PrecisionMedical

AccuO2

Oxygen Analyzer

Model: PM5950

Rx ONLY

CONTENTS

Receiving/Inspection

Remove the Precision Medical Oxygen Analyzer from the packaging and inspect for damage. If there is any damage, DO NOT USE and contact your Provider.

Intended Use/Indications for Use

Precision Medical, Inc. Oxygen Analyzer is intended as a tool for use by qualified personnel to spot-check or measure oxygen concentration of a delivered air/oxygen mixture.

Contraindication

The Precision Medical, Inc. Oxygen Analyzer is not intended to actively monitor oxygen concentration or oxygen gas mixtures while being delivered to a patient. The Precision Medical, Inc. Oxygen Analyzer is not intended for use in a MRI environment.

Operator Profile

The Oxygen Analyzer is to be used by trained healthcare professionals.

Read All Instructions Before Using

This manual instructs a Professional how to operate the Oxygen Analyzer. This is provided for your safety and to prevent damage to the Oxygen Analyzer. If you do not understand this manual, DO NOT USE the Oxygen Analyzer and contact your Provider.

Safety Signs and Warning\Caution Statements

⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
CAUTION	Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Follow instructions for use

General Mandatory Action Sign

This device may contain electrical components that are hazardous to the environment. DO NOT dispose device into standard trash. Contact your local waste management for disposal of Electronic Equipment.

Caution! U.S. Federal Law restricts this device to sale by or on the order of a physician.

IPX1

Liquid ingress protection - Dripping water (vertically falling drops) shall have no harmful effect on the device when mounted in an upright position.

MR Unsafe
An item marked MR unsafe is known to posed hazards in all MR environments.

⚠ WARNING

Read this User Manual before installing or operating the Oxygen Analyzer.

Only trained, qualified personnel should operate the Oxygen Analyzer.

Use this Oxygen Analyzer only for its intended use as described in this manual.

DO NOT use near any type of flame or flammable/ explosive substances, vapors or atmosphere.

DO NOT allow an excessive length of cable near anyone's head or neck that could result in strangulation. Secure excess cable to bed rail or suitable object.

Medical Oxygen should meet the requirements of USP.

Always follow ANSI and CGA standards for Medical Gas Products, and Oxygen Handling.

The Oxygen Analyzer should only be serviced by a qualified service technician, or by Precision Medical, Inc.

DO NOT use Oxygen Analyzer with a cable that appears worn, cracked or has damaged insulation.

Never install the sensor in a location that will expose the sensor to exhaled breath or secretions, unless you intend to dispose of the sensor, flow diverter and tee adapter.

Improper use of this device can cause inaccurate oxygen readings which can lead to improper treatment, hypoxia or hyperoxia. Follow the procedures outlined in this user manual.

Not for use in an MRI environment. The Oxygen Analyzer contains magnetic, ferrous material that may affect the results of an MRI.

Device intended for use with dry gas only.

Before use, all individuals who will be using the Oxygen Analyzer must become thoroughly familiar with the information contained in this User Manual. Strict adherence to the operating instructions is necessary for safe, effective product performance. This product will perform only as designed if installed and operated in accordance with these operating instructions.

⚠ WARNING

Use only genuine Precision Medical Inc. accessories and replacement parts. Failure to do so may seriously impair the analyzer's performance. Repair of this device must be performed by a qualified service technician.

Calibrate the Oxygen Analyzer before use, or weekly when in operation, or if environmental conditions change significantly. (i.e., Elevation, Temperature, Pressure, Humidity.

Use of the Oxygen Analyzer near devices that generate electrical fields may cause erratic readings.

Never autoclave, immerse or expose the Oxygen Analyzer (including sensor) to high temperatures (>70°C). Never expose the device to pressure, irradiation vacuum, steam, or chemicals.

This device does not contain automatic barometric pressure compensation.

Although the Sensor of this device has been tested with various anesthesia gases including nitrous oxide, Halothane, Isoflurane, Enflurane, Sevoflurane and Desflurane and found to have acceptably low interference, the device in entirety (including electronics) is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide. Only the threaded Sensor face, Flow Diverter, and Tee Adapter may be allowed to contact such a gas mixture.

NOT for use with inhalation agents. Operating the device in flammable or explosive atmospheres may result in fire or explosion.

No modification of this device is allowed.

⚠ CAUTION

DO NOT:

use if dirt or contaminants are present on or around this Oxygen Analyzer or connecting devices.

smoke in an area where oxygen is being administered.

clean with aromatic hydrocarbons.

steam autoclave.

gas sterilize.

immerse Oxygen Analyzer or Sensor in liquid.

immerse the sensor in any cleaning solution, autoclave or expose the sensor to high temperatures.

Store the Oxygen Analyzer in a clean, dry area when not in use.

The Oxygen Sensor is a sealed device containing a mild acid electrolyte, lead (Pb), and lead acetate. Lead and lead acetate are hazardous waste and should be disposed of properly.

Dropping Sensor can adversely affect its performance.

Be sure to apply 100% oxygen, or ambient air concentration to the device during calibration or the device will not calibrate correctly.

Specifications

Base Device Specifications

Dimensions (Analyzer without Cable and Sensor attached):

Depth:	1.30” (3.32 cm)
Width:	2.90” (7.30 cm)
Height:	4.00” (10.23 cm)
Cable Length:	10 ft. (3.05m) (fully extended)

Weight:

Device Weight:	0.35 lbs (5.60 oz / 0.15 kg) (includes: Analyzer, Sensor, Cable and batteries)

Operating Conditions:

Temperature:	50°F - 113°F (10°C - 45°C)
Altitude:	Sea Level to 8000 feet
Humidity:	0 - 95% non-condensing

Storage Conditions:

Temperature:	5°F - 122°F (-15°C - 50°C)
Humidity:	0 - 95% non-condensing

Mode of Operation:	Continuous
Electrical Classification:	Internally powered Medical Electrical equipment
Diverter Fitting:	fits industry standard, 15 mm Tee Adapter
Measurement Range:	0.0 - 100% Oxygen
Resolution:	0.1 %
Total Accuracy:	± 3.0% Actual Oxygen Level over full operating temperature range
Drift of Measurement:	< +/-1% of full scale at constant temperature, pressure and humidity
Response Time:	90% of final value in less than 12 seconds at 77°F (25°C)
Warm-up Time:	Not required
Low Battery Indication:	Low battery icon displayed
Patient Contact:	Indirect contact via gas passing through sensor sampling site.

Sensor Specifications

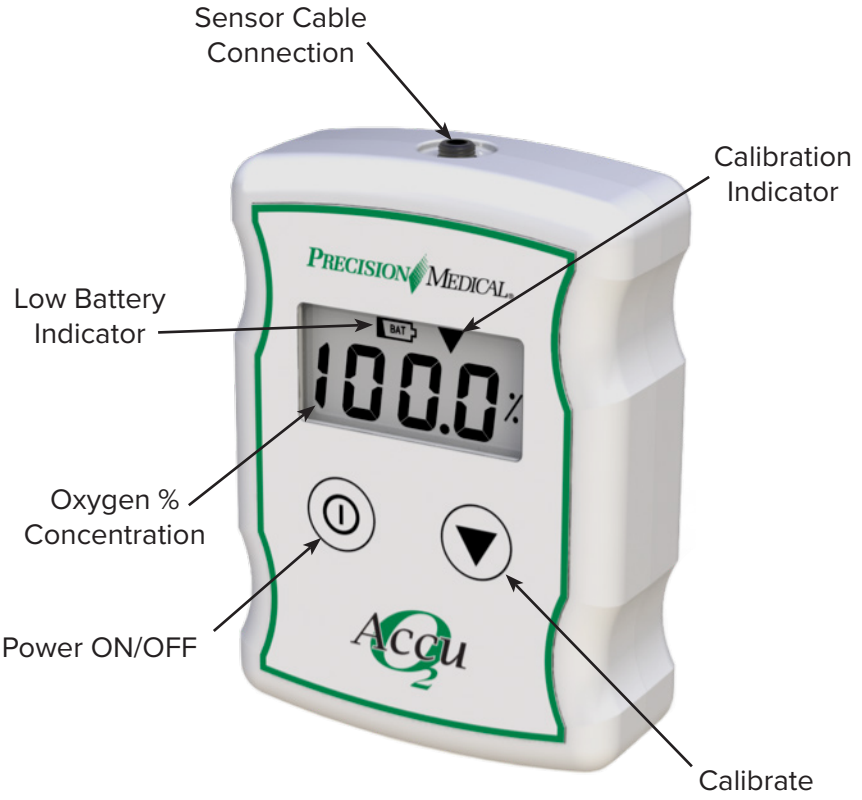
Sensor Type	Galvanic Oxygen Sensor; Precision Medical PN 504877
Expected Sensor Life	> 1,000,000 O_2 % Hours

Specifications are subject to change without notice.

Classifications

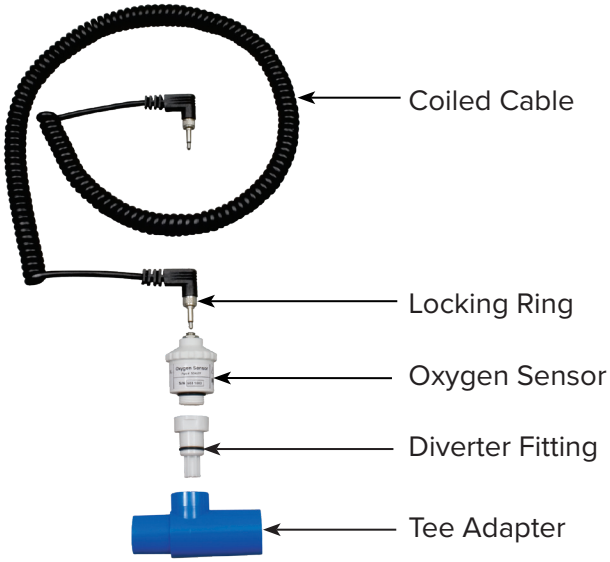
Protection against electric shock:	Internally powered equipment
Protection against water:	IPX1 (Drip Proof)
Mode of Operation:	Continuous
Sterilization:	Non-Sterile Device
Flammable anesthetic mixture:	Not suitable for use in presence of a flammable anesthetic mixture

Component Description



ITEM NAME	DESCRIPTION
Power Key 	The Power Key turns the Oxygen Analyzer ON and OFF. The Lock/Unlock Key must be pressed to unlock the Oxygen Analyzer, before being powered OFF.
Calibration Key 	Pressing the Calibration Key calibrates the Oxygen Analyzer with air or oxygen.
	Calibration Symbol - The Calibration Symbol is located on the display and is timed to activate when a calibration is necessary, or when a calibration is being conducted.
	Low Battery Symbol - The Low Battery Indicator is located on the top of the display and is only activated when the voltage on the batteries is below a normal operating level.
– – –	Invalid Reading Symbol – Bad Sensor, Bad Cable connection, Invalid Calibration
100.0 %	Oxygen Concentration Reading. (0.0 to 100.0 %)
Sensor Cable Connector	Cable Interface connection between Oxygen Analyzer and Oxygen Sensor Cable.

Oxygen Sensor Component Identification



ITEM NAME	DESCRIPTION
Coiled Cable	The Coiled Cable allows the Sensor to be positioned up to 10 ft from the side of the Oxygen Analyzer. There are Male Plugs at each end of the Coiled Cable**.**
Locking Ring	Male Plugs have Locking Rings and must be engaged when in use.
Oxygen Sensor	Galvanic Oxygen Sensor
Diverter Fitting	Fitting used to connect to the Oxygen Source.
Tee Adapter	The Tee Adapter is used to connect the Oxygen Sensor and Diverter Fitting to an oxygen pathway circuit.

Operating Instructions

Sensor Installation

⚠ CAUTION

Inspect the Oxygen Analyzer, Sensor and Cable for visual damage before use, DO NOT USE if damaged.

Inspect the Oxygen Sensor and Diverter Fitting for visual damage or electrolyte leakage before use. DO NOT USE if damaged.

Use ONLY an Oxygen Sensor specified by Precision Medical, Inc.

The Oxygen Sensor should not be used in the presence of flammable anesthetics such as Diethyl Ether or Cyclopropane.

DO NOT attempt to open or repair the Oxygen Sensor.

The Sensor electrolyte is corrosive, and contains lead.

DO NOT let Sensor electrolyte come in contact with the skin. If it does, flush affected area with water.

Check the Sensor regularly for leaks. If the Sensor is leaking, replace with NEW Sensor. Leaking or used Sensors should be handled and disposed of in accordance with local regulations.

An SDS is available from Precision Medical, Inc.

If the Oxygen Sensor is used in breathing circuits, the Diverter must be attached to the Sensor and must be used with the Tee Adapter.

The Oxygen Sensor must be installed before the Oxygen Analyzer can be operated.

1. Screw the Diverter to the bottom of the Oxygen Sensor, tighten until snug.
2. If using the Tee Adapter, attach to the Diverter.
3. Insert the one end of the Coiled Cable into the top of the Sensor, and secure by tightening the Locking Ring.
4. Insert the other end of the Coiled Cable into the Sensor Cable Connection located on the top of the Oxygen Analyzer. Secure it in place by tightening the Locking Ring.
5. Wait approximately 20 minutes for the NEW Sensor to stabilize to the environment.
6. Calibrate the Oxygen Analyzer with the NEW Sensor.

⚠ CAUTION

Calibrate the Oxygen Analyzer before each use, and when replacing the Oxygen Sensor or the batteries.

To ensure accuracy, the Precision Medical Oxygen Analyzer should only be calibrated using 100% Oxygen. Using any other concentration will result in possible inaccurate readings.

Air calibration is not recommended unless the Sensor can be exposed to a known source of clean air. Hospital room air is often enriched with excess oxygen.

Calibrate the Oxygen Analyzer at a pressure and flow similar to your application.

Before calibrating the Oxygen Analyzer, the oxygen concentration readout should be stable and not drifting more than 0.2%.

DO NOT calibrate the Oxygen Analyzer in humidified gas.

Calibration

New calibration is required when:

The measured O_2 percentage in 100% O_2 is below 97.0% O_2.

The measured O_2 percentage in 100% O_2 is above 100.0% O_2.

The CAL reminder Icon is activated on the LCD.

If you are unsure about the displayed O_2 percentage.

A simple calibration may be made with the Sensor open to static ambient air. For optimum accuracy Precision Medical Inc. recommends that the Sensor be placed in a closed loop oxygen circuit where gas flow is moving across the sensor in a controlled manner. Calibrate with the same type of circuit and flow that you will use in taking your readings.

1. Follow Sensor Installation instructions above.
2. Attach an open-ended reservoir to the end of the Tee Adapter. Start flow of 100% oxygen at a pressure and flow similar to your application.

   Six to 10 inches of corrugated tubing works well as a reservoir.

A calibration gas flow to the Oxygen Analyzer of two liters per minute or more is recommended to minimize the possibility of obtaining a “false” calibration value.

3. Allow the oxygen to saturate the Sensor. Although a stable value is usually observed within 30 seconds, allow at least two minutes to ensure that the sensor is completely saturated with the calibration gas.
4. If the Oxygen Analyzer is not already turned on, do so now by pressing the Analyzer “ON” ⏻ button.
5. Press and hold the Cal ▼ button on the Oxygen Analyzer for at least 3 seconds to activate calibration. The Analyzer will detect a stable Sensor signal. When obtained, the Analyzer will display the assumed calibration gas on the LCD.

Effects of Elevation/Barometric Pressure Changes

This device does not automatically compensate for changes in barometric pressure. Calibration of the Analyzer shall be performed when elevation at which the device is being used changes more than 500 feet.

Effects of Temperature

To minimize temperature effects:

1. In a breathing circuit, place the Oxygen Sensor upstream of the heater.
2. Allow time for the Oxygen Sensor to stabilize to its new room temperature.
3. Perform the calibration procedure at a temperature close to or similar to your clinical application

Effects of Humidity

High Moisture levels will dilute the oxygen concentration, decreasing the concentration of oxygen being monitored by the Oxygen Sensor.

High humidity can cause condensation to collect on the Oxygen Sensor, obstructing the passages and reducing the effectiveness of the Oxygen Sensor.

⚠ CAUTION
To reduce the effects of humidity on the Sensor: DO NOT USE the Oxygen Sensor in environments with greater than 95% humidity. Place the Oxygen Sensor upstream from the Humidifier in a breathing circuit.

Effects of Pressure

⚠ CAUTION
The Oxygen Analyzer is not equipped with automatic barometric pressure compensation.

The following recommendation is provided to reduce the chances of pressure causing false readings.

Calibrate the Precision Medical Oxygen Analyzer using 100% oxygen or room air at the same pressure and flow as the gas to be analyzed.

Effects of Anesthetic Gases

Anesthetic Agent	Test Concentration	Oxygen Concentration Error
Helium	50%, Balance Oxygen	0%
Nitrous Oxide	80%, Balance Oxygen	0%
Carbon Dioxide	10%, Balance Oxygen	0%
Halothane	4%	<1.5% Oxygen*
Enflurane	5%	<1.5% Oxygen*
Isoflurane	5%	<1.5% Oxygen*
Sevoflurane	5%	<1.5% Oxygen*
Desflurane	15%	<1.5% Oxygen*

Test mixture = 30% O_2, balance 70% N_2O except where noted.

* Errors may vary based on concentrations and exposure times.

⚠ CAUTION
The Oxygen Sensor should not be used in the presence of flammable anesthetics such as Diethyl Ether or Cyclopropane.

Cleaning

⚠ CAUTION
DO NOT steam autoclave. DO NOT immerse the Oxygen Analyzer into any liquid. DO NOT use any strong solvent or abrasive cleaners. DO NOT allow any liquid to enter the Oxygen Analyzer or the Oxygen Sensor; this will damage the Oxygen Analyzer or Oxygen Sensor and will void the Warranty.

1. Disconnect all connections before cleaning.
2. Clean exterior surfaces of the Oxygen Analyzer, Tee Adapter and Coiled Cable with a cloth dampened with mild detergent and water.
3. Wipe dry with a clean cloth.
4. Wipe Oxygen Sensor and Diverter using a lint free dry clean cloth.

Maintenance

Sensor Replacement

Reference “SENSOR INSTALLATION”

⚠ CAUTION
Sensor Replacement must be performed by Qualified Personnel.

Battery Replacement

Replace batteries when “Low Battery” icon 

is displayed.

1. Remove 4 screws located on the back and remove cover.
2. Remove and replaced batteries with 2 new AA Alkaline batteries. Verify correct polarity.
3. Secure back cover onto the Oxygen Analyzer with the 4 screws.

Returns

Returned products require a Returned Goods Authorization (RGA) number, contact Precision Medical, Inc. All returns must be packaged in sealed containers to prevent damage. Precision Medical, Inc. will not be responsible for goods damaged in transit. Refer to Precision Medical, Inc. Return Policy available on the Internet, www.precisionmedical.com.

Disposal Instructions

The Oxygen Analyzer may contain electrical components that are hazardous to the environment. DO NOT dispose device into standard waste stream.

The Oxygen Analyzer contains internal batteries. Batteries contain materials which can contaminate the environment when improperly disposed of.

The Oxygen Sensor contains lead. DO NOT dispose sensor into standard trash. Dispose in accordance with the local regulations.

Contact your local waste management for disposal of Electronic Equipment.

Troubleshooting

If the Oxygen Analyzer fails to function, consult the Troubleshooting Guide. If the problem cannot be solved by using Troubleshooting Guide, consult your Provider.

CAUTION DO NOT attempt to service the device while in use.

Problem	Probable Cause	Remedy
Low Battery Indicator is displayed	1. Battery voltage too low	1. Replace batteries
New Oxygen Sensor responds slowly or seems to drift	1. Oxygen Sensor has NOT temperature stabilized	1. Wait approximately 20 minutes for Oxygen Sensor to stabilize with the environment, and then recalibrate the Oxygen Analyzer
Oxygen Sensor does not react to changes in oxygen concentration	1. Condensation on the Oxygen Sensor 2. Non functioning Oxygen Sensor	1. Remove Condensation 2. Replace with New Precision Medical Oxygen Sensor
No Display/ LCD screen will not power ON	1. Dead batteries	1. Replace batteries
Displays “ - - - ”	1. Defective Sensor 2. Bad Cable Connection 3. Invalid Calibration	1. Replace with New Precision Medical Oxygen Sensor 2. Ensure Cable is secured to the Device and the Sensor. Replace Cable. 3. Recalibrate device.

Repair of this device must be performed by a qualified service technician.

Replacement Parts

Description	Part #
User Manual	508459
Precision Medical Oxygen Sensor with Diverter	504877
Tee Adapter	505126
Extendible Cable	504937
Diverter	505344
Batteries (2 required)	505124

Orders for replacement parts should include the part number, if available and the model and serial number of the instrument for which the parts are intended.

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ISO 13485 Certified

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The PM5950 Acc O2 Analyzer is intended for use in the electromagnetic environment specified below. The user of the PM5950 Acc O2 Analyzer should make sure it is used in such an 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 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the PM5950 Acc O2 Analyzer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Radiated RF IEC 61000-4-3	3 Vrms 80 MHz to 2.7GHz		Recommended separation distance: d=1.2 √P 150 kHz to 80 MHz d=1.2 √P 80 MHz to 800 MHz d=2.3 √P 800 MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey a, should be less than the compliance level in each frequency range b. Interference may occur in the vicinity of equipment marked with the following symbol: 
Electrostatic Discharge (ESD) IEC 61000-4-2	±8kV contact ±15kV air	±8kV contact ±15kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be greater than 5%.
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 ± 1 kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles	<5% U_T (>95% dip in U_T) for 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	Mains power quality should be that of a typical commercial or hospital environment. If the user of the [ME EQUIPMENT or ME SYSTEM] requires continued operation during power mains interruptions, it is recommended that the [ME EQUIPMENT or ME SYSTEM] be powered from an uninterrupted power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30A/m	30A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical hospital or home environment.

- At 80 MHz and 800 MHz, the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.
- UT is the a.c. main voltage prior to application of the test level.

[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 concentrator is used exceeds the applicable RF compliance level above, the concentrator should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the PM5950 Acc O2 Analyzer.

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

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

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

Rated Maximum Power Output of Transmitter (W)	Recommended Separation Distances for the device (meters)		
	150 kHz to 80 MHz $d=1.2\sqrt{P}$	80 to 800MHz $d=1.2\sqrt{P}$	800 MHz to 2.5 GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

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

- At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
- The guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Guidance and Manufacturer's Declaration – Electromagnetic Emissions

The PM5950 Acc O2 Analyzer is intended for use in the electromagnetic environment specified below. The user of the concentrator should assure that it is used in such an environment.

Emissions Test	**Compliance**	**Electromagnetic Environment - Guidance**
RF emissions CISPR 11	Group 1	The PM5950 Acc O2 Analyzer uses RF energy only for its internal function. Therefore its RF emissions are very low and not likely to cause any interference in nearby equipment.
RF emissions CISPR 11	Class B	The PM5950 Acc O2 Analyzer 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	

LIMITED WARRANTY AND LIMITATION OF LIABILITY

Precision Medical, Inc. warrants that the Oxygen Analyzer, (the Product), will be free of defects in workmanship and/or material for the following period:

Two (2) years from shipment.

Precision Medical, Inc. is NOT responsible for normal wear and tear, or any neglect or abuse of the product.

The customer is responsible for the shipping costs of repairs back to Precision Medical, Inc.

Precision Medical, Inc. will have in its sole and absolute discretion, the final determination if your product is covered under this limited warranty.

Should any failure to conform to this warranty appear within the applicable period, Precision Medical, Inc. shall, upon written notification thereof (received by Precision Medical, Inc. within 30 days of the customer's discovery of the alleged defect), along with return of the Product at the customer's expense and substantiation that the goods have been stored, installed, maintained and operated in accordance with Precision Medical, Inc.'s instructions and standard industry practice, and that no modifications, substitutions, or alterations have been made to the goods, correct such defect by repair or replacement (at Precision Medical, Inc.'s option) at its own expense.

Precision Medical, Inc. warrants the 504877 Oxygen Sensor included with the PM5900 Oxygen Analyzer to be free from defects in material and workmanship for a period of sixteen (16) months, from date of shipment. Should any failure to conform to this warranty appear within the applicable period, Precision Medical, Inc. shall, upon written notification thereof (received by Precision Medical, Inc. within 30 days of the customer's discovery of the alleged defect), along with return of the sensor at the customer's expense and substantiation that the sensor has been stored, installed, maintained and operated in accordance with Precision Medical, Inc.'s instructions and standard industry practice, and that no modifications, substitutions, or alterations have been made to the sensor, correct such defect by repair or replacement (at Precision Medical, Inc.'s option) at its own expense. Should a sensor require repair or replacement due to said defects, the sensor is warranted only for the remainder of the original sensor warranty period. A sensor shall not be considered defective for failure to function beyond its normal estimated consumption capacity/rates, and this warranty does not cover normal wear due to consumption beyond the sensor's estimated O_2% hours.

ORAL STATEMENTS DO NOT CONSTITUTE WARRANTIES.

The representatives of Precision Medical, Inc. or any retailers are not authorized to make oral warranties about the merchandise described in this warranty, and any such statements shall not be relied upon and are not part of the contract for sale.

Thus, this writing is a final, complete and exclusive statement of the terms of the warranty for the products covered by the applicable contract.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESS OR IMPLIED.

Precision Medical, Inc. shall not under any circumstances be liable for special, incidental or consequential damages including but not limited to lost profits, lost sales, or injury to person or property. Correction of non-conformities as provided above shall constitute fulfillment of all liabilities of Precision Medical, Inc. whether based on contract, negligence, strict tort or otherwise. Precision Medical, Inc. reserves the right to discontinue manufacture of any product or change product materials, designs, or specifications without notice.

Precision Medical, Inc. reserves the right to correct clerical or typographical errors without penalty.

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