



*Three measurement modes:
acceleration, velocity and displacement*
*Internal memory
stores up to 1 000 data*

General-Purpose Vibration Meter VM-82A



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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-hydrde batteries are also supported.
- Compact dimensions and light weight: only 270 grams including batteries

Hold button

Store button

Right side panel



- 1 AC adapter
- 2 DC output connector
- 3 AC output connector
- 4 USB connector
- 5 Printer connector



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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/s ²) (pC/(m/s ²)) | Measurement full-scale range | Frequency range |
|---|--|------------------------------|---|
| ACC (m/s ²) 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 | |
| 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 | |
| DISP (mm) Displacement | 0.1 to 0.99 | 1 to 1 000 | 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



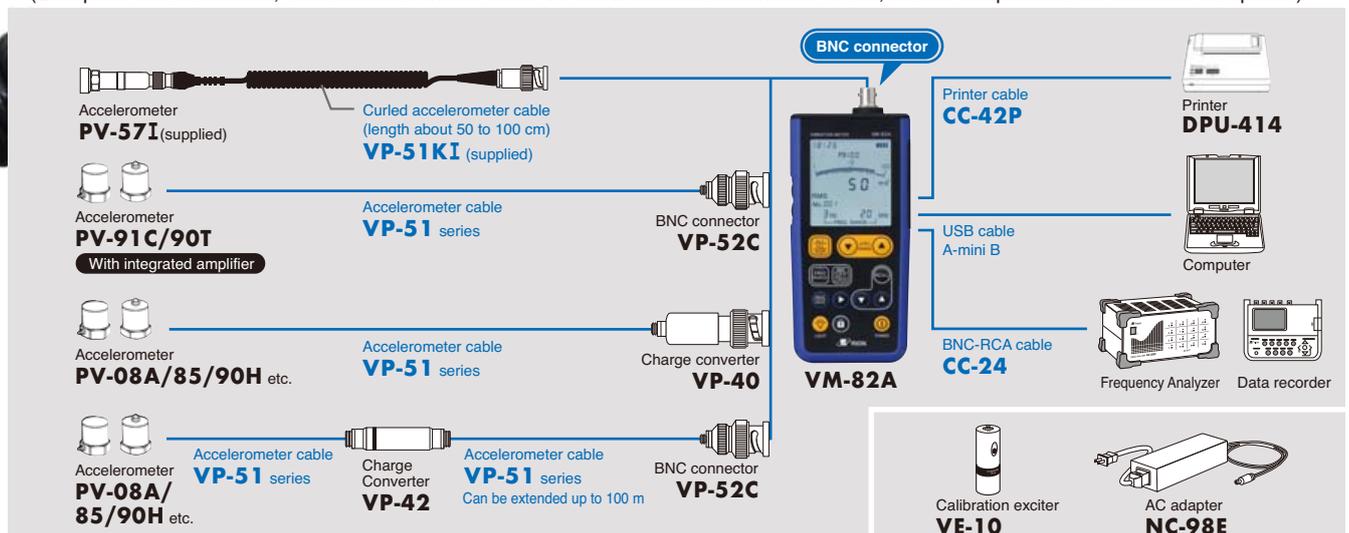
Backlit screen

Data printout

The separately available printer can be used to produce a hard copy of stored data or currently displayed data, together with information on measurement time and measurement parameters.

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/s ²) (±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/s ² | 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/s ²) |
| ACC (Acceleration) | 1, 10, 100, 1 000 m/s ² |
| 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/s ²) |
| 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/s ²) (pC/(m/s ²), 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 | |
| Printer output | For output of data to printer | |
| 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-hydrate batteries (eneloop XX [®])* | Approx. 32 hours (room temperature, backlight OFF, outputs and communication function OFF) | |
| Dimensions / Weight | Approx. 171.5 (H) × 74 (W) × 25.5 (D) mm / Approx. 270 g (including batteries) | |
| Supplied accessories | Piezoelectric Accelerometer PV-57I × 1, IEC LR6 (size AA) alkaline battery × 4, Curled accelerometer cable VP-51KI × 1, Magnet attachment VP-53S × 1 | |

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

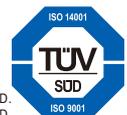
Options

| Name | Model |
|------------------------------|--------------------------------|
| Piezoelectric accelerometer* | Various |
| Calibration exciter | VE-10 |
| Charge converter | VP-40 |
| Charge converter | VP-42 |
| BNC adapter | VP-52C |
| Printer | DPU-414 |
| Printer cable | CC-42P |
| 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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