



Vibration Analyzer **VA-11**

Sophisticated Vibration Analyzer With FFT Capability

Simple Operation Using Only Ten Switches



- Digital processing allows simultaneous display of acceleration, velocity, and displacement
- 16-bit A/D converter achieves 80 dB dynamic range
- Large LCD panel with EL backlight and 192 x 128 dot resolution
- Memory card slot for speedy transfer of data to a PC
- Operates for more than 22 hours on one set of batteries (alkaline)
- Internal memory holds up to 500 data sets without the need for a memory backup battery

Outline

The VA-11 is a portable analyzer designed for examining machinery vibrations and performing diagnostic routines on various kinds of equipment. The unit has a vibration meter mode and an analyzer mode encompassing FFT analysis. In vibration meter mode, simultaneous measurement of acceleration, velocity, and displacement is carried out.

Acceleration rms value, peak value, and crest factor can also be displayed simultaneously. In analyzer mode, FFT analysis is used to determine the power spectrum and vibration waveform. The capability to perform envelope processing before FFT analysis is highly useful for equipment diagnostics.

Specifications

Input section

Number of input channels: 1
 Input connector: Standard acceleration pickup connector
 Standard pickup is PV-55
 Vibration measurement quantities: Acceleration, acceleration envelope, velocity, displacement
 Acceleration envelope in analyzer mode only

Input range (with PV-55)

Acceleration: 1, 3.16, 10, 31.6, 100, 316 m/s² (rms)
 Velocity: 3.16, 10, 31.6, 100, 316, 1000 mm/s (rms)
 Displacement: 0.089, 0.283, 0.894, 2.83, 8.94, 28.3 mm (E_{Q,P-P})

Measurement frequency range (electrical)

Acceleration: 3 Hz - 20 kHz
 Velocity: 3 Hz - 3 kHz
 Displacement: 3 Hz - 500 Hz

Measurement level range

Acceleration: 0.02 - 316 m/s² (rms)
 Velocity: 0.1 - 1000 mm/s (rms)
 Displacement: 0.003 - 28.3 mm (E_{Q,P-P})
 High-pass filter: 3 Hz, 10 Hz, 1 kHz (-10% point)
 Low-pass filter: 1 kHz, 5 kHz, 20 kHz (-10% point)

Vibration meter mode

Processing items

Simultaneous processing of following items (digital)
 Acceleration: rms, peak, crest factor
 Velocity: rms
 Displacement: Equivalent P-P value (E_{Q,P-P})

Analyzer mode

A/D converter: 16 bit, delta sigma principle, 51.2 kHz sampling
 Processing items: Waveform, spectrum
 Display range: 80 dB
 Time window function: Rectangular, Hanning, Flat-top
 Frequency span: 100, 200, 500, 1k, 2k, 5k, 10k 20k Hz
 Anti-aliasing filter: 100, 200, 500, 1k, 2k, 5k, 10k 20k Hz
 Zoom factor: ×1 (100 lines), ×2 (200 lines), ×4 (400 lines), ×8 (800 lines)

Average processing

Spectrum: Instantaneous value, exponential averaging, linear averaging, peak hold
 Waveform: Instantaneous value

Trigger source: External signal, input level
 Trigger operation: Free-run, repeat, single
 Pre and post trigger function: Yes

Display section

Display
 LCD dot resolution: 192 × 128
 Display size: 77.5 × 54 mm
 Backlight: EL backlight
 Display data
 Vibration meter display: Acceleration, velocity, displacement
 Bar graph and numeric indication
 Spectrum display: Graph, list
 Graph display: 102 lines (frequency spectrum 101 lines + overall value)
 Y axis (dB, linear)

List display:

Waveform display: Upper 10 levels and frequency
 Graph only, 128 data
 Display contents
 Measurement data: Processing results, cursor, measurement conditions
 Status indication: Overload, trigger standby, storing
 Date and time indication: Date: MM:DD Time: HH:MM (24-hour notation)
 Power supply voltage: 4-segment battery status indicator

Memory

Data memory
 Main store: Measurement parameters and analysis results are stored in specified address
 Capacity 500 data sets, regardless of vibration meter mode or analyzer mode
 Transient store: Continuous store of waveform (store cycle: frequency span x 2.56)
 Timer store function: Start time, repeat interval, number of store data can be specified for storing data in data memory
 Data stored in transient memory can be re-analyzed.
 Re-analyze function: 10 sets, for storing and recalling all measurement parameters
 Measurement settings memory: ATA type compact flash card
 PCMCIA card: Contents of entire data memory are written to the card as one ASCII file in MS-DOS format

Inputs/outputs

RS-232C interface
 Function: Control of VA-11 from computer
 Transfer of measurement data to computer

Printer output

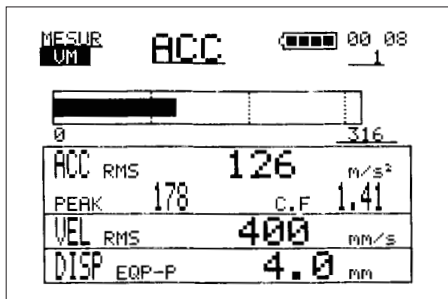
Compatible printers: CP-10, CP-11
 Function: Screen hard copy, continuous printout
 External trigger input: TTL level falling edge
 Beep tone: When operating and as error warning

Others

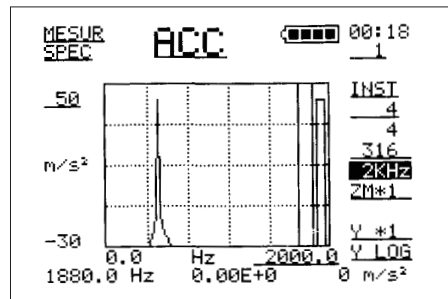
Dimensions: Approx. 17.4 × 15.6 × 4.6 cm
 Weight: Approx. 770 g (including battery)
 Power supply: Four IEC R14 (size C) batteries
 System batteries:
 Ambient conditions for use: 0 - +40°C
 Temperature: 20 - 90%
 Humidity:
 Supplied accessories:
 Acceleration pickup (PV-55) 1
 Soft carrying case 1
 IEC R14 (size C) batteries 4
 Instruction manual 1
 Lithium battery (CR-1/3N) 1

Optional accessories

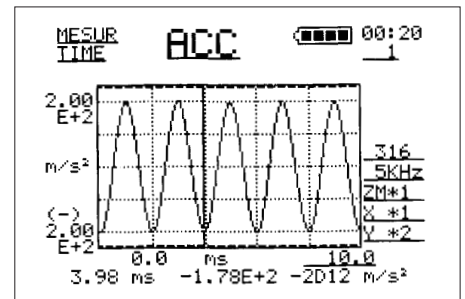
PCMCIA card: ATA type compact flash card
 Hard case (CF-21)
 Printer (CP-11)
 AC adapter (NC-94)



Vibration meter display



Spectrum display



Waveform display

Specifications subject to change without notice.



20-41, Higashimotomachi 3-chome, Kokubunji, Tokyo 185-8533, Japan
 Telephone: +81-42-359-7888 Fax: +81-42-359-7442
 URL : <http://www.rion.co.jp/english/>

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