



Trilogy workshop

PHILIPS

RESPIRONICS

sense **and** simplicity

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Introduction

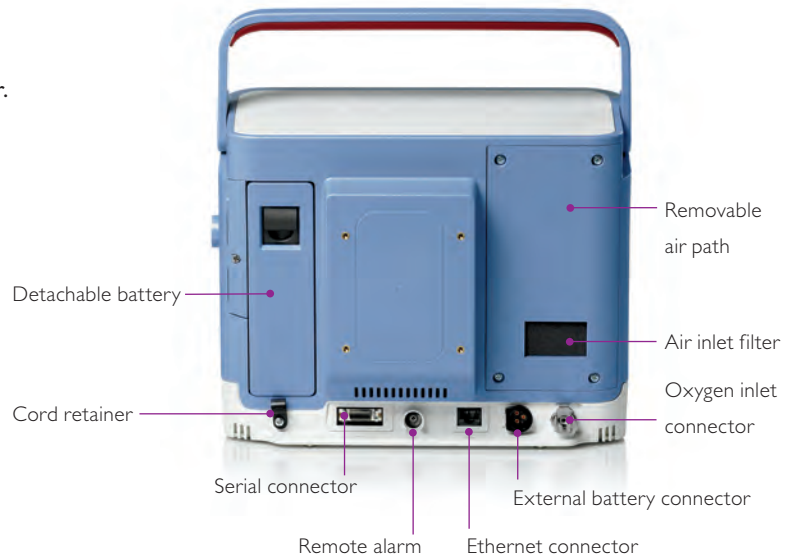
Trilogy

Light, versatile, and easy to use, Trilogy offers clinicians and patients one of life's greatest qualities—simplicity. Whether at home or in alternative care sites, the Trilogy portable volume and pressure support ventilator with proven BiPAP technology is made for adult and pediatric (>5 kg) use.

Intended use

- Provides continuous or intermittent ventilatory support for the care of individuals who require mechanical ventilation
- May be used for both invasive and noninvasive ventilation
- Adult and pediatric patients weighing at least 5 kgs (11 lbs)
- Patients suffering from acute or chronic respiratory failure, acute or chronic respiratory insufficiency, or obstructive sleep apnea
- To be used in the home, institution/hospital or portable settings

Trilogy is **not** intended to be used as a transport ventilator.



Circuit options

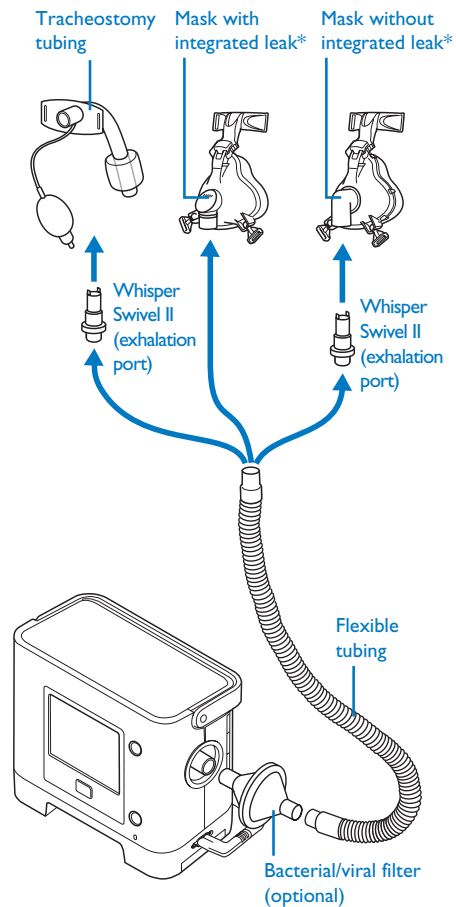
Trilogy100 Circuit options

Passive exhalation porting block

The second option is a passive porting block utilizing the same circuit that is used to set up a BiPAP S/T or CPAP unit. When using a mask with a built-in exhalation port, you will only need tubing. You will need to use Whisper Swivel II when connecting to a trach tube or a mask without a built-in exhalation port. The passive circuit can be used noninvasively as well as invasively. Both active and passive circuits are compatible with volume and pressure ventilation modes.



Uses a passive exhalation port (Whisper Swivel II) or mask with built-in exhalation port



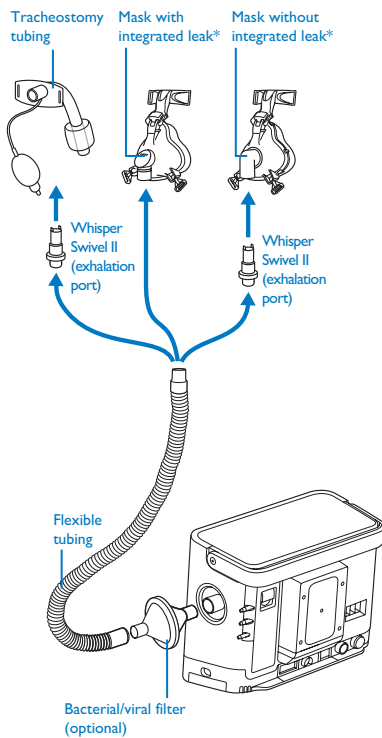
* Mask shown is not for pediatric use.

Trilogy200 circuit options

All Trilogy200 circuit options require the use of a single porting block.

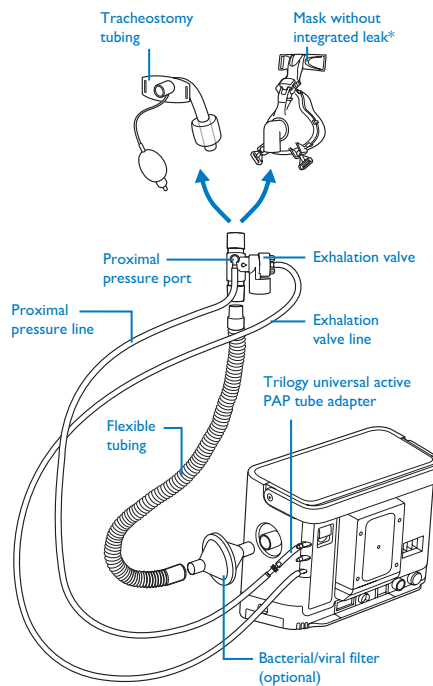
Passive exhalation port circuit

When using a mask with a built-in exhalation port, only tubing is needed. When connecting to a trach tube or a mask without a built-in exhalation port, use of a Whisper Swivel II exhalation port is required.



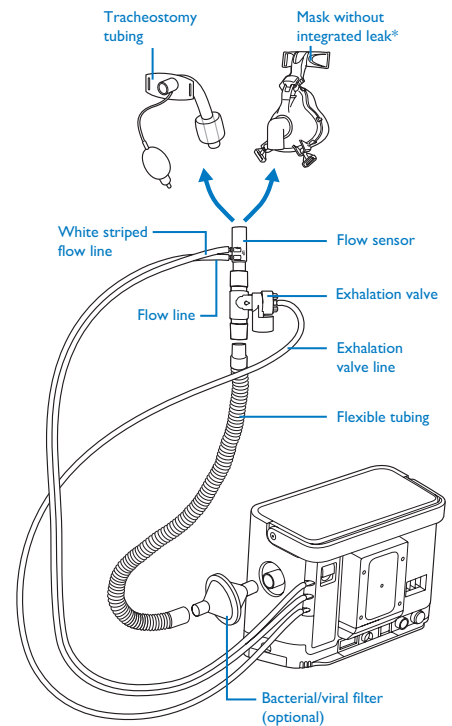
Active exhalation valve with proximal airway pressure circuit

This circuit setup includes the use of an exhalation valve line and a proximal airway pressure line. The universal active PAP tube adapter is also required.



Active exhalation valve flow sensor circuit

The third circuit option requires the use of an exhalation valve line and two flow lines that connect to the flow sensor. This is ideal for patients who require enhanced inspiratory triggering and leak compensation as the inline flow sensor is close to the patient.



* Mask shown is not for pediatric use.

Breath types

Mandatory	Breaths are initiated by the ventilator. Air delivery is controlled by the current VCV or PCV settings.
Assisted	Breaths are triggered by both the patient and vent. Air delivery is controlled by the ventilator by the current VCV or PCV settings.
Spontaneous	Breaths are triggered and controlled by the patient.
Sigh	A breath of 150% volume is delivered once in every 100 breaths in VCV.

Pressure modes descriptions

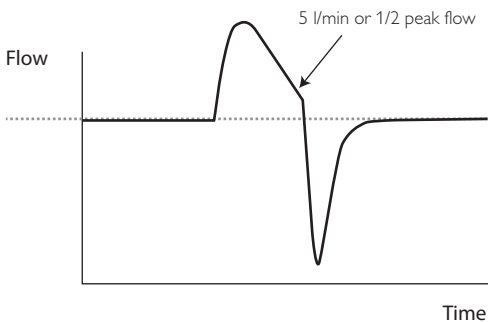
CPAP	Continuous Positive Airway Pressure
Spontaneous (S)	Therapy mode in which breaths are taken by the patient. The ventilator supports breathing with user-defined Pressure Support (PS) and Rise Time values.
Spontaneous Timed (S/T)	Therapy mode that is similar to S mode, except that it can also deliver a mandatory breath if the patient does not spontaneously breathe within a set timeframe.
Timed (T)	Therapy mode where all breaths delivered are mandatory.
Pressure Control (PC)	Therapy mode that delivers assisted and mandatory breaths with a user-defined pressure.
Pressure Control SIMV (PC-SIMV)	Therapy mode that delivers spontaneous, assisted, and mandatory breaths with a user-defined pressure.

Volume modes descriptions

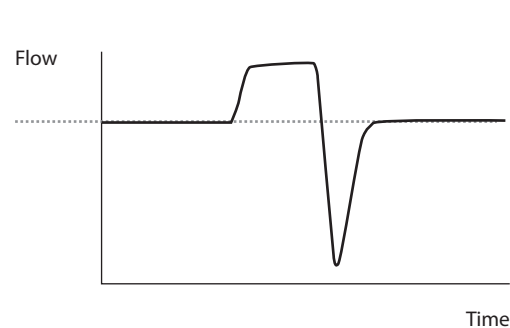
Assist Control Ventilation (AC)	This mode provides assisted and mandatory breaths. An assisted breath is started when there is patient effort. It is ended when the Inspiratory Time setting has been reached. A mandatory breath is delivered if the patient does not spontaneously breathe within the prescribed BPM setting.
Control Ventilation (CV)	This mode provides only mandatory breaths.
Synchronized Intermittent Mandatory Ventilation (SIMV)	This mode provides spontaneous, assisted, and mandatory breaths.

Waveforms

Ramp



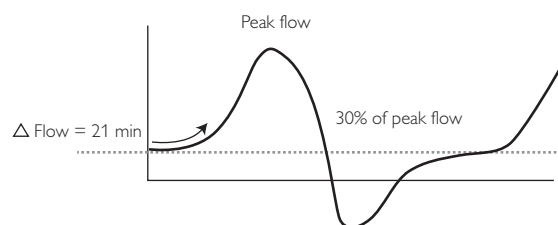
Square



Sensitivity

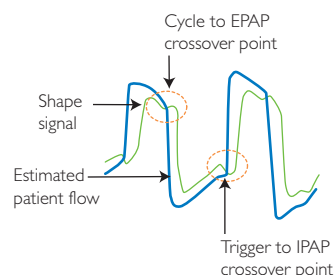
Flow trigger

- Available in all circuit configurations
- For both volume and pressure modes
- For both noninvasive and invasive
- Trigger sensitivity: 1 to 9 LPM
- Cycle sensitivity: 10 to 90% of peak flow



AutoTrak

- Available in passive exhalation port circuit configuration
- For both volume and pressure modes
- For both noninvasive and invasive
- No trigger adjustments required



User interface

Trilogy has the ability to display a simple screen for patients and caregivers but when it is necessary to view additional ventilation information, the ventilator gives you the option to display a detailed screen.

Navigating user screens

Trilogy has an easy to use menu that allows you to view or change settings. The intuitive design allows the user to press the up/down arrow to scroll through the menu options and settings. The right and left buttons execute actions specified on the screen above the keys.

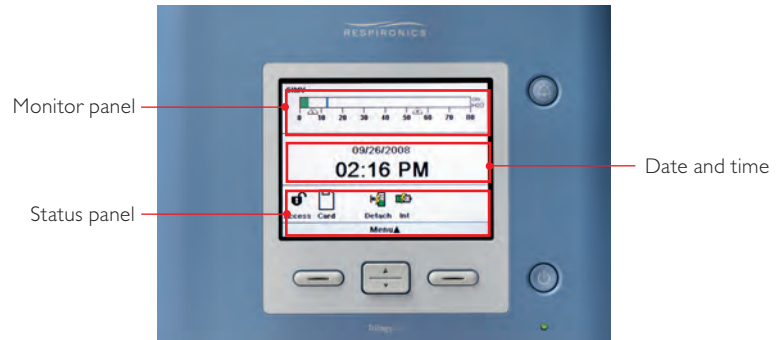
Accessing prescription setting screens

Two levels of Menu access

- Full
- Limited

To change the prescription setting from limited access while the unit is operating, hold the Audio Pause key and the Down button at the same time. The Main Menu screen appears and an audible alarm sounds indicating you are in Full Access mode.

You can also access a set-up screen when the airflow is turned off by holding the Audio Pause key and the Down button at the same time. From the set-up screen, you will be able to set the circuit type. Use the Up/Down key to navigate through the menu screens.



Simple screen



Detailed screen

Menu items

There are a variety of menu items from which to choose.

Safely remove SD card

Settings and alarms

- Dual prescriptions
- Modes
- Settings for mode chosen
- Alarms

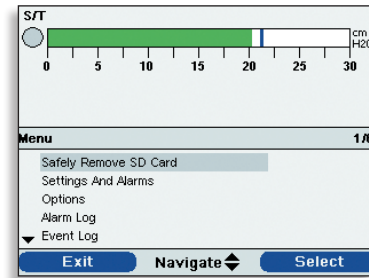
Options

- Menu access
- Detailed view
- Language
- Pressure units
- Alarm volume
- Keypad backlighting
- Keypad lock
- LCD brightness
- Screen saver
- Date format
- Time format
- IP address mode
- Operational hours

Alarm log

Event log

Information



Changing settings

- Use the Up/Down key to highlight the menu item
- Press the Right key to select the menu item
- Use the Up/Down key to select the parameter
- Press the Right key to modify
- Use the Up/Down key to change setting
- Press Right key to OK
- If changing modes, press Right key "Yes"
- Press Left key to finish

Keypad locking feature

The keypad locking feature can be helpful to families with young children. When turned on, the keypads are locked while therapy is turned on. You can temporarily unlock the keypad by pressing and holding the Right key for five seconds.

Screen saver option

- Reduce power consumption
- Dim in a darkened room
- Pressing any key, alarm occurrence or informational messages will exit screen
- Four types of screens:
 1. Off – no saver
 2. Dim
 3. Black – no screen
 4. Breath – see the bar graph moving

Alarms

Types of alarms

System alarms

- High/low pressure alarms (BiPAP only)
- Check circuit
- Low circuit leak
- Power alarms
- Ventilator inoperative
- Loss of power

Patient alarms

- High/low pressure alarm (volume only)
- High/low RR
- High/low minute ventilation
- Circuit disconnect
- High/Low Vti, Vte
- Apnea

When an alarm condition occurs

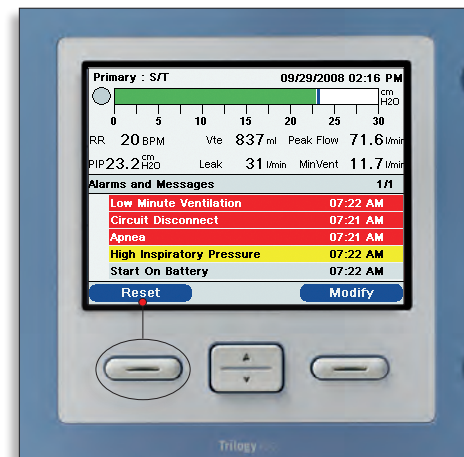
- The alarm LED indicator on the Alarm Indicator/Audio Pause button lights
 - Red flashing indicator: When the device detects a high priority alarm, the Alarm Indicator/Audio Pause button flashes red.
 - Yellow flashing indicator: When the device detects a medium priority alarm, the Alarm Indicator/Audio Pause button flashes yellow.
 - Yellow solid indicator: When the device detects a low priority alarm, a solid yellow light appears on the Alarm Indicator/Audio Pause button.
- The audible alarm sounds
- A message appears on the screen describing the type of alarm

When the ventilator detects an alarm, the Alarms and Messages screen is displayed showing a description of the alarm condition. The Audio Pause or Alarm Silence button will silence the alarm for one minute. You can 'pre-silence' alarms that have not yet occurred by pressing the Alarm Indicator/Audio Pause button while no alarms are active. The LED and display will still show the alarm, but the audible alarm will not sound.

Once the situation causing the alarm has been corrected, you can press Reset to clear the alarm from the display. Trilogy100 also has informational messages and confirmation alerts that notify you of conditions that may need attention but are not alarms.

Messages

Trilogy also displays informational and directional messages that alert you of conditions or directives that require attention or confirmation.



Power options

Internal AC/DC power supply

External 12V/24V battery

- Not recharged through vent

Detachable lithium ion battery




- 3 hours
- Easily hot swapped
- Recharges as long as it is plugged in

Internal lithium ion battery

- 3 hours
- Recharges as long as it is plugged in

Completely discharged detachable and internal batteries will take eight hours to recharge.

Power source indicators

Battery	Symbol	LED	Battery capacity
Internal battery		LEDs are lit	80-100% capacity
Detachable battery		4 LEDs are lit	60-79% capacity
		3 LEDs are lit	40-59% capacity
		2 LEDs are lit	20-39% capacity
		1 LED is lit	10-19% capacity
		1 LED flashes	1-9% capacity
External battery		0 LEDs are lit	0% capacity

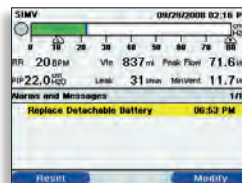


The amount of charge left on the batteries will display on the monitoring screen. The detachable battery also has a set of LEDs that indicate the amount of charge left on the battery.

Battery cycle time

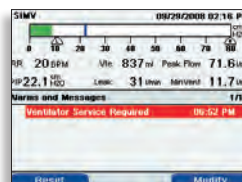
Detachable battery > 500 cycles

"Replace detachable battery" – Low priority alarm – Alarm repeats in one hour if Reset key is pressed



Internal battery > 475 cycles

"Ventilator service required" – Urgent service alarm – Alarm repeats in one hour if Reset key is pressed



Exercise 2 – Active exhalation valve

1. If using Trilogy100, place the active porting block in place (if not already attached) and attach the hose, active exhalation valve, and proximal pressure line.

2. Verify the circuit type.

To check if the circuit type and the exhalation valve match, with the unit turned off, press the Audio Pause key and the Down Arrow key to enter the Setup Screens. Navigate to Settings and Alarms and press the Select key. Navigate to circuit type.

3. What is the current circuit type? _____

4. If the circuit type is “Passive,” press the Modify key and then the Edit key to change to “Active with PAP” for Trilogy100, and Active Flow for Trilogy200. Press the OK key twice and then press the Finish key. Press Exit to turn Trilogy off.

5. If the circuit type was already set correctly, press the Finish and the Exit keys to turn Trilogy off.

6. Attach the power cord and plug in.

7. Turn Trilogy on by pressing Start/Stop in the bottom right corner. The unit will run through a self test and you will briefly see the Start up Screen. The Start up Screen contains the device name and the software version. When the self test is complete the screen that appears is the Monitor Screen.

8. Press the Menu key (up arrow) to enter the Menu Screens.

Note: Was the unit in limited access (locked)? If the unit was in limited access, hold the Down arrow and the Audio Pause keys simultaneously to enter the Full Access menu screen.

9. Give two reasons for having Trilogy in limited access within the home environment.

10. Navigate to the Settings and Alarms menu selection and press the Select key.

Navigate to the Mode Menu item and press the Modify key.

11. Name the three Volume Control Ventilation modes that are available in Trilogy.

12. Press the Modify key and Edit the mode until the AC mode has been reached and press the OK key.
Set up the AC mode with the following settings:*

PEEP	5 cm H ₂ O
Tidal volume	500 ml
Breath rate	10 BPM
Insp time	1.0 seconds
Flow pattern	Ramp
Flow trigger sensitivity	4.0 LPM
Sigh	Off
High PIP alarm	60 cm H ₂ O
Low PIP alarm	15 cm H ₂ O

* If using Trilogy200, leak compensation feature should be on.

13. Press the Finish key. Press the Yes key to accept the mode change to AC.

14. What two methods allow you to determine the Low Pressure alarm setting?

15. Navigate to the Option menu selection and press the Select key. Navigate to Menu Access and press the Modify key.
Use the Edit key to change to Limited Access and press the OK key. Press the Finish key and then the Exit key to return to the Monitor screen.

16. Do you notice any changes on this screen? (If so, what are they?)

17. Press the Menu key.

18. Name the four items in the Menu list.

19. Navigate to the My Settings menu item. Press the Select key.

20. What is available in the My Settings menu screen?

21. Why are the menu selection items different from what was available in Full Access?

22. Press the Finish key and then the Exit key to return to the Monitor screen.

23. To return to Full Access, hold the Audio Pause key and the Down key at the same time.

Navigate to the Options menu and press the Select key. Navigate to the Menu Access selection item and press the Modify key. Exit to Full Access and press the OK key to return to Full Access.

24. Navigate to the Detailed View menu selection. Press the Modify key and Edit to Off. Press the OK key.

Press the Finish key and the Exit key to return to the Monitor screen.

25. Name three items that can be found on the Monitor screen now that the detailed view is turned off.

26. When would you use Trilogy with the detailed view turned off?

27. Press Start/Stop. To power the unit off, press the Yes key.


DirectView

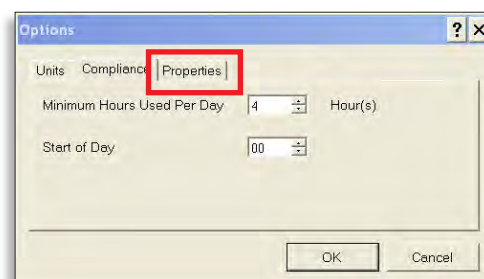
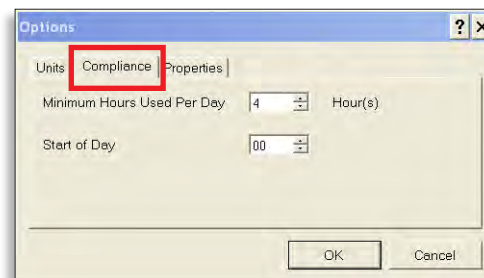
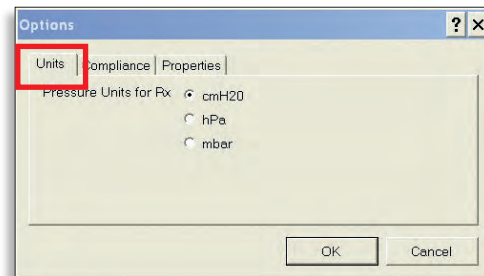
Ventilation data management software instruction

Installing the software

1. Load the DirectView CD into your PC.
2. Double click Setup file.
3. Accept all defaults.
4. Install.

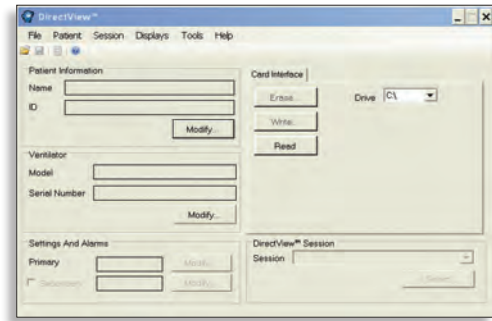
Configuring the software

1. Open the DirectView software.
 2. Click Tools.
 3. Click Options.
 4. Under the Units tab, select the preferred measurement of pressure:
 - cm H₂O
 - mBar
 - hPA
 5. From Options, choose the Compliance tab and set the minimum number of compliance hours from 1 to 24.
 6. From the Compliance tab, set the user Start of Day.
 7. Choose Properties tab and select or deselect Erase Card After Successful Read.
-  **Note:** Choosing “Erase Card After Successful Read” automatically erases the patient data.
8. While in the Properties tab, under Working Folder, create or choose an existing file to save patient information.



Setting up the patient

1. Under Patient Information, click the Modify button.



2. Enter the patient's first and last name, patient ID, contact information, and comments.

First Name, Last Name, and Patient ID are required fields.

Once the patient ID number has been chosen, it cannot be changed.

3. Click OK.

The screenshot shows the 'Patient Information' dialog box. It contains several sections: 'Patient' with fields for First Name*, Middle, Last Name*, and Patient ID*; 'Contact' with fields for Address 1, Address 2, City, State/Province, Postal Code, Country, Phone 1, and Phone 2; and 'Other' with fields for Physician and a large text area for Comments. A red asterisk indicates that the first name, last name, and patient ID fields are required. 'OK' and 'Cancel' buttons are at the bottom.

Ventilator management

This section is only required when using a blank SD card. If the card is from a Trilogy ventilator with patient data, the serial number and device type uploaded automatically into DirectView. You can proceed to Loading the Data.

1. From the main screen, select Modify from within the Ventilator section.
2. Enter the serial number for the corresponding Trilogy device.
3. Trilogy will verify the serial number on the SD card prior to accepting a new prescription.

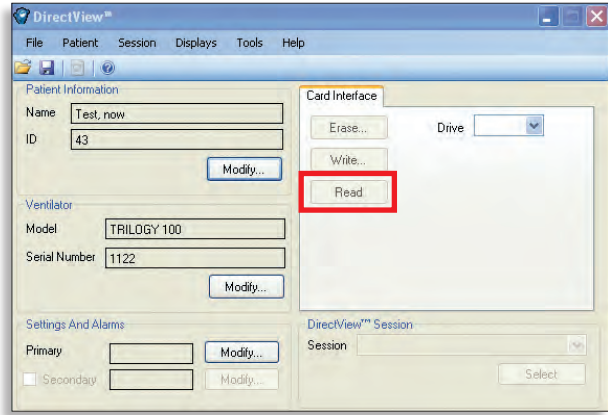
The screenshot shows the 'Ventilator Management' dialog box. It has a 'Ventilator' section with a 'Model*' dropdown menu set to 'TRILOGY 100' and a 'Serial Number*' text field containing 'TV108092910'. A red asterisk indicates that both fields are required. 'OK' and 'Cancel' buttons are at the bottom.

Loading the data

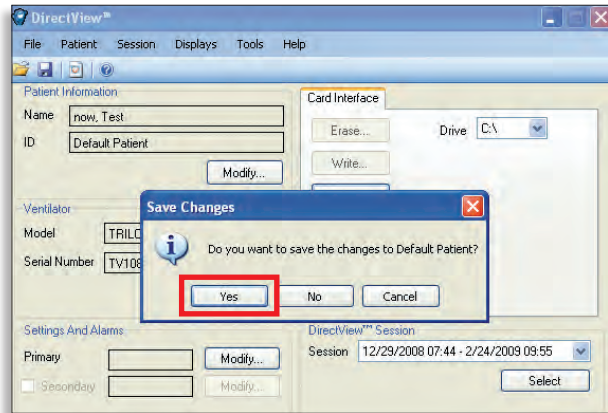
1. Insert the SanDisk ImageMate reader into the USB drive on your computer.
2. Remove the SD card from Trilogy.

For training purposes, a sample SD card with data gathered over the past few months will be used.

3. Insert the sample SD card into the SD card reader.
4. Select the appropriate drive in the DirectView window.
5. Select Read. Data will begin to transfer from the SD card.



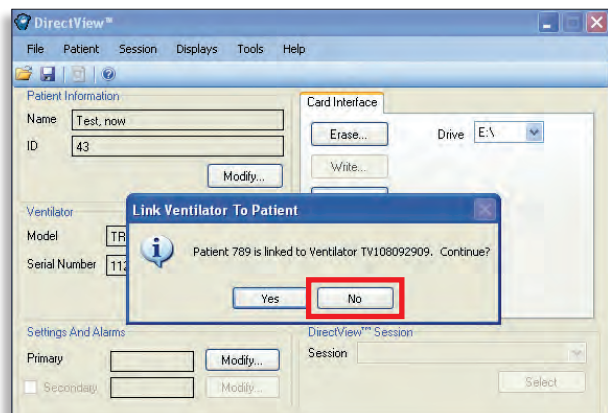
6. Choose Yes to save changes to Patient Information screen



7. If this screen appears, Trilogy is linked to another patient. By clicking No, it will allow you to choose the correct patient.

If Trilogy is not linked to another patient, this screen will not appear.

8. Once Trilogy reads the card, a list of patient's will appear. Click on the name of the patient that you have modified, and create a new file.
9. Click Link.
10. Click OK.

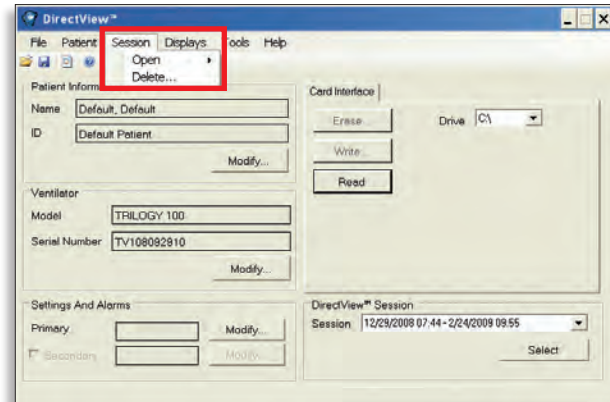


Selecting a session

There are two ways to select an available session.

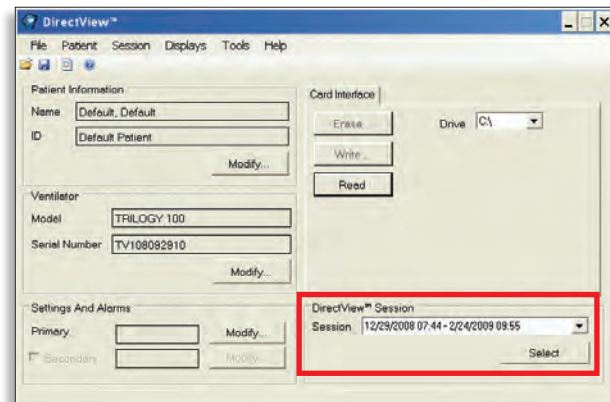
Method 1

1. Select Session on the menu bar.
2. Toggle the arrow over the word Open.
3. Select the session you want to view.



Method 2

1. In the lower right corner of the DirectView window, click on the drop down menu.
2. Choose the session you want to view.
3. Click Select.



Creating a template

There are two ways to create or view a report template.

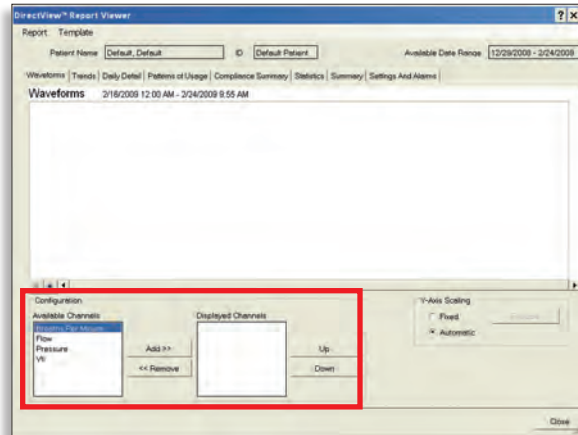
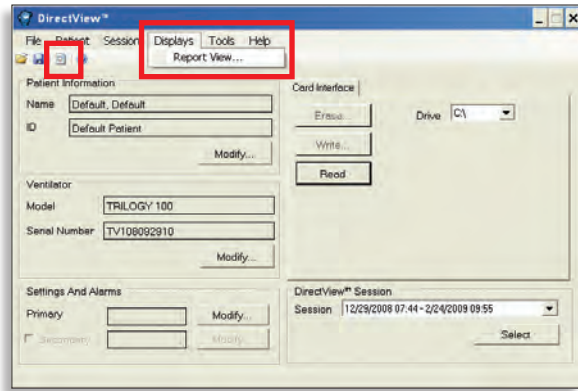
View the default report template

- Click Displays on the menu bar.
- Select Report View.

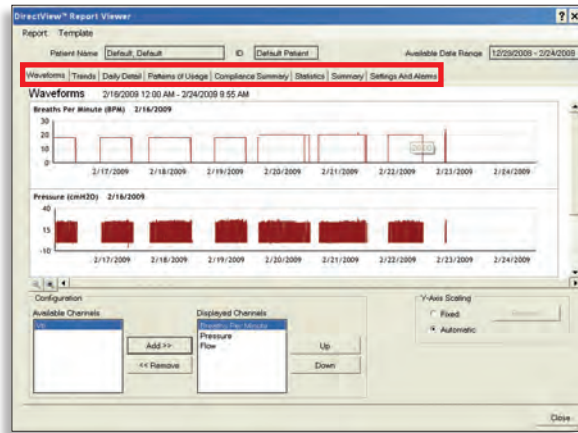
Create your own template

Click on the Report View icon (located next to the Save icon).

1. Start by opening a report.
2. From the Configuration panel, add, remove, and sort Available Channels to create the desired template.

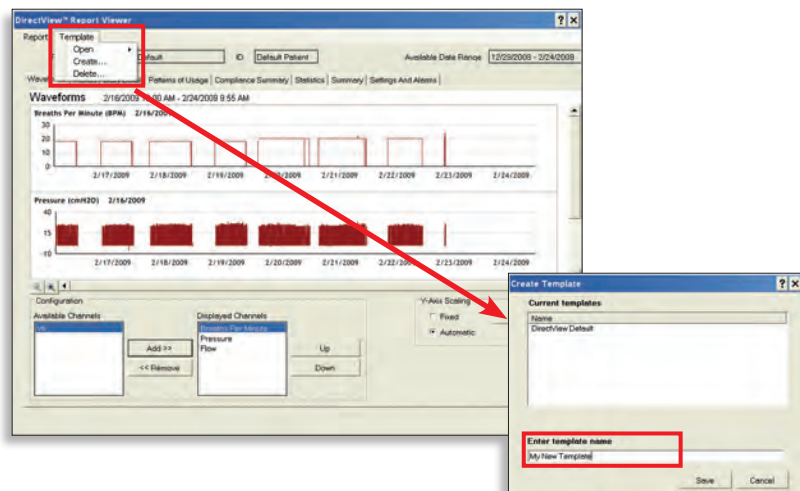


3. Customize each of the tab views.



Save the template by:

1. Selecting Template in the menu bar.
2. Choose Create.
3. Enter a template name.
4. Click Save.



Creating a report

1. Select Report, then select Create.
2. Choose the type of data to be shown in the report by checking or unchecking the boxes next to the data types.
3. Choose the start and end dates of the report data.
4. Enter report name.
5. Select Create and a report will be created as an Adobe Acrobat file.

Create Report

Data

Please select data to be included in the report:

<input checked="" type="checkbox"/> Patient Information	<input checked="" type="checkbox"/> Patterns of Usage
<input checked="" type="checkbox"/> Waveforms	<input checked="" type="checkbox"/> Compliance Summary
<input checked="" type="checkbox"/> Trends	<input checked="" type="checkbox"/> Statistics
<input checked="" type="checkbox"/> Daily Detail	<input checked="" type="checkbox"/> Summary
Start: 2/20/2009	<input checked="" type="checkbox"/> Settings And Alarms
End: 2/24/2009	

Report Header

Create Cancel

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