

The SmartBalancer logo is positioned in the lower-left quadrant of the page. It features the word 'SmartBalancer' in a bold, sans-serif font, with 'Smart' in black and 'Balancer' in red. Below the text is a horizontal row of ten small squares, alternating in color between black and red.

**SmartBalancer – the intelligent way
to field balancing**

simple – fast – accurate

SmartBalancer – The mobile field balancing machine from the experts

The statistics are indisputable: Over 50% of all faults and failures of machines and systems can be attributed directly or indirectly to unbalances in rotors. The SmartBalancer helps you to identify an unbalance simply and accurately, and to correct it with the minimum effort. This ensures the reliability of your machines and systems, and increases your competitiveness.



Avoid unbalances in your operations

Although rotors are perfectly balanced in the brand-new condition, new unbalances are often created due to installation, wear or operating influences. This results in mechanical vibrations during operation, which lead to premature wear of the bearings, fatigue and force fractures or shaft deformations. With the SmartBalancer, rotors of almost any size and weight can be balanced quickly, cost-effectively and accurately in the installed condition, and therefore without having to dismantle the machine. Thanks to the comprehensive diagnosis capabilities, the SmartBalancer keeps you up-to-date with the vibration condition of your machines – and therefore keeps your business running.



The advantages at a glance:

- A complete package offering tremendous value for money
- 2 simultaneous measuring channels

- Easy operation with the aid of navigation and function buttons
- Large illuminated colour display
- Graphic display of the oscillation quantities in vector diagrams
- Standardised vibration measurement

- Assessment setup to DIN ISO 10816-3
- Integrated machine diagnosis with FFT analysis
- Simple transfer and documentation of measurement results
- Optical laser reference pickup with up to 2 m measurement distance

Make your work easier with the high operating convenience

With the SmartBalancer you have everything under control at all times – and in one hand. All functions of the unit can be operated easily and intuitively by means of navigation keys and a few function keys, even by inexperienced users. The brilliant colour display with its easily understandable pictograms and the simple file structure are based on the commonly used Windows presentation. This makes the SmartBalancer an efficient and practical tool for tracking down unbalances during ongoing operations.

Benefit from our complete package for field balancing

Even the basic scope of delivery contains everything you need for field balancing: Everything required for immediate use is provided, from the acceleration sensor, laser reference pickup with magnetic stand and all required connection cables, to the power supply unit/charger and USB connection cable. Further functionalities are available as options. This makes the SmartBalancer an indispensable instrument in your business – an untiring worker and analyst.



**Detection of machine resonances:
The guarantee of accurate balancing**

Resonances in the system can be determined by the measurement and graphic display of the amplitude and phase angle of the rotational vibrations as a function of the speed. This ensures dedicated balancing outside machine resonances.

**The bump test:
Take sources of danger out of the game at an early stage**

With the bump test, you determine the natural frequencies of a structure. With a rotating machine, you determine the speed ranges in which vibrations are amplified disproportionately by resonance.

								mm/s	inch/s	DIN ISO 10816:
								11,00	0,43	Mechanical vibrations – assessment of the vibrations of machine through measurements on no rotating parts
				D				7,10	0,28	
				C				4,50	0,18	
				B				3,50	0,14	
				B				2,80	0,11	Vibration velocity (rms) 10-1000 Hz, n > 600 min ⁻¹
				A				2,30	0,09	
				A				1,40	0,06	
				A				0,71	0,03	2-1000 Hz, n > 120 min ⁻¹
rigid	flexible	rigid	flexible	rigid	flexible	rigid	flexible	Foundation		
Pumps radial, axial, mixed flow P > 15 kW				med. sized mach. 15 kW < P ≤ 300 kW		large machines 300 kW < P < 50 MW				
integrated driver		external driver		Motors 160 ≤ H < 315 mm		Motors 315 mm ≤ H		Machine type		
Group 4		Group 3		Group 2		Group 1		Group		

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

SmartBalancer – A tool with many talents

The SmartBalancer is outstanding for its comprehensive measurement and analysis functions, which offer you valuable services for field balancing. It is also ideally suitable for the commissioning, service and maintenance of machines and systems. From the measurement, assessment and diagnosis of the machine condition, to the assessment of the roller bearings or the bump test, to documentation and archiving of all the results: The SmartBalancer is a genuine smart instrument – for many applications over and above field balancing.



Measurement and assessment:

Identify weak points before problems occur

Unbalances, alignment faults and incipient damage often manifest themselves in machines in form of mechanical vibrations. In order to assess the vibration level quickly and accurately, the limit values of DIN ISO 10816-3 are stored in the SmartBalancer. You simply select the machine type and then have the assessment set up on hand immediately.

Diagnosis of the machine condition:

On the track of the causes

For the identification of the causes of vibration, the SmartBalancer offers high-performance, two-channel FFT frequency analysis. This breaks down the vibration mixture occurring in the machine into their harmonic components, and displays them clearly in the form of a spectrum. By means of these frequencies, the causes of the vibration can be determined, and unbalanced rotors clearly identified.

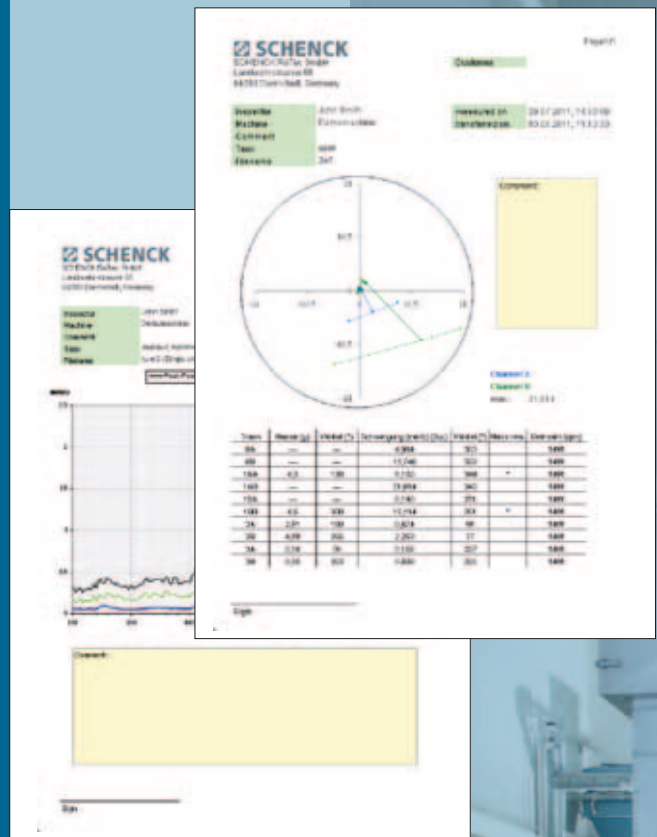
Documentation and archiving: Sustainable quality assurance for your business

All results can be stored in the SmartBalancer, together with the description of the machine, showing the date and time, and printed out on the spot with a compatible printer. Screenshots of all views and measurement reports of selected measurement tasks can be transferred simply to your PC using our PC software utility.

With our extended utility software, the measurement results can now be transferred directly onto your PC as CSV files and MS-Excel reports. In this way, you can process all results individually, and if required send them by e-mail. The following measurement results are supported:

- 1- and 2-plane balancing results with vector graphic
- vibration figures
- FFT analysis
- Order tracking analysis (run-up/coast-down)
- Amplitude / phase
- Time wave form
- Temperature

Compatible with: Windows XP Professional and Windows 7 Professional with MS-Office 2003-2010



Roller bearing assessment: For even more applications

An optional module for roller bearing assessment further extends the application range of the SmartBalancer: The instrument is performing envelope spectrum analysis to detect periodic impacts caused by roller bearing damage and gearing damage. This analysis is based on the demodulation of amplitude modulated vibration signals. You can therefore make your plans in good time and institute the correct measures at reasonable cost.





Technical data

Field balancing

- Dialogue-assisted operator guidance, vector display of the oscillation quantities and direct printer output of balancing reports as well as archiving via PC
- Balancing speed: 100 to 60,000 rpm
- Number of correction planes: 1 or 2
- Special features:
 - Summary of correction weights
 - Unbalance correction at fixed locations
 - Calculation of the angle position for 2 fixed weights
 - Measuring tape for exact determination of the position
 - Balancing quality to DIN ISO 1940

Measuring channels

- 2 analog channels
- 1 digital channel for optical laser reference sensor

Operating modes

- Balancing in 1 or 2 planes
- Vibration acceleration, velocity, displacement, current, speed, voltage (AC/DC), temperature
- Signals: Spectrum (amplitude, envelope), time wave form, amplitude/phase, order tracking analysis, bump test

Display

- TFT-LCD, 262,144 colours, 640x480 pixels (VGA)
- Pixel area 116x87 mm, illuminated

USB interface

- USB host for printer
- USB slave for PC / laptop

Printing

- Direct printout of measurement reports via USB interface with compatible printer types
- Easy transfer and printing of files via the PC

Power supply

- Rechargeable battery: Li-Ion battery (7.2V / 4.8Ah);
- Operating time at least 8 hours
- Charging in the device

Dimensions

- 180 x 160 x 50 mm (7.09 x 6.3 x 1.97 inches) (LxWxH)

Weight

- 1.15 kg (2,54 lb)

Environment

- Protection class: IP65, dust-proof and protected against water jet
- Temperature range: -10 °C to +60 °C (14 F to 140 F)



Scope of delivery

- 1 SmartBalancer measuring unit with integral rechargeable battery and user dialogue in German, English, French, Spanish, Dutch, Russian, Italian, Swedish, Polish, Czech, Japanese and Chinese
- 2 acceleration sensors with:
 - 1 probe
 - 2 adhesive magnets for flat and curved surfaces
 - 2 connection cables, 5 m long
- 1 optical laser reference pickup with
 - 1 magnetic stand, Reflective tape
 - 1 connection cable, 3 m long
- 1 CD-ROM with operating instructions, unit firmware and utility software for processing of the measurement results on the PC
- 1 USB connection cable to the PC, 1,5 m long
- 1 adapter for USB flash drive incl. USB flash drive
- 1 combined power supply unit/charger with adapters
- 1 hard shell case for measuring unit and accessories

Further technical data and the complete scope of delivery can be found on our website at:

www.smartbalancer.com

 **SCHENCK**

Balancing and
Diagnostic Systems

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