RION

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/s^2 (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/s^2 (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:	Upper 10 levels and frequency
Waveform display:	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

Manual 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
Re-analyze function:	Data stored in transient memory can be re-analyzed.
Measurement settings memory:	10 sets, for storing and recalling all measurement parameters
PCMCIA card:	ATA type compact flash card Contents of entire data memory are written to the card as one ASCII file in MS-DOS format

Inputs/outputs

RS-232C interface

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Function:	Control of VA-11 from computer Transfer of measurement data to computer

Printer output

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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

System batteries:	Four IEC R14 (size C) batteries

Ambient conditions for use

Temperature:	0 - +40˚C
Humidity:	20 - 90%

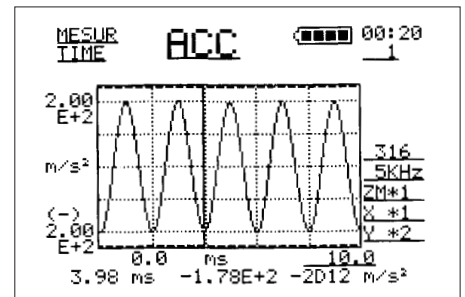| Supplied accessories:		
	Acceleration pickup (PV-55)	1
	Soft carrying case	1
	IEC R14 (size C) batteries	4
	Instruction manual	1
	Lithium battery (CR-1/3N)	1

Optional accessories
 PCMCIA card: ATA type compact flash card
 Hard case (CF-21)
 Printer (CP-11)
 AC adapter (NC-94)
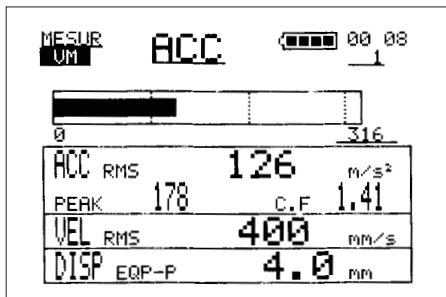
Vibration meter display
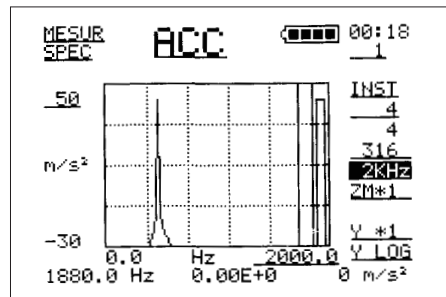
Spectrum display

Waveform display

Specifications subject to change without notice.

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