Vibration Level Meter VM-55
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List of option program functions
The following functions can be added by installing optional programs.

Extended Function Program VX-55EX
The VX-55EX program is supplied on a 512 MB SD card. After installation, the card can be used as a 512 MB SD memory card.

When the VX-55EX program has been installed*, the VX-55WR and VX-55RT can be added.

Waveform Recording Program VX-55WR
Enables simultaneous vibration level processing and waveform recording. Recorded data can be analyzed on a computer, for example to perform frequency analysis. (Non-compressed WAVE files)

1 kHz sampling. 24 bit or 16 bit selectable.

Max. recording time (at 16 bit)

<table>
<thead>
<tr>
<th>Memory card</th>
<th>512 MB</th>
<th>2 GB</th>
<th>32 GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kHz</td>
<td>Approx. 13 hours</td>
<td>Approx. 55 hours</td>
<td>Approx. 950 hours</td>
</tr>
</tbody>
</table>

1/3 Octave Real-time Analysis Program VX-55RT
Enables real time 1/3 octave band analysis. Saved analysis results can be reloaded later for display.

The VX-55RT program is supplied on a 512 MB SD card. After installation, the card can be used as a 512 MB SD memory card.
The Vibration Level Meter VM-55 is compliant with JIS C 1510: 1995 and JIS C 1517: 2014. The unit is equipped to measure the instantaneous value for vibration level and vibration acceleration level, as well as the time percentile level, time averaged level, maximum and minimum values in three axes simultaneously.

[Improved functions from predecessor model VM-53/VM-53A]

- Simultaneous measurement of vibration level ($L_v$) and vibration acceleration level ($L_{va}$)
- Support for high capacity SD cards up to 32 GB (Measurement data are output as CSV files, which can be handled by spreadsheet software such as Excel.)
- Support for added functions via option programs
  - Long-term automated recording for continuous data
  - Comparator output
  - Simultaneous real time 1/3 octave band analysis for 3 axes
  - Simultaneous waveform recording for 3 axes
- 27 hours of measurement operation with IEC R6 [size AA] batteries (alkaline or nickel-hydride rechargeable)

Dust and water proofing IP54 rating (for main unit)

System Configuration (Equipment besides main unit, PV-83C, and EC-54S is optional.)

Data Management Software for Environmental Measurement AS-60VM

- Manage data collected with VM-55 + VX-55EX in a computer.
- Allows use of auto stored data for simultaneous display of time-level and graph, simultaneous display of multiple channels, graph overlay, various types of processing operations, and report creation.

Data Management Software for Environmental Measurement AS-60VMRT

- Manage data collected with VM-55 + VX-55EX + VX-55RT in a computer.
- Allows use of auto stored 1/3 octave band data for graph display of 1/3 octave band analysis results, various types of processing operations, and report creation.

Waveform Analysis Software AS-70

- Allows use of WAVE files recorded with VM-55 + VX-55EX + VX-55WR for graph display, level processing, frequency analysis (octave band analysis / FFT analysis), file output and playback.
Specifications

**Type Approval Number:** No. TW161

**Applicable standards:**
- CE marking: WEEE Directive, Chinese RoHS (report model for China only)

**Measurement functions:**
- 3-axis simultaneous measurement supported
- Vibration level \( L_a \) and vibration acceleration level \( L_{a\text{eq}} \)
- Maximum value hold for vibration level and vibration acceleration level

**Processing measurement (processing values):**
- Time average level \( L_{avg} \) for vibration level and vibration acceleration level
- Time percentile level \( L_{1\%}, L_{5\%}, L_{10\%}, \) for vibration level and vibration acceleration level
- Maximum value \( L_{max} \) for vibration level and vibration acceleration level
- Minimum value \( L_{min} \) for vibration level and vibration acceleration level

**Measurement frequency range:**
- Vibration level: 1 to 80 Hz
- Vibration acceleration: 1 to 80 Hz

**Measurement range:**
- Vibration level: vertical, horizontal \( -25 \) to 129 dB
- Vibration level: horizontal, vertical \( -30 \) to 122 dB
- Vibration level: vertical, horizontal \( -30 \) to 129 dB

**Residual noise level:**
- \( 18 \) dB or less
- \( 12 \) dB or less
- \( 15 \) dB or less

**Frequency weighting:**
- Vertical vibration characteristics (according to Weight and Measure Act or JIS)
- Planar vibration characteristics (according to JIS)

**Sampling cycle:**
- \( 10 \) dB steps, 6 switchable ranges, independent for 3 axes
- \( 0 \) to \( 70 \) dB, \( 10 \) to \( 80 \) dB, \( 20 \) to \( 80 \) dB, \( 30 \) to \( 100 \) dB, \( 40 \) to \( 110 \) dB, \( 50 \) to \( 120 \) dB

**Linearity range:**
- \( 80 \) dB

**RMS detection circuit:**
- Digital processing, time weighting characteristics \( 0.83 \) seconds

**Manual store modes:**
- 3 modes: Manual, Auto,.TIME Auto

**Sensor characteristics:**
- Vibration level \( L_a \) and vibration acceleration level \( L_{a\text{eq}} \)
- Instantaneous values and maximum
- Maximum hold: 125 \( \mu \)s
- Maximum hold accuracy: \( \pm 1 \% \) (at the moment the key press is removed)
- Frequency bandwidth: \( \pm 8 \) kHz

**Pause function settings:**
- Available settings are 100 milliseconds and 1 second
- Time percentile level \( L_{1\%}, L_{5\%}, L_{10\%} \)
- Maximum value hold: 125 \( \mu \)s (sampling frequency 8 kHz)

**Measurement pause function:**
- Not available in Auto and TIME Auto modes and during waveform recording
- User-specified (1 to 59 seconds, 1 to 59 minutes, 1 to 24 hours)
- Store interval for instantaneous value data in Auto and TIME Auto store modes
- Measurement time range: 10 minutes at each full hour
- Continuous store of vibration level
- Maximum value hold for vibration level and vibration acceleration level
- 3-axis simultaneous measurement supported

**Dimensions and weight:**
- Internal memory can hold up to 1,000 sets of 3-axis data, storage on SD card depends on card capacity
- 2 GB SD card: 165 steps, 1 GB SD card: 330 steps
- 12 GB SD card: 3,000 steps

**Comparator output:**
- Comparator (Vibration level or vibration acceleration level based comparator)
- Output activated when setting level (30 to 120 dB, 1-dB steps) is exceeded
- Comparator output: Single-channel single selected with menu
- Comparator output: Open-collector output (using I/O port)
- AC: 100-240 VAC, 50 Hz/60 Hz

**AC/DC output:**
- AC output: 0.1% (10 V or 10 mA)
- DC output: 0.1% (10 V, 10 mA)
- DC output (measuring voltage): 10 V or 10 mA
- DC output (maximum 20 V, 5 mA)

**USB/SD card:**
- Mass storage class
- When unit is connected to a computer as a storage device, SD card is recognized as a removable disk
- Communication device
- When unit is used as a communication class device, operation control via communication commands is possible

**Data management software:**
- RION-SC33 Communications (Using a dedicated cable, RS-232C communications are possible using I/O port)
- RION-GM: Screen capture of the screen display, instantaneous value, processing values, recall data can be printed

**Printing function:**
- Dedicated printer BLZ-6 can be used to print measurement results (using I/O port)
- Print screen mode:
- Produces a hard copy of the screen display, instantaneous value, processing values, recall data can be printed

**Applicable standards:**
- Weight and Measure Act (Vibration Level Meters) JIS C 1510:1995, JIS C 1517:2014
- Weight and Measure Act (Sound Level Meters) JIS C 1513:1999, JIS C 1517:2014
- Calibration output
- Signal overload indication: Full-scale +10.0 dB
- Languages: English and Japanese, with Help function
- Image capture and saved as a BMP file
- Screen content can be captured and saved as a BMP file
- LED: Two-color (red/blue) type for status indication

**LED signal output:**
- AC output: 315 Hz, 1.1 V rms
- DC output: 2.5 V

**AC/DC output:**
- AC output: Selectable by menu
- 1.25 A (10 V or 10 mA), 1.25 A (20 V, 5 mA)
- DC output: Selectable by menu
- 1.25 A (10 V, 10 mA), 1.25 A (20 V, 5 mA)
- DC output (measuring voltage): 10 V or 10 mA
- DC output (maximum 20 V, 5 mA)

**Specifications subject to change without notice.

- | Measurement function | Description |
- |----------------------|-------------|
- | Vibration level L_a  | Vertical vibration characteristics (according to JIS) |
- | Maximum value hold   | 125 \( \mu \)s (sampling frequency 8 kHz) |
- | Frequency weighting  | Vertical vibration characteristics (according to Weight and Measure Act or JIS), Planar vibration characteristics (according to JIS) |
- | Measurement range    | Vibration level: vertical: \( -25 \) to 129 dB, horizontal: \( -30 \) to 122 dB, both: \( -30 \) to 129 dB |
- | Linearity range      | \( 80 \) dB |
- | RMS detection circuit| Digital processing, time weighting characteristics 0.83 seconds |
- | Sensor characteristics| Vibration level \( L_a \) and vibration acceleration level \( L_{a\text{eq}} \), instantaneous values and maximum |
- | Pause function       | Time percentile level \( L_{1\%}, L_{5\%}, L_{10\%} \), maximum value hold: 125 \( \mu \)s |
- | Measurement time     | Measurement time in Manual store mode, Processing measurement with selected measurement time supported 500 seconds, 10 seconds, 1 minute, 5 minutes, 10 minutes, 15 minutes, 30 minutes, 1 hour, 8 hours, 24 hours, User-specified (1 to 59 seconds, 1 to 59 minutes, 1 to 24 hours) |
- | Total measurement time| Measurement time in Auto or TIME Auto store mode, Processing measurement with selected measurement time supported 500 seconds, 10 seconds, 1 minute, 5 minutes, 10 minutes, 15 minutes, 30 minutes, 1 hour, 8 hours, 24 hours, User-specified (1 to 59 seconds, 1 to 59 minutes, 1 to 24 hours) |
- | Duration processing | Interval for calculation of \( L_{avg} \) and other processing data in Auto and TIME Auto store modes 500 seconds, 10 seconds, 1 minute, 5 minutes, 10 minutes, 15 minutes, 30 minutes, 1 hour, 8 hours, 24 hours, User-specified (1 to 59 seconds, 1 to 59 minutes, 1 to 100 hours) |
- | No. TW161            | RION CO., LTD. was recognized by the JCSS which uses ISO/IEC 17025 as an accreditation standard and bases its accreditation scheme on ISO/IEC 17011. JCSS is operated by the accreditation body (IA Japan) which is a signatory to the Asia Pacific Accreditation Cooperation (APAC) as well as the International Laboratory Accreditation Cooperation (ILAC). The Quality Assurance Section of RION CO., LTD. is an international MRA compliant JCSS operator with the accreditation number JCSS 0197. |
- | Calibration output   | Two types of market functions available, Available only in Auto and TIME Auto modes and during waveform recording |
- | Marker               | Two types of marker functions available |
- | Data recall          | Function for viewing stored data, Available only in Auto and TIME Auto store modes when setting store cycle |
- | Setting memory       | Up to 3 sets of settings can be stored in internal memory and on SD card, for later recall with settings stored in a file on the SD card possible |
- | Clock function       | Internal clock enables adding and time information to stored data and allows automated processing measurement using a timer |
- | Display              | Backlight semi-transparent color TFT LCD, V0(WGA resolution: 640 x 480 dots) |
- | Alarm indication     | Signal overload indicator: Full-scale \( \pm 10 \) dB |
- | ISO 14010 RION CO., LTD. | ISO 9001 RION CO., LTD. |
- | Distributed:         | windows is a trademark of Microsoft Corporation. Specifications subject to change without notice. |
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