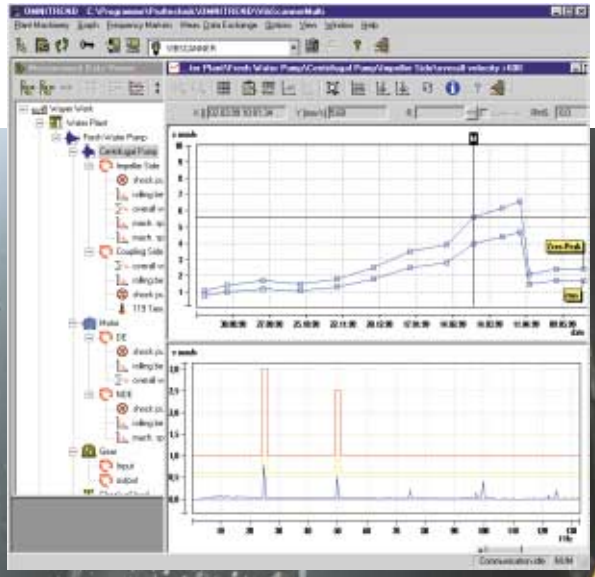
WITH OPTIONAL
FFT, BALANCING &
SIGNAL ANALYSIS

PRÜFTECHNIK

VIBSCANNER®

Data collection & machine diagnostics



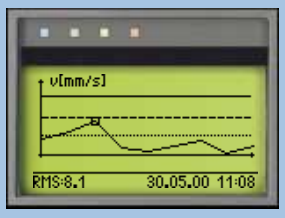
VIBCODE® compatible

The clever data collector for better maintenance

VIBSCANNER® is an offline condition monitoring system for predictive maintenance. Its comprehensive measurement and analysis functions and the convenient joystick for navigation make this handy instrument ideal for everyday inspection routines.

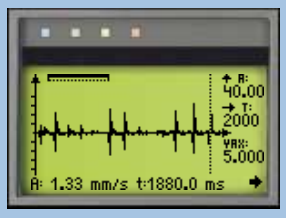
Totally compatible with the OMNITREND® PC software it gives analysis and reporting functions in an easy to understand format to prevent catastrophic machine failure, unplanned production downtime and consequential damage to process equipment.

Trending



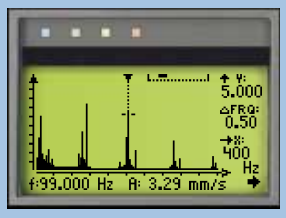
Use trend curves to follow the development of machine defects.

Signal analysis



Time signals and orbits detect damage in low-speed machines, gearboxes or turbo machinery.

Machine diagnosis



FFT analysis with enveloping is provided for the diagnosis of machine condition, bearing condition and gear faults.

Well equipped

VIBSCANNER® measures the most important machine parameters on rotating equipment. All the sensors required are built into the instrument.

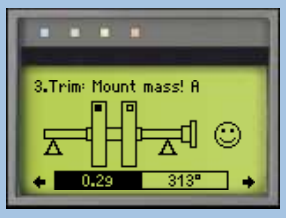
Vibration*
Bearing condition
Temperature
RPM
Process parameters
FFT spectrum
Signal analysis
Balancing

* Displacement
Velocity
Acceleration
acc. to the new ISO 10816-3
- even at frequencies down to 2 Hz

VIBSCANNER® is protected by a rugged, waterproof and dustproof case. An intrinsically safe version is also available.

VIBSCANNER®: One for all ...

Balancing



Allows one or two plane machine balancing in situ.

Sensors & interfaces
Measure important parameters directly. Use built-in transducers or external sensors attached to rugged connectors.

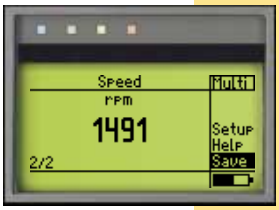
ISO alarm display
Four LEDs for 'everything's OK' (blue), 'pre-warning' (green), 'warning' (yellow) and 'alarm' (red).

Graphic display
Backlit screen with large intuitive symbols and text in different languages.

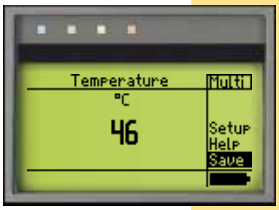
Joystick navigation
Easy to use, simple to learn! One joystick and two function keys are all the operating controls you need - whether you are right or left-handed.

Power to last
A practical quick-change rechargeable battery in the handle guarantees 8 hours of operation.

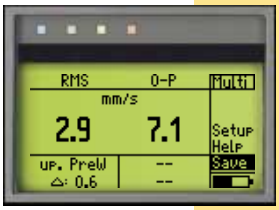
Take-along convenience - with built-in sensors!



Up to speed?
Non-contact RPM measurement from distances up to 0.5 meters with no need for reflective tape – even in poor light. A bright red pointer beam helps in directing your aim at the rotating shaft.



Takes the heat for you
The retractable, flexible temperature probe ensures optimal surface contact for quick, accurate readings – even in liquid. Or plug in an external probe – even IR temperature guns are available.



Good vibrations
The rugged, patented accelerometer measures machine vibration as well as the high-frequency shock pulses emitted by anti-friction bearings and cavitating pumps – for a total of three different machine signals all at the same time.

All the right connections

– In –
Nearly any transducer (ICP®, CLD*, Pt100, AC, DC,...) can be used to measure analog signals.

– Out –
Data exchange with the PC, the measurement of digital trigger signals and the output of analog signals for headphones and analysis devices is carried out via the yellow interface.

*CLD: **C**urrent **L**ine**D**rive

Unmistakable connectors
Color-coding of the input and output channels as well as the connecting cables prevents confusion.

Data collection with VIBCODE® or 'machine scanning'

Step-by-step
Collect machine condition data in a predefined measurement route or use VIBCODE® for automatic data collection. As soon as VIBCODE® is connected to a measurement location, the programmed measurement tasks start automatically.

Adaptive routes
Measurement values are compared to alarm limits and stored. If alarm conditions arise, additional diagnostic measurements start automatically.

Electronic notepad
Next to measurement tasks, visual inspection tasks appear as a pick list for entry of inspection data. (e.g. 'Check oil level')

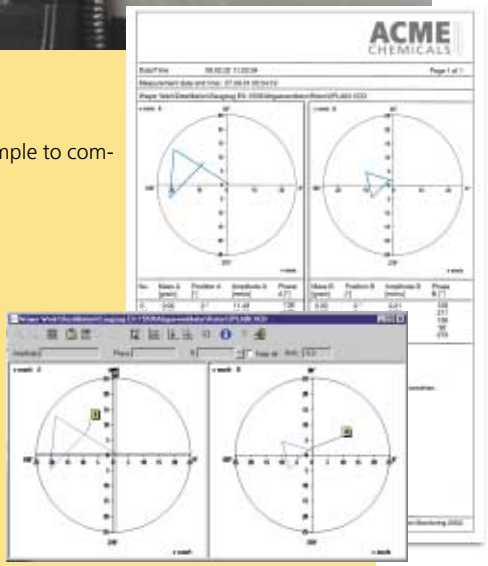
Don't forget!
VIBSCANNER® indicates the end of the route – namely when all measurement locations have been completed.

Easy data collection with 'machine scan'
Run through non-VIBCODE® measurement locations using a graphical route. VIBSCANNER® graphically displays the next measurement point location with its direction of measurement. This prevents measurement locations from being overlooked or mixed up.

Coded measurement locations

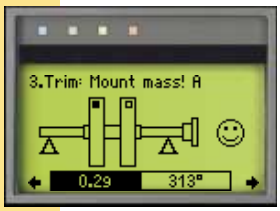
Positive identification!
VIBCODE® is the world's first intelligent, field-tested transducer system to recognize its measurement locations automatically – at an unbeatably low price. The probe locks onto the measurement stud via bayonet mount and reads its encoded plastic ring. Then it reads the machine signals programmed for that location. VIBCODE® therefore delivers extremely reliable trending results by ensuring that the location, measurement direction and probe pressure are exactly the same each time.
The new VIBCODE® transducer now also measures signals on low-speed machines (as low as 2 Hz).

Balancing in 1 and 2 planes

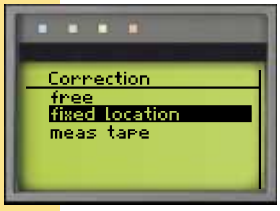


Report function
Reports are very simple to compile and print out.

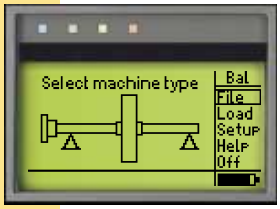
Clear indication
After every measurement, the position and weight of the correction masses appear. The 'Smiley' shows that required balancing quality has been reached.



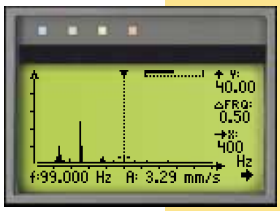
Flexible balancing
Correct unbalance with fixed-mass balancing weights, fixed correction locations (e.g. for blowers) or by tape measure positioning. Choose between adding masses or removing weight by boring into the rotor.



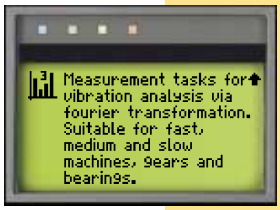
Intuitive operation
Graphical step-by-step operator guidance for an extremely easy yet accurate balancing procedure.



Diagnosis by FFT

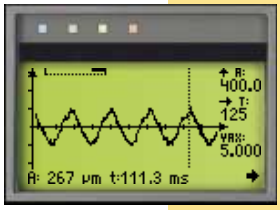


Also for bearings and gears
As well as normal spectra, VIBSCANNER® measures enveloped spectra to diagnose bearing and gear meshing problems. Spectra can be zoomed with the joystick, facilitating field evaluations.



The correct setting
How to measure high-speed gears or low-speed machines? VIBSCANNER® has all the answers in optimized and predefined setups.

Analysis in detail

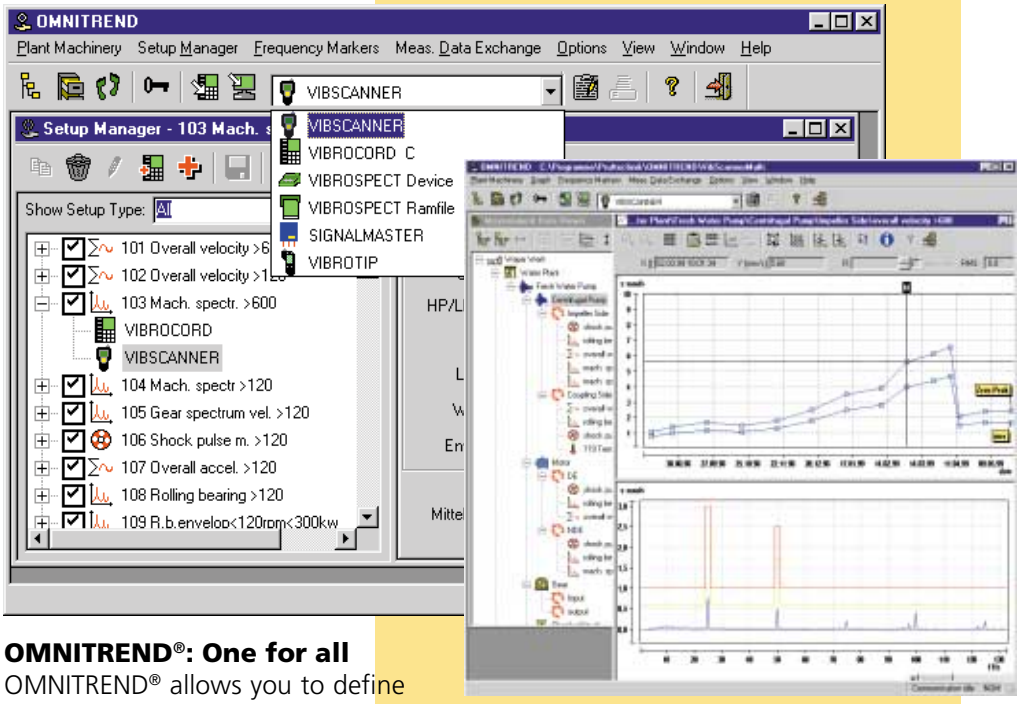


Going into orbit
The movement of a rotating shaft is measured sequentially in both the X and Y axis and displayed in OMNITREND® as an orbit.

Temporarily 'online'
Overall values or spectra can be recorded at scheduled times in order to identify the problems in troublesome machines - almost like an online system!

Activating software
The optional balancing, analysis and FFT software are simple to activate in VIBSCANNER® by entering a password - without any changes to the hardware or any additional update programs. You can even try out FFT for 30 hours of operation free-of-charge.

PC software for storage, analysis and reporting

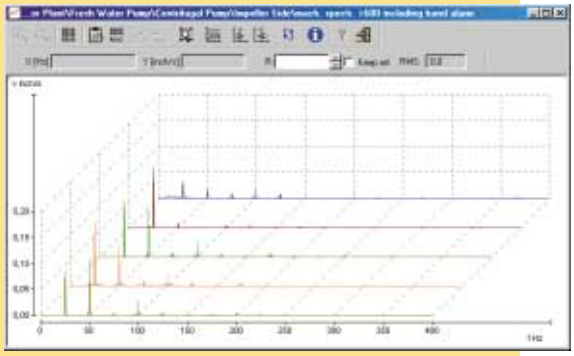


OMNITREND®: One for all
OMNITREND® allows you to define your condition-monitoring procedure, to store and to analyze data, to create comprehensive reports and to communicate with all your PRÜFTECHNIK condition monitoring products such as: VIBSCANNER®, VIBROTIP®, VIBROCORD®, VIBROSPECT® FFT and VIBRONET® Signalmaster.
NEW: Alignment data from ROTALIGN® and smartALIGN® can now be conveniently administrated and archived in OMNITREND®.

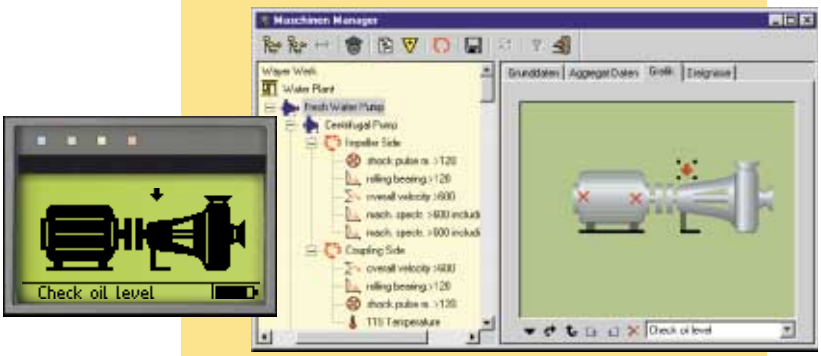
Always in the picture
The clearly-structured database enables a quick localization of the measurement data. The data can then be visualized and combined in trend curves, spectra, time based signals or orbits.

The right setting
Optimized settings for almost every measurement task are stored in OMNITREND®. The software knows which measurement instrument can use which set-up in order to avoid wrong settings.

Import - Export
All recorded data (route, multimode) is transferred onto the PC and placed into OMNITREND® database. For synchronizing and archiving existing data records, data can be imported from other OMNITREND® or TIPTREND® databases. The export of data in a standard format (ASCII) enables the data to be converted into other database formats.



A series of spectra
A spectra waterfall diagram makes it easy to see changes when looking at multiple spectra for data analysis.



Off to the next round
Creating a VIBSCANNER® route is particularly easy as every machine can be represented graphically. Use 'drag & drop' to position measurement locations, which are then shown on the VIBSCANNER® display.

Technical data

Hardware

Measurement channels

Analog: Vibration signals (LineDrive, ICP®)
Temperature (Pt100,NiCrNi)
Transducer & instrument outputs
AC (± 30V; 0 - 20mA)[1]
DC (± 30V; 0 - 20mA)[1]
Digital: Trigger (5V TTL)

Outputs

RS 232 (up to 115 kbaud, PC connection),
Headphone, Analog signal ($4V_{pp}$; R_{out}= 200 Ω)

Operating elements

1 joystick (Cursor & ENTER function)
2 keys (Menu and Escape)

Display

Graphical pixel display (backgr. illumination)
Dimensions 54 x 27mm / 128 x 64 px
4 LEDs for status / signal evaluation

Power supply

NiMH recharg. battery with quick-change lock
Electrical data 7.2V /1.5Ah
Charge dur. < 6 hours (EX: <10 hours)
Operat. dur. > 10 hours in intermit. use
> 6 hours in continuous use with illumination

Internal sensors

Vibration/shock pulse (bearing condition)
Frequency range ±10% 10Hz ... 10kHz[3]
Resonance freq. 36 kHz[3]
RPM (IR sensor with light point for adjustment)
Temperature (NiCrNi)

Signal processing

r.m.s., 0-p, p-p, Max/Carpet, Envelope, Rectification
Filter: Highpass: 2/10 Hz; 1/5/10[2] kHz
Lowpass: 1/5/40 kHz
Integrat.: Two selectable stages
Sampling frequencies: Up to 64kHz (depending on measuring range)

Memory

4 MB

Design Innovationen Essen · Germany
Roter Punkt

Plant Engineering PRODUCT of the YEAR 2001

Housing

Material	ABS, reinforced with steel fiber
Protect. class	IP 65
Rel. humidity	10 ... 90%; non condensing
Dimension	250 x 100 x 55 mm (HxWxD)
Weight	approx. 690 g

Temperature range

Operation	0 ... +60°C (EX: 0 ... +45°C)
Storage	-20 ... +80°C (EX: -20 ... +45°C)

Measurement range / Accuracy

RPM	60 ... 60000 min^{-1} / 0.1‰
Temperature	
Pt 100	-50...+600°C / 1°+ sensor%
NiCrNi (int.)	-50...+100°C / 0.5° + 3%
(ext.)	-50..+100°C / 0.5°+ sensor%
(ext.)	100..+1000°C / 1°+ sensor%
Extra low voltage (AC/DC)	-9...+9V / 2% (R_i=30kΩ, with cable VIB 5.440)
	-30...+30V / 2% (R_i=100kΩ, with cable VIB 5.433)
Extra low current (AC/DC)	-20..+20mA/ 2%; 4..20mA/ 2% (R_{shunt}=200 Ω, with cable VIB 5.434)

For internal sensor and external sensors (1µA/ms^{-2} CLD[4]; 100mV/g ICP®) and external measurement devices (1mV/ms^{-2}), the following applies:

Displacement	up to 9000 µm (p-p) / 1%
Velocity	up to 9000 mm/s (p-p) / 1%
Acceleration	up to 6000 m/s² (p-p) / 1%
Shock pulses	up to 81 dBsv / ± 3dB

Standards met
Frequency response according to ISO 2954 - other parameters and measured variables according to DIN 45662 class 1

Noise, internal sensor (from 10 Hz)

Velocity	0.1 mm/s eff.
Displacement	2µm eff. (instr.+sensor)
Shock pulse	< 0dBsv , peak

Compatibility

External transducer
Vibration
- CurrentLineDrive (CLD[4]) transducer
- ICP® transducer
- Velocity detection (mV/mms^{-1})
- Displacement detection (mV/µm)[5]

RPM
- Optical sensor (passive/active)
- 5V TTL (opt. or induct. transducer)

Temperature
- NiCrNi (magnetic/probe)
- IR probe
- Pt100[1]

Intrinsically safe version (option)

EEx em ib IIC T4 : TÜV 01 ATEX 1699

Ex II 2 G

[1] not for intrinsically safe instruments
[2] optionally available
[3] in 90° sinking
[4] CLD: Current line drive = amplifier with current output
[5] no power supply

Firmware

Measurement functions

Velocity / displacement / acceleration in machine-specific measurement tasks;
Shock pulse (bearing condition);
Cavitation; Temperature; RPM

Time signal

$f_{max.}$ 200/ 500/ 1000/ 2000/ 5000 Hz
Meas. time [125 - 4000] ... [7.8 - 250] ms

Recording (overall values and spectra)

Start delay	Adjustable
Repetition	Adjustable
Waiting time	Adjustable

FFT analysis

Frequency basis 200/ 400/ 1000/ 5000 Hz
No. of lines 400 to 6400 lines
Line width > 0.03 Hz

Balancing

1-plane/ sequential 2-plane balancing
Balancing: Free, fixed location, fixed weight, tape measure, integrated masses

Process parameters

Manual input
User-defined tasks:
DC: ±30V; -20 ... +20mA
AC: ±30V; -20 ... +20mA
(extra-low voltage/ current)

Data processing

Evaluation functions for characteristic overall value;
Bearing diagnosis using shock pulse:
Machine-condition evaluation according to ISO standards (vibration according to the new ISO 10816-3);
Data collection functions for characteristic overall value and for machine inspection;

Measurement parameters

Averaging	Free run, linear, peak-hold, exponential, time synchronous; Adjustable averaging no. & time
Meas. time:	Adjustable
Amplitude	Autorange

Units

ISO and US units, switchable

Languages

German, English, French, Italian, Swedish, Czech, Spanish, Dutch, Polish

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Productive maintenance technology