



## PRODUCTS

Vibration Simulation System

**Vibration measuring**

Seismic monitoring system

Evaluation system

for insulation deterioration

Others

## PR CONTENT

what's Vibration

Manufacturing

Process of Accelerometer

**F=mA** Technical Guide

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VM-2004 NEO

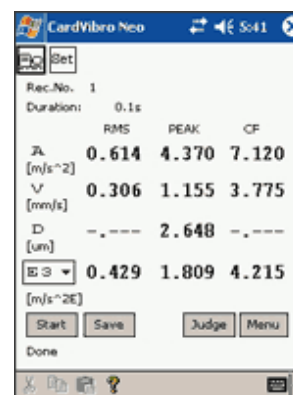


**The Revolutionary Vibration Meter**  
**Compact, Light and Advanced Vibration Meter with using Pocket PC**

### Overall Vibration Measurement

### Simultaneous measurement of multiple data

Users feel the vibration meters have too many settings. Generally, acceleration, velocity, displacement ( amplitude ) and mode as RMS/PEAK should be set before the measurement. CardVibro Neo can measure these simultaneously. Multiple data can be collected by 1-time measurement.

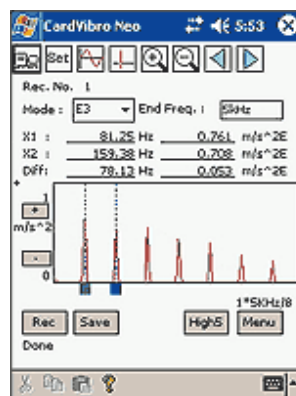


OA Vib. Meas. screen

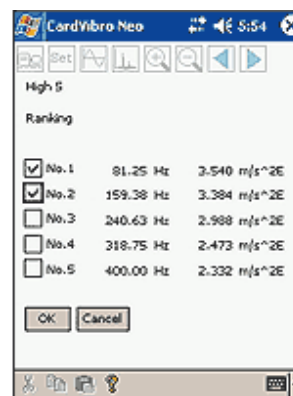
### FFT Spectrum Analysis

### High-resolution of 1600 line

Cause of vibration is often checked by frequency analysis. Usually, FFT spectrum analyzer is connected with waveform output of vibration meter and it is analyzed. With equipping FFT function of 1600-line high resolution as standard function, CardVibro Neo can measure and analyze by 1-set. The FFT Analysis screen's High5 button identifies and displays frequency and amplitude information for the FFT's five highest amplitude frequency components, and allows you to quickly place the FFT cursor at two of these frequencies.



FFT Meas. screen



High5 screen

## Wide Availability

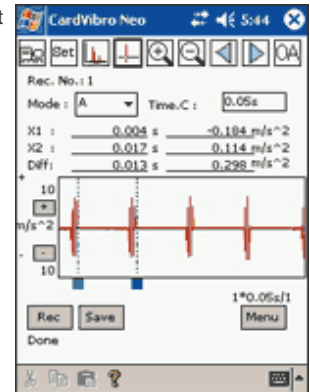
Available for any measurement  
with exchange of sensor

We often hear that why there are so many kinds of vibration meter. The reason is that suitable vibration meter in which different kind of sensor is used should be selected according to the measuring frequency. CardVibro Neo for the rotational vibration measurement will be available for the ground measurement with addition of optional sensor. Being the common operation method, it makes measurement smooth. And it will be high cost performance.

## Time Waveform Measurement

Records the waveform up to 10 sec.

There is the desire to measure waveforms in the case of vibration with beat. Usually, it indicates by connecting oscilloscope. As CardVibro Neo equips the waveform measurement function, display, save and recall of waveform measurement makes start the measurement automatically over the preset level for the shock waveform as vibration of press machine.



Waveform Meas. screen

## Vibration Evaluation

Judgment just after measurement

Judgment criterion is necessary whether the measured data is correct or not. CardVibro Neo judges immediately because it equips not only vibration severity but bearing judgment criterion.

ISO Vibration Evaluation	
Measured Value	5.203 mm/s
Vibration Severity	
Small Machine	
mm/s(RMS)	Judgement
0-0.71	Good
0.71-1.0	Fair
1.0-4.5	Caution
over 4.5	Danger

ISO Vibration Evaluation screen

Bearing Evaluation	
Measured Value	53.951 m/s^2E
Vibration Severity	
Class 1	
m/s^2E(PEAK)	Judgement
0-5	Good
5-10	Satisfactory
10-20	Alert
over 20	Danger

Bearing Evaluation screen

## Bearing Checker Function

Check by ear

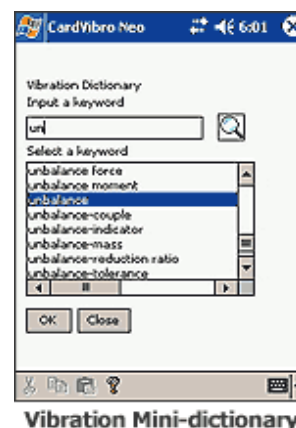
Acoustic rod is often used for the condition check of bearing. By just connecting to headphone / earphone, sound is listened with vibration measurement. Comparison of vibration data with tone quality enables more accurate judgment.

## Data Save

As PDA is called as electronics pocketbook, the data record and save is its strong point. Vibration measurement at site and record of data easily will improve the performance and will be no copy miss. All data as Overall value, waveform, FFT data can be recorded. Selection of vibration level of necessary mode and its save is also possible

## Utility Application

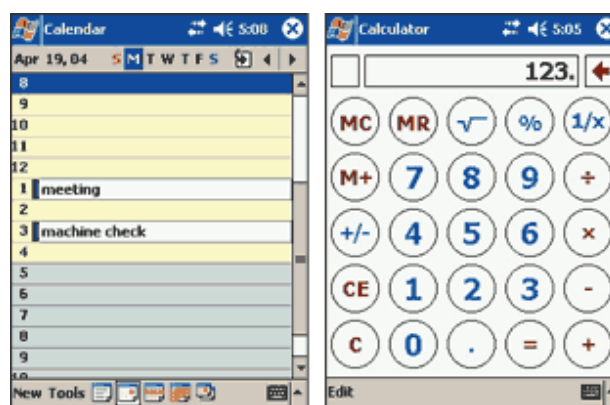
"Memory Check screen", "Saved Data List display search" and unique "Vibration mini dictionary" is provided in Utilities of CardVibro Neo. Explanation of vibration terms will be searched quickly.



Vibration Mini-dictionary

## Use of PDA Application

Display of CardVibro Neo is changeable to the PDA function when the pocket calculator is required for the frequency calculation or the schedule is checked during the measurement on site. If the data is renewed, the schedule will be updated synchronized with PC. Versatile PDA application will be available for your job.



Calendar

Calculator

## Use with CPU

Transfers the saved data to personal computer with the use of Cradle (standard accessory of Pocket PC) and Microsoft ActiveSync. The optional Data Extract Software DB-2004 enables the effective data control. Since DB-2004 has the function to save the data in csv format, the data can be processed freely with the commercial application software.

### Specifications

#### General Specifications

Item	Specifications
<b>Suitable Pocket PC*</b>	OS : Windows Mobile 5.0, Windows Mobile 2003 Second Edition Processor : ARM Processor Memory ( RAM ) : 64MB or more
<b>Interface with Pocket PC</b>	CF card with Type II slot
<b>Power supply</b>	+ 3.3V ( It is supplied from Pocket PC. )
<b>Temperature Range</b>	0 ~ + 45
<b>Humidity Range</b>	30 ~ 90% RH not due condensation
<b>Weight · Dimensions</b>	25g approx ( . Only the card ) · 60.0x42.1x16.9 ( mm )
<b>Shape</b>	Conforms to CF Card TYPE II ,Card Type
<b>Color</b>	Black
<b>Pickup Input(PU IN )</b>	AC voltage signal Max±2.5V Input Terminal : 8-pin modular jack ( RJ-45 )

<b>Raw Waveform Output ( PU OUT )</b>	AC voltage signal Max±2.5V Outputs the voltage signal which the sensor input signal is amplified by the used range magnification ( x1/x5/x20/x100 ) Output Terminal : 2.5φ mini-jack
<b>Sampling Frequency</b>	MAX. 76.8kHz ( Changes according to Mode. ) 76.8kHz / 38.4kHz / 19.2kHz / 9.6kHz
<b>Aliasing Filter</b>	20kHz/2kHz ( Changes according to Mode. )
<b>A/D</b>	16bit
<b>Available Language</b>	English, Chinese, Korean, Japanese

●Measurement Specifications

Item	Specifications
<b>Overall Measurement</b>	Select Simultaneous Meas. / Single Meas.
<b>Judgment</b>	ISO Vibration Evaluation ( ISO-10816 [ JIS-B-0906 ] standard ) Bearing Evaluation
<b>FFT Spectrum Analysis</b>	Lines of Resolution : Max. 1600lines Trigger function Dominant frequency component of highest 5 display function
<b>Time Waveform Measurement</b>	Measuring Time : Max. 10 second Trigger function
<b>Notes function</b>	Memo for every Machine, Measuring Point can be recorded. ( Data of rotational number, temperature, power, pressure etc other than vibration can be saved. )
<b>Data Save · Control</b>	Saves the information of machine name, measuring point, detected direction, note, measuring data, measuring condition etc in addition to the measured data. Pocket PC ( memory 64MB ) can save OA:2000 points, FFT:1000 points, WV:5MB ( with the use of external memory as SD card, more data can be saved. )

●Specifications with Accelerometer VP-2001A ( Standard )

Item	Specifications	
<b>Measurement Type Frequency Range ( Filter )</b>	Acceleration : A Velocity : V Displacement : D Enveloped Acceleration : E1 Enveloped Acceleration : E2 Enveloped Acceleration : E3 Enveloped Acceleration : E4	10 ~ 10kHz ( fmax is changeable ) 10 ~ 1kHz 10 ~ 150Hz DC ~ 50Hz ( 5 ~ 100Hz [ BPF ] ) DC ~ 500Hz ( 50 ~ 1kHz [ BPF ] ) DC ~ 5kHz ( 500 ~ 10kHz [ BPF ] ) DC ~ 10kHz ( 5k ~ 20kHz [ BPF ] )
<b>Measuring Range</b>	Max. Acceleration	500m/s <sup>2</sup>
<b>Range</b>	Acceleration: A Envelope: E1,E2,E3,E4 Velocity: V Displacement: D	4range,10,50,200,1000m/s <sup>2</sup> ,Fixed/Auto 4range,10,50,200,1000m/s <sup>2</sup> ,Fixed/Auto 4range,10,50,200,1000mm/s , Fixed/Auto 4range,50,250,1000,5000 μ mp-p , Fixed/Auto

●Specifications with Piezo-resistive Acceleration Pickup [ for Low-band ] VP-2001PS ( Option )

Item	Specifications	
<b>Measurement Type Frequency Range ( Filter )</b>	Acceleration : A Velocity : V Displacement : D	3 ~ 100Hz 3 ~ 100Hz 3 ~ 100Hz
<b>Measuring Range</b>	Max. Acceleration	20m/s <sup>2</sup>
<b>Range</b>	Acceleration : A Velocity : V Displacement : D	4range、0.2,1.0,4.0,20m/s <sup>2</sup> ,Fixed/Auto 4range、1.5,20,100mm/s ,Fixed/Auto 4range、5,25,100,500 μ mp-p ,Fixed/Auto

●Specifications with Electro-dynamic Velocity Pickup VP-2001V ( Option )

Item	Specifications
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<b>Measurement Type Frequency Range ( Filter )</b>	Velocity : V	10 ~ 1kHz
	Displacement : D	10 ~ 500Hz
<b>Measuring Range</b>	Max. Displacement	1000 $\mu$ mp-p
<b>Range</b>	Velocity : V	4range.5,25,100,500mm/s ,Fixed/Auto
	Displacement : D	4range, 25,125,500,2500 $\mu$ mp-p ,Fixed/Auto

●Specifications of Data Extract Software DB-2004 ( Option )

Item	Specifications
<b>Suitable PC</b>	OS : Windows XP, 2000 Resolution : 800x600 dot or more Interface : USB ( Necessary for ActiveSync )
<b>Necessary Application</b>	Microsoft Excel 2003,2000,97 ( or later than ) : Necessary for printing Microsoft ActiveSync 3.7.1 or later : Necessary
<b>Main Function</b>	Data transfer and synchronization between Pocket PC and personal computer is possible with the use of Microsoft ActiveSync ( function of Pocket PC ) Control of measuring point Trend graph display of Overall Value FFT graph display Waveform graph display Notes display of machine and measuring point Print function Outputs the measured data in Excel file format and print is possible. CSV file output of FFT data and waveform data

●Specifications of Accelerometer VP-2001A

Item	Specifications
<b>Detecting Method</b>	Pre-amp is built-in. Compression type, shear type
<b>Power Supply</b>	$\pm 5$ VDC
<b>Voltage Sensitivity</b>	2.0 [ mV/ ( m/s <sup>2</sup> )
<b>Resonance Frequency</b>	20 kHz approx.
<b>Frequency Range</b>	3 ~ 10,000 Hz
<b>Max. Acceleration</b>	500 m/s <sup>2</sup>
<b>Max. Allowable Acceleration</b>	5000 m/s <sup>2</sup>
<b>Max. Output Voltage</b>	$\pm 1$ V
<b>Output Impedance</b>	Below 100 $\Omega$
<b>Used Temperature</b>	~ 20° ~ 80°C
<b>Material</b>	SUS
<b>Weight</b>	60 g approx.
<b>Mounting Screw</b>	M6, P=1, depth 5, internal thread
<b>Cable</b>	Direct leading, $\phi 4$ , 1.5 m
<b>Connector</b>	8-pin modular plug
<b>Dimensions</b>	$\phi 20 \times 40$ mm
<b>Structure</b>	Dust-proof, spray-proof

●Specifications of Electro-dynamic Velocity Pickup VP-2001V [ Option ]

Item	Specifications
<b>Detecting Method</b>	Electro-dynamic velocity pickup
<b>Detecting Direction</b>	Horizontal or Vertical
<b>Voltage Sensitivity</b>	4.0 [ mV/ ( mm/s ) ]
<b>Natural Frequency</b>	14 Hz
<b>Frequency Range</b>	10 ~ 1000 Hz
<b>Max. Tolerable Acceleration</b>	100 m/s <sup>2</sup>

<b>Max. Measuring Displacement</b>	1000 $\mu$ mP-P
<b>Usable Temperature</b>	-10 ~ 50
<b>Material(case )</b>	SUS
<b>Weight</b>	140 g approx.
<b>Mounting Screw</b>	M6,P=1,depth, 5、 internal thread
<b>Cable</b>	Direct leading, $\phi$ 4, 1.5 m
<b>Connector</b>	8-pin modular plug
<b>Dimensions</b>	$\phi$ 25.8×50mm
<b>Structure</b>	Dust-proof, spray-proof

●Specifications of Piezo-resistive Acceleration Pickup [ for Low-band ] VP-2001PS [ Option ]

Item	Specifications
<b>Measuring Range</b>	$\pm 20\text{m/s}^2$
<b>Sensitivity</b>	$102\text{mV/m/s}^2 \pm 5\%$
<b>Linearity</b>	$\pm 0.5\%$
<b>Frequency Range</b>	1 ~ 100Hz ( $\pm 0.5\text{dB}$ )
<b>Resolution</b>	$< 0.06\text{m/s}^2$
<b>Temperature Characteristic ( Sensitivity )</b>	$< 0.2\%/$
<b>Zero-point drift</b>	$< 6\text{mV/}$
<b>Power Voltage</b>	$\pm 5 \sim \pm 15\text{V}$
<b>Temperature Range</b>	0 ~ 50
<b>Weight</b>	36 g
<b>Shock Resistance</b>	$4000\text{m/s}^2$
<b>Dimensions</b>	19×19×16 mm
<b>Cable</b>	1m