32 GB & 8 channels
Support for high-capacity memory cards up to 32 GB
Inter-unit synchronization: max. 8 channels

4 channel Data Recorder DA-21
The 4 channel Data Recorder DA-21 is capable of recording acoustic/vibration waveforms and various electrical signals in the field. Recorded data are saved in WAVE format on SD cards and can be imported into a computer for waveform analysis and other processing tasks.

**4 channel Data Recorder**

Playback of recorded data supported
Silent operation without any moving parts. Able to operate also in difficult environments subject to vibration and humidity.
Voice memo recording function
Bar graph provides visual level indication

**Menu screen**

**Measurement screen**

**Software** DA-21 data can be displayed and analyzed in various software packages

**Viewer Software** DA-21 data can be displayed and analyzed in various software packages

**Waveform Analysis Software** DA-21 data can be displayed and analyzed in various software packages

**Viewer Software**

**AS-70 Viewer**

Supplied

Reads WAVE format files produced by the DA-21 and enables functions such as waveform display, level display, file output (WAVE format/CSV format), and playback. Display of inter-unit synchronization data is also supported.

**Specifications**

<table>
<thead>
<tr>
<th>Graph</th>
<th>Display types</th>
<th>Frequency weighting characteristics</th>
<th>Time weighting characteristics</th>
<th>Statistical processing</th>
<th>Amplitude waveforms</th>
<th>Level waveforms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amplitude waveform, level waveform</td>
<td>Z, A, C, D, A, vertical vibration characteristics, horizontal vibration characteristics</td>
<td>10 ms, F (Fast), 300 ms, S (Slow), 10 s</td>
<td>Maximum value, minimum value, average value, variance, effective value</td>
<td>Amplitude waveform</td>
<td>Level waveforms</td>
</tr>
</tbody>
</table>

**Waveform Analysis Software**

**AS-70**

Option

Add octaves and FFT analysis

**Specifications**

Waveform analysis screen example

**Viewing environment requirements**
**System Configuration**

(Other equipment is optional)

![Diagram of system configuration](image)

**Specifications**

- **Waveform Analysis Software**
  - CAT-WAVE
  - Supports octave band, 1/3 octave band, and FFT analysis functions to AS-70 Viewer.
  - Supports maximum value, minimum value, average value, effective value, and distribution analysis.
  - Supports differentiation and integration, HPF, LPF, and 1/12 octaves band analysis.

- **Battery Life**
  - Using four IEC R6 (size AA) alkaline batteries: Approx. 8 hours
  - Using Battery Pack BP-21A with four IEC R20 (size D) alkaline batteries: Approx. 30 hours

- **Battery Life with Battery Pack**
  - Approx. 8 hours
  - Using Battery Pack BP-21A with four IEC R20 (size D) alkaline batteries: Approx. 30 hours

**Software**

- **Viewer Software**
  - SA-02
  - Supports maximum value, minimum value, average value, effective value, and distribution analysis.

- **Throughput Disk**
  - CAT-SA02-TH
  - Supports maximum value, minimum value, average value, effective value, and distribution analysis.

**Additional Features**

- **Support for high-capacity SD cards** (max. 32 GB)
- **Quantization** 24 bit also supported
- **Use as USB storage supported** (recognized as removable disk)
- **Inter-unit synchronization** (max. 8 channels)
- **Time trigger function added**
- **Inter-channel processing functions** such as cross spectrum and transfer function, as well as 1/12 octave band analysis are possible.

**FUD PV-08A/85/90H Accelerometer**

**PV-91C/90T/97 Accelerometer**

**UC-52/57/59 Condenser Microphone**

**VP-52C/40 Units**

**VP-51 Series Accelerometer**

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**Other Equipment**

- **USB Cable**
- **SD Card**
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This product is environment-friendly. It does not include toxic chemicals on our policy. This leaflet is printed with environmentally friendly UV ink.

Specifications 4 channel Data Recorder DA-21

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<th>Input Connectors</th>
<th>Signal input</th>
<th>4 channels (BNC)</th>
</tr>
</thead>
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<tr>
<td>Remote control</td>
<td>For optional remote controller, 8-pin mini DIN</td>
<td></td>
</tr>
<tr>
<td>USB port</td>
<td>Mini B</td>
<td></td>
</tr>
<tr>
<td>Input range</td>
<td>±0.01 V, 0.03 V, 0.1 V, 0.3 V, 1 V, 3 V, 10 V</td>
<td></td>
</tr>
<tr>
<td>Input impedance</td>
<td>100 kΩ or more</td>
<td></td>
</tr>
<tr>
<td>Max. input voltage</td>
<td>±13 V</td>
<td></td>
</tr>
<tr>
<td>Overload</td>
<td>±2.0 dB ±1.0 dB at range full-scale</td>
<td></td>
</tr>
<tr>
<td>Input coupling</td>
<td>AC/DC (AC coupling (primary) -3.0 dB ±1.0 dB at 0.15 kHz)</td>
<td></td>
</tr>
<tr>
<td>DC/AC (AC coupling)</td>
<td>24V</td>
<td></td>
</tr>
<tr>
<td>Filters (digital)</td>
<td>High-pass OFF, 5 Hz (-3 dB ±1.0 dB) (-12 dB / 0dB), Low-pass OFF, 200 Hz, 1 kHz, 2 kHz (-3 dB ±1.0 dB) (-12 dB / 0dB)</td>
<td></td>
</tr>
</tbody>
</table>

Frequency response

| DC coupling | DC to 1 Hz: ±0.1 dB, 1 Hz to 12.5 kHz: ±0.5 dB, 12.5 kHz to 20 kHz: ±1.0 dB |
| AC coupling | 1 Hz: ±1.0 dB, 1 Hz to 12.5 kHz: ±0.5 dB, 12.5 kHz to 20 kHz: ±1.0 dB |

Input gain

- Inter-channel phase difference: Max. 1 deg. (with AC coupling, HP OFF, same frequency range, 20 kHz range)
- SN ratio: 60 dB or more (input voltage range: 10, 3, 1, 0.3 V), within frequency band (including overload)
- Distortion: Max. 0.1% (within frequency band)

Voice memo function

- 2 operation modes: A. Recording in stand by state
- B. Resolution speed channels are used as voice memo during recording
- Resolution speed function is disabled while using voice memo function
- eMarker function becomes also active during recording

Rotary pulse

- Input impedance 100 kΩ or more
- Input voltage range 0 to 10 V: open collector

Threshold level

- Approx. 2.5 V

Counting method

- Periodic measurement
- Resistor range measurement: 200 to 6000 Ω (1 pulse / rotation)

Output Connectors

- Playback output: 4-pin, separates from signal input, for playback of recorded signal, output impedance 600 Ω
- Frequency response: DC to 1 Hz: ±0.1 dB, 1 Hz to 12.5 kHz: ±0.5 dB, 12.5 kHz to 20 kHz: ±1.0 dB
- Output voltage: ±3.16 V at range full-scale
- Max. output voltage: ±4.0 V

Monitor output

- Max. 1 deg. (within frequency range)
- Monitor output: 1 channel (±3.5 stereo mini jack), Output impedance 100 Ω

During recording

- Analog signal for selected channel

During playback

- Output of any selected channel (including voice memo)
- Output voltage: ±3.16 V at range full-scale
- Max. output voltage: ±5.5 V

Playback output

- Output from playback output and monitor output

Recording media

- SD card (use only RION supplied cards for assured operation)
- Max. capacity 32 GB
- File system (FAT16/FAT32)

AD converter

- Quantization: 24 bit, Bit length: 16 bit(24 bit selectable from menu)
- Format: WAVE (16 bit/24 bit, linear, non-compressed)

Sampling frequency

- Frequency range: 1 Hz to 100 kHz, 500 kHz, 1 MHz, 5 MHz, 10 MHz, 20 MHz
- Sampling frequency: Frequency range x 2.5/2.6

Max. recording time approx. 20 hours 1 kHz, sampling frequency x 4, 4 channels, 32 GB card

Pre-recording

- 40% open col. (3% before recording key was pressed, or triggered)

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