



cardiofax 

**ECG-2150**

**Electrocardiograph**

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**Technical Data**

*Fighting Disease with Electronics*



**NIHON KOHDEN**

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## DESIGN FEATURES

ECG-2150 is designed with simple operation and intelligent analysis.

### Simple operation

#### Easy-to-view LCD:

The tilted 4.8 inch monochrome backlit LCD lets you view simultaneous 12-lead ECG clearly.

The LCD simultaneously displays the acquired 12-lead ECG at a glance for easy reviewing.

#### Easy data entry:

Optional bar code reader/magnetic card reader contribute to enter patient ID quickly without any human errors.

#### Easy data transfer by wired LAN:

Up to 40 ECG files can be stored in the internal memory. Approximately 3,000 ECG files can be stored in an SD memory card.

You can transfer ECG data to a PC using a wired LAN.

### Intelligent analysis

#### High level 12-lead ECG analysis:

cardiofax C includes Nihon Kohden's latest interpretation program, ECAPS12C analysis program. It provides simultaneous 12-lead ECG acquisition of up to 24 seconds and analysis with approximately 200 findings and 5 judgment categories. ECAPS12C can also find typical waveforms of Brugada-type electrocardiogram.

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## SPECIFICATIONS

### ◆ ECG Input

**Input impedance:**  $\geq 50\text{M}\Omega$  at 10 Hz

**Electrode offset tolerance:**  $\pm 550\text{ mV}$

**Input protection function:** defibrillation-proof function

**Common mode rejection ratio:**  $> 105\text{dB}$

**Input circuit current:**  $< 0.05\mu\text{A}$

**Standard sensitivity:**  $10\text{ mm/mV} \pm 2\%$

**Internal noise:**  $\leq 20\mu\text{Vp-p}$

**Interference between channels:**  $\leq -40\text{dB}$

**Frequency response:** with 10 Hz as benchmark, 0.05 to 150 Hz ( $+0.4\text{ dB} / -3.0\text{ dB}$ ). 150 Hz ( $\geq 71\%$ , high-cut filter: 150 Hz)

**Sample rate:** 8,000 samples/s

### ◆ Waveform Data Processing

**Sample rate:** 500 samples/s,  $1.25\mu\text{V/LSB}$

**Response to minimum signal:**  $20\mu\text{Vp-p}$

**EMG filter:** 25 / 35 Hz

**High-cut filter:** 75, 100, 150 Hz ( $-3\text{ dB}$ )

**AC line filter:** 50 / 60 Hz

**Baseline drift suppression:** Weak:  $-20\text{dB}$  (0.1 Hz), Strong:  $-34\text{dB}$  (0.1 Hz)

**Time constant:**  $\geq 3.2\text{ s}$

**Sensitivity:** 5, 10, 20 mm/mV

### ◆ Display

**Size:** 4.8 inch

**Type:** Monochrome backlit LCD

**Resolution:** 320 x 240 dots

**Displayed data:** 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:** 1, 2, 3

**Paper speed:** 25 mm/s, 50 mm/s

**Recording data:** Waveform, program type, version, date and time, paper speed, sensitivity, lead name, filter, patient information, event mark, electrode detachment, noise

**Recording paper:** 63 mm width, 30 m roll paper

**Mechanical noise:**  $\leq 48\text{ dB}$  at paper speed 25 mm/s

### ◆ ECG Analysis

**Program name:** ECAPS 12C

**Analysis patient age:** 3 years to adult

**Finding items:** approx. 200

**Judging items:** 5

### ◆ Power Requirements

**Voltage:** AC (100 to 240 V)  $\pm 10\%$

**Frequency:** 50 / 60 Hz

**Power input:** 45 VA

**Battery operation time:**  $\geq 120$  minutes (In case of fully charged: 3-channel recording, input 1mV 10 Hz sine wave; recording speed 25 mm/s)

**Battery charging time:** within 10 hours

### ◆ Interface

**USB 1.1 A type:** 1

**SD card slot:** 1

**LAN port:** 1

### ◆ Environment

#### Storage and transport environment

Surrounding temperature:  $-20$  to  $+65\text{ }^{\circ}\text{C}$

Relative humidity: 25 to 95% (Recording paper: 25 to 80%)

Atmospheric pressure: 700 to 1,060 hPa

#### Operating Environment

Surrounding temperature:  $5$  to  $40\text{ }^{\circ}\text{C}$

Relative humidity: 25 to 95% (noncondensing) (Recording paper: 25 to 80%)

Atmospheric pressure: 700 to 1,060 hPa

### ◆ Safety and Performance standard

**Safety and performance standard:**

IEC 60601-1: 2012

IEC 60601-2-25: 2011

IEC 60601-1-2: 2007

**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 (when patient cable BJ-901D, BJ-902D, BJ-903D, BA-901D, BA-903D, BJ-961D or BJ-962D is used)

**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

Dimensions: 279W x 75H x 210D mm ±10%

Weight: 1.7 kg ±10% (without battery and recording paper)

## STANDARD ACCESSORIES

Battery pack, SB-901DC	1
Recording paper, RQS63-3, <b>A129</b>	1
Thermal head cleaning pen, <b>Y011</b>	1
Input check jig, 6114-092972	1

Description	Qty	Supply Code	ECG-2150 -100D	ECG-2150 -101D	ECG-2150 -102D	ECG-2150 -103D
Patient cable						
BA-901D, AHA 3 mm dia	1	K019			✓	
BJ-961D, IEC 3 mm dia	1	K111	✓	✓		
BJ-962D, IEC 4 mm dia	1	-				✓
Power cord						
Type H	1	L935		✓	✓	
Type N	1	L936	✓			✓
Electrode						
Chest electrode, 3 mm dia	2	H041A	✓	✓	✓	
Chest electrode, 4 mm dia	2	H043A				✓
Clip-on limb electrode, 3 mm dia	1	H068A	✓	✓	✓	
Clip-on limb electrode, 4 mm dia	1	H068B				✓

## OPTIONAL ACCESSORIES

**Cart**, KD-105D (Height: 790mm) / KD-105E (Height: 890mm)

**Patient cable hanger**, KH-100D

### ◆ Local Purchase Options

**Bar code scanner**

**Magnetic card reader**

Reference specifications

USB1.1, bus powered, HID class type

## CONSUMABLES

### Battery:

**X071** Battery pack, SB-901D

### Memory card:

**Y154D** SD memory card, QM-001D

### Recording paper:

**A129** RQS63-3, 10 pcs/set, roll, 63 mm x 30 m

### Patient cable:

**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, for 3mm dia tip, FASTCLIP

**H068B** 4 pcs/set, 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

### ECG paste

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

## ORDERING INFORMATION

When ordering, please specify the following information:

Requirements for consumables

Requirements for optional accessories

Specify the code in **XXXX**

This brochure may be revised or replaced by Nihon Kohden at any time without notice.

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**NIHON KOHDEN CORPORATION**

1-31-4 Nishiochiai, Shinjuku-ku, Tokyo 161-8560, Japan  
Phone +81 (3) 5996-8036 Fax +81 (3) 5996-8100  
<http://www.nihonkohden.com/>

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