DIGITAL VIBRATION METER

DIGI-VIBRO

MODEL：1332B

New

Respond to the needs;"safe and confortable"

The DIGI-VIBRO is a handy,convenient solution to your vibration measurement needs.

Designed for maximum simplicity in function, it sppeds up measurement tasks.

EQP

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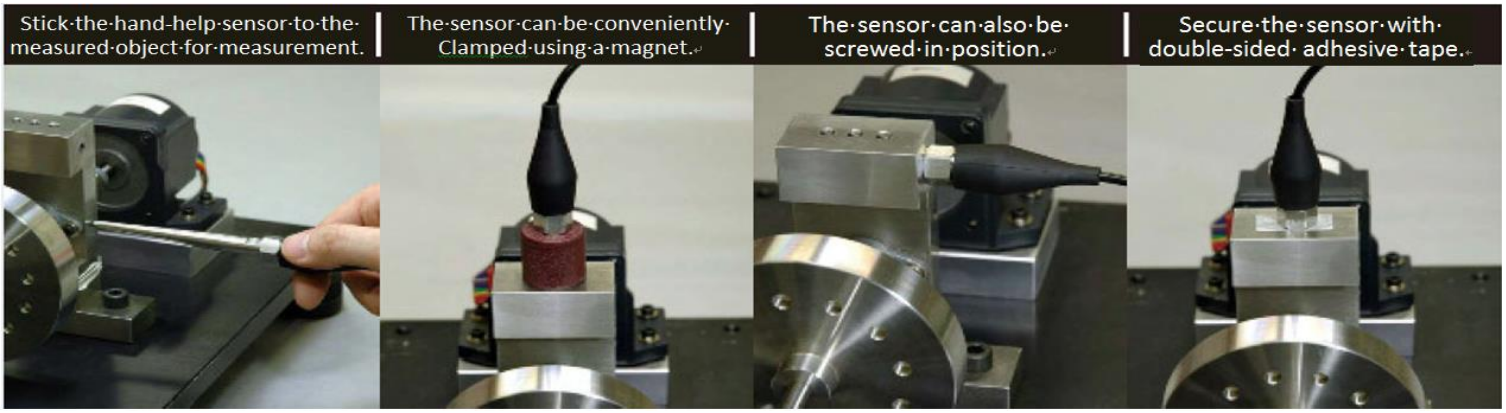
DIGI-VIBRO Applications

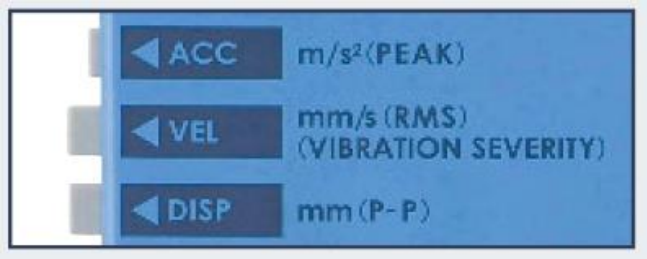
As long as rotating or reciprocating machinery is running successfully, it keeps you, as sell as itself, safe and secure. But once the machinery gets into trouble, it could produce a high level of vibration to threaten your safety. The DIGI-VIBRO provides vibration measurement for innumerable kinds of Here is a small fraction of the numerous applications of the DIGI-VIBRO：

- Vibration measurement for blowers used to dry automobiles after they are painted.
- Vibration measurement at the location of mainframes.
- Solenoid valve actuation condition checking.
- Machine tool failure inspection.
- Maintenance of general-purpose engines.
- Maintenance of checking on blowers installed at garbage incineration plants.
- Bearing fault checking on blowers installed at garbage incineration plants.
- Bearing wear checking on automatic grinding machines used to fabricate clock parts.
- Amplitude and acceleration measurement for vibration testers.
- Measurement of resonance points on instruments to which engine vibration is imparted.
- Automatic medicine packing machine actuation condition checking.
- Routine checking on pumps and blowers installed at petrochemical plants.
- Transformer howling checking.
- Numeric representation of the actuation conditions of cell phone vibrators.
- Spindle vibration measurement.
- Cooling tower fan maintenance.

How to Install



Select Measurement Modes



Acceleration measurement mode.

Acceleration measurement mode is suited for measuring high-frequency vibrations, such as those from a deteriorated bearing. Bearings make several tens to several hundreds of turns each time the rotating machine in which they are used completes one turn. They also generate shock pulses when flawed ro chipped. Acceleration measurements is the ideal way of detecting these pulses

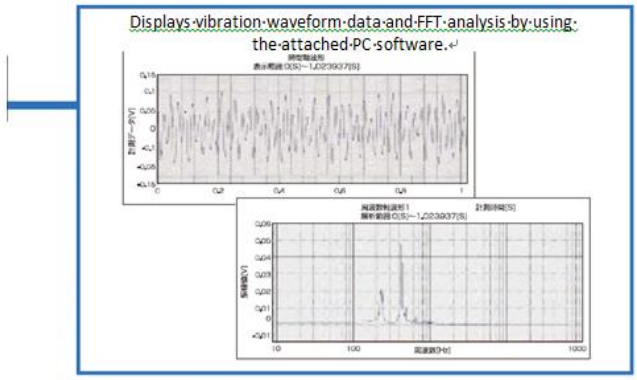
Velocity measurement mode.

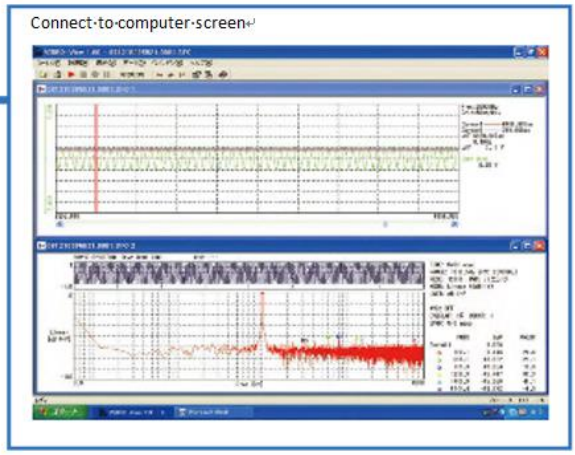
Velocity is defined as a rate of displacement per unit time, indicating a speed of said vibration. The value of velocity, which is expressed in the unit of mm/s (RMS), is proportional to both displacement and frequency. Velocity is a mode suitable for investigating general machine conditions, as also specified in ISO 10816-1 as a typical indicator of mechanical vibrations. Applicable frequency range is 10 to 1,000Hz.

Displacement measurement mode

The DIGI-VIBRO reads the actual travel of a vibrating object as a double amplitude, for example, as 30 μ mP-P(micrometer peak-to-peak). This measurement mode is the easiest to understand and mostly widely used among the three. Ideal for measuring the vibration of rotational components, such as an imbalance. The frequency range is narrow, from 10Hz to about several hundreds of Hz.

Analyze·Vibration



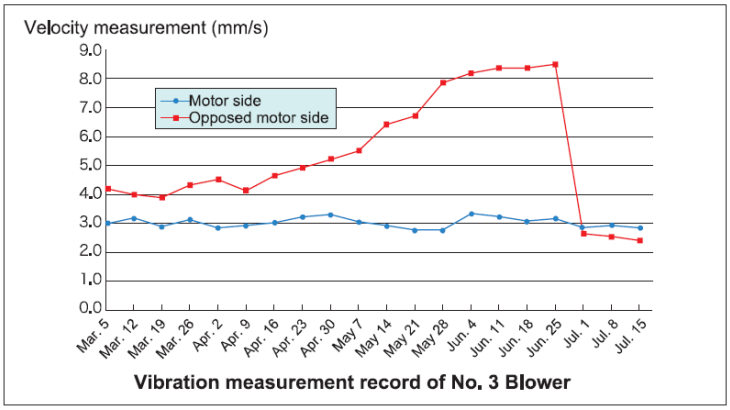


Concept of Acceptance /Rejection Criteria

When it comes to vibration measurement, one question always confronts me; how should I make acceptance/rejection decisions?

The vibration value criteria for evaluation of machine conditions are classified into "Tendency management,""Similarity comparison," and "Absolute value evaluation.".

Tendency management: This is the most steady and practical evaluation method. This method periodically measures vibration values, compares them by old reference vibration values that were obtained when the machine was running in the best conditions, obtains the differences (increases in vibration values), and judges a maintenance time from them. Generally, it is said that the vibration values keep on going up after passing over the vibration values of about 1.6 times of a normal vibration value. When the vibration of a test machine reaches 2 to 3 time of the normal vibration vale, the machine must be overhauled. The graph shown below is a record of periodic vibration measurements of a certain blower. Since faults were detected on the side opposed to the motor, but not in the motor itself, the machine has been overhauled to return to normalcy.



Vibration measurement record of No. 3 Blower

Similarity comparison :This method compares vibration values of machines of the same type and judges a machine of the higher vibration value (indication the machine is abnormal).

Absolute value evaluation :This method judges the vibration value according to reference vibration values defined by machine scales by ISO 10816-1.

Vibration severity ISO 10816-1

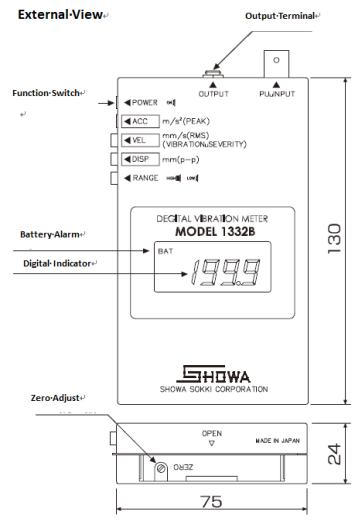
RMS value of vibration velocity (mm/s)	Class 1	Class 2	Class 3	Class 4
0.71mm/s	A / 0.71mm/s	A	A	A
1.12 mm/s	B	1.12 mm/s	A	A
1.8mm/s	1.8 mm/s	B	1.8 mm/s	A
2.8 mm/s	C	2.8 mm/s	B	2.8 mm/s
4.5 mm/s	4.5 mm/s	C	4.5 mm/s	B
7.1 mm/s	D	7.1mm/s	C	7.1mm/s
11.2 mm/s	D	D	11.2 mm/s	C
18 mm/s	D	D	D	18mm/s
				D

Machine groups

Class 1	Individual parts of engines or machines (typically electric motors of up to 15 kW) built in as parts of complete machines.
Class 2	Middle scale machines having no particular base (typically electric motors of 15 kW to 75 kW) and engines or machines (300 kW maximum) mounted on a rigid base.
Class 3	Large scale generating machinery or rotating machines mounted on a rigid base.
Class 4	Large scale generating machinery or rotating machines mounted on a comparatively soft rigid base (for example, turbo generator sets and gas turbines of output of 10 MW minimum).

Evaluation zones

Zone A	Vibration zone including vibration values of a new installed machine (Good)
Zone B	Vibration zone in which a machine can run long without any limitation (Acceptable)
Zone C	Vibration zone in which a machine cannot be expected to run long (Unsatisfactory)
Zone D	Vibration zone in which a machine may be damaged (Unacceptable)



単位：mm

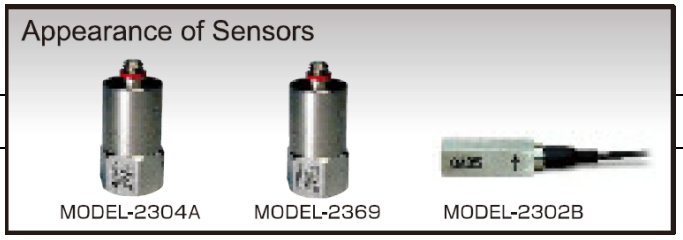
Standard type
Has a standard measuring range. Best suitable for general, universal measurement.

Large input type
Provides the acceleration and velocity measuring ranges of 10 times those for the Standard type. Best suitable for a large vibration measurement.

High resolution type
Has the resolution of 10 times the one for the Standard type. Best suitable for micro vibration measurement.

Lightweight sensor type
Uses a small lightweight type sensor weighing 1.3g. Best suitable for vibration measurement of small objects.

		1332B	1332B-01H	1332B-01L	1332B-OOF
Acceleration measuring range	Hi(Peak)	0.1～199.9m/s^2	1～1999m/s^2	0.01～19.99m/s^2	0.1～199.9m/s^2
	Lo(Peak)	0.01～19.99m/s^2	0.1～199.9m/s^2	0.001～1.999m/s^2	0.01～19.99m/s^2
Velocity measuring range	Hi(RMS)	0.1～199.9mm/s	1～1999mm/s	0.01～19.99mm/s	0.1～199.9mm/s
	Lo(RMS)	0.01～19.99mm/s	0.01～199.9mm/s	0.001～1.999mm/s	0.01～19.99mm/s
Displacement measuring range	Hi(P-P)	0.01～19.99mm	0.01～19.99mm	1～1999 μ m	0.01～19.99mm
	Lo(P-P)	0.001～1.999mm	0.001～1.999mm	0.1～199.9 μ m	0.001～1.999mm
Frequency Range	Acceleration	5～5,000Hz（±1dB）、5～10,000Hz（±3dB）		5～5,000Hz（±1dB）	5～1,000Hz（±3dB）
	Velocity	10～1,000Hz（complies with ISO 2954-Requirements for instruments for measuring vibration severity）			10～1,000Hz（±3dB）
	Displacement	10～1,000Hz（±1dB）			10～1,000Hz（±3dB）
Measurement accuracy 80 Hz 20±5˚ 1/2 FS	Acceleration	±3%±1 digit			
	Velocity	±5%±1 digit			
	Displacement	±5%±1 digit			
Temperature range		Sensor：-20˚C～+110˚C、Amplifier：-10˚C～+50˚C			
AC output		±2V（full scale）			
Power supply		LR6, 2pc, continuously operable for 30 hours or more.			
Dimensions & mass(main unit)		75（W）× 130（H）× 24（D）mm Approx. 230g			
Sensor		MODEL-2304A	MODEL-2304A	MODEL-2369	MODEL-2302B



Note：Upper-limit frequencies for velocity and displacement are limited by the acceleration.

※Specification and designs presented in the product catalog are subject to change without notice for product improvement purposes.

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