



Direct! and Compact!

DA-20

4ch Data Recorder

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DA-20 is a compact data recorder that provides the user a light weight and high quality instrument 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 output to external signal processing devices for detailed analysis. The CF card enables easy access to download stored data processing on PC with optional software line-up.



NEW

4ch Data Recorder

DA-20

Direct Plug-in with sound and vibration sensors

- Easy in-vehicle measurements
- Expandable to provide simultaneous recording with multiple DA-20s for several measuring points.
- On-site recording and reproducing of AC output signals for sound level meters and vibration meters (DAT like-use)



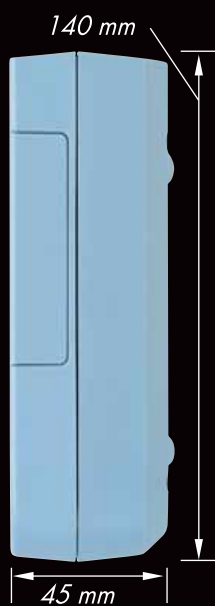
CCLD (Constant Current Line Drive) available

Signal frequency range: DC to 20 kHz

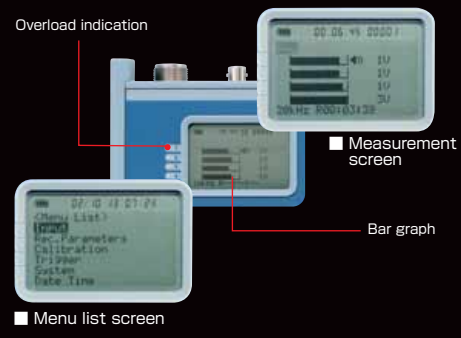
Recording time: approx. 180 minutes^{*1}
(@2ch, 20 kHz×2.4 sampling)

Battery life: approx. 8 hours^{*2}

^{*1} When using 2 GB memory card
^{*2} When using four IEC LR6 alkaline batteries, lifetime varies on settings measurement of DA-20



- Reproduced signals can be analyzed by FFT analyzer.
- Can be used under high vibration, high humidity environment.
- Silent operation.
- Voice recording function.
- User-friendly key layout.



■ Menu list screen

■ Measurement screen

■ Bar graph

Overload indication

175 mm

45 mm

140 mm

Specifications

Input section	
Input	
Signal input	4ch (BNC)
Voice recording input	1ch (Voice recording microphone ϕ 3.5 mm, 4-pole mini-jack)
External trigger	1 (ϕ 2.5 mm stereo mini-jack)
7-Pin terminal for 3 ch vibration input preamplifier	
Remote control terminal (for optional Remote controller 8-pin MINI DIN)	
Signal input	
Input voltage range	\pm 0.01 Vpk, 0.0316 Vpk, 0.1 Vpk, 0.316 Vpk, 1 Vpk, 3.16 Vpk, 10 Vpk
Input impedance	100 k Ω or higher
Max. input voltage	\pm 10 V + overload 2 dB
Input coupling	AC/DC (AC coupling : -3 dB at 0.3 Hz) (DC 1 Vpk or higher)
CCLD	2 mA, 18 V
Filter (analog)	High pass : Off, 10 Hz (2 nd) Low pass : Off, 100 Hz, 500 Hz, 1 kHz (2 nd)
Frequency range	DC to 20 kHz 20 Hz to 12.5 kHz : within \pm 0.5 dB 1 Hz to 20 Hz, 12.5 kHz to 20 kHz : within \pm 1 dB
Dynamic range	80 dB
Voice recording	
A : Voice recording during no-measurement operation (with power-on)	
B : Continuous voice recording on channel.4 during measurements	
C : Channel.4 can be changed for data recording or voice recording during measurements	
Output section	
Terminal	
Output terminal for reproduction	4ch BNC (Common use as input terminal)
Monitor output terminal	1ch (ϕ 3.5 mm stereo mini-jack) Data acquisition : Selected 1ch analog signal output Data reproduction : Selected 1ch or voice recording
Output for reproduction	
Output terminal for reproduction	Output impedance : 600 Ω Output voltage : \pm 3.16 Vpk at full scale Output signal : Reproduction of recorded signals
Monitor output	\pm 3.16 Vpk
Output selection during reproduction	A : from monitoring output terminal only B : from both BNC and monitoring output terminal (Selectable from A and B)
Recording section (Memory section)	
Medium	CF card [up to 2 GB (FAT 16)] Note: Please use our provided CF memory card with performance guaranteed RION.
The number of bits	16 bit
Format	WAVE format (16 bit uncompressed)
Frequency range	100 Hz, 500 Hz, 1 kHz, 5 kHz, 10 kHz, 20 kHz
Sampling frequency	frequency range x 2.4 or 2.56
Pre-recording	0 s, 1 s, and 5 s before pressing a recording start key.
Trigger	
Trigger source	External : Open-collector (for NL-21, 22, 31, 32) Internal : 0.1 % to 9.9 % at full scale range, 10 % to 99 % at linear peak
Trigger mode	Free, Single, Repeat (file separation when Repeat mode)
Pre-trigger	0 s, 1 s, 5 s (pre-time from trigger event)
Calibration	
Conversion [linear (EU) or log (dB)] setting available for each channel.	
Display	
LCD	128 x 64 dots, 121 segments (with backlight)
Display contents	Setting display, Recording display, Level bar and Level-time display (peak)
LED	Overload indicator for each channel, Warning indicator, Condition indicator on recording, reproduction and trigger waiting

Power section	
Power requirement	Batteries or AC adapter (NC-98A optional accessory)
Battery	Four IEC LR6 (alkaline battery)
External DC	5 V to 15 V, current consumption 160 mA (6 V) (Frequency range : 100 Hz, CCLD : off, Backlit : off)
Battery life	
20 kHz, 4ch	CCLD on : approx. 4.5 hours CCLD off : approx. 8 hours
20 kHz, 1ch	CCLD on : approx. 7.5 hours CCLD off : approx. 10 hours
100 Hz, 4ch	CCLD on : approx. 5 hours CCLD off : approx. 9.5 hours
Dimensions and weight	approx. 140 (H) x 175 (W) x 45 (D) mm, approx. 480 g (without batteries)
Ambient conditions	-10 $^{\circ}$ C to +50 $^{\circ}$ C, 10 % to 90 % RH (no condensation)
Supplied accessories	Viewer software x 1, Soft case x 1, Voice recording microphone x 1, Monitor earphone x 1, LR6 battery (alkaline batteries) x 4

Optional accessories

Type	Model
Waveform processing software	DA-20PA1
Waveform analysis software	CAT-78WR
3ch vibration preamplifier	VP-80
Memory card (CF card)	MC-64CF (64 MB), MC-12CF1 (128 MB), MC-25CF1 (256 MB), MC-10CF2 (1 GB), MC-20CF2 (2 GB) (Use our provided CF card.)
Remote controller for 4ch data recorder	DA-20RC1
AC adapter	NC-98A
Cigarette plug adapter	CC-82
Battery pack	BP-21
Comparator out put cable (for sound level meters NL-series)	CC-94A
BNC-BNC coaxial cable	EC-90 series (from 2 m)
BNC-BNC cable	NC-39A

Recommended PC environment for the following software

	Waveform processing software DA-20PA1	Waveform analysis software CAT-78WR
CPU	Intel Pentium 4 2 GHz or more	Intel Pentium M 1 GHz or more
RAM	512 MB or more	512 MB or more
HDD	10 GB	5 GB
OS	Microsoft Windows 2000 / XP	Microsoft Windows 98SE / 2000 / XP

Reference for maximum recording time with 1 GB CF card

Sampling frequency: frequency range x 2.56 (or 2.4)

Numbers of ch	Frequency range (Hz)					
	100	500	1 000	5 000	10 000	20 000
1	533 h 20 m	106 h 40 m	53 h 20 m	10 h 40 m	5 h 20 m	2 h 40 m
2	266 h 40 m	53 h 20 m	26 h 40 m	5 h 20 m	2 h 40 m	1 h 20 m
3	177 h 46 m	35 h 33 m	17 h 46 m	3 h 33 m	1 h 46 m	53 m
4	133 h 20 m	26 h 40 m	13 h 20 m	2 h 40 m	1 h 20 m	40 m

Reference for maximum recording time with 2 GB CF card

Sampling frequency: frequency range x 2.56 (or 2.4)

Numbers of ch	Frequency range (Hz)					
	100	500	1 000	5 000	10 000	20 000
1	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
2	533 h 20 m	106 h 40 m	53 h 20 m	10 h 40 m	5 h 20 m	2 h 40 m
3	355 h 32 m	71 h 06 m	35 h 33 m	7 h 06 m	3 h 33 m	1 h 46 m
4	266 h 40 m	53 h 20 m	26 h 40 m	5 h 20 m	2 h 40 m	1 h 20 m

*Recording time would be somewhat changed by the number of files including recording data.

* Windows is a trademark of Microsoft Corporation
* Specification subject to change without notice.

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ISO 9001 RION CO., LTD.



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