


Recorder (Data Recorder)

8-Channel Data Recorder DA-40 and 4-Channel Data Recorder DA-20 are compact, portable products designed to record various types of electronic signals and waveform data for on-site measurement of sound and vibration. Measured data are stored on memory card (CF card) in WAVE format. Stored data can be reproduced as analog signals and directly imported into a computer for detailed waveform analysis.

8ch Data Recorder DA-40

- Incorporates support for CCLD (Constant Current Line Drive) 2 mA, 4 mA (factory option)
 - DC to 20 kHz frequency range
 - Light weight: only 1.2 kg (excluding batteries)
 - 180 minutes recording time (4 channels, 20 kHz x 2.4)*
- *Using 4 GB memory card

CF-CARD Memory card compatible model
For details, see "Memory Card" on page 14.



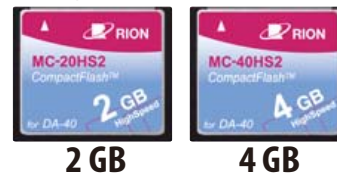


- Maximum recording times with 4 GB CF card (approximate)
Sampling frequency: frequency range x 2.56 (2.4 also supported)

Number of channels	Frequency range (Hz)					
	100	500	1 000	5 000	10 000	20 000
1	2 133 h 20 m	426 h 40 m	213 h 20 m	42 h 40 m	21 h 20 m	10 h 40 m
2	1 066 h 40 m	213 h 20 m	106 h 40 m	21 h 20 m	10 h 40 m	5 h 20 m
4	533 h 20 m	106 h 40 m	53 h 20 m	10 h 40 m	5 h 20 m	2 h 40 m
8	266 h 40 m	53 h 20 m	26 h 40 m	5 h 20 m	2 h 40 m	1 h 20 m

- *Actual times may differ slightly depending on number of files
- *Maximum recording time per file is 744 hours
- *Use RION supplied cards for assured operation

Memory cards (for DA-40)



2 GB

4 GB

Specifications

Input section	Signal input	8 channels (BNC)
	CCLD (Constant Current Line Drive)	2 mA, 18 V (4 mA supported as factory option)
	Frequency response	DC coupling DC to 1 Hz: ± 1.0 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
Output section	Playback output connectors	8 channels, BNC (using input connectors)
Recording section	Media	CF card [up to 4 GB (FAT32)] (Use RION supplied cards for assured operation)
Trigger section	Trigger mode	Free, single, repeat (split files in repeat mode)
Power supply section	Power	Six IEC R14 (size C) batteries, AC adapter (NC-99, option), Cigarette plug adapter CC-82 (option)
Dimensions, Weight		Approx. 270 (H) x 210 (W) x 50 (D) mm, approx. 1.2 kg (not including batteries), approx. 2.0 kg (including batteries)

Options

Memory card (CF card)* 2 GB (for DA-40)	MC-20HS2
Memory card (CF card)* 4 GB (for DA-40)	MC-40HS2
AC adapter	NC-99
Comparator Cable (for NL series sound level meters)	CC-94A
BNC-BNC Coaxial Cable	EC-90 series (2 m and up)
BNC-BNC Cable	NC-39A

*Use RION supplied cards for assured operation

Provides various display and analysis functions for DA-40 data

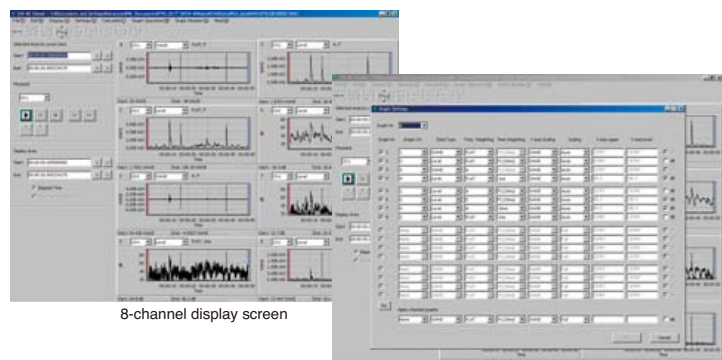
Viewer software DA-40 Viewer (supplied)

- Enables waveform display, level display, and file output (WAVE format/CSV format) using data files (WAVE format) created with DA-40

Specifications

Waveform	Display functions	Time waveform, time-weighted level, time percentile level, equivalent continuous sound pressure level, sound exposure level
	Weighting functions	Frequency weighting (A, C, G, L _v (vertical), L _w (horizontal), Wk/Wd (whole body), Wh (hand-arm), time weighting (1 ms, 10 ms, F [Fast], 630 ms, S [Slow])

*Supported operating systems: Microsoft Windows XP Professional/Vista Business



8-channel display screen

Graph setup screen

Waveform analysis software CAT-WAVE For specifications, see page 36

- Analog playback signal can be processed by FFT analyzer
- Solid-state design without mechanical drive parts results in silent operation. Suitable also for use in environments subject to vibrations and high humidity levels.
- Audio memo input function
- Ergonomic control

Compliant with specifications for data recorders (sound pressure level/vibration acceleration level) according to the Japan Measurement Law, Stipulation 38, Appended Table 4*
*List of equipment required for registration as Measurement Certification Business

4ch Data Recorder DA-20 CE

- Incorporates support for CCLD (Constant Current Line Drive) 2 mA
 - DC to 20 kHz frequency range
 - Light weight: only 480 g (excluding batteries)
 - 180 minutes recording time (2 channels, 20 kHz x 2.4)*
- *Using 2 GB memory card



- Maximum recording times with 2 GB CF card (approximate)
Sampling frequency: frequency range x 2.56 (2.4 also supported)

Number of channels	Frequency range (Hz)				
	100	500	1 000	5 000	10 000
1	1066 h 40 m	213 h 20 m	106 h 40 m	21 h 20 m	10 h 40 m
2	533 h 20 m	106 h 40 m	53 h 20 m	10 h 40 m	5 h 20 m
3	355 h 32 m	71 h 06 m	35 h 33 m	7 h 06 m	3 h 33 m
4	266 h 40 m	53 h 20 m	26 h 40 m	5 h 20 m	2 h 40 m

*Actual times may differ slightly depending on number of files
*Use RION supplied cards for assured operation

Specifications

Input section	Signal input	4ch (BNC)
	CCLD (Constant Current Line Drive)	2 mA, 18 V
	Frequency response	DC coupling DC to 1 Hz: ±1.0 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
Output section	Playback output connectors	4 channels, BNC (using input connectors)
Recording section	Media	CF card [up to 2 GB (FAT16)] (Use RION supplied cards for assured operation)
Trigger section	Trigger mode	Free, single, repeat (split files in repeat mode)
Power supply section	Power	IEC R6 (size AA) batteries, AC adapter (NC-98B, option), Cigarette plug adapter CC-82 (option)
Dimensions, Weight		Approx. 140 (H) x 175 (W) x 45 (D) mm, approx. 480 g (not including batteries), approx. 800 g (including batteries)

Multi-Channel Signal Analyzer SA-02 (option)

DA-20 recorded data file can be analyzed by this unit with the software Throughput Disk also.



Options

Memory card (CF card)*	128 MB, 256 MB, 2 GB
3-Channel Preamplifier	VP-80
4-Channel Data Recorder Remote Control Unit	DA-20RC1
AC adapter	NC-98B
Comparator Cable (for NL series sound level meters)	CC-94A
BNC-BNC Coaxial Cable	EC-90 series (2 m and up)
BNC-BNC Cable	NC-39A

*Use RION supplied cards for assured operation

Display and analyze DA-20 data with various software applications

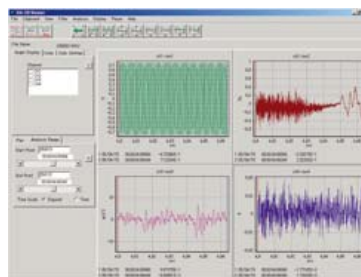
Viewer software DA-20 Viewer (supplied)

- Enables waveform display, level display, and file output (WAVE format/CSV format) using data files (WAVE format) created with DA-20

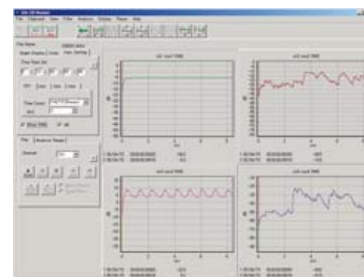
Specifications

Waveform	Display functions	Time axis zoom, RMS
	Weighting functions	Time weighting (1 ms, 10 ms, 35 ms, F [Fast], 630 ms, S [Slow])

* Supported operating systems: Microsoft Windows 2000/XP



4-channel display screen



RMS value display screen

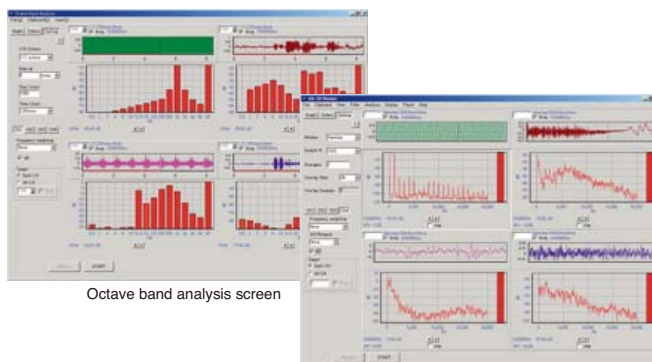
Waveform processing software DA-20PA1 (option)

- Download measurement data (WAVE files) collected with DA-20 to a computer for display and basic analysis

Specifications

Waveform analysis	Display functions	Time axis zoom, RMS, time percentile level, equivalent continuous sound pressure level, sound exposure level
	Sampling points	64 to 32 768 points
Octave band analysis	Display	Power spectrum (Differential & integral calculus available for spectrum area)
	Applicable standard	JIS C 1514 (IEC 61260) Class 1
Analysis frequency range	Analysis frequency	1/1 octave band: 0.5 Hz to 8 kHz (15 bands)
	range	1/3 octave band: 0.4 Hz to 16 kHz (47 bands)

* Supported operating systems: Microsoft Windows 2000/XP



Octave band analysis screen

FFT analysis screen

Recorder (Level Recorder/Printer)

Level recorder featuring simple operation

Level recorder

LR-07 Type certification number: JR-9



- Besides sound and vibration level recording, this automatic balancing level recorder is suitable for performance characteristics testing of acoustic devices and transducers, DC voltage linear recording, and more
- Paper speed control function increases feed rate while level exceeds a preset threshold, for easier reading of recorded results

Specifications

Applicable standard	JIS C 1512 : 1996
Level range	10 dB, 25 dB, 50 dB
Measurement frequency range	1 Hz to 100 000 Hz
Paper feed rate	0.01, 0.03, 0.1, 0.3, 1, 3, 10, 30 mm/s
Power	Six IEC R20 (size D) batteries, AC adapter (NC-97, option), external DC input (12 V)
Dimensions, Weight	Approx. 122 (H) × 250 (W) × 325 (D) mm, approx. 3.6 kg (including batteries)

Options

Recording Paper	RP-01D (6 rolls)
Level Recorder Pen (Red)	LB-25A (set of 5)

Automatically takes up recorded data, convenient for unattended measurements

Printer

DPU-414 CE



- Produces hard copy of sound level meter, vibration meter, and vibration level meter screens, and also allows printout of numeric data
- Autoloading function makes it a snap to load and replace paper

Specifications

Printing method	Thermal serial dot printer
Temperature/humidity range for operation	0 °C to +40 °C, 30 % to 80 %RH (no condensation)
Recording paper	TP-14
Power	AC adapter (NC-98B, supplied), battery pack (integrated in main unit) ※One full charge allows about 3 000 lines of character printing
Connection cable	Various (See pages 16 and 31)
Dimensions, Weight	66.5 (H) × 170 (W) × 160 (D) mm, approx. 580 g