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Three measurement modes:
acceleration, velocity and displacement

Internal memory
stores up to 1 000 data

General-Purpose Vibration Meter *VM-82A*



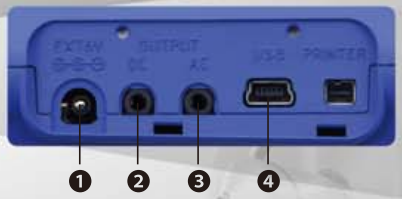
General-Purpose Vibration Meter *VM-82A*

The general-purpose vibration meter VM-82A is designed mainly for maintenance and inspection of industrial machinery, with particular emphasis on rotational machinery. Acceleration, velocity, and displacement can be easily measured using a suitable frequency range, allowing comprehensive and precise evaluation of machine vibrations.

- Operation panel with optimized button layout makes mode switching and setup easy and fast
- Wide range of measurement applications supported by selecting different accelerometers
- Backup function instantly reactivates previous settings at next power-on
- Convenient USB interface allows transfer of saved data to a computer
- Up to 24 hours of continuous operation on one set of alkaline batteries. Environment-friendly nickel-hydride batteries are also supported.
- Compact dimensions and light weight: only 270 grams including batteries



Right side panel



❶AC adapter
❷DC output connector
❸AC output connector
❹USB connector

Wide range of possible applications

Using the standard accelerometer PV-57I supplied with the unit, the measurement range of the VM-82A is as indicated by the Orange colored section in the table. Selecting a different accelerometer makes it possible to perform a wide range of other measurements. Accelerometer sensitivity, measurement full-scale range, and frequency range can be set to achieve the measurement configurations shown in the table.

Measurement mode	Accelerometer sensitivity mV/(m/s²) (pC/(m/s²))	Measurement full-scale range	Frequency range
ACC (m/s²) Acceleration	0.1 to 0.99	10 to 10 000	3 Hz to 1 kHz, 3 Hz to 5 kHz, 3 Hz to 20 kHz, 1 Hz to 100 Hz
	1.0 to 9.9	1 to 1 000	
	10 to 99	0.1 to 100	
VEL (mm/s) Velocity	0.1 to 0.99	100 to 10 000	3 Hz to 1 kHz ＊10 Hz to 1 kHz
	1.0 to 9.9	10 to 1 000	
	10 to 99	1 to 100	
DISP (mm) Displacement	0.1 to 0.99	1 to 1000	3 Hz to 500 Hz, 10 Hz to 500 Hz
	1.0 to 9.9	0.1 to 100	
	10 to 99	0.01 to 10	

＊Electrical characteristics for velocity from 10 Hz to 1 kHz are compliant with the frequency range requirements of JIS B 0907 "Mechanical vibration of rotating and reciprocating machinery – Requirements for instruments for measuring vibration severity".

Data store capability

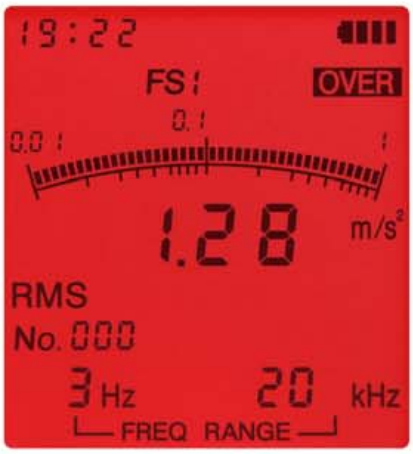
The internal memory of the VM-82A can hold up to 1 000 data. In recall mode, any of the stored data can be easily redisplayed by specifying the desired address. Stored data can also be transferred to a computer. ＊Bar graph indication and remaining battery capacity indication are not stored. (Transfer software can be downloaded free of charge from the Rion web site.)

Easy-to-read display

The large LCD panel displays the bar graph meter and numeric reading at the same time, making it easy to visually evaluate any changes immediately. The display also shows the frequency range setting and other useful information. Backlighting can be turned on if required, allowing use of the unit also in dark locations. In case of overload, the indication "OVER" appears, and the entire display color changes to red.



Measurement data display screen



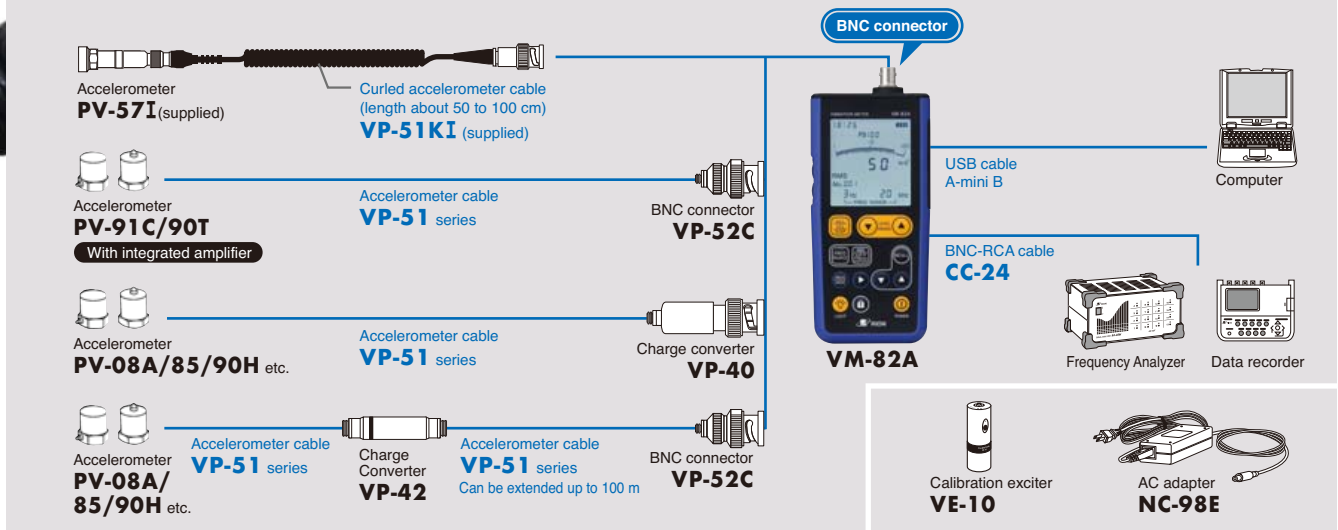
Overload indication screen



Backlit screen

System Configuration

(Except for vibration meter, Curled accelerometer cable VP-51KI and accelerometer PV-57I, shown components are available as options)



Specifications

Piezoelectric Accelerometer PV-57I (supplied)			
Type	Shear-type piezoelectric accelerometer (CCLD compatible)		
Sensitivity	5.1 mV/(m/s²) (±15 %) 80 Hz, 23 °C		
Frequency range	1 Hz to 5 kHz (±10 %)		
Dimensions / Weight	17 (width across hexagonal flat) × 49 mm / 45 g		

Applicable standards	CE marking, WEEE Directive, Chinese RoHS EMC standards: IEC 61326-1、CISPR 11、IEC 61000-6-2		
Measurement range (using PV-57I)			
ACC (Acceleration)	0.02 to 200 m/s²	EQ PEAK	1 Hz to 5 kHz
VEL (Velocity)	0.3 to 1 000 mm/s	RMS	3 Hz to 1 kHz
	0.1 to 1 000 mm/s	RMS	10 Hz to 1 kHz
DISP (Displacement)	0.02 to 100 mm	EQ PEAK	3 Hz to 500 Hz
	0.001 to 100 mm	EQ PEAK	10 Hz to 500 Hz
Frequency range			
ACC (Acceleration)	3 Hz to 1 kHz, 3 Hz to 5 kHz, 1 Hz to 100 Hz, 3 Hz to 20 kHz		
VEL (Velocity)	10 Hz to 1 kHz, 3 Hz to 1 kHz		
DISP (Displacement)	10 Hz to 500 Hz, 3 Hz to 500 Hz		

Values represent the range measured to about 10 % attenuation from flat response, due to high-pass filter or low-pass filter action. Electrical characteristics for velocity from 10 Hz to 1 kHz are compliant with the frequency range requirements of JIS B 0907 "Mechanical vibration of rotating and reciprocating machinery - Requirements for instruments for measuring vibration severity".

Measurement full-scale range	
For accelerometer PV-57I and accelerometers with sensitivity	1.0 to 9.9 mV/(m/s²)
ACC (Acceleration)	1, 10, 100, 1 000 m/s²
VEL (Velocity)	10, 100, 1 000 mm/s
DISP (Displacement)	0.1, 1, 10, 100 mm

When accelerometer sensitivity is 0.1 to 0.99 mV/(m/s²), range increases by a factor of 10
When accelerometer sensitivity is 10 to 99 mV/(m/s²), range decreases by a factor of 1/10

Indication characteristics	
Acceleration	RMS, EQ PEAK
Velocity	RMS, EQ PEAK
Displacement	RMS, EQ PEAK, EQ p-p

EQ PEAK=RMS ×√2、EQ p-p=EQ PEAK × 2

LCD panel (monochrome segment LCD)	
Backlight	LED
Measurement value display	Display range 001 to 128 Mean value of 20 sampling values for each 100 ms is displayed, updated every 2 seconds
Bar graph display	Logarithmic scale, 1 to 100 % of full-scale
Indication characteristics	RMS, EQ PEAK, EQ p-p
Overload indication	"OVER" shown on display and screen color turns to red
Measurement mode indication	Acceleration, Velocity, Displacement
Memory address indication	000 to 999 (1 000 data)
Battery status indication	4-segment display
Time indication	Year, month, day, hour, minute
Accelerometer sensitivity	0.10 to 0.99, 1.0 to 9.9, 10 to 99 mV/(m/s²)
Data memory	Maximum 1 000 data (000 to 999) can be stored manually
Gain calibration	Accelerometer sensitivity selection establishes suitable gain

Setting range	0.10 to 0.99, 1.0 to 9.9, 10 to 99 mV/(m/s²) (pC/(m/s²), when using VP-40/42)	
Output		
AC output	Range full-scale	1 V
	Output impedance	Approx. 600 Ω
DC output	Range full-scale	1 V
	Output impedance	Approx. 600 Ω
Output voltage and display accuracy (electrical characteristics)		
ACC (Acceleration)	Range full-scale ±2 % (80 Hz)	
VEL (Velocity)	Range full-scale ±3 % (80 Hz)	
DISP (Displacement)	Range full-scale ±5 % (80 Hz)	
Overall accuracy (in combination with PV-57I)		
ACC (Acceleration)	Range full-scale ±5 % (80 Hz)	
VEL (Velocity)	Range full-scale ±8 % (80 Hz)	
DISP (Displacement)	Range full-scale ±10 % (80 Hz)	
Interfaces		
USB	For data output and remote control of unit, data import to computer requires dedicated transfer software	
Ambient conditions for operation		
Accelerometer	−20 °C to +70 °C, max. 90 % RH	
Main unit	−10 °C to +50 °C, max. 90 % RH	
Power requirements	4 IEC R6 (size AA) batteries AC adapter (NC-98E, option)	
Current consumption	Approx. 65 mA	
Battery life (continuous use)		
Alkaline batteries	Approx. 24 hours (room temperature, backlight OFF, outputs and communication function OFF)	
Nickel-hydride batteries (eneloop XX®)*	Approx. 32 hours (room temperature, backlight OFF, outputs and communication function OFF)	
Dimensions / Weight	Approx. 171.5 (H) x 74 (W) x 25.5 (D) mm / Approx. 270 g (including batteries)	
Supplied accessories	Piezoelectric Accelerometer PV-57I x 1, IEC LR6 (size AA) alkaline battery x 4, Curled accelerometer cable VP-51KI x 1, Magnet attachment VP-53S x 1	

*Please use the dedicated charger to charged eneloop XX® batteries.
*eneloop XX® is a registered trademark of Panasonic group.

Options

Name	Model
Piezoelectric accelerometer*	Various
Calibration exciter	VE-10
Charge converter	VP-40
Charge converter	VP-42
BNC adapter	VP-52C
AC adapter	NC-98E
BNC-RCA output cable	CC-24
Round bar attachment	VP-53E
Hex flat attachment	VP-53D
M6 screw	VP-53A
Soft carrying case	VM82015
USB cable (A-Mini B)	Commercially available product

*For information on connections, see System Configuration illustration on page 3

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