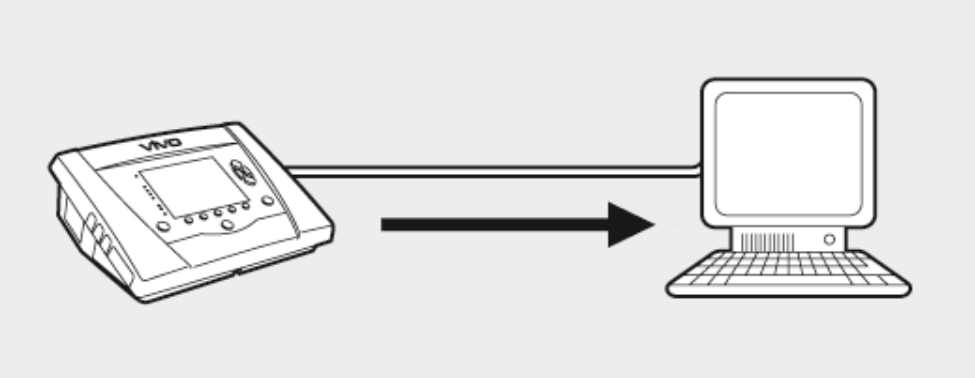
Vivo 50/60 PC Software Help

1. Introduction

1.1 Quick guide

The Vivo 50/60 PC Software is the support software for follow-up on patient treatment. To use the Vivo 50/60 PC Software you need to transfer data from the Vivo 50 or Vivo 60 to your PC. The PC Software can communicate with the ventilator in two ways, either using an USB cable or a CompactFlash memory card.

Communicate with the Vivo 50 or Vivo 60 using an USB cable



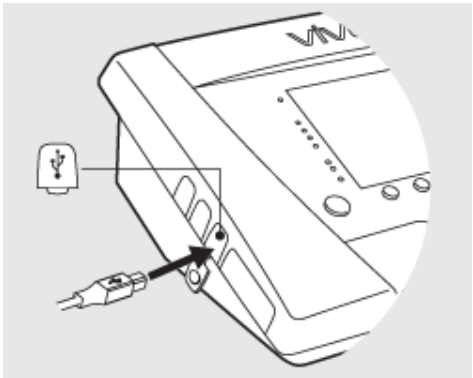
For electrical safety reasons it is recommended to use a laptop running on battery, not connected to mains. Using a desktop or laptop PC connected to mains may require an isolated USB cable, depending on the symbol of the ventilator's USB port:

	The ventilator's USB data connection port is not isolated: Use an isolated USB cable (part no. EU: 005092, UK: 005093, US: 005094).
	The ventilator's USB data connection port is isolated: An isolated USB cable is not required.

A USB data cable (part no. 004886) can be used:

- **if no patient is connected to the ventilator, or**
- **if the patient is connected to the ventilator, and a laptop running on batteries is used for transferring data.**

1. Connect the USB cable to the Vivo 50/60 at the left side of the ventilator.

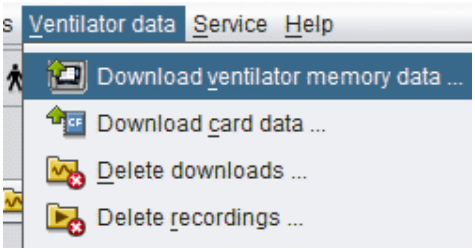


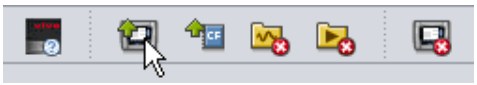
2. Connect the USB cable to your PC.

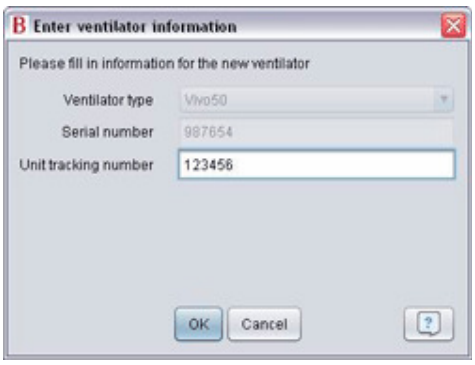
Make sure you have installed the Breas USB drivers before connecting the cable to your PC.

3. The Vivo 50/60 is now online with the PC. Download the ventilator data by choosing **Ventilator data > Download ventilator memory data ...** in the menu or clicking the **Download ventilator memory data** icon in the toolbar.

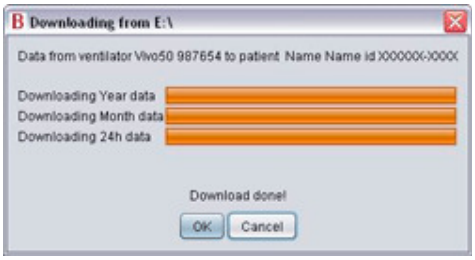
If it is the first time a ventilator with a specific serial number is used the dialog **Enter ventilator information** is shown. The ventilator type and the serial number is read from the ventilator. The unit tracking number is an optional administrative number that the treating institution may give the ventilator.





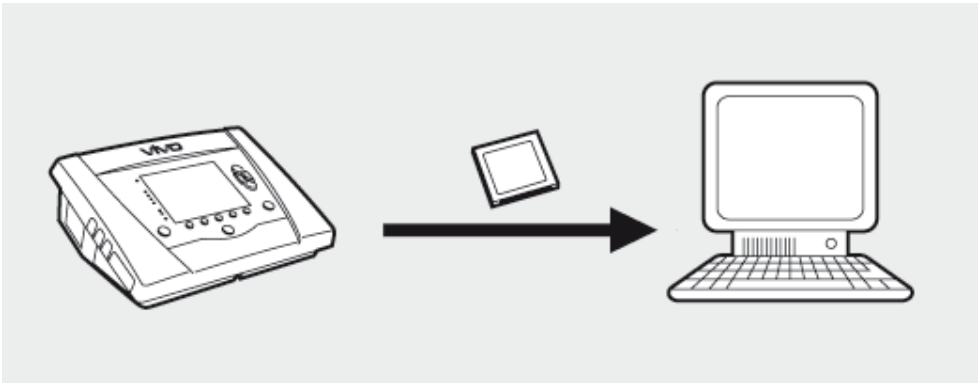


4. The ventilator data and settings are now downloaded from ventilator and can be viewed and analysed in the Vivo 50/60 PC Software.

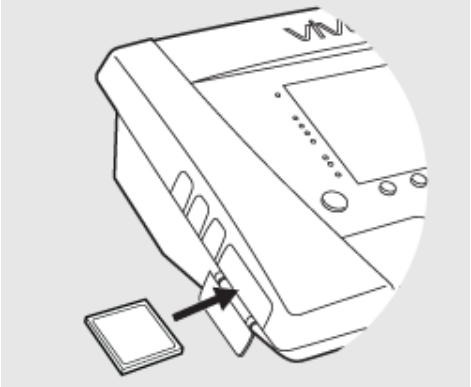


Communicate with the Vivo 50 or Vivo 60 using a memory card

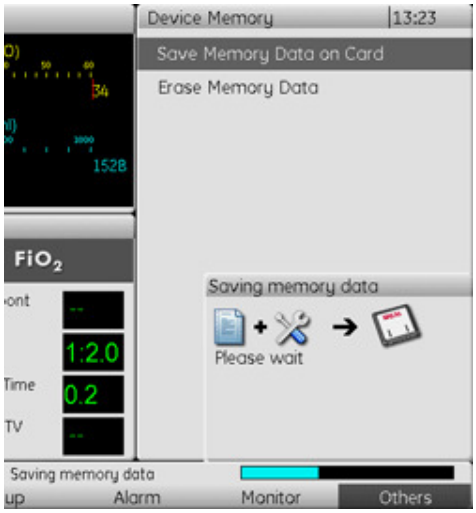
You can also communicate with the Vivo 50/60 using a memory card.



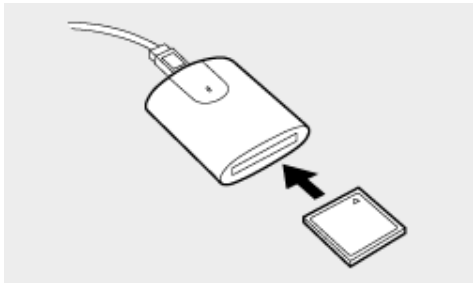
1. Insert the memory card in the memory card slot on the side of the Vivo 50/60. Make sure the memory card is properly inserted.



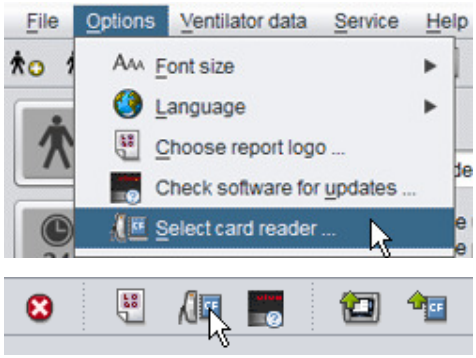
2.When the memory card is inserted into the ventilator the **Device Memory** menu is automatically displayed. Choose **Save Memory Data on Card** and wait while the ventilator saves to the memory card.



3. Connect the memory card reader to the PC and insert the memory card.

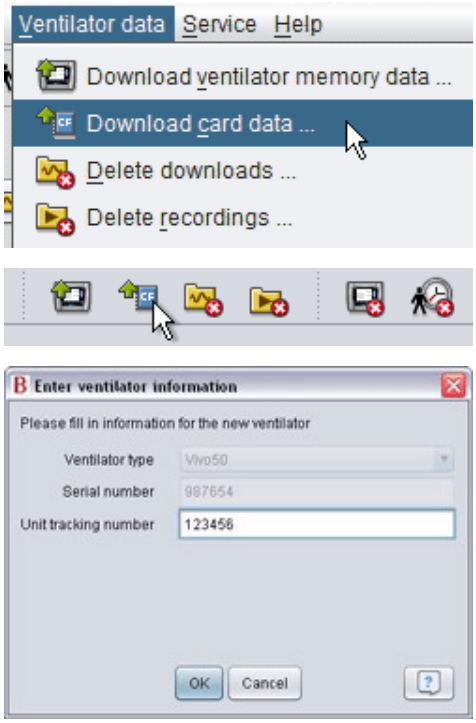


4. Select memory card reader either by choosing **Options > Select card reader ...** in the menu or clicking the **Select card reader** icon in the toolbar.

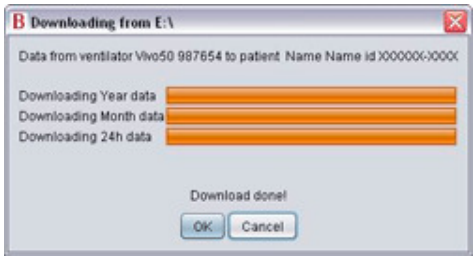


6. To download the ventilator data choose **Ventilator data > Download card data** in the menu or use the icon in the toolbar.

If it is the first time a ventilator with a specific serial number is used the dialog **Enter ventilator information** is shown. The ventilator type and the serial number is read from the memory card. The unit tracking number is an optional administrative number that the treating institution may give the ventilator.



7. The ventilator data and settings are now downloaded from the memory card and can be viewed and analysed in the Vivo 50/60 PC Software.



1.2 Software

Intended use

The Vivo 50/60 PC Software is intended to be used for follow-up on patient's ventilator treatment. The Software may indicate possible events that could require further clinical investigation.
The Vivo 50/60 PC Software is intended to be used in institutions, hospitals and clinics by trained clinical personnel, physicians, home care and service personnel.

System requirements

The software requires Windows XP, Windows Vista or Windows 7 to run. Be sure to use the latest version update of one of these recommended Windows operating systems. The software might run under other Windows operating systems, but this is neither tested nor supported.

Remote monitoring of multiple ventilators requires more resources. A modern, powerful PC is recommended.

Vivo 50/60 PC Software does not substitute an alarm unit

The alarm display of the PC Software does not substitute a remote alarm unit. A PC does not comply with the safety requirements for alarm regarding visibility and audibility.

1.3 Software help

Accessing the software help

The software help is opened from the menu (choose **Help > View documentation**), by pressing **Ctrl + H** or by clicking the **View documentation** icon in the toolbar. You can also view help about the specific page that you are currently working with from the menu (choose **Help > Help**), by pressing **F1** or by clicking the **Help icon** in the toolbar.

Usage

In the table of contents you will find links to the different sections of the help file. After the introductory section there is an overview of the user interface of the Vivo 50/60 PC Software, followed by a section explaining the different dialog windows that you will encounter. The following sections explains the different functionality views. The final section explains how to print a patient data report.

To return to the top of the document at any time, click the red arrows located at the margin to the right of the section headings.

Throughout the help file, symbols are used to highlight specific information. The meaning of each symbol is as follows:

Warning!
Risk of death and serious personal injury.

Caution!
Risk of minor or moderate injury. Risk of equipment damage, loss of data, extra work, or unexpected results.

Note
Information that may be valuable but is not of critical importance, tips.

Browser compatibility

The software help is tested for Internet Explorer and Firefox. We recommend that you use the latest version of your browser. Other browsers such as Opera, Chrome or Flock could also be used, but layout details may differ.

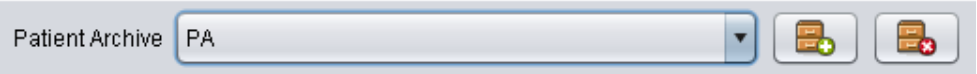
PDF version

There is a PDF version of the help file available in the software installation folder on your PC.

1.4 Patient data handling

In the Vivo 50/60 PC Software each patient has a unique **patient profile** that contains patient information and downloads from the ventilator. The software saves the profiles to **patient archives.** A patient archive may be any folder on your system and each archive may contain any number of patient profiles. Patient profiles need not be saved manually since the Vivo 50/60 PC Software saves all patient data automatically.

In any dialog that handles patient profiles you may choose patient archive using a drop down box and add or remove patient archives using the patient archive buttons.



Patient profiles may be exported to XBF (Compressed Breas Format) files. This is used to move data between PC:s.

See section 3. Dialogs for more detailed information on handling patient data.

2. User interface

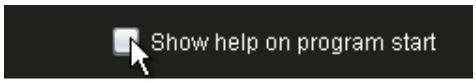
2.1 Select function

On the start screen you can choose between different views and functions of the Vivo 50/60 PC Software.

Language	Change the language in the program.
Download data	Download data directly from the ventilator or from a memory card.
Analyse patient data	Analyse data from the Vivo 50/60 in 24 hour data view, Month data view, Year data view or Alarm view.
Remote monitoring	Monitor the treatment remotely, record data and replay the monitoring.
Device information	A dialog that shows device information.

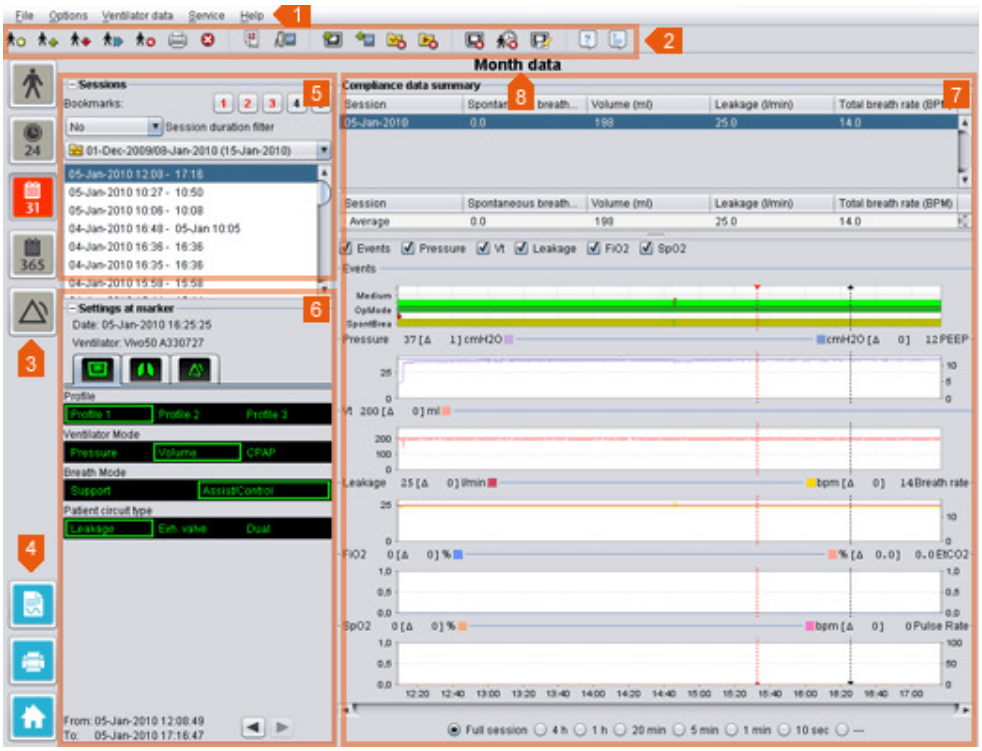
Clicking the right mouse button on any of the buttons **Download data, Analyse patient data** or **Remote monitoring** produces a shortcut to **Reopen** patient. This function lets you directly start downloading data for a recent patient or open a recent patient for analysis or remote monitoring.

By default the Vivo 50/60 PC Software Help is shown each time the software is launched. Turn off this function by using the checkbox located in the bottom right hand corner of the start screen.



2.2 The PC Software screen

Overview

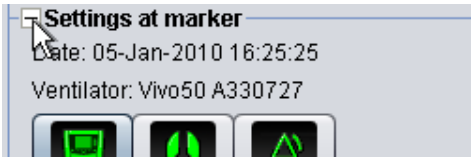


1. Menu	5. Sessions panel
2. Toolbar	6. Settings at marker panel
3. View buttons	7. Data/analysis panel
4. Function buttons	8. Title of current view

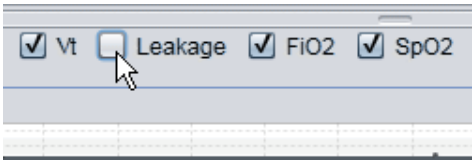
The Settings at marker panel and the Data/analysis panel may look different for different sessions and show varying settings and graphs. This depends on what ventilator type (Vivo 50 or Vivo 60) or ventilator firmware version was used during the session.

Panel layout

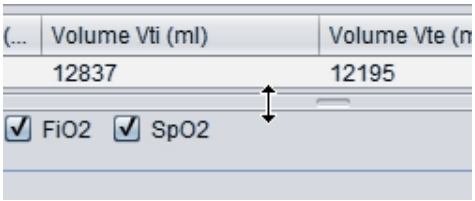
Some panels can be hidden and made visible using the minus/plus-icon at the top of the panel.



In views that contain Data/analysis panels with multiple graph fields, the visual representation of the different types of data may be switched on and off using the checkboxes located above the graphs.



In the Month data view, the division of the Data/analysis panel may be adjusted by using the split pane function. Click somewhere in the split field and drag the mouse vertically to set how much of the uppermost part of the panel is visible.

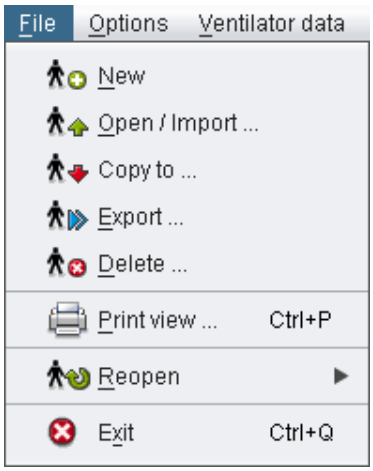


2.3 Menus

File

Choosing **File** from the menu bar will give the following options.

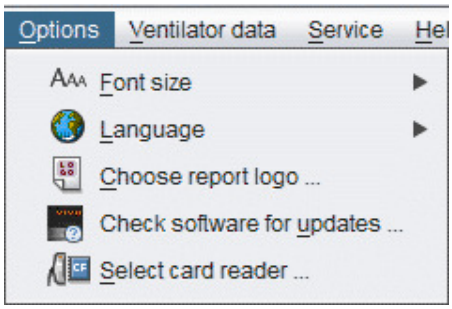
New ...	Creates a new patient profile. To work with any view in the Vivo 50/60 PC Software (except the start screen) a patient profile must be selected.
Open/ Import ...	Opens an existing patient profile.
Copy to ...	Copies an opened patient profile to a specified patient archive.
Export ...	Exports an open patient profile to an archived file.
Delete ...	Deletes a specified patient profile.
Print view ... (Ctrl+P)	Prints the current view.
Reopen	Opens recent patient.
Exit (Ctrl+Q)	Exits Vivo 50/60 PC Software.



Options

Choosing **Options** from the menu bar will give the following options.

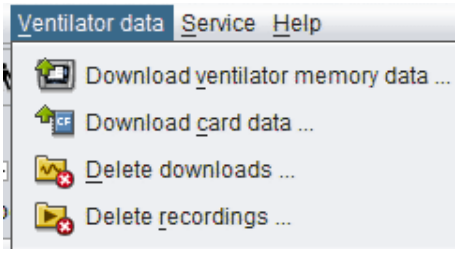
Fontsize	Change the fontsize in the program between **Small (Ctrl+1), Medium (Ctrl+2)** och **Large (Ctrl+3).**
Language	Change the language in the program.
Choose report logo ...	Choose a logo for the report.
Check software for updates ...	Choose if a check of software update will be performed at start.
Select card reader ...	If you are communicating with the ventilator using a memory card, select card reader here.



Ventilator data

Choosing **ventilator data** from the menu bar will give the following options.

Download ventilator memory data ...	Download 24 hour, Month and Year data from the ventilator via an USB cable. **This operation may take several minutes, and the ventilator can not be used during this procedure.**

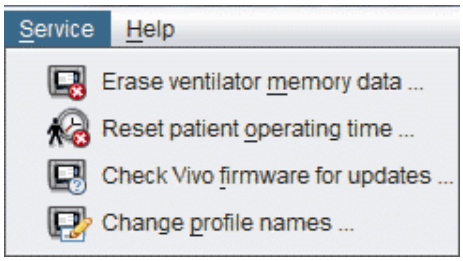


Download card data ...	Download 24 hour, Month and Year data from a memory card.
Delete downloads ...	Delete downloaded data.
Delete recordings ...	Delete recorded data. See section 9. Monitor view for detailed information on how to record data.

Service

Choosing **Service** from the menu bar will give the following options.

Erase ventilator memory data ...	Erase all data in the memory of the ventilator device.
Reset patient operating time ...	Reset patient operating time on the ventilator.
Check Vivo firmware for updates ...	Check if there is a newer version of the Vivo firmware available.
Change profile names ...	Change profile names on the ventilator.

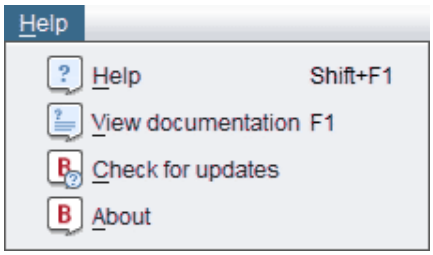


All options in the Service menu requires a connected ventilator.

Help

Choosing **Help** from the menu bar will give the following options.

Help (Shift+F1)	View help for current view in the software.
View documentation (F1)	View full help documentation for the software.
Check for updates	Check if there is a newer version of the software available.
About	About the software.



2.4 Toolbar

Commonly used menu options are available as icons in the toolbar. See 2.3 Menus for further information on specific icons.

2.5 Views and functions

Located on the left hand side of the screen you will find buttons used to reach the various views of the Vivo 50/60 PC Software, as well as buttons used to access central functions.

Views

Patient information view

24 hour data view

One month data view

Long term data view

Alarm view

Monitor view
[in Remote monitoring]

Replay view
[in Remote monitoring]

The active view is highlighted with a red version of the current view button.

Functions

Print report

Print view

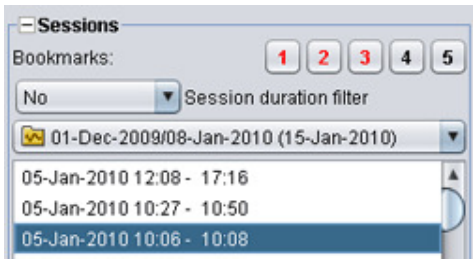
Stop supervising a patient
[in Remote monitoring]

Supervise another patient
[in Remote monitoring]

Home

2.6 Sessions panel

Sessions listing



The 24 hour data and the Month data views contain a sessions panel where the patient's downloads are available in a drop down box represented by a yellow folder.

The dates and times listed in the drop down box are start date of session, end date of session and, within brackets, date and time when the session was downloaded. Each download can contain several sessions, which are listed below the drop down box. Choose session by selecting an item in the list.

Multiple sessions can be selected by using the **Ctrl** and **Shift** keys. In the graph panel the selected sessions will be merged into combined graphs, starting with the oldest session.

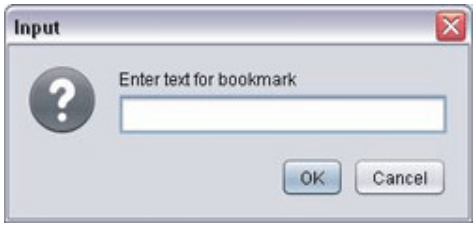
Selected sessions are maintained while switching between the 24 hour data and the Month data views.

Sessions that are logged on ventilators with different ventilator types and/or ventilator versions can contain different types of data. Therefore the graphs and settings may vary for different sessions.

Bookmarks

It is possible to bookmark five different time marker positions in the 24 hour data and Month data views. This makes it possible to return to these positions later. Click on one of the bookmark buttons (numbered 1 to 5) to set a bookmark. When a bookmark is set the number of the button turns red. See section 2.7 Graphs for detailed information on time markers.

Right-click on a bookmark button to produce a menu where you can select **Enter text for bookmark** which gives you a possibility to save a comment for the bookmark. The comment is shown as a "tool-tip" while moving the mouse pointer over the button.



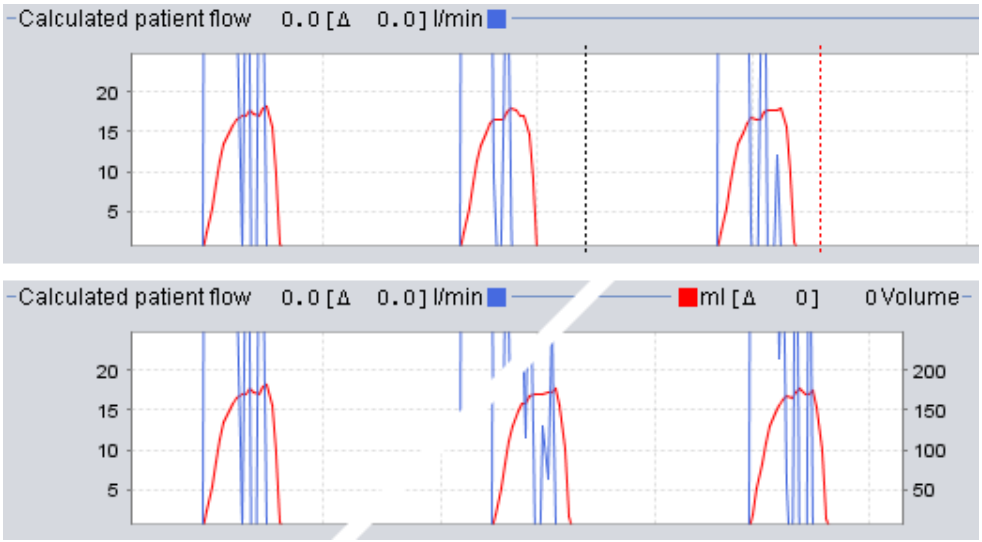
Bookmarks are included in the patient report (see section 11 Report).

Session duration filter

Select session lengths to be displayed by using the session duration filter drop down box. The filter hides sessions which are shorter than the specified duration.

2.7 Graphs

Overview



Some views contain data graphs over registred data. Each graph may contain one or two types of data. In the cases with two types of data different colours are used for the graphs and the vertical axis on the right and left sides respectively represent the two types of data.

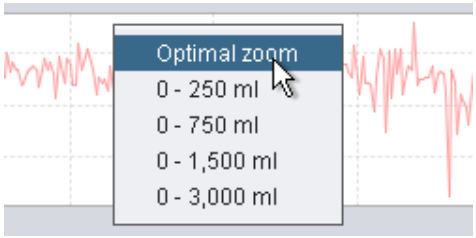
The following functions are available in the graphs for flexible viewing.

Vertical zoom

Zoom in and out in the vertical axis by clicking one or several times on the scale located on the left hand side of the graphs. Four different zoom levels are available. Clicking a fifth time will take you back to the zoom level you started from.

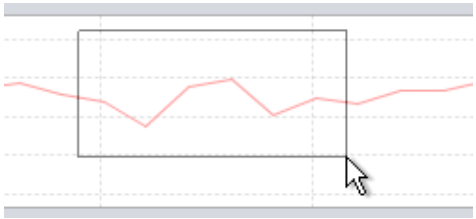
Zoom menu

Click the right mouse button anywhere in a graph to produce a zoom menu. You may choose between an optimal zoom level that shows as much of the data as possible, and a number of graph specific zoom levels. In graphs with different types of data on the right and left vertical axis the menu will show different choices depending on where in the graph the mouse pointer is positioned.



Free zoom

It is possible to freely zoom in and out in a graph using the mouse. Hold down any mouse button and drag in lower right direction. A rectangle will appear that marks the area which will be zoomed in. The new view will appear in the graph window.

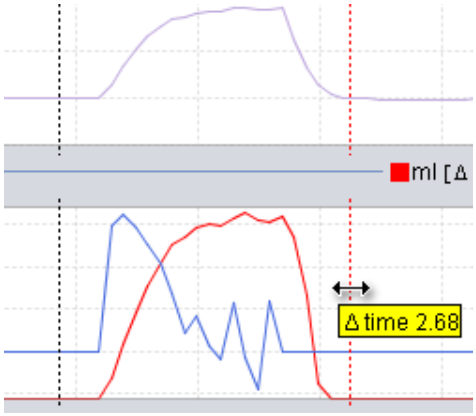


Show all available data by holding down left mouse button and dragging in any direction (except down to the right) and then releasing the mouse button.

Time markers

In order to read and analyse the values at a specific time the time position marker can be

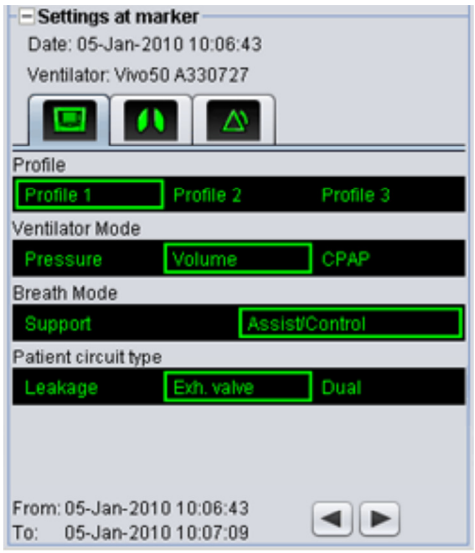
used. The marker is represented by a black dotted line, which is by default located at the right side of the graph window. The graph title will alter and display relevant information for the position where the marker is placed. Additional information for the marker position is displayed in the Settings at marker panel (see next section).



There is also a delta time marker available, represented by a red dotted line, which is by default located at the right side of the graph window. The black dotted time marker must be moved before you can move the red dotted delta time marker. The time difference between the two lines is displayed while moving the markers.

2.8 Settings at marker panel

The views that contain graphs also contain the **Settings at marker** panel. This panel displays information on ventilator settings at the position of the time marker.



When the Vivo 50/60 PC Software is used for remote monitoring a Settings panel appears. It is similar to the Settings at marker panel except that all values are momentary.

Switch between the different settings using the tab icons:

 **General ventilator settings**

 **Operation mode settings**

 **Alarm settings**

Located at the top of the Settings at marker panel you will find the date and time for the current marker position as well as the serial number of the ventilator.

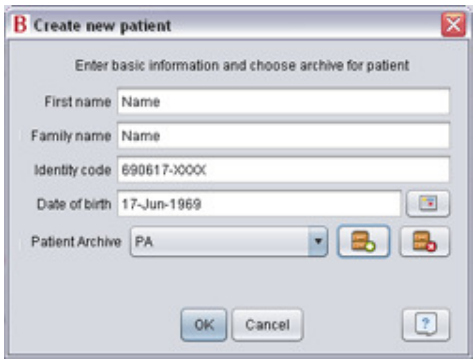
At the bottom of the panel you will find start time and end time of the current setting, that is the period during which the current setting has been stable. A settings change is represented by a red "diamond" in the Event graph (see section 2.7 Graphs for detailed information on the Event graph). Use the arrows located in the lower right hand corner of the Settings at marker panel to make the marker jump between the settings changes.

Sessions that are logged on ventilators with different ventilator types and/or ventilator versions can contain different types of data. Therefore the settings may vary for different sessions.

3. Dialogs

3.1 New patient profile

In the **Create new patient** dialog patient information is entered in order to create a new patient profile. The dialog is available from the menu and as an icon in the toolbar.



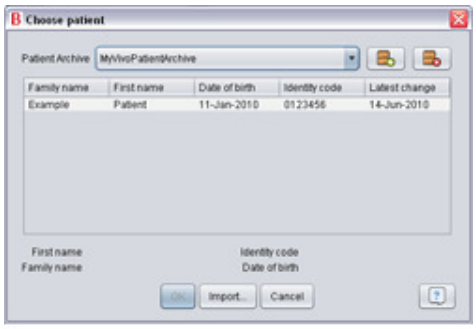
All information fields must be filled out before you can click OK.

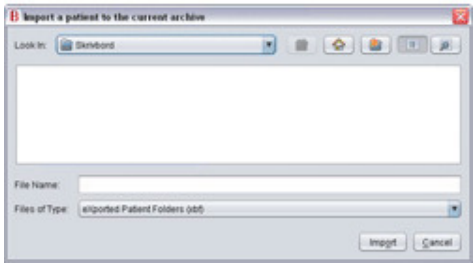
Patient profiles need not be saved manually since the Vivo 50/60 PC Software saves all patient data automatically.

3.2 Open/Import patient profile

Open/Import ...

In the **Open/Import ...** dialog patient profiles can be opened. The dialog is available from the menu and as an icon in the toolbar. It also appears when you select **Analyse patient data** from the start screen of the Vivo 50/60 PC Software. In the dialog you may either choose a patient profile directly from the list or, by pressing the **Import** button, import a patient profile from an XBF file (see section 1.4 Patient data handling for more information on XBF files).





Patient profiles need not be saved manually since the Vivo 50/60 PC Software saves all patient data automatically.

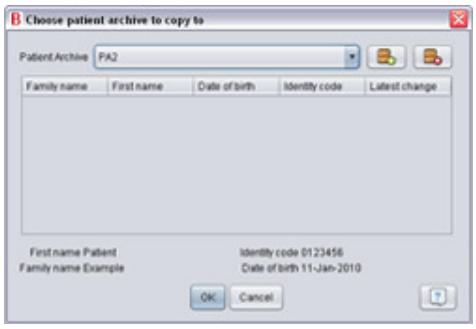
Reopen

The menu option **Reopen** can be used to reopen recent patient data. It is also available from the start screen as a right click option.

3.3 Copy to/Export patient profile

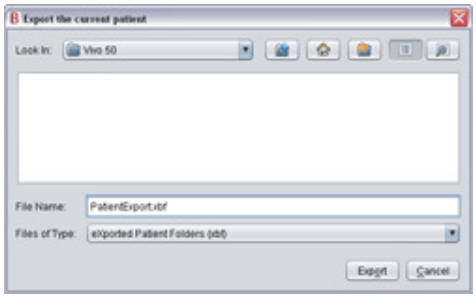
Copy to ...

In the **Copy to ...** dialog a patient profile can be saved in a specified patient archive. The dialog is available from the menu and as an icon in the toolbar.



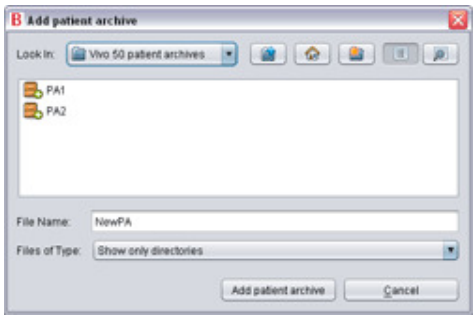
Export ...

Using the **Export ...** dialog the open patient profile can be exported to an XBF file (see section 1.4 Patient data handling for more information on XBF files). The dialog is available from the menu and as an icon in the toolbar. Choose a location for the exported file, type a filename and click Export.

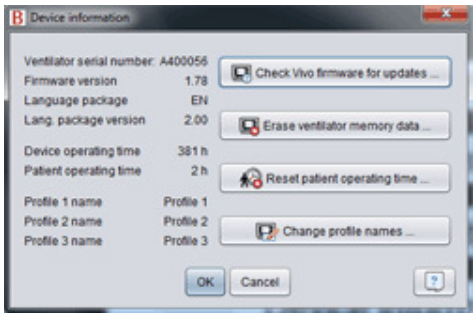


3.4 Add/remove patient archive

The **Add patient archive** dialog is available from all patient data handling dialogs. Adding a patient archive adds the specified archive to the list of patient archives that are accessible from the Vivo 50/60 PC Software. In the dialog you may either choose an existing patient archive ("PA1" and "PA2" in the dialog below) or create a new one by specifying a name ("NewPA" below). New archives are saved in the current directory shown in the dialog.



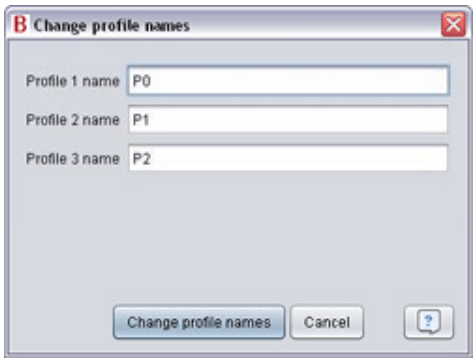
3.5 Device information



The **Device information** dialog is opened from the start screen of the Vivo 50/60 PC Software and lists information about the ventilator device. Clicking the button **Check Vivo firmware for updates ...** checks if there is a newer version of the Vivo firmware available. Clicking the button **Erase ventilator memory data ...** erases all treatment memory data on the ventilator, clicking **Reset patient operating time ...** resets the number of hours the ventilator has been used for the current patient and **Change profile names ...** opens a dialog in which the profile names of the ventilator may be changed.

3.6 Change profile names

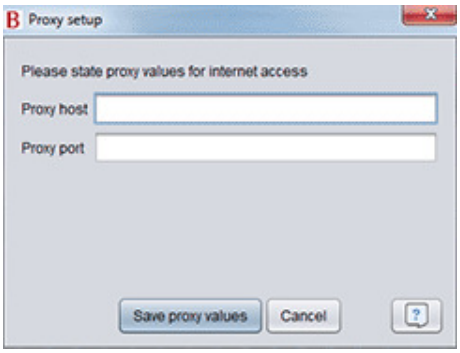
In the **Change profile names ...** dialog the profile names of the ventilator can be changed. The dialog is available from the menu, as an icon in the toolbar and from the Device information dialog on the start screen.



Certain characters cannot be used in profile names, for example å, ü and ñ; in this case a warning dialog will be shown.

3.7 Proxy setup

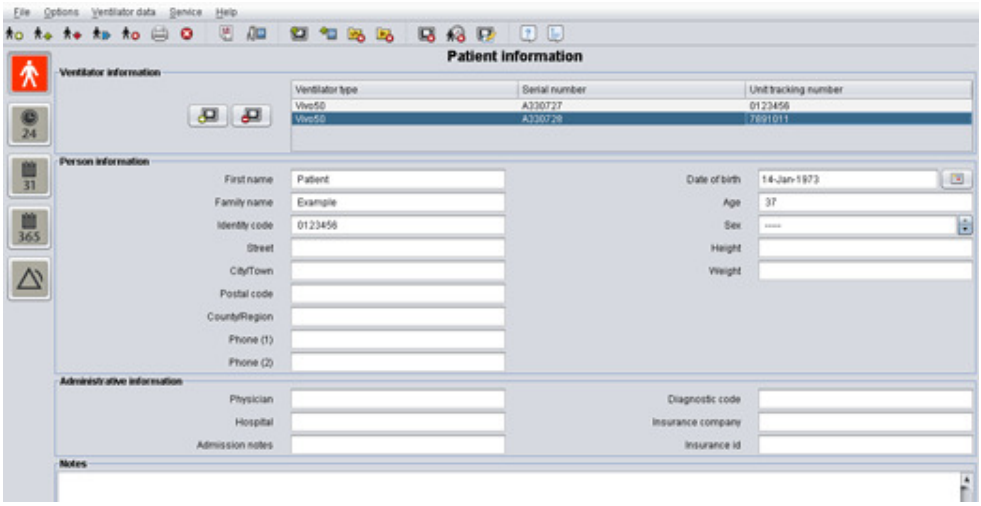
In the **Proxy setup** dialog the values of proxy host and proxy port could be set. The dialog pops up if an attempt to connect to the internet has failed after a check for software / firmware update has been made. A reason for this failure could be that your site uses a proxy for internet connection and thus these values must be set.



4. Patient information view

4.1 Overview

In the patient information view you can edit personal information for the patient as well as administrative information and the patient's ventilator information.



4.2 Usage

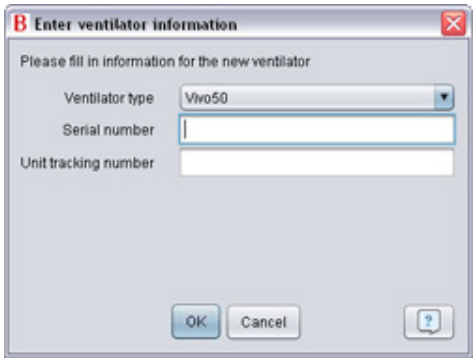
Ventilator information

The ventilator information panel shows a list of one or more registered ventilators that have previously been used with the current patient. The information includes ventilator type, the manufacturer's serial number and unit tracking number.

The serial number is used for a limited security check when ventilator data is downloaded either from a memory card or a ventilator. The serial number of the ventilator that has registred the data is compared to the serial numbers in the patient's ventilator information. If the serial number of the ventilator does not match any of the ventilators in the list, a warning is issued. A similar check is performed when a new ventilator is connected to the Vivo 50/60 PC Software.

The unit tracking number is an optional administrative number that the treating institution may give the ventilator.

Add a ventilator to the list by clicking the **Add ventilator** icon. In the **Enter ventilator information** dialog choose type of ventilator and enter serial number and unit tracking number (optional). Remove a ventilator by selecting it in the list and then clicking the **Remove ventilator** icon.



Personal information

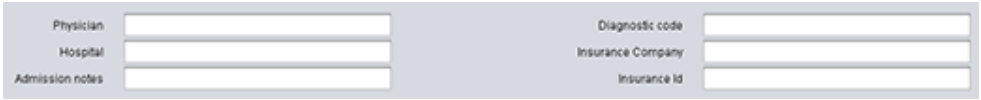
The personal information panel shows fields where you can view and alter a patient's personal information.

Identity code can be any text string.

The patient's age will be calculated from the date of birth information.

Administrative information

This panel shows fields where you can view and alter patient information.

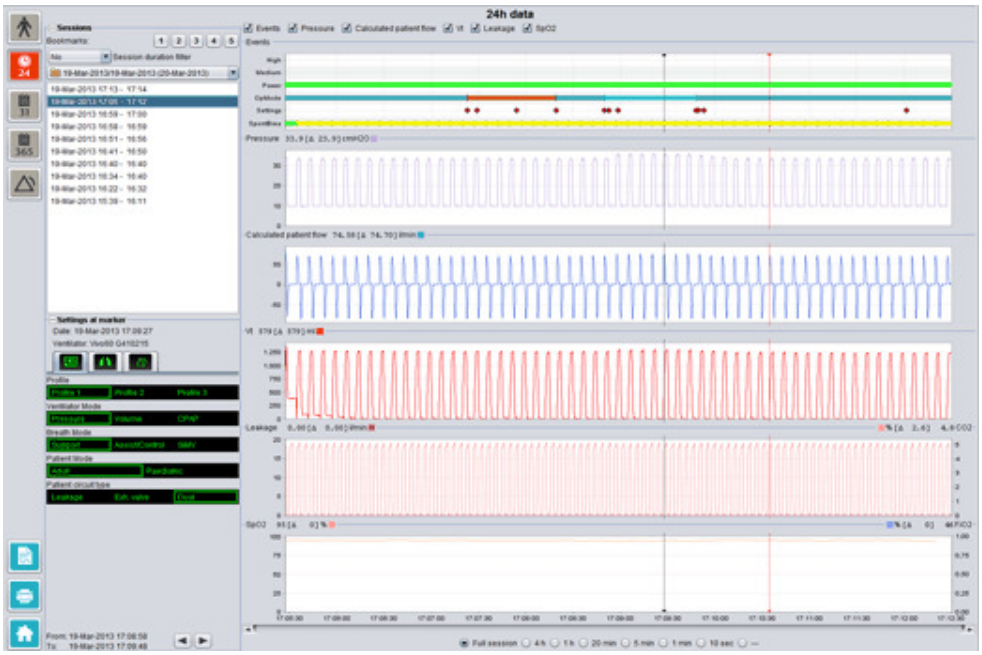


The latest typed value in the Country/Region, Physician and Hospital fields will be saved as defaults between program launches and when creating a new patient.

5. 24 hour data view

5.1 Overview

The 24 hour data view contains data from the last 24 hours of usage. The data is downloaded either from the ventilator or a memory card. The information is sampled with a 10 Hz frequency, and the download contains up to 24 hours of usage data.



5.2 Usage

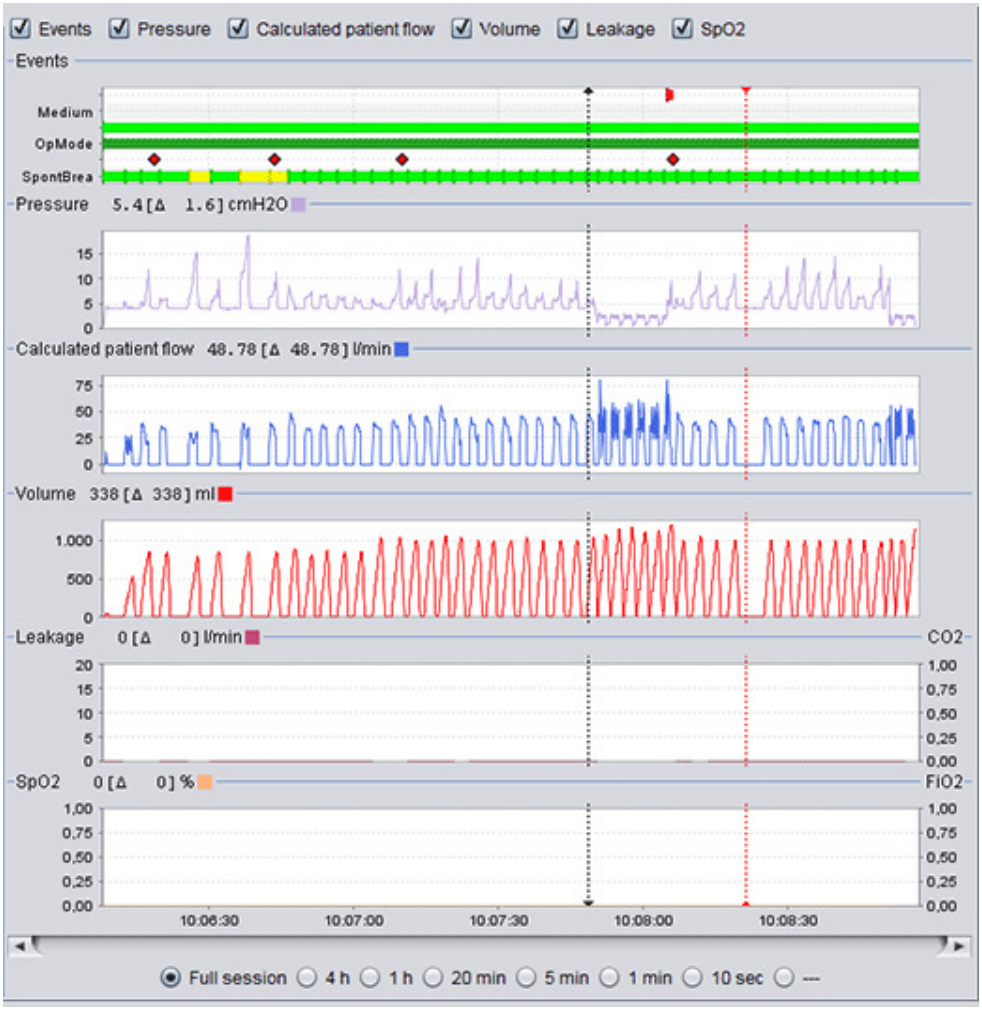
Sessions

In the sessions panel the patient's different sessions will appear. One or multiple sessions can be selected at a time. See section 2.6 Sessions panel for a detailed description on how to handle the sessions panel.

Settings at marker

The panel **Settings at marker** displays the settings where the time position marker is placed. See section 2.7 Graphs for a detailed description of how to handle the marker.

Graphs

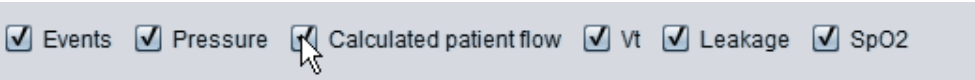


The graph panel contains the following data from a 24 hour data session.

Events	You can see the following alarms and events as they occur: High priority alarm (High), Medium priority alarm (Medium), Power source (Power), Operation mode (OpMode), Settings change (Settings) and Spontaneously triggered breaths (SpontBrea). The different power sources are represented by the following colours: Mains External DC Click-on battery Internal battery The various operation modes (ventilation + breath modes) are represented by the following colours: PSV - Pressure Supported Ventilation PSV(TgV) - Pressure Supported Ventilation (with Target volume)

	PCV - Pressure Controlled Ventilation PCV(TgV) - Pressure Controlled Ventilation (with Target volume) PCV(A) - Pressure Controlled Ventilation (Assisted by inspiration trigger) PCV(A+TgV) - Pressure Controlled Ventilation (Assisted by inspiration trigger and with Target volume) PCV-SIMV - Pressure Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only. VCV - Volume Controlled Ventilation VCV(A) - Volume Controlled Ventilation (Assisted by Inspiration Trigger) VCV-SIMV - Volume Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only. CPAP - Continuous Positive Airway Pressure Spontaneous patient-triggered breaths are represented by green colour in the graphs. Ventilator-triggered breaths are represented by yellow colour.
Pressure	The Pressure displays the pressure as measured in the ventilator.
Calculated patient flow	The Calculated patient flow displays the patient flow as measured in the ventilator. The leakage is subtracted in the calculated patient flow.
Vt **Vt_i**	In the Vt or Vt_i graph, you see sampled data of the tidal volume as measured in the ventilator.
Leakage / $EtCO_2$ **Leakage / CO_2**	The Leakage displays the total leakage (intentional and unintentional) as calculated at expiratory pressure level. The $EtCO_2$ displays the patient's end tidal CO_2 as measured in the ventilator. The CO_2 displays the patient's CO_2 as measured in the ventilator.
SpO_2 / FiO_2	The SpO_2 displays the patient's oxygen saturation as measured with Breas iOxy. The FiO_2 displays the fractional inspired oxygen as measured at the air outlet of the Vivo 50/60. A FiO_2 sensor (part no. 004888) needs to be in place to measure and display this value.

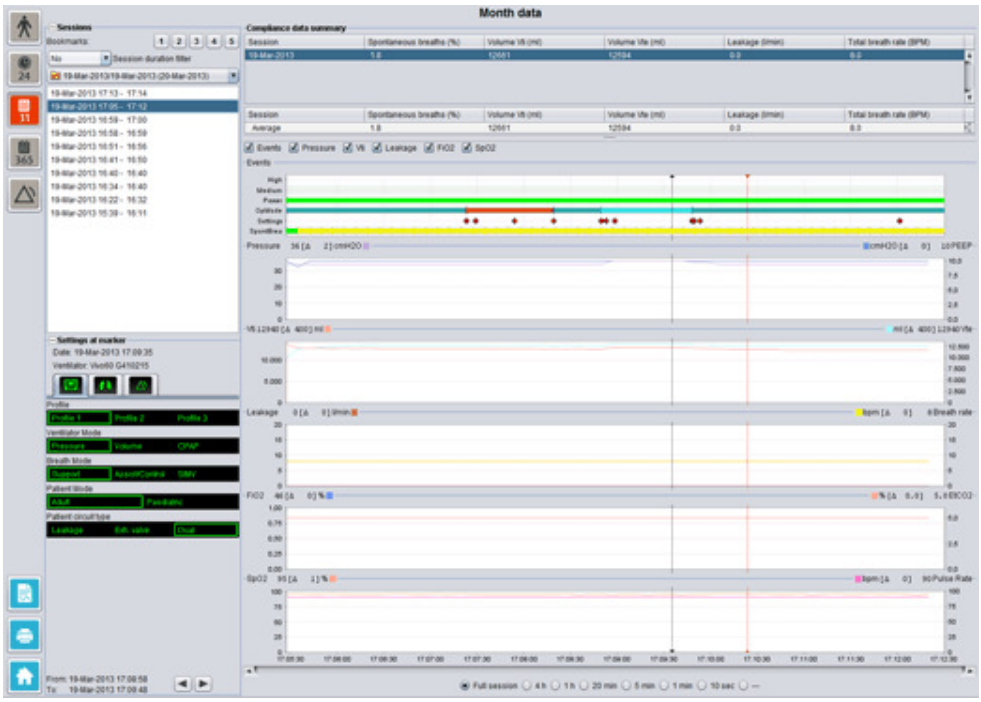
The visual representations of the different types of data can be switched on and off using the check boxes located above the graphs.



6. Month data view

6.1 Overview

The Month data view contains data from the last months' usage. The data is downloaded either from the ventilator or a memory card. The information is collected once per breath, and the month data contains approximately the last four weeks of usage.



6.2 Usage

Sessions

In the sessions panel the patient's different sessions will appear. One or multiple sessions can be selected at a time. See section 2.6 Sessions panel for a detailed description of how to handle the sessions panel.

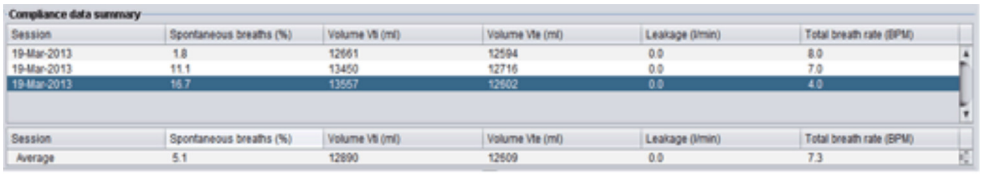
Settings at marker

The panel **Settings at marker** displays the settings where the time position marker is placed. See section 2.7 Graphs for a detailed description of how to handle the marker.

Due to delay in actual logging of settings changes the settings at marker panel may show changes 3 seconds later than they actually occured.

Compliance data summary

In the Compliance data summary panel summarised data for the current session is presented. If multiple sessions have been selected, the panel displays the data for all the selected sessions, with the most recent session first. The field in the bottom of the panel displays the averages of each data category calculated from the content in the sessions list.



Spontaneous breaths (%)	The percentage of spontaneous patient-triggered breaths during the session(s).
Volume Vt_i (ml) **Volume Vt_e (ml)**	The tidal volume (inspired or expired) in ml as measured in the ventilator during the session(s). Volume Vt_e is only displayed for the Vivo 60.
Leakage (l/min)	The leakage in liters per minute during the session(s). The leakage is only monitored if a leakage circuit is used.
Total breath rate (BPM)	The average breaths per minute during the session(s).

Graphs

The graph panel contains the following data from a one month data session:

Events

You can see the following alarms and events as they occur:
High priority alarm (High), Medium priority alarm (Medium), Power source (Power), Operation mode (OpMode), Settings change (Settings) and Spontaneously triggered breaths (SpontBrea).

The different power sources are represented by the following colours:
Mains
External DC
Click-on battery
Internal battery

The various operation modes (ventilation+breath modes) are represented by the following colours:
PSV - Pressure Supported Ventilation
PSV(TgV) - Pressure Supported Ventilation (with Target volume)
PCV - Pressure Controlled Ventilation
PCV(TgV) - Pressure Controlled Ventilation (with Target volume)
PCV(A) - Pressure Controlled Ventilation (Assisted by inspiration trigger)
PCV(A+TgV) - Pressure Controlled Ventilation (Assisted by inspiration trigger and with Target volume)
PCV-SIMV - Pressure Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only.
VCV - Volume Controlled Ventilation
VCV(A) - Volume Controlled Ventilation (Assisted by Inspiration Trigger)
VCV-SIMV - Volume Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only.
CPAP - Continuous Positive Airway Pressure

Spontaneous patient-triggered breaths are represented by green colour in the graphs. Ventilator-triggered breaths are represented by yellow colour.

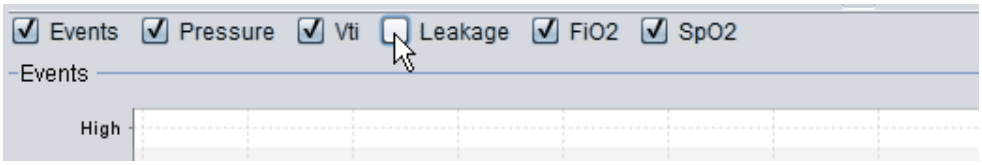
Pressure / PEEP

The Pressure displays the pressure as measured in the ventilator.

The PEEP displays the lowest pressure that is recorded during the expiratory phase.

Vt_i / Vt_e	The Vt_i displays the inspired tidal volume that is delivered to the patient during each breath. When using a leakage patient circuit, the tidal volume is a calculated value. When using a patient circuit with an active exhalation valve, the tidal volume is measured. The Vt_e displays the expired tidal volume that the patient exhales during each breath. Only displayed for the Vivo 60.
Leakage / Breath rate	The Leakage displays the total leakage (intentional and unintentional) as calculated at expiratory pressure level. The Breath rate displays the patients breath rate as measured in the ventilator.
FiO_2 / $EtCO_2$	The FiO_2 displays the fractional inspired oxygen as measured at the air outlet of the Vivo 50/60. A FiO_2 sensor (part no 004888) needs to be in place to measure and display this value. The $EtCO_2$ displays the patients end tidal CO_2 as measured in the ventilator.
SpO_2 / Pulse rate	The SpO_2 displays the patients oxygen saturation as measured with Breas iOxy. The Pulse Rate displays the patients heart rate as measured with Breas iOxy.

The visual representations of the different types of data can be switched on and off using the check boxes located above the graphs:



The time scale of the graphs can be switched using the buttons located below the graphs:

7. Year data view

7.1 Overview

The Year data view contains data from the last years' usage. The data is downloaded either from the ventilator or a memory card. Each bar represent a 24 hour period (one day). The data is calculated from average values of the sessions of each 24 hour period. If a session stretches over midnight it is divided into two separate parts before the average values for each day is calculated.

7.2 Usage

Selecting download and duration

To select download use the drop down bar represented by a yellow folder, located at the upper left hand corner of the long term data view. To select start and end dates of the data use the calendar, located to the right of the sessions drop down bar.

Year usage data

Located below the session and duration selecting fields you will find a compilation of year usage data, containing the following:

The values are calculated from the selected download.

Total usage hours	The total number of hours the ventilator has been running in operating mode during the download period.
Total days with usage	The total number of days the ventilator has been running in operating mode during the download period.
Average usage hours	The average number of hours per day the ventilator has been running in operating mode during the download period.
Average power-on hours	The average number of hours per day the ventilator has been turned on.
Average PEEP	The average PEEP during the download period.
Average Ppeak	The average of the highest pressure values registered for all 24-hour intervals during the download period.
Average Vt	The average tidal volume during the download period.
Average leakage	The average total leakage during the download period. The leakage is only measured if a leakage circuit is used.
Total mode use in hours	The total number of hours the ventilator has been running in the various operation modes (ventilation + breath modes) during the download period. The modes are: PSV - Pressure Supported Ventilation PSV(TgV)- Pressure Supported Ventilation (with Target volume) PCV - Pressure Controlled Ventilation PCV(TgV) - Pressure Controlled Ventilation (with Target volume) PCV(A) - Pressure Controlled Ventilation (Assisted by inspiration trigger) PCV(A+TgV) - Pressure Controlled Ventilation (Assisted by inspiration trigger and with Target volume) PCV-SIMV - Pressure Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only. VCV - Volume Controlled Ventilation VCV(A) - Volume Controlled Ventilation (Assisted by Inspiration Trigger) VCV-SIMV - Volume Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only. CPAP - Continuous Positive Airway Pressure

Graphs

The graph panel in the Long term data view contains the following graphs:

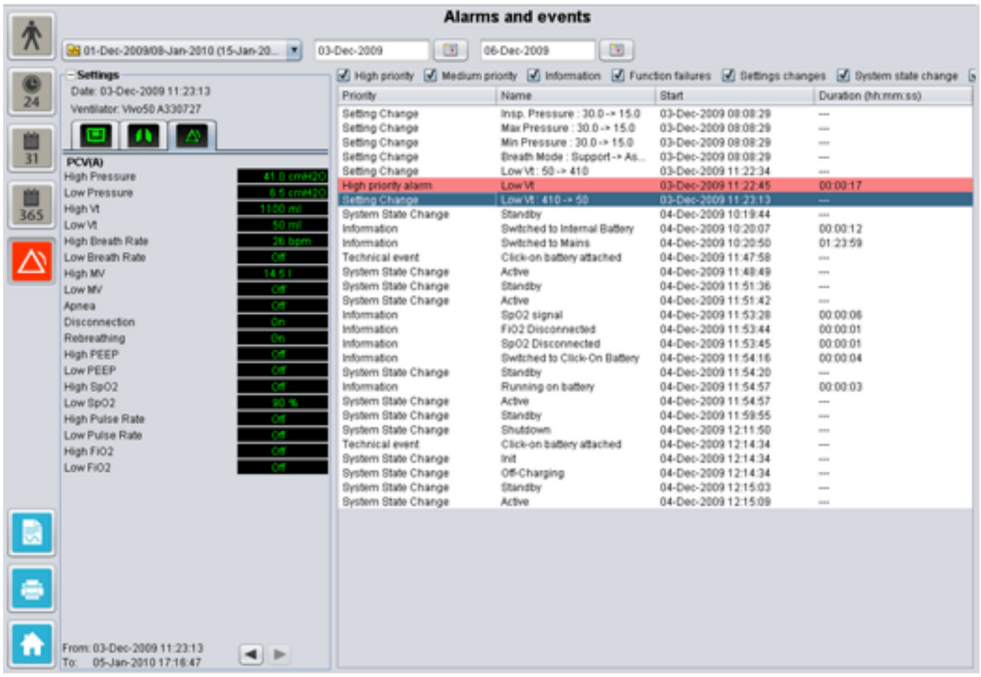
Average pressures	The average PEEP and the Peak pressure of a 24 hour period is shown in a bar, represented as follows: PEEP Peak pressure
Average leakage	The average leakage of a 24 hour period is shown in a bar, represented as follows: Leakage, measured using a single limb leakage circuit

Volume averages	The tidal volume averages of a 24 hour period is shown in a bar, represented as follows: V_t
Usage	The usage of a 24 hour period is shown in a bar, represented as follows: Hours in use Hours powered on
Mode usage	The various operation modes (ventilation + breath modes) the ventilator has been running in during a 24 hour period is shown in a bar. The modes are represented by the following colours: PSV - Pressure Supported Ventilation PSV(TgV) - Pressure Supported Ventilation (with Target volume) PCV - Pressure Controlled Ventilation PCV(TgV) - Pressure Controlled Ventilation (with Target volume) PCV(A) - Pressure Controlled Ventilation (Assisted by inspiration trigger) PCV(A+TgV) - Pressure Controlled Ventilation (Assisted by inspiration trigger and with Target volume) PCV-SIMV - Pressure Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only. VCV - Volume Controlled Ventilation VCV(A) - Volume Controlled Ventilation (Assisted by Inspiration Trigger) VCV-SIMV - Volume Controlled Synchronized Intermittent Mandatory Ventilation. Vivo 60 only. CPAP - Continuous Positive Airway Pressure

8. Alarm view 

8.1 Overview

The alarm view contains a listing of the alarms and events that have occured during the time period of the selected download.



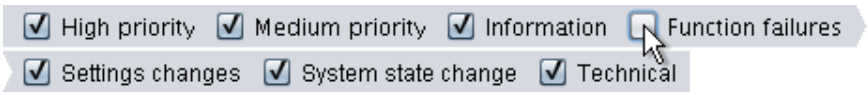
8.2 Usage

Selecting download and duration

To select download use the drop down box represented by a yellow folder, located at the upper left hand corner. To select start and end dates of the data use the calendar, located to the right of the sessions drop down box.

Event list

The event list contain information on various events and the severity of the alarms, their names, start time and duration. The different events and alarms can be switched on and off using the check boxes located above the alarms list.



9. Monitor view  [in Remote monitoring]

9.1 Overview

The monitor view displays a real-time copy of graphs and other information that is being displayed on the ventilator.

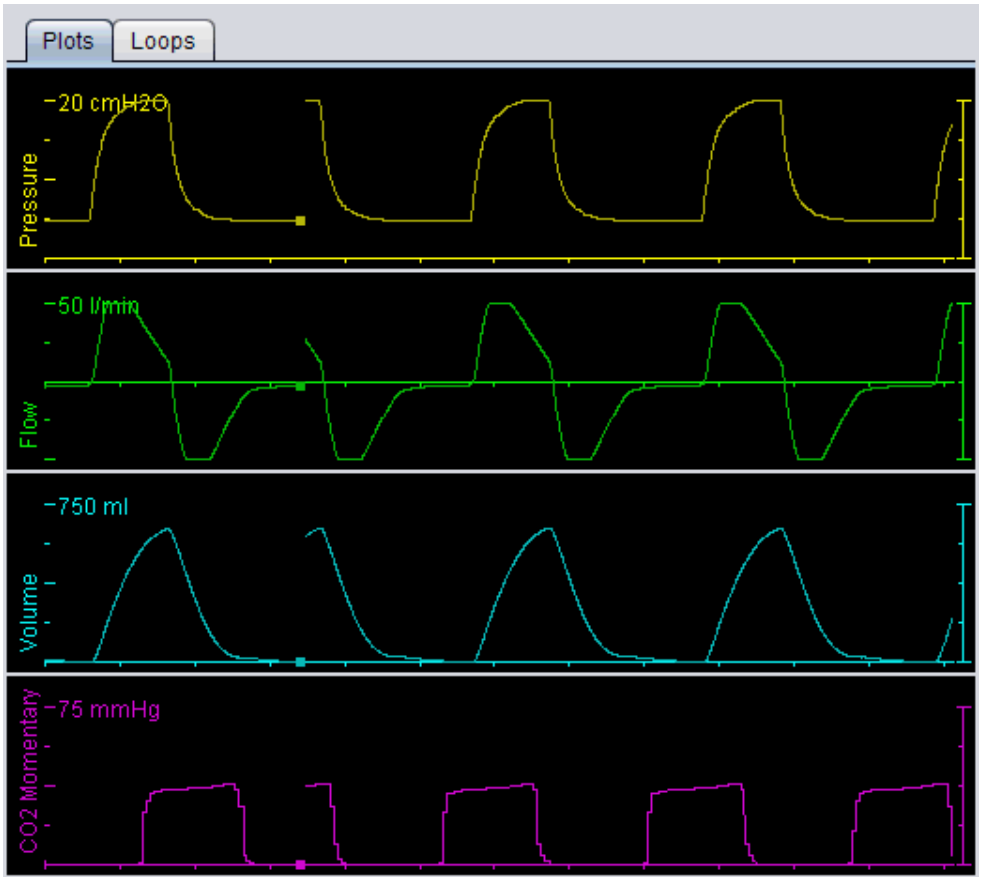
1. Events and alarms indicators
2. Graph panel with presentation mode tabs
3. Control panel
4. Icon and alarm row
5. Momentary values as measured in the ventilator
6. Add/remove supervised ventilator
7. List of supervised patients

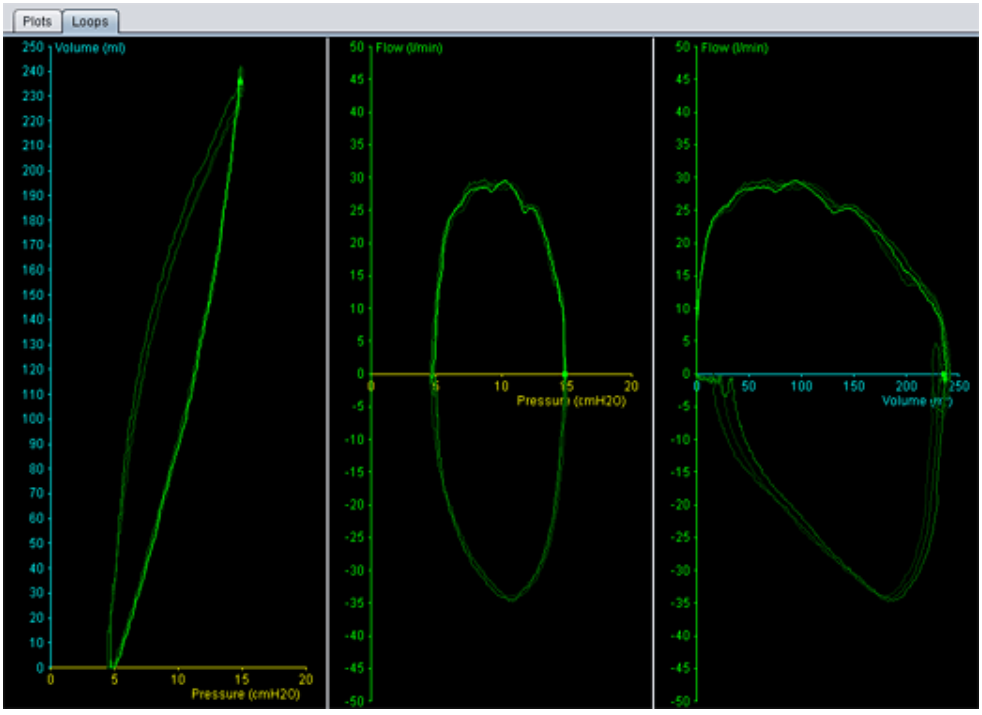
9.2 Usage

Graph panel and presentation modes

The graph panel displays a real-time copy of Pressure, Flow and Volume graphs as they appear on the Vivo 50/60. Using the presentation mode tabs you may switch between **Plots** mode and **Loops** mode.

In **Plots** mode, a fourth plot CO_2 will show if a CO_2 sensor is connected to the ventilator.





Control panel

The buttons in the control panel are used to control the monitoring. Click the first button to start monitoring, the second button to freeze/unfreeze the display and the third button to stop monitoring. Click the button with a red dot to start recording the displayed data. While recording, the button turns red. Click the button again to stop recording. Recorded data can be replayed and analysed in the Replay view of the Vivo 50/60 PC Software. See section 10. Replay view for detailed information on how to handle recorded data.

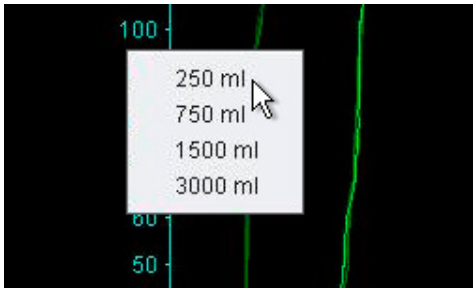
The second part of the control panel varies depending on if you are in Plots mode or Loops mode. In Plots mode it consists of four buttons that are used to alter the length of the time period displayed in the graph. In Loops mode it consists of four buttons that are used to alter breaths history. Selecting the No history option shows the current breath in real-time. Selecting one, two or three breaths shows an equal number of historical breaths, represented as faded loops.

Icon and alarm row

The icon and alarm row shows a copy of information displayed in the ventilator regarding battery status, type of equipment used by the supervised patient and alarms. See the ventilator manual for details on symbols and alarms shown here.

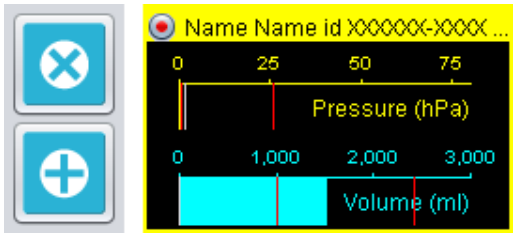
Zoom

Zoom in and out by clicking one or several times on the scale of the graphs. Click the right mouse button anywhere in a graph to produce a zoom menu. In the menu you may choose between a number of graph specific zoom levels which are depending on where in the graph the mouse pointer is positioned.



Supervising multiple ventilators

The Vivo 50/60 PC Software allows for supervising multiple patients. Use the buttons located in the bottom left hand corner of the screen to add or remove a ventilator.



Each ventilator is identified by a patient name and ID in the title frame.

The colour of the title frame indicates which ventilator is selected:
Selected ventilator, with supervised values displayed in the major graph and settings panels
Vivo 50, not selected
Vivo 60, not selected

Each ventilator is represented by a box with a miniature real-time copy of the display in the ventilator, showing Pressure (yellow) and Volume (cyan). If recording is on, a red dot is shown in the upper left corner of the box.

10. Replay view  [in Remote monitoring]

10.1 Overview

1. Events and alarms indicators
2. Graph panel with presentation mode tabs
3. Control panel
4. Icon and alarm row
5. Momentary values as recorded from the ventilator
6. Date and duration information

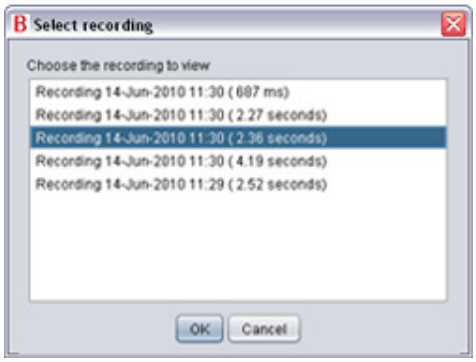
10.2 Usage

Graph panel and presentation modes

The graph panel displays recorded data with Pressure, Flow and Volume graphs as they appeared on the Vivo 50/60. Using the presentation mode tabs you may switch between **Plots** mode and **Loops** mode.

Control panel

The buttons in the control panel are used to replay and handle recorded data. The first four buttons are used for replay, pause, stop and fast forward. The last button produces a dialog where you can choose from a list of previously recorded data streams.



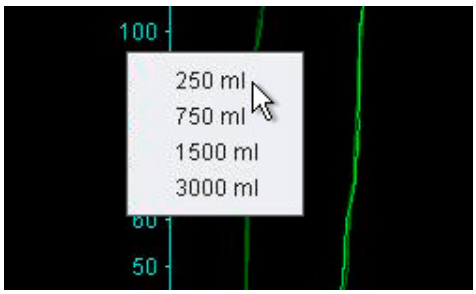
The second part of the control panel varies depending on if you are in Plots mode or Loops mode. In Plots mode it consists of four buttons that are used to alter the length of the time period displayed in the graph. In Loops mode it consists of four buttons that are used to alter breaths history. Selecting the No history option shows the current breath in real-time. Selecting one, two or three breaths shows an equal number of historical breaths, represented as faded loops.

Icon and alarm row

The icon and alarm row shows recorded information regarding battery status, type of equipment that was used by the supervised patient and alarms. See the ventilator manual for details on symbols and alarms shown here.

Zoom

Zoom in and out by clicking one or several times on the scale of the graphs. Click the right mouse button anywhere in a graph to produce a zoom menu. In the menu you may choose between a number of graph specific zoom levels which are depending on where in the graph the mouse pointer is positioned.



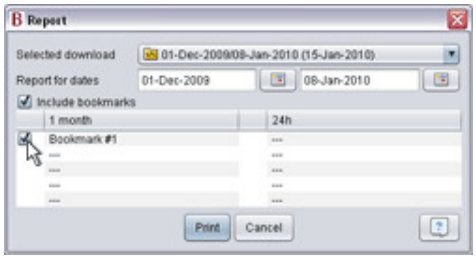
11. Report

11.1 Print report

A report containing patient information and a data analysis overview can be printed by clicking the **Report button** located in the lower left hand corner of the Vivo 50/60 PC Software screen, or by pressing **F7.**

The report lists Patient information, Administrative information, Ventilator information and Ventilator settings at download. It also contains year profile graphs for power on, average peak pressure and average PEEP. As an option, one or more bookmarks from the 24 hour view or the One month view can be printed as part of the report. For more information on bookmarks, see section 2.6 Sessions panel.

Clicking the **Report** button will display a print dialog. Choose download by using the drop down box represented by a yellow folder. Choose report dates by using the calendar located right below the drop down box. The lists of bookmarks are displayed after selecting the **Include bookmarks** check box. Select one or more bookmarks in either of the lists. Click on the names of the bookmarks to display print previews.

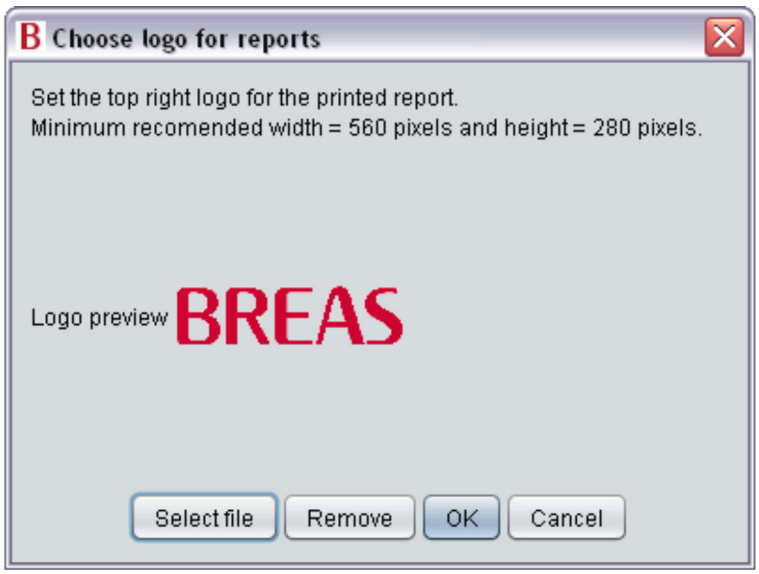


Clicking the **Print** button in the dialog above will produce a print preview dialog with the following tool bar:

Print ... prints the report. **Page setup** offers alternatives regarding paper format and layout. The **arrows** and **Page number** display let you browse through the preview. The **zoom** function zooms in and out in the preview. The miniature pages represented by rectangles let you choose between **single page** and **facing pages** display. **Close** closes the print preview dialog.

11.2 Choose report logotype

To be used while printing the report you can choose a logotype to represent the organization you are working for. Choose **Options > Choose report logo ...** in the menu or click the **Choose report logo icon** in the toolbar. This will display the following dialog:



Use **Select file** to choose the logotype file to be used in the report. The file shall be in PNG, GIF or JPG format and the minimum recommended size is 560 pixels width and 280 pixels height. After choosing file the logotype image will be displayed in the **Logo preview** field of the dialog. Click **Remove** to remove a selected logotype. Click **OK** when you are satisfied with your selection.

Once a logotype has been selected the Vivo 50/60 PC Software will use that logotype as default until another one is selected.