

O₂ Conserver Checker ✓



CONTENTS:

- O₂ Conserver Checker
- USB power supply
- USB to DC power jack cable
- 7 ft star lumen oxygen tubing
- Operating Instructions
- Calibration certificate

#180-5500 O₂ Conserver Checker



Read instructions before use. Keep these instructions for future reference.



CAUTION: Indicates a potentially hazardous situation that may result in damage to property or injury.



WARNING: Indicates a potentially hazardous situation that may result in property damage, serious injury or death.

INTENDED USE:

The intended use of the O₂ Conserver Checker is the validation of portable oxygen concentrators, pneumatic oxygen conserving devices, stationary concentrators, and oxygen regulators up to 15 LPM flow rates. The device also verifies the oxygen flow rate of basic continuous flow systems such as stationary concentrators or standard flow meters.

The O₂ Conserver Checker is designed to test key performance functions of supplemental oxygen systems by providing a simulated breath and measuring the pressure required to trigger a pulse, then measuring the amount of oxygen delivered in the pulse. When used with portable concentrators, the device measures oxygen concentration as well as the delivered oxygen flow rate in the continuous mode.

O₂ Conserver Checker ✓



WARNING: Service on this device should be performed only by an authorized facility. Do not use if the device has been tampered with in any way.



WARNING: This device is not designed nor intended for use to monitor life support systems, in anesthesia applications, or for monitoring oxygen concentration from any source other than a conventional oxygen concentrator using molecular sieve beds.



WARNING: Do not smoke in an area where oxygen is being used or generated.



WARNING: Prior to handling oxygen equipment ensure work area and hands are free of oil, grease, dust and other contaminants.



CAUTION: The use of this device for gases or pressures other than those outlined in this manual is expressly prohibited.



CAUTION: Ensure the device is free of contaminants prior to installation.



CAUTION: Do not submerge or spill fluids on the device. Protect from moisture. Remove humidification devices before connecting O₂ Checker.



CAUTION: Not for use in extreme temperatures. Allow to return to room temperature prior to use.



CAUTION: Ensure all connections are tight and leak free

SPECIFICATIONS:

Power:	5 volts DC at @ 300 ma
Operating Temperature:	15 °C to 37 °C (59°F to 99°F)
Dimensions & Weight:	7" x 4.5" x 2.5" (117mm x 115mm x 63mm), 1 lb (454 g)
Display:	LCD
<u>Measurement ranges</u>	
Trigger Pressure:	-0.025 to -0.80 cmH ₂ O (-2.45 Pa to -78.4 Pa)
Flow Accuracy:	.4 to 15 LPM, +/- 5%
Volume:	+/- 5% of measured value
Oxygen Concentration:	20% to 96%, +/- 1.5%, resolution 0.1% ultrasonic
Breath Rate:	Adjustable 10 to 40 BPM

WARRANTY:

This device is warranted under normal use against any and all manufacturing defects from date of purchase for a period of two years. Any failure resulting from defective parts or faulty workmanship, as determined during evaluation at a manufacturer approved repair facility, will be repaired under warranty.

Non-functioning devices are subject to warranty provisions and the manufacturer repair/return policy. Do not attempt to open or repair the device – opening or tampering with the unit voids the warranty. This warranty will be null and void for any unit that has been subjected to abuse, misuse, negligence or repairs other than those performed by an authorized service facility.

O₂ Conserver Checker ✓

MEASURED VALUES:

To properly determine if the medical device is performing to specification, it is best to compare the measurements to published values provided by the equipment manufacturer.

The following shows measurements that can be performed on commonly utilized oxygen devices.

Validation	Portable Concentrator	Pneumatic Conserver	Stationary Concentrator	Oxygen Regulator	Flow Meter
Trigger Pressure (Sensitivity)	✓	✓			
Pulse Volume	✓	✓			
Continuous Flow Rate	✓	✓	✓	✓	✓
Oxygen Concentration	✓		✓		

Trigger Pressure (Sensitivity):

- An indication of how sensitive the device is to inhalation
- Shown as a negative value which signifies the vacuum generated to simulate a breath
- Pressure is displayed in cmH₂O

Pulse Volume:

- Volume is displayed in ml (milliliters), equivalent to cc (cubic centimeters)
- Nominal values for the oxygen delivered at each pulse setting may vary depending on the breath rate. Breath rate on the device being tested must be adjusted to match the BPM given by the manufacturer before measurements are taken.

Generalized normal range for pulse volumes at equivalent continuous flow settings (20 BPM)	
Setting	Pulse Volume Range (ml)
1	9 to 16
2	18 to 32
3	27 to 48
4	36 to 64
5	45 to 80

NOTE: A specific target volume for a particular setting is not given in any published standard and varies by device.

Continuous Flow Rate:

- Continuous flow values are displayed in liters per minute (LPM) with the following tolerance ranges as per ISO 10524-1 Standard:

$$\pm 20\% \text{ flows } > 1.5 \text{ LPM} \quad \text{and} \quad \pm 30\% \text{ flows } < \text{ or } = 1.5 \text{ LPM}$$

Flow Setting	.5	1	1.5	2	2.5	3	4	5	6	7	8	10	12	15
Min	.35	.70	1.05	1.6	2.0	2.4	3.2	4.0	4.8	5.6	6.4	8.0	9.6	12.0
Max	.65	1.05	1.95	2.4	3.0	3.6	4.8	6.0	7.2	8.4	9.6	12.0	14.4	18.0

Oxygen Concentration:

- An indication of purity of oxygen generated
- Concentration range: 20%-96% for POC and stationary concentrators

NOTE: The O₂ Conserver Checker is not designed for use to test concentration of oxygen cylinders or pure oxygen sources.

O₂ Conserver Checker ✓

CONNECTION AND OPERATION OF O₂ CONSERVER CHECKER:

1. Connect the provided USB power cable to the charging block. Plug into power jack on the side of the O₂ Conserver Checker and plug into wall outlet.
2. Allow unit to power on and oxygen sensor to warm up for 5 minutes prior to use. The fan will cycle to purge the system with ambient air and then set the oxygen concentration. Prior to connecting the O₂ Conserver Checker to any device, sensors must be allowed to zero.

NOTE: Do not connect tubing to the oxygen inlet port before the unit powers on and completes warm-up cycle.



CAUTION: Ensure the vent hole next to the power jack is unobstructed during use.

3. Connect the supplied 7' oxygen tubing to the to the barb port on the O₂ Conserver Checker and to the equipment to be tested. Oxygen tubing must be star lumen, crush-resistant oxygen supply tubing in 7' length or less.

The default breath rate is set to 20 BPM. Refer to adjusting the breath rate for guidance on how to adjust the rate, if desired.

NOTE: Unit will enter sleep mode after 5 minutes of inactivity. To exit sleep mode, push toggle on side of the O₂ Conserver Checker device up once to wake unit.

STATIONARY OXYGEN CONCENTRATOR VERIFICATION:

Continuous Flow Rate

1. After completing the Connection/Start Up procedure above, turn on oxygen concentrator and place into continuous mode
2. Allow concentrator to cycle for two minutes. The O₂ Conserver Checker will detect continuous flow mode and will display the measured flow rate in liters per minute (LPM)
3. Repeat with additional concentrator flow settings, as desired.



Shown Above: Flow Rate 2.0 LPM
 Oxygen Concentration: 94.4%
 Trigger Pressure: N/A

Oxygen Concentration

1. After completing the Connection/Start Up procedure above, turn on stationary oxygen concentrator
2. Allow concentrator to cycle for two minutes. The O₂ Conserver Checker will detect oxygen generation and will display the oxygen concentration

O₂ Conserver Checker ✓

PORTABLE OXYGEN CONCENTRATOR VERIFICATION:

Continuous Flow Rate

1. After completing the Connection/Start Up procedure above, turn on oxygen concentrator and place into continuous mode
2. Allow concentrator to cycle for two minutes. The O₂ Conserver Checker will detect continuous flow mode and will display the measured flow rate in liters per minute (LPM)
3. Repeat with additional concentrator flow settings, as desired.

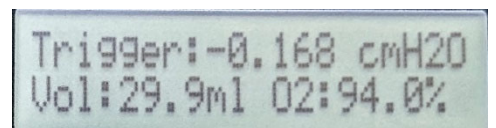


Trigger: 0.000 cmH₂O
Flow: 1.431 LPM O₂: 95.0%

Shown Above: Flow Rate: 1.43 LPM
Trigger Pressure: N/A
Oxygen Concentration: 95%

Trigger Pressure (Sensitivity), Pulse Volume, Oxygen Concentration

1. After completing the Connection/Start Up procedure, turn on portable oxygen concentrator in pulse mode.
2. Allow concentrator to cycle for two minutes. The O₂ Conserver Checker will detect oxygen generation and will begin to cycle with an artificial breath every three (3) seconds to simulate breathing at a rate of 20 breaths per minute (BPM).
3. Allow concentrator to cycle a minimum of 5 times for accuracy.
4. After each breath cycle, the O₂ Conserver Checker will display the trigger pressure (sensitivity), oxygen volume (pulse dose) and oxygen concentration.



Trigger: -0.168 cmH₂O
Vol: 29.9ml O₂: 94.0%

Shown Above: Trigger Pressure: -.168 cmH₂O
Pulse Volume: 29.9 ml
Oxygen Concentration: 95%

PNEUMATIC OXYGEN CONSERVER VERIFICATION:

Continuous Flow Rate

1. After completing the Connection/Start Up procedure above, turn on oxygen source and place conserver into continuous flow mode
2. After 15 seconds, the O₂ Conserver Checker will detect continuous flow mode and will display the measured flow rate in liters per minute (LPM)
3. Repeat with additional concentrator flow settings, as desired.

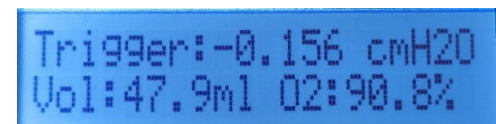


Trigger: -0.800 cmH₂O
Flow: 2.31 LPM O₂: 92.0%

Shown Above: Flow Rate: 2.31 LPM
Trigger Pressure: -0.80 cmH₂O
Oxygen Concentration: N/A due to cylinder use

Trigger Pressure (Sensitivity), Pulse Volume

1. After completing the Connection/Start Up procedure, turn on oxygen source and place conserver into conserve mode.
2. After 15 seconds, the O₂ Conserver Checker will detect conserve mode and will begin to cycle with an artificial breath every three (3) seconds to simulate breathing at a rate of 20 breaths per minute (BPM).
3. Allow conserver to cycle a minimum of 5 times for accuracy.
4. After each breath cycle, the O₂ Conserver Checker will display the trigger pressure (sensitivity) and oxygen volume in ml.



Trigger: -0.156 cmH₂O
Vol: 47.9ml O₂: 90.8%

Shown Above: Trigger Pressure: -0.156 cmH₂O
Pulse Volume: 47.9ml
Oxygen Concentration: N/A

NOTE: The O₂ Checker is not designed for use to test concentration of oxygen cylinders or pure oxygen sources.

O₂ Conserver Checker ✓

OXYGEN REGULATOR & FLOW METER VERIFICATION:

Continuous Flow Rate

1. After completing the Connection/Start Up procedure above, turn on oxygen source and turn regulator to desired setting.
2. After 15 seconds, the O₂ Conserver Checker will detect the continuous flow mode and will display the measured flow rate in liters per minute (LPM)
3. Repeat with additional continuous flow settings, as desired.



Shown Above: Flow Rate: 2.0 LPM
Oxygen Concentration: N/A due to cylinder use

NOTE: The O₂ Conserver Checker is not designed for use to test concentration of oxygen cylinders or pure oxygen sources.

ADJUSTING THE BREATH RATE:

The default breath rate is 20 breaths per minute, a typical breath rate for testing. The simulated breath rate can be adjusted in one breath per minute increments from 10 to 40 breaths per minute. The first time the button is depressed, the current breath rate setting will be displayed momentarily in the lower right where the oxygen display is normally located. Press the toggle button up or down to begin to adjust the breath rate.

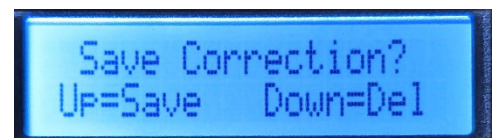
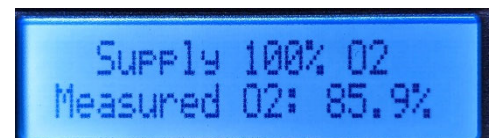
- Increase breath rate: toggle the button on the side of the tester up to increase the breath rate by one breath per minute increments.
- Decrease breath rate: toggle the button on the side of the tester down to decrease the breath rate by one breath per minute increments.



OXYGEN CONCENTRATION CHECK & ADJUSTMENT:

The O₂ Conserver Checker may be re-calibrated for oxygen concentration validation in the field, utilizing an oxygen cylinder and a flow control device.

1. Complete the Connection/Start Up procedure
2. Press and hold the up button for three seconds to enter Oxygen Calibration Mode
3. When prompted by the device, connect oxygen cylinder with flow control attached. Turn flow control to a setting of 2 LPM and open the cylinder. Allow oxygen to flow for approximately one minute to allow the unit to stabilize. The display will show an oxygen value approximately 86%.
4. Press the up button once to accept this new oxygen concentration calibration. Confirm the calibration to be saved by pressing the up button again. To discard the calibration, press the down button.
5. Turn off oxygen supply and disconnect from the device.



O₂ Conserver Checker ✓

FREQUENTLY ASKED QUESTIONS:

- How do I find the parameters of my medical equipment? Contact the manufacturer of the equipment being tested directly with the model and serial number to obtain.
- The display does not update. Unplug the device and remove the oxygen supply tubing. Wait 10 seconds, then restart the device and allow to complete warm up cycle. Re-attach tubing once complete.
- The O₂ Conserver Checker does not trigger a breath. Unplug the device and remove the oxygen supply tubing. Wait 10 seconds, then restart the device and allow to complete warm up cycle. Re-attach tubing once complete.
- Can I use the O₂ Conserver Checker to test pediatric flows? The lowest flow validation the O₂ Conserver Checker is recommended for use with is .5 LPM
- What flow ranges the O₂ Conserver Checker can test? The device is designed to validate flows of .5 through 15 LPM
- Can I use the O₂ Conserver Checker to validate purity of oxygen cylinders? No, the device is not designed to validate purity of high pressure or liquid oxygen sources (ie oxygen sources 96% or greater purity)
- The O₂ Conserver Checker powered down without warning. The device is equipped with a sleep mode function after 5 minutes of inactivity. To exit sleep mode, push the toggle on the side of the device up once to wake.
- How often does the O₂ Conserver Checker need to be recalibrated? Calibration is recommended yearly
- Can I calibrate the O₂ Conserver Checker in my facility? No, the O₂ Conserver Checker must be returned to the service center for recalibration by a qualified technician.
- How do I send the unit in for recalibration? Please contact customer service at for instructions on how to send the unit for recalibration.
- I've misplaced the power cord – can I use another I have on hand? No, only the supplied power cord is recommended. Please contact customer service for assistance.
- Do I have to use a specific type of oxygen tubing? Any brand of star lumen oxygen tubing in a length of 7' or shorter may be utilized with the device. Smooth bore tubing and lengths greater than 7' are not recommended for use as they may alter the accuracy of the readings.