

## How to start the device

Please check the following Before using the device.

### I Operating procedure I

- Connect the power cable to the device and press the 'POWER' switch.
- Connect the ECG cable to the patient in compliance with the ECG measurement preparations.
- Check the setting status for filter, signal size, output speed, channel configuration, rhythm lead, etc., and set them to the desired value if you want to modify them.
- Enter patient information according to the patient information input method.
- Refer to What to Do with Poor Lead Connection if the waveform drawn in the LCD screen is abnormal or there is too much noise.
- If the waveform displayed on the LCD screen is normal, press the [AUTO] key to record the ECG.
- Press the [COPY] key either to show the 10-second data on the screen, as originally entered, or print it out as modified in your settings.
- Press the [RHYTHM] key to print out the ECG signal waveform in real-time.
- Press the [ESC] key to stop printing or saving the ECG results.

## How to download the eIFU (Electronic Instructions for Use)

- 1) Visit this link: <https://www.ebionet.com/operation-manuals/>
- 2) After entering the provided password, you can download the eIFU.
- 3) The electronic manual is provided as a PDF file. If you have difficulty accessing the above site, please contact the salesperson in charge or the customer support team at our headquarters.

**PW: C9Mbh5**

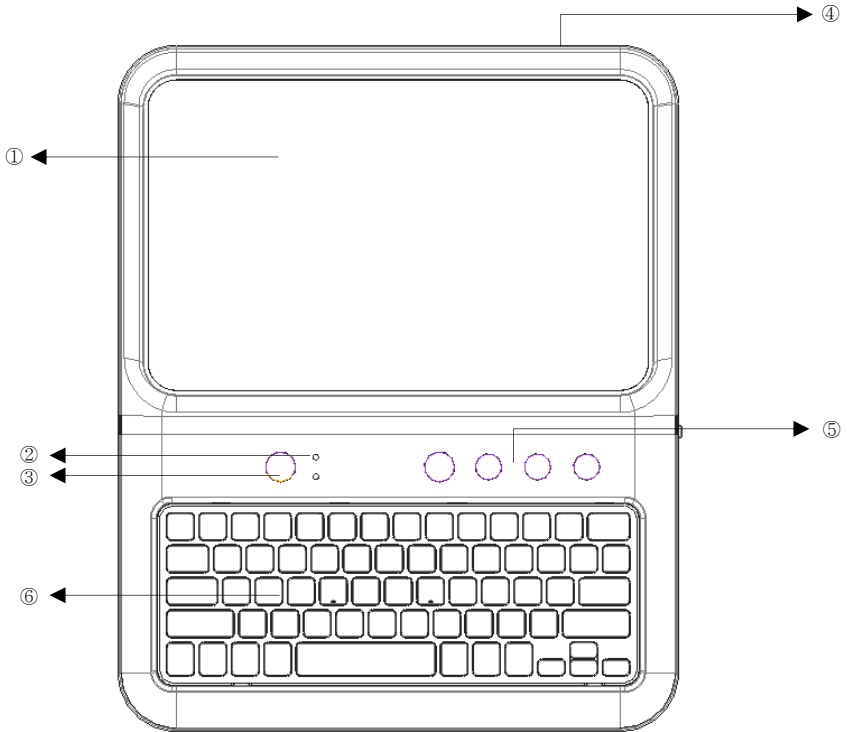
## Product Configuration

### ■ Basic composition and accessories

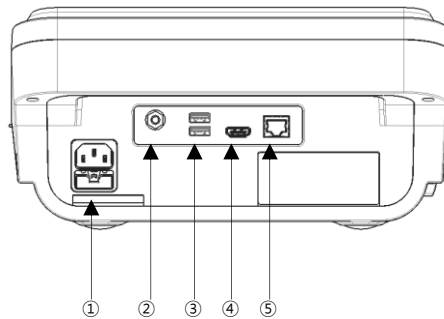
- ① Cardio Q50 / Cardio Q70 Main Body (1EA)
- ② Patient Cable (1EA)
- ③ Limb Electrodes (1SET)
- ④ Chest Electrodes (1SET)
- ⑤ ECG Chart Paper (1EA)
- ⑥ Power Cable (1EA)
- ⑦ ECG Gel (1EA)
- ⑧ ECG Diagnosis Guide (1EA)
- ⑨ Rechargeable Battery (1EA)

### ■ Optional items

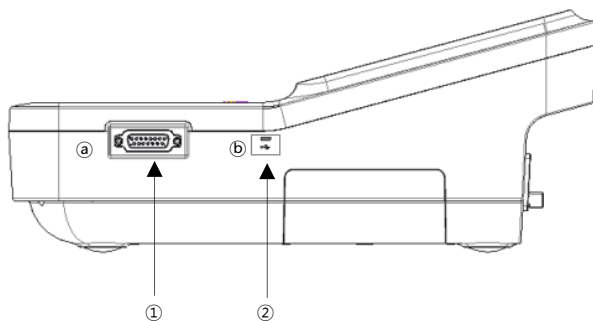
- ① Spiro Handle (1EA)
- ② Spiro Diagnosis Guide (1EA)
- ③ Nose Clip (1EA)
- ④ Mouthpiece Adaptor (1EA)
- ⑤ Handle Dock (1EA)
- ⑥ Disposable Mouthpiece (100EA)
- ⑦ PFT Filter (20EA)
- ⑧ Calibration Syringe [3L] (1EA)
- ⑨ Spiro Connector (1EA)








① LCD / ② LED / ③ Power Switch / ④ Handle / ⑤ Function Keys / ⑥ Keyboard (Option)



① AC Power Terminal / ② Grounding Terminal / ③ USB Port / ④ HDMI Port / ⑤ LAN Port (RJ45)



- ① Patient cable connection port
- ② USB Port: USB communication with external devices, including a Spiro Handle

Control Panel	Status Display	
		<p><b>AUTO.</b></p> <p><b>1. Short Press</b> Press the key briefly to run ECG exam. You will use this key the most, from running an ECG diagnostic test to storing, transfer, and printing.</p> <p><b>2. Long Press (more than 3 seconds)</b> The signal is acquired for 10 seconds or for a certain period of time (1 minute, 3 minutes, 5 minutes, 10 minutes, 20 minutes, or 30 minutes). It is processed and provided in the format you choose.</p>
		<p><b>RHYTHM.</b></p> <p>A real-time ECG waveform is continuously printed or prepared as a report.</p>
		<p><b>COPY.</b></p> <p>Previously saved data will be processed and printed in the same way as before or as modified in your settings.</p>
		<p><b>ESC.</b></p> <p>You can cancel the operation or switch to the previous mode by entering the main menu.</p>

### Trouble Shooting

**when printing to the printer, if nothing is printed or the print is faint:**

In this case, the printer's cover is not completely covered. Please use after covering the cover well.

**When using battery power, three consecutive buzzers sound and the following message appears on the screen:**

In this case, the battery power is almost depleted. Connect AC power before use.

## Specification

ECG	
<b>ECG Leads</b>	Simultaneous 12 channel ECG and acquisition
<b>Recording Channel</b>	3CH+3RHY, 3CH+1RHY, 6CH+1RHY, 12CH, 6CH+ST map, 1CH+3, Cabrera Report 1CH Long Time (1min, 3min, 5min, 10min, 20min, 30min) and Special Beat Report (Text, Guide, Vector, ST map)
<b>Gain</b>	2.5, 5, 10, 20, Auto (I~aVF: 10, V1~V6: 5) mm/mV
<b>Printing Speed</b>	5, 12.5, 25, 50, 100 mm/sec
<b>Sampling Rate</b>	Analysis Sampling Rate - 500Hz Digital Sampling Rate - 8,000Hz
<b>Filters</b>	AC (50/60 Hz, -20dB or better), Muscle (25~35Hz, -3dB or better), Bionet Baseline Drift (0.05Hz, 0.1Hz, 0.2Hz, -3dB or better), Low Pass Filter(off, 40Hz, 100Hz, 150Hz)
<b>Patient Data</b>	ID, Name, Date of Birth, Age, Gender, Height, Weight, Race, Smoke, Department, Room No., Study Desc., Accession No., Referring Physician
<b>Basic Measurement &amp; Interpretation</b>	Heart Rate (30~300bpm, $\pm 3$ bpm), PR/RR Int, QRS Dur, QT/QTc Int, P-R-T axis, SV1/RV5/R+S Amp Bionet ECG analysis algorithm, the University of Glasgow ECG analysis algorithm
<b>Electrical</b>	Internal Noise : 20uV(p-p)max Input Impedance : $\geq 50M\Omega$ Input Voltage Range : $\pm 5$ mV CMRR : $> 105$ dB DC Offset Voltage : $\geq \pm 400$ mV Patient Leakage Current : $< 10$ uA Frequency Response : 0.05~200 with in -3dB Isolated, Defibrillation and ESU Protected
<b>Signal Quality Control</b>	Pacemaker Pulse Detection Lead Fault Detection, Signal Saturation Detection
Spiro	
<b>Measuring Values</b>	FVC : FVC, FEV1, FEV1/FVC, FEF 0.2-1.2L, FEF 25-75%, FEF 75-85%, PEF, FEF 25%, FEF 50%, FEF 75%, FIVC, FEV6, PEFT, FET 100%, Error Code, Extrapolation volume COPD : FEV1, FEV6, FEV1/FEV6, LFI, COPD Classification SVC : SVC, TV, ERV, IRV, EC MVV : MVV, FB, TV
<b>Presentation</b>	Flow Volume Loop Volume Time Graph Measurement Values Table
<b>Measuring Range</b>	Flow: 0 to $\pm 14$ L/s

	Volume: 0 to $\pm 12$ L	
<b>Measuring Method</b>	Differential Pressure Method	
<b>Prediction Equation</b>	Morris-Polgar, Knudson-ITS, ECCS-Quanjer, Korea CJK, Pereira, GLI-2012	
<b>Sample Rate</b>	200 samples/sec	
<b>Flow Impedance</b>	< 0.2 mbar s/L at 12 L/s	
<b>Measuring Accuracy</b>	Complies with ISO 26782, ISO 23747	
<b>Common</b>		
<b>Data Storage</b>	Internal Storage for 500 Data : Built- in Memory	
<b>Display</b>	10.1" (8") Color TFT Wide Display (1024 x 600), 12 Channels Preview ECG Wave	
<b>User Interface</b>	Touch Screen (Alphanumeric and Symbol Available), Function Keys, Keyboard (Option)	
<b>Printer Resolution</b>	Thermal Print Head, Z-fold Paper Report Paper - A4: 210mm (8.3") x 300mm (11.8") - Letter: 215mm (8.5") x 280mm (11") Paper Size - A4 : 210mm x 150mm (half A4) - Letter : 215mm x 140mm (half Letter) Resolution - Vertical : 8dot/mm - Horizontal : 16dot/mm (0.125mm pitch)	
<b>Line Power</b>	Input : 100~240 VAC, 50/60Hz, 1.5~0.75A Output : 15 VDC, 4.2 A	
<b>Battery Type</b> <b>Battery Capacity</b>	Replaceable and Rechargeable Lithium Ion, 10.8V, 6500mA 10 hours of normal use or print 350 ECG (12 channel format at 25mm/s and 10mm/mV) or Spiro pages. Battery recharge to full capacity in 3 hours. (The device is turned off)	
<b>Communication</b>	LAN, WIFI (Option), USB flash driver, USB barcode scanner	
<b>Safety Conformity</b>	Class I, Type CF Applied Parts: ECG Electrodes Type B Applied Parts : Spirometer Handle	
<b>Environmental</b>	<b>Operation</b>	Ambient Temperature: 10 to 40°C Relative Humidity : 30 to 85% Atmospheric Pressure : 700 to 1060hPa
	<b>Storage/Ship</b>	Ambient Temperature: -20 to 60°C Relative Humidity : 10 to 95% Atmospheric Pressure : 500 to 1060hPa
<b>Dimensions</b>	Main Body - 286(W) x 350(D) x 140(H) mm (Cardio Q50) - 286(W) x 350(D) x 144(H) mm (Cardio Q70) - Approx. 4.5kg (Max) Spiro Handle	

	<ul style="list-style-type: none"> <li>- 48(W) x 39(D) x 201(H) mm</li> <li>- Approx. 250g</li> </ul>
<b>Standard Accessory</b>	Patient Cable (1EA), Limb Electrodes (1SET), Chest Electrodes (1SET), ECG Chart Paper (1EA), AC Power Cord (1EA), ECG Gel (1EA), Operation Manual (1EA), ECG Diagnosis Guide (1EA)
<b>Options</b>	Rechargeable Battery (1EA) Spiro Handle (1EA), Spiro Diagnosis Guide (1EA), Disposable Mouthpiece (2EA), Nose Clip (1EA), Mouthpiece Adaptor (1EA), Handle Dock (1EA), Disposable Mouthpiece 1 Box (100EA), PFT Filter (20EA), Calibration Syringe[3L] (1EA), Spiro Connector (1EA)
<b>Additional Specification</b>	
<b>Wireless Function (Archer T2UAC600)</b>	Wireless Standard : IEEE 802.11ac, IEEE 802.11a, 802.11n, IEEE 802.11g, IEEE 802.11b Frequency: 5 GHz, 2.4 GHz
<b>Warranty Period</b>	1 year from date of purchase

The guidelines for eFU are part of Bionet's ESG(eco-friendly) management practices to reduce paper consumption and streamline user manual accessibility and storage methods. Therefore, the eFU is provided in PDF file format rather than paper format.



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**Bionet Co., Ltd**

Model Name: Cardio Q50 / Cardio Q70