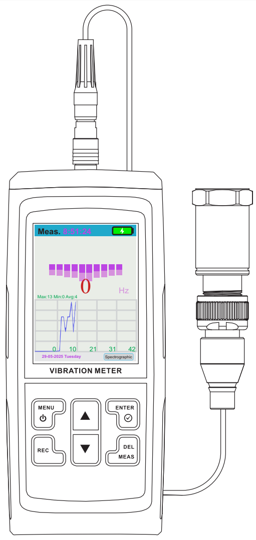
MVB 200

Pen-Type Vibration Meter

User Manual



Version:7603191-EN-01

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I. Introduction

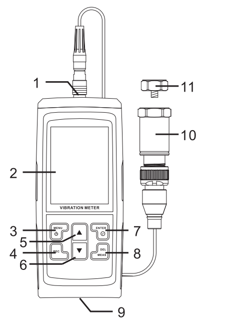
This product is based on piezoelectric effect of artificially polarized ceramics. It is suitable for conventional vibration measurement of mechanical equipment, especially for rotating and reciprocating machinery. It can measure vibration Accelerate, Velocity, Distance, Frequency and Temperature, and is widely used in fields like machinery manufacturing, electric metallurgy and general aerospace.

II. Features

1. Measurement of vibration Accelerate, Velocity, Distance, Frequency and Temperature.
2. TFT large display screen.
3. Automatic switching between high and low-Speed Circuit modes.
4. Display of maximum, minimum, and average values.
5. Line chart directly depicts changes in vibration levels.
6. Data recording in automatic or manual mode.
7. Storage, viewing, and deletion of data.
8. Adjustable sampling interval.
9. Customizable automatic shutdown time.
10. Measurement unit selection option available
11. Machine level selection feature included
12. Self-calibration capability integrated
13. Bilingual language options (Chinese/English)
14. Adjustable screen brightness setting
15. Low power warning function incorporated
16. ISO certification rating provided
17. Support for USB charging
18. PC software connectivity for data transfer
19. Capability to generate CSV and BMP files compatible with Windows system; also functions as a small-capacity storage device (USB flash drive) for other file formats.

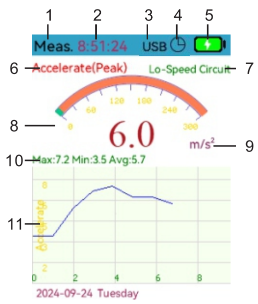
III. Part Names

1. Host-Sensor interface
2. LCD display
3. MENU/⏻ button: Menu/Power button
4. REC button: Record button
5. ▲ button: Up button/Decrease
6. ▼ button: Down button/Increase
7. ENTER/⊙ button: Confirmation button
8. DEL/MEAS button: Delete/ Measurement button
9. USB interface
10. Sensor
11. Magnetic sucker



IV. Interface description

1. Status: Ready/Measurement; Press DEL/MEAS button to enter the measurement state; The preparation status data is unchanged.
2. Rtc corner: Time/Temperature
3. USB connection successful.
4. Automatic shutdown on
5. Battery level
6. Measurement mode: Accelerate, Velocity, Distance,Frequency and Temperature
7. Accelerate/Velocity/Distance mode automatically switches between high and low-Speed Circuit, Frequency mode displays amplitude.
8. Current measurement value
9. Unit: change according to the measurement mode
10. Maximum/minimum/average value
11. Line chart of measurement data



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V. Technical Specifications

	Range	Accuracy	Note
Accelerate	$0.1m/s^2$~$300m/s^2$	±1.5%±2digits	In the frequency range of 20Hz~8KHz
		±3%±2digits	In the frequency range of 8KHz~12KHz
Velocity	1mm/s~850mm/s	±1.5%±2digits	In the frequency range of 20Hz~1KHz
Distance	1um~3300um	±1.5%±2digits	In the frequency range of 20Hz~1KHz
Frequency	30Hz~14KHz	±1%±2digits	Acceleration must be greater than $3m/s^2$
Temperature	-10~60°C(14~140°F)	±5% or ±1.5°C, whichever is greater.	
Vibration acquisition	Piezoelectric ceramic accelerometer (shear type)		
Storage space	8MB (Store approximately 397,000 data points)		
Power supply	2000mAh 3.7V lithium battery		
Low battery indicator	4-level battery level indicator, automatic shutdown when voltage is below 3.3V		

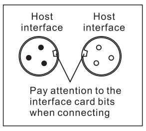
Note:
1. Velocity, Distance, Frequency are related;
2. Do not use the instrument for a long time in environments below 0°C or above 70°C, as it may damage the battery;
3. Charging time: 4~5 hours; Charger: 5V 2A

VI. Operation instructions

1. Preparation for measurement

(1) Connect the host and sensor,install magnetic sucker.

(2) Check the battery charge before starting the measurement, and turn off the device or charge it in time if it cannot be turned on or the battery is low.



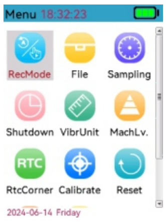
2. Power on/off

(1) Turn on: Shutdown state, short press MENU/⏻ button to turn on, and enter the measurement interface;

(2) Manual shutdown: Power on state, long press MENU/⏻ button to turn off;

3. Menu function operation

After startup, short press MENU/⏻ button to enter the menu, and short press ▲/▼ button to select the setting item, and then press the ENTER button to enter the setting. Press ▲/▼ button again to select, press the ENTER button to save and return to the menu (or press the MENU/⏻ button, without saving, to return to the menu).



Menu

(1) RecMode: Data recording mode;

a. Automatic data recording: for long-term recording(More than 200 points).In the measurement interface, short press DEL/MEAS button to enter measurement, short press REC button to start recording, and record data according to the sampling interval time, while the [REC] icon flashes. When you leave the interface, the file will be saved automatically.

b. Manual data recording: can save up to 200 record points currently; In the measurement interface, short press DEL/MEAS button to enter measurement,short press the REC button to save the data file;

(2) File: view the list/picture of recorded data; Select a file, and short press DEL/MEAS button to delete the record or picture.

a. View recorded data: .csv file format is the measurement data file, short press ENTER button on the product to view the data list;After entering the list, short press ENTER button again to view the line chart.

b. View pictures: .bmp file format is the screenshot picture of the product, viewing pictures requires connecting to a computer. Image resolution: 240x320 dpi.

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Note:

1) Screenshot operation: press the REC button and the DEL/MEAS button at the same time in any interface until the file name is displayed, indicating that the screenshot has been saved successfully;
2) Screenshot save time: affected by the product storage space and image data, please wait patiently for about 30s, during which the interface may be stuck;
3) View the pictures: After connecting the computer, go to "My Computer" (or "This Computer") and you will see the new USB drive for this product's storage.

(3) Sampling: Sampling interval can be set to 1-9 seconds.

(4) Shutdown: Can be set to 00, 10, 20, 30, 40, 50, 60 minutes; 00 means no automatic shutdown.

(5) VibrUnit:

a. Acceleration units: m/s^2, g, ft/s^2
   Conversion: $1m/s^2 = 0.1019716213g = 3.280839895ft/s^2$
b. Velocity units: mm/s, cm/s, in/s
   Conversion: 1mm/s = 0.1cm/s = 0.03937008in/s
c. Distance units: um, mm, mil
   Conversion: 1um = 0.001mm = 0.03937008mil
d. Temperature units: ℃, ℉, K
   Conversion: 1℃ = (1.8*1+32)℉ = (1+273)K

(6) MachLV.: Machine grade

I: Small (P<15KW)
II: Medium (15KW<P<=75KW)
III: Large hard base (P>75KW)
IV: Large soft base (P>75KW)

(7) RtcCorner: Date, Temperature; (displayed at the top left of the interface)

(8) Calibrate:

The factory has been calibrated, and if there is no zero drift, recalibration is unnecessary (zero drift refers to the gradual change in output value of measuring equipment or instruments in the absence of an input signal). The procedure for zero drift calibration is as follows:

a. With a Vibration Calibration Tester:

1) P0 calibration: Under vibration-free conditions, short press ENTER button to initiate calibration until [Pass 33.3%] is displayed;

2) P1 calibration: Adjust the vibration table output according to the displayed conditions and short press ENTER button;

3) P2 calibration: Connect P1 for automatic downward calibration without further operation until 100% success is displayed; it will then automatically return to the measurement interface.

* During the calibration process, the display shows [Over] when the calibration point exceeds the maximum vibration signal.

b. Without a Vibration Calibration Tester:

In the absence of vibration, enter P0 calibration, wait for the interface to display [Pass 33.3%], which means the calibration is complete, and short press MENU/⏻ button to exit calibration;

(9) Reset: The option to restore to factory settings is available for incorrect operations or settings;

(10) Language: English or Chinese;

(11) BackLight: Adjustable backlight brightness, which can be set to 1%~100%;

4. Measurement

(1) After startup, short press DEL/MEAS button to enter the measurement state. Press ▲/▼ button to switch between: Accelerate (Peak), Velocity(RMS), Distance(P-P), Frequency and Temperature measurement interface;

(2) Wait for the detection to complete, and use the sensor to measure to obtain the data. If you need to save the data, short press REC button to record;

(3) The measurement interface displays the maximum/ minimum/ average value, and the unit is displayed according to the menu setting. The product automatically switches between high/low-speed measurement lines;

(4) Velocity(RMS) interface: Short press ENTER button to view the ISO Rating: good, normal, unsatisfactory, unacceptable; it needs to be used in conjunction with the machine's power grade;

(5) Frequency interface: Short press ENTER button to view the frequency spectrum, and the amplitude lines jump during measurement.

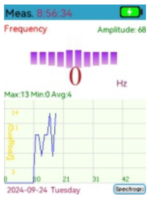
Calibration success

Accelerate

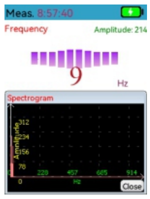
Velocity

ISO Rating

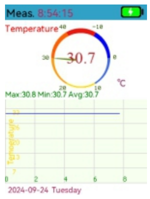
Distance



Frequency



Frequency spectrum



Temperature

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VII. Comparison table for vibration intensity

Vibration intensity (ISO 10816-1)				
Machinery	Class I small machine	Class II medium machine	Class III large hard base	Class IV large soft base
Vibration velocity Vrms mm/s				
0.28				
0.45				
0.71		Good		
1.12				
1.80				
2.80		Satisfactory		
4.50				
7.10		Unsatisfactory		
11.20				
18.00				
28.00		Unacceptable		
45.90				

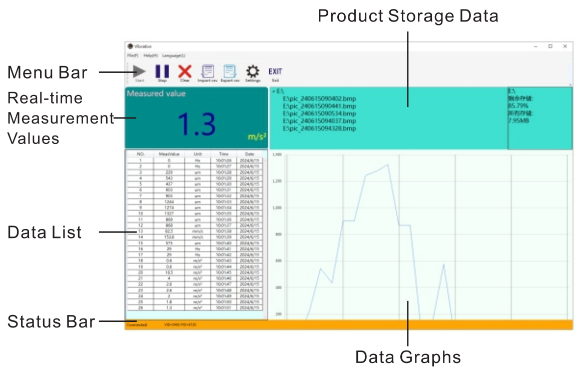
1. Do not use this product or charge it in an environment with flammable or explosive gases;
2. Do not use this product to come into contact with dangerous voltages to avoid causing injury or death;
3. Avoid strong impacts, high temperatures, and immersion in water;
4. Charge regularly when not in use for a long time;
5. Do not disassemble this machine or attempt to change the internal components;
6. Alcohol, diluted solutions, etc. have a corrosive effect on the case, especially the screen, so clean the case with a little water gently;
7. Operate the product cautiously near rotating equipment;

IX. PC Software

1. Download Software

Enter the website "www.downloadsupport.tech" in the browser, press enter and enter the page to find the menu "Product Catalog>>".Click into the page to find the software installation package "Vibration 633.zip". Click the download button to directly extract the "zip package" after downloading. Double click on "setup_Vibration .exe" to install.

2. Software Interface



Note:

(1) The real-time measurement data mode and unit are synchronized with the product;

(2) The PC software - Settings - Sampling Interval is only effective when connected to the computer for real-time measurement, and it does not interfere with the sampling interval of the product;

Specific Declarations:

Our company shall hold no any responisibility resulting from using output from this product as an direct or indirect evidence.

We reserves the right to modify product design and specification without notice.

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