



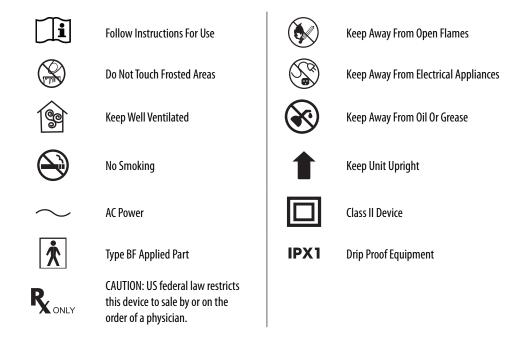
Home*Lox*

USER MANUAL

TABLE OF CONTENTS

Symbol Key	2
Introduction	3
Intended Use	3
Warnings and Cautions	
Compatibility with Portable Oxygen Devices	
How to Contact Respironics	4
How the System Works	5
Troubleshooting Guide	10
Cleaning	11
Circuit Breaker Instructions	12
Specifications	13
Disposal	
EMC Information	14
Limited Warranty	16

SYMBOL KEY



Definitions

The following definitions and acronyms are used in this manual:

- GoLox-93 the small and wearable device that stores liquid oxygen and controls the flow of oxygen to the user.
- LED Light Emitting Diode
- Liquefaction Unit the HomeLox, which produces liquid oxygen and is used to fill the GoLox-93.
- LOX Liquid Oxygen
- LPM Liters Per Minute
- Transfill The process of filling the small portable device (GoLox-93) with liquid oxygen from the liquefaction unit (HomeLox).

Introduction

INTENDED USE

The Home Liquefaction System (HomeLox) is intended to create and store liquid oxygen in a patient's home, so that a patient will be able to fill their liquid portable unit and ambulate. The device is intended only to be a liquid oxygen reservoir for filling of a portable unit and will not provide any ability for the patient to breathe oxygen gas directly from the unit. This device is not intended to be life supporting nor life sustaining.

WARNINGS AND CAUTIONS

CAUTION: US federal law restricts this device to sale by or on the order of a physician.

Warnings

Danger: Explosion Hazard. Do not use this device in the presence of flammable substances.

- If while using the system you experience any discomfort or signs of any unusual physical symptoms, contact your physician immediately.
- This system refrigerates and stores oxygen in its liquid form. Oxygen in its liquid or gaseous form can
 promote rapid burning when exposed to an open flame. Do not allow any smoking objects or open flames
 near this unit.
- Do not use any oil, grease, or petroleum-based products on or near this unit.
- Do not smoke while the device is in use.
- Frostbite may occur on contact with liquid oxygen, cold gaseous oxygen, or frosted parts. Do not touch any frosted parts.
- Protect the device against the spillage of fluids on or around it. Do not place drinks on it. Do not allow fluids to come in contact with the device.
- Do not set any objects on, or allow to be draped over, the HomeLox System as they might block air flow
 into the device. Place the unit in a ventilated location with the sides and rear two feet away from any
 object.
- Do not allow minors or children to operate the HomeLox System. Do not allow unsupervised children to play on or near the device.
- Do not use an extension cord with the HomeLox System.
- Do not connect the HomeLox System to an electrical outlet controlled by a wall switch or ground fault interruptor. Make sure there is no other high power device such as a TV, stereo, computer, radio transmitter, space heater, hair dryer, refrigerator, microwave oven, electrical range, or other large appliance connected to this outlet.

- The HomeLox System contains liquid oxygen and is therefore designed to operate on a level surface and in
 an upright position. Should the unit be upset or overturned, liquid oxygen could spill. Should this occur,
 discontinue its use and immediately contact your home care equipment supplier.
- Electrical shock hazard: Do not remove the cabinet of the HomeLox System. The removal of the cabinet should only be performed by Respironics, Inc. or a trained representative.
- Disconnect the power cord from the electrical outlet before cleaning the housing of the HomeLox System.
- This equipment complies with IEC 60601-1-2 for electromagnetic compatibility for medical electrical equipment and/or systems. This standard is designed to provide reasonable protection against harmful interference in a typical medical installation. However, because of the proliferation of radio-frequency transmitting equipment and other sources of electrical noise in health care and other environments, it is possible that high levels of such interference due to close proximity or strength of a source might disrupt the performance of this device. Medical electrical equipment needs special precautions regarding EMC, and all equipment must be installed and put into service according to the EMC information specified in this manual.
- Take precautions to prevent electrostatic discharge (ESD). Precautionary procedures include methods
 to prevent buildup of electrostatic discharge (e.g., air conditioning, humidification, conductive floor
 coverings, and non-synthetic clothing), discharging one's body to the frame of the equipment or system or
 to earth or a large metal object, and bonding oneself by means of a wrist strap to the equipment or system,
 or to earth.
- Do not leave the GoLox-93 unattended while it is filling.
- Extreme caution should be taken when transporting, shipping, or moving the HomeLox System when
 partially or completely full of liquid oxygen. If the unit is upset or overturned, liquid oxygen could spill.

Note: Additional warnings, cautions and notes are located throughout this manual.

COMPATIBILITY WITH PORTABLE OXYGEN DEVICES

The HomeLox is compatible only with the Respironics GoLox-93.

How to Contact Respironics

To have your device serviced, contact your home care provider. If you need to contact Respironics directly, call the Respironics Customer Service department at 1-800-345-6443 (US and Canada only) or 1-724-387-4000. You can also use the following address:

Respironics, Inc. 1001 Murry Ridge Lane Murrysville, PA 15668 USA

How the System Works

Your Respironics HomeLox is a device that can generate and store liquid oxygen in your home by converting the oxygen gas, generated from an integrated oxygen concentrator, to its liquid form. The liquid oxygen stored in this device can then be transferred to your Respironics GoLox-93 portable liquid oxygen device for your use as a source of ambulatory oxygen. The HomeLox is only a liquid oxygen reservoir for filling a portable unit and will not provide any ability for you to breathe oxygen gas directly from it. This device is not intended to be life supporting nor life sustaining.

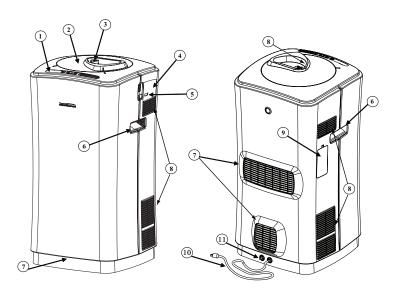
Your HomeLox is made up of an oxygen generator, low temperature refrigeration system and an insulated liquid oxygen storage bottle. The HomeLox operates by taking oxygen gas that it produces from room air and turning it into liquid oxygen by lowering its temperature to -279° F (-173° C) using refrigeration. At this temperature, *gaseous* oxygen becomes *liquid* oxygen. The device then stores this liquid oxygen until you are ready to fill your GoLox-93.

When your GoLox-93 is properly attached to the HomeLox, the liquid oxygen will be transferred to your GoLox-93 in approximately 1 to 2 minutes. To be sure you will always have liquid oxygen available for your use, the HomeLox monitors the amount of liquid oxygen stored inside it. When your available supply has been reduced to a level set by your equipment provider, the HomeLox will automatically turn on and run until it has completely refilled itself and then will turn off.

To ensure the correct use of this device, please read the information in this manual carefully before trying to operate this device. After reading this manual, keep it in a safe place where you can refer to it anytime a question arises.

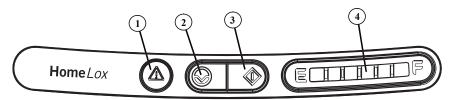
Getting Started

Begin by becoming familiar with your HomeLox and the Control Panel.



	Description	Function
1	Control Panel	HomeLox control switches and indicators
2	Turntable	Used to rotate the GoLox-93 to fill it with liquid oxygen
3	Transfill Connector	Connects the GoLox-93 and valve for transfer of liquid oxygen from the HomeLox to the GoLox-93
4	Equipment Warning Label	Displays important equipment information
5	Hour Meter	Displays the total operational hours of the unit
6	Hand Holds	Gripping points for moving and lifting the unit
7	Fan Inlet Air Vents	Air inlets for the cabinet ventilation fans
8	Fan Outlet Air Vent	Air outlet for the cabinet ventilation fan
9	Inlet Filter and Cover	Filters the ambient air used by the HomeLox
10	Power Cord	Connects the HomeLox to an electrical outlet
11	Circuit Breaker	Disconnects mains power from the HomeLox

CONTROL PANEL



	Description	Color	Function	Modes	
1	SERVICE Indicator	Yellow	When lit, this indicates the unit has detected a fault that requires service by the equipment provider. The unit has shut itself off and will not start again until the problem is corrected.	Steady On — The HomeLox has detected a problem that prevents it from operating. Contact your home care equipment provider for repair. Off — No system faults have been detected.	
	PAUSE Push Button &		When this switch is depressed, the unit stops	Steady On — The HomeLox is paused; it is in a temporary non-operating state.	
2	Indicator	Blue	operation for a period of 1 hour after which operation is resumed.	Off — The HomeLox is not in PAUSE mode.	
	START		When this switch is depressed the unit goes into its operating state to produce liquid oxygen.	Steady On — Unit is turned on; mains power is connected.	
Push Button & Indicator	Green	Flashing — Unit is operating to produce liquid oxygen.			
		Off – The HomeLox is turned off; mains power is not connected.			
	LIQUID OXYGEN SEGMENT LEVEL Indicators		When each segment is lit, it indicates that the GoLox-93 can be filled once.	Segment Steady On — Each lit segment is equivalent to 1 fill of your GoLox-93 from the HomeLox. The total number of lit segments is equal to the total number of times your GoLox-93 can be filled.	
4	When the hist segment	One Segment Flashing — This segment of the HomeLox storage bottle is being filled.			
			When the gauge is at F, with all six segments lit, you can fill your GoLox-93 six times.	Segment Off — This segment of the HomeLox storage bottle has not yet been filled.	

Filling Your GoLox-93

Warning: Do not leave the GoLox-93 unattended while it is filling.

Warning: Risk of electrical shock if unit is accidentally immersed or if fluids are spilled on the HomeLox device. Do not allow fluids to come in contact with the device, as they may create a shock hazard.

If the HomeLox has been installed with liquid oxygen already in the device, you may fill the GoLox-93 immediately. If the HomeLox has been installed without liquid oxygen, wait 24 hours before filling the GoLox-93. When the first batch of liquid oxygen is stored in the HomeLox insulated liquid oxygen storage bottle, the control panel light next to **E** will turn on. In the event of a temporary power loss, you can still fill your GoLox-93 with oxygen by following the steps below.



1. Wipe the GoLox-93 and HomeLox connectors with a clean, dry, lint-free cloth to remove any residual dirt or moisture.

Warning: Do not depress the HomeLox fill valve while wiping it clean.

- Stand in front of the HomeLox facing the control panel.
- Rotate the turntable on top of the HomeLox counter-clockwise until it stops. Notice that the indicator line on the turntable is aligned with the line on the HomeLox.
- 4. Make sure the Vent Fill Lever on the back of the GoLox-93 is in the upright, closed position.





- the OFF position.
- Place the GoLox-93 in the recess in the turntable.



Rotate the turntable clockwise until it stops. Notice that the indicator line on the turntable is aligned with the line on the HomeLox. The portable unit and HomeLox are now connected and ready for liquid oxygen to be transferred from the HomeLox into the GoLox-93.

Warning: Make sure the devices are properly connected before filling the GoLox-93.



8. Pull down the Vent Fill Lever on the back of the GoLox-93 so filling can begin. Liquid oxygen is now flowing from the liquefaction unit to the GoLox-93. You will hear a hissing sound as gaseous oxygen escapes. This is normal. You may also see a white vapor near the connection as the very cold oxygen comes in contact with the warm air in the room. This is also normal.

Warning: Do not leave the GoLox-93 unattended while filling.

Warning: Do not smoke while the device is in use.

Allow filling to continue until the sound of venting stops, about 1-2
minutes. When the sound stops, it means that the
GoLox-93 is full and its internal shutoff valve has stopped receiving
liquid oxygen from the HomeLox.



10. Move the Vent Fill Lever on the back of the GoLox-93 to its closed, upright position.



11. Rotate the turntable on the top of the HomeLox counter-clockwise until it stops. Notice that the indicator lines on the turntable align with the lines on the HomeLox.



12. Gently remove the GoLox-93 from the turntable. (See the GoLox-93 User Manual for complete instructions.)

Warning: Frostbite may occur on contact with liquid oxygen, cold gaseous oxygen, or frosted parts. Do not touch any frosted parts. See the Troubleshooting Guide on the next page for more information.

Warning: Always wait at least 15 minutes before attempting the next fill of your GoLox-93 to prevent excessive frosting of the connections.

Troubleshooting Guide

Warning: If your supply of oxygen is not adequate while performing troubleshooting, use your backup supply. If after troubleshooting your HomeLox System is not performing adequately, contact the home care equipment supplier immediately.

Warning: Electrical shock hazard: Do not remove the cabinet of the HomeLox System. The removal of the cabinet should only be performed by Respironics, Inc. or a trained representative.

If your HomeLox fails to operate properly, refer to the chart below for possible solutions. If your problem is not listed here, contact your home care equipment supplier. Do not attempt any maintenance procedures other than those listed below.

Problem	Probable Cause	Solution	
	The power cord is not plugged in.	Check the electrical connection.	
The Start indicator on the HomeLox control panel is	The electrical outlet has no power.	Check the wall switch, fuse, or circuit breaker.	
not lit.	The HomeLox circuit breaker has been activated.	Reset the HomeLox circuit breaker. See the CIRCUIT BREAKER INSTRUCTIONS section of this manual.	
The Service indicator on the HomeLox control panel is lit.	A system fault has been detected.	Call your equipment provider for servicing.	
The HomeLox is noisy.	An obstruction or dirt blocks a fan opening.	Unplug the unit and clean the fan opening or remove the obstruction.	
·	The internal components are worn.	Call your equipment provider for service.	
There is condensation on the HomeLox fill valve. This is normal after transfilling.		The condensation should dissipate within a few minutes as the fan forces air across it and dries it.	
The GoLox-93 is frozen to the HomeLox valve. There is moisture on the valve.		Leave the GoLox-93 on the valve and move the Vent Fill Lever to the upright, closed position. The HomeLox will stop transfilling and the valve will thaw in a few minutes. When the valve becomes dry as a result of the fan forcing air across it, remove the Go-Lox 93. If the problem persists, call your equipment provider for service.	
Transfilling will not stop.	The GoLox-93 portable shutoff valve is not functioning properly.	Return the GoLox-93 fill lever to the closed, upright position. Remove the GoLox-93 from the HomeLox. Call your equipment provider for service.	

Problem	Probable Cause	Solution	
	No liquid oxygen in the HomeLox storage vessel.	Place the HomeLox in operating mode to make liquid oxygen.	
Transfilling will not start.	Low pressure in the HomeLox storage vessel.	Call your equipment provider for service.	
	HomeLox is not making liquid oxygen.	Call your equipment provider for service.	
All other problems		Unplug the HomeLox. Call your equipment provider for service.	

Cleaning

Warning: Disconnect the power cord from the electrical outlet before cleaning the housing of the HomeLox System.

Warning: Do not use any oil, grease, or petroleum-based products on or near this unit.

The outer housing of the HomeLox may be cleaned with a mild household detergent and a damp cloth or sponge. Avoid using large quantities of water to clean the unit, and do not use any petroleum-based solvents or cleaning agents.

Wipe the unit completely dry after you have finished cleaning it.

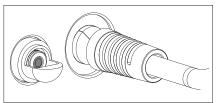
Circuit Breaker Instructions

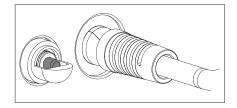
During normal operation, mains power is connected to the HomeLox and the circuit breaker button is depressed.

If mains power is disconnected, the circuit breaker is activated and the button is not depressed.

To reset the circuit breaker:

- Remove the power cord plug from the wall plug.
- Push the breaker button in until it locks and stays in.
- Plug the power cord plug back in to the wall outlet.
- HomeLox should operate normally.
- If the breaker activates again, do not reset the breaker. Remove the power cord from the wall plug and call your equipment provider for service.





Specifications

Environmental

	Operating	Transport & Storage
Temperature	55° F (12° C) to 90° F (32° C)	-4° F (-20° C) to 140° F (60° C)
Relative Humidity	15 to 95% (non-condensing)	15 to 95% (non-condensing)

Physical

Dimensions: 18.8 in x 19.4 in. x 35.3 in.

(47.8 cm x 49.3 cm x 89.7 cm)

Weight: < 120 lbs.

Sound Pressure Level < 55 dBA (measured 1 meter off the floor and 1 meter in front of the

device)

Electrical

Liquefaction Mode: 120 VAC, 60 Hz, 940 Watts +/- 5%

Liquid Oxygen Capacity: 3 Liters

Fill Cycle Time: Up to 24 hours

Oxygen Purity: 93% +/- 3%

Standards Compliance

This device is designed to conform to the following standards:

- IEC 60601-1 Medical Electrical Equipment Part 1: General Requirement for Safety.
- IEC 60601-1-2 Medical Electrical Equipment Part 1-2: General Requirement for Basic Safety and Essential Performance Collateral Standard: Electromagnetic Compatibility Requirements and Tests.

IEC Classification

- Type of Protection Against Electric Shock: Class II Equipment
- Degree of Protection Against Electric Shock: Type BF Applied Part
- Protection Against Ingress of Water: IPX1: Drip Proof Equipment
- Continuous Operation

DISPOSAL

When it becomes necessary, dispose of the device in accordance with local regulations.

EMC Information

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC EMISSIONS: This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

Emissions Test	Compliance	ELECTROMAGNETIC ENVIRONMENT - GUIDANCE
RF emissions CISPR 11	Group 1	The device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The device is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	NA	No test requirements for devices that operate at 115 VAC 60 Hz.
Voltage fluctuations/Flicker emissions IEC 61000-3-3	NA	

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY: This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

IMMUNITY TEST	IEC 60601 Test Level	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT - GUIDANCE
Electrostatic Discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical Fast Transient/Burst IEC 61000-4-4	±2 kV for power supply lines	±2 kV for power supply mains	Mains power quality should be that of a typical home or hospital environment.
Surge IEC 61000-4-5	±1 kV Line to Line	±1 kV line to line	Mains power quality should be that of a typical home or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U _T (>95% dip in U _T) for 0.5 cycle 40% U _T (60% dip in U _T) for 5 cycles 70% U _T (30% dip in U _T) for 25 cycles $<5%$ U _T (>95% dip in U _T) for 5 sec	<5% U _T (>95% dip in U _T) for 0.5 cycle 40% U _T (60% dip in U _T) for 5 cycles 70% U _T (30% dip in U _T) for 25 cycles <5% U _T (>95% dip in U _T) for 5 sec	Mains power quality should be that of a typical home or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical hospital or home environment.
NOTE: U _T is the a.c. mains voltage prior to application of the test level.			

GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY: This device is intended for use in the electromagnetic environment specified below. The user of this device should make sure it is used in such an environment.

IMMUNITY TEST	IEC 60601 Test Level	COMPLIANCE LEVEL	ELECTROMAGNETIC ENVIRONMENT - GUIDANCE
			Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
			Recommended separation distance:
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	d = 1.2 √P 150 kHz to 80 MHz
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz
			where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a , should be less than the compliance level in each frequency range ^b .
			Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a: Field strength from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the device.

b: Over the frequency range 150 kHz to 80 MHz, the field strengths should be less than 3 V/m.

Recommended Separation Distances between Portable and Mobile RF Communications Equipment and This Device:

The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The user of this device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and this device as recommended below, according to the maximum output power of the communications equipment.

RATED MAXIMUM POWER	Separation Distance According to Frequency of Transmitter (m)			
OUTPUT OF TRANSMITTER (W)	150 kHz to 80 MHz d = 1.2 \sqrt{P}	80 MHz to 800 MHz d = 1.2 \sqrt{P}	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$	
0.01	0.12	0.12	0.23	
0.1	0.38	0.38	0.73	
1	1.2	1.2	2.3	
10	3.8	3.8	7.3	
100	12	12	23	

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Limited Warranty

Respironics warrants that the HomeLox System (the "Product") will be free from defects in materials or workmanship for a period of two (2) years or 6,000 hours of operation, whichever comes first, from the date of delivery to purchaser. If the Product contains a defect in materials or workmanship and such Product is returned to Respironics within the warranty period, Respironics will repair or replace the Product, or issue a credit for the purchase price of the Product, with the choice to repair, replace or credit being within the sole discretion of Respironics. Respironics will pay customary freight charges from Respironics to the dealer location only. The foregoing repair, replacement or credit remedy will be the sole remedy for breach of the foregoing warranty.

Without limiting the foregoing, this warranty does not cover damage to the Product caused by accident, misuse, abuse, negligence, failure to install in accordance with Respironics' installation instructions, failure to operate under conditions of normal use and in accordance with the terms of the user manual, failure to maintain in accordance with the applicable service manuals, alteration or any defects not related to materials or workmanship. This warranty does not cover damage that may occur in shipment. This warranty does not apply to any unit or individual parts that have been repaired or altered by anyone other than Respironics or an authorized Respironics service center. This warranty does not apply to Products that are not purchased new.

RESPIRONICS DOES NOT MAKE AND HEREBY SPECIFICALLY DISCLAIMS, ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In no event shall Respironics be liable for lost profits, loss of good will, or incidental or consequential damages, even if Respironics has been advised of the possibility of the same. Purchaser is cautioned that no person or entity is authorized to make any warranties on behalf of Respironics and any such alleged warranties are hereby disclaimed by Respironics.

Laws vary from state to state and some states do not allow the exclusion or limitation of implied warranties or the disclaimer of incidental and consequential damages. Accordingly, the laws of your state may give you additional protections. In addition, if you are located outside of the United States, the laws of your country may give you additional rights.



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