

# Vivo 45 LS

## Quick Reference Guide for Healthcare Professionals



This is not a complete guide for the Vivo 45 LS. See your manual for complete instructions.

### Setting Up and Powering on the Ventilator

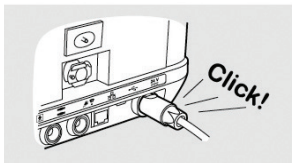
- All users must be trained in the use of the Vivo 45 LS prior to operating the device.
- Before operating the ventilator, inspect the ventilator, power supply, power cord and accessories for any signs of damage. Do not use the device or accessories if damage is suspected.
- Do not use the ventilator while positioned in a warm place, such as in direct sunlight or close to a radiator as this may lead to a temperature outside of specifications.

### Placing the Ventilator Before Use

Place the Vivo 45 LS on a solid flat surface. It should be placed lower than the patient. Make sure that nothing can block the patient air inlet. Make sure that nothing can block the cooling air inlet or outlet.

### Connecting the Vivo 45 LS to Mains (AC Power Outlet)

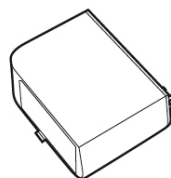
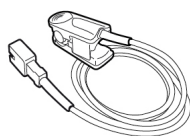
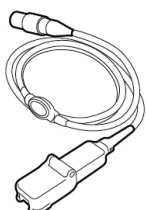
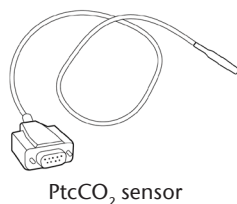
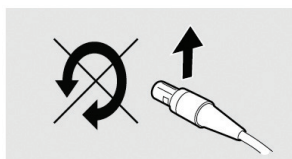
- Plug the power supply into the power inlet.
- Make sure a clicking sound is heard to ensure the power supply is completely inserted.
- Connect the power supply's power cord to the mains supply.



### Connecting Accessories

#### Connecting and Disconnecting the Accessory Cables

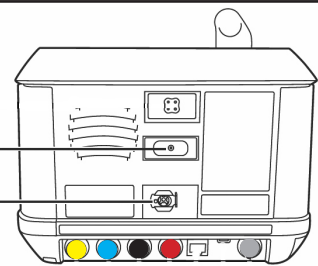
- Insert the cable in the appropriate port. (See Rear View)
- Make sure to insert the connector with the marking pointing upwards.
- Pull the connector sleeve, not the cable itself or the cable strain relief to release the connector.



### Rear View

#### Equipment Designation

Exhalation valve port  
Connection for low pressure/bleed-in oxygen



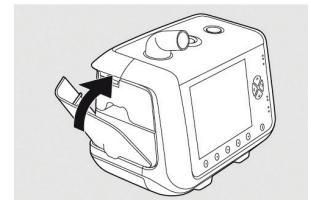
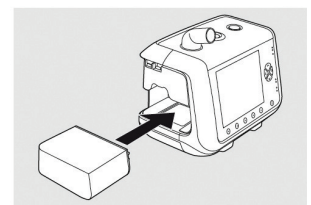
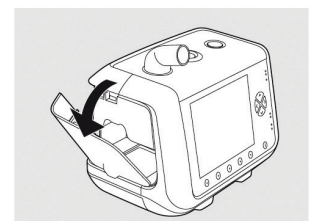
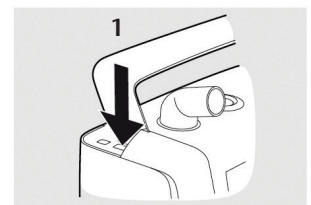
Item/ Symbol	Description	Color
CO <sub>2</sub>	CO <sub>2</sub> interface port	Yellow
SP O <sub>2</sub>	SpO <sub>2</sub> interface port	Blue
[Start/Stop and Audio Pause Icon]	Remote start/stop and audio pause port	Black
[Alarm Icon]	Remote alarm, nurse call interface port	Red
12-24V 50W Max	Mains/ External DC inlet	Grey

### Click-in Battery

The click-in battery is intended as a power source during transportation, or if the primary AC power source fails.

#### Installing the Click-in Battery

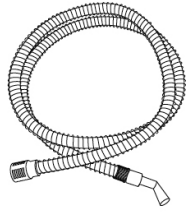
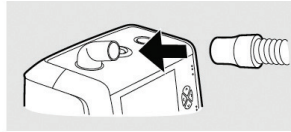
- Lift Handle and press button 1 to release the side cover.
- Open and remove the side panel.
- Insert the click-in battery. Make sure the latch at the bottom of the click-in compartment is engaged.
- Close the side panel. Make sure there is a clicking sound to secure the side panel.



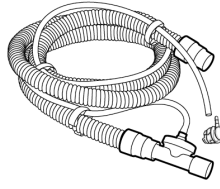
When removing the battery, press down the latch at the bottom of the battery compartment and tilt the ventilator sideways.

## Connecting the Patient Circuit

1. Inspect the circuit for damage.
2. Connect the patient circuit to the patient air outlet on the ventilator.



MPV circuit



Active exhalation valve circuit

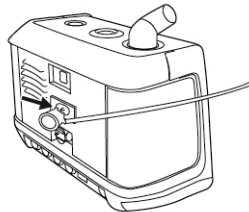


leakage port interface

Leak circuit

3. If using an active exhalation valve patient circuit, connect the exhalation valve connector to the back of the ventilator.

pilot pressure tube



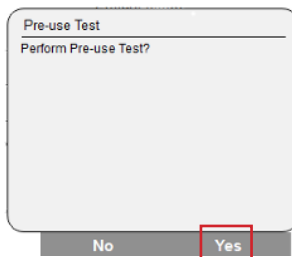
**Caution:** Make sure the leakage port of the circuit is not blocked or obstructed. This port prevents rebreathing by flushing the exhaled air.

## Performing the Pre-use Test

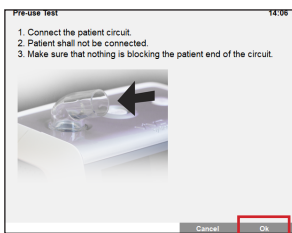
Always perform a pre-use test when connecting a new patient circuit.

1. If the Pre-use test prompt screen appears, select Yes.

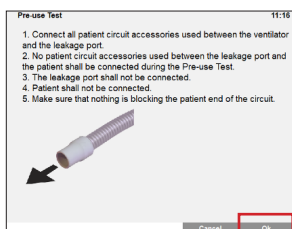
If you do not see the prompt, go to the "Others" menu and select "Pre-use Test>>"



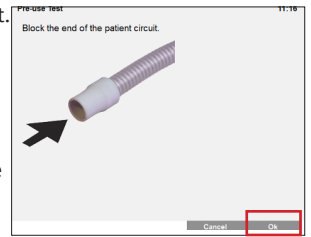
2. The first step of the Pre-use Test will determine the circuit being used. Ensure circuit is connected and Press "OK". Verify correct circuit is detected and Press "Yes".



3. The Pre-use Test will now check the circuit resistance. Remove the leakage port from the circuit and ensure nothing is blocking the end of the circuit. Press "OK"



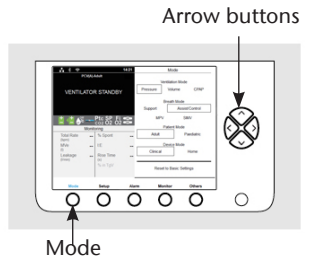
4. The next step is the circuit compliance test. Block the end of the patient circuit with your hand and press "OK"
5. The Pre-use Test result will be displayed. Press "OK" if pre-use test was completed successfully. Otherwise repeat the Pre-use Test.



## Setting Ventilator Parameters

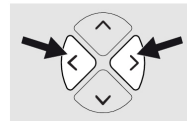
### Navigating the menu buttons

- Press the Mode button to open the Mode menu.
- Use the Up and Down arrows to move between Ventilation, Breath, Patient and Device modes.
- Use the left and right arrows select parameters within the selected mode.
- Use Next button to move to the Settings menu. Pressing Next a second time moves to the Alarms menu.
- Within the Settings menus, the Up and Down arrows move between parameters. The Left and Right arrows change the value of the selected parameter (A "high" alarm can be turned OFF by continuing to press the Right arrow to the end of the range. A "low" alarm can be turned OFF using the Left arrow).
- Press the Confirm button when all settings have been entered.
- The Setup and Alarms buttons can be used to modify settings/alarms at any time. A second press of the Setup or Alarms button displays a menu of Secondary settings/alarms.



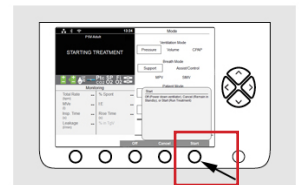
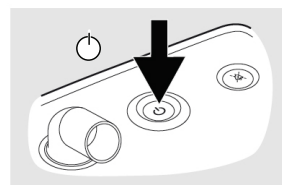
### Switching from Home Mode to Clinical Mode

1. Press and hold the left and right buttons simultaneously.
2. Release when the progress bar is filled.



### Starting Treatment

1. Press the Start/Stop button.
2. Press the menu button indicating "Start".



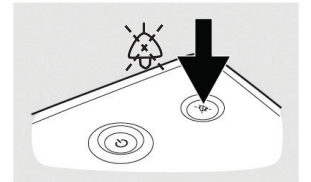
### Handling Alarms

#### **Caution:** Audible Signal Pause and Reactivation

The audible signal can be paused for 60 seconds by pressing the Audio Pause button.

The audible signal can be reactivated by pressing the Audio Pause button again.

If a new alarm condition occurs during the audio pause period, the audible signal will be reactivated.



#### Audible alarm level

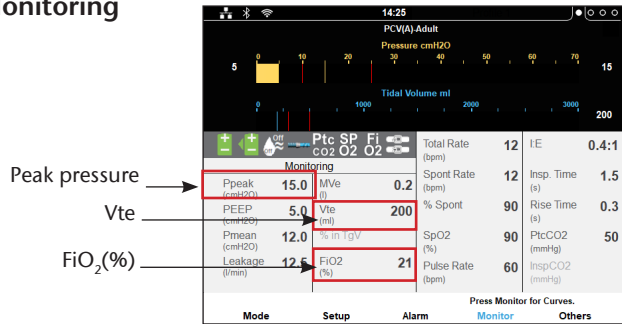
Range/Performance: 1 to 5, where 1 is the lowest volume setting and 5 is the highest volume setting.

- Set the alarm sound level so that alarms can be clearly heard at a distance.

## How to set audible alarm level

- Use the Navigation buttons to enter the “Others” menu
- Use the down button to enter the “Device Settings” menu
- Use the down button to select “Alarm Sound Level”
- Use left and right arrows to change alarm sound level to desired setting

## Monitoring



## Power Source Indicators

The Source of the Power currently being used is indicated on the right side of the front panel. (See Front View). The lit LED next to the icons means the following power source is in use:

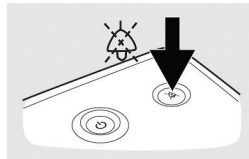
	Click battery
	Internal battery

## Battery Status Symbols

	State of charge (alternates with battery symbol)
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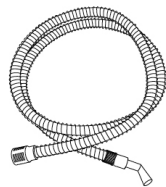
## Stopping Treatment

1. To stop treatment and enter standby mode, first press and hold the Start/Stop button on the top.
2. Release the Start/Stop button when the progress bar is filled.
3. Press “OK” or the Audio Pause Button to stop the treatment.

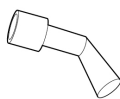


## Mouthpiece Ventilation (MPV)

- Mouthpiece ventilation is intended for adult patients who are able to initiate breaths with the mouthpiece circuit.
- MPV Mode shall be used with a mouthpiece interface only.
- Using MPV Mode will result in deactivation of some alarms and features normally active in other modes.
- When the back up rate is set to zero, the Apnea alarm can be used to detect that the patient is not triggering any breaths. For example, when the apnea alarm is set to 45 seconds, the alarm will sound when the patient has not triggered a breath in the last 45 seconds.
- The low pressure alarm can be used to detect the situation in which the patient cannot reach the mouthpiece (when the backup rate is set greater than 0). Set the low pressure alarm setting above the peak pressure that occurs when the mouthpiece is open. When the mouthpiece is open, the alarm will trigger on the next backup breath.
- When leaving MPV Mode, check the alarm settings and that the actual circuit connected matches the Patient Circuit Type setting.



MPV patient circuit



Mouthpiece

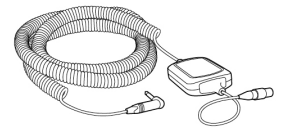
## Using the ventilator with a Nurse Call System

The purpose of the nurse call system interface is to forward alarms from the Vivo 45LS to the hospital's nurse call system.

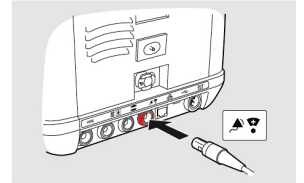
The hospital's nurse call system will remain active as long as any alarm remains active on the Vivo 45 LS.

## Connecting the ventilator to a Nurse Call System

1. Connect the nurse call cable at the back of the ventilator and to the hospital's nurse call system.



2. The nurse call system interface must be tested before use. Test the connection by triggering an alarm on the ventilator and verify that the nurse call system activates before use.

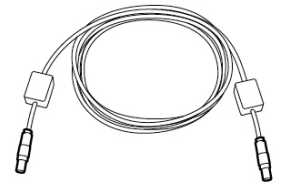


## Testing the Nurse Call System Interface:

1. Trigger a Disconnection Alarm on the ventilator.
2. Verify the hospital's nurse call system activates and remains active.
3. Trigger a High MV Alarm on the ventilator (with the Disconnection Alarm still active).
4. Verify the nurse call system remains active (with no interruption).
5. Resolve both alarms on the ventilator.
6. Verify that the hospital's nurse call system deactivates.

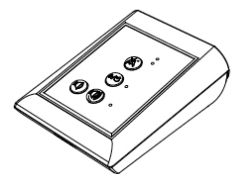
## Using the Ventilator with the Remote Alarm

When installing a remote alarm system, check that it operates as intended before starting the treatment. The LED on the remote alarm is (Green) when the remote alarm unit is on. Before starting treatment, make sure this LED is on.



## Supervising a Patient During Treatment:

- When a patient is treated there must be a supervising person present during the treatment.
- The supervising person needs to take care of alarms and conditions that the patient cannot solve on their own.
- Always have immediate access to an alternative means of ventilation which is ready for use.
- Failure to have an alternative means of ventilation can result in serious injury or patient death if the ventilator fails.



## Installing and Calibrating the FiO<sub>2</sub> Sensor:

- See section 5.8.3.1 of the clinician's manual for instructions on installing the FiO<sub>2</sub> sensor.
- See section 5.8.3.2 of the clinician's manual for instructions on calibrating the FiO<sub>2</sub> sensor.

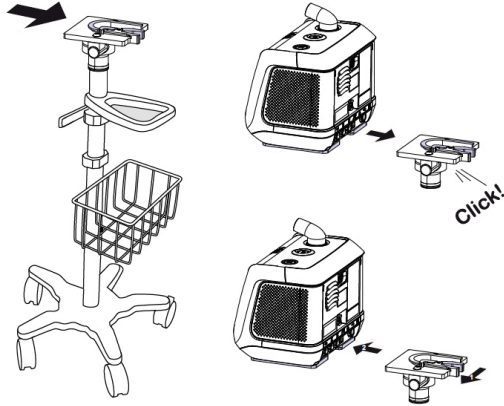
## Transporting the Ventilator

### Protective Cover

1. Open protective cover using zippers.
2. Place ventilator into protective cover so that the screen is facing up.
3. Close protective cover and zip to secure ventilator.



Mount and dismount the Vivo 45 LS as shown in the picture



## Cleaning and Maintenance

- Refer to section 7.2 of the Clinician's manual for instructions on cleaning and replacing patient air filters.
- Refer to section 7.2 of the Clinician's manual for instructions on cleaning and replacing cooling air filter.

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