



# Vibration Analysis Devices

## Smart VibroAnalyzer 90 and 95

For predictive maintenance, machine assessment, and diagnostics



## Powerful, fast, and precise Handheld vibration analysis at its best

Vibration analysis is undisputedly regarded as one of the most effective and crucial methods for determining machine conditions. Consistently measuring vibrations enables the identification of faults and potential failures, reducing life cycle costs, and maximizing productivity.

Therefore, we are expanding our existing series of smart handheld measurement devices with two new models for vibration analysis: the Smart VibroAnalyzer 90 and the Smart VibroAnalyzer 95.

The Smart VibroAnalyzers are designed with powerful diagnostics capabilities including but not limited to multi-channel synchronized vibration analysis, thermal imaging, ultrasound measurements, condition monitoring, and balancing.

These are easy-to-use multitasking units that equip you to tackle the most demanding field applications.



## Flexible and versatile

With their extensive analysis capabilities, both the Smart VibroAnalyzer 90 and Smart VibroAnalyzer 95 can be used in a wide range of applications including power, process, and petrochemical industries.

The Smart VibroAnalyzer supports numerous inputs: triaxial sensors for quick data collection, velocity sensors for low speed of dampened signals, displacement sensors for orbits and centerlines, ultrasound probes for leak detection, acoustic or ultrasound microphones, current clamps, and other process inputs.

The measurement and diagnostic capabilities of these instruments are unprecedented and ideal to maintain everything from your balance of plant machines to critical machines. The Smart VibroAnalyzer 90 even comes in an ATEX version for intrinsically safe areas.

# Smart VibroAnalyzer 90

## 3-Channel vibration analyzer, data collector, and much more

This compact, lightweight handheld vibration analyzer is ideal for efficient route-based data collection, and diagnosis of machine conditions with its built-in expert. The unit is designed to be customizable for your specific application/needs.



# Smart VibroAnalyzer 95

## 4-channel powerfull vibration analyzer with an impressive range of capabilities

Analyze your data on-site with a large color touch screen, visible variable cursors, bearing fault frequencies, and FFT's in cascade. It can simultaneously measure up to 4 vibration signals and 4 process values (temperature, after pressure, etc.) relative speed.



## Advantages

### SVA 90

- ▶ Basic vibration measurements included with base unit (Meter Mode)
- ▶ Modular in design – only buy the modules you need
- ▶ 3 simultaneous measuring channels + speed
- ▶ Vibration Assessment according to DIN ISO 10816-3 with Diagnostic module
- ▶ Robust industrial cables
- ▶ Built-in Infrared temperature and strobe light
- ▶ 25,600 lines of Resolution
- ▶ All sensor types accepted (acceleration, velocity, displacement, & tri-axial)
- ▶ Lightweight and easy to carry
- ▶ Realtime waveforms and FFT's (Spectrum Analysis)

### SVA 95

- ▶ Robust touch screen with high-resolution color display
- ▶ 4 simultaneous measuring channels + speed
- ▶ Vibration Assessment according to DIN ISO 10816-3 with Diagnostic module
- ▶ Robust industrial cables
- ▶ Up to 8 plane balancing
- ▶ 3,276,800 lines of Resolution
- ▶ All sensor types accepted (acceleration, velocity, displacement, & tri-axial)
- ▶ Internal camera and optional Infrared camera
- ▶ Realtime waveforms and FFT's (Spectrum Analysis)

# Modules that propel you forward

## Vibration Analysis and Machine Diagnosis

Allow the Smart VibroAnalyzer 90 and Smart VibroAnalyzer 95 to be the expert for your balance of plant machines with the Diagnostic Module. The diagnostic module is standard in both devices, enabling you to automatically detect machine faults such as unbalance, looseness, misalignment, and bearing faults.

If the ISO 10816 or user defined alarm limits are exceeded the Diagnostic Module will specify the faults and severity to detect the most common troublesome faults.

If more detailed analysis is then needed to further diagnose the machine, additional measurements can then be taken from many available modules such as Analysis, Recorder, or Tracking, etc.



inch/s

0.43								
0.28			<b>D</b>					
0.18			<b>C</b>					
0.14			<b>B</b>					
0.11			<b>A</b>					
0.09								
0.06								
0.03								
<b>Foundation</b>	rigid	flexible	rigid	flexible	rigid	flexible	rigid	flexible
	Pumps radial, axial, mixed flow P > 15 kW				med. sized machines 15 kW < P ≤ 300 kW		large machines 300 kW < P < 50 MW	
<b>Machine type</b>	integrated driver		external driver		Motors 160 ≤ H < 315 mm		Motors 315 mm ≤ H	
<b>Group</b>	Group 4		Group 3		Group 2		Group 1	

**DIN ISO 10816:** Mechanical vibrations – assessment of the vibrations of machine through measurements on no rotating parts.

**Vibration velocity (rms)** 10 – 1000 Hz, n > 600 min<sup>-1</sup>, 2 – 1000 Hz, n > 120 min<sup>-1</sup>

**A** = new machine condition **B** = unlimited long-term operation allowable **C** = short-term operation allowable **D** = Vibration causes damage

# Modules that propel you forward

## Extensive Analysis for all Operating Conditions

Early Detection and diagnosis of machine faults are key principles for planning and executing plant maintenance.

With the Analysis Module, the user can select the type of measurement (from simple overall values to FFT's and time signals, to more advanced measurements such as orbits using displacement/proximity probes) and set up multiple, synchronized, simultaneous measurements from all channels with settings such as frequency range, sampling rates and units.

The Smart VibroAnalyzer 90 and 95 feature frequency ranges of: 0.5 Hz to 25 kHz with (64 kHz sampling) and: 0.35 Hz to 90 Khz (194 kHz sampling), respectfully, to identify most faults.

If more detailed vibration analysis is needed, the Recorder Module allows the user to record live data from a machine and perform post-processing of the data on the unit itself. The user can perform post-processing of the same raw timewave form multiple times allowing for a more precise analysis of a detected fault to determine the location and severity. In addition, the data can be transferred to a host computer with the Schenck Diagnostic Center Software for reporting.



## Assessment of roller bearings

Using the Analysis or Recorder Modules, envelope spectrum analysis can be performed, which detects periodic impacts resulting from roller bearing and gearing damage. The analysis is based on demodulating amplitude-modulated vibration signals such as EDS (Envelope Detection Signal) and BDS (Bearing Detection Signal). By utilizing this feature, you can plan ahead and take necessary measures at an affordable cost.

In addition, the Lubrication Greasing Control module can be used to monitor and control the lubrication process of the bearings. Both a lack or excess of lubricant is harmful to a rolling element bearing. This module measures the actual bearing lubrication status and informs the operator when the lubrication state is optimal, relative to programmed lubrication guidelines.





### Clearly discerning machine resonances

With the Tracking Module, resonances in the system can be determined by the measurement and graphical display of the amplitude and phase angle of the rotational vibrations as a function of the speed. The Tracking Module uses the raw vibration signal and visualizes the amplitude and phase angle in a bode, Nyquist, FFT waterfall diagram, and numerical reading. This ensures dedicated balancing outside the range of machine resonances.

### Early elimination of potential hazards: Impact testing for disruptive natural frequencies

The bump test determines the natural frequencies of a machine system. In the context of a rotating machine, this pertains to those ranges of rotational speeds within which vibrations are disproportionately amplified due to resonances, posing the potential to damage the machine (Smart VibroAnalyzer 95 only).

### Efficient route-based machine management

One of the fundamental principles of condition monitoring is data collection based on predefined alarm limits. The Data Collection module is used for the periodic collection of vibration data of the balance of plant machinery.

Simply create a route tree with measurement points and locations in the Schenck Diagnostic Center Software and upload the route in the Smart VibroAnalyzer 90 or Smart VibroAnalyzer 95. With the uploaded route you are prompted by the unit to move from machine to machine with specific measurement points to efficiently collect data.

The Smart VibroAnalyzer will notify you of an alarm situation that can easily be reviewed on the unit to provide onsite feedback. After the route is completed, the collected data can be transferred back to the Schenck Diagnostic Center Software via USB-C cable to store readings, review trends, analyze data, and provide reports.

### Avoid Unbalances in your Operations

New rotors may initially be balanced, before their first use, but their balance can be disrupted or affected due to various factors such as installation, wear, and operational influences. These unbalances can result in mechanical vibrations during use, which can cause premature wear of bearings, fatigue, force fractures, or shaft deformations. Fortunately, our Smart VibroAnalyzer 90 and Smart VibroAnalyzer 95 allow for highly accurate balancing of rotors in their installed condition without requiring machine dismantling. And this can be accomplished in 1 or 2 plane corrections operating at rotational speeds ranging from 30 to 250,000 RPM.

The Smart VibroAnalyzer 95 also includes an Advanced Balancer Module that supports multi-plane balancing of up to eight (8) planes balancing on flexible or rigid rotors. Multi-plane is used for rotors with complex geometries that exhibit significant unbalance in multiple planes. In addition, the Advanced Balancer Module can assist with complicated jobs where the number of measurement points is larger than the number of correction planes available.

### Sound Vibration at its finest

With the Octave Analysis Module, you can measure audible sounds by connecting a microphone to the Smart VibroAnalyzer 95. Measure sound levels and octave spectrums with selectable resolutions of 1/1, 1/3, 1/12, or 1/24.

Need to measure sounds inaudible to the human ear such as air leaks, electrical arcing, or early bearing fault detection? The Ultrasound module in combination with a microphone allows Smart VibroAnalyzer 90 and Smart VibroAnalyzer 95 to do just that.

In addition, the Smart VibroAnalyzer 95 can also be connected to a standard set of headphones using the stethoscope module to listen to vibrations, which can be recorded and replayed.





## Documentation and archiving made effortless Sustainable quality assurance for your operations

The Smart VibroAnalyzer 90 and Smart VibroAnalyzer 95 have a large internal memory that can store all measurement results and screenshots taken. Data can easily be transferred to your PC using a USB-C cable to the Schenck Diagnostic Center Software. The downloaded data can be further analyzed with symptom cursors and bearing fault frequencies from a database that includes more bearing fault frequencies.

The Schenck Diagnostic Center can be upgraded to allow for creation of routes and management of custom report templates. This allows for independent processing of all results, and exporting of the results via e-mail.





# Norm-compliant and traceable testing

## Quality assurance for Smart VibroAnalyzers

The Smart VibroAnalyzers provide extensive possibilities for vibration analysis and are a reliable companion – even in rough or ATEX environments.

Nevertheless, the Smart VibroAnalyzers are high precision measuring instruments, which is used for direct machine evaluation. In order to ensure that the recorded data is reliable and verifiable, it is important to have the Smart VibroAnalyzers calibrated periodically and traceable. Complying with standards, this becomes a necessity to comply with standards such as DIN EN ISO 9001.

Protect your product quality and competitiveness with an examination of your Smart VibroAnalyzers and prevent errors that shorten the life time of your machines.

### **NIST and DIN certifications for every requirement: Selectable based on customer-specific performance levels**

Calibration centers in the USA and Germany offer testing of your Smart VibroAnalyzer 90 and Smart VibroAnalyzer 95 traceable to NIST and DIN standards. Users can choose from various options tailored specifically to your requirements. You will receive a norm-compliant, audit-proof documentation that aligns with your quality management needs.



## Sourcing expertise made simple

### Outsourcing Balancing as a Service

#### **Sourcing expertise made simple: Outsourcing Balancing as a Service**

If acquiring a Smart VibroAnalyzer directly is not a feasible option for your operation due to size, manpower, or budget constraints, rest assured that our team of specialists is here to assist you.

With our smart handhelds our team will identify vibration and balance issues on site.

We can offer on-site balancing and vibration analysis for machinery and facility equipment including ventilation fans, compressors in chemical facilities, and spindles for machine tools.



# Technical data

## SVA 90

Input Channels:	3 x AC/DC, 1 x TACHO for speed probe/external trigger
Frequency ranges [-3 dB]:	Maximum range: 0.5 Hz – 25 kHz (64 kHz sampling) Minimum range: 0.5 Hz – 25 Hz (64 Hz sampling)
Sampling mode:	Fully simultaneous for 3 channels
FFT resolution:	25 to 25,600 lines
Display:	Color: 240 x 320 pixels
Built-in LED Stobeoscope, LED Torch	
IR Temperature Measurement:	-70 °C to +380 °C (-94 °F to +716 °F)
Interface:	USB 3.0, 2.0 compatible
Operating temperature range:	-10 °C to +50 °C (-14 °F to +122 °F)
Power:	Battery 10 hours of continuous operation
Case:	IP 65 rating, aluminium heavy duty
Size & Weight:	230 x 82 x 32 mm, 780 g
Languages:	German, English, French, Spanish, Portuguese, Italian, Russian, Hungarian, Romanian, Polish, Czech, Turkish, Chinese



## A genuine partnership from design to operation

### Assuring you can always count on us

At Schenck, solution competency is as ecologically sustainable as it is economically viable. Our portfolio of products, systems, and select services ensures the utmost energy efficiency and productivity throughout your device's entire lifecycle.

Here, you will find experts who are intimately familiar with your industry's norms and regulations. Our collaboration often commences with application consulting and training, both focused on your offerings and target audiences.

Our new generation of portable measuring devices makes balancing and vibration analysis in the field easier and faster than ever before. With three models, it is tailored to a wide range of target groups and customer requirements – both demanding and experienced balancers and data analysts as well as beginners to balancing technology in the field. Supported by our after-sales solutions – including spare parts supply, expert calibration, repairs, training and targeted updates – you'll always maintain a competitive edge.



## SVA 95

Input Channels:	4 x AC/DC, 1 x TACHO for speed probe/external trigger
Frequency ranges (-3 dB):	Maximum range: 0.35 Hz – 90 kHz (1 Ch, 194 kHz sampling) Maximum range: 0.35 Hz – 5 kHz (4 Ch, 64 kHz sampling) Minimum range: 0.35 Hz – 25 Hz (4 Ch, 64 Hz sampling)
Sampling mode:	Fully simultaneous for 4 channels
FFT resolution:	100 to 3,276,800 lines
Display:	Color: 1125 x 800 pixels
Processor:	Intel Atom 1.9 GHz
Memory, Route:	64 GB, max., 16 GB for one route, number of routes is limited by free memory only
Raw signal recorder:	64 kHz sampling frequency 4 Ch memory consumption 3 GB/hour 4 Ch total recording – 20 hours
Interface:	USB 3.0, 2.0 compatible
Operating temperature range:	-10 °C to +50 °C (-14 °F to +122 °F)
Power:	Battery 8 hours of operation
Case:	IP 65 rating, aluminium heavy duty
Size & Weight:	29.5 x 23 x 4.9 cm, 1.98 kg
Languages:	German, English, French, Spanish, Italian, Russian, Hungarian, Romanian, Polish, Czech, Thai, Chinese
Built-in camera:	5 MPx, autofocus



## From a passion for all rotating components and assemblies Improved quality, longer service life, and greater safety and security

Schenck is the global leader in balancing and diagnostic technology and is represented in more than 50 countries on five continents through subsidiaries, joint ventures and sales partners.

We produce at own sites worldwide and supply innovative technologies to sectors such as the automotive and tier 1 supplier industry, electrical and electronics, aerospace, and turbomachinery sectors, as well as the general mechanical engineering industry.

Schenck is part of the Dürr Group, one of the world's leading mechanical and plant engineering firms with extensive expertise in the fields of automation, digitalization, and energy efficiency.

The Dürr Group's products, systems, and services enable highly efficient and sustainable production processes in a variety of industries, from the automotive sector to furniture and timber house manufacturers and chemical, pharmaceutical, medical product, and electronics companies.

# Scope of delivery

## 1 Smart VibroAnalyzer 90 measuring unit

with integral rechargeable battery and user dialogue in German, English, French, Spanish, Portuguese, Italian, Russian, Hungarian, Romanian, Polish, Czech, Turkish, Chinese

- 1 acceleration sensor kit with:
  - 1 AS-053 Single Axis Acceleration Sensor
  - 1 magnet for flat and curved surfaces
  - 1 connection cable, 5 m long
- 1 USB-C connection cable to the PC, 1.5 m long
- 1 combined power supply unit/charger with adapters
- 1 hard shell case for measuring unit and accessories

### Included modules:

- Meter mode
- Diagnostic
- Stroboscope

### Additional Accessories that can be added:

- Acceleration sensor kits
- Triaxial Acceleration sensor
- Microphone
- Laser Reference kit

### Additional Modules that can be added:

- Tracking
- Data Collection
- Analyzer
- Balancer
- Ultrasound
- Recorder

For further technical specifications and the complete package contents, please visit our website.



## 1 Smart VibroAnalyzer 95 measuring unit

with integral rechargeable battery and user dialogue in German, English, French, Spanish, Italian, Russian, Hungarian, Romanian, Polish, Czech, Thai, Chinese

- 1 acceleration sensor kit with:
  - 1 AS-053 Single Axis Acceleration Sensor
  - 1 magnet for flat and curved surfaces
  - 1 connection cable, 5 m long
  - 1 USB-C connection cable to the PC, 1.5 m long
- 1 combined power supply unit/charger with adapters
- 1 screen protector
- 1 hard shell case for measuring unit and accessories

### Included modules:

- Diagnostic
- Analyzer
- Balancer
- Advanced Balancer
- Ultrasound-Recorder
- Bump Test
- Lubrication Greasing Control
- Stethoscope
- Octave Analysis
- Camera

### Additional Accessories that can be added:

- Acceleration sensor kits
- Triaxial Acceleration sensor
- Thermal imaging Camera
- Microphone
- Laser Reference kit

### Additional Modules that can be added:

- Tracking
- Data Collection



SCHENCK RoTec GmbH  
Landwehrstraße 55  
64293 Darmstadt, Germany  
T +49 6151 32-2311  
F +49 6151 32-2315  
sales1.rotect@schenck.net  
www.schenck-rotec.de

SCHENCK USA CORP.  
535 Acorn Street  
Deer Park, NY 11729  
T +1 631-242-4010  
F +1 631-242-4147  
sales@schenck-usa.com  
www.schenck-usa.com

More about SVA 90 / SVA 95:

