Tri-axial Groundborne Vibration Meter VM-56
Simultaneous PPV, VDV, Dominant Frequency & Displacement
Tri-axial Groundborne Vibration Meter VM-56

The VM-56 is a groundborne vibration meter capable of simultaneously calculating the measurement quantities defined by DIN 45669-1, ISO 8041 and other national measurement standards. Like other Rion products, it is characterized by excellent build-quality and exceptional ease of use. It is suitable for a wide range of applications including attended measurements, unattended surveys and live-to-web monitoring.

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**High Quality & Easy of Use**

- **Features**
  - Simultaneous measurement of multiple parameters including PPV and VDV.
  - Simultaneous tri-axial measurement.
  - Compact and lightweight design.
  - Data stored as CSV files on an SD card.
  - Flexible product configuration with waveform recording function and 1/3 octave band analysis function available as optional programs.
  - Suitable for use in a live-to-web system (please contact us for further details).

- **User definable PPV vs Frequency comparator output supports DIN 4150: Part 3 and other frequency-dependent PPV building damage criteria.**
Configuration Example for Remote Continuous Monitoring

Measurement results and data from the VM-56 can be accessed by computers, tablets or smartphones via a network connection for continuous remote monitoring.

Option programs

Waveform Recording Program VX-56WR

Allows recording vibration waveforms on SD card as WAV files. The recording process is carried out simultaneously with the standard VM-56 functions.

1/3 Octave Band Analysis Program VX-56RT

Enables measurement and logging of 1/3 octave acceleration levels simultaneously with broadband parameters (e.g. PPV, Dominant Frequency, VDV, MTVV). Can be used concurrently with VX-56WR.

Software / Report Creation

Waveform Analysis software for Groundborne Vibration AS-70GV

Allows use of WAV files recorded with VM-56 + VX-56WR for graph display, level processing, frequency analysis (octave band analysis / FFT analysis), recalculation (PPV, KB, VDV), and file output.

Excel macro for report output (Free of charge • Now available on our website)

Facilitates the creation of reports from measurement data.

- Data types:
  - VM-56 auto store data
  - VX-56RT auto store data
  - Manual store data are not supported

- Measurement target:
  - PPV, displacement, acceleration (rms), VDV, MTVV, KB, value, \( V_{eff, max} \) value
Specifications


Measurement functions: Tri-axis simultaneous measurement.

Measurement values:
- Frequency weighting: A, B, C.
- Measurement range:
  - Vibration acceleration:
    - Measurement range setting: 1 to 80 Hz, with 1/3 octave band.
    - Measurement range:
      - Frequency range: 0.5 to 315 Hz.
  - Vibration velocity:
    - Measurement range:
      - Frequency range: 0.5 to 315 Hz.
  - Vibration displacement:
    - Measurement range:
      - Frequency range: 0.5 to 315 Hz.

Accuracy:
- Frequency weighting:
  - Error: ±(0.1% of reading + 0.01 m/s²) (with correction for 1/3 octave band).
- Vibration acceleration:
  - Error: ±(0.1% of reading + 0.01 m/s²) (with correction for 1/3 octave band).
- Vibration velocity:
  - Error: ±(0.1% of reading + 0.01 m/s²) (with correction for 1/3 octave band).
- Vibration displacement:
  - Error: ±(0.1% of reading + 0.01 m/s²) (with correction for 1/3 octave band).

Resolution:
- Frequency weighting:
  - Resolution: 0.1 Hz.
- Vibration acceleration:
  - Resolution: 0.01 m/s².
- Vibration velocity:
  - Resolution: 0.01 m/s².
- Vibration displacement:
  - Resolution: 0.01 m/s².

 Sampling frequency: 4 kHz.

Storage modes:
- Manual: Data are stored in internal memory or on SD card.
- Auto: Data are stored in internal memory or on SD card.

Power requirements:
- AC adapter: 100 to 240 VAC, 50/60 Hz.
- Battery life: 20 hours with 50 mA current.

Waveform Recording Program VX-56WR

Recorded signal:
- Acceleration

Data format:
- WAV format

Frequency correction:
- None

Data recall:
- Store data name, data store browse, time browse, waveform yes/no check

Setting memory:
- Up to 5 sets of settings can be stored in internal memory and on SD card.

Options:
- RS-232 communications: Using dedicated cable (I/O terminal)
- Sample rate: 4 kHz
- Auto: Instantaneous store: Time-weighted instantaneous value of 1/3 octave band every 100 ms.
- Auto: Processing values:
  - Instantaneous store: Acc. rms data stored every 100 ms.
  - Processing store: Vibration measurement frequency band.

Analysis Basis:
- Acceleration

Analysis value:
- PPV (broad-band or user-definable PPV vs frequency function)

Analysis target channels:
- 3 channels simultaneously.

User Weighting:
- Enables the user to set amplitude weightings for 1/3 octave band.

Waves:
- Water and dust proofing: IP54 rating.
- Tilt: ±2 °C to ±50 °C, 90 % RH or less (no condensation)

Dampers:
- Tri-axial synthesis of band max overall.
- Maximum KB (DIN 45669-1 compliant)

Displacement (Disp.), PVS, Overload and Under Range Flags for each analysis cycle.
- Processed value store: PPV, Dominant Frequency (D.F.), KBFmax, LTVV, VDV, Crest Factor (C.F.), data sets, SD card: dependent on card capacity.

Quality Assurance:
- ISO 14001 RION CO., LTD.

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