

Technical Data

cardiofax 

ECG-3350

Electrocardiograph

(Order code: ECG-3350-00K4, made in China)

Fighting Disease with Electronics

 **NIHON KOHDEN**

TD. ECG-3350

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Some products may not be available in your country.

FEATURES

ECG-3350 is designed to ensure Quality diagnosis, Quality examination, and Quality accessibility.

Quality diagnosis

- Complies with the IEC60601-2-25 international standard for electrocardiographs.
- Nihon Kohden's advanced filtering technology eliminates noise with less waveform distortion.
- Nihon Kohden's ECG analysis program, ECAPS12C provides more than 200 findings with detailed analysis including Brugada type ECG interpretation.
- Has function of synthesized 18-lead ECG, synECi18 which is Nihon Kohden original technology and 6 synthesized leads, V3R, V4r, V5R, V7, V8 and V9 are derived from the standard 12-lead ECG waveforms. It can be helpful to find ischemia on right ventricular or posterior wall where have the difficulty to find it with standard 12-lead ECG.

Quality examination

- 8.0 inch color display realizes clear 12-lead ECG monitoring. Alert message and guide function help operators check cause of error. Electrode detachment and incorrect placement for chest and limb leads can be detected and indicated as the alert message.
- The most recent 3 minutes of all lead ECG waveforms can be stored internally, and a part which should be recorded and analyzed can be selected.

Quality accessibility

- Data can be output via wired LAN or built-in wireless LAN module.
- A USB memory or an SD memory card can be used as an external storage.
- Patient information can be received from external server. And report can be output in DICOM or PDF format which realize greater data integration with various data management system.

SPECIFICATIONS

◆ ECG Input

Input impedance: $\geq 50\text{M}\Omega$ at 0.67Hz
Polarization-proof voltage: ± 550 mV
Input protection function: defibrillation-proof function
Common mode rejection ratio: $> 105\text{dB}$
Input circuit current: $< 0.05 \mu\text{A}$
Standard sensitivity: 10 mm/mV $\pm 2\%$
Internal noise: $\leq 20 \mu\text{Vp-p}$
Interference between channels: $\leq -40\text{dB}$
Frequency characteristics: with 10 Hz as benchmark, 0.05 to 150 Hz (+0.4 dB / - 3.0 dB)
Sample rate: 16,000 samples/s/ch

Heart rate count measurement:

Measurement and display range: 30 to 300bpm
Accuracy: $\pm 10\%$ (30 to 240bpm)

◆ Waveform Data Processing

Number of leads: 12 leads
Input channel: 1 channel
Sample rate: 500 samples/s, 1.25 $\mu\text{V}/\text{LSB}$
Response to minimum signal: $\leq 20 \mu\text{Vp-p}$
EMG filter: 25 / 35 Hz
High-cut filter: 75, 100, 150 Hz (-3 dB)
AC line filter: 50 / 60 Hz
Baseline drift suppression: Weak: 0.1Hz(-20dB), Strong: 0.1Hz(-34dB)
Time constant: ≥ 3.2 s
Sensitivity: 5, 10, 20 mm/mV
Pacemaker detection: Available
A/D Conversion: 24bit

◆ Display

Size: 8.0 inch
Type: color TFT LCD
Resolution: 800 x 480 dots
Displayed data: 12 lead ECG waveform, patient information, recording settings, operation mode, heart rate, QRS sync mark, error message, electrode detachment, noise

◆ Recorder

Recording mode: Thermal line
Printing density: 200 dpi
Scanning line density: 1 ms
Number of recording channels: 3, 3+Rhythm, 6, 12
Recording speed: 5, 10, 12.5, 25, 50 mm/s
Recording speed accuracy: $\leq \pm 5\%$
Recording data: ECG waveform, heart rate, lead name, version, date and time, paper speed, sensitivity, filter setting, patient information, measured information, and marks
Recording paper: 210 mm width, 30 m long Z fold / 216mm width,
Extended recording: Available
Grid Recording: Available

◆ External Input / Output

External input: 2 channels, 10 mm/0.5 V, input impedance $\geq 100\text{k}\Omega$
Signal output: 1 channel, 0.5 V/mV $\pm 5\%$, output impedance $\leq 100\Omega$

◆ ECG Analysis

Program name: ECAPS 12C
Analysis patient age: neonate, child, adult
Finding items: approx.200
Judging items: 5

◆ Data management

Output file: DICOM, PDF(with SD card/USB memory)
External printer: Available

- ◆ **Power Requirements**
Voltage: AC (100 to 240 V) ±10%
Frequency: (50 / 60 Hz) ±2%
Power input: ≤150 VA
Battery pack: 12V
Battery operation time: more than 180 minutes
Battery charging time: within 3 hours

- ◆ **Interface**
USB 1.1 A type: 2
SD card slot: 1
LAN port: 1

- ◆ **Environment**

Storage and transport environment

Main Unit

Temperature: -20 to +65°C
 Relative humidity: 10 to 95%
 Atmospheric pressure: 700 to 1,060 hPa

Battery

Storage temperature range
 Storing for under 1 month: -20 to +55°C
 Storing for over 1 month: -20 to +35°C
 Storage humidity range
 Storing for under 2 months: 20 to 85%
 Storing for over 2 months: 45 to 85%

Recording paper

Storage temperature range: 0 to 45°C
 Storage humidity range: 40 to 80%

Operating Environment

Main unit

Temperature: 5 to 40°C
 Relative humidity: 25 to 95%, noncondensing
 Relative humidity: 40 to 80%, recording paper
 Atmospheric pressure: 700 to 1,060 hPa

Battery

Operating humidity range: 40 to 85%

- ◆ **Performance standard**

IEC60601-2-25:2011

- ◆ **Electromagnetic Compatibility**

IEC 60601-1-2: 2014

- ◆ **Safety**

Safety Standard IEC 60601-1 3.1st edition: 2012, IEC 60601-2-25: 2011

Type of protection against electric shock:

AC power: CLASS I

Battery pack power: Internally powered equipment

Degree of protection against electric shock: Defibrillator proof type CF applied part

Degree of protection against harmful ingress of water: IPX0 (non-protected)

Safety grade of use in the environment:

Not suitable for use in the presence of flammable anesthetic mixture with air, oxygen or nitrous oxide

Mode of operation: continuous operation

- ◆ **Dimensions and Weight**

Main unit

Dimensions: 255W x 420D x 140H mm (including handle)
 Weight: 4.7 kg

STANDARD ACCESSORIES

Recording paper, FQW210-2-140 1
 Thermal head cleaner pen, Y011 1
 Input check jig, 6114-092972 1

OPTIONAL ACCESSORIES

Accessory kit,

Description	Qty	Model	Supply Code/Code No.	YD-321D	YD-322D	YD-323D	YD-324D
Patient cable							
IEC 3mm diameter tip, thick cable	1	BJ-961D	K111	✓	✓		
AHA 3mm diameter tip	1	BA-901D	K019			✓	
IEC 4mm diameter tip, thick cable	1	BJ-962D	9000-062130				✓
Power cord							
Power cord N (220 - 240V)	1	314839	L936	✓			✓
Power cord H (100 - 127V)	1	186656	L935		✓	✓	
Clip-on limb electrode, 3mm diameter tip, 4pcs/set, Fastclip	1	NC-143E	H068A	✓	✓	✓	
Clip-on limb electrode, 4mm diameter tip, 4pcs/set, Fastclip	1	NC-144E	H068B				✓
Chest electrode, 3mm diameter tip, for adult, 3pcs/set	1	6144-011825	H041A	✓	✓	✓	
Chest electrode, 4mm diameter tip, for adult, 3pcs/set	1	61144-011852	H043A				✓

Wireless LAN module, QI-330D

Cart, KD-107D (Height: 790mm) / **KD-107E** (Height: 890mm)

Patient cable hanger, KH-200D

WLAN converter holder, DI-021D

Magnetic card reader holder, DI-022D

Middle shelf, DI-023D

Drawer, DI-024D

Tray set, DI-025D

Roll paper holder, DI-026D

Barcode reader holder, DI-027D

Synthesized 18-lead program, QP-230E

- ◆ **Local Purchase Options**

Purchase the following recommended models.

Recommended models

1D Bar code scanner

- LS2208 USBR (ZEBRA)

<https://www.zebra.com/ap/en/products/scanners/general-purpose-scanners/handheld/ls2208.html>

If you purchase the recommended model, it is necessary to purchase three items of below together.

Main body: LS2208-SR20111R

USB cable: CBA-U01-S07ZAR

Manual: JP-72-58808-01J1

- Voyager 1250g-USB (Honeywell)

<https://www.honeywellaidc.com/en/products/barcode-scanners/general-duty/voyager-1250g>

2D barcode reader

- Xenon 1900GSR-1USB (Honeywell)
<https://www.honeywellaidc.com/products/barcode-scanners/healthcare>

Magnetic card reader

- CRF-200U-5101-00 (NEURON)
http://neuron.co.jp/English/index_E.htm

USB flash drive

- DTSE9G2/32G (Kingston)
<https://www.kingston.com/en/usb-flash-drives/datatraveler-se9-g2-3-0-usb-flash-drive>

- SDCZ50-016G (SanDisk)
<https://shop.westerndigital.com/products/usb-flash-drives/sandisk-cruzer-blade-usb-2-0#SDCZ50-128G-A46>

Reference specifications*

Bar code scanner

USB1.1, bus powered, HID class type

Magnetic card reader

USB1.1, bus powered, HID class type

*If the recommended model is not available, you can try using a unit with these reference specifications although the proper function of any unit other than the recommended models cannot be guaranteed.

CONSUMABLES

Battery:

Rechargeable battery, NKB-301V

Memory card:

Y154D SD memory card, QM-001D

Recording paper:

A052 FQW210-10-295, 5 pcs/set, Z-fold, 210mm x 100m (with KD-107D/E+DI-023D)

A053 FQW210-30-295, Z-fold, 210mm x 300m (with KD-107D/E+DI-023D)

A054 FQW210-3-140, 10 pcs/set, Z-fold, 210mm x 30m

A134K Recording paper, RQS210-6, 10 pcs/set, roll, 210 mm x 60m (with KD-107D/E + DI-026D)

Patient cable:

K111 Patient cable, BJ-961D, IEC, 3mm dia

K079 Patient cable, BJ-901D, IEC, 3mm dia

K081 Patient cable, BJ-902D, IEC, 4mm dia

K082 Patient cable, BJ-903D, IEC, clip

K019 Patient cable, BA-901D, AHA, 3mm dia

K020 Patient cable, BA-903D, AHA, clip

Clip-on limb electrode

H068A 4 pcs/set, adult, for 3mm dia tip, FASTCLIP

H068B 4 pcs/set, adult, for 4mm dia tip, FASTCLIP

H068D 4 pcs/set, child, for 3mm dia tip, FASTCLIP

H068E 4 pcs/set, child, for 4mm dia tip, FASTCLIP

Chest electrode

H041A 3 pcs/set, adult, for 3mm dia tip, gray, suction

H043A 3 pcs/set, adult, for 4mm dia tip, suction

H042C NC-123D, 3 pcs/set, child, for 3mm dia tip, suction Octopus

H042D NC-123D, 3 pcs/set, child, for 3mm dia tip, suction Bear

H044A NC-124D, 3 pcs/set, child, for 4mm dia tip, suction Octopus

H044B NC-124D, 3 pcs/set, child, for 4mm dia tip, suction Bear

H042E NC-123D, child, for 3mm dia tip, 6 colors

H044C NC-124D, child, for 4mm dia tip, 6 colors

ECG past

F010 Z-101BC, 100g tube x 2/set, CARDIOCREAM

Disposable Electrodes Vitrode

G207 L-150X, 30 x 5 pcs/set, adult, 35mm dia, X-ray

G270A NC-032Y, 100 x 5/set, 20 x 22.5mm, tab type

ORDERING INFORMATION

Order code of the main unit: ECG-3350-00K4
Country of origin: China

When ordering, please specify the following information:

Electrocardiograph model

Requirements for consumables

Requirements for optional accessories

Specify the code in



NIHON KOHDEN CORPORATION

1-31-4 Nishiochiai, Shinjuku-ku, Tokyo 161-8560, Japan
Phone +81 (3) 5996-8000 Fax +81 (3) 5996-8100
www.nihonkohden.com