

Assembly of the ECG Sampling System

NOTE:

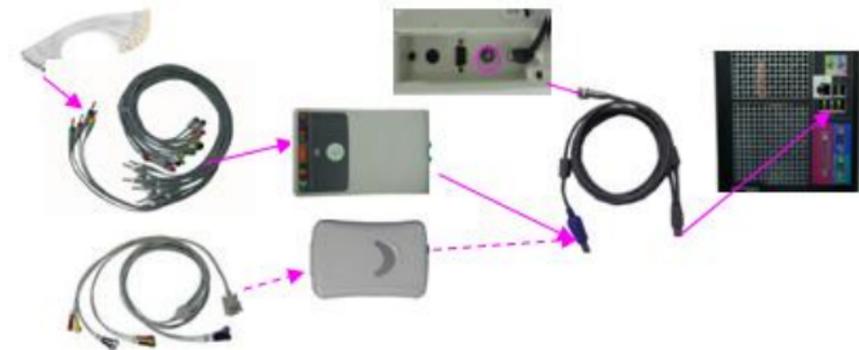
1. The BP monitor and belt needs to be connected only during exercise ECG sampling.
2. The position of the USB interface may be different on different computers.

Assembly of the wired ECG sampling system:

Resting ECG:



Exercise ECG:



Assembly of the wireless ECG sampling system:

Resting ECG:



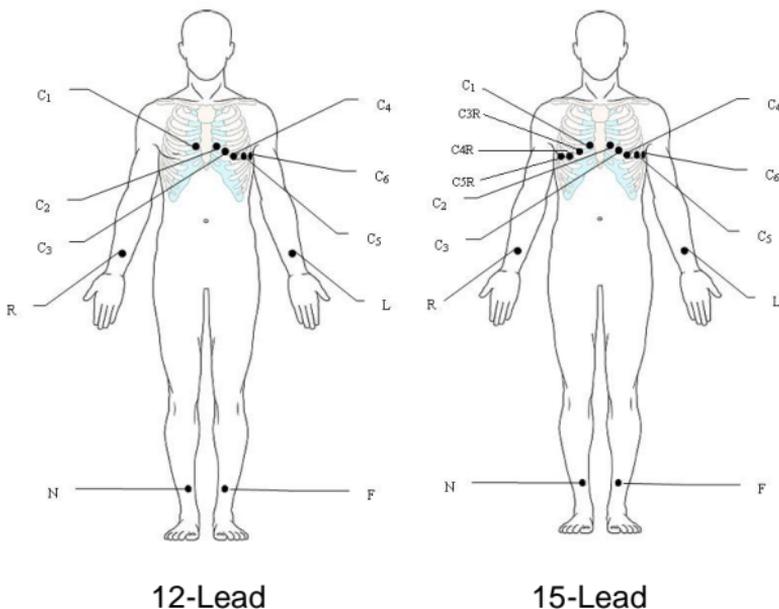
Exercise ECG:



Operation Instructions for Resting ECG

Connect the printer to the PC -> Connect the DE15/DP12 ECG sampling box or DX12 receiver to the PC with a USB cable -> Connect the patient cable to the patient cable socket of the DE15/DP12 ECG sampling box or DX12 transmitter -> Clean the electrode areas on the body surface with 75% alcohol -> Daub the electrode areas with gel evenly -> Attach all the electrodes to the patient -> Start up the software.

1 Attaching Lead Wires and Electrodes



2 Entering Patient Information



Double-click on the SE-1515 icon  on the desktop to display the main screen.



If the patient is a new one, click on the **New Patient** button on the main screen to display the **New Patient** interface. Enter the information of the patient and the doctor.



If the patient record exists in the database, click on the **Archive** button on the main screen to open the **Archive** interface. Click on the patient record in the patient information list and click on the **Select** button to display the **New Patient** interface.

3 Selecting Sampling Type

On the **New Patient** interface, set the sampling type to **Resting ECG**. Then click on the **OK** button to open the pre-sampling interface.

4 Sampling ECG and Printing ECG Report

When the ECG traces are satisfying on the pre-sampling interface, click on the **Start** button to open the sampling interface. The system will stop sampling ECG and display the ECG analysis interface automatically after the ECG sampling time is over. Or click on the **Stop** button to stop sampling.

Click on the **Print** button on the analysis screen to print an ECG report.

Troubleshooting of Resting ECG

An ECG wave shows a straight line

Possible Causes	Solutions
<ul style="list-style-type: none"> ● Inoperative electrode, the electrode falls off the patient ● Loose connection between the patient cable and the patient cable socket of the ECG sampling box ● Loose connection between lead wires and electrodes 	<ul style="list-style-type: none"> ● Replace the electrode ● Reconnect the patient cable and the ECG sampling box ● Reconnect lead wires and electrodes

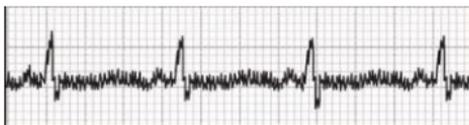
Hint: Please make sure the USB line has been connected. If possible, please re-connect it! is displayed.

Possible Causes	Solutions
<ul style="list-style-type: none"> ● Loose connection between the ECG sampling box and the PC ● Sampling device is set wrongly 	<ul style="list-style-type: none"> ● Reconnect the ECG sampling box and the PC ● On the Sampling Setting interface of the PC ECG system, reset the sampling device

Fail to create database

Possible Causes	Solutions
The data file is installed in disk D by default. If the disk D does not exist, database creation fails.	Click on Browse to manually select a directory.

AC Interference



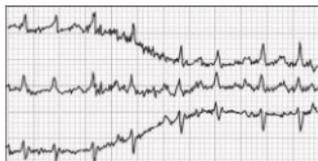
Possible Causes	Solutions
<ul style="list-style-type: none"> ● Dirty or corroded wire tips or electrodes. ● Loose electrode connection. ● Broken leadwire ● Electrical interference from another device (microwave oven, cellular phone, wireless device, etc.) ● An improperly-grounded electrical device near the PC ECG system ● An improperly gelled electrode (dried gel) ● Improper AC filter setting 	<ul style="list-style-type: none"> ● Clean the lead wire or change electrodes. ● Check the electrode connections. ● Change the lead wire. ● Look for devices that could be causing electrical interference, and then unplug the devices. ● Lay the lead wires alongside the limbs and away from any electrical devices ● Change the gel ● On the Sampling Setting interface of the PC ECG system, set the AC filter according to local AC frequency

Wandering Baseline



Possible Causes	Solutions
<ul style="list-style-type: none"> ● Dirty or corroded wire tips or electrodes. ● Loose electrode connection. ● An improperly gelled electrode (dried gel) ● Oily skin or body lotions and creams ● Patient respiratory interference 	<ul style="list-style-type: none"> ● Clean the lead wire or change electrodes. ● Check the electrode connections. ● Change the gel ● Clean skin with alcohol or acetone ● Set the DFT filter to 0.67Hz on the Sampling Setting interface of the PC ECG system

Muscle Tremor Interference



Possible Causes	Solutions
<ul style="list-style-type: none"> ● The patient is uncomfortable or nervous. ● The patient is cold and shivering ● The patient has a neural or muscular disorder (e.g. Parkinson's Disease) 	<ul style="list-style-type: none"> ● Assist the patient in relaxation. ● Place a blanket on the patient to warm the patient ● Assist with limiting patient movement

Operation Instructions for Exercise ECG

NOTE: The exercise ECG function is optional. It is available only if you have purchased this function.

Connect the DE15/DP12 ECG sampling box or DX12 receiver to the PC -> Connect the stress BP monitor and patient cable -> Connect the PC to the treadmill or the ergometer -> Connect the PC to the stress BP monitor -> Start up the software.

1 Connecting the PC to the Treadmill



Connect the RS232 port of the treadmill to the RS232 port of the PC with an RS232 cable.

NOTE: The position of the RS232 port may be different on different treadmills. The position of the RS232 interface may be different on different computers.

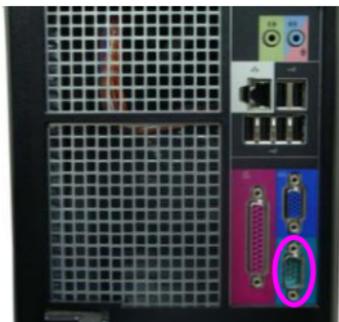
2 Connecting the PC to the Ergometer



Connect the RS232 port of the ergometer to the RS232 port of the PC with an RS232 cable.

NOTE: The position of the RS232 port may be different on different ergometers. The position of the RS232 interface may be different on different computers.

3 Connecting the PC to the Stress BP Monitor



NOTE: The position of the RS232 port may be different on different computers.

4 Setting the PC ECG System

Double-click on the SE-1515 icon on the desktop to display the main screen. Enter the exercise ECG sampling screen and click on the **Setting** button to open the **System Setting** interface. Click on the **Device** tab. Then select **Treadmill** or **Ergometer** in the **Device Type** pull-down list, and specify the device mode. Set other parameters. Then click on the **OK** button to confirm.

When **DX12 wireless sampling box** is selected, you can press **Address** to view the address of the receiver address. You can match the transmitter and receiver based on the address on Sampling Device interface.

NOTE: The sampling ports of different computers are different. You can find the correct ports in the directory of “My Computer\Properties\Hardware\Device Manager” on the PC.

Exercise ECG Sampling

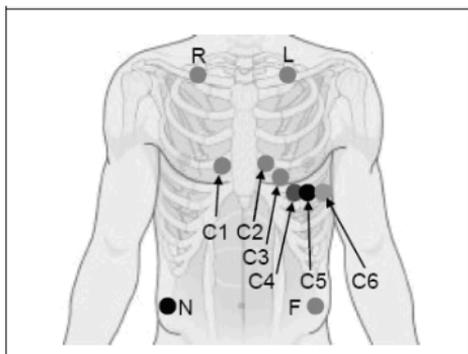
Connect the lead wires of the patient cable to the electrodes -> Clean the electrode areas on the body surface with 75% alcohol -> Daub the electrode areas with gel evenly -> Attach all the electrodes to the patient. -> Apply the stress BP monitoring to the patient.

WARNING

- 1 During the stress exercise testing, ensure that there are at least two experienced physicians present. One of them observes the patient and deals with the emergency.
 - 2 Make sure that there is necessary valid first-aid equipment and medication in the stress exercise testing room.
 - 3 Press down the emergency stop switch to stop the treadmill or the ergometer immediately an emergency happens.
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1

Attaching Lead Wires and Electrodes



12-Lead

2

Entering Patient Information

Double-click on the SE-1515 icon on the desktop to display the main screen.



If the patient is a new one, click on the **New Patient** button on the main screen to display the **New Patient** interface. Enter the information of the patient and the doctor.



If the patient record exists in the database, click on the **Archive** button on the main screen to open the **Archive** interface. Click on the patient record in the patient information list and click on the **Select** button to display the **New Patient** interface.

Set the sampling type to **Exercise ECG** on the **New Patient** interface. Then click on the **OK** button to open the **Exercise ECG Setting** interface. Click on Setting and set the parameters, click on the **OK** button to open the pre-sampling interface.

3 Sampling ECG and Printing ECG Report

Click on the **Pretest** button, and the system enters the pretest phase. After pretest, the patient can get on the treadmill or the ergometer.

Click on the **Exercise** button to enter the exercise phase. Click on the **Next** button to enter the next exercise stage, and then observe the ECG waveforms, heart rate, blood pressure and the patient's state.

When the target heart rate is reached, click on the **Recovery** button to enter the recovery phase, and then observe the ECG waveforms, heart rate, blood pressure and the patient's state.

Click on the **STOP** button to terminate the exercise test. Take off the patient cable and electrodes.

Click on the **Print** button on the sampling interface to print an ECG report.

Troubleshooting of Exercise ECG

An ECG wave shows a straight line

Possible Causes	Solutions
<ul style="list-style-type: none"> ● Inoperative electrode, the electrode falls off the patient ● Loose connection between the patient cable and the patient cable socket of the ECG sampling box ● Loose connection between lead wires and electrodes 	<ul style="list-style-type: none"> ● Replace the electrode ● Reconnect the patient cable and the ECG sampling box ● Reconnect lead wires and electrodes

Hint: Please make sure the USB line has been connected. If possible, please re-connect it! is displayed.

Possible Causes	Solutions
<ul style="list-style-type: none"> ● Loose connection between the ECG sampling box and the PC ● Sampling device is set wrongly 	<ul style="list-style-type: none"> ● Reconnect the ECG sampling box and the PC ● On the Sampling Setting interface of the PC ECG system, reset the sampling device. Select the DE15/DP12 wired sampling box for wired sampling or select DX12 wireless sampling box for wireless sampling.

Fail to create database

Possible Causes	Solutions
The data file is installed in disk D by default. If the disk D does not exist, database creation fails.	Click on Browse to manually select a directory.

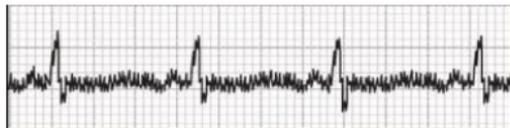
Hint: No sampling device detected! is displayed during wireless system sampling.

Possible Causes	Solutions
No transmitter working	Press  for one second to switch on the transmitter or change the battery.

No Bluetooth connection icon is displayed during wireless system sampling.

Possible Causes	Solutions
No connection between the transmitter and receiver.	Ensure DX12 receiver and DX12 transmitter are powered on for 3 seconds, and then match manually the transmitter and the corresponding receiver if no transmission connection builds between the transmitter and receiver.

AC Interference



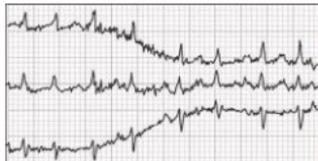
Possible Causes	Solutions
<ul style="list-style-type: none"> ● Dirty or corroded wire tips or electrodes. ● Loose electrode connection. ● Broken lead wire ● Electrical interference from another device (microwave oven, cellular phone, wireless device, etc.) ● An improperly-grounded electrical device near the PC ECG system ● An improperly gelled electrode (dried gel) ● Improper AC filter setting 	<ul style="list-style-type: none"> ● Clean the lead wire or change electrodes. ● Check the electrode connections. ● Change the lead wire. ● Look for devices that could be causing electrical interference, and then unplug the devices. ● Lay the lead wires alongside the limbs and away from any electrical devices ● Change the gel ● On the Sampling Setting interface of the PC ECG system, set the AC filter according to local AC frequency

Wandering Baseline



Possible Causes	Solutions
<ul style="list-style-type: none"> ● Dirty or corroded wire tips or electrodes. ● Loose electrode connection. ● An improperly gelled electrode (dried gel) ● Oily skin or body lotions and creams ● Patient respiratory interference 	<ul style="list-style-type: none"> ● Clean the lead wire or change electrodes. ● Check the electrode connections. ● Change the gel ● Clean skin with alcohol or acetone ● Set the DFT filter to 0.67Hz on the Sampling Setting interface of the PC ECG system

Muscle Tremor Interface



Possible Causes	Solutions
<ul style="list-style-type: none"> ● The patient is uncomfortable or nervous. ● The patient is cold and shivering ● The patient has a neural or muscular disorder (e.g. Parkinson's Disease) 	<ul style="list-style-type: none"> ● Assist the patient in relaxation ● Cover the patient with a blanket ● Assist with limiting patient movement

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MPN: 01.54.455913012