VOCSN

Home Caregiver and Patient Guide

VOCSN

VOCSN offers mechanical **V**entilation, **O**xygen, **C**ough, **S**uction, and **N**ebulizer therapies in one compact, portable, lightweight device.

Critical Care Ventilator

V

VENTILATION

VOCSN is one of the few portable ventilators to achieve the rigorous critical care standard[1] for safety and accuracy. The ventilator provides invasive, noninvasive, and mouthpiece ventilation and delivers a comprehensive set of modes and settings to meet patient needs.

6 L/min Equivalent Internal Oxygen Concentrator

O₂

OXYGEN

The VOCSN internal oxygen concentrator and Oxygen Direct™ system deliver the equivalent of 6 L/min of oxygen or up to 40% FiO2. External high pressure and low pressure oxygen sources can be connected when needed.

Touch Button Cough

C

COUGH

Touch Button Cough™ therapy is activated in seconds rather than minutes, without changing the circuit. Breath Sync monitors patient breathing and triggers a cough at a natural point in the breathing cycle.

Hospital Grade Suction

S

SUCTION

Hospital grade suction system provides consistent high flows throughout the entire suction experience. VOCSN Suction therapy is up to three times quieter than traditional portable suction machines.

High Performance Nebulizer

N

NEBULIZER

VOCSN automatically compensates for the airflow from the nebulizer drive to ensure accurate ventilation and comfortable breathing. VOCSN records each medication use and turns off the nebulizer when the therapy is complete.

CAUTION: Federal law restricts this device to sale and use by or on the order of a physician.

[1] ISO 80601-2-12

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Introduction

Configurations and Therapies

VOCSN is a medical device that provides therapies to patients who need help breathing. VOCSN comes in several configurations, so that the patient has the mix of therapies they need.

Depending on its configuration, your VOCSN will be able to provide **V**entilation, **+O**xygen Concentration, **+C**ough, **+S**uction, and/or **+N**ebulizer therapy. It may also be able to provide oxygen from an external high-pressure source (**+Pro** configurations) or low-pressure source (all configurations). The configuration name is based on the therapies VOCSN can provide. For example, the **V+C** configuration provides **V**entilation**+C**ough therapies. The configuration name is printed on the back of your VOCSN.
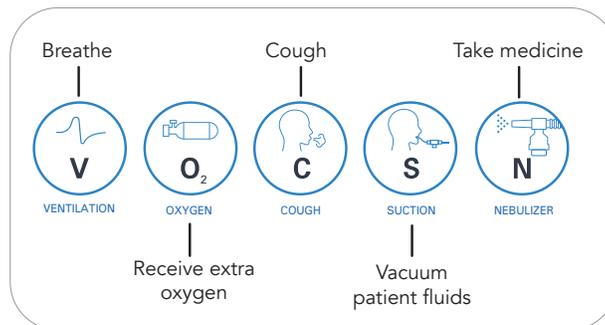
Configuration	Ventilation (V)	O2 Concentration (+O)	Cough (+C)	Suction (+S)	Nebulizer (+N)	High-Pressure External O2 and FiO2 Monitor (+Pro)	Low-Pressure External O2
V+O+C+S+N+Pro	Yes	Yes	Yes	Yes	Yes	Yes	Yes
V+O+C+S+N	Yes	Yes	Yes	Yes	Yes	No	Yes
V+C+Pro	Yes	No	Yes	No	No	Yes	Yes
V+C	Yes	No	Yes	No	No	No	Yes

This manual describes all available therapies, though it's possible your VOCSN configuration includes only a few of them. You doctor or respiratory therapist will select the right configuration and enable or disable therapies based on what the patient needs.

NOTE: This manual describes the latest VOCSN software. If your VOCSN has an older version of software, it might have slightly different buttons or features. See *"Software Updates" on page 68* for details, including a list of changes released in each software version.

Training

The patient and/or caregiver using VOCSN must be capable of responding to alarm conditions, and trained to use VOCSN. Visit the VOCSN website at VentecLife.com to see a list of training options.

CAUTION: Home caregivers and patients must receive training, and must review this guide in its entirety before setting up or operating VOCSN.

Ventilation

VOCSN Ventilation therapy pushes air through the patient circuit to help a patient breathe. The patient circuit might be connected to the patient with a tracheal tube ("invasive" ventilation), or a mask or mouthpiece ("non-invasive" ventilation).

VOCSN provides up to three different Ventilation presets to meet the patient's needs. For example, some people need Ventilation therapy from a mouthpiece circuit during the day, and a mask at night. Following the instructions from your doctor or respiratory therapist, you can switch between up to three presets when needed to provide different kinds of Ventilation therapy.

Oxygen

Some VOCSN patients are prescribed oxygen. If so, your VOCSN may include an oxygen concentrator inside for Oxygen Direct™ therapy. If needed, VOCSN can also be connected to external high-pressure oxygen (like an oxygen tank), or an external oxygen concentrator. A doctor or respiratory therapist will decide what Oxygen therapy is right for the patient, and will set up the Oxygen therapy presets for you. Following the instructions from your doctor or respiratory therapist, you can switch between up to three different oxygen presets.

There is also an O2 Flush button on the Oxygen therapy screen. Pressing this button will give the patient the 100% FiO2 or 6 L/min Pulse Dose for 3 minutes. If needed, a doctor or respiratory therapist will tell you when to use this button.

NOTE: Oxygen therapy in Pulse Dose and FiO2 mode is paused during Suction or Nebulizer therapy. Oxygen therapy from a low-pressure oxygen source does not pause during other therapies.

Touch Button Cough

If prescribed, VOCSN can help a patient cough with the touch of a button. Following the instructions from your doctor or respiratory therapist, you may choose between up to three different preset cough types. A doctor or respiratory therapist will set up the presets the patient needs.

When you start Cough therapy, VOCSN will give the patient a big breath in, and then quickly change to a big breath out. This helps patients who cannot cough on their own get secretions out of their lungs and airway. After Cough therapy is complete, VOCSN will resume Ventilation therapy automatically.

NOTE: If a doctor also prescribed Suction therapy for the patient, VOCSN might be set up so that Cough therapy and Suction therapy run at the same time. This will help remove the secretions that come out of the patient's lungs and airway. Suction will run during Cough therapy and continue running for 2 more minutes.

Suction

Your VOCSN may include Suction therapy to help remove secretions from the patient airway or the patient circuit. VOCSN can be used with a small travel canister or a larger external canister. You can start Suction therapy at any time. A doctor or respiratory therapist may also set up VOCSN so that Suction therapy automatically turns on during Cough therapy.

Nebulizer

Your VOCSN may include Nebulizer therapy to provide the patient with medication. Nebulizer therapy can run at the same time as Ventilation therapy, so the patient can breathe and get medicine at the same time.

Ports and Buttons - Front
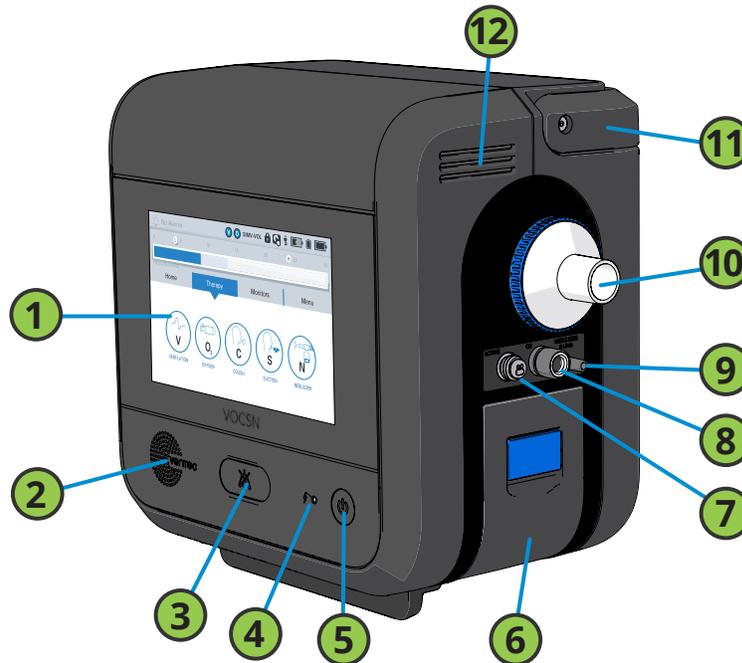
	Description		
1	Touchscreen	**7**	Active exhalation valve connection port
2	Speaker	**8**	Patient circuit O2 tube connection port (+O configurations only)
3	Alarm Silence button	**9**	Nebulizer drive port (+N configurations only)
4	External power / charge status indicator light	**10**	Patient circuit connection port
5	Power button and indicator light	**11**	Handle
6	Removable rechargeable battery	**12**	Cooling air outlet

Ports and Buttons - Back
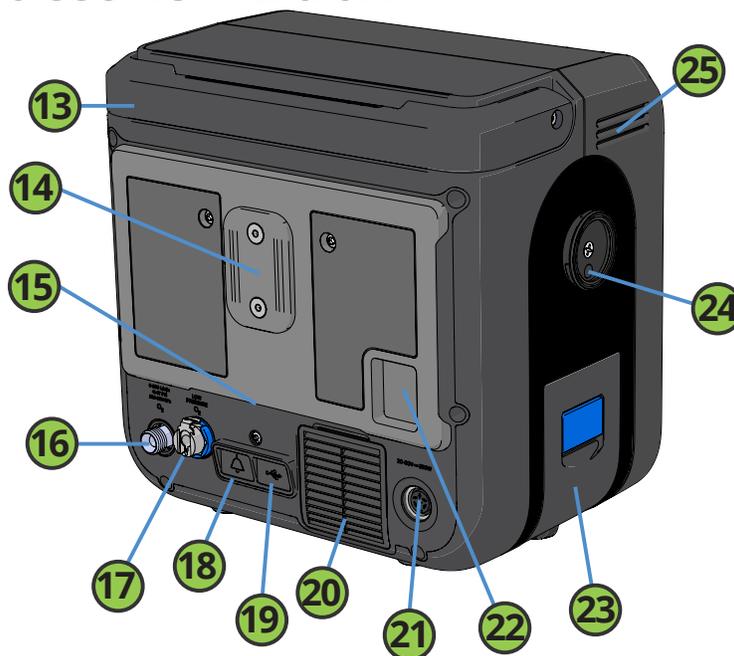
	Description		
13	Handle	**20**	Cooling air intake and filter
14	T-Slot mount	**21**	Power connection port
15	Cooling air outlet and Cough therapy exhaust	**22**	Patient air inlet and filter
16	High-pressure O2 input port (+Pro configurations only)	**23**	Removable rechargeable battery
17	Low-pressure O2 input port	**24**	Suction interface (+S configurations only)
18	Remote alarm port	**25**	Cooling air outlet
19	USB ports for use by trained personnel only.		

The Power Button

VOCSN can run on external power (like a wall or wheelchair outlet), or on battery power. Keep VOCSN plugged in to a power source whenever you can.

To turn VOCSN on or off:

1 Press the Power button on the front of VOCSN to turn it on. VOCSN will sound two beeps and two clicks when it turns on. If it does not beep, contact your doctor or respiratory therapist. VOCSN may need service.

2 To turn off VOCSN, press and hold the Power button until a pop-up appears on the screen. Press OK on the screen to confirm you want to turn VOCSN off. An alarm will sound as VOCSN powers down.

VOCSN

Setup

BACTERIAL FILTER

(optional O₂ tube) **O**

PATIENT CIRCUIT

(optional heated wire)

NEBULIZER (optional) **N**

PATIENT INTERFACE

or

VOCSN

HUMIDIFIER BYPASS (required for Cough) **C**

MAX FILL

HME or HUMIDIFIER (choose one)

NEBULIZER FILTER **N**

SECRETION TRAP (optional) **C** **S**
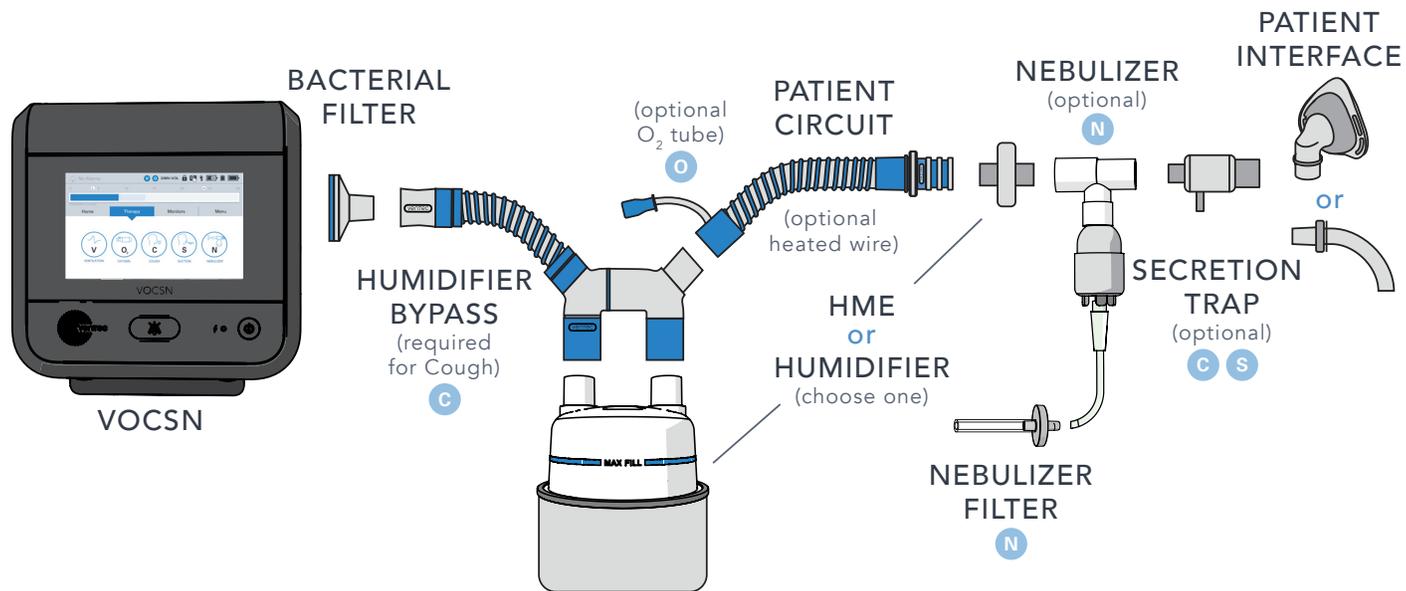
Where to Put VOCSN

Put VOCSN in a place with a lot of airflow. Make sure VOCSN is away from curtains, sheets, bedspreads, or anything else that might block the VOCSN vents. Make sure there are no fumes, chemicals, or pollutants in the air around VOCSN.

VOCSN has an IP rating of IP32, which means it is protected against tools, large wires, and dripping water. It will continue to work correctly if small amounts of moisture drip onto it, but it is not fully waterproof. VOCSN should be kept away from heavy rain, and should not be used in environments with a humidity above 90%.

While being used, VOCSN should be kept in environments with a temperature between 41 and 104 °F (5 and 40 °C).

WARNING: If you put VOCSN in the wrong spot, it might not work correctly. Do not cover VOCSN or put it near anything that could block the vents in the back of the device. Do not use VOCSN if the air around it is polluted.

WARNING: Keep VOCSN away from playing children. Children could be hurt if they are tangled in VOCSN cables or hoses. Children could also be hurt if they swallow small parts from VOCSN.

WARNING: Do not smoke, allow an open flame, or use heat sources near VOCSN when Oxygen therapy is on. Smoking, open flames, and heat sources might cause a fire or explosion, which could cause serious harm to the patient.

WARNING: Pressing buttons accidentally could change the way VOCSN works and/or harm the patient. Place VOCSN where the buttons and screen won't be touched accidentally, and lock the touchscreen whenever you're moving or cleaning the device.

MR Unsafe. Do not use VOCSN within magnetic resonance (MR) environments.

Electrical Interference

WARNING: Do not use VOCSN near other devices that could cause electrical interference, because it might change the way VOCSN delivers therapy. Devices that cause interference include electronic medical equipment, some security systems, some appliances and speakers, and communication devices like cell phones and walkie-talkies. If VOCSN is not working the way you expect it to, move it away from other electrical devices.

This table shows how far away from VOCSN you should keep some common medical and electrical devices:

Device	How far away from VOCSN it should be
Sonic toothbrushes	> 1 inch (2.5 cm)
Cellular Phones	> 6 inches (15 cm)
Induction ovens	> 1 foot (30 cm)
Cordless power tools (powered by batteries)	> 1 foot (30 cm)
Home stereo speakers	> 1 foot (30 cm)

To calculate the exact distance away from VOCSN you should keep your specific electrical device, you will need to know the rated maximum power output of the device (in watts), and also what frequency it is. Then, find those values in this table to calculate the recommended minimum distance between the two devices:

| Rated Maximum Power Output of Device (in Watts)	How far away from VOCSN it should be	
	Devices with 150 kHz to 80 MHz or 800 to 2.5 GHZ Frequencies	Devices with 80 MHz to 800 MHz Frequency
0.01	> 4.7 inches (12 cm)	> 2.4 inches (6 cm)
0.1	> 1.2 feet (38 cm)	> 7.4 inches (19 cm)
1	> 3.9 feet (1.2 m)	> 2.0 feet (0.6 m)
10	> 12.5 feet (3.8 m)	> 6.2 feet (1.9 m)
100	> 39.4 feet (12 m)	> 19.7 feet (6 m)

Powering VOCSN

VOCSN comes with two removable, rechargeable batteries for use while on the go, and one internal battery for use in emergencies. Plug VOCSN into a power outlet whenever you can. The VOCSN batteries will charge whenever it is plugged into an external source of power.

WARNING: Check the batteries, the battery power icons on the screen, and the power cord often to make sure everything is working correctly. Check to make sure the cords are connected, and that they are not damaged. Make sure the batteries are charged enough to give therapy to the patient. If VOCSN loses all power, it will turn off, and the patient could be hurt or killed.

The Optional 24 Volt Wheelchair Power Cable (Sold Separately)

An optional 24 Volt Wheelchair Power Cable is available separately from Ventec Life Systems. This power cable can be used to connect VOCSN to external DC power sources, like wheelchair power outlets. If you are using the power cable to connect to a wheelchair battery for a long time, it could be useful to travel with a few extra charged batteries.

To connect the cable, plug it in to the VOCSN external power port, and twist the connector to secure it in place. To disconnect it, twist the connector counterclockwise and then pull the connector loose.
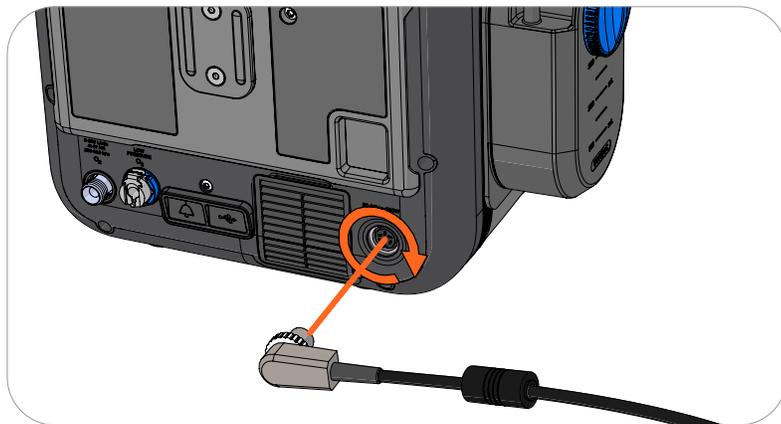
CAUTION: When you plug VOCSN into an external battery (like a wheelchair battery), it will pull power from it to run and charge its own batteries. This means the external battery life will be shortened. When VOCSN is connected to a wheelchair battery, the wheelchair may drive more slowly uphill.

The Power Supply (for Wall Outlets)

VOCSN comes with a power supply to plug VOCSN into wall outlets. Use the power supply clip to make sure the cord and the adapter stay connected. If the cord is too long, coil it up and use the hook-and-loop VOCSN strap to secure it. To plug VOCSN into a wall outlet:
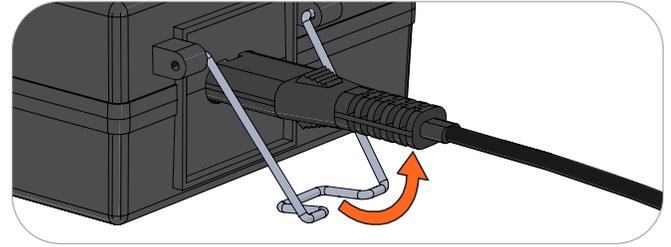
1 Plug the power supply into the power connection port in the back of VOCSN. Line up the pins in the connector with the holes in the connection port, and push the connector in. Twist the outer ring of the connector until it is tight.

2 Plug the other end of the power supply into a wall outlet. Make sure VOCSN is powered by checking for the external power icon ( ) in the status bar, and an orange or green light next to the power button on the front of VOCSN.
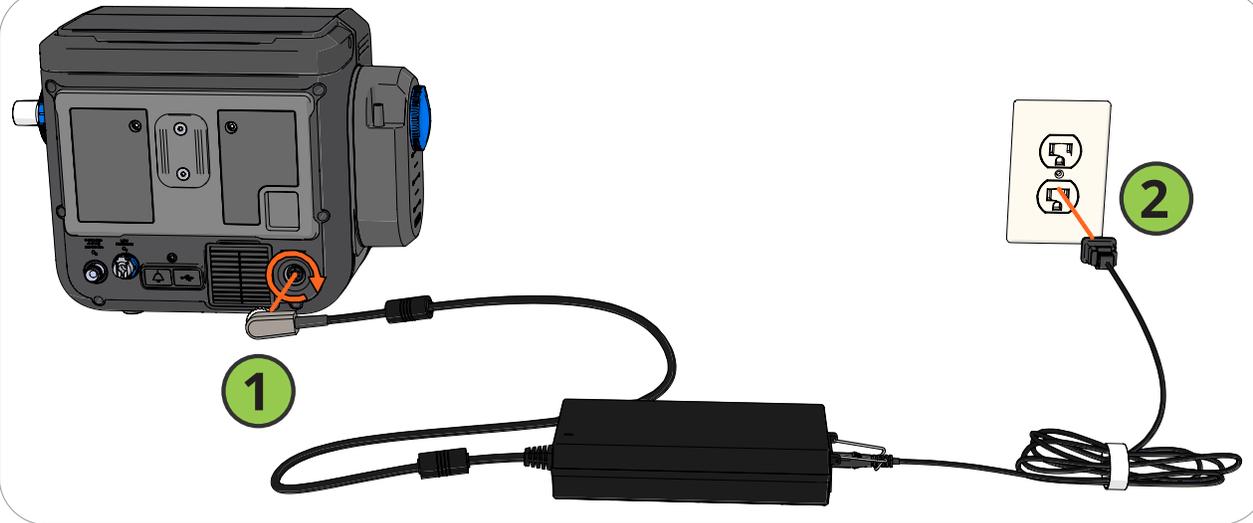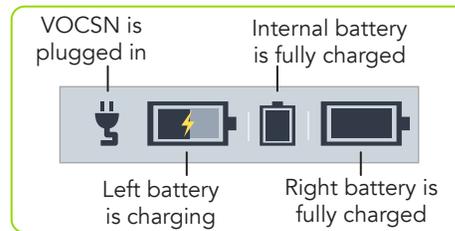
NOTE: To disconnect the power cord, twist the connector counterclockwise and then pull the connector away from VOCSN.

Charging Batteries

When you plug in VOCSN, the batteries will charge. Information about the charging batteries is available in the status bar, and on the front of VOCSN. See *"VOCSN on the Go" on page 42* for more information on using the batteries.

If you unplug VOCSN, or if the outlet you are using stops working, a Battery Use alarm will activate. This is to alert you that VOCSN is running on battery power. Only use the internal battery when there are no other power options available, and find somewhere you can plug in VOCSN as quickly as you can.

Over time, the batteries will wear out, and will not charge all the way. When the absolute charge of a battery (visible from the My VOCSN screen) will not go above 50%, a battery should be replaced. New removable batteries are available from Ventec Life Systems. The internal battery needs to be replaced by a trained service technician.

How to Remove and Install Batteries

VOCSN has two removable, rechargeable batteries. There is one on each side of the device. To remove a battery:

1 Firmly lift the blue battery tab. It will click as it lifts and unlocks.

2 Use the tab to pull battery away from VOCSN.

To connect a battery:

1 Make sure the blue battery tab is up. Place the base of the battery into the VOCSN battery slot, and then press the top of the battery into the slot.

2 Lock the battery in place by pressing the blue battery tab down until it clicks, and it is flat against the battery.

VOCSN is plugged in — Internal battery is fully charged — Left battery is charging — Right battery is fully charged

Batteries are charging (orange)
All batteries are fully charged (green)

How to Connect Patient Circuits

A doctor will decide which type of patient circuit is right for the patient (it might be an active, passive, or mouthpiece patient circuit, and may be connected to a humidifier or include an oxygen tube). Always connect the circuit carefully, following the instructions in this manual and from the patient's doctor or respiratory therapist. It is important to connect the items in the patient circuit in the right order.

Talk to a doctor or respiratory therapist about how often the patient circuit should be replaced. Whenever you change the patient circuit, run a Pre-Use Test before connecting the patient. The Pre-Use Test ensures VOCSN therapy is accurate.

WARNING: Unless a doctor or respiratory therapist tells you to, do not add things to the patient circuit that are not described in this manual, or change controls. VOCSN may not work correctly if you add things or change things without approval from a doctor or from Ventec Life Systems.

WARNING: To make sure therapy is delivered correctly, look at the patient circuit often to make sure everything is tightly connected and none of the tubes are pinched. Check the air and fan filters often too, and make sure they are not blocked or clogged.
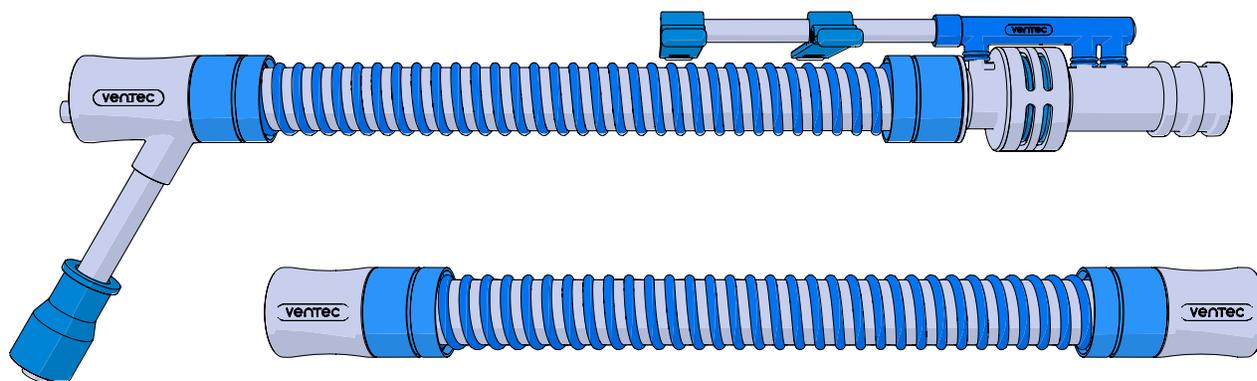
How to Connect a Mouthpiece Patient Circuit

Mouthpiece patient circuits are used with patients who move to place their mouths over the circuit to take breaths when they choose. To connect a mouthpiece patient circuit, connect components in the order shown in the picture below.

1 Reducer cuff

2 15mm circuit tubing (one piece)

3 Optional Mouthpiece Circuit Support Arm, available separately

4 Coupler

5 Flexible extension (optional)

6 Angled mouthpiece
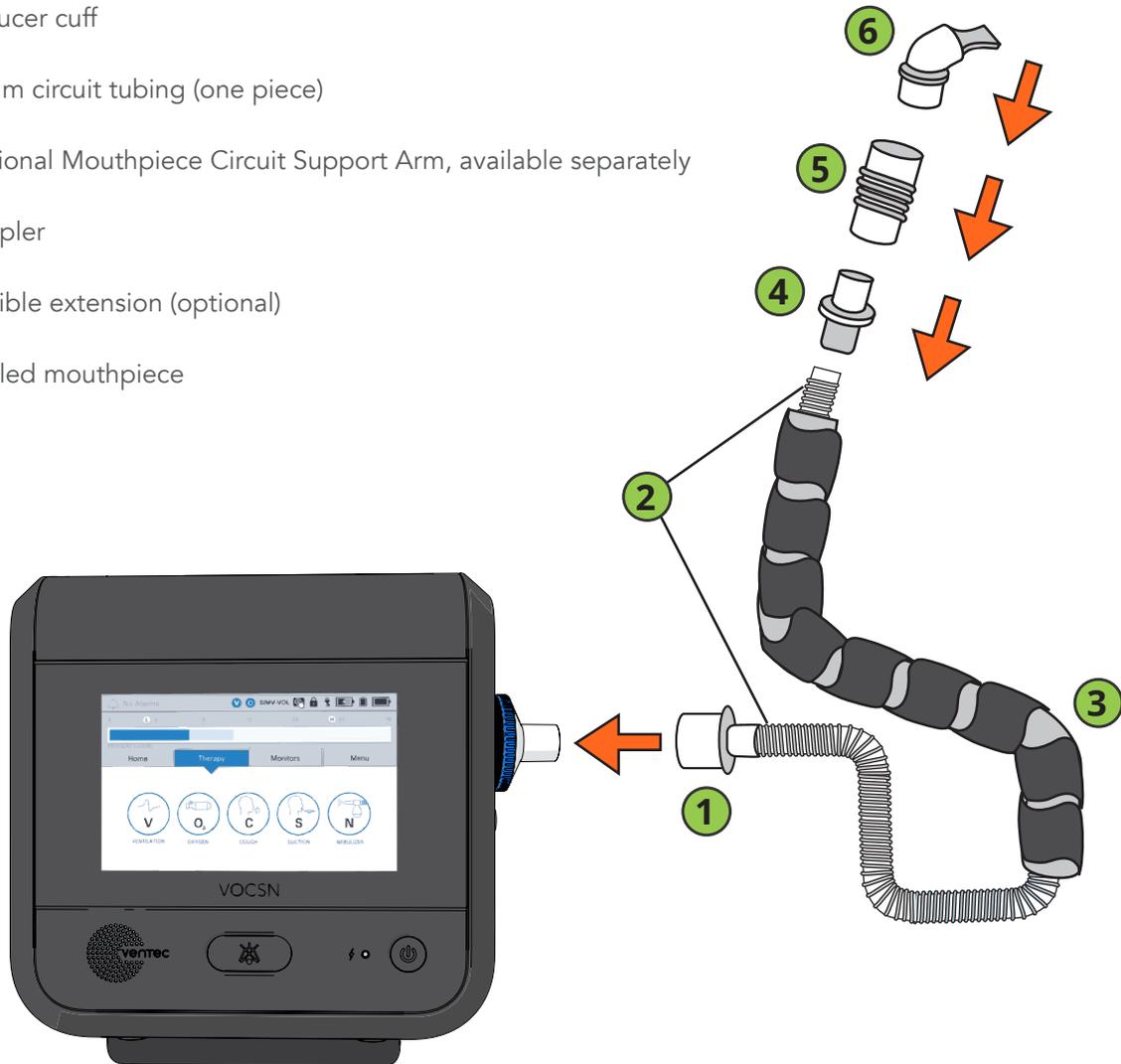
Connecting an Active, Passive, or Valveless Circuit

The way the VOCSN patient circuit is set up will depend on the circuit type and therapies that are right for the patient. There are many possible combinations. Follow the instructions that apply to your setup:

1 Connect a bacterial filter. See *"How to Connect and Remove a Bacterial Filter" on page 23.*

2 You may be using an HME or a humidifier, and may or may not need a Ventec Humidifier Bypass for Cough therapy. Follow the instructions below that apply to your circuit setup:
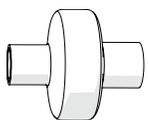
If you are using an HME for humidification: *"Connecting a Circuit Without a Humidifier" on page 23.*
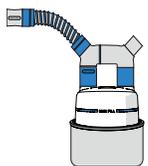
If you are using a humidifier and Ventec Humidifier Bypass (for Cough therapy): *"Connecting a Circuit and the Ventec Humidifier Bypass" on page 24.*

If you are using a humidifier without the Ventec Humidifier Bypass: *"Connecting a Circuit to a Humidifier (Without a Humidifier Bypass)" on page 25.*

3 If you are using a patient circuit with an integrated O2 tube, see *"Connecting a Patient Circuit O2 Tube" on page 27.*

4 If you are using an active patient circuit, see *"Connecting an Active Ventec One-Circuit" on page 26.*

5 To connect a nebulizer, see *" "How to Connect a Nebulizer Cup" on page 29.*

6 Once you are done connecting the circuit, look at the picture in *"Active, Passive, and Valveless Patient Circuit Help" on page 22* and make sure everything is connected in the right order. Then, run a Pre-Use Test.

Active, Passive, and Valveless Patient Circuit Help

The picture below shows the most common patient circuit parts. Your setup will not use every part in the picture (for example, you may not use a nebulizer or secretion trap, and will use either a humidifier or an HME, not both). Match the parts used for your patient circuit to the picture below, and make sure they are connected in the right order between VOCSN and the patient.

BACTERIAL FILTER

(optional O$_2$ tube)
O

PATIENT CIRCUIT

(optional heated wire)

NEBULIZER
(optional)
N

PATIENT INTERFACE

HUMIDIFIER BYPASS
(required for Cough)
C

VOCSN

HME or HUMIDIFIER
(choose one)

SECRETION TRAP
(optional)
C S

or

NEBULIZER FILTER
N

MAX FILL
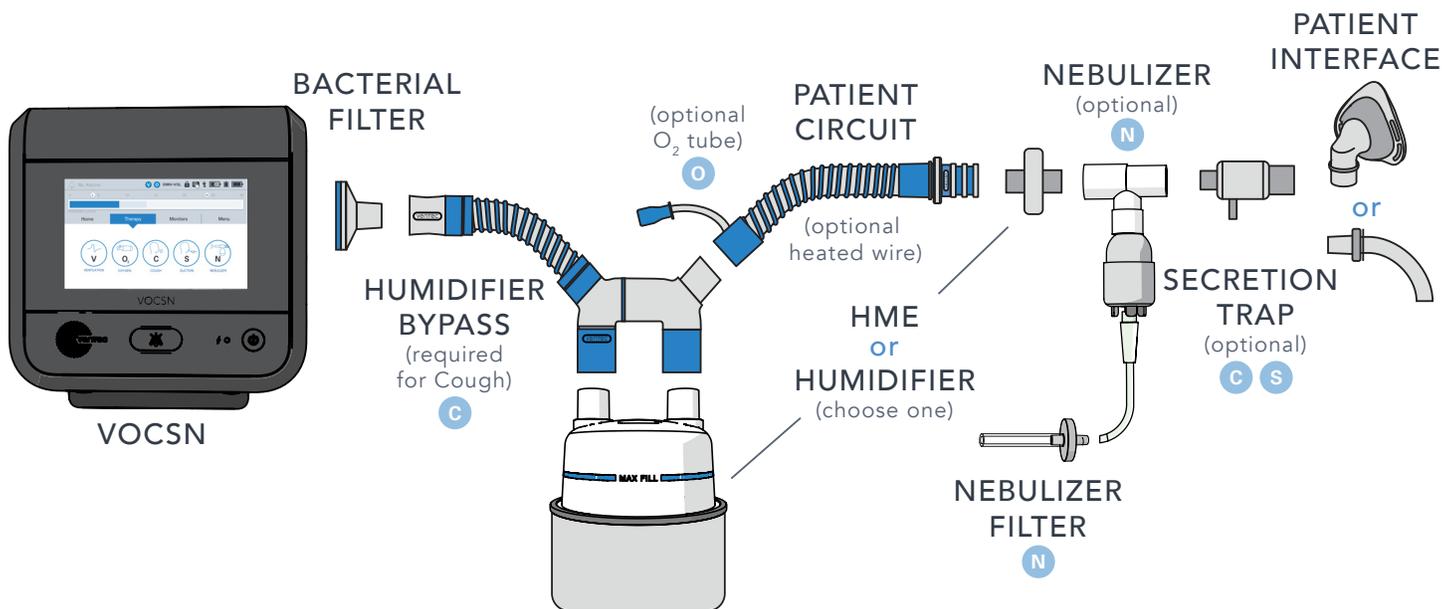
You can also view this image on the VOCSN touchscreen at any time. Go to the Menu tab, press PRE-USE TEST, and then press PATIENT CIRCUIT HELP.

?

PATIENT CIRCUIT HELP

How to Connect and Remove a Bacterial Filter

The VOCSN bacterial filter protects the device and the patient from microorganisms.

To connect a bacterial filter:

1 Line up the tabs on the filter and VOCSN.

2 Firmly twist the filter clockwise until it locks into place. You will feel a small click when it is connected properly.
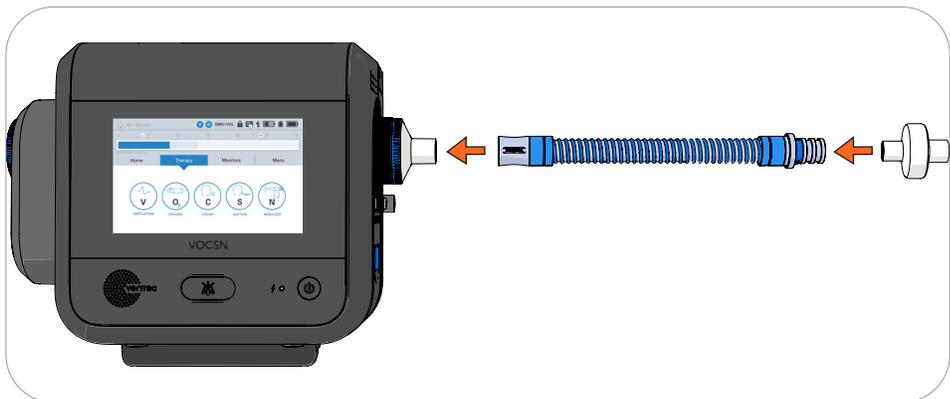
To remove a filter:

1 Firmly push the filter against VOCSN, and then twist it counterclockwise.

2 Once the filter is unlocked, pull it away from VOCSN.

Connecting a Circuit Without a Humidifier

If you are not using a humidifier, connect the patient circuit to the bacterial filter, and then connect an HME to the other end.
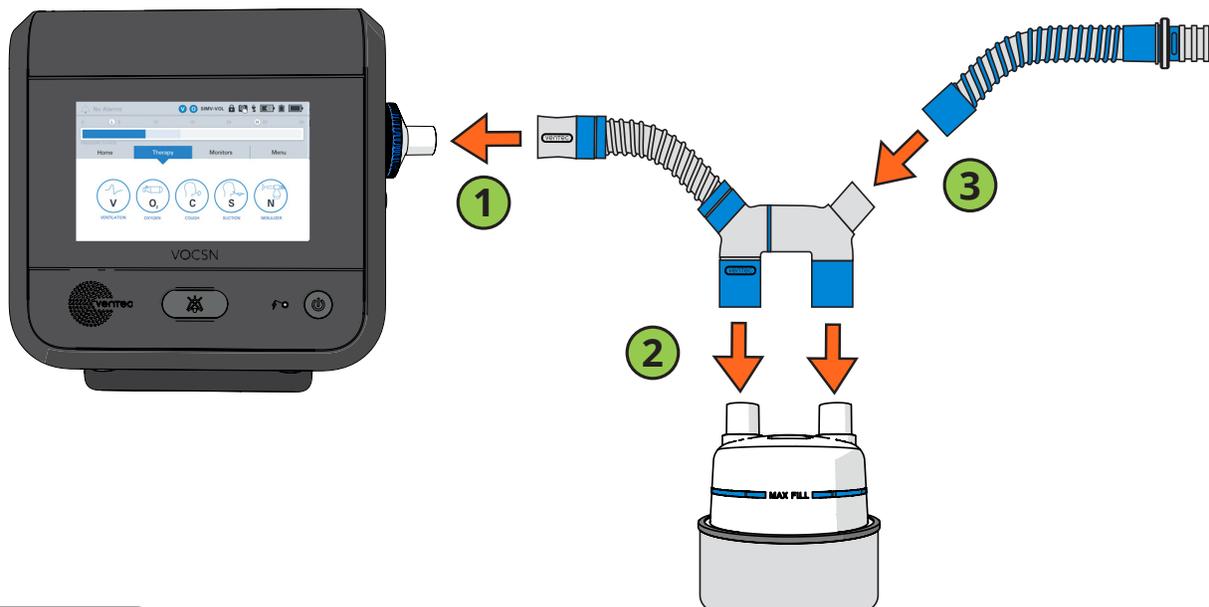
Connecting a Circuit and the Ventec Humidifier Bypass

To connect a humidifier, use a heated wire patient circuit and follow all instructions that came with the humidifier. The humidifier should be below the patient and VOCSN, to make sure the water in the humidifier does not leak into the tubing. Use the Ventec Humidifier Bypass if you want to use Cough therapy while a humidifier is connected. It is designed to stay connected to the patient circuit at all times, and will protect VOCSN from water damage. To connect a Ventec Humidifier Bypass:

1 Connect the Ventec Humidifier Bypass tubing to the VOCSN bacterial filter.

2 Connect the Ventec Humidifier Bypass to the humidifier.

3 Connect a heated wire patient circuit to the Ventec Humidifier Bypass. Follow instructions from the humidifier manufacturer to connect heated wire and temperature sensor lines to the patient circuit.

NOTE: If you are using an active patient circuit, see *"Connecting an Active Ventec One-Circuit" on page 26* for more instructions. If you are using a patient circuit with an oxygen tube, see *"Connecting a Patient Circuit O2 Tube" on page 27*.

## Connecting a Circuit to a Humidifier (Without a Humidifier Bypass)

To connect a humidifier, use a heated wire patient circuit and follow all instructions that came with the humidifier. The humidifier should be below the patient and VOCSN, to make sure the water in the humidifier does not leak into the tubing.

CAUTION: If you use a humidifier, do not start Cough therapy unless you have a Ventec Humidifier Bypass connected to the circuit. If you do not have a Ventec Humidifier Bypass, disconnect the humidifier before you start Cough therapy so that water does not splash from the humidifier into VOCSN and damage it. See *"Connecting a Circuit and the Ventec Humidifier Bypass" on page 24* for setup instructions.

To connect a humidifier to the patient circuit (without the Ventec Humidifier Bypass):

1 Connect an extra length of patient circuit tubing to the VOCSN bacterial filter. Connect the other end to the humidifier.

2 Connect a heated wire patient circuit to the humidifier. Follow instructions from the humidifier manufacturer to connect heated wire and temperature sensor lines to the patient circuit.

NOTE: A non-heated circuit may also be used if recommended by your doctor or respiratory therapist
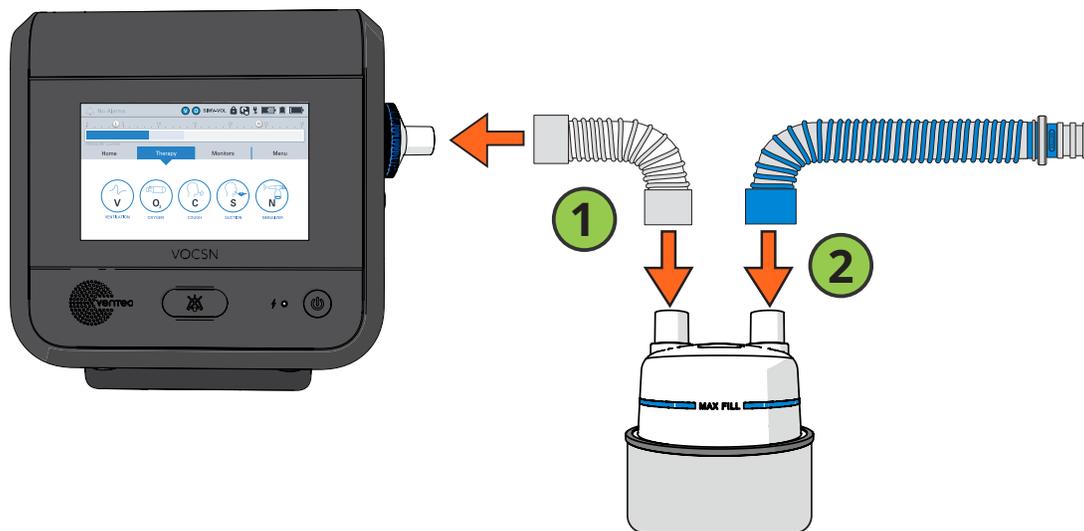
Connecting an Active Ventec One-Circuit

If you are using an active patient circuit, connect it to your bacterial filter, humidifier, or Ventec Humidifier Bypass (depending on your setup) by following the instructions in this manual, and then:

1 Plug the small tube into the active valve port on the right side of VOCSN. Make sure the oval pin in the connector lines up with the connection port, and push the connector into place.

2 Twist the connector clockwise until it is tightly connected.
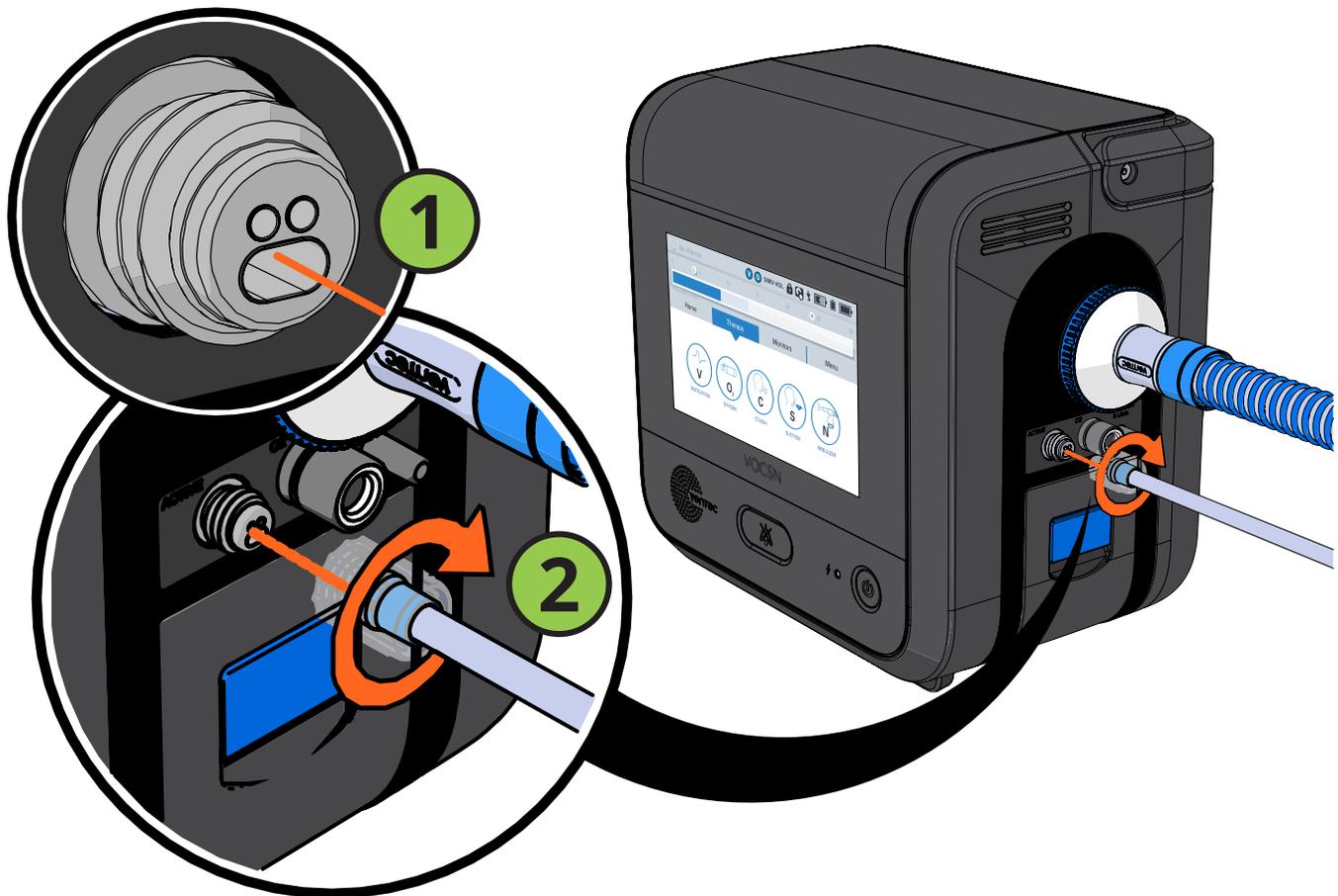
Connecting a Patient Circuit O2 Tube

If you are using a patient circuit with an oxygen tube inside it, connect the O2 tube in the patient circuit to the O2 port on the right side of VOCSN. Fit the connector onto the connection port and push it in all the way.

NOTE: Oxygen therapy will only work properly if the O2 tube is fully connected. The end of the blue connector should be pushed all the way against the side of VOCSN.
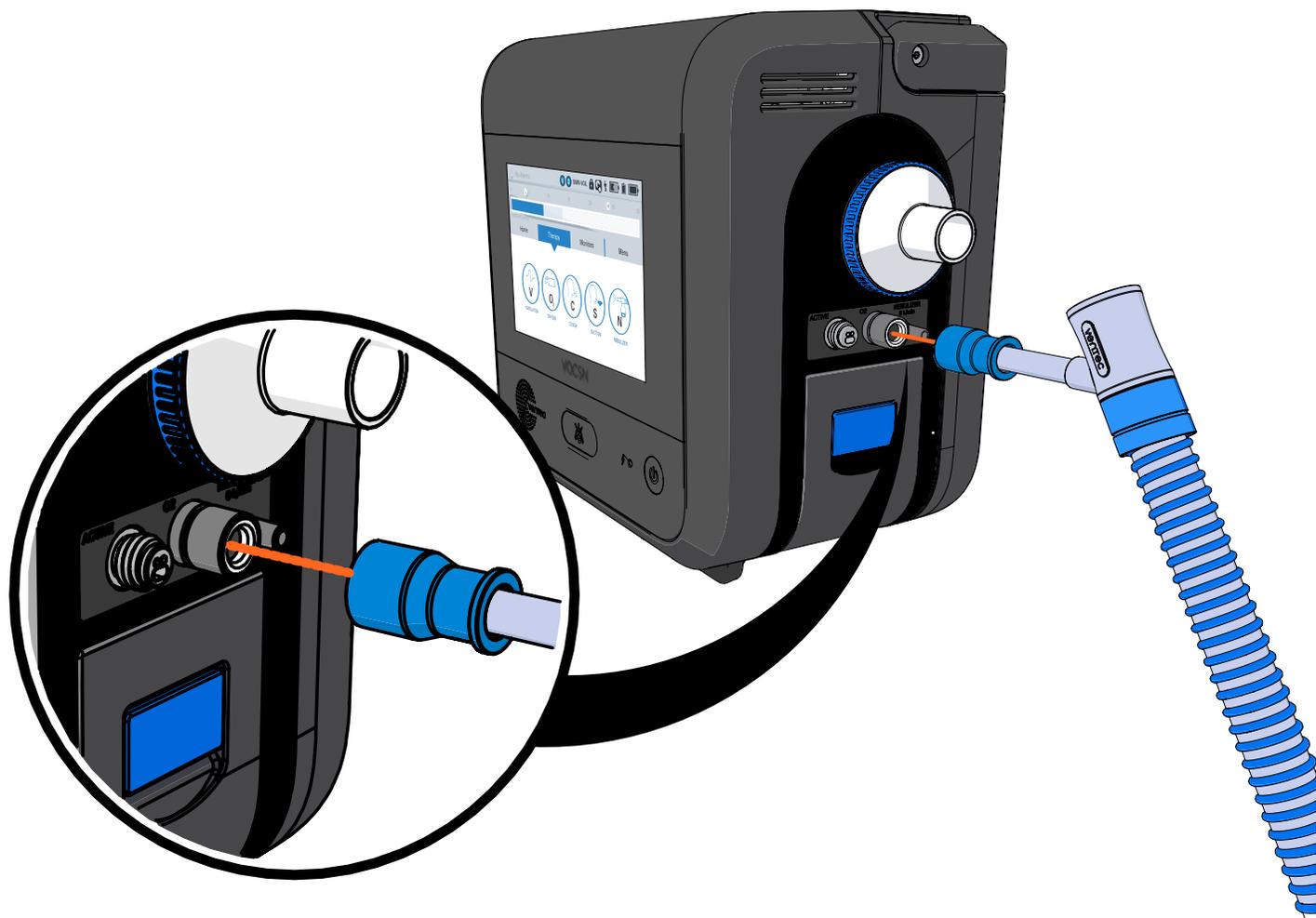
How to Connect a Heat-Moisture Exchanger (HME)

NOTE: Ventec Life Systems recommends you use either a humidifier or HME with active, passive, and valveless patient circuit setups. Mouthpiece patient circuit setups do not usually need humidification or any other circuit attachments.

To connect an HME to the patient circuit, follow all the setup instructions that came with the HME.

Connect an HME to a Passive Ventec One-Circuit at the exhalation valve.
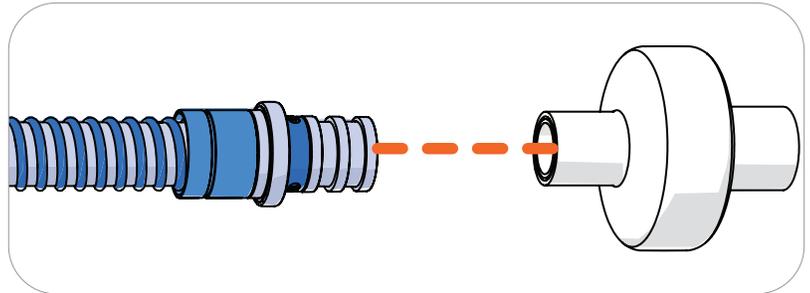
If you are using an Active Ventec One-Circuit, connect a flex tube between the circuit and the HME.
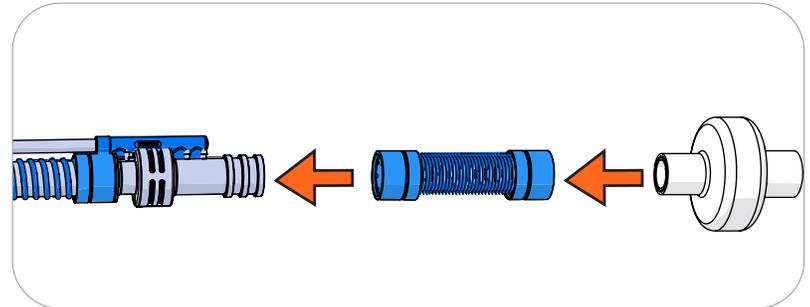
How to Connect a Nebulizer Cup

If a doctor prescribed Nebulizer therapy for the patient, connect a nebulizer cup by following the instructions in this section. VOCSN can be used to provide Nebulizer therapy, or compensate for the flow from an external nebulizer.

> WARNING: VOCSN should be used with a 6 L/min nebulizer cup. VOCSN might not provide accurate Ventilation during Nebulizer therapy with other types of nebulizers.
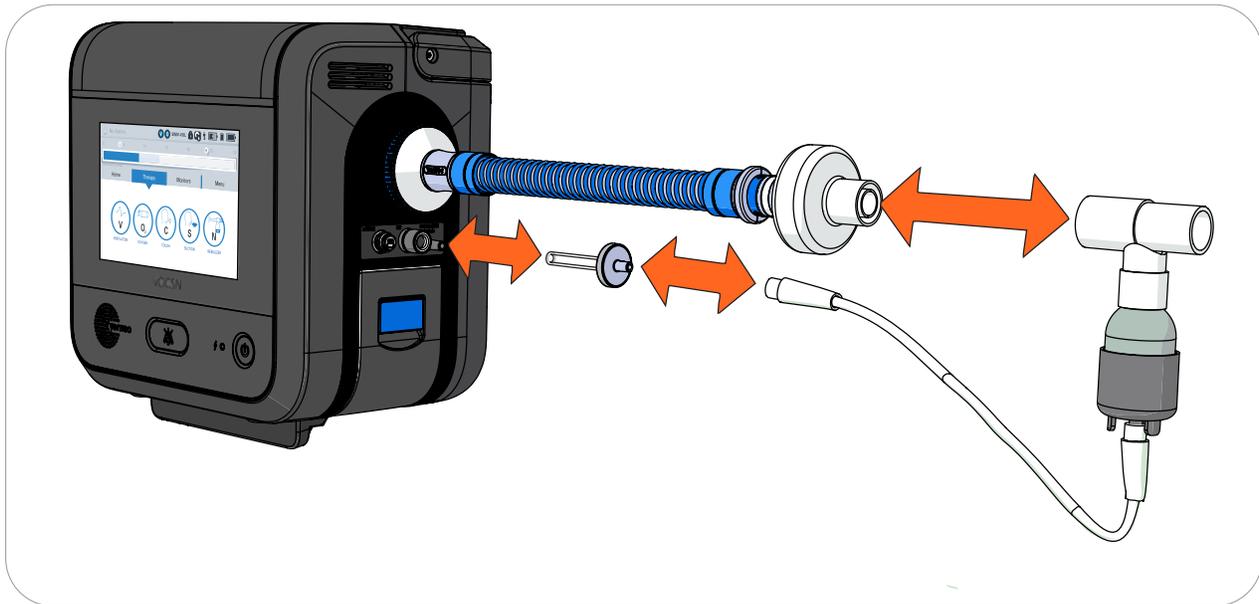
To use an external nebulizer with VOCSN, follow the nebulizer and nebulizer cup setup and use instructions from the manufacturer, and then see *"Using Nebulizer Therapy" on page 49* to start external nebulizer compensation.

To use VOCSN nebulizer therapy, follow all the setup instructions that came with the nebulizer cup, and:

1 Connect a VOCSN Nebulizer Filter to the nebulizer port.

2 Connect one end of the nebulizer tubing to the VOCSN Nebulizer Filter, and the other end to the bottom of the nebulizer cup.

3 Add medication to the nebulizer cup by following all instructions from the nebulizer cup manufacturer.

4 Set up nebulizer therapy by pressing the Therapy tab, and then the Nebulizer button. If needed, change the time using the plus (+) and minus (-) buttons. The Nebulizer Duration should be set to provide plenty of time for all medication in the cup to be delivered to the patient.

5 Before connecting the nebulizer cup to the patient circuit, press START to begin Nebulizer therapy. Make sure a mist is created from the nebulizer cup.

6 Attach the nebulizer cup and tee (or, if the tee is already in place, attach the nebulizer cup to it). Make sure you connect it in the right place. See *"Active, Passive, and Valveless Patient Circuit Help" on page 22* for the order of patient circuit parts. Make sure the nebulizer cup is not tilted so that all medication in the cup is properly nebulized.

NOTE: If you're using an HME, the nebulizer should be closer to the patient than the HME, so that the HME doesn't trap any of the medication.

NOTE: If you're using a passive Ventec One-Circuit, Ventec Life Systems recommends connecting a filter between the patient circuit and the nebulizer tee. This will keep the passive valve from clogging.

7 When nebulizer therapy is complete, disconnect the nebulizer from the VOCSN Nebulizer Filter, and then from the patient circuit. Clean the nebulizer cup following all instructions from the nebulizer manufacturer.
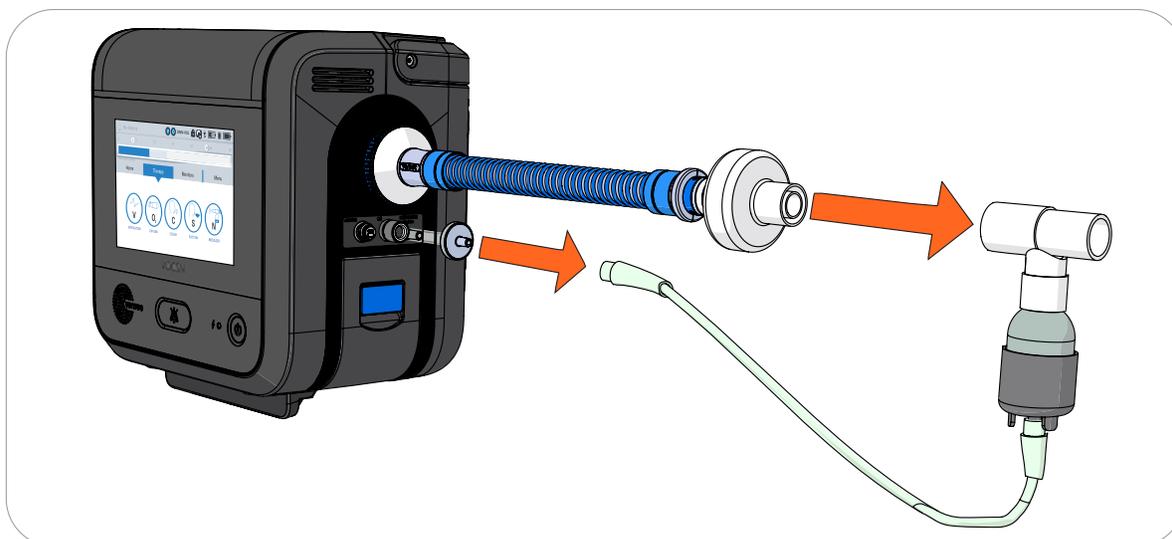
How to Connect Suction Canisters

If a doctor prescribed Suction therapy for the patient, a Ventec Travel Suction Canister or External Suction Canister Adapter can be attached to the left side of the device. The Ventec Travel Canister holds up to 300 mL of fluid. You can use the External Suction Canister Adapter to connect VOCSN to a suction canister with a larger capacity. See the sections below for setup instructions.

Connecting the Ventec Travel Suction Canister

The Ventec Travel Suction Canister includes a water-phobic filter that stops Suction therapy and protects VOCSN from damage if the canister overfills. If this happens, the canister must be replaced.

To connect the Ventec Travel Suction Canister:

1 Place the canister knob in the unlock position.

2 Place the canister flat against the left side of VOCSN.

Lock to Suction

Unlock to Remove

Travel or Remove Filter
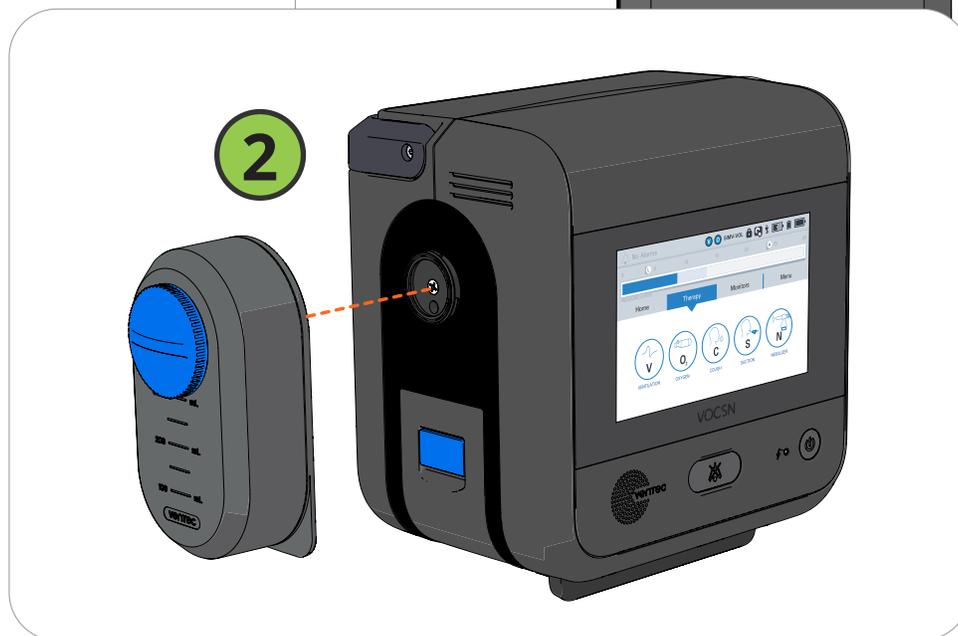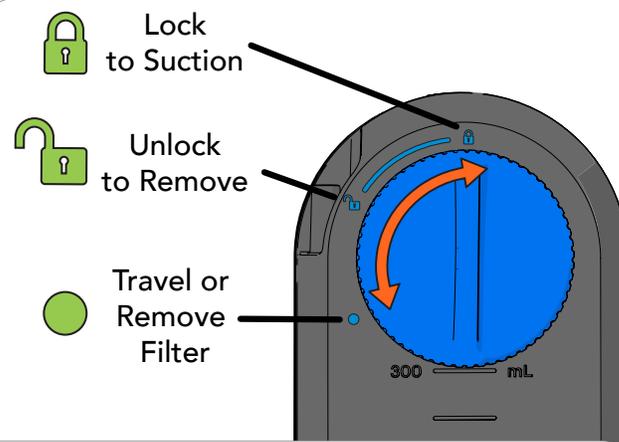
3 Twist the blue knob clockwise. The knob will click into the lock position when the canister is secured.

4 Fit one end of the 1/4" suction tubing over the port in top of the Ventec Suction Canister.

5 Connect the other end of the suction tubing to a suction interface (like a Ventec Secretion Trap, open-suction catheter, closed-suction catheter, or Yankauer suction tip).
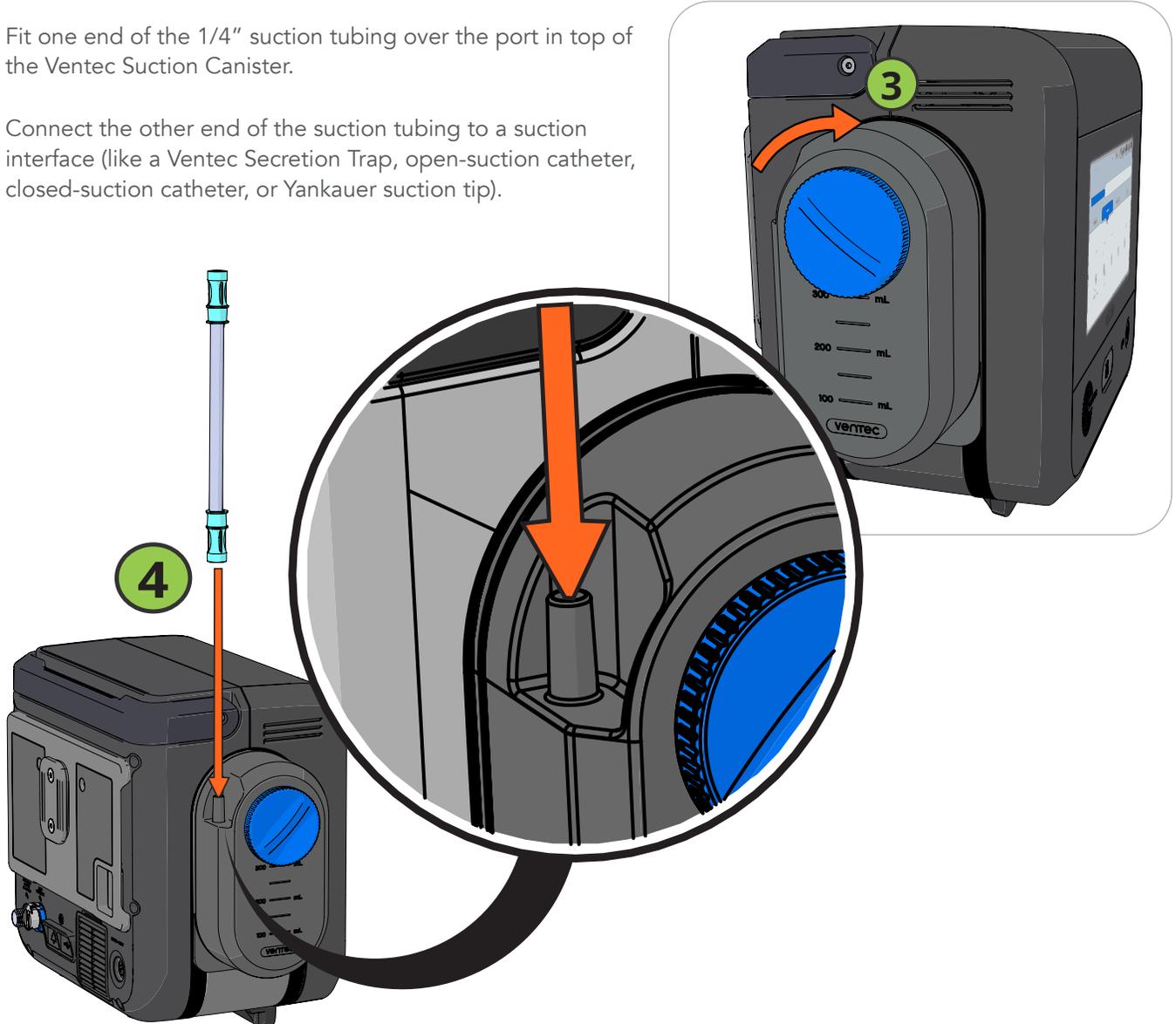
Connecting an External Suction Canister

The optional External Suction Canister Adapter is available separately from Ventec Life Systems. It connects VOCSN to large suction canisters from other manufacturers. The adapter comes with a water-phobic filter that will protect VOCSN from damage if the canister overfills.

1 Attach and detach the adapter by twisting it. Twist to the left to unlock and remove it. Twist to the right to lock and use it.

2 Connect the adapter tubing to an external suction canister.

3 Connect another length of 1/4" suction tubing to the canister. Connect the other end to the suction interface (like a Ventec Secretion Trap, open-suction catheter, closed-suction catheter, or Yankauer suction tip).
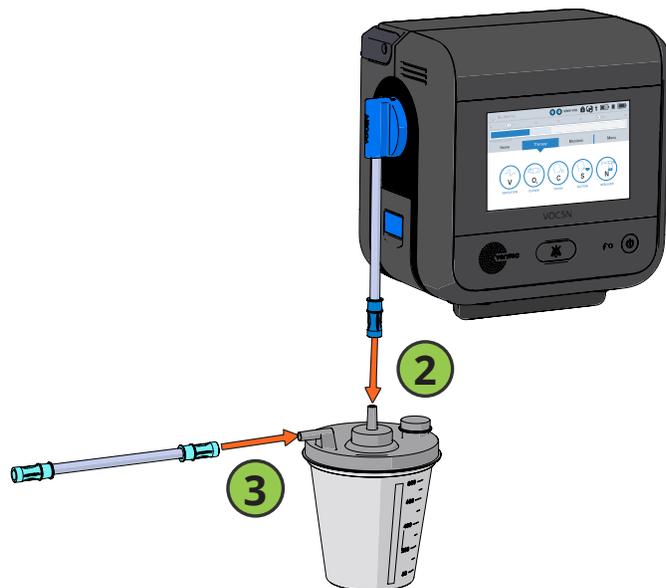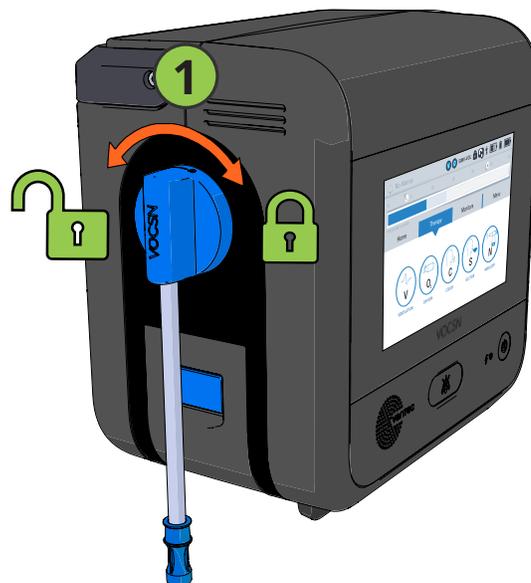
How to Connect External Oxygen

If the patient's doctor or respiratory therapist prescribed Oxygen therapy for the patient, they will either use the internal O2 concentrator or external oxygen. If you need to connect external oxygen to VOCSN, follow all instructions that came with the oxygen source, and connect it to VOCSN using the high-pressure or low-pressure port.

Connecting External High-Pressure Oxygen

Depending on your configuration, you may be able to connect external high-pressure oxygen sources like oxygen tanks to VOCSN. External high-pressure oxygen should be pressurized between 41 and 87 PSIG.

1 Connect the high-pressure oxygen tubing from the source to the VOCSN high-pressure O2 port in the back of VOCSN.

2 Fit the connector over the port, and twist it clockwise until it is secure.
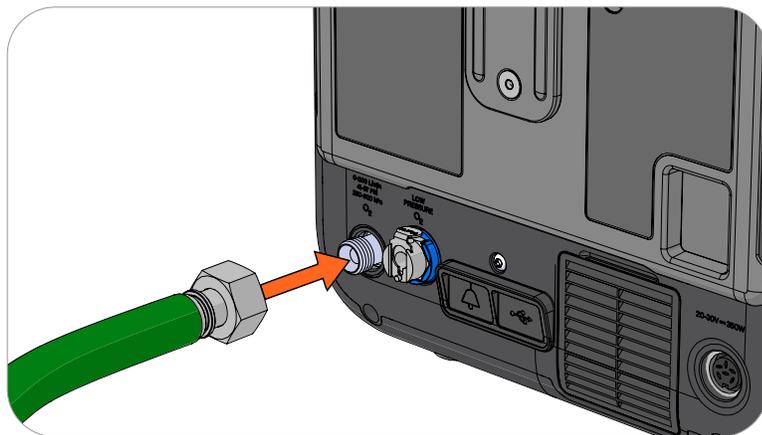
Connecting External Low-Pressure Oxygen

You can connect external low-pressure oxygen sources like oxygen concentrators to VOCSN.

1 Connect an O2 Low Pressure Inlet Adapter (available separately from Ventec Life Systems) to the VOCSN low-pressure O2 port in the back of VOCSN. Push it into the port until it clicks into place.

2 Connect tubing from the oxygen source to the adapter firmly pushing the tube over and around the adapter, until it is leak-free.
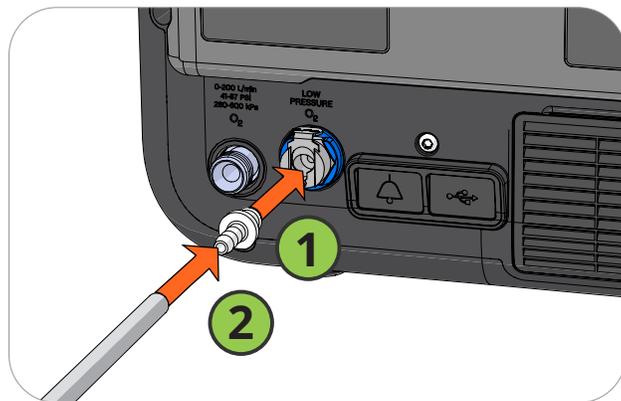
How to Connect a Remote Alarm

If a remote alarm is needed, connect it following all setup instructions that came with the remote alarm. To connect the remote alarm to VOCSN:

1 Flip down the flap covering the VOCSN remote alarm and USB port.

2 Plug the connector into the port. Press until it clicks into place.

3 Test the remote alarm to make sure it works. Safely activate an alarm by unplugging external power. Make sure the remote alarm activates when the Battery Use alarm activates on VOCSN. Then plug VOCSN back into its power source.

4 If needed, disconnect the alarm by pressing the top and bottom of the remote alarm connector, and pulling it from the port.

VOCSN
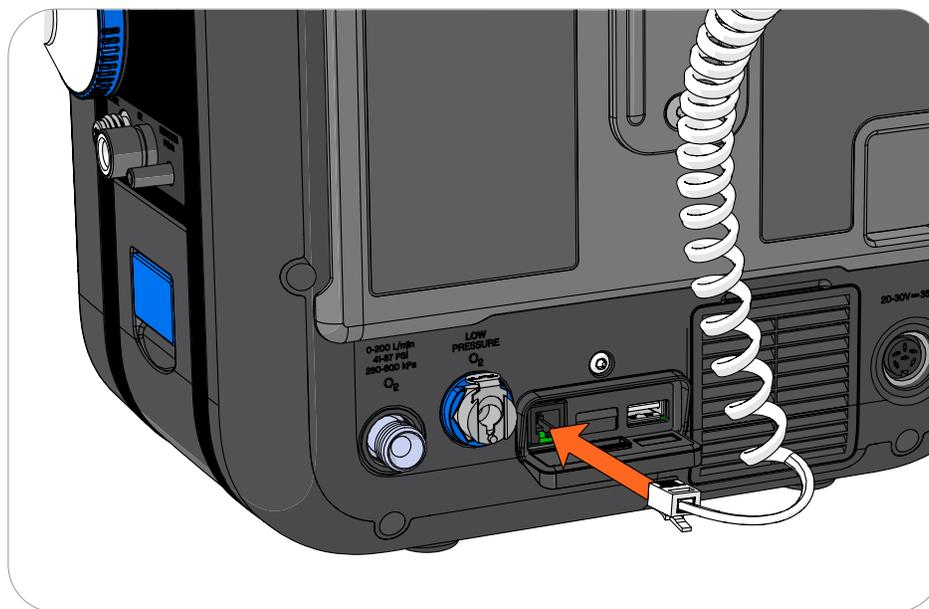
The Touchscreen

The Status Bar
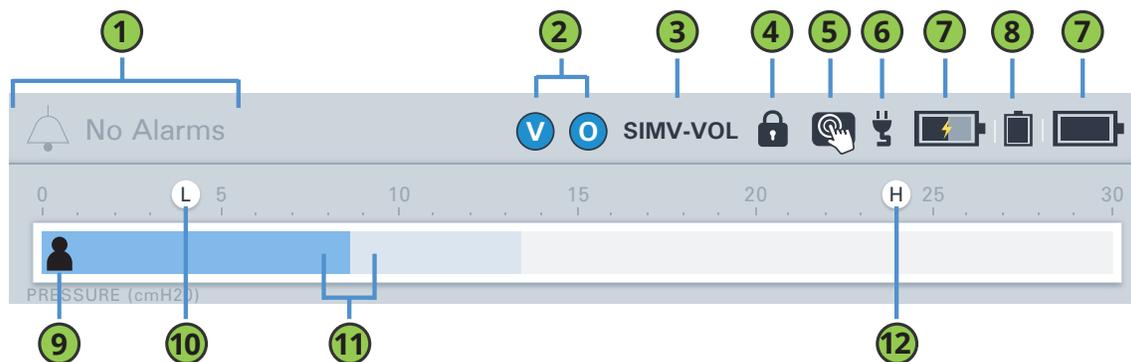
	What the icon means
1	When there is an alarm, the name of the alarm will appear here with a blue, yellow, or red banner.
2	Therapy icons show which therapies are running: Ventilation (V), Oxygen (O), Cough (C), Suction (S), and/or Nebulizer (N).
3	Current Ventilation Mode. This information is for a doctor or respiratory therapist.
4	The lock icon means that only a doctor or respiratory therapist can change some VOCSN settings.
5	Screen lock icon. Press and hold this icon for 3 seconds to lock and unlock the touchscreen.
6	This plug icon will appear when VOCSN is plugged in and running on external power.
7	Removable battery icons show how much power is left in the removable, rechargeable batteries on the right and left side of VOCSN. A lightning bolt means a battery is charging.
8	This icon shows how much power is left in the internal battery. A lightning bolt will appear when it is charging.
9	This icon will appear when the patient initiates a breath.
10	The "L" above the pressure bar shows the Low Pressure alarm setting.
11	The dark blue bar shows the pressure of the current breath as it happens. The light blue bar shows the peak pressure of the last breath.
12	The "H" above the pressure bar shows the High Pressure alarm setting.

Locking and Unlocking the Touchscreen

To lock and unlock the VOCSN touchscreen, use the status bar to press and hold the screen lock button for three seconds. A pop-up message will appear to confirm your action.

UNLOCKED   **LOCKED**

Home Screen

The home screen shows three monitors (for example, Breath Rate, Tidal Volume, and the active Ventilation therapy preset).

The three monitors shown on the top row of the Monitors screen will also display on the Home screen.

No Alarms · V O SIMV-VOL

PRESSURE (cmH20)

| Home | Therapy | Monitors | Menu |

15BPM   **430**mL   **Preset 1**

BREATH RATE   TIDAL VOLUME   VENT PRESET
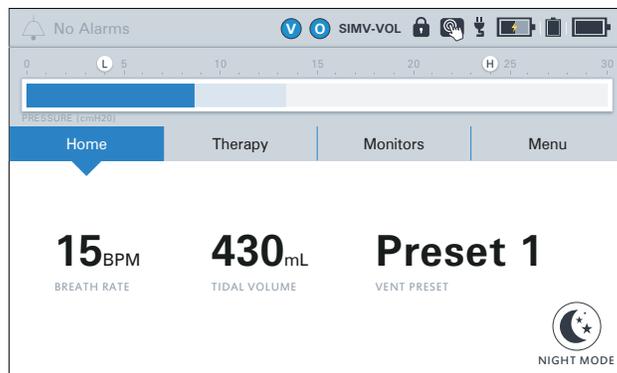
NIGHT MODE

Night Mode and Day Mode

Use the Home screen to change between Night Mode and Day Mode.

1 Press the NIGHT MODE button to dim the screen. The screen will stay dimmed while you use VOCSN.

2 Press DAY MODE to brighten the screen.

NIGHT MODE   **DAY MODE**
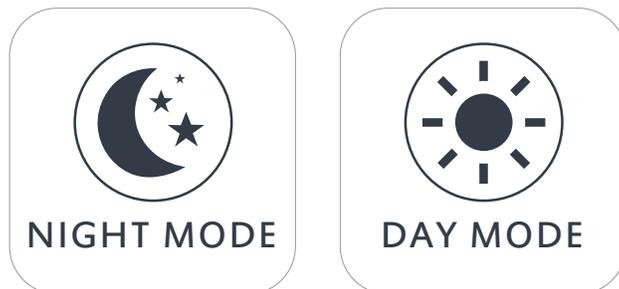
Therapy Screen

Use the Therapy screen to start VOCSN therapies. Press the button for the therapy you want to use. See *"Using VOCSN" on page 41* for instructions on using each one.

Not every VOCSN has all five therapies available. A doctor or respiratory therapist will decide which therapies the patient needs. If the button for Oxygen, Cough, Suction, or Nebulizer is not available, it means that therapy is not available.

It is also important to keep in mind that you can only run one of these therapies at a time: Oxygen, Suction, or Nebulizer. See *"VOCSN Therapy Interactions" on page 50* for details.
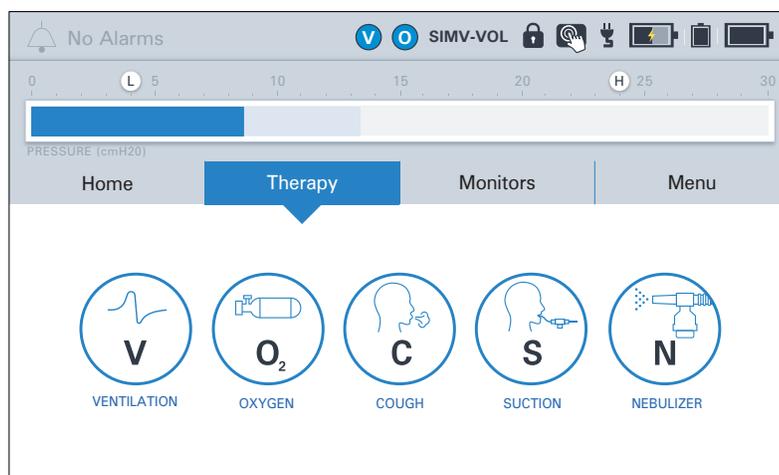
V+O+C+S+N+Pro Configuration
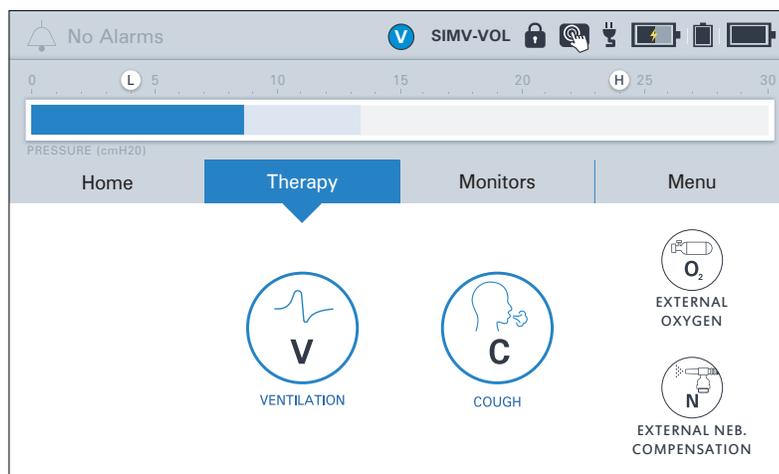
V+C+Pro Configuration

Monitors Screen

The monitors screen will give you more information about the therapy VOCSN is providing to the patient. If you have questions about what these monitors mean for the patient, ask a doctor or respiratory therapist for more information.

If you press the arrow at the bottom of the screen, VOCSN will display nine control settings.

You can change which monitors are shown on the screen by using the CUSTOMIZATION button. The 3 monitors on the top row will also appear on the Home screen. When you press the WAVEFORMS button, you can look at real-time flow, pressure, and volume waveforms as VOCSN delivers therapy.

NOTE: All VOCSN volumes and flows are displayed in BTPS (Body Temperature and Pressure Saturated) units. This is to account for moisture in the air VOCSN delivers and measures.
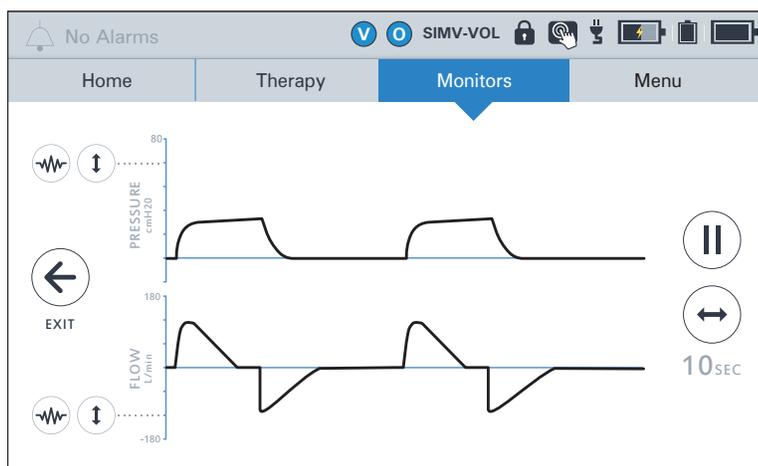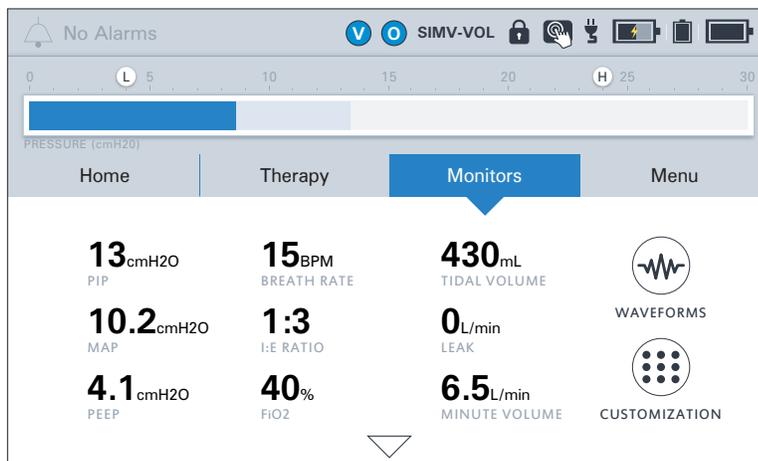
Menu Screen

The buttons on the Menu screen allow you to run a Pre-Use Test at any time, learn more about VOCSN, see the Alarm Log, and in some cases, change VOCSN settings. For more information, see the descriptions of each button in this section.
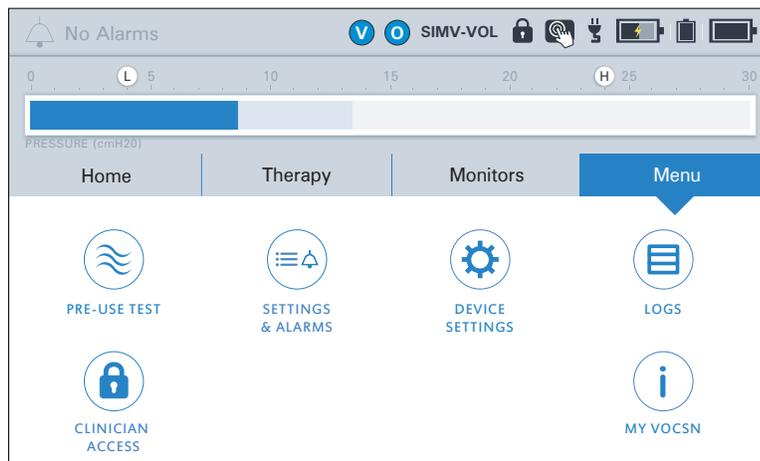
The Pre-Use Test Button

Press the PRE-USE TEST button to start a Pre-Use Test. To make sure VOCSN delivers therapy correctly, run a Pre-Use Test whenever you change the patient circuit or turn on VOCSN.

The Settings & Alarms Button

Press the SETTINGS & ALARMS button to change Ventilation therapy settings or alarms, if asked to by a doctor or respiratory therapist.

The Device Settings Button

Press the DEVICE SETTINGS button to change things like the alarm volume, or the VOCSN date and time.

DEVICE SETTINGS

The Logs Button

Press the LOGS button to look at the Alarm Log or the Event Log. See "How to Silence an Alarm" on page 6-3 and "The Event Log" on page 6-4 for more information.

LOGS

The Clinician Access Button

If needed, a doctor or respiratory therapist will use the CLINICIAN ACCESS button to unlock VOCSN and change settings for the patient.

CLINICIAN ACCESS

The My VOCSN Button

Press the MY VOCSN button view additional information about VOCSN, like how long it has been used, its serial number, and the software revision. See *"Finding Your Software Version" on page 68* for details.

MY VOCSN

Checks and Tests
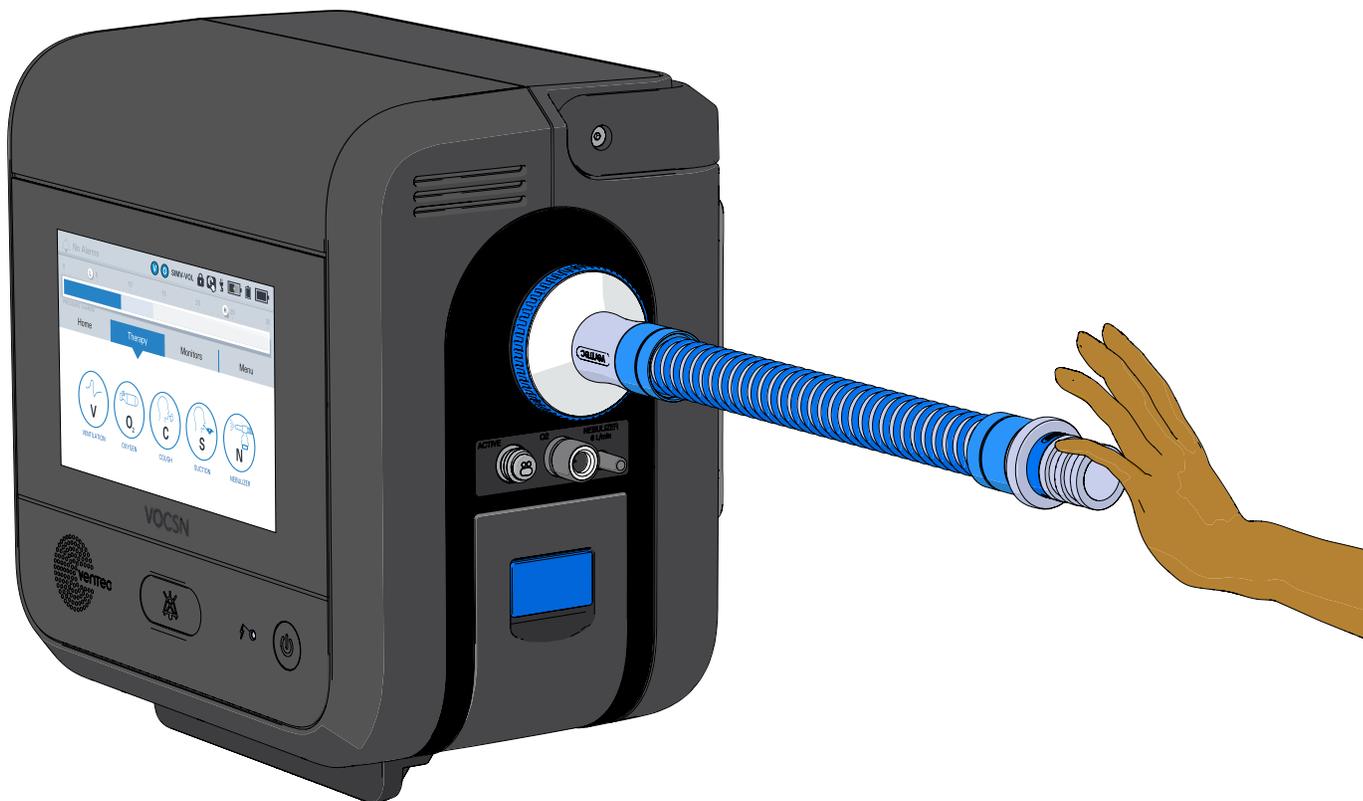
Setup Checks

Complete all the tests in this chapter before you connect VOCSN to a patient, to make sure it is ready to use. You may also need to perform other tests while you are using VOCSN. A doctor or respiratory therapist will tell you what tests to do, and how often you need to do them.

WARNING: Always have backup ventilation available. If the patient needs Oxygen, Nebulizer, Cough and/or Suction therapy, make sure you have another way of providing these therapies, too. A patient could be seriously harmed if VOCSN loses power or stops working and there is no backup therapy available.

To make sure VOCSN is ready to give the patient therapy, start by completing these steps:

1 Look at VOCSN, and everything connected to it. Make sure no part of VOCSN, or anything connected to it, looks damaged.

WARNING: If VOCSN looks damaged, do not use it. Damage to the outside of VOCSN could mean that it will not work correctly. If VOCSN looks damaged, give the patient backup ventilation and contact Ventec Life Systems for help.

2 Make sure both of the removable batteries are installed, and that they are charged.

3 Make sure VOCSN is in a location with plenty of airflow around it:

- VOCSN should be away from anything that could block the air inlet or exhaust vents, such as curtains, sheets, or bedspreads.

- VOCSN should not be near contaminated or flammable air.

- If you are using Oxygen therapy, make sure there are no lit cigarettes, candles, or other flames near VOCSN.

Testing VOCSN Alarms (If Needed)

Your doctor or respiratory therapist will test VOCSN to be sure the alarm system is working. This section describes additional alarm tests you can perform at home. Run these tests only if asked to by a doctor or respiratory therapist.

> NOTE: VOCSN tests High PEEP, High Pressure, and High/Low/Very Low FiO2 alarms automatically.

Make sure you can both see and hear active alarms. See *"Alarm Priorities" on page 54* for more information about what the alarms look and sound like. If you are using a remote alarm, make sure it activates when VOCSN alarms do, too. For setup instructions, see *"How to Connect a Remote Alarm" on page 35.* If VOCSN alarms are not working the way you expect, call your doctor or respiratory therapist.

Power Cord and Battery Test

Perform this procedure if you need to check to make sure the Battery Use, Internal Battery Low, and Internal Battery Critically Low alarms are working. Make sure both removable, rechargeable batteries are fully charged before beginning this test.

1   Plug VOCSN in and check to be sure the external power icon (⚡) appears in the status bar.

2   Disconnect VOCSN from external power and verify the ⚠ Battery Use alarm comes on.

3   Disconnect the two removable batteries and wait to be sure the ⚠ Internal Battery Low alarm comes on when the battery is less than 50% charged. This may take some time.

4   Continue waiting. When the battery drains below 33%, verify the ⚠ Internal Battery Critically Low alarm comes on.

5   Immediately plug VOCSN in to external power to recharge the internal battery and connect the two charged removable, rechargeable batteries.

Circuit Test

Perform this test if a doctor or respiratory therapist asks you to make sure the Check Patient Circuit, Patient Circuit Disconnect, Low Minute Volume, and/or Low Inspiratory Pressure alarms are working. These alarms are designed to detect problems with the patient circuit.

1 If VOCSN is being used on a patient, **provide backup ventilation**.

2 Disconnect the circuit from the VOCSN bacterial filter.

3 Wait a few seconds and be sure you can see and hear one or all of the following alarms:

- 🔔 Patient Circuit Disconnect

- 🔔 Low Minute Volume

- 🔔 Low Inspiratory Pressure

4 Reconnect the circuit to the VOCSN bacterial filter.

5 If you are using an active or passive circuit, connect the it to a test lung, and verify all alarms stop. Then:

- If you are using a **passive** circuit, wrap tape around the valve (where air leaks) to block it.

- If you are using an **active** circuit, unplug the center connector on the valve.

Wrap with tape

Unplug middle tube

6 Wait a few seconds and be sure you can see and hear the 🔔 Check Patient Circuit alarm.

7 Resolve all alarms and then reconnect the circuit to the patient.
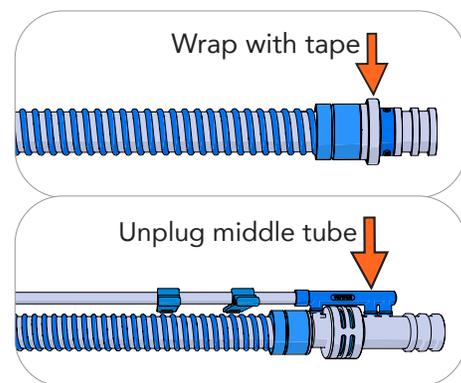
Oxygen Test (+Pro Configurations Only)

Perform this test if you need to make sure the O2 Concentration alarm works correctly. This alarm is designed to activate when VOCSN is having a problem with Oxygen therapy. Perform this test only if asked to by your doctor or respiratory therapist.

1 If VOCSN is connected to an external source of oxygen, turn it off and disconnect it.

2 A doctor or respiratory therapist will help you set up an Oxygen therapy preset to deliver 100% FiO2.

3 Begin Oxygen therapy at 100% FiO2.

4 Wait 5 minutes, and then be sure you can see and hear the ⚠ O2 Concentration alarm.

5 If used, connect the external oxygen source, and turn it back on.

6 Set the Oxygen therapy settings back to what they were before the test.

Wait 5 minutes for alarm

⚠ O2 Concentration   Ⓥ Ⓞ SIMV-VOL

0   L   5   10   15   20   H   25   30

PRESSURE (cmH20)

O₂

21   30   40   50   60   70   80   90   100

CALCULATED FiO2 MONITOR (%)

6 L/min
O2 FLUSH

PRESET 1
4 L/min
Pulse Dose
Ext. High-Pressure
NOW ACTIVE

PRESET 2
100%
FiO2
Ext. High-Pressure
START

PRESET 3
6 L/min
Pulse Dose
Int. O2 Concentrator

← EXIT

SETTINGS & ALARMS

Use preset with 100% FiO2
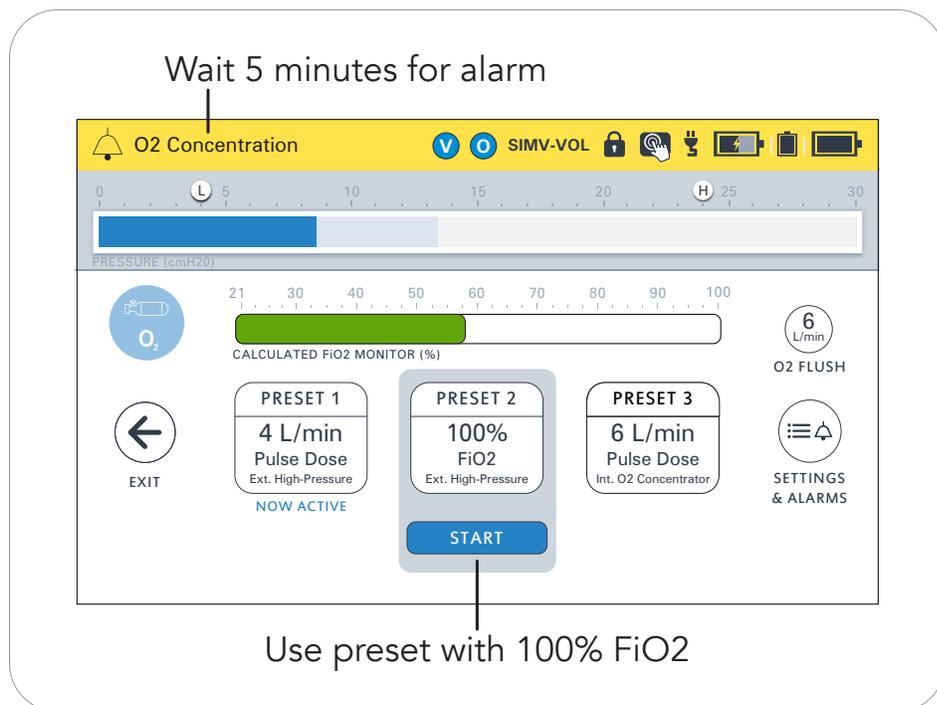
Running a Pre-Use Test

The Pre-Use Test is an important part of making sure VOCSN gives the patient the right therapy. VOCSN will ask you to run a Pre-Use Test every time you turn it on or start a Ventilation Preset with a different Circuit Type setting. You can also choose to run a Pre-Use Test whenever you change the circuit by selecting the PRE-USE TEST button on the Menu screen:

> **WARNING: Ventilation therapy is paused during the Pre-Use Test.** If the patient needs Ventilation therapy, give them backup ventilation during the test. Always verify Ventilation therapy starts again after the Pre-Use Test is complete.

When you start a Pre-Use Test, instructions will appear on the VOCSN touchscreen. Follow all of the instructions you see there. More information about the steps is provided below:

1 Read the instructions on the introduction page and press NEXT when you are ready to begin the test. It is important to remember the patient will not be ventilated during the test. Provide backup ventilation if the patient needs it.

2 Leave the patient circuit (and humidifier bypass, if used) connected to VOCSN, and make sure the other end is not connected to anything. Then, press the START button.

3 Block the end of the patient circuit with a clean, gloved hand or some other air-tight seal. Then, press NEXT on the screen. Keep the end of the patient circuit sealed until the test is over.

4 A screen will appear that tells you if the test passed or failed. (You can now unblock the end of the patient circuit.)

- If the Pre-Use Test passed, connect the patient circuit to the patient and press START to begin Ventilation therapy.

- If the Pre-Use Test failed, look closely at the patient circuit to make sure everything is connected correctly. Tighten connections and fix any other problems you see, and then press RESTART to do another Pre-Use Test.

Final Checklist

Always complete the following checklist before you give therapy to a patient:

	Description	Complete?
1	Make sure you have a form of backup ventilation (such as a backup ventilator or a bag valve mask) somewhere near VOCSN. If it is critical for the patient to have oxygen, cough, suction, or nebulizer therapy, make sure you have backup machines for those therapies, too.	☐
2	Look at VOCSN, and everything connected to it. Make sure nothing looks broken or damaged. Every part of the patient circuit needs to be connected firmly, and in the right order. Make sure no tubes are pinched.	☐
3	Be sure you can see and hear alarms. If needed, test the VOCSN alarms and your remote alarm.	☐
4	Run a Pre-Use Test, and make sure it passes.	☐

VOCSN

Using VOCSN

VOCSN on the Go

VOCSN comes with three batteries. The two removable, rechargeable batteries (connected to the left and right side of VOCSN) together will power VOCSN for 1.5 hours or more when new and fully charged. A new, fully charged internal battery (inside the VOCSN case) will power the device for 30 minutes or more, but should only be used when there are no other power options available.

Whenever a power outlet is available, plug VOCSN in. This charges the batteries and keeps VOCSN powered. If you will be on the go for an extended period, you may want to charge up some spare batteries to bring with you. Batteries can be charged using VOCSN while it is plugged in, and/or using a Removable Battery Quick Charger (available separately).

When you are away from a power source, batteries that are running low on power can be swapped for charged ones while VOCSN is running. See *"Charging Batteries"* and *"How to Remove and Install Batteries" on page 18* for more information.
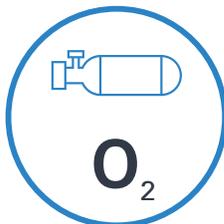
NOTE: VOCSN that say "Flight Compliant" and include the an airplane symbol on the back label are approved for use on airplanes.

Starting VOCSN Therapies
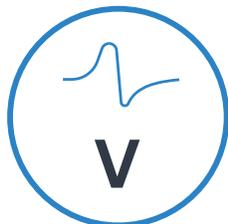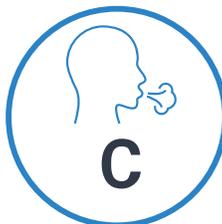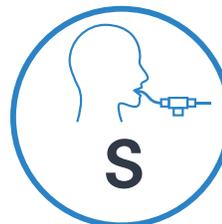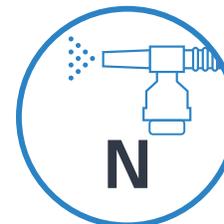
V	**O₂**	**C**	**S**	**N**
VENTILATION	OXYGEN	COUGH	SUCTION	NEBULIZER

Once VOCSN has been set up by a doctor or respiratory therapist, patients can use the Ventilation and Oxygen therapy presets, and start Cough, Suction, or Nebulizer therapies (if prescribed). Most patients need to be supervised at all times by a trained caregiver when using VOCSN therapies, so that someone can respond to alarms. It is important to watch the patient closely every time you start using VOCSN, change its settings, or change something in the patient circuit. For more information on VOCSN training, talk to your doctor or respiratory therapist.

NOTE: You can only run one of these therapies at a time: Oxygen, Suction, or Nebulizer. Oxygen therapy is paused during Suction and Nebulizer therapy. Oxygen therapy in Pulse Dose mode is also paused during Cough therapy. A pop-up will appear and you will need to press OK to confirm your choice when switching between therapies.

If Ventilation, Oxygen, Nebulizer, Cough, and/or Suction therapy is critical for the patient, make sure you have another way of providing the therapy. If VOCSN stops working, and there is no other way to give a therapy, it could harm the patient. If VOCSN does not seem to be working the way it should, use backup ventilation, watch the patient closely, and contact a doctor or respiratory therapist.

Before you start therapy, make sure VOCSN and the patient circuit is set up correctly. See *"Setup" on page 13* for instructions. Next, follow the instructions in *"Checks and Tests" on page 34* to make sure VOCSN is ready to be connected to the patient. Always follow all instructions from the patient's doctor or respiratory therapist.

WARNING: Do not modify the VOCSN setup or controls unless instructed to or supervised by a doctor or respiratory therapist.

Using Ventilation Therapy

Ventilation therapy helps the patient breathe. A doctor or respiratory therapist will set up VOCSN so that it gives the right therapy to the patient. In some cases, the patient may need different therapy at different times. If so, you can switch between VOCSN Ventilation Presets when needed:

1 Press the Therapy tab, and then the VENTILATION icon.

2 Highlight the Preset you want to begin by touching it with your finger, and then press START.

No Alarms

V O SIMV-VOL

0   L 5   10   15   20   H 25   30

PRESSURE (cmH20)

Prepare patient circuit for ventilation, select preset, and press START to begin.

V

← EXIT

DAY
SIMV-VOL
NOW ACTIVE

NIGHT
AC-PRES

MOBILE
SIMV-PRES
START

SETTINGS & ALARMS

Press here if you need to change a control

Press here to EXIT this screen

This preset is providing therapy

To start using a new preset, select it and then press START

3 If the new Preset is set up to use a different type patient circuit, you will be prompted to run a Pre-Use Test. If prompted, provide the patient with backup ventilation, connect the new patient circuit by following the instruction in *"How to Connect Patient Circuits" on page 19*, and then run the Pre-Use Test. (See *"Running a Pre-Use Test" on page 39* for more information.)

4 Ventilation therapy will begin automatically. Connect the patient circuit to the patient.

VOCSN

Using Oxygen Therapy

If the patient needs it, a doctor or respiratory therapist will set up Oxygen therapy. The patient will either get oxygen through the whole patient circuit (FiO2 mode), or through an oxygen tube inside the patient circuit (Pulse Dose mode). Oxygen therapy can be set up to have up to three different presets. You may need to switch between presets at different times of day, or in different situations.

> NOTE: Oxygen therapy can harm some patients. Always talk to a doctor or respiratory therapist before providing a patient with extra oxygen.

To use Oxygen therapy:

1 Press the Therapy tab, and then press the OXYGEN button.

2 Press the Oxygen preset the patient needs. There are up to three options.

3 Press the START button under the preset.

4 If prescribed, press the O2 FLUSH button to give the patient maximum oxygen for 3 minutes when needed.

Screen annotations:

- No Alarms — V O SIMV-VOL
- PRESSURE (cmH20) — 0 5 10 15 20 25 30
- O₂
- CALCULATED FiO2 MONITOR (%) — 21 30 40 50 60 70 80 90 100
- EXIT
- PRESET 1 — 4 L/min Pulse Dose Ext. High-Pressure — NOW ACTIVE
- PRESET 2 — 40% FiO2 Ext. High-Pressure
- PRESET 3 — 6 L/min Pulse Dose Int. O2 Concentrator — START
- 6 L/min — O2 FLUSH
- SETTINGS & ALARMS

O2 Flush delivers maximum oxygen for 3 minutes

Press here if you need to change a control

Press here to EXIT this screen

This preset is providing therapy

To start using a new preset, select it and then press START
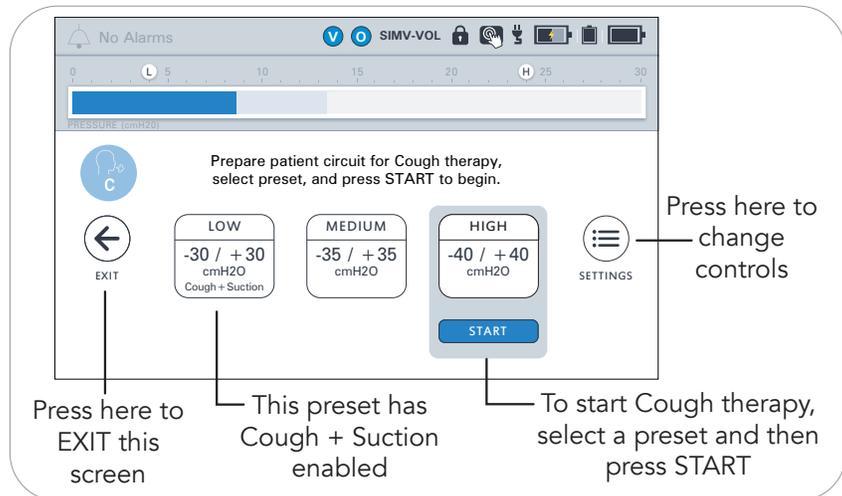
WARNING: Do not smoke, allow an open flame, or use heat sources near VOCSN when Oxygen therapy is on. Smoking, open flames, and heat sources might cause a fire or explosion, which could cause serious harm to the patient.

WARNING: External oxygen should always be added to the VOCSN ports. Adding oxygen directly into to the patient circuit could hurt the patient.

Using Cough Therapy

Cough therapy helps remove secretions from the patient's airway. Ventilation therapy will pause during Cough therapy, and then automatically resume after Cough therapy is complete. If a preset has Cough+Suction enabled, Suction therapy will start automatically with Cough and then keep running for 2 minutes after.

If you are using a mask with an air leak in it for Ventilation therapy, change the mask to one without a leak for Cough therapy for the best results. After Cough therapy, change back to the mask with the leak in it right away. Ventilation therapy automatically starts after Cough therapy, and continuing to use a mask without an air leak for Ventilation therapy could harm the patient.

No Alarms — V O SIMV-VOL
PRESSURE (cmH2O)

Prepare patient circuit for Cough therapy, select preset, and press START to begin.

LOW	MEDIUM	HIGH
-30 / +30 cmH2O Cough+Suction	-35 / +35 cmH2O	-40 / +40 cmH2O

START
EXIT
SETTINGS

Press here to change controls

Press here to EXIT this screen

This preset has Cough + Suction enabled

To start Cough therapy, select a preset and then press START

CAUTION: If you use a humidifier, do not start Cough therapy unless you have a Ventec Humidifier Bypass connected to the patient circuit. It is designed to stay connected during other therapies. If you do not have a Ventec Humidifier Bypass, disconnect the humidifier before you start Cough therapy so that water does not splash from the humidifier into VOCSN and damage it.

CAUTION: To prevent nebulized material from reaching VOCSN, Cough therapy should not be activated during External Nebulizer Compensation. Remove the external nebulizer and pause External Nebulizer Compensation before activating Cough therapy.

To start Cough therapy:

1 Press the Therapy tab, and then press the COUGH button.

2 Press the Cough preset the patient needs.

3 Press the START button on the bottom of the screen.

4 When the Cough therapy session is done, VOCSN will automatically go back to providing the patient with Ventilation therapy. You can also press STOP to end the Cough session at any time during therapy.

Changing Ventilation, Oxygen, or Cough Settings

A doctor or respiratory therapist will set up Ventilation, Oxygen, and Cough therapy for the patient. Follow the instructions on this page to change a control.

> NOTE: If a control appears in gray and you cannot highlight it when you touch it with your finger, it means only a doctor or respiratory therapist can change it.

1 Go to the Therapy tab and press the VENTILATION, COUGH, or OXYGEN button.

2 Press the SETTINGS or SETTINGS & ALARMS button.

3 Use your finger to scroll to the name of the control you want to change, and then touch it to highlight it.

4 Press the EDIT> button on the right side of the screen.

5 Enter the new setting, and then press ACCEPT.

SETTINGS
& ALARMS

Here is a list of all the available Ventilation, Oxygen, and Cough therapy controls. If you have questions about these controls, ask your doctor or respiratory therapist.

Ventilation Controls			
Preset [1, 2, 3] Enabled	Preset [1, 2, 3] Label	Breath Rate	Inspiratory Time
Volume Targeted	Ventilation Mode	PEEP	EPAP
IPAP	Pressure Control	Tidal Volume	Flow Trigger
PC Flow Termination	Pressure Support	Time Cycle	Rise Time
Apnea Rate	Flow Cycle	Pres. Minimum	Pres. Adj. Rate
Leak Compensation	High Insp. Press. Delay		

Oxygen therapy controls			
Preset [1, 2, 3] Enabled	Preset [1, 2, 3] Label	Oxygen Source	Oxygen Delivery Mode
FiO2	O2 Flow Equivalent		

| Cough therapy controls			
Preset [1, 2, 3] Enabled	Preset [1, 2, 3] Label	Insufflation Pressure	Exsufflation Pressure
Insufflation Time	Exsufflation Time	Pause Time	Insufflation Rise Time
Cough Cycles	Breath Sync	Cough+Suction	

Using Suction Therapy

If your VOCSN includes Suction therapy, you can use it to help remove secretions from the patient's airway, or out of the patient circuit. Suction therapy can be dangerous, so always follow all suctioning instructions in this manual and from your doctor or respiratory therapist.

NOTE: If Cough+Suction is on for the Cough preset you start, VOCSN will automatically start Suction therapy when Cough therapy starts. Suction therapy will stay on for the entire Cough therapy session, plus 2 more minutes.

To use Suction therapy:

1 If needed, set up VOCSN for Suction therapy by following the instructions in "How to Connect Suction Canisters" on page 2-19.

2 Press the Therapy tab, and then press the SUCTION button.

3 If you need to, you can change the vacuum strength by pressing the + and - buttons.

4 Press the START button to start Suction therapy. The half-circle on the screen will fill with a solid color to indicate suction strength. When you block the end of the suction tube, the arc should fill up all the way to the setting.

Press here to set the default Vacuum setting (It will also apply to Cough+Suction)

Press here to exit this screen

Press here to start or stop Suction therapy

Press + and - to increase or decrease vacuum intensity

5 Provide suction therapy to the patient. Suction therapy will automatically stop after two minutes if you do not touch the screen. Or, you can press the STOP button when done.
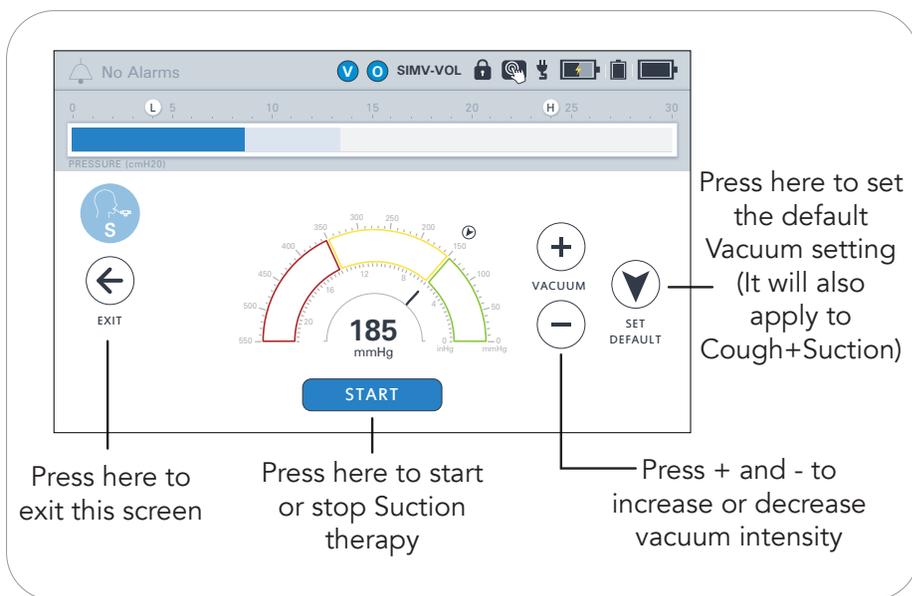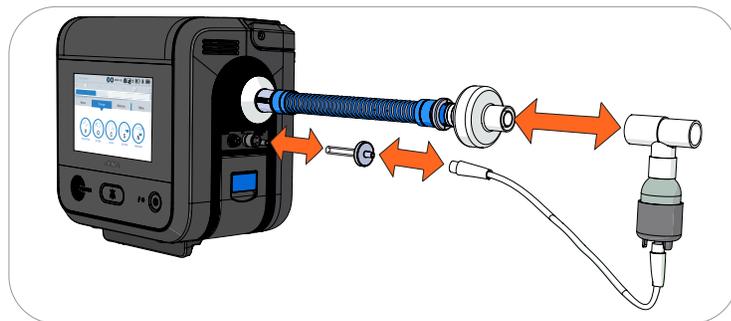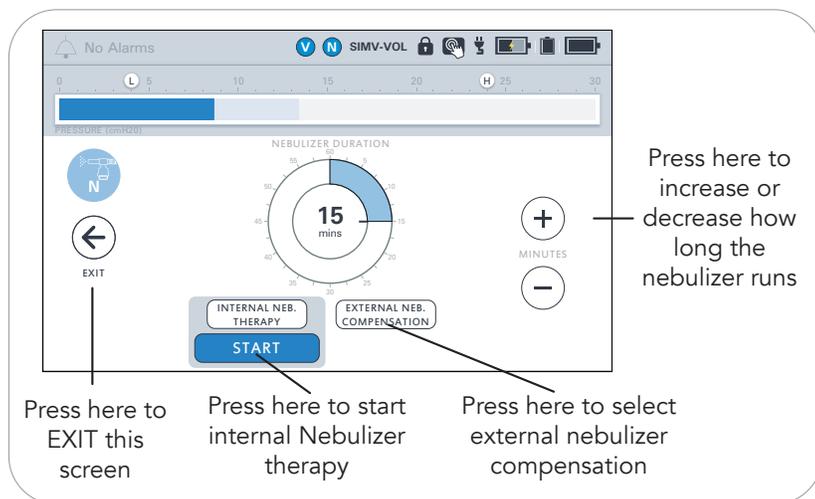
NOTE: If the suction canister fills up with too much fluid, Suction therapy will stop. If the canister is nearly full, connect a new one before continuing.

Using Nebulizer Therapy

If your VOCSN includes Nebulizer therapy, you can use it to give medicine to the patient with a connected nebulizer. Regardless of your configuration, you can also use nebulizer compensation (which reduces alarms and improves Ventilation therapy) while you are using a separate, external nebulizer. To use Nebulizer therapy or start external nebulizer compensation:

1 Make sure the patient circuit is set up to give Nebulizer therapy. Follow the instructions in *"How to Connect a Nebulizer Cup" on page 29*. Follow any instructions that came with the nebulizer, too.

2 Press the Therapy tab, and then press the NEBULIZER button.

3 If needed, change how many minutes Nebulizer therapy or compensation will run by pressing the + and - buttons.

4 Select Internal Neb. Therapy or External Neb. Therapy, and then press START to begin. The therapy or compensation will stop automatically after the set time has passed. If you want to stop the nebulizer or compensation sooner, press the STOP button.

Press here to increase or decrease how long the nebulizer runs

Press here to EXIT this screen

Press here to start internal Nebulizer therapy

Press here to select external nebulizer compensation

NOTE: Every 10 minutes, internal Nebulizer therapy will pause for 6 seconds, and then start again.

CAUTION: To prevent nebulized material from reaching VOCSN, Cough therapy should not be activated during External Nebulizer Compensation. Remove the connected external nebulizer and pause External Nebulizer Compensation before activating Cough therapy.

5 When nebulizer therapy is complete, disconnect the nebulizer from the VOCSN Nebulizer Filter, and then from the patient circuit. Clean the nebulizer cup following all instructions from the nebulizer manufacturer.

VOCSN Therapy Interactions

This chart shows how starting Oxygen, Cough, Suction, or Nebulizer therapy affects other therapies, if they are running

START

What happens if you start this therapy:

Running Therapy:		Oxygen (Pulse Dose)	Oxygen (FiO2)	Oxygen (Ext. Low-Pressure)	Cough	Suction	Nebulizer[1]
Ventilation	V	Both run	Both run	Both run	Ventilation is replaced and restarts after Cough	Both run	Both run
Oxygen (Pulse Dose)	O	N/A	Pulse Dose ends and FiO2 begins	Both run	Pulse Dose pauses and restarts after Cough	Pulse Dose pauses and restarts after Suction	Pulse Dose pauses and restarts after Nebulizer
Oxygen (FiO2)	O	FiO2 ends and Pulse Dose begins	N/A	Both run	Both run	FiO2 pauses and restarts after Suction	FiO2 pauses and restarts after Nebulizer
Oxygen (Ext. Low-Pressure)	Controlled by Oxygen Source	Both run	Both run	N/A	Both run	Both run	Both run
Cough	C	N/A	N/A	Both run	N/A	Both run with Cough + Suction feature	N/A
Suction	S	Suction Ends	Suction Ends	Both run	Both run	N/A	Suction Ends
Nebulizer[1]	N	Nebulizer Ends	Nebulizer Ends	Both run	Nebulizer pauses and restarts after Cough	Nebulizer Ends	N/A

[1] This table describes the effects of internal Nebulizer therapy. External Nebulizer Compensation does not cancel or pause any other active therapy. If you are using an external nebulizer, disconnect it and stop nebulizer compensation before starting Cough therapy to prevent nebulized material from reaching VOCSN.

What if an Alarm Goes Off?

If an alarm activates, you should act as quickly as you can. Read Chapter 6, "Alarms" to learn about alarms, and what to do if you hear one.

Some alarms mean that you should stop using VOCSN, and should give the patient backup ventilation. If therapy is critical for the patient, make sure someone who can respond to alarms is near at all times.

How to Change Device Settings

VOCSN device settings control things like the date and time displayed on VOCSN, and the alarm volume.

> NOTE: If a control appears in gray and you cannot highlight it when you touch it with your finger, it means only a doctor or respiratory therapist can change it.

To change a setting:

1 Go to the Menu tab and press the DEVICE SETTINGS button.

2 Use your finger to scroll to and press name of the control you want to change.

3 Press the EDIT> button on the right side of the screen.

4 Enter the new setting, and then press ACCEPT.

WARNING: Make sure the Alarm Volume is set loud enough. It is very important that the caregiver can hear alarms over background noise like vacuum cleaners or televisions. If you are using a remote alarm, put it somewhere the caregiver can always hear it. If an alarm activates and no one hears it or responds, the patient could be hurt, or die.

How to Use Multi-View

Multi-View helps doctors and respiratory therapists understand how VOCSN and the patient are interacting. VOCSN data can be uploaded to the cloud to generate reports about therapy trends over time.

If your doctor or respiratory therapist asks you to send them a Multi-View report, follow these steps to save the data to a USB, create the report, and send it to them. To export Multi-View data to a USB drive:

1 Install a USB drive into the USB port in the back of VOCSN.

> NOTE: USB drives used with VOCSN must be USB 2.0, and formatted to FAT32. Do not plug anything else into the VOCSN USB port.

2 Press Menu and then the LOGS button. Then, press the Events tab.

3 Select the EXPORT button. VOCSN will automatically save the data to your USB drive. When the export is complete, press OK and remove the USB drive.

4 Next, insert the USB drive into a computer and find the file. You can use your email to send the file to your doctor, respiratory therapist, or others.
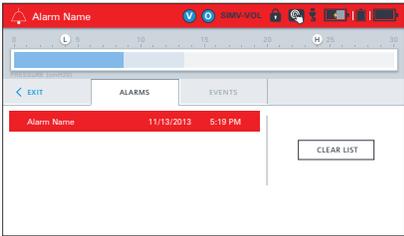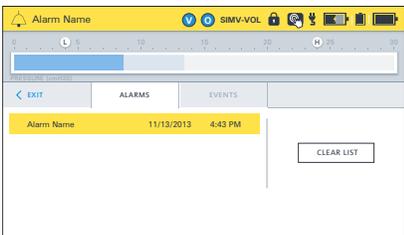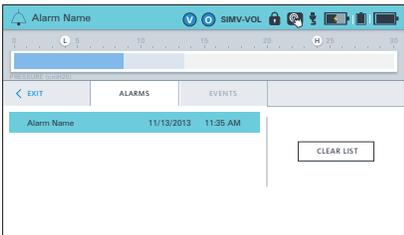
Multi·View

EXPORT

VOCSN

Alarms

Alarm Priorities

When there is a problem with VOCSN, the patient circuit, or VOCSN detects a danger to the patient, an alarm will sound. VOCSN alarms are color-coded. A blue, yellow, or red banner will appear on the screen, depending on how critical the problem is.

Alarm Priority	What It Looks Like	What It Sounds Like	How Fast to Respond
High Priority (red banner)		10 tones every 3 seconds	Respond immediately. The condition is serious, and the patient could be in great danger if the problem is not fixed immediately.
Medium Priority (yellow banner)		3 tones every 7 seconds	Respond quickly. The condition may become uncomfortable or dangerous if it is not fixed.
Low Priority (blue banner)		No sound	Take note and respond when you can. VOCSN is letting you know that an action (like sending VOCSN for regular service) is required in the near future.

How to Silence an Alarm

If a VOCSN alarm is on and you want the sounds to stop while you fix the problem, press the Alarm Silence button. When you press this button, alarm sounds will stop for one minute. Press the button again to restart the alarm.

The red, yellow, or blue alarm banner will stay on the VOCSN screen until what caused the alarm is fixed.

NOTE: The alarm sounds will stop for a full minute, even if another alarm starts after you press the Alarm Silence button.

How to View and Clear the Alarm Log

To look at VOCSN Alarm Log, press the alarm banner in the status bar.

VOCSN will show all active alarms highlighted in blue, yellow, or red. Past alarms will stay at the bottom of the list with a white background until they are cleared.

Press the CLEAR LIST button to delete all of the past, inactive alarms. All alarms that are still active (highlighted) will stay on the screen. Press the < EXIT tab to exit the Alarm List.
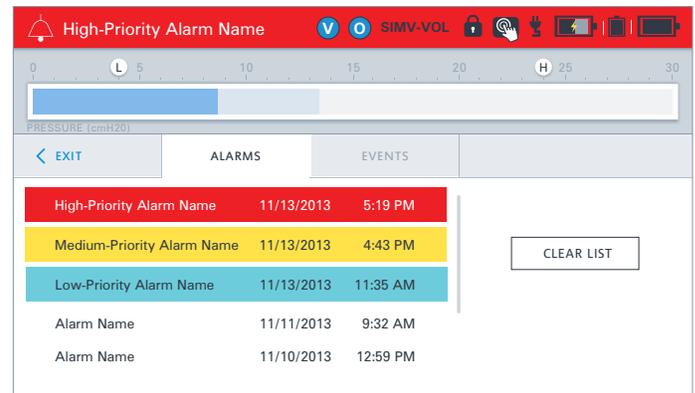
The Event Log

The Event Log stores information about all past VOCSN alarms and control changes. The event log cannot be deleted. To view the Event Log:

1 Press the Menu icon, and then press the LOGS button.

2 Then, press the EVENTS tab.

3 You can scroll through the list by using your finger. When you reach the end of a page, you can scroll to the next one by using the < and > buttons.

LOGS

What to Do When VOCSN Alarms

WARNING: Make sure the Alarm Volume is set loud enough. (See *"How to Change Device Settings" on page 51*.) It is very important that the caregiver can hear alarms over background noise like vacuum cleaners or televisions. If you are using a remote alarm, put it somewhere the caregiver can always hear it. If an alarm activates and no one hears it or responds, the patient could be hurt, or die.

When VOCSN alarms, it is important to act as quickly as you can. This table lists all of the possible alarms (in alphabetical order), and what to do in each case. A doctor or respiratory therapist may give you additional instructions. Always follow the advice of the patient's medical professional.

Alarm	What to do
🔔 Apnea	The Apnea alarm comes on when the patient has not taken any breaths for longer than the alarm setting. Watch the patient very closely to make sure they are taking enough breaths, and keep watching the patient closely until the alarm stops. If it does not seem like the patient is breathing enough, give the patient backup ventilation and call a doctor.
🔔 Battery Use	This alarm will appear when you unplug VOCSN from external power. Check to make sure the batteries are charged, and plug VOCSN into a power source (like a wall outlet) again when you can.
🔔 Check O2 Source	Check to make sure your low-pressure oxygen source is on and is working correctly. Watch the patient closely to make sure they are getting enough oxygen.

🔔 **Check Patient Circuit**	Check the patient circuit setup. If you are using an active patient circuit, make sure the small tube is connected to the "active" port on the side of VOCSN. If you are using a passive patient circuit, make sure nothing is blocking the valve (such as sticky medications or secretions). Watch the patient closely to make sure they are getting enough air and oxygen. If the patient circuit is set up correctly but the patient is not getting enough air or oxygen, give the patient backup ventilation and follow your doctor or respiratory therapist's instructions about this alarm.
🔔 **High Breath Rate**	The patient may be taking too many breaths. Check the patient circuit setup and watch the patient closely to make sure they are not breathing too much.
🔔 **High EPAP**	Watch the patient closely. Make sure VOCSN is not auto-cycling (automatically delivering breaths too quickly). This alarm also may activate and then turn off again if the patient is breath stacking (taking several breaths in before breathing out). If the problem continues, replace the patient circuit.
🔔 **High FiO2**	Check to make sure the oxygen source is connected correctly, and watch the patient closely to make sure they are not getting too much oxygen. If everything is set up correctly but the alarm continues, VOCSN may need to be sent in for service.
🔔 **High Minute Volume**	If you are using an active patient circuit with a humidifier, shake out any water you see in the active exhalation valve. Watch the patient closely and follow your doctor or respiratory therapist's instructions about this alarm.
🔔 **High PEEP**	Watch the patient closely. Make sure VOCSN is not auto-cycling (automatically delivering breaths too quickly). This alarm also may activate and then turn off again if the patient is breath stacking (taking several breaths in before breathing out). If the problem continues, replace the patient circuit.

High Pressure	Check the patient circuit and everything connected to it to make sure nothing is pinched, clogged, or blocked. Watch the patient closely. If the patient circuit setup is correct but the alarm continues, follow your doctor or respiratory therapist's instructions about this alarm.
Inop (loud beeps while the Power button flashes red) Technical Alarm	If an Inop alarm activates, VOCSN may turn off, and the power button will flash red while sounding a steady series of loud beeps. If this happens, stop using VOCSN and give the patient backup ventilation right away. NOTE: This alarm will not appear in the alarm banner. Follow your doctor or respiratory therapist's instructions about this alarm. If the alarm is still sounding when you turn VOCSN off and then on again, it may need to be sent in for service.
Internal Battery Critically Low	Plug VOCSN into a power source (like a wall outlet) immediately. Make sure the external power icon appears in the status bar, and that the charge status light on the front of VOCSN turns on. The Internal Battery Critically Low alarm will continue until the battery charges above 33%. If you plug VOCSN in for a few hours and the batteries do not charge, be prepared to give the patient backup ventilation. VOCSN may need to be sent in for service.
Internal Battery Low	Plug VOCSN into a power source (like a wall outlet) as quickly as possible, and make sure the charge status light on the front of VOCSN turns on. The flashing yellow banner will stay on the screen until the battery charges above 50%. If you plug VOCSN in for a few hours and the batteries do not charge, be prepared to give the patient backup ventilation. VOCSN may need to be sent in for service.
Low Breath Rate	The patient may not be taking enough breaths. Watch the patient closely to make sure they are getting enough air. If the alarm continues, follow your doctor or respiratory therapist's instructions about this alarm.

|	
Low EPAP	Check the patient circuit and everything connected to it to make sure there are no leaks, and that everything is securely connected. Watch the patient closely. If the problem continues, replace the patient circuit.
Low FiO2	The patient may not be getting enough oxygen. Watch the patient closely, and check to be sure the oxygen source is on, is connected correctly, and is not empty.
Low Inspiratory Pressure	Check the patient circuit and everything connected to it to make sure there are no leaks, and that everything is securely connected. Watch the patient closely. If the patient circuit setup is correct but the patient is not getting enough air, give the patient backup ventilation and follow your doctor or respiratory therapist's instructions about this alarm.
Low Minute Volume	Check the patient circuit and everything connected to it to make sure there are no leaks, and that everything is securely connected. Watch the patient closely. If the patient circuit setup is correct but the patient is not getting enough air, give the patient backup ventilation and follow your doctor or respiratory therapist's instructions about this alarm.
Low PEEP	Check the patient circuit and everything connected to it to make sure there are no leaks, and that everything is securely connected. Watch the patient closely. If the problem continues, replace the patient circuit.
Maintenance Due	VOCSN service should be scheduled.
O2 Concentration	If you are using an external source of oxygen, check to make sure it is connected and working correctly. If using a patient circuit with an O2 tube be sure it is fully plugged in. The end of the blue connector should be touching the side of VOCSN. Watch the patient closely to make sure they are getting enough oxygen. If the patient is not getting enough oxygen, follow your doctor or respiratory therapist's instructions about this alarm. VOCSN may need to be sent in for service.

🔔 **Patient Circuit Disconnect**	Check the patient circuit and everything connected to it to make sure there are no leaks, and that everything is secure. Watch the patient closely. If the patient circuit setup is correct but the patient is not getting enough air, give the patient backup ventilation and follow your doctor or respiratory therapist's instructions about this alarm. VOCSN may need to be sent in for service.
🔔 **Service Concentrator Soon**	VOCSN O2 Concentrator service should be scheduled.
🔔 **System Fault**	Watch VOCSN and the patient closely. If the alarm turns off, keep using VOCSN. If the alarm stays on, stop using VOCSN and give the patient backup ventilation. Turn VOCSN off and then on again. If the alarm is still there, VOCSN may need service.
🔔 **Very Low FiO2**	This alarm means that the patient is getting less than 21% oxygen (which is the usual amount in room air). Remove any sources of gas connected to VOCSN, and make sure it is in a well-ventilated area. Watch the patient closely to make sure they are getting enough oxygen, and follow your doctor or respiratory therapist's instructions about this alarm.

How to Change Alarm Settings

A doctor or respiratory therapist will set up VOCSN alarms to protect the patient. Follow the instructions on this page if you need to change one.

> NOTE: If an alarm appears in gray and you cannot highlight it when you touch it with your finger, it means only a doctor or respiratory therapist can change it.

1 Go to the Therapy tab and press the VENTILATION button.

2 Press the SETTINGS & ALARMS button.

3 Use your finger to scroll past the ventilation controls. Alarms are at the bottom of the list.

4 Find the name of the control you want to change, and then touch it to highlight it.

5 Press the EDIT> button on the right side of the screen.

6 If the alarm includes a Low and High setting, select the (L) icon to adjust the Low alarm. Press the (H) icon to adjust the High alarm setting.
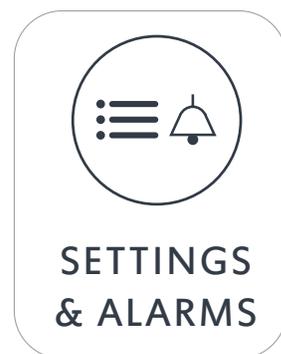
SETTINGS
& ALARMS

> NOTE: If the alarm is off, you may need to use the OFF ⬤ ON toggle on top of the keypad to turn the alarm on before you can change it.

7 Enter the new setting, and then press ACCEPT.

Cleaning and Maintenance

NOTE: Do not clean and re-use any of the following VOCSN accessories on more than one patient: Ventec One-Circuits, the bacterial filter, the Ventec Travel Suction Canister, the Ventec Humidifier Bypass, Nebulizer Filter, or the Ventec Secretion Trap. All of these accessories from Ventec Life Systems are for single patient use only. Replace these parts whenever your doctor or respiratory therapist recommends it. Do not use any of these accessories on more than one patient.

Cleaning the Outside of VOCSN

Clean VOCSN every three months, or whenever it looks dirty. Follow these steps to clean it:

1 Unplug VOCSN from external power.

2 Lock the touchscreen by pressing and holding the screen lock icon in the status bar for 3 seconds.

3 Some cleaning supplies are too harsh, and can damage the outside of VOCSN. Dampen a soft cloth with one of these gentle cleaning supplies:

UNLOCKED   LOCKED

- Solutions: Water (including water mixed with soap, a mild detergent), 70% isopropyl alcohol, MadaCide FD, or Metrex CaviCide1

- Wipes: MadaCide FDW, Metrex CaviWipes, PDI Super Sani-Cloth, PDI Sani-Cloth Plus, Diversey Oxivir, or Safetec SaniZide Plus

4 Gently wipe the outside of VOCSN with the cloth. Do not let any liquid drip inside VOCSN or the battery slots.

5 Use a soft, dry cloth to soak up any extra liquid when you are done cleaning.

6 Look at VOCSN and make sure it is clean. If it still looks dirty, repeat the cleaning steps above until it is clean.

7 You may now unlock the VOCSN touchscreen.

**8** Let VOCSN air dry completely before you plug it into external power.

Cleaning the Air and Fan Filters

The air and fan filters need to be clean to keep the inside of VOCSN protected from dirt and dust. They should be cleaned at least once every two weeks, and replaced every six months. As you clean the filters, look for signs of damage. Damaged filters should be replaced. To clean the air and fan filters:

1 Turn off VOCSN and unplug it (and give the patient backup ventilation if needed).

2 Remove the air filter and the fan filter from the back of VOCSN. Remove the fan filter cover. Pinch the foam on each filter and pull to remove them.

3 Look at each filter closely to check for damage. Replace the air and fan filters if they are damaged.

4 Wash the filters using warm water and soap, or a mild detergent.

5 Rinse the filters under running water to wash out all the soap or detergent.

6 Put the filters on a clean surface. Let them air dry completely.

7 Look at the filters again to make sure they are not damaged and are clean. If they look damaged, replace them. (Replacement filters are available from Ventec Life Systems.) If the filters still look dirty, wash them again following the instructions above. If the filters are clean, dry, and not damaged, put them back in VOCSN.
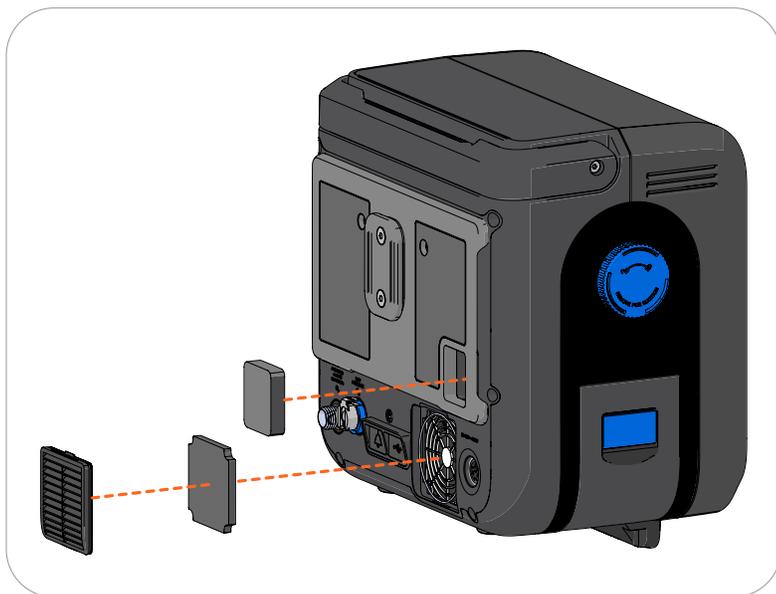
Emptying the Travel Suction Canister

Check how full the Ventec Travel Suction Canister is daily. If the Ventec Travel Suction Canister fills past its 300 mL capacity, Suction therapy will automatically stop and the canister will have to be replaced.

The Ventec Travel Suction Canister and suction tubing are intended for single-patient use. Replace them whenever your doctor or respiratory therapist recommends it.

Empty the canister before it fills past its 300 mL capacity. To empty the canister:

1 Disconnect the canister from VOCSN.

2 Twist the blue knob counterclockwise to the dot position.

3 Remove the knob and filter from the canister. It might be helpful to use your thumbs to push on the knob from the back side of the canister.

4 Pour out the canister contents.

5 Align arrow on the knob with the dot on the canister and press in to reinstall it. Twist the knob clockwise to the unlock position.

6 Connect the canister to VOCSN by aligning it with the VOCSN suction port and twisting the knob to the lock position. See *"Connecting the Ventec Travel Suction Canister" on page 31* for detailed instructions.

Lock
to Suction

Unlock
to Remove

Travel or
Remove
Filter

300 ___ mL

200 ___ mL
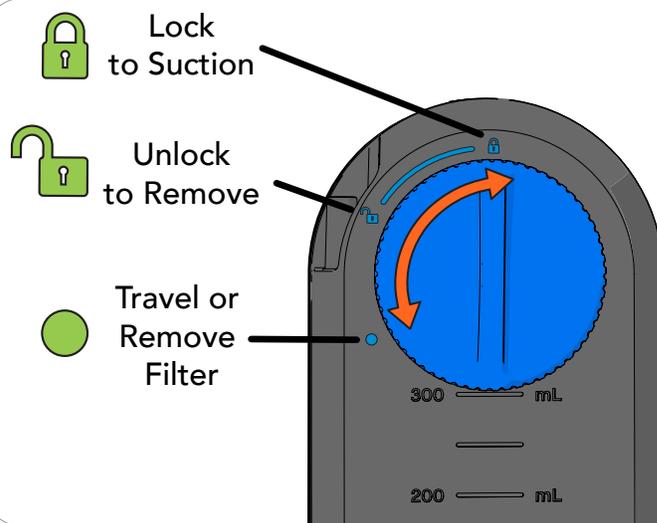
Must be replaced
if exposed to liquid
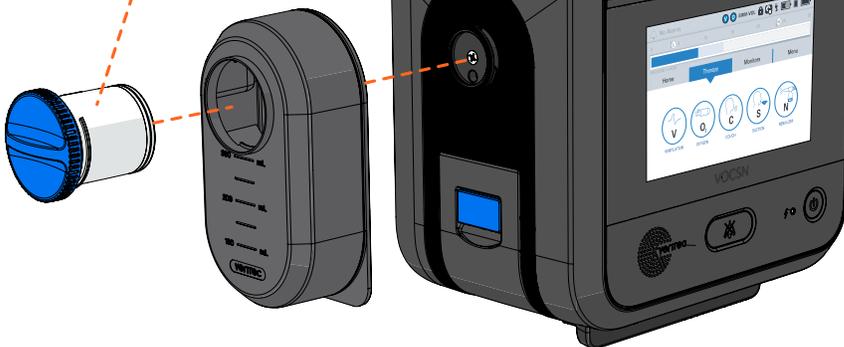
Maintenance Schedule

This schedule describes how often VOCSN maintenance activities should be performed. Your doctor or respiratory therapist may have different or additional recommendations. Always follow instructions from your doctor or respiratory therapist to ensure VOCSN is maintained.

When	What to do
Before storage, and every thirty days during storage	Fully charge removable and internal batteries.
Before using VOCSN	Run a Pre-Use Test. Fully charge removable and internal batteries. Perform Checkout Procedures. See *"Checks and Tests" on page 34* for instructions. Clean VOCSN. See *"Cleaning the Outside of VOCSN" on page 64* for instructions.
Every day	Inspect the Ventec Travel Suction Canister, if used. Replace or empty the container if it is full. Inspect the air and fan filters. Clean and replace the filters as needed. Inspect the VOCSN Nebulizer Filter and replace it if it is damaged or contaminated. Inspect the VOCSN exterior and everything connected to VOCSN for signs of damage.
Every month	If instructed to by your doctor or respiratory therapist, test the VOCSN alarm system. See *"Testing VOCSN Alarms (If Needed)" on page 36* for instructions. Replace the VOCSN Nebulizer Filter.
Every three months during use	Clean the exterior of VOCSN. See *"Cleaning the Outside of VOCSN" on page 64* for instructions.
Service Concentrator Soon or Maintenance Due alarm	When the Service Concentrator Soon or Maintenance Due alarm activates, contact your Ventec Life Systems representative to schedule VOCSN service by a trained technician.

Software Updates

Software updates may include new features and changes to the way VOCSN works. This manual describes the latest version of software. If your VOCSN has an older version of software, it may not include the changes described in this table (listed newest to oldest):

SW Version	Features
4.06R	• Improved Leak Compensation for compatible devices • Multi-View support • Volume Targeted ventilation modes
4.04R and 4.05R	• Bug fixes and improved performance
4.03R	• External Nebulizer Compensation button added. • Added two new Volume Targeted controls: Pres. Minimum and Pres. Adj. Rate. • "Maintenance Required" alarm changed to "Maintenance Due," removed "O2 PM Required In" monitor, and added "Service Concentrator Soon" alarm.
4.02R	• Add time to the Nebulizer while running. • Pre-Use Test timeout after 20 seconds.
4.01.06R	• Nebulizer resumes after Cough.
4.01.03R	• Added O2 Flush button. • Touchscreen lock/unlock.

Finding Your Software Version

To see what version of software your VOCSN has:

1 Press the Menu tab.

2 Press the MY VOCSN button.

3 Scroll past the SOFTWARE banner and locate the line item for UIM SW VERSION.

MY VOCSN

NOTE: Software after 4.02 is referred to by the first three numbers. For instance, version 4.03.02R is known as 4.03R.

VOCSN
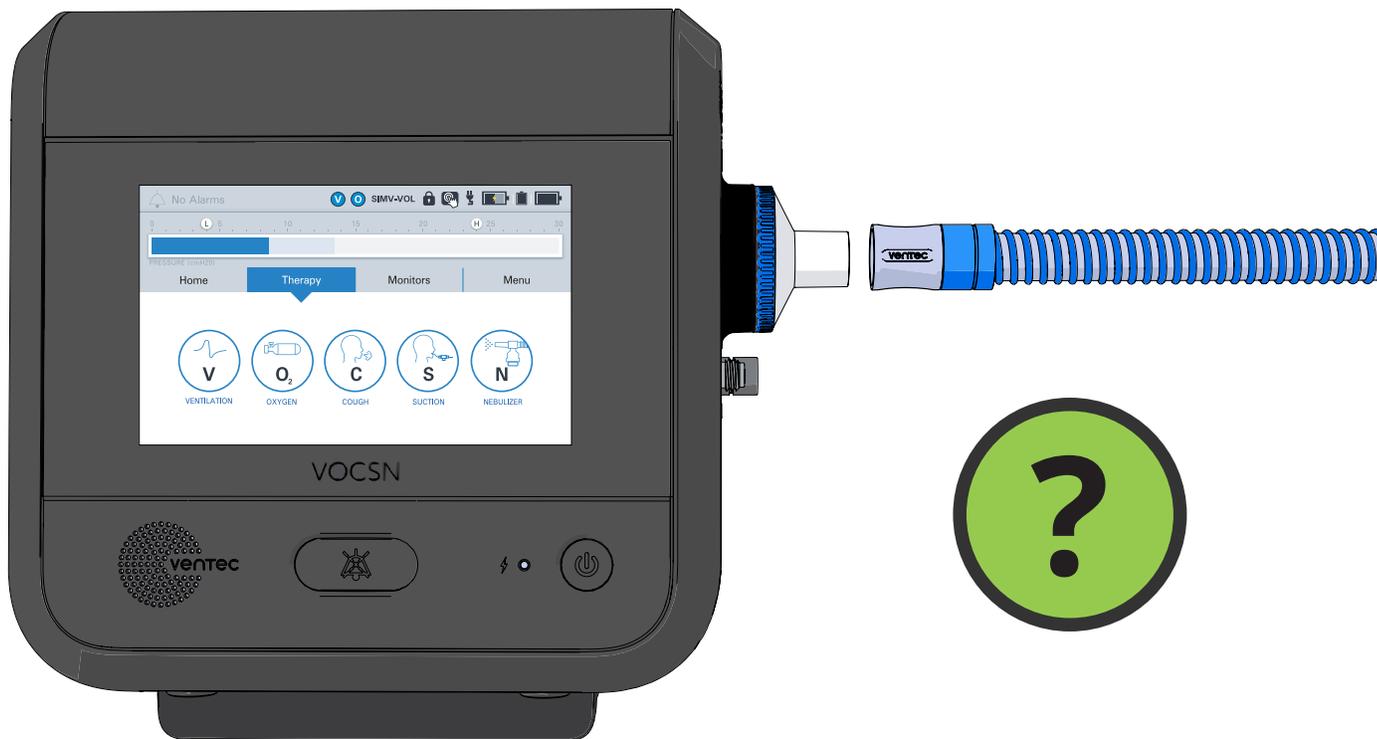
Troubleshooting

General Troubleshooting

Problem	Potential Issue	How to fix it
VOCSN will not turn on.	All the batteries are completely drained.	Plug VOCSN into a wall outlet. Make sure the wall outlet is working. Make sure the outlet is not connected to a switch that is off.
	VOCSN needs service.	Contact Ventec Life Systems.
Batteries are not charging.	VOCSN is somewhere too hot or too cold.	Make sure VOCSN is not close to a heater or other heat source. Make sure VOCSN is not too cold. Move VOCSN to another location if you need to.
	VOCSN is not plugged in to a wall outlet, or is plugged into a wall outlet that is not powered.	Plug VOCSN into a wall outlet. Make sure the wall outlet is working. Make sure the outlet is not connected to a switch that is off.
	The air and/or fan filter is clogged, and VOCSN is too hot.	Clean the VOCSN air and fan filters, following the instructions in *"Cleaning the Air and Fan Filters" on page 65*
VOCSN starts working differently.	Electromagnetic interference.	Move VOCSN away from anything that could cause interference like appliances, security systems, other medical equipment, cell phones, computers, and televisions.
	VOCSN needs a restart.	Press the Power button on the front of VOCSN. Leave VOCSN in standby mode for 10 seconds. Press the Power button again to restart VOCSN.
	VOCSN needs service.	Contact Ventec Life Systems.
VOCSN is warmer than usual.	The air and/or fan filter is clogged.	Clean the air inlet filter, following the instructions in *"Cleaning the Air and Fan Filters" on page 65*

Ventilation and Cough Troubleshooting

Problem	Reasons it could have happened	How to fix it
The gas flowing through the patient circuit is warmer than usual.	The air filter is clogged.	Clean the air filter. If the air filter looks damaged, replace it with a new one.
	The vents on the back of VOCSN are blocked.	Move VOCSN away from cluttered areas, bedding, curtains, or anything else that could block airflow around it.
	VOCSN is too close to a heater or other heat source.	Move VOCSN out of direct sunlight. Move VOCSN away from any other sources of heat.
	VOCSN needs service.	Contact Ventec Life Systems.
The patient circuit has water in it.	If you are using a humidifier, you need a way to keep water from getting into the circuit.	Use a patient circuit with a heated wire inside it. Verify the heated wire and temperature sensor lines are connected correctly. Make sure the humidifier temperature is not set too high.

Oxygen Troubleshooting

Problem	Reasons it could have happened	How to fix it
The VOCSN O2 Concentrator is not providing oxygen to the patient.	VOCSN is somewhere too hot or too cold.	VOCSN needs to be in a space between 41 and 104 °F (5 and 40 °C). Make sure VOCSN is not close to a heater or other heat source. Make sure VOCSN is not too cold. Move VOCSN to another location if you need to. Wait 15 minutes for VOCSN to cool down or warm up, and then restart Oxygen therapy.
	The oxygen tubing is loose or disconnected.	Check and tighten the oxygen tubing connection. Check and tighten the patient circuit connection.
	The oxygen tubing is cracked.	Replace the patient circuit.

Suction Troubleshooting

Problem	Reasons it could have happened	How to fix it
The suction vacuum is too weak or not working at all.	A suction tubing connection is loose.	Check and tighten all suction tubing connections.
	Suction tubing is cracked.	Replace the suction tubing.
	Ventec Travel Suction Canister filled past 300 mL, or the filter inside the Ventec Travel Suction Canister or the External Suction Canister Adapter is clogged.	Replace the Ventec Travel Suction Canister or External Suction Canister Adapter.
	The Ventec Travel Suction Canister or External Suction Canister Adapter is leaking	Replace the Ventec Travel Suction Canister or External Suction Canister Adapter.
Suction therapy will not start.	Ventec Travel Suction Canister is filled past 300 mL or the filter inside the Ventec Travel Suction Canister or the External Suction Canister Adapter is clogged.	Replace the Ventec Travel Suction Canister or External Suction Canister Adapter.
Suction pressure is too high while the tube is open to air.		

Nebulizer Troubleshooting

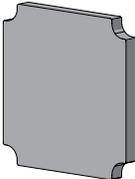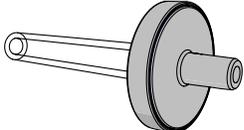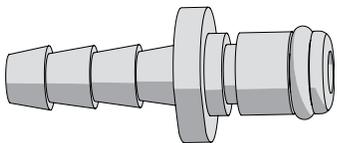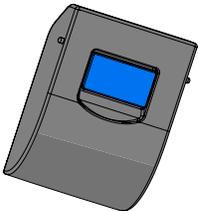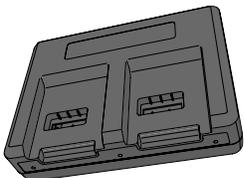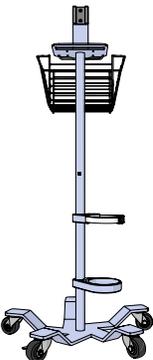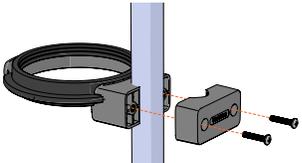| Problem	Reasons it could have happened	How to fix it
The Patient Circuit Disconnect alarm turns on during Nebulizer therapy.	The passive valve in the patient circuit is blocked.	Look at the passive valve in the patient circuit closely, and remove anything that is blocking it. Make sure the patient circuit is connected correctly.
	The nebulizer cup is not compatible with VOCSN.	Read the instructions that came with nebulizer cup. Make sure it works with 6 L/min nebulizer drives.

Accessories
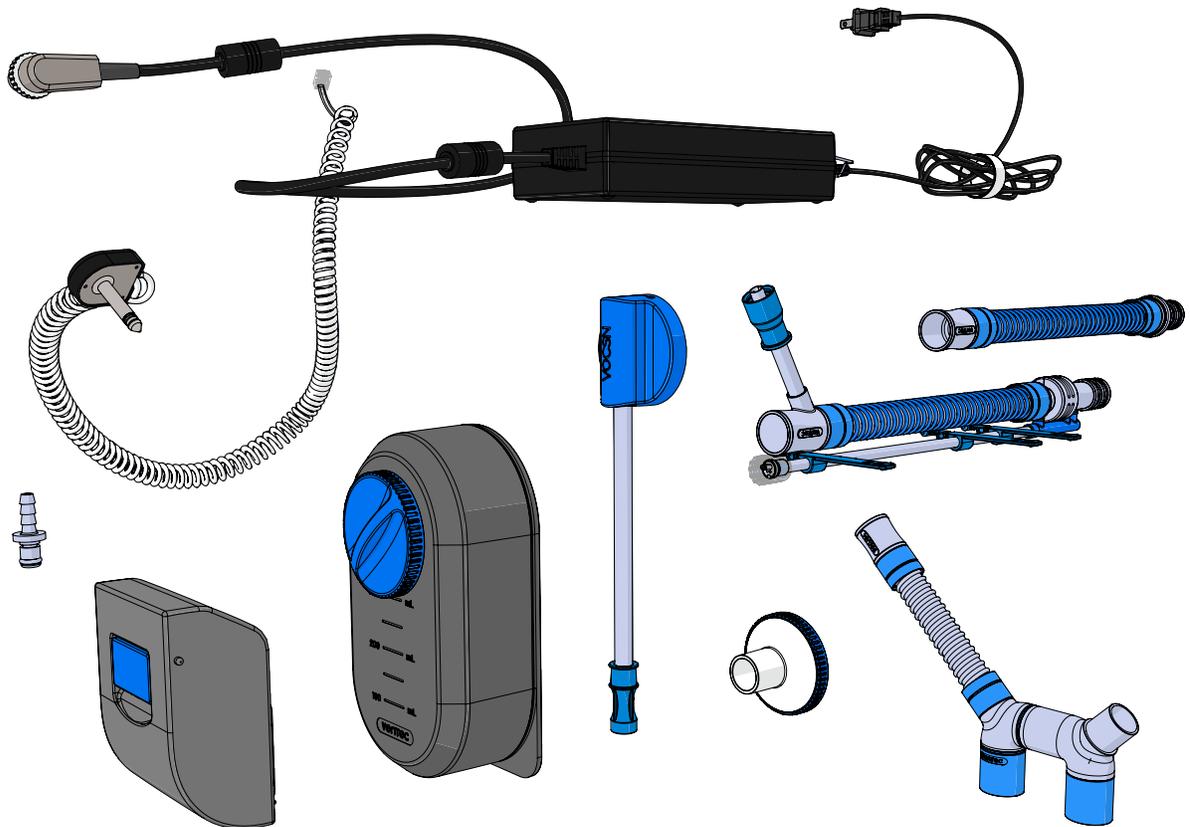
Available from Ventec Life Systems

The following parts and accessories are available for use with VOCSN:

Name	Image	Description
24 Volt Wheelchair Power Cable		The 24 Volt Wheelchair Power Cable can be used to connect VOCSN to wheelchair power outlets.
AC Power Adapter		This adapter powers VOCSN and recharges its batteries from AC power sources such wall outlets.
Carry Bag		The Carry Bag supports mobility with a shoulder strap and multiple attachment points to secure VOCSN To a wheelchair or other mount.
External Bacterial Filter		The Ventec Bacterial Filter helps to protect both the patient and VOCSN from airborne microorganisms.
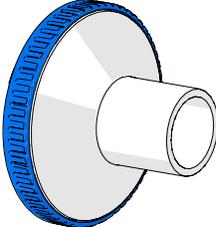
External Suction Canister Adapter		The External Suction Canister Adapter connects VOCSN to any third-party external suction canister. The external suction canister adapter includes an internal water-phobic filter that will self-seal to protect VOCSN if the external suction canister overfills.
Fan Filter		The washable and reusable foam fan filter cleans air entering the cooling fan intake.
Nebulizer Filter		The Nebulizer Filter connects to the VOCSN Nebulizer port. It contains an antimicrobial bacterial filter and an internal water-phobic filter. The filter will self-seal if liquid touches it, which protects VOCSN from damage if liquid travels down the nebulizer tubing.
Nurse Call Cables (either Normally Open or Normally Closed)		The Nurse Call Cables connect VOCSN to a facility nurse call system.
O2 Low-Pressure Inlet Adapter		The O2 Low-Pressure Inlet Adapter inserts into the low-pressure oxygen port on the back of VOCSN to connect to a low-pressure oxygen source.

Patient Air Intake Filter		This washable and reusable foam filter cleans air entering the patient air intake.
Removable, Rechargeable Battery Set, Lithium-Ion		Set of two batteries. These batteries power VOCSN and can be charged while installed, or using the Removable Battery Quick Charger (available separately).
Removable Battery Quick Charger		60W desktop charger for two VOCSN detachable batteries. Indicator lights display battery charge status. Each battery charges fully in three hours. The charger is powered by a standard two-prong AC cord. (Batteries not included.)
Roll Stand		The Ventec Roll Stand is a mobile, wheeled mount for VOCSN. It includes a mounting bracket, utility bracket, and a cable hook for cord management.
Suction Canister Holder for Rollstand		The Suction Canister Rollstand Holder easily mounts to the VOCSN Rollstand center pole or drop pole accessory to securely hold third-party suction canisters up to 1,200 mL. A convenient clip holds suction tubing (suction tubing not included).
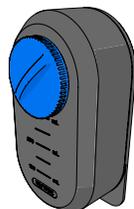
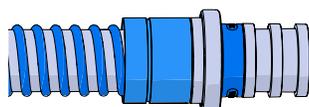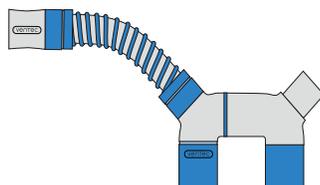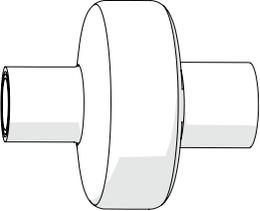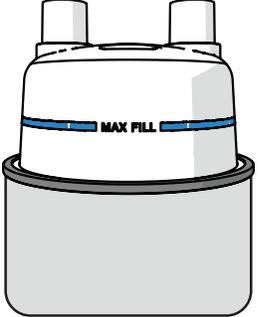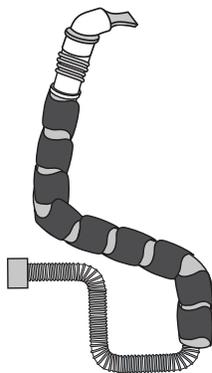| Travel Suction Canister		The 300 mL detachable Travel Suction Canister attaches to VOCSN to provide suction therapy on the go. Includes a water-phobic filter that will self-seal to protect VOCSN if the Travel Suction Canister overfills.
Ventec One-Circuit, Active (single-patient use)		Ventec active patient circuits have an exhalation valve that opens and shuts, and flow sensor. They can be purchased in adult or pediatric sizes, with or without the following optional features: • Heated wire for use with a humidifier • O2 tube for Oxygen Direct therapy.
Ventec One-Circuit, Passive (single-patient use)		Passive patient circuits have an exhalation port that remains open at all times. They can be purchased in adult or pediatric sizes, with or without the following optional features: • Heated wire for use with a humidifier • O2 tube for Oxygen Direct therapy.
Ventec One-Circuit, Valveless (single-patient use)		Ventec valveless patient circuits do not have an exhalation valve, and are often used with vented masks. They can be purchased in adult or pediatric sizes, with or without the following optional features: • Heated wire for use with a humidifier
Ventec Humidifier Bypass (single-patient use)		The Ventec Humidifier Bypass connects to a humidifier in the patient circuit. It prevents moisture from splashing into VOCSN during Cough therapy.
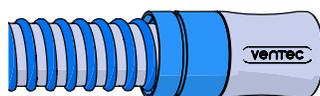
Available from Other Manufacturers

The following parts are not made or sold by Ventec Life Systems, but are available from other manufacturers:

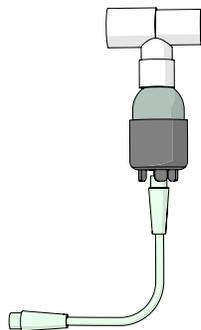| Name	Image	Description and requirements for safe use with VOCSN
Closed-Suction Catheter		A closed-suction catheter is used to provide Suction therapy to the patient. It is designed to remain attached to the patient circuit. Closed-suction catheters used with VOCSN must be compliant with ISO 8836.
Heat-Moisture Exchanger (HME)		An HME is designed to be used in place of a humidifier to keep the patient circuit moist. HMEs collect exhaled moisture from the patient's breathing to humidify the circuit. HMEs used with VOCSN must be compliant with ISO 9360-1 or ISO 9360-2.
Humidifier		Humidifers help keep the patient comfortable by moisturizing the air in the patient circuit. Humidifiers used with VOCSN must be compliant with ISO 8185. Ventec Life Systems recommends use of the Fisher & Paykel HC550, the Fisher & Paykel MR850, or equivalent.

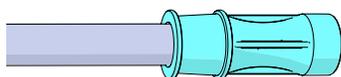|		
Mouthpiece Circuit Kit, single-patient use		Mouthpiece patient circuits are designed for patients who can place their mouth over the circuit when they want to take breaths. The Mouthpiece Circuit Kit comes with a bacterial filter, 15 mm patient circuit, a mouthpiece, flexible extension, connection adapters, and a support arm.
Nebulizer		Nebulizers connect to the circuit to provide medication to the patient. Nebulizers used with VOCSN must have a 6 L/min cup compliant with the relevant requirements of ISO 27427.
Open-Suction Catheter		An open-suction catheter is used to provide Suction therapy to the patient when they need it. It connects to suction tubing on one end. The other end is inserted into the patient circuit when needed. Open-suction catheters used with VOCSN must be compliant with ISO 9936.
Suction Tubing		Suction tubing used with VOCSN must be 1/4" diameter and compliant with ISO 10079-1.

About Ventec Life Systems

Ventec Life Systems is defining integrated respiratory care to improve patient outcomes and reduce caregiver challenges in the hospital and home. Ventec's leading product, VOCSN, seamlessly integrates five separate devices including a ventilator, oxygen concentrator, cough assist, suction, and nebulizer into one unified respiratory system. The team's history of patient-centric design brings care changing innovations to life for patients, medical professionals, and caregivers.

For questions about VOCSN:

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