

Easy-Balancer

Vibration Analyser
and
Balancing instrument



Vibration Analyser and balancing instrument with:

- Built in program in several languages
- Balancing with 2 transducers simultaneously
- Frequency Analysis with transfer to PC
- Envelope
- Time signal
- Coast-Up and Coast-Down
- Vibration / Phase measurement for vibration animation
- Total Level
- Bearing Condition
- Output to printer and computer

Balancing and Vibshape

Balancing

Large speed range

Balancing can be made between 30 to 192.000 rpm corresponding to the frequency range 0,5 to 3.200 Hz.

Two transducer simultaneously

Easy Balancer measures with two transducers simultaneously which makes dynamic balancing very simple.

Starts and saves automatically

Easy Balancer both starts and finishes the measurements with trial- and balancing weights automatically.

A measurement starts automatically when the selected balancing RPM has been obtained and finishes automatically when the measurements are stabile.

Balancing according to ISO-Standards

Easy Balancer compares the balancing result according to ISO Standard. This makes it possible to balance any machine, even on site, according to ISO Standard without the need for a balancing machine.

Weight distribution to fixed positions

Easy Balancer can distribute the balancing weight to fixed positions e.g. to bolts in a coupling or blades in a fan.

Weight calculations to new radius

With Easy Balancer you can at any time choose a new radius for the balancing weight and the instrument calculates a new balancing weight to the chosen radius.

Alarm for the most common faults

Easy Balancer controls the progress of the balancing and gives an alarm if the operator makes a common fault like for example leaves the trial weight in the machine when he has told the instrument to remove it.

With Easy Balancer balancing has become very "easy".

Vibshape

Easy Balancer is creating a list of several measurements where the level, phase and speed are stored.

Easy Balancer can also measure level and phase of a multiple of the speed and two transducers can be used simultaneously.

Easy-Balancer can store 999 measurements in each list.

The Vibshape function is used for example when we want to animate (create a moving picture of) the machine or when we want to measure several measuring points, for example a large steam turbine with many bearings.

Vibshape			
Multiple A: 2		Multiple B: 7	
Mp	Vib	Angle	Speed
001	um		Hz
001	437.28	142.9	49.5
001	98.342	311.6	148.5
002	374.48	218.1	49.5
003	mm/s		RPM
003	12.578	78.7	5940
003	4.8235	192.2	20790
004	mm/s		Hz
004	7.4312	4.7	24.5
005			

Frequency analysis, Time signal, Envelope, Coast Up, Coast Down and overall values

◆ Frequency analysis, Envelope and Time signal

Easy-Balancer makes **frequency analysis** with two transducers simultaneously between the frequency range 2 to 3.200Hz and with a resolution of 1Hz that corresponds to 3.200 lines. When analysing with only one transducer the resolution is 0,5Hz that corresponds to 6.400 lines.

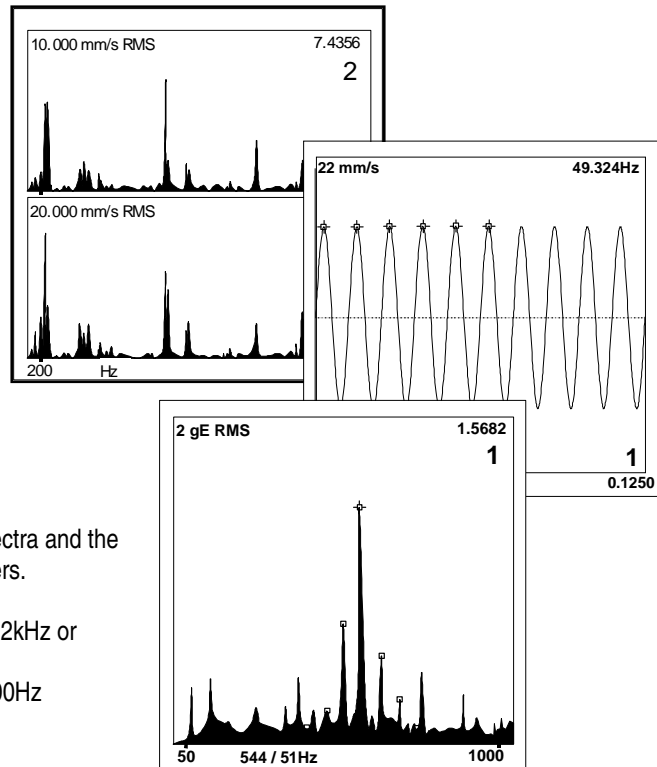
It is easy to zoom in the frequency range with the numeric keys 1 to 6. With key 6 the spectra is displayed with full resolution.

As a help when analysing a spectra Easy-Balancer has **single**, **harmonic** and **side band cursors**.

The **time signal** is always measured together with a spectra and the frequency markers are synchronised with the time markers.

Envelope is measured within the frequency range 3.2-4.2kHz or 3.2-20kHz.

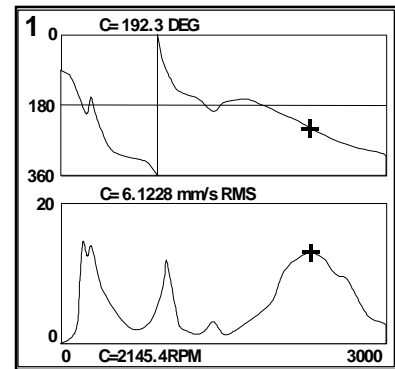
The spectra is shown within the frequency range 0.5-1000Hz



◆ Coast-Up and Coast-Down

With Easy-Balancer you can easily make a **Coast-Up** or **Coast-Down** to investigate the resonance's in a machine.

Easy-Balancer automatically distributes the RPM range in 167 parts and measures the level and phase at every division of the RPM.

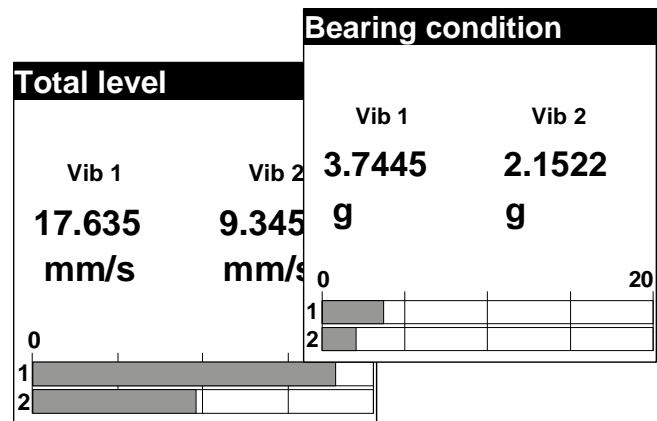


◆ Total level and Bearing condition

Easy-Balancer can measure **total level** and **bearing condition** like a voltmeter.

The level is displayed both as a numeric value and as a scale.

This makes it easy to investigate how the machines is vibrating in different directions and in different measuring points and also how the machine reacts when a bearing is lubricated or when the stretching of a transmission-belt is increased or decreased.



Technical Specification

◆ Transducer inputs:

Easy-Balancer is pre-made for the most common types of transducers like Accelerometers, Velocity Transducers and Proximity Probes. Both transducer inputs can supply 4mA to accelerometers with built in constant current amplifiers and can also supply 24VDC/25mA to inductive proximity probes. The un-linear response of velocity transducers at the resonance frequency is compensated in the software.

Easy-Balancer can be pre-programmed for up to 10 different types of transducers, just enter the transducer unit and the sensitivity in mV/unit. The maximum input without external resistors is $\pm 5V$. Each channel can be programmed independently.

The input for the RPM transducers can supply 24V/25mA to optical or inductive RPM transducers. The input accepts both PNP and NPN transducers and also Namur transducer for 8.8V. This input can also be used together with magnetic RPM transducers, in this case the instrument supplies a current of 2.4mA through the transducer coil.

With a special self-adjusting electronics Easy-Balancer accepts all RPM pulses between 0.5 and 24Volt, even negative, as long as one pulse per turn is dominating the RPM signal.

◆ Display units:

Each channel can independently be programmed to show vibrations in the 10 most common vibration units and with RMS, Peak or Peak-Peak. The frequency can be shown in RPM or Hz.

◆ Frequency analysis:

Easy-Balancer makes frequency analysis within the frequency range 0,5 to 3.200Hz with selectable low frequency limit.

When measuring with 2 transducers simultaneously the resolution is 1Hz or 3.200 lines.

When measuring with one transducer the resolution is 0,5Hz or 6.400 lines.

◆ Time signal:

The time signal is always measured at the same time as the spectra and with the same unit and frequency range. Saving the time signal is selectable both in route and with separate spectra measurement.

◆ Envelope analysis:

The envelope measurement is made within the frequency range 3.2-4.2kHz or 3.2-20kHz and the envelope spectra is then shown with the frequency range 0,5-1000Hz. Only one transducer can be used at envelope measurement.

◆ Balancing and Vibshape measurements:

Digital tracking filter that is controlled by the RPM pulse. A vibration noise that has the same level as the unbalance will influence the measurement less than 1%. Averaging which is used in balancing will decrease this influence even more. Measurements can be made within the frequency range 0,5-3.200Hz that corresponds to the RPM range 30-192.000.

◆ Coast-Up and Coast-Down:

The same digital tracking filter that is used for balancing. The Coast-Down can be made within the frequency range 0,5 to 3.200Hz that corresponds the range 30 to 192.000 RPM while Coast-Up can be made within the frequency range 4 to 3.200Hz that corresponds the range 240 to 192.000 RPM. The resolution is always 1/167 part of the selected maximum RPM.

◆ Total level:

The total level is measured as an average (RMS) of all vibrations within the frequency range 10 to 3.200Hz.

The accuracy at the calibration frequency 200Hz is better than 3%.

◆ Bearing Condition:

The bearing condition value is an average (RMS) of all vibrations between 3.200 to 20.000Hz and is always displayed in the unit "g".

◆ Storage capacity:

1.7MB

◆ Dimensions in mm:

Instrument dimensions 175 x 185 x 45 mm; weight 1.2 kg including alkaline batteries.

◆ A complete instrument set contains:

1 pc Instrument incl. batteries	2 pc Vibration Transducers with magnet support
1 pc Optical RPM transducer	2 pc Extension cable 5m for vibration transducers
1 pc Reflective tape 1m	1 pc Manual
1 pc Extension cable 5m for the optical RPM transducer	
1 pc Magnet support for the optical RPM transducer	
1 pc Storing case in ABS plastic with space for documents, long cables or printer	

The manufacturer reserves the right to make changes in this technical specification.

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