ACCELEROMETER
### Accelerometer Products

#### Outline/purpose

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard piezoelectric type</th>
<th>Compact, lightweight, high temperature</th>
<th>Compact, lightweight, high sensitivity</th>
<th>Compact, lightweight, TEDIS applicable</th>
<th>General purpose, standard accelerometer</th>
<th>Fairly compact, general purpose accelerometer</th>
<th>For measurement of lightweight structures and mode analysis</th>
<th>For measurement of lightweight structures and mode analysis</th>
<th>High sensitivity type for measurement of large structures</th>
</tr>
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<tbody>
<tr>
<td>PV-03</td>
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<td>PV-91C</td>
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<td>PV-91CH</td>
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<td>PV-907</td>
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<td>PV-956/86</td>
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<td>PV-945</td>
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<td>PV-08A</td>
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<td>PV-908</td>
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<td>PV-87</td>
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#### Principle

<table>
<thead>
<tr>
<th>Mass (g)</th>
<th>Compression</th>
<th>Shear</th>
<th>Shear</th>
<th>Shear</th>
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<tbody>
<tr>
<td>38</td>
<td>1.8</td>
<td>3</td>
<td>2</td>
<td>23</td>
<td>9</td>
<td>0.7</td>
<td>1.2</td>
<td>115</td>
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</table>

| Charge sensitivity (μstrain/m/s²) | 0.47 |
| Voltage sensitivity (mV/m/s²) | 0.5 |

| Vibration frequency range (±dB/Hz) | 10 to 20 000 (±10%) |
| Mounting resonance frequency (±dB/Hz) | 0.5 |

| Transverse sensitivity | 3% or less |
| Standard mounting method | VP-56A×2 M6 screws 2.0 |
| Maximum measurable | 5 000 |

| Base distortion sensitivity | 0.005/°C |
| Thermal transient response (μstrain/°C) | 0.01 |

| Temperature range for use (°C) | −50 to +200 |
| Capacitance (pF) | 270 |

| Case material | Stainless steel |
| Connecting equipment | Charge amplifier |
| Dimensions (mm) | 15.8 (Hex)×20(H) |

#### Supplied accessories

<table>
<thead>
<tr>
<th>Cable</th>
<th>Screw attachment</th>
<th>VP-51A (2 m)</th>
<th>VP-51A (2 m)</th>
<th>VP-51LC (2 m)</th>
<th>VP-51LC (2 m)</th>
<th>VP-51A (2 m)</th>
<th>VP-51A (2 m)</th>
<th>VP-51J (38 cm)</th>
<th>VP-51L (2 m)</th>
<th>VP-51A (2 m)</th>
<th>VP-53V</th>
<th>VP-53Z</th>
<th>VP-53A×2</th>
<th>VP-53Z</th>
<th>VP-533J×2</th>
<th>VP-53D</th>
</tr>
</thead>
</table>

### Notes

- **1** Representative value; actual value is noted on calibration sheet supplied with accelerometer.
- **2** Representative value when mounted on flat surface according to standard mounting method (93).
- **3** Please take care not to drop accelerometers and carefully handle them with attachments. There is likely to be trouble of piezoelectric accelerometers by (giving) excessive shock. The excessive shock carries some damages onto piezoelectric ceramic element.
### Triaxial type

**Outline / purpose**
- General purpose triaxial accelerometer
- Stable up to 200 °C
- Simultaneous 3-component measurement supported
- Compact triaxial accelerometer with integrated amplifier

**Principle**
- Shear, Compressive, Shear, Shear, Shear

<table>
<thead>
<tr>
<th>Model</th>
<th>PV-90H</th>
<th>PV-44A</th>
<th>PV-65</th>
<th>PV-63</th>
<th>PV-10B</th>
<th>PV-93</th>
<th>PV-97C</th>
<th>PV-97T</th>
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<tbody>
<tr>
<td>Mass (g)</td>
<td>2</td>
<td>29</td>
<td>26</td>
<td>28</td>
<td>120</td>
<td>30</td>
<td>4.7</td>
<td>10</td>
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<td>Charge sensitivity (μV/m/s²)</td>
<td>0.29</td>
<td>7.65</td>
<td>7.14</td>
<td>4.59</td>
<td>—</td>
<td>0.831</td>
<td>0.12</td>
<td>0.29</td>
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<tr>
<td>Voltage sensitivity (V/V/m/s²)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>5.1</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Vibration frequency range (±dB)</td>
<td>1 to 20 000 (±10 %)</td>
<td>0 to 10 000</td>
<td>0 to 9 000</td>
<td>1 to 8 000</td>
<td>3 to 8 000</td>
<td>1 to 8 000 (2-axis)</td>
<td>1 to 4 000 (1-3)</td>
<td>1 to 5 000 (2-axis)</td>
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<tr>
<td>Mounting resonance frequency kHz</td>
<td>60</td>
<td>28</td>
<td>25</td>
<td>26</td>
<td>24</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Transverse sensitivity</td>
<td>5 % or less</td>
<td>5 % or less</td>
<td>5 % or less</td>
<td>5 % or less</td>
<td>5 % or less</td>
<td>5 % or less</td>
<td>5 % or less</td>
<td>5 % or less</td>
</tr>
<tr>
<td>Standard mounting method</td>
<td>Screw tone (N·mm)</td>
<td>0.5</td>
<td>0.5</td>
<td>3.5</td>
<td>M4 screws</td>
<td>1.5</td>
<td>M4 screws</td>
<td>Bond</td>
</tr>
<tr>
<td>Maximum measurable acceleration (m/s²)</td>
<td>10 000</td>
<td>4 000</td>
<td>4 000</td>
<td>4 000</td>
<td>500</td>
<td>10 000</td>
<td>5 000</td>
<td>5 000</td>
</tr>
<tr>
<td>Base distortion sensitivity (μV/g)</td>
<td>0.05</td>
<td>0.04</td>
<td>0.01</td>
<td>0.01</td>
<td>0.1</td>
<td>0.6</td>
<td>0.1</td>
<td>0.1</td>
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<tr>
<td>Thermal transient response (m/s²/°C)</td>
<td>0.5</td>
<td>1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.5</td>
<td>15</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
<td>Temperature range for use °C</td>
<td>−50 to +250</td>
<td>−50 to +260</td>
<td>−50 to +260</td>
<td>−20 to +300</td>
<td>−20 to +100</td>
<td>−50 to +160</td>
<td>−50 to +160</td>
<td>−20 to +125</td>
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<tr>
<td>Capacitance pF</td>
<td>500</td>
<td>970</td>
<td>3 900</td>
<td>2 800</td>
<td>—</td>
<td>410</td>
<td>420</td>
<td>500</td>
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<tr>
<td>Case material</td>
<td>Titanium</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Titanium</td>
<td>Titanium</td>
<td>Titanium</td>
</tr>
<tr>
<td>Connecting equipment</td>
<td>Charge amplifier</td>
<td>Charge amplifier</td>
<td>Charge amplifier</td>
<td>Charge amplifier</td>
<td>Charge amplifier</td>
<td>Charge amplifier</td>
<td>Charge amplifier</td>
<td>2 mA regulated power supply</td>
</tr>
<tr>
<td>Dimensions mm</td>
<td>7(Hex)×11(H)</td>
<td>16(Hex)×20.5(H)</td>
<td>15.9(Hex)×22.5(H)</td>
<td>17(Hex)×23(H)</td>
<td>23(Φ)×40(H)</td>
<td>16(Hex)×21(W)×12(D)</td>
<td>16(Hex)×14(W)×13(D)</td>
<td>13(Hex)×13(W)×13(D)</td>
</tr>
<tr>
<td>Supplied accessories</td>
<td>VP-51B (2 m)</td>
<td>VP-51B (2 m)</td>
<td>VP-51B (2 m)</td>
<td>VP-51I (1 m)</td>
<td>Bond: M3 screws</td>
<td>M4 hex socket bolt ×3 (L10/SUS)</td>
<td>2L-4 flat head spring ×3</td>
<td></td>
</tr>
</tbody>
</table>

*4: 100 °C or less, 1000 m/s² or less
*5: 1 to 2 Hz (±15 %) at 150 to 170 degrees, 2 Hz to 20 kHz (±10 %)
*6: Maximum measurable acceleration depends on the temperature, charge sensitivity, and driving voltage.
*7: Typical value
*8: 0.6 Hz to 20 kHz (±20 %), 0.5 Hz to 20 kHz (±30 %)
# Accelerometer mounting and connection examples

<table>
<thead>
<tr>
<th>General mounting method (screw, magnet/insulating attachment)</th>
<th>Piezoelectric Accelerometer</th>
<th>Connection cable</th>
<th>Connected equipment</th>
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<tr>
<td><strong>Standard piezoelectric</strong></td>
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</tr>
<tr>
<td>● M6 flange screw VP-56A</td>
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</tr>
<tr>
<td>● M3 screw VP-53K</td>
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<tr>
<td>● Magnet attachment VP-53T</td>
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<tr>
<td>● Insulating attachment VP-53W</td>
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<tr>
<td><strong>With integrated amplifier</strong></td>
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<tr>
<td>● M6 screw VP-53A</td>
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<tr>
<td>● Magnet attachment VP-53S</td>
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</tr>
<tr>
<td>● Insulating attachment VP-53C</td>
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</tr>
<tr>
<td>● For insulation and use of magnet attachment VP-53C-VP-55A</td>
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<tr>
<td><strong>General-purpose</strong></td>
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<tr>
<td>● M6 screw VP-53A</td>
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<tr>
<td>● Magnet attachment VP-53S</td>
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<tr>
<td>● Insulating attachment VP-53C</td>
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<tr>
<td>● For insulation and use of magnet attachment VP-53C-VP-55A</td>
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<tr>
<td><strong>Compact/ lightweight</strong></td>
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<tr>
<td>● Adhesive</td>
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<tr>
<td>● M3 screw VP-53K</td>
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<tr>
<td>● Magnet attachment VP-53T</td>
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<tr>
<td>● Insulating attachment VP-53W</td>
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<tr>
<td><strong>High-output</strong></td>
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<tr>
<td>● M6 screw VP-53A</td>
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<tr>
<td>● Magnet attachment VP-53S</td>
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<tr>
<td>● Insulating attachment VP-53C</td>
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<tr>
<td>● For insulation and use of magnet attachment VP-53C-VP-55A</td>
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</tbody>
</table>

- **PV-03**: Ultra-compact Accelerometer Cable VP-51A
- **PV-83**: Standard Cable VP-51A
- **PV-51LC**: Ultra-compact Accelerometer Cable VP-51LC
- **PV-91C**: Charge Converter VP-42
- **PV-91CH**: BNC Adapter VP-52C
- **PV-90T**: Charge Converter VP-40
- **PV-85/86**: Standard Cable VP-51A
- **PV-94/95**: Ultra-compact Accelerometer Cable VP-51LC
- **PV-08**: Standard Cable VP-51A
- **PV-51J**: Ultra-compact Accelerometer Cable VP-51L
- **PV-90B**: Charge Converter VP-42
- **PV-87**: Standard Cable VP-51A
- **PV-51A**: Ultra-compact Accelerometer Cable VP-51LC
- **PV-52C**: Charge Converter VP-40

- **VM-83**: General-Purpose Vibration Meter UV-15, 15V-16
- **SA-02**: Vibration Meter Interface Unit UV-22
- **SA-02**: 2-Channel Charge Amplifier UV-16, Battery Unit BP-17
- **SA-02**: Multi-channel Signal Analyzer SA-02
- **SA-02**: Portable Multi-function Measuring System RIONOTE

- **General mounting method**
- **Other mounting methods**
### Piezoelectric Accelerometer
- **M3 screw**
  - VP-53K
- **Magnet attachment**
  - VP-53T (max. 180 °C)
- **10-32UNF screw**
  - VP-55K
- **Magnet attachment**
  - VP-55C (max. 200 °C)
- **M6 screw**
  - VP-53A
- **M6 flange screw**
  - VP-56A

### High-temperature
- **M6 screw**
  - VP-53A

### Tri-axial type
- **M6 screw**
  - VP-53A
- **Adhesive**
  - PV-93
  - PV-97
  - PV-97C
  - PV-97I

### Servo type
- **Supplied screw and insulating plate**
  - LS-10C
  - LS-40C

## Connection cable
- **Ultra-compact Accelerometer Cable**
  - VP-51LB
- **Heat-resistant Cable**
  - VP-51B
- **Heat-resistant Cable**
  - VP-51I
- **Ultra-compact Accelerometer Cable**
  - VP-51L x3
- **PV-97 Tri-axial Accelerometer Cable**
  - VP-51WL
- **PV-97 Tri-axial Accelerometer Cable**
  - VP-51W

## Connected equipment
- **General-Purpose Vibration Meter**
  - VM-83 UV-15
- **Vibration Meter Unit**
  - UV-15
- **Interface Unit**
  - UV-22
- **4-channel Data Recorder**
  - SA-02 DA-21 SA-A1
- **Portable Multi-function Measuring System**
  - RIONOTE
- **General-Purpose Vibration Meter**
  - VM-83
- **Battery Unit**
  - UV-16
- **Power Supply**
  - LF-20
- **Servo Accelerometer**
  - LF-20

## Adhesive
- **M6 screw**
  - VP-53A
- **Adhesive**
  - VP-93
  - VP-97
  - VP-97C
  - VP-97I

## Standard mounting method
- **M3 screw**
  - VP-53K
- **Magnet attachment**
  - VP-53T (max. 180 °C)
- **10-32UNF screw**
  - VP-55K
- **Magnet attachment**
  - VP-55C (max. 200 °C)
- **M6 screw**
  - VP-53A
- **M6 flange screw**
  - VP-56A

## Other mounting methods
- **M6 screw**
  - VP-53A
- **Adhesive**
  - PV-93
  - PV-97
  - PV-97C
  - PV-97I
### Low-noise coaxial cables

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Cable diameter</th>
<th>Connector screw thread</th>
<th>Capacitance</th>
<th>Max. temperature</th>
<th>Sheath material/color</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Standard cable</td>
<td>VP-51A</td>
<td>2.1 mm</td>
<td>10-32UNF/10-32UNF</td>
<td>180 pF</td>
<td>105 °C</td>
<td>PVC - black</td>
<td>2 m</td>
</tr>
<tr>
<td>2 Heat-resistant cable</td>
<td>VP-51B</td>
<td>2.1 mm</td>
<td>10-32UNF/10-32UNF</td>
<td>220 pF</td>
<td>260 °C</td>
<td>PTFE - red</td>
<td>2 m</td>
</tr>
<tr>
<td>3 Triaxial standard cable</td>
<td>VP-51C</td>
<td>2.1 mm</td>
<td>10-32UNF/10-32UNF</td>
<td>180 pF</td>
<td>105 °C</td>
<td>PVC - black/white/red</td>
<td>5 m</td>
</tr>
<tr>
<td>4 Ultra-compact accelerometer cable</td>
<td>VP-51L</td>
<td>1.2 mm</td>
<td>M3×0.5/10-32UNF</td>
<td>260 pF</td>
<td>160 °C</td>
<td>FEP - black</td>
<td>2 m</td>
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<tr>
<td>5 Heat-resistant cable</td>
<td>VP-51J</td>
<td>1.2 mm</td>
<td>M3×0.5/10-32UNF</td>
<td>150 pF</td>
<td>300 °C</td>
<td>Stainless steel plated</td>
<td>1 m</td>
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<tr>
<td>6 PV-08 standard cable</td>
<td>VP-51K</td>
<td>1.2 mm</td>
<td>M3×0.5/10-32UNF</td>
<td>60 pF</td>
<td>160 °C</td>
<td>FEP - black</td>
<td>5 m</td>
</tr>
<tr>
<td>7 Tri-axial cable for PV-97I</td>
<td>VP-51W</td>
<td>2.4 mm</td>
<td>M5.5×0.5/10-32UNF</td>
<td>—</td>
<td>105 °C</td>
<td>PVC - gray</td>
<td>3 m</td>
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<tr>
<td>8 250 °C low-noise cable</td>
<td>VP-51LB</td>
<td>1.35 mm</td>
<td>M3×0.5/10-32UNF</td>
<td>220 pF</td>
<td>250 °C</td>
<td>PTFE - red</td>
<td>2 m</td>
</tr>
<tr>
<td>9 Cable with 10-32 UNF connectors and ferrite core</td>
<td>VP-51LC</td>
<td>1.2 mm</td>
<td>M3×0.5/10-32UNF</td>
<td>260 pF</td>
<td>160 °C</td>
<td>FEP - black</td>
<td>2 m</td>
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<tr>
<td>10 Tri-axial cable for PV-97</td>
<td>VP-51LW</td>
<td>3.2 mm</td>
<td>M5.5×0.5/10-32UNF</td>
<td>—</td>
<td>200 °C</td>
<td>PTFE - black</td>
<td>2 m</td>
</tr>
</tbody>
</table>

### Screws, attachments, other accessories

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Unit (mm)</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Link connector</td>
<td>VP-52A</td>
<td>2.1 mm</td>
<td>30 g</td>
</tr>
<tr>
<td>2 BNC adapter</td>
<td>VP-52C</td>
<td>2.1 mm</td>
<td>16 g</td>
</tr>
<tr>
<td>3 Magnet attachment</td>
<td>VP-55A</td>
<td>2.1 mm</td>
<td>0.2 g</td>
</tr>
<tr>
<td>4 Magnet attachment</td>
<td>VP-53S</td>
<td>2.1 mm</td>
<td>0.7 g</td>
</tr>
<tr>
<td>5 Magnet attachment</td>
<td>VP-53T</td>
<td>2.1 mm</td>
<td>0.8 g</td>
</tr>
<tr>
<td>6 Magnet attachment</td>
<td>VP-55C</td>
<td>2.1 mm</td>
<td>0.2 g</td>
</tr>
<tr>
<td>7 Insulation attachment</td>
<td>VP-53C</td>
<td>2.1 mm</td>
<td>0.7 g</td>
</tr>
</tbody>
</table>

*1 Besides the supplied VP-51C, the PV-93 can also be used with VP-51A x 3 or VP-51B x 3.
*2 Besides the supplied VP-51L x 3, the PV-97C can also be used with VP-51LB x 3 or VP-51LC x 3.

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The adhesive is used in attachments VP-53S, VP-53T and VP-53C. Please take caution, the operation temperature is -50 to 160 degrees C. If the temperature exceeds 160 degrees C, it could destroy its adhesiveness.
These accelerometers support vibration measurement in the ultra-low frequency range from DC to about 100 Hz with flat frequency response. A low-noise vibration waveform can be obtained also when converting acceleration into velocity or displacement. Using the dedicated LF-20 power supply, about 100 Hz with flat frequency response. A low-noise vibration waveform can be obtained also when measuring vibration in the ultra-low frequency range from DC to 100 Hz with flat frequency response.

**Specifications**

- **Maximum measurable acceleration**: ±20 m/s², ±30 m/s²
- **Sensitivity**: 0.5 V/(m/s²) ±1 % (DC), 0.3 V/(m/s²) ±1 % (DC)
- **Measurement frequency range**: DC to 100 Hz (±10 %)
- **Residual noise**: 1.1×10⁻¹⁰ mV/√Hz (20 Hz), 7×10⁻¹¹ mV/√Hz (10 Hz)
- **Self-test**: Output vs. signal input 1/10 ±10 %
- **Waterproof rank**: JIS C 0920:2003, class 7 (temporary submersion), IEC 60529:2001, IPX7
- **Dimensions**: 37(H)×37(W)×40(D)mm, Mounting flange 51 mm, mounting hole pitch 44 mm
- **Weight**: Approx. 230 g (including cable) Approx. 220 g (including cable)
- **Sensitivity**: Voltage sensitivity 0.5 V/(m/s²) ±1 %, Maximum measurable acceleration ±20 m/s², ±30 m/s²
- **Measurement frequency range**: DC to 100 Hz (±10 %)
- **Residual noise**: 1.1×10⁻¹⁰ mV/√Hz (20 Hz), 7×10⁻¹¹ mV/√Hz (10 Hz)
- **Self-test**: Output vs. signal input 1/10 ±10 %
- **Waterproof rank**: JIS C 0920:2003, class 7 (temporary submersion), IEC 60529:2001, IPX7
- **Dimensions**: 37(H)×37(W)×40(D)mm, Mounting flange 51 mm, mounting hole pitch 44 mm
- **Weight**: Approx. 230 g (including cable) Approx. 220 g (including cable)

**Servo Accelerometer (LS-40C)**

- **Maximum measurable acceleration**: ±20 m/s², ±30 m/s²
- **Sensitivity**: 0.5 V/(m/s²) ±1 % (DC), 0.3 V/(m/s²) ±1 % (DC)
- **Measurement frequency range**: DC to 100 Hz (±10 %)
- **Residual noise**: 1.1×10⁻¹⁰ mV/√Hz (20 Hz), 7×10⁻¹¹ mV/√Hz (10 Hz)
- **Self-test**: Output vs. signal input 1/10 ±10 %
- **Waterproof rank**: JIS C 0920:2003, class 7 (temporary submersion), IEC 60529:2001, IPX7
- **Dimensions**: 37(H)×37(W)×40(D)mm, Mounting flange 51 mm, mounting hole pitch 44 mm
- **Weight**: Approx. 230 g (including cable) Approx. 220 g (including cable)

**Servo Accelerometer (LS-10C)**

- **Maximum measurable acceleration**: ±20 m/s², ±30 m/s²
- **Sensitivity**: 0.5 V/(m/s²) ±1 % (DC), 0.3 V/(m/s²) ±1 % (DC)
- **Measurement frequency range**: DC to 100 Hz (±10 %)
- **Residual noise**: 1.1×10⁻¹⁰ mV/√Hz (20 Hz), 7×10⁻¹¹ mV/√Hz (10 Hz)
- **Self-test**: Output vs. signal input 1/10 ±10 %
- **Waterproof rank**: JIS C 0920:2003, class 7 (temporary submersion), IEC 60529:2001, IPX7
- **Dimensions**: 37(H)×37(W)×40(D)mm, Mounting flange 51 mm, mounting hole pitch 44 mm
- **Weight**: Approx. 230 g (including cable) Approx. 220 g (including cable)

**Noise characteristics (representative)**

- **Servo Accelerometer (LS-40C)**
  - Noise level: 10⁻¹⁰ mV/√Hz (20 Hz)
  - Frequency range: 0.1 Hz to 100 Hz

- **Servo Accelerometer (LS-10C)**
  - Noise level: 10⁻¹⁰ mV/√Hz (20 Hz)
  - Frequency range: 0.1 Hz to 100 Hz

**Servo Accelerometer Power Supply (LF-20)**

- **Continuous operation with three LS-40C units**: approx. 50 hours, with three LS-10C units: approx. 100 hours

**3-Axis Servo Accelerometer Mounting Base (LS-13V)**

- **Continuous operation with three LS-40C/Servo Accelerometer junction cable**: EC-40S
  - Connection example: LS-40C
  - Connection cable: EC-02S series
  - Dimensions 37(H)×37(W)×40(D)mm, Mounting flange 51 mm, mounting hole pitch 44 mm
  - Weight: Approx. 230 g (including cable) Approx. 220 g (including cable)

**Support for CCLD (Constant Current Line Drive)**

- **Simplifies the configuration of a vibration measurement system using a piezoelectric accelerometer with charge output**

**Extension examples**

- **Piezoelectric accelerometer**
  - Connection cable: VP-51 series
  - Extension cable: EC-02S series
  - Connection example: Piezoelectric accelerometer

- **Servo Accelerometer junction cable**
  - Connection example: LS-40C
  - Connection cable: EC-02S series
  - Extension cable: EC-40S series
  - Connection example: Servo Accelerometer

**Specifications**

- **Gain**: 1 mV/pC, ±2.5 % (80 Hz)
- **Frequency range**: 1 Hz to 30 kHz (±5 %)
- **Supplied accessories**: Cable (EC-02S, 3 m)

**Servo Accelerometer (LS-40C)**

- **Maximum measurable acceleration**: ±20 m/s², ±30 m/s²
- **Sensitivity**: 0.5 V/(m/s²) ±1 % (DC), 0.3 V/(m/s²) ±1 % (DC)
- **Measurement frequency range**: DC to 100 Hz (±10 %)
- **Gain**: 1 mV/pC, ±2.5 % (80 Hz)
- **Frequency range**: 1 Hz to 30 kHz (±5 %)
- **Supplied accessories**: Cable (EC-02S, 3 m)

**Servo Accelerometer (LS-10C)**

- **Maximum measurable acceleration**: ±20 m/s², ±30 m/s²
- **Sensitivity**: 0.5 V/(m/s²) ±1 % (DC), 0.3 V/(m/s²) ±1 % (DC)
- **Measurement frequency range**: DC to 100 Hz (±10 %)
- **Gain**: 1 mV/pC, ±2.5 % (80 Hz)
- **Frequency range**: 1 Hz to 30 kHz (±5 %)
- **Supplied accessories**: Cable (EC-02S, 3 m)
What is the piezoelectric accelerometer?

Certain types of crystals will generate an electrical charge on their surface when pressure is applied. The amount of the charge is proportional to the external force. This phenomenon is called the piezoelectric effect, and the vibration acceleration sensor called a piezoelectric accelerometer makes use of it.

Piezoelectric accelerometers can be made compact and lightweight, allowing them to cover a wide vibration frequency range. Accuracy and reliability are also very good, and handling is simple. Thanks to these characteristics, piezoelectric accelerometers are widely used for many general applications, and also serve as reference accelerometers. There are two types of piezoelectric accelerometers, namely shear-type and compression-type, which differ in the way the piezoelectric element is used.

Shear-type accelerometer

The accelerometer is constructed in such a way that the piezoelectric element is subjected to a shear force. Sensitivity is high, which allows for small dimensions. Pyronoise (pyroelectric output) caused by temperature changes is low, which is advantageous for measuring low-level vibrations and vibrations in the low frequency range. This type is useful for monitoring vibrations in machinery and buildings, and for seismometer applications.

Compression-type accelerometer

This type of accelerometer employs a weight on top of the piezoelectric element. The structure is simple and mechanical strength is high, making it suitable for high acceleration levels and shock measurements.

TEDS compliant piezoelectric accelerometer

This refers to a piezoelectric accelerometer that fulfills the TEDS (Transducer Electronic Data Sheet) requirements. TEDS is a standard defined in IEEE1451.4, providing for sensor specific information such as manufacturer, model, sensitivity, mass etc. to be recorded in the piezoelectric accelerometer, allowing this information to be read by other equipment as needed. Some vibration meters and frequency analyzers are equipped with circuitry and software to read the sensor information. When connected to such equipment, sensor sensitivity will be automatically set. This is highly convenient especially when performing multi-point simultaneous measurement. Eliminating the need for making input settings for a large number of piezoelectric accelerometers saves time, and automatically adapting the sensitivity setting when a connection has been changed also helps to reduce measurement errors.

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