Using the Laerdal Patient Monitor

The Laerdal Patient Monitor software is used to simulate a typical Patient Monitor found in hospitals and ambulances. It is made available for the learners during patient simulation to monitor and observe changes in the patient's clinical status. In a sense it will also serve as a communication channel between the learners and the instructor from which the learners can request radiology and lab reports.

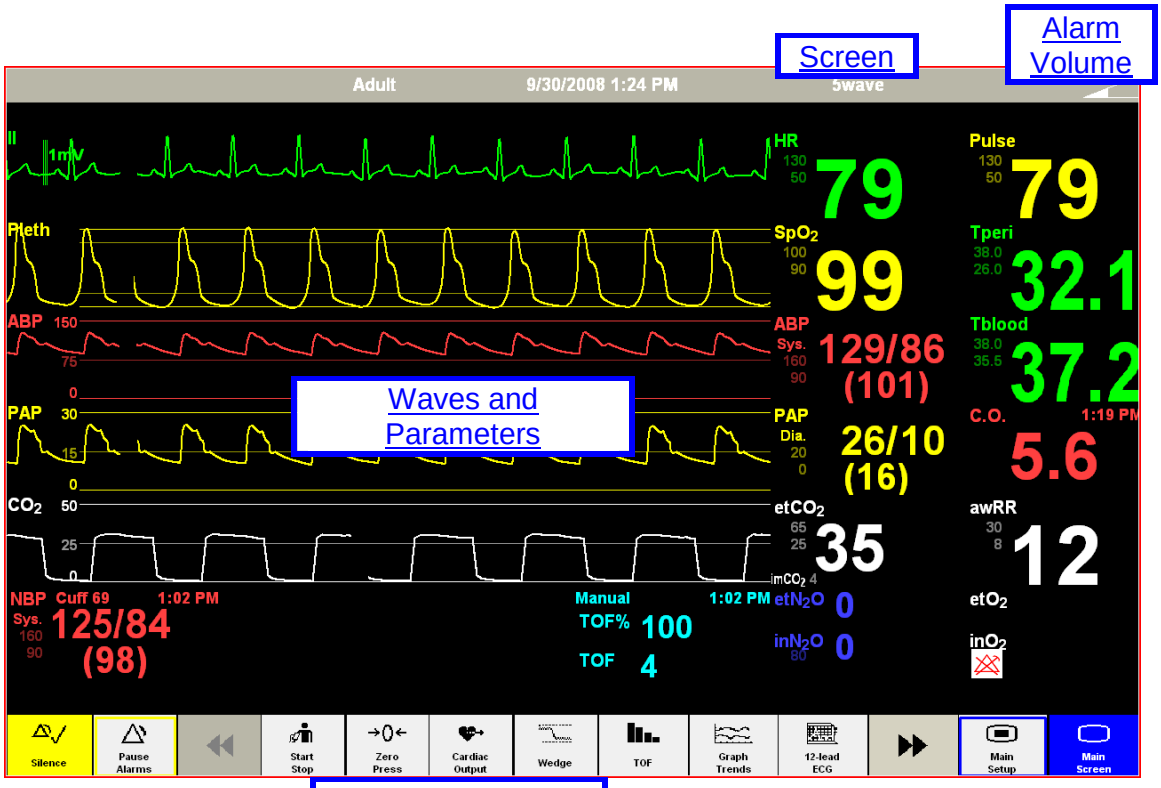
For help with a specific topic or function, please click on a topic or area of the Patient Monitor screen in the Main menu below. Alternatively, use this document from beginning to end as a complete guide to the Patient Monitor. You can return to this menu by using the Main menu links throughout the document.

Main menu

- Index
- Starting the Patient Monitor Application
- Setup menus
- Troubleshooting common problems
- Contacting Laerdal

Note:

This symbol is used to indicate that a feature or function is not available on SimPad.



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Starting the Patient Monitor Application

NOTE: Make sure that the Patient Monitor application with a valid license is installed on the computer. For more information about license handling, see the help file *Laerdal License Manage*r.

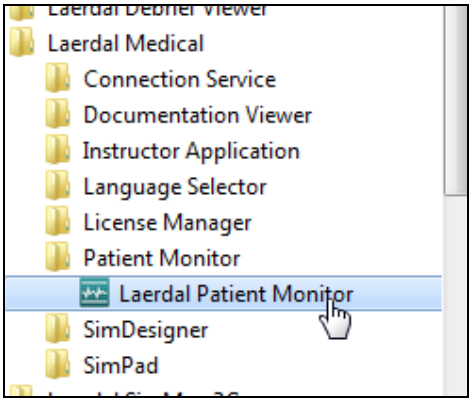
1. Start the computer which will be used as the Patient Monitor. (It is recommended to use a computer with touch screen technology.)

   NOTE: The Patient Monitor Application must be installed on all the computers that will be used to simulate a clinical patient monitor.

2. First click the Windows Start button

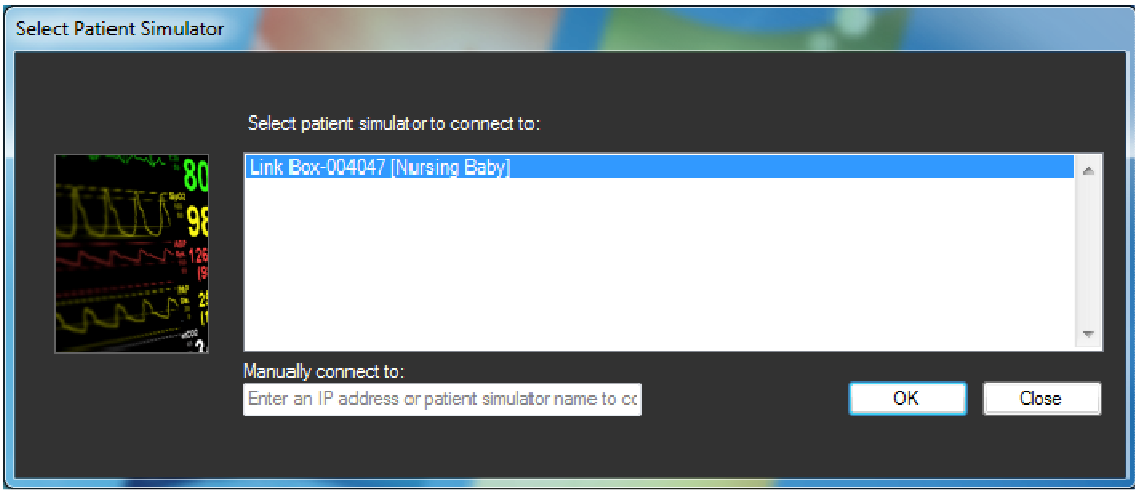
, and then select the folder Laerdal Medical > Patient Monitor.

Select the Laerdal Patient Monitor application.



If the program folder or the Patient Monitor program is not available on your computer, see the Troubleshooting common problems section.

3. If the Patient Monitor application cannot find a previously used patient simulator, the Select Patient Simulator window appears. Select the Patient simulator that the Patient Monitor shall be connected to, and click 'OK'.



If the Patient simulator you wish to connect to is not listed, or if several simulators are available and you are unsure which simulator to connect to, see the Troubleshooting common problems section.

4. The Patient Monitor application will cover the entire display of the computer.

   To select among pre-defined configurations of the Patient Monitor, see Configuring the Patient Monitor.

   NOTE: The Patient Monitor will remember the patient simulator used last time. If the same simulator is connected to the system next time Patient Monitor is started the Select Patient Monitor dialog will not appear. The dialog can be opened as described in section Connection Settings.

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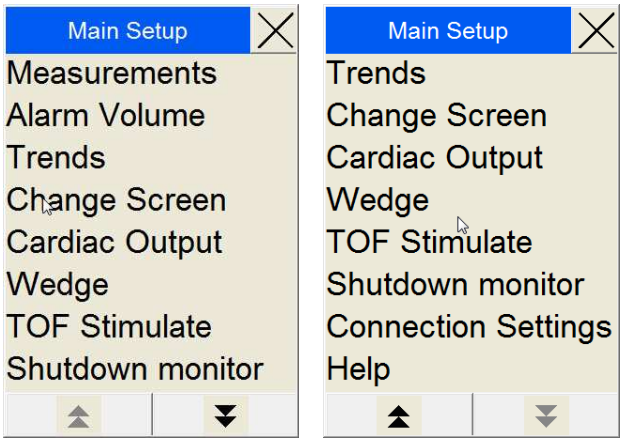
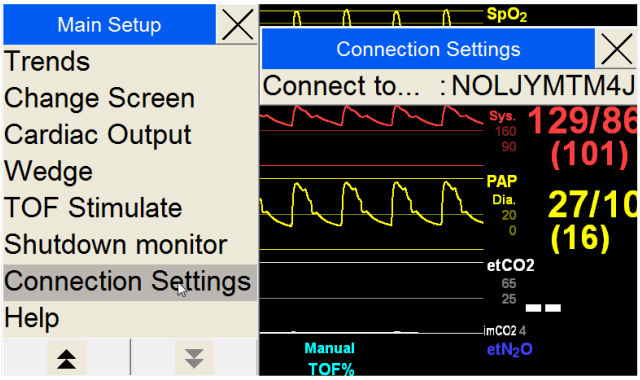
Connection Settings

From the Patient Monitor's bottom menu line, press the 'Main Setup' button.
The Main Setup menu will appear. Press the 'Down Arrow' button once. Select the 'Connection Settings' item.



The submenu 'Connection Settings' appears where the name of the currently connected patient simulator is shown (after the text 'Connect to...').



To connect to another available patient simulator, click 'Connect to' in the submenu 'Connection Settings'. The Select Patient Simulator dialog (see previous section) appears from where another Patient Simulator can be selected.

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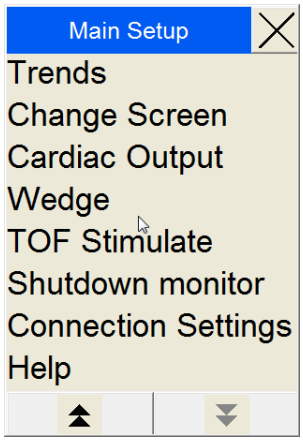
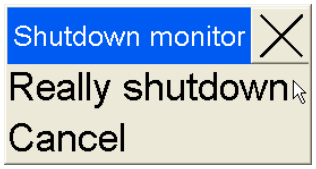
Exiting the Patient Monitor Application

From the Patient Monitor's bottom menu line, press the 'Main Setup' button.
The Main Setup menu will appear. Press the 'Down Arrow' button once. Select the 'Shutdown monitor' item.



The Shutdown monitor menu will appear. Press 'Really shutdown' to end the Patient Monitor Application.



The computer itself should be shut down in accordance with the computer manufacturer's instructions.

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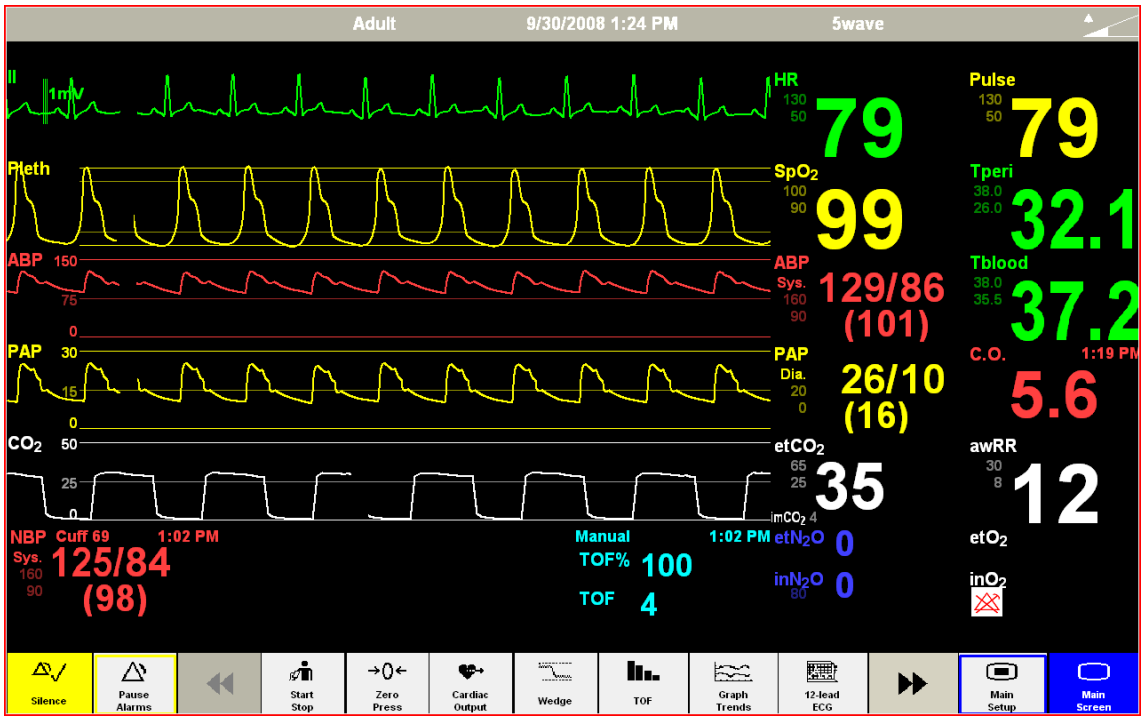
Configuring the Patient Monitor

The Patient Monitor is highly configurable and can be set so that it closely resembles the patient monitors that are familiar to clinical users, from the most basic to the most advanced.

NOTE: For different formats of computer displays, i.e. Widescreen, the Patient Monitor will expand or contract the length of the waves.



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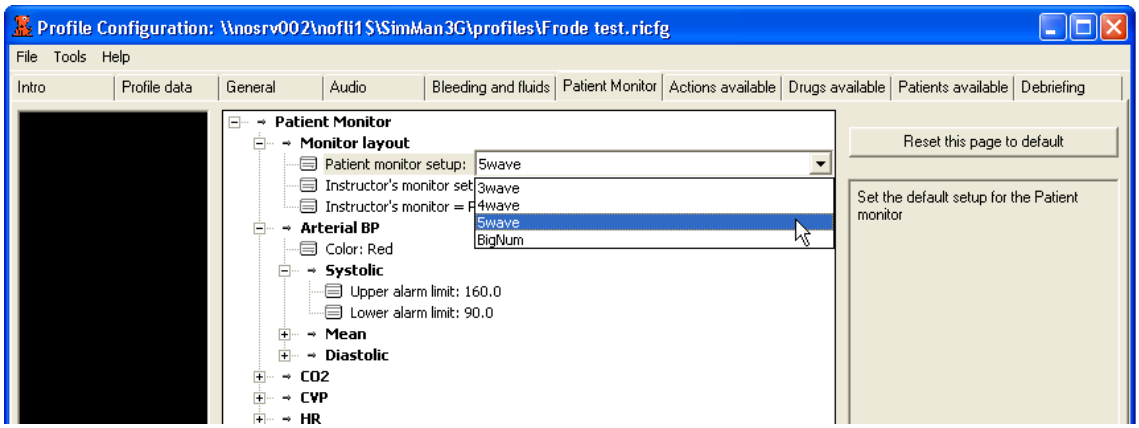
Profile settings

The Patient Monitor can be configured to local preferences using the Profile Editor also available through the Instructor's Application. Within such a profile, the following default values can set for the Patient Monitor:

- Default display main layout (number of waves).
- Default parameter alarm limits.
- Default wave and parameter colors.
- Units for use with Capnometer (mmHg / kPa / %), ICP (mmHg / cmH_2O), Glucose (mmol/L / mg/dL) and all temperatures (℃ / ℉).



Using profiles ensures consistent settings of the Patient Monitor, according to the specific local preferences, upon each start-up. The profile is selected from the Instructor Application every time a new scenario or patient case is started.

See Profile Editor.

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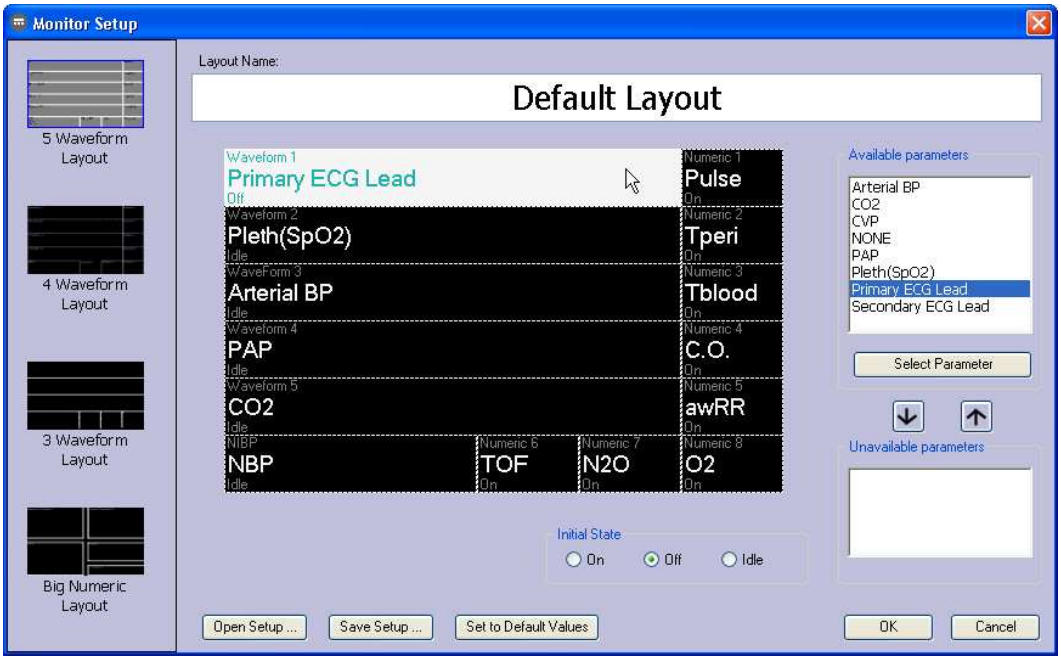
Scenario Initial State settings

The exact start-up configuration of the Patient Monitor can be tailored for the scenarios, by clicking the Patient Monitor setup in the initial frame of your scenario in the Scenario Editor program.

From the Patient Monitor setup (also available through the Instructor Application), the following default values can set for the Patient Monitor:

- Display main layout (number of waves available).
- Type, position and start-up state of waves and parameters on the Patient Monitor display at the start of the scenario.
- Availability of waves and parameters which can be reconfigured by the learner during use when using the setup functions on the Patient Monitor itself.

- Definition of waves and parameters which shall not be available to the learner.



The scenario ensures consistent settings of the Patient Monitor, according to the specific settings of the scenario, upon each start-up.

See Scenario Editor.

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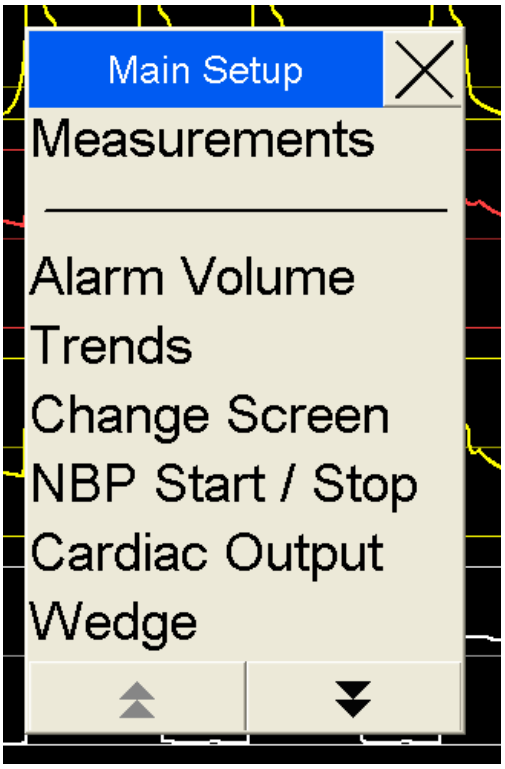
Modifying the Patient Monitor display during use

The Learner's Patient Monitor can be modified during use by using the on-screen menu system, much like that which would be available during use on typical clinical patient monitors.

When selecting the 'Main Setup' button, the setup menus of the Patient Monitor are available.



The following setup changes are typically available to the learners during the simulation:

- Selection of waves and parameters to display in each field, from those available for the current scenario.
- Changing the alarm limits, from those pre-set from the current profile.

See: Setup menus.

Activation of sensors

The Learner's Patient Monitor requires the appropriate sensors or leads to be attached to the Patient simulator before the waveforms and numbered parameters become active on the monitor.

If the leads or sensors are not connected, the waves and parameter fields on the Patient Monitor are without signals, and the fields are typically blank:

The following methods enable activation:

1. Automatic detection by the Patient simulator, when the sensor is physically connected.
2. Learner taps appropriate field of the Patient Monitor to indicate that the sensor is attached.
3. Connection is defined at the start of the patient scenario.
4. Instructor registers the connection of the sensor(s) from the Instructor Application - either by using the Event menu's clickable Manikin figure or the Common Learner events list.
5. Instructor registers the connection of the sensor(s) from the Instructor Application Instructor's Patient Monitor, using the toggle boxes (below), which indicate the activation state of the sensors on the Learner's Patient Monitor in the simulation.

The sensors can be deactivated with any of the same principal methods. All events are simultaneously registered in the Simulation log.

The physiological parameters displayed on the Learner's Patient Monitor are programmed to vary slightly (within 5%) from the nominal parameter value, in order to create natural variation.

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Setup menus

Note: All Patient Monitor setup items available to the learner are within the constraints defined by the current scenario or patient case.

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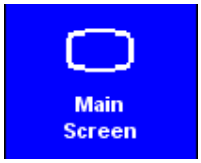
Main Screen

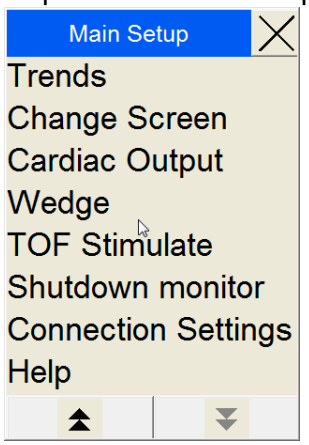


Selecting the ‘Main Screen’ button enables an immediate return to the Main Screen, and cancels all submenus.

Submenus can also be closed by selecting the “X” box of the submenu.

Main Setup

Selecting the ‘Main Setup’ button opens the Main Setup menu.



Options in the Main Setup menu are identical to the similar options displayed on the Menu line.

- Measurements
- Alarm Volume
- Trends
- Change Screen
- NBP Start / Stop
- Cardiac Output
- Wedge
- TOF Stimulate
- Connection Settings
- Shutdown monitor

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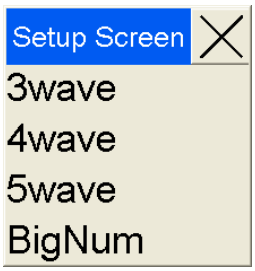
Screen settings

Selecting the “5wave” or similar text on the top menu line of the Patient Monitor opens the Setup Screen menu.



If you wish to change the number of waves displayed on the Patient Monitor, select among the wave alternatives.

Touching the BigNum option increases the size of the main numbered parameters.

To return the display to showing waveforms, select either of the wave options from the same menu.

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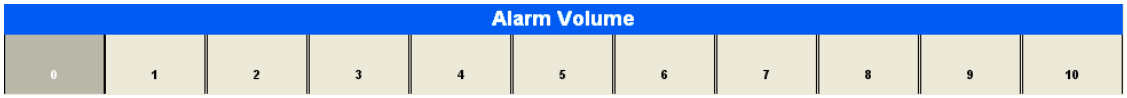
Alarm Volume settings

Touching the Alarm Volume text on the top menu line opens the Alarm Volume menu. Select one of the alarm levels (0-10).



The Alarm Volume icon in the upper right corner will change to reflect the current volume setting.

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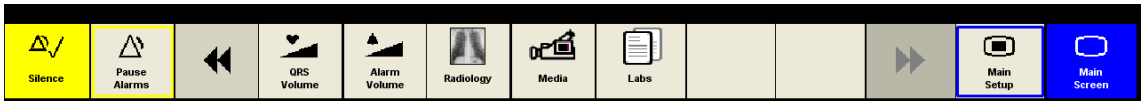
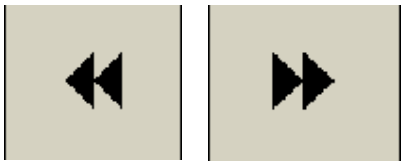
Menu line

The Menu line at the bottom of the Patient Monitor consists of Patient Monitor soft keys.

The Menu line extends to a second page of menu items.



Press the LEFT or RIGHT navigation arrow to move between the two menu pages.



NOTE: Some fields are not available until the appropriate sensors have been registered as connected and attached to the Patient simulator.

NOTE: The media requests fields (Radiology, Media, and Labs) are not available if the Patient Monitor application is used together with a SimPad.

The available functions on the Menu line are:

1. Alarm controls
    - Silence alarms
    - Pause Alarms
    - Alarm Volume
2. Sensor control
    - NBP Start
    - Zero Pressures – zeroes the pressures of the ABP, PAP or CVP transducers.
    - Cardiac Output[1]
    - TOF[1]
    - QRS Volume
3. Specific displays
    - Wedge[1]
    - Graph Trends
    - 12-lead ECG

4. Media requests and displays
    - Radiology[1]
    - Media[1]
    - Labs[1]

[1]Not available on SimPad.

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Silence alarms

Selecting the Silence alarm button turns active alarm sounds OFF.

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Pause Alarms

Selecting the Pause Alarms button turns all sound alarms off for 3 minutes.

The 'Alarms Paused' message is displayed on the monitor while the pause is in effect. The timer counts down the time until the Alarm Pause period is over.

To end the pause, select the Pause Alarms button again.

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NBP Start

Selecting the NBP Start button starts a simulated inflation of the blood pressure cuff. The NBP details will be shown in the NBP section of the Patient Monitor.

NOTE: The blood pressure cuff must be connected to the patient and must be activated for this function to be available on the Patient Monitor.

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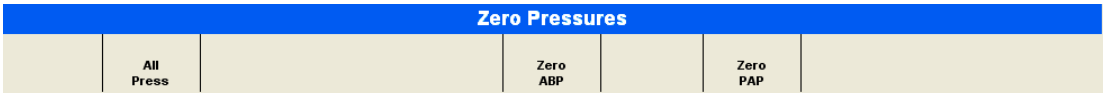
Zero Pressures

Selecting the Zero Pressures button opens a submenu from which you can select zeroing of the ABP, PAP or CVP transducers.

You can also select the All Press button to zero all pressure transducers simultaneously.



Messages will be displayed, indicating which transducers have been zeroed and at what time.

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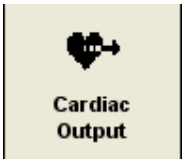
Cardiac Output



Selecting the Cardiac Output button generates a new reading of Cardiac Output. The C.O. details will be shown in the C.O. part of the Patient Monitor.

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Wedge

Selecting the Wedge button temporarily substitutes the PAP wave and numbered parameters with the WP wave and parameter. The WP details will be shown in the WP part of the Patient Monitor. (How do you change back?)

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TOF (Train of Four)

Selecting the TOF button generates a new reading of the TOF state of the patient. The TOF details will be shown in the TOF part of the Patient Monitor.

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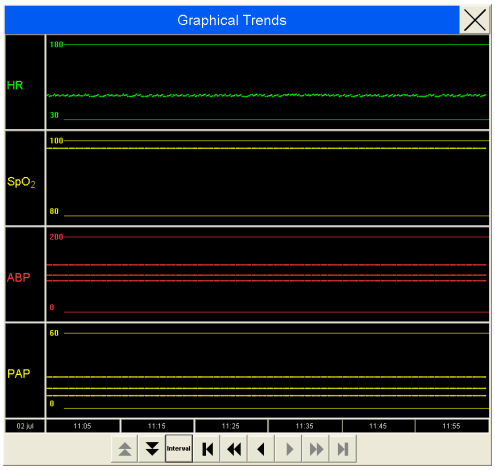
Graph Trends

Selecting the Graph Trends button opens the Graphical Trends window. By using the menu buttons, you can review the history of the available Trend parameters.



The Up/Down arrows let you scroll among the available parameters.

The Interval button defines the scale of the timeline being displayed.

The *Go to Start – Fast Reverse – Reverse – Forward – Fast Forward – Go to End* buttons allow you to move along the timeline.

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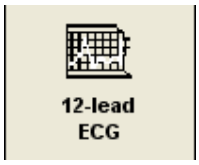
12-lead ECG

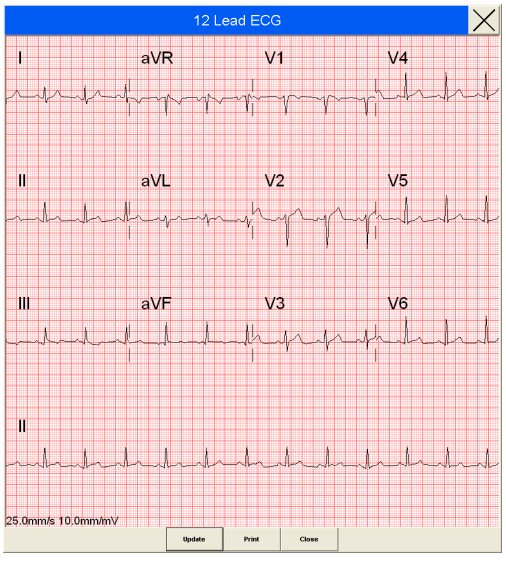


Selecting the 12-lead ECG button generates a 12-lead ECG strip.

Select Print to have this ECG strip printed on the default printer available from your Patient Monitor computer.

Select the Update button to get a new 12-lead ECG strip.

Select the Close button to return.



QRS Volume

Selecting the QRS Volume button opens the QRS Volume menu, shown below. Select the desired volume (0-10).

Select the Main Screen button to return.

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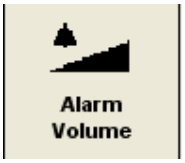
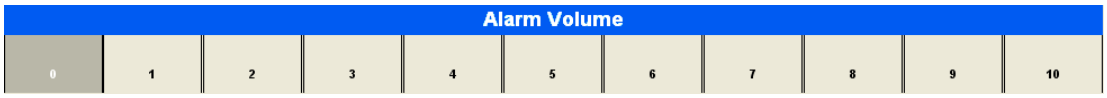
Alarm Volume



Selecting the Alarm Volume button opens the Alarm Volume menu, shown below. Select the desired volume (0-10).

Select the Main Screen button to return.



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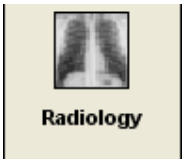
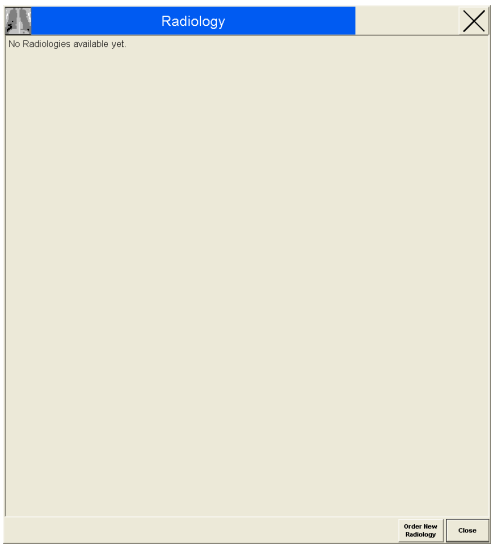
Radiology



Select the Radiology button to open the Radiology display.

X-ray images which have been included in the current simulation scenario are then showed.



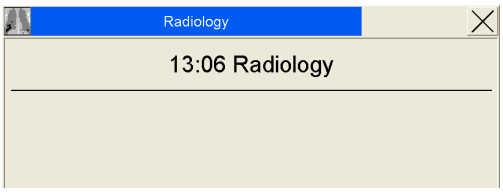
If there are no images available yet, a message will state “No x-rays available yet”.

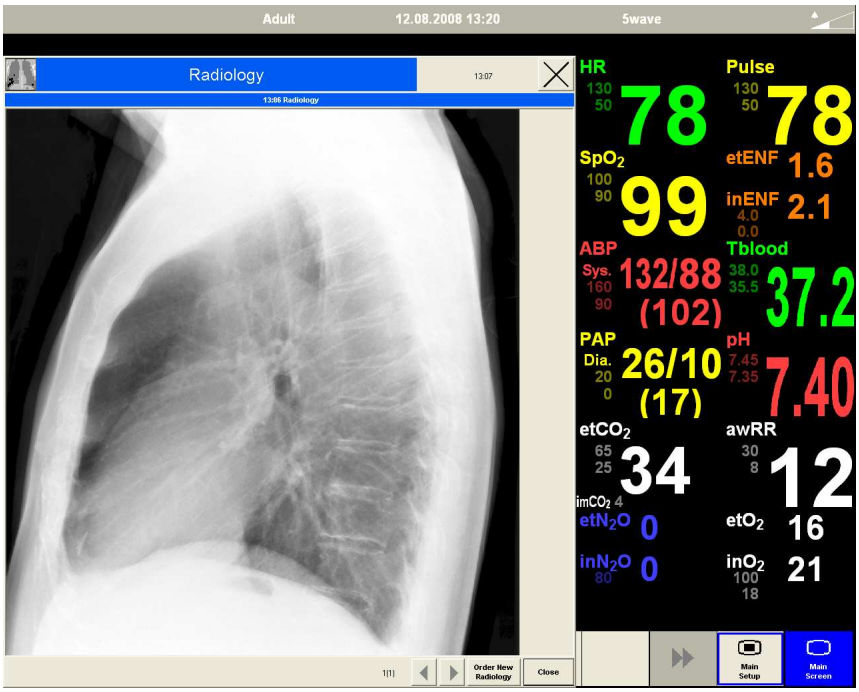
Select the Order New Radiology button to send a request for new x-ray images to the instructor. The instructor can, at the time deemed appropriate, post new radiology information to the Radiology display.

If multiple radiological images are posted, use the forward or backwards buttons to move between the images.

Select the Close button to close the Radiology display.

When Radiology images are available, they will be listed in the Radiology display window with a time-stamp. Several such files may become available during the course of the simulation, and will be listed. Click the file you wish to review.



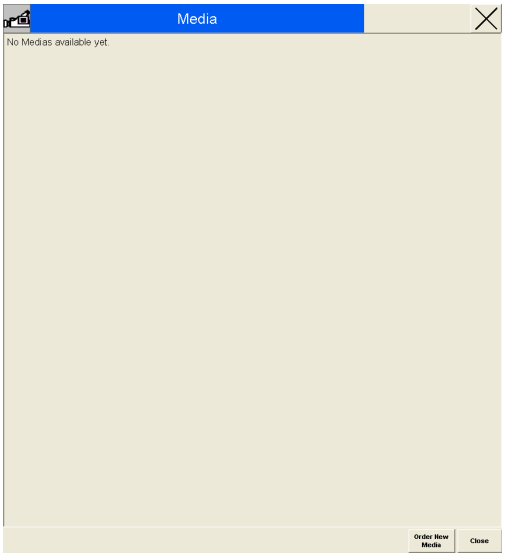


Media

Select the Media button to open the Media display.

Select the Close button to close the Media display.

Select the Order New Media button to send a request for new Media to the instructor.



The instructor can, at the time deemed appropriate, post new information to the Media display.

The Media information can be:

- Audio
- Video clips

The Media Files are accessed and displayed in a similar way to Radiology files.

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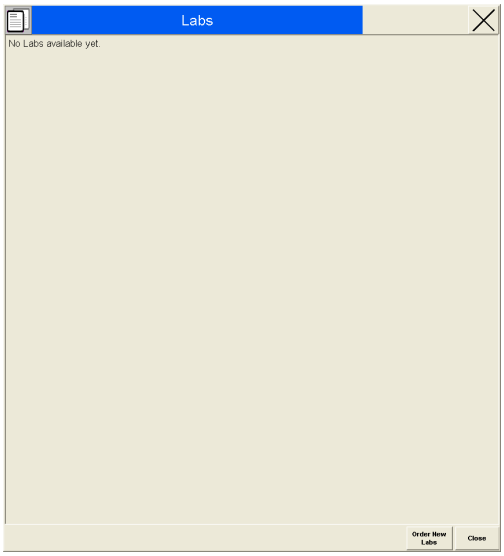
Labs

Select the Labs button to open the Labs display.

Select the Close button to close the Labs display.



Select the Order New Labs button to send a request for new Lab tests to the instructor.

The instructor can, at the time deemed appropriate, post new information to the Labs display.

The Labs information can be:

- Text information
- PDF files, which can include embedded pictures and drawings

The Media Files are accessed and displayed in a similar way to Radiology files.

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Wave and Parameter menus

Available waves and parameters

The available waveforms of the Patient Monitor are:

- ECG (12 leads available)
- SpO_2 (Plethysmogram)
- ABP
- PAP[1]
- CO_2[1]
- WP[1]
- CVP[1]

A maximum of 5 waves can be shown at the same time.

The available numeric parameters are:

- HR
- Pulse
- SpO_2
- TPeri[1]
- Tblood
- ABP
- PAP[1]
- NBP
- CO_2[1]
- O_2[1]
- N_2O[1]
- awRR
- TOF[1]
- CVP[1]
- pH[1]
- AGT[1]
- HAL[1]
- ISO[1]
- C.O.[1]
- ENF[1]
- SEV[1]
- DES[1]
- ICP[1]
- WP[1]

A maximum of 14 can be shown at the same time.

[1] Not available on SimPad.

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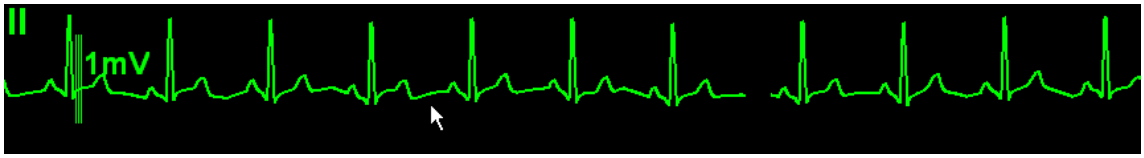
Alarm settings

For all parameter values, the alarm off icon appears over the alarm limit numbers if the Alarm is set to OFF, or if the parameter itself is OFF.

Circulation

ECG wave – Electrocardiogram

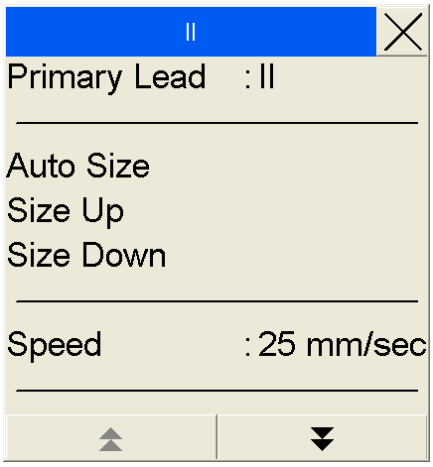
The ECG wave displays one of the available ECG lead waves, when the ECG leads are registered as attached to the Patient simulator in the simulation. The displayed lead may be changed. A secondary ECG wave can also be displayed on the Patient Monitor.

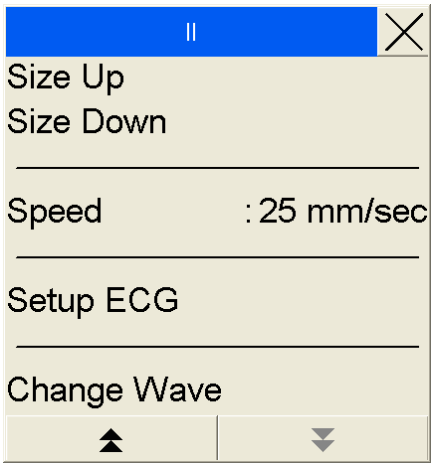


Touch the ECG waveform to access the ECG lead window. The available options are shown in the list.

The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

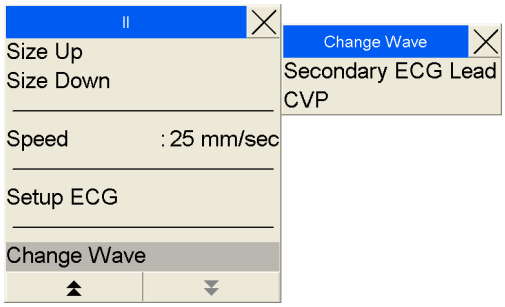




Touch 'X' to close the menu.

Selecting the Setup ECG opens the Setup ECG menu.

NOTE: The waveform field on the Patient Monitor can be reconfigured to show other clinical waveforms. Press the Change Wave option to see which alternatives are available for this particular field.



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ECG – Heart Rate

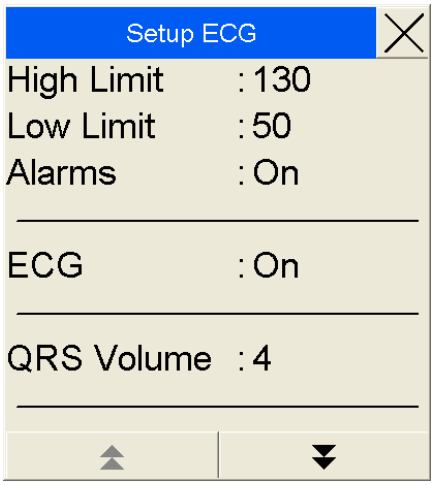
The Heart Rate field displays the Heart Rate when the ECG leads are registered as attached to the Patient simulator in the simulation.

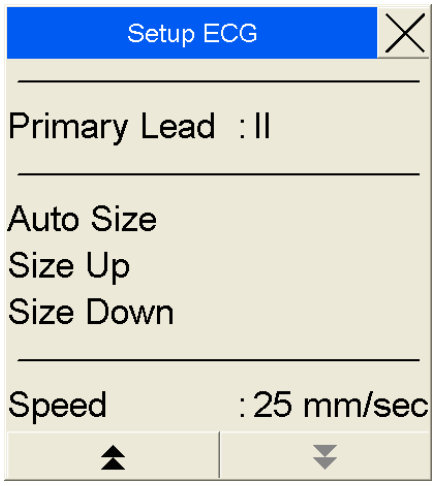
Touch the HR area on the Patient Monitor to enter the Setup ECG menu. The available options are shown in the list.

The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.





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QRS Volume

The QRS Volume (0-9) is set from the Setup SpO_2 menu or the Setup ECG menu.

When the SpO_2 and ECG input is switched off, or the SpO_2 probe and ECG leads are registered in the simulation as not being connected to the Patient simulator, the QRS sound is also turned off.

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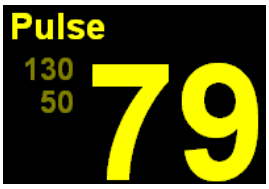
Pulse

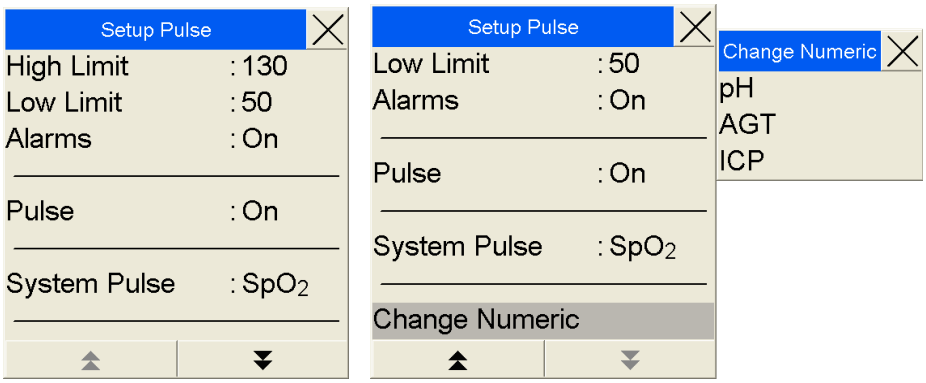


The Pulse field displays the patient's pulse, as calculated through the SpO_2, ABP or PAP sensors in the simulation, when the appropriate sensor is registered as connected in the simulation. The input parameter (System Pulse) can be set from the Setup Pulse menu,

Touch the Pulse area on the Patient Monitor to enter the Setup Pulse menu. The available options are shown in the list.

The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see what alternatives are available for this particular field.

Touch 'X' to close the menu.

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NBP – Non-invasive Blood Pressure

The NBP field displays the simulated non-invasive blood pressure when the blood-pressure cuff is registered in the simulation as being attached to the Patient simulator.

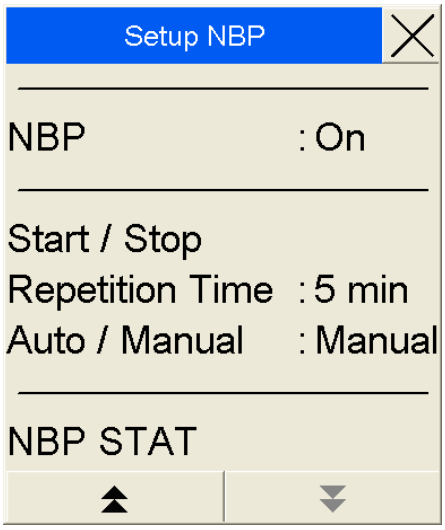
The NBP reading is updated either manually when the NBP Start button is pushed or Start/Stop is selected from the Setup NBP Menu. The NBP can also be set to run automatically as set in the Setup NBP menu.

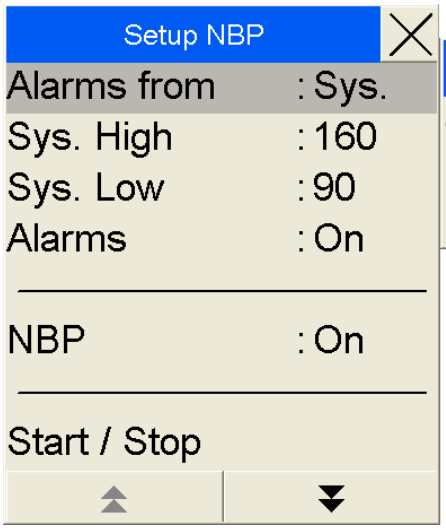
Touch the NBP area on the Patient Monitor to enter the Setup NBP menu. The available options are shown in the list.

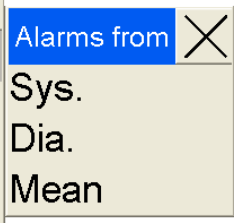
The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.

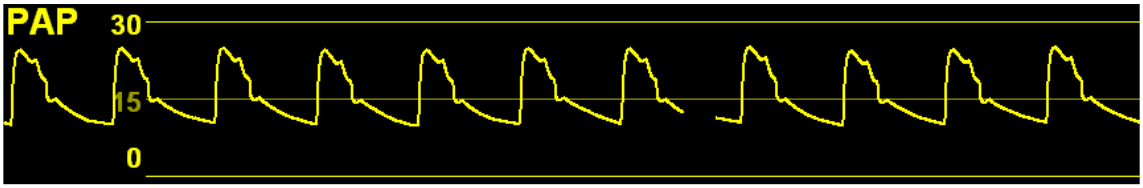






PAP wave – Pulmonary Artery Pressure

The PAP wave is displayed when the PAP sensor is registered as connected in the simulation.

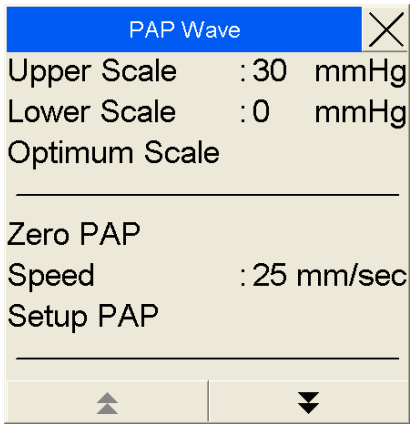


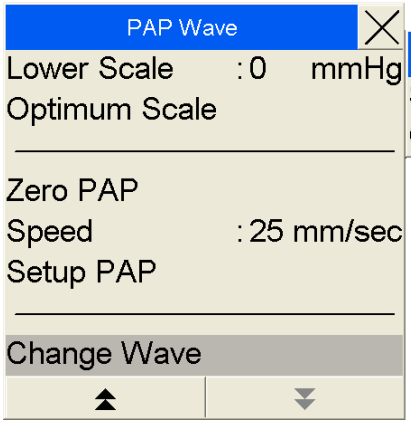
Touch the PAP wave area on the Patient Monitor to enter the PAP Wave menu. The available options are shown in the list.

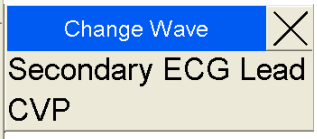
The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.







NOTE: The waveform field on the Patient Monitor can be reconfigured to show other clinical waveform. Press the Change Wave option to see what alternatives are available for this particular field.

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PAP – Pulmonary Artery Pressure

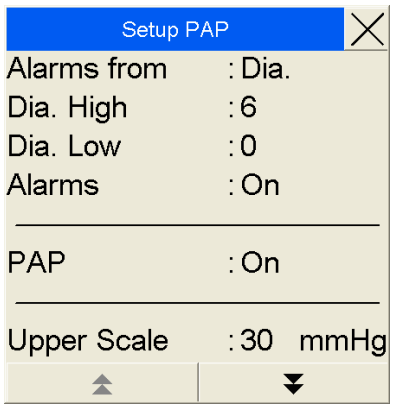
The PAP field displays the simulated pulmonary artery pressure, when the PAP sensor is registered in the simulation as being connected.

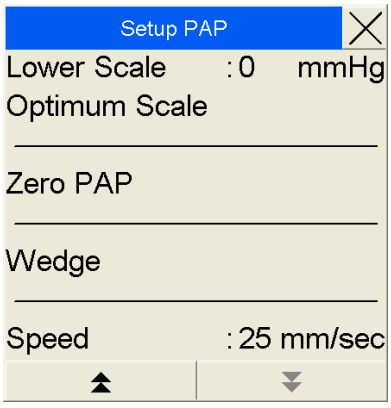
Touch the PAP area on the Patient Monitor to enter the Setup PAP menu. The available options are shown in the list.

The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.





Setting Wedge will initiate a Pulmonary Wedge Pattern analysis, which replaces the PAP wave and parameter fields with a WP wave and parameter field for 12 seconds.

Selecting the Zero PAP will simulate the zeroing of the PAP transducer.

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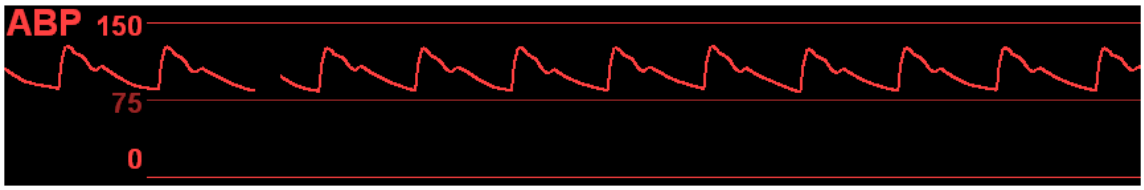
ABP wave - Arterial Blood Pressure

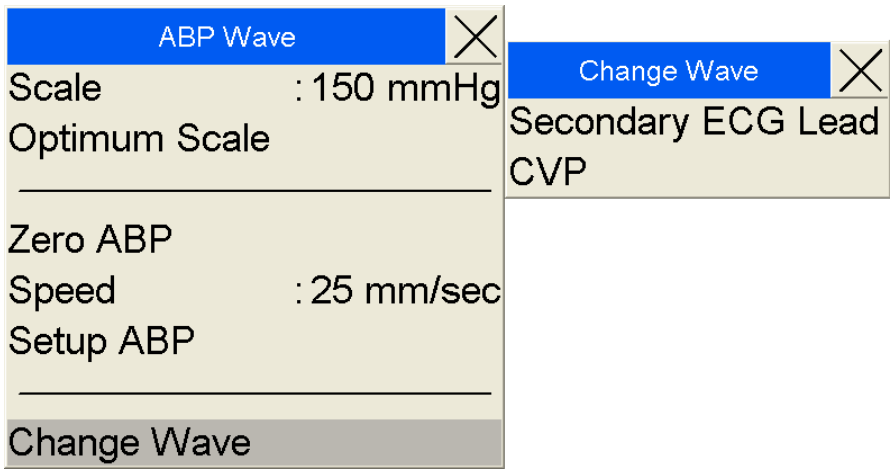
The ABP wave is displayed when the ABP sensor is registered as connected in the simulation.



Touch the ABP wave area on the Patient Monitor to enter the ABP Wave menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.



NOTE: The waveform field on the Patient Monitor can be reconfigured to show other clinical waveforms. Press the Change Wave option to see which alternatives are available for this particular field.

Selecting the Zero PAP will simulate the zeroing of the PAP transducer.

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ABP – Arterial Blood Pressure

The ABP parameter field displays the simulated patient arterial blood pressure and alarm limits.

Touch the ABP area on the Patient Monitor to enter the Setup ABP menu. The available options are shown in the list.

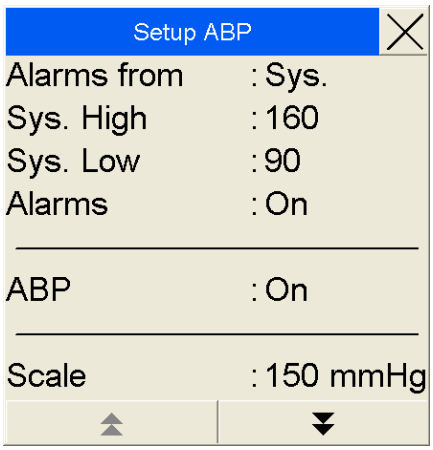
The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

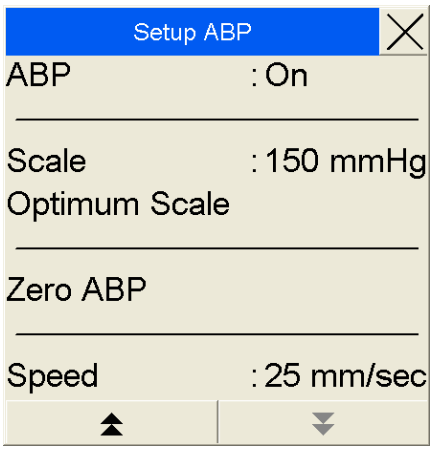
Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Selecting the Optimum Scale option lets the Patient Monitor select the waveform scale that fits the current ABP value.

Selecting the Zero ABP will simulate the zeroing of the ABP transducer.

Touch 'X' to close the menu.





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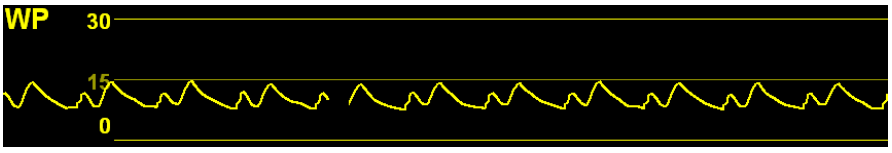
WP – Pulmonary Wedge Pattern

The WP wave and parameter field enable simulation and identification of a wedged PAP sensor. The WP wave and parameters are displayed in a temporary substitution of the PAP Wave and parameter fields.



There are no submenus for this field.

The WP is activated either by pressing the Wedge button from the Menu Line, or by selecting the Wedge option from the Setup PAP menu.

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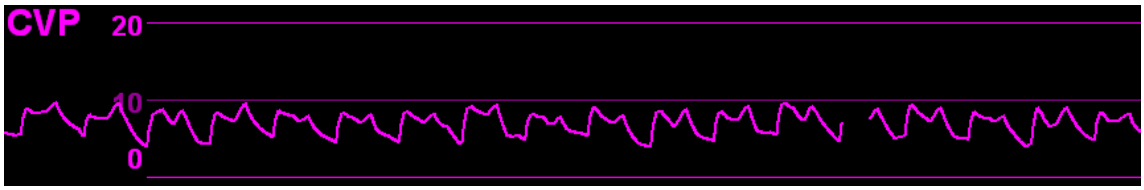
CVP – Central Venous Pressure Wave

The CVP wave is displayed when a CVP sensor is registered as attached in the simulation.

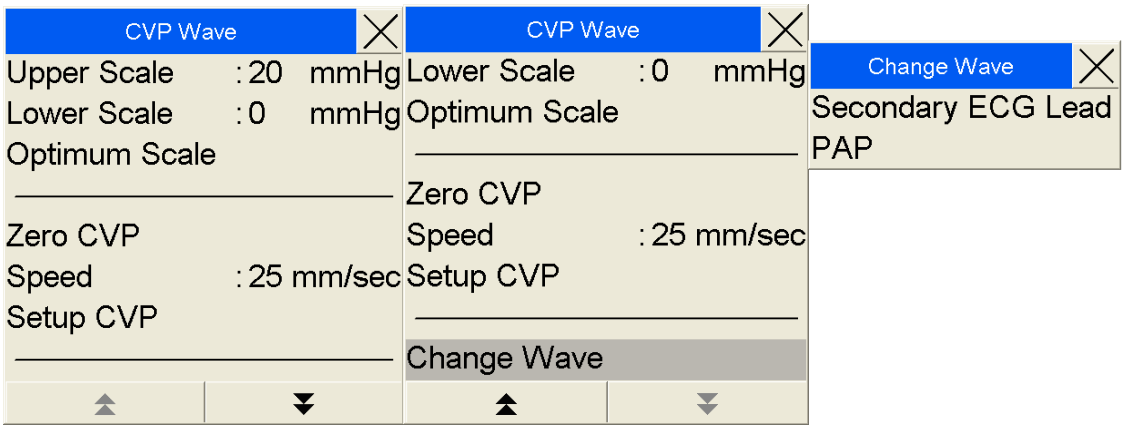


Touch the CVP wave area on the Patient Monitor to enter the CVP Wave menu. The available options are shown in the list.

The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.



NOTE: The waveform field on the Patient Monitor can be reconfigured to show other clinical waveforms. Press the Change Wave option to see which alternatives are available for this particular field.

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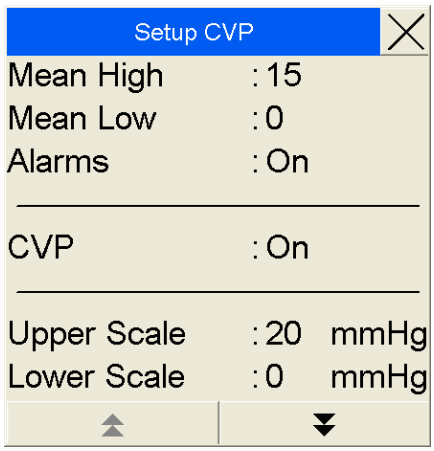
CVP – Central Venous Pressure

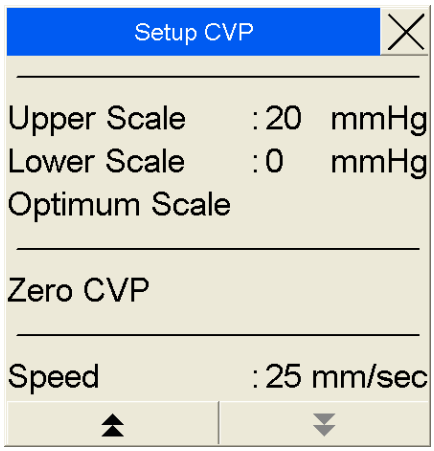
The CVP parameter field displays the central venous pressure, when the CVP sensor is registered in the simulation as being connected.

The CVP parameter is always shown with the CVP Wave. Touch the CVP parameter on the Patient Monitor to enter the Setup CVP menu. The available options are shown in the list.

The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Touch 'X' to close the menu.





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C.O. – Cardiac Output

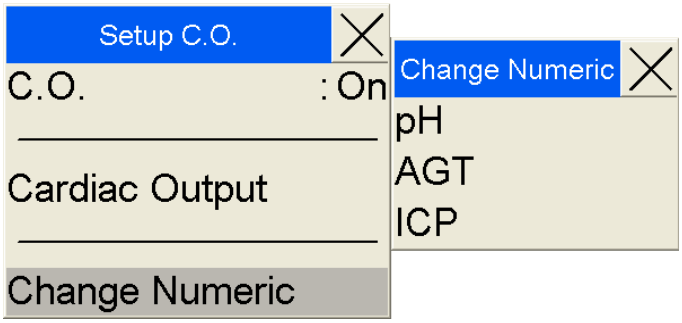
The C.O. parameter field displays the simulated Cardiac Output, when the PAP and TBlood sensors are registered in the simulation as being connected.

The C.O. is updated when the Cardiac Output button is pushed from the Menu line, or if Cardiac Output is selected from the Setup C.O. menu.

Touch the C.O. area on the Patient Monitor to enter the Setup C.O. menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.



NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

Touch 'X' to close the menu.

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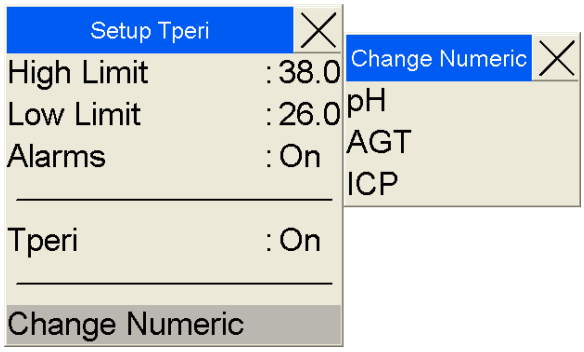
Physiological parameters

TPeri – Peripheral Temperature

The TPeri field displays the simulated peripheral skin temperature. The parameter is not dependent upon any sensors that need be connected to the Patient simulator.

Touch the TPeri area on the Patient Monitor to enter the Setup TPeri menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

Touch ‘X’ to close the menu.

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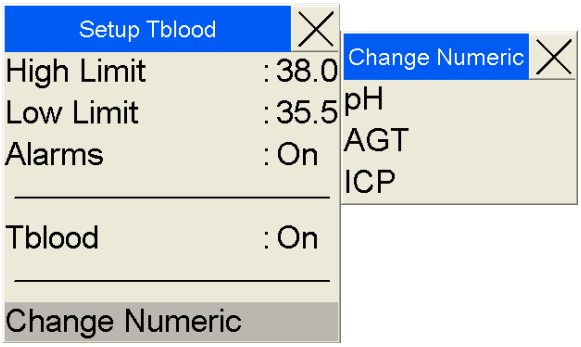
Tblood – Invasive blood temperature

The TBlood field displays the simulated invasive blood temperature. The parameter is not dependent upon any sensors that need be connected to the Patient simulator.

Touch the Tblood area on the Patient Monitor to enter the Setup TBlood menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

Touch ‘X’ to close the menu.

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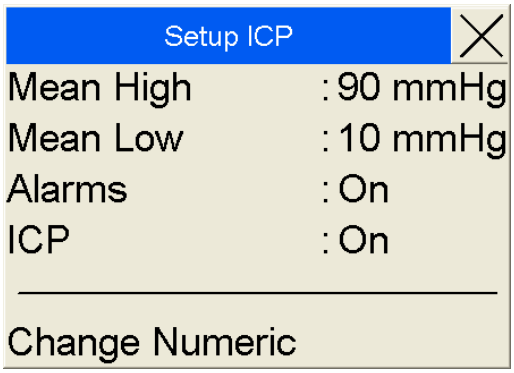
ICP – Intracranial pressure

The ICP field displays the simulated intracranial pressure when an ICP sensor is registered in the simulation as being connected.

Touch the ICP area on the Patient Monitor to enter the Setup ICP menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



NOTE: The waveform field on the Patient Monitor can be reconfigured to show other clinical waveforms. Press the Change Numeric option to see which alternatives are available for this particular field.

Touch ‘X’ to close the menu.

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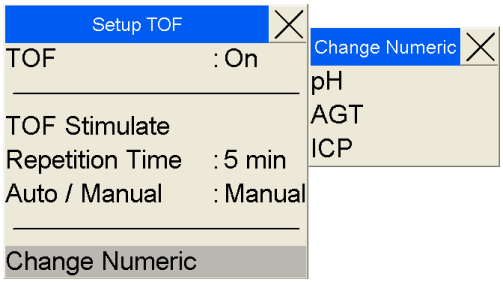
TOF – Train of Four

The Train of Four (TOF) method monitors the degree and type of neuromuscular blockade by measuring the twitch or muscle response to a train of four consecutive stimuli applied to a peripheral motor nerve. The readings are displayed on the Patient Monitor. The parameter is not dependent upon any sensors that need be connected to the Patient simulator.

Touch the TOF area on the Patient Monitor to enter the Setup TOF menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



Touch 'X' to close the menu.

NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

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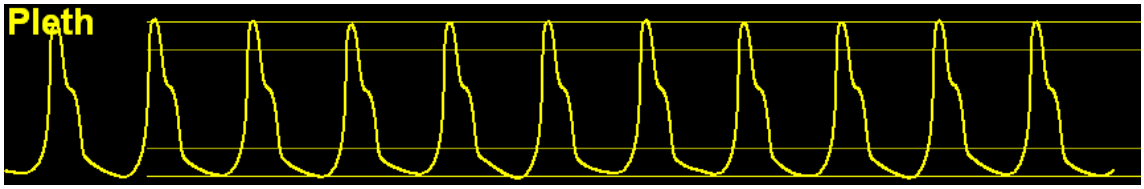
Breathing and gas parameters

SpO_2 wave – Plethysmogram

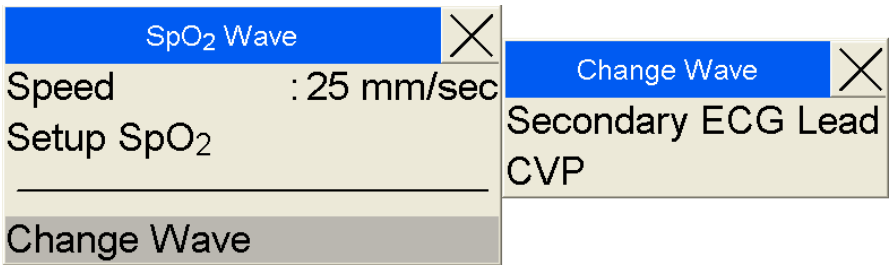
The Plethysmogram wave is displayed when the SpO_2 probe is registered as connected to the Patient simulator in the simulation.



Touch the Plethysmogram wave area on the Patient Monitor to enter the SpO_2 Wave menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Touch 'X' to close the menu.



NOTE: The waveform field on the Patient Monitor can be reconfigured to show other clinical waveforms. Press the Change Wave option to see which alternatives are available for this particular field.

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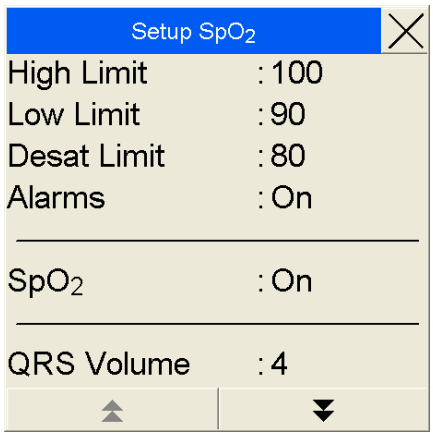
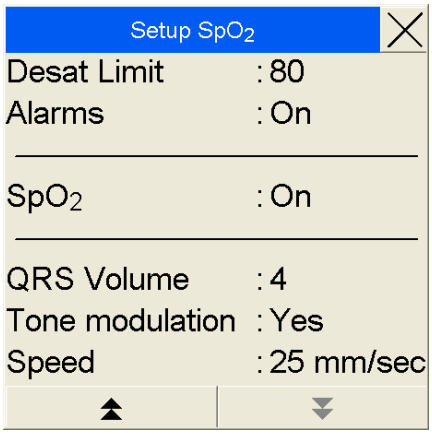
SpO_2 – Oxygen saturation

The SpO_2 parameter field displays the simulated patient peripheral oxygen saturation and alarm limits.

Touch the SpO_2 area on the Patient Monitor to enter the Setup SpO_2 menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.





Touch 'X' to close the menu.

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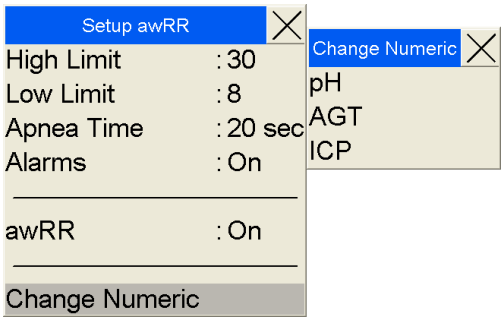
awRR – Respiratory Rate

The awRR parameter field displays the simulated patient's respiration rate and alarm limits.

The awRR is displayed when the ECG leads are registered as connected to the Patient simulator in the simulation.

Touch the awRR area on the Patient Monitor to enter the Setup awRR menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



Touch 'X' to close the menu.

NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

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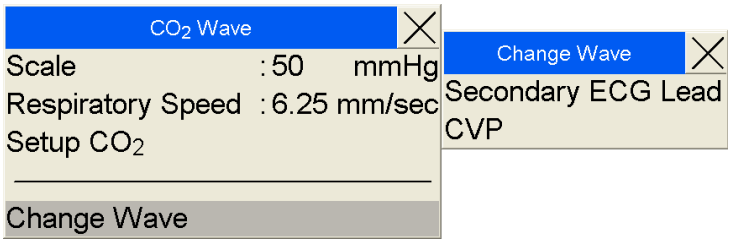
CO_2 wave – End-tidal Carbon Dioxide

The CO_2 wave field displays the simulated patient end-tidal CO_2 pressure and alarm limits. The CO_2 wave is displayed when the capnometer is registered as connected to the Patient simulator in the simulation.

Touch the CO_2 waveform to access the CO_2 Wave window. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



Touch 'X' to close the menu.

NOTE: The waveform field on the Patient Monitor can be reconfigured to show other clinical waveforms. Press the Change Wave option to see which alternatives are available for this particular field.

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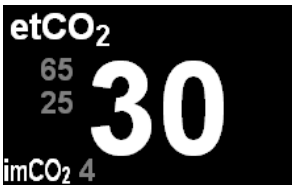
CO_2 – End-tidal Carbon Dioxide pressure



The CO_2 parameter field displays the simulated patient end-tidal CO_2 pressure and alarm limits.

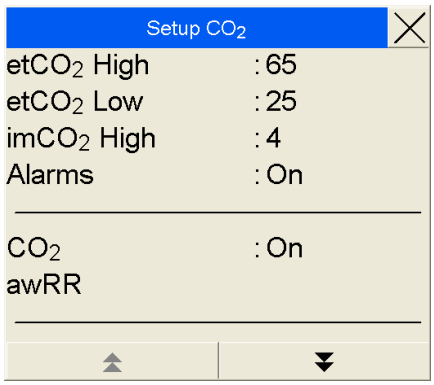
Touch the CO_2 area on the Patient Monitor to enter the Setup CO_2 menu. The available options are shown in the list.

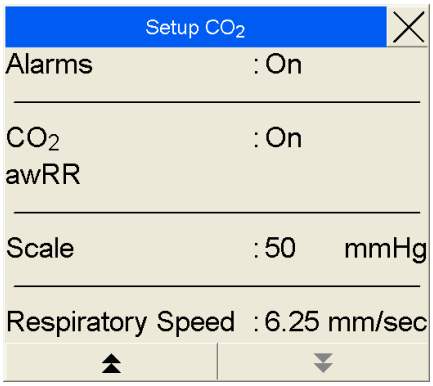
The options extend over two pages. Select the Up or Down arrow buttons to switch between the fields.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

Selecting the awRR will open the Setup awRR menu.

Touch 'X' to close the menu.





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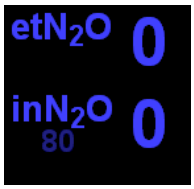
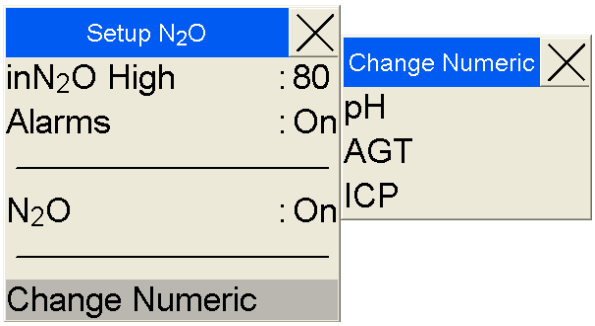
N_2O – Nitrous Oxide pressures



The amount of simulated inhaled and exhaled Nitrous Oxide can be monitored from the Patient Monitor.

Touch the N_2O area on the Patient Monitor to enter the Setup N_2O menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



Touch ‘X’ to close the menu.

NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

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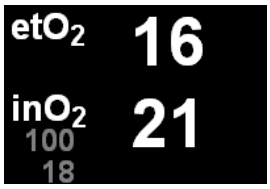
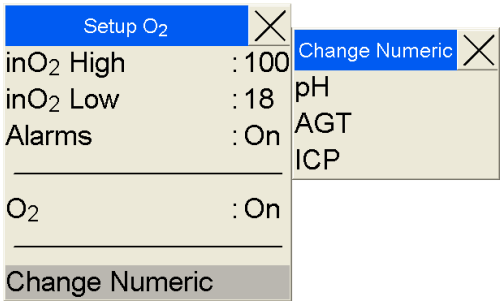
O_2 – Oxygen pressures



Simulated oxygen can be delivered to the simulated patient and pressures can be displayed on the Patient Monitor.

Touch the O_2 area on the Patient Monitor to enter the Setup O_2 menu. The available options are shown in the list.

Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.



Touch 'X' to close the menu.

NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

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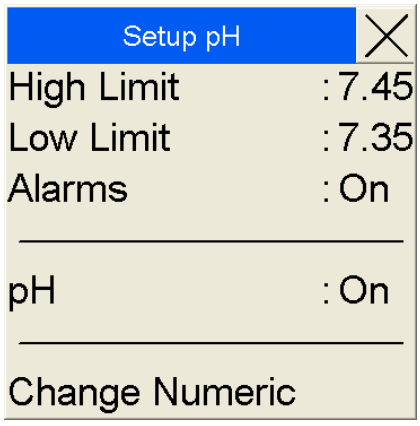
pH – Arterial pH

The pH parameter field displays the simulated patient arterial blood pH and alarm limits.

Touch the pH area on the Patient Monitor to enter the Setup pH menu. The available options are shown in the list.



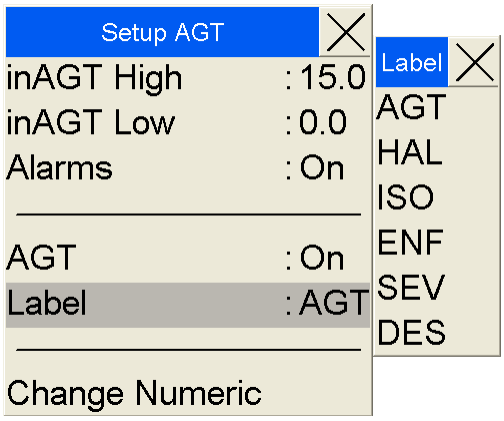
Set each individual option by touching it. A submenu with the available settings appears next to the Setup menu. Select the desired setting.

NOTE: The parameter field on the Patient Monitor can be reconfigured to show other clinical parameters. Press the Change Numeric option to see which alternatives are available for this particular field.

Touch 'X' to close the menu.

Anesthetic gases and parameters

For use in special simulations, the following anesthetic gases and parameters can be displayed in the parameter fields of the Patient Monitor. To change the parameter displayed, select the parameter menu and then select the Change Numeric option. If available, select the Numeric which is AGT (alternatively, HAL, ISO, ENF, SEV or DES). From the Label option, select the anesthetic gas parameter to display in the Patient Monitor.



For each anesthetic gas parameter, the alarm limits and alarm setting can be set. The following types can be applied to this field.

- **AGT – Agent**
- **HAL – Halothane**
- **ISO – Isoflurane**
- **ENF – Enflurane**
- **SEV – Sevoflurane**
- **DES - Desflurane**

NOTE: Only one of these anesthetic gases is available at a time.

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Troubleshooting common problems

1. The Laerdal Patient Monitor application is not available when clicking the Windows Start key. The program is probably not installed on the computer that you try to use as the Patient Monitor.
   - Locate and use the original computer supplied with the Laerdal Patient Monitor application.
   - Contact an IT professional to set up your new computer for communication with patient simulator and have the Laerdal Patient Monitor software installed on the new computer.
   - Contact Laerdal.
2. There are no Patient simulators available for connection.
   - Ensure that the Patient simulators are switched on.
   - Ensure that the Patient Monitor computer is activated on the wireless or LAN network, and has access to the Patient simulators.

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Contacting Laerdal

Contact your Laerdal Service Centre for further information or help.
Visit the SUN website to search for solutions shared by other users.

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