Technical Data

cardiofax*M*

ECG-3350

Electrocardiograph

(Order code: ECG-3350K, made in Japan)

Fighting Disease with Electronics

NIHON KOHDEN

TD. ECG-3350

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: ≥50MΩ at 0.67Hz
Polarization-proof voltage: ±550 mV
Input protection function: defibrillation-proof function
Common mode rejection ratio: >105dB
Input circuit current: <0.05 μ A
Standard sensitivity: 10 mm/mV±2%
Internal noise: ≤20 μ Vp-p
Interference between channels: ≤-40dB
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: ±10% (30 to 240bpm)

◆ Waveform Data Processing
Number of leads: 12 leads
Input channel: 1 channel
Sample rate: 500 samples/s, 1.25 µv/LSB
Response to minimum signal: ≤20µVp-p
EMG filter: 25 / 35 Hz (-3dB)
High-cut filter: 75, 100, 150 Hz (-3 dB)
AC line filter: 50 / 60 Hz (≥-20dB)
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: ≤ ±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 ≥100kΩ
Signal output: 1 channel, 0.5 V/mV±5%, output impedance ≤100Ω

◆ 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℃
Relative humidity: 10 to 95%
Atmospheric pressure: 700 to 1,060 hPa
Battery
Storage temperature range
Storing for under 1 month: -20 to +55℃
Storing for over 1 month: -20 to +35℃
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℃
Storage humidity range: 40 to 80%

Operating Environment
Main unit
Temperature: 5 to 40℃
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	Q'ty	Code No.	Supply Code No.	YD-121D	YD-122D	YD-123D	YD-124D
Patient cable							
BA-901D, AHA 3 mm diameter tip	1	706256	K019			✓	
BJ-901D, IEC 3 mm diameter tip	1	687864	K079	✓	✓		
BJ-902D, IEC/DIN 4 mm diameter tip	1	705248	K081				✓
Power cord							
Type H	1	186656	L935		✓	✓	
Type N	1	314839	L936	✓			✓
Chest electrode, 3 mm diameter tip, for adult, 3 pcs/set	2	709957	H041	✓	✓	✓	
Chest electrode, 4 mm diameter tip, for adult, 3 pcs/set	2	666949	H043				✓
Clip-on limb electrode, 3 mm diameter tip, 4 pcs/set, Fastclip	1	709939	H068	✓	✓	✓	
Clip-on limb electrode, 4 mm diameter tip, 4 pcs/set, Fastclip	1	709948	H068K				✓

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-230EK

◆ 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:
X065 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-3350K
Country of origin: Japan

When ordering, please specify the following information:
Electrocardiograph model
Requirements for consumables
Requirements for optional accessories
Specify the code in   xxxx