Features

SB-8002R

1. Low price, built in unit in trunk case
2. Easy operation. Measured results and operation guide are indicated on 7-sement LEDs.

built in unit in trunk case

SB-8002RB

1. Very small palm size.
2. Battery powered and convenient for portable field use.
3. Touch screen color LCD
4. USB port and microSD card slot are equipped as standard.

Instrument and all accessories are stored in a carrying case

SB-8003R

1. Measured data can be printed immediately by built-in printer
2. Measured data can be transferred to PC via USB port
3. Easy operation. Measured results and operation guide are indicated on 7-sement LEDs.

Instrument and all accessories are stored in a carrying case

Model		SB-8002R	SB-8002RB	SB-8003R
Range of Measurement	Balancing Speed	180 to 61,000min^{-1}		
	Amplitude range of synchronized vibration	Displacement: 0.001 to 999μm(at 6,000min^{-1})		
	Resolution of vibration	0.001μm		
	Vibration input channel	2ch		
	Measuring method	Fixed-speed method		
	No. of Correction plane	1 or 2 selectable		
Correction method	Polar coordinates	0° to 359° (angle resolution: 1°)		
	Components of unbalance vector	3 to 99	3 to 50	3 to 99
	Correction weight	Add / Remove		
Vibration analysis function	Unbalance Vibration Analysis	0.001 to 999μm (at 6,000min^{-1})		
	Harmonic analysis	0.001 to 999μm (at 6,000min^{-1})		
Others	USB interface	N/A	mini-B type	B type
	microSD card slot	Available as standard		
	Graphic display	7segLED	3.5" TFT color LCD	7segLED
	Set up operation	LED	Dialog with touch screen	LED
	Power supply	AC 100 to 240V ±10% 50/60Hz		
		N/A	Li-Ion battery (Operating time: up to 8 hours)	N/A
	Environment Temperature	5 to 40°C	10 to 30°C	5 to 40°C
	Humidity (Non-condensing)	20 to 80%RH	20 to 80%RH	20 to 80%RH
	Dimension of measuring unit	(Built-in in trunk case)	180(W)×100(L)×45(H)mm	215(W)×100(L)×155(H)mm
	Mass of measuring unit	Approx. 5kg	Approx. 0.35kg / 4.3kg*1	Approx. 2.5kg / 7.5kg*1
	Dimension of Carrying case	385(W) × 120(L) × 255(H)mm	385(W) × 120(L) × 255(H)mm	455(W) × 185(L) × 320(H)mm
Standard accessories (one each)	Vibration sensor	P12SC (Sensitivity: 10pC/(m/s^2))		
	Fixing magnet	KM-025C (Holding force: 100N)		
	Sensor cable	LN-041 (2.5m straight)		
	Rotation sensor	SFS-M1H (with 2m cable)		
	Fixing magnet stand	NB-B (Holding force: 800N)	NF2021 (Holding force: 320N)	DG1030 (Holding force: 800N)
Optional	Unbalance correction(G)	N/A	Available	N/A

*1 Mass of carrying case with main body and all accessories.
* In case of using in outside of Japan, use an AC adapter with interchangeable power cord. Please attach "E" as suffix for interchangeable cord. Ex: SB-8002RE.
Plug is attached type "A", please provide plug adapter for regional standard.

Specifications may be changed without any notice due to modification, etc.

Field Balancer for High Precision Grinders

AC powered model
SB-8001G

Battery and
AC powered model
SB-8001GB

A Member of Japan Testing Machine industrial Society
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Balance Monitor

The Field Balancer suitable for General Rotating Machinery

www.sigma-elec.co.jp

Easy-to-use and affordable than ever!
Definitive field balancer for general rotary bodies

AC powered model **SB-8002R** max.61,000min^{-1}

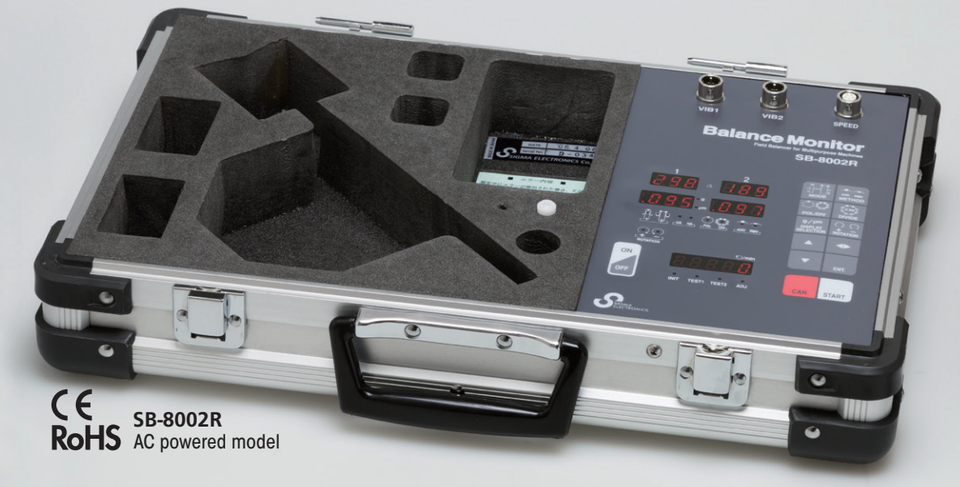
Battery and AC powered model **SB-8002RB** max.61,000min^{-1}

AC powered model **SB-8003R** max.61,000min^{-1}

CE RoHS
SB-8002RB
Battery and AC powered model

SIGMA'S field balancer boasts high performance in principle especially at high rotational speed.
Suitable for balancing of high-speed slicers, spindles of machine tool, high-speed spindle motors, centrifuges, blowers etc.

CE RoHS
SB-8003R
AC powered model



CE RoHS **SB-8002R**
AC powered model

One vibration sensor is attached as standard.

SIGMA ELECTRONICS **SIGMA ELECTRONICS Co., Ltd.**

Easy-to-use and affordable than ever! Definitive field balancer for general rotary bodies

In 1985, Sigma Electronics Co., Ltd. has developed the industry's first field balancer which microcomputer is installed. Before that field balancing had been difficult work and only skilled person can perform. By Sigma's field balancers, not skilled person can easily perform high precision field balancing with automatic calculation of amount and angle of unbalances.
SB-8000 series field balancer has been developed for balancing of general rotating machinery with user friendly, high accuracy and reasonable price.

Features

Balancing of driving elements and rotating parts is very effective procedure to eliminating undesired vibration of machinery.
In general, mechanical vibration of rotating machinery contains many frequency components. One of the most important functions of field balancer is accurately extracting frequency component caused by unbalance.
SB-8000 series field balancer contains unique multivariable analyzing algorithm which has many past performance in Sigma's balancing machines. They are developed especially pursued cost performance and easy operation.

1. Very high accuracy

High accuracy constant speed balancing in 0.001μm resolution can be performed at rotational speed of up to 61,000min^{-1} by Sigma's unique multivariable analysis algorithm.

2. Indicating phase and amplitude of 2 planes.

Operating procedure and measured results are indicated on 7 segment LED (SB-8002R/8003R)
Displayed in color LCD touch screen (SB-8002RB)
Sensitivity is automatically selected, easy operation can be implemented.

3. Certain and speedy operation

Explicit dedicated touch key operation (SB-8002R/8003R)
Easy setting of unbalance correcting mode (Polar coordinates /Components). Very rapid measuring time

4. Suitable for balancing of high-speed rotating machinery

Very high accuracy can be obtained at rotational speed of more than 1,000min-1, by multivariable analyzing method.

5. Built in printer (SB-8003R)

Measured data can be printed out immediately.

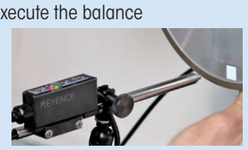
6. USB port is installed as standard

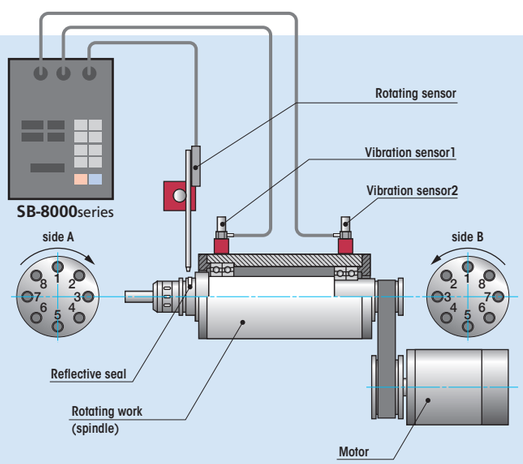
Measured data can be transferred to PC, report can be easily created on Excel table. (8002RB/8003R)

Main Configuration

Setting and preparation the sensor

1. Install vibration Sensor on the bearing using the attached magnet or remove the magnet base and fix it with M6 screws. (When it is installed to a curved surface, use V magnet (option)).
2. Affix the reflective seal for rotary Sensor on the spindle (affix it on a smooth surface on the circumference).
3. Connect the cables of Vibration and Rotary Sensors to the main unit.
4. Bring the tip end of Rotary Sensor closer to the reflective seal, and check that the sensor lamp is ON, when the tip end of Rotary Sensor is above the reflective seal and is OFF when it is not .
5. All the preparation are completed now and execute the balance correction in accordance with the operation procedure.





New functions

1. The latest data processor leads to still more accuracy

Vibration measurement accuracy has been improved, high accuracy and high reduction balancing can be performed.

2. Selectable angle scaling direction CW or CCW

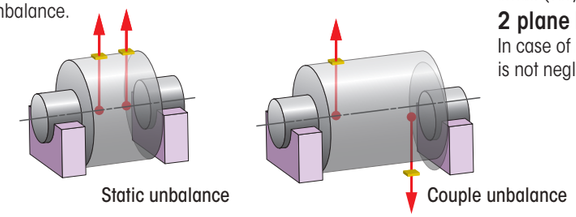
Angle scaling direction can be easily selected CW or CCW.

3. Back up function

All setting parameters including number of correction plane, angle scaling, influence coefficients, etc. are automatically stored. Even if power off, all setting can be recalled.

Balancing method

Unbalance of a rotor is classified as static unbalance and couple unbalance. There are two methods of balancing (unbalance correction) as 1 plane balancing and 2 plane balancing. The selection of the balancing methods is considering amount of static unbalance and couple unbalance.



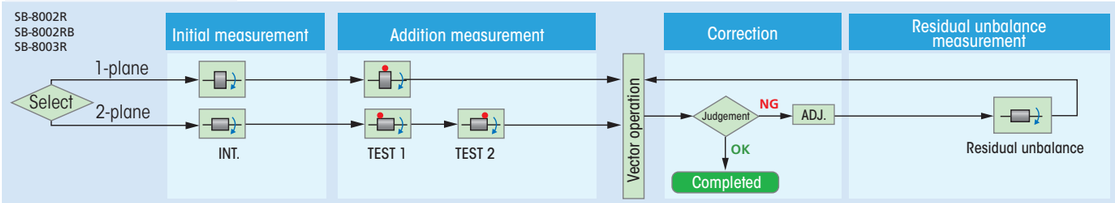
1 plane balancing

1 plane balancing is used for correcting only static unbalance. In general, this method is suitable when couple unbalance is negligibly small (very thin disk shaped rotors).

2 plane balancing

In case of rotors with relatively long axial dimension, couple unbalance is not negligible therefore 2 plane balancing is required.

Procedure Rotor



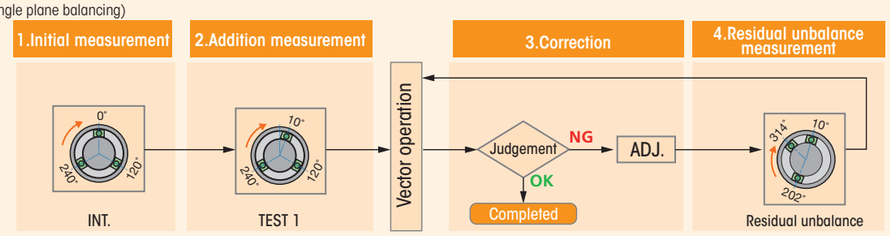
1. **Initial measurement:** Unbalance vibration is measured at initial condition.
2. **Addition measurement:** Unbalance vibration is measured with attaching a trial mass at correction plane. Direction of a trial mass is defined as 0 degree angular position. In case of divided fixed position correction, the trial mass direction is defined as No.1 position.
3. **Correction:** After input mass of a trial mass, amount and angle of correcting unbalance are indicated.
4. **Residual unbalance measurement:** Unbalance vibration is measured after unbalance correction according to procedure 3. When the value is not exceeding permissible value, the work would be finished. The work will be continued if the value is exceeding.

Procedure Precision grinding machine

Balancing with positioning balance weights

Dedicated option of SB-8002RB (Single plane balancing)

*Following balancing method (balance weights positioning) may make easy balancing of ordinary rotating machinery because not need adjusting mass of balancing weights.



1. **Initial measurement:** Unbalance vibration is measured at balance weights are at present angular positions.
2. **Trial measurement:** Unbalance vibration is measured after moving one balance weight at indicated angular position.
3. **Correction:** After trial measurement, the optimum angular positions of weights are indicated.
4. **Residual unbalance measurement:** Unbalance vibration is measured after moving balance weights at indicated angular positions. When indicated vibration is under allowable value, the operation is completed. When exceeding, move balance weights to angular positions indicated again.