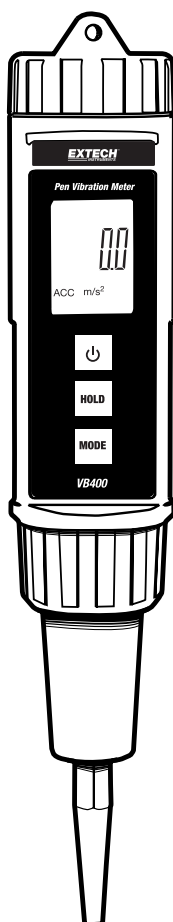


User's Guide

**EXTECH**<sup>®</sup>  
**INSTRUMENTS**  
A FLIR COMPANY

# Pen Vibration Meter

Model VB400



## ***Introduction***

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Congratulations on your purchase of this Extech Meter. The VB400 is designed to provide easy and accurate velocity and acceleration measurements on industrial machinery. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

## ***Features***

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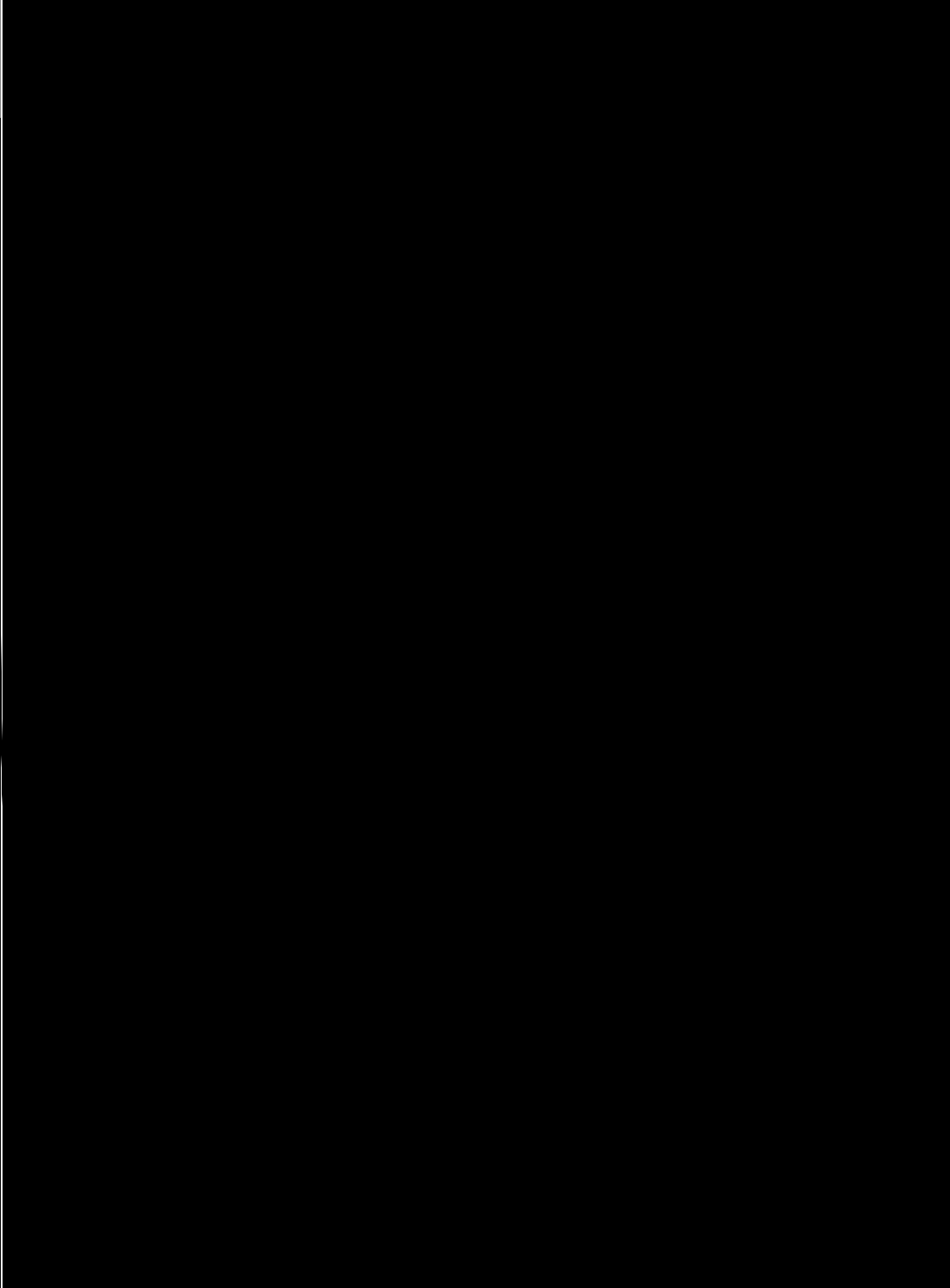
- Applications for industrial vibration monitoring :
- All in one pen type digital vibration meter.
- Acceleration, Velocity measurement, RMS measurement value.
- Metric & Imperial display unit
- Frequency range 10 Hz - 1 kHz, sensitivity designed to meet ISO 2954.
- High accuracy and easy to read LCD display.
- Complete with the test pin and magnetic base.
- Low battery indicator.
- IP65 protection.

## ***Safety***

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This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.



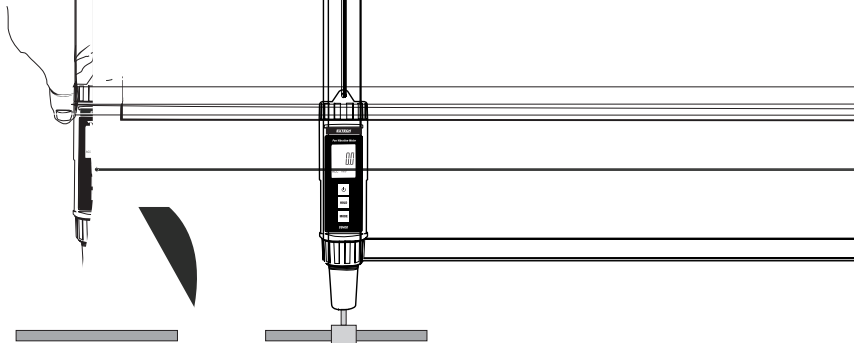
## Operation

### Preparation for measurement

1. Press the POWER button.
2. Check that the display shows the correct units.
3. If the low battery icon appears, replace the battery.
4. Attach either the sensitive or the standard probe.

### Measurements

1. Press the MODE button to select the units desired.
2. For non-ferrous surface or vibrating surface.
3. For ferrous surfaces, attach the sensitive probe.
4. The meter must be held vertically for accuracy.
5. Read the measured value.



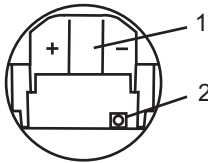
### Data Hold

1. Press the HOLD button to freeze the measured value.
2. Press the HOLD button again to return to normal operation.

## Zero Adjustment Procedure

Over time the meter '0" may drift by a few digits. This is caused by temperature change, battery voltage and other ageing factors. Usually this small change is not of significance for typical measurements. To remove the error:

1. Open the battery compartment
2. Hold the battery lid down so contact is made and the meter can be turned on.
3. With no vibration, adjust the meter zero adjustment until the display reads zero (no minus sign).



Battery lid (1) and Zero adjustment (2)

## Battery Replacement

1. Unscrew the meter's top cover
2. Lift the battery lid and replace the four AAA batteries, observing polarity
3. Replace the cover.

## ISO Vibration Severity Guidelines

**ISO 10816** Standards provide guidance for evaluating vibration severity in machines operating in the 10 to 200Hz (600 to 12,000 RPM) frequency range. Examples of these types of machines are small, direct-coupled, electric motors and pumps, production motors, medium motors, generators, steam and gas turbines, turbo-compressors, turbo-pumps and fans. The axis of the rotating shaft may be horizontal, vertical or inclined at any angle.

VIBRATION SEVERITY PER ISO 10816					
Machine		Class I small	Class II medium	Class III large rigid	Class IV large soft
in/s	mm/s				
[Redacted content]					

## Specifications

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### General Specifications

Display	LCD, 20 mm x 28 mm.
Measurement Mode	Velocity, Acceleration. (RMS value). Acceleration: g, m/s <sup>2</sup> ft/s <sup>2</sup> Velocity: mm/s, cm/s, inch/s
Frequency range	10 Hz to 1 KHz
Sampling time	Approx. 1 second.
Operating temperature	0 to 50°C ( 32 to 122°F ).
Operating humidity	< 80% RH.
Power supply	DC 1.5V battery ( UM-4/AAA ) x 4 PCs.
Power consumption	Approx. DC 12 mA.
Weight	240 g ( 0.53 lb ).
Dimension	Meter: 175 x 40 x 32 mm, ( 6.9 x 1.6 x 1.3 inch ). Sensing head: Round 9 mm Dia. x 30 mm.

### Accuracy Specifications

Mode	Range	Resolution	Accuracy
Acceleration	0.5 to 199.9m/s <sup>2</sup>	0.1	±(5%rdg+2digits) @160Hz, 80Hz, 23±5°C
	0.05 to 20.39g	0.01	
	2 to 656ft/s <sup>2</sup>	1	
	Calibration point: 50m/s <sup>2</sup> (160Hz)		
Velocity	0.5 to 199.9 mm/s	0.1mm/s	±(5%rdg+2digits) @160Hz, 80Hz, 23±5°C
	0.05 to 19.99 cm/s	0.01	
	0.02 to 7.87inch/s	0.01inch/s	
	Calibration point: 50mm/s (160Hz)		

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