

REED

Model VB-8200

Vibration Meter

Instruction Manual



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Features

- Frequency range 10 Hz - 1 kHz, meets ISO 2954 standards
- Velocity measuring range 200 mm/s
- Acceleration measuring range 200 m/s²
- RMS & Peak measurement
- Wide frequency range
- Data hold button to freeze the desired reading
- Memory function to record maximum and minimum reading with recall
- RS232 or USB output
- Optional data acquisition software for data record & datalogger
- Easy-to-read 4-digit LCD readout
- Microcomputer circuit, high performance
- Auto shut off saves battery life
- Built-in low battery indicator
- Heavy duty & compact housing case

Specifications

Measurement:	Velocity, Acceleration RMS value, Peak value, Data hold, Max & Min value
Velocity Range:	0.5 to 199.9mm/s
Acceleration Range:	0.5 to 199.9m/s ²
Frequency range:	10Hz to 1KHz
Accuracy:	±(5% + 2d) 160Hz, 80Hz @ 23 ± 5°C
Calibration point:	Velocity: 50mm/s (160Hz) Acceleration: 50m/s ² (160Hz)
Circuit:	Exclusive microcomputer circuit
Sampling time:	Approx. 1 second
Data output:	RS232 or USB

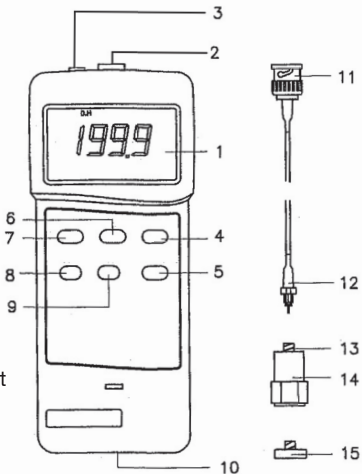
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Operating temp.:	0°C to 50°C (32°F to 122°F)
Operating humidity:	Less than 80% RH
Display:	61mm x 34mm LCD display 15mm (0.6") digits
Power supply:	Alkaline or heavy duty type, DC 9V battery, 006P, MN 1604 (PP3) or equivalent.
Power consumption:	Approx. DC 6mA
Dimensions:	Meter: 180 x 72 x 32mm (7.1 x 2.8 x 1.3") Vibration sensor probe: 19mm Dia. x 21 mm
Weight:	Meter: 230g/0.50lb Probe with magnetic base: 38g/0.09lb
Includes:	Remote vibration sensor, hard carrying case and battery
Optional accessories:	Data Acquisition Software (Model SW-U801-WIN) RS232 Cable (Model UPCB-01) USB Cable (Model USB-01)

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Instrument Description

1. Display
2. BNC socket
3. RS232 output terminal
4. RMS/PEAK switch
5. Acceleration/Velocity switch
6. Data hold button
7. Power button
8. RECORD button
9. RECALL button
10. Battery compartment/cover
11. BNC plug
12. Mini plug
13. Vibration sensor input socket
14. Vibration sensor
15. Magnetic base



Operating Instructions

1. Plug in the BNC plug to the BNC socket
2. Plug in the Mini plug to the Vibration sensor input socket
3. For acceleration measurements, put the Acceleration/Velocity switch to the ACC position
4. For velocity measurements, put the Acceleration/Velocity switch to the VEL position. For general applications of industrial vibration monitoring, select Velocity measurement
5. Put the RMS/PEAK switch to the RMS position
6. Turn the meter on by pushing the Power Button
7. If the surface material of the item being measured is not ferrous, hold the vibration sensor by hand & touch the sensor to the surface of the item, refer the Fig. 2

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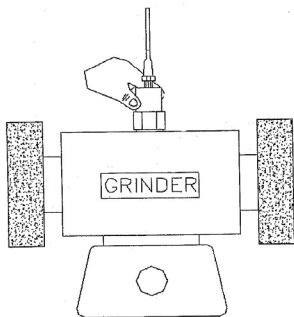


Fig 2

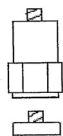


Fig 3

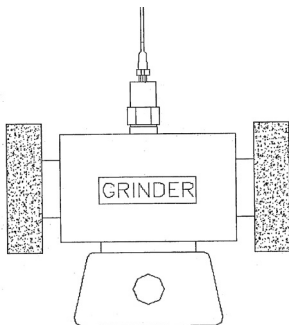


Fig 4

8. If the surface material of the item being measured is ferrous, connect the Vibration sensor with the Magnetic base (see Fig 3). Put the whole unit (Vibration sensor & Magnetic base) on the surface of the item being measured (refer to Fig. 4).

Peak value

Before measuring, put the RMS/PEAK switch to the "PEAK" position. During measurement, the display will show the peak value.
Peak value = 1.414 RMS value

Data Hold

While measuring, press the Data Hold button and the current value will be held the LCD screen along with a "DH" symbol. Push the Data hold button again to release the data hold function.

Data Record (Max & Min reading)

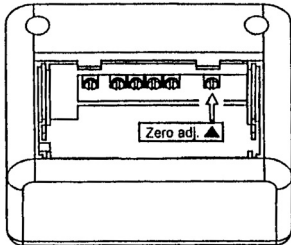
The Data Record function displays the maximum, minimum and average readings. To start the Data Record function, press the RECORD button. A “REC” symbol will appear on the LCD display.

1. Push the RECALL button once and a “Max” symbol along with the maximum value will appear on the display
2. Push the RECALL button again, and a “Min.” symbol along with the minimum value will appear on the display.
3. To exit the memory record function, push the RECORD button once again. The display will revert back to the current reading

Zero Adjustment

Change in environment temperatures, battery power change, using the meter for an extended period of time, or other reasons could result in the display value to not be accurate. This will not dramatically affect the measurement readings, however if high precision is required, the following zero adjustment procedures should be executed:

1. Put the Acceleration/Velocity Switch to the Acceleration position
2. Be sure there is no signal to the vibration sensor
3. Open the battery cover
4. Use a screw driver to adjust “Zero adjust VR” until the display reaches a value of zero



Auto Power Off

As a default the instrument will be set to automatically turn itself off after 10 minutes of not being used.

RS232 PC Serial Interface

The instrument features an RS232 output via 3.5 mm terminal. The connector output is a 16 digit data stream which can be utilized to the user's specific application. An RS232 lead with the following connection will be required to link the instrument with the PC serial input.

Meter (3.5mm Jack Plug)	PC (9W "D" Connector)
Center Pin	Pin 2
Ground/Shield	Pin 5

The 16 digit data stream will be displayed in the following format:
D15 D14 D13 D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 D1 D0

D0	End Word
D1 to D4	Upper Display reading, D1= LSD, D4= MSB
D5 to D8	D5=? D6=? D7=? D8=?
D9	Decimal Point (DP) for display 0 = No DP, 1 = 1 DP, 2 = 2 DP, 3 = 3 DP
D10	D10 = 0
D11	D11 = 0
D12	D12 = 0
D13	D13 = 0
D14	D14 = 0
D15	Start Word

RS232 FORMAT : 9600, N, 8, 1

** Also compatible for USB output

Classification Ranges

For the evaluation of machines and equipment in ISO 2372 and VDI 2056, four different kinds of machine groups with four classification ranges and their limits for vibration severity (mm/s) are determined.

The classifications for each machine group are specified as follows:

Small machines, production electrical motors of up to 15KW (Group K)	
Good	0 to 0.71 mm/s
Acceptable	0.72 to 1.80 mm/s
Still permissible	1.81 to 4.5 mm/s
Dangerous	>4.5 mm/s

Medium sized machines, electrical motors with 15 up to 75 KW output, without special foundations (Group M)	
Good	0 to 1.12 mm/s
Acceptable	1.13 to 2.80 mm/s
Still permissible	2.81 to 7.1 mm/s
Dangerous	>7.1 mm/s

Large machines on heavy foundations (Group G)	
Good	0 to 1.80 mm/s
Acceptable	1.81 to 4.50 mm/s
Still permissible	4.51 to 11.2 mm/s
Dangerous	>11.2 mm/s

Largest machines and turbo machines with a special foundation (Group T)	
Good	0 to 2.80 mm/s
Acceptable	2.81 to 7.10 mm/s
Still permissible	7.11 to 18.0 mm/s
Dangerous	>18 mm/s

Relative sensitivity

To the reference sensitivity at 80Hz, according ISO 2954

Frequency Hz	Normal Value	Minimum Value	Maximum value
10 hz	1.0	0.8	1.1
20 hz	1.0	0.9	1.1
40 hz	1.0	0.9	1.1
80 hz	1.0	1.0	1.0
160 hz	1.0	0.9	1.1
500 hz	1.0	0.9	1.1
1000 hz	1.0	0.8	1.1

Battery Replacement

When the left corner of LCD displays a “LBT” symbol, it is necessary to replace the battery.

1. Use a screw driver to open the Battery Cover & remove the battery
2. Install a 9V battery (Alkaline or heavy duty) and replace the cover

Note: Measurements can still be made for several hours after the low battery indicator appears before the reading becomes inaccurate.

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