



STATIONARY OXYGEN CONCENTRATOR WITH TRANSFILL PORT



SPECIAL NOTES



Do not operate this equipment without first reading and understanding this manual. If you are unable to understand the warnings and instructions, contact your provider before use; otherwise, injury or damage may result.



Smoking while using oxygen is the number one cause of fire injuries and related deaths. You must follow these safety warnings:

Do not allow smoking, candles, or open flames in the same room with the device or within five feet of the oxygen-carrying accessories.

Smoking while wearing an oxygen cannula may cause facial burns and possibly death.

Removing the cannula and putting it on bedding, sofas, or other cushion material will cause a fire when exposed to a cigarette, heat source, or flame.

If you intend to smoke, you must always turn the oxygen concentrator off, remove the cannula and leave the room where either the cannula or mask or the oxygen concentrator is located. If unable to leave the room, you must wait 10 minutes after you have turned the oxygen concentrator off before smoking.



PATIENT EDUCATION CENTER

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INDICATIONS FOR USE: The Oxygen Concentrator is intended to provide supplemental low-flow oxygen therapy for adults in the home, nursing homes, patient care facilities, and similar settings. It is not intended to sustain or support life. The device enables patients who require oxygen therapy to receive treatment in accordance with a physician's prescription or direction. It is provided non-sterile and is designed for indoor use.

Patient group: Adults over 18 years old



WARNING

WARNING: Under certain circumstances, oxygen therapy can be hazardous. Seeking medical advice before using an oxygen concentrator is advisable.

To ensure receiving the therapeutic amount of oxygen delivery according to your medical condition, LM5BA must:

- 1) be used with settings that have been individually determined or prescribed for you at your activity levels;
- 2) be used with the specific combination of parts and accessories that are in line with the specification of the concentrator or accessory manufacturer.

IMPORTANT SAFEGUARDS

Please read and understand this manual before operating your unit. Important safeguards are indicated throughout this guide. Pay special attention to all safety information. If you have any questions, contact your provider.



WARNING: No modification of this equipment is permitted.

WARNING: For your safety, the oxygen concentrator must be used according to the prescription determined by your provider. If you feel any discomfort or are experiencing a medical emergency while undergoing oxygen therapy, seek medical assistance immediately to avoid harm.

WARNING: The provider supplying the LM5BA to the patient, is responsible for ensuring the safe and effective use of the device in accordance with the provider's prescription for supplemental oxygen. While this instruction manual is intended to support that goal, the ultimate determination of patient safety resides with the patient's provider. Settings should be periodically reassessed for therapy effectiveness.

WARNING: The device is not intended for life support. If the provider has determined that an interruption in the supply of oxygen, for any reason, may have serious consequences to the user, an alternate source of oxygen should be available for immediate use.

WARNING: It is the responsibility of the provider supplying the LM5BA to the patient to ensure that the device is used in a safe and effective manner in keeping with the provider's prescription for supplemental oxygen use. While this manual is intended to support this goal, ultimate determination of the patient's safety resides with the patient's provider.

WARNING: Availability of an alternate source of oxygen is required in case of power outage or mechanical failure. Back-up oxygen should be available (oxygen cylinders, etc.).

WARNING: Do not use your oxygen concentrator in the presence of flammable gases. This can result in rapid burning causing property damage, bodily injuries, or death. Do not use oil, grease, petroleum-based products or other flammable products with the oxygen-carrying accessories or the Oxygen Concentrator. Only water based, oxygen compatible lotions or salves should be used. Oxygen accelerates the combustion of flammable substances.

WARNING: Only use a mild detergent applied with a damp (not wet) cloth or sponge to clean the cabinet, control panel, and power cord and then wipe all surfaces dry. Do not allow any liquid to get inside the device. Pay special attention to the oxygen outlet for the cannula connection to make sure it remains free of dust, dirt, and particles.

WARNING: Keep the device in a well-ventilated area. Do not operate unit in a restricted or confined space where ventilation can be limited. An oxygen rich environment can increase the risk of fire. This can cause the oxygen concentrator to overheat, catch fire and/or impair performance.

WARNING: The oxygen concentrator should be located in an area away from smoke, pollutants or fumes.

WARNING: The use of some oxygen administering accessories is not specified for this oxygen concentrator and may impair its performance. Recommended accessories are referenced in this manual.

WARNING: Use of this device at an altitude above 6,561 ft(2,000 m), outside a temperature range of 41–104°F(5–40°C) , or at a relative humidity above 80% is expected to adversely affect the flow rate, oxygen percentage, and consequently, the quality of therapy.

IMPORTANT SAFEGUARDS - CONTINUED



WARNING: If the oxygen concentrator has been dropped, damaged, or exposed to water, please contact your provider for inspection or possible repair of the device. Do not use the oxygen concentrator if it has a damaged power cord or plug.

WARNING: Do not allow the air intake or air outlet vents to become blocked. Do not drop or insert any objects into any openings on the device. This can cause the oxygen concentrator to overheat and impair performance.

WARNING: Do not overfill the optional humidifier. Fill the optional humidifier with water only to the level shown by the manufacturer of the humidifier.

WARNING: If you feel any discomfort or are experiencing a medical emergency, seek medical assistance immediately.

WARNING: Operating the unit outside of the operational temperature specifications can limit the concentrator's ability to meet oxygen concentration specification. Refer to the specification section of this manual for temperature limits.

WARNING: The oxygen concentrator should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is unavoidable, discuss placement with your provider.

WARNING: Keep pets such as cats, dogs, and birds away from the oxygen concentrator. Scratches, bites, waste, or other interactions may cause damage to the device.

WARNING: Implement pest control measures to prevent rats, snakes, insects, and other pests from entering the unit. These pests can damage internal electrical components and control systems.

WARNING: Laboratory testing shows that at a room temperature of 77.9°F (25.5°C), in the event of a single-fault condition and without a bubble humidifier attached, the temperature at the nasal cannula may reach up to 108.3°F (42.4°C). If the device alarms due to a fault, turn it off immediately and contact service personnel for assistance.

WARNING: Do not use lubricants on Rhythm Healthcare Oxygen Concentrators. Lubrication is not required and may cause damage.



In the event of an alarm or you observe the oxygen concentrator is not working properly; consult the troubleshooting section in this manual. If you cannot resolve the problem, consult your provider. To prevent voiding the warranty, follow the manufacturer's instructions.

WARNING: Do not attempt any maintenance other than the possible solutions listed within this manual. Do not remove covers. Only your equipment provider or a qualified service technician should remove the covers or service this device.

WARNING: Do not leave a nasal cannula on or under clothing, bed coverings or chair cushions. If the unit is turned on but not in use, the oxygen will make the material flammable. Turn the oxygen concentrator off when not in use.



Always position oxygen supply tubing and power cords to prevent tripping hazards. Identification and warning labels on the device may not be clearly visible from a distance of 3 feet. Move closer to ensure labels are read accurately.

IMPORTANT SAFEGUARDS - CONTINUED

WARNING: Do not use this device while sleeping unless prescribed by your provider. If prescribed for use during sleep, use a pulse oximeter to monitor the patient's SpO₂.

WARNING: The Oxygen Concentrator is for single-patient use only.

WARNING: Do not use this device while sleeping unless prescribed by your clinician. If prescribed for use during sleep, use a pulse oximeter to monitor the patient's SpO₂.

WARNING: Do not use this device for more than 14 hours at 95% oxygen concentration unless directed by a physician. Consult a physician before beginning oxygen therapy.

CONTRAINDICATIONS FOR USE

LM5BA Oxygen Concentrator is not intended to be used:

- As a life-supporting or life-sustaining device
- In an operating room or surgical environment
- With newborns, infants, or children
- In the presence of flammable anesthetics or other flammable materials

Side-effects:

- Hypercapnia
- Pulmonary toxicity

Circumstances in Which the User Should Consult a Healthcare Professional

a) Patients with a rapid breathing rate who require a higher oxygen setting may need more oxygen than this device can provide. This device may not be appropriate in those cases. Consult your provider for alternative treatment options.

b) An alternate source of oxygen should be available in the event of a power outage or mechanical failure. Consult your provider for an appropriate backup system.

c) If you are unable to hear or see alarms, do not have normal tactile sensitivity, or cannot communicate discomfort, consult a clinician before using this device. Any patient unable to communicate discomfort may require additional monitoring and/or a distributed alarm system to communicate discomfort or medical urgency to the responsible caregiver to help avoid harm.

d) Supplemental oxygen is not addictive. Your provider prescribed a specific oxygen flow to help improve symptoms such as headaches, drowsiness, confusion, fatigue, or increased irritability. If these symptoms persist after you begin your supplemental oxygen program, consult your physician.

e) If you feel discomfort or experience a medical emergency while undergoing oxygen therapy, seek medical assistance immediately to avoid harm.

CONTRAINDICATIONS FOR USE - CONTINUED



WARNING: This device is not intended to be life-sustaining or life-supporting. This device is not intended for newborn or infant use.

Not for use in the presence of flammable anesthetics.

WARNING: The unit is not appropriate for any patient who would experience adverse healthcare consequences as the result of such temporary interruption.

Please take time to familiarize yourself with your oxygen concentrator before operating.

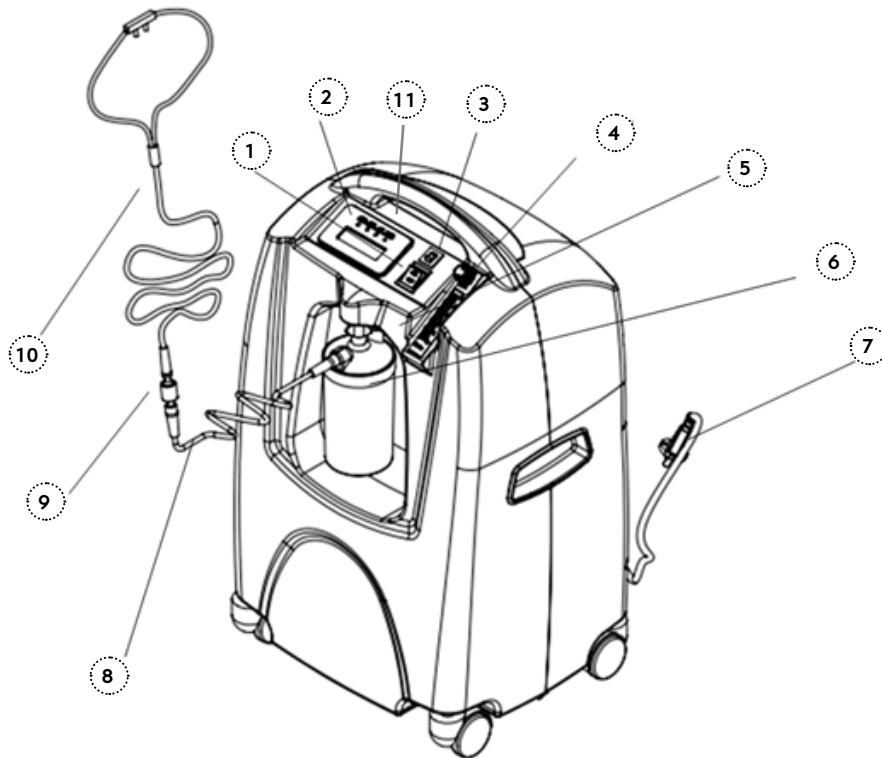
Before using this product, ensure the following items are included with the device. If anything is missing, please contact your provider.

- 1 x User Manual
- 1 x Oxygen Concentrator Set
- 1 x Oxygen Outlet Connector
- 1 x Humidifier Bottle (Optional)
- 1 x Adapter for Humidifier Bottle (Optional)
- 1 x Nasal Cannula
- 1 x Fire Stop Valve
- 2 x Oxygen Tubing



WARNING: Accessories not specified or approved for use with this device may affect performance and are not recommended for use with Rhythm Healthcare products.

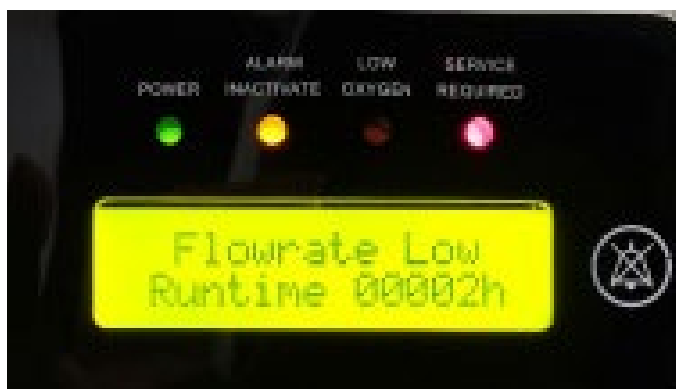
IMPORTANT PARTS OF YOUR CONCENTRATOR



1. **Power Switch** - Push On to switch on, then the unit turns on. Push off to switch it off.
2. **Monitor - Indicates System Status**
Displays when the device runs. Runtime 00002h indicates the machine has been running for 2 hours. There are four indicator lights on the panel.



The LM5BA expected service life is 5 years on the device and 25,000 hours on the compressor. Continued use beyond the expected service life may result in reduced performance, device malfunction, or an increased risk of contamination due to wear or degradation of device materials. Use of the device beyond its intended service life is not recommended.



MUTE ALARM BUTTON

- **POWER** (Green light): Power is On
- **ALARM INACTIVATE** (Solid yellow light): There is no alarm sound, the Mute Alarm button has been pressed.
- **LOW OXYGEN** (Flashing yellow light): O₂ is less than 82%
- **SERVICE REQUIRED** (Flashing red light): Please turn off unit and contact your provider immediately. Switch to your backup oxygen source.

IMPORTANT PARTS OF YOUR CONCENTRATOR - CONTINUED

3. Circuit Breaker – The circuit breaker resets the unit after electrical power outage or overload.
4. Flow meter knob and Flow meter



5. Warning Label



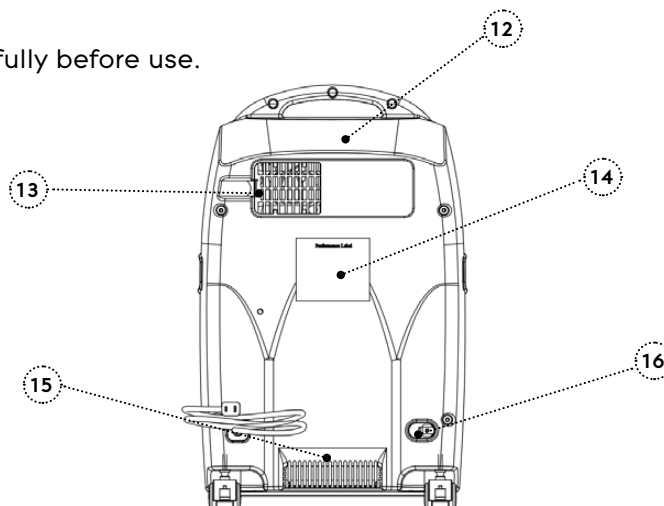
SELECTING FLOW RATE: Turn the flow rate knob to the setting prescribed by your provider.

TO PROPERLY READ THE FLOW METER: Locate the prescribed flowrate line on the flowmeter. Next, turn the flow knob until the ball rises to the line. Now, center the ball on the L/min. line prescribed.

6. Humidifier bottle (Optional)
7. Power cord
8. Oxygen Tubing (if not using the humidifier bottle, use the Oxygen Outlet Adapter for connecting)
9. Fire Stop Valve
10. Nasal Cannula
11. Operating Warnings (Read carefully before use.)

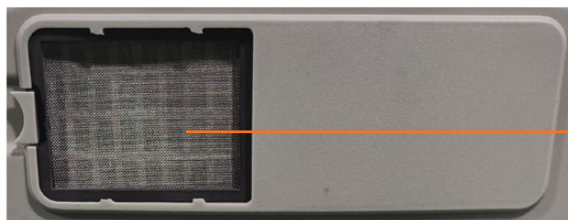
BACK VIEW

12. Enclosure
13. Mesh Intake Filter
14. Specification Label
15. Exhaust Vent
16. Transfill Port



The One-Stage configuration

Utilizes a single large mesh filter located directly behind the removable cover, with incoming air passing through only this mesh filter. This also shows removal of the cover and identifies the filter locations. See p.19 for cleaning and maintenance instructions.



Mesh Air Intake Filter (LM5BA-ITF)

The Two-Stage Configuration

Located on the right side of the removable cover, uses a removable cartridge-style air intake filter. In this configuration, incoming air passes through the cartridge filter before entering the device. See p.19 for cleaning and maintenance instructions.



HEPA Air Inlet Filter (LM5BA-ILF)

SETTING UP YOUR OXYGEN CONCENTRATOR

Place the oxygen concentrator indoors, ensuring that the four casters are locked, and the unit is near an electrical outlet. Position the concentrator in front of you for easy operation. It can be placed in a living room, study, or bedroom. Avoid placing the concentrator in the kitchen, bathroom, or outdoors (including the balcony). Keep it away from moisture, humidity, open flames, and direct sunlight, as these can cause damage or pose safety risks.



WARNING: Keep the oxygen concentrator at least 5 feet away from heat source, sparks or any sources of flame.

NOTE: Do not connect to an electrical outlet controlled by a wall switch. **NO other appliances should be plugged into the same wall outlet.**

1. Position your unit at least 6 inches away from walls, draperies, or any other objects that might prevent the proper flow of air in and out of your oxygen concentrator. The oxygen concentrator should be located in an area away from pollutants or fumes.



Device operation above or outside of the voltage, temperature, humidity and/or altitude values specified may decrease oxygen concentration levels.

TO LOCK CASTERS:

Push brake lever downward on each caster.

TO UNLOCK CASTERS:

Before moving the device, pull lever upward on each caster. Avoid using excessive force to prevent damage to the brake system.



Brakes are not engaged/casters not locked



Brakes are engaged/casters locked

BEFORE OPERATING YOUR OXYGEN CONCENTRATOR

1. Before operating your unit always check to be sure the Mesh Intake Filter (located on the back of your unit) is clean. Proper cleaning of this filter is discussed on page 16.
2. Attach the appropriate oxygen accessories to the oxygen outlet.

Oxygen Tubing Connection:

- a. Connect the oxygen outlet connector onto the oxygen outlet.
- b. Attach the oxygen tubing directly to the connector. (Figure 5)



Figure 5

Oxygen Tubing Connection with Humidifier. NOTE: Only connect the humidifier if prescribed.

1. Fill the humidifier bottle with distilled water. Do not overfill.
 2. Thread the wing nut located on the top of the humidifier bottle to the oxygen outlet so that it is suspended (Figure 6). Make sure it is securely tightened, do not over tighten.
 3. Attach the oxygen tubing directly to the humidifier bottle outlet fitting. (Figure 7)
- Your provider has prescribed either a nasal cannula, catheter, or face mask, in most cases, they are already attached to the oxygen tubing. If not, follow the manufacturer's instructions for attachment.



Figure 6



Figure 7

4. Remove the power cord completely from the Velcro strap on the back of the device, make sure the power switch is in Off position, and insert the plug into the wall outlet. The unit is double insulated to guard against electric shock.

NOTE: If the humidifier and tubing are assembled correctly, and the flow setting is more than 1L/min, you will feel the oxygen flow through the cannula and bubbles will rise to the water surface.

Clean your humidifier bottle daily to reduce the possibility of contamination. Follow the cleaning recommendations from your provider, or the manufacturer of the humidifier bottle. Replace the humidifier bottle every 3 months, or as recommended by the manufacturer, or your home care provider. Do not overfill the humidifier bottle. **Note:** Only distilled water should be used in the humidifier bottle.

SETTING UP THE NASAL CANNULA

Connect the cannula to the humidifier or oxygen outlet and position the nasal cannula on your face, as shown below, and breathe normally through your nose.

Replace the cannula and oxygen supply tubing regularly, as recommended by your provider. Clean and replace the cannula as instructed by your provider.

NOTE: Ensure the cannula is fully inserted and secure. During inhalation, you should hear or feel oxygen flow to the prongs of the nasal cannula.

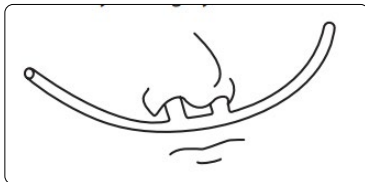


Figure 8



WARNING: Please use oxygen tubing with a length greater than 1.6 ft (0.5 m) and less than 9.8 ft (3 m), corresponding to the specified flow rate and pressure for adult use. Tubing that is too short may become easily disconnected, while tubing that is too long may present a risk of strangulation.

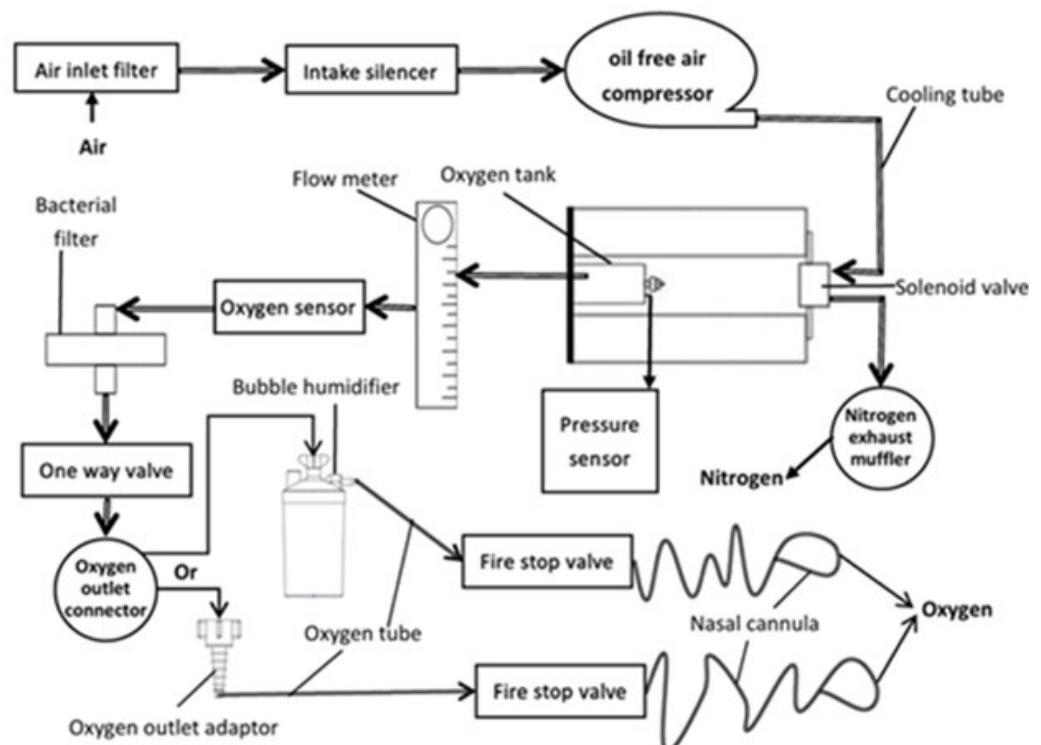


Caution: Without humidifier bottle: Connect the nasal cannula to the fire stop valve with oxygen tube, then to the oxygen outlet from the device as shown in (previous page, Fig.6) if no humidifier bottle is prescribed.

Caution: With humidifier bottle: Connect the nasal cannula to the fire stop valve with oxygen tube, then to the outlet of humidifier bottle as shown in (previous page, Fig.7) if humidifier bottle is prescribed.

Caution: To connect the cannula to the patient, position the cannula tips in patient's nostrils and pass tubing over both ears and under chin. Follow manufacturer's instructions. Slide adapter up tubing to adjust for comfort and fit. Shown in (previous page, Fig.5).

SEE THE PNEUMATIC
DIAGRAM FOR
REFERENCE



OPERATING YOUR CONCENTRATOR

Special precautions need to be taken with Oxygen Concentrators and should be used according to the EMC information provided in this manual.



Oxygen can cause rapid burning when exposed to flames. Do not smoke while your oxygen concentrator is running, or when you are near a person utilizing oxygen therapy. Keep the oxygen concentrator at least 5 feet away from hot objects, sparks, or any sources of fire.

Improper use of the power cord and plugs can cause burns, fire, or other electric shock hazards, do not use the unit if the power cord is damaged.

1. Press the power switch to "On" position. When unit is on, the Green Power light will illuminate, and the patient alert system –service Required light and audible signal —will briefly beep.

Upon powering on the LM5BA, the self-test function will initiate to check if the alarm systems are working normally. The alarm will sound for two seconds, and the four indicator lights will stay on for two seconds. Then the oxygen concentrator will be ready for use.



NOTE: If the Service Required light illuminates and the unit beeps but the unit is not operating, there is no power to the unit. Refer to the Minor Troubleshooting chart on page 23 and contact your provider if necessary.

If an audible low-frequency vibration sound is detected, the unit is not operating properly. Refer to the Minor Troubleshooting chart on page 23 and contact your provider if necessary.

2. To mute the alarm sound, press the Mute Alarm button. The yellow "ALARM INACTIVATE" light will turn on. Press the Mute Alarm button again to reactivate the alarm sound; the "ALARM INACTIVATE" light will turn off.



***Picture shows Alarm Sound Muted
(Yellow light is illuminated)**

MUTE ALARM BUTTON

3. Check the flow meter to make sure that the ball is centered on the line next to the prescribed number of your flow rate.



CAUTION: It is very important to follow your oxygen prescription. Do not increase or decrease the flow of oxygen without consulting your provider.

NOTE: If the flow meter knob is turned clockwise, the flow decreases (and eventually will shut off the oxygen flow). If the knob is turned counterclockwise, the flow increases.

TRANSFILL OPERATING INSTRUCTIONS

1. Ensure the oxygen concentrator is turned on.
2. Adjust the flow rate to between 1 L/min and 3 L/min. Wait for 2 minutes for the oxygen concentration to stabilize above 90%.

CAUTION: The maximum flow rate is 5 L/min. Set the oxygen flow rate to 2 L/min with a pressure of 60 ± 5 kPa at the oxygen transfill port. When connecting to an oxygen filling system (to fill a portable oxygen cylinder), the flow rate should be above 1 L/min but should not exceed 3 L/min. If it exceeds this range, the oxygen purity may drop below 90%, triggering alarms such as Low Oxygen or Low Flowrate.

3. To open the plastic cover, press the metal plate on the left side of the oxygen filling port. (See Figures 1 and 2)



Figure 1



Figure 2

4. Insert one end of the filling tube from the oxygen filling system into the oxygen transfill port until you hear a “click,” ensuring a secure connection. (See Figures 3 and 4).

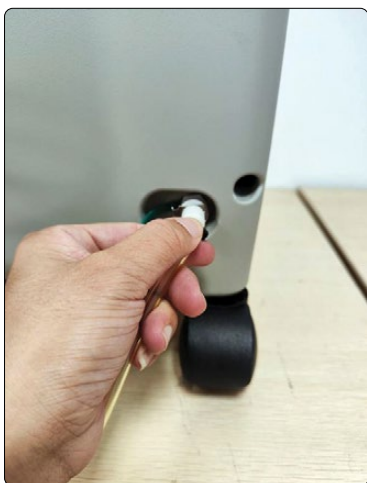


Figure 3



Figure 4

5. Connect the other end of the filling tube to the filling port of the oxygen filling system, ensuring a tight, leak-free fit.
6. Verify that all connections and settings are correct, then turn on the oxygen filling system to fill the oxygen cylinder.
7. Once filling is complete, turn off the oxygen filling system and the LM5BA. Press the left metal plate to release the filling tube, and then close the cover by hand.

Note: For more detailed usage instructions, please refer to the user manual of your oxygen filling system.



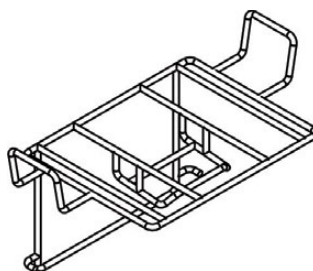
Figure 5



Figure 6

TRANSFILL RACK FOR LM5BA

OPTIONAL ACCESSORY ITEM# LM5BA9



WARNING

Check parts for damage before using. If there is damage, do not use and contact the carrier.

CAUTION:

For use with IOH200 Invacare HomeFill® Oxygen System only.

Use of this rack with any other self-filling oxygen compressor has not been tested and should not be utilized. Use of the LM5BA9 rack with any other self-filling system may cause injury to the user.

READ AND UNDERSTAND INSTRUCTIONS BEFORE USE.

If you find it difficult to understand the warnings, cautions, and instructions provided, contact your provider before proceeding with installation, to avoid potential injury or damage.

DO NOT move the concentrator while the transfill compressor is placed on the transfill rack. Prior to transportation, ensure the transfill compressor is separated from the transfill rack to prevent personal injury or product damage.

Supervise children at all times in the vicinity of the transfill unit. When utilized with elevated support surfaces like the transfill rack, a child may inadvertently tip it over, causing the unit to fall. Disregarding this precautionary measure may result in personal injury or damage to the product.

The transfill rack is intended for pairing with the Rhythm Healthcare LM5BA concentrator and a transfill compressor. Using this transfill rack with any other products is strictly prohibited, as it may result in damage to the transfill rack itself, or the other devices involved.

INSTALLING THE TRANSFILL RACK

1. First place the LM5BA concentrator in the location for use.
2. Align the rack above and toward to the rear of the concentrator.
3. Move the transfill rack forward until the rear pins fully engage the concentrator mounting holes.
4. Move the latch down over the handle to secure in place.
5. Orient and place the transfill compressor onto the installed transfill rack as shown.
NOTE: the transfill compressor will prevent the latch from becoming unsecured.
6. Connect the transfill fill hose to the concentrator and compressor.



Before attempting any cleaning procedures, turn the unit Off.

Oxygen Humidifier (reusable bottles)

If your provider has prescribed humidification, clean your humidifier bottle daily. Follow the instructions supplied by the manufacturer. **If no cleaning instructions were supplied, follow these steps:**

1. Wash the humidifier in a solution of hot water and mild dish washing detergent.
2. Soak the humidifier in a solution of one-part white vinegar to three parts hot water for 30 minutes. This solution acts as a germicidal agent.
3. Rinse thoroughly with warm tap water and refill with distilled water for use. Do not overfill.

MESH INTAKE FILTER AND OXYGEN OUTLET CONNECTOR

The Mesh Intake Filter and connector should be cleaned at least once a week. If it malfunctions, it should be replaced. To clean, follow these steps:

1. Remove the Mesh Intake Filter (located on the back of the unit). Pull the clip and open the cover located on the back of the unit. Remove the oxygen outlet connector (if used).
2. Wash in a solution of warm water and mild dish washing detergent.
3. Rinse thoroughly with warm tap water and towel dry. The filter should be COMPLETELY dry before reinstalling.

WARNING: Do not lubricate fittings, connections, tubing, or other accessories of the oxygen concentrator to avoid the risk of fire and burns.

WARNING: Use only spare parts recommended by the manufacturer to ensure proper function and to avoid the risk of fire and burns.

WARNING: To prevent product damage, do not attempt to operate the unit without the Mesh Intake Filter or while the filter is still damp.

WARNING: To avoid electric shock, do not remove the concentrator cabinet. The cabinet should only be removed by a qualified medical technician. Do not apply liquid directly to the cabinet or utilize any petroleum-based solvents or cleaning agents.

Clean the exterior cabinet every 7 days with a soft, clean and lint-free cloth slightly dampened with soapy water or with anti- bacterial wipes (Isopropyl alcohol 70% solution) and wipe it dry.

PERIODIC MAINTENANCE FOR YOUR UNIT

1. Clean the Mesh Intake Filter (LM5BA-ITF) once a week or as needed. Replace if damaged or torn. Listed below are the steps of cleaning the Mesh Intake Filter.
 - a. Pull out the Mesh Intake Filter (LM5BA-ITF) and clean the cabinet door (LM5BA-VD) with a vacuum or cleaner or wash in a warm soapy water and rinse thoroughly.
 - b. Dry the Mesh Intake Filter thoroughly before re-installation.

WARNING: Do not operate the Oxygen Concentrator without the Mesh Intake Filter in place. If a second Mesh Intake Filter is available, insert the replacement Mesh Intake Filter before you clean the Mesh Intake Filter. Clean the dirty Mesh Intake Filter in a warm soap and water solution then dry completely prior to use

- c. Check the cord, the plug on the back of the device, the power switch and the indicator light for possible damage.
- d. Degraded sensors (oxygen sensor and flowrate sensor) can degrade performance or cause other problems, please contact professional service personnel or your provider to calibrate the accuracy annually.

NOTE: The following described complete processing of the concentrator should be done by a qualified service technician!

- e. Disconnect the power cord before Open the concentrator and remove all dust deposits inside the cabinet with an appropriate vacuum cleaner and replace the Bacterial Filter once a year.
- f. Replace all damaged or worn components.

HANDLING AND STORAGE BEFORE NEXT USE

If the oxygen concentrator is not used every day or requires long-distance transportation, please empty the distilled water in the bubble humidifier, and then reinstall the oxygen concentrator into its original factory package for sealed storage to prevent the molecular sieve from becoming ineffective due to moisture.

If the storage time exceeds 3 months, please turn on the machine in a normal operating environment for more than 30 minutes, confirm that the oxygen concentration, flow rate, and alarm functions are normal, and then use it again. Otherwise, please contact professional after-sales personnel to repair the machine.

NOTE: Storage and transportation environment requirements: temperature -22°F to 158°F (-30°C to 70°C), humidity 10%-95% RH (no condensation), atmospheric pressure 50 to 106 kPa.

NOTE: Operating environment requirements: temperature 41°F to 104°F (5°C to 40°C), humidity ≤ 80% RH (without condensation), atmospheric pressure 80-106 kPa.

CARING AND PERIODIC MAINTENANCE FOR YOUR UNIT - CONTINUED

2. Inspect the HEPA Air Inlet Filter (LM5BA-ILF) in between patients and replace if needed. Change this filter if torn, damaged, as needed, or every three years. Follow these steps:
 - a. Open the cabinet door (LM5BA-VD).
 - b. Slightly push the air-inlet cartridge filter to the left side to disconnect it from the air hose on the right side, then it can be easily taken out.
 - c. Then insert the new HEPA Air Inlet Filter. Push the air inlet to the right side to connect it to the air hose connector, make sure it is connected tightly. If not, dust will evade the filter and reduce the performance or damage the device.
 - d. Insert the Mesh Air Intake Filter (LM5BA-ITF) and close the cabinet door.

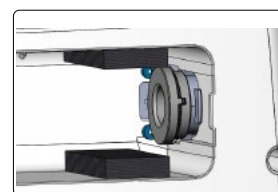


Figure 9



ACCESSORIES

The accessories below are tested by Rhythm Healthcare with Oxygen Concentrators:

Description	Manufacturer/ Trademark	Type/Model	Specs	Mark of Conformity
Bubble Humidifier	SALTER LABS	REF7600 or REF7100	200 ml Capacity for flow up to 5L/min, ABS, PP	US FDA Product Code: BYY CE 2797
Cannula (Disposable)	Ningbo MFLAB Medical Instruments Co., Ltd.	Adult/L	5.5, 2.5m (8.3 ft), PVC	US FDA Product Code: KYZ
Oxygen Connecting Tube	Ningbo MFLAB Medical Instruments Co., Ltd.	LB1610	0.5m, PVC	CE 0197
Oxygen Outlet Adapter	KYCARE	Orange	Nylon	RoHS
Fire Stop Valve	KYCARE	FRPA6V-0	Flame Retardant	US FDA Product Code: CAX

There are many different types of humidifiers, oxygen tubing, cannulas and masks that can be used with this device. Please contact your provider for recommendations on which of these devices will be best for you. They can also guide you on proper usage, maintenance, and cleaning.

NOTE: The bubble humidifier should be equipped with a permanent fire stop device. If a bubble humidifier needs to be used without a permanent fire stop device, a secondary fire stop device must be used and placed as close to the humidifier as possible. Failing to do so could increase the risk of fire. Please contact your provider for information.



NOTE

NOTE: The oxygen supply accessory (patient tubing) shall be equipped with a means that, in case of fire, stops the delivery of oxygen to the patient. This means of protection should be located as close to the patient as practicable. Please contact your provider for information.

NOTE: The use of accessories (not specified above) may impair the oxygen concentrator's performance.

NOTE: If the unit is not operating and the Service required light is on and the alarm beeps there is no power to the unit. Refer to the Minor Troubleshooting chart on page 23 and contact your provider.

NOTE: All waste from Rhythm LM5BA Oxygen Concentrator must be disposed of using the appropriate methods specified by local authorities.

NOTE: To preserve the environment, the concentrator must be disposed of using the appropriate methods specified by local authorities.

ALERTS

1. The alerts of this machine include visual indication signal (yellow, red) and auditory alert. There are three alert conditions by priority: high priority, medium priority, and low priority.
2. Visual alerts. If there is an audible alert, the indication light will be illuminated.

Alert Priority	Indication Light Color	Twinkle Frequency	Duty Cycle
High priority	Red	1.4Hz-2.8Hz	20%-60%
Medium priority	Yellow	0.4Hz-0.8Hz	20%-60%
Low priority	Yellow	Solid	100% on

3. Auditory Alerts

If there are any alerts, the device will alert at a sound level between 40dBA - 85dBA.

ALERTS PRIORITY:

1. High Priority - 5 beeps, pause for five seconds, then alarm beeps again.
 2. Medium Priority - 3 beeps, pause for ten seconds, then alarm beeps again.
 3. Low Priority - 1 beep, then pause for 20 seconds, then alarm beeps again.
- If there are more than two beep conditions at the same time, the visual and auditory alert will display the most urgent alert.

Alerts

Error Code	Alarm Condition	Light	Auditory Signal	Priority
OXYGEN TOO LOW	If oxygen concentration is $\leq 73\% \pm 3\%$ after running for 2 minutes, continue running.	Red Blinking	Five beeps in a repeating pattern every 5 seconds.	High
OXYGEN LOW	If oxygen concentration is 82% after running 2 minutes, continue running.	Yellow Blinking	Five beeps in a repeating pattern every 16 seconds.	Medium
PRESSURE HIGH	If the system pressure exceeds 250 kPa after 2 minutes of operation, stop running.	Yellow No Blinking	One beep repeats every 24 seconds.	Low
PRESSURE LOW	If the system pressure is low (40 kPa) after 2 minutes of operation, continue running.	Yellow No Blinking	One beep repeats every 24 seconds.	Low
NO OXYGEN SENSOR	If no signal is detected from the oxygen sensor circuit board after 2 minutes of operation, continue running.	Red Blinking	Five beeps in a repeating pattern every 5 seconds.	High
LOW FLOW	If the flow rate is below 0.4 L/min after 2 minutes of operation, continue running.	Red Blinking	Five beeps in a repeating pattern every 5 seconds.	High
/	Power sudden failure, immediately shut down, delay less than 1 second.	Red Blinking	Five beeps in a repeating pattern every 5 seconds. Alarm continues for more than 30 seconds. Lasts over 30 seconds	High

Actions after alert (see next page)

Actions after alert

4. If the oxygen purity falls below the acceptable level, the green Normal Oxygen light will shut off and the yellow Low Oxygen light will illuminate. Switch to your reserve oxygen system. Refer to the Troubleshooting section in this guide on page 23 and contact your provider.

As an added safety feature should the oxygen purity continue to drop, an intermittent audible alert will sound, and the power will be cut off. Contact your provider immediately. Do not attempt any other maintenance.

After starting the machine, if "PRESSURE HIGH" is displayed, the yellow LED illuminates, and the audible alarm sounds, the machine will shut down. This may be caused by a pressure regulating valve or solenoid valve failure. Please contact your provider for troubleshooting assistance.

After starting the machine, if "PRESSURE LOW" is displayed, the yellow LED illuminates, and the audible alarm sounds, the machine will continue operating. This may be caused by an internal air leak or air compressor failure. Please turn off the machine and contact your provider for troubleshooting assistance.

After starting the machine, if "NO OXYGEN SENSOR" is displayed, the red LED illuminates, and the audible alarm sounds, adjust the flow rate knob so the float ball indicates an oxygen flow rate between 1 and 5 L/min. The alarm should stop. If the alarm continues, please contact your provider for assistance.

If a sudden power failure lasts less than 30 seconds, the alarm system will automatically reset once power is restored.



WARNING: Do not change the alert indication preset and do not change the memory of the MCU preset.

Geriatric Patients, Pediatric Patients or any other patient unable to communicate discomfort can require additional monitoring and/or a distributed alarm system to convey the information about the discomfort and/or the medical urgency to the responsible care giver to avoid harm.

MINOR TROUBLESHOOTING

Issue	Possible Cause	Remedy
Section A: Unit does not operate. Power light is off when the power is switched "On". Audible alert is pulsing. Service Required light is flashing.	1. Power cord not properly inserted into wall outlet.	Check power connection at the wall outlet. On 115 volt/220volt units, check the back of the unit.
	2. No power at wall outlet.	Check your home circuit breaker and reset if necessary. Use a different wall outlet if the situation occurs again.
	3. Oxygen concentrator circuit breaker activated (selected units).	Press the concentrator circuit breaker button (if equipped) located below the power switch. Use a different wall outlet if the situation occurs again.
Section B: Error code: OXYGEN TOO LOW NO OXYGEN SENSOR FLOWRATE LOW Unit operates; the Power light is on and Power is switched "On". Red light is on (Service Required). Audible beep may be sounding.	1. Mesh Intake Filter is blocked.	Check the Mesh Intake Filter. If the Mesh Intake Filter is dirty, wash it following the cleaning instructions on page 16.
	2. Exhaust is blocked.	Check the exhaust area; make sure there is nothing restricting the unit exhaust.
	3. Blocked or defective cannula, catheter, face mask or oxygen tubing.	Detach cannula, catheter, or face mask. If proper flow is restored, clean or replace if necessary. Disconnect the oxygen tubing at the oxygen outlet. If proper flow is restored, check oxygen tubing for obstructions or kinks. Replace if necessary.
	4. Blocked or defective humidifier bottle.	Detach the humidifier bottle from the oxygen outlet. If proper flow is obtained, clean or replace humidifier bottle.
	5. Flow meter set too low.	Set flow meter to prescribed flow rate. If the above remedies do not work, contact your provider
Section C: Unit operates the power light is on when power is switched "On". Audible low-frequency vibration sound is detected.		Turn unit "off", Switch to your reserve oxygen system, and contact your provider immediately.
Section D: If any other problems occur with your oxygen concentrator.		Turn unit Off. Switch to your reserve oxygen system and contact your provider immediately.
Section E: Error code: OXYGEN TOO LOW NO OXYGEN SENSOR FLOWRATE LOW Red light is on (Service Required) Intermittent audible alert.	1. Flow meter is not properly set yet.	Ensure the flow meter is properly set to the prescribed.
	2. Mesh Intake Filter is blocked.	Check the Mesh Intake Filter. If the filter is dirty, wash it following the cleaning instructions on page 16.
	3. Exhaust is blocked.	Check the exhaust area: make sure there is nothing restricting the unit exhaust. If the above remedies do not work, contact your provider.

Issue	Possible Cause	Remedy
Section F: Error code: OXYGEN LOW PRESSURE HIGH PRESSURE LOW Yellow light is on and the intermittent audible Signal is sounding.	1.Flow meter is not set to the correct flow rate.	Ensure the flow meter is properly set to the prescribed flow rate.
	2. Air filter is blocked.	Check the air filter. If the filter is dirty, clean it according to the cleaning instructions provided on page 20.
	3. Exhaust is blocked.	Check the exhaust area: Ensure nothing is blocking the unit exhaust. If the issue persists after performing the above steps, contact your equipment provider.
	4.Blocked or defective cannula, catheter, face mask or oxygen tubing.	Detach cannula, catheter, or face mask. If proper flow is restored, clean or replace if necessary. Disconnect the oxygen tubing at the oxygen outlet. If proper flow is restored, check oxygen tubing for obstructions or kinks. Replace if necessary
	5.Blocked or defective humidifier bottle.	Detach the humidifier from the oxygen outlet. If proper flow is obtained, clean or replace humidifier.
	6.Gas leakage	Check the connection between the device outlet and the tubing, and between the tubing and humidifier bottle, for any gas leakage. Replace components if necessary.
	7. Cooling Fan Failure	Contact your provider
	8.Pressure regulation valve and Solenoid valve failure	Contact your provider
	9.Air Compressor failure	Contact your provider

SPECIFICATIONS

Item	Rating
Delivery Rate	Flow Range: 1 – 5 L/min Measurement Uncertainty: $\pm 5\%$ or ± 0.2 L/min Tolerance: $\pm 10\%$ or ± 0.2 L/min (whichever is greater under STPD conditions [Standard Temperature and Pressure, Dry])
Maximum Recommended Flow (at nominal backpressures of 0 and 7 kPa)	$5 \pm 10\%$ L/min
Outlet Pressure	8.5 ± 0.5 PSI (58.6 ± 3.4 kPa)
Electrical Rating	115VAC, 60Hz 365VA 230VAC, 50Hz 365VA
Oxygen Purity	1 to 5 L/min: $93\% \pm 3\%$ Measurement Uncertainty: 3% @ 1-5 L/min after start up period in 5 minutes
Sound level	Sound pressure level: 50 dBA (overall average) Sound power level: 54 dBA (overall average) @ 3 L/min & 5 L/min
Operating Environment Range	Temperature 41°F to 104°F (5°C to 40°C) Humidity: $\leq 80\%$ Atmospheric pressure ≥ 80 kPa (11.6 psi)
Operating Altitude Tested at 69.8°F only 0-6,561 ft (0 to 2,000 m) 6,561-13,123 ft (2,000 to 4,000 m)	Across the voltage range: No degradation of performance Not recommended: Efficiency less than 85%
Low Oxygen Alert	Less than 82% will activate at the following level Red light will activate (service required)
Pressure Relief Valve	40 psig ± 5 psig (276 kPa ± 34.5 kPa)
Product Weight	35.25 lbs
Dimensions	23" H x 14.2" W x 11.4" D
Operating System	Time Cycle / Pressure Swing
Storage Conditions	Temperature: -22°F to 158°F Humidity: $< 93\%$ Atmospheric pressure: 50 to 106 kPa (7.3 to 15.4 PSI)
Equipment Class and Type	Protect against electric shock: Class II The degree of protect against electric shock: TYPE B Applied part
Expected Service Life	5 Years on the Device 25,000 Hours on the Compressor
Warranty	5 Years

O₂ Concentration (%) at Different Temperatures

	Temperature				
Flowrate	41°F (5°C)	50°F (10°C)	68°F (20°C)	77°F (25°C)	104°F (40°C)
1 L/min	91.5%	92%	91.5%	91.6%	90.8%
2 L/min	92%	93.8%	93.5%	93.6%	92.9%
3 L/min	93.5%	94%	94.3%	93.9%	93%
4 L/min	94.5%	93.2%	94.7%	93%	92.5%
5 L/min	94.6%	93%	94.6%	92.8%	91.6%

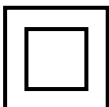
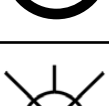
O₂ Concentration (%) at Different Altitudes

	Altitude		
Flowrate	0 ft (0 m)	3,281 ft (1,000 m)	6,562 ft (2000 m)
1 L/min	94.5%	94%	93%
2 L/min	94%	93%	92%
3 L/min	95.1%	95%	94.6%
4 L/min	95%	94.8%	94.5%
5 L/min	95.2%	95.1%	95%

O₂ Concentration (%) at Different Humidity Levels

	Humidity		
Flowrate	40%	60%	80%
1 L/min	91.7%	91.5%	91.2%
2 L/min	94%	93.8%	92.5%
3 L/min	94.5%	94%	93%
4 L/min	94.6%	93.5%	92.5%
5 L/min	94.7%	93%	91.5%

SYMBOLS

	Warning - Describes a hazard or unsafe practice that can result in severe bodily injury, death, or property damage
	Caution – Describes a hazard or unsafe practice that can result in minor bodily injury or property damage
	Note – Provides information important enough to emphasize or repeat
	Consult the accompanying documents
	Type BF Equipment
	Class II Equipment, double insulated
	Do not use oil or grease
	Do not expose to open flames, sparks or heat sources
	Do not smoke near unit
	Do not disassemble
	Alarm sound muted
	See manual
	Prescription only

SN	Manufacturer's serial number
	Date of manufacture
	Manufacturer
	Proper disposal of waste of electrical and electronic equipment required
	FRAGILE - Contents of the transport package are fragile therefore it shall be handled with care
	THIS WAY UP - Indicates correct upright position of the transport package
IP21	Ingress Protection Protected against finger access to hazardous parts; protected against vertically falling water drops.
	Keep away from rain and water. Transport package shall be kept away from rain.
	Non-ionizing electromagnetic radiation

ELECTROMAGNETIC INFORMATION

Guidance and manufacturer's declaration – electromagnetic emissions

The LM5BA is intended for use in the electromagnetic environment specified below. The customer or the user of the LM5BA should assure that 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	Class A	
Voltage Fluctuations/ Flicker Emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration – electromagnetic immunity

The LM5BA is intended for use in the electromagnetic environment specified below. The customer or the user of the LM5BA should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6 Conducted RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the LM5BA OXYGEN CONCENTRATOR including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = \left[\frac{3.5}{V_1} \right] \sqrt{P}$ $d = \left[\frac{3.5}{E_1} \right] \sqrt{P}$ 80 MHz to 800 MHz $d = \left[\frac{7}{E_1} \right] \sqrt{P}$ 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).^b 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 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 LM5BA is used exceeds the applicable RF compliance level above, the LM5BA should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the LM5BA. ^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

LIMITED WARRANTY

Rhythm Healthcare, LLC warrants the LM5BA Oxygen Concentrator under the conditions and limitations stated below. Rhythm Healthcare, LLC warrants this equipment to be free from defects in workmanship and materials for five (5) years from date of factory shipment to the original purchaser, (typically the healthcare provider) unless contractually specified otherwise. This warranty is limited to the Buyer of new equipment purchased directly from Rhythm Healthcare, LLC, or one of its Providers, Distributors, or Agents. Rhythm Healthcare, LLC's obligation under this warranty is limited to product repair (parts and labor) at its factory or at an Authorized Service Center. Routine maintenance items, such as filters, are not covered under this warranty, nor does it cover normal wear and tear.

Warranty Claims

The original purchaser must submit any warranty claim to Rhythm Healthcare, LLC or to an Authorized Service Center. Upon verification of the warranty status, instructions will be issued. For all returns, the original purchaser must (1) properly package the unit in a Rhythm Healthcare, LLC's approved shipping container, (2) properly identify the claim with the Return Authorization Number, and (3) send the shipment freight prepaid. Service under this warranty must be performed by Rhythm Healthcare, LLC and/or an Authorized Service Center.

Note: This warranty does not obligate Rhythm Healthcare, LLCs to provide a loaner unit during the time that an oxygen concentrator is undergoing repair.

Note: Replacement components are warranted for the unexpired portion of the original Limited Warranty. This warranty shall be voided, and Rhythm Healthcare, LLC shall be relieved of any obligation or liability if:

- The device has been misused, abused, tampered with, or used improperly during this period
- Malfunction results from inadequate cleaning or failure to follow the instructions.
- The equipment is operated or maintained outside the parameters indicated in the operating and service instructions.
- Unqualified service personnel conduct routine maintenance or servicing.
- Unauthorized parts or components (i.e., regenerated sieve material) are used to repair or alter the equipment.
- Unapproved filters are used with the unit.



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