Servo-c

Startup guide

This document is intended to provide information to an international audience outside of the US.

GETINGE


Previous alarms
PRVC
Alarm limits
14:48
16/06/21
90 min
PBW 56 kg
VT/PBW
6.3
ml/kg
21
cmH2O
PEEP
7.9
cmH2O
18
b/min
I:E
1 : 2.7
O2 conc.
21
%
27.2
ml/cmH2O
6.4
l/min
368
ml
355
ml
Cancel
Accept
100 %
O2 BOOST
Tidal volume
370
Disconnection
Standby

Contents

Servo-c

This guide is intended for healthcare professionals as start up training using the Servo-c®, version 4.4. It does not cover all aspects of the Servo-c ventilator.

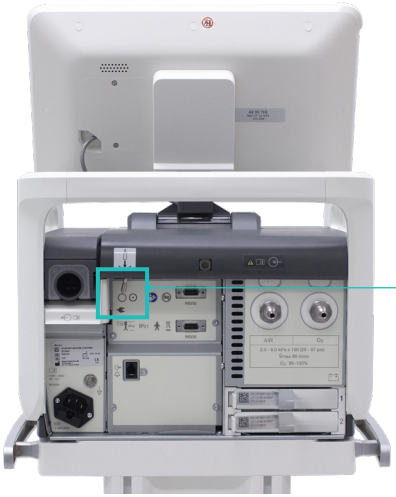
Please see the user's manual for more information.

Some modes and functions are options and might not be included.

1 System overview

1.2 Workflow to start ventilation

1. Turn on the ventilator system, prepare the patient circuit to be used and perform a pre-use check.
2. Select patient category.
3. Select invasive or non invasive ventilation.
4. Set the ventilation mode or therapy.
5. Check, and if necessary, adjust the alarm limits.
6. Enter data for the new patient, including height, weight, and gender (optional).
7. Start ventilation and connect the ventilator system to the patient.
8. Adjust alarm limits if necessary.



On/Off swith

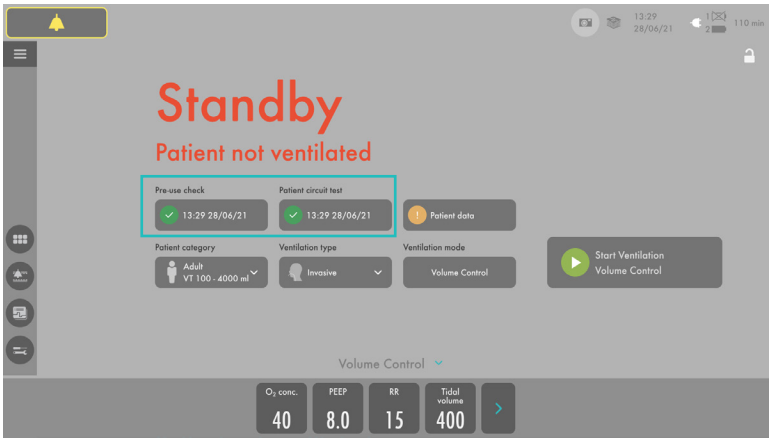
1.3 Pre-use check

The pre-use check takes approximately five minutes, it is started from Standby view and is semi-automatic.

The patient circuit test measures resistance and compliance in the patient circuit. If the patient circuit is changed and no new patient circuit test is performed, the ventilator will compensate incorrectly with the previous patient circuit. If the correct circuit is not tested, the following risks may arise:

- In volume-based modes, the volume delivered to the patient will be incorrect.
- In pressure-based modes, the volume measured will be incorrect.

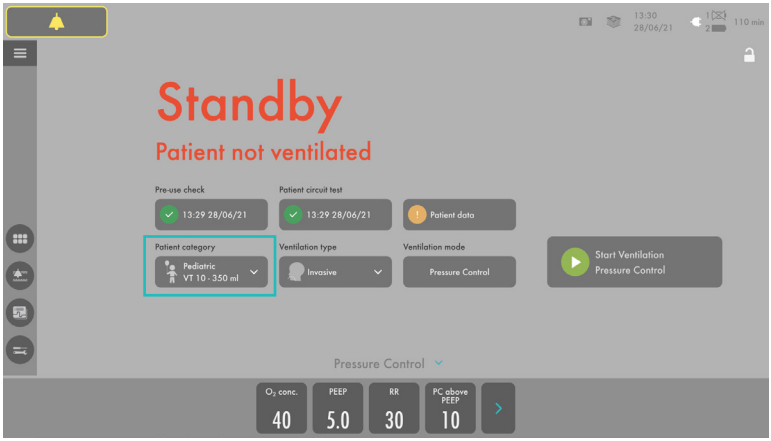
The Patient circuit test is included in the pre-use check but can be left out and be performed later without affecting the pre-use test result.



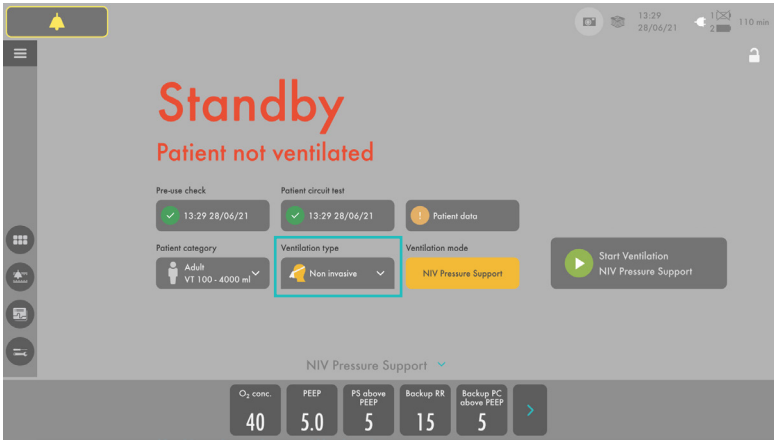
The symbol highlighted below indicates that the circuit compensation is on. If there has not been any circuit compensation there will not be any symbol present.

1.4 Modes and settings

There are two different patient categories, adult and pediatric.

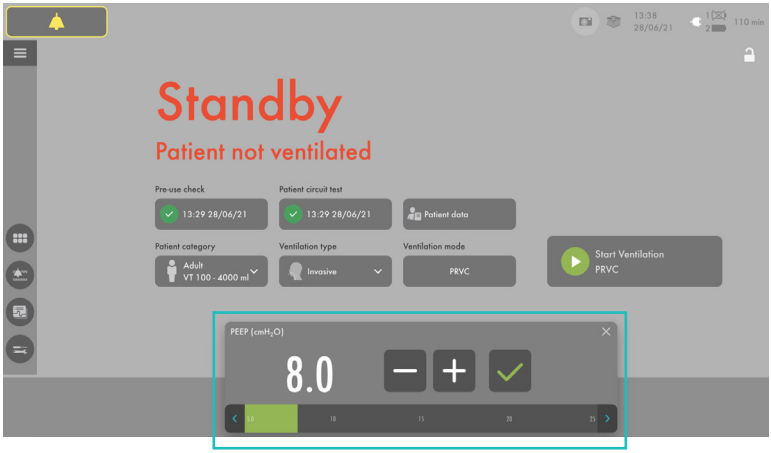


Select non invasive ventilation or invasive ventilation.



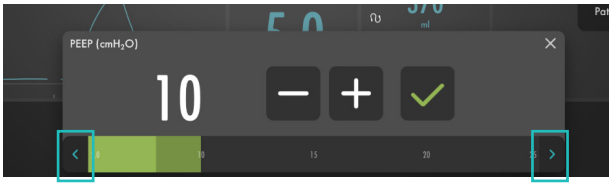
Slide the bar to the right or left to increase or decrease the settings. Confirm the setting by tapping ✓.

Exit settings without changing by tapping the ✕.



The bar displays the safety scale, which is the range that represents normal use. To access the full settings range tap the ›.

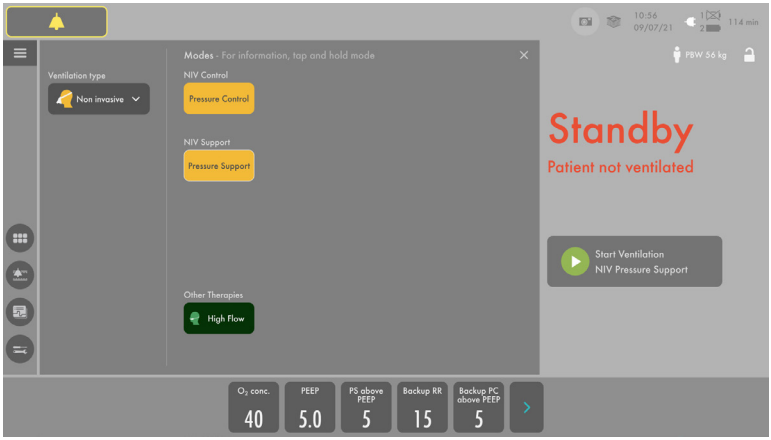
To only show the range that represents normal use again tap the ‹.



1.5 Modes

The current mode tile is always highlighted and the previous mode tile is marked *previous*, together with the date and time it was last used.

Non invasive modes: All non invasive modes are optional and may therefore not be available.



The mode settings are divided into supported and controlled settings.

Supported mode setting

Apnea Time

Backup mode setting

Additional information

1.6 Context based guidance

Tap and hold on the mode tile to see more information.

Dynamic images are presented for some of the settings. A dynamic image illustrates the effects of changes made.

Press the (i) symbol and additional information will be presented.

1.7 Trigger settings

When triggering is based on flow, to the left on the scale, the ventilator system senses deviations in the bias flow delivered during expiration. The further to the left on the scale, the less effort the patient has to make. At the far left of the scale, there is a risk of auto-triggering, and the scale and value are therefore marked in red.

When triggering is based on pressure, to the right on the scale, the ventilator system senses deviations in the pressure below PEEP created by the patient. The pressure below PEEP required to initiate a breath is displayed when the setting is made. The further to the right on the scale, the greater the patient effort required to trigger.

1.8 VT&PBW

In adult patient category enter patient gender and height and in pediatric categories enter weight. It is important that patient circuit compensation is on to receive accurate VT/PBW or VT/BW.

The ventilator monitors the ratio of tidal volume to predicted body weight (VT/PBW).

In volume controlled modes the VT/PBW (ml/kg) is calculated and presented to the right of the volume. VT/PBW (ml/kg) is continuously trended and measured.

For pediatric patient category body weight (BW) is used.

1.9 User interface

By pressing  additional settings and more values become available.

1.10 Active/inactive modes and settings

The grey text and settings indicate an inactive mode and settings. If a mode is changed then the other mode becomes white.

2 Alarms

Light frame for 360° visibility. Alarm indication is shown in two ways; blinking value (measured or calculated) and alarm message in the alarm message area.

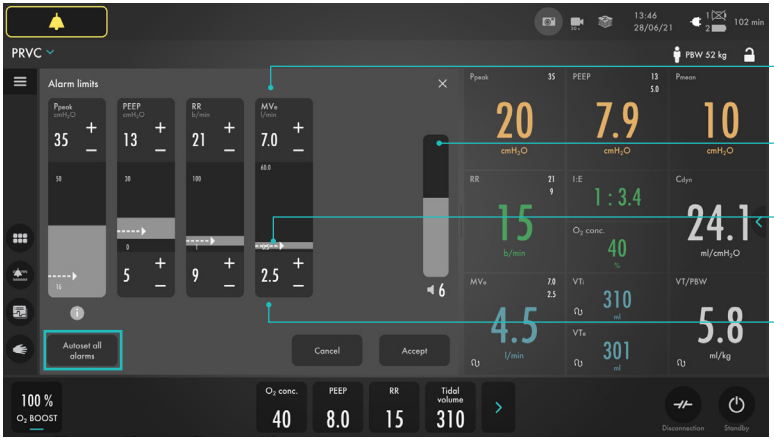
High priority
Medium priority
Low priority

With some alarms the audio can be turned off by tapping . Audio off is displayed in the corresponding parameter in the numerical values area and a message is displayed in the status bar.

If one or several alarms are active tap on the active alarms in the status bar to access the alarm management checklist.

Settings for alarm limits include upper and lower limits settings and the current measured value.

Autoset alarm limits are available in controlled modes.



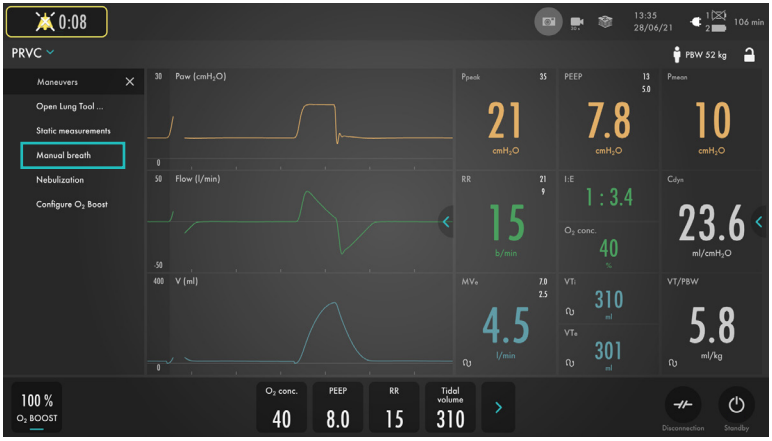
2.1 Batteries

If the ventilator system is running on battery power, the battery symbol turns yellow and the mains power symbol disappears. The estimated remaining battery time in minutes is always displayed, regardless of the power supply in use.

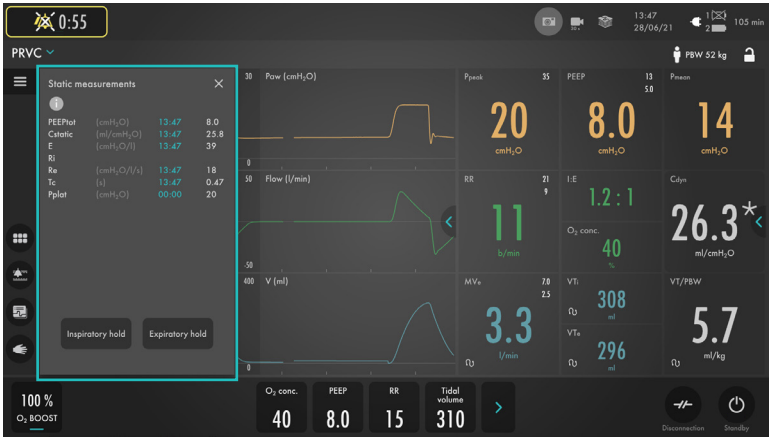
Make sure that the battery in slot two is in place as a backup at all times during ventilation.

2.2 Maneuvers

When the Manual breath is tapped, the ventilator system will initiate a new breath cycle according to the current ventilator settings.



2.3 Static measurements



Maneuvers

2.4 Inspiratory hold

This function is activated by pressing linspiratory hold. This function can provide an exact measurement of the end inspiratory lung pressure. It can be used to pause ventilation during X-ray or to determine the plateau pressure (Pplat), or, together with the expiratory hold, to calculate static compliance.

2.5 Expiratory hold

Expiratory and inspiratory valves are closed after the expiration phase is completed for as long as Expiratory hold is pressed. Expiratory hold provides an exact measurement of the end expiratory pause pressure. It can be used to determine total PEEP and, together with inspiratory hold, static compliance (Cstatic). The dynamic pressure is displayed on the PEEP numerical value.

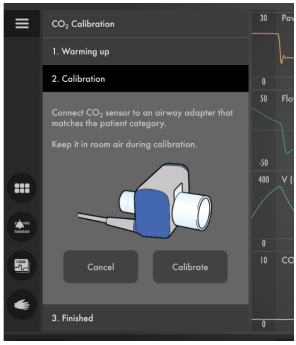
2.6 Nebulization

Nebulization can be either activated for a certain period of time (5–30 minutes) or continuous (only use Aerogen Solo).

2.7 CO_2

CO_2 connector is located at the front of the ventilator. CO_2 is optional on the Servo-c.

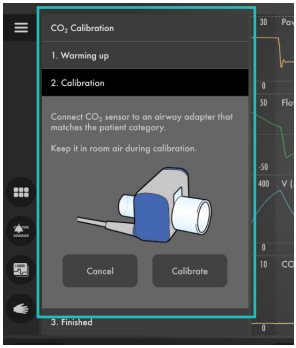
Plug in the cable and follow the instructions on the screen. CO_2 alarms can be switched off.

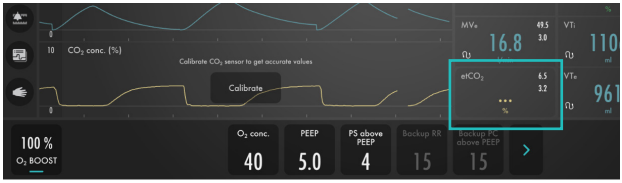


2.8 CO_2 Measurement

When a message is displayed promptig the user to calibrate the sensor. Follow the on screen instructions to calibrate the sensor. If the sensor is not calibrated before connecting to the patient there will be a waveform but no metrics in the numeric field and a message on the waveform telling the user to calibrate.

When connected a symbol will appear in the status bar this also serve as a shortcut to stop CO_2 measurement.





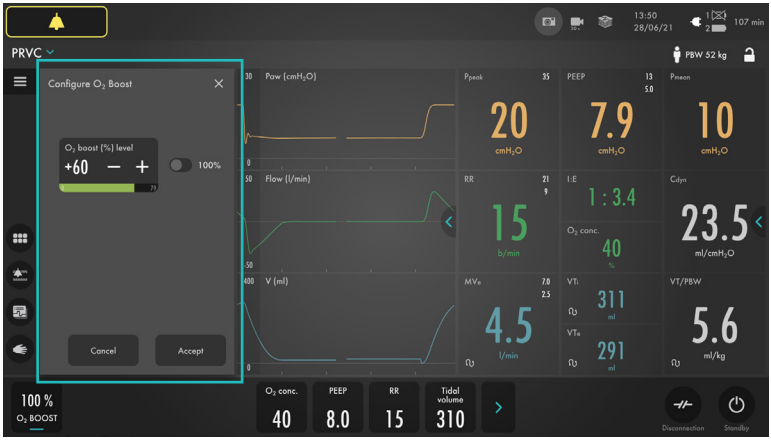
Tap the CO_2 symbol to deactivate the measurement. It is also possible to silence the alarms for the CO_2 measurementt.

2.9 O_2 boost

When tapped, O_2 boost delivers the oxygen setting displayed here for a period of 1 minute. The O_2 boost function can be interrupted by tapping the grey cancel symbol in the O_2 boost timer window anytime during the 1 minute interval.

By configure O_2 Boost level, it is possible to change the desired level for the O_2 boost function. It is possible to lock the O_2 boost level to 100%.

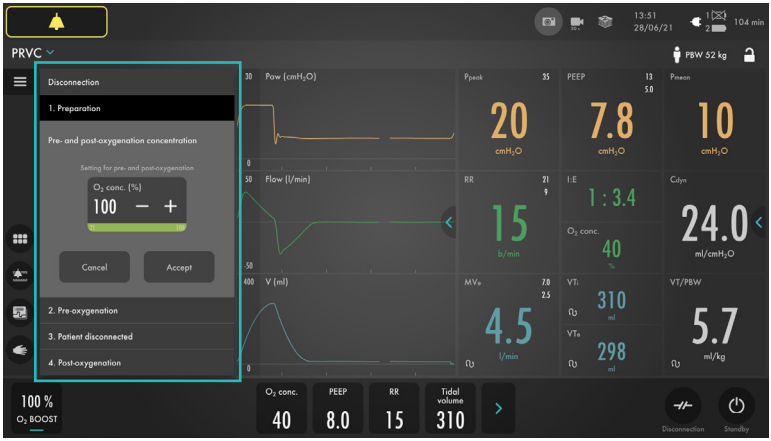
It is also possible to set it to 0%, in which case the O_2 boost function will no longer be active and will be replaced by three asterisks.



2.10 Disconnect

Disconnection enables automatic inhibition of the ventilator system during a tracheal suction procedure or when briefly pausing ventilation in invasive modes. The ventilator system is prevented from cycling without activating alarms.

When using a closed-suction system, disconnection should not be used. The O_2 boost function should be used instead for oxygenation purposes.



3 Trends

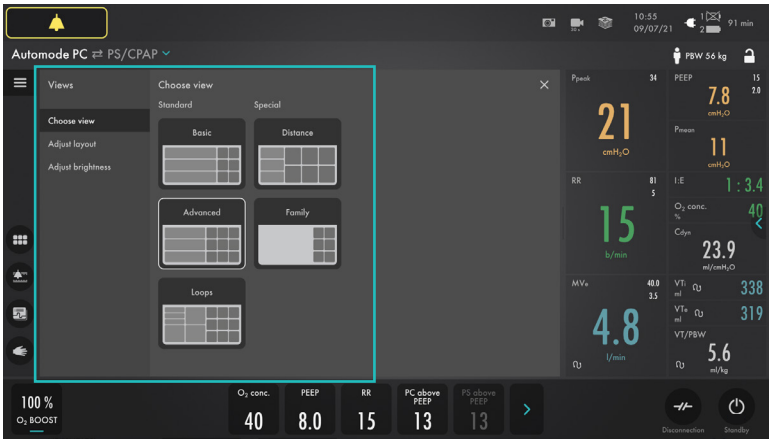
Trend values are stored every 60 seconds and retained for a maximum of 72 hours. Stored events and system changes are also displayed here.

The time valid for the cursor position is displayed. If events have been stored, their number is displayed in the ring shown in the figure and an explanation appears to the left of this ring.

Tap Organize in the Trends window to place the trends in the desired order by dragging and dropping the different trended values presented.

4 Views

The ventilator system offers different views to suit different needs. They are accessed via the quick menu during ventilation.



5.1 Basic view

The view consists of two or three waveforms – pressure and flow waveforms are always present, together with the volume waveform if desired.

All non invasive ventilation modes start in the Basic view.

5.2 Advanced view

The view consists of two to four waveforms and three columns of numerical values.

5.3 Servo Compass

The Servo Compass can be included in the Advanced view. Servo Compass visualizes volume and pressure in relation to set targets in invasive modes.

Tap in the Servo Compass view near the set targets to open the Ventilation targets window.

5.2 Loop view

The view consists of up to three loops:
pressure-flow, pressure-volume and volume-flow.

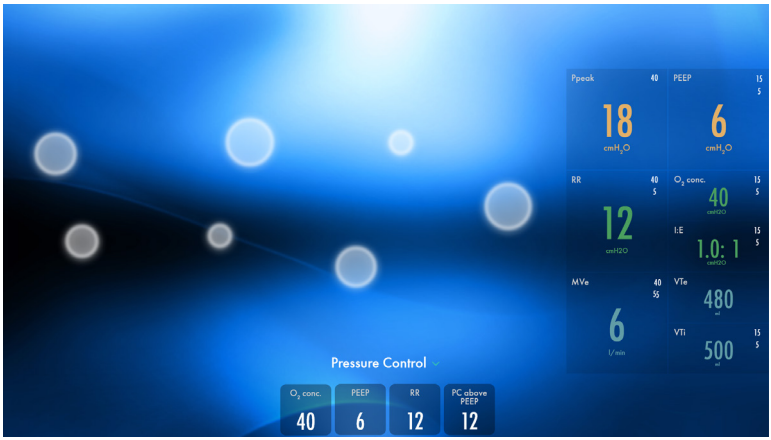
5.5 Distance view

There are six enlarged numerical values and
the pressure, flow and volume waveforms.

5.6 Family view

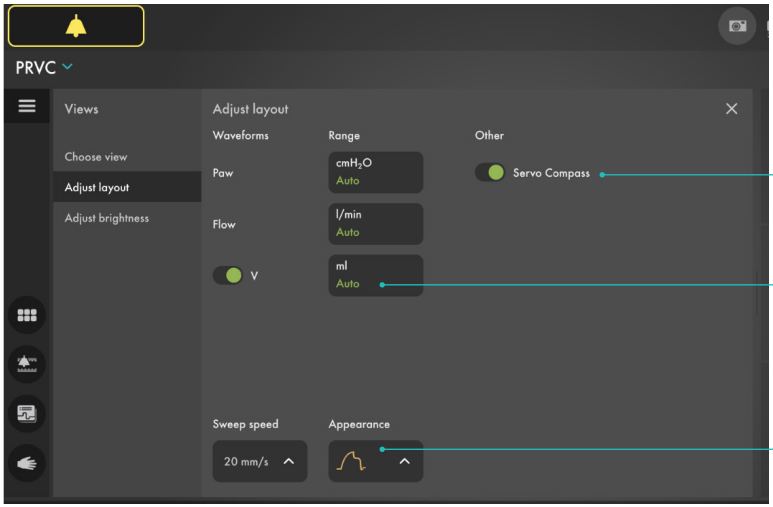
Displayed information is minimized to:
– two columns of numerical values
– a dynamic representation (moving bubbles) showing that ventilator system is running.

To exit the family view you can tap anywhere on the screen.



5.7 Screen layout

The ventilator system can display a minimum of two waveforms and a maximum of four, depending on the view selected.

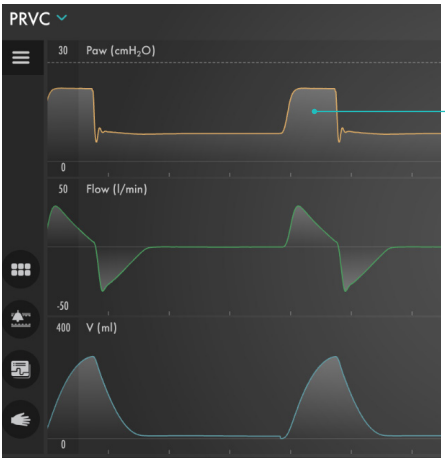


View Servo Compass

Deactivate or activate Volume flow curve

Choose filled or non-filled waveforms

It is possible to adjust the layout by tapping and holding a waveform or via views in the menu bar.

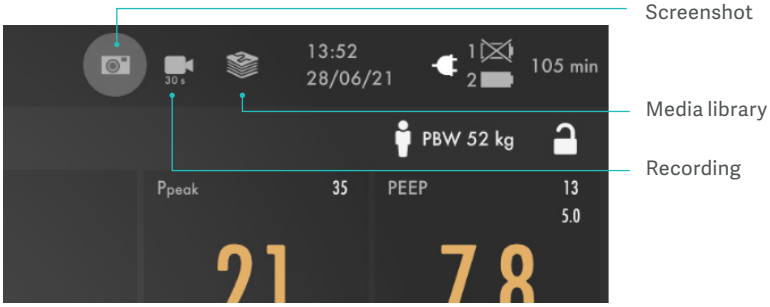


Filled waveforms

5.8 Panel lock

Possible to lock the screen for example for cleaning. Tap and hold to unlock.

5 Library



6.1 Recording

Recording highlighted to left and screenshot to right.

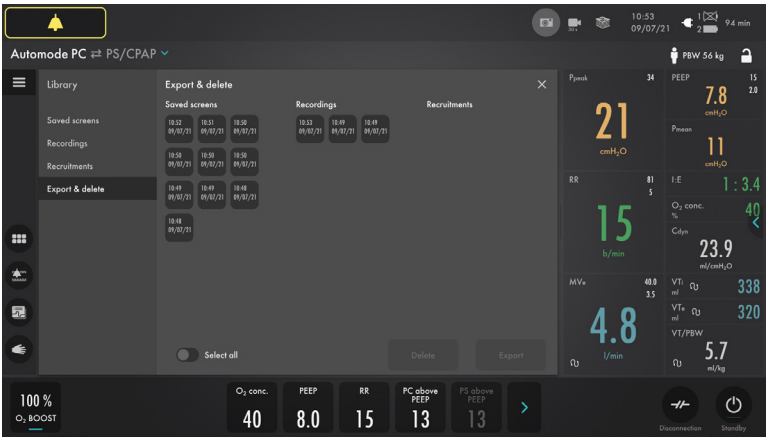
A 30 second long recording will be made starting 15 seconds before, and lasting until 15 seconds after the time the recording was initiated.

The recording will be stamped with the date and time that it was initiated and will be saved under the Recordings tab in the Library. Forty recordings can be saved on the Servo-c.

6.2 Screenshots

The screenshot will be stamped with the date and time it was taken and saved under the Saved screens tab in the Library window. Forty screenshots can be saved.

All screenshots and recordings can be transferred to a USB C memory stick. The USB C port is located under the screen.

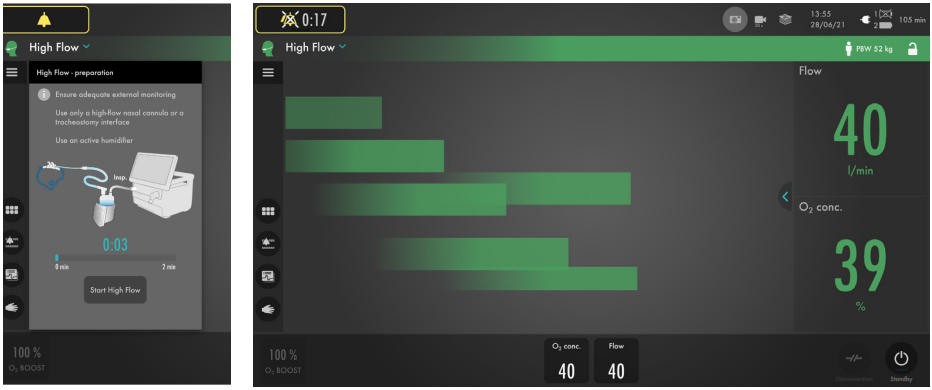


6.3 Non invasive ventilation

The screen layout is changed in non invasive modes and the leakage compensation is always active in non invasive modes. Leakage is measured and presented in percent.

6.4 High Flow therapy

High Flow therapy can be selected in both invasive and non invasive ventilation as well as in Standby. Possibility to switch directly from invasive ventilation.



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Manufacturer · Maquet Critical Care AB · Röntgenvägen 2 SE-171 54 Solna · Sweden · +46 (0)10 335 73 00

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