

VIBRATION ANALYSER

VA-2

Instruction manual



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Safety Instructions

The system may only be plugged into a socket with separate ground. Do not disconnect this ground, either at the socket, or by using an ungrounded extension cable.

Connect the system only into a socket, which is max. 10 A fused.

Before switching on this apparatus make sure that it is connected to the correct mains voltage.

Do not remove any cover or allow any metal objects to enter any openings in the unit.

Disconnect from mains before removing any covers. Refer servicing to qualified personnel.

Do not use in potentially explosive surroundings.

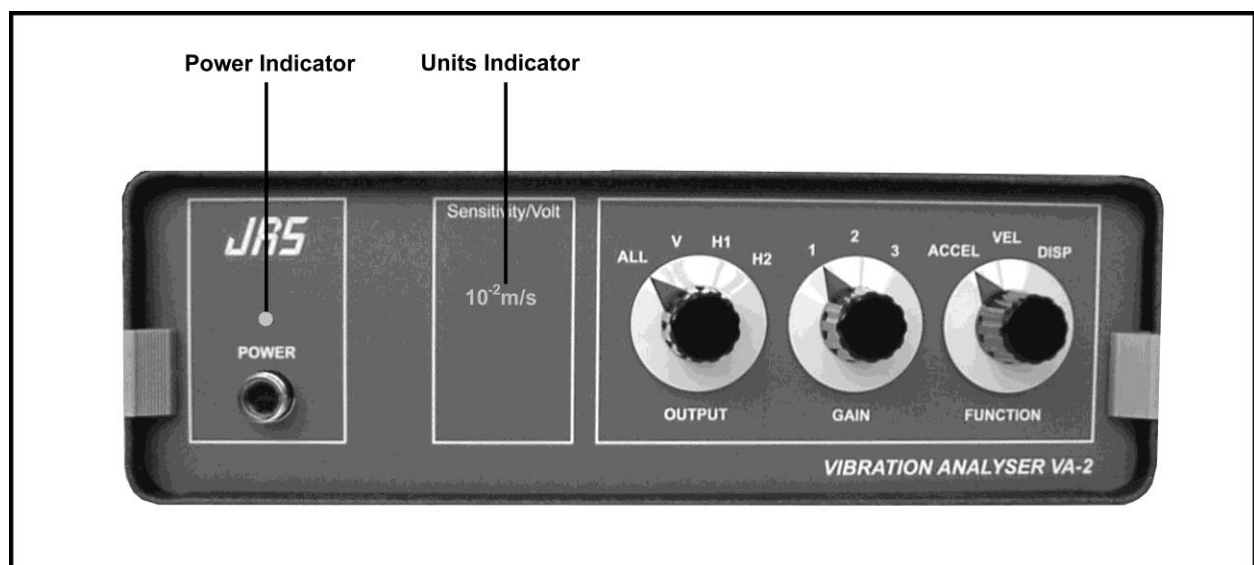
If you suspect the system to be in any way unsafe, unplug and prevent any possible accidental usage. Contact your nearest service centre.

Notes on Equipment Safety

The Vibration Analyser VA-2 has been designed, manufactured and tested to conform to the safety regulations for measurement and control equipment DIN EN 61010-1 (IEC 1010-1) and satisfies the relevant requirements of EEC Directive 73/23. The system conforms to EEC Directive 89/336 (electro-magnetic compatibility). The operator should read the enclosed manual which contains important warnings and information.

General

The vibration analysis system VA-2 is a system with remote measurement head allowing easy measurement of acceleration, velocity or displacement in three orthogonal directions. Each axis may be separately read out, and in addition a multiplexed output allows simultaneous display of all three axes on an oscilloscope. This latter feature is very useful for identifying vibration modes-frequency, direction and amplitude can all be inferred from the display.





Operating Instructions

Sensitivity/Volt

Gain	1	2	3
Accerelation	1m/s ²	0.1m/s ²	0.01m/s ²
Velocity	0.01 m/s	0.001 m/s	0.0001 m/s
Displacement	100 μm	10 μm	1 μm

Multiplex 3-Axis Display

Plug in the measurement head. Attach an oscilloscope to the rear panel socket marked **output**.

- Set Axis knob to "ALL"
- Set oscilloscope to: 200mV sensitivity
DC coupled
free run
20ms time base

Adjust the input offset on the oscilloscope until 3 traces separated by 0.5V are displayed. The orientation of the three displayed axes is indicated on the measurement head - the head should be used with the label uppermost.

- Set required *Function* and *Gain*

Example: Function: VEL Gain: 3

will measure velocity, with a sensitivity of $1V = 10^{-4}$ m/s as indicated on the front panel.

Single Axis Display

- Set Axis Knob to "V, H1, or H2"

Each measurement axis may be observed independently for example for use with a spectrum analyser. The measurement direction is as indicated on the measurement head.

Individual display of all 3 axes

Two further BNC outputs are provided for H1 and H2 alone. The function and gain for these axes are identical to those on the main output. By setting the axis knob to V all three axes may be observed individually.

Make sure that the measurement head is sitting properly on the surface to be measured!

DELICATE MEASUREMENT HEAD - DO NOT DROP !



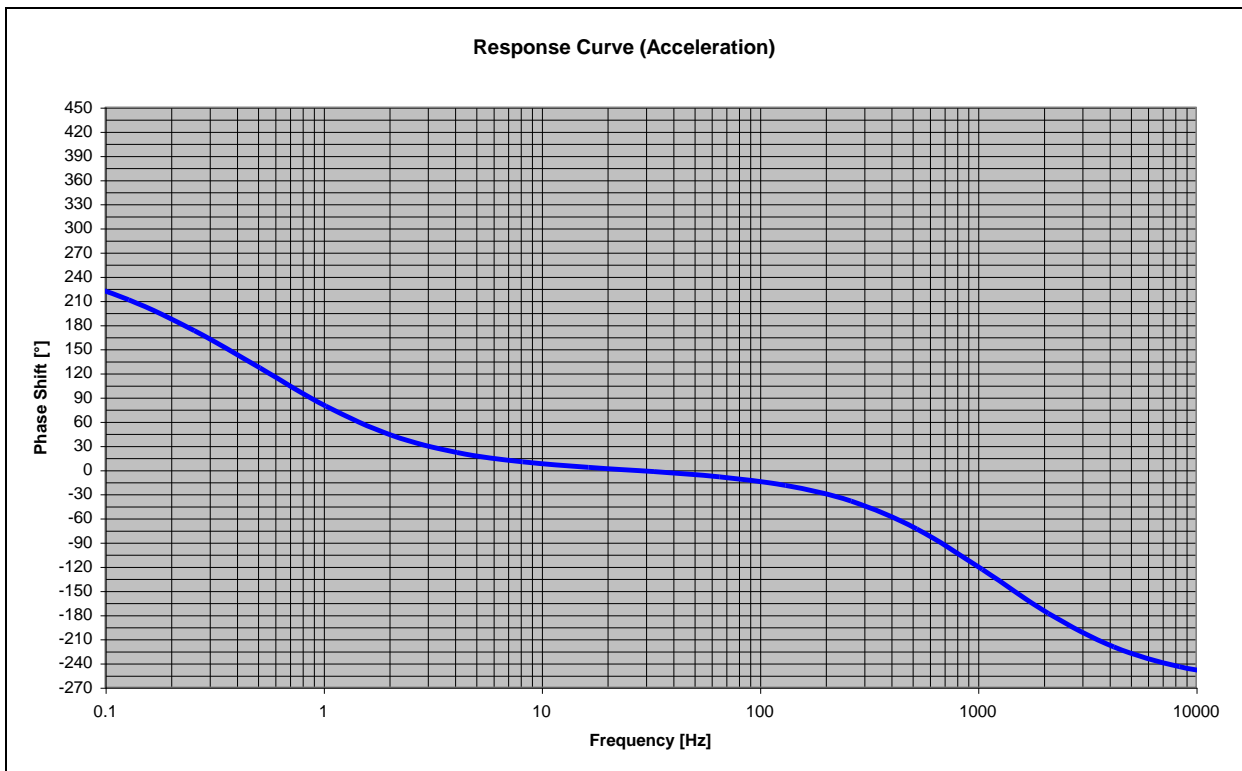
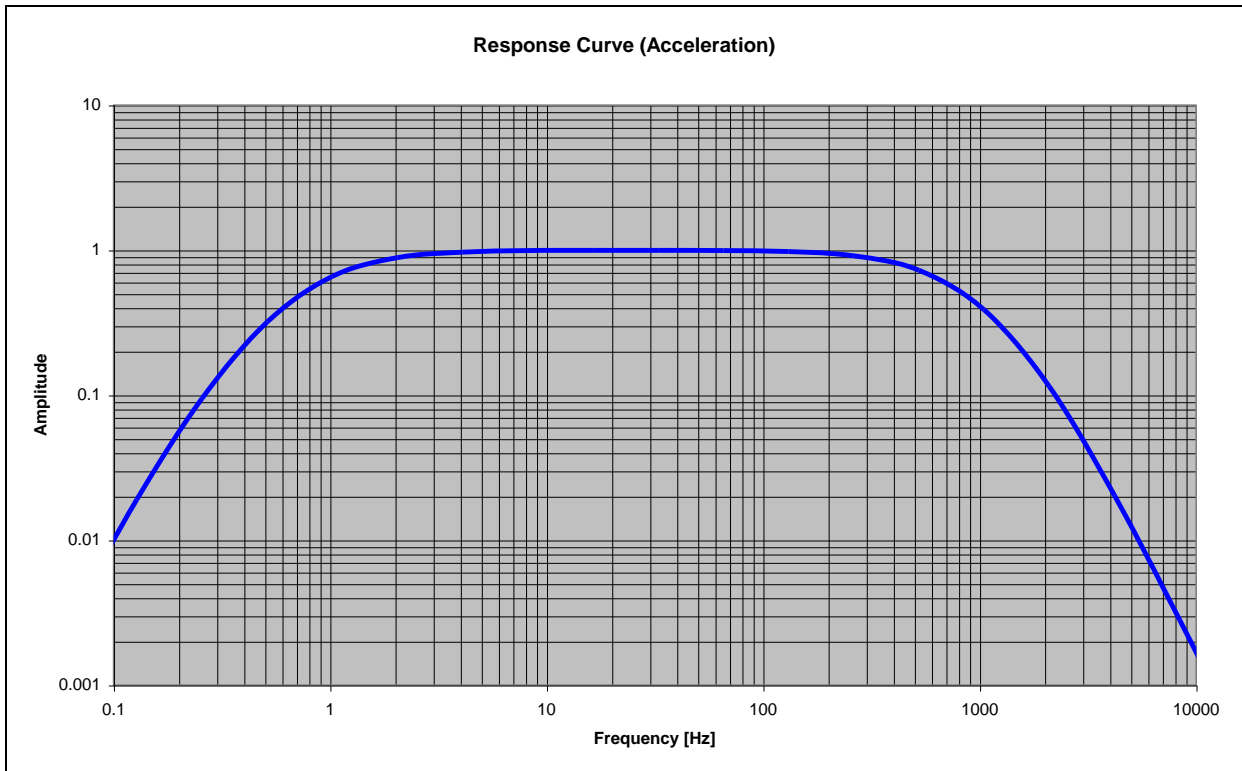
Specifications VA-2

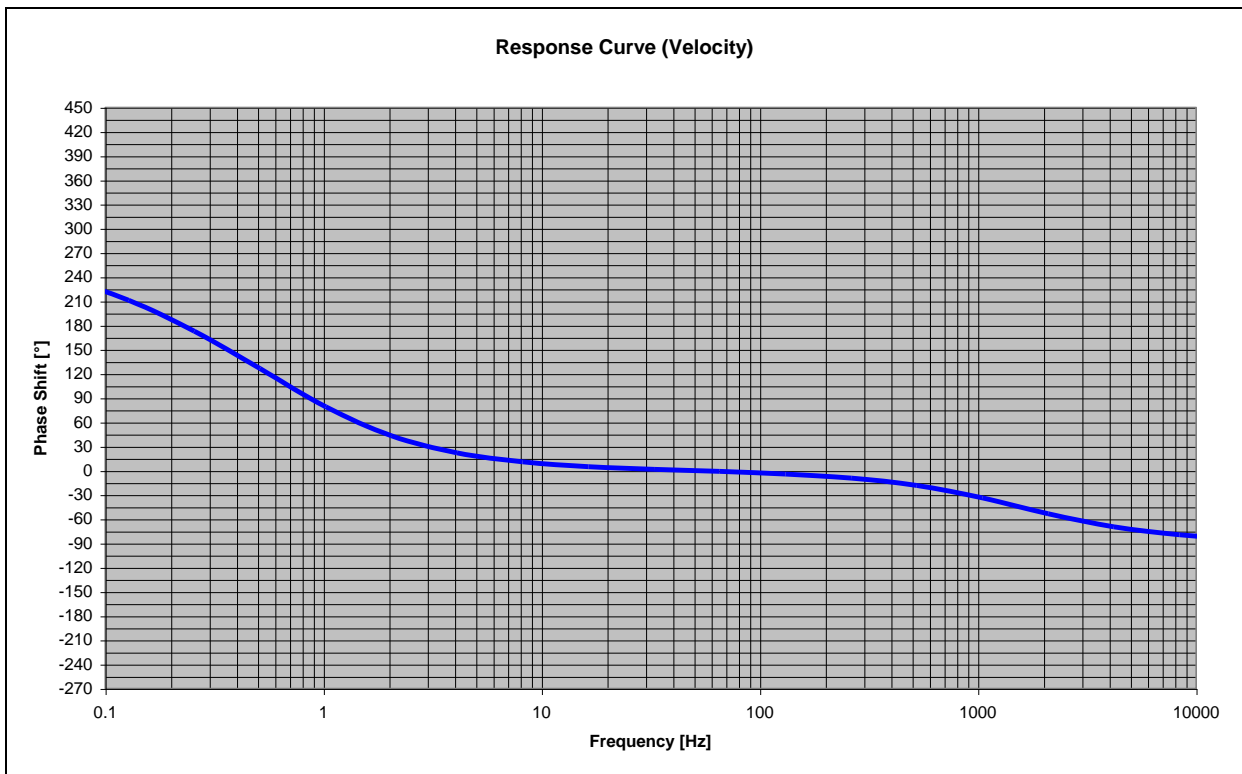
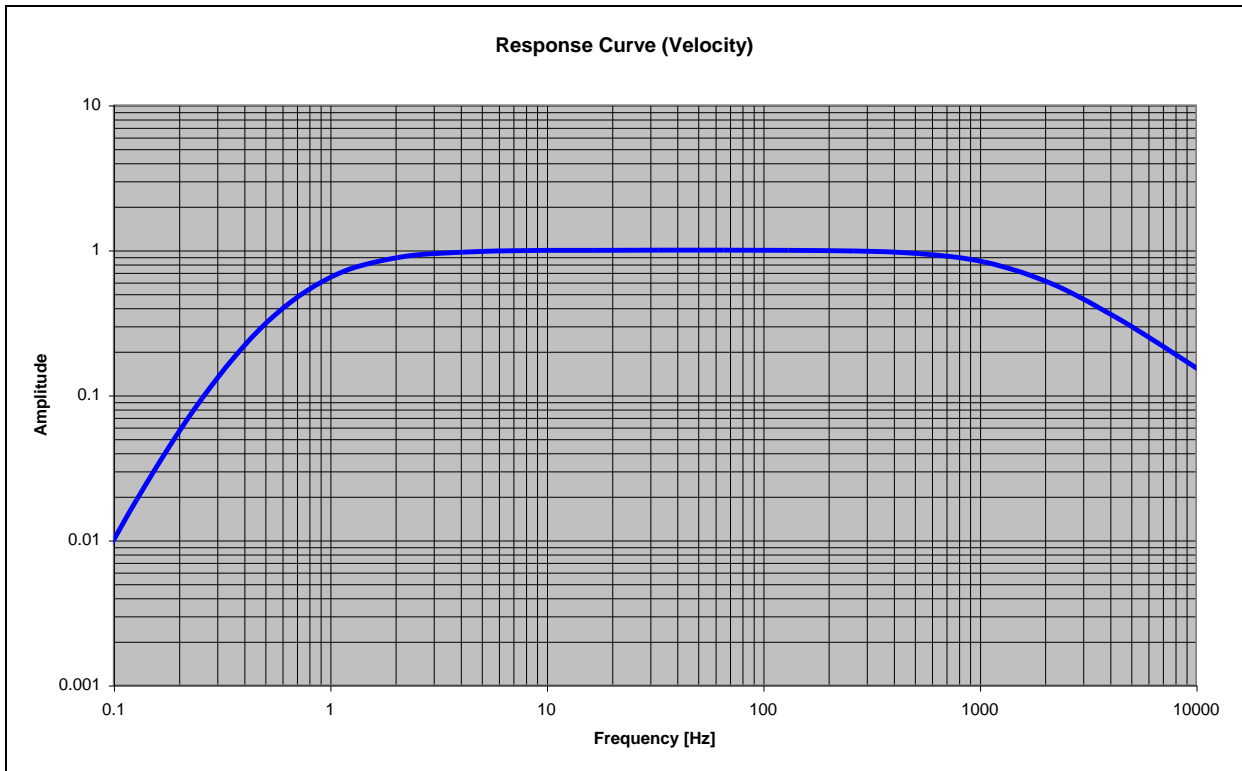
<i>Frequency Range:</i>	2-1000 Hz	
<i>Measurement Range:</i>	Acceleration	$10^{-5} - 5 \text{ m/sec}^2$
	Velocity	$10^{-7} - 5 \times 10^{-2} \text{ m/sec}$
	Displacement	1nm - 0.5 mm
<i>Accuracy:</i>	$\pm 5\%$ on all ranges. The control unit MUST be used with the corresponding measurement head.	
<i>Power requirements:</i>	100-240 VAC $\pm 10\%$, 50-60Hz, 8VA	
<i>Size:</i>	215x230x75mm	
<i>Weight:</i>	1.4kg	

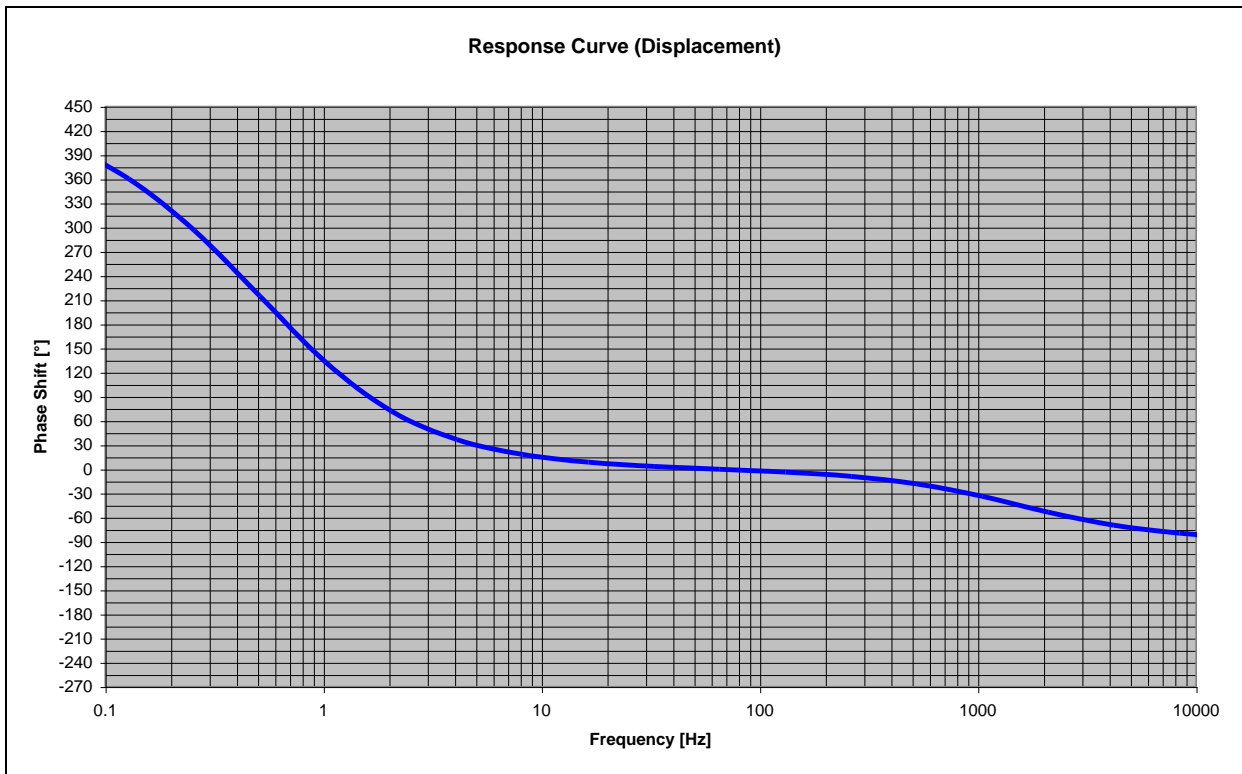
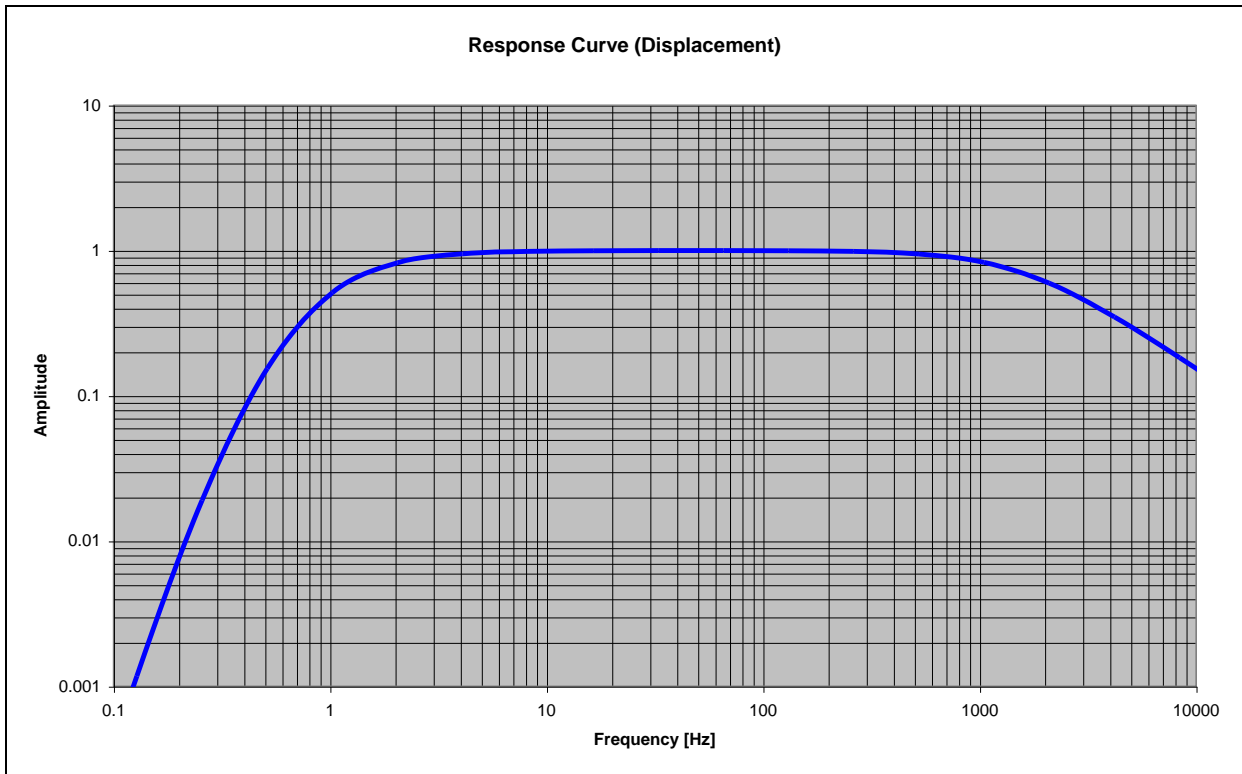
Measurement Head

<i>Size:</i>	70x70x70mm
<i>Weight:</i>	1kg

Note: The lower limit of the sensitivities quoted above apply at all frequencies for acceleration and velocity, and above 20 Hz for displacement. Below 20 Hz for displacement the noise increases from about 0.01 μm at 20 Hz to about 0.1 μm at 2 Hz.













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