EN

SimPad PLUS

User Guide



www.laerdal.com

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helping save lives

Intended Use

The SimPad PLUS System is an easy-to-use, wireless tool that performs relevant medical simulation training, including debriefing, in various user settings. With its large, intuitive touch screen design, SimPad PLUS is a "Pick up and Play" experience, delivering simulation-based education, easily and efficiently.

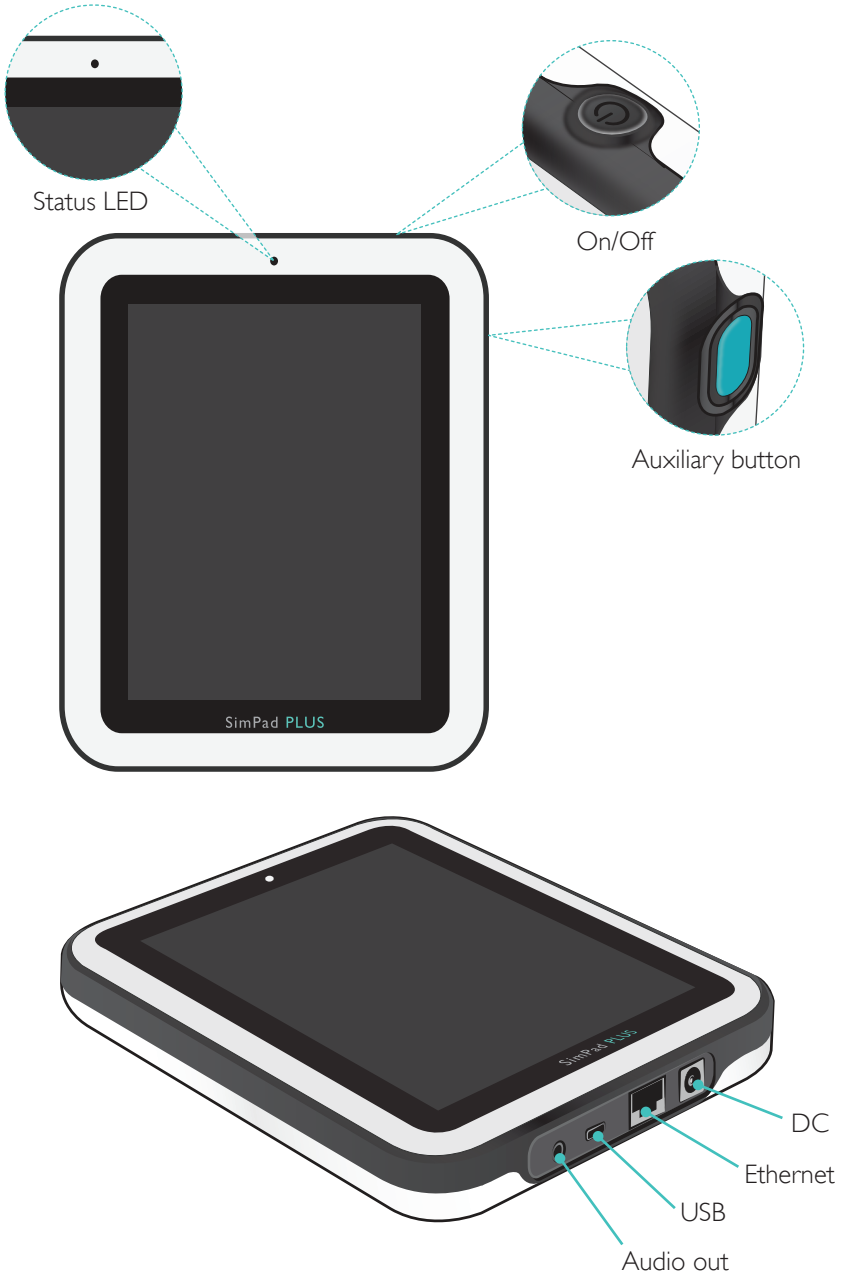
There are two ways to control simulations: Automatic Mode and Manual Mode. This allows customized simulations to meet your specific needs.

The SimPad PLUS System is compatible with a broad range of Laerdal products including manikins, patient simulators, and task trainers as well as standardized patients.

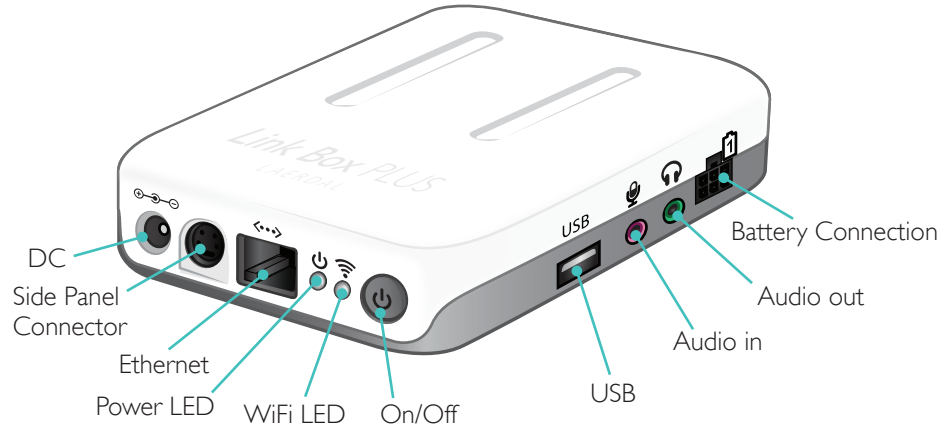
For more information visit www.laerdal.com/SimPad

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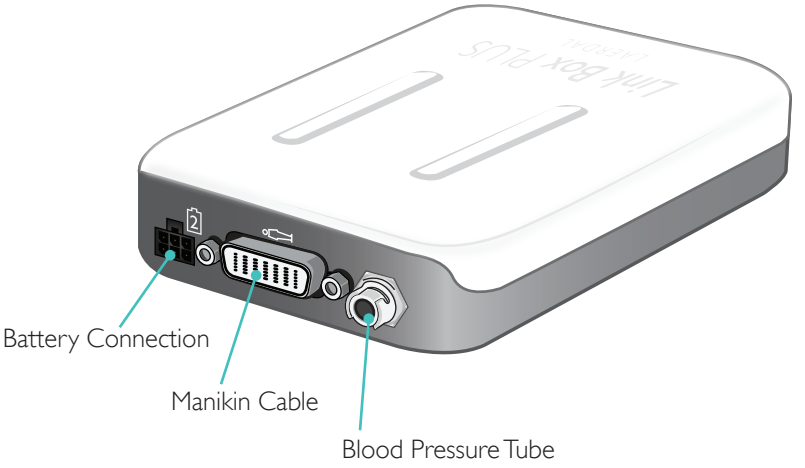
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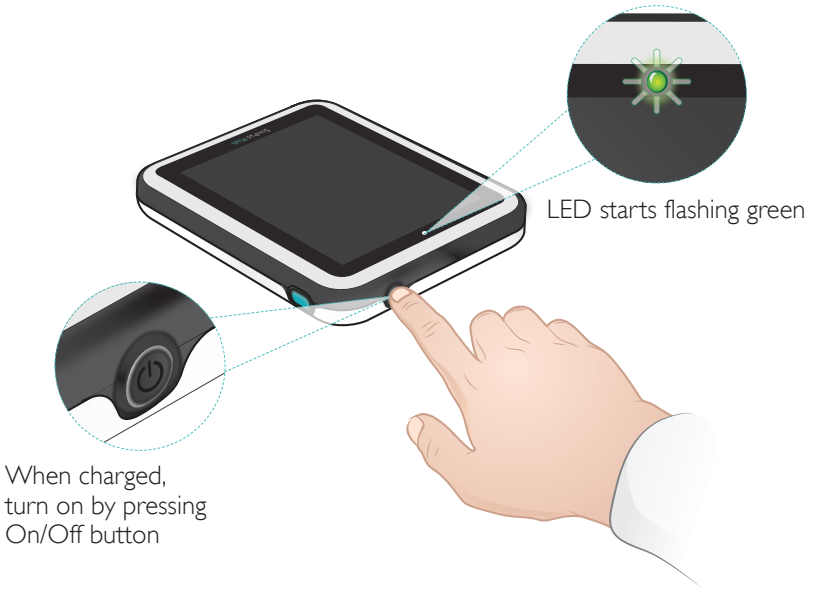
Front View

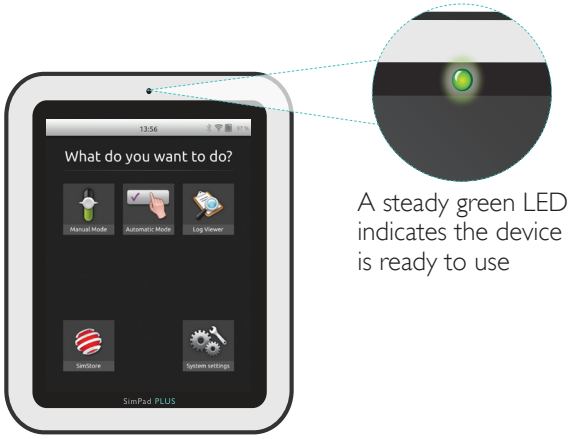


Back View



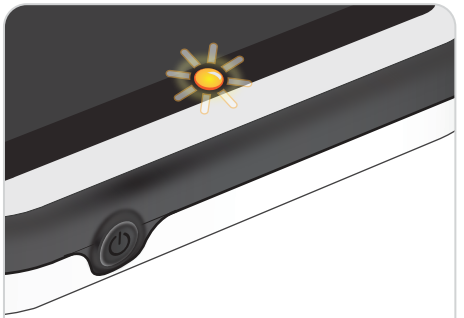
Turn On SimPad PLUS



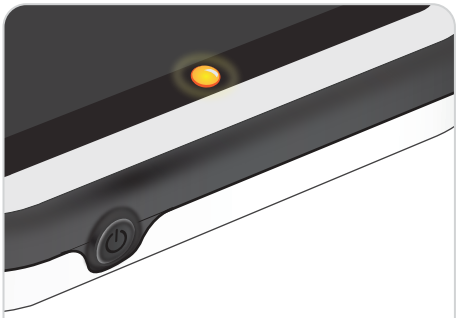


A steady green LED
indicates the device
is ready to use

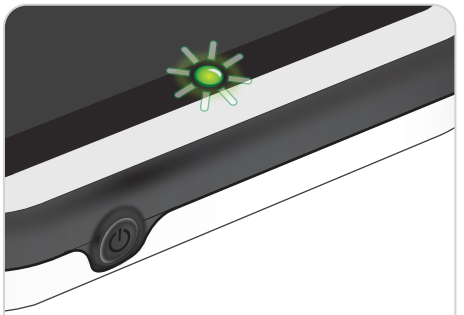
Status LED



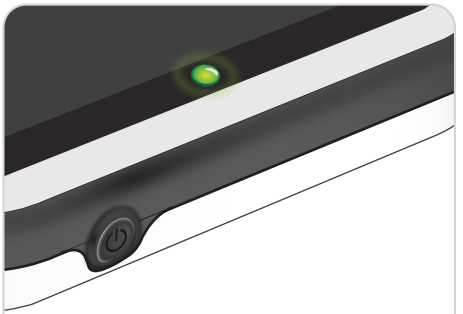
SimPad PLUS Off and charging battery - flashing yellow light.



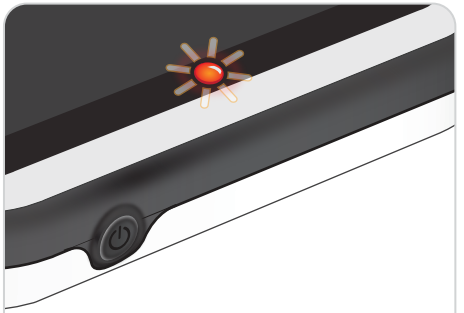
SimPad PLUS Off but battery charged - steady yellow light.



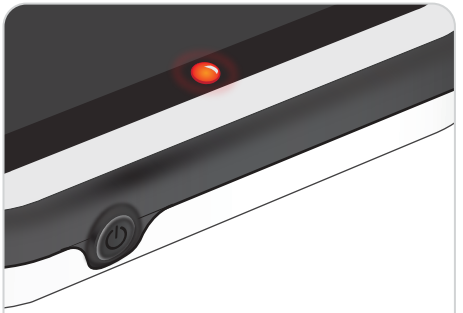
Starting and shutting down - flashing green light.



SimPad PLUS on - steady green light.



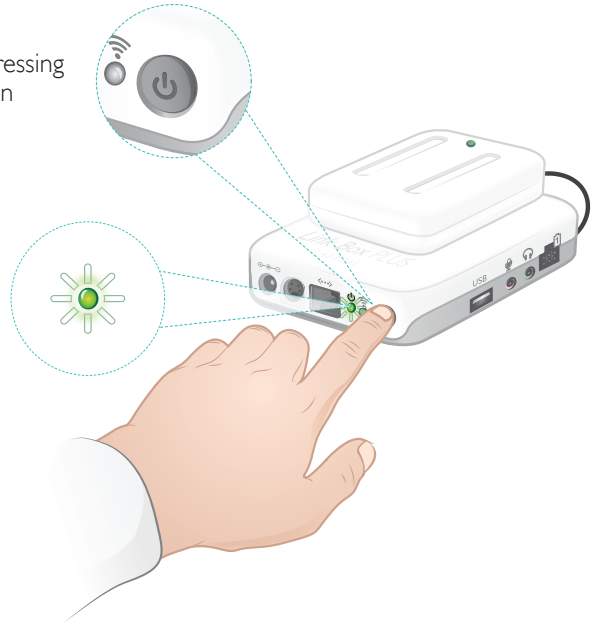
Low battery - flashing red light.



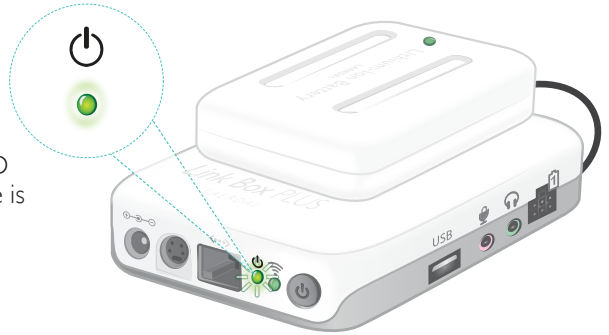
Error, needs service - steady red light.
Contact your local Laerdal representative.

Turn On Link Box PLUS

Turn on by pressing On/Off button



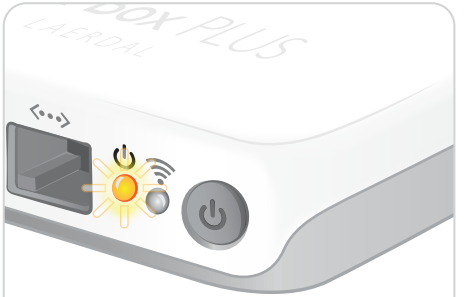
Release the button when the LED starts flashing green



A steady green LED indicates the device is ready to use

Status LED

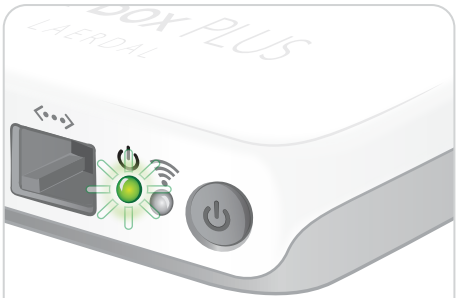
The Power LED also indicates status.



Charging batteries - flashing yellow light.



Batteries charged - steady yellow light.



Starting and shutting down - flashing green light.



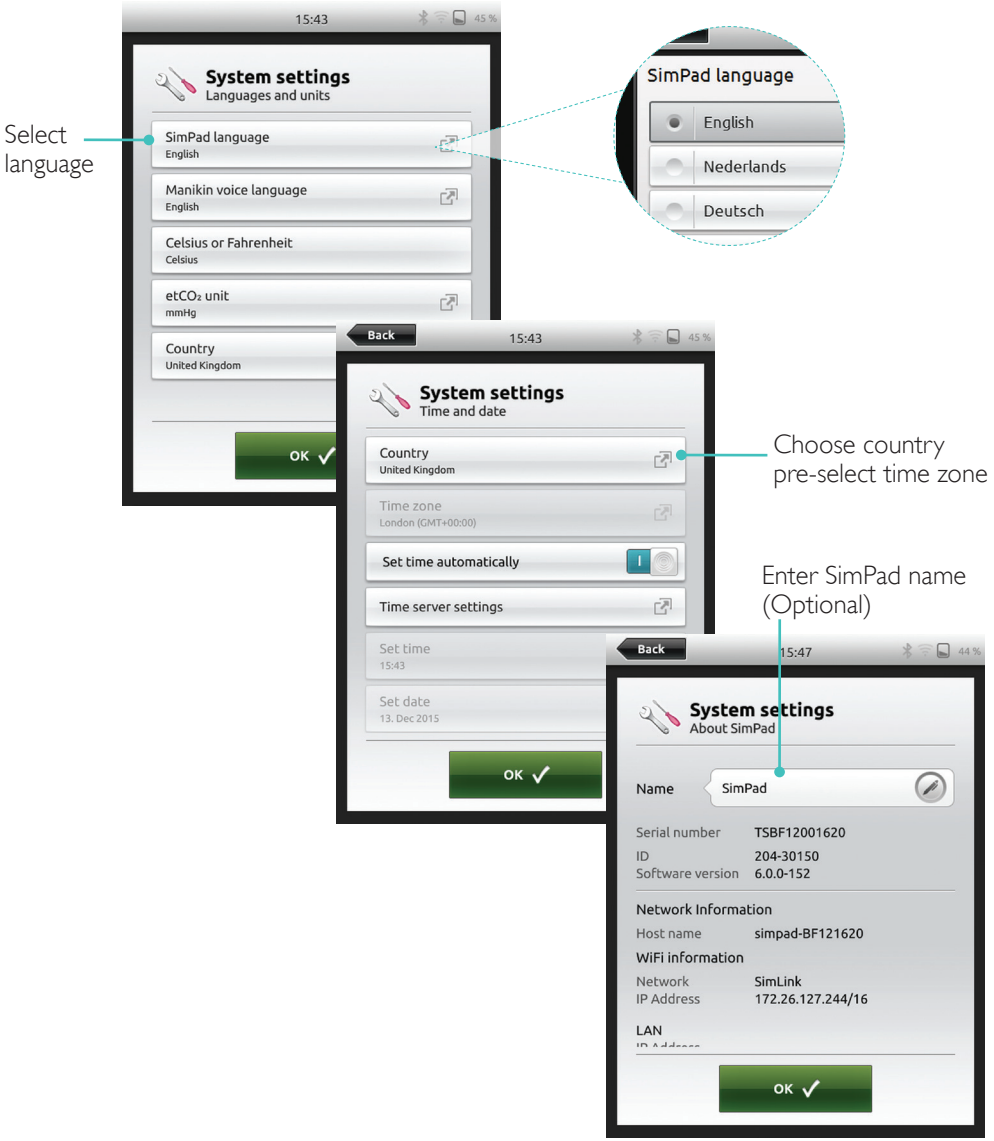
Link Box PLUS on - steady green light.



Error, needs service - steady red light. Contact your local Laerdal representative.

Starting SimPad PLUS for the first time

The first time SimPad PLUS is turned on, follow the prompts to configure the device.



SimPad PLUS Configuration

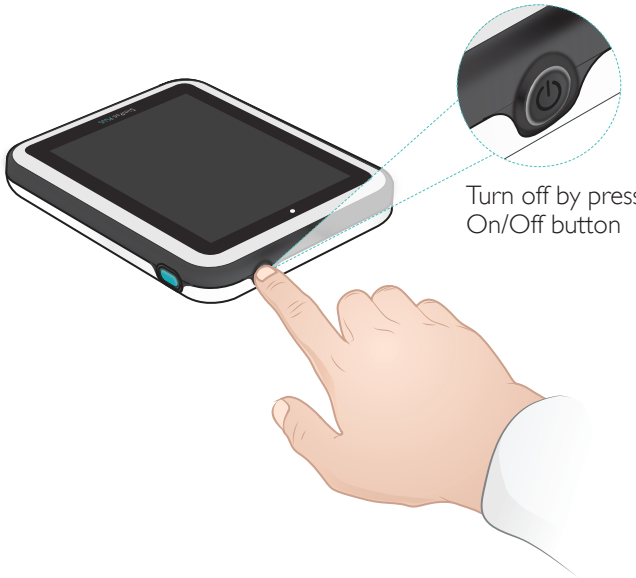
Configuration can only be done when the simulator, manikin or task trainer is connected to SimPad PLUS.

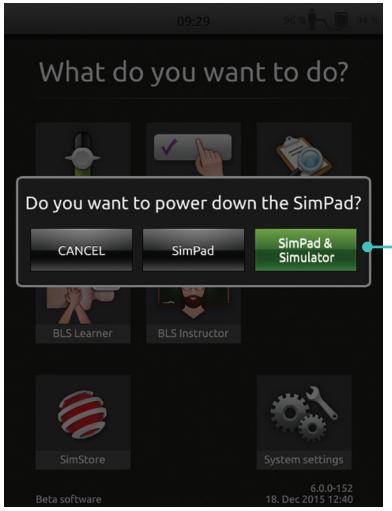


Note

These configurations may be altered later.

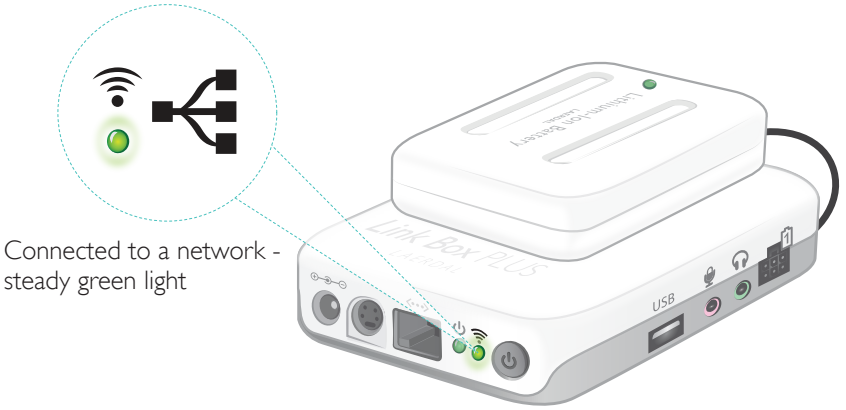
Turn Off SimPad PLUS

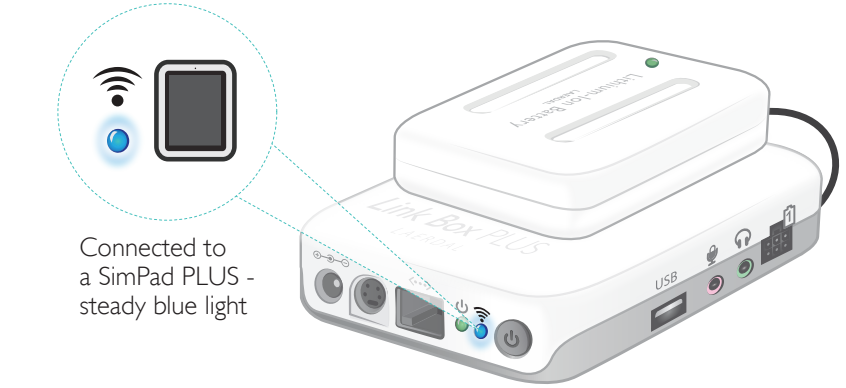




Tap to shutdown SimPad and/or Simulator

WiFi Connection

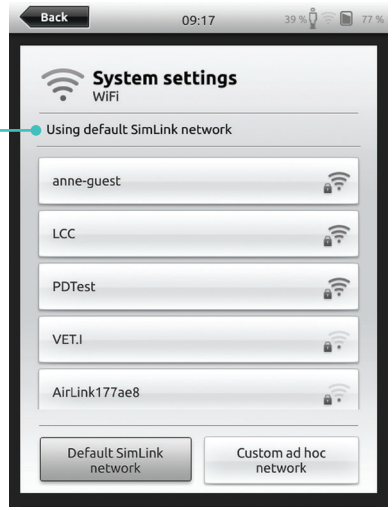




Connection between SimPad PLUS and Link Box PLUS

SimPad PLUS communicates with the Link Box PLUS using WiFi.

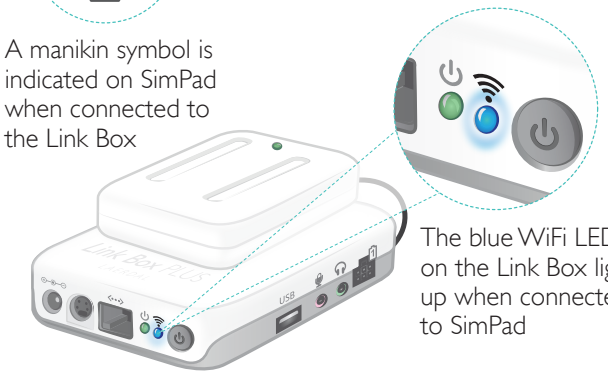
When the units are turned on for the first time they will set up an ad hoc network called SimLink



If no other Link Boxes are visible on the default SimLink network, the SimPad PLUS will automatically connect to the Link Box PLUS. SimPad PLUS will remember the pairing and reconnect when the units are turned on again. If multiple Link Boxes are available, choose preferred Link Box PLUS.

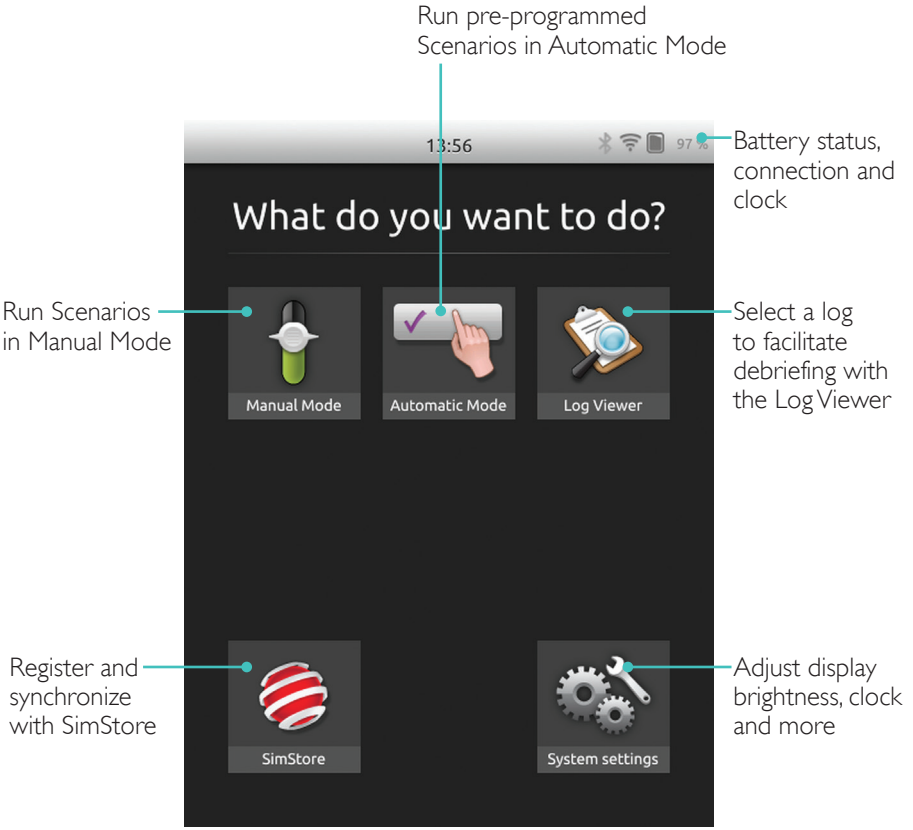


A manikin symbol is indicated on SimPad when connected to the Link Box

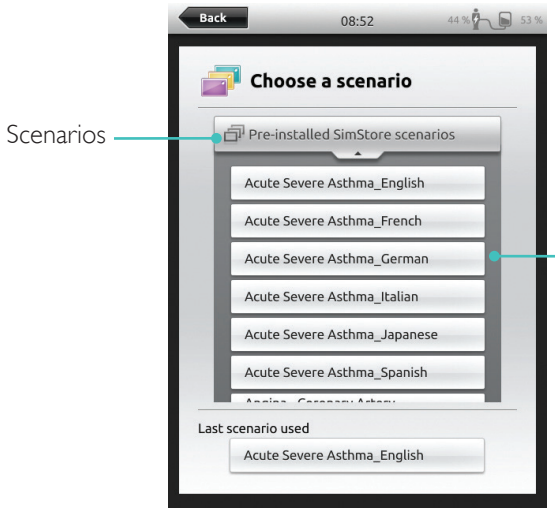


The blue WiFi LED on the Link Box lights up when connected to SimPad

Overview of SimPad PLUS Home Screen



Select Scenario



Scenarios

Select from Scenario menu

Tap for detailed information on Scenario



Add Instructor

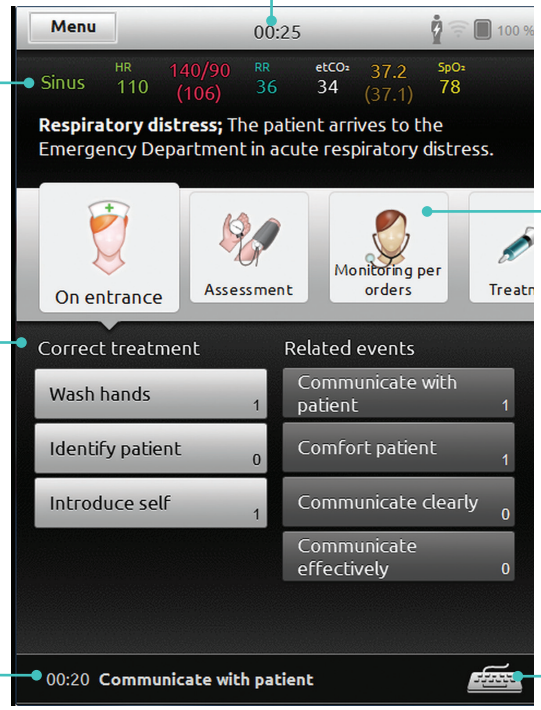
Tap START to enter Session information

Add Participant

Tap OK when ready

Run Session

Time since Scenario was started



Patient status

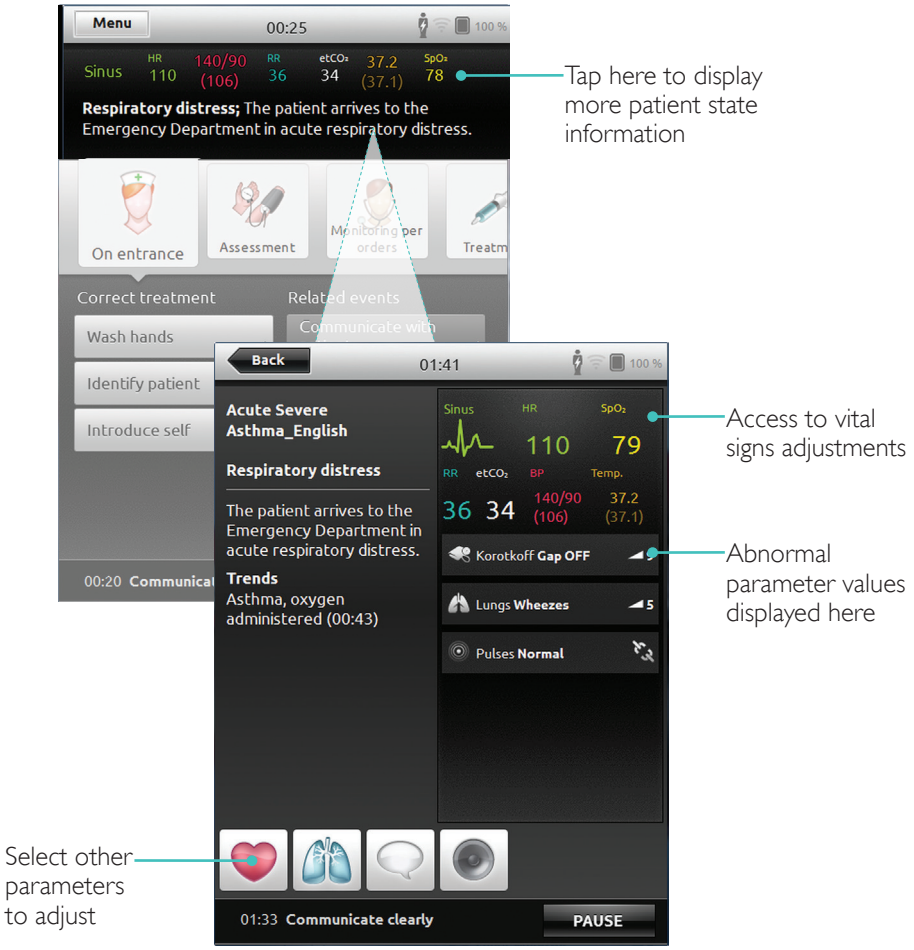
Categories of interventions

Tap to log interventions and events

Last logged event

Tap to add comment

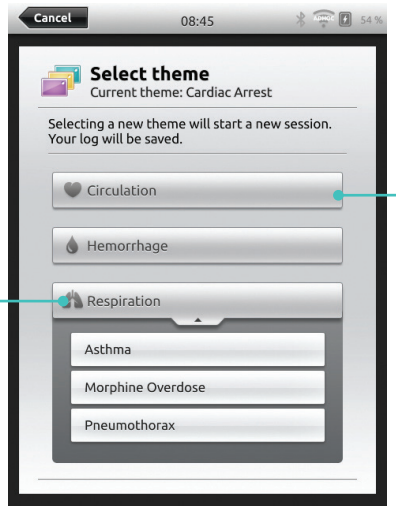
Change Parameters



End Session



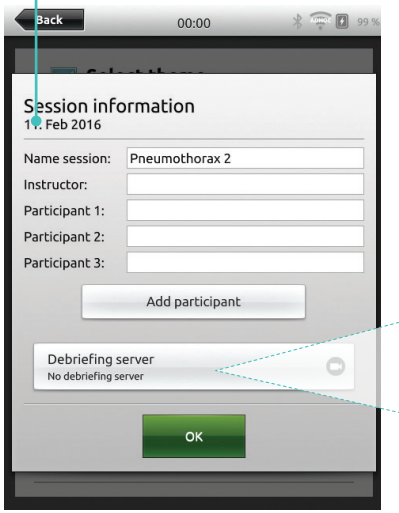
Select Theme

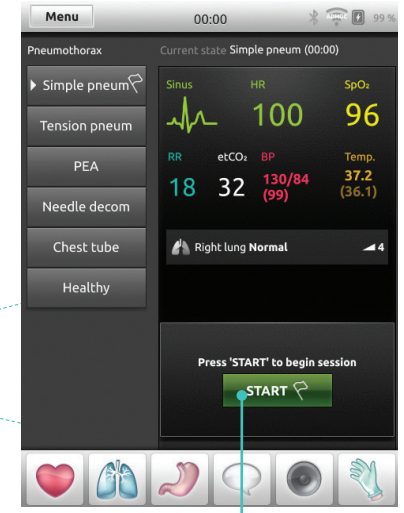


Folder of themes
Tap to open

Select theme
for simulation

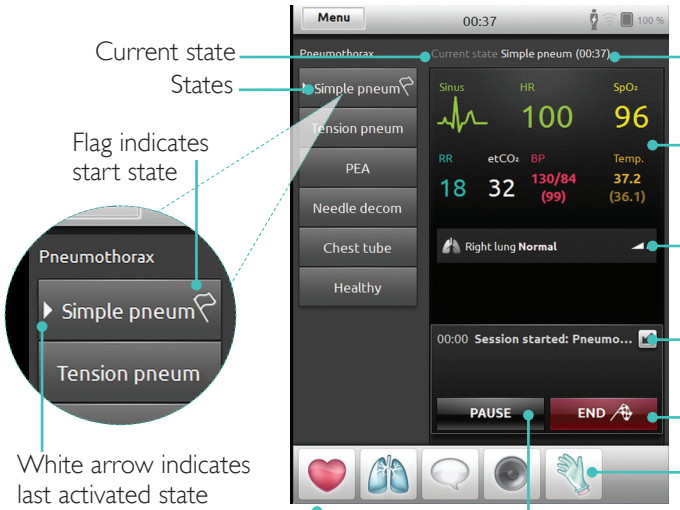
Information about session entered
here will be added to log





Tap to start session

Parameters Overview



Current state
States

Flag indicates
start state

White arrow indicates
last activated state

Time since current
state was activated

Patient vital signs

Abnormal values

Collapse mini-log

End session

Register participant's
interventions

Select other parameters to adjust

Pause session

Toggle On/Off shock activation

Time since
Session started



Tap to
open state

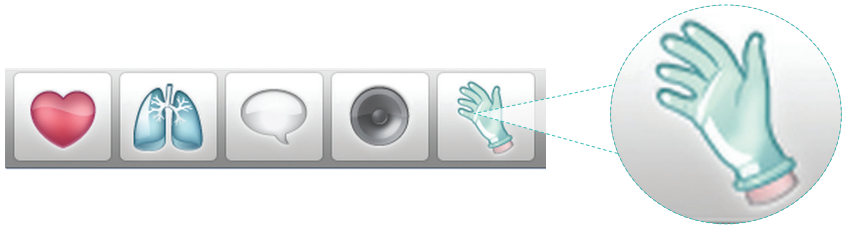
Tap to show
detailed State
information,
before activating

Set transition time

The expanded
state shows all
parameters in the
queue, ready to be
activated

Tap to
activate state

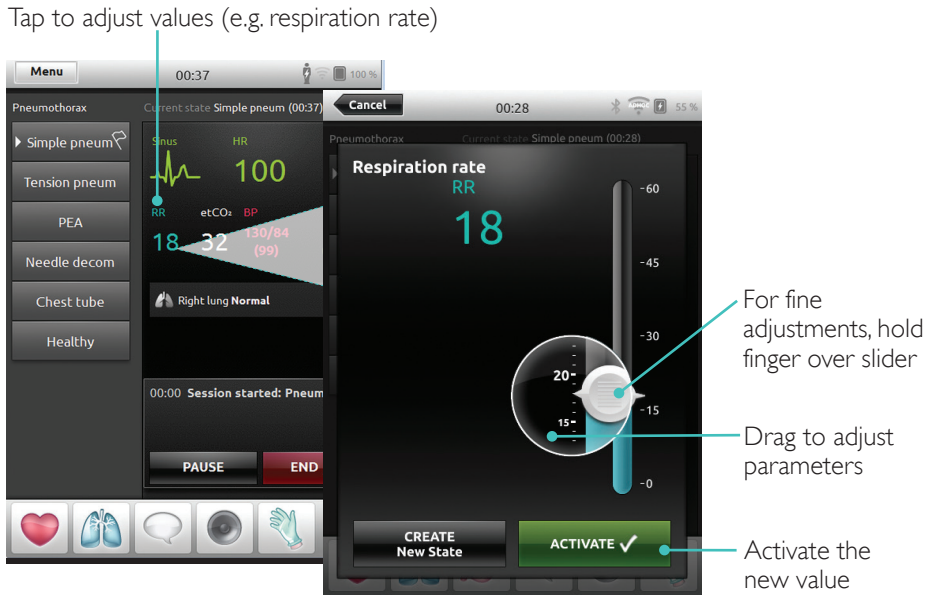
Registering Interventions



Tap to register participant's interventions



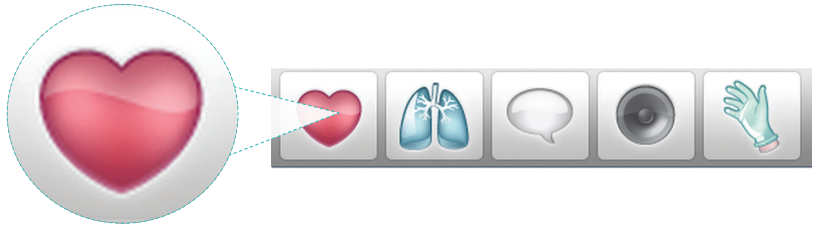
Adjust Parameters Manually



Advanced Adjustments



Create New State for an Existing Theme

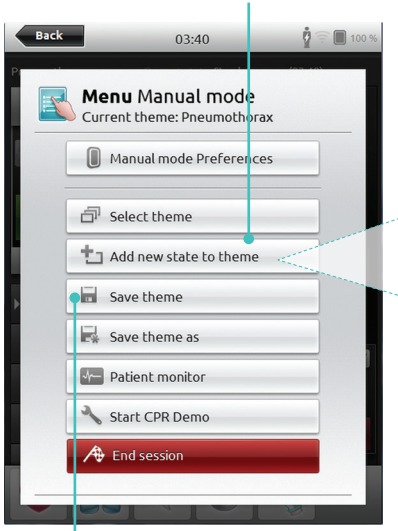


Tap to access Circulation Menu

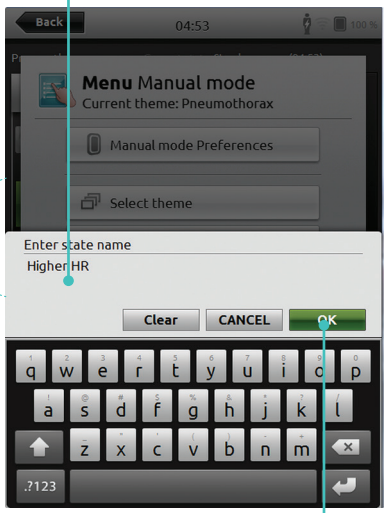


Add New State to an Existing Theme

1. Tap to add new state to theme



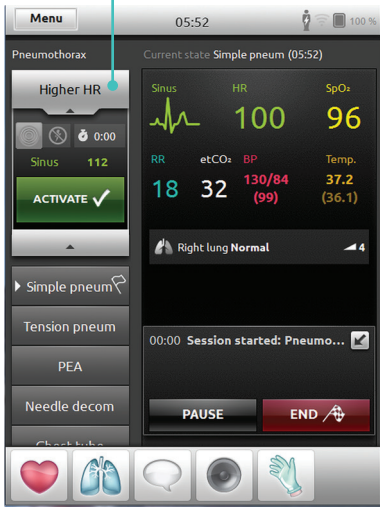
2. Enter new state name



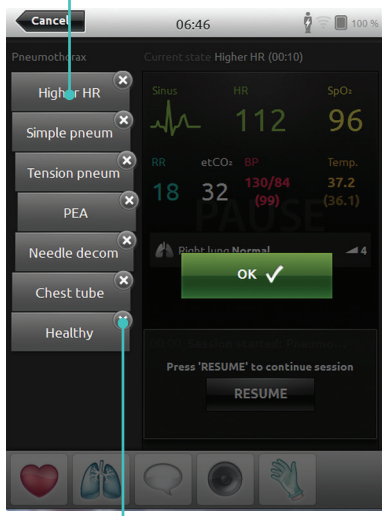
4. Tap to save state to theme

3. Confirm

New state is now ready



Tap and hold to arrange states



Tap x to delete

Stopwatch



View log



Note

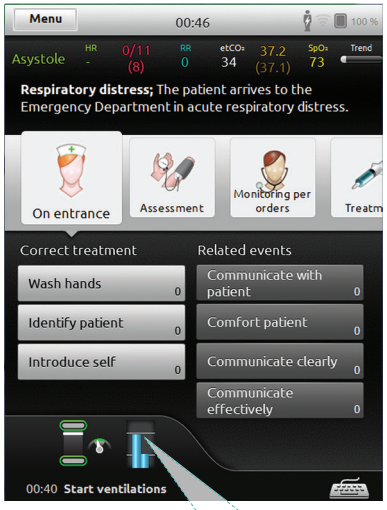
Technical logs can be retrieved from Link Box PLUS for troubleshooting purposes.

QCPR Feedback

When CPR is performed on a CPR capable manikin, SimPad PLUS displays real time CPR feedback.

Automatic Mode -

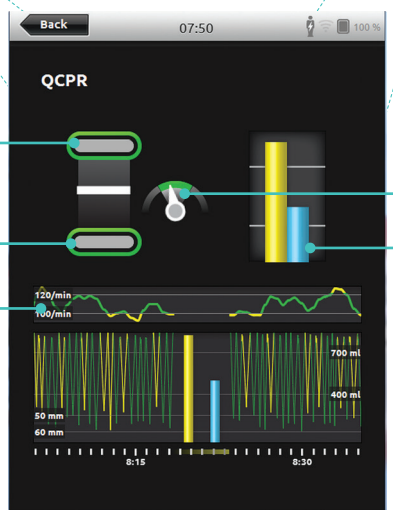
Tap to enlarge QCPR feedback



Manual Mode -

Tap to enlarge QCPR feedback





Chest release

Compression depth

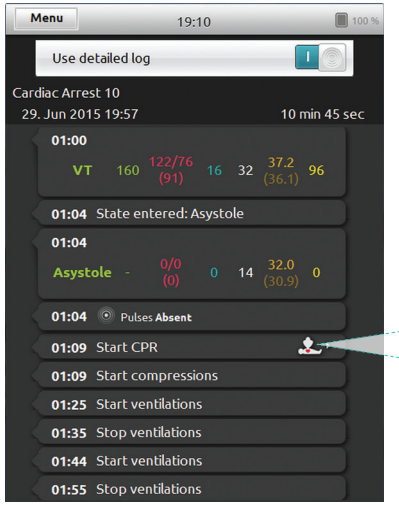
Full Session, with compressions and ventilations over time.

Compression rate

Ventilation volume

QCPR Log File

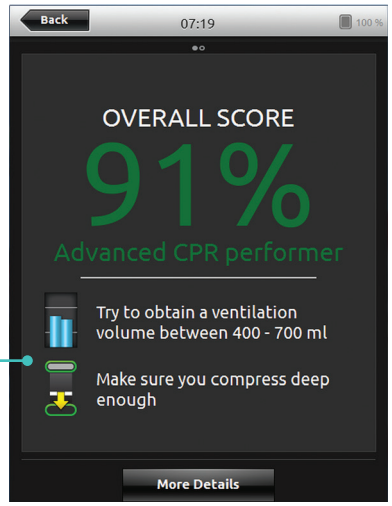
Debriefing mode provides an additional log file with data from CPR training.



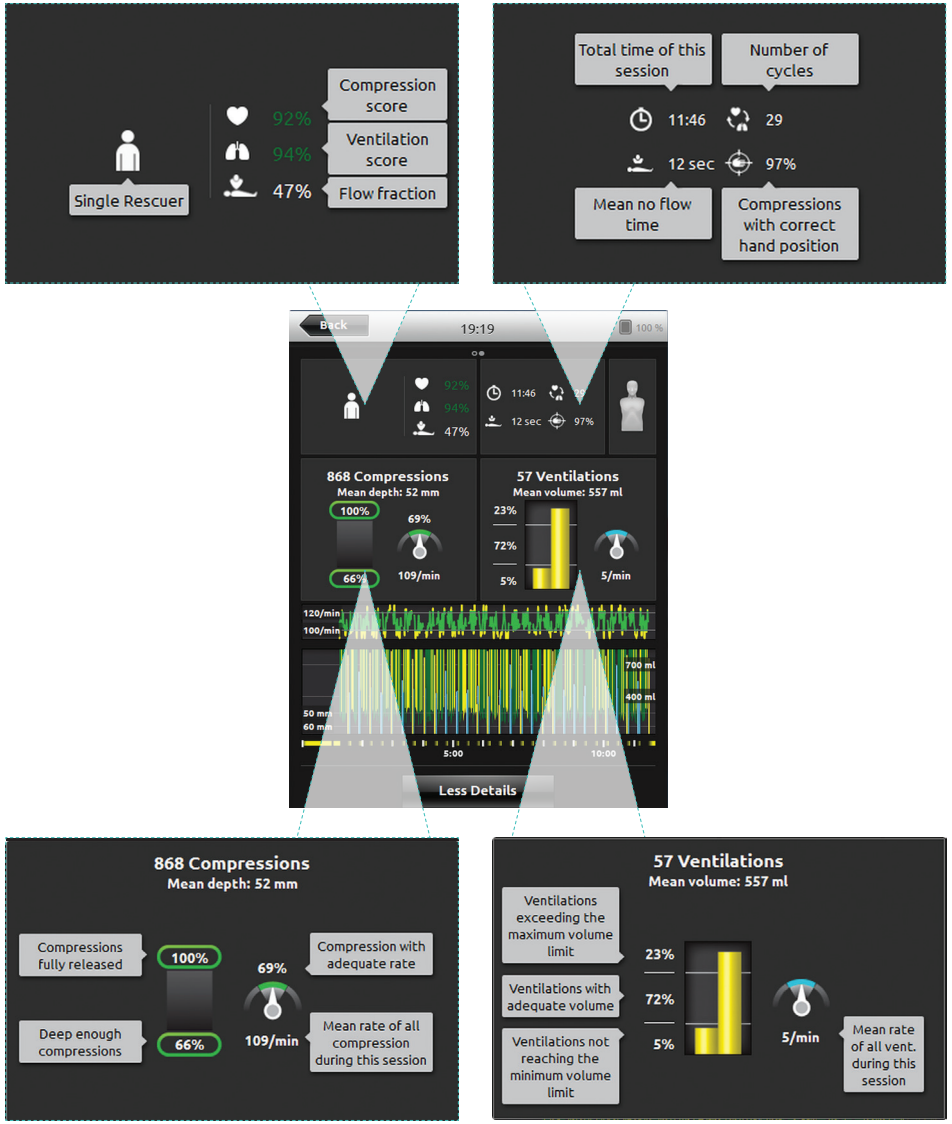


Tap to access log

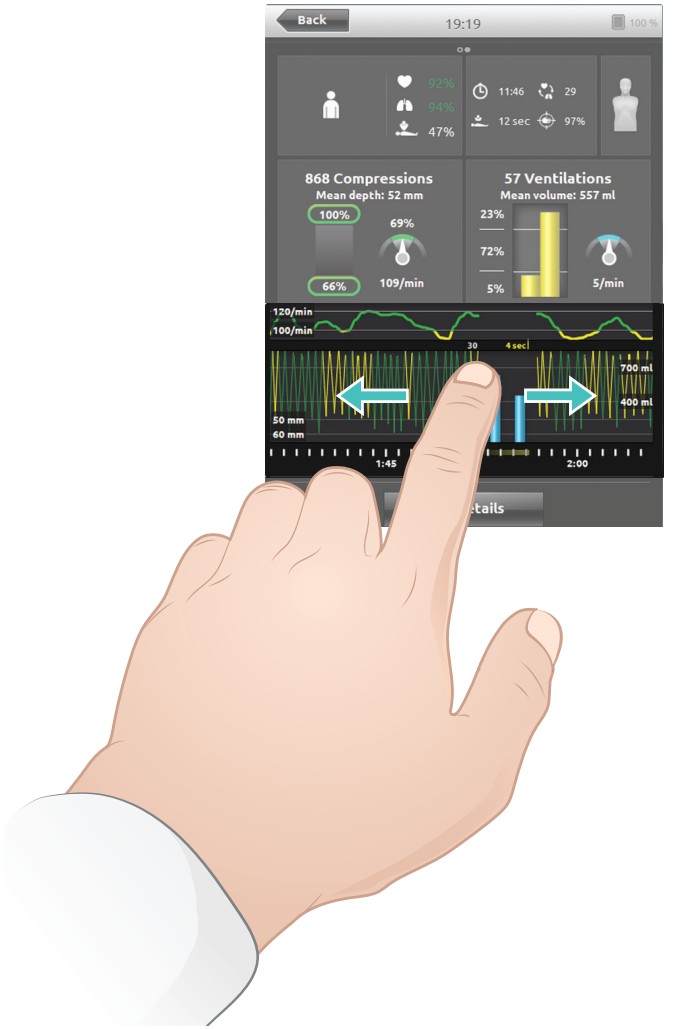
Indicates two main findings from the CPR performance



QCPR Summary

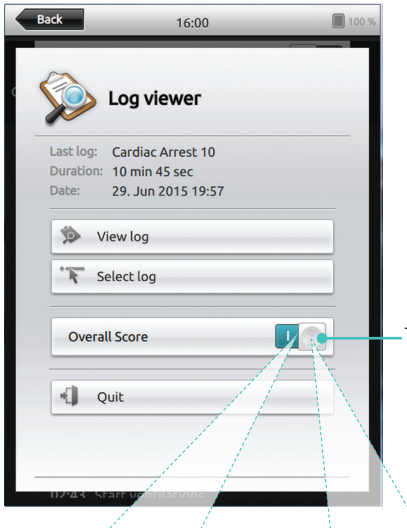


Compression Analysis Over Time



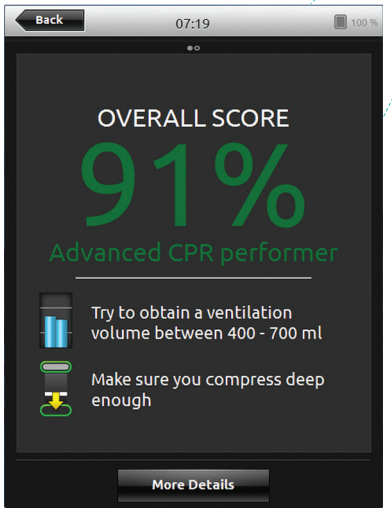
CPR settings can be adjusted to individual needs. Laerdal recommends using settings compliant with ILCOR guidelines.

Display Choices

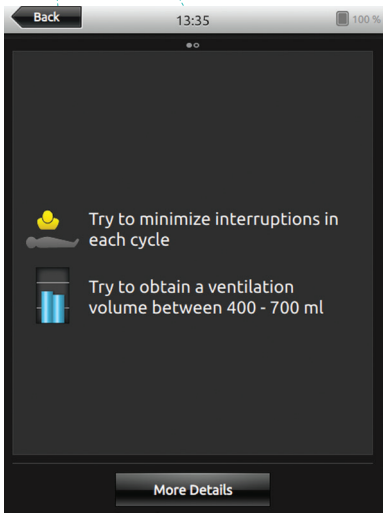


Toggle between displays

With overall score

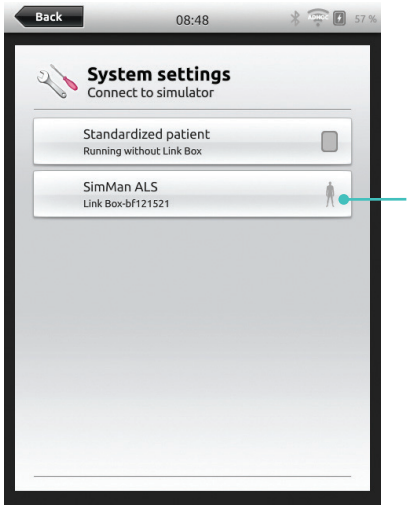


Without overall score



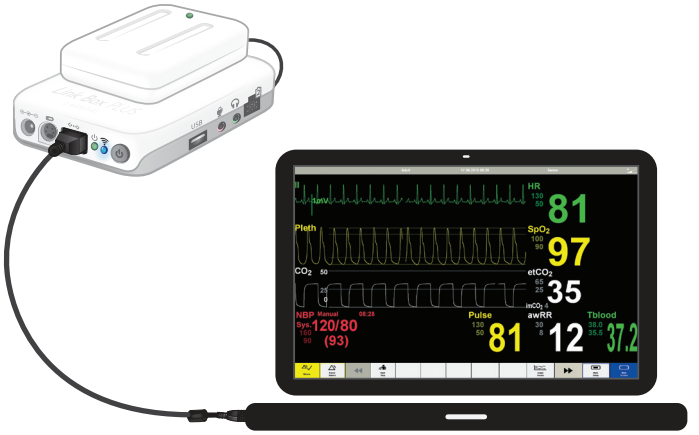
Connect a Simulated Patient Monitor

Ensure the simulated Patient Monitor PC and the SimPad PLUS System are connected to the same network.



Select the appropriate Simulator from the connection menu

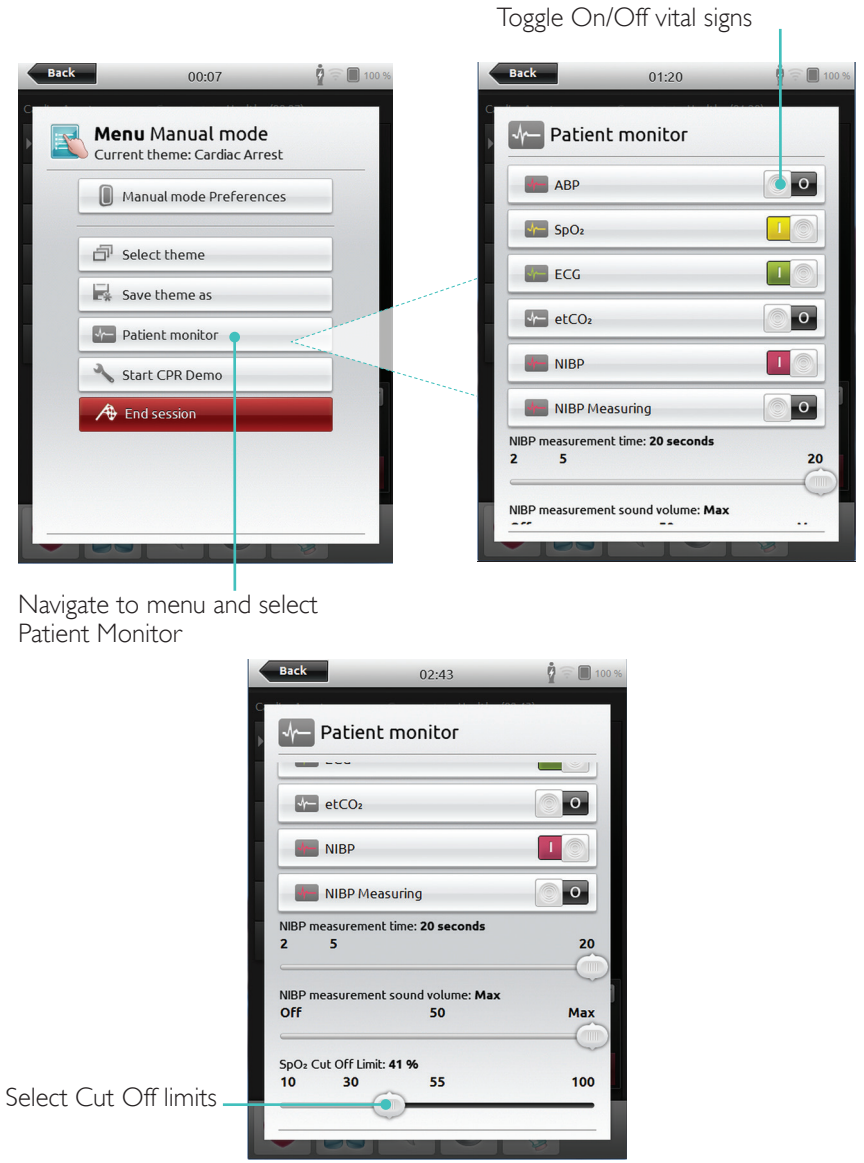
For more information on network connections, see *Quick Setup Guide: Connecting the SimPad PLUS Patient Monitor to the SimPad PLUS System* available at www.laerdal.com/downloads.



Using a direct network cable to connect the Link Box to the simulated Patient Monitor is recommended to minimize WiFi traffic.

Instructor Control of Simulated Patient Monitor

When the simulated Patient Monitor (optional item) is connected to SimPad PLUS, the instructor can toggle the display of vital signs.



Patient Simulator Firmware Update

When Link Box PLUS is connected to a Patient Simulator with internal firmware (SimNewB, ALS Simulator, or SimJunior) the internal firmware will be automatically updated, if necessary.

From SimPad PLUS Home Screen, go to:
System Settings>About simulator>Force-update simulator firmware.

Session Viewer

Session Viewer is a free software solution that enables instructors or students to view debriefing from the SimPad PLUS System. Use Session Viewer to annotate, print and save the SimPad PLUS data log. Session Viewer also enables capture of audio and video from 1 HD USB web camera synchronized with the SimPad PLUS data log.

To download, visit www.laerdal.com/downloads

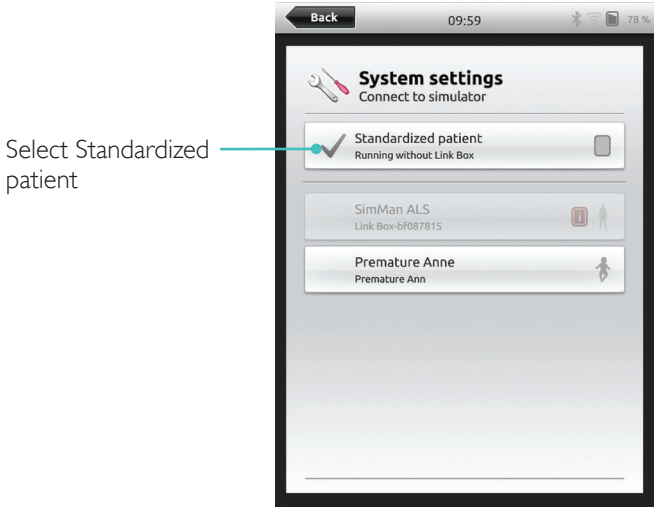
Connect SimPad PLUS to a different Link Box PLUS

SimPad PLUS can only be connected to one simulator at a time. SimPad PLUS will try to re-establish a connection to the previous Link Box PLUS that it was connected to.



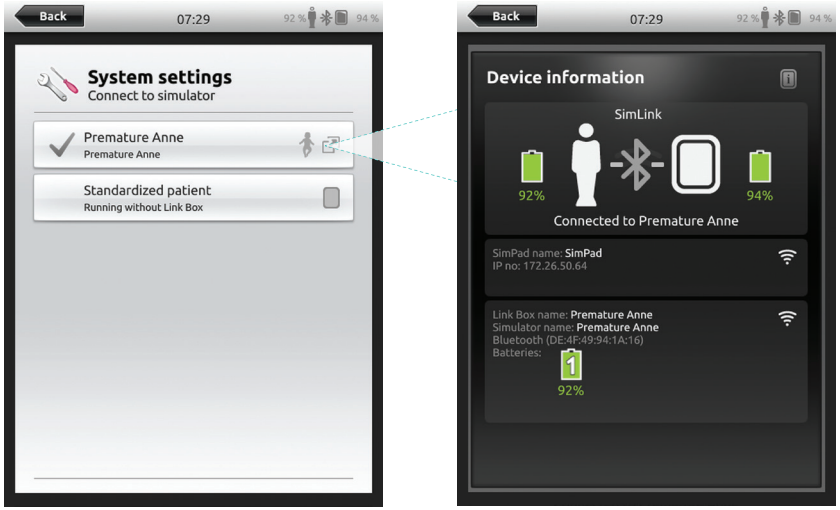
Use SimPad PLUS without a Link Box PLUS

SimPad PLUS can be used with a standardized patient without connecting to the Link Box PLUS.



Bluetooth

SimPad PLUS can also connect to bluetooth enabled simulators.



Connect to a Network

SimPad PLUS and Link Box PLUS are connected via SimLink (ad hoc network) by default.

SimPad PLUS and Link Box PLUS can also be connected in the following ways:

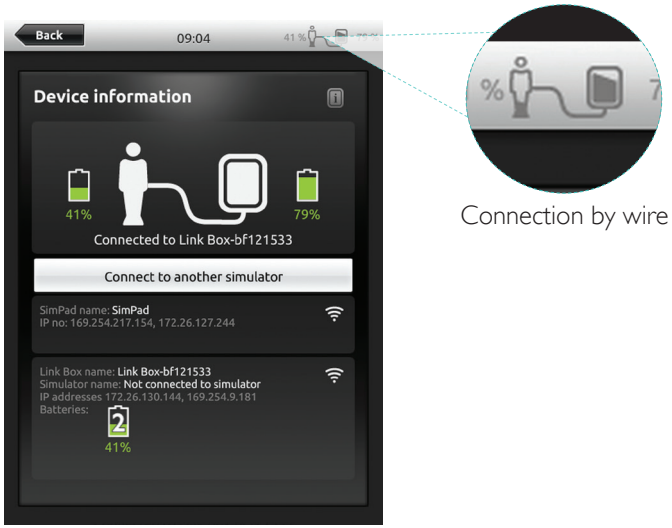
- Using a standard network cable
- On a wired Ethernet network
- On a WiFi network

Using a Standard Network Cable



Connect to Wired Ethernet Network

Connect SimPad PLUS and Link Box PLUS to network outlets. The network needs to have DHCP service.

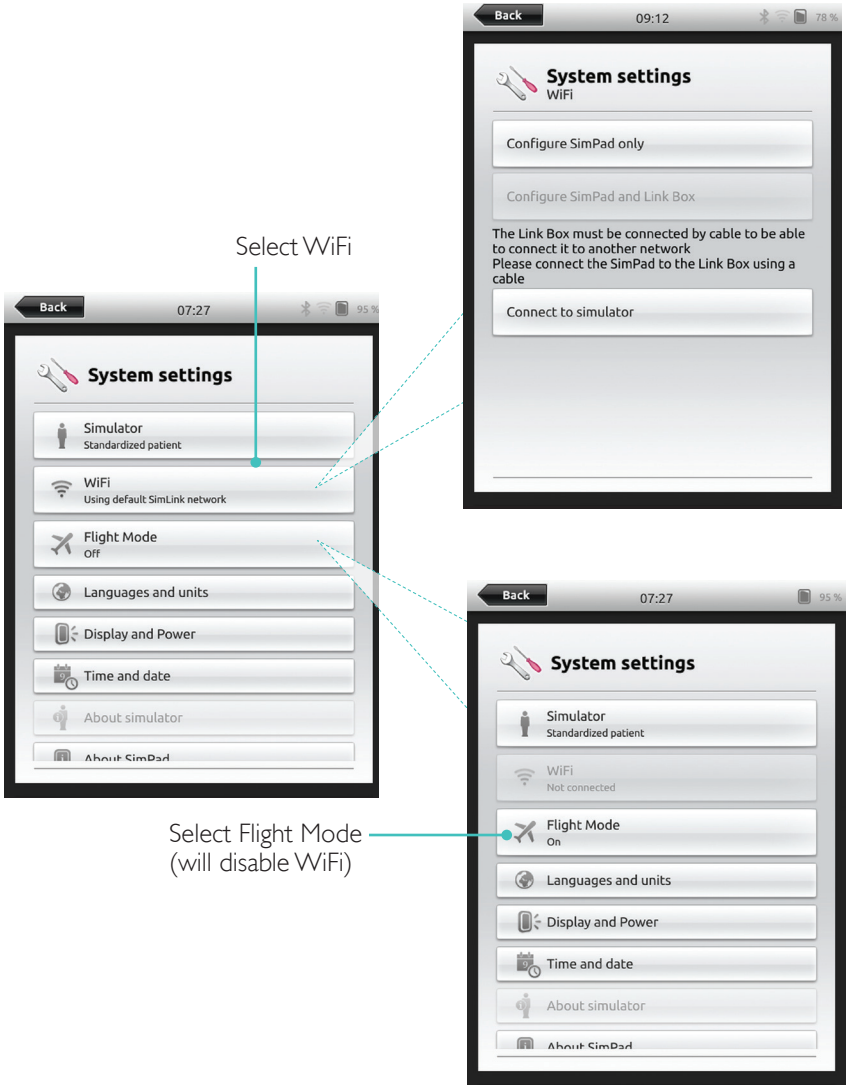


Connection by wire

Note

It is possible to be on a wired network and a WiFi network simultaneously.

Connect to a WiFi Network



Note

Before moving Link Box PLUS to another WiFi network, ensure it is connected to SimPad PLUS with a network cable.

Connect to Another Network



SimStore is the place to find peer validated content to standardize simulation education. Unlock the full potential of SimPad PLUS manikins, education staff and students.

SimStore offers pre-programmed content mapped to clinical guidelines and developed by industry-leading experts. Reducing on-the-fly operation and using pre-programmed scenarios can help present a more realistic clinical encounter and increase a simulation investment.

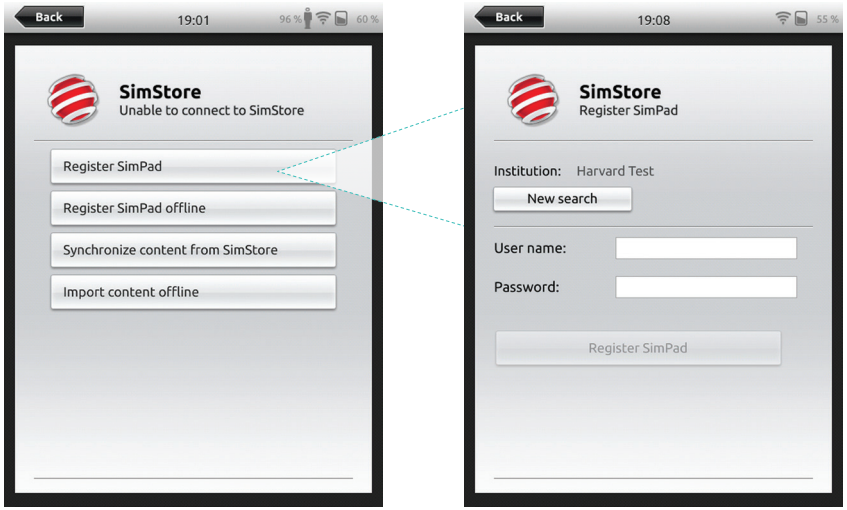
To access, visit www.mysimcenter.com

Visit SimStore to find:

- Immediate online access to world wide, validated content
- Standardized and repeatable training measures
- Easy search, find, and pay navigation
- Flexibility to purchase based on requirements

Register SimPad PLUS on SimStore

SimPad PLUS needs to be connected to a network in order to register with SimStore online. See *Connect to a Network* section.

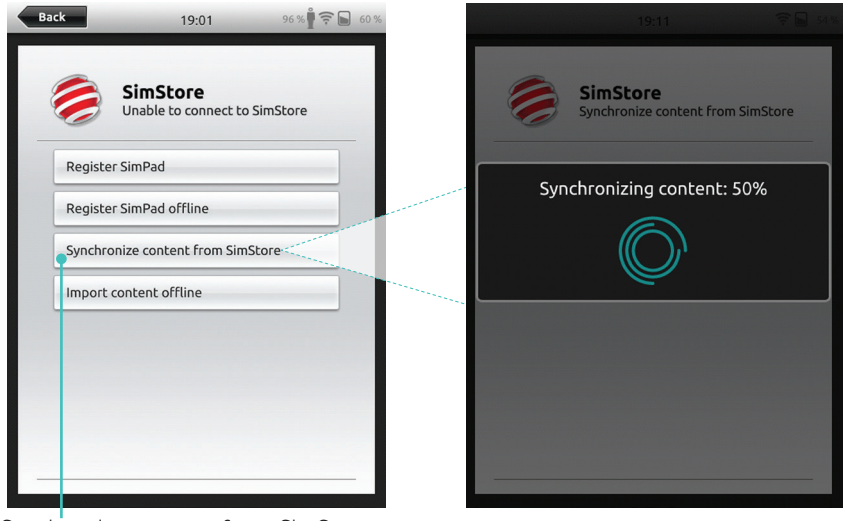


SimPad PLUS can also be registered offline. SimPad PLUS will generate a device key. Register the device from a PC.



Synchronize SimPad PLUS with SimStore

After SimPad PLUS has been registered on SimStore, administration of the SimPad PLUS and purchasing Scenarios on SimStore must be done from a PC.



Synchronize content from SimStore

For more information visit www.mysimcenter.com

Theme Editor

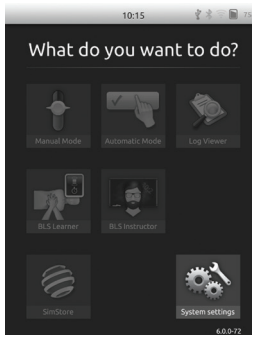
Theme Editor is a PC software tool for creating themes for the SimPad PLUS system. It allows you to make new themes with states and interventions. Theme Editor can be downloaded from www.laerdal.com/themeeditor/ and be used offline.

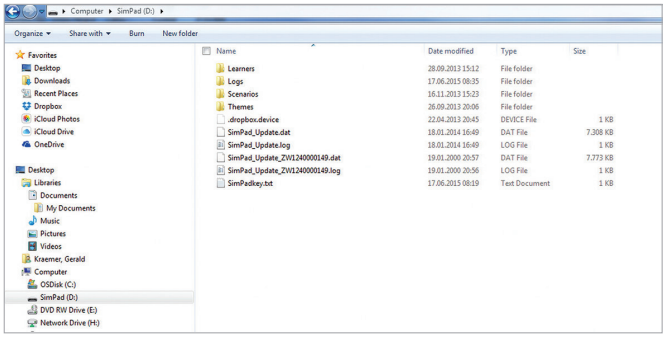
SimDesigner

SimDesigner is a PC software tool for creating Scenarios for the SimPad PLUS System. It allows you to make new scenarios with states and Interventions. SimDesigner can be downloaded from www.laerdal.com/SimPad.

Transferring Logs, Themes and Scenarios to and from a PC

Connect SimPad PLUS to the PC using the included USB cable.





- Save new Scenarios in the Scenarios folder.
- Save new Themes in the Themes folder.
- Upload logs from the Logs folder.
- Disconnect the USB cable from the SimPad PLUS when transfers are finished.

Note

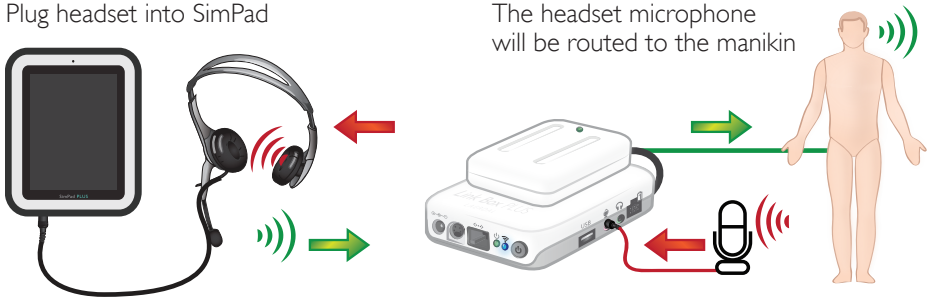
If SimPad PLUS is turned off, the battery can be charged from the USB connection.

Headset

Create two-way communication between the operator and simulator by connecting a headset.

Plug headset into SimPad

The headset microphone will be routed to the manikin



= From instructor to manikin
= From manikin (separate microphone) to instructor.

Note

The headset output on the Link Box duplicates the sound to the manikin. It can be used to improve the sound by adding additional speakers around the manikin.

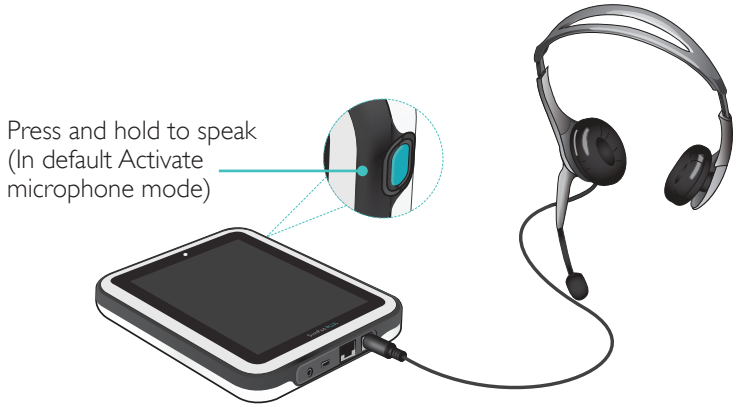
Vocal Sounds

Vocal sounds from the Patient Simulator such as crying, moaning etc. can be activated from the SimPad PLUS directly or via Themes and Scenarios.

For more information about vocal sounds and to create user defined vocal sounds see *Feature* section.

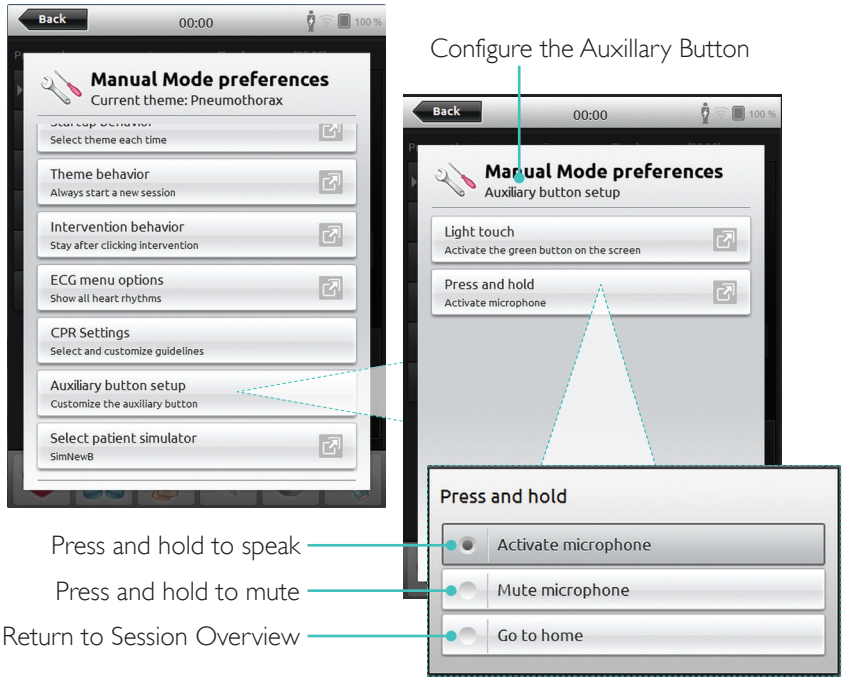
Auxillary Button

The Auxillary Button on SimPad PLUS can be configured in Manual Mode or Automatic Mode preferences to enable and disable input from the headset.

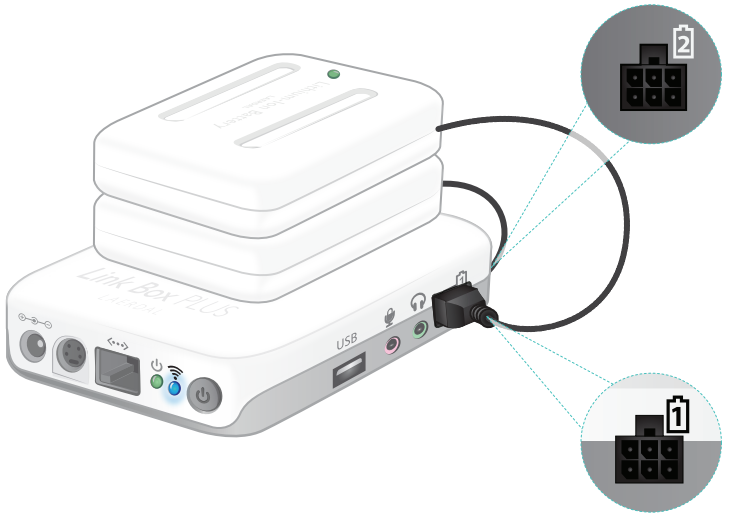


Note

When SimPad PLUS is used wirelessly there is a short voice delay.



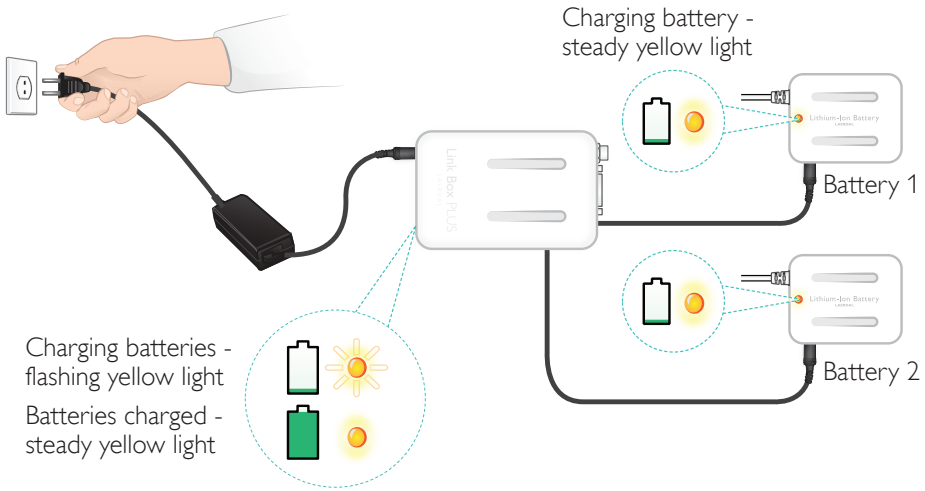
Connect Two Laerdal Li-Ion Batteries





Charge Batteries

The batteries can be charged through the Link Box PLUS when the power is turned off and the Link Box PLUS is connected to the AC adapter.
See *Quick Setup Guide - Charging Batteries.*



⚠ Warnings

- *Do not use the Laerdal Li-Ion Battery for other purposes than specified.*
- *Use only the AC charger adapter supplied with the product.*
- *Do not use the battery in temperatures above what is specified in this User Guide or Important Product Information.*
- *Do not heat or incinerate.*
- *Do not crush the battery.*
- *Do not short circuit the battery contact.*
- *Do not immerse in water.*
- *The battery must be recycled and disposed of in accordance with local rules.*
- *Do not handle damaged or leaking Li-Ion batteries.*

SimPad PLUS System has the same ECG library as SimMan 3G and other Laerdal simulators. The available rhythms and rhythm parameters may vary from simulator to simulator.

Available ECG in SimPad PLUS System

Basic Rhythms	Rates Adult and Child	Rates Infant	Extra-systoles
Sinus	20 – 200	20 – 240	PVC PVC RonT Couplet PVC PAC/PJC
WPW	20 – 200	20 – 240	
Hyperkalemia	20 – 200	20 – 240	
Long QT	20 – 200	20 – 240	
Ischemia	20 – 200	20 – 240	
Inferior AMI, ST elevation	20 – 200	20 – 240	
Left Bundle Branch Block (LBBB)	20 – 200	20 – 240	
Right Bundle Branch Block (RBBB)	20 – 200	20 – 240	
Atrial Tachycardia (Atach.)	140 – 260	90 – 320	
Supra Vent. Tachycardia (SVT)	140 – 260	90 – 320	
Atrial Flutter	75, 100, 150	75, 100, 150	
Atrial Fibrillation (AFib.)	50 – 240	50 – 240	
Junctional	40 – 220	40 – 220	
1° AV-Block	20 – 135	20 – 135	PVC PVC R/T Couplet PVC PAC/PJC
2° AV Block type #1	3:2,4:3, 5:4	3:2,4:3, 5:4	
2° AV Block type #2	2:1, 3:2, 4:3	2:1, 3:2, 4:3	
3° AV Block	10 – 50	20 – 100	
Ventricular Tachycardia (VT)	120 – 240	120 – 320	
Torsade de pointes	180	180	
Idioventricular	10 – 100	14 – 100	
Ventricular Fibrillation (VF)	0.1 – 1 mV	0.1 – 1 mV	
Asystole			
Ventricular Standstill			
Ventricular Pacemaker	50 – 150	50 – 150	

Blood Pressure

Blood Pressure	
Pressure range	Systolic: 0-300 mmHg / Diastolic 0-200 mmHg
Accuracy	+/- 4 mmHg
Calibration	Pressure sensor must be calibrated to sphygmomanometer. See Preferences menu.
Pulse	
Available pulses	Carotid, Brachial, Radial and Umbilical (SimNewB) Only 3 pulses can be palpated simultaneously. (Power considerations).
Palpated BP	Radial pulse turns off at systolic BP. Brachial pulse turns off at 20 mmHg, to prevent noise generation in auscultation area.

	Adult Manikin	Child Manikin	Infant Manikin
Default Blood Pressures (mmHg)	120/80	100/70	60/40

Adult pulses are automatically adjusted to BP as follows:

Systolic BP	Carotid Pulse	Radial/Brachial Pulse
>= 88	Normal	Normal
< 88	Normal	Weak
< 80	Normal	Absent
< 70	Weak	Absent
< 60	Absent	Absent

Infant pulses are automatically set to absent when Systolic BP is below 10 mm Hg. Otherwise infant pulses are normal.

Adult pulses are automatically adjusted to BP as follows:

Systolic BP	Carotid Pulse	Radial/Brachial Pulse
>= 88	Normal	Normal
< 88	Normal	Weak
< 80	Normal	Absent
< 70	Weak	Absent
< 60	Absent	Absent

Heart Sounds

Heart sounds are synchronized to ECG.

Heartsounds	Adult Manikin	Child Manikin	Infant Manikin
Normal	•	•	•
Aortic Stenosis	•	•	•
Austin Flint Murmur	•	•	•
Mitral Valve Prolapse		•	
Systolic Murmur	•	•	•
Diastolic Murmur	•		
Friction Rub	•		
Opening Snap @70 msec	•		
Stills Murmur		•	•
Atrial Septal Defect (ASD)		•	•
Ventricular Septal Defect (VSD)		•	•
Pulmonary Stenosis			•

Lung Sounds

Lung sounds are synchronized to breathing rates, adjustable from 0 – 60 breaths per minute.

Lung Sounds	Adult Manikin	Child Manikin	Infant Manikin
Normal Breath Sounds	•	•	•
Fine Crackles	•	•	•
Coarse Crackles	•	•	•
Pneumonia	•	•	•
Wheeze	•	•	•
Stridor	•	•	•
Pleural Rub	•		
Rhonchi	•	•	•

Bowel Sounds

Bowel Sounds	Adult Male	Adult Female	Child Manikin	Infant Manikin
Normal	•	•	•	•
Borborygmus	•	•	•	•
Hyperactive	•	•	•	•
Hypoactive	•	•	•	•
Fetal Normal 140 BPM		•		
Fetal Brady 100 BPM		•		
Fetal Tachy 200 BPM		•		
No sound	•	•	•	•

Vocal Sounds

Vocal sounds are adjusted for age and gender of manikin.

Male Manikin	Female Manikin	Child Manikin	Infant Manikin
Vomit	Vomit	Vomit	Cry
Cough	Cough	Cough	Cough
Moan	Moan	Moan	Content
SOB Breathing	SOB Breathing	SOB Breathing	Hiccups
Scream	Scream	Scream	Scream
Yes	Yes	Yes	
No	No	No	

Sound format for user defined sound files must be raw format 16KHz, 16 bits signed, little endian.

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