

# *Easy-Balancer*

Vibration Analyser  
and  
Balancing Instrument



## **Vibration Analyser and Balancing Instrument with:**

- Built in program with 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 level/ phase measurements

## 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".**

**Balancing functions**

- Calculation of trial weight
- Weight distribution
- Balance q
- Response
- View resp
- Bias vibra

**Calculation of trial weight**

**Input of response matrix**

**Balance quality**

**Saved balancings**

**LATEST BALANCING**

FAN 7422  
FAN H20

97 07 21

CENTRIFUG PM7 STORA

## 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, Coast Up/ Down, Total Level

## ◆ 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.

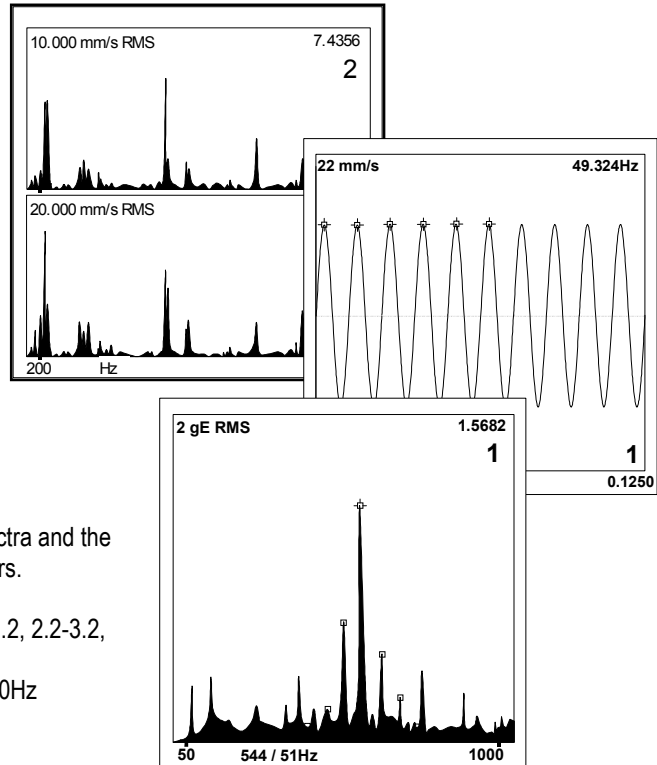
It is easy to zoom in the frequency range with the numeric keys 1 to 6.  
With key 6 the spectra is displayed with full resolution.

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 ranges 1.2-2.2, 2.2-3.2, 3.2-4.2 or 3.2-20kHz.

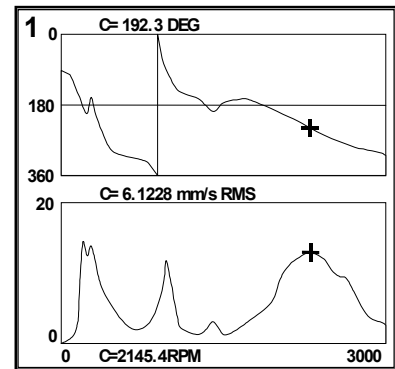
The spectra is shown within the frequency range 0.5-1000Hz



## ◆ 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.

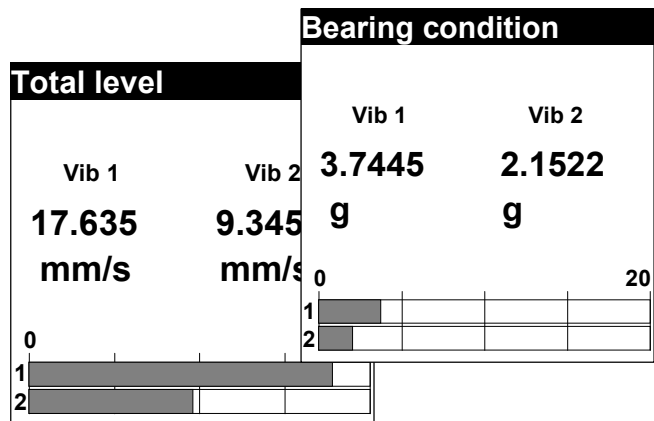


## ◆ Total level and Bearing condition

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

<b>Input channels</b>	<b>2 vibration inputs, 1 phase input</b>
<b>Standard vibration transducer</b>	<b>Accelerometer type VMI-102</b> Sensitivity 100mv/g Frequency response (+/-3db) 0.7-15000Hz Resonant frequency 30000Hz Temperature range -50°C ... +120°C Fixture magnet holder or handheld extension rod Cable length 1 m and 5 m extension cable
<b>Vibration inputs electrical specification</b>	
Input signal range	+/-5V Peak
Transducer signals	Accelerometer, Velocity, Proximity probe or AC signals
Transducer power supply	+4mA constant current at max 20V for ICP accelerometer +24V/max. 25mA for proximity probe
<b>Standard phase transducer</b>	<b>Infrared photocell</b> Measuring distance 0.15 – 2 m Fixture adjustable support with magnetic base Cable length 0.1 m and 5 m extension cable
<b>Phase input electrical specification</b>	
Input signal range	+/-5V Peak
Transducer power supply	+24V/max. 25mA
<b>Measuring Properties</b>	
Spectrum resolutions	0.03125 or 0.0625Hz, 0.5 or 1 Hz, 2.5 or 5Hz
Selectable Spectrum frequency ranges	0.5 – 200Hz, 0.5 – 3200 Hz, 2.5 – 16000Hz
Selectable Spectrum high pass filter limits	0.5, 1, 1.2, 2, 2.5, 3, 10 Hz
Spectra averaging	Linear, Exponential, Peak-Hold
Envelope frequency range	1 – 1000 Hz
Envelope band pass filter	1.2-2.2, 2.2-3.2, 3.2-4.2 or 3.2 – 20kHz
Total value frequency range	10 - 3200 Hz (according ISO2372)
Bearing condition unit	"g" rms
Bearing condition frequency range	3.2 – 20 kHz
Cost up / Coast down, number of samples per graph	167
Dynamic balancing	1 or 2 planes according to ISO1940
Memory space	Approx. 40 high resolution spectra measurements
Auto range	Yes
Dynamic range	>80dB
Real-time sampling rate	8.2 KHz / 16.4KHZ
Selectable average for all measurements	RMS, Peak, Peak-Peak
Selectable vibration units for all measurements	m/s <sup>2</sup> , g, mm/s, m/s, in/s, µm, mm, mils, thou, mV
<b>Miscellaneous</b>	
Main processor	DSP Texas Instrument, floating point base, 50Mhz
On board ROM	1 Mb SRAM
On board RAM	4 Mb Flash memory
Graphical Display	192x192 pixel, Backlight
Real time clock	Yes
PC/Printer communication	9-Pin D-Type, RS232 max. 57600bps
Power supply	4 x R14 standard or rechargeable batteries
Power consumption	≈300mA, 6 hour operation time
Working temperature range	-20°C ... +50°C
Dimensions	180 x 175 x 40mm
Weight	1.2 Kg including batteries

## A complete instrument set contains:

1 pc Instrument incl. batteries	2 pc Vibration Transducers with magnet
1 pc Optical RPM transducer	2 pc Cable 5m for vibration transducers
1 pc Reflective tape 1m	1 pc Measuring point
1 pc Cable 5m for RPM transducer	1 pc Communication cable RS232
1 pc Magnet support for RPM transducer	1 pc Battery eliminator
1 pc Storing case in Aluminium	1 pc manual



VMI AB reserves the right to make changes in this technical specification.



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