

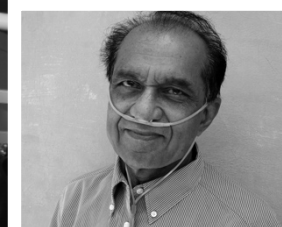
FreeStyle™ 5

Patient Manual

FreeStyle™ 5 Portable
Oxygen Concentrator

AIRSEP®

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DO NOT OPERATE THIS EQUIPMENT WITHOUT FIRST READING AND UNDERSTANDING THIS MANUAL. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS AND INSTRUCTIONS, CONTACT YOUR EQUIPMENT PROVIDER BEFORE ATTEMPTING TO USE THIS EQUIPMENT; OTHERWISE, INJURY OR DAMAGE COULD OCCUR.



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 the oxygen-carrying accessories.

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

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

If you smoke, you must always follow these 3 important steps first: **turn off** the oxygen concentrator, **take off** the cannula, and **leave the room** where this device is located



“No Smoking – Oxygen in Use” signs must be prominently displayed in the home, or where the oxygen is in use. Patients and their caregivers must be informed about the dangers of smoking in the presence of, or while using, medical oxygen.



Federal (USA) law restricts this device to sale or rental by order of a physician or other licensed health care provider.

English: A multilingual version of the manual is available through your Equipment Provider.

Español: Una versión multilingüe del manual está disponible a través de su proveedor de equipo.

Français: Une version multilingue du manuel est disponible par l'intermédiaire de votre fournisseur de matériel.

Deutsche: Eine mehrsprachige Version des Handbuchs ist in Ihrer Geräte-Anbieter.

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AirSep's FreeStyle™ 5 Portable Oxygen Concentrator













This Patient Manual will acquaint you with AirSep's FreeStyle™ 5 Portable Oxygen Concentrator (POC). Make sure you read and understand all of the information contained in this manual before you operate your FreeStyle 5 unit. Should you have any questions, your Equipment Provider will be happy to answer them for you.

Symbols

Symbols are frequently used on equipment and/or the manual in preference to words with the intention of decreasing the possibility of misunderstanding caused by language differences. Symbols can also permit easier comprehension of a concept within a restricted space.

The following table is a list of symbols and definitions used with the FreeStyle 5 Portable Oxygen Concentrator.

Symbol	Description	Symbol	Description
	Warning – Describes a hazard or unsafe practice that if not avoided can result in severe bodily injury, death, or property damage		Class II Equipment, double insulated
	Caution – Describes a hazard or unsafe practice that if not avoided can result in minor bodily injury or property damage		Complies with the 93/42/EEC directive drawn up by the approved organization No. 0029
	Note – Provides information important enough to emphasize or repeat		Safety agency for CAN/CSA C22.2 No. 60601-1-08 M90 for medical electrical equipment
	Consult the accompanying documents		Keep unit and accessories dry
	Use no oil or grease		Proper disposal of waste of electrical and electronic equipment required
	No Smoking		Do not disassemble

Symbol	Description	Symbol	Description
	Type BF Equipment		Consult instructions for use
	This side up		Fragile – handle with care
	Do not expose to open flames		FAA – Approved POC
RTCA/DO-160 Section 21 Category M Compliant	RTCA DO160 Section 21 Category M Compliant. FAA SFAR 106 requirement		See Instructions
	Manufacturer		Authorized Representative in the European Community
	Serial Number		Catalog Number
	Date of Manufacture		

Method of disposing of waste: All waste from AirSep’s FreeStyle 5 Oxygen Concentrator must be disposed of using the appropriate methods specified by local authorities.

Method for disposing of the device: In order to preserve the environment, the concentrator must be disposed of using the appropriate methods specified by local authorities.

Why Your Physician Prescribed Oxygen

Many people suffer from a variety of heart, lung, and other respiratory diseases. A significant number of these patients can benefit from supplemental oxygen therapy at home, when traveling, or while participating in daily activities away from home.

Oxygen is a gas that makes up 21% of the room air we breathe. Our bodies depend on a steady supply to function properly. Your physician prescribed a flow or setting to address your particular respiratory condition.

Although oxygen is a non-addictive drug, unauthorized oxygen therapy can be dangerous. You must seek medical advice before you use this oxygen concentrator. The Equipment Provider who supplies your oxygen equipment will demonstrate how to operate the FreeStyle 5 Portable Oxygen Concentrator.

What is the FreeStyle 5 Portable Oxygen Concentrator?

Oxygen concentrators were introduced in the mid-1970's and have become the most convenient, reliable source of supplemental oxygen available today. Oxygen concentrators are the most cost-effective, efficient, and safest alternative to using high-pressure oxygen cylinders or liquid oxygen. An oxygen concentrator provides all the oxygen you need with no cylinder or bottle deliveries required.

The air we breathe contains approximately 21% oxygen, 78% nitrogen, and 1% other gases. In the FreeStyle 5 unit, room air passes through a regenerative, adsorbent material called “molecular sieve.” This material separates the oxygen from the nitrogen. The result is a flow of high-concentration oxygen delivered to the patient.

FreeStyle 5 combines advanced oxygen concentrator technology along with oxygen conserving technology for a lightweight, high capacity portable oxygen concentrator at just 6.2 lb (2.8kg). The FreeStyle 5 efficiently produces its own oxygen, and quickly delivers it as a pulse of oxygen at the very beginning of your inhalation. This eliminates the waste associated with a continuous flow oxygen device that even flows oxygen while you are exhaling. This pulsing of the oxygen is equivalent to continuous flow. FreeStyle 5 produces the equivalent of up to 5 LPM (liters per minute) in a lightweight package that can be easily carried and used away from the home.

FreeStyle 5 operates from four different power sources. (Refer to the Power Supplies section of this manual.)

Operator Profile:

AirSep's Concentrators are intended to supply supplemental Oxygen to users suffering from discomfort due to ailments which effect the efficiency of ones lungs to transfer the oxygen in air to their bloodstream. POC's provide the convenience of using a non-delivery POC system rather than delivery system (O2 tank) which makes the user relatively self-sufficient in terms of in-home use, ambulation (both within and outside of the home) mobility and overall lifestyle. Oxygen Concentrator use requires a physician's prescription, and is not intended for life support use.

Although Oxygen therapy can be prescribed for patients of all ages the typical oxygen therapy patient is older than 65 years of age and suffers from Chronic obstructive Pulmonary Disorder (COPD). Patients typically have good cognitive abilities and must be able to communicate discomfort. If the user is unable to communicate discomfort, or unable to read and understand the concentrator labeling and instructions for use, then use is recommended only under the supervision of one who can. If any discomfort is felt while using the concentrator, patients are advised to contact their healthcare provider. Patients are also advised to have back-up oxygen available (i.e. cylinder oxygen) in the event of a power outage or concentrator failure. There are no other unique skills or user abilities required for concentrator use.

FreeStyle 5 for Airline Travel – FAA-Approved

FreeStyle has received the US Federal Aviation Administration's (FAA) acceptance for onboard in-flight use by oxygen passengers on commercial airlines via a 2012 amendment to SFAR 106.

In addition, as of May 13, 2009, a new Department of Transportation (DOT)/FAA ruling has determined that US-based carriers, as well as international flights with origination or destination in the US, must allow passengers with FAA-approved portable oxygen concentrators to use them on board, and in flight, as medically necessary. Check directly with the individual airlines with which you would like to travel for up-to-date information on their specific POC policies.

[Read the Important Safety Rules section before operating this equipment.]

Important Safety Rules

Carefully review and familiarize yourself with the following important safety information about the portable FreeStyle 5 Oxygen Concentrator.



“No Smoking – Oxygen in Use” signs must be prominently displayed in the home, or where oxygen is in use. Patients and their caregivers must be informed about the dangers of smoking in the presence of, or while using, medical oxygen.



WARNING

This device supplies high-concentration oxygen that promotes rapid burning. **Do not allow smoking or open flames within the same room of (1) this device, or (2) any oxygen-carrying accessory.** Failure to observe this warning can result in severe fire, property damage, and/or cause physical injury or death.

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 leave a nasal cannula on clothing, bed coverings or chair cushions. If the unit is turned on but not in use, the oxygen will make the material flammable. Set the I/O power switch to the 0 (Off) position when the Oxygen Concentrator is not in use.

Use no oil, grease, or petroleum-based 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

This unit is not to be used for life support. Geriatric, pediatric, or any other patient unable to communicate discomfort while using this device may require additional monitoring. Patients with hearing and/or sight impairment(s) may need assistance with monitoring alarms.

Pulse Dose Mode settings must be determined for each patient individually for their needs at rest, during exercise, and when traveling.

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



WARNING

Electrical shock hazard. Turn *OFF* the unit and disconnect the power cord from the electrical outlet before you clean the unit to prevent accidental electrical shock and burn hazard. **Only your Equipment Provider or a qualified service technician should remove the covers or service the unit.**

Care should be taken to prevent the Oxygen Concentrator and the battery from getting wet or allowing fluids to enter the unit. This can cause a malfunction or shut down, and cause an increased risk for electrical shock or burns.



Do not use liquid directly on the unit. A list of undesirable chemical agents includes but is not limited to the following: alcohol and alcohol-based products, concentrated chlorine-based products (ethylene chloride), and oil-based products (Pine-Sol®, Lestoil®). These are **NOT** to be used to clean the plastic housing on Oxygen Concentrator, as they can damage the unit's plastic.

Clean the cabinet, control panel, and power cord only with a mild household cleaner applied with a damp (not wet) cloth or sponge, 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, water, and particles.

While using the portable Oxygen Concentrator outdoors with the AC power supply, connect the power supply into a Ground Fault Interrupted (GFI) outlet only.

Always disconnect AC Power Supply from the wall before disconnecting the AC Power Supply from the oxygen concentrator.



The Oxygen Concentrator should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is unavoidable, the device should be observed to verify normal operation.

No modification of this equipment is permitted.

Use of cables and adapters other than those specified, with the exception of cables and adapters sold by the manufacturer of the medical electrical equipment as replacement parts for internal components, may result in increased emissions of decreased immunity of the Oxygen Concentrator.

Use only electrical voltage specified on the specification label affixed to the device.

Do not use extension cords with this unit or connect too many plugs into the same electrical outlet. The use of extension cords could adversely affect the performance of the device. Too many plugs into one outlet can result in an overload to the electrical panel causing the breaker/fuse to activate or fire if the breaker or fuse fails to operate.



Operating outside of the operational specifications can limit the concentrator's ability to meet Oxygen Concentration specification. Refer to the specifications section of this manual for storage and operating temperature limits.



The incorrect use of the battery can cause the battery to get hot, ignite, and may cause serious injury. Be sure not to pierce, strike, step on, drop the battery, or otherwise subject the battery to strong impacts or shocks. The use of a damaged battery may cause personal injury. **DO NOT** expose the battery to fire or dispose of in a fire. This may cause the battery to explode and cause potential injury.

DO NOT short-circuit the battery's metal contacts with metallic objects, such as keys or coins. This may cause sparks or excessive heat to be generated.



Contraindications for Use: In certain circumstances, the use of non-prescribed oxygen can be hazardous. This device should only be used when prescribed by a physician.

NOT FOR USE IN THE PRESENCE OF FLAMMABLE ANESTHETICS.

As with any electrically powered device, the user may experience periods of non-operation as a result of electrical power interruption, or the need to have the oxygen concentrator serviced by a qualified technician. The oxygen concentrator is not appropriate for any patient who would experience adverse health consequences as the result of such temporary interruption.



Properly secure, belt or otherwise restrain the oxygen concentrator when in a vehicle during transport to prevent damage or injury.

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



Cet appareil produit de l'oxygène à concentration élevée, favorisant une combustion rapide. Ne pas permettre de fumer ou des flammes nues dans la même chambre: (1) cet appareil ou (2) tout accessoire contenant de l'oxygène. Ne pas utiliser de produits à base d'huile, de graisse ou de pétrole sur ou à proximité de l'unité. Déconnecter le cordon d'alimentation de la prise électrique avant de nettoyer ou de faire l'entretien de l'unité.

Risque de choc électrique. Ne pas enlever les couvercles lorsque l'unité est branchée. Seuls votre fournisseur d'équipement ou un technicien de service qualifié devrait enlever les couvercles ou faire l'entretien de l'unité.



Federal (USA) law restricts this device to sale or rental by order of a physician or other licensed health care provider.



Do not position the Concentrator so that it is difficult to access the power cord.

The concentrator should be located as to avoid smoke, pollutants or fumes.

Always place oxygen supply tubing and power cords in a manner that prevents a trip hazard.

Do not operate unit in a restricted or confined space (i.e., a small case or handbag) where ventilation can be limited. This can cause the Oxygen Concentrator to overheat and impair performance.

Do not allow either the air intake or the 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.

When using the Oxygen Concentrator in an automobile, boat, or on other DC sources with the DC power supply, make sure that the vehicle is started and running before connecting the Oxygen Concentrator. If the DC power supply does not illuminate and requires resetting, disconnect the DC power supply from the DC outlet, restart your vehicle, and then reconnect your DC power supply into the DC outlet. Failure to follow these instructions can result in the power supply not supplying power to the Oxygen Concentrator.



When the automobile in which you are using the Oxygen Concentrator unit is turned off, disconnect and remove the device from the automobile. Do not store the Oxygen Concentrator in a very hot or cold automobile or in other similar, high-or low-temperature environments.

DO NOT leave the Oxygen Concentrator or the Power Supply plugged into the vehicle if the ignition is in the *OFF* position. Doing so may drain the vehicle's battery.



The Manufacturer recommends an alternate source of supplemental oxygen in the event of a power outage, alarm condition, or mechanical failure. Consult your physician or Equipment Provider for the type of reserve system required.

It is very important to select only the prescribed level of oxygen. Do not change the flow selection unless you have been directed to do so by a licensed clinician.

The portable Oxygen Concentrator may be used during sleep under the recommendation of a qualified clinician.



If the Oxygen Concentrator has been stored for an extended period of time outside its normal operating temperature range, the unit should be allowed to return to normal operating temperature before being turned on. (Refer to the Specifications section in this manual.)

Operating or storing the Oxygen Concentrator outside of its normal operating temperature range can affect performance and decrease battery run time and/or increase battery charge time. Refer to the Specifications section in this manual for storage and operating temperature limits.

For oxygen concentrators equipped with batteries: Store in a cool and dry location to help ensure the longevity of your battery. Storing your Oxygen Concentrator for extended periods of time at high temperatures or with a fully charged or completely discharged battery can degrade its overall battery life. Do not attempt to open the battery; there are no serviceable parts inside the battery. Keep batteries away from children.

ONLY USE the Manufacturer's provided batteries. For proper battery disposal, contact your Equipment Provider or your local government agency for disposal requirements.

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 Equipment Provider.

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.



The US Department of Transportation (DOT) and United Nations (UN) Regulations require the removal of the battery from the device for all international airline travel when the oxygen concentrator is checked as luggage. When shipping the oxygen concentrator, the battery must also be removed from the device and packaged properly.



Ensure the cannula is fully inserted and secure. This ensures that the Oxygen Concentrator can properly detect inspiration for oxygen delivery. During inhalation, you should hear or feel oxygen flow to the prongs of the nasal cannula.

Always follow the cannula manufacturer's instructions for proper use. Replace the disposable cannula as recommended by the cannula manufacturer or your Equipment Provider. Additional supplies are available from your Equipment Provider.

Cannula tubing must be non-kinking, which can be used for a total length of up to 25 ft (7.6 m) maximum



It may be necessary to initially connect the AC or DC power supply to the oxygen concentrator unit before the unit will operate for the first time on battery power. Your Equipment Provider may have already performed this step for you.

Charging of the battery may take several minutes after connecting the power to initiate, depending on the battery's internal operating temperature. This is a normal condition and is intended for safe battery charging. This circumstance is more likely when the battery has been fully discharged.

For oxygen concentrators equipped with batteries:

The Oxygen Concentrator battery does not need to be fully discharged before recharging. It is recommended to charge the Oxygen Concentrator battery after each use.

If the power supply remains connected when the battery is fully charged, the four LEDs will turn off within 2 ½ hours

Lithium batteries may permanently lose capacity when exposed to extremely hot temperatures with the batteries fully charged or completely depleted. For extended storage, it is recommended that batteries be charged 25 to 50% and remain within a temperature range of 73°F ± 35°F (23°C ± 2°C).



The use of some oxygen administration accessories not specified for use with this oxygen concentrator may impair its performance. Recommended accessories are referenced within this manual

To Equipment Provider: The following oxygen administration accessories are recommended for use with the Oxygen Concentrator:

- | | |
|--|-------------------|
| • Nasal Cannula with 7 feet (2.1 m) of tubing: | Part No CU002-1 |
| • Oxysafe Kit | Part No. 20629671 |



Do not operate the Oxygen Concentrator without the air intake filter in place. If a second filter is provided, insert the "replacement" filter before you clean the dirty filter. Clean the dirty filter in a warm soap and water solution then dry thoroughly prior to use.

The Manufacturer does not recommend the sterilization of this equipment.



To prevent a void warranty, follow all manufacturers' instructions.

Portable and mobile RF communications equipment can effect medical electrical equipment.

There is never a danger of depleting the oxygen in a room when you use your Oxygen Concentrator unit.



AirSep offers the OxySafe as an optional accessory. This is intended to be used in conjunction with the FreeStyle 5 concentrator. For customers in regions requiring compliance to EN ISO 8359:1996-Ammendment1:2012, this accessory will meet this need.

The OxySafe is a thermal fuse to stop the flow of gas in the event that the downstream cannula or oxygen tubing is ignited and burns to the OxySafe. It is placed in-line with the nasal cannula or oxygen tubing between the patient and the oxygen outlet of the FreeStyle 5.

For proper use of the OxySafe, always refer to the manufacturer's instructions (included with each OxySafe kit).

AirSep offers an OxySafe kit that includes OxySafe with 2" of tubing to connect to the oxygen outlet; PN 20629671

Important Safety Rules for Optional AirBelt



For oxygen concentrators equipped with the optional AirBelt :

1. The incorrect use of AirBelt can cause the battery to get hot, ignite, and can cause serious injury. Be sure not to pierce, strike, step on, or drop the battery, or otherwise subject the battery to strong impacts or shocks.
2. Replace safety cap on AirBelt cord when not in use.



For oxygen concentrators equipped with batteries:

1. When connected to AC or DC power, the unit's battery charges until it reaches full capacity, either while the unit is operating or turned off.
2. If the internal battery fully depletes and the Oxygen Concentrator shuts down, the unit cannot be restarted with the optional AirBelt. Should this occur, connect your Oxygen Concentrator to its AC or DC power supply for a short period of time in order to provide sufficient internal battery power to start the unit. AirBelt can then be connected to provide additional run time.



For oxygen concentrators equipped with the optional Airbelt:

1. The AirBelt does not need to be fully discharged before recharging. It is recommended to charge it after each use.
2. Depending upon the temperature of the AirBelt, it can take several minutes for the charging cycle to start after connecting to power. This is a normal condition and is intended for safe charging.

[Read the Important Safety Rules section before operating this equipment.]

Getting Started with Your FreeStyle 5 Portable Oxygen Concentrator

The FreeStyle 5 packaging contains the following items, as shown in Figures 1-3. If any are missing, contact your Equipment Provider.

- FreeStyle 5 Portable Oxygen Concentrator with carrying case.
- Patient manual (not shown)
- AC power supply (100-240 volts, 50/60 Hz) with power cord.
- Automobile DC power supply



Figure 1: FreeStyle 5 Unit



Figure 2: FreeStyle 5 AC Power Supply/Power Cord



Figure 3: FreeStyle 5 DC Power Supply

Optionally, you may also have an AirBelt for extended battery duration. That packaging contains the following, as shown in Figure 4:

- AirBelt battery belt
- AC power supply (100-240 Volt, 50/60 Hz) with power cord.



1. The incorrect use of AirBelt can cause the battery to get hot, ignite, and can cause serious injury. Be sure not to pierce, strike, step on, or drop the battery, or otherwise subject the battery to strong impacts or shocks.
2. Replace safety cap on AirBelt cord when not in use.

[Read the Important Safety Rules section before operating this equipment.]

All AirBelt Warnings, Cautions and Notes should be read first before proceeding with your equipment. See pages 9 and 10, "Important Safety Rules for Optional AirBelt".

Other optional accessories include a harness to easily convert the FreeStyle 5 carrying bag to a backpack (part number MI284-1), as shown in Figure 5. The FreeStyle 5 can also be worn on the waist if desired by feeding the AirBelt or other belt you are wearing through the loops on the FreeStyle 5 carrying case. (See Figure 6.) The optional accessories bag (part number MI286-1), enables even more convenient travel when transporting all power accessories and optional AirBelts and/or the harness for use at your intended destination.



Figure 4: AirBelt and AC Power Supply/Power Cord



Figure 5: FreeStyle 5 unit worn backpack style



Figure 6: FreeStyle 5 unit worn on the waist.



Replace safety cap on AirBelt cord when not in use.

Before operating FreeStyle 5 for the first time, familiarize yourself with the major components. These are illustrated in the figures on the following pages and discussed later in the manual.

[Read the Important Safety Rules section before operating this equipment.]

Battery Charging

Check to make sure your unit's battery is fully charged before venturing out with FreeStyle 5 for the first time or upon subsequent use. To check the level of charge of the internal battery, press the BATT button on FreeStyle 5's keypad. The battery gauge/indicator(s) LEDs above the BATT button illuminate to indicate the level of internal battery charge (25-100%). Note: The internal battery is charging whenever the unit is operating on AC or DC power. To charge FreeStyle 5's internal battery, simply connect its AC power supply or DC power supply into the unit's power connection inlet (as shown in Figure 7). Be certain to first properly align the power cord to this inlet. To do this, take note of the "D"-shaped plug of both the power cord connector and the FreeStyle 5's inlet connection. These must be properly aligned and when removing the power cord, the release button must be pressed to remove it from the FreeStyle 5 unit. This ensures that neither the unit nor the power accessories are damaged.

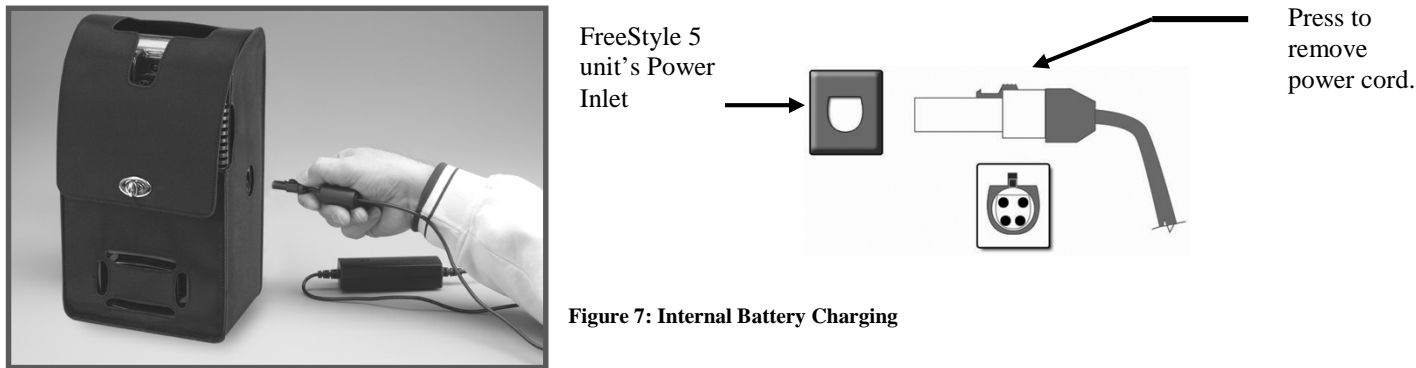


Figure 7: Internal Battery Charging

Optional AirBelt

Optionally, you may also have an AirBelt for extended use of FreeStyle 5.

The optional AirBelt (Figure 9), can power the FreeStyle 5 unit for up to 7 hours.

Before using AirBelt, check that it is sufficiently charged. It requires approximately 3 hours to completely charge.

AirBelt is equipped with a battery gauge/indicator to indicate the level of battery charge (25-100%). To check the level of charge, press the button on the AirBelt keypad. The battery gauge/indicator(s) illuminate to indicate the level of battery charge (25-100%).



Figure 8: AirBelt Battery Charging

[Read the Important Safety Rules section before operating this equipment.]

Charging the Optional AirBelt

To charge the AirBelt battery for extended use:

- 1) Release safety cap from end of the AirBelt cord (see figure 4).
- 2) Connect the AC/DC power supply (included with AirBelt Accessory kit) to the end of AirBelt's power cord, as shown in Figure 9.
- 3) Connect the AirBelt power supply to an AC electrical outlet to recharge.

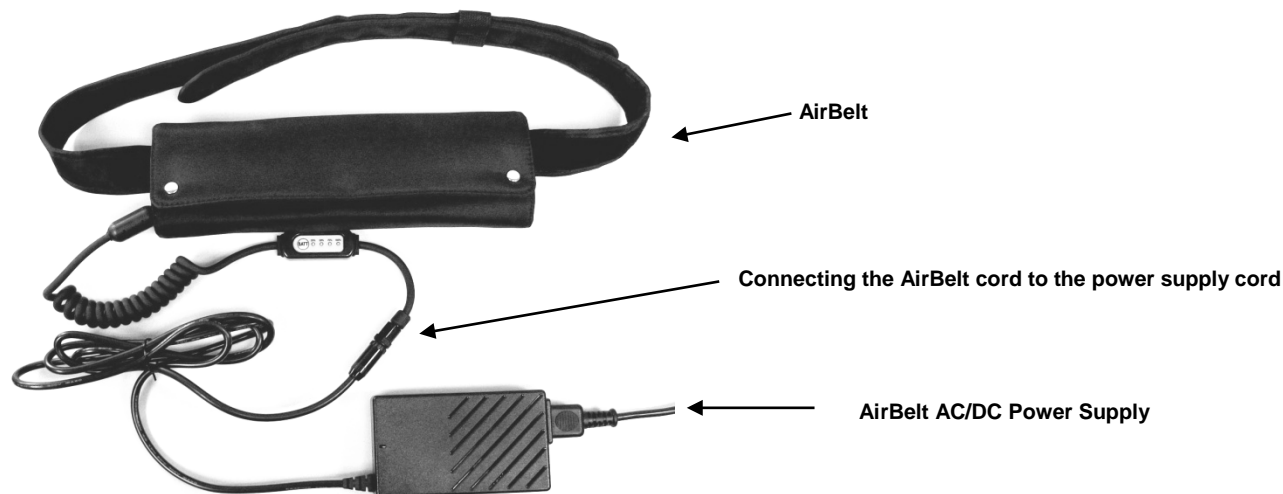


Figure 9: AirBelt Battery Charging set-up

- The FreeStyle 5 AirBelt will completely recharge from its fully depleted state in approximately 3 hours.
- While charging a fully discharged battery, the LED will continue to blink until 25% capacity is reached. The LED will then turn solid.
- Each of the four LEDs, 25% -100%, will blink as stated above, then turn solid when the battery reaches it's capacity.
- When all LEDs illuminate solid, the battery is fully charged and the LEDs will remain solid for a period of time, then all four LEDs will turn off.



The Oxygen Concentrator battery does not need to be fully discharged before recharging. It is recommended to charge the Oxygen Concentrator battery after each use.

If the power supply remains connected when the battery is fully charged, the four LEDs will turn off within 2 ½ hours

Lithium batteries may permanently lose capacity when exposed to extremely hot temperatures with the batteries fully charged or completely depleted. For extended storage, it is recommended that batteries be charged 25 to 50% and remain within a temperature range of 73°F ± 35°F (23°C ± 2°C).

[Read the Important Safety Rules section before operating this equipment.]

Nasal Cannula

A nasal cannula and tubing are used to deliver oxygen from the FreeStyle 5 unit to the user. The tubing is connected to the unit's oxygen outlet (See Figure 10).



Figure 10: Connecting Cannula to FreeStyle 5's Oxygen Outlet

AirSep recommends a nasal cannula with 7 ft (2.1 m) of tubing, AirSep Part No. CU002-1. Other lengths of tubing up to 25 ft (7.6 m) maximum, including nasal cannula, may be used.



Ensure the cannula is fully inserted and secure. This ensures that the Oxygen Concentrator can properly detect inspiration for oxygen delivery. During inhalation, you should hear or feel oxygen flow to the prongs of the nasal cannula.

Always follow the cannula manufacturer's instructions for proper use. Replace the disposable cannula as recommended by the cannula manufacturer or your Equipment Provider. Additional supplies are available from your Equipment Provider.

Cannula tubing must be non-kinking, which can be used for a total length of up to 25 ft (7.6 m) maximum

FreeStyle 5 Unit Components



Figure 11: FreeStyle 5 Exterior View - Front



Figure 12: Close-Up of Keypad/Alarm Display



Figure 13: FreeStyle 5 Exterior View - Back

Now that you are familiar with FreeStyle 5's components, review the instructions on the following pages to operate the Freestyle 5 unit.

[Read the Important Safety Rules section before operating this equipment.]

Operating Instructions

1. Locate and position the FreeStyle 5 so that the air inlets and air outlets are not obstructed.
2. Power the unit from (a) the internal battery; (b) AirBelt; (c) DC outlet (i.e. automobile or motor boat); or (d) an AC outlet (i.e. normal household electric). (Refer to the Power Supplies section of this Patient Manual.)



This device supplies high-concentration oxygen that promotes rapid burning. **Do not allow smoking or open flames within the same room of (1) this device, or (2) any oxygen-carrying accessory.** Failure to observe this warning can result in severe fire, property damage, and/or cause physical injury or death.

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 leave a nasal cannula on clothing, bed coverings or chair cushions. If the unit is turned on but not in use, the oxygen will make the material flammable. Set the I/O power switch to the 0 (Off) position when the Oxygen Concentrator is not in use.

Use no oil, grease, or petroleum-based 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.



It may be necessary to initially connect the AC or DC power supply to the oxygen concentrator unit before the unit will operate for the first time on battery power. Your Equipment Provider may have already performed this step for you.

Charging of the battery may take several minutes after connecting the power to initiate, depending on the battery's internal operating temperature. This is a normal condition and is intended for safe battery charging. This circumstance is more likely when the battery has been fully discharged.

1. Connect your cannula to the oxygen outlet.
2. Lift the dust cover on the unit.
3. Turn the FreeStyle 5 unit on by pressing the 1, 2, 3, 4 or 5 button on the unit's keypad for the liter flow prescribed by your physician. The green LED above the button selected illuminates. Each time you turn on the FreeStyle 5 unit, a brief alarm sounds. This indicates that FreeStyle 5 is powered for use.
4. To change the pulse flow setting, press the appropriate button. It is normal to hear a difference in sound as you change the settings.
5. To turn FreeStyle 5 off, press the button corresponding to the pulse flow setting light that is illuminated. When FreeStyle 5 senses inhalation, oxygen is supplied to you through your cannula. The time required to reach minimum oxygen concentration after turning on the FreeStyle 5 unit is approximately two minutes.

[Read the Important Safety Rules section before operating this equipment.]

Power Supplies

FreeStyle 5 can be powered in four different ways – the internal battery, an AC power supply, DC power supply, and an optional AirBelt battery belt in combination with the unit's internal battery.

1. **Internal Battery:** A rechargeable internal battery is located within each FreeStyle 5 unit. When it is fully charged, it supplies power to the FreeStyle 5 unit for up to 3 hours. An audible alarm sounds when the battery power is getting low. The alarm is discussed in the Alarm/Light Indicators section of this manual.
Battery Charging: To charge the internal battery, connect FreeStyle 5 to either the AC power supply and a 100-240 volt, 50/60 Hz AC power outlet, or connect it to a DC power outlet in an automobile (boat, motor home, etc.). A discharged battery requires approximately 3 hours and 15 minutes to fully charge. It is recommended to recharge the battery, even if only partially depleted, as often as possible.
2. **AC Power Supply:** An AC power supply allows FreeStyle 5 to be connected to a 100-240 volt, 50/60 Hz outlet. The power supply converts 100-240 volt AC to a DC voltage for the FreeStyle 5 unit. When FreeStyle 5 is operated with the AC power supply, power from the AC outlet powers the unit and recharges FreeStyle 5's battery simultaneously.
3. **DC Power Supply:** A DC power supply can be connected from the FreeStyle 5 unit to an automobile's (boat, motor home, etc.) 12 volt DC outlet. When FreeStyle 5 is connected to the automobile's DC outlet, power from the automobile battery powers the FreeStyle 5 unit and recharges the FreeStyle 5 battery simultaneously.
4. **Optional AirBelt (External Battery Belt):** FreeStyle 5 can also be powered by an external battery belt. This belt can be worn around the waist, and when used in combination with a fully charged internal battery, supplies power to FreeStyle 5 for up to 7 hours. The belt pack connects to the FreeStyle 5 unit's power inlet, and it can be recharged by connecting it to the battery belt's own AC power supply.

When using the AirBelt with a fully charged internal battery, the FreeStyle 5's internal battery will deplete before the AirBelt. The AirBelt must be connected to the FreeStyle 5 unit before the FreeStyle 5's internal battery is depleted. Observe and connect the AirBelt to the FreeStyle 5 unit before its internal battery discharges to 25% or less.



If the internal battery fully depletes and the FreeStyle 5 unit shuts down, the unit cannot be restarted with the AirBelt. Should this occur, connect your FreeStyle 5 to its AC or DC power supply for a short period of time in order to provide sufficient internal battery power to start the unit. AirBelt can then be connected to provide additional run time.

[Read the Important Safety Rules section before operating this equipment.]

Filters

Air enters FreeStyle 5 through an air intake filter located under the cover on the lower front of the oxygen concentrator. (See Figures 14 and 15.) This filter prevents dust and other large particles in the air from entering the unit. Before you operate FreeStyle, make sure this filter is clean and positioned correctly. (see the Cleaning, Care, and Proper Maintenance / Filters / Air Intake Filter section of this manual)



Figure 14: Removal of Air Intake Filter Cover

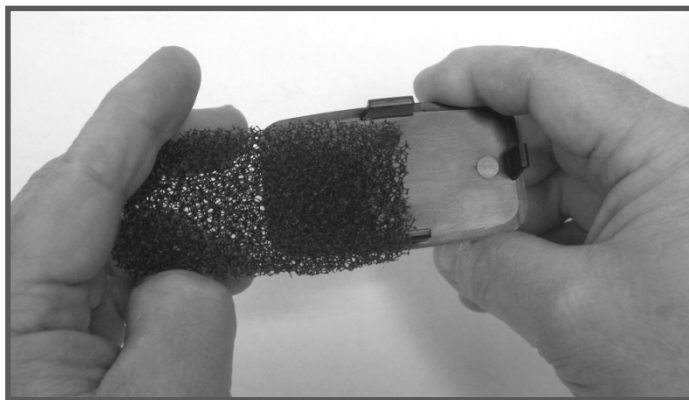


Figure 15: Removal of Filter from Filter Cover



Do not operate the oxygen concentrator without the air intake filter in place. If a second filter is provided, insert the “replacement” filter before you clean the dirty filter.

Only use the manufacturer's replacement air intake filter, Part No. FI194-1

[Read the Important Safety Rules section before operating this equipment.]

Setting of the Flow Selector

The FreeStyle 5 unit has five pulse flow settings: 1, 2, 3, 4, and 5, providing flows equivalent to 1-5 LPM oxygen. Lift the dust cover on the unit's keypad, and press the 1, 2, 3, 4, or 5 button, which corresponds to the oxygen pulse flow that your physician has prescribed. (See Figures 16 and 17.)



Figure 16: Lifting Dust Cover on Keypad Display



Figure 17: Pressing Flow Selection Button



It is very important to select only the prescribed level of oxygen. Do not change the flow selection unless you have been directed to do so by a licensed clinician.

The portable Oxygen Concentrator may be used during sleep under the recommendation of a qualified clinician

Alarm/Light Indicators

When the FreeStyle unit senses inhalation, a pulse of oxygen is delivered through the nasal cannula. The green light on the unit's control panel blinks each time a breath is detected.

Additionally, when the unit is operating and simultaneously being charged through the AC or DC power supply, the FreeStyle 5 unit's battery gauge/indicator(s) display the charge level of the battery (25% to 100% state of charge) and remain on for approximately 2 ½ hours after reaching a full charge.

An audible alarm sounds if FreeStyle 5 has a low battery, if the cannula is disconnected, or if performance of the unit is outside specifications. The light and audible alarm conditions are explained in detail below and summarized on the chart later in this section of the manual.

[Read the Important Safety Rules section before operating this equipment.]



This unit is not to be used for life support. Geriatric, pediatric, or any other patient unable to communicate discomfort while using this device may require additional monitoring. Patients with hearing and/or sight impairment(s) may need assistance with monitoring alarms.

Pulse Dose Node settings must be determined for each patient individually for their needs at rest, during exercise, and when traveling.

If you feel discomfort or are experiencing a medical emergency, seek medical assistance immediately

- **Start-Up**

A brief alarm sounds at start-up. FreeStyle 5 begins to operate when the alarm stops.

- **Low Battery**

As the battery power approaches a low level, a brief alarm sounds intermittently, and the yellow 25% Battery gauge / indicator (Figure 12) light also illuminates intermittently. When this occurs, connect FreeStyle 5 to a DC power outlet or to an AC power outlet, or change to another source of oxygen within two minutes. When FreeStyle 5 is connected to DC power outlet or AC power outlet, the unit operates while recharging FreeStyle 5's battery simultaneously. The level of battery charge is indicated by the battery gauge/indicator(s).

- **Cannula disconnected**

When FreeStyle 5 is operating but does not sense breathing, a constant alarm sounds, and the yellow alarm light illuminates after 15 minutes. If this occurs, check the connection from the cannula to the FreeStyle 5 unit, make sure that the nasal cannula is positioned properly on your face, and ensure that you are breathing through your nose. (Your physician may recommend the use of a chin strap if needed.) If the alarm continues to sound, change to another source of oxygen as available, and contact your Equipment Provider.

- **FreeStyle's capacity is exceeded**

If your breathing rate causes the capacity of FreeStyle 5 to be exceeded, a rapid alarm sounds every ½ second, and the alarm light illuminates yellow intermittently. When this occurs, the breathing rate of the FreeStyle 5 is outside of the unit specifications. You should reduce any physical activity, reset alarm by turning unit off and back on, and then if necessary change to another source of oxygen as available, and contact your Equipment Provider.

- **General malfunction**

If FreeStyle 5 has a general malfunction, a rapid alarm sounds every ½ second, and the alarm light illuminates red continuously. When this occurs, the concentration of oxygen that FreeStyle 5 is supplying is below unit specifications. You should change to another source of oxygen as available, and contact your Equipment Provider.

How to Respond to FreeStyle 5's Alarm/Light Indicators

Status	Audible Alarm	Light	Indicates	Action
Indicator	Brief, continuous at start-up	(Green) pulse; continuous light	FreeStyle 5 has been turned on	You may begin to operate your FreeStyle 5 unit.
Indicator	No	(Green) pulse; intermittent light	FreeStyle 5 is delivering oxygen as a pulse flow.	Continue using FreeStyle 5 normally.
Indicator	No	Level indicator	Battery charge level.	Charge as indicated.
Alarm	Continuous: Beep	(Yellow) alarm; continuous light	No breath detected by the unit for a predetermined time period.	Check the cannula connection. Ensure that you are breathing through your nose. If the alarm persists, contact your Equipment provider.
Alarm	Intermittent: Beep	25% (Yellow) alarm BATT; battery indicator intermittent light	Battery voltage is too low to operate FreeStyle.	Connect the FreeStyle 5 unit into a DC outlet or an AC outlet immediately.
Alarm	Intermittent: Beep, beep	25% (Yellow) BATT; battery indicator intermittent light	Battery shutdown due to low voltage.	Connect the FreeStyle 5 unit into a DC outlet or an AC outlet immediately.
Alarm	Rapid intermittent: Beep, beep, beep...	(Yellow) alarm; intermittent light	Breathing rate is exceeding the capacity of the FreeStyle 5 unit.	Reduce activity, then if necessary use another source of oxygen as available. Contact your Equipment Provider.
Alarm	Rapid intermittent: Beep, beep, beep...	(Red) alarm; continuous light	General malfunction of the FreeStyle unit has occurred.	Turn off the unit. Change to another source of oxygen, and contact your Equipment Provider.

Dual display:
Alarm condition (yellow)
General malfunction (red)



Figure 16: Alarms Indicator

Cleaning, Care, and Proper Maintenance Cabinet



Electrical shock hazard. Turn *OFF* the unit and disconnect the power cord from the electrical outlet before you clean the unit to prevent accidental electrical shock and burn hazard. **Only your Equipment Provider or a qualified service technician should remove the covers or service the unit.**

Care should be taken to prevent the Oxygen Concentrator and the battery from getting wet or allowing fluids to enter the unit. This can cause a malfunction or shut down, and cause an increased risk for electrical shock or burns.

Do not use liquid directly on the unit. A list of undesirable chemical agents includes but is not limited to the following: alcohol and alcohol-based products, concentrated chlorine-based products (ethylene chloride), and oil-based products (Pine-Sol®, Lestoil®). These are **NOT** to be used to clean the plastic housing on Oxygen Concentrator, as they can damage the unit's plastic.

Clean the cabinet, control panel, and power cord only with a mild household cleaner applied with a damp (not wet) cloth or sponge, 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, water, and particles.

While using the portable Oxygen Concentrator outdoors with the AC power supply, connect the power supply into a Ground Fault Interrupted (GFI) outlet only.

Always disconnect AC Power Supply from the wall before disconnecting the AC Power Supply from the oxygen concentrator.



Ensure the cannula is fully inserted and secure. This ensures that the Oxygen Concentrator can properly detect inspiration for oxygen delivery. During inhalation, you should hear or feel oxygen flow to the prongs of the nasal cannula.

Always follow the cannula manufacturer's instructions for proper use. Replace the disposable cannula as recommended by the cannula manufacturer or your Equipment Provider. Additional supplies are available from your Equipment Provider.

Cannula tubing must be non-kinking, which can be used for a total length of up to 25 ft (7.6 m) maximum.



To prevent a voided AirSep warranty, follow all manufacturers' instructions.

Portable and mobile RF communications equipment can effect medical electrical equipment.

There is never a danger of depleting the oxygen in a room when you use your Oxygen Concentrator unit.

Filter

Air Intake Filter

At least one time each week, remove the cover on the lower front of the unit, and wash the air intake filter, which is positioned on the inside of the cover. (refer to filter section of this manual) Your Equipment Provider may advise you to clean it more often, depending upon your operating conditions. Follow these steps to properly clean the air intake filter:

1. Remove the filter from the air intake filter cover, and wash it in a warm solution of soap and water.
2. Rinse the filter thoroughly, and remove excess water with a soft, adsorbent towel. Ensure that the filter is dry before replacing it.
3. Replace the dry filter.



NOTE

Do not operate the Oxygen Concentrator without the air intake filter in place. If a second filter is provided, insert the “replacement” filter before you clean the dirty filter. Clean the dirty filter in a warm soap and water solution then dry thoroughly prior to use.

The Manufacturer does not recommend the sterilization of this equipment.

Carrying Bag

To clean the carrying bag and strap, brush only with warm soapy water (do not saturate the bag), then allow to air dry. Do not machine wash or dry the bag.

FreeStyle 5 Accessories

In addition to the nasal cannula, AirSep recommends that you do not use accessories with FreeStyle 5 other than those listed below as supplied by AirSep through your Equipment Provider. Use of accessories not listed below could adversely affect the performance and/or safety of the FreeStyle 5 Portable Oxygen Concentrator.

Part Number / Description

PW021-1 AC Power Supply (PW021 cord length 4 ft-6 in / 1.4m) w/ CD023-1 Power Cord 120VAC (8 ft / 2.4m)

PW021-2 AC Power Supply w/ CD017-2 Euro Power Cord (8 ft-2 in / 2.5m)

PW021-3 AC Power Supply w/ CD025-1 Australian Power Cord 250 VAC (6 ft-6 in / 2.6m)

PW021-4 AC Power Supply w/ CD017-4 UK Power Cord (8 ft-2 in / 2.5m)

PW024-1 DC Power Supply including power cord adapter

(cord length car adapter side 3 ft-5 in / 1m; cord length power supply side 3 ft-1 in / .9m)

BT017-1 AirBelt with power supply (BT017 extended cord length 4 ft / 1.2m) w/ CD023-1 Power Cord 120VAC (8 ft / 2.4m)

BT017-2 AirBelt with power supply w/ CD017-2 Euro Power Cord (8 ft-2 in / 2.5m)

BT017-3 AirBelt with power supply w/ CD025-1 Australian Power Cord 250 VAC (6 ft-6 in / 2.6m)

BT017-4 AirBelt with power supply w/ CD017-4 UK Power Cord (8 ft-2 in / 2.5m)

MI194-1 Air Intake Filter

MI 371-1 Carrying Bag

MI284-1 Shoulder Harness option enables converting the supplied FreeStyle 5 carrying bag to a backpack

MI240-2 AirBelt Extender

MI372-1 Carry-All Accessory Bag

20629671 OxySafe Kit



The Oxygen Concentrator should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is unavoidable, the device should be observed to verify normal operation.

No modification of this equipment is permitted.

Use of cables and adapters other than those specified, with the exception of cables and adapters sold by the manufacturer of the medical electrical equipment as replacement parts for internal components, may result in increased emissions or decreased immunity of the Oxygen Concentrator.

Use only electrical voltage specified on the specification label affixed to the device.

Do not use extension cords with this unit or connect too many plugs into the same electrical outlet. The use of extension cords could adversely affect the performance of the device. Too many plugs into one outlet can result in an overload to the electrical panel causing the breaker/fuse to activate or fire if the breaker or fuse fails to operate.

Materials in direct or indirect contact with the patient

- Concentrator casingValtra/ABS/Polystyrene
- Concentrator Control Panel.....Polyester EBG7 or equivalent
- Control Panel DoorPolycarbonate
- Concentrator Handle Polycarbonate
- Gas Outlet, NozzlePolycarbonate
- Air intake filterFoam, Polyester
- Unit Label Lexan
- Unit feetPolyurethane
- Cord connectorsPolycarbonate/Vinyl chloride
- Power Cord(s).....PVC, Metal
- Power Supply.....Lexan 940(Polycarbonite)
- Concentrator carrying case.....100% Polyester microfiber w/ PVC backing
- Battery carrying case, Belt and Strap.....100% Polyester microfiber w/ PVC backing
- Carry cartPolypropylene plastic, steel & aluminum
- PackagingDouble reinforced corrugated cardboard

Reserve Oxygen Supply

Your Equipment Provider may recommend another source of supplemental oxygen therapy in case there is a mechanical failure or a power outage.

Troubleshooting

The FreeStyle 5 product is designed for years of trouble-free use.

If your FreeStyle 5 Portable Oxygen Concentrator fails to operate properly, refer to the chart on the following pages for possible causes and solutions and, if needed, consult your Equipment Provider.



Do not attempt any maintenance other than the possible solutions listed within this manual.

Problem	Probable Cause	Solution
FreeStyle 5 does not operate when a pulse flow selection button is pressed.	Battery is discharged. Malfunction.	Power the unit through the DC outlet, or an AC outlet. Contact your Equipment Provider, and change to another source of oxygen as necessary.
A continuous alarm sounds and the (yellow) alarm light illuminates intermittently.	FreeStyle 5 has not detected a breath for 15 minutes.	Check the cannula connection. Ensure that cannula tubing is not kinked. Make sure that the cannula is positioned properly and that you are breathing through your nose. For mouth-breathing your clinician may recommend a chin strap.
Intermittent alarm condition, and the (yellow) light illuminates intermittently.	Battery requires charging.	Connect to a DC or an AC outlet within 2 minutes, or connect to the optional AirBelt.
Intermittent alarm condition, and the (yellow) light illuminates intermittently and FreeStyle 5 shuts down.	Battery voltage is too low to operate the FreeStyle 5 unit.	Connect to DC or an AC outlet immediately.

Problem	Probable Cause	Solution
Intermittent alarm condition, and the (yellow) alarm light illuminates intermittently.	Breathing rate has exceeded the capacity of the FreeStyle 5 unit.	Reduce activity, and then turn unit off and back on again to reset unit. If necessary, change to another source of oxygen as available and contact your Equipment Provider.
Rapid intermittent alarm condition, and the (red) alarm light illuminates continuously.	A general malfunction has occurred.	Change to another source of oxygen as available, and contact your Equipment Provider.
Unit does not start on battery power.	Unit may be hot or cold if left outdoors such as in an automobile.	Allow the unit to reach normal operating temperature, which may take several minutes if exposed to temperature extremes. Temporarily connect your AC or DC power supply to the unit's power inlet and power source, as needed, to reset the unit's internal battery.
Delay in recharging internal battery.	Internal battery exceeds charging temperature.	Unit may be operated; however, charging may not resume until battery temperature is reduced. (See Battery Charger notes.)
Unit alarms while in automobile and connected to the DC outlet.	No power to the unit if battery depleted and DC outlet not charging.	Disconnect the DC power supply from the automobile outlet, restart the automobile, and then reconnect the DC power supply into the automobile DC outlet to reset the breaker within DC power supply.
All other problems.		Change to another source of oxygen as available, and contact your Equipment Provider.

FreeStyle 5 Specifications

Oxygen Concentration:*	1-5 pulse settings; equivalent to a continuous flow of 90% oxygen +5.5 / -3%
Pulse Dose:	Setting 1: 8.75ml ± 15% Setting 2: 17.5ml ± 10% Setting 3: 26.5ml ± 10% Setting 4: 35.0ml ± 10% Setting 5: 43.75ml ± 10%
Dimensions:	10.7 in. high x 6.6 in. wide x 4.4 in. deep (27.2 cm high x 16.8 cm wide x 11.2 cm deep)
Weight:	6.2 lb (2.8 kg); 1.8 lb (.8 kg) optional AirBelt
Power:	AC Power Supply: Input: 100-240VAC, 50-60Hz, 2A Output: 15V DC Power Supply: Input: 12-24VDC, 15A max Output: 15VDC, 8A max
Battery duration (Rechargeable lithium Battery)	5 LPM – 1 hour; 4 LPM – 1 hour, 15 minutes; 3 LPM – 1 hour, 30 minutes; 2 LPM – 2 hours; 1 LPM – 3 hours Optional AirBelt when combined with the internal battery: 5 LPM – 2 hours, 30 minutes; 4 LPM – 3 hours; 3 LPM – 3 hours, 30 minutes; 2 LPM – 4 hours, 30 minutes; 1 LPM – 7 hours
Battery recharge time:	3 hours, 15 minutes; optional AirBelt: 3 hours
Initial startup time	2 minutes
Battery cycle life:	Approximately 300 cycles, then 80% capacity or below.
Audible alarms and pulse visual indicators:	Start-up – audible and visual (GREEN indicator light); Pulse flow – visual (GREEN indicator light); Battery condition – battery level (GREEN indicator lights); Battery Low – audible and visual (YELLOW alarm light); Battery shutdown – audible and visual (YELLOW alarm light); Cannula disconnect – audible and visual (YELLOW alarm light); System overdraw – audible and visual (YELLOW alarm light); General malfunction – audible and visual (RED alarm light).
**Temperature range:	Operational temperature: 41°F to 104°F (5°C to 40°C) (Up to 95% RH (non-condensing) Storage temperature: -4°F to 140°F (-20°C to 60°C)
**Max Operational Altitude:	up to 12,000 ft (3,657.6 m) (483mmHg) Higher altitudes may affect performance


* Based on an atmospheric pressure of 14.7 psi (101 kPa) at 70°F (21°C)

**Operating outside of these specifications can limit the concentrators ability to meet Oxygen Concentration specifications at higher liter flow rates.

“Specifications continued”

Medical equipment needs special precautions regarding EMC and need to be installed and put into service according to the EMC information provided in this section.

Guidance and manufacturer's declaration ± electromagnetic immunity			
The FreeStyle 5 is intended for use in the electromagnetic environment specified below. The customer or the user of the FreeStyle 5 should assure that 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 ± 1 kV for input/output lines	± 2 kV for power supply lines Not Applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line to line ± 2 kV line to earth	± 1 kV line to line ± 2 kV line to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power. 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 5s	<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 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the FreeStyle 5 requires continued operation during power mains interruptions, it is recommended that the FreeStyle 5 be powered from an uninterruptible power supply (UPS) or a battery.
Power frequency 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 commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration ± electromagnetic immunity			
The FreeStyle 5 is intended for use in the electromagnetic environment specified below. The customer or the user of the FreeStyle 5 should assure that it is used in such an electromagnetic environment.			
IMMUNITY test	IEC 60601 TEST LEVEL	Compliance level	Electromagnetic environment ± guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the FreeStyle 5 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> <p>$D= 1.2 \times \sqrt{P}$</p> <p>$D= 1.2 \times \sqrt{P}$ from 80MHz to 800MHz $D= 2.3 \times \sqrt{P}$ from 800MHz to 2.5GHz</p> <p>where <i>P</i> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <i>d</i> is the recommended separation distance in metres (m).</p> <p>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</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> <div></div>
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	
<p>NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.</p> <p>NOTE 2 These guidelines may not apply in all situations . Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>a. Field strengths 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 FreeStyle 5 is used exceeds the applicable RF compliance level above, the FreeStyle 5 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the FreeStyle 5.</p> <p>b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</p>			

Recommended separation distances between portable and mobile RF communications equipment and the FreeStyle 5			
The FreeStyle 5 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the FreeStyle 5 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the FreeStyle 5 as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter (m)		
	from 150kHz to 80MHz $d = 1.2 \times \sqrt{P}$	from 80MHz to 800MHz $d = 1.2 \times \sqrt{P}$	from 800MHz to 2.5GHz $d = 2.3 \times \sqrt{P}$
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
<p>For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (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.</p> <p>NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.</p> <p>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			

Guidance and manufacturer's declaration - electromagnetic emissions		
The FreeStyle 5 is intended for use in the electromagnetic environment specified below. The customer or the user of the FreeStyle 5 should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic Environment guidance
RF emissions CISPR 11	Group 1	The FreeStyle 5 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. The Freestyle 5 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.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Classification

Type of protection against electric shock:

Class II Protection from electric shock is achieved by double insulation.

Degree of protection against electric shock:

Type BF Equipment providing a particular degree of protection against electric shock regarding

- 1) allowable leakage current;
- 2) reliability of protective earth connection (if present).

Not intended for direct cardiac application.

Independent testing for Medical Electrical Equipment Standard:

Tested to be in compliance with,
IEC 60601-1 Medical Electrical Equipment – Part 1: General Requirements for Safety

Tested to be in compliance with applicable requirements of the Standard,
CAN/CSA C22.2 No. 60601-1-08 M90 Medical Electrical Equipment – Part 1: General
Requirements for Safety

Protection against potential electromagnetic or other interference between the equipment and other devices.

Tested to be in compliance with:

EN 60601-1-2 Medical Electrical Equipment, Part 1: General Requirements for Safety-Collateral Standard:
Electrical Compatibility - Requirements and Tests
RTCA-DO160 Airborne Equipment, Sec. 21, Emission of Radio Frequency Energy
CISPR 11 / EN 55011 Class B Group 1, "Industrial, Scientific, and Medical (ISM) Equipment"
FCC Part 15, Subpart B – Class B Unintentional Radiators

Method of cleaning and infection control allowed:

Please refer to "Cleaning, Care, and Proper Maintenance" section of this FreeStyle 5 Patient Manual.

Degree of safety of application in the presence of flammable anesthetic gases:

Equipment not suited for such application.

Mode of operation:

Continuous duty.

For European Representative:



Medical Product Services GmbH (MPS)

Bornegasse 20

35619 Braunsfels, Germany

Tel: +49 (0) 6442-962073

E-mail: info@mps-gmbh.eu



For service on your FreeStyle 5 Portable Oxygen Concentrator, please contact your local Equipment Provider at:



CAIRE Inc.
2200 Airport Industrial Dr., Ste 500
Ball Ground, GA 30107

www.chartindustries.com/RespiratoryHealthcare



MN166-1_E