

Chapter 2 Preparing Recording

2.1 Location Selection

Please refer to the caution of foreword.

2.2 Load the Recording Paper

EXPLANATION

Installation of recording paper may slightly differ from the product you purchased, which will not affect your usage, please operate according to the actual functions of the product.

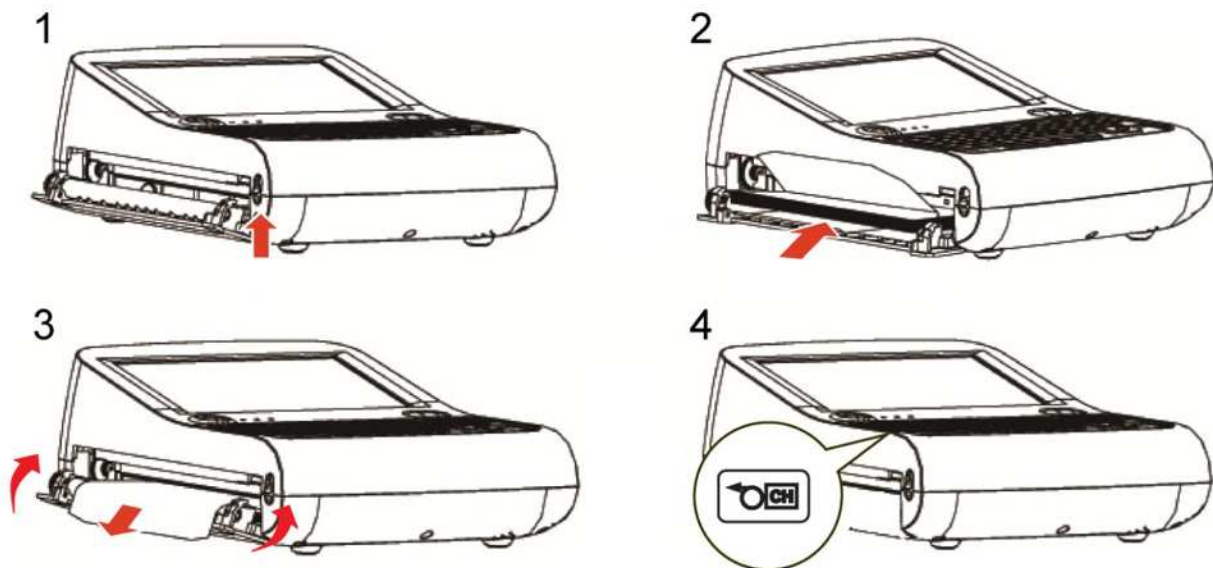



Figure 2- 1 Load the Recording Paper

1. Push the button upwards.
The Paper tray opens.
2. Insert the recording paper fitly into the Paper tray with the grid upwards and the black mark towards the Paper tray.
3. Pull out the paper about 2cm and press both sides of the Paper tray to close.

4. And then press .

⚠ CAUTION

- Do not use other type of recording paper except 210 mm×140 mm (recommended) or 210 mm×150 mm Z-fold paper.
 - Please make sure recording paper is installed fitly and straightly, otherwise paper may be stuck.
 - If there is no paper, or the paper has been used up, or the paper was not placed well, the alarm will appear on the main screen and the machine will not print.
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2.3 Power Supply Connection

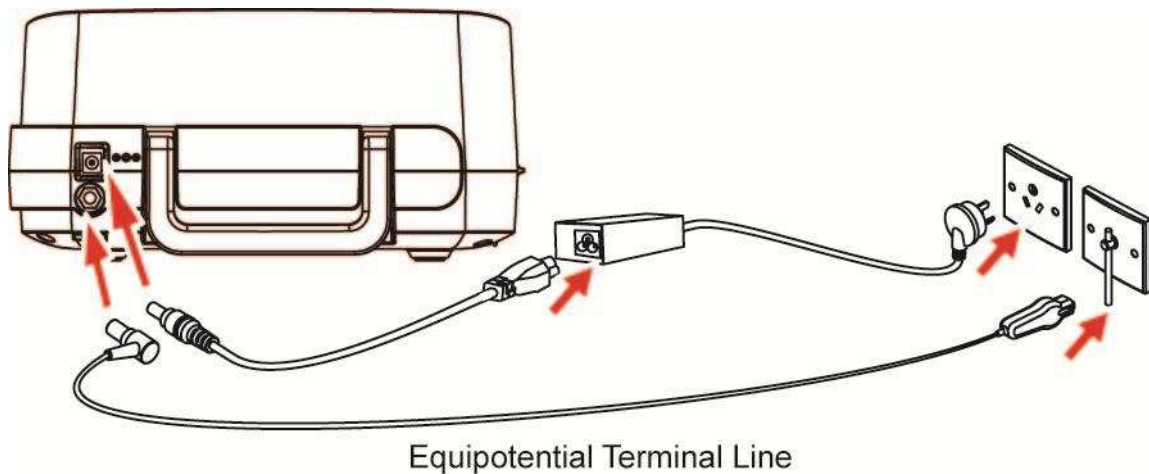


Figure 2- 2 Connect to AC Power Supply

1. Plug the AC power cable and equipotential line into the ECG machine.
2. Connect power adaptor with the power outlet, and connect equipotential cable with equipotential terminal in the room.

📖 EXPLANATION

The ECG machine is equipped with a built-in rechargeable battery. Please check the battery capacity before using the battery for power supply.

 **CAUTION**

- When the ECG machine is operated together with other medical equipment, please use the accompanying equipotential cable and connect the equipotential terminal of the ECG machine altogether with that of the other equipments so as to protect the patient from possible electric shock due to current leakage from those equipments.
 - Equipotential cable must be connected between the equipotential terminal of the ECG machine and the room. Do not connect the equipotential cable to a conductive water pipe or the other pipes. Otherwise it may cause electric shock hazard to the patients.
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2.4 Patient Cable Connection

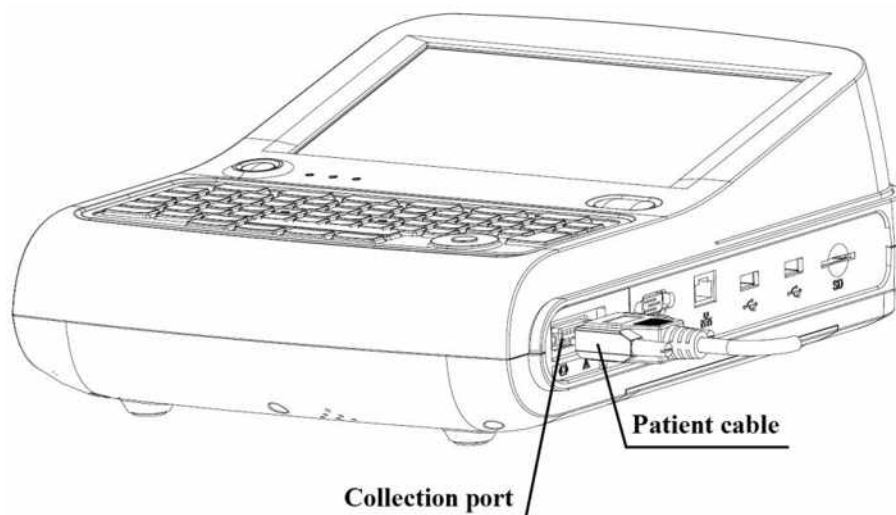


Figure 2- 3 Connect to Patient Cable

 **CAUTION**

Do not use any other types of patient cable except the supplied one. The patient cable socket is exclusively used for connecting the patient cable. Please do not use it for other purposes.

2.5 Insert or Remove an SD card

2.5.1 Insert an SD card

Push to insert an SD card into the SD card slot until a “clicking” sound.

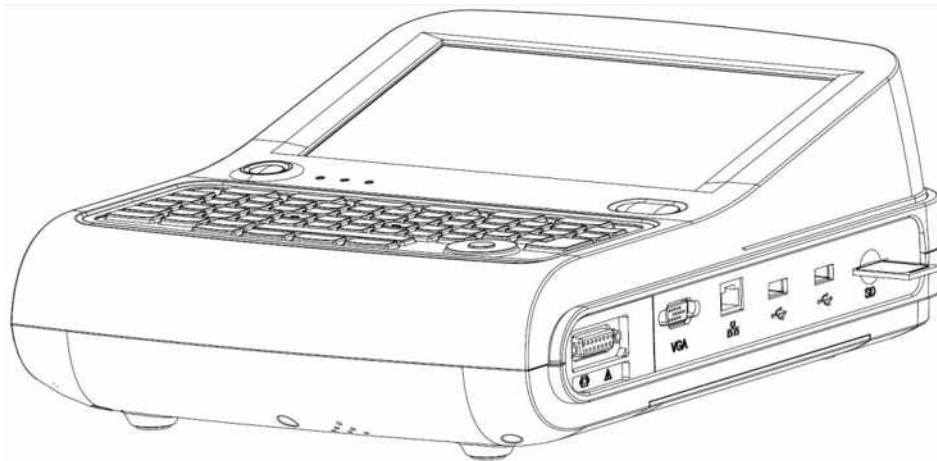


Figure 2- 4 Insert the SD Card

2.5.2 Remove an SD Card

1. Push the SD card forward gently until a “clicking” sound.
2. Release the SD card, and then SD card eject about 5 mm.
3. Pinch the SD card away from the slot by nails.

 **CAUTION**

- If resistance happens when inserting SD card, check whether there is foreign bodies in the slot or the direction of SD card is correct.
 - Do not throw or bend the SD card, or it may be broken.
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2.6 Power On/Off



Press  to power on/off the ECG machine.

The ECG machine enters standby mode if it is not in use for a time duration. Set the time duration in **[System Setting] > [Standby Time]**. Press any key or touch the screen to exit standby mode.

The ECG machine will shut down automatically if it is not in use for time duration. Set the time duration in **[System Setting] > [Auto Power Off]**.

EXPLANATION

The ECG machine will not enter standby and auto power off in Trigger mode and Cycle recording mode.

2.7 Network Connection

EXPLANATION

- The machines include standalone version and network version. Only network version machines are equipped with network features. If network features are needed, please contact our customer service.
 - In the ECG machine of network version, network connection may slightly differ from the product you purchased, which will not affect your usage, please operate according to the actual functions of the product.
 - In order to realize the data transmission, you need to install ECG management system software and drivers on the computer (Please refer to the user manual of ECG management system. If ECG management system is needed, please contact our customer service.)
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CAUTION

In the data transmission, if the ECG machine warns “Network connecting failed”, please reset the network.

2.7.1 Connect to a Wired Network

1. As shown in the following figure, the cable network system is composed of the ECG machine, the switchboard and the server.
2. Go to **[Menu] > [System Setting]**. Tap **[Transfer Protocol]** and set according to the protocol of the server. Three options are: TCP, FTP and HL7.
3. Tap **[Cable Network]** and set the **[IP address]**, **[Subnet Mask]** and **[Default Gateway]** of the ECG machine. If the IP address is within the same network segment of the server, the subnet mask and gateway shall be as the set value of the server. If the IP address is not within the same network segment of the server, subnet mask and gateway of the **[Cable Network]** shall be set according to actual situations, but make sure the specified gateway do support the data transmission between the two network segments.
4. Tap **[Server Setting]** and set the **[IP address]** and **[Port]** number of the server.
5. When the cable network is connected successfully and able to communicate with the server, the Main

interface will display the icon .

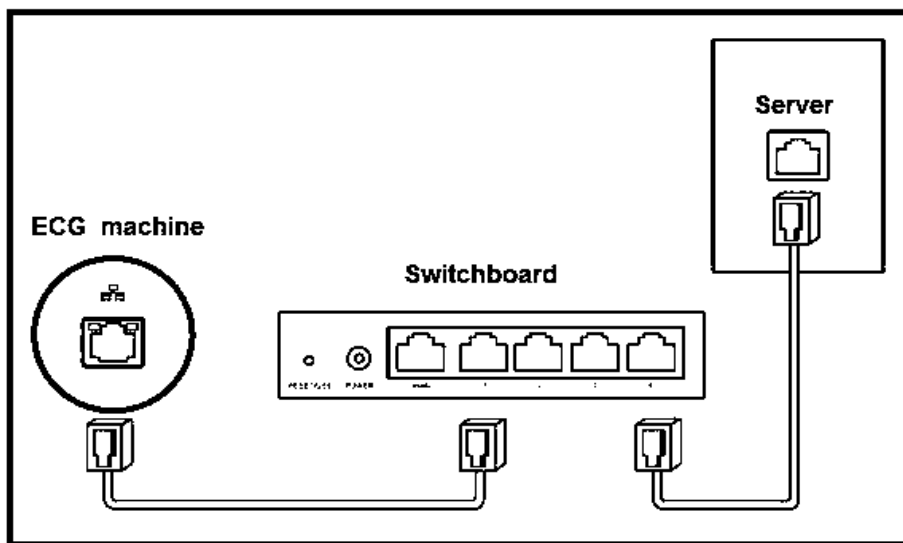




Figure 2- 5 Cable Network Connection

2.7.2 Connect to a Wireless Network (Optional)

1. As is shown in the following figure, the wireless network system is composed of the wireless AP on the ECG machine, the switchboard and the server.
2. Go to **[Menu] > [System Setting]**. Tap **[Transfer Protocol]** and set according to the protocol of the server. Three options are: TCP, FTP and HL7.
3. Set the SSID and password (can be set at will) of the wireless AP and use automatic channel if there is no special requirement.
4. Set the IP address and port number in the menu **[Server Setting]** as the IP address and port number of the server.
5. Set the SSID, password and Security in **[WIFI Network]** to the set value and type of the wireless AP. The encryption method should be set up according to that of wireless AP.
6. In **[WIFI Network]**, the setting of the DHCP service can be enabled or disabled according to the requirement. When DHCP service is enabled, it is unnecessary to set IP address, subnet mask and gateway manually. When it is disabled, it is necessary to set IP address, subnet mask and gateway with respect to the setting mode of wired network.
7. After WIFI network is connected, the system interface will display the icon ; after the ECG machine is able to communicate with the server, the Main interface will display the icon .

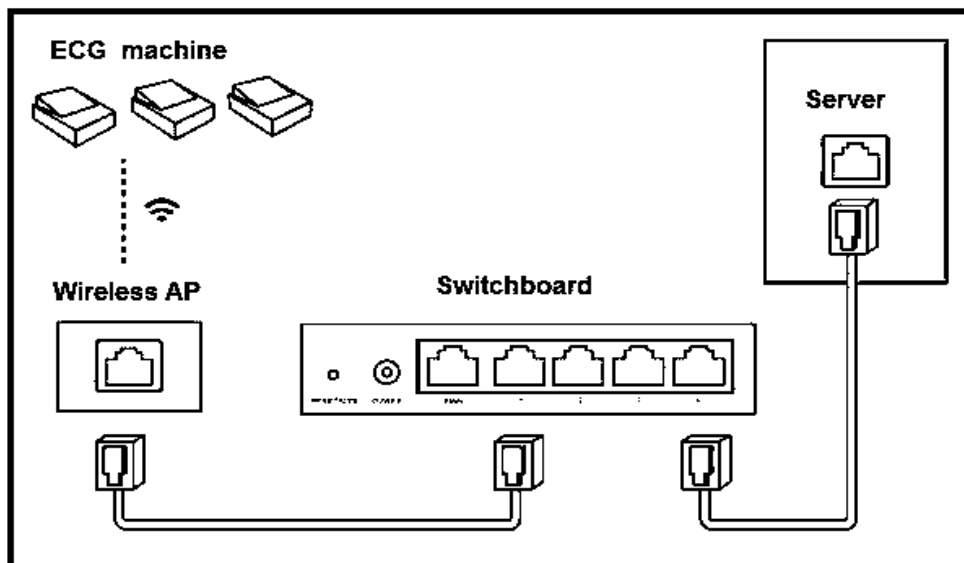


Figure 2- 6 Wireless Network Connection

2.8 HL7 Configuration

EXPLANATION

HL7 function should be rightly configured before use. The ECG machine should be able to communicate with HIS via HL7 interface protocol. Follow the two methods below to configure HL7 function.

1. Adjust HIS's HL7 interface and make sure HIS can communicate with the ECG machine via HL7 interface.
 2. The hospital provides its HL7 interface to the company; the company adjusts the HL7 interface of the ECG machine and make sure the ECG machine can communicate with HIS via HL7 interface.
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To configure HL7 network connection:

Please refer to *Network Connection* to connect the ECG machine with the Internet; the transfer protocol in System Setting should be HL7 and the IP address and port number should be the same with that of the HL7 server.

Please refer to Anysafe HL7Pro Server Installation&Deployment Guide for the method of HL7 transit server's installation and deployment.

2.9 Apply Electrodes

Before attaching the electrodes to patient, wipe skin oil off by using medical alcohol to all the positions where electrodes are to be attached, and then apply ECG gel on the skin. After that, place electrodes to the right position.

If using the vacuum ball electrodes, you should apply ECG gel on the electrodes, and then pinch the suction ball to make sure the electrodes contact with skin tightly.

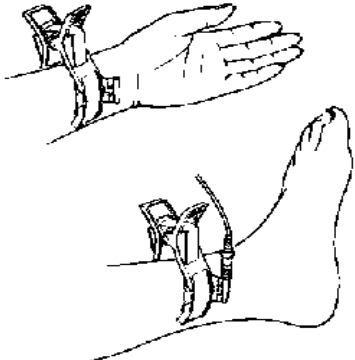
CAUTION

- Proper electrode attachment is vital for obtaining accurate ECG waveforms; therefore, please ensure good contact between the skin and electrodes.
- Do not use the new electrodes and the used ones at the same time. Replace all electrodes together when any one of them is supposed to be replaced.
- Do not use disposable electrodes more than one time.
- Confirm the disposable electrodes are within the valid period.
- Use the disposable electrodes as soon as possible after opening the package (generally within 7 days).
- Electrodes or conducting point of patient cable shall not be in contacting with any other metal part or

conductor.

- Avoid the electrodes to be dragged by the lead wires.
- Make sure the patient's skin contacted with the electrodes has been well pretreated.
- Clean the stain on the electrodes with medical alcohol whenever the electrodes are contaminated.
- Make sure metal electrodes of limb electrodes touch fully with skin and tightly enough.
- Make sure adjacent electrodes and ECG gel, especially chest ones, are not contacted with each other.
- If the examinations involve a short period of time, if ECG gel is unavailable, please wipe the skin with medical alcohol to keep the skin clean and moist, and then rapidly attach the electrodes.
- It's not allowed to use saline water as substitute to ECG gel. The saline water will cause corrosion on the electrodes.
- For chest and back application of pediatric, disposable electrodes are suggested.
- Electrodes shall be properly stored. When electrodes have been used for a certain period, they may become corroded and oxidized at the surface. Whenever this happens, the electrodes must be replaced.
- Do not mix electrodes of different types and manufacturers. Do not use re-useable electrodes and disposable ones together, or it will affect the recording.
- Please use our company's or authorized electrodes to make sure qualified ECG.

2.9.1 Electrodes Attachment

Limb Electrodes Placement			
IEC	AHA	Description	Figure
R Red	RA White	Right Arm	
L Yellow	LA Black	Left Arm	
N Black	RL Green	Right Leg	
F Green	LL Red	Left leg	

Standard 12-lead				
	IEC	AHA	Description	Figure
A	C1 Red	V1 Red	Fourth intercostal space at right sternal border.	
B	C2 Yellow	V2 Yellow	Fourth intercostal space at left sternal border.	
C	C3 Green	V3 Green	Equidistant between B and D	
D	C4 Brown	V4 Blue	Fifth inter-costal space at left mid-clavicles line	
E	C5 Black	V5 Orange	Left anterior auxiliary line at the horizontal level of D	
F	C6 Purple	V6 Purple	Left mid-auxiliary line at the horizontal level of D	
Nehb lead chest electrodes				
	IEC	AHA	Description	Figure
A	C1 Red	V1 Red	Second costa at the right side of sternum	
B	C2 Yellow	V2 Yellow	Horizontal level of angulus scapulae at the left posterior axillary line	
C	C3 Green	V3 Green	Prethoracic position opposite to the left angulus scapulae (near the apex of heart)	

VCG electrodes				
	IEC	AHA	Description	Figure
A	C1 Red	V1 Red	At the same horizontal level of C, at the right mid-axillary line	
B	C2 Yellow	V2 Yellow	Center of spine on the same horizontal level as C	
C	C3 Green	V3 Green	5th intercostal place at the left mid-clavicular line	
D	C4 Brown	V4 Blue	At the same horizontal level of C, at the left mid-axillary line	
E	C5 Black	V5 Orange	Center of spine on the back on the same horizontal level as C	
F	C6 Purple	V6 Purple	Back of neck, avoid the carotid artery and jugular vein	

2.9.2 Lead Signals Formation Scheme

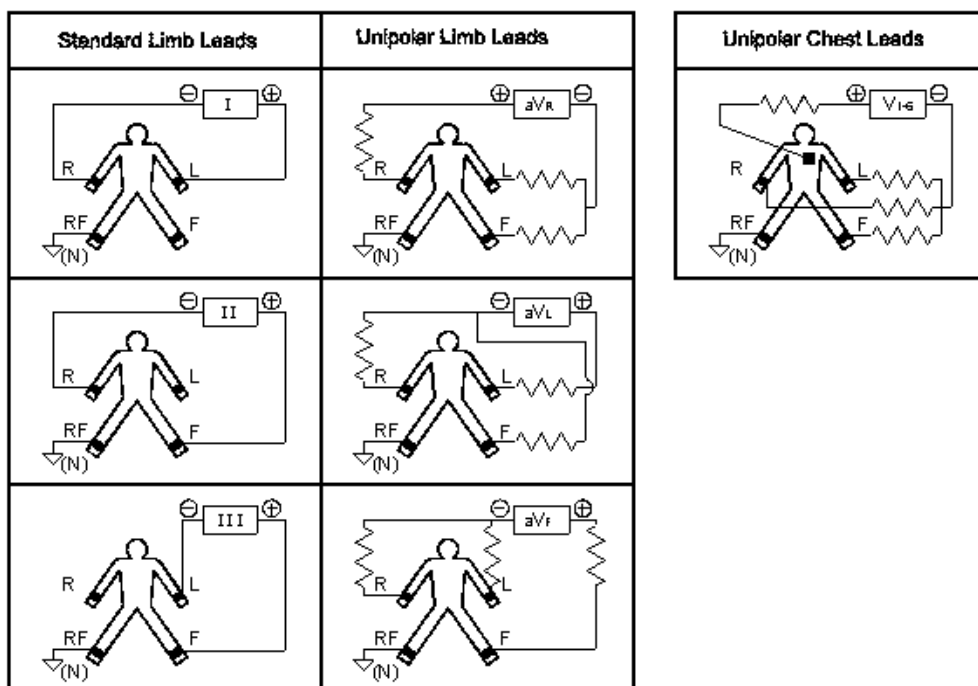


Figure 2- 7 Lead Connection

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