

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 read the eIFU

- 1) <https://www.ebionet.com/operation-manuals/>
- 2) After entering the provided password, you can download the eIFU.

PW: C9Mbh5

Product Configuration

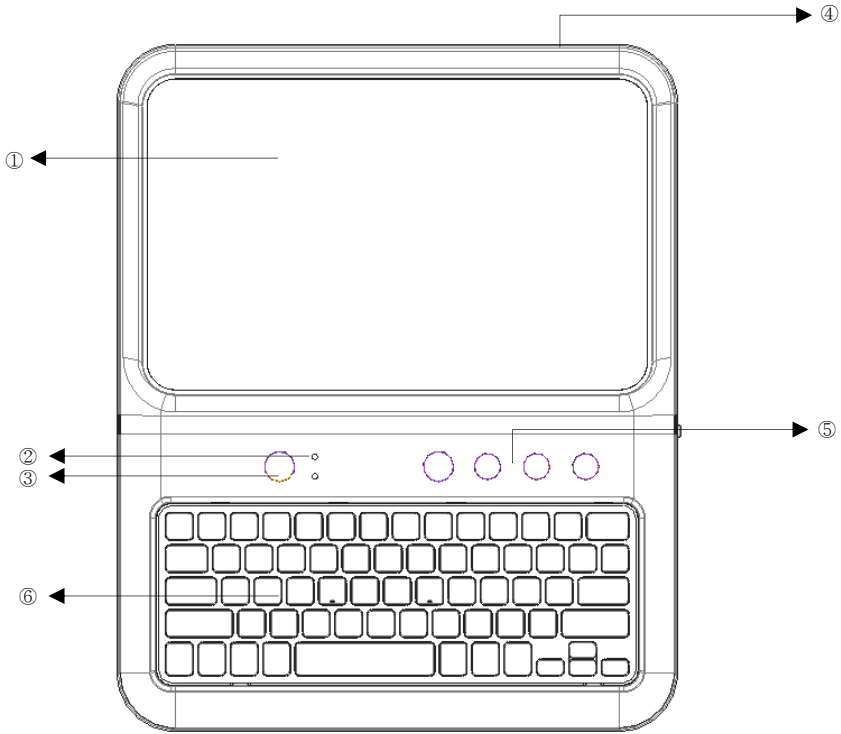
■ Basic composition and accessories

- 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)

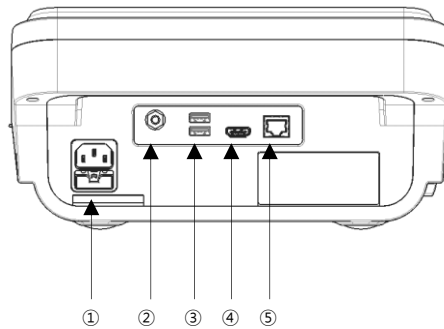
■ Optional items

- 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)

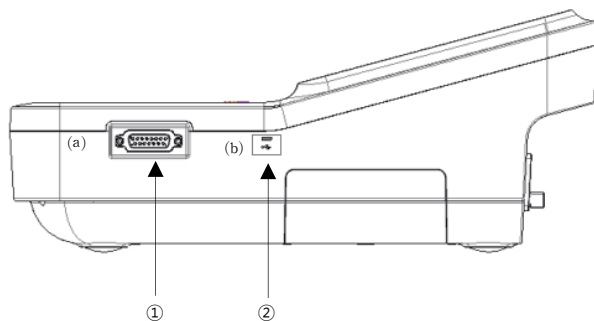
Operation Key







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>AUTO.</p> <p>1. Short Press 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>2. Long Press (more than 3 seconds) 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> RHYTHM. A real-time ECG waveform is continuously printed or prepared as a report.</p>
	<p> COPY. Previously saved data will be processed and printed in the same way as before or as modified in your settings.</p>
	<p> ESC. 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	
ECG Leads	Simultaneous 12 channel ECG and acquisition
Recording Channel	3CH+3RHY, 3CH+1RHY, 6CH+1RHY, 12CH, 1CH+3, Cabrera Report 1CH Long Time (1min, 3min, 5min, 10min, 20min, 30min) and Special Beat Report (Text, Guide, Vector)
Gain	2.5, 5, 10, 20, Auto (I~aVF: 10, V1~V6: 5) mm/mV
Printing Speed	5, 12.5, 25, 50, 100 mm/sec
Sampling Rate	Analysis Sampling Rate - 500Hz Digital Sampling Rate - 8,000Hz
Filters	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)
Patient Data	ID, Name, Date of Birth, Age, Gender, Height, Weight, Race, Smoke, Department, Room No., Study Desc., Accession No., Referring Physician
Basic Measurement & Interpretation	Heart Rate (30~300bpm, ± 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
Electrical	Internal Noise : 20 μ V(p-p)max Input Impedance : ≥ 50 M Ω Input Voltage Range : ± 5 mV CMRR : > 105dB DC Offset Voltage : $\geq \pm 400$ mV Patient Leakage Current : < 10 μ A Frequency Response : 0.05~200 with in -3dB Isolated, Defibrillation and ESU Protected
Signal Quality Control	Pacemaker Pulse Detection Lead Fault Detection, Signal Saturation Detection
Spiro	
Measuring Values	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

	<p>COPD : FEV1, FEV6, FEV1/FEV6, LFI, COPD Classification</p> <p>SVC : SVC, TV, ERV, IRV, EC</p> <p>MVV : MVV, FB, TV</p>
Presentation	<p>Flow Volume Loop</p> <p>Volume Time Graph</p> <p>Measurement Values Table</p>
Measuring Range	<p>Flow: 0 to ± 14 L/s</p> <p>Volume: 0 to ± 12 L</p>
Measuring Method	Differential Pressure Method
Prediction Equation	Morris-Polgar, Knudson-ITS, ECCS-Quanjer, Korea CJK, Pereira, GLI-2012
Sample Rate	200 samples/sec
Flow Impedance	< 0.2 mbar s/L at 12 L/s
Measuring Accuracy	Complies with ISO 26782, ISO 23747
Common	
Data Storage	Internal Storage for 500 Data : Built- in Memory
Display	<p>10.1" (8") Color TFT Wide Display (1024 x 600),</p> <p>12 Channels Preview ECG Wave</p>
User Interface	<p>Touch Screen (Alphanumeric and Symbol Available),</p> <p>Function Keys, Keyboard (Option)</p>
Printer Resolution	<p>Thermal Print Head, Z-fold Paper</p> <p>Report Paper</p> <ul style="list-style-type: none"> - A4 : 210mm (8.3") x 300mm (11.8") - Letter : 215mm (8.5") x 280mm (11") <p>Paper Size</p> <ul style="list-style-type: none"> - A4 : 210mm x 150mm (half A4) - Letter : 215mm x 140mm (half Letter) <p>Resolution</p> <ul style="list-style-type: none"> - Vertical : 8dot/mm - Horizontal : 16dot/mm (0.125mm pitch)
Line Power	<p>Input : 100~240 VAC, 50/60Hz, 1.5~0.75A</p> <p>Output : 15 VDC, 4.2 A</p>

Battery Type	Replaceable and Rechargeable Lithium Ion, 10.8V, 6500mA	
Battery Capacity	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)	
Communication	LAN, WIFI (Option), USB flash driver, USB barcode scanner	
Safety Conformity	Class I, Type CF Applied Parts: ECG Electrodes Type B Applied Parts : Spirometer Handle	
Environmental	Operation	Ambient Temperature : 10 to 40°C Relative Humidity : 30 to 85% Atmospheric Pressure : 700 to 1060hPa
	Storage/Ship	Ambient Temperature : -20 to 60°C Relative Humidity : 10 to 95% Atmospheric Pressure : 500 to 1060hPa
Dimensions	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 - 48(W) x 39(D) x 201(H) mm - Approx. 250g	
Standard Accessory	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)	
Options	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)	
Additional Specification		
Wireless Function (Archer T2U AC600)	Wireless Standard : IEEE 802.11ac, IEEE 802.11a IEEE 802.11n, IEEE 802.11g, IEEE 802.11b Frequency: 5 GHz, 2.4 GHz	

	<p>Signal Speed (5 GHz)</p> <ul style="list-style-type: none"> - 11ac : Max 433Mbps (Dynamic) - 11n : Max 150Mbps (Dynamic) - 11a : Max 54Mbps (Dynamic) <p>Signal Speed (2.4 GHz)</p> <ul style="list-style-type: none"> - 11n : Max 150Mbps (Dynamic) - 11g : Max 54Mbps (Dynamic) - 11b : Max 11Mbps (Dynamic) <p>Receive Sensitivity (5 GHz)</p> <ul style="list-style-type: none"> - 11a 6Mbps : -94dBm - 11a 54Mbps : -78dBm - 11n HT20 MCS0 : -94dBm - 11n HT20 MCS7 : -77dBm - 11n HT40 MCS0 : -92dBm - 11n HT40 MCS7 : -74dBm - 11ac VHT80 MCS0 : -89dBm - 11ac VHT80 MCS9 : -64dBm <p>Receive Sensitivity (2.4 GHz)</p> <ul style="list-style-type: none"> - 11b 1Mbps : -99dBm - 11b 11Mbps : -91dBm - 11g 6Mbps : -94dBm - 11g 54Mbps : -77dBm - 11n HT20 MCS0 : -95dBm - 11n HT20 MCS7 : -76dBm - 11n HT40 MCS0 : -92dBm - 11n HT40 MCS7 : -73dBm <p>Transmission Strength : <20dBm (EIRP)</p> <p>Wireless Mode : Ad-Hoc / Infrastructure Mode</p> <p>Wireless Security : WEP, WPA/WPA2, WPA-PSK/WPA2-PSK</p> <p>Modulation Technology</p> <ul style="list-style-type: none"> - DBPSK, DQPSK, CCK, OFDM, 16-QAM, 64-QAM
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Request for Instructions for use in paper form

Electronic form instructions are now being widely used to reduce paper consumption, increase accessibility for users. Instructions for use of the device are supplied in electronic form instead of in paper form.

Instructions for use in paper form can be requested at no additional cost within 7 calendar days from our distributors by mail.