIBSCANNER channel switches .....</b>	<b>165</b>
<b>Communication adapter and USB cable for VIBXPART EX .....</b>	<b>167</b>
<b>Serial PC cables - RS232 .....</b>	<b>169</b>
<b>USB cables for VIBXPART II .....</b>	<b>171</b>

## Ethernet cable for VIBXPART II

This cable is used for data transmission within a network.




Ethernet cable connected to VIBXPART II

### Features

- The patch cable is used to connect measurement devices to network sockets
- FTP CAT.5 patch
- ISO / IEC 11801 & EN 50173
- Gigabit Ethernet type CM (UL), C (UL)

### Ordering information

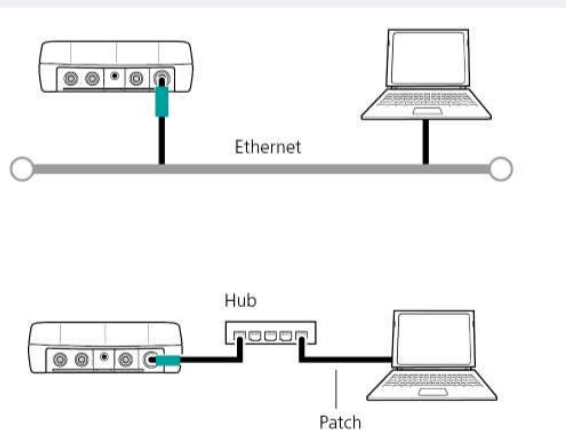
Item No.		Description
VIB 5.331		Ethernet cable for VIBXPART II, 2 m (6' 6.7"), RJ45 to MiniSnap

Note: This cable must not be used with the intrinsically safe VIBXPART EX.

## TECHNICAL INFORMATION

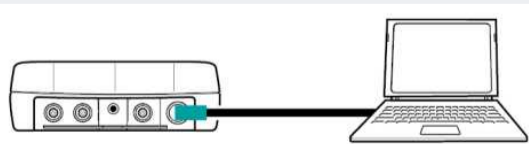
### Examples

#### VIBXPART II communicating with PC via a network



Connect the Ethernet cable to the communication socket (green). A commercially available patch cable is connected to a network interface card. Both cables are then connected to either a network socket or to a hub.

#### VIBXPART II communicating with a PC directly via a patch cable



Connect the Ethernet cable to the communication socket (green) and to the network interface card.

## VIBSCANNER channel switches

The channel switch is used for 2-plane balancing with VIBSCANNER. It simplifies the measurement through sequential control of the two measurement channels.



Automatic channel switch (left) and manual channel switch (right)

### Features

- No need to unplug the sensor cable
- Automatic or manual switching of the measurement channels
- Manual channel switching also suitable for the intrinsically safe VIBSCANNER EX

### Ordering information

Item No.	Description
VIB 5.445	Manual channel switch for VIBSCANNER
VIB 5.446	Automatic channel switch for VIBSCANNER

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
VIB 5.436	"Pre-assembled sensor cables and adapters for CLD accelerometers (portable devices)", p. 174
Miscellaneous	Coaxial cable with two TNC sockets – available in varying lengths

### Technical data

Parameter	VIB 5.445	VIB 5.446
Case material	Aluminium	
Connections	VIBSCANNER: 1x TNC socket Sensors: 2x TNC sockets	VIBSCANNER: Cable with MiniSnap plug – securely connected Sensors: 2x MiniSnap sockets
Display, active channel	Position of the toggle switch	LED display
Dimensions	97 x 63 x 35 mm (3 13/16" x 2 31/64" x 1 3/8")	
Weight	approx. 230 g (11 oz)	

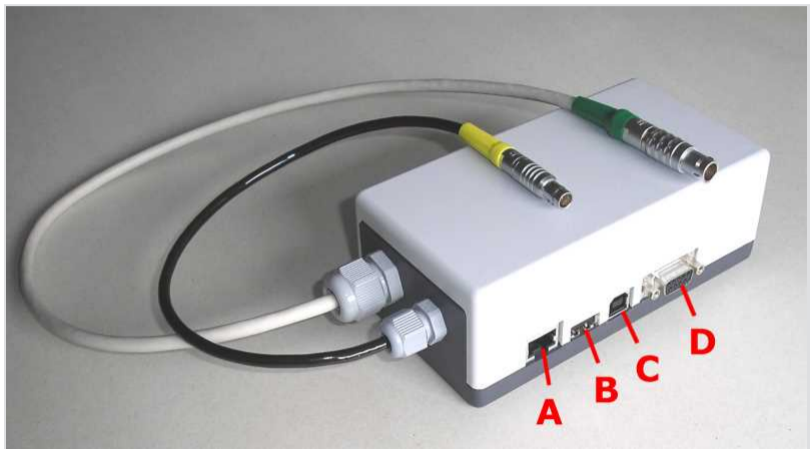
## Application example

Balancing with VIBSCANNER and automatic channel switch in two planes  
Vibration sensors connected to the channel switch using the sensor cable VIB 5.436.



## Communication adapter and USB cable for VIBXPERT EX

The adapter is intended for use as a communication interface for the intrinsically safe VIBXPERT EX. The adapter protects the instrument against damage due to over voltages that may arise from connecting non-certified peripheral equipment.

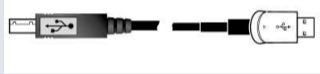


Communication adapter with interfaces for Ethernet (A), USB master (B), USB slave (C) and RS232 (D)

### Features

- USB slave und USB master
- Ethernet, RJ 45
- Serial, RS232

### Ordering information

Item No.		Description
VIB 5.330 UNV		Universal communication adapter for intrinsically safe VIBXPERT EX
VIB 5.338		USB cable for intrinsically safe VIBXPERT, 2 m (6' 7")

Note: The communication adapter must not be used in hazardous areas.

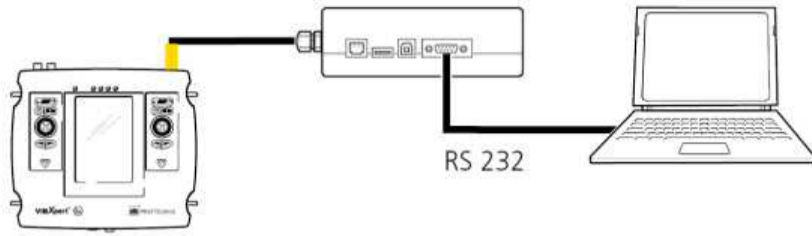
## TECHNICAL INFORMATION

### Technical data, VIB 5.330 UNV

Parameter	VIB 5.330 UNV
<b>Interfaces</b>	Intrinsically safe VIBXPERT EX: Two permanent connection cables for digital and communication ports PC: RS232 and USB (slave) Printer: USB (master) Network: RJ 45
<b>Case material</b>	Plastic – Polystyrol
<b>Dimensions, L x B x H</b>	170 x 80 x 55 mm (6 11/16" x 3 5/32" x 2 11/64")
<b>Weight</b>	approx. 350 g (12.3 oz)

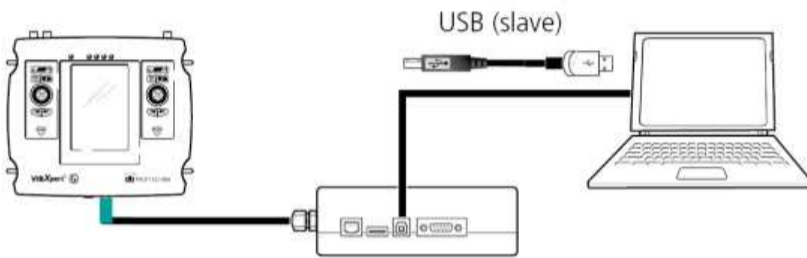
## Examples

### Intrinsically safe VIBXPERT EX communicating with a PC via the serial port



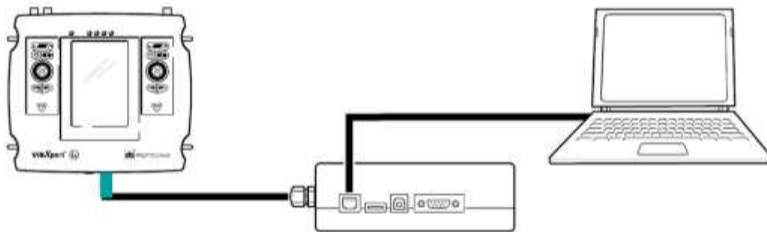
Connect the adapter cable with the yellow sleeve to the measuring instrument.  
Connect the PC to the communication adapter using a suitable serial (RS232) cable.

### Intrinsically safe VIBXPERT EX communicating with a PC via the USB interface



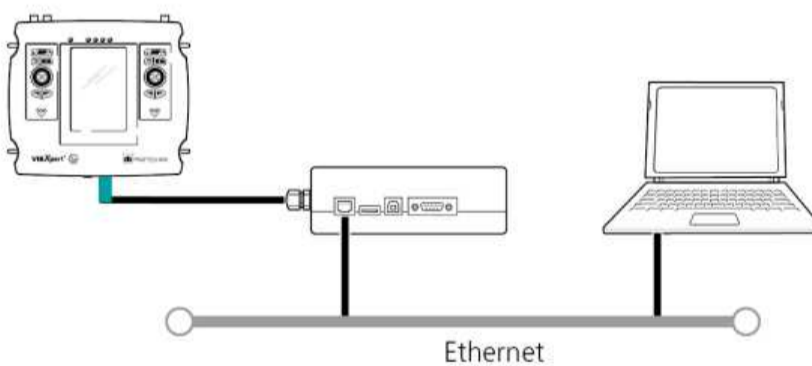
Connect the adapter cable with the green sleeve to the measuring instrument.  
Connect the PC to the communication adapter using the USB cable for VIBXPERT EX (VIB 5.338).

### Intrinsically safe VIBXPERT EX communicating with a PC via a patch



Connect the adapter cable with the green sleeve to the measuring instrument.  
Connect the PC to the communication adapter using a straight patch cable (RJ 45).

### Intrinsically safe VIBXPERT EX communicating with a PC via the network



Connect the adapter cable with the green sleeve to the measuring instrument.  
Use patch cables and connect both the PC and the communication adapter to a network socket.



## Serial PC cables - RS232

The cables are used for data transmission via the serial interface (RS232) of the measuring instrument. The adapter cable "USB-Serial" is intended for VIBSCANNER but is necessary if the PC possesses only USB ports.






### Suited for following handheld devices:

- VIBSCANNER
- VIBXPERT II

Serial PC cable connected to VIBXPERT II

### Ordering information

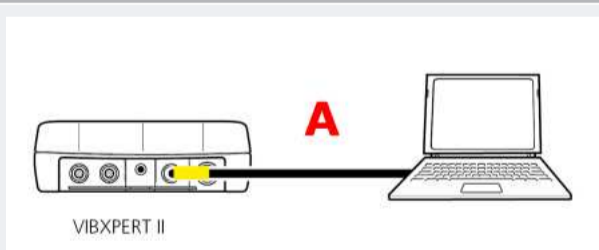
Item No.		Description
VIB 5.430-2		Serial PC cable, 2 m, D-Sub9 (f) to MiniSnap
VIB 5.448		VIBSCANNER adapter cable, "USB - Serial", 0.2 m, D-Sub9 (f) to USB
VIB 5.430-USB		VIBSCANNER EX adapter cable "USB - Serial", MiniSnap to USB

Note: The serial PC cable must not be used with the intrinsically safe VIBXPERT EX.

## TECHNICAL INFORMATION

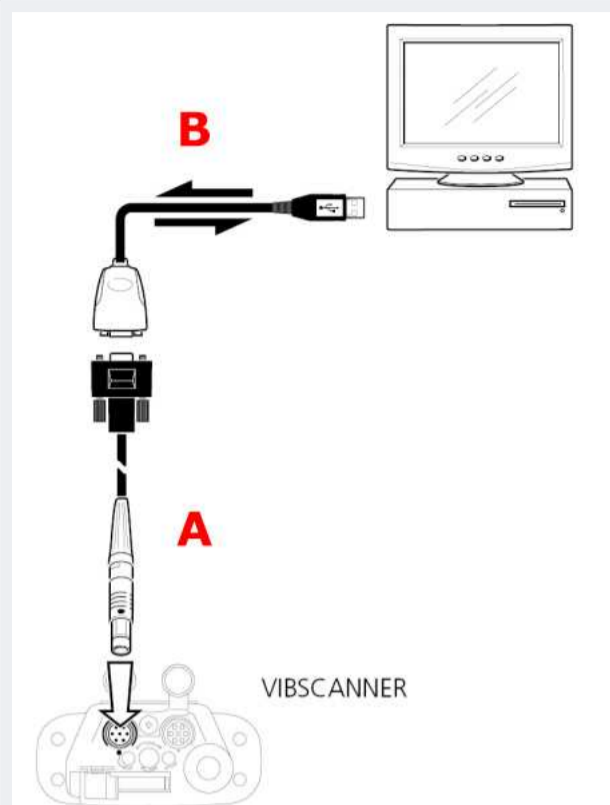
### Examples

#### VIBXPERT II communicating with a PC via the serial port



Connect the device digital socket (yellow) to the PC serial port using the cable (A).

VIBSCANNER communicating with a PC via the serial interface  
and the "USB - Serial" adapter cable



Connect the PC cable (A) to the digital socket (yellow). Connect the cable adapter "USB - Serial" (B) to the USB port on the PC. Connect cables A and B together.

## USB cables for VIBXPERT II

This cable is designed for data transfer between VIBXPERT II and a PC. A USB pen drive and a matching connection cable are available for storing measured data on an external data storage medium.





### Features

- USB 2.0
- Storage medium with 1 GB

USB cable for data transfer connected to VIBXPERT II.

### Ordering information

Item No.		Description
<b>VIB 5.330 SUSB</b>		USB cable for VIBXPERT II, 2.9 meters, USB to MiniSnap
<b>VIB 5.330AMEM</b>		Connection cable for USB pen drive
<b>VIB 5.330-USB</b>		USB pen drive, 1 GB

Note: These cables and adapters must not be operated with VIBXPERT EX.

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## Sensor cables, pre-assembled

<b>Pre-assembled sensor cables and adapters for CLD accelerometers (portable devices) .....</b>	<b>174</b>
<b>Cable adapter for VIBXPERT II .....</b>	<b>175</b>
<b>Pre-assembled sensor cables for measuring low signal voltage/low signal current, portable measuring devices .....</b>	<b>177</b>
<b>Cables for signal output – handheld devices .....</b>	<b>180</b>
<b>Pre-assembled sensor cable and adapter for trigger / RPM sensor (portable devices) .....</b>	<b>181</b>
<b>Pre-assembled sensor cables and adapters for voltage-supplied sensors (handheld devices) ..</b>	<b>185</b>
<b>Connection cable for field multiplexer on VIBXPERT II .....</b>	<b>187</b>
<b>Extension cable for analog measuring channel, portable devices .....</b>	<b>188</b>
<b>Sensor cables and adapters for VIBSCANNER 2 .....</b>	<b>189</b>
<b>Overview: Sensor cables for portable instruments .....</b>	<b>191</b>

## Pre-assembled sensor cables and adapters for CLD accelerometers (portable devices)

These cables and adapters are used to connect CLD accelerometers to portable devices.



Sensor VIB 6.142 connected to VIBXPERT II using the spiral connection cable VIB 5.436



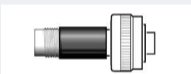
### Suited for following portable devices:

- VIBXPERT II, VIBXPERT EX
- VIBSCANNER, VIBSCANNER EX
- VIBGUARD portable

### Suited for following types of sensors:

- CLD accelerometers with TNC cable connection
- "Wind" CLD accelerometer VIB 6.195

### Ordering information

Item No.		Description
VIB 5.436		CLD accelerometer cable, spiral, 1.8 m, TNC connector to MiniSnap
VIB 5.437-2,9 VIB 5.437-5		CLD accelerometer cable, straight, 2.9 m or 5 m, TNC connector to MiniSnap
VIB 5.449-CLD		Adapter used to connect VIB 6.195 to portable measuring devices, 2-pin MIL-C5015 plug to TNC socket

Note: For cable lengths greater than 2.9 m, the EMC immunity of the signal path can be adversely affected.

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
Miscellaneous	"Extension cable for analog measuring channel, portable devices", p. 188

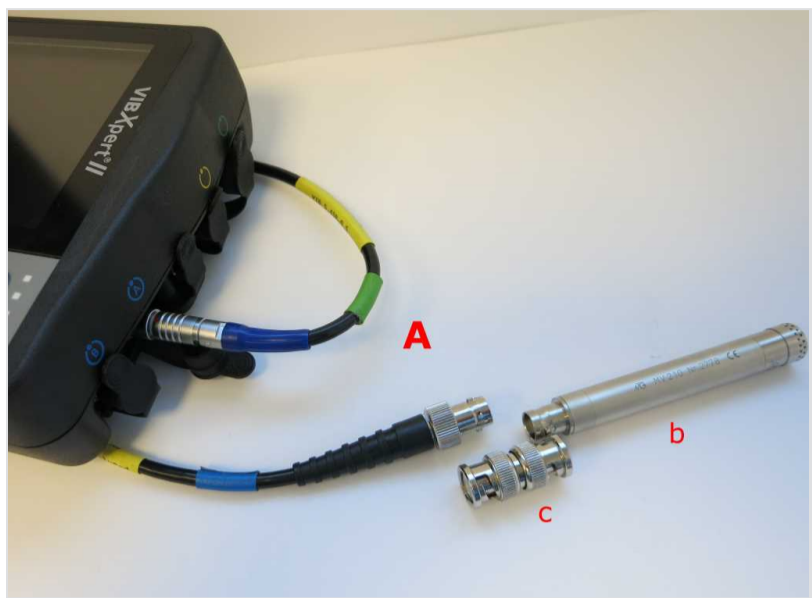
### Compatibility overview: Sensor cable – Measurement device

The following overview shows the type of sensor cable that may be connected to the corresponding device. For cables marked with (\*), additional cables and/or adapters are required in the measurement chain.

Cable / Adapter	VIBXPERT II	VIBXPERT EX	VIBSCANNER	VIBSCANNER EX	VIBGUARD portable
VIB 5.436	✓	✓	✓	✓	✗
VIB 5.437-2,9 / -5	✓	✓	✓	✓	✗
VIB 5.449-CLD*	✓	✗	✓	✗	✓

## Cable adapter for VIBXPERT II

The sensor cable and adapter are used to connect vibration sensors with a voltage output (IEPE) to handheld measurement devices.



Microphone(b) connected to VIBXPERT II using a BNC coupler (c) and sensor cable VIB 5.438-0,5 (A)




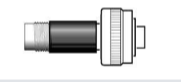

### Suited for following portable devices:

- VIBXPERT II
- VIBSCANNER
- VIBGUARD portable

### Suited for following types of sensors:

- Accelerometers (IEPE) with BNC cable connection
- Accelerometer 100 mV/g" (IEPE) VIB 6.172
- Triaxial accelerometer VIB 6.655

### Ordering information

Item No.		Description
VIB 5.438-0,5		Sensor cable for accelerometer (IEPE), straight, 0.5 m, BNC connector to MiniSnap
VIB 5.422		Sensor cable for accelerometer (IEPE), spiral, 1.8 m, MIL connector to MiniSnap
VIB 5.345-6		Extension for sensor cable with MIL connector, 6 m, MIL plug to MIL socket
VIB 5.449-ICP		Adapter for connecting VIB 6.172 to portable measuring devices
VIB 5.336		Sensor cable for triaxial accelerometer VIB 6.655

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
Miscellaneous	"Extension cable for analog measuring channel, portable devices", p. 188

### Technical data - VIB 5.336

Parameter	VIB 5.336
<b>DESIGN</b>	
Conduct layout	4-pin, AWG25, spiral CTC cable from adapter to sensor
Cable sheath	PU

Parameter	VIB 5.336
Diameter	5.3 mm
Cable length	approx. 0.4 m (15 3/4") device side / approx. 2.6 m (8' 6 23/64") sensor side
<b>ENVIRONMENT</b>	
Temperature range	Operation: -10 °C to 60 °C (14 °F to 140 °F) Storage: -20 °C to 80 °C (-4 °F to 176 °F)
Relative humidity	< 95 %
Environmental protection	IP65
Weight	approx. 310 g

### Compatibility overview: Sensor cable – Measurement device

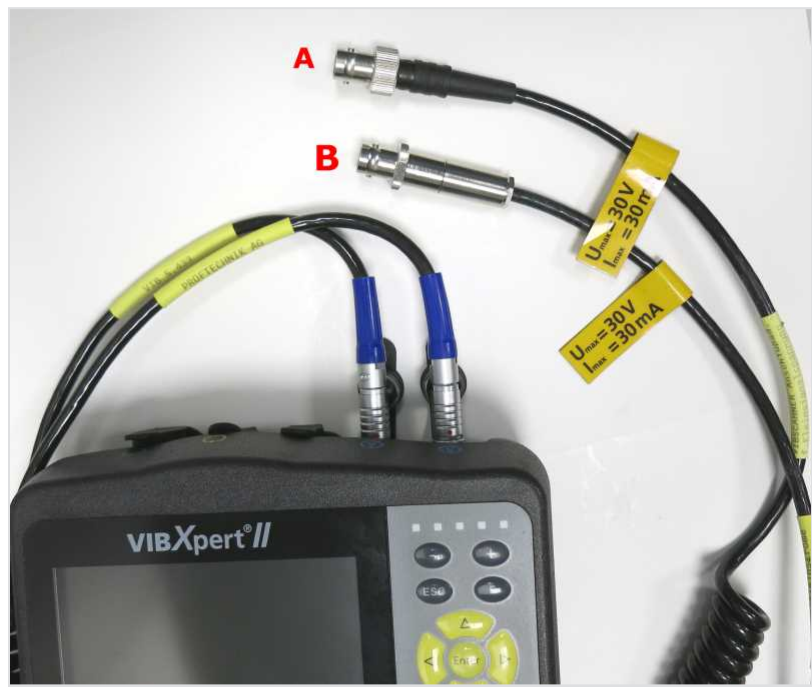
The following overview shows the type of sensor cable that may be connected to the corresponding device. For cables marked with (\*), additional cables and/or adapters are required in the measurement chain.

Sensor cable / Adapter	VIBXPERT II	VIBSCANNER	VIBGUARD portable
VIB 5.438-0,5*	✓	✓	✗
VIB 5.422	✓	✓	✗
VIB 5.345-6	✓	✓	✗
VIB 5.449-ICP*	✓	✓	✓
VIB 5.336	✓	✗	✗



## Pre-assembled sensor cables for measuring low signal voltage/low signal current, portable measuring devices

These sensor cables are used for measuring small signal voltages or level signals provided by other measuring instruments.



### Compatible with the following measuring devices:

- VIBXPERT II / VIBSCANNER
- VIBXPERT EX / VIBSCANNER EX

### Signal types:

- Voltage, AC: 0-30 V
- Voltage, DC: 0-30 V
- Current, DC: 0-30 mA

Sensor cables for measuring small signal voltage (A) and small signal current (B) connected to VIBXPERT II.

### Ordering information

Item No.		Description
VIB 5.433		Sensor cable for measuring small signal voltage with VIBSCANNER / VIBXPERT II, spiraled, 1.8 meters, BNC socket to MiniSnap
VIB 5.433 X		Sensor cable for measuring small signal voltage with VIBSCANNER EX / VIBXPERT EX, spiraled, 1.8 meters, BNC socket to MiniSnap
VIB 5.434		Sensor cable for measuring small signal current with VIBSCANNER / VIBXPERT II, spiraled, 1.8 meters, BNC socket to MiniSnap

Notes: An additional cable with at least one BNC plug is required to connect the sensor cable to the measuring instrument. These sensor cables may only be operated **outside** of the EX zone!

All circuits in the VIBXPERT II are DC coupled. When more than one circuit is connected, faults may occur in the case of potential differences.

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
Misc.	"Extension cable for analog measuring channel, portable devices", p. 188

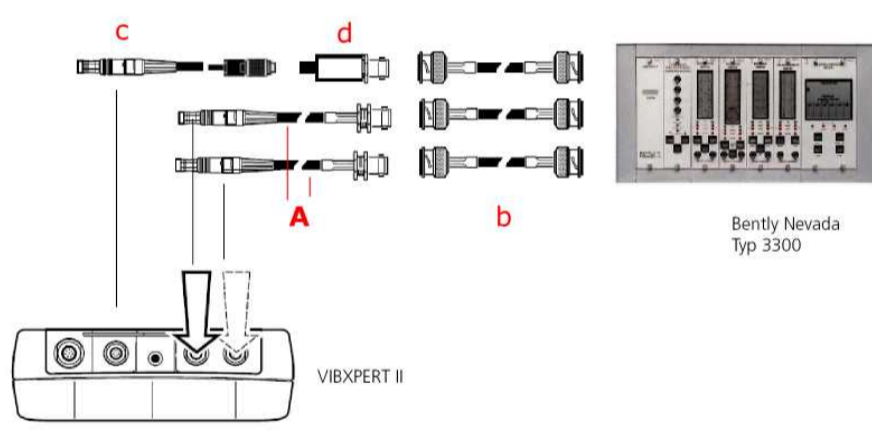
### Technical data, VIB 5.433 X

Parameter	VIB 5.433 X
Temperature range	0°C ... + 40 °C (32...104 °F)
Maximum measurement error	-2.0% / +2.7%
$f_{\max}$ AC measurement	5 kHz

Note: VIBXPERT EX resp. VIBSCANNER EX may only be operated with this cable for voltage measurements. The cable protects the analog interfaces on the measuring device from overvoltages. The cable may only be connected outside of the EX zone, to a circuit, whose maximum voltage does not exceed  $265 V_{\text{eff}}$ , even in the case of an error.

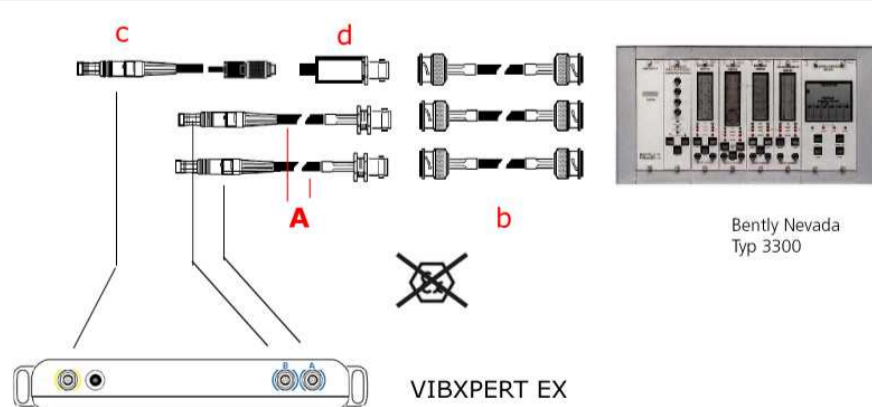
### Application examples

#### VIBXPERT II: Shaft vibration measured as a voltage signal on a machine protection system (e.g. Bentley Nevada 3300)



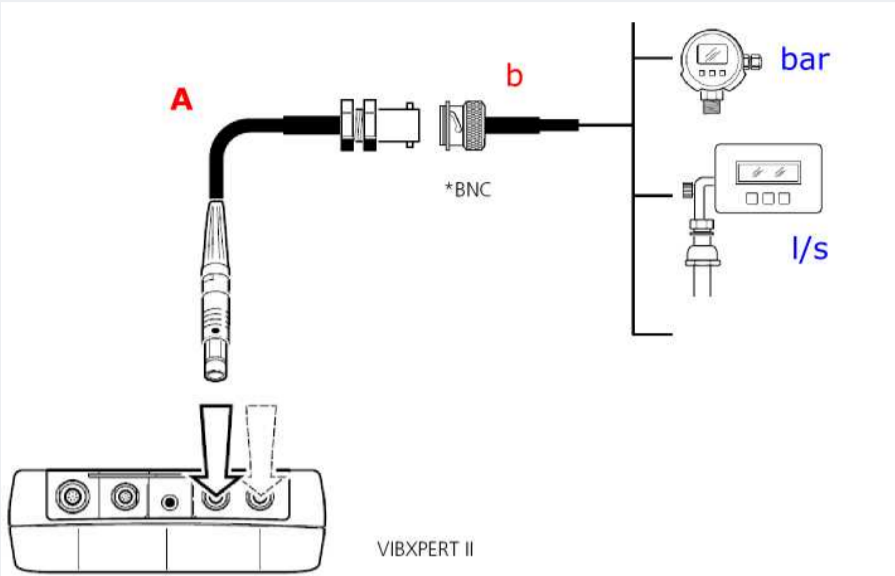
- A: Sensor cable for measurement of signal-low voltage VIB 5.433 (2 pieces)
- b: Coaxial cable with BNC connector, 3 pieces
- c: Sensor cable for trigger / RPM sensor VIB 5.432-2,9
- d: Keyphasor adapter VIB 5.332

#### VIBXPERT EX: Shaft vibration measured as a voltage signal on a machine protection system (e.g. Bentley Nevada 3300)



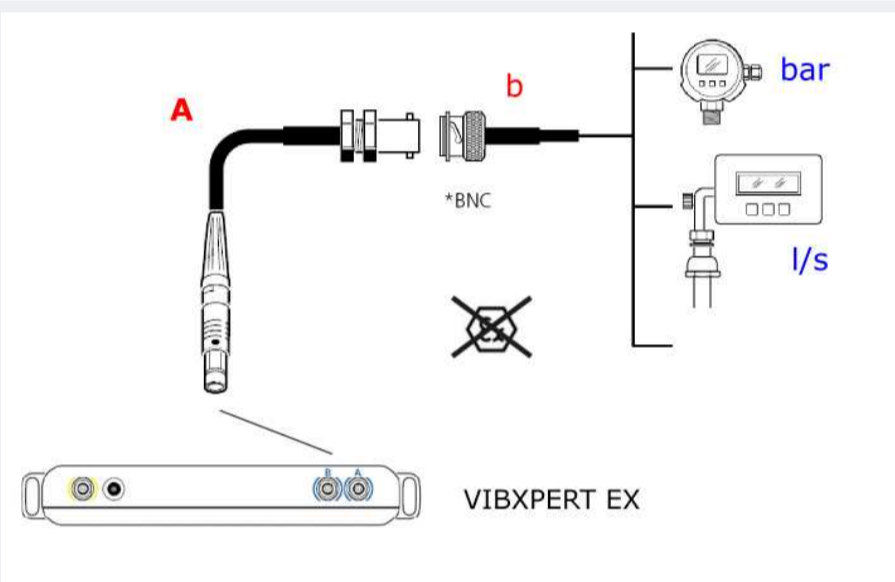
- A: Sensor cable for measurement of signal-low voltage VIB 5.433-X (2 pieces)
- b: Coaxial cable with BNC connector, 3 pieces
- c: Sensor cable for trigger / RPM sensor VIB 5.432-2,9
- d: Keyphasor adapter VIB 5.332

VIBXPERT II: Pressure as current level (4-20 mA), resp. flow rate as current or voltage level (4-20 mA / 0-10 V)



A: Sensor cable for measuring small signal voltage, VIB 5.433, or small signal current, VIB 5.434  
 For VIBXPERT EX: Use sensor cable VIB 5.433 X.  
 b: Coax cable with BNC plug, signal cable from sensor

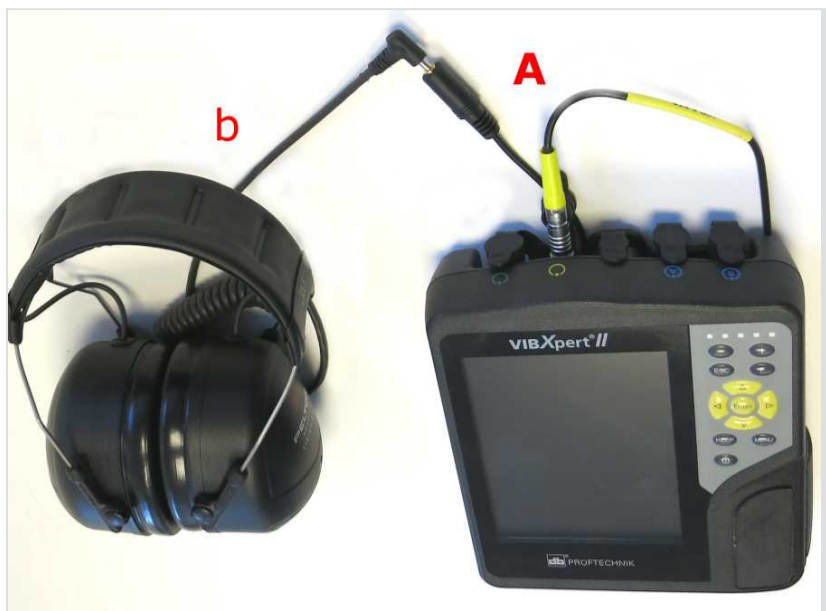
VIBXPERT EX: Pressure or flow rate as voltage level (0-10 V)



A: Sensor cable for measuring small signal voltage, VIB 5.433 X.  
 b: Coax cable with BNC plug, signal cable from sensor

# Cables for signal output – handheld devices

These cables are used to connect headphones or external analytical instrument to a handheld data collector.



Mono headphones (b) attached to VIBXPERT II via the sensor cable VIB 6.675 (A)

### Compatible with the following handheld devices:

- VIBXPERT II, VIBXPERT EX
- VIBSCANNER, VIBSCANNER EX

### Suitable for following instruments and devices:

- Signal analyzers such as oscilloscopes
- Mono headphones VIB 6.671

## Ordering information

Item No.		Description
VIB 5.431		Connection cable to an external analytical instruments — spiral, 1.8 m (5' 10 9/10"), BNC socket to MiniSnap
VIB 6.675		Connection cable für mono headphones VIB 6.671 — straight, 1 m (3' 3 4/10"), mono jack to MiniSnap

## TECHNICAL INFORMATION

### Compatibility overview: Connection cable – Handheld device

The following overview shows which is compatible to which handheld device.

Connection cable	VIBXPERT II	VIBXPERT EX	VIBSCANNER	VIBSCANNER EX
VIB 5.431	✓	✓	✓	✓
VIB 6.675	✓	✗	✓	✗

## Application

VIBXPERT II: Signal analysis using an oscilloscope

A: Connection cable VIB 5.431

## Pre-assembled sensor cable and adapter for trigger / RPM sensor (portable devices)

The sensor cable and adapter are intended for transmitting digital signals from e.g. a trigger or an RPM sensor.



### Suited for following portable devices:

- VIBXPERT II / VIBSCANNER
- VIBXPERT EX / VIBSCANNER EX
- VIBGUARD portable

Sensor cable for laser trigger / RPM sensor VIB 6.631 connected to VIBXPERT II

### Ordering information

Item No.		Description
VIB 5.432-2,9		Sensor cable for laser trigger / RPM sensor VIB 6.631, straight, 2.9 m, Binder socket to MiniSnap
VIB 4.750-5		Extension for sensor cable VIB 5.432-2,9, straight, 5 m, Binder socket to Binder plug
VIB 5.443		Sensor cable for TTL trigger (other manufacturer), spiral, 1.6 m, BNC socket to MiniSnap
VIB 5.332		Keyphasor adapter for machine protection systems (VIBXPERT II, VIBSCANNER), Binder socket to BNC socket
VIB 5.332 X		Keyphasor adapter for machine protection systems (VIBXPERT EX, VIBSCANNER EX), Binder socket to BNC socket
VIB 5.333		Connection adapter for LED stroboscope VIB 6.672 (VIBXPERT II), Binder socket to BNC socket
VIB 7.832-5		Sensor cable for laser trigger / RPM sensor VIB 6.631, straight, 5 m, Binder socket to M12 Binder plug (VIBGUARD portable)

## TECHNICAL INFORMATION

### Technical data, VIB 5.332

Parameter	VIB 5.332 / VIB 5.332 X
<b>ELECTRICAL</b>	
<b>Operating voltage</b>	5.4 V $\pm$ 10%
<b>Current consumption</b>	0.5 mA
<b>Input signal, Pulse width</b>	> 100 $\mu$ s
<b>Input signal, Pulse level</b>	> 500 mV <sub>pp</sub>
<b>Input signal, DC portion</b>	+8 V to -30 V
<b>Output signal</b>	5 V, rectangular signal
<b>Input resistance</b>	200 kOhm
<b>Output resistance</b>	1 kOhm
<b>MECHANICAL</b>	
<b>Case material</b>	Stainless steel, VA 1.4301
<b>Length including connectors</b>	130 mm
<b>Diameter</b>	15 mm
<b>Weight</b>	30 g
<b>Environmental protection</b>	IP 65
<b>Temperature range</b>	-20 °C to 60 °C (-4 °F to 140 °F) – VIB 5.332 0 °C to 40 °C (32 °F to 104 °F) – VIB 5.332 X
<b>CONNECTIONS</b>	
<b>Input signal</b>	Binder connector, 8-pin, 712 series
<b>Input signal, Pin allocation</b>	2: 5 V / 4: Rectangular signal / 7: GND
<b>Output signal</b>	BNC socket
<b>Output signal, Pin allocation</b>	Internal contact: Signal / External contact: GND

Note: This adapter converts a pulse signal (including the DC level) to a 5V rectangular signal. This allows keyphasors that are connected to a machine protection system be connected and operated by PRÜFTECHNIK instruments.

When feeding digital signals to either the intrinsically safe VIBXPERT EX or the intrinsically safe VIBSCANNER EX, the adapter **VIB 5.332 X** must be used. The adapter protects the digital port on the measuring instrument against overvoltages. The adapter must only be connected outside an explosive atmosphere to an electrical circuit, whose maximum voltage does not exceed 265 V<sub>eff.</sub> even when a malfunction occurs. The permissible ambient temperature is 0 °C to 40 °C (32 °C to 104 °C).

### Technical data, VIB 5.333

Parameter	VIB 5.333
Case material	Aluminium
Length including connectors	62 mm
Diameter	15 mm
Weight	20 g

### Compatibility overview: Sensor cable – Measurement device

The following overview shows the type of sensor cable or adapter that may be connected to the corresponding device. For adapters marked with (\*), additional cables are required in the measurement chain.

Sensor cable / Adapter	VIBXPRT II	VIBXPRT EX	VIBSCANNER	VIBSCANNER EX	VIBGUARD portable
VIB 5.432-2,9	✓	✓	✓	✓	✗
VIB 5.443	✓	✓	✓	✓	✗
VIB 5.332*	✓	✗	✓	✗	✗
VIB 5.332 X*	✗	✓	✗	✓	✗
VIB 5.333	✓	✗	✗	✗	✗
VIB 7.832-5	✗	✗	✗	✗	✓

### Application example

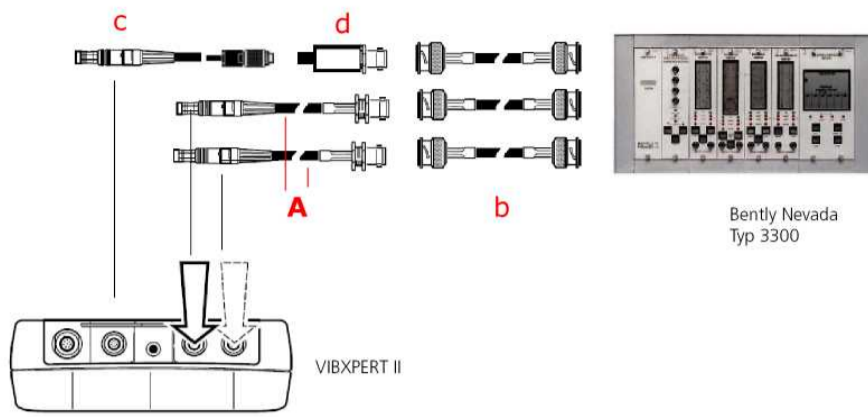
#### VIBXPRT II: RPM measurement using Laser trigger / RPM sensor VIB 6.631



A: Sensor cable VIB 5.432-2,9

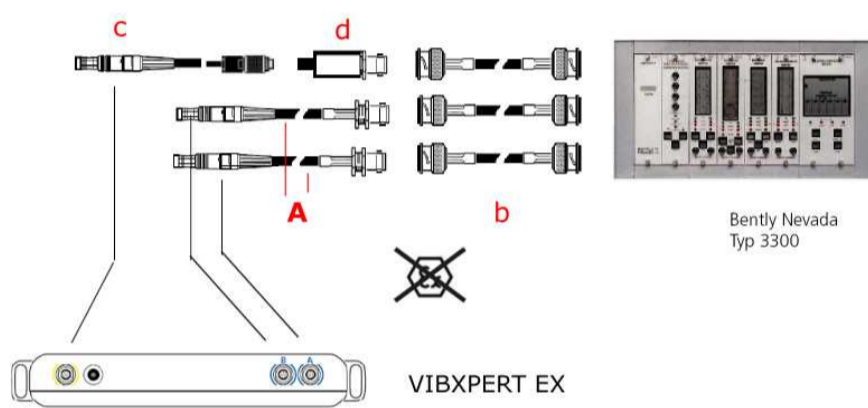
b: Laser trigger / RPM sensor VIB 6.631

**VIBXPERT II: Shaft vibration measured as a voltage signal on a machine protection system  
(e.g. Bently Nevada 3300)**



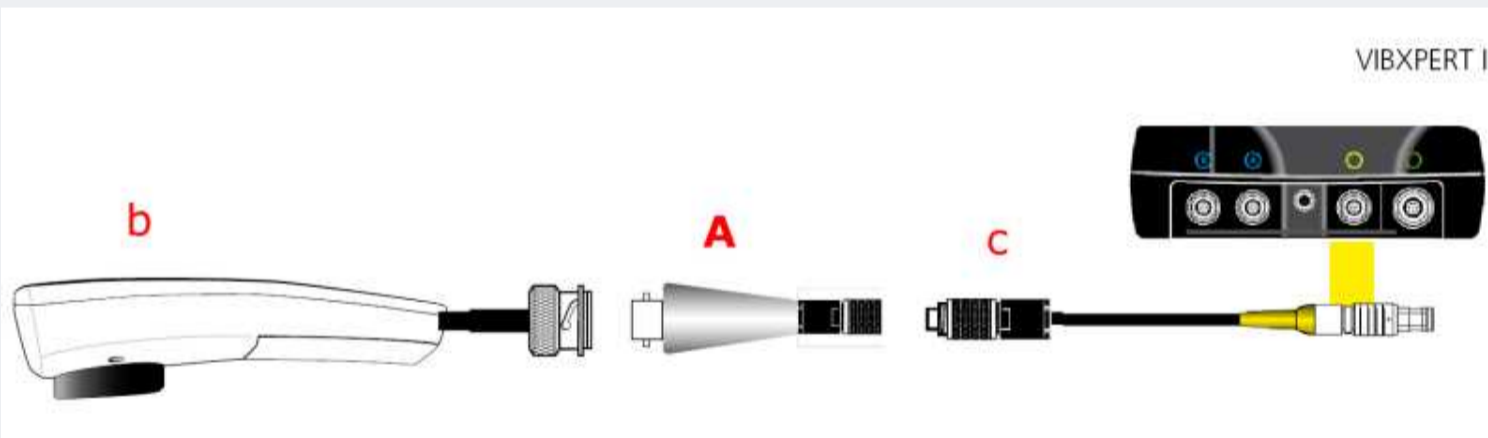
- A: Sensor cable for measurement of signal-low voltage VIB 5.433  
(2 pieces)
- b: Coaxial cable with BNC connector, 3 pieces
- c: Sensor cable for trigger / RPM sensor VIB 5.432-2,9
- d: Keyphasor adapter VIB 5.332

**VIBXPERT EX: Shaft vibration measured as a voltage signal on a machine protection system  
(e.g. Bently Nevada 3300)**



- A: Sensor cable for measurement of signal-low voltage VIB 5.433-X  
(2 pieces)
- b: Coaxial cable with BNC connector, 3 pieces
- c: Sensor cable for trigger / RPM sensor VIB 5.432-2,9
- d: Keyphasor adapter VIB 5.332

**VIBXPERT II: Measuring RPM using the LED stroboscope VIB 6.672**

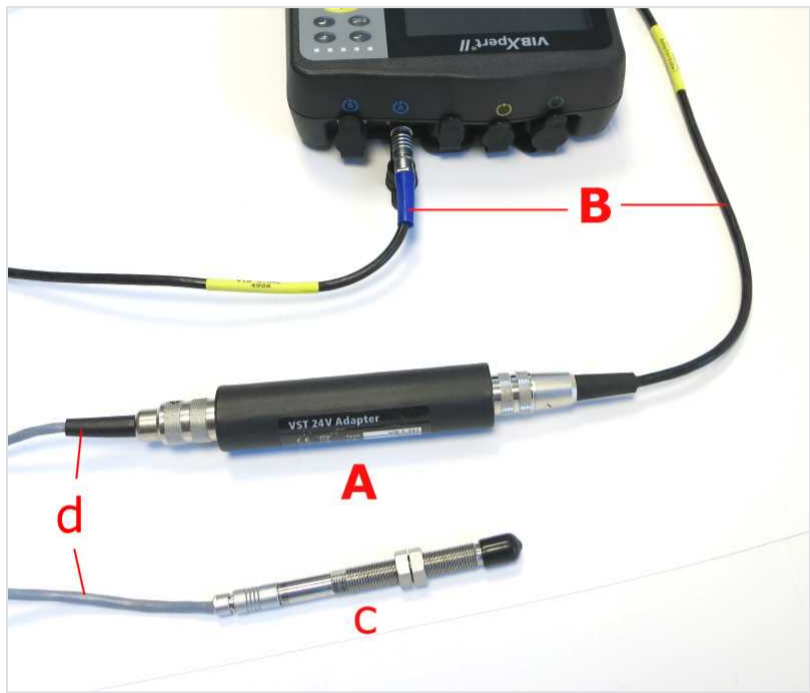


- A: Cable adapter for LED stroboscope, VIB 5.333
- b: LED stroboscope, VIB 6.672
- c: Sensor cable, VIB 5.432-2,9



## Pre-assembled sensor cables and adapters for voltage-supplied sensors (handheld devices)

These cables and adapters are intended for the connection of voltage-supplied sensors to VIBXPERT II.







### Suited for following types of sensors:

- AS-022 – Accelerometer from B & K Vibro
- IN 085 – Non-contact displacement sensor from B & K Vibro
- VIBROTECTOR – Vibration transmitter from PRÜFTECHNIK

Connect Sensor IN 085 (c) to VIBXPERT II via sensor cable (d), VST 24V adapter (A) and cable VIB 5.342 (B).

### Ordering information

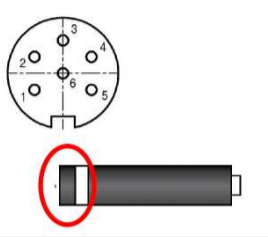
Item No.		Description
VIB 5.341		VST 24 V adapter for VIBXPERT II, binder (m) to binder (f) 680
VIB 5.342		Analog cable for VST 24 V adapter, straight, 2.9 m, binder (f) to MiniSnap
VIB 5.343		Digital cable for VST 24 V adapter, straight, 2.9 m, binder (f) to MiniSnap
VIB 5.344		VIBROTECTOR cable for VST 24 V adapter, straight, 2.9 m, binder (m) to MiniSnap

## TECHNICAL INFORMATION

### Technical data, VST 24 V adapter

Parameter	VST 24 V adapter
<b>ELECTRICAL</b>	
Output voltage $U_{out}$	-24 V, unregulated (dependent on VIBXPERT II)
Frequency range, Signal IN - Analog Out Signal IN - Trigger Out	0.1 Hz – 100 kHz
<b>MECHANICAL</b>	
Case material	Stainless steel and heat shrink tubing
Plug	BINDER 680, 6-pin, m / f (DIN 41524)

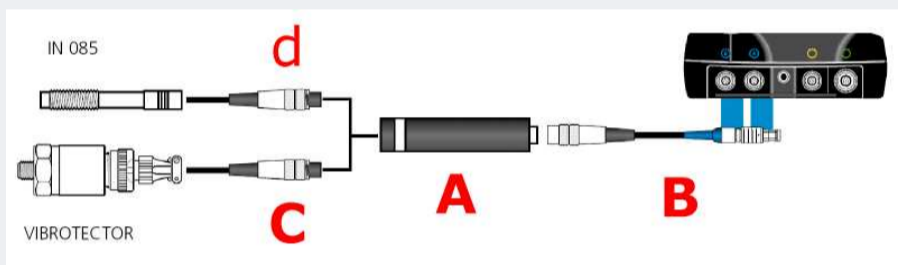
Parameter	VST 24 V adapter
Dimensions L x D	120 x 27 mm (4 23/32" x 1 1/16")
Weight	105 g (3.7 oz)
Environmental protection	IP 40
Temperature range	-10 °C to 60 °C (14 °F to 140 °F)
Pin allocation, sensor side	1: -24 VDC 2: Analog signal (sensor) 3: Trigger signal (5V TTL) 4: GND 5: Shield 6: 5 VDC (Voltage from VIBXPERT II).



Note: VIBXPERT II must never be powered using the charger when connected to the VST 24 V adapter.

### Application example

#### VIBXPERT II: Displacement measurement with IN 085 / Vibration measurement with VIBROTECTOR



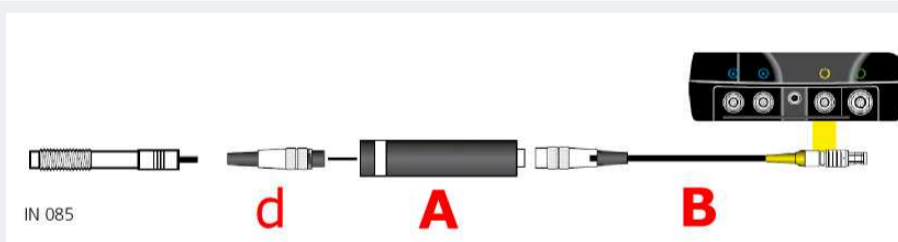
A: VST 24 V adapter VIB 5.341

B: Analog cable, VIB 5.342:  
Connection cable between adapter and VIBXPERT II for measurement of vibration acceleration, velocity and displacement

C: VIBROTECTOR cable VIB 5.344:  
Connection cable between adapter and VIBROTECTOR

d: Sensor cable, delivered with IN 085 sensor

#### VIBXPERT II: RPM measurement with IN 085



A: VST 24 V adapter VIB 5.341

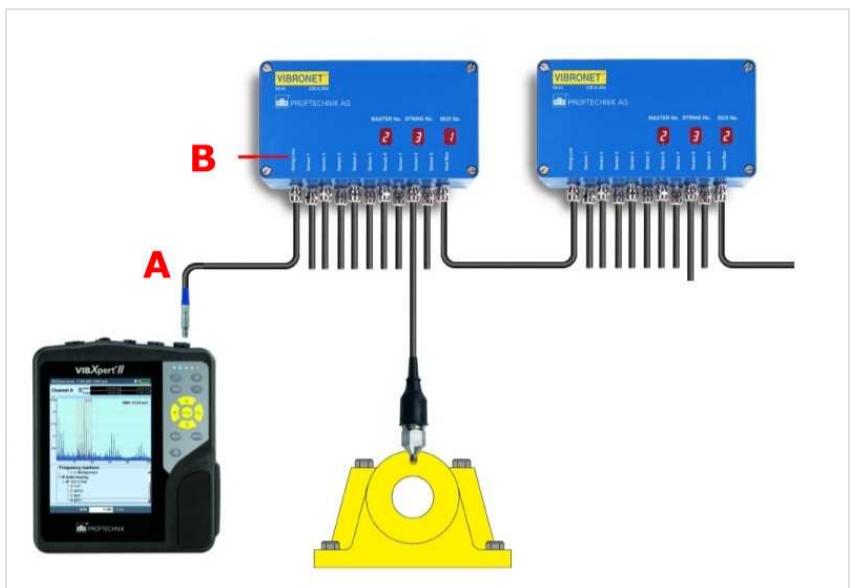
B: Digital cable VIB 5.343:  
Connection cable between adapter and VIBXPERT II during RPM measurement

d: Sensor cable, delivered with IN 085 sensor

Note: Voltage-supplied sensors (-24 V) or RPM reference sensors using external power supplies may be connected to measure RPM. The minimum required trigger level is 2 V.

# Connection cable for field multiplexer on VIBXPert II

Using these cable components, VIBXPert II can be connected to and operated on a string line of up to 6 VIBRONET field multiplexers for automated data acquisition.



### Features

- Up to 54 measuring locations possible
- Safe and fast data acquisition on site
- No power supply required
- For vibration sensors with current output (CLD)

Connect VIBXPert II with field multiplexer via connection cable (A) and cable adapter (B).

### Ordering information

Item No.		Description
VIB 5.346		Connection cable, VIBXPert II to VIBRONET field multiplexer, 1.5 meters, BNC to MiniSnap
VIB 5.346-MUX		Cable adapter for connection cable VIB 5.346 (installed in field multiplexer), 25 cm

Note: These cables must not be operated with VIBXPert EX.

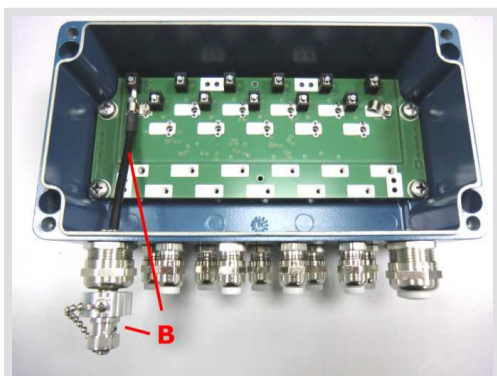
### Accessories

Item No.	Description
VIB 5.444-5	"Extension cable for analog measuring channel, portable devices", p. 188

## TECHNICAL INFORMATION

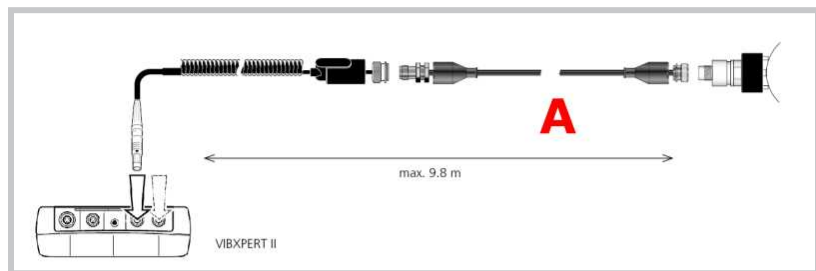
### Installation example

Cable adapter (B) installed on main board in field multiplexer.



## Extension cable for analog measuring channel, portable devices

These sensor cables and adapters are used for connecting vibration sensors with current output (CLD) to portable measuring devices.





Sensor VIB 6.142 with extension VIB 5.339 (A) and spiral cable VIB 5.436 connected to VIBXPERT II.

### Compatible with the following measuring devices:

- VIBXPERT II, VIBXPERT EX
- VIBSCANNER, VIBSCANNER EX

### Ordering information

Item No.		Description
VIB 5.444-5		Extension cable for analog measuring channel, 5 meters, MiniSnap socket to MiniSnap plug
VIB 5.339		Extension cable for analog measuring channel, 8 meters, TNC plug to TNC socket

Note: For cable lengths greater than 2.9 meters, EMC interference resistance of the measuring section may be impaired.

## TECHNICAL INFORMATION

### Compatibility overview: Sensor cable – extension

The following overview shows, which sensor cable/ adapter can be used with which extension cable.

Sensor cable/adapter	Extension VIB 5.339	Extension VIB 5.444-5
VIB 5.436	✓	✓
VIB 5.437-2.9	✓	✓
VIB 5.437-5	✓	✓
VIB 5.438-0.5	✗	✓
VIB 5.422	✗	✓
VIB 5.433	✗	✓
VIB 5.433 X	✗	✓
VIB 5.434	✗	✓
VIB 5.342	✗	✓
VIB 5.346	✗	✓

## Sensor cables and adapters for VIBSCANNER 2

These cables and adapters are used to connect accelerometers to VIBSCANNER 2.



Accelerometer VIB 6.142R connected to VIBSCANNER 2 with sensor cable VIB 5.236 and safety release cable VIB 5.239.





### Suited for following types of sensors:



- CLD-type accelerometers, TNC
- IEPE-type accelerometers, TNC
- Triaxial accelerometer, 4P Mini MIL
- Low-voltage outputs

### Spiral cable length:

- 0.8 - 2.9 meters [2.6 - 9.5 feet]

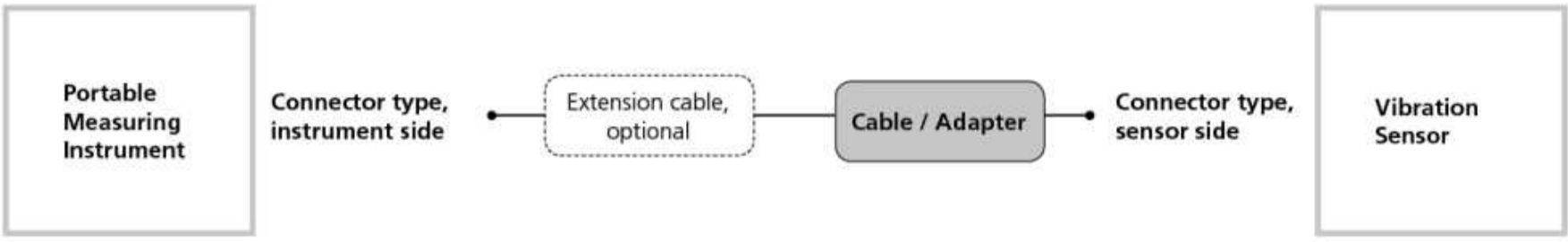
### Ordering information

Item No.	Image	Description
VIB 5.236		Sensor cable for CLD-type accelerometer, TNC connector, spiralized
VIB 5.237		Sensor cable for triaxial accelerometer, 4P Mini-MIL connector, spiralized
VIB 5.238		Sensor cable for IEPE-type accelerometer, BNC connector, spiralized
VIB 5.239		VIBSCANNER 2 safety release cable

Item No.	Image	Description
<b>VIB 5.234</b>		Sensor cable for measuring low voltage signals with VIBSCANNER 2, spiralized
<b>VIB 5.222</b>		Sensor cable for IEPE-type accelerometer, MIL connector, spiralized

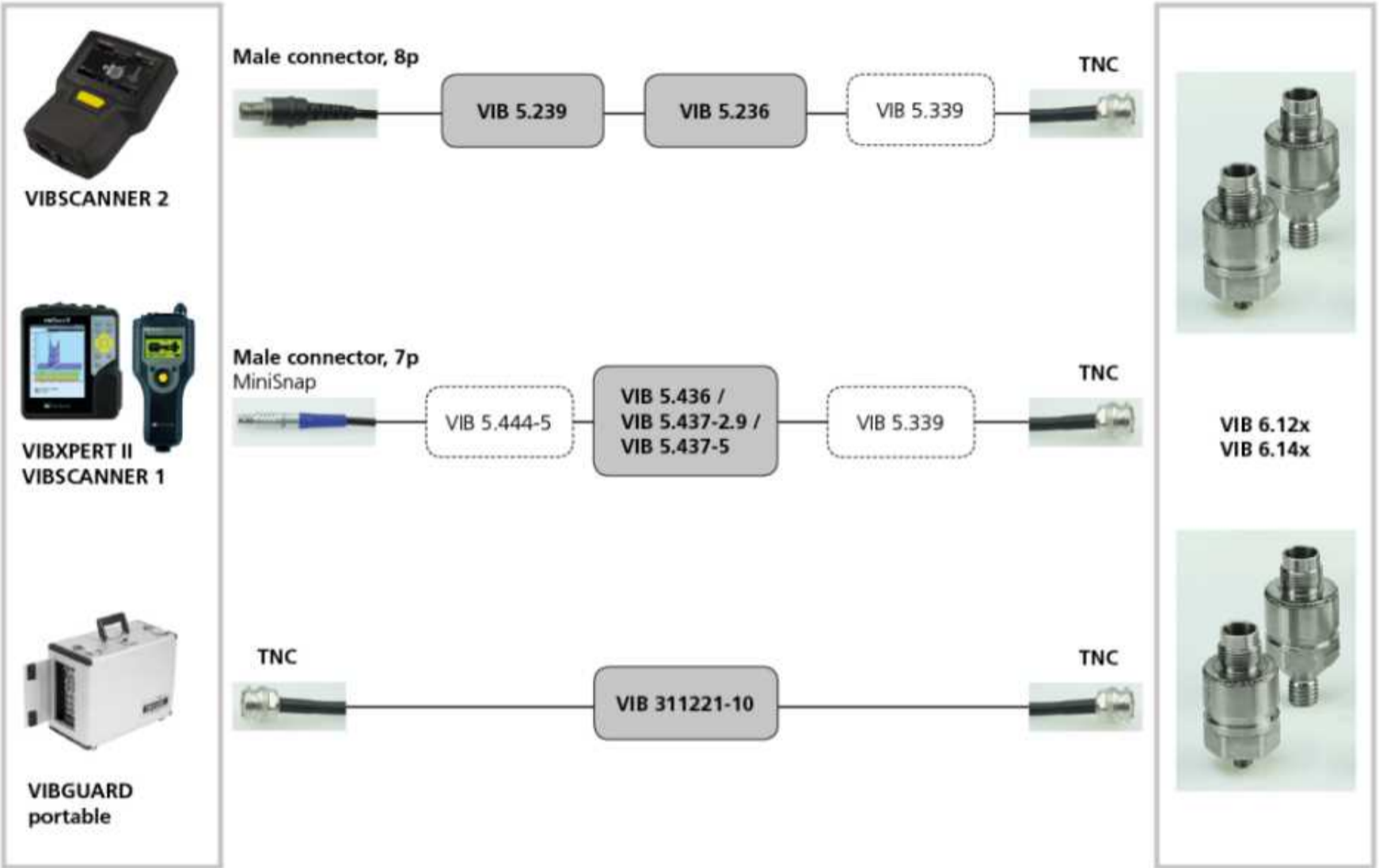
# Overview: Sensor cables for portable instruments

In this section you will learn which cable and, if necessary, which adapter is necessary to connect a portable measuring instrument to a specific vibration sensor. The illustrations are structured according to the following scheme:

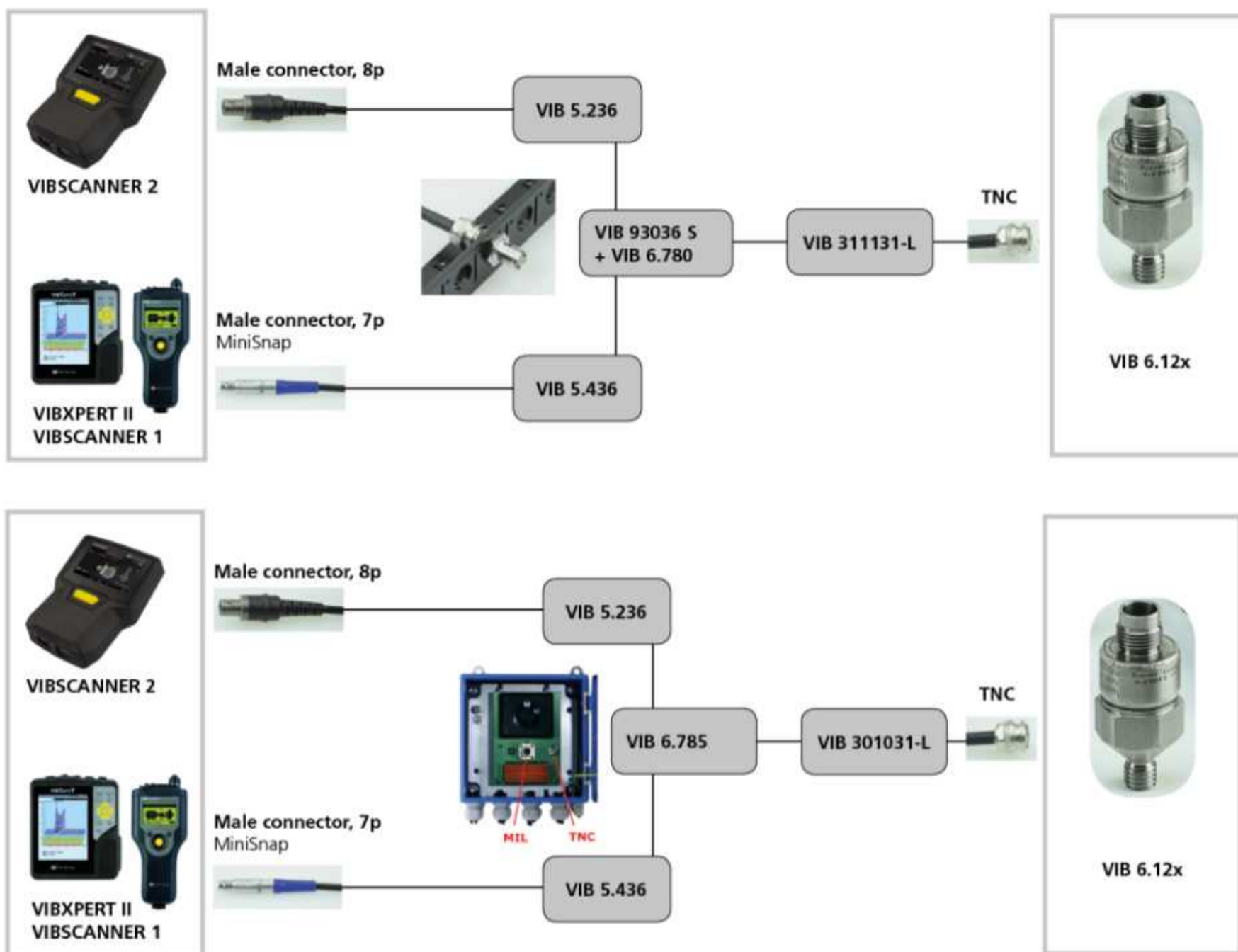


Note: For cable lengths longer than 2.9 meters, the EMC immunity of the signal path can be adversely affected.

## Accelerometer - type: Current Linedrive (CLD)

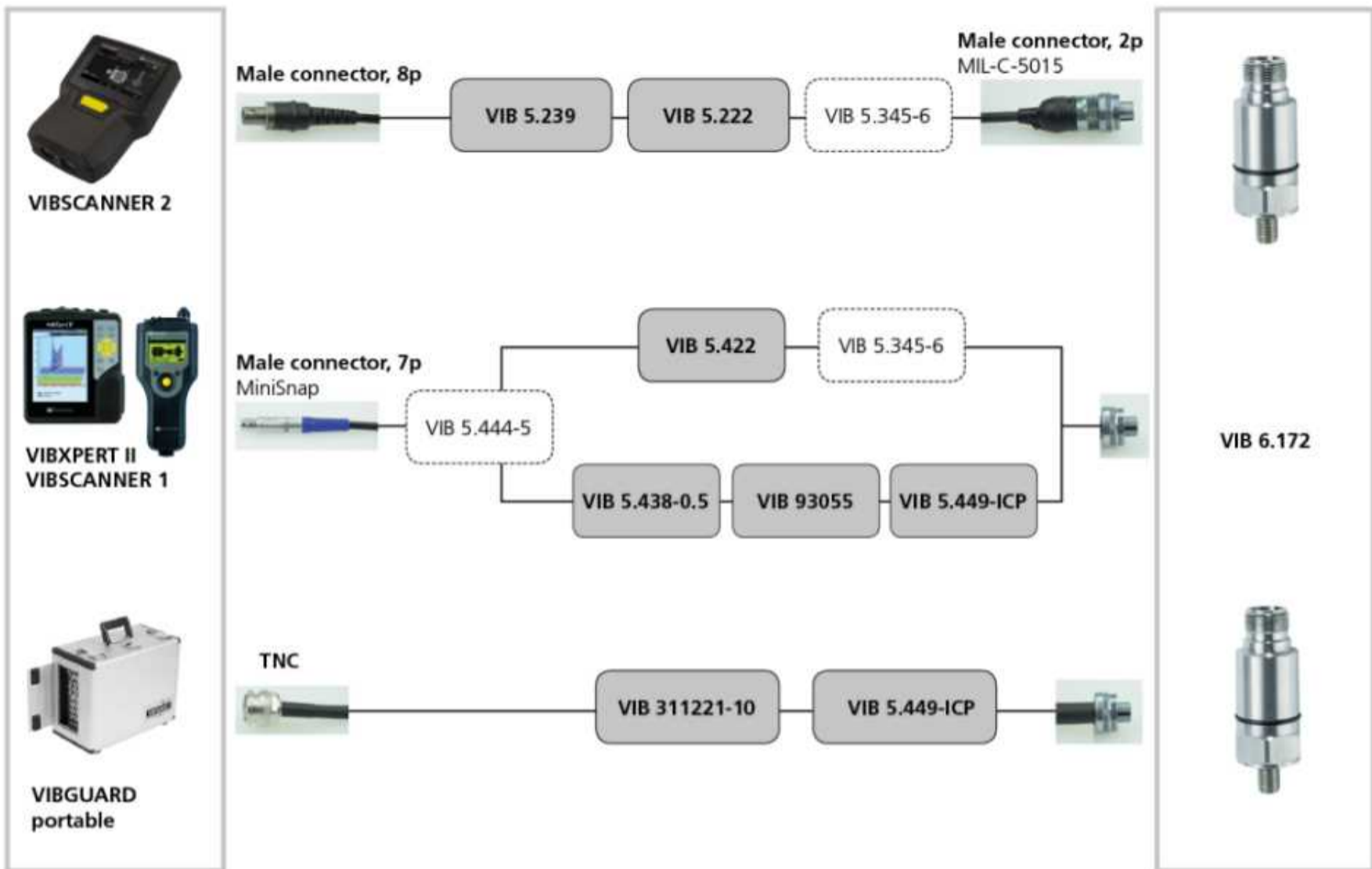


Remote measuring location with accelerometer - type: CLD

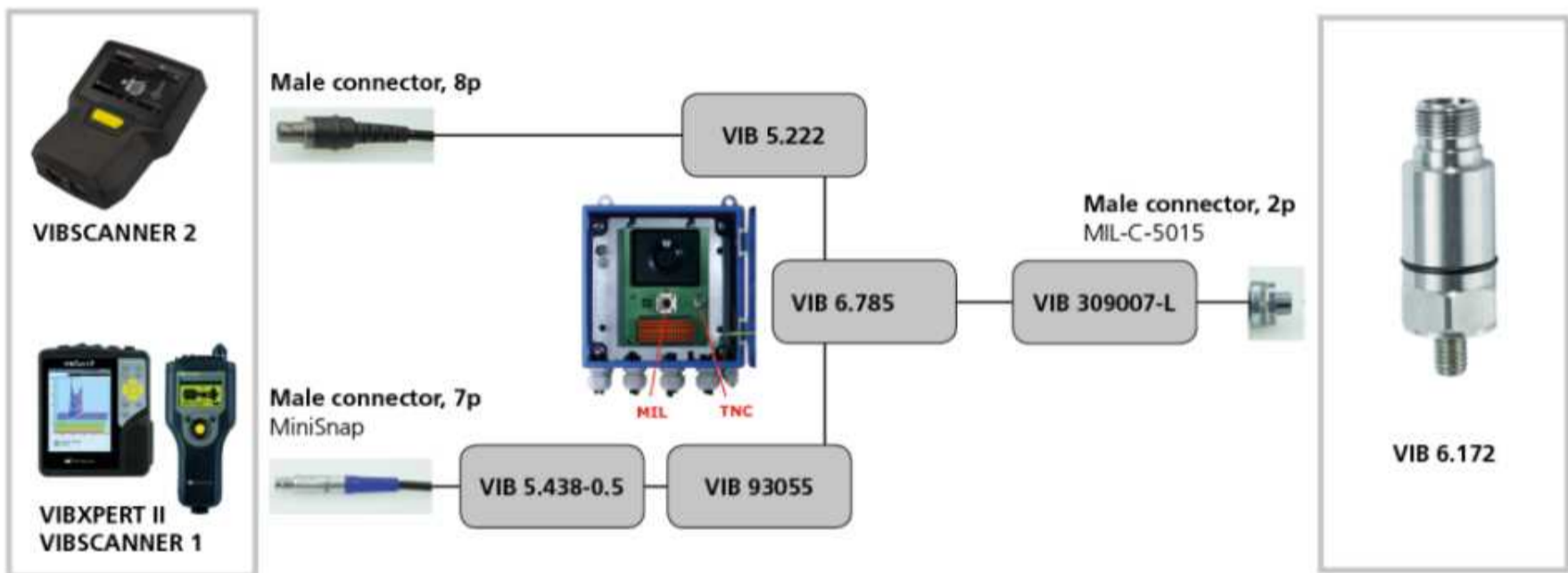




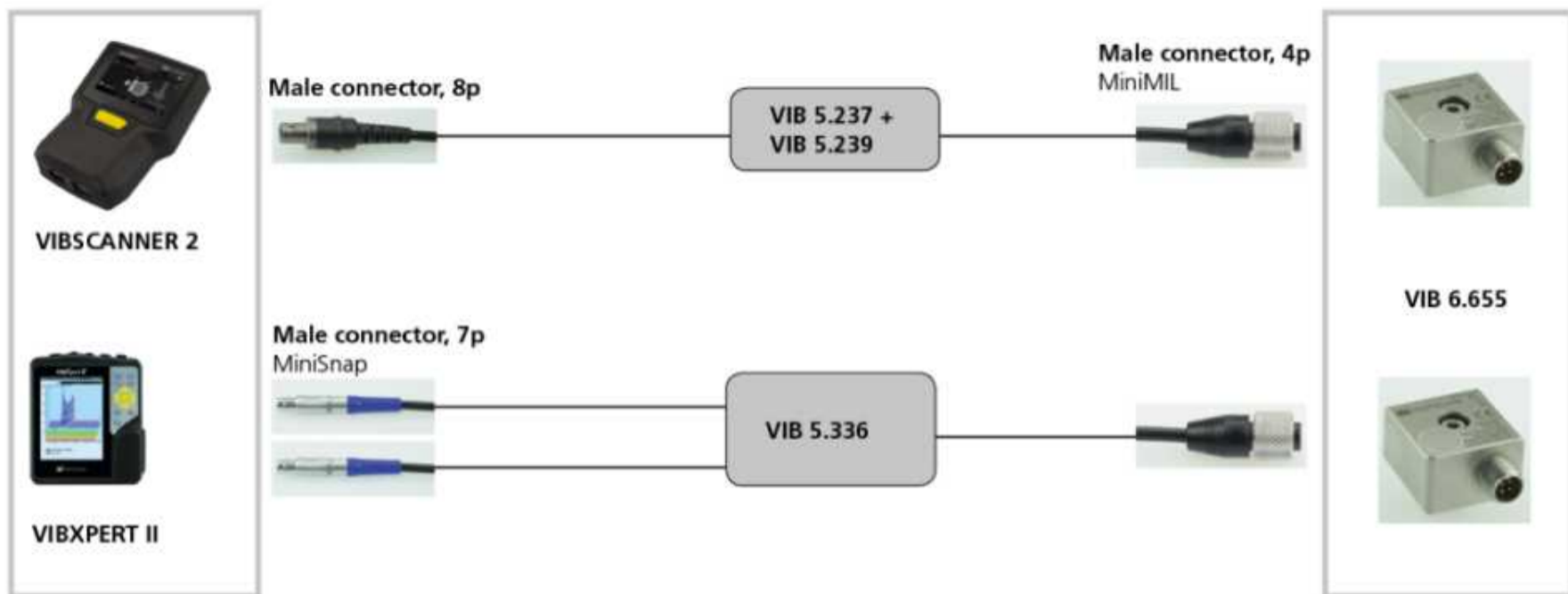
Accelerometer - type: IEPE monoaxial



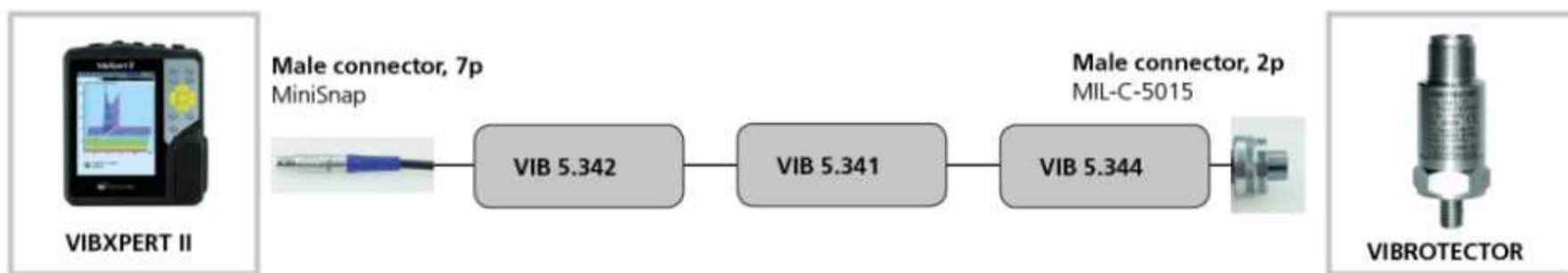
Remote measuring location with accelerometer - type: IEPE monoaxial



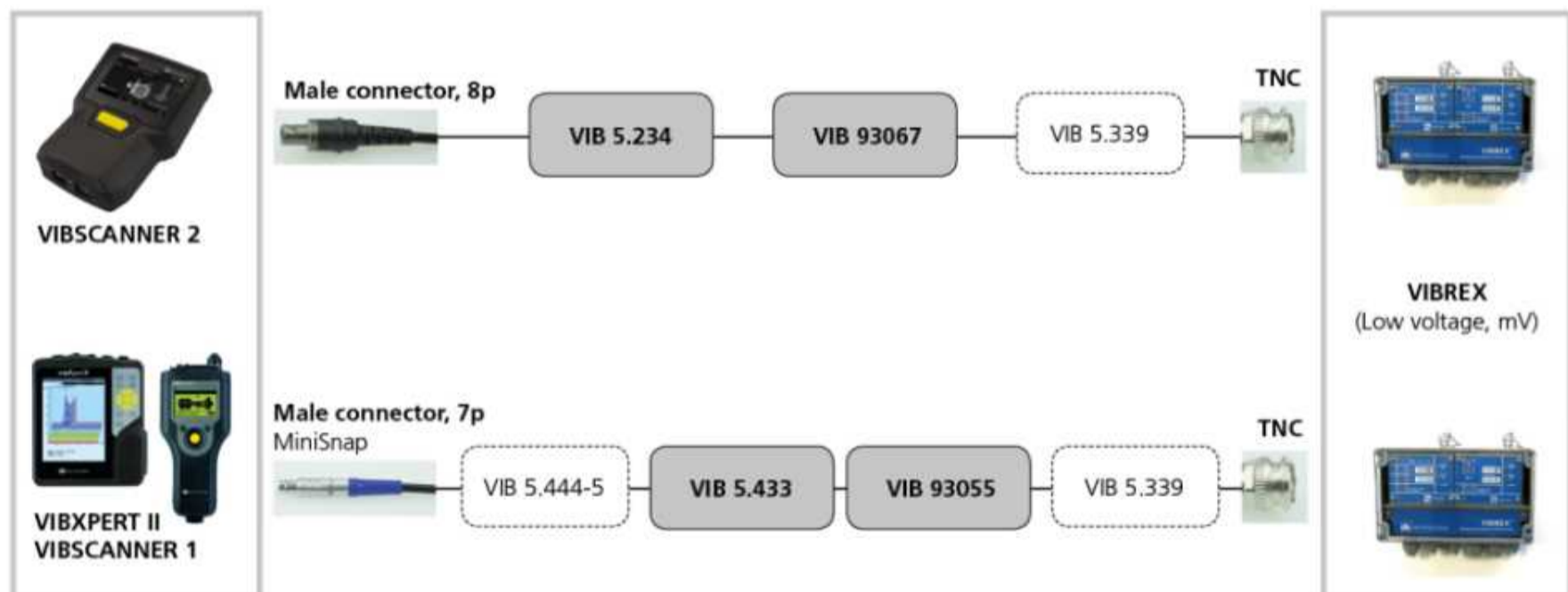
**Accelerometer - type: IEPE triaxial**



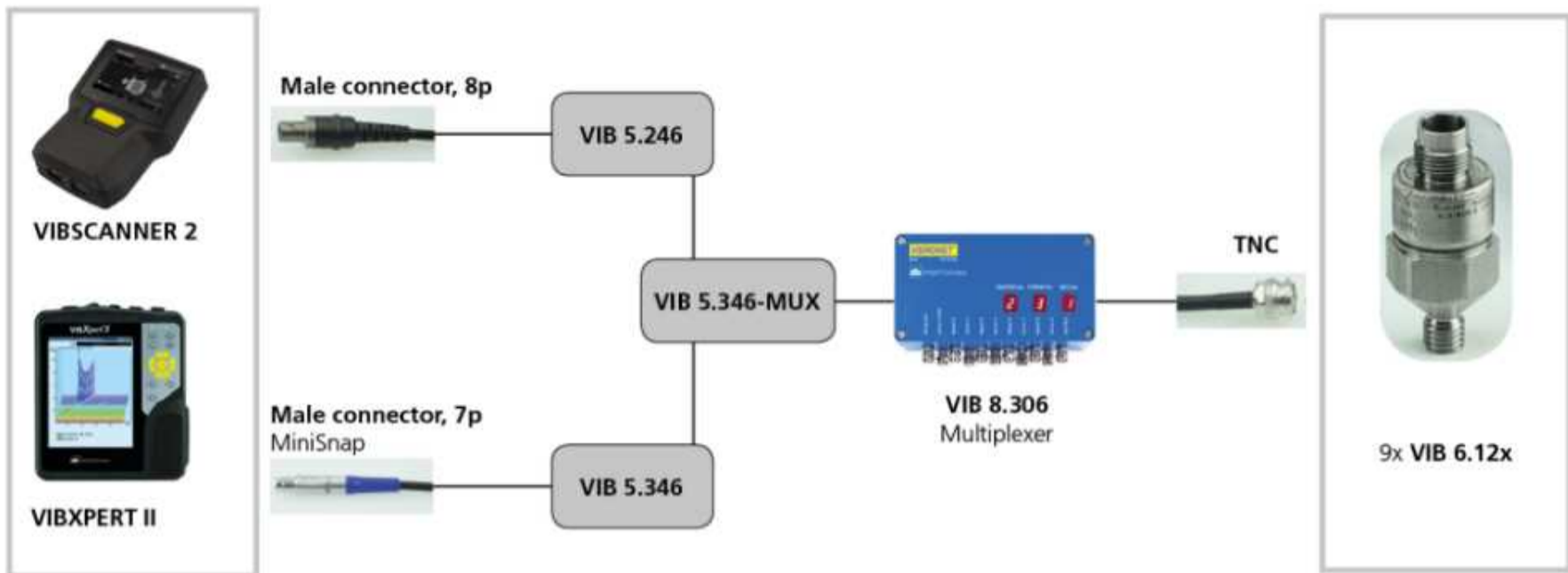
**VIBROTECTOR: 4-20 mA**



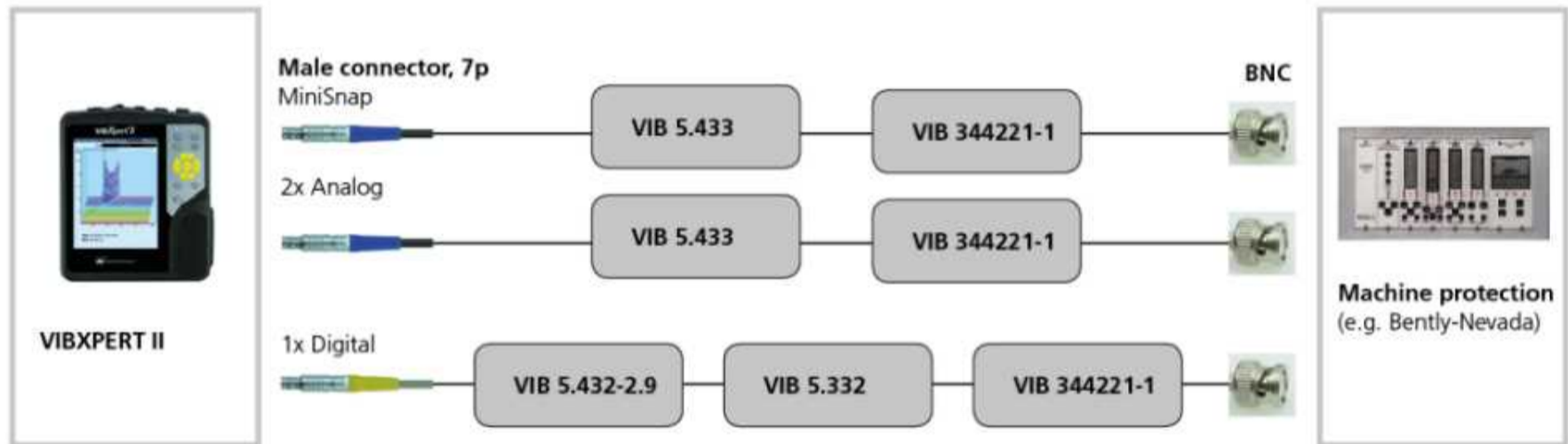
**VIBREX: Low voltage, mV**



### VIBRONET Multiplexer



### Machine protection system (e.g. Bently Nevada)



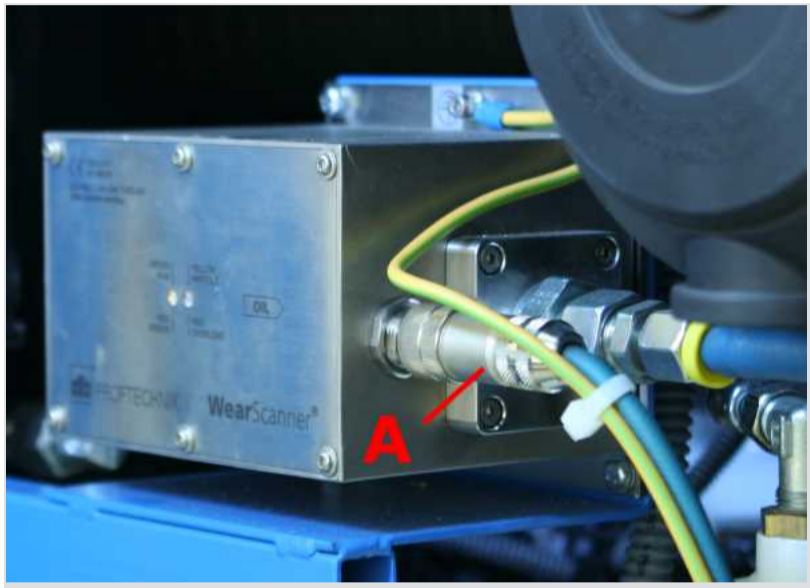
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## Sensor cable, partly pre-assembled

Partly pre-assembled connection cable for WEARSCANNER .....	198
Partly pre-assembled sensor cable for VIBREX .....	199
Sensor cable with 2-pin MIL connector .....	200
Partly pre-assembled sensor cable with 4-pole M12 plug-in connector, angled .....	202
Partly pre-assembled sensor cable with 4-pole M12 plug-in connector, straight .....	203
Industrial Ethernet cable CAT5 .....	204
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Multi-core sensor cable (Multi-TP) .....	207
Triaxial cable .....	209
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## Partly pre-assembled connection cable for WEARSCANNER

These connection cables are available as accessories for the WEARSCANNER particle counter. They are used to connect the power supply and the data communication as well as to connect the switching signal output to a process control system.



### Features

- Cable type: Industrial Ethernet CAT5
- Cable lengths: maximum 20 meters

WEARSCANNER cable (A) for the power supply and data communication.

### Ordering information

Item No.	Name
<b>VIB 6.420-L</b>	Data and supply line for WEARSCANNER with 8-pole M12x1 plug-in connector, partly pre-assembled, PUR sheath, max. 20-meter long
<b>VIB 6.426-L</b>	Connector cable for WEARSCANNER signal output with 5-pole M12x1 plug-in connector, partly pre-assembled, PUR sheath, max. 20-meter long

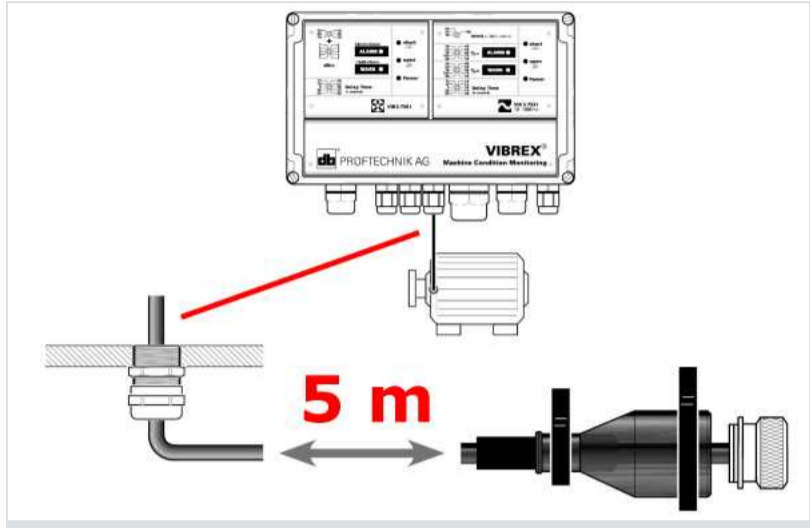
## TECHNICAL INFORMATION

### Accessories

Item No.	Item name / item group
<b>VIB 6.421</b>	M12 cable plug, 8-pole, for data and supply line on the WEARSCANNER
<b>VIB 6.425</b>	M12 cable plug, 5-pole, for data and supply line on the WEARSCANNER

## Partly pre-assembled sensor cable for VIBREX

This cable is supplied as a standard sensor cable with a VIBREX monitoring system.



### Features

- Cable type: coaxial, VIB 90093
- Cable length: 5 meters [16' 5"]
- Assembly on the sensor side: TNC connector, protective cap, clamp rings 2x

VIBREX sensor cable, 5-meter long.

### Ordering information

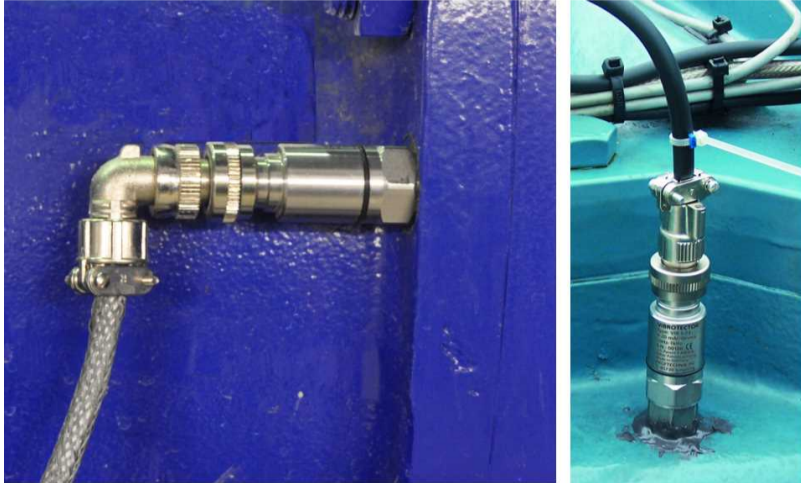
Item No.	Name
VIB 5.775-5	VIBREX sensor cable, partly pre-assembled, 5 m [16 ft 5 inch] long

### Accessories

Item No.	Item name / item group
VIB 6.77x	"Junction boxes for the extension of cables", p. 216

# Sensor cable with 2-pin MIL connector

These sensor cables are used to connect vibration sensors with a 2-pole signal output to stationary measuring systems. Ex-works, they are fitted with a straight or angled plug-in connector and pre-assembled with wire end ferrules at the open end.



Left: VIBROTECTOR sheathed with sensor cable, VIB 5.741.  
Right: VIBROTECTOR with sensor cable VIB 3.570.




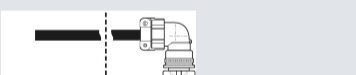

## Features

- Connection to stationary measuring systems
- Robust 2-pole plug-in connector (MIL), also in stainless steel
- Different cable lines can be selected
- IP 68 version for installation in liquid media (< 0.8 bar).

## Suitable for the following sensor types:

- VIBROTECTOR vibration monitor, VIB 5.73x
- Accelerometer "100 mV/g", IEPE, VIB 6.172
- Accelerometer "Wind", CLD, VIB 6.195

## Ordering information

Item No.		Sensor cable with 2-pole plug-in connector (MIL)
VIB 3.570-L		Sensor cable, partly pre-assembled, PUR sheath, MIL plug-in connector 2p straight, IP68, L: Length in meters (standard length: 6 m, 12 m)
VIB 5.742-X		Sensor cable, partly pre-assembled, silicone material with steel wire sheath, MIL plug-in connector 2p straight, X: Length in meters (standard length: 5 m, 10 m)
VIB 5.743-X		Sensor cable, partly pre-assembled, silicone material with steel wire sheath, MIL plug-in connector 2p angled, X: Length in meters (standard length: 5 m, 10 m)
VIB 5.745-L		Sensor cable, partly pre-assembled, PUR sheath, MIL plug-in connector 2p angled, aluminum alloy, L: Length in meters (standard length: 5 m, 10 m)
VIB 5.746-L		Sensor cable, partly pre-assembled, PUR sheath, MIL plug-in connector 2p straight, stainless steel, L: Length in meters (standard length: 10 m, 15 m, 20 m)

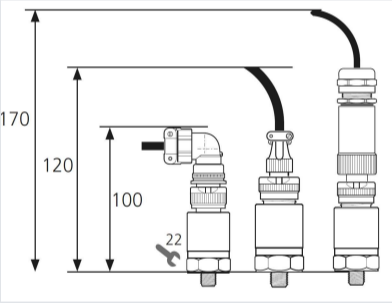


## TECHNICAL INFORMATION

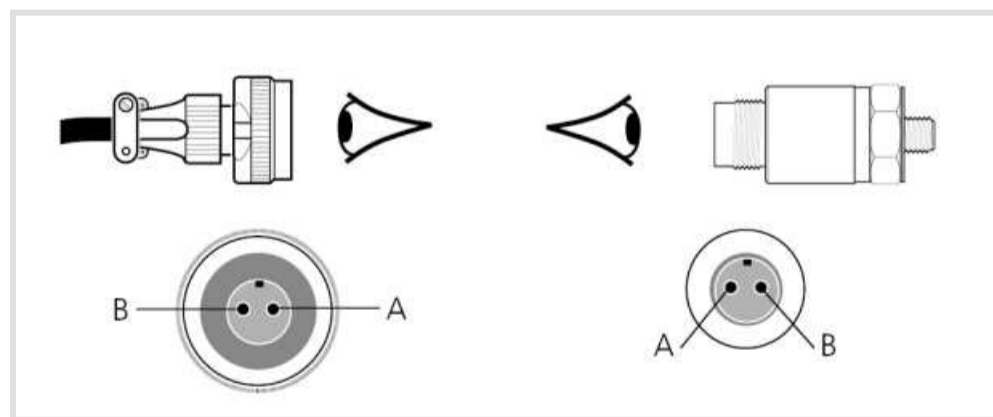
### Accessories

Item No.	Name
Miscellaneous	"Junction boxes for the extension of cables", p. 216

### Technical data

Parameter	VIB 3.570-L	VIB 5.742-X	VIB 5.743-X	VIB 5.745-L	VIB 5.746-L					
<b>Cable type</b>	VIB 90061, PUR, silicone-free	VIB 90065. Silicone, sheathed	VIB 90065. Silicone, sheathed	VIB 90061, PUR, silicone-free	VIB 90061, PUR, silicone-free					
<b>Temperature range</b>	-40°C ... + 85°C	-50°C ... +180°C	-50°C ... +180°C	-40°C ... + 85°C	-40°C ... + 85°C					
<b>Plug-in connector<sup>1</sup></b>	VIB 94010	VIB 94010	VIB 94011	VIB 94011	Material / Surface: Stainless steel VA 1.4305					
<b>Assembly</b>	The cable shield / the sheath are electrically insulated to the connector.									
<b>Standard lengths L / X</b>	6 m, 12 m	5 m, 10 m	5 m, 10 m	5 m, 10 m	10 m, 15 m, 20 m					
<b>Mounting height</b>	> 120 mm	> 120 mm	> 100 mm	> 100 mm	> 170 mm					
										
<b>Pin assignment</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>
<b>Color code</b>	WT-white	BN - brown	BN - brown	BU - blue	BN - brown	BU - blue	WT-white	BN - brown	WT-white	BN - brown

### Polarity, Sensor - Sensor Cable

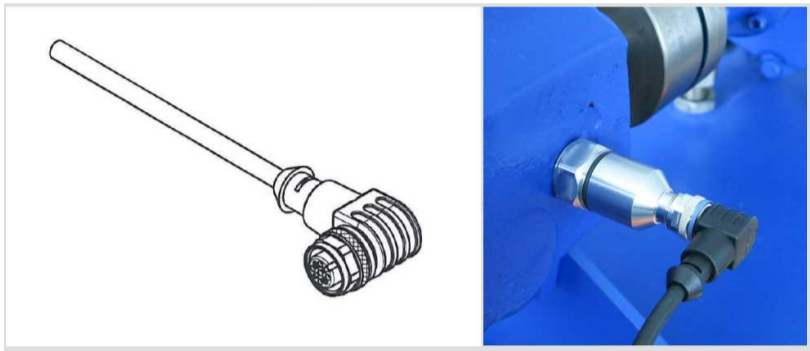


Sensor	Pin A	Pin B
VIBROTECTOR	Signal (+)	Shield (-)
Accelerometer "100 mV/g", IEPE	Signal	GND
Accelerometer "Wind", CLD	GND	Signal

<sup>1</sup>Type: 2-pole, MIL C5015 material: Aluminum alloy Surface: Zink-nickel (A 240)

## Partly pre-assembled sensor cable with 4-pole M12 plug-in connector, angled

This sensor cable is used to connect vibration sensors with a 4-pole signal output to a stationary measuring system. Ex-works, the cable is fitted with an angled M12 plug-in connector and cleanly cut at the open end.



Sensor cable with 4-pole M12 plug-in connector

### Features

- Connection to stationary measuring systems
- Cable lengths: 10-meter or 20-meter
- Shielded line in the connector laid

### Suitable for the following sensor types:

- Hybrid triaxial sensor, VIB 6.215 / VIB 6.216
- Accelerometer "100 mV/g", IEPE, VIB 6.210

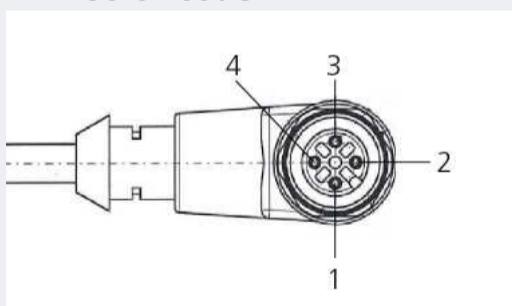
### Ordering information

Item No.	Name
<b>VIB 3.575-10</b>	Sensor cable with 4-pole M12x1 plug-in connector, angled, partly pre-assembled, PUR sheath, 10-meter long
<b>VIB 3.575-20</b>	Sensor cable with 4-pole M12x1 plug-in connector, angled, partly pre-assembled, PUR sheath, 20-meter long

## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 3.575-10 / VIB 3.575-20
<b>Sheath</b>	PUR UL, black
<b>Connector plug</b>	M12x1
<b>Pin: Color code</b>	1: BN - brown 2: BU - blue 3: BK - black 4: Drain wire (shield); drain wire (shield cable) is laid in the connector on pin 4 and is electrically insulated against the machine.



## Partly pre-assembled sensor cable with 4-pole M12 plug-in connector, straight

This sensor cable is used to connect vibration sensors with a 4-pole signal output to a stationary measuring system. Ex-works, the cable is fitted with a straight M12 plug-in connector and cleanly cut at the open end.



Sensor cable with 4-pole straight M12 plug-in connector for combi-sensor VIB 6.163.

### Features

- Connection to stationary measuring systems
- Cable length: 10 meters
- Shielded line in the connector not laid

### Suitable for the following sensor type:

- "Industrial" sensor with an integrated temperature sensor, VIB 6.163

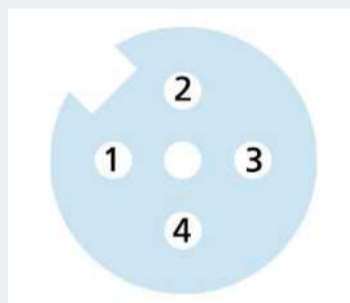
### Ordering information

Item No.	Name
<b>VIB 6.164-10</b>	Sensor cable with 4-pole M12x1 plug-in connector, straight, partly pre-assembled, PUR sheath, 10 m

## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 6.164-10
<b>Sheath</b>	PUR, black
<b>Diameter D</b>	5.1 mm
<b>Bending radius</b>	5 x D (fixed); 12 x D (movable)
<b>Connector plug</b>	M12x1
<b>Wire color code</b>	1: BN - brown 2: WH - white 3: BU - blue 4: BK - black Shield: NC
<b>Special characteristics</b>	Flame-resistant, seawater-resistant, acid-resistant, alkali-resistant, ozone-resistant, UV-resistant, can be used in drag chain, halogen-free, silicone-free, oil-resistant



# Industrial Ethernet cable CAT5

This cable is used by default as data and supply cable for the WEARSCANNER particle counter.



Industrial Ethernet cable.

## Features

- Category 5e (CAT5)
- Wires stranded in pairs and shielded
- Suitable for drag chains
- Flame retardant (IEC 60332-1)
- Halogen-free

## Ordering information

Item No.	Description
VIB 90030	Industrial Ethernet cable

Notes: Add the desired cable length to the part number when placing an order.  
Example: Industrial Ethernet cable, 15 meters / Order number: VIB 90030-15

## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 90030
<b>ELECTRICAL</b>	
Charact. impedance	approx. 100 Ohm $\pm$ 15 Ohm (at 1 to 100 MHz)
Op. capacitance (nom.)	approx. 48 nF/km
Attenuation	33 dB/100m (100 MHz)
Test voltage	0.7 kV
<b>STRUCTURE</b>	
Conductor	4 x 2 x 0.15 mm <sup>2</sup> , bare copper strand
Wire insulation	PP
Stranding	Wired stranded in pairs
Shielding	Polyester film over stranded assembly Polyester film AI-laminated, outside: Cu braiding, galvanized
Cable sheath	PUR, green, suitable for drag chains
<b>MECHANICAL</b>	
Temperature range	-40°C ... + 80°C (-40 ... +176 °F)
Bending radius	> 102 mm (4" )
Diameter	approx. 6.8 mm $\pm$ 0.3 mm
Weight	5.6 kg / 100 m ( 197,5 oz / 328 ft)
Specific features	Flame retardant (IEC 60332-1), halogen-free (IEC 60754-2), category 5e (CAT 5), corrosiveness (EN50267-2-3), UL style 20963 (80 °C/30 V)

## Coaxial cable

These cables are single-shielded and are used by default for the transfer of high-frequency signals in the industrial area. Different designs are available for different ambient conditions and applications.



### Features

- Type: RG 58 resp. RG 142 B/U
- For low ambient temperatures
- For high ambient temperatures
- Flame resistant
- Halogen-free
- Oil-resistant

Coaxial cable in different designs:

Top: High temperature, 2x shielded, low attenuation - VIB 90007

Center: High temperature, 1x shielded VIB 90093

Bottom: Standard, to -40 °C, VIB 90008

### Ordering information

Item No.	Description
<b>VIB 90006</b>	Coax cable for EX zone, PVC sheath, blue
<b>VIB 90007</b>	Coax cable, high ambient temperature (< 165 °C), low attenuation
<b>VIB 90008</b>	(Standard) coax cable, low ambient temperature (> -40 °C),
<b>VIB 90009</b>	Coax cable, halogen-free, flame resistant
<b>VIB 90093</b>	Coax cable, high ambient temperature (< 125 °C)

Notes: Add the desired cable length to the part number when placing an order.

Example: Standard coax cable, 250 meters / Order number: VIB 90.008-250

Package: Ring of 100 meters, reel of 500 meters

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
VIB 6.725-100	"Shield connector set for sensor cables ", p. 221
VIB 6.730	"Conduit for coaxial cable", p. 222
VIB 81026, VIB 81052	"Tools for cable installation", p. 228

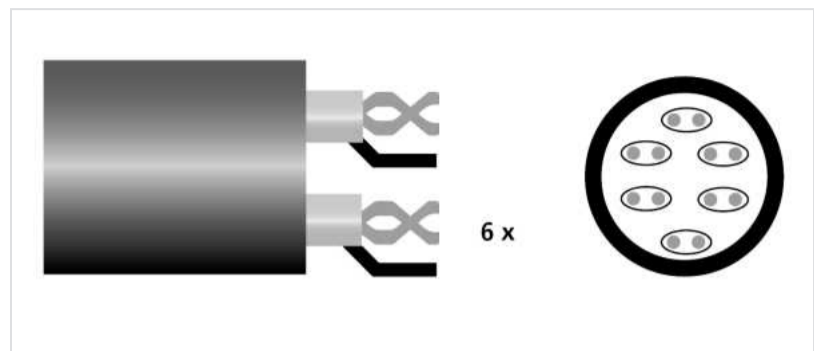
### Technical data

Parameter	VIB 90007	VIB 90006	VIB 90008	VIB 90009	VIB 90093
<b>ELECTRICAL</b>					
<b>Char. imped- ance</b>	50 Ohm				
<b>Line res- istance</b>	---	---	38 Ohm/km (20 °C)	---	38 Ohm/km (20 °C)
<b>Capacitance</b>	95 nF/km	101 nF/km	101 nF/km	101 nF/km	105 nF/km
<b>Attenuation<sup>1</sup></b>	28 dB/100m	38 dB/100m	32 dB/100m	38 dB/100m	46 dB/100m
<b>STRUCTURE</b>					
<b>Type</b>	RG 142 B/U	RG 58			
<b>Inner con- ductor</b>	Steel, Cu + Ag	Cu strand, galvanized			
<b>Dielectric</b>	PTFE	PE white	MDPE white	PEX (PE cross-linked)	Rayolin™
<b>Shield</b>	2x Cu braid- ing, Ag	Cu braiding, galvanized			
<b>Cable sheath</b>	FEP, brown	PVC, blue	MDPE black	RADOX GKW S, black	Thermorad® S, black
<b>MECHANICAL</b>					
<b>Temperature range</b>	-65°C ... + 165°C	-25°C ... + 85°C	-40°C ... + 80°C	-25°C ... + 105°C	-50°C ... + 125°C
<b>Bending radius</b>	50 mm				
<b>Diameter</b>	5 mm				
<b>Weight</b>	6.4 kg / 100 m	3.7 kg / 100 m	4 kg / 100 m	4 kg / 100 m	3.5 kg / 100 m
<b>Specific fea- tures</b>	oil-resistant, 2x shielded	for EX zone, (blue sheath)	silicone-free, halogen-free IEC 60708	halogen-free, flame resistant	oil-resistant

<sup>1</sup>at 400 MHz / 25°C / sea level

## Multi-core sensor cable (Multi-TP)

This cable features 12 cores stranded in pairs and is used as line section for up to six sensor cables in Online CMS.



### Features

- 6 x 2 cores
- Halogen-free
- UV-resistant
- Interference-resistant

Multi-TP cable with 6 shield cores stranded in pairs and external shielding (schematic illustration).

### Ordering information

Item No.	Description
VIB 90070	Multi-core sensor cable (Multi-TP)

Notes: Add the desired cable length to the part number when placing an order.

Example: Multi-TP cable, 50 meters / Order number: VIB 90.070-50

Package: 500 meters on cable drum

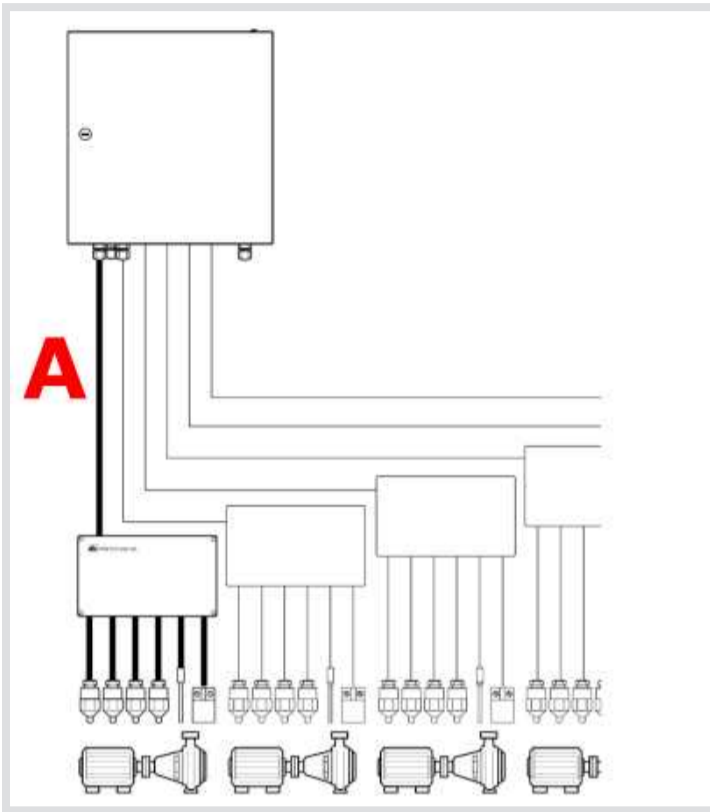
## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 90070
<b>ELECTRICAL</b>	
Characteristic impedance	approx. 65 Ohm
Operating capacitance (A/A)	approx. 140 nF/km
Inductance	approx. 0.65 mH/km
<b>STRUCTURE</b>	
Conductor	6 x 2 x 0.25 mm <sup>2</sup> , copper strand, finely stranded
Shielding	Pair: Cu spinning Outside: Cu braiding, galvanized
Sheath	Polyurethane PUR, black, halogen-free, UV-stabilized
<b>MECHANICAL</b>	
Temperature range	-30°C ... + 80 °C, permanently routed
Bending radius	> 108 mm, permanently routed
Diameter	approx. 17.5 mm ± 0.5 mm
Color code, cores	one core each white (WH), the second wire per DIN 47100 ff.

## Installation example

Multi-TP cable (A) routes 6 sensor cables as line section to the base unit.





## Triaxial cable

These cables are double-shielded and are used by default for the transfer of high-frequency signals in the industrial area with high EMC load.



Triaxial cable with double shielding.

### Features

- Type: RG 58
- Silicone-free
- Flame retardant (IEC 60332-1-2)
- UV-resistant

### Ordering information

Item No.	Description
VIB 90080	Triaxial cable

Notes: Add the desired cable length to the part number when placing an order.  
Example: Standard triaxial cable, 250 meters / Order number: VIB 90.080-250  
Package: Ring of 100 meters, reel of 500 meters

## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 90080
<b>ELECTRICAL</b>	
Characteristic impedance	50 Ohm
Capacitance	105 nF/km (1kHz)
Attenuation <sup>1</sup>	34 dB/100m
<b>STRUCTURE</b>	
Type	RG 58
Inner conductor	Cu strand, galvanized
Dielectric 1/2	PE
Shielding 1/2	Cu braiding, galvanized
Cable sheath	Polyurethane PUR, black
<b>MECHANICAL</b>	
Temperature range	-40°C ... + 80°C
Bending radius	50 mm
Diameter	10 mm

<sup>1</sup>at 300 MHz / 20°C

Parameter	VIB 90080
Weight	12.6 kg / 100 m
Specific features	silicone-free, UV-resistant, flame retardant (IEC 60332-1-2), RoHS-conform (2002/95/EC)

## Two-core sensor cables

These shielded cables are used by default for wiring of sensors with 2-conductor output. Different designs are available for different ambient conditions and applications.



Sensor cable with PUR sheath (top), sensor cable with silicone sheath and reinforcement (bottom)

### Suitable for the following sensor types:

- Accelerometer "Wind" (CLD), VIB 6.195
- Accelerometer "100 mV/g" (IEPE), VIB 6.172
- VIBROTECTOR vibration transmitter, VIB 5.73x

### Ordering information

Item No.	Description
VIB 90061	Sensor cable with PUR sheath, two-core, shielded
VIB 90065	Sensor cable with silicone sheath and reinforcement, two-core, shielded

Notes: Add the desired cable length to the part number when placing an order.  
Example: Sensor cable with PUR sheath, 30 meters / Order number: VIB 90061-30

## TECHNICAL INFORMATION

### Accessories

Item No.	Description
VIB 6.725-100	"Shield connector set for sensor cables ", p. 221
VIB 81026, VIB 81052	"Tools for cable installation", p. 228

### Technical data

Parameter	VIB 90061	VIB 90065
<b>ELECTRICAL</b>		
<b>Characteristic impedance</b>	72 Ohm	87 Ohm
<b>Operating capacitance (A/A)</b>	approx. 86 nF/km $\pm$ 10%	approx. 73 nF/km
<b>Inductance</b>	approx. 0.75 mH/km	approx. 0.55 mH/km
<b>Rated voltage <math>U_0/U</math></b>	300 / 500 V	
<b>STRUCTURE</b>		
<b>Conductor</b>	2 x 0.50 mm <sup>2</sup>	2 x 0.75 mm <sup>2</sup> , finely stranded
<b>Wire insulation</b>	Co-polymer	Silicone base
<b>Shield</b>	Cu braiding, galvanized,	Outer steel wire braiding
<b>Cable sheath</b>	PUR polyurethane, black	Silicone base, glass fiber braid, steel wire braiding, galvanized

Parameter	VIB 90061	VIB 90065
<b>MECHANICAL</b>		
<b>Temperature range</b>	-40°C ... + 85°C, permanently routed	-50°C ... + 180°C
<b>Bending radius, flexibly routed</b>	> 84 mm	> 160 mm
<b>Bending radius, permanently routed</b>	> 34 mm	> 30 mm
<b>Diameter</b>	approx. 5.6 mm	approx. 8 mm
<b>Weight</b>	---	90.5 kg/km
<b>Color code</b>	BN (brown), WH (white)	BN (brown), BU (blue)
<b>Specific features</b>	Resistant to mineral oils and hydraulic fluid; Notch- and wear-resistant; Resistant to electrical radiated interference; Free from paint-wetting substances; Halogen-free and flame retardant (IEC60332-1-2)	Halogen-free and flame retardant (IEC60332-1-2); Mechanically protected and shielded by galvanized steel wire braiding; The cable is suited for routing in dry conditions only.

## Cable accessories and installation material

<b>Intrinsic safety barriers .....</b>	<b>214</b>
<b>Junction boxes for the extension of cables .....</b>	<b>216</b>
<b>Protective sleeve und heat shrink sleeve .....</b>	<b>220</b>
<b>Shield connector set for sensor cables .....</b>	<b>221</b>
<b>Conduit for coaxial cable .....</b>	<b>222</b>
<b>Plugs, sockets, terminal holders for bulkhead connectors .....</b>	<b>223</b>
<b>Switchbox channel switch for 12 channels .....</b>	<b>226</b>
<b>Tools for cable installation .....</b>	<b>228</b>

## Intrinsic safety barriers

These devices are used to separate intrinsically safe circuits from non-intrinsically safe circuits, and to limit current and voltage in intrinsically safe circuits. They are necessary for the operation of sensors in hazardous areas.



Limiting devices for CLD accelerometers (installed, left) and for VIBROTECTOR (right)

### Features

- Input intrinsically safe
- Switching cabinet installation
- Power supply for VIBROTECTOR


### Ordering information

Item No.	Description
<b>VIB 3.550</b>	Limiting device for intrinsically safe CLD accelerometers — VIB 6.1xx DEX / VIB 6.202 XD / VIB 6.203 XD
<b>0 2088 0009</b>	Safety barrier for intrinsically safe IEPE accelerometers
<b>0 2088 0010</b>	Transmitter power supply unit for intrinsically safe VIBROTECTOR

## TECHNICAL INFORMATION

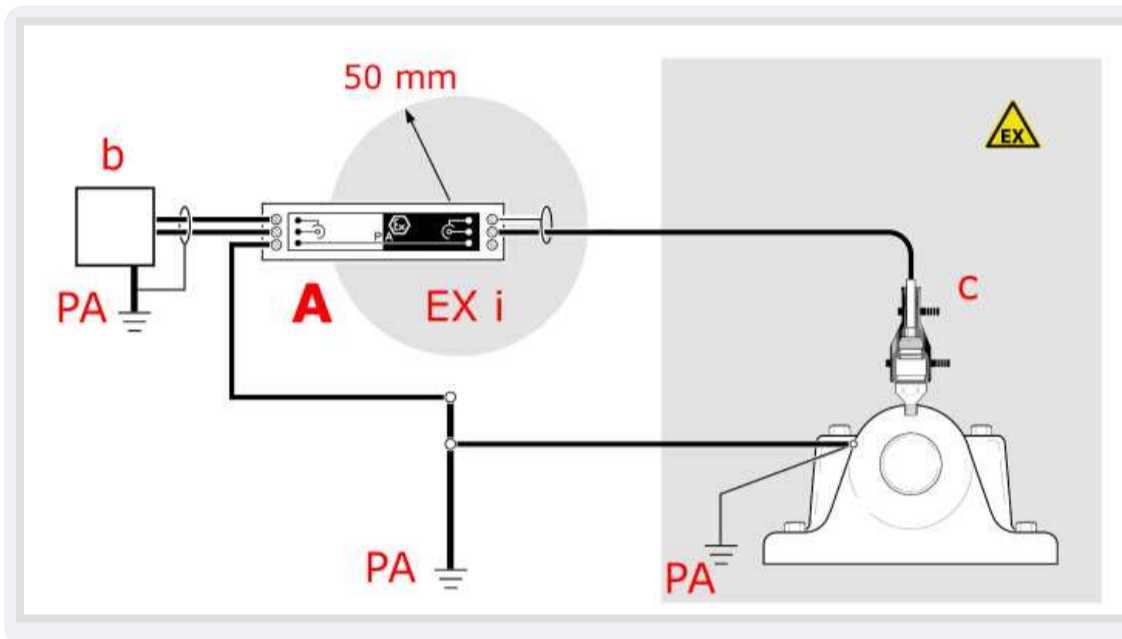
### Technical data

Parameter	VIB 3.550														
<b>ELECTRICAL</b>															
<b>Transmission accuracy</b>	Sensor accuracy														
<b>Non-intrinsically safe circuit</b>	Um = 250 V AC														
<b>Intrinsically safe circuit</b>	In type of protection intrinsic safety Ex ib IIC Maximum values: U <sub>0</sub> = 13 V I <sub>0</sub> = 18 mA P <sub>0</sub> = 240 mW														
	<table border="1"> <tbody> <tr> <td>L<sub>0</sub> [mH]</td> <td>1,00</td> <td>0,50</td> <td>0,20</td> <td>0,10</td> <td>0,05</td> <td>0,02</td> </tr> <tr> <td>C<sub>0</sub> [μF]</td> <td>0,50</td> <td>0,59</td> <td>0,75</td> <td>0,92</td> <td>1,00</td> <td>1,00</td> </tr> </tbody> </table>	L <sub>0</sub> [mH]	1,00	0,50	0,20	0,10	0,05	0,02	C <sub>0</sub> [μF]	0,50	0,59	0,75	0,92	1,00	1,00
L <sub>0</sub> [mH]	1,00	0,50	0,20	0,10	0,05	0,02									
C <sub>0</sub> [μF]	0,50	0,59	0,75	0,92	1,00	1,00									
<b>GENERAL</b>															
<b>Temperature range T<sub>A</sub></b>	-10 °C to 50 °C (14 °C to 122 °C)														
<b>Case material</b>	PA6.6, green														

Parameter	VIB 3.550
Environmental protection	IP 20
Dimensions	85 x 79 x 22.5 mm (3 11/32" x 3 7/64" x 57/64") — L x B x W
Conformity	CE, ATEX, IECEx
Marking 	II (2)G [Ex ib] IIC

Note: Technical data for the safety barriers 0 2088 0009 and 0 2088 0010 is available on request.

### Connection example



A: Limiting device VIB 3.550  
b: Signal evaluation; CLD compatible  
c: CLD accelerometer VIB 6.122 DEX  
PA: Potential equalization line

## Junction boxes for the extension of cables

These junction boxes are used to extend cables. Junction boxes with a TNC connection may be used as an interface for data collection when using a handheld device.



### Features:

- Protects cable connection from dust and humidity
- Straightforward to mount
- Coaxial and 2-pin cables
- Extension from coaxial to triaxial possible
- Cable diameter: 3 mm to 12 mm (1/8" to 15/32")

Junction boxes used for the extension of two cables (top) and for one cable (middle and bottom)

### Ordering information

Item No.		Description
VIB 6.775/9		Junction box for extension of two cables — coaxial to triaxial; TNC to M16 connection fitting
VIB 6.775/13		Junction box for extension of two cables — coaxial to triaxial; TNC to M20 connection fitting
VIB 6.776		Junction box for extension of one cable — 2-pin to 2-pin; M12 to M12 connection fitting
VIB 6.770/9		Junction box for extension of one cable — coaxial to coaxial; TNC to M16 connection fitting
VIB 6.770/13		Junction box for extension of one cable — coaxial to triaxial; TNC to M20 connection fitting

Note: Junction boxes with M20 connection fitting are also suitable for coaxial cables with protective sheath.



## TECHNICAL INFORMATION

### Accessories

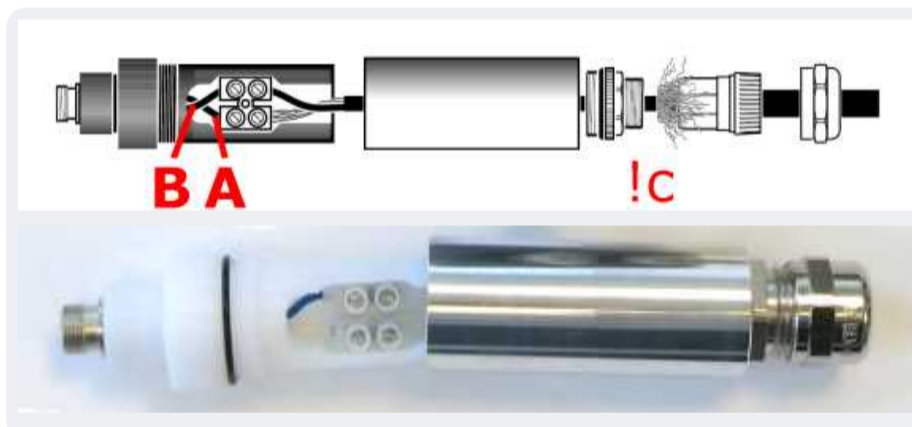
Item No.	Description
Miscellaneous	"Dust caps for industrial CLD accelerometers", p. 147

### Technical data

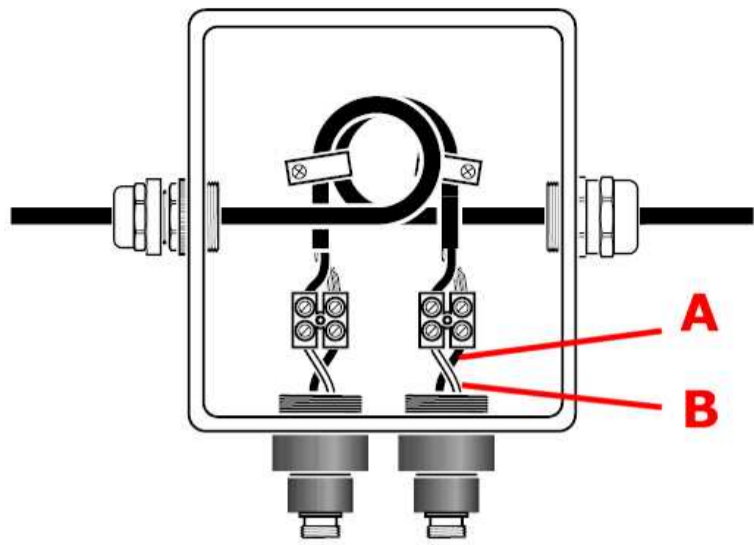
Parameter	VIB 6.770/9	VIB 6.770/13	VIB 6.776	VIB 6.775/9	VIB 6.775/13
<b>Case material</b>	Aluminium		ABS plastic	Aluminium (die cast)	
<b>In</b>	TNC connector		M12 Cable connection fitting	2 x TNC connector	
<b>Out Cable connection fitting</b>	M16	M20	M12	M16	M20
<b>Environmental protection</b>	IP 65				
<b>Dimensions</b>	128 x 29 mm — L x B		90 x 50 x 35 mm (LxBxW)	104 x 120 x 57 mm (LxBxW)	
<b>Separation between drilled holes</b>	---		A: 40 mm B: 40 mm	A: 52 mm B: 63 mm	



### Connection diagram



VIB 6.770/13  
 A: Shield (blue)  
 B: Signal (white)  
 !c: Wrap outer triax shield around the connection fitting



VIB 6.775/9, VIB 6.775/13

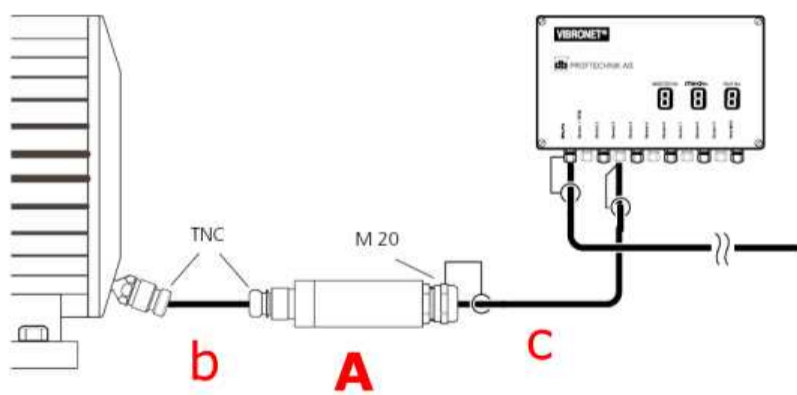
A: Shield (blue)

B: Signal (white)



### Application example

#### Extending a sensor cable using a triaxial cable (EMC protection)



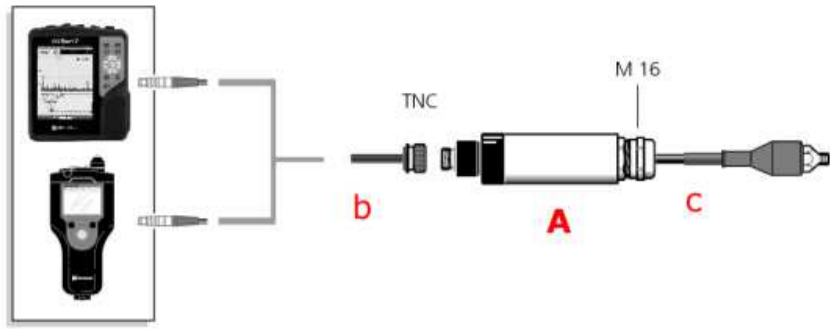
A: Junction box for one sensor cable VIB 6.770/13 (mounted electrically insulated)

b: Coaxial sensor cable;

2 x TNC

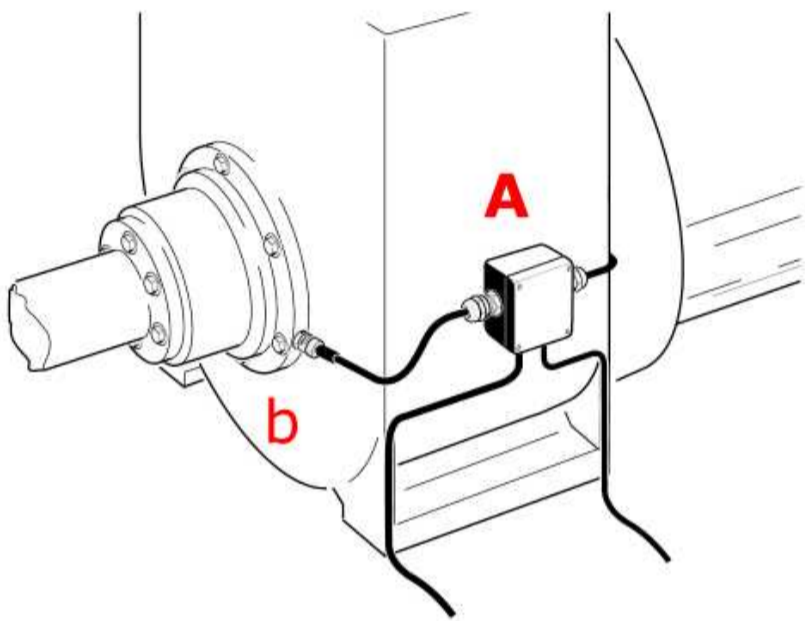
c: Triaxial cable to field multiplexer

### Data collection at a junction box using a handheld device



- A: Junction box for one sensor cable VIB 6.770/9
- b: Sensor cable TNC to MiniSnap VIB 5.436
- c: Coaxial sensor cable with open end wrapped around the junction box

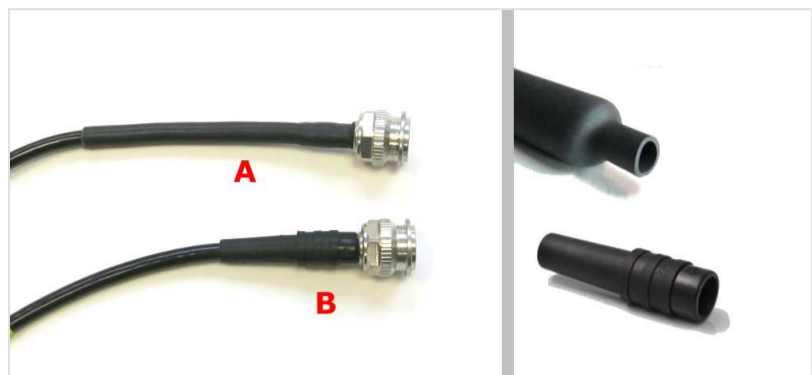
### Extending two sensor cables and the measurement location



- A: Junction box for two sensor cables VIB 6.775/9
- b: Coaxial sensor cable with open end wrapped around the junction box

## Protective sleeve und heat shrink sleeve

These components are used during the pre-assembly of customized cables. They provide mechanical protection, strain relief and electrical insulation for the cable connections.



### Features

- Heat shrink sleeve: Flexible and flame retardant
- Protective sleeve: For connectors using crimp cable entry

Coaxial cable pre-assembled with a TNC connector and a heat shrink sleeve (A) or protective sleeve (B)

### Ordering information

Item No.	Description
VIB 81018	Protective sleeve, halogen-free
0 0338 0082	Heat shrink sleeve

## TECHNICAL INFORMATION

### Technical data

Parameter	Protective sleeve	Heat shrink sleeve
<b>Material</b>	Ethylene-vinyl acetate (EVA)	Polyolefin (PO)
<b>Temperature range</b>	-40 °C to 70 °C (-40 °F to 158 °F)	-55 °C to 135 °C (-67 °F to 275 °F)
<b>Length</b>	38 mm (1 1/2")	---
<b>Specific features</b>	Halogen-free	Resistant to water, lubricating oil, hydraulic fluids and aviation fuel

## Shield connector set for sensor cables

This solder sleeve enables an environment resistant shield termination of sensor cables as used in stationary systems. This connector set eliminates the time-consuming preparation of a shielding braid.



Solder sleeve with ground lead (green)

### Features

- Maximum cable diameter: 6.7 mm
- Straightforward installation of the shielded cable
- Heat-shrinkable

### Ordering information

Item No.	Description
VIB 6.725-100	Shield connector set for coaxial and twisted-pair sensor cables; consists 100 solder sleeves

## TECHNICAL INFORMATION

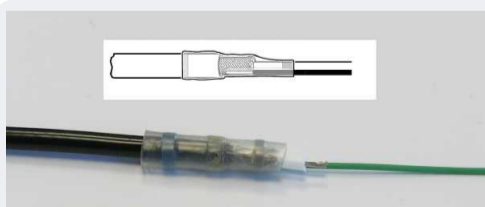
### Specification and dimensions

View and dimensions in mm	Material
	<b>A</b> Solder sleeve: Polyolefin, transparent, heat-shrinkable
	<b>B</b> Solder preform with flux: Cd18 per ANSI/J-STD-006 / ROM1 per ANSI/J-STD-004
	<b>C</b> Sealing ring: Thermally stabilized thermoplastic
	<b>D</b> Ground lead: Stranded tin plated copper Size: AWG22 (0.38 mm <sup>2</sup> ), Raychem polyethylene wire Length / Color: approx. 160 mm / Green

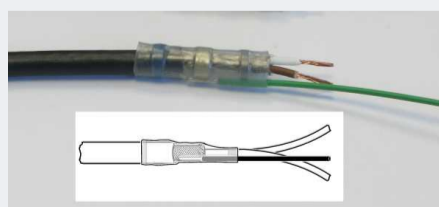
### Installation example

The solder sleeve is pulled onto the stripped end of the cable and shrunk onto it using a hot air gun. In the process, the inner tinned ring solders the shielding braid to the ground lead within the sleeve. At the same time, both ends of the solder sleeve are sealed cleanly and tightly.

Note: To avoid damaging the cable with the hot air gun and to focus the air jet onto the soldering point, a suitable reduction nozzle is needed.



Coaxial cable with solder sleeve



Twisted-pair sensor cable with solder sleeve

# Conduit for coaxial cable

The conduit is made resistant plastic and protects coaxial cables against mechanical damage. Suitable conduit clamps used for strain relief are available.




Coaxial cable in a conduit

## Features

- Material: Polyamide
- Flame-retardant
- Self-extinguishing in accordance with UL94 V0
- Free of silicone, cadmium and halogen

## Ordering information

Item No.		Description
VIB 6.730		Conduit for coaxial cable
VIB 8.718		Conduit clamp, 1 piece

Note: When ordering, add the required conduit length to the part number.

Example: 250 m conduit length

Order number: VIB 6.730-250

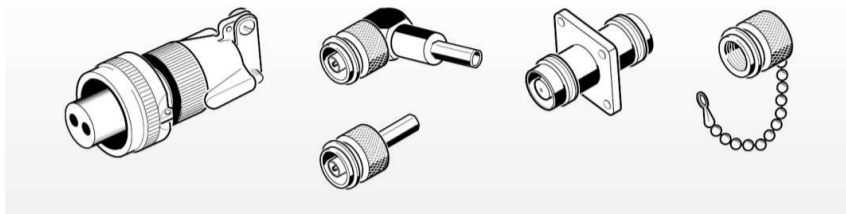
## TECHNICAL INFORMATION

### Technical data

Parameter	VIB 6.730
<b>CONSTRUCTION</b>	
Material	Polyamide 6; Color: Black
Nominal diameter	6.5 mm
External diameter	10 mm
Bend radius	13 mm
<b>MECHANICAL</b>	
Temperature range	-40 °C to 115 °C (-40 °F to 239 °F)
Resistance	Oil, petrol
Environment	UV and weather resistant
Specific features	Flame-retardant, self-extinguishing in accordance with UL94 V0, free of silicone, cadmium and halogen

# Plugs, sockets, terminal holders for bulkhead connectors

These components are used in the pre-assembly of cables that are connected to measurement systems or sensors. They may also be used to create defined interfaces for connection to other components.





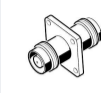




## Application

- Pre-assembly of coaxial or twisted-pair cables
- Feeding coaxial cables through through covers and housing

## Ordering information

Item No.	Illustration	Description – plug and socket
VIB 91002		TNC plug to TNC socket – angled
VIB 91009		BNC plug to crimp contact – angled
VIB 93022		TNC plug to crimp contact – straight
VIB 93033		TNC socket to TNC socket – straight
VIB 93047		TNC socket to crimp contact – straight
VIB 93055		TNC plug to BNC plug – straight
VIB 93060		BNC plug to crimp contact – straight
VIB 93062		TNC socket to BNC plug – straight
VIB 93067		TNC plug to BNC socket – straight
VIB 93077		TNC plug to crimp contact – angled
VIB 94010		2-pin plug-in connector – straight
VIB 94011		2-pin plug-in connector – angled

Note: The 2-pin plug-in connectors are used in the pre-assembly of cables suitable for following sensors:  
 - CLD accelerometer VIB 6.195  
 - 100mV/g IEPE accelerometer VIB 6.172  
 - VIBROTECTOR vibration transmitter VIB 5.73x

Item No.	Illustration	Description – bulkhead connectors
VIB 91000		Chassis connector, TNC socket to crimp contact
VIB 93035		Dust cap for TNC socket
VIB 93036 F		Bulkhead connector with fastening flange – TNC socket to TNC socket
VIB 93036 S		Bulkhead connector single hole screw version – TNC socket to TNC socket
VIB 93056		Bulkhead connector with fastening flange – BNC socket to TNC socket
VIB 93061		Dust cap for BNC socket
VIB 93090		Chassis connector, BNC socket to crimp contact
VIB 6.780	See 'Installation example'	Terminal holder for 12 bulkhead connectors
VIB 10473		Dust cap for TNC connector at the bulkhead

Note: The bulkhead connectors must be electrically insulated at installation. Suitable insulating washers are required for this purpose. During installation care must be taken to ensure that the dust caps do not come into contact with electrically conductive components.

## TECHNICAL INFORMATION

### Accessories

Item No.	Description – tools
VIB 81026	Crimping tool for coaxial cables
VIB 81052	Cutting tool for coaxial cables

### Technical data

Parameter	VIB 94010 / VIB 94011
Material	Aluminium alloy
Surface	Zinc Nickel (A 240); RoHS compliant; Protection against salt spray (500h) and shielding according to VG95234
Clamping range	< 7 mm
Specification	MIL-C-5015



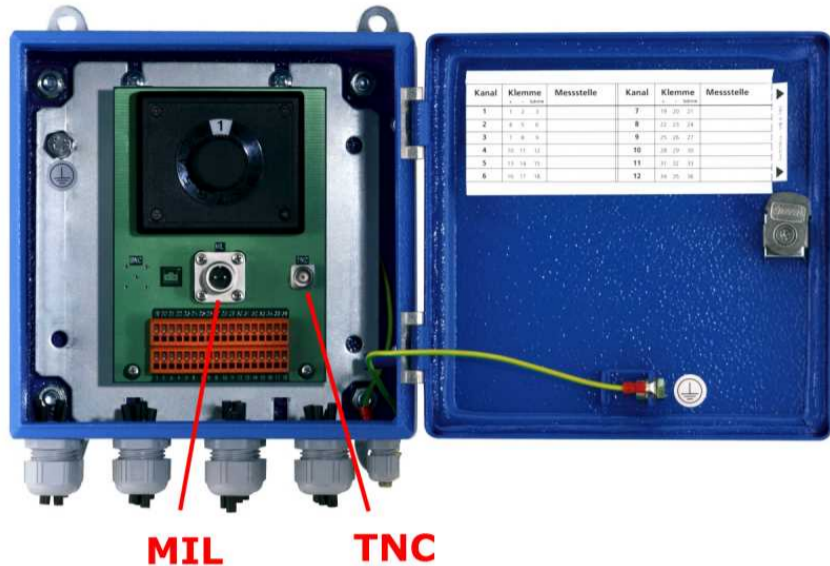
Parameter	VIB 6.780	VIB 10473
Material	Plastic PA	Silicone (HTV R 701)
Resistance	---	aliphatic hydrocarbons (mineral oils)
Temperature range	0 °C to 85 °C (32 °F to 185 °F)	< 200 °C (392 °F)
Environmental protection	---	IP 65
Clamping range	12.2 – 14.8 mm	

### Installation example: Terminal holder for bulkhead connectors

Terminal holder for bulkhead connectors – VIB 6.780	
	A: Terminal holder VIB 6.780
	B: Dust cap for TNC connector VIB 10473
	C: TNC plug to crimp contact – straight VIB 93022
	D: Bulkhead connector single hole screw version, TNC socket to TNC socket VIB 93036 S
	E: Dust cap for TNC socket VIB 93035
	F: Dust cap for industrial sensor (e.g. VIB 6.700)
<p>The terminal holder may be sawed to the desired length if necessary. The TNC dust cap (B) hermetically seals the connection between the sensor cable and the bulkhead connector. To seal the connection between the sensor and the sensor cable, a dust cap with a larger diameter is required (f).</p>	
<p><b>Engineering drawing for terminal holder</b></p>	

# Switchbox channel switch for 12 channels

The switchbox channel switch joins up to 12 sensor lines at one output. The sensor signals can be recorded reliably and easily using a portable measuring device at the point of installation of the switchbox. The channels are selected by means of a rotary switch.



The sensor signal can be picked up at a TNC or MIL output.

## Features

- 12 measuring channels at one connection (TNC or MIL connector)
- Quick and secure data acquisition at one location
- No power consumption required
- For vibration sensors with a power or voltage output (CLD, IEPE)
- Operation in the Ex-zone possible

## Compatible with the following measuring devices:

- VIBXPERT II / VIBSCANNER
- VIBXPERT EX / VIBSCANNER EX

## Ordering information

Item No.	Name
VIB 6.785	Switchbox - channel switch for CLD and IEPE accelerometers, 12 channels

## TECHNICAL INFORMATION

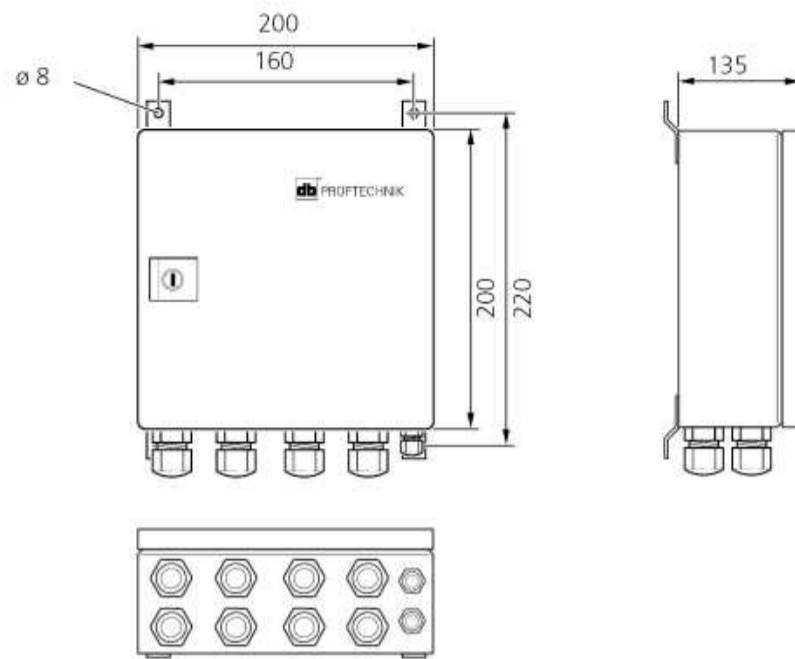
### Accessories

Item No.	Name
VIB 5.436	"Pre-assembled sensor cables and adapters for CLD accelerometers (portable devices)", p. 174
VIB 5.422	"Cable adapter for VIBXPERT II", p. 175

### Technical data

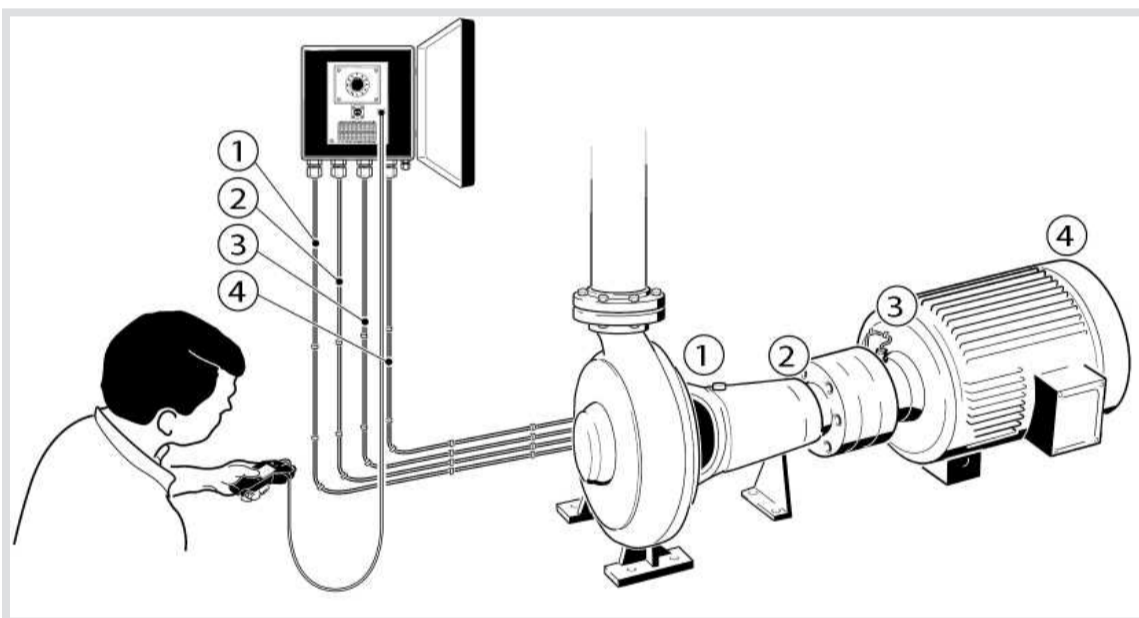
Parameter	VIB 6.785
Input	12 accelerometers (CLD / IEPE)
Output	one, via TNC socket or MIL socket
Temperature range	-20°C... +60°C
Protection class	IP 65

## Dimensions



## Application example

Data acquisition with VIBSCANNER and switchbox on 4 channels.



## Tools for cable installation

These tools are used to assemble coax cables at the point of installation.



Crimp tool and cutting tool for coax cable.

### Features

- Crimp tool:
  - for coax cable RG 58/59/6/174
  - Crimping dies can be replaced
- Cutting tool, composed of
  - Stripping tool
  - Blade cassette

### Ordering information

Item No.	Name
<b>VIB 81026</b>	Crimping tool for coax cable
<b>VIB 81052</b>	Cutting tool for coax cable

Note: The replaceable blade cassette has a specified stripping length. In combination with the stripping tool, it is suitable for coax cables and round (shielded) data lines of between 2.5 and 8 mm in diameter. The blade cassette enables 1, 2 and 3-stage stripping. Stripping length: 7.5/3.5 mm.

## Software for Condition Monitoring

<b>OMNITREND Center</b> .....	<b>230</b>
<b>OMNITREND PC Software</b> .....	<b>231</b>
<b>VIBXPERT utility</b> .....	<b>233</b>

# OMNITREND Center

OMNITREND Center is the newly developed software platform for the following PRÜFTECHNIK measuring systems: VIBGUARD, VIBGUARD compact, VIBGUARD portable, VIBRONET Signalmaster, VIBROWEB XP, VIBXPERT II, VIBXPERT EX, VIBSCANNER 2.



OMNITREND Center is multi-screen-capable.

## Features

- Modern system architecture – ideal for distributed networks and cloud-based solutions
- Central data management
- Single-user and client-server version
- Advanced Modbus support
- Interactive report function
- User-friendly operation
- Multi-screen-capable
- Available in 13 languages
- Attractive license conditions
- Free software updates

## Ordering information

Item No.	Description
<b>VIB 8.200</b>	OMNITREND Center, client-server version
<b>VIB 8.210</b>	OMNITREND Center, single user version
<b>Licenses for user, database, server</b>	
<b>VIB 8.201/ 8.202</b>	Floating user licenses: 1 / 5
<b>VIB 8.203 / 8.204</b>	Fixed user licenses: 1 / 5
<b>VIB 8.205</b>	10 additional database licenses
<b>VIB 8.206</b>	Multi server license
<b>Licenses for functions</b>	
<b>VIB 8.207</b>	Email Center

Notes: The scope of delivery comprises one USB pen drive each with software and license files, including installation and startup instructions in PDF format.

# OMNITREND PC Software

OMNITREND is the universal software platform for all data-acquiring PRÜFTECHNIK measuring systems (stationary and portable).



OMNITREND PC software on CD-ROM.

## Features

- Trend acquisition and forecast
- Comprehensive signal analyses
- Configurable reports
- Data exchange with CMMS systems
- User-friendly operation
- Available in 13 languages
- Attractive license conditions
- Free software updates

## Ordering information

Item No.	Description
<b>OMNITREND for VIBXPART II / VIBXPART EX</b>	
<b>VIB 8.981</b>	OMNITREND for VIBXPART II, software package (incl. OMNITREND web single user)
<b>VIB 8.982</b>	OMNITREND View for VIBXPART II, software package
<b>VIB 8.981-OMT</b>	VIBXPART device driver for OMNITREND
<b>VIB 5.312-P</b>	PC license for VIBXPART II
<b>VIB 8.981-P</b>	PC license for VIBXPART EX
<b>OMNITREND for VIBSCANNER</b>	
<b>VIB 8.955</b>	OMNITREND for VIBSCANNER, software package
<b>VIB 8.956</b>	OMNITREND View for VIBSCANNER, software package
<b>VIB 5.481</b>	VIBSCANNER device driver for OMNITREND
<b>VIB 5.480-P</b>	PC license for VIBSCANNER
<b>VIB 8.961</b>	OMNITREND module "Gearbox Editor"
<b>VIB 8.962</b>	OMNITREND module "Signal Analysis"
<b>OMNITREND for VIBROWEB XP</b>	
<b>VIB 7.780</b>	OMNITREND for VIBROWEB XP, software package
<b>VIB 7.780-DR</b>	VIBROWEB-XP device driver for OMNITREND
<b>VIB 7.780-P</b>	PC license for VIBROWEB XP

Notes: Every software package and device driver contain a printed pocket guide and PC license in addition to a CD ROM.

A **device driver** is a file that enables the operation of an already present software with the respective device type.

A **PC license** is a password that enables communication between OMNITREND and the respective measuring device.

After initial installation, OMNITREND runs in demo mode. To enable the full version, a **registration password** is required, which must be requested by the user during startup.

## TECHNICAL INFORMATION

### OMNITREND for VIBSCANNER, "Signal Analysis" module

The OMNITREND "Signal Analysis" software module is available as extension of an already registered OMNITREND installation and enables display and analysis of the following VIBSCANNER measurements:

Software package	VIBSCANNER measurements
OMNITREND for VIBSCANNER	Time signal (multimode & route), Orbit (multimode)
OMNITREND View for VIBSCANNER	Recording data

By registering the "Signal Analysis" module, the "Gearbox Editor" module is enabled as well.



## VIBXPERT utility

This practical utility for the family of VIBXPERT devices supports the user during data transfer, data management and reporting. The software is available for downloading free of charge on the PRÜFTECHNIK website. Paid functions can be activated via password.



Export measurement data as MS Excel file with VIBXPERT utility.

### Features

- Download of screenshots, PDF files
- Backup & restore
- Transfer company logo to measuring device
- Formatting of CF memory card
- Firmware update
- Data export into CSV format
- Data export into Excel format (optional)
- Data export into UFF / IEEE (optional)

### Ordering information

Item No.	Description
VIB 8.984	VIBXPERT utility - Advanced File Export (UFF, IEEE)
VIB 8.986	VIBXPERT utility - Excel Report Module

Notes: The **Advanced File Export** function comprises the conversion of spectra, time signals, as well as measurement results of impact tests and phase measurements into the UFF resp. IEEE file format for analysis in other analysis programs.

Using the **Excel Report Module**, you can export the following measurement data into a formatted MS Excel file:

Characteristic overall value, FFT spectrum, balancing result, time signal, coast-down measurement (amplitude-phase and characteristic overall value), 2-channel measurements.

The Excel files are based on templates that can be adjusted by the expert user as needed.

Version: Excel 2003, Excel 2007

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## Shaft alignment systems

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<b>SHAFTALIGN OS3– fast and cost-effective shaft alignment</b> .....	<b>255</b>
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## ROTALIGN touch– Shaft alignment

ROTALIGN touch is the first cloud-enabled shaft alignment system that possesses a touchscreen display, and integrates mobile connectivity.



### Application

- Alignment of horizontal, vertical and flange-mounted rotating machines
- Coupled, uncoupled and non-rotatable shafts

### Features

- Capacitive touchscreen
- IntelliSWEEP sensor technology
- Intelligent measurement modes such as the uncoupled mode methods IntelliPASS and IntelliPOINT
- Measurement table showing the different alignment jobs
- Multi-Coupling simultaneous Live Move with acoustic assistance
- Customized tolerances (including asymmetric)
- Interactive real 3-D format for machines
- Multi-Coupling Live Trend
- Communication using WiFi, Bluetooth and RFID
- Built-in camera
- Speech recognition

### Ordering information

ROTALIGN touch is available in four variants.

Item No.	Variant
<b>ALI 50.000</b>	ROTALIGN touch, full version
<b>ALI 50.000-MOB</b>	ROTALIGN touch, mobile connectivity version
<b>ALI 50.000-CAM</b>	ROTALIGN touch, built-in camera version
<b>ALI 50.000-B</b>	ROTALIGN touch, standard version

The items delivered within the box are shown in the following overview.

### Scope of supply

Content			Variant			
Item No.	Description	Details	Full	Connectivity	Camera	Standard
ALI 50.200	ROTALIGN touch computer	p. 240	✓	✓	✓	✓
ALI 50.651	Power supply / Charger	p. 260	✓	✓	✓	✓
ALI 4.900I	sensALIGN sensor	p. 240	✓	✓	✓	✓
ALI 4.910	sensALIGN laser	p. 241	✓	✓	✓	✓
ALI 4.960	sensALIGN rechargeable battery	---	✓, 2x	✓, 2x	✓, 2x	✓, 2x
ALI 4.651	sensALIGN AC power supply charger	p. 260	✓	✓	✓	✓
ALI 4.922-2	sensALIGN cable, 2 m (78 3/4" )	---	✓	✓	✓	✓
ALI 4.905	sensALIGN vibration check probe	p. 262	✓	✓	✓	✓
ALI 9.500	sensALIGN sensor inspection certificate		✓	✓	✓	✓
ALI 9.501	sensALIGN laser inspection certificate		✓	✓	✓	✓
ALI 50.801	Ruggedized trolley case		✓	✓	✓	✓
ALI 50.628-25	RFID tags, 25 pieces		✓	✓	✗	✗
ALI 3.589	Tape measure, mm/inch	---	✓	✓	✓	✓
ALI 2.911	Cleaning cloth	---	✓	✓	✓	✓
ALI 12.502-2	PC/USB cable, 2 m (78 3/4" )	---	✓	✓	✓	✓
ALI 17.451	USB memory stick with ARC 4.0 software and product literature		✓	✓	✓	✓
ALI 2.118	Compact chain-type bracket	p. 288	✓, 2x	✓, 2x	✓, 2x	✓, 2x
0 0593 0105	Storage pouch for compact chain type bracket set		✓	✓	✓	✓
ALI 2.170	115 mm (4 1/2") support post, white	p. 335	✓, 4x	✓, 4x	✓, 4x	✓, 4x
ALI 2.171	150 mm (5 15/16") support post, black	p. 335	✓, 4x	✓, 4x	✓, 4x	✓, 4x
ALI 2.173	250 mm (9 7/8") support post, green	p. 335	✓, 4x	✓, 4x	✓, 4x	✓, 4x
ALI 2.174	300 mm (11 13/16") support post, yellow	p. 335	✓, 4x	✓, 4x	✓, 4x	✓, 4x
ALI 2.114	300 mm tension chain	p. 289	✓, 2x	✓, 2x	✓, 2x	✓, 2x
0 0739 1055	Hexagon wrench (2.5 mm)		✓	✓	✓	✓
DOC 50.101	Pocket guide		✓	✓	✓	✓
DOC 50.601	Safety and general information		✓	✓	✓	✓
ALI 17.000-50	ARC 4.0 device activation for ROTALIGN touch	p. 338	✓	✓	✗	✗

**Note:** The items in the box for the four variants are fixed.

Optional items may be ordered for any of the four variants.

### Optional accessories

Item No.	Description – optional accessory	Note	Details
<b>PC software</b>			
<b>ALI 17.000-50</b>	ARC 4.0 device activation for ROTALIGN touch	optional for Camera and Standard versions	p. 338
<b>Application related add-ons</b>			
<b>ALI 4.005/2-10</b>	Live Trend Add-on, Magnet	w/ Magnetic Bracket for Horizontal and Vertical Surfaces	p. 264
<b>ALI 4.005/2-20</b>	Live Trend Add-on, PERMAFIX	w/ PERMAFIX bracket	p. 264
<b>ALI 50.900</b>	Multi Coupling Add-on	for the alignment of multiple couplings	p. 266
<b>Brackets</b>			
<b>ALI 2.112 SET-S</b>	Compact magnetic bracket set, standard		p. 294
<b>ALI 2.230-1</b>	Magnetic sliding bracket for flange		p. 312
<b>ALI 2.109 SET</b>	Extra-thin bracket set		p. 298
<b>ALI 2.109 LSET</b>	Small extra-thin bracket set		p. 298
<b>ALI 2.761 SET iS</b>	Universal magnetic bracket set for flanges and bores		p. 308
<b>ALI 2.220 SET</b>	Universal magnetic sliding bracket for flanges and bores, set		p. 314
<b>ALI 2.450</b>	Cardan shaft chain-type bracket with rotating arm, set		p. 291
<b>ALI 2.460</b>	Chain-type bracket for large diameter, set		p. 291
<b>Miscellany</b>			
<b>ALI 4.921-5</b>	sensALIGN cable, 5 m (196 7/8" )		
<b>ALI 50.250</b>	Carrying strap		
<b>ALI 2.116</b>	1500 mm tension chain		
<b>ALI 2.191</b>	Anti torsion bridge for 2 support posts		p. 331

## TECHNICAL INFORMATION

### Technical data

Parameter	ROTALIGN touch technical data
<b>COMPUTER</b>	
<b>CPU</b>	1.0 GHz quad core ARM Cortex-A9
<b>Memory</b>	Memory: 2 GB RAM, 1 GB Internal Flash, 32 GB SD-Card Memory
<b>Display</b>	Projective capacitive multi-touchscreen Transmissive (sunlight-readable) backlit TFT color graphic display; optically bonded, protective industrial display, integrated light sensor for automated adjustment of the brightness to the display Resolution: 800 x 480 Pixel Dimensions: 178 mm (7") diagonal
<b>LED indicators</b>	3 LEDs for battery status 1 LED for WiFi communication
<b>Power supply</b>	Lithium-ion rechargeable battery 3.6 V / 80 Wh 12 hours typical use* AC adapter/charger: 12 V / 36 W; standard barrel connector *(based upon an operating cycle of 25% measurement, 25% computation, 50% 'sleep' mode)
<b>External interface</b>	USB host for memory stick USB slave for PC communication, charging (5 V DC / 1.5 A) RS-232 (serial) for sensor, RS-485 (serial) for sensor, I-Data for sensor, Bluetooth, WiFi, RFID integrated Integrated Wireless LAN IEEE 802.11 b/g/n up to 72.2 Mbps
<b>Camera</b>	5 MP
<b>Environmental protection</b>	IP 65 (dustproof and water jets resistant) Shockproof Relative humidity: 10% to 90%
<b>Drop test</b>	1 m (3 1/4 ft)
<b>Temperature range</b>	Operation / Charging: 0 °C to 40 °C (32 °F to 104 °F) Storage: -10 °C to 50 °C (14 °F to 122 °F)
<b>Dimensions</b>	Approx. 273 x 181 x 56 mm (10 3/4" x 7 1/8" x 2 3/16")
<b>Weight</b>	Approx. 1.88 kg (4.1 lbs)
<b>SENSALIGN SENSOR</b>	
<b>Measurement range</b>	Unlimited, dynamically extendible (US. Patent 6,040,903)
<b>Measurement resolution</b>	1 µm
<b>CPU</b>	ARM Cortex™ M3 2 GB Flash Memory
<b>LED indicators</b>	4 LEDs for laser adjustment 1 LED for Bluetooth® communication 1 LED for battery status
<b>Power supply</b>	Operating time: 12 hours continuous use Battery: Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah 6 Wh

Parameter	ROTALIGN touch technical data
<b>External interface</b>	Integrated Bluetooth® Class 1 wireless communication, RS232, RS485, IData
<b>Vibration measurement</b>	mm/s, RMS, 10Hz to 1kHz, 0 mm/s – 5000/f • mm/s <sup>2</sup> (f in Hertz [1/s])
<b>Inclinometer</b>	Resolution: 0.1° Error: ± 0,25 % full scale
<b>Environmental protection</b>	IP 65 (dustproof and water jets resistant) Shockproof Relative humidity: 10% to 90%
<b>Ambient light protection</b>	Yes
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Charging: 0 °C to 40 °C (32 °F to 104 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F)
<b>Dimensions</b>	Approx. 103 x 84 x 60 mm (4 1/16" x 3 5/16" x 2 3/8")
<b>Weight</b>	Approx. 310 g (10.9 oz)
SENSALIGN LASER	
<b>Type</b>	Semiconductor laser
<b>Beam power</b>	< 1 mW
<b>Beam divergence</b>	0.3 mrad
<b>Inclinometer</b>	Resolution: 0.1° Error: ± 0.25 % full scale
<b>LED indicators</b>	1 LED for laser transmission 1 LED for battery status
<b>Power supply</b>	Lithium Polymer rechargeable battery 3.7 V / 1.6 Ah 6 Wh AC adapter/charger: 5 V / 3 A Operating time: 70 hours continuous use
<b>Environmental protection</b>	IP 65 (dustproof and water jets resistant) Shockproof Relative humidity: 10% to 90%
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Charging: 0 °C to 40 °C (32 °F to 104 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F)
<b>Dimensions</b>	Approx. 103 x 84 x 60 mm (4 1/16" x 3 5/16" x 2 3/8")
<b>Weight</b>	Approx. 330 g [11.6 oz]



## OPTALIGN smart RS5 BT– Exact shaft alignment

OPTALIGN smart is the standard system for the precise alignment of machines. Patented measurement functions coupled with an intuitive operation, and clear depiction of measurement results and corrections, help reduce the job time to a minimum.



### Application

- Alignment of horizontal, vertical and flange-mounted rotating machines
- Coupled, uncoupled and non-rotatable shafts
- Straightness measurement

### Features

- RS5 BT sensor incorporating XL HD detectors and MEMS inclinometer
- Continuous measurement during shaft rotation
- Automatic evaluation of alignment condition using smileys
- Simultaneous monitoring of both horizontal and vertical Live Move corrections
- Flip machine functionality
- Measurement report saved as a PDF file directly to a USB memory stick
- Bluetooth communication integrated in both computer and RS5 BT sensor

### Ordering information

OPTALIGN smart RS5 BT is available in two variants.

Item No.	Variant
<b>ALI 12.015-RS5R</b>	OPTALIGN smart RS5 BT with rechargeable battery computer
<b>ALI 12.015-RS5</b>	OPTALIGN smart RS5 BT with battery housing

### Scope of supply

Content – OPTALIGN smart RS5 BT with rechargeable battery computer		
Item No.	Description	Details
<b>ALI 12.200</b>	<b>OPTALIGN smart computer</b>	<b>p. 247</b>
<b>ALI 12.201</b>	<b>OPTALIGN smart computer stand</b>	
<b>ALI 12.601</b>	<b>OPTALIGN smart rechargeable battery</b>	
<b>ALI 12.701</b>	<b>"Shaft" firmware certificate</b>	
<b>ALI 12.651-I</b>	<b>OPTALIGN smart charger (international)</b>	<b>p. 260</b>
<b>ALI 3.901</b>	<b>RS5 BT sensor</b>	<b>p. 247</b>
<b>ALI 3.910</b>	<b>RS5 laser including batteries</b>	<b>p. 248</b>
<b>ALI 3.953</b>	<b>RS5 BT sensor charger (universal)</b>	<b>p. 248</b>
<b>ALI 3.952</b>	<b>Micro USB cable (for charging sensor)</b>	

### Content – OPTALIGN smart RS5 BT with rechargeable battery computer

Item No.	Description	Details
ALI 12.502-2	PC cable for OPTALIGN smart computer	
ALI 12.503	USB cable for peripherals	
ALI 2.118	Compact chain-type bracket	p. 288
ALI 2.911	Cleaning cloth	
ALI 3.589	Tape measure mm/inch	
ALI 17.451	USB memory stick with ARC 4.0 software and product literature	
ALI 12.810	Ruggedized trolley case	
DOC 12.601	Safety and general information	
DOC 12.106	Pocket guide	
ALI 9.516	RS5 BT sensor inspection certificate	

### Content – OPTALIGN smart RS5 BT with battery housing

Item No.	Description	Details
ALI 12.200	OPTALIGN smart computer	p. 247
ALI 12.201	OPTALIGN smart computer stand	
ALI 12.600	OPTALIGN smart battery housing including batteries	
ALI 12.701	"Shaft" firmware certificate	
ALI 3.901	RS5 BT sensor	p. 247
ALI 3.910	RS5 laser including batteries	p. 248
ALI 3.953	RS5 BT sensor charger (universal)	p. 248
ALI 3.952	Micro USB cable (for charging sensor)	
ALI 12.502-2	PC cable for OPTALIGN smart computer	
ALI 12.503	USB cable for peripherals	
ALI 2.118	Compact chain-type bracket	p. 288
ALI 2.911	Cleaning cloth	
ALI 3.589	Tape measure mm/inch	
ALI 17.451	USB memory stick with ARC 4.0 software and product literature	
ALI 12.810	Ruggedized trolley case	
DOC 12.601	Safety and general information	
DOC 12.106	Pocket guide	
ALI 9.516	RS5 BT sensor inspection certificate	

**Note:** The items in the box for both variants are fixed.

Optional items may be ordered for either variant.

## Optional accessories

Item No.	Description - optional accessories	Note	Details
<b>Functional upgrades</b>			
<b>ALI 12.713</b>	Targets, Thermal growth, Dial gauge target input		
<b>ALI 12.715</b>	Multipoint measurement mode		
<b>ALI 12.718</b>	Alignment of cardan and spacer shafts		
<b>ALI 12.723</b>	3-machine train alignment		
<b>ALI 12.725</b>	High-end additional features	Comprises Pass mode, machine graphics, tolerances, "all-in-one" results, machine trains with up to 6 machines	
<b>PC software</b>			
<b>ALI 17.000-4</b>	ARC 4.0 device activation, OPTALIGN smart		p. 338
<b>Shaft brackets</b>			
<b>ALI 2.112 SET-S</b>	Compact magnetic bracket set, standard		p. 294
<b>ALI 2.230-1</b>	Magnetic sliding bracket for flange		p. 312
<b>ALI 2.109 SET</b>	Extra-thin bracket set		p. 298
<b>ALI 2.109 LSET</b>	Small extra-thin bracket set		p. 298
<b>ALI 2.761 SET iS</b>	Universal magnetic bracket set for flanges and bores		p. 308
<b>ALI 2.893 SET iS</b>	Cardan shaft bracket set (for offsets up to 1000 mm)		p. 291
<b>ALI 2.874 SET iS</b>	Cardan shaft bracket Lite set	for offsets up to 400 mm	p. 291
<b>Support posts, tension chains and miscellany</b>			
<b>ALI 2.170</b>	115 mm (4 1/2") support post, white	2 pieces required for each bracket	p. 335
<b>ALI 2.171</b>	150 mm (5 15/16") support post, black	2 pieces required for each bracket	p. 335
<b>ALI 2.173</b>	250 mm (9 7/8") support post, green	2 pieces required for each bracket	p. 335
<b>ALI 2.174</b>	300 mm (11 13/16") support post, yellow	2 pieces required for each bracket	p. 335
<b>ALI 2.114</b>	300 mm tension chain		
<b>ALI 2.116</b>	1500 mm tension chain		
<b>ALI 5.020</b>	External inclinometer		
<b>ALI 2.191</b>	Anti-torsion bridge		p. 331
<b>Straightness measurement</b>			
<b>ALI 12.731</b>	Straightness function	incl. licence paper	
<b>ALI 12.551</b>	Magnetic base with fixtures	2 pieces	
<b>ALI 12.807</b>	Compact case		
<b>DOC 12.115</b>	OPTALIGN smart RS5 Straightness pocket guide		
<b>DOC 12.101</b>	OPTALIGN smart Straightness pocket guide		
<b>0 0739 1055</b>	Hexagon wrench (2.5 mm)		
<b>0 0739 1059</b>	Hexagon wrench (6 mm)		

# TECHNICAL INFORMATION

## Technical data

Parameter	OPTALIGN smart RS5 BT technical data
<b>COMPUTER</b>	
<b>CPU</b>	Marvell XScale PXA270 running at 520 MHz
<b>Memory</b>	64 MB RAM, 64 MB Flash
<b>Display</b>	3.5" TFT, transmissive (sunlight-readable), 65 535 colours, backlit LED Resolution: 320 x 240 Pixel
<b>Keyboard elements</b>	Up, Clear, Menu Navigation cursor cross Alphanumeric keyboard Three additional keys (Dimensions, Measure, Results)
<b>LED indicators</b>	4 LEDs for laser status and alignment condition 2 LEDs for wireless communication and battery status
<b>Power supply</b>	Disposable batteries: 6 x 1.5 V IEC LR6 ("AA") Lithium-Ion rechargeable battery: 7.4 V / 2.5 Ah / 18.5 Wh (optional) Operating time: 18 hours typical use (based upon an operating cycle of 25% measurement, 25% computation and 50% 'sleep' mode)
<b>External interface</b>	USB host USB slave RS232 (serial) for sensor Integrated wireless communication, class 1, transmitting power 100 mW AC adapter/charger socket
<b>Environmental protection</b>	IP 65 (dustproof and water jets resistant) Shockproof Relative humidity: 10% to 90%
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F) Charging: 0 °C to 40 °C (32 °F to 104 °F)
<b>Dimensions</b>	Approx. 214 x 116 x 64 mm (8 7/16" x 4 7/16" x 2 1/2")
<b>Weight</b>	865 g (1.9 lb)
<b>RS5 BT SENSOR</b>	
<b>Type</b>	5-axis sensor: 2 planes (4 displacement axes and angle) Measurement area: unlimited, dynamically extendible (U.S. Patent 6,040,903) Resolution: 1 µm (0.04 mil) and angular 10 µRad Accuracy (avg): > 98% Measurement rate: approx. 20 Hz
<b>LED indicators</b>	1 LED for laser adjustment and battery status 1 LED for Bluetooth communication
<b>Power supply</b>	Lithium-Ion rechargeable battery: 3.7 V / 5 Wh Operating time: 10 hours (continuous use) Charging time: Using charger – 2.5 h for up to 90%; 3.5 h for up to 100% Using USB port – 3 h for up to 90%; 4 h for up to 100%

Parameter	OPTALIGN smart RS5 BT technical data
<b>External interface</b>	Integrated Bluetooth 4.1 Smart Ready wireless communication USB 2.0 Full Speed
<b>Transmission distance</b>	Up to 30 m [98 ft] direct line of sight
<b>Environmental protection</b>	IP 65 (dustproof and water jets resistant) Shockproof Relative humidity: 10% to 90%
<b>Ambient light protection</b>	Yes
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F) Charging: 0 °C to 40 °C (32 °F to 104 °F)
<b>Dimensions</b>	Approx. 105 x 74 x 58 mm (4 9/64" x 2 29/32" x 2 1/4")
<b>Weight</b>	Approx. 235 g (8 1/3 oz.)
<b>Universal charger for RS5 BT sensor</b>	
<b>Input</b>	100 - 240 VAC / 50 - 60 Hz / 0.2 A
<b>Output</b>	5 VDC / 1 A / 5 W
<b>Protection class</b>	II / IP 52
<b>Connector</b>	Four plug adapters for North America, Japan, Australia, UK, EU
<b>Device connection</b>	USB cable
<b>Temperature range</b>	Operation: 0 ... +40°C (32 °F to 104 °F); Storage: -10 ..+80°C (14 °F to 176 °F)
<b>Dimensions</b>	approx. 71 x 41 x 31 mm [ 2 13/16" x 1 5/8" x 1 1/4" ]
<b>RS5 LASER</b>	
<b>Type</b>	Semiconductor laser diode
<b>Beam divergence</b>	0.3 mrad
<b>Beam power</b>	< 1 mW
<b>Wavelength</b>	630 – 680 nm (red, visible)
<b>Laser class</b>	Class 2 according to IEC 60825-1:2007 The laser complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. Safety precaution: Do not look into laser beam
<b>Power supply</b>	Batteries: 2 x 1.5 V IEC LR6 ("AA") Operating time: 180 hours
<b>Protection</b>	IP 65 (dustproof and water jets resistant) Shockproof Relative humidity: 10% to 90%
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F)
<b>Dimensions</b>	Approx. 105 x 74 x 47 mm (4 9/64" x 2 29/32" x 1 27/32")
<b>Weight</b>	Approx. 225 g (7 15/16 oz.)

# ROTALIGN smart RS5 EX– Shaft alignment in explosive atmospheres

ROTALIGN smart RS5 EX is the customary system used in explosive environments for the alignment of coupled machines. Patented measurement functions coupled with an intuitive operation, and clear depiction of measurement results and corrections, help reduce the job time to a minimum.



## Application

- Horizontal, vertical and flange-mounted rotating machines
- Coupled, uncoupled and non-rotatable shafts
- Straightness measurement

## Features

- ATEX / IECEx certified for zone 1
- RS5 sensor incorporating XL HD detectors and MEMS inclinometer
- Wireless data transmission using Bluetooth (optional)
- Continuous measurement during shaft rotation
- Pass measurement mode for uncoupled shafts (optional)
- Automatic evaluation of alignment condition using smileys
- Simultaneous monitoring of both horizontal and vertical Live Move corrections
- Flip machine functionality
- Measurement report saved as a PDF file directly to a USB memory stick

## Ordering information

ROTALIGN smart RS EX is available in two variants.

Item No.	Variant
<b>ALI 12.010 EX</b>	ROTALIGN smart RS5 EX, Standard
<b>ALI 12.011 EX</b>	ROTALIGN smart RS5 EX, Full version

The items delivered within the box are shown in the following overview.

## Scope of supply

Item No.	Description	Details	Variants	
			Standard	Full v.
<b>ALI 12.200 EX</b>	<b>OPTALIGN smart intrinsically safe version computer including the "ROTALIGN smart EX" label</b>	p. 252	✓	✓
<b>ALI 12.201</b>	Computer stand	---	✓	✓
<b>ALI 12.701</b>	"Shaft" firmware certificate	---	✓	✗

Item No.	Content		Variants	
	Description	Details	Standard	Full v.
ALI 12.703	"Full version" firmware certificate (including "Shaft" and all upgrade licences)	---	✗	✓
ALI 12.651-I	AC power supply/charger for adapter box (universal)	p. 260	✓	✓
ALI 3.900 EX	Intrinsically safe RS5 sensor	p. 253	✓	✓
ALI 3.910 EX	Intrinsically safe RS5 laser, including batteries	p. 253	✓	✓
ALI 3.982-2	Sensor cable connected to intrinsically safe OPTALIGN smart computer, 2 m	---	✓	✓
ALI 12.500	Adapter box for intrinsically safe OPTALIGN smart computer	---	✓	✓
ALI 12.504-2	USB A/B cable for connecting to printer or PC	---	✓	✓
ALI 2.118	Compact chain-type bracket	p. 288	✓, 2x	✓, 2x
ALI 2.170	115 mm (4 1/2") support post, white	p. 335	✗	✓, 4x
ALI 2.171	150 mm (5 15/16") support post, black	p. 335	✗	✓, 4x
ALI 2.173	250 mm (9 7/8") support post, green	p. 335	✗	✓, 4x
ALI 2.174	300 mm (11 13/16") support post, yellow	p. 335	✗	✓, 4x
ALI 2.114	300 mm tension chain	---	✗	✓, 2x
0 0739 1055	Hexagon wrench (2.5 mm)	---	✓	✓
ALI 2.911	Cleaning cloth	---	✓	✓
ALI 3.588 EX	Intrinsically safe tape measure mm/inch	---	✓	✓
ALI 17.451	USB memory stick with ARC 4.0 software and product literature	---	✓	✓
ALI 12.809 EX	Case for ROTALIGN smart RS5 EX system	---	✓	✓
DOC 12.111	Pocket guide	---	✓	✓
DOC 12.211	Operating handbook	---	✓	✓
ALI 9.517	Sensor inspection certificate for intrinsically safe RS5 sensor	---	✓	✓

**Note:** The items in the box for both variants are fixed.

Optional items may be ordered for either variant.

### Optional accessories

Item No.	Description - optional accessories	Note	Details
<b>Firmware upgrade</b>			
ALI 12.713	Targets, Thermal growth and Dial gauge target input	Included in "Full version"	---
ALI 12.715	Multipoint measurement mode	Included in "Full version"	---

Item No.	Description - optional accessories	Note	Details
<b>ALI 12.718</b>	Alignment of cardan and spacer shafts	Included in "Full version"	---
<b>ALI 12.723</b>	3-machine train alignment	Included in "Full version"	---
<b>ALI 12.725</b>	High-end additional features	Included in "Full version" – and comprises Pass measurement mode, machine graphics, tolerance envelopes, "all-in-one" results, machine trains with up to 6 machines.	---
<b>PC software</b>			
<b>ALI 17.000-4</b>	ARC 4.0 device activation for OPTALIGN smart		p. 338
<b>RF module</b>			
<b>ALI 4.621 EX</b>	Intrinsically safe RF module		p. 253
<b>ALI 3.905-0.28</b>	Cable for intrinsically safe RF module	28 cm long	
<b>Brackets</b>			
<b>ALI 2.112 SET-S</b>	Compact magnetic bracket set, standard		p. 294
<b>ALI 2.230-1</b>	Magnetic sliding bracket for flange		p. 312
<b>ALI 2.109 SET</b>	Extra-thin bracket set		p. 298
<b>ALI 2.109 LSET</b>	Small extra-thin bracket set		p. 298
<b>ALI 2.761 SET iS</b>	Universal magnetic bracket set for flanges and bores		p. 308
<b>ALI 2.893 SET iS</b>	Cardan shaft bracket set (for offsets up to 1000 mm)		p. 291
<b>ALI 2.874 SET iS</b>	Cardan shaft bracket Lite set (for offsets up to 400 mm)		p. 291
<b>Support posts, tension chains</b>			
<b>ALI 2.170</b>	115 mm (4 1/2") support post, white	2 pieces required for each bracket	p. 335
<b>ALI 2.171</b>	150 mm (5 15/16") support post, black	2 pieces required for each bracket	p. 335
<b>ALI 2.173</b>	250 mm (9 7/8") support post, green	2 pieces required for each bracket	p. 335
<b>ALI 2.174</b>	300 mm (11 13/16") support post, yellow	2 pieces required for each bracket	p. 335
<b>ALI 2.114</b>	300 mm tension chain		---
<b>ALI 2.116</b>	1500 mm tension chain		---
<b>Miscellany</b>			
<b>ALI 3.982-5</b>	Sensor cable connected to intrinsically safe OPTALIGN smart computer, 5 m		---
<b>ALI 5.020</b>	External inclinometer		---
<b>ALI 2.191</b>	Anti-torsion bridge		p. 331
<b>Straightness measurement</b>			
<b>ALI 12.731</b>	Straightness function	incl. licence paper	
<b>ALI 12.551</b>	Magnetic base with fixtures		
<b>ALI 12.807</b>	Compact case		
<b>DOC 12.115</b>	OPTALIGN smart RS5 Straightness pocket guide		
<b>DOC 12.101</b>	OPTALIGN smart Straightness pocket guide		
<b>0 0739 1059</b>	Hexagon wrench (6 mm)		




## TECHNICAL INFORMATION

### Technical data

Parameter	ROTALIGN smart RS5 EX technical data
<b>COMPUTER</b>	
<b>CPU</b>	Marvell PXA270 running at 312 MHz
<b>Memory</b>	64 MB RAM, 64 MB Flash
<b>Display</b>	3.5" TFT, transfective (sunlight-readable) 65 535 colours, backlit LED Resolution: 320 x 240 Pixel
<b>Keyboard elements</b>	Up, Clear, Menu Navigation cursor cross Alphanumeric keyboard Three additional keys (Dimensions, Measure, Results)
<b>LED indicators</b>	4 LEDs for laser status and alignment condition 2 LEDs for wireless communication and battery status
<b>Power supply</b>	Batteries: 6 x 1.5 V IEC LR6 ("AA"), MN1500 from Duracell Operating time: 18 hours typical use (based upon an operating cycle of 25% measurement, 25% computation and 50% 'sleep' mode)
<b>External interface</b>	RS232 (serial) for sensor or adppter box  Adapter box external interface: USB host (printer), USB client (PC), AC adapter/charger socket, USB host for USB memory stick  Integrated wireless communication, class 1, transmitting power 100 mW
<b>Environmental protection</b>	IP65 (dustproof and water jets resistant) Shockproof Relative humidity 10% to 90%
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F)
<b>Dimensions</b>	Approx. 214 x 116 x 64 mm (8 7/16" x 2 1/2")
<b>Weight</b>	865 g (1.9 lb)
<b>INTRINSICALLY SAFE RS5 SENSOR</b>	
<b>Type</b>	5-axis receiver: 2 planes (4 displacement axes and angle) Measurement area: unlimited, dynamically extendible (U.S. Patent 6,040,903) Resolution: 1 µm (0.04 mil) and angular 10 µRad Accuracy (avg): > 98% Measurement rate: approx. 20 Hz
<b>Environmental protection</b>	IP65 (dustproof and water jets resistant) Relative humidity 10% to 90%
<b>Ambient light protection</b>	Yes
<b>Temperature range</b>	Operation: 10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F)
<b>Dimensions</b>	Approx. 105 x 67 x 47 mm (4 5/32" x 2 5/8" x 1 55/64")
<b>Weight</b>	Approx. 190 g (6 7/10 oz.)

Parameter	ROTALIGN smart RS5 EX technical data
<b>INTRINSICALLY SAFE RS5 LASER</b>	
<b>Type</b>	Semiconductor laser diode
<b>Beam divergence</b>	0.3 mrad
<b>Beam power</b>	< 1 mW
<b>Wavelength</b>	630 – 680 nm (red, visible)
<b>Safety class</b>	Class 2 according to IEC 60825-1:2014 The laser complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. Safety precautions: Do not look into laser beam
<b>Power supply</b>	Batteries: 2 x 1.5 V IEC LR6 ("AA"), Only use MN1500 from Duracell or Energizer E91 Operating time: 120 hours
<b>Environmental protection</b>	IP65 (dustproof and water jets resistant) Shockproof Relative humidity 10% to 90%
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F)
<b>Dimensions</b>	Approx. 105 x 74 x 47 mm (4 5/32" x 2 15/16" x 1 55/64")
<b>Weight</b>	Approx. 225 g (8 oz.)
<b>INTRINSICALLY SAFE RF MODULE</b>	
<b>Details</b>	Class 1 connectivity Transmitting power: 100 mW Transmission distance: Up to 10 m (33 ft.) direct line of sight FCC-ID POOWML-C40
<b>LED indicators</b>	1 LED for wireless communication 3 LEDs for battery status
<b>Power supply</b>	2 x 1.5 V IEC LR6 ("AA") batteries, only use MN1500 from Duracell/DURACELL Operating time: 14 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
<b>Temperature range</b>	Operation: -10 °C to 40 °C (14 °F to 104 °F)
<b>Environmental protection</b>	IP 65 (dustproof and water jets resistant) Shockproof Relative humidity 10% to 90%
<b>Dimensions</b>	Approx. 81 x 41 x 34 mm (3 1/8" x 1 11/16" x 1 5/16")
<b>Weight</b>	Approx. 133 g (4.7 oz.) including batteries and cable

### Intrinsic safety details

ROTALIGN smart RS5 EX	
Marking  , Computer	II 2G Ex ib [ib] IIC T4
Sensor	II 2G Ex ib IIC T4 Gb
Laser	II 2G Ex ib op is IIC T4 Gb
RF module	II 2 G Ex ib IIC T4 Gb
Temperature range	-10 °C to 50 °C (14 °F to 122 °F) -10 °C to 40 °C (14 °F to 104 °F) (RF module)

# SHAFTALIGN OS3– fast and cost-effective shaft alignment

SHAFTALIGN OS3 provides a cost-effective solution to precise alignment of machinery. Patented measurement functions coupled with an intuitive operation, and clear depiction of measurement results and corrections, help reduce the job time to a minimum.



## Application

- Alignment of horizontal, vertical and flange-mounted rotating machines
- Coupled, uncoupled and non-rotatable shafts

## Features

- 3-axis HD PSD sensor using MEMS inclinometer
- Wireless data transmission using Bluetooth
- Automatic measurement during shaft rotation (SWEEP, Active Clock)
- Automatic evaluation of alignment condition using smileys
- Monitoring of both horizontal and vertical Live Move corrections
- Flip machine functionality
- Measurement report saved as a PDF file directly to a USB memory stick

## Ordering information

SHAFTALIGN OS3 is available in two variants.

Item No.	Variant
ALI 21.003	SHAFTALIGN OS3 using "AA" size batteries
ALI 21.003-BR	SHAFTALIGN OS3 using rechargeable battery pack and Bluetooth communication

The items delivered within the box are shown in the following overview.

### Scope of supply

Item No.	Content		Variant	
	Description	Details	"AA" size batteries	Rechargeable battery
ALI 21.200	SHAFTALIGN computer, incl. 'AA' size batteries, computer stand	p. 259	✓	✗
ALI 21.210	SHAFTALIGN computer, incl. rechargeable battery pack, computer stand	p. 259	✗	✓
ALI 21.701	SHAFTALIGN shaft firmware certificate		✓	✓
ALI 24.651	Power supply / battery charger for computer	p. 260	✗	✓
ALI 21.900	OS3 laser/sensor including dust cap	p. 259	✓	✓
ALI 24.501-2	Sensor cable, 2 m		✓	✓
ALI 24.502-2	PC cable, USB, 2 m	---	✓	✓
ALI 24.503	USB pendrive cable	---	✓	✓
ALI 4.621i	BT module	p. 260	✗	✓
ALI 3.905-0.28	BT module cable		✗	✓
ALI 5.110	Reflector including dust cap	---	✓	✓
ALI 2.118	Compact chain-type bracket	p. 288	✓, 2x	✓, 2x
ALI 2.911	Cleaning cloth	---	✓	✓
ALI 3.589	Tape measure mm/inch	---	✓	✓
ALI 17.451	USB memory stick with ARC 4.0 software and product literature		✓	✓
ALI 21.803	SHAFTALIGN case		✓	✓
DOC 21.103	Pocket guide		✓	✓
ALI 9.511	OS3 sensor inspection certificate		✓	✓

**Note:** The items in the box for both variants are fixed.

Optional items may be ordered for either variant.

### Optional accessories

Item No.	Description - optional accessories	Note	Details
<b>Firmware upgrade</b>			
ALI 21.710	Full version upgrade	Comprises all items including the upgrade module	
ALI 21.713	Enter targets and thermal growth values	Available in full version	
ALI 21.715	Multipoint measurement mode	Available in full version	
ALI 21.718	Alignment of cardan and spacer shafts	Available in full version	
ALI 21.719	Save up to 200 measurement files	Available in full version	
ALI 21.720	Customized tolerances	Available in full version	

Item No.	Description - optional accessories	Note	Details
ALI 21.721	Continuous SWEEP measurement mode	Available in full version	
ALI 21.722	Results table	Available in full version	
ALI 21.726	Pipe strain	Available in full version	
<b>PC software</b>			
ALI 17.000-21	ARC 4.0 device activation for SHAFTALIGN		p. 338
<b>BT module</b>			
ALI 4.621i	BT module	For "AA" batteries variant only	p. 260
ALI 3.905-0.28	BT module cable	For "AA" batteries variant only; 28 cm	
<b>Brackets</b>			
ALI 2.112 SET-S	Compact magnetic bracket set, standard		p. 294
ALI 2.230-1	Magnetic sliding bracket for stationary shafts		p. 312
ALI 2.109 SET	Extra-thin bracket set		p. 298
ALI 2.109 LSET	Small extra-thin bracket set		p. 298
ALI 2.761 SET iS	Magnetic bolt hole bracket set for shaft and bore alignment		p. 308
ALI 2.893 SET iS	Cardan shaft bracket set (for offsets up to 1000 mm)		p. 291
ALI 2.874 SET iS	Cardan shaft bracket Lite set (for offsets up to 400 mm)		p. 291
<b>Support posts, tension chains and miscellany</b>			
ALI 2.170	115 mm (4 1/2"½") support post, white	2 pieces required for each bracket	p. 335
ALI 2.171	150 mm (5 15/16") support, black	2 pieces required for each bracket	p. 335
ALI 2.173	250 mm (9 7/8") support post, green	2 pieces required for each bracket	p. 335
ALI 2.174	300 mm (11 13/16") support post, yellow	2 pieces required for each bracket	p. 335
ALI 2.114	300 mm tension chain		
ALI 2.116	1500 mm tension chain		
<b>Miscellany</b>			
ALI 11.501-5	OS3 sensor cable, 5 m		
ALI 5.020	External inclinometer		
ALI 5.106	Beam deflector		
ALI 2.191	Anti torsion bridge for 2 support posts		p. 331

## TECHNICAL INFORMATION

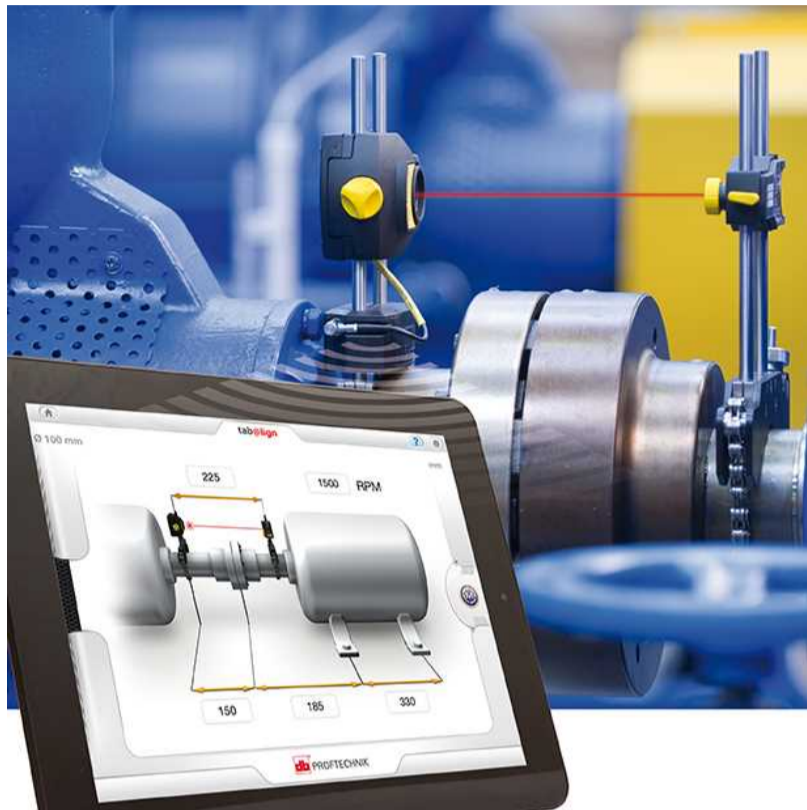
### Technical data

Parameter	SHAFTALIGN OS3 technical data
<b>COMPUTER</b>	
<b>CPU</b>	Intel XScale PXA270 running at 520 MHz
<b>Memory</b>	64 MB RAM, 64 MB Flash
<b>Display</b>	3.5" TFT, transmissive (sunlight-readable) 65 535 colours, backlit LED Resolution: 320 x 240 Pixel
<b>Keyboard elements</b>	Up, Clear and Menu Alphanumeric keyboard Five extra hard keys (Dimensions, Measure, Results, Soft foot, Live Move)
<b>LED indicators</b>	Multicolour LED for laser status and alignment condition Multicolour LED for battery status
<b>Power supply</b>	Disposable batteries: 5 x 1.5 V IEC LR6 ("AA"); Operating time: 9 hours* (typical use) Lithium-ion rechargeable battery: 7.4 V / 2.6 Ah; Operating time: 17 hours* (typical use) *Based upon an operating cycle of 33% measurement, 33% computation and 33% 'sleep' mode.
<b>External interface</b>	RS232 (serial) for OS3 sensor USB host, USB slave, AC adapter/charger socket Integrated wireless communication, class 1 connectivity, transmitting power 100 mW
<b>Environmental protection</b>	IP 65 (dustproof and water spray resistant) Shockproof Relative humidity 10% to 90%
<b>Temperature range</b>	Operation: -10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 60 °C (-4 °F to 140 °F)
<b>Dimensions</b>	Approx. 220 x 165 x 45 mm (8.7" x 6.5" x 1.8")
<b>Weight</b>	742 g (1.64 lb)
<b>OS3 LASER / SENSOR</b>	
<b>Measurement principle</b>	Coaxial, reflected laser beam
<b>Detector</b>	Measurement area: unlimited, dynamically extendible Resolution: 1 µm Accuracy (avg): > 98%
<b>Laser</b>	Type: Semiconductor laser diode Wavelength (typical) 670 nm (red, visible) Safety class: Class 2 according to IEC 60825-1:2007 Beam power: < 1 mW Beam divergence: < 0.3 mrad Safety precautions: Avoid looking directly into laser beam
<b>Inclinometer</b>	Measurement range: 0° to 360° Resolution: 0.1° Error at 22 °C (Ta): ± 0.30% read out
<b>Environmental protection</b>	IP 67 (submersible, dustproof) Relative humidity: 10% to 90%

Parameter	SHAFTALIGN OS3 technical data
<b>Ambient light protection</b>	Yes
<b>Temperature range</b>	Operating temperature: -10 °C to 55 °C (14 °F to 131 °F) Storage temperature: -20 °C to 80 °C (-4 °F to 176 °F)
<b>Dimensions</b>	Approx. 107 x 70 x 49 mm (4 1/4" x 2 3/4" x 2")
<b>Weight</b>	Approx. 177 g (6 1/2 oz.)
<b>REFLECTOR</b>	
<b>Type</b>	90° roof prism
<b>Accuracy (avg)</b>	> 99 %
<b>Dimensions</b>	Approx. 100 x 41 x 35 mm (4" x 1 5/8" x 1 3/8")
<b>Weight</b>	Approx. 65 g (2 1/2 oz.)
<b>BT MODULE</b>	
<b>Details</b>	Class 1, wireless data transmission Transmitting power: 100 mW Transmission distance: up to 10 m (33 ft.) Complies with FCC rules part 15.247
<b>LED indicators</b>	1 LED for Bluetooth communication 3 LEDs for battery status
<b>Power supply</b>	Batteries 2x 1.5 V IEC LR6 ("AA") Operating time: 14 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
<b>Temperature range</b>	Operating temperature: -10 °C to 50 °C (14 °F to 122 °F)
<b>Environmental protection</b>	IP 65 (dustproof and water spray resistant) Relative humidity: 10% to 90%
<b>Dimensions</b>	Approx. 81 x 41 x 34 mm (3 1/8" x 1 11/16" x 1 5/16")
<b>Weight</b>	Approx. 133 g (4.7 oz.) including batteries and cable

## tab@lign– Shaft alignment on mobile devices

tab@lign is the appropriate platform for the precise alignment of coupled machines using smart mobile devices. With the free tab@lign app alignment may be carried out by investing on the measurement equipment only.

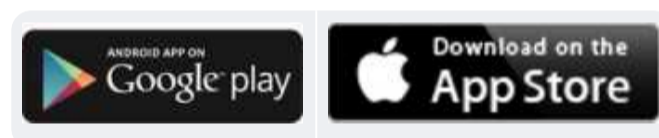


### Application

- Horizontal machines
- Coupled shafts

### Features

- 3-axis HD PSD sensor using MEMS inclinometer
- Wireless data transmission using Bluetooth
- Automatic measurement during shaft rotation (Active Clock)
- Automatic evaluation of alignment condition using smileys
- Monitoring of both horizontal and vertical Live Move corrections
- Graphical reports via email
- Free app for Android and Apple devices



### Ordering information

Item No.	Variant
<b>ALI 25.003</b>	tab@lign, standard

The items delivered within the box are shown in the following overview.

### Scope of supply

Content		
Item No.	Description	Details
<b>ALI 21.900</b>	<b>OS3 laser/sensor including dust cap</b>	<b>p. 262</b>
<b>ALI 4.621i</b>	<b>BT module</b>	<b>p. 263</b>
<b>ALI 3.905-0.28</b>	<b>BT module cable</b>	
<b>ALI 5.110</b>	<b>Reflector including dust cap</b>	---
<b>ALI 2.118</b>	<b>Compact chain-type bracket, 2x</b>	<b>p. 288</b>
<b>ALI 2.911</b>	<b>Cleaning cloth</b>	---
<b>ALI 3.589</b>	<b>Tape measure mm/inch</b>	---
<b>ALI 21.803</b>	<b>tabALIGN case</b>	
<b>DOC 25.100</b>	<b>Getting started</b>	
<b>ALI 9.511</b>	<b>OS3 sensor inspection certificate</b>	

Optional items may be ordered for this variant.



## Optional accessories

Item No.	Description - optional accessories	Note	Details
<b>Brackets</b>			
ALI 2.112 SET-S	Compact magnetic bracket set, standard		p. 294
ALI 2.109 SET	Extra-thin bracket set		p. 298
ALI 2.109 LSET	Small extra-thin bracket set		p. 298
ALI 2.761 SET iS	Magnetic bolt hole bracket set for shaft and bore alignment		p. 308
<b>Support posts, tension chains</b>			
ALI 2.170	115 mm (4 1/2" 1/2") support post, white	2 pieces required for each bracket	p. 335
ALI 2.171	150 mm (5 15/16") support, black	2 pieces required for each bracket	p. 335
ALI 2.173	250 mm (9 7/8") support post, green	2 pieces required for each bracket	p. 335
ALI 2.174	300 mm (11 13/16") support post, yellow	2 pieces required for each bracket	p. 335
ALI 2.114	300 mm tension chain		
ALI 2.116	1500 mm tension chain		
<b>Miscellany</b>			
ALI 5.020	External inclinometer		
ALI 5.106	Beam deflector		
ALI 2.191	Anti torsion bridge for 2 support posts		p. 331

## TECHNICAL INFORMATION

### Technical data

Parameter	tab@lign technical data
<b>OS3 LASER / SENSOR</b>	
<b>Measurement principle</b>	Coaxial, reflected laser beam
<b>Detector</b>	Measurement area: unlimited, dynamically extendible Resolution: 1 μm Accuracy (avg): > 98%
<b>Laser</b>	Type: Semiconductor laser diode Wavelength (typical) 670 nm (red, visible) Safety class: Class 2 according to IEC 60825-1:2007 Beam power: < 1 mW Beam divergence: < 0.3 mrad Safety precautions: Avoid looking directly into laser beam!
<b>Inclinometer</b>	Measurement range: 0° to 360° Resolution: 0.1° Error at 22 °C (Ta): ± 0.30% read out
<b>Environmental protection</b>	IP 67 (submersible, dustproof) Relative humidity: 10% to 90%

Parameter	tab@lign technical data
<b>Ambient light protection</b>	Yes
<b>Temperature range</b>	Operating temperature: -10 °C to 55 °C (14 °F to 131 °F) Storage temperature: -20 °C to 80 °C (-4 °F to 176 °F)
<b>Dimensions</b>	Approx. 107 x 70 x 49 mm (4 1/4" x 2 3/4" x 2")
<b>Weight</b>	Approx. 177 g (6 1/2 oz.)
<b>REFLECTOR</b>	
<b>Type</b>	90° roof prism
<b>Accuracy (avg)</b>	> 99 %
<b>Dimensions</b>	Approx. 100 x 41 x 35 mm (4" x 1 5/8" x 1 3/8")
<b>Weight</b>	Approx. 65 g (2 1/2 oz.)
<b>BT MODULE</b>	
<b>Details</b>	Class 1, wireless data transmission Transmitting power: 100 mW Transmission distance: up to 10 m (33 ft.) Complies with FCC rules part 15.247
<b>LED indicators</b>	1 LED for Bluetooth communication 3 LEDs for battery status
<b>Power supply</b>	Batteries 2x 1.5 V IEC LR6 ("AA") Operating time: 14 hours typical use (based upon an operating cycle of 50% measurement, 50% standby)
<b>Temperature range</b>	Operating temperature: -10 °C to 50 °C (14 °F to 122 °F)
<b>Environmental protection</b>	IP65 (dustproof and water jets resistant) Relative humidity: 10% to 90%
<b>Dimensions</b>	Approx. 81 x 41 x 34 mm (3 1/8" x 1 11/16" x 1 5/16")
<b>Weight</b>	Approx. 133 g (4.7 oz.) including batteries and cable

## Live Trend Add-on

With this add-on packages you can use an existing PRÜFTECHNIK system for **short-term monitoring of positional changes** during operation.

The Live Trend add-on packages are intended for the following alignment systems:

- ROTALIGN touch,
- ROTALIGN Ultra iS, with firmware 3.x



### Features

- Continuous acquisition of positional changes during operation
- Precise measurement of thermal target values
- Live view of horizontal and vertical correction values at the coupling and at the machine feet
- Trend of horizontal and vertical correction values at the coupling and at the machine feet
- Flexible definition of markers for result viewing during the measurement
- Bluetooth module for wireless data communication between sensor and computer.

### Ordering information

The following Live Trend add-on variants are available:

Item No.	Variant
ALI 4.005/2-10	Live Trend add-on, Magnet
ALI 4.005/2-20	Live Trend add-on, PERMAFIX

The scope of delivery results from the following overview:

### Scope of delivery

Item No.	Description	Details	Variant	
			Magnet	PERMAFIX
ALI 14.310	Magnetic Bracket for Horizontal and Vertical Surfaces	p. 311	✓, 2x	✗
0 0739 1055	Hexagon wrench, DIN 911, size 2.5	---	✓	✗
ALI 2.193	Live Trend case for magnetic bracket	---	✓	✗
ALI 2.197	Live Trend ruggedized trolley case	---	✗	✓
ALI 2.190	PERMAFIX bracket	p. 320	✗	✓, 2x
ALI 2.194	Striking cone	p. 320	✗	✓
ALI 4.741	ROTAGIGN Ultra Shaft Advanced registration certificate	---	✓	✓
ALI 4.740	ROTAGIGN Ultra Shaft Expert registration certificate	---	✓	✓
DOC 04.100	Pocket guide, ROTALIGN Ultra Live Trend	---	✓	✓

# Multi-Coupling add-on for shaft alignment with sensALIGN

With this add-on package you can use an existing PRÜFTECHNIK system for shaft alignment on a machine train with more than one coupling.

The Multi-Coupling add-on package is intended for the following alignment systems:

- ROTALIGN touch,
- ROTALIGN Ultra iS, with firmware 3.x



## sensALIGN advantages

- Real-time measuring quality with intelliSWEEP™
- 7-axis measuring system with HD PSD, XXL detector
- Integrated vibration measurement
- Considered vibration influenced from the surroundings
- Integrated precision inclinometers with MEMS
- Laser-sensor communication via laser beam
- Wireless communication via Bluetooth
- Rechargeable Li-polymer battery of the latest generation

## Ordering information

Item No.	Variant
<b>ALI 50.900</b>	Multi-Coupling add-on for shaft alignment with sensALIGN
<b>ALI 40.900</b>	Multi-Coupling add-on for shaft alignment with sensALIGN (ROTALIGN Ultra iS)

The scope of delivery results from the following overview:

### Scope of delivery

Item No.	CONTENT		Add-on	
	Description	Details	ALI 50.900	ALI 40.900
ALI 4.900I	sensALIGN Sensor	p. 240	✓	✓
ALI 4.910	sensALIGN Laser	p. 241	✓	✓
ALI 4.960	sensALIGN rechargeable battery	---	✓	✓
ALI 4.651	sensALIGN charger for rechargeable batteries, international	p. 260	✓	✓
ALI 4.922-2	sensALIGN cable (ROTALIGN touch) , 2 m (78 3/4" )	---	✓	✗
ALI 4.921-2	sensALIGN cable, 2 m (78 3/4" )	---	✗	✓
ALI 3.589	Tape measure, mm/inch	---	✓	✗
ALI 2.911	Cleaning cloth	---	✓	✗
ALI 2.113 SET	Compact chain-type bracket, set	p. 288	✗	✓
ALI 2.118	Compact chain-type bracket	p. 288	✓, 2x	✗
ALI 2.170	115 mm (4 1/2") support post, white	p. 335	✓, 4x	✗
ALI 2.171	150 mm (5 15/16") support post, black	p. 335	✓, 4x	✗
ALI 2.173	250 mm (9 7/8") support post, green	p. 335	✓, 4x	✗
ALI 2.174	300 mm (11 13/16") support post, yellow	p. 335	✓, 4x	✗
0 0557 0391	Support post clip	---	✓, 8x	✗
ALI 2.114	300 mm tension chain	p. 289	✓, 2x	✗
ALI 4.905	sensALIGN vibration measuring probe	p. 262	✓	✓
ALI 4.741-L	ROTALIGN Ultra Shaft Lite registration certificate	---	✗	✓
ALI 4.741	ROTALIGN Ultra Shaft Advanced registration certificate	---	✗	✓
ALI 4.740	ROTALIGN Ultra Shaft Expert registration certificate	---	✗	✓
ALI 9.500	sensALIGN sensor inspection certificate	---	✓	✓
ALI 9.501	sensALIGN laser inspection certificate	---	✓	✓
0 0739 1055	Hexagon wrench, DIN 911, size 2.5	---	✓	✓
ALI 4.820	Case for ROTALIGN Ultra iS Shaft Alignment	---	✗	✓
ALI 4.817	Case for Multi-Coupling add-on	---	✓	✗
DOC 40.100	Pocket guide, ROTALIGN Ultra Ultra iS Shaft	---	✗	✓
DOC 50.101	Pocket guide	---	✓	✗
DOC 50.601	Safety and general information	---	✓	✗
ALI 17.451	USB pen drive with ARC 4.0 software and device documentation	---	✓	✓

In addition, optional accessories are available:

### Optional accessories

Item No.	Description - optional accessories	Details
<b>Brackets</b>		
<b>ALI 2.109 SET</b>	Extra thin bracket set	p. 298
<b>ALI 2.112 SET-S</b>	Compact magnetic bracket, 2 pcs,, packaged	p. 294
<b>ALI 2.220 SET</b>	Universal magnetic sliding bracket, set	p. 314
<b>ALI 2.230-1</b>	Magnetic Sliding Bracket for Flanges	p. 312
<b>ALI 2.450</b>	Cardan shaft chain-type bracket with rotating arm, set	p. 291
<b>ALI 2.460</b>	Chain-type bracket for large diameter, set	p. 291
<b>ALI 2.761 SETIS</b>	Universal magnetic bracket for flanges and bores, set	p. 308
<b>Miscellaneous</b>		
<b>ALI 4.921-5</b>	sensALIGN cable, 5 meters	---
<b>ALI 4.410</b>	Dust protection cap for ROTALIGN Ultra sensor socket	---
<b>ALI 4.605</b>	ROTALIGN Ultra battery housing	---
<b>ALI 2.116</b>	Tension chain, 1500 mm	---
<b>ALI 2.191</b>	Anti torsion bridge for 2 support posts	p. 331

## PULLALIGN – Precise belt pulley alignment

PULLALIGN is the standard tool for precise alignment of machines with belt drive. Ease of use and clear visualization of angle and offset errors reduce the work effort to a minimum.



### Features

- Efficient and easy: One-person operation
- Time-saving: Displays parallel offset, vertical and horizontal angle corrections all at once with only one system set-up.
- No cross-check: Measure once and correct.
- Reduces vibration and belt noise
- Reduces downtime and energy costs
- Prolongs belt, pulley and bearing life.
- Higher precision due to laser beam reflection
- Affordable entry solution with targets

### Ordering information




PULLALIGN is available in the following variants:

Item No.	Variant
ALI 2.002SET	PULLALIGN
ALI 2.003SET	PULLALIGN Lite
ALI 2.004 SET	PULLALIGN Lite 2

The scope of delivery results from the following overview:

### Scope of delivery

Item No.	CONTENT		VARIANT		
	Description	Details	PULLALIGN	Lite	Lite 2
ALI 2.100	PULLALIGN Laser (red)	p. 272	✓	✓	✗
ALI 2.131	PULLALIGN Lite 2 Laser (green)	p. 272	✗	✗	✓
ALI 2.300	PULLALIGN Reflector	p. 272	✓	✗	✗
ALI 2.302	PULLALIGN Target		✗	✓ 3x	✗
ALI 2.303	PULLALIGN Adjustable Target		✗	✗	✓ 3x
ALI 2.801	AAA battery 1.5 V alkaline mangan		✓ 4x	✓ 4x	✓ 4x
ALI 2.805	PULLALIGN Pouch		✓	✓	✓
DOC 02.201	PULLALIGN Safety information		✓	✓	✓

Variant	Overview	
<b>PULLALIGN</b> <b>ALI 2.002SET</b>		
<b>PULLALIGN Lite</b> <b>ALI 2.003SET</b>		
<b>PULLALIGN Lite 2</b> <b>ALI 2.004 SET</b>		

**Note:** The scope of delivery of the variants is preset and cannot be changed.

### Optional accessories

Item No.	Description - optional accessories	Notes	Details
<b>ALI 2.803</b>	PULLALIGN Case	For PULLALIGN, ALI 2.002SET variant only	



## TECHNICAL INFORMATION

### Technical data

Parameter	PULLALIGN technical data
<b>LASER</b>	
<b>Wavelength</b>	ALI 2.100: 630 - 680 nm (red) ALI 2.131: 505 - 535 nm (green)
<b>Laser type</b>	Semiconductor laser diode
<b>Beam power</b>	< 1.0 mW (acc. to IEC 60825-1:2014 condition 3)
<b>Maximum beam power</b>	< 3.0 mW
<b>Beam divergence</b>	< 1.0 mrad
<b>Beam opening angle</b>	70 °
<b>Measuring distance</b>	max. 10 m (32.8 ft)
<b>Classification</b>	Class 2 per IEC 60825-1:2014. The laser complies with the 21 CFR 1040.10 and 1040.11 standards, deviations excluded, per "Laser Notice No. 50" dated June 24, 2007.
<b>Supply</b>	4x AAA 1.5V battery
<b>Operating time</b>	ALI 2.100: 25 h ALI 2.131: 17 h
<b>Operating temperature</b>	-5 °C ... + 40 °C (23 .. 104 °F)
<b>Fastening</b>	Magnetic
<b>Weight</b>	ALI 2.100: approx. 300 g with batteries ALI 2.131: approx. 320 g with batteries
<b>Reflector</b>	
<b>Accuracy</b>	0.2 °
<b>Dimensions, mirror</b>	21 x 32 mm [ 13/16" x 1 1/4" ]
<b>Weight</b>	approx 270 g [ 9.5 oz ]
<b>Fastening</b>	Magnetic

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## Shaft alignment systems, spare parts

<b>AC power supply / Battery charger .....</b>	<b>260</b>
<b>ROTALIGN Ultra Computer .....</b>	<b>261</b>
<b>Vibration measuring probe .....</b>	<b>262</b>

## AC power supply / Battery charger

With this power device you can supply the computer with mains power (e.g. in the office) or charge the built-in rechargeable battery.



Power supply / Battery charger incl. five plug adapters.

### Features

- Protection class II
- Five replaceable plug adapters for various world regions:
  - North America, Japan
  - Australia
  - UK
  - EU
  - China

### Order information

Item No.*	Name	Included in the scope of delivery of ...
<b>ALI 12.651-I</b>	AC power supply / battery charger, International, 12V	OPTALIGN smart RS5 BT ROTALIGN smart RS5 EX CENTRALIGN Ultra
<b>ALI 50.651</b>	ROTALIGN touch AC power supply / battery charger, International, 12V	ROTALIGN touch, VIBSCANNER 2
<b>ALI 24.651</b>	SHAFTALIGN AC power supply / battery charger, International, 12V	SHAFTALIGN
<b>ALI 4.651</b>	sensALIGN battery charger, International, 5V	ROTALIGN touch Multi-Coupling add-on for shaft alignment with sensALIGN

\* The different item numbers are due to different device connectors

## TECHNICAL INFORMATION

### Technical Data

Parameter	Power supply / Battery charger	sensALIGN battery charger
<b>Input</b>	100 - 240 VAC / 50 - 60 Hz / 1.0 A	100 - 240 VAC / 50 - 60 Hz / 0.6 A
<b>Output</b>	12 VDC / 3.0 A / 36 W	5 VDC / 3.0 A / 15 W
<b>Env. protection</b>	II / IP 52	
<b>Temperature range</b>	0 ... +40°C (Operation); -40 ..+80°C (Storage)	
<b>Dimensions</b>	approx. 43 x 74 x 35 mm	

# ROTALIGN Ultra Computer



## Features

- High-end system for shaft alignment and geometric measurements
- Robust, nonslip housing
- Industrial-proofed interfaces
- Data exchange with sensor via Bluetooth connection
- Long operating time with lithium-ion battery

## TECHNICAL DATA

Parameter	ROTALIGN Ultra computer technical data
<b>CPU</b>	Marvell XScale PXA270, 520 MHz
<b>Memory</b>	64 MB RAM, 64 MB internal Flash, 1024 MB Compact Flash memory
<b>Display</b>	5.7" TFT, transmissive (readable in sunlight), LED backlight Resolution: 640 x 480 pixels, VGA
<b>Keyboard elements</b>	Navigation cross with Back, Delete, and Menu buttons; Alphanumerical keyboard with function keys for dimensions, measuring, results
<b>LED displays</b>	4 LEDs for laser adjustment and alignment condition 2 LEDs for wireless communication and battery/rechargeable battery status
<b>Power supply</b>	Batteries: 6 x 1.5 V IEC LR14 („C“), optional Lithium-ion battery: 7.2 V / 6.0 Ah / 43.2 Wh Operating time: typically 25 hours (rechargeable battery) / 12 hours (battery) (assuming an operating cycle of 25 % measurement, 25 % data processing, and 50 % standby)
<b>Interfaces</b>	2x USB host 1x USB slave RS232 (serial) for sensor I-data connection for sensor Integrated radio communication, class 1, power 100 mW AC adapter/charge connection
<b>Protection class</b>	IP65 (dust- and splash-proof) Shock-resistant Relative air humidity: 10% ... 90%
<b>Temperature range</b>	Operation: 0°C ... +45°C [ 32°F ... 113 °F ] Storage: -20°C ... +60°C [ -4°F ... +140 °F ]
<b>Dimensions</b>	approx. 243 x 172 x 61 mm
<b>Weight</b>	approx. 1 kg [ 35,3 oz ] (without batteries)

## Vibration measuring probe

This measuring probe is used together with the sensALIGN sensor for vibration measurement.



### Features

- Stainless steel tube with plastic probe
- Direct coupling to the sensor housing for optimal signal transmission
- Stable fixation by clamping lever
- Measured variable: Vibration velocity
- Length: 100 mm

### Order information

Item No.	Name
<b>ALI 4.905</b>	Vibration measuring probe

Note: The hole for the measuring tip on the sensALIGN sensor is marked with a vibration symbol.

## Systems for Machine Geometry Measurements

<b>INCLINEO – High-precision Inclination Measurements .....</b>	<b>264</b>
<b>INCLINEO &amp; ROTALIGN Ultra Hydropower .....</b>	<b>267</b>
<b>ROTALIGN Ultra iS - Flatness (LEVALIGN Add-on) .....</b>	<b>270</b>
<b>ROTALIGN Ultra iS – Add-on for Straightness Measurement .....</b>	<b>275</b>
<b>LEVALIGN expert – Geometrical 2D Measurements .....</b>	<b>276</b>
<b>CENTRALIGN Ultra – Bore Alignment .....</b>	<b>279</b>
<b>Long Range Laser .....</b>	<b>285</b>

# INCLINEO – High-precision Inclination Measurements

INCLINEO is a high-precision electronic inclinometer for absolute and relative measurements of surface profiles. In combination with easy-to-mount mounting bases, INCLINEO measures the inclination along edges, rails and even on vertical shafts. Its rotatable housing makes it possible to take measurements at any position, even upside down measurements are possible.



## Applications

- Measurement of surface with any inclination
- Levelness, flatness, and parallelism of surfaces
- Inclination along edges and rails
- Plumbness of vertical shafts (e.g., hydroturbines)
- Parallelism of inclined surfaces
- Perpendicularity of surfaces

## Order information

The following variants are available for INCLINEO:

Item No.	Variant
<b>ALI 18.000</b>	INCLINEO, including all mounting bases
<b>ALI 18.003</b>	INCLINEO with 3-point mounting base

The scope of delivery results from the following overview:

## Scope of delivery

Item No.	CONTENT		VARIANT	
	Name	Details	All	3-Point
<b>ALI 18.201</b>	<b>INCLINEO precision inclinometer without mounting base</b>	p. 266	✓	✓
<b>ALI 18.501-150</b>	<b>INCLINEO grooved mounting base for flat surfaces</b>	p. 266	✓	✗
<b>ALI 18.502-150</b>	<b>INCLINEO prism-shaped mounting base for curved surfaces</b>	p. 266	✓	✗
<b>ALI 18.500</b>	<b>INCLINEO 3-point mounting base</b>	p. 266	✓	✓



CONTENT			VARIANT	
Item No.	Name	Details	All	3-Point
ALI 18.800	INCLINEO standard case		✓	✓
ALI 18.290	INCLINEO calibration certificate		✓	✓
90022	AA battery 1.5V		✓	✓
0 0621 0038	Screwdriver, PH1x35		✓	✓
0 0739 1056	Hexagon wrench, DIN 911, size 3		✓	✓
0 0739 1058	Hexagon wrench, DIN 911, size 5		✓	✓
ALI 9.182	INCLINEO pocket guide		✓	✓
ALI 13.620	ALIGNMENT Center USB dongle for Bluetooth PC data communication		✓	✓
ALI 17.452	USB pen drive with AC PC software GEO and device documentation		✓	✓

**Note:** The scope of delivery of the variants is preset and cannot be changed.


In addition, optional accessories can be ordered for every variant:

#### Optional accessories

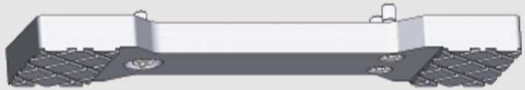


Item No.	Description - optional accessories	Details
ALI 18.500-L	INCLINEO extend range mounting base	
ALI 3.581-5	Sensor cable, 5m	
ALI 13.000-9	ALIGNMENT Center, INCLINEO device activation	p. 339
ALI 13.510	ALIGNMENT Center, Professional Geo	p. 339

## TECHNICAL INFORMATION

### Technical data

Parameter	INCLINEO technical data	
Measuring range	+/- 10°	
Resolution	0.0003° [1"]	
Error limits @ 22°C [Ta]	0.005 % full scale 0.03 % read-out	
Digital filter/average	3rd order with 0.3 / 1 / 3 Hz options	
Temperature range	Storage: -40 °C ...+85 °C [40 °F ...+185 °F] Operation: -10 °C ...+60 °C [14 °F ...+140 °F]	
Display	LCD display, 132 x 32 pixel with LED backlight	
Control elements	3 keys	
Communication	Wireless via integrated BT module	
External interface	RS-232 (serial) for computer and sensor; connector for dial gauge	
Power supply	AA battery, 2 pcs	
Battery status indicator	3 LEDs	
Data storage	Max. 999 measurements	

### Overview, mounting bases for INCLINEO inclinometer

<p>ALI 18.501-150</p>  <p>ALI 18.502-150</p>  <p>ALI 18.500</p> 	<p>ALI 18.501-150: Grooved mounting base for flat surfaces.</p> <p>ALI 18.502-150: Prism-shaped mounting base for curved surfaces</p> <p>ALI 18.500: The 3-point mounting base can be used universally and is already pre-assembled on the INCLINEO inclinometer.</p>
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## INCLINEO & ROTALIGN Ultra Hydropower

The combination of precision inclinometer and universal measuring system allows quick and efficient measurement and alignment of hydroturbines. The Hydropower application for ROTALIGN Ultra is tailored to the specific requirements of this sophisticated measurement and alignment application.



### Features

- Overview for turbine alignment: static plumbness, radial run-out and leveling of axial bearing
- Precise, repeatable and documented measurements
- Less measurement errors
- Wireless communication
- Integrated creation of PDF reports
- High measuring quality though interpolation of readings

### Order information

The following variants are available for INCLINEO & ROTALIGN Ultra Hydropower:

Item No.	Variant
<b>ALI 4.050/2</b>	INCLINEO with complete Hydropower configuration for ROTALIGN Ultra
<b>ALI 4.056</b>	INCLINEO with Hydropower add-on for ROTALIGN Ultra

The scope of delivery results from the following overview:

### Scope of delivery

Item No.	CONTENT		VARIANT	
	Name	Details	Complete	Add-on
<b>ALI 18.201</b>	<b>INCLINEO precision inclinometer without mounting base</b>	p. 268	✓	✓
<b>ALI 18.500</b>	<b>INCLINEO 3-point mounting base</b>	p. 266	✓	✓
<b>ALI 18.500-M</b>	<b>INCLINEO magnetic foot</b>		✓	✓
<b>ALI 18.290</b>	<b>INCLINEO calibration certificate</b>		✓	✓
<b>ALI 4.202</b>	<b>ROTAGIGN Ultra computer</b>	p. 261	✓	✗
<b>ALI 4.768</b>	<b>ROTAGIGN Ultra Hydropower firmware registration certificate</b>		✓	✓
<b>ALI 4.603</b>	<b>ROTAGIGN Ultra battery</b>		✓	✗
<b>ALI 4.201</b>	<b>Foot for ROTALIGN Ultra computer</b>		✓	✗
<b>ALI 12.651-I</b>	<b>Power supply/battery charger, international</b>	p. 260	✓	✗
<b>ALI 3.589</b>	<b>Tape measure, mm/inch</b>		✓	✗
<b>ALI 12.502-2</b>	<b>PC cable, USB</b>		✓	✗
<b>ALI 12.503</b>	<b>Peripheral cable, USB</b>		✓	✗

CONTENT			VARIANT	
Item No.	Name	Details	Complete	Add-on
ALI 3.581-2	Sensor cable, 2m		✓	✗
ALI 4.818	Case for ROTALIGN Ultra Hydropower	---	✓	✓
90022	AA battery 1.5V		✓	✓
0 0621 0038	Screwdriver, PH1x35		✓	✓
0 0739 1056	Hexagon wrench, DIN 911, size 3		✓	✓
0 0739 1058	Hexagon wrench, DIN 911, size 5		✓	✓
ALI 9.182	INCLINEO pocket guide	---	✓	✓
ALI 17.452	USB pen drive with AC PC software GEO and device documentation		✓	✓

**Note:** The scope of delivery of the variants is preset and cannot be changed.

In addition, optional accessories can be ordered for every variant:

### Optional accessories

Item No.	Description - optional accessories	Details
ALI 18.500-L	INCLINEO mounting base for large ranges	
ALI 3.581-5	Sensor cable, 5m	
ALI 13.620	USB dongle for Bluetooth PC data communication	
ALI 13.000-9	ALIGNMENT Center, INCLINEO device activation	p. 339
ALI 13.510	ALIGNMENT Center, Professional Geo	p. 339

## TECHNICAL INFORMATION

Parameter	INCLINEO technical data
Measuring range	+/- 10°
Resolution	0.0003° [1"]
Error limits @ 22°C [Ta]	0.005 % full scale 0.03 % read-out
Digital filter/average	3rd order with 0.3 / 1 / 3 Hz options
Temperature range	Storage: -40 °C ...+85 °C [40 °F ...+185 °F] Operation: -10 °C ...+60 °C [14 °F ...+140 °F]
Display	LCD display, 132 x 32 pixel with LED backlight
Control elements	3 keys
Communication	Wireless via integrated BT module
External interface	RS-232 (serial) for computer and sensor; connector for dial gauge
Power supply	AA battery, 2 pcs
Battery status indicator	3 LEDs
Data storage	Max. 999 measurements



## ROTALIGN Ultra iS - Flatness (LEVALIGN Add-on)

ROTALIGN Ultra iS is a versatile alignment and measurement system with intelligent solutions for standard and special applications. The **LEVALIGN - Flatness** add-on contains all required components and program functions to upgrade an already existing ROTALIGN Ultra system for geometrical measurements. Measuring components of the **LEVALIGN expert** and the **LEVALIGN Ultra iS** series can be selected.



### LEVALIGN expert features

- Spinning laser with motorized drive and self-leveling
- Ideal for large measuring segments
- Large detector area (70 mm)
- Sensor with reading display and zero position.
- Compatible with sensALIGN sensor

### LEVALIGN Ultra iS features

- Cost-effective solution for flatness application
- Robust laser with manual leveling and rotatable beam exit
- Ideal for short measuring segments
- Compatible with sensALIGN sensor

### Order information

The following LEVALIGN add-on variants are available for ROTALIGN Ultra iS:

Item No.	Variant
<b>ALI 40.006</b>	LEVALIGN Ultra iS add-on, flatness
<b>ALI 4.046</b>	LEVALIGN expert add-on, flatness

The scope of delivery results from the following overview:

### Scope of delivery

Item No.	CONTENT		Variant	
	Name	Details	LEVALIGN Ultra iS	LEVALIGN expert
ALI 4.749	LEVALIGN expert flatness certificate		✓	✓
ALI 6.910-IS	LEVALIGN laser, 635 nm	p. 273	✓	✗
90109	Block battery, 9V		✓	✗
ALI 9.482	Inspection certificate for LEVALIGN Ultra laser		✓	✗
0 0739 1054	Hexagon wrench, DIN 911, size 2	---	✓	✗
0 0739 1056	Hexagon wrench, DIN 911, size 3	---	✓	✗
ALI 6.773	Plunger for Flatness Measurement	p. 333	✓	✗
ALI 4.501-IS	Magnetic foot holder for laser and sensor	p. 305	✓	✗
ALI 4.821	Case for LEVALIGN Ultra iS		✓	✗
ALI 6.960-LI	Battery charger for LEVALIGN expert laser, International	p. 272	✗	✓
ALI 6.930-LIB	LEVALIGN expert laser with wireless data transmission (Bluetooth)	p. 272	✗	✓
ALI 6.940	LEVALIGN expert sensor	p. 272	✗	✓
ALI 9.613	Inspection certificate for LEVALIGN expert laser	---	✗	✓
ALI 9.614	Inspection certificate for LEVALIGN expert sensor	---	✗	✓
ALI 6.961	Magnetic base		✗	✓
ALI 6.962	Base plate		✗	✓
ALI 6.963-1	Sensor holder, long		✗	✓
ALI 6.964-1	Sensor holder, short		✗	✓
ALI 6.985	Case for LEVALIGN expert (wireless / BT)	---	✗	✓
ALI 17.452	USB pen drive with AC PC software GEO and device documentation	p. 339	✓	✓

In addition, optional accessories are available:


### Optional accessories


Item No.	Description - optional accessories	Notes	Details
<b>Laser accessories</b>			
ALI 6.956	Tripod stand for LEVALIGN laser		p. 326


Item No.	Description - optional accessories	Notes	Details
<b>ALI 6.958</b>	LEVALIGN Expert Laser tripod adapter	for LEVALIGN expert add-on only. Adapter for ground-level installation	p. 326
<b>ALI 6.954</b>	Rotatable magnetic bracket for flatness measurements	for LEVALIGN Ultra iS add-on only	p. 330
<b>ALI 6.959</b>	LEVALIGN Ultra laser mounting plate for tripod	for LEVALIGN Ultra iS add-on only	p. 326
<b>PENTALIGN for measurements of perpendicularity, parallelism</b>			
<b>ALI 6.982</b>	PENTALIGN case		
<b>ALI 6.911</b>	Adjustable rotatable pentaprism	including base part and prism head	
<b>ALI 6.920-IS</b>	PENTALIGN adjustment sensor, 635 nm		
<b>ALI 6.921</b>	Adjustable sliding bracket for pentaprism		
<b>ALI 6.924</b>	Pentaprism adapter plate for tripod mounting with screws		
<b>ALI 6.929</b>	Pentaprism "L" mounting plate		
<b>ALI 6.926</b>	LEVALIGN Ultra setup target	for LEVALIGN Ultra iS add-on only	

## TECHNICAL INFORMATION

### Technical data

Parameter	LEVALIGN expert technical data	
	<b>LASER</b>	
<b>Wavelength</b>	635 nm (red)	
<b>Laser class</b>	II (<1mW)	
<b>Range</b>	100 meters (Ø 200 meters) [328 ft, Ø 656 ft]	
<b>Leveling</b>	Vertical or horizontal (can be switched off)	
<b>Self-leveling range</b>	±5 %	
<b>Direction adjustment</b>	±5 %	
<b>Rotating speed</b>	max. 800 RPM	
<b>Total error</b>	< ±25 µm + ±24 µm/m incl. conical + step + leveling error)	
<b>Power supply</b>	Internal rechargeable battery or external power supply	
<b>Operating time</b>	16 hours	
<b>Dimensions</b>	Ø 130 mm x 270 mm	
<b>Weight</b>	3.4 kg [7 1/2 lb]	
<b>Charger</b>	Input: 100 - 240 VAC / 50 - 60 Hz / 340 mA Output: 12 VDC / 1200 mA / 14.4 W	

Parameter	LEVALIGN expert technical data	
<b>SENSOR</b>		
<b>Resolution</b>	0.01 mm	
<b>Accuracy</b>	±0.02 mm	
<b>Measuring range</b>	70 mm [2 3/4"]	
<b>Zero-point adjustment</b>	70 mm	
<b>Internal memory</b>	2600 points	
<b>Communication</b>	Bluetooth	
<b>Power supply</b>	2 x AA batteries	
<b>Dimensions</b>	214 x 70 x 40 mm [[ 8 7/16" x 2 3/4" x 1 9/16"]	
<b>Weight</b>	0.62 kg [ 21.9 oz ]	

Parameter	LEVALIGN Ultra iS technical data	
<b>LASER</b>		
<b>Wavelength</b>	635 nm (red)	
<b>Laser protection class</b>	Class 2, FDA 21 CFR 1000 and 1040	
<b>Beam diameter</b>	approx. 5 mm	
<b>Beam divergence</b>	< 0.2 mrad	
<b>Beam power</b>	< 1mW	
<b>Adjustment accuracy</b>	± 0.02 mm/m	
<b>Measuring range</b>	20 m radius; range is unlimited if the InfiniSplice™ function of the ALIGNMENT CENTER flatness application is used	
<b>Power supply</b>	9V battery IEC 6LR61 (alkaline or lithium)	
<b>Operating time</b>	50 hours continuously depending on battery type	
<b>Temperature range</b>	-5°C to + 50°C [ 23 °F to +122°F]	
<b>Weight</b>	approx 2.8 kg [ 98.8 oz ]	



# ROTALIGN Ultra iS – Add-on for Straightness Measurement

ROTALIGN Ultra iS is a versatile measurement system with intelligent solutions for machine geometry measurements. The **Straightness Measurement** add-on contains all required measuring fixtures and program functions to upgrade an already existing ROTALIGN Ultra iS system for such applications.



## Typical applications

- Straightness of machine beds
- Positioning of bearing pedestals and shaft support
- Alignment of rail and track segments
- Curvature measurement of rams, control levers, and extrusion presses
- Alignment of rolled sections

The scope of delivery of the "Straightness Measurement for ROTALIGN Ultra iS" add-on package (ALI 40.007) results from the following overview:

## Scope of delivery

CONTENT - ALI 40.007		
Item No.	Name	Details
ALI 4.745	Registration certificate for straightness measurement firmware	
0 0739 1056	Hexagon wrench, DIN 911, size 3	
ALI 6.773	Plunger for Flatness Measurement	p. 333
ALI 4.501-IS	Magnetic foot holder for laser and sensor, 2x	p. 305
ALI 4.819	Case for ROTALIGN Ultra iS Straightness	
DOC 40.202	Manual, ROTALIGN Ultra iS Straightness Measurement	
ALI 17.452	USB pen drive with AC PC software GEO and device documentation	p. 339

## LEVALIGN expert – Geometrical 2D Measurements

LEVALIGN expert is a universal and high-precision laser measuring system for different geometrical measurement tasks in the industry sector.



### Typical applications (examples)

- Flatness and parallelism of wind tower segment flanges on wind turbines
- Levelness of machine foundations
- Flatness and straightness measurement in ship building
- Flatness, straightness, parallelism, perpendicularity and levelness of machine components.

### Features

- Easy operation using automated an self-leveling spinning laser
- PC software for data analysis and reporting
- Powerful software functions to compare two surfaces, e.g., in a press, and to extend the measuring range to large surfaces
- Wireless communication.

The scope of delivery results from the following overview:

### Scope of delivery

CONTENT - ALI 4.040/2		
Item No.	Name	Details
ALI 4.202	ROTALIGN Ultra computer	p. 261
ALI 4.603	ROTALIGN Ultra battery	---
ALI 4.201	Stand for ROTALIGN Ultra computer	---
ALI 4.749	LEVALIGN expert flatness certificate	---
ALI 12.651-I	Power supply/battery charger for computer, international	p. 260
ALI 6.960-LI	Battery charger for LEVALIGN expert Laser, International	
ALI 6.930-LIB	LEVALIGN expert laser with wireless data transmission (Bluetooth)	p. 278
ALI 6.940	LEVALIGN expert sensor	p. 278
ALI 9.613	Inspection certificate for LEVALIGN expert laser	---
ALI 9.614	Inspection certificate for LEVALIGN expert sensor	---
ALI 12.502-2	PC cable, USB, 2 m	---
ALI 12.503	Peripheral cable, USB	---
ALI 6.961	Magnetic base	

**CONTENT - ALI 4.040/2**

<b>Item No.</b>	<b>Name</b>	<b>Details</b>
ALI 6.962	Base plate	
ALI 6.963-1	Sensor holder, long	
ALI 6.964-1	Sensor holder, short	
ALI 6.985	Case for LEVALIGN expert (wireless / BT)	---
DOC 69.100	Quick reference guide, Menu settings for LEVALIGN expert laser	---
DOC 6.800	Operating instructions, Getting started with LEVALIGN expert	---
ALI 2.911	Cleaning cloth	---
ALI 3.589	Tape measure, mm/inch	---
ALI 17.452	USB pen drive with AC PC software GEO and device documentation	p. 339

In addition, optional accessories are available:

**Optional accessories**

<b>Item No.</b>	<b>Description - optional accessories</b>	<b>Notes</b>	<b>Details</b>
<b>Laser accessories</b>			
ALI 6.956	Tripod stand for LEVALIGN laser		p. 326
ALI 6.958	LEVALIGN Expert Laser tripod adapter	Adapter for ground-level installation	p. 326
<b>PENTALIGN for measurements of perpendicularity, parallelism</b>			
ALI 6.982	PENTALIGN case		
ALI 6.911	Adjustable rotatable pentaprism	including base part and prism head	
ALI 6.920-IS	PENTALIGN adjustment sensor, 635 nm		
ALI 6.921	Adjustable sliding bracket for pentaprism		
ALI 6.924	Pentaprism adapter plate for tripod mounting with screws		
ALI 6.929	Pentaprism "L" mounting plate		
<b>Accessories for Scribed Line measurements</b>			
ALI 6.967	LEVALIGN Expert floor stand with rotatable sensor holder		p. 325
ALI 6.966	LEVALIGN expert sensor holder for posts 8mm		p. 332

## TECHNICAL INFORMATION

### Technical data

Parameter	LEVALIGN expert technical data	
<b>LASER</b>		
<b>Wavelength</b>	635 nm (red)	
<b>Laser class</b>	II (<1mW)	
<b>Range</b>	100 meters (Ø 200 meters) [328 ft, Ø 656 ft]	
<b>Leveling</b>	Vertical or horizontal (can be switched off)	
<b>Self-leveling range</b>	±5 %	
<b>Direction adjustment</b>	±5 %	
<b>Rotating speed</b>	max. 800 RPM	
<b>Total error</b>	< ±25 µm + ±24 µm/m incl. conical + step + leveling error)	
<b>Power supply</b>	Internal rechargeable battery or external power supply	
<b>Operating time</b>	16 hours	
<b>Dimensions</b>	Ø 130 mm x 270 mm	
<b>Weight</b>	3.4 kg [ 7 1/2 lb]	
<b>Charger</b>	Input: 100 - 240 VAC / 50 - 60 Hz / 340 mA Output: 12 VDC / 1200 mA / 14.4 W	
<b>SENSOR</b>		
<b>Resolution</b>	0.01 mm	
<b>Accuracy</b>	±0.02 mm	
<b>Measuring range</b>	70 mm [2 3/4"]	
<b>Zero-point adjustment</b>	70 mm	
<b>Internal memory</b>	2600 points	
<b>Communication</b>	Bluetooth	
<b>Power supply</b>	2 x AA batteries	
<b>Dimensions</b>	214 x 70 x 40 mm [[ 8 7/16" x 2 3/4" x 1 9/16"]	
<b>Weight</b>	0.62 kg [ 21.9 oz ]	

# CENTRALIGN Ultra – Bore Alignment

CENTRALIGN Ultra is an universal and high-precision laser measuring system for different geometrical measurement tasks in the industry sector.



## Typical applications (examples)

- Bores in internal combustion engines, compressors, pumps, gearboxes and stern tubes
- Gas and steam turbines

## Features

- Measurement of the bore center: Determination of the eccentricity error
- Ease of use, light-weight components, and measuring procedures for special applications
- Display of necessary minimum corrections
- Practical wireless data communication.

## more...

- Measurement of magnetic and non-magnetic bores with diameters from 120 mm to above 4000 mm [4 3/4" to 13 ft 1 7/16"].
- Patented universal measuring fixtures with rotating sensor holder improve measuring accuracy and handling.
- Powerful incorporated splice function for highest flexibility and extended measuring range
- Consideration of the positions of reference line, rotor sag and thermal expansion
- Live Move function for real-time monitoring of alignment corrections.
- Special, large bore bracket for measurements with and without housing
- Simple and fast measuring process up to 40 meters (130 feet)

## Order information

The following variants are available for CENTRALIGN Ultra:

Item No.	Variant
ALI 4.060	CENTRALIGN Ultra RS5 BT, Standard
ALI 4.061	CENTRALIGN Ultra RS5 BT, Add-on for ROTALIGN Ultra iS

The scope of delivery results from the following overview:

### Scope of delivery

CONTENT			Variant	
Item No.	Name	Details	ALI 4.060	ALI 4.010
ALI 4.202	ROTALIGN Ultra computer	p. 283	✓	✗
ALI 4.603	ROTALIGN Ultra battery	---	✓	✗
ALI 4.201	Foot for ROTALIGN Ultra computer	---	✓	✗
ALI 12.651-I	Power supply/battery charger for computer, international	p. 260	✓	✗
ALI 12.502-2	PC cable, USB, 2m	---	✓	✗
ALI 12.503	Peripheral cable, USB	---	✓	✗
ALI 4.748	CENTRALIGN Ultra Expert certificate	---	✓	✓
ALI 3.900	RS5 sensor	p. 283	✓	✓
ALI 9.513	Inspection certificate for RS5 sensor	---	✓	✓
ALI 4.621I	BT module	p. 283	✓	✓
ALI 3.910	RS5 laser	p. 283	✓	✓
0 0739 1055	Hexagon wrench, DIN 911, size 2.5	---	✓	✓
ALI 3.981-2	Sensor cable, 2m	---	✓	✓
ALI 4.505-0.5	Cable for BT module, 0.5 m	---	✓	✓
ALI 4.501-IS	Magnetic Foot Holder for Laser and Sensor	p. 305	✓	✓
ALI 2.719	Universal pointer bracket for RS5 sensor	p. 322	✓	✓
ALI 2.773-110	Plunger, 110 mm		✓	✓
ALI 2.177	Post 70 mm	p. 335	✓	✓
ALI 2.170	Post 115 mm, white	p. 335	✓	✓
ALI 2.171	Post 150 mm, black		✓	✓
ALI 2.172	Post 200 mm, gray	p. 335	✓	✓
ALI 2.778	UPB anti-torsion bridge (recommended for posts with $L \geq 200$ mm)	p. 331	✓	✓
0 0739 1056	Hexagon wrench, size 3		✓	✓
0 0739 1057	Hexagon wrench, size 4		✓	✓
ALI 4.837	CENTRALIGN Ultra standard case	---	✓	✓
DOC 04.203	CENTRALIGN Ultra RS5 operating instructions	---	✓	✓
ALI 2.911	Cleaning cloth	---	✓	✗
ALI 3.589	Tape measure, mm/inch	---	✓	✗
ALI 17.452	USB pen drive with AC GEO software and device documentation	p. 339	✓	✓

In addition, optional accessories are available:

### Optional accessories

Item No.	Description - optional accessories	Notes	Details
<b>Add-ons for universal pointer bracket (UPB)</b>			
<b>ALI 2.760 SET</b>	Add-on set for bores up to 810 mm diameter, magnetic and non-magnetic		p. 322
<b>Accessories for universal pointer bracket (UPB)</b>			
<b>ALI 2.2117</b>	Post 100 mm		p. 335
<b>ALI 2.715</b>	Universal mounting bridge		p. 318
<b>Laser for long measuring segments (&lt; 50 meters)</b>			
<b>ALI 4.120</b>	Long range laser 675nm, set		p. 285
<b>Misc.</b>	CENTRALIGN mounting bridge	for laser and control sensor. Ranges: 210 ... 1740 mm; 1 or 2 mounting bridges in case	p. 316
<b>LBB - Large Bore Bracket (Measuring fixture for measurement of large diameters)</b>			
<b>ALI 3.400</b>	LBB rotation frame, set	Contains the main components of the LBB measuring fixture and is the basis for all versions.	p. 302
<b>Misc.</b>	Telescopic arms and extension posts, sets	Allows setup of the measuring fixture across a large range (0.5 ... 4.2 m)	p. 302
<b>ALI 3.115-C</b>	Mounting components for Tops-on configuration	Enables mounting with closed measurement object (Tops-on)	p. 302
<b>ALI 3.115-O</b>	Mounting components for Tops-off configuration	If the top part of the machine can be removed for the alignment measurement (Tops-off), this mounting option offers high flexibility in axial direction.	p. 302

## TECHNICAL INFORMATION

### ROTALIGN Ultra computer technical data

Parameter	ROTALIGN Ultra computer technical data
<b>CPU</b>	Marvell XScale PXA270, 520 MHz
<b>Memory</b>	64 MB RAM, 64 MB internal Flash, 1024 MB Compact Flash memory
<b>Display</b>	5.7" TFT, transmissive (readable in sunlight), LED backlight Resolution: 640 x 480 pixels, VGA
<b>Keyboard elements</b>	Navigation cross with Back, Delete, and Menu buttons; Alphanumerical keyboard with function keys for dimensions, measuring, results
<b>LED displays</b>	4 LEDs for laser adjustment and alignment condition 2 LEDs for wireless communication and battery/rechargeable battery status
<b>Power supply</b>	Batteries: 6 x 1.5 V IEC LR14 („C“), optional Lithium-ion battery: 7.2 V / 6.0 Ah / 43.2 Wh Operating time: typically 25 hours (rechargeable battery) / 12 hours (battery) (assuming an operating cycle of 25 % measurement, 25 % data processing, and 50 % standby)
<b>Interfaces</b>	2x USB host 1x USB slave RS232 (serial) for sensor I-data connection for sensor Integrated radio communication, class 1, power 100 mW AC adapter/charge connection
<b>Protection class</b>	IP65 (dust- and splash-proof) Shock-resistant Relative air humidity: 10% ... 90%
<b>Temperature range</b>	Operation: 0°C ... +45°C [ 32°F ... 113 °F ] Storage: -20°C ... +60°C [ -4°F ...+140 °F ]
<b>Dimensions</b>	approx. 243 x 172 x 61 mm
<b>Weight</b>	approx. 1 kg [ 35,3 oz ] (without batteries)

### RS5 sensor system technical data

Parameter	RS5 sensor system technical data
<b>RS5 SENSOR</b>	
<b>Type</b>	5-axis sensor: 2 planes (4 axes and angle) Measurement range: user-defined, dynamically extensible (U.S. Patent 6,040,903) Resolution: 1 µm (position) and 10 µRad (angle) Accuracy (average): > 98% Measurement rate: approx. 20 Hz
<b>Power supply</b>	Via BT module
<b>Protection class</b>	IP65 (dustproof and water jets resistant)
<b>Protection from ambient light</b>	Yes
<b>Temperature range</b>	Operation: -10°C ... +60°C [ 14°F ...+140 °F ] Storage: -20°C ... +60°C [ -4°F ...+140 °F ]



Parameter	RS5 sensor system technical data
<b>Dimensions</b>	approx. 105 x 74 x 53 mm
<b>Weight</b>	approx 220 g [ 7.8 oz ]
<b>BT MODULE</b>	
<b>Type</b>	External module for sensor supply and wireless communication via Bluetooth, class 1 Complies with FCC Directive Part 15.247
<b>Transmission power</b>	100 mW
<b>Transmission range</b>	up to 100 m with direct line of sight
<b>LED displays</b>	1 LED for wireless communication, 3 LEDs for battery status
<b>Power supply</b>	Batteries: 2 x 1.5 V IEC LR6 ("AA")
<b>Operating time</b>	Typically 14 hours (assuming an operating cycle of 50 % measurement and 50 % standby)
<b>Temperature range</b>	Operation: -10°C ... +50°C [ 14°F ...+122 °F ]
<b>Protection class</b>	IP65 (dustproof and water jets resistant)
<b>Dimensions</b>	approx. 81 x 41 x 34 mm
<b>Weight</b>	approx. 133 g [ 4,7 oz ] including batteries and cables
<b>RS5 LASER</b>	
<b>Type</b>	Semiconductor laser diode
<b>Beam divergence</b>	0.3 mrad
<b>Beam power</b>	< 1 mW
<b>Wavelength</b>	630 – 680 nm (red, visible)
<b>Laser class</b>	Class 2 according to IEC 60825-1:2007 The laser complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007. Safety precaution: Do not look into laser beam
<b>Power supply</b>	Batteries: 2 x 1.5 V IEC LR6 ("AA")
<b>Protection</b>	IP65 (dustproof and water jets resistant) Shockproof Relative humidity: 10% to 90%
<b>Temperature range</b>	Operation: +10°C ... +50°C [ 50°F ...+122°F ] Storage: -20°C ... +60°C [ -4°F ...+140 °F ]
<b>Dimensions</b>	Approx. 105 x 74 x 47 mm (4 9/64" x 2 29/32" x 1 27/32")
<b>Weight</b>	Approx. 225 g (7 15/16 oz.)

## Long Range Laser

The Long Range Laser is used for measuring turbines over a measuring distance of up to 50 meters. With the aid of an universal mounting base plate, the Long Range Laser can be safely and securely installed on a tripod, on the magnetic feet supplied or on the mounting bridges available as accessories.



### Features

- Laser for long measuring distances (< 50 m / 164 ft)
- Universal mounting base plate
- Angle and offset adjustment via micrometer screws
- Mounting in horizontal or vertical position
- Power supply via battery or Li-ion rechargeable battery (option)
- Robust transport case

The Long Range Laser is available in two versions with different wavelengths:


- **ALI 4.120:** Long Range Laser (675 nm) for ROTALIGN sensors
- **ALI 4.120-IS:** Long Range Laser (635 nm) for sensorALIGN sensors

The scope of delivery for the two sets ALI 4.120 and ALI 4.120-IS is shown in the following overview:

### Scope of delivery

CONTENT- ALI 4.120 / ALI 4.120-IS		
Item no.	Name	Details
ALI 4.100 or ALI 4.100-IS	Long Range Laser (675 nm) or Long Range Laser (635 nm)	p. 286
ALI 4.112	Mounting base plate for Long Range laser	
ALI 4.500	Magnetic foot, 2 x	p. 332
ALI 16.600	Battery box for Long Range Laser, Alkaline Mangan battery incl	
ALI 4.507-2	Power cable for Long Range Laser, 2m	
ALI 4.836	Long Range Laser case	
ALI 9.494	Inspection certificate for Long Range laser 670/635 nm,	
DOC 04.101	Long Range Laser pocket guide	
0 0739 1058	5 mm Allen key	
0 0739 1059	6 mm Allen key	
0 0741 6069	Bolt, DIN 912 M06X16 VA, 2x	
0 0741 6071	Bolt, DIN 912 M06X25 VA, 4x	
0 0741 6089	Bolt, DIN 912 M08X12 VA, 2x	
<b>Overview: Case with scope of supply (Mounting base plate is not shown)</b>		

CONTENT- ALI 4.120 / ALI 4.120-IS

Item no.	Name	Details
		

Optional accessories

Item no.	Name
ALI 16.610	Long Range laser Power Box, Lithium Ion Battery <100Wh

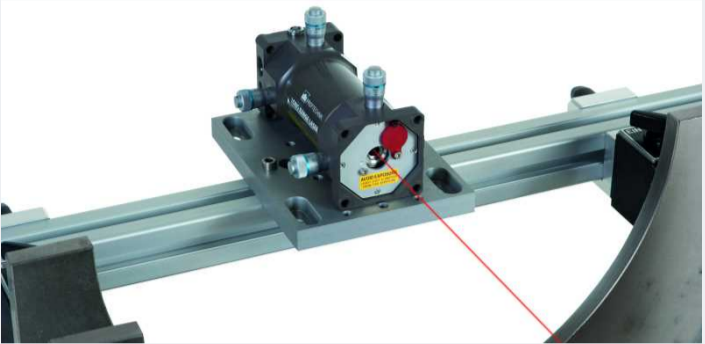
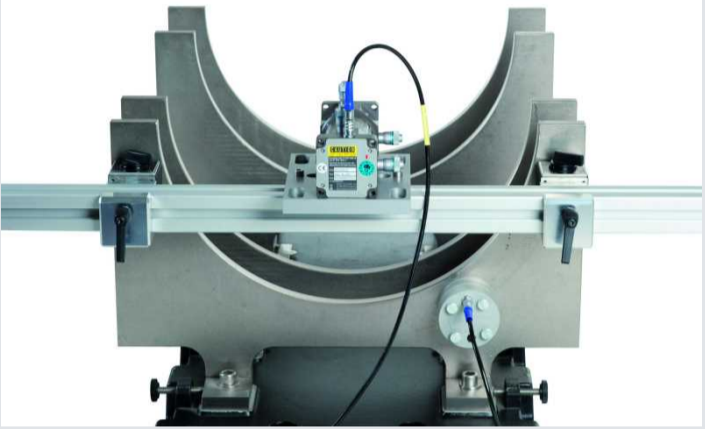
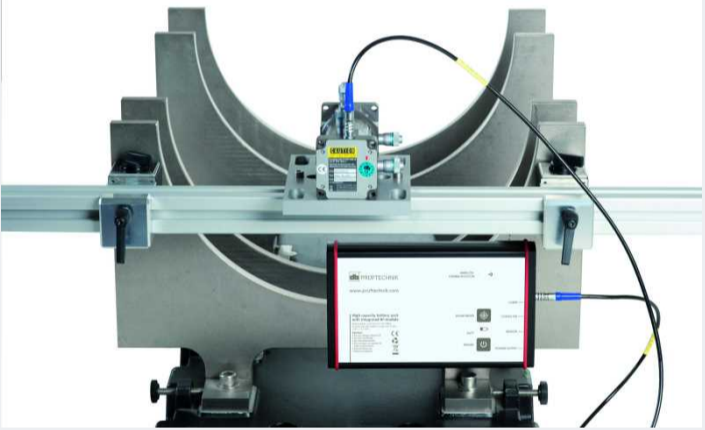
TECHNICAL INFORMATION

Technical data

Parameter	Long Range Laser
Type	GaAlAs semiconductor laser
Beam divergence	0.2 mrad
Wavelength, typical	675 nm for ALI 4.100 or 635 nm for ALI 4.100-IS (red, visible)
Beam diameter	8 mm
Beam power	< 1 mW
Safety class	Class 2, FDA 21 CFR 1000 and 1040
Laser range	up to 50 m [164 ft] depending on sensor
Adjustment range	Offset + 3 mm in X und Y Angular + 3° mm in X und Y
Adjustment accuracy	0.002 mm
Power supply	9 V block battery or LiIon rechargeable battery (optional)
Temperature range	-10°C to +50°C / [ 14°F to 122 °F ] (Operation) -20°C to +80°C / [ -4°F to 176 °F ] (Storage)
Environmental protection	Electrical components IP 65 Mechanical components IP 20
Dimensions	approx. 90 x 90 x 150 mm [ 3 9/16" x 3 9/16" x 5 7/8" ]

Parameter	Long Range Laser
Weight	approx. 820 g [ 28.9 oz ]

### Mounting example and power options

	Mounting	
<b>Mounting bridge with magnetic feet</b>		<p>Long Range Laser horizontally screwed onto mounting base plate;            Mounting base plate screwed onto universal mounting bridge (ALI 2.715);            Mounting bridge fixed to the machine component with magnetic feet.</p>
<b>Battery box</b>		<p>Long Range laser connected to battery box ALI 16.600 via power cable ALI 4.507-2.</p>
<b>Power box (Li-Ion)</b>		<p>Long Range laser connected to power box ALI 16.610 via power cable.</p>

# Brackets

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<b>Posts</b> .....	<b>335</b>

# Brackets selection guide

## Shaft Alignment and Bore Measurement

Application	Shaft Alignment					Bore Measurement			
Measuring task	Coupling		Cardan	Live Trend		Center		Center + Concentricity	
Mounting	magnetic	nonmagn.	---	magn.	nmagn.	magn.	nmagn.	magn.	nmagn.
Item no. / Page									
ALI 2.118 / p. 288		++							
ALI 2.461 / p. 291		++	++						
ALI 2.451 / p. 291		+	++						
ALI 2.112 / p. 294	++			++					
ALI 2.109 / p. 298		++							
ALI 2.109L / p. 298		++							
ALI 2.894 / p. 291			++						
ALI 2.875 / p. 291			++						
ALI 14.310 / p. 311				++					
ALI 2.230-1 / p. 312	++								
ALI 2.220 / p. 314	++			+		++		++	
ALI 2.761 IS / p. 308	++			++		+		++	
ALI 2.190 / p. 320				+	++				
ALI BV26 / p. 300	+	++		++	++	++			
ALI 2.719 / p. 322						+	+	++	++
ALI BV25 / p. 296						+	++		
ALI 3.400 / p. 302						+	+	++	++
ALI 3.241-xx / p. 316						+	+	++	++
ALI 2.715 / p. 318						++		++	

++ : intended use  
+ : optional use

## Levelness and Straightness

Application	Levelness	Straightness
Item no. / Page		
ALI 6.956 / p. 326	++	++
ALI 6.967 / p. 325		++
ALI 4.501-IS / p. 305	++	++
ALI 6.773 / p. 333	++	++
ALI 6.954 / p. 330	++	++

## Chain-type Brackets

Chain-type brackets are the standard brackets for shaft alignment. They can be used universally and ensure secure and stable mounting of the measuring components on the shaft or coupling flange.



### Features

- Quick and easy mounting
- Robust and high-quality design
- Exact bores
- Torsion-resistant body

### Order information

The following chain-type brackets are available:

Item No.	Name	Scope of delivery
<b>ALI 2.118</b>	Compact chain-type bracket	Body Chain 600 mm Post 200 mm, 2x Hexagon wrench, size 4
<b>ALI 2.113 SET</b>	Compact chain-type bracket, set with 2 pcs	Body, 2x Chains 300 mm / 600 mm, 2 each Posts 115, 150, 200, 250, 300 mm, 4 each Hexagon wrench, size 4, 2x Roll-up case
<b>ALI 2.461</b>	Chain-type bracket for large shaft diameter	Body, large Chain 1500 mm Post 300 mm, 3x Anti-torsion bridge, 2x
<b>ALI 2.451</b>	Cardan shaft chain-type bracket with rotating arm	Body, large Chain 1500 mm Post 300 mm, 3x Anti-torsion bridge, 2x

Instructions: An anti-torsion bridge is required for posts longer than 200 mm.  
The maximum post length for the compact chain-type bracket amounts to 300 mm.

In addition, optional accessories and/or individual components are available as spare part:

### Optional accessories

Item No.	Name	Notes	Details
Various	Posts	available in 10 different lengths	p. 335
<b>Chains</b>			
ALI 2.114	Chain 300 mm [11 13/16"]		
ALI 2.115	Chain 600 mm [23 5/8"]		
ALI 2.116	Chain 1500 mm [59 1/16"]		
<b>Body</b>			
ALI 2.117	Body for compact chain-type bracket	incl. hexagon wrench	
ALI 2.452	Body, rotating arm		
ALI 2.462	Body, large		
<b>Miscellaneous</b>			
ALI 2.191	Anti-torsion bridge for 2 posts		p. 331
ALI 2.463	Anti-torsion bridge for 3 posts		p. 331
ALI 5.020	External inclinometer		

## TECHNICAL INFORMATION

To ensure stable mounting of the chain-type bracket, it must be possible to securely brace the chain around the circumference of the shaft/coupling. Here, the length of the chain and - for large diameters - the body are essential.

Shaft/coupling flange diameter	Chain		
	300 mm	600 mm	1500 mm
<b>D<sub>max</sub></b>	100 mm [3 15/16"]	200 mm [7 7/8"]	500 mm (400 mm*) [19 11/16" (15 3/4")*]
<b>D<sub>min</sub></b>	20 mm [ 13/16"]		50 mm (20 mm*) [1 15/16" ( 13/16" )]*

\* with compact chain-type bracket

The space on the shaft/flange must be sufficient to mount the chain-type bracket. **Design depth DD** of the body is essential here.

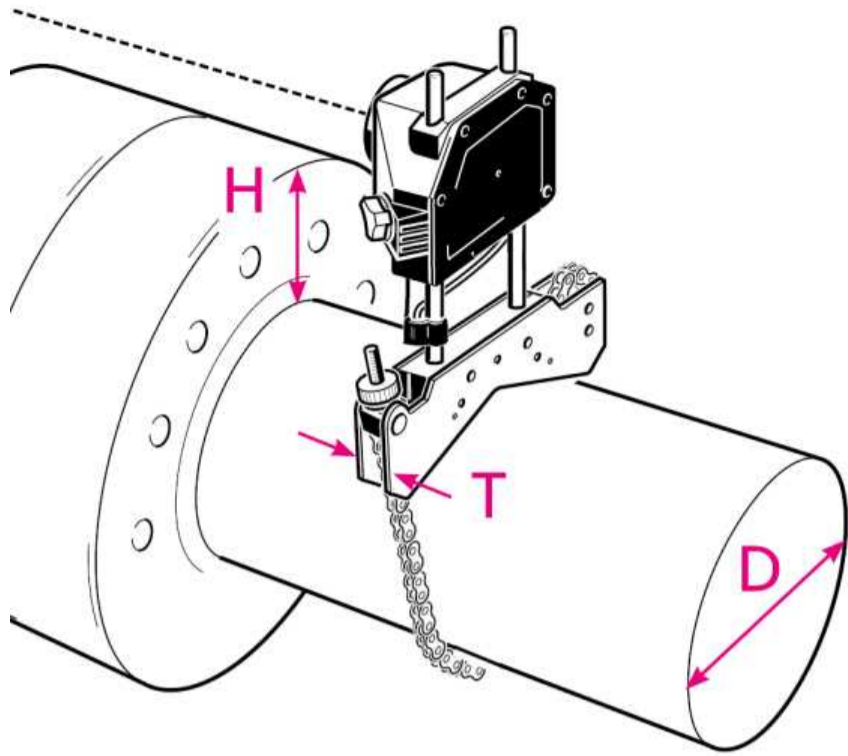
Design depth	Body		
	Compact	Large	Rotating arm
<b>DD<sub>min</sub></b>	20 mm [ 13/16"]	35 mm [1 3/8"]	60 mm [2 3/8"]

**Clearance C** is the distance of the shaft surface to the coupling rim and defines the height, from which the laser beam hits above the coupling. Length L of the post is essential here:

	Clearance
<b>C<sub>max</sub></b>	L ... L - 30 mm*

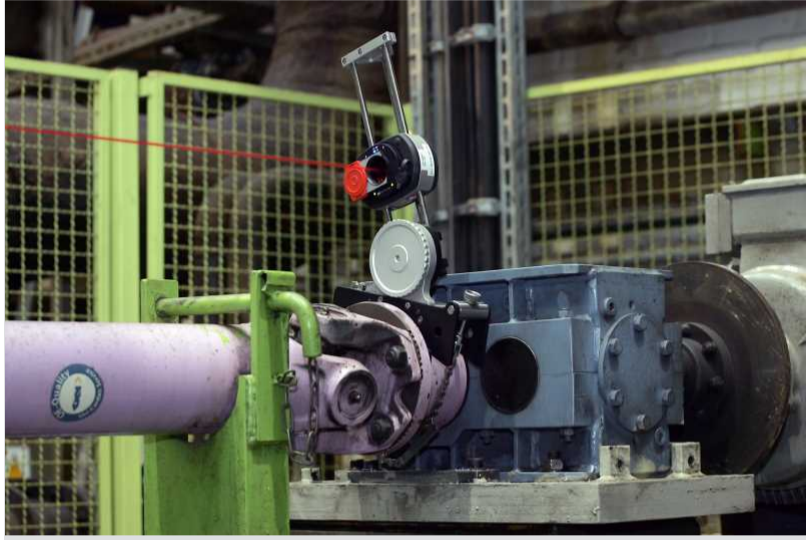
\* for minimum shaft diameter



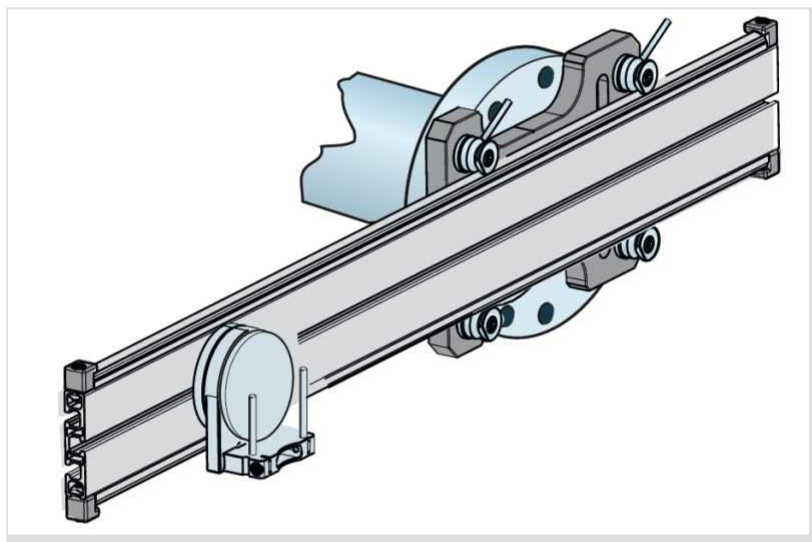


## Measuring Fixtures for Cardan Shafts

Four measuring fixtures are available for cardan shaft alignment. The selection criteria are based on the circumstances on site and the used measuring equipment consisting of sensor system and computer firmware.



Cardan shaft chain-type bracket with rotating arm, ALI 2.450



Cardan shaft bracket, ALI 2.893 SETIS

### Features

- Measurement with installed and removed cardan shaft
- Shaft offset up to 900 mm [35 7/16"] possible
- Ideal for limited rotation angle in installed condition
- Compatible with all PRÜFTECHNIK sensors

### Order information

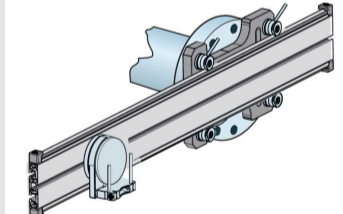
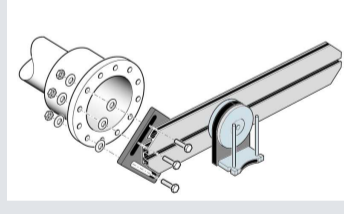
Item No.	Measuring fixture
<b>ALI 2.450</b>	Cardan shaft chain-type bracket with rotating arm, set
<b>ALI 2.460</b>	Chain-type bracket for large diameter, set
<b>ALI 2.893 SETIS</b>	Cardan shaft bracket, set
<b>ALI 2.874 SETIS</b>	Cardan shaft bracket Lite, set

The scope of delivery results from the following overview:

### Scope of delivery

Item No.	CONTENT		Measuring fixture	
			ALI 2.450	ALI 2.460
<b>ALI 2.451</b>	<b>Cardan shaft chain-type bracket with rotating arm</b>	<b>p. 288</b>	✓	✗
<b>ALI 2.461</b>	<b>Chain-type bracket for large diameter</b>	<b>p. 288</b>	✓	✓, 2x
<b>ALI 2.178</b>	<b>Post 400 mm</b>	<b>p. 288</b>	✓, 6x	✓, 6x

CONTENT			Measuring fixture	
Item No.	Name		ALI 2.450	ALI 2.460
ALI 2.179	Post 495 mm	p. 288	✓, 6x	✓ 6x
ALI 5.020	External inclinometer , 2 pcs	p. 288	✓ 2x	✓ 2x
0 0739 1056	Hexagon wrench, DIN 911, size 3		✓ 2x	✗
0 0739 1056	Hexagon wrench, DIN 911, size 2.5		✗	✓ 2x
ALI 2.480	Case		✓	✓
DOC 99.201	Operating instructions, Getting started		✓	✓
				

CONTENT			Measuring fixture	
Item No.	Name		ALI 2.893 SETIS	ALI 2.874 SETIS
ALI 2.894	Extension arm for cardan shaft bracket		✓	✗
ALI 2.896	Case for cardan shaft bracket		✓	✗
ALI 2.875	Extension arm for cardan shaft bracket lite		✗	✓
ALI 2.876	Case for cardan shaft bracket lite		✗	✓
DOC 99.201	Operating instructions, getting started		✓	✓
				

## TECHNICAL INFORMATION

The following overview shows, which measuring fixture is compatible with which measuring equipment and on-site circumstances.

Property	Measuring fixture	
	ALI 2.450	ALI 2.460
sensALIGN sensor system	✓	✓
ROTALIGN sensor system	✗	✗
OPTALIGN sensor system	✗	✗
ROTALIGN touch	✓	✓
ROTALIGN Ultra Shaft v 3.03	✓	✓
ROTALIGN Ultra iS Shaft Advanced / Expert	✓	✓
ROTALIGN Ultra iS Shaft Standard	✓	✓
Cardan shaft installed	✓	✓
Maximum shaft offset in mm	400	300

Property	Measuring fixture	
	ALI 2.893 SETIS	ALI 2.874 SETIS
sensALIGN sensor system	✓	✓
ROTALIGN sensor system	✓, with Multipoint	✓, with Multipoint
OPTALIGN sensor system	✓, with Multipoint	✓, with Multipoint
ROTALIGN touch	✓, with intelliPOINT	✓, with intelliPOINT
ROTALIGN Ultra Shaft v 3.03	✓	✓
ROTALIGN Ultra iS Shaft Advanced / Expert	✓, with intelliPOINT	✓, with intelliPOINT
ROTALIGN Ultra iS Shaft Standard	✓, with Multipoint	✓, with Multipoint
Cardan shaft installed	✗	✗
Maximum shaft offset in mm	900	350

## Compact Magnetic Bracket

This bracket allows quick and stable mounting of the sensor system onto any ferromagnetic machine components. During shaft alignment, it is mounted on the face on the coupling flange. During bore measurement, it is used as laser holder.



### Features

- Quick and easy mounting
- Stable magnetic coupling
- Low design depth
- Including posts (115 mm)
- Compatible with current sensor system

### Order information


Item No.	Name	Scope of delivery
<b>ALI 2.112</b>	Compact Magnetic Bracket	Body, magnetic bracket Post 115 mm, 2x Hexagon wrench, size 3
<b>ALI 2.112 SET-S</b>	Compact magnetic bracket, 2 pcs,	Body, magnetic bracket, 2x Post 115 mm, 4x Hexagon wrench, size 3 In cardboard box with foam insert

In addition, optional accessories and/or individual components are available as spare part:

### Optional accessories

Item No.	Name	Notes	Details
<b>Various</b>	Posts	available in 10 different lengths	p. 335

## TECHNICAL INFORMATION

Application	Magnetic bracket
<b>Shaft alignment</b>	 <p>Magnetic bracket mounted on coupling flange</p>
<b>Dimensions</b>	45 x 85 x 10 mm [ 1 3/4" x 3 3/8" x 3/8" ] (L x W x H), body

## Sensor Bracket for Small Bore Measurements

This sensor bracket is used for measuring small bores. The bracket is bolted to a suitable rotating arbor and pushed into the bore. To measure, the entire setup with installed sensor is rotated in the bore.



### Features

- Compact, lightweight design
- Standard sensor bracket for cylindrical bores
- Bore diameter: 70 to 130 mm [ 2 3/4" to 5 1/8"]
- Mounting in bore using rotatable mandrel
- Beam opening and two axial post positions allow sensor installation in forward and backward direction
- Including posts (100 mm)
- Compatible with current sensor system

### Order information

Item No.	Name	Scope of delivery
ALI BV25	Sensor bracket with beam opening	Bracket pre-assembled with 100 mm post

A respectively adjusted rotatable mandrel is required to mount the sensor bracket in the bore. The mandrel is produced to customer specifications.





Sensor bracket and rotatable mandrel with plastic sliding elements.

### Order information for custom arbor

Item No.	Name	Diameter	Usable length	Sliding elements
omitted	Rotatable mandrel for sensor bracket with beam opening	Specify the bore diameter in millimeters. To ensure stable mounting, the bore diameter must be constant across the entire usable length.	Specify the length in millimeters, the mandrel can be pushed into the bore.	Specify the material of the sliding elements: Select stainless steel if the bore is scratch-resistant. Otherwise specify plastic material.

## TECHNICAL INFORMATION

### Mounting options and dimensions

<b>Mounting option</b>	 <p>Sensor points into beam opening</p>	 <p>Sensor is positioned opposite the beam opening</p>
<b>Application</b>	<p>The laser beam hits the sensor through the bore. Mandrel and sensor bracket are respectively fitted with a beam opening. The posts are mounted in the front position to accommodate the sensor.</p> <p>Measurement mode: Multi-point or static measurement</p>	<p>The laser beam hits the sensor in front of the bore. The posts are mounted in the rear position to accommodate the sensor.</p> <p>Measurement mode: Multi-point or static measurement</p>
<b>Dimensions</b>	<p>76 x 54 x 95 mm [ 3 " x 2 1/8" x 3 3/4" ] (L x W x H), without posts</p>	



## Extra-thin Brackets

These brackets have a low design depth (8 mm) and represent an ideal alternative to chain-type brackets for very limited spaces between coupling and housing.





### Features

- Quick and easy mounting
- Low space requirement: 8 mm
- Mounting with threaded rods and quick-mounting slip nuts
- Permanently installed posts for laser and sensor

### Order information

Extra-thin brackets are available in the following sets:

Item No.	Name	Scope of delivery	
<b>ALI 2.109 SET</b>	Extra-thin bracket, set	Extra-thin bracket, 2x Threaded rod, long, 4x Small, extra-thin bracket, 2x Case	
<b>ALI 2.109LSET</b>	Small, extra-thin bracket, set	Small, extra-thin bracket, 2x Case	

Instructions: Only use this brackets if there is not enough space for chain-type brackets.

## TECHNICAL INFORMATION

To ensure stable mounting, it must be possible to securely bolt the bracket onto the shaft. Here, the length of the threaded rods and the size of the body are essential.

Shaft diameter	Bracket	
	Extra-thin	Small, extra-thin
$D_{\max}$	160 mm [6 5/16"]	100 mm [3 15/16"]

**Clearance C** is the distance of the shaft surface to the coupling rim and defines the height, from which the laser beam hits above the coupling. The length of the post is essential here:  $C_{\max} = L = 150 \text{ mm [5 7/8"]}$

# Universal Holder

This compact holder can be diversely used for shaft alignment, measurement of positional changes (Live Trend) and bore measurements. It offers numerous mounting options for couplings, machine housings, and bores. Design depth and length of the posts are adjusted to the dimensions of the current sensor system (laser and sensor).



## Features

- Compact, lightweight design
- Ideal for Shaft Alignment and Live Trend
- Universal mounting options
- Quick, easy, and flexible application
- Including posts (100 mm)
- Compatible with current sensor system
- Dimensions: 80 x 80 x 40 mm [ 3 1/8" x 3 1/8" x 1 9/16" ], without posts

## Order information

Item No.	Name	Scope of delivery
ALI BV26	Universal holder without laser beam opening	Holder pre-assembled with 100 mm post Hexagon wrench, size 3





The following components are available as accessories:

## Optional accessories

Item No.	Name	Notes	Details
Various	Posts	available in 10 different lengths	p. 335
ALI BV26.MP	Three-point magnetic holder	For mounting on magnetic components with flat surfaces. Diameter magnetic holder: 58 mm [ 2 5/16" ]	p. 301
ALI BV26.RE	Magnetic Z-adapter, 3 pcs	For mounting on magnetic components with flat surfaces. Maximum range of Z-adapter: 120 mm [ 4 3/4" ]	p. 301
ALI BV26.xx	Spanner socket for hexagon screws	For mounting on existing screws with hexagonal profile. Available for across flats AF (xx): 17 / 19 / 24 / 30 / 36 / 46 / 55.	p. 301
ALI BV27.xx.yy	Rotatable mandrel	For mounting in smaller bores. Available for different bore diameters (xx) and lengths (yy).	p. 301

## TECHNICAL INFORMATION

### Mounting options

Option	Illustration	Application
<p><b>Three-point magnetic holder,</b> <b>ALI BV26.MP</b></p>		<p>Live Trend: Holder is secured magnetically on the machine housing.</p> <p>Shaft alignment: Holder is secured magnetically on the coupling flange.</p>
<p><b>Magnetic Z-adapter,</b> <b>ALI BV26.RE</b></p>		<p>Live Trend: Holder is secured magnetically on the machine housing.</p> <p>Shaft alignment: Holder is secured magnetically on the coupling flange.</p>
<p><b>Spanner socket,</b> <b>ALI BV26.xx</b></p>		<p>Live Trend: Holder is mounted to screw connection on the machine housing</p>
<p><b>Rotatable mandrel,</b> <b>ALI BV27.xx.yy</b></p>		<p>Bore measurement: Holder is precisely fitting into the bore and rotated for measurements.</p> <p>Measurement mode: Multi-point or static measurement</p>

## Large Bore Bracket - LBB

The LBB measuring fixture is used to measure alignment and roundness of concentric components, such as guide vane carriers or diaphragms in a turbine. The LBB measuring fixture features a modular design and can be adjusted continuously across a wide range.



### Features

- Measurement of open (tops-off) or closed (tops-on) machines
- Range from 545 mm to 4230 mm [1 ft 3/4 " to 13 ft 10 9/16"]
- Axial measuring segment of up to 40 meters [131 ft]
- Magnetic and non-magnetic mounting
- Quick and easy mounting

### Order information

The LBB measuring fixture consists of three main components: measuring head, telescopic arms and mounting options.

	Mounting option: Tops-off	Mounting option: Tops-on
Main components 1 to 3		
Typical setup		
	in example without ground contact	in example with magnetic foot mounting

### 1: Measuring head

Item No.	Name
ALI 3.400	LBB rotation frame, set

### 2: Telescopic arms and extension posts

Item No.	Name
ALI 3.116-SS	LBB telescopic arms, short (3x), range: 545 mm to 900 mm
ALI 3.116-SM	LBB telescopic arms, short (3x) and medium (4x), range: 545 mm bis 1900 mm
ALI 3.116-SL	LBB telescopic arms, short (3x), medium (4x) and long (4x), range: 545 mm to 3230 mm
ALI 3.116-SX	LBB telescopic arms, short (3x), medium (4x), long (4x), and extension (4x), range: 545 mm to 4230 mm
ALI 3.116-MM	LBB telescopic arms, medium (4x), range: 850 mm to 1900 mm
ALI 3.116-ML	LBB telescopic arms, medium (4x) and long (4x), range: 850 mm to 3230 mm
ALI 3.116-MX	LBB telescopic arms, medium (4x), long (4x), and extension (4x), range: 850 mm to 4230 mm
ALI 3.116-LL	LBB telescopic arms, long (4x), range: 1300 mm to 3230 mm
ALI 3.116-LX	LBB telescopic arms, long (4x), and extension (4x), range: 1300 mm to 4230 mm

### 3: Mounting option

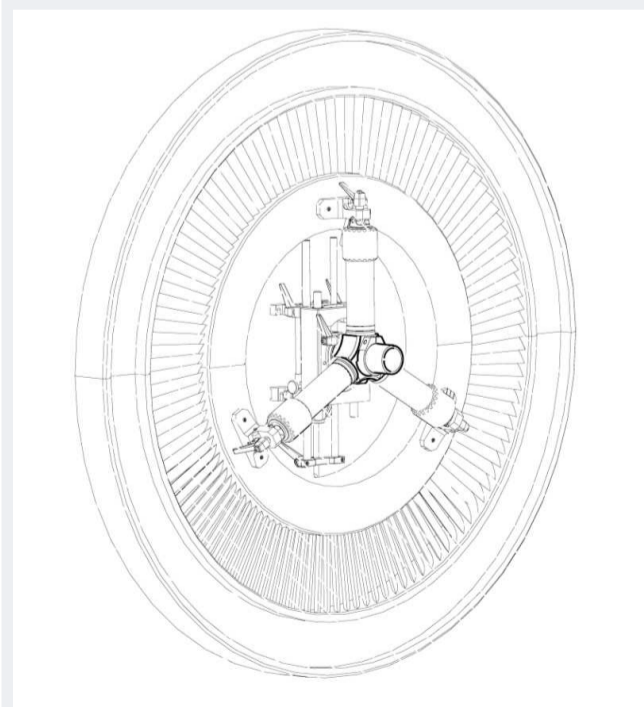
Item No.	Name
ALI 3.115-C	LBB mounting components for Tops-on configuration
ALI 3.115-O	LBB mounting components for Tops-off configuration

In addition, optional accessories are available:

#### Optional accessories

##### LBB 3-point carrier - ALI 3.298

The LBB 3-point carrier replaces the standard rotation frame carrier (ALI 3.299) in the Tops-on configuration, when the third telescopic arm must be mounted to the upper bearing shell.



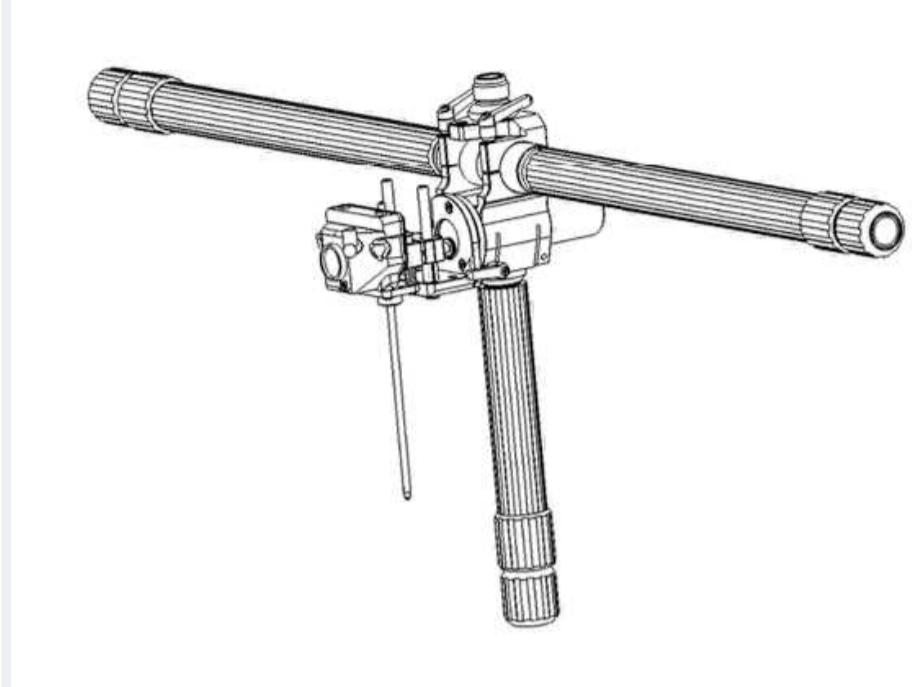
Tops-on configuration with LBB 3-point carrier

### UPB to LBB adapter - ALI 3.274

This adapter replaces the standard rotation frame in the LBB when measuring smaller bores (> 120 mm).



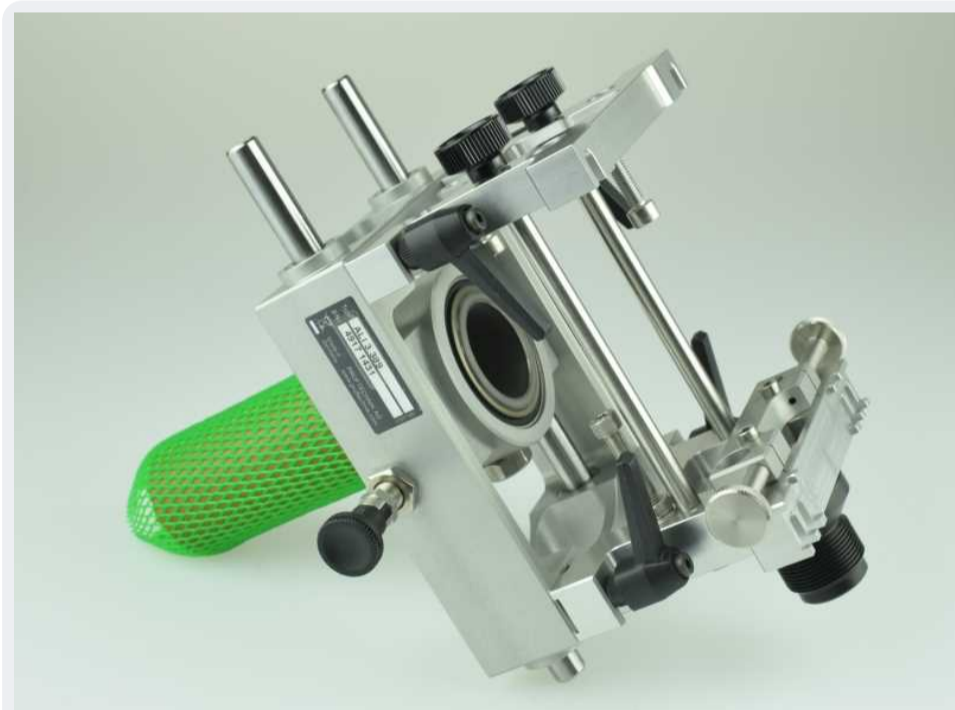
LBB adapter with sensor



LBB adapter mounted on measuring head carrier

### LBB Sensor rotation frame with 130 mm extension - ALI 3.389-130

This sensor rotation frame has a longer axis of rotation than the standard frame and thus offers a larger adjustment range in the axial direction.



LBB Sensor rotation frame



RS5 sensor and RF module mounted on LBB Sensor rotation frame

## Magnetic Foot Holder for Laser and Sensor

This versatile holder is used to measure straightness and flatness of objects in the industry sector. The magnetic foot can be securely mounted on flat and curved surfaces (e.g., shafts) using its prismatic contact surface.



### Features

- Stable magnetic mounting on surfaces and shafts
- Magnetic force can be activated via rotary switch
- Universal mounting options
- Quick, easy and flexible application
- Including posts (100 mm)
- Compatible with current sensor and laser components

### Order information

Item No.	Name	Scope of delivery
<b>ALI 4.501-IS</b>	Magnetic Foot Holder for Laser and Sensor	Magnetic foot with post (100 mm and 50 mm) Universal mounting adapter with two mounting positions for laser and sensor Post 100 mm, 2x Hexagon wrench, size 3

### Optional accessories

Item No.	Name	Notes	Details
<b>ALI 6.773</b>	Flatness plunger	For point scanning of flat surfaces	p. 333
<b>ALI 6.966</b>	LEVALIGN Expert sensor holder for posts 8 mm	To mount the LEVALIGN Expert sensor on the magnetic foot bracket in horizontal or vertical position. The scope of delivery contains longer posts (150 mm)	p. 332
<b>Various</b>	Posts	available in 10 different lengths	p. 335
<b>ALI 3.194-IS</b>	Universal mounting adapter with two mounting positions for laser and sensor	Spare part	p. 332
<b>ALI 4.500</b>	Magnetic foot	without post; spare part	p. 332



# TECHNICAL INFORMATION

## Mounting options and dimensions

Mounting	Magnetic foot bracket	
<b>Foot with post</b>		Standard setup, if no structural restrictions are present
<b>Ground sensor</b>		Beam guidance close to the measuring surface; posts in the second, front mounting position
<b>Foot without post</b>		Low height, compact design

Mounting	Magnetic foot bracket	
<b>LEVALIGN</b> <b>Expert sensor</b>		<p>longer posts (150 mm) required in vertical position</p>
<b>Notes</b>	<p>With sensALIGN and RS5, sensor and laser each, all mounting options are possible</p> <p>The LEVALIGN Expert sensor requires adapter ALI 6.966 for mounting on the posts</p> <p>LEVALIGN laser and LEVALIGN Expert laser cannot be mounted with this holder. A sufficiently dimensioned tripod is available instead</p>	
<b>Dimensions</b>	<p>65 x 50 x 55 mm (L x W x D), magnetic foot</p> <p>100 mm, length of magnetic foot post</p>	

## Universal Magnetic Bracket

This bracket can be diversely used for shaft alignment, measurement of positional changes (Live Trend) and bore measurements.



### Features

- Laser bracket and sensor measuring fixture
- Stable magnetic 4-point coupling
- Adjustable mounting bridges and magnets
- Including posts (150 mm)
- Bore diameter: 160 ... 500 mm [6 5/16" ... 19 11/16"]
- Two axial mounting positions for the posts
- Compatible with current sensor system

### Order information

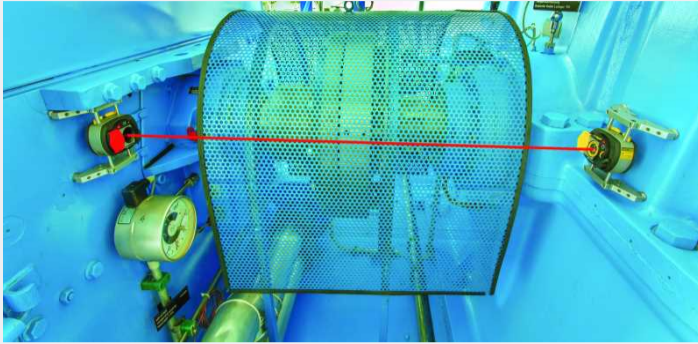
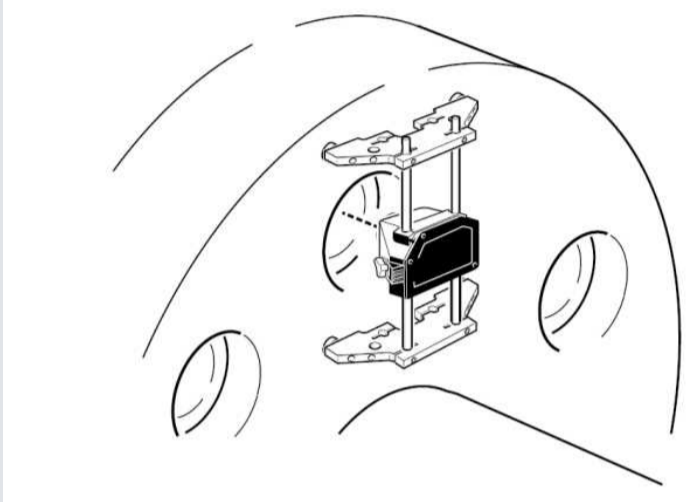

Item No.	Name	Scope of delivery
<b>ALI 2.761 SETIS</b>	Universal magnetic bracket for flanges and bores, set	2 magnetic brackets, pre-assembled with 150 mm posts Hexagon wrench, size 3 Case
<b>ALI 2.761-IS</b>	Universal magnetic bracket for flanges and bores	1 magnetic brackets, pre-assembled with 150 mm posts Hexagon wrench, size 3

In addition, optional accessories and/or individual components are available as spare part:

### Optional accessories

Item No.	Name	Notes	Details
<b>Various</b>	Posts	available in 10 different lengths	p. 335
<b>ALI 2.789</b>	RS5 sensor holder for universal pointer bracket (UPB)	For measurement of concentric components	p. 332
<b>ALI 2.773-xxx</b>	Plungers in different lengths for UPB	Available lengths (xxx): 110, 270, 415, 430, 500 mm For lengths > 110 mm, additional UPB components are required to stabilize the measuring fixture.	

## TECHNICAL INFORMATION

Application	Universal Magnetic Bracket	
<p><b>Live Trend</b></p>		<p>Magnetic bracket mounted on machine housing. Standard bracket for the measurement of positional changes using the Live Trend function.</p>
<p><b>Shaft alignment</b></p>		<p>Magnetic bracket mounted on coupling flange. Laser beam is directed through a bore hole</p> <p>In the case of couplings with respectively large bores, the magnetic bracket can replace the complete chain-type bracket. In this case, the laser beam is directed through a bolt hole. Thus, the sensor system does not protrude over the rim of the coupling.</p>
<p><b>Bore measurement</b></p>		<p>Laser mounted outside of the bore. Laser beam is directed into the bore, but can be rotated by 180°.</p>

**Application****Universal Magnetic Bracket****Bore measurement**

RS5 sensor\* with sensor holder and plunger mounted on magnetic bracket. Adjustment to greater diameters via longer posts.

\* without integrated BT module

An optionally available sensor holder and a matching plunger are required for use as measuring fixture. The magnetic bracket is mounted to the outside of the bore. If space is tight and if used as measuring fixture, the posts can be axially moved towards the front.

**Dimensions**

57 x 163 x 32\* mm (L x W x H)

\*Height with the mounting brackets pushed together; maximum height depending on length of posts

# Magnetic Bracket for Horizontal and Vertical Surfaces

This magnetic bracket is used by default for **Live Trend** measurements. It secures laser and sensor to magnetic surfaces on the machine. For mounting on vertical surfaces, the posts can be mounted offset by 90°.



## Features

- Flexible application
- Quick and easy mounting
- For flat and curved surfaces
- Stable magnetic coupling
- Including posts (115 mm)
- Compatible with current sensor system

## Order information


Item No.	Name	Scope of delivery
<b>ALI 14.310</b>	Magnetic Bracket for Horizontal and Vertical Surfaces	Base body including magnet and 90° adapter Post 115 mm, 2 pcs

In addition, optional accessories and/or individual components are available as spare part:

## Optional accessories

Item No.	Name	Notes	Details
<b>Various</b>	Posts	available in 10 different lengths	p. 335
<b>ALI 2.191</b>	Anti-torsion bridge for 2 posts	for posts with $L \geq 200$ mm	p. 331

## TECHNICAL INFORMATION

Application	Magnetic Bracket for Horizontal and Vertical Surfaces
<b>Live Trend</b>	 <p>Sensor bracket (left) on horizontal, laser bracket on vertical surface.</p>
<b>Dimensions</b>	108 x 50 x 33 mm (L x W x H), without post

## Magnetic Sliding Bracket for Shafts and Flanges

This magnetic bracket is used by default for shaft alignment, if a shaft cannot be rotated. The bracket is mounted on the coupling face or shaft end and shifted along the outer edge for the measurement.



### Features

- Quick and easy mounting
- For diameters > 80 mm [3 1/8"]
- Stable magnetic coupling
- Precise guiding along outer edge
- Including posts (150 mm)
- Compatible with current sensor system

### Order information

Item No.	Name	Scope of delivery
<b>ALI 2.230-1</b>	Magnetic Sliding Bracket for Flanges, Set	Sliding bracket pre-assembled with 150 mm post Hexagon wrench, size 3 Case

In addition, optional accessories and/or individual components are available as spare part:

### Optional accessories

Item No.	Name	Notes	Details
<b>Various</b>	Posts	available in 10 different lengths	p. 335
<b>ALI 2.464</b>	Anti-torsion bridge for 3 and 4 posts	for posts with $L \geq 200$ mm	p. 331

## TECHNICAL INFORMATION

Application	Magnetic sliding bracket	
<b>Shaft alignment</b>		Sliding bracket mounted on coupling flange
<b>Dimensions</b>	70 x 160 x 55 mm (L x W x H), without post	

Note: High surface quality of the face end required for reproducible alignment results.



## Universal Magnetic Sliding Bracket

This bracket can be diversely used for shaft alignment and bore measurements. As measuring fixture, it secures the sensor to the coupling face and can be precisely shifted across the outer edge using the sliding stud. As laser holder, it can be mounted to both sides on a coupling or bore.



### Features

- Face-end mounting on surface area or outer edge
- Quick, easy, and flexible application
- For diameters > 60 mm [2 3/8"]
- Stable magnetic coupling
- Movable sliding studs
- Including posts (150 mm)
- Compatible with current sensor system

### Order information


Item No.	Name	Scope of delivery
<b>ALI 2.220 SET</b>	Universal magnetic sliding bracket for flanges and bores, set	Sliding bracket pre-assembled with 150 mm post Hexagon wrench, size 3 Case
<b>ALI 2.220</b>	Universal magnetic sliding bracket for flanges and bores	Sliding bracket pre-assembled with 150 mm post

In addition, optional accessories and/or individual components are available as spare part:

### Optional accessories

Item No.	Name	Notes	Details
<b>Various</b>	Posts	available in 10 different lengths	p. 335
<b>ALI 2.789</b>	RS5 sensor holder for uni-versal pointer bracket (UPB)	Sensor holder for bore measurements with pointer method.	p. 332
<b>ALI 2.773-xxx</b>	Plungers in different lengths for UPB	Available lengths (xxx): 110, 270, 415, 430, 500 mm For lengths > 110 mm, additional UPB components are required to stabilize the measuring fixture.	---

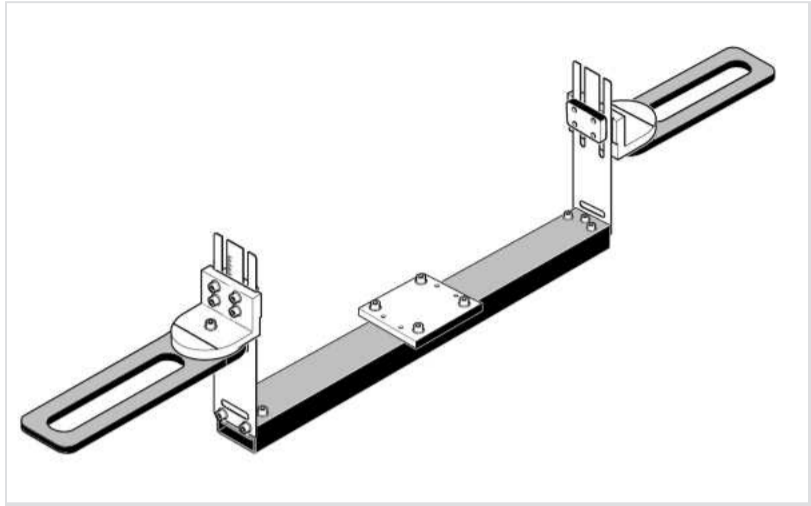
## TECHNICAL INFORMATION

Application	Universal sliding bracket	
<p><b>Shaft alignment</b></p>		<p>Sliding bracket mounted on coupling flange</p>
<p><b>Bore measurement with pointer method</b></p>		<p>RS5 sensor* with sensor holder and plunger mounted on magnetic bracket. Adjustment to greater diameters via longer posts.</p> <p>Using the pointer method, offset, eccentricity, and damage (Dents, notches, etc.) of the bore can be detected. The sliding method provides offset information only.</p> <p>* without integrated BT module</p>
<p><b>Dimensions</b></p>	<p>60 x 160 x 55 mm (L x W x H), without posts</p>	

Note: High surface quality of the face end required for reproducible alignment results.

## CENTRALIGN Mounting Bridge

The CENTRALIGN mounting bridge is used as holder for the laser and control sensor during turbine measurements. It can be easily adjusted to the diameters and mounting bores on the turbine shell.



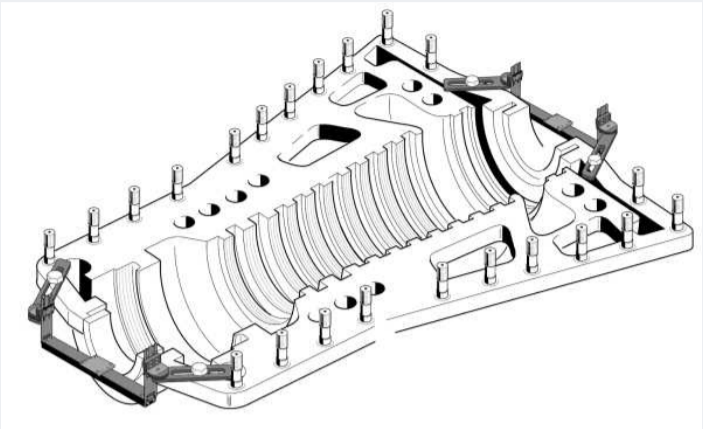

### Features

- For open turbine configuration (tops-off)
- Stable holder for laser and control sensor
- Range adjustable
- Mounting in existing bores on the half-shell
- Delivery in practical transport case

### Order information

Item No.	Name	Scope of delivery
<b>ALI 3.241-075 SET</b>	CENTRALIGN mounting bridge, nominal width 750 mm	One mounting bridge (ALI 3.231-075) in case
<b>ALI 3.241-100 SET</b>	CENTRALIGN mounting bridge, nominal width 1000 mm	One mounting bridge (ALI 3.231-100) in case
<b>ALI 3.242-075 SET</b>	CENTRALIGN mounting bridge, nominal width 750 mm	Two mounting bridges (ALI 3.231-075) in case
<b>ALI 3.242-100 SET</b>	CENTRALIGN mounting bridge, nominal width 1000 mm	Two mounting bridges (ALI 3.231-100) in case
<b>ALI 3.231-200</b>	CENTRALIGN mounting bridge, nominal width 2000 mm	One mounting bridge without case

## TECHNICAL INFORMATION

Application	CENTRALIGN Mounting Bridge	
Measurement of turbines (tops-off)		<p>The two outer rails can be arbitrary rotated to adjust the mounting bridge to the diameters for the turbine half shell and the bore positions.</p>
Bracket for laser and control sensor		

### Dimensions in mm / [inch"]

Mounting bridge	Nominal	Minimum	Maximum
ALI 3.231-075	750 [29 1/2"]	210 [8 1/4"]	1490 [58 11/16"]
ALI 3.231-100	1000 [39 3/8"]	460 [18 1/8"]	1740 [68 1/2"]
ALI 3.231-200	2000 [78 3/4"]	1460 [57 1/2"]	2740 [107 7/8"]

## Universal Mounting Bridge

This mounting bridge can be diversely used for bore measurements. It is light-weight, consists of a few individual components only and can be quickly mounted using magnetic clamping feet. The universal mounting bridge can be used as laser/sensor holder or as measuring fixture for large half-shells.



### Features

- Light-weight aluminum construction
- For bore diameters from 120 to 900 mm [4 3/4" to 35 7/16"]
- Adjustable magnetic clamping feet
- Adjustable support post holder
- Can be used as holder or measuring fixture

### Order information

Item No.	Name	Scope of delivery
<b>ALI 2.715</b>	Universal Mounting Bridge	Aluminum rail 40x40x1000 mm Clamping bracket for magnetic foot, 2x Support post holder, ALI 2.718

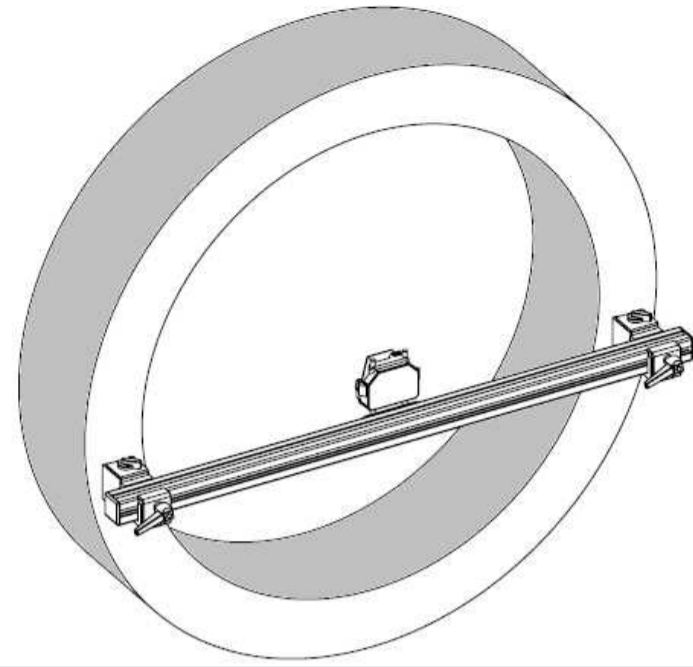
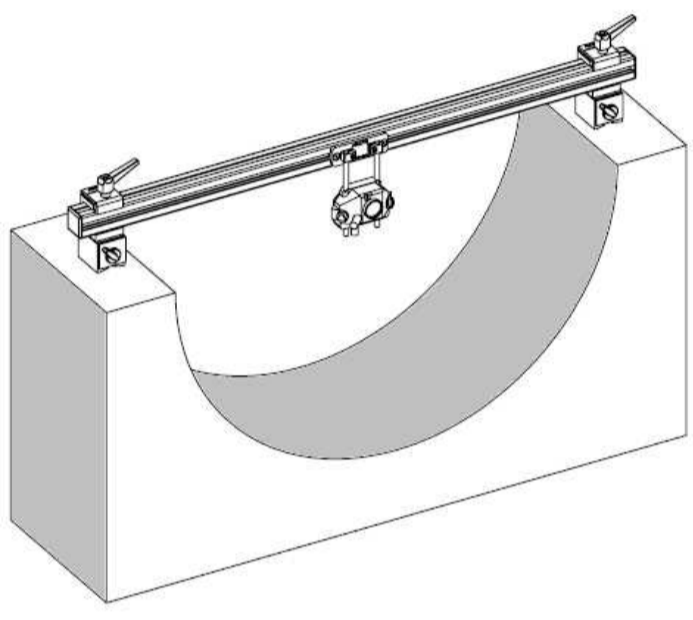
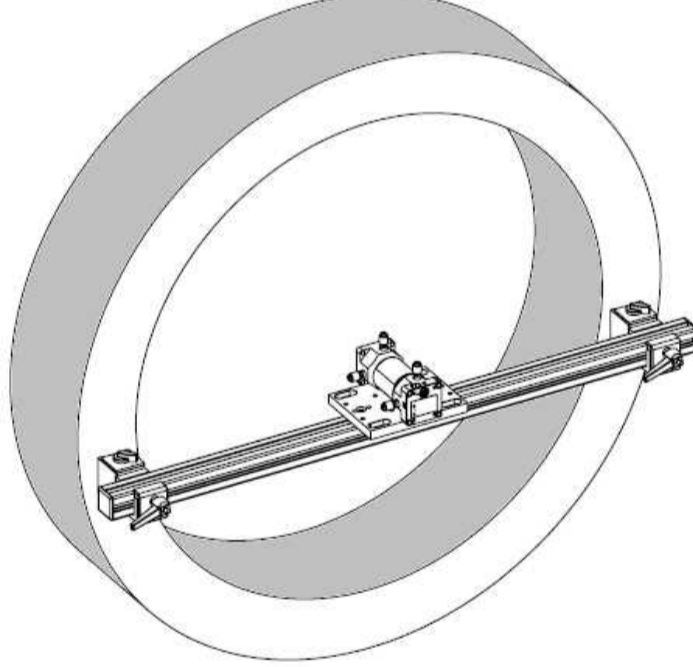
In addition, optional accessories and/or individual components are available as spare part:

### Optional accessories

Item No.	Name	Notes	Details
<b>Various</b>	Posts	Accessory item available in 10 different lengths	p. 335
<b>ALI 2.717</b>	Aluminum rail 40x40x1000 mm	Spare part	
<b>ALI 2.716</b>	Clamping bracket for magnetic foot	Spare part	
<b>ALI 2.718</b>	Support post holder	Spare part	

## TECHNICAL INFORMATION

Application	Universal mounting bridge	
<b>Bore measurement</b>		<p>Bracket for universal pointer bracket (UPB) on open half-shells or smaller turbines (tops-off). This requires the following components:</p> <ul style="list-style-type: none"> <li>ALI 2.171 - Posts 150 mm, 2x</li> <li>ALI 2.789 - RS5 Sensor holder, UPB</li> <li>ALI 2.773-xxx - Plunger xxx mm long</li> <li>ALI 2.772 - Plunger guide plate</li> <li>ALI 2.766 - Extension post for plunger guide plate, 3x</li> </ul>

Application	Universal mounting bridge	
<p><b>Bracket for laser / control sensor</b></p>	 	<p>Laser/control sensor can be mounted outside the bore or on the half shell.</p> <p>This requires the following components:</p> <p>ALI 2.171 - Posts 150 mm, 2x</p>
<p><b>Bracket for long range laser</b></p>		<p>The mounting components are included in the scope of delivery of the laser.</p>
<p><b>Dimensions</b></p>	<p>40 x 40 x 1000 mm [ 1 9/16" x 1 9/16" x 39 3/8" ] (W x H x L)</p>	

## PERMAFIX Bracket

This mechanical bracket is used for **Live Trend** measurements. It secures laser and sensor to the machine housing. Two ball joints enable alignment of the measuring components in nearly every direction. The posts can be mounted in the attachment unit offset by 90°.



### Features


- Bolted mounting
- Two ball joints for flexible alignment
- For magnetic and non-magnetic surfaces
- Including posts (115 mm)
- Compatible with current sensor system

### Order information

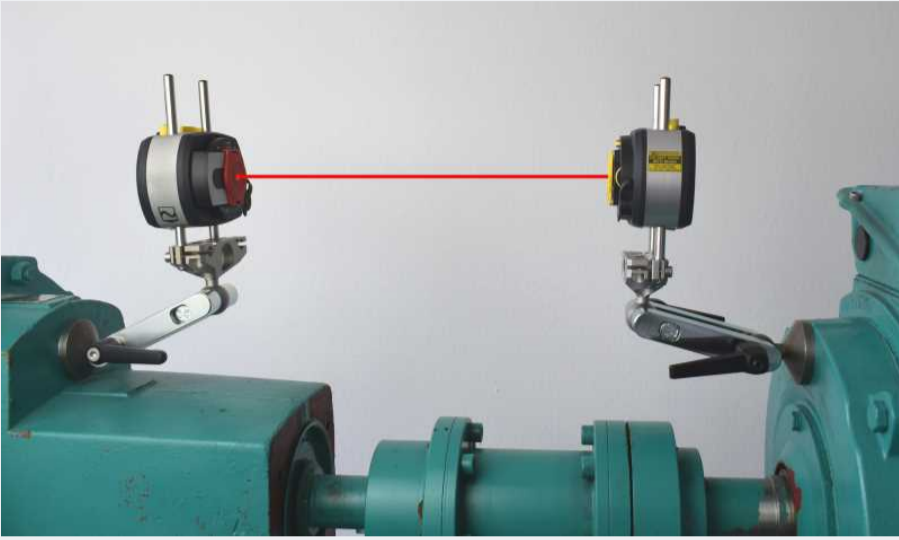
Item No.	Name	Scope of delivery
<b>ALI 2.190</b>	PERMAFIX Bracket	Bracket including attachment unit and mounting head Post 150 mm, 2 pcs

In addition, optional accessories and/or individual components are available as spare part:

### Optional accessories

Item No.	Name	Notes	Details
<b>Various</b>	Posts	available in 10 different lengths	p. 335
<b>ALI 2.191</b>	Anti-torsion bridge for 2 posts	for posts with $L \geq 200$ mm	p. 331
<b>ALI 2.194</b>	Striking cone with accessories	Tool for fastening the PERMAFIX bracket to the machine housing, includes: <ul style="list-style-type: none"> <li>• Striking cone (see figure)</li> <li>• Twist drill 4,2</li> <li>• Tap drill HSS M5</li> <li>• Hexagon wrench, size 3 and 4</li> </ul>	

## TECHNICAL INFORMATION

Application	PERMAFIX bracket	
<b>Live Trend</b>		Sensor and laser each mounted to machine housing with PERMAFIX.
<b>Dimensions</b>	180 x 150 x 50 mm (L x W x H), without post	



## Universal Pointer Bracket - UPB

This bracket is used to measure alignment and roundness of concentric components, such as bearing channels or cylinder bores. It is suitable for bores made of magnetic as well as non-magnetic material.



### Features

- High-quality mechanical components for high measuring accuracy
- Can be used in nor or on front face
- For magnetic and non-magnetic bores
- Standard equipment for diameters up to 400 mm [15 3/4"]
- Optionally extensible for diameters up to 810 mm [31 7/8"]
- Compatible with current sensor system


### Order information

Item No.	Name
ALI 2.719	UPB - universal pointer bracket for RS5 sensor
ALI 2.760 SET	UPB extension set for diameters up to 810 mm, magnetic and non-magnetic


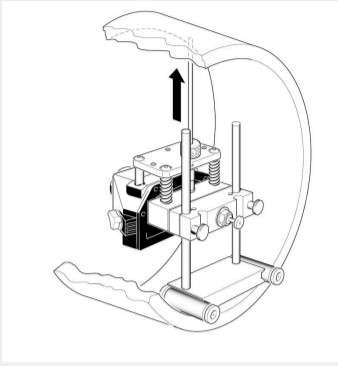
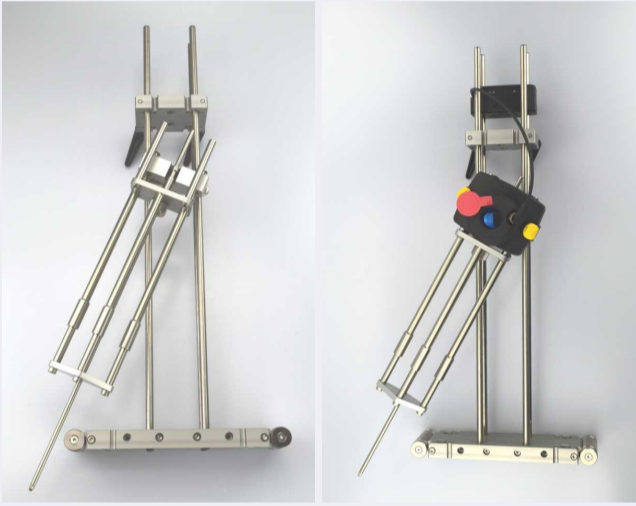
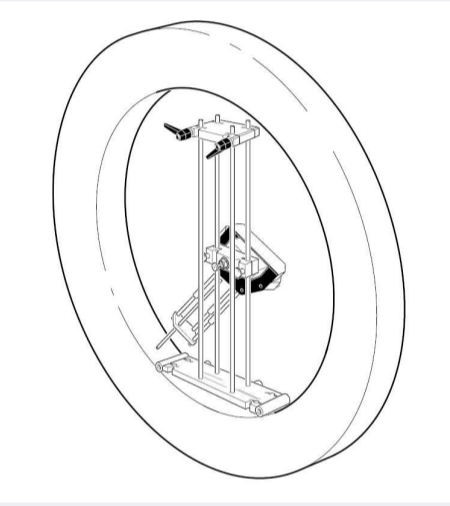

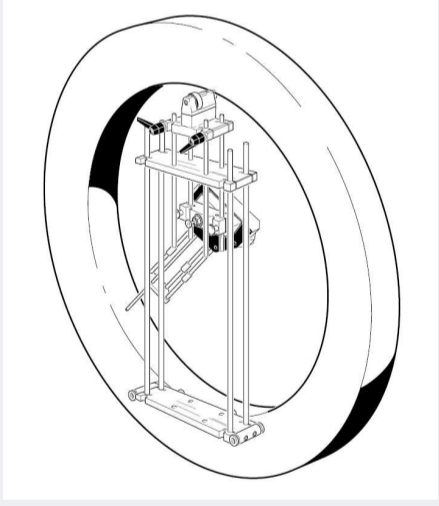
### Scope of delivery - UPB, ALI 2.719

Item No.	Name	Quantity
ALI 2.789	RS5 sensor holder for universal pointer bracket (UPB)	1
ALI 2.773-270	Plunger, 270 mm	1
ALI 2.783-S	Universal mounting bridge with sliding studs, small	1
ALI 2.173	Post 250 mm, green	2
Overview		

**Scope of delivery - UPB extension set, ALI 2.760 SET**

Item No.	Name	Quantity
ALI 2.171	Post 150 mm, black	2
ALI 2.172	Post 200 mm, gray	2
ALI 2.173	Post 250 mm, green	4
ALI 2.174	Post 300 mm, yellow	4
ALI 2.175	Post 350 mm	4
ALI 2.177	Post 70 mm	2
ALI 2.178	Post 400 mm	4
ALI 2.179	Post 495 mm	4
ALI 2.2117	Post 100 mm	4
ALI 2.766	Extension post plunger guide plate, UPB	3
ALI 2.772	Plunger guide plate, UPB	1
ALI 2.773-415	Plunger, 415 mm	1
ALI 2.777-255	Stabilizing post, 255 mm, UPB	4
ALI 2.777-500	Stabilizing post, 500 mm, UPB	4
ALI 2.782-1	Clamping bridge, UPB	1
ALI 2.782-2	Eccentric head, UPB	1
ALI 2.782-3	Adapter, UPB	1
ALI 2.783-M	Universal mounting bridge with sliding studs, medium, UPB	1
ALI 2.783-P	Bore surface protector for universal mounting bridge, UPB (set of 4x magnet protectors and 6x sleeves)	1
ALI 2.784-M	Intermediate mounting bridge, medium, UPB	1
---	Hexagon wrench, size 3 and size 4	1 each
ALI 3.889	Case	1
<b>Overview, without case</b>		

## TECHNICAL INFORMATION

Bore	UPB - universal pointer bracket	
<p><b>Magnetic,</b> <b>D: 120...400 mm</b></p>		
	<p>The UPB can be placed in the bore or on the front face. Strong magnets secure the UPB; two sliding studs provide additional support for the measuring fixture when mounted outside of the bore.</p>	<p>The measuring probe is lowered onto the surface and moves the sensor into measuring position.</p>
<p><b>Magnetic,</b> <b>D: ≤ 810 mm</b></p>		
	<p>Additional components extend the area of application of the UPB to bores with larger diameter.</p>	<p>The measuring probe and sensor bracket are stabilized using additional components.</p>
<p><b>Non-magnetic,</b> <b>D: ≤ 810 mm</b></p>		
	<p>In the case of non-magnetic surfaces, the UPB is mechanically secured in the bore using the universal mounting bridge and the mounting bridge with eccentric head.</p>	<p>The UPB is mechanically secured on the front face of the bore. The sliding studs on the eccentric head and the universal mounting bridge are used as pads.</p>

## Floor stand with rotatable sensor holder

With this holder, reference markings on the floor can be precisely measured. The rotating holder is used for mounting and positioning the LEVALIGN Expert sensor on the object to be measured.



### Features

- Robust design
- Stable 3-point support
- Sensor holder rotatable by 360 °
- Leveling on the object with thumbscrews and bubble levels
- Fast, easy and flexible use
- Including posts (150 mm)

### Ordering information

Item No.	Name	Scope of delivery
ALI 6.967	LEVALIGN expert floor stand with rotatable sensor holder	Floor stand preassembled with sensor holder and posts 150 mm

The following accessories are required to mount the LEVALIGN expert sensor:

### Optional accessories

Item No.	Name	Details
ALI 6.966	LEVALIGN expert sensor holder for posts 8 mm	p. 332

## TECHNICAL INFORMATION

### Mounting

Floor stand with rotatable sensor holder, ALI 6.967		
Mounting example		LEVALIGN expert sensor mounted on sensor holder.
Dimensions	140 x 150 x 170 mm [ 5 1/2" x 5 7/8" x 6 11/16" ]	(L x W x H), without posts
Weight	approx. 2.2 kg [ 77,6 oz ]	

## Tripod stand for LEVALIGN Laser

With this industrial tripod stand, the LEVALIGN Expert Laser can be set up quickly and stably. The laser can be mounted in two planes perpendicular to each other.



### Features

- Vertical and horizontal mounting of the laser
- High quality workmanship
- Large adjustment range
- Adapter for ground-level installation
- Manually adjustable center column with self-braking gear transmission
- Mounting adapter for LEVALIGN Ultra Laser (accessory)
- Robust transport case.



### Ordering information

Item No.	Name	Scope of delivery
ALI 6.960	LEVALIGN tripod set	Tripod stand incl. case and tripod adapter
ALI 6.956	Tripod stand for LEVALIGN Laser	Tripod stand w/out case and tripod adapter

### Optional accessories

Item No.	Name	Notes
ALI 6.957	LEVALIGN tripod case	Case for transport and storage
ALI 6.958	LEVALIGN Expert Laser tripod adapter	Adapter for ground-level installation



Item No.	Name	Notes
<b>ALI 6.968</b>	LEVALIGN Expert Laser offset adjustment slide 	Adjust the laser beam to an axis of rotation (e.g. shaft / bore alignment)
<b>ALI 6.959</b>	LEVALIGN Ultra laser mounting plate for tripod 	Adapter for LEVALIGN Ultra laser

## TECHNICAL INFORMATION

### Technical data

Parameter	Tripod stand for LEVALIGN Laser, ALI 6.956
Transport length	101 cm [39 3/4"]
Weight	12 kg [ 423.3 oz ]

### Mounting options

Laser mounted ...	... vertically on center column	... horizontally on center column
Illustration		
H: laser - ground	115 cm ... 214 cm [45 1/4" ... 84 1/4" ]	99 cm ... 198 cm [39 " ...77 15/16" ]

Laser mounted ...	... vertically on tripod adapter	... horizontally on tripod adapter
Illustration		
H: laser - ground	49 cm ... 95 cm [19 5/16" ... 37 3/8" ]	31.5 cm ... 77.5 cm [12 3/8" ...30 1/2" ]

Laser mounted ...	... on offset slide	Application
Illustration		
	Max. offset: 80 mm .[ 3 1/8" ]	Alignment of rotational axes

Laser mounted ...	... horizontally	... vertically
Illustration		



## Rotatable Magnetic Bracket

This bracket is used as holder for the **sensALIGN sensor** for flatness measurements. The rotating function of the bracket facilitates the adjustment of the **LEVALIGN Ultra iS laser** to the detector areas in the sensor.



### Features

- Simplified laser adjustment when the LEVALIGN Ultra iS laser is used.
- Stable mounting on the measuring surface using magnetic coupling or 3-point mounting base.
- Sensor attachment with posts (not included in scope of delivery)


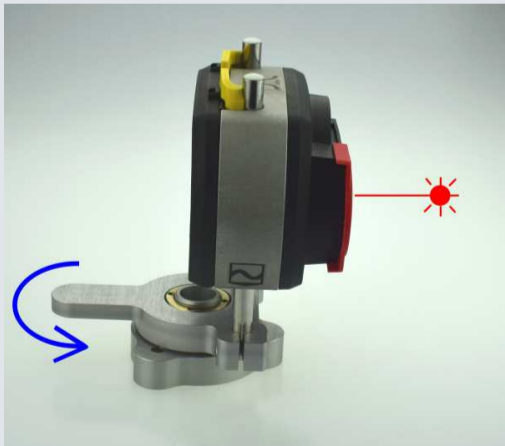
### Order information

Item No.	Name
ALI 6.954	Rotatable magnetic bracket for flatness measurements

### Optional accessories

Item No.	Name	Notes	Details
Various	Posts	available in 10 different lengths	p. 335

## TECHNICAL INFORMATION

Typical laser adjustment sequence	
#1	 <p>Center laser on rear side of laser</p>
#2	 <p>Turn bracket by 180° -&gt; Laser beam hits both detector areas</p>

## Anti-torsion Bridges

Anti-torsion bridges are used to stabilize the setup of retaining and measuring fixtures with long posts ( $L > 200$  mm).

### Order information

Item No.	Figure	Name	Application
ALI 2.191		Anti-torsion bridge for 2 posts	Shaft alignment and Live Trend measurements
ALI 2.778		Anti-torsion bridge for universal pointer bracket, UPB	Measurement of concentric components
ALI 2.463		Anti-torsion bridge for 3 posts	Alignment of cardan shafts and shafts with large diameter
ALI 2.464		Anti-torsion bridge for 3 and 4 posts	Shaft alignment with magnetic sliding bracket

## Mounting Adapters

Mounting adapters are used for fastening measuring components on different brackets.

### Order information

Item No.	Figure	Name	Notes
ALI 6.966		LEVALIGN Expert sensor holder for posts 8 mm	including posts, 250 mm;
			Sensor holder can be rotated by 90°, enables vertical and horizontal mounting
ALI 3.194-IS		Universal mounting adapter with two holding positions for laser and sensor	including M8 screw and 2 posts, 100 mm
ALI 4.500		Magnetic foot	For magnetic surfaces with flat and curved profile (e.g., shaft) Magnetic force can be activated via rotary switch M8 thread for mounting of holding fixtures Weight: approx. 1 kg
ALI 2.789		RS5 sensor bracket for universal pointer bracket (UPB)	Application: Bracket for RS5 sensor in connection with UPB measuring fixture and universal magnetic bracket.

# Plunger for Flatness Measurement

This measuring probe is used for surface scanning.



## Features

- Point scanning of surface
- Stable mounting using magnetic foot ALI 4.500
- Compatible with Universal Mounting Adapter ALI 3.194-IS

## Order information

Item No.	Name
ALI 6.773	Flatness Plunger

## Optional accessories

Item No.	Name	Notes	Details
ALI 3.194-IS	Universal mounting adapter with two mounting positions for laser and sensor.	is used as a sensor holder in flatness measurement applications	p. 332
Various	Posts	available in 10 different lengths	p. 335
ALI 4.500	Magnetic foot	For stable mounting of the entire measuring fixture on the measuring surface	p. 332

## TECHNICAL INFORMATION

### Typical measuring fixture setup



Plunger mounted on magnetic foot



Universal mounting adapter mounted on plunger



RS5 sensor mounted on universal mounting adapter

## Posts

Posts are used for mounting measuring components on different brackets.



### Features

- Stainless steel tubes in different lengths
- Stable and resistant to bending
- Colored end caps
- Wall thickness: 1 mm
- Diameter: 8 mm

### Order information

The following posts are available as accessory item or spare part:

Item No.	Name	Notes	Details
ALI 2.2117	Post 100 mm [3 15/16"]	black end caps	
ALI 2.170	Post 115 mm [4 1/2"]	white end caps	
ALI 2.171	Post 150 mm [5 7/8"]	black end caps	
ALI 2.172	Post 200 mm [7 7/8"]	gray end caps	
ALI 2.173	Post 250 mm [9 13/16"]	green end caps	
ALI 2.174	Post 300 mm [11 13/16"]	yellow end caps	
ALI 2.175	Post 350 mm [13 3/4"]	black end caps	
ALI 2.177	Post 70 mm [2 3/4"]	black end caps	
ALI 2.178	Post 400 mm [15 3/4"]	black end caps	
ALI 2.179	Post 495 mm [19 1/2"]	black end caps	

Note: An anti-torsion bridge is required for posts longer than 200 mm.

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# Shims

<b>LAMIBLOC Laminated Shims .....</b>	<b>336</b>
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## LAMIBLOC Laminated Shims

LAMIBLOC laminated shims are used wherever precise and flexible corrections are required and conventional sizes are just not enough. 20 of these 0.05 mm laminated shims are flat-rolled into a 1 mm package for easy handling. Using a peeling knife, the thickness required for corrections can be quickly and conveniently prepared.

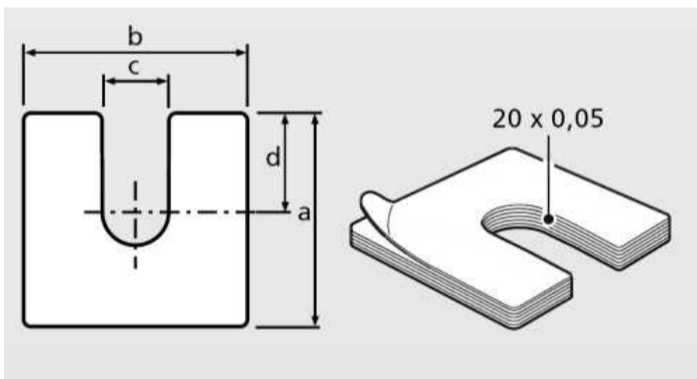


### Features

- High-quality stainless steel
- Resistant to corrosion, acids, and lyes
- Deburred edges and rounded corners for safe handling
- 9 different sizes
- Space-saving cardboard packaging

### Order information

LAMIBLOC laminated shims are available in the following dimensions:



Item No.	Dimensions in mm				PU*
	a	b	c	d	
ALI 2.521	43	43	22	12	10
ALI 2.522	53	53	27	14	10
ALI 2.523	68	68	34	16	10
ALI 2.524	98	98	49	20	10
ALI 2.525	118	118	59	30	10
ALI 2.526	200	200	100	36	10
ALI 2.527	300	200	240	36	10
ALI 2.528	400	200	330	36	10
ALI 2.529	1000	500	Rectangular sheet stock for custom shims		1

\* PU: Packaging unit



## Software for Alignment Systems

<b>ARC 4.0 - ALIGNMENT RELIABILITY CENTER 4.0</b> .....	<b>338</b>
<b>ALIGNMENT CENTER</b> .....	<b>339</b>
<b>GEO CENTER</b> .....	<b>341</b>
<b>INCLINEO - Technical Data</b> .....	<b>351</b>
<b>LEVALIGN expert - Technical Data</b> .....	<b>352</b>
<b>LEVALIGN Ultra - Technical Data</b> .....	<b>353</b>

## ARC 4.0 - ALIGNMENT RELIABILITY CENTER 4.0

ALIGNMENT RELIABILITY CENTER 4.0 (ARC 4.0) is a newly developed software platform for PRÜFTECHNIK alignment systems.



### Features

- Manage plants with an asset orientated machinery management
- Real-time communication via cloud to ROTALIGN touch
- Monitor the history and trend of the alignment status of assets
- Analyze measurement data in detail and report
- Consideration of bearing types and suggestion of adequate measurement modes
- Library with customizable templates for assets, couplings, industrial couplings tolerances, measurement modes and reports
- Coupling type optimized tolerances

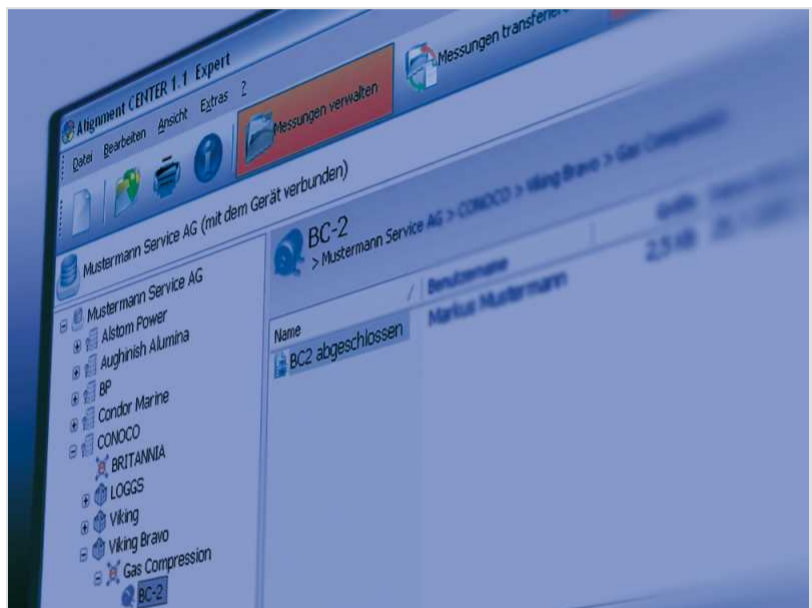
### Order information

Item No.	Name
<b>ALI 17.000-4</b>	ARC 4.0, OPTALIGN smart device activation
<b>ALI 17.000-7</b>	ARC 4.0, ROTALIGN Ultra device activation
<b>ALI 17.000-21</b>	ARC 4.0, SHAFTALIGN device activation
<b>ALI 17.000-50</b>	ARC 4.0, ROTALIGN touch device activation

Note: The scope of supply includes a USB pendrive with the software, a license document and the operating instructions in PDF format.

## ALIGNMENT CENTER

ALIGNMENT CENTER is a software platform for PRÜFTECHNIK measuring systems. The Windows-based application helps you with many of the tasks involved in shaft alignment and geometrical measurements on machines, such as management of asset data, analysis and archiving of measurement results as well as documentation of the work performed.



### Features

- Prepares measurement tasks on the PC
- Considers targets, tolerances, thermal growth
- Organizes administrative information (plant, machine, user, ...)
- Analyzes measurement results
- Archives measurement files.
- Measurement reports includes company logo and information about the company

### Order information

Item No.	Name
<b>ALI 13.000-1</b>	ALIGNMENT CENTER, ALIGNEO device activation
<b>ALI 13.000-2</b>	ALIGNMENT CENTER, OPTALIGN PLUS device activation
<b>ALI 13.000-3</b>	ALIGNMENT CENTER, smartALIGN device activation
<b>ALI 13.000-4</b>	ALIGNMENT CENTER, OPTALIGN smart device activation
<b>ALI 13.000-5</b>	ALIGNMENT CENTER, ROTALIGN device activation
<b>ALI 13.000-6</b>	ALIGNMENT CENTER, ROTALIGN PRO device activation
<b>ALI 13.000-7</b>	ALIGNMENT CENTER, ROTALIGN Ultra device activation
<b>ALI 13.000-9</b>	ALIGNMENT CENTER, INCLINEO device activation
<b>ALI 13.000-11</b>	ALIGNMENT CENTER, PERMALIGN device activation
<b>ALI 13.000-21</b>	ALIGNMENT CENTER, SHAFTALIGN device activation

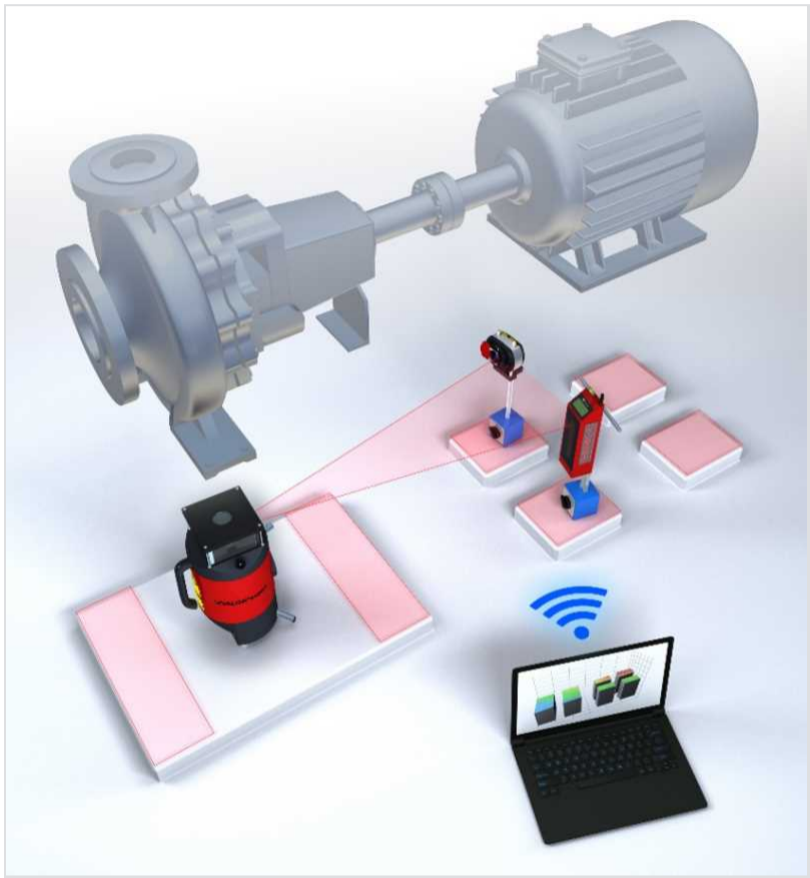
Notes: The scope of supply includes a USB pendrive with the software, a license document and the operating instructions in PDF format. The functionality of the software can be enhanced through the Professional function upgrades.

## Function Upgrades

Item No.	Name	Features
<b>ALI 13.500</b>	ALIGNMENT CENTER, Professional Shaft	<ul style="list-style-type: none"> <li>- Measurement post processing with ellipse representations</li> <li>- Analyse measurements taken with sensALIGN sensor</li> <li>- Analyse measurements taken with ROTALIGN sensor (ROALIGN Ultra system)</li> <li>- Vibration measurements accessible via UI and report</li> </ul>
<b>ALI 13.510</b>	ALIGNMENT CENTER, Professional Geometric	Compare assistant: <ul style="list-style-type: none"> <li>- Parallelism or surface comparison</li> <li>- Sensor direction</li> <li>- Flatness &amp; Straightness</li> </ul>
<b>ALI 13.520</b>	ALIGNMENT CENTER, Professional Reporting	<ul style="list-style-type: none"> <li>- Customized machine image option for Shaft Alignment</li> <li>- Application background picture</li> <li>- Ellipse</li> <li>- Result as Dial gauge values</li> <li>- Used Shims</li> <li>- Signature</li> <li>- Header and Footer</li> <li>- Modification of pictures</li> </ul>
<b>ALI 13.530</b>	ALIGNMENT CENTER, Professional Bore alignment	<ul style="list-style-type: none"> <li>- Control sensor</li> <li>- Splice function</li> <li>- LIVE Move on two planes</li> <li>- Turbine specific corrections</li> <li>- Rotor Sag</li> <li>- Machine and subassembly presets</li> <li>- Rotor position before overhaul</li> </ul>
<b>ALI 13.540</b>	ALIGNMENT CENTER, Professional Live Monitoring	<ul style="list-style-type: none"> <li>- Live Monitoring for more than one coupling</li> </ul>

# GEO CENTER

GEO CENTER is a newly developed software platform for geometrical measurements of straightness, flatness, parallelism and inclination in the industrial sector. Using the software, the measurements are performed directly from the laptop PC. No additional operating element is required. The software offers connection flexibility and can be used with different PRÜFTECHNIK laser and sensor components depending on the measurement task.



GEO CENTER communicates directly with the measuring components via Bluetooth.

## Features

- One software solution for measurements of straightness, flatness, inclination, and parallelism
- Direct measurement on laptop
- Flexible connection of measuring components
- Remote control enables "one-man operation"
- User-friendly operation
- Direct Bluetooth communication between sensor system and laptop
- Different measurement modes for straightness measurements: Line, bore, spindle, spindle & bore
- Free software updates
- Custom add-on packages with measuring components

## Order information

Item No.	Name
<b>ALI 13.200-USB</b>	USB pen drive with GEO CENTER application, documentation, and activation code

Notes: After installation, GEO CENTER runs in demo mode with some functional limitations. For the full scope of functions, the software must be unlocked using an activation code. This license is already included in the scope of delivery of the USB pen drive.

GEO CENTER is also available on the PRÜFTECHNIK homepage. In this case, the license must be requested from PRÜFTECHNIK for a fee.

**Laser and sensor system connection and possible measurement tasks**

Laser system		Sensor system		
		sensALIGN Sensor	LEVALIGN expert Sensor	INCLINEO
				
sensALIGN Laser			---	---
LEVALIGN expert Laser				---
LEVALIGN Ultra iS Laser			---	---
Long Range Laser			---	---
---		---	---	

 : Straightness |  : Flatness |  : Inclination |  : Parallelism


\* Line parallelism | \*\* Surface parallelism, together with PENTALIGN pentaprism

## Optional accessories

Measuring components and fixtures are available for GEO CENTER in the following optional packages:

Item No.	Name
<b>ALI 13.211</b>	<p><b>GEO LEVALIGN expert - Standalone</b></p> <p>Target group: Users without a compatible PRÜFTECHNIK measuring system, who would like to perform straightness and flatness measurements.</p>
<b>ALI 13.212</b>	<p><b>GEO LEVALIGN expert - Add-on</b></p> <p>Target group: Users, who already have a PRÜFTECHNIK measuring system with sensALIGN sensor system, who would like to perform straightness and flatness measurements.</p>
<b>ALI 13.221</b>	<p><b>GEO INCLINEO</b></p> <p>Target group: Users without a compatible PRÜFTECHNIK measuring system, who would like to perform inclination measurements.</p>
<b>ALI 13.231</b>	<p><b>GEO LEVALIGN Ultra - Standalone</b></p> <p>Target group: Users without a compatible PRÜFTECHNIK measuring system, who would like to perform straightness and flatness measurements.</p>
<b>ALI 13.232</b>	<p><b>GEO LEVALIGN Ultra - Add-on</b></p> <p>Target group: Users, who already have a PRÜFTECHNIK measuring system with sensALIGN sensor system, who would like to perform straightness and flatness measurements.</p>
<b>ALI 4.120-IS</b>	<p><b>Long Range Laser 635nm, Set</b></p> <p>Target group: Users, who already have a PRÜFTECHNIK measuring system with sensALIGN sensor system, who would like to perform straightness measurements over long distances (&lt; 50 m).</p>
<b>ALI 6.949-IS</b>	<p><b>PENTALIGN, Set</b></p> <p>Target group: Users, who already have a PRÜFTECHNIK measuring system with sensALIGN sensor system, who would like to measure parallelism.</p>
<b>ALI 6.950</b>	<p><b>PENTALIGN without adjustment sensor, Set</b></p> <p>Target group: Users, who already have a PRÜFTECHNIK measuring system with sensALIGN sensor system, who would like to measure parallelism.</p>

**Scope of delivery - GEO LEVALIGN expert - Standalone - ALI 13.211**

Item No.	Name	Details
ALI 6.930-LIB	LEVALIGN expert laser with wireless data transmission (Bluetooth)	p. 352
ALI 6.960-LI	Battery charger for LEVALIGN expert Laser, International	p. 352
ALI 6.940	LEVALIGN expert Sensor	p. 352
ALI 6.985	Case for LEVALIGN expert (wireless / BT)	---
ALI 4.501-IS	Magnetic Foot Holder for Laser and Sensor	
ALI 6.966	LEVALIGN Expert sensor holder for posts 8 mm	
ALI 2.778	Anti-torsion bridge for universal pointer bracket, UPB	
ALI 2.173	Post 250 mm, 2 pcs	
0 0739 1056	Hexagon wrench, DIN 911, size 3	---
ALI 2.911	Cleaning cloth	---
ALI 17.454	USB pen drive with GEO documentation	---
ALI 9.613.DG	Inspection certificate for LEVALIGN expert Laser	---
ALI 9.614.DG	Inspection certificate for LEVALIGN expert Sensor	---
ALI 3.589	Tape measure, mm/inch	---
DOC 69.100	Quick reference guide, Menu settings for LEVALIGN expert laser	
DOC 06.800	Operating instructions, Getting started with LEVALIGN expert	
<b>Overview of the measuring fixture for LEVALIGN expert Sensor</b>		
		
	Single parts (left); magnetic foot holder with LEVALIGN expert sensor mounted (center and right). Sensor holder ALI 6.966 is required for mounting the sensor to the posts.	



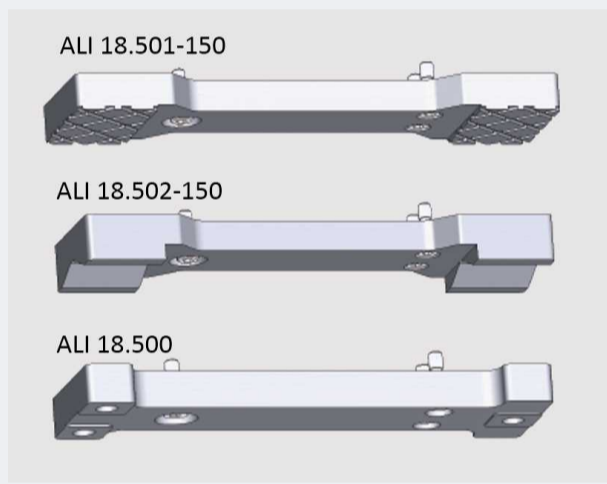
**Scope of delivery - GEO LEVALIGN expert - Add-on - ALI 13.212**

Item No.	Name	Details
ALI 6.930-LIB	LEVALIGN expert laser with wireless data transmission (Bluetooth)	p. 352
ALI 6.960-LI	Battery charger for LEVALIGN expert Laser, International	p. 352
ALI 6.985	Case for LEVALIGN expert (wireless / BT)	---
ALI 4.501-IS	Magnetic Foot Holder for Laser and Sensor	
ALI 6.773	Plunger for flatness measurement	
ALI 2.778	Anti-torsion bridge for universal pointer bracket, UPB	
ALI 2.173	Post 250 mm, 2 pcs	
0 0739 1056	Hexagon wrench, DIN 911, size 3	---
ALI 2.911	Cleaning cloth	---
ALI 17.454	USB pen drive with GEO documentation	---
ALI 9.613.DG	Inspection certificate for LEVALIGN expert Laser	
ALI 3.589	Tape measure, mm/inch	
DOC 69.100	Quick reference guide, Menu settings for LEVALIGN expert laser	
DOC 06.800	Operating instructions, Getting started with LEVALIGN expert	
<b>Overview of the measuring fixture for sensALIGN-Sensor</b>		
		
	Single parts (left); magnetic foot holder for sensor assembled for surface measurement (center) and point scanning (right)	

**Scope of delivery - GEO INCLINEO - ALI 13.221**

Item No.	Name	Details
<b>ALI 18.200</b>	INCLINEO precision inclinometer with 3-point mounting base	p. 351
<b>ALI 18.501-150</b>	Grooved mounting base for flat surfaces	---
<b>ALI 18.502-150</b>	Prism-shaped mounting base for curved surfaces (e.g., shafts, rollers)	---
<b>0 0621 0038</b>	Screwdriver, PH1x35	---
<b>0 0739 1056</b>	Hexagon wrench, DIN 911, size 3	---
<b>90022</b>	AA battery 1.5V; 4 pcs	---
<b>ALI 18.800</b>	INCLINEO standard case	---
<b>ALI 17.454</b>	USB pen drive with GEO documentation	---
<b>ALI 13.620</b>	USB dongle for Bluetooth PC data communication	---
<b>ALI 18.290</b>	INCLINEO calibration certificate	---
<b>ALI 9.182</b>	INCLINEO pocket guide	---

**Overview, mounting bases for INCLINEO inclinometer ---**



Mounting bases for flat (left) and curved (center) surfaces. The 3-point mounting base (right) can be used universally and is already pre-assembled on the INCLINEO inclinometer.

**Scope of delivery - GEO LEVALIGN Ultra - Standalone - ALI 13.231**

<b>Item No.</b>	<b>Name</b>	<b>Details</b>
<b>ALI 6.910-IS</b>	LEVALIGN laser, 635 nm	p. 353
<b>ALI 4.501-IS</b>	Magnetic Foot Holder for Laser and Sensor	
<b>ALI 6.981</b>	LEVALIGN Compact Case	
<b>ALI 6.773</b>	Flatness Plunger	
<b>90109</b>	Block Battery 9V, Alkaline Mangan	
<b>ALI 3.589</b>	Tape measure mm/inch	
<b>0 0739 1054</b>	Hexagon wrench, DIN 911, size 2	
<b>0 0739 1056</b>	Hexagon wrench, DIN 911, size 3	
<b>0 0739 1059</b>	Hexagon wrench, DIN 911, size 6	
<b>ALI 17.454</b>	USP pen drive with GEO documentation	
<b>DOC 40.201</b>	LEVALIGN Ultra iS Flatness manual	
<b>ALI 9.500.DG</b>	sensALIGN Sensor inspection certificate	
<b>ALI 4.900I</b>	sensALIGN Sensor (FCC ID: QOQWT41)	
<b>ALI 4.960</b>	sensALIGN rechargeable battery	
<b>ALI 4.921-2</b>	sensALIGN cable, 2m	
<b>ALI 4.651</b>	sensALIGN AC power supply charger	
<b>ALI 2.911</b>	Cleaning cloth	

**Scope of delivery - GEO LEVALIGN Ultra - Add-on - ALI 13.232**

<b>Item No.</b>	<b>Name</b>	<b>Details</b>
<b>ALI 6.910-IS</b>	LEVALIGN laser, 635 nm	p. 353
<b>ALI 4.501-IS</b>	Magnetic Foot Holder for Laser and Sensor	
<b>ALI 6.981</b>	LEVALIGN Compact Case	
<b>ALI 6.773</b>	Flatness Plunger	
<b>90109</b>	Block Battery 9V, Alkaline Mangan	
<b>ALI 3.589</b>	Tape measure mm/inch	
<b>0 0739 1054</b>	Hexagon wrench, DIN 911, size 2	
<b>0 0739 1056</b>	Hexagon wrench, DIN 911, size 3	
<b>0 0739 1059</b>	Hexagon wrench, DIN 911, size 6	
<b>ALI 17.454</b>	USP pen drive with GEO documentation	
<b>DOC 40.201</b>	LEVALIGN Ultra iS Flatness manual	

### Scope of delivery - Long Range Laser 635 nm, Set - ALI 4.120-IS

Item No.	Name	Details
ALI 4.100-IS	Long range laser with fine offset and angle adjustment, 635 nm	p. 285
ALI 4.112	Mounting base plate for Long Range laser	
ALI 4.507-2	Long Range Laser Cable, 2m	
ALI 16.600	Long Range laser battery box	
ALI 4.500	Magnetic Foot , 2 pieces	
DOC 04.101	Long Range Laser, Pocket Guide	
ALI 9.494.DG	Inspection certificate for Long Range Laser 670/635 nm	
ALI 4.836	Case for Long Range Laser	
0 0739 1058	Hexagon wrench, DIN 911, size 5	
0 0739 1059	Hexagon wrench, DIN 911, size 6	
0 0741 6069	Cylinder head bolt, DIN 912 M06X16 VA, 2 pcs.	
0 0741 6089	Cylinder head bolt , DIN 912 M08X12 VA, 2 pcs.	
0 0741 6071	Cylinder head bolt, DIN 912 M06X25 VA, 4 pcs.	

**Overview: Case with Scope of delivery (mounting base plate is not shown)**




### Scope of delivery PENTALIGN, Set - ALI 6.949-IS

Item No.	Name	Details
ALI 6.911	Adjustable pentaprism incl. base and prism head	
ALI 6.921	Adjustable sliding bracket for Pentaprism	
ALI 6.920-IS	PENTALIGN adjustment sensor, 635 nm	
ALI 2.911	Cleaning cloth	
ALI 2.801	AAA battery 1.5V; 2 pcs	
ALI 6.926	LEVALIGN Ultra set/up target	
ALI 6.982	PENTALIGN case	
ALI 6.924	Pentaprism adapter plate for tripod mounting with screws	
0 0739 1057	Hexagon wrench, DIN 911, size 4	
DOC 06.101	PENTALIGN pocket guide	

### Scope of delivery PENTALIGN, Set - ALI 6.950

Item No.	Name	Details
ALI 6.911	Adjustable pentaprism incl. base and prism head	
ALI 6.921	Adjustable sliding bracket for Pentaprism	
ALI 2.911	Cleaning cloth	
ALI 6.926	LEVALIGN Ultra set/up target	
ALI 6.982	PENTALIGN case	
ALI 6.924	Pentaprism adapter plate for tripod mounting with screws	
0 0739 1057	Hexagon wrench, DIN 911, size 4	
DOC 06.101	PENTALIGN pocket guide	

## INCLINEO - Technical Data


Parameter	INCLINEO technical data	
<b>Measuring range</b>	+/- 10°	
<b>Resolution</b>	0.0003° [1'']	
<b>Error limits @ 22°C [Ta]</b>	0.005 % full scale 0.03 % read-out	
<b>Digital filter/average</b>	3rd order with 0.3 / 1 / 3 Hz options	
<b>Temperature range</b>	Storage: -40 °C ...+85 °C [40 °F ...+185 °F] Operation: -10 °C ...+60 °C [14 °F ...+140 °F]	
<b>Display</b>	LCD display, 132 x 32 pixel with LED backlight	
<b>Control elements</b>	3 keys	
<b>Communication</b>	Wireless via integrated BT module	
<b>External interface</b>	RS-232 (serial) for computer and sensor; connector for dial gauge	
<b>Power supply</b>	AA battery, 2 pcs	
<b>Battery status indicator</b>	3 LEDs	
<b>Data storage</b>	Max. 999 measurements	

## LEVALIGN expert - Technical Data

Parameter	LEVALIGN expert technical data	
<b>LASER</b>		
<b>Wavelength</b>	635 nm (red)	
<b>Laser class</b>	II (<1mW)	
<b>Range</b>	100 meters (Ø 200 meters) [328 ft, Ø 656 ft]	
<b>Leveling</b>	Vertical or horizontal (can be switched off)	
<b>Self-leveling range</b>	±5 %	
<b>Direction adjustment</b>	±5 %	
<b>Rotating speed</b>	max. 800 RPM	
<b>Total error</b>	< ±25 µm + ±24 µm/m incl. conical + step + leveling error)	
<b>Power supply</b>	Internal rechargeable battery or external power supply	
<b>Operating time</b>	16 hours	
<b>Dimensions</b>	Ø 130 mm x 270 mm	
<b>Weight</b>	3.4 kg [7 1/2 lb]	
<b>Charger</b>	Input: 100 - 240 VAC / 50 - 60 Hz / 340 mA Output: 12 VDC / 1200 mA / 14.4 W	
<b>SENSOR</b>		
<b>Resolution</b>	0.01 mm	
<b>Accuracy</b>	±0.02 mm	
<b>Measuring range</b>	70 mm [2 3/4"]	
<b>Zero-point adjustment</b>	70 mm	
<b>Internal memory</b>	2600 points	
<b>Communication</b>	Bluetooth	
<b>Power supply</b>	2 x AA batteries	
<b>Dimensions</b>	214 x 70 x 40 mm [[ 8 7/16" x 2 3/4" x 1 9/16"]]	
<b>Weight</b>	0.62 kg [ 21.9 oz ]	



## LEVALIGN Ultra - Technical Data

Parameter	LEVALIGN Ultra iS technical data	
<b>LASER</b>		
<b>Wavelength</b>	635 nm (red)	
<b>Laser protection class</b>	Class 2, FDA 21 CFR 1000 and 1040	
<b>Beam diameter</b>	approx. 5 mm	
<b>Beam divergence</b>	< 0.2 mrad	
<b>Beam power</b>	< 1mW	
<b>Adjustment accuracy</b>	± 0.02 mm/m	
<b>Measuring range</b>	20 m radius; range is unlimited if the InfiniSplice™ function of the ALIGNMENT CENTER flatness application is used	
<b>Power supply</b>	9V battery IEC 6LR61 (alkaline or lithium)	
<b>Operating time</b>	50 hours continuously depending on battery type	
<b>Temperature range</b>	-5°C to + 50°C [ 23 °F to +122°F]	
<b>Weight</b>	approx 2.8 kg [ 98.8 oz ]	

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## Equipment for induction heating of workpieces

<b>EDDYTHERM Portable – Simple bearing assembly .....</b>	<b>356</b>
<b>EDDYTHERM 2x – Reliable bearing assembly .....</b>	<b>359</b>

## EDDYTHERM Portable – Simple bearing assembly

EDDYTHERM Portable is a portable induction heater for small workpieces, such as roller bearings.



### Features

- Portable equipment for mobile use on-site
- Roller bearing up to maximum 10 kg
- Diameter (inside/outside): >20 mm / <160 mm
- Magnetic temperature probe up to 180 °C
- Line voltage selectable from 100, 115, 120, 230 V
- No support yoke required
- High-frequency technology for optimum efficiency factor
- Automatic temperature monitoring against over-heating

### Ordering information

The following variants are available for EDDYTHERM Portable:

Item No.	Variant
ETH 15.100	EDDYTHERM Portable package 100V 50-60Hz
ETH 15.115	EDDYTHERM Portable package 115V 50-60Hz
ETH 15.120-CSA	EDDYTHERM Portable package 120V 60Hz
ETH 15.230	EDDYTHERM Portable package 230V 50-60Hz

The scope of delivery results from the following overview:

### Scope of delivery

Item No.	CONTENT			VARIANT			
	Description	Details	100 V	115 V	120 V	230 V	
ETH 15.010	EDDYTHERM Portable, 100V, 50-60Hz	p. 358	✓	✗	✗	✗	
ETH 15.012-CSA	EDDYTHERM Portable 120V 60Hz	p. 358	✗	✓	✗	✗	
ETH 15.015	EDDYTHERM Portable 115V 50-60Hz	p. 358	✗	✗	✓	✗	
ETH 15.023	EDDYTHERM Portable 230V 50-60Hz	p. 358	✗	✗	✗	✓	
ETH 15.340	Magnetic temperature probe		✓	✓	✓	✗	
ETH 15.330	Protective gloves		✓	✓	✓	✓	
ETH 15.390	Carry case		✓	✓	✓	✓	
ETH 15.310-EU	Power cable, EU		✗	✗	✗	✓	
ETH 15.310-UK	Power cable, UK		✗	✗	✗	✓	
ETH 15.310-US	Power cable, US		✓	✓	✓	✗	
DOC 15.202	Operating instructions		✓	✓	✓	✓	

## TECHNICAL INFORMATION

### EDDYTHERM - TECHNICAL DATA

Parameter	EDDYTHERM portable	EDDYTHERM 2x	EDDYTHERM 4x
<b>Voltage</b>	100...230 V /50-60Hz	110...575 V /50-60Hz	200...600 V /50-60Hz
<b>Power consumption</b>	max. 1.5 kVA	max. 4.6 kVA	max. 14 kVA
<b>Workpiece weight</b>	< 10 kg [ 22 lb. ]	< 80 kg [ 176.4 lb. ]	<300 kg [ 661.4 lb. ]
<b>Workpiece width</b>	> 20 mm (inner) < 160 mm (outer)	> 20 mm (inner) < 400 mm (outer)	> 79 mm (inner) < 640 mm (outer)
<b>Thermal overload protection</b>	yes	yes	yes
<b>Temperature</b>	< 180°C [ 356 °F ]	< 250°C [ 482 °F ]	< 240°C [ 464 °F ]
<b>Temperature accuracy</b>	± 3°C /°F	± 3°C /°F	± 3°C /°F
<b>Time setting</b>	0 - 10 min.	0 - 60 min.	0 - 60 min.
<b>Residual magnetism after heating</b>	< 2 A/cm	< 2 A/cm	< 2 A/cm
<b>Power reduction</b>	yes	yes	yes
<b>Error indication</b>	yes	yes	yes
<b>Dimensions</b>	340 x 250 x 121 mm [ 13 3/8" x 9 13/16" x 4 3/4" ]	420 x 280 x 420 mm [ 16 9/16" x 11" x 16 9/16" ]	1120 x 550 x 960 mm [ 44 1/8" x 21 5/8" x 37 13/16" ]
<b>Distance between posts</b>	-	120 mm [ 4 3/4" ]	270 mm [ 10 5/8" ]
<b>Weight (Standard version)</b>	3.5 kg [ 7.7 lb ]	38 kg [ 83.8 lb ]	150 - 174 kg [ 330.7 - 383.6 lb ]

## EDDYTHERM 2x – Reliable bearing assembly

EDDYTHERM 2x is a compact induction heater for small to medium-sized workpieces.



### Features

- Compact table-top device
- Roller bearing up to maximum 80 kg
- Diameter (inside/outside): >20 mm / <400 mm
- Magnetic temperature probe up to 250 °C
- Line voltage selectable from 110 to 575 V
- Swivel arm for ease of use
- Yokes in 3 cross-sections
- Automatic demagnetization

### Ordering information

The following variants are available for EDDYTHERM 2x:

Item No.	Variant
<b>ETH 16.120</b>	EDDYTHERM 2x package 110V / 120V 50Hz-60Hz
<b>ETH 16.120-CSA</b>	EDDYTHERM 2x package 120V 60Hz
<b>ETH 16.200</b>	EDDYTHERM 2x package 200V / 230V 50Hz-60Hz
<b>ETH 16.400</b>	EDDYTHERM 2x package 400V 50Hz / 460V 60Hz
<b>ETH 16.500</b>	EDDYTHERM 2x package 500V 50Hz / 575V 60Hz

The scope of delivery results from the following overview:

### Scope of delivery

CONTENT			VARIANT				
Item No.	Description	Details	110V	120V	200V	400V	500V
ETH 16.012	EDDYTHERM 2x 110V / 120V, 50-60Hz	p. 361	✓	✗	✗	✗	✗
ETH 16.012-CSA	EDDYTHERM 2x 120V 60Hz	p. 361	✗	✓	✗	✗	✗
ETH 16.020	EDDYTHERM 2x 200V / 230V, 50-60Hz	p. 361	✗	✗	✓	✗	✗
ETH 16.040	EDDYTHERM 2x 400V / 460V, 50-60Hz	p. 361	✗	✗	✗	✓	✗
ETH 16.050	EDDYTHERM 2x 500V / 575V, 50-60Hz	p. 361	✗	✗	✗	✗	✓
ETH 16.303	Yoke adapter		✓	✓	✓	✓	✓
ETH 16.314	Yoke 14x14x275 mm		✓	✓	✓	✓	✓
ETH 16.328	Yoke 28x28x275 mm		✓	✓	✓	✓	✓
ETH 16.355	Yoke 55x55x275 mm		✓	✓	✓	✓	✓
ETH 15.340	Magnetic temperature probe		✓	✓	✓	✓	✓
ETH 15.330	Protective gloves		✓	✓	✓	✓	✓
DOC 16.202	Operating Instructions		✓	✓	✓	✓	✓

In addition, optional accessories are available:

### Optional accessories

Item No.	Description - optional accessories	Notes	Details
ETH 16.310	Yoke 10x10x275 mm	for inner diameters > 15 mm	
ETH 16.320	Yoke 20x20x275 mm	for inner diameters > 30 mm	
ETH 16.340	Yoke 40x40x275 mm	for inner diameters > 60 mm	
ETH 16.301	Yoke 55x55x100 mm, set	Spare part	
ETH 16.302	Swivel arm	Spare part	

## TECHNICAL INFORMATION

### EDDYTHERM - TECHNICAL DATA

Parameter	EDDYTHERM portable	EDDYTHERM 2x	EDDYTHERM 4x
<b>Voltage</b>	100...230 V /50-60Hz	110...575 V /50-60Hz	200...600 V /50-60Hz
<b>Power consumption</b>	max. 1.5 kVA	max. 4.6 kVA	max. 14 kVA
<b>Workpiece weight</b>	< 10 kg [ 22 lb. ]	< 80 kg [ 176.4 lb. ]	<300 kg [ 661.4 lb. ]
<b>Workpiece width</b>	> 20 mm (inner) < 160 mm (outer)	> 20 mm (inner) < 400 mm (outer)	> 79 mm (inner) < 640 mm (outer)
<b>Thermal overload protection</b>	yes	yes	yes
<b>Temperature</b>	< 180°C [ 356 °F ]	< 250°C [ 482 °F ]	< 240°C [ 464 °F ]
<b>Temperature accuracy</b>	± 3°C /°F	± 3°C /°F	± 3°C /°F
<b>Time setting</b>	0 - 10 min.	0 - 60 min.	0 - 60 min.
<b>Residual magnetism after heating</b>	< 2 A/cm	< 2 A/cm	< 2 A/cm
<b>Power reduction</b>	yes	yes	yes
<b>Error indication</b>	yes	yes	yes
<b>Dimensions</b>	340 x 250 x 121 mm [ 13 3/8" x 9 13/16" x 4 3/4" ]	420 x 280 x 420 mm [ 16 9/16" x 11" x 16 9/16" ]	1120 x 550 x 960 mm [ 44 1/8" x 21 5/8" x 37 13/16" ]
<b>Distance between posts</b>	-	120 mm [ 4 3/4" ]	270 mm [ 10 5/8" ]
<b>Weight (Standard version)</b>	3.5 kg [ 7.7 lb ]	38 kg [ 83.8 lb ]	150 - 174 kg [ 330.7 - 383.6 lb ]



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**Productive Maintenance Technology**



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