



MODEL: VM 199R-A

Vibration Meter

Instruction Manual



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1. Before use

Check-up

Carefully unpack your kit and ensure that you have the following items. In case that any item is missing or if you find any mismatch or damage, promptly contact your dealer.

Main unit	1pcs
Detector handle	1pcs
9V Alkaline battery	1pcs
Instruction manual	1pcs
Detector probe accessorg (L)	1pcs
Detector probe accessorg (S)	1pcs
Equiped on the main unit	1pcs
Magnetic probe	1pcs
PP packing box	1pcs

Introduction

This product adopts piezoelectric effect of artificial polarized ceramic for design. it is suitable for monitoring of all kinds of vibrating mechanical facility, specially the vibration measurement of rotating and reciprocating machinery. The unit can measure acceleration, velocity and displacement, which is widely used in mechanical manufacture, electric power metallurgy and general aviation etc. Field.

Features

*LCD display measurement result and conditions directly Measures

acceleration (m/s^2 peak), velocity (mm/s ms), and displacement (mm p-p)

- *Selective vibration characteristic

- *Uses hi- sense of vibration sensor, measuring accurately Equipped two probes (S and L) to adapt the different measurement requirement

- *Provides a magnetic probe to fit the condition uneasy hold on by hand

- *Low battery indication

- *Auto turn off function

- *LCD back light function

- *Maximum value hold function

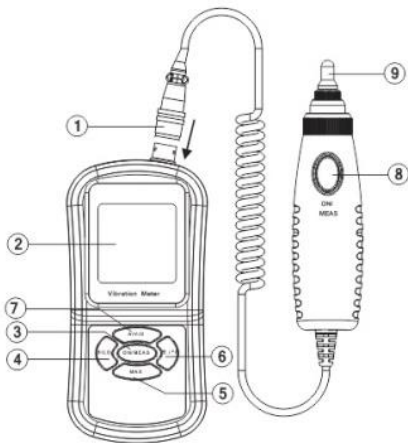
- *Temperature unit C/F selection

Specifications

Technical parameter	Technical specification
Vibration pickup	Piezoelectric ceramic accelerometer (shear-type)
Measurement range of acceleration	0.1~199.9m/s ² peak
Measurement range of velocity	0.1~199.9mm/s rms
Measurement range of displacement	0.001~1.999mm p-p Velocity and displacement range is limited by acceleration 199.9m/s ²
Measurement accuracy	5%- 2digits
Measurement frequency range of acceleration	10Hz-1KHz (LO) 1KHz-15KHz (HI)
Measurement frequency range of velocity	10Hz-1KHz (LO)
Measurement frequency range of displacement	10Hz-1KHz (LO)
Displays update cycle	1 seconds
LCD display	3 1/2 digits display
Single output	AC output 2 V peak (display full scale) Load impedance 10KΩ or

	more earphones can be connected
Power supply	9V battery
Stand-by current	$\leq 15\mu\text{A}$
Operating current	$\leq 25\text{mA}$
Battery life	20 H continuous use
Auto power-off function	Turns off automatically after 60 seconds
LCD backlight function	7 seconds
Operating temperature range	$0\sim 40^{\circ}\text{C}$
Operating humidity range	$30\sim 90\%\text{RH}$
Low battery indication	$6.4\text{V}\pm 0.2\text{V}$
Dimensions	72x35x145mm
Weight	229g (not including battery)
Temperature range	$-10^{\circ}\text{C}\sim 80^{\circ}\text{C}$
Temperature accuracy	$\pm 2^{\circ}\text{C}$

Diagram of the unit



1. Handle connector (with directionality)
2. LCD display.

ON/





3. **MEAS** : ON/Off / measure button,
press for turn on. In measuring
procedure, press for measuring, release
for hold the reading.
4. **HI/ LO** : Frequency character
selection bottom. (For acceleration)
5. **MAX** : Maximum value locks bottom.
6. **°C/ ° F** : Temperature unit
interchange bottom.
7. **A/ V/ D** : Measuring mode
(Acceleration/ Velocity/Displacement)
select bottom.
8. Handle on/off/ measure button,
press
for turn on. In measuring procedure,
press for measuring, release for hold
the reading.
9. Detector tip (Selective between S/L
and Magnetic probe).

Note:

Above key function descriptions just are simple introduction, for details please read operation instructions part in this manual.

LCD display




- 1).  Battery mark shows current residual battery power.
- 2). Dynamic bar graph display measuring Icon.
- 3). **LO** low frequency symbol. (10Hz~1Hz)
- 4). Measured value display.
- 5). **MAX** The maximum value.
- 6). Temperature and maximum value display.
- 7).  Temperature unit display,  for the Celsius scale,  for the Fahrenheit scale.
- 8). **mm/s²** When measuring acceleration, LCD will display acceleration unit m/s² When measuring velocity, LCD will display velocity unit mm/s When measuring

displacement, LCD will display
displacement unit mm

9). **1KHz** 1kHz indication.

10). **HI** High frequency symbol.
(1kHz~ 15kHz)

11) .The symbol of the range of the
measuring value.

12) .  Backlight icon, the back light
will be active for 7 seconds upon the
button operations.

2. Operation instructions:

Battery installment

a. Grip tightly the unit body with your left hand; hold down the battery door with your right hand thumb to open it according to the arrow referring direction:

b. Insert the 9V battery into battery compartment, note the battery polarity, and then close the battery door, as shown in following figure:



Select Probe tip

This vibration meter is designed to fit the different measurement requirements as follows.

A. With tip probe S: It provides good response and reproducibility over a wide range.

As the following figure.



B. With probe tip L: Suitable for narrow object or special objects to obtain quick response as the following at figure.



C. With Magnetic probe: Suitable for measurement in cases where flat Ferric object to the stable measurement. as the following figure.

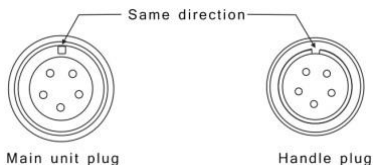


D. Without probe tip: In this condition, best high- range response is achieved (10Hz to 15kHz), but planar contact with the measurement object is required as the following picture.



Detector installment

Attention to the directionality of the socket.





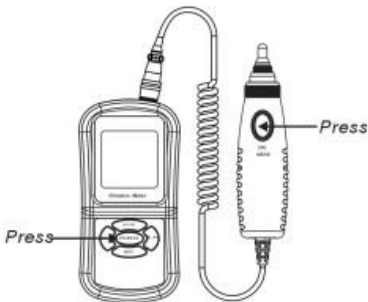
Plug in/ out method:



Before use, plug in the handle to main unit's socket the same direction, there a lock sound to ensure the plug is locking.

When plug out, the user must push the metal upwards to release the lock status and pull out.

Turn on the unit and check-up battery:

1. Press the  on the main unit or  on the handle to turn on, as shown in following figure:



3. After the entire screen displays for 1 second, the default state is acceleration mode, if on the LCD displays the symbol  or  , please promptly replace the battery ,as shown in following figure:


Low battery indication →



Selecting measurement mode

1. Press **A/W/D** to select the measuring mode, the default status is accelerometer measure m/s^2 , as following picture:



2. Press the  key one times to selecting speed measuring mode mm/s , as following picture.



3. Press the key one more times to selecting displacement mode mm, as following picture.

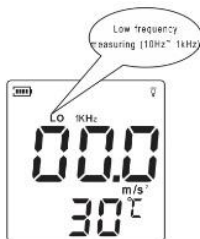


Hi/ Lo frequency selection

Hi frequency HI is only for acceleration measure mode.

Press **HI/LO** key to select the high frequency measure or low frequency measure.

As following picture:






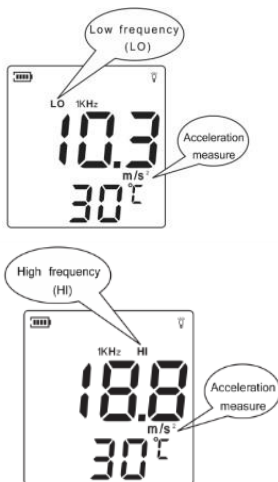
Caution:

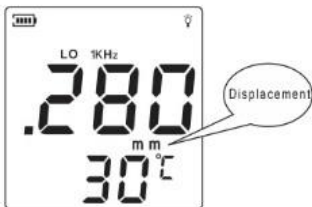
High frequency measuring is only for acceleration measure mode.


Measurement:

Depending on the material physical value and vibratory source's vibration frequency, select the corresponding measurement mode (Acceleration/Velocity/Displacement) and frequency (HI/ LO), holding press the main unit or handle's  button,

press the handle sensor head against the surface with 500g~ 1kg vertical force, the measuring value will be shown on LCD display, release the button to lock the value. Show as below picture:






When press  key again, the current locking value will be cancelled, a new measurement will be preformed.

Caution:

1. Probe tip S is apply to measure high/ low frequency range vibration.
2. Probe tip L is only for low frequency measure, when measure acceleration, if the frequency is over 1 kHz, please change Probe tip S for measurement.
3. When measurement mode from acceleration in high frequency mode to velocity or displacement mode, the unit will change to low frequency automatically.
4. Auto power- off for 1 minute.
5. LCD backlight will auto- off if there is no further operation in 7 seconds.

Maximum value measurement

After turn on, press  to enter maximum value mode. In maximum

value measuring status, the current vibration data and the maximum value will display on LCD display. Show as below:



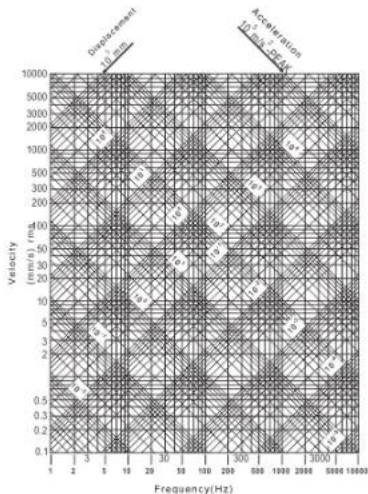
When press **MAX** key again, the maximum measure status will cancelled, and change to temperature display status.

Temperature unit change:

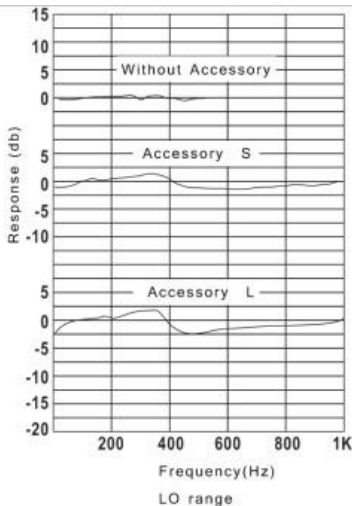
In operation, press °C/ °F to select ℃ Celsius scale and °F Fahrenheit scale. show as below:

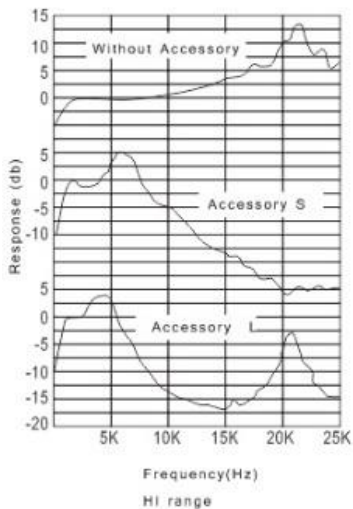


Vibration conversion chart



Contact resonance in acceleration measurement:
(worked with FFT signal analyzer)





3.Other items

Attentions



Warning

When making measurements on exposed rotating parts or power train parts of machinery, proceed with utmost care to prevent accidents due to getting caught in the machinery.




Caution

If the unit shook excessively, the receiver may produce extremely high sound pressure that hurts human ear , be careful in process of using the signal output plug.

Warranty & Maintenance:

Maintenance:

1. Replacement and upkeep of battery:

a. After power on, if an icon  appears on the LCD, you need to replace the battery immediately, for details please refer figures and contents on page 9 of this manual.

b. Remove the battery from the unit if it is not required for extended periods of time in order to avoid damage to the battery compartment and the erosion resulting from a battery leakage.

2. Do not store or use the unit in following circumstances:

a. Splashes of water or high levels of dust.

b. Air of high salt or sulphur content.

c. Air mixed with other gases or contents.

d. High temperature or humidity (above 50°, 90%,) or direct sunlight.

3. Do not disassemble the unit or attempt any internal alterations.

4. Never use alcohol or diluents to clean the housing for doing that will especially erode the LCD surface;

just clean the unit lightly as needed with little clean water.

Warranty:

1. About relative warranties please read warranty card.

2. We disclaim any liability due to:
client's transportation damages;
incorrect use or operation;

manipulation, alterations or repair attempts; without warranty card, invoice.

Note

We reserve the right to change the product design or change the manual, without prior notice.