

Cardiology Patient Simulator "K" ver.2

Product Supervision

Japanese Educational Clinical Cardiology Society

Instruction Manual

Table of contents



Introduction

- Before use / Features P.1
- Warning / Caution P.2-3
- Set includes P.4
- Parts names and functions P.5

Preparation

- Assembly P.6-8

Training

- Training skills P.9-10
- Turning on the unit P.11
- Error indicator system P.12
- Starting up the software P.13-14
- Operation screen P.15
- Multi-unit operation P.16

After Training

- Exiting the software P.17

Trouble shooting

- Trouble shooting list P.18
- Unable to boot the main unit P.19
- Unable to select the units P.20
- An error occurs during the session P.21
- How to change the connection mode to wired P.22

■ Before use

MW10 Cardiology Patient Simulator "K" ver.2 is designed for medical education training. Please do not use the product for other purposes. Any other use not in accordance with the instructions on this manual as well as on the help menu in the system is strongly discouraged. The manufacturer holds no responsibility for any accidents or damages resulting from such use.

For questions regarding this simulator, please contact our distributor in your area or Kyoto Kagaku. Our contact information can be found on the back cover of this manual.

■ Features

Sounds are recorded from actual patients and are reproduced by using a high quality sound system.

- An actual stethoscope can be used.
- 88 examples of comprehensive simulation of patients with heart diseases and arrhythmias.
- Up to five simulators can be controlled by one wireless tablet.
- The error indicator system facilitates maintenance of the system to keep Cardiology Patient Simulator "K" ver.2 in its best condition.

The safety rules below focus on the safety of the user; please read carefully before using the product.

- The signs below represent uses that may be dangerous or harmful.

 WARNING	This sign represents dangerous use that may lead to fire hazards or electrocution.
 CAUTION	This sign represents harmful use toward the simulator or its parts that may lead to permanent damage or disfiguration.

- The signs below represent strongly recommended uses for safety.

	A circle with a cross represents actions that are strongly discouraged. This sign asks users not to attempt taking the simulator apart.
	This sign represents rules that we strongly encourage users to follow.

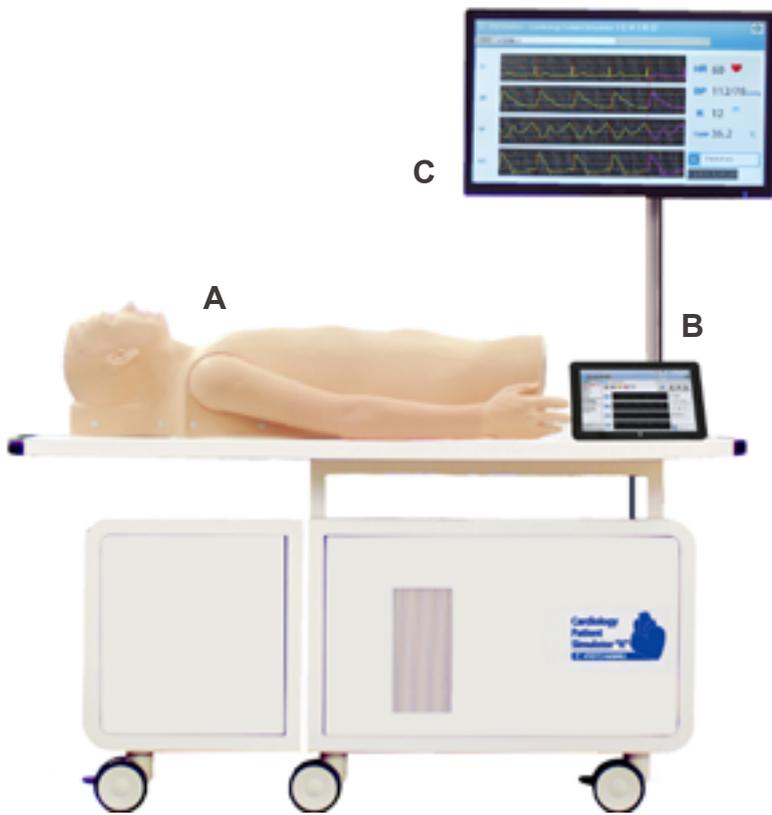
 WARNING	
<p>If the manikin or the control box becomes hot or begins to smoke, immediately unplug the power cord.</p>  This is a major fire hazard.	<p>Unplug the power cord when the model is not in use.</p>  This will prevent electrocution or fire hazard that may cause burns and damages.
<p>Remove any dust that has accumulated on the power plug and insert the plug completely into the power socket.</p>  Dust and incomplete connection can lead to a major fire hazard.	<p>Keep the manikin, its machinery and power cord away from water or detergent.</p>  This can lead to fire hazard or electrocution.
<p>Do not handle the power cord with wet hands.</p>  This is to avoid electrocution.	<p>Keep flammable materials away from the product.</p>  Such materials can lead to fire hazard and damages to the model.
<p>Use the designated power voltage.</p>  Misuse may lead to damages and fire hazard.	<p>When unplugging the power cord, do it by holding the plug itself and pull it.</p>  Unplugging by the cord may lead to damages to the cord itself, fire hazard or electrocution.
<p>Do not attempt to take apart or remodel the product.</p>  This could lead to fire hazard, electrocution and injury.	<p>Do not bend, twist or damage the power cord.</p>  This is to avoid to fire hazard and electrocution.

 CAUTION	
Do not apply excessive force or pressure onto the simulator.	Hold the handle when moving the simulator. It is dangerous to move the simulator by holding the manikin, the monitor, or its pole. Be sure to handle the unit at least 2 people when transferring the unit in the places with ramps or steps.
Do not mark the manikin with a pen or leave printed materials in direct contact with its surface. The inks marks on the manikin are not removable.	Discoloration of the surface may occur after being used during a long period of time. However, discoloration does not affect the function of the simulator.
Do not install other software in the computer; it may lead to system malfunctions.	Ensure to shut down your computer first. Then turn off the electricity power switch and unplug the power cord. Misuse may lead to damages.
Store the simulator in room temperature, away from heat, direct sunlight and moisture to prevent discoloration or other damages.	Use the simulator in a quiet environment.

<p>Supply voltage: AC100-240V 50/60Hz 450VA Altitude: 2.000 meters from sea-level Environmental conditions: 5 degrees C. to 40 degrees C. Relative humidity: Less than 80 per cent (no condensation) Overvoltage Category: 2 Pollution Degree: 2 Power cord supply: Do not use power supply cords other than the one included in the original set. Clean-up: Clean the manikin with water or mild detergent and coat with baby powder. Be careful not to apply water or detergent on the internal machinery. Do not apply lateral force to the pole to prevent the simulation unit from getting unstable.</p>

■ Set includes

Before you first use the Simulator “K”, ensure that all components listed below are included in the unit.



- A : 1 main unit with cardiology torso model (built-in the unit)
- 1 PC/ keyboard/ mouse
- 1 external speaker
- 1 LAN cable
- 1 power cable for control PC
- B : 1 control PC
- C : 1 main monitor
- D : 1 LAN adapter
- E : 1 power cable (for unit)
- F : 1 rib sheet
- G : 1 storage cover
- H : 4 textbooks
instruction manuals
built-in help file of software operation



F



H



D



E



G

■ Main unit

Main monitor

*Type and specs are subject to change.

Cardiology torso model

Control system
Air compressor unit
PC
Speaker

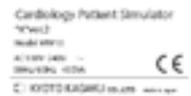
*Type and specs are subject to change

Control system's main power

side view

Power plug

Sticker (CE ver. only)



■ Control PC

Touch-panel monitor

Power button

Power supply port

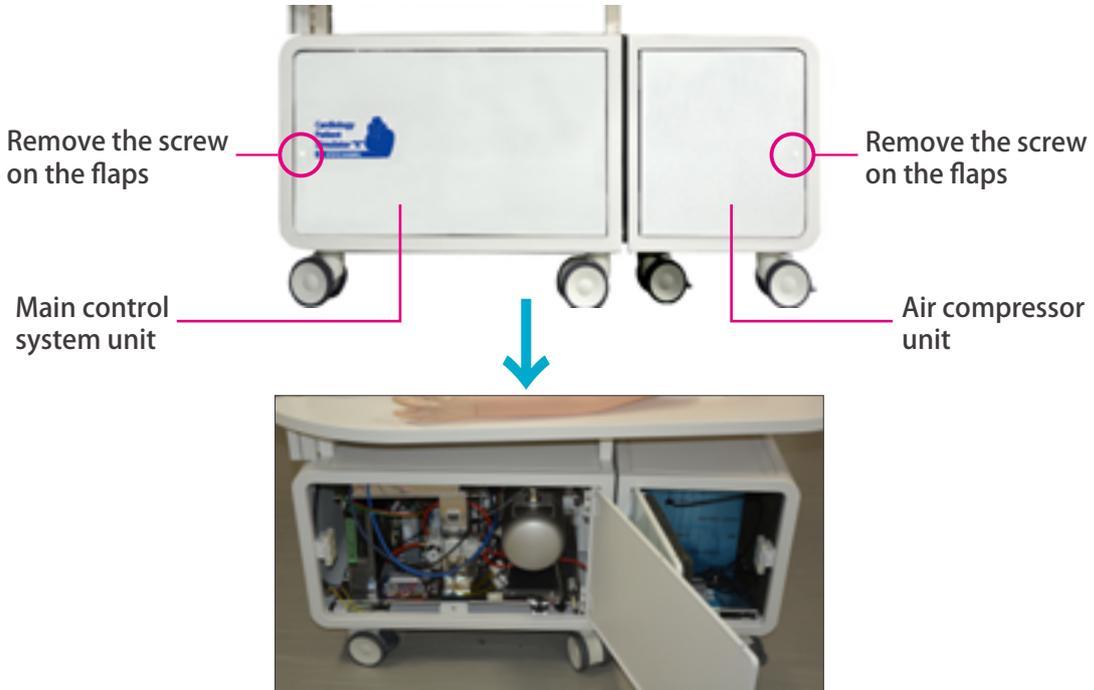
*Connect the power cable to the port to charge the control PC.

Refer the enclosed separate manual about how to use of the control PC.

*Type and specs are subject to change.

■ Connecting the control system

① Open the flaps of the unit.



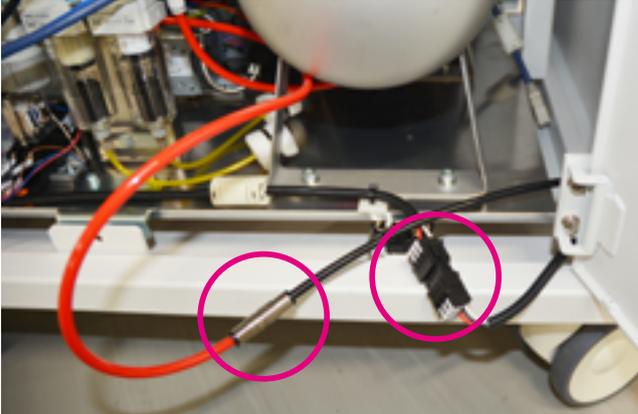
② Separate the control system unit.
Attachment can be removed by pulling the metal part as shown below.



③ Insert the cable for electricity and the air tube from the air compressor unit into the port on the wall of the main control unit



- ④ Connect the cable and air tube in the control system unit.

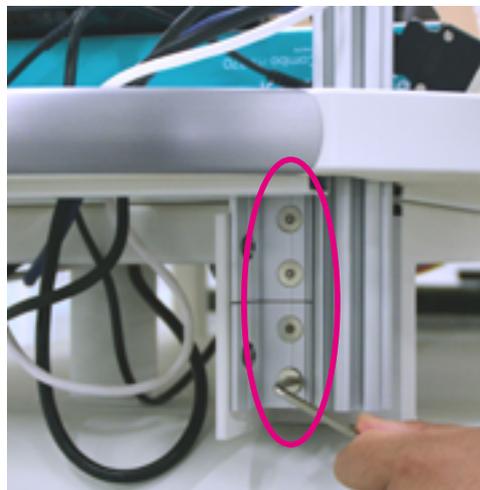
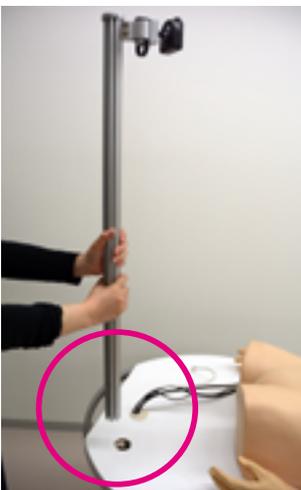


- ⑤ Align the main control system unit and the compressor unit so that the fixtures fit, and then carefully push the units toward each other until the fixtures lock.



■ Setting the monitor

- ① Insert the monitor pole to the hole of manikin table and fix it with a hex wrench.



- 2 Set the monitor on the holder of the pole and fix it with the screws included.



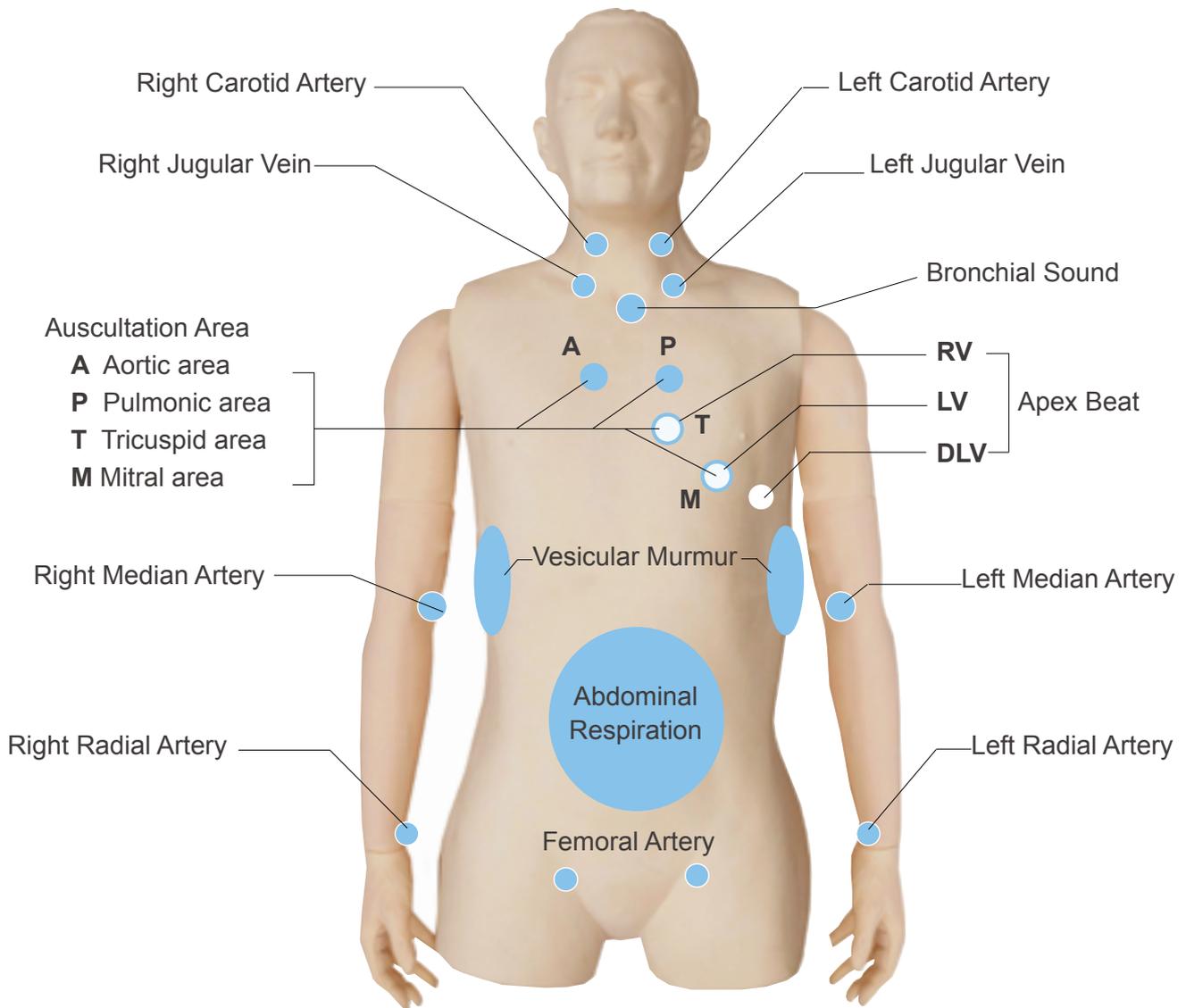
- 3 Connect the power cable and monitor cable from the control system unit.



- 4 Completed.



■ Training skills of Simulator "K"



■ Training mode of Simulator "K"

Cardiology Patient Simulator "K" has two variations of cardiological examination training systems, MODE 1 and MODE 2.

MODE 1 (36 cases)

MODE 1 allows the trainings in bed side cardiological examination that are listed below. All physical findings are synchronized to simulate patients with reality.

- 1. Auscultation of heart sounds
- 2. Electrocardiogram (ECG)
- 3. Respiration (pulmonary sound, abdominal movement)
- 4. Arterial palpation
- 5. Observation of jugular vein
- 6. Apex beat palpation

MODE 2 (52 cases)

MODE 2 is for arrhythmia simulation.

- 1. Auscultation of heart sounds
- 2. Electrocardiogram (ECG)

Auscultation

In all cases, auscultation can be performed at the four primary cardiac auscultation sites (Aortic, Pulmonic, Tricuspid and Mitral). Auscultation of first sound (S1) and second sound (S2) can be learned in relation to synchronized electrocardiogram, arterial pulses and jugular venous waves.



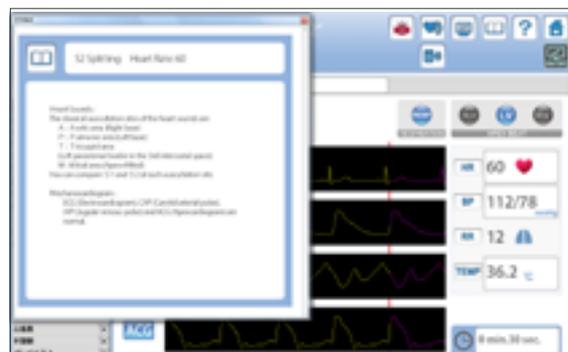
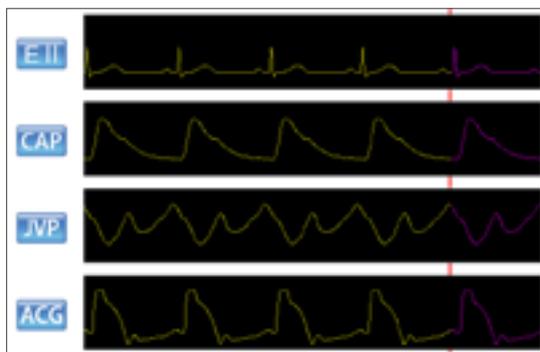
- Auscultation Area
- A** Aortic area
 - P** Pulmonic area
 - T** Tricuspid area
 - M** Mitral area



Place the chest sheet matching the position of clavicae. The sheet facilitates the understanding of auscultation sites.

Monitoring screen

Dynamic charts of electrocardiogram (ECG), jugular venous pulse (JVP), carotid arterial pulse (CAP) and apex cardiogram (ACG) can be displayed. Case explanation windows for self-directed learning are provided.



Palpation and Observation

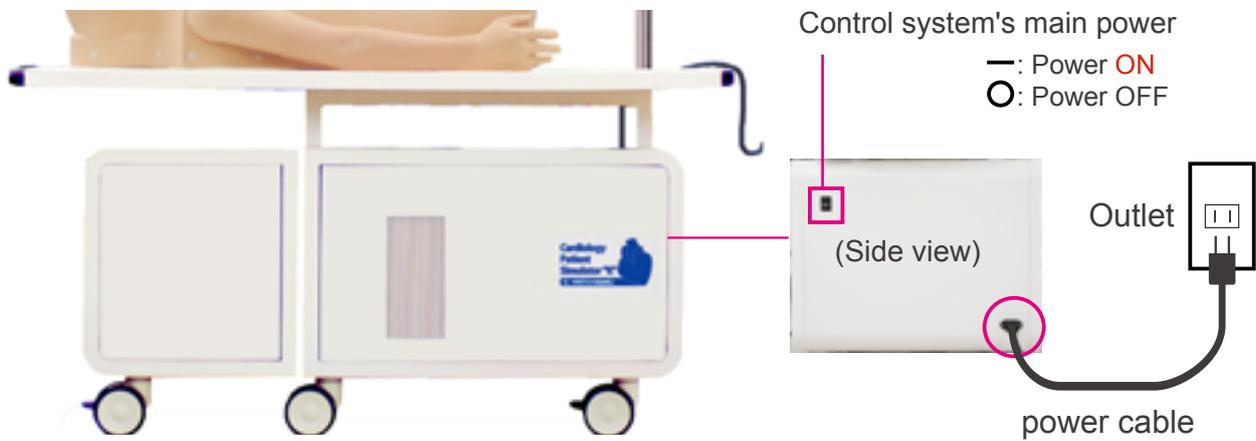
The carotid, median, radial and femoral arteries can be palpated at eight sites on the manikin. Slight variations of the arterial pulse waves under different cardiac conditions or arrhythmias can be detected by palpation. Pulsation of jugular venous waves can be observed on both sides. Cardiac impulses can be palpated at sites of right ventricle, left ventricle and dilated left ventricle.



IMPORTANT

When starting up the system follow the sequence of actions instructed below so that the wireless connection works correctly. The unit may not work correctly when being turned on with different order.

- 1 Connect the power cable to the outlet.
Turn on the control system's main power.



- 2 Turn on the control PC power.



NOTES

Before starting, be sure to charge the battery of the control PC. In case that the battery is low or empty, charge it by connecting the power cable of the control PC. The system can be used with the control PC being connected to the power.

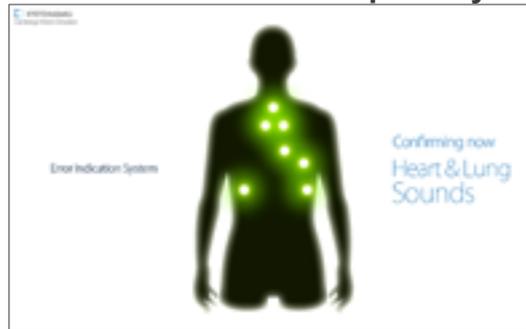
1 Error indicator system

When activating Simulator "K", errors are automatically checked.

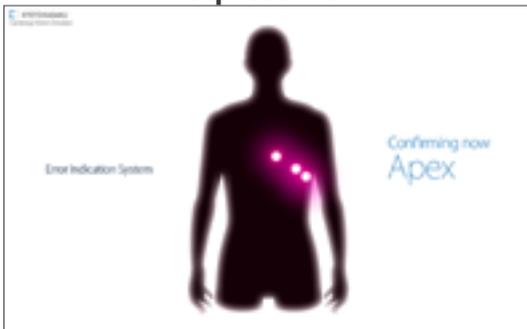
Artery and venous system



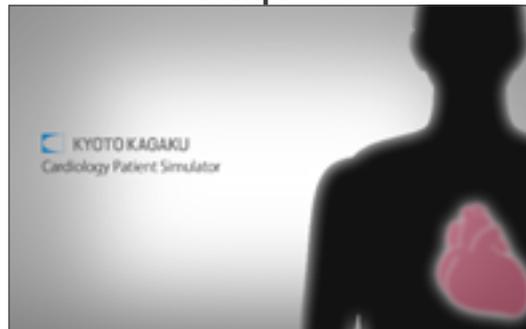
Heart sound and respiratory



Apex beat

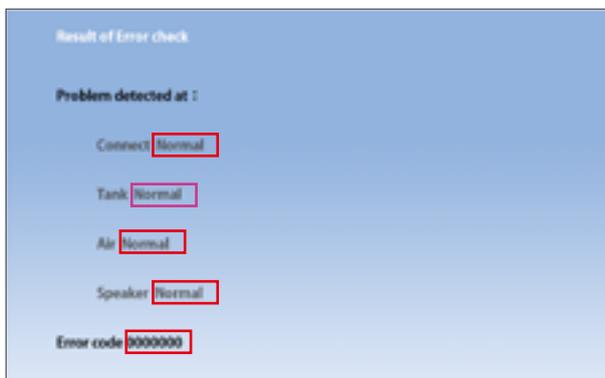


Completed



2 Error indication results

When errors detected, the following screen is displayed. Verify that all results are normal. When any error is detected, contact your local distributor or Kyoto Kagaku with the error code.

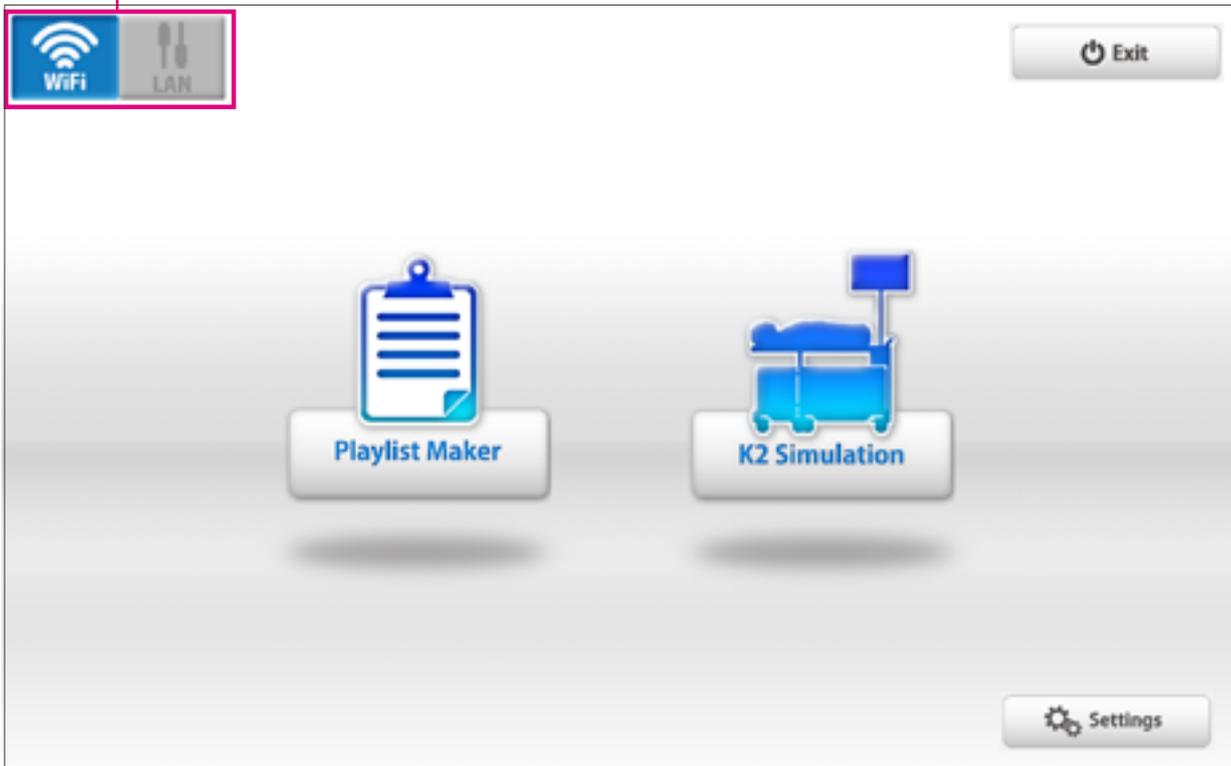


NOTES

Do not operate the control PC when the error indicator system is working.

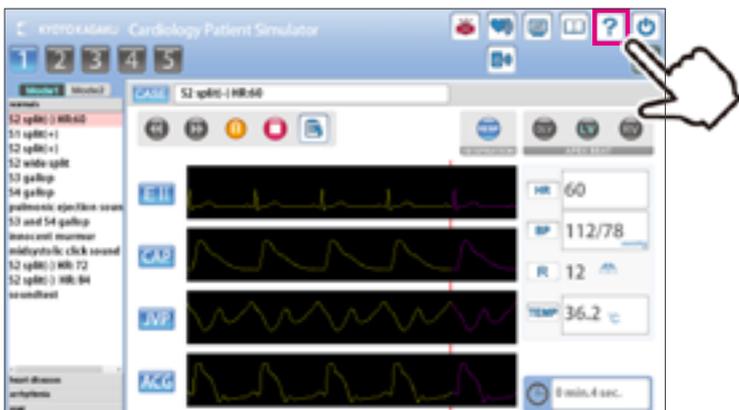
1 Verifying the connection of wireless systems

Verify the icon of the wireless connection. * Default is set to **wireless**.



NOTES

The softwares include help menu for how to use the simulator. Tap the help menu for more the details which are not described in this manual.



2 Start up simulation software

From top menu, select "K2 simulation" or "Playlist Maker".



Softwares



■ K2 Simulation Software

Use the software for Simulation.



■ Playlist Maker

"Playlist" of cases can be created.

To create a playlist,

- 1) Use the Playlist Maker. Select cases, set their sequence and running time for each, then name and save the list.
- 2) Save a session as a playlist on simulation software. In the Playlist maker, data of recorded playlists can be edited and modified.

3 Select units to operate

Tap the units to operate and then tap "OK."



The button color indicate the status of each unit.



"Blue": The units selected by this PC.



"Orange": The units already connected by another PC and not available to this PC.



"Gray": The units unselected.



Active (power and Wifi are on)



Inactive

1 K2 Simulation

Unit number: 1 2 3 4 5

Mode switching: Model1 Model2

Cases:

- normals
- S2 split(-) HR:60
- S1 split(+)
- S2 split(+)
- S2 wide split
- S3 gallop
- S4 gallop
- pulmonic ejection sound
- S3 and S4 gallop
- innocent murmur
- midystolic click sound
- S2 split(-) HR: 72
- S2 split(-) HR: 84
- soundtest

Case name: S2 split(-) HR:60

Control buttons: Play, Stop, Pause, Home, Save to playlist

Pulse/apex beat setting: Pulse, Apex

Volume setting of heart and respiratory sound: Heart, Respiratory

Preferences on control PC's monitor screen: Settings, Help, Home

Case information: HR, BP, R, TEMP

Heart rate: 60

Blood pressure: 112/78

Respiratory rate: 12

Temperature: 36.2 °C

Time lapse: 0 min.4 sec.

Abdominal respiration (ON/OFF): ON/OFF

Apex beat (ON/OFF): ON/OFF

Switch to display on main monitor screen (ON/OFF): ON/OFF

Main monitor switch (ON/OFF): ON/OFF

2 Playlist Maker

Open a playlist: Open

Create a new playlist: New

Delete a playlist: Delete

Case explanation: Case

Help menu: Help

Home: Home

Add cases to playlist: Add

Name of playlist: Name

Overwrite and save: Save

Save: Save

Scroll up playlist: Up

Scroll down playlist: Down

Copy a case: Copy

Delete a case: Delete

Case name: Case name

Running time: Running time

Note: Note

Cases to select:

- normals
- heart diseases
- aortic stenosis
- mitral regurgitation
- mitral stenosis
- aortic regurgitation
- hypertrophic cardiomyopat
- mitral steno-regurgitation
- pulmonic valvular stenosis
- atrial septal defect
- ventricular septal defect
- tricuspid regurgitation
- acute mitral regurgitation
- patent ductus arteriosus
- mitral valvular prolapse
- dilated cardiomyopathy
- arrhythmia

Content	Time
1 S1 split(+)	10min
2 S2 split(-) HR:60	Manual
3 S2 wide split	20min
4 aortic regurgitaion	Manual

Multi-unit operation

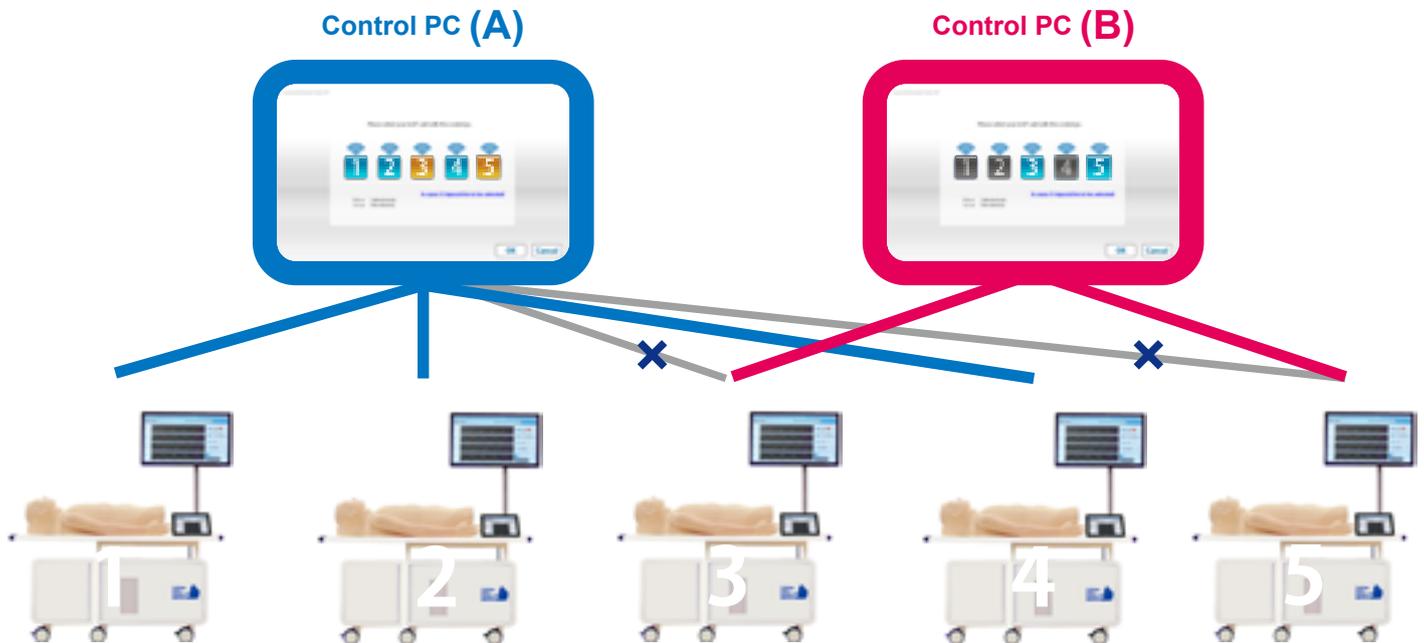
Up to 5 units can be selected by one control PC at a time.

Setting process varies between unison operations and multiple case operations. For details see incorporated HELP menu by tapping on the  mark on the top right of the screen.

ATTENTION

One simulator unit (torso) can be selected by only one control PC at a time. The connections are established in the order of selecting the units.

For example, while units #3 and #5 are selected by control **PC B**, the control **PC A** can not select these units. To connect them to control **PC A**, these units need to be unselected by control **PC B**.

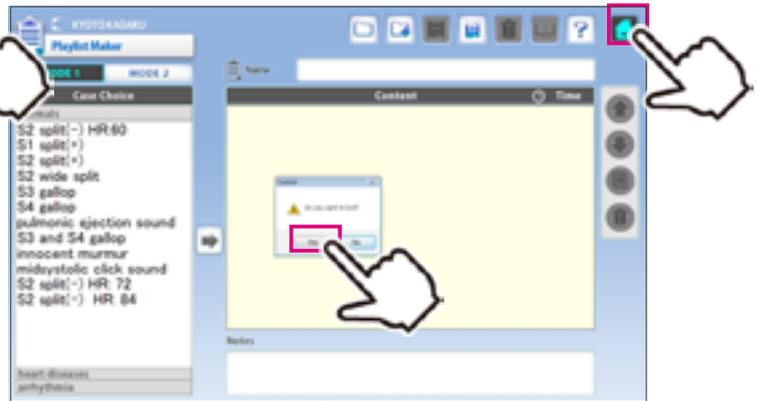
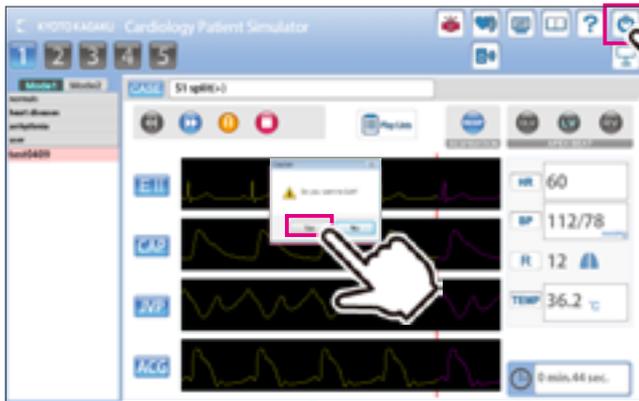


1 Exit software

Tap on the "Home" icon at the right top.
The message: "Do you want to exit?" appears, select "Yes."

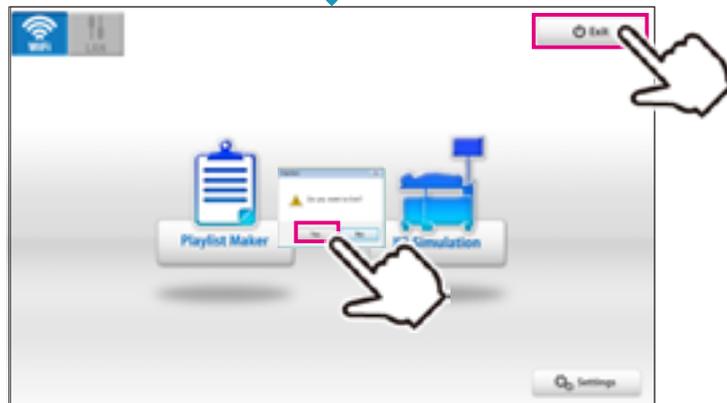
■ K2 Simulation

■ Playlist Maker

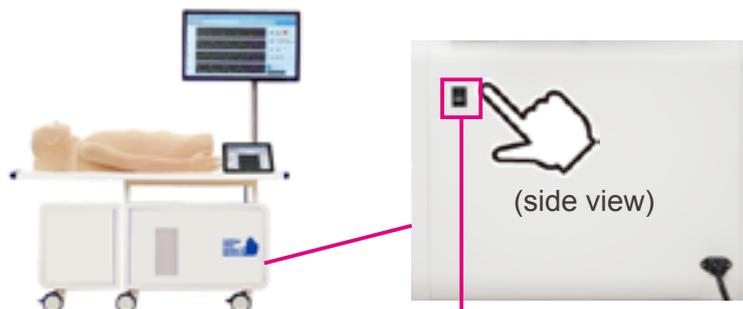


2 Turn off the control PC power

Tap on the "Exit" icon at the top menu.
The message: "Do you want to exit?" appears, select "Yes."



3 Turn off the control system's main power



Control system's main power

— : Power is ON
○ : Power is OFF

Cases	Causes	Solutions
Unable to connect with wireless or unstable connection	Network interference occurred.	→See page: Unable to Boot The Main Unit (→P.19)
	There are physical obstructions for wireless connection such as a thick wall, metal objects or the control PC is too far from the unit.	Clear the obstructions or close the control PC to the unit.
Unable to boot the main unit with wireless connection	The power cable of the unit is not connected.	Connect the power cable.
	The main power of the unit is off.	Turn on the main power of the unit.
	Network interference occurred.	→See page: Unable to Boot The Main Unit (→P.19)
	Others	
Unable to select the units which liked to boot	The control PC does not correspond to the unit.	Use the control PC corresponding to the unit.
	The main power of the unit is off	Turn on the main power of the unit.
	The power cable of the unit is not connected.	Connect the power cable.
	Network interference occurred.	→See page: Unable to Select The Units (→P.20)
	Others	
The session automatically shuts down with the message of “Connection error”, and then the connection becomes available.	Network interference occurred.	→See page: An Error Occurs During The Session (→P.21)
Unable to hear the respiratory sound from the manikin	The volume setting of the respiratory sound is “0”	→ Volume Setting of The Respiratory Sound
	The speaker connection may have problems.	→Contact Us
Unable to hear the heart sound from the manikin	The volume setting of the heart sound is “0”	→ Volume Setting of The Heart Sound
	The speaker connection may have problems.	→Contact Us
Unable to hear the sound from the external speaker	The volume setting of the external speaker is “0”	→ Volume Setting of The External Speaker’s Sound
	The speaker connection may have problems.	→Contact Us

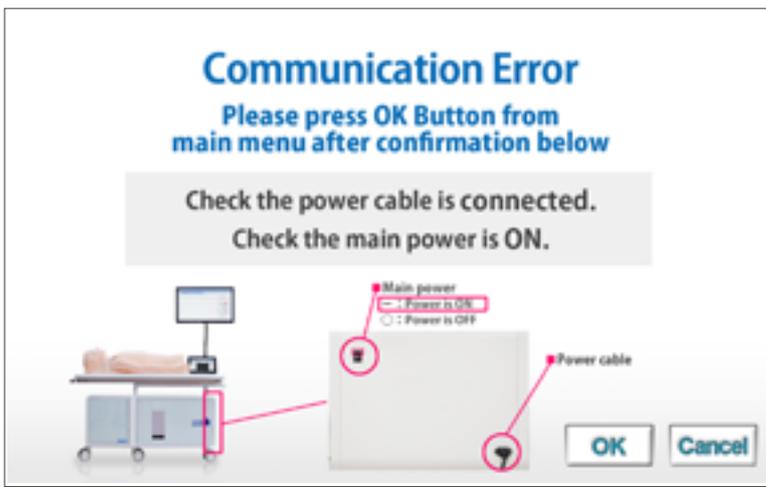
Unable to boot the main unit

Attention

For the multi-unit operation, **be sure the control PC's own main unit is turned on.** The control PC is not able to operate when its own main unit is turned off.

■ Case:

The screen shows the sign below repeatedly and it does not work despite several trials.

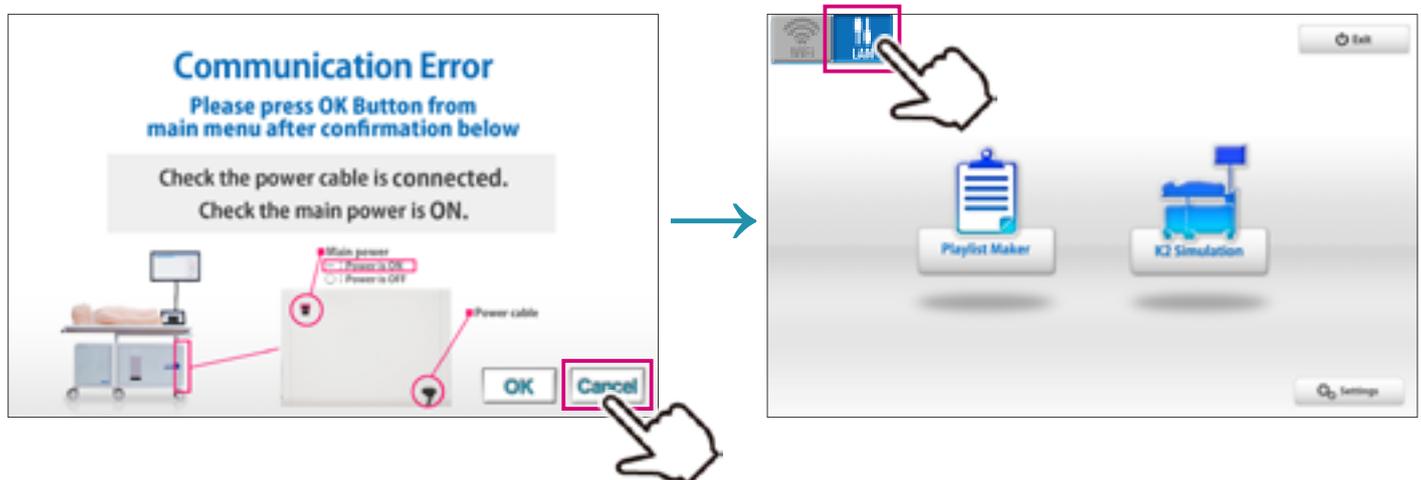


■ Cause and solution:

1. The main units are not connected to power source.
→Connect the cable to power source and turn on the main unit.
2. The main units are not turned on.
→Turn on the main units.
3. Interference from other wireless network
→Follow the solution 2 below.

■ Solution 2:

Tap the cancel to back to the top page and try with wired connection mode.



Unable to select the units

Attention

For the multi-unit operation, **be sure the control PC's own main unit is turned on.** The control PC is not able to operate when its own main unit is turned off.

■ Case:

Units are not available to be selected.



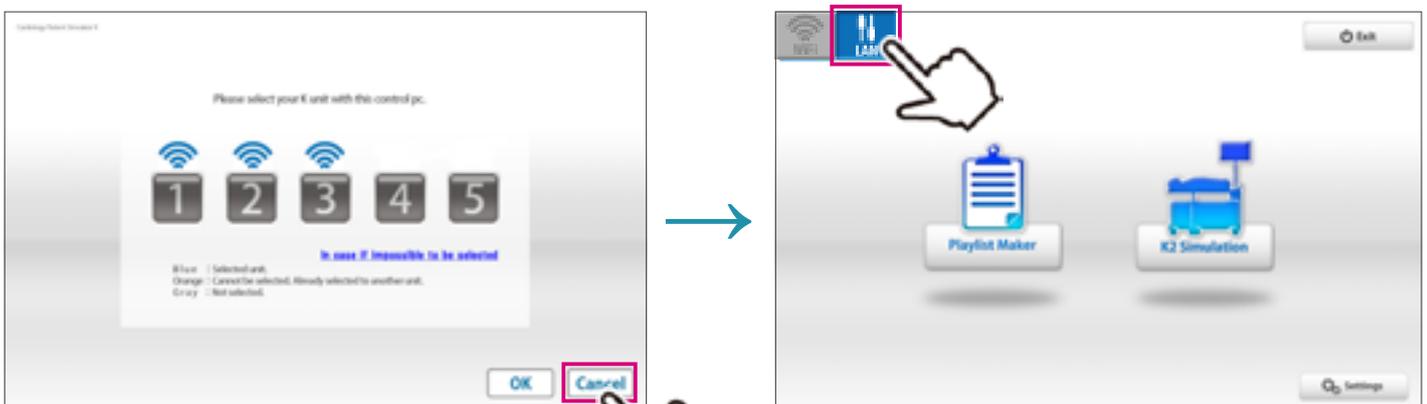
The buttons for the units intended to be used do not show connection indicators (Wifi mark).

■ Cause and solution:

1. The main units are not connected to power source.
→Connect the cable to power source and turn on the main unit.
2. The main units are not turned on.
→Turn on the main units.
3. Interference from other wireless network
→Follow the solution 2 below.

■ Solution 2:

Tap on "cancel" to return to the top page and try with wired connection mode.



An error occurs during the session

■ Case:

The software closed automatically after showing the error display below.

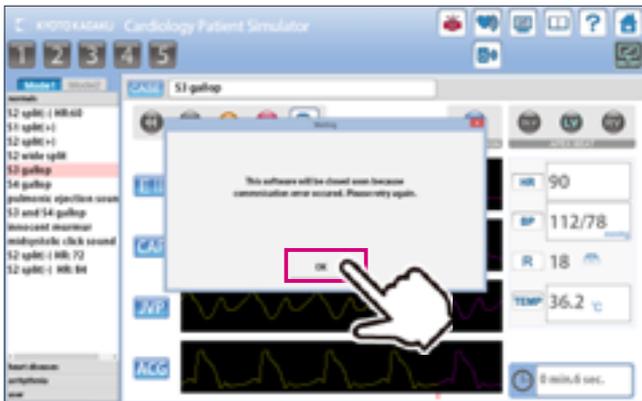


■ Cause:

Interference from other wireless network

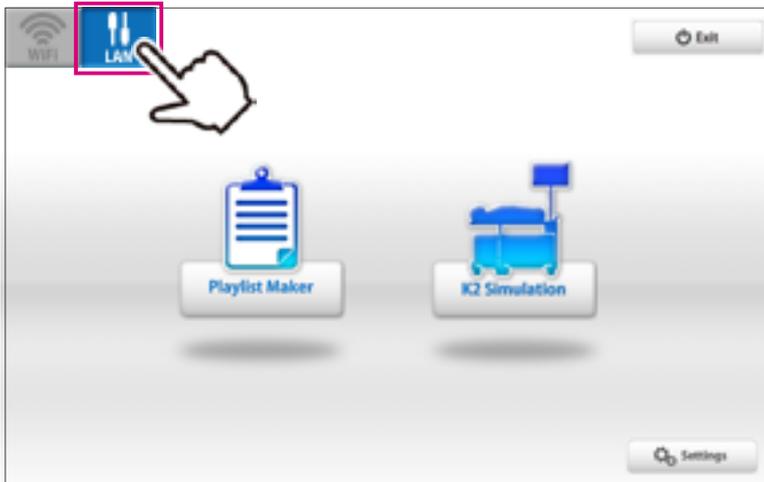
■ Solution:

Try with wired connection mode.

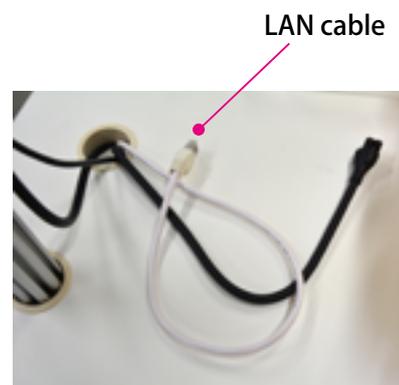
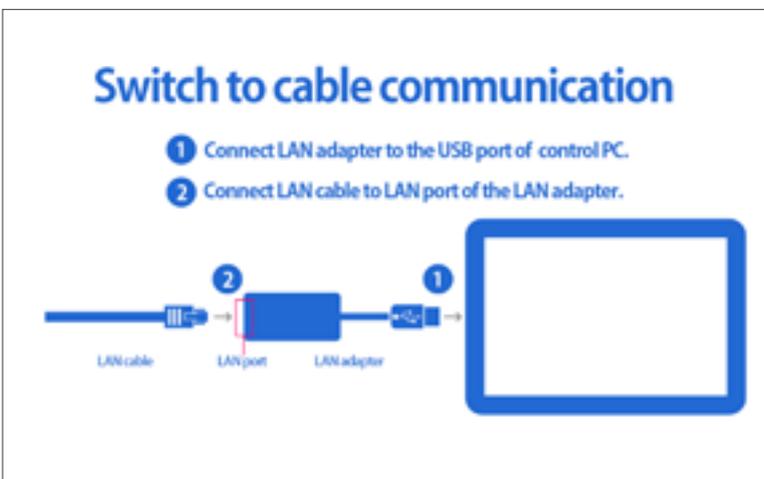


How to change the connection mode to wired

- 1 Tap the connection switch on the left upper display to change the connection mode.



- 2 Connect the control PC to the LAN cable from the main unit .



Attention 1

With the wired connection mode, only the connected unit can be controlled.
To control multiple units with the wired connection, use the control PC of each unit.

Attention 2

The setting of connection will be automatically reset to the wireless mode after turning off the system. Change the connection into the wired mode each time when it is required.

The contents of the instruction manual are subject to change without prior notice.

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Please contact manufacturer with any discrepancies, typos, or mistakes in this manual or product feedback. Your cooperation is greatly appreciated.

2017.11

 **KYOTO KAGAKU** CO.,LTD

E-mail rw-kyoto@kyotokagaku.co.jp

■Worldwide Inquiries and Ordering

Kyoto Kagaku Head Office and Factories:

TEL: +81-75-605-2510 FAX: +81-75-605-2519

15 Kitaneokoya-cho, Fushimi-ku, Kyoto, 612-8388, JAPAN

■USA, Canada, and South America

Kyoto Kagaku America Inc.

TEL: 1-310-325-8860 FAX: 1-310-325-8867

3109 Lomita Boulevard, Torrance, CA 90505-5108, USA