

HANDHELD DIGITAL OXYGEN MONITOR OPERATION MANUALS

PRO OX[®]-100 AND PRO OX[®]-100B

WITH
 **Bluetooth[®]**



Aquasol
CORPORATION

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**PLEASE READ THIS MANUAL IN ITS
ENTIRETY BEFORE ATTEMPTING
INSTALLATION OR OPERATION**

FOR YOUR
SAFETY

- » Always use protective eye wear and observe proper safety procedures when working with pressurized gases
- » Always assure the pressure of gas entering the PRO OX[®]-100 / PRO OX[®]-100B is compatible with the operating instruction. Do not exceed 10 PSI (Pounds Force per Square Inch)
- » Never expose the PRO OX-100 / PRO OX-100B to water, high humidity or moisture. PRO OX-100 / PRO OX-100B is not watertight
- » Never expose the PRO OX-100 / PRO OX-100B to flame or high temperatures
- » Never expose the PRO OX-100 / PRO OX-100B to unregulated gas lines or cylinder gas. High gas pressures may damage the pump and/or sensor
- » Do not expose the PRO OX-100 / PRO OX-100B to hot surfaces
- » Do not overcharge PRO OX-100 / PRO OX-100B or it may lead to damage of battery

WELCOME

Thank you for purchasing the PRO OX®-100 / PRO OX®-100B Oxygen Monitor from Aquasol Corporation.

The PRO OX-100 / PRO OX-100B Oxygen Monitor is designed for accurate readings of oxygen levels to 100 PPM as well as fast and easy operation and maintenance. All personnel operating the PRO OX-100 / PRO OX-100B Oxygen Monitor should read this manual to become more familiar with proper operation.

For further details regarding the maintenance and in-field service of the PRO OX-100 / PRO OX-100B, please contact the Aquasol Corporation Customer Service Department.

If you have questions or comments, please contact us at:

Aquasol Corporation

Attn: Customer Service Department
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Toll Free: (800) 564-9353
Fax: (716) 564-8889

Email: info@aquasolcorporation.com
Visit us at www.aquasolwelding.com

Monitor Serial Number: _____

Sensor Serial Number: _____

Ship Date: _____

(For faster service, please have these numbers available)

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CHAPTER 1

Introduction and Overview

1.1 General

The Aquasol PRO OX[®]-100 / PRO OX[®]-100B is a battery powered, rechargeable, programmable, handheld digital oxygen monitor with an internal pump.

The internal pump on the PRO OX-100 / PRO OX-100B draws a sample and the monitor quickly provides an easy to read, high-contrast, digital LCD display of 0.00-21.00% oxygen with 0.01% (100 PPM) resolution. The PRO OX-100 is equipped with several features, including an audiovisual alarm system, data logging capability and data output to a computer for recording history. With updated software and Bluetooth capabilities, the PRO OX-100B connects to a Windows 10 PC allowing remote viewing of all

measuring functions of the oxygen monitor. This permits users the ability to access the data interface while standing up to 100 feet (30 meters) away and observe real time data recordings. The Intelligent Color Notification Signal System displays red, amber and green for a quick visual on operator set oxygen parameters. Operators will have access to an easy-to-use APP that will track an unlimited amount of data points. The PRO OX-100B software is compatible with Windows 10.

Designed for use in high purity welding applications in the field, fabrication shop or construction site, the versatile PRO OX-100 / PRO OX-100B is equally suited for use on production floors or in research labs.



1.1.1 Features

The PRO OX[®]-100 / PRO OX[®]-100B is a durable, battery powered instrument that accurately measures oxygen concentration with 0.01% (100 PPM) resolution. Its rugged and compact design enables it to be easily carried to the job site in its polycarbonate carrying case. The airtight case design provides exceptional protection from the elements. The case is impact resistant, able to withstand falls from high levels without breaking or cracking. Designed for use at ambient pressure, the PRO OX-100 / PRO OX-100B will operate under positive pressure up to 10 PSI (Pounds Force per Square Inch).

In addition to these state-of-the-art features. The PRO OX-100B comes equipped with a Bluetooth transmitting device that allows the oxygen monitor to send the oxygen readings wirelessly to a Bluetooth receivable device with Windows 10.

1.1.2 High Purity Welding

The PRO OX-100 / PRO OX-100B is ideally suited for high purity welding where evacuation of oxygen is paramount. Prior to welding, the pipe will be pre-purged to displace oxygen with inert gas. Constant monitoring of the oxygen level is necessary until it is ascertained that oxygen has been evacuated to 0.1-0.01% to enable the commencement of welding to prevent oxidation, discoloration and coking.

The PRO OX-100 / PRO OX-100B measures traces of oxygen above 0.01% (100 PPM) being displaced by the purge gas so that the operator knows when a safe level to begin welding has been achieved. With updated software and Bluetooth capabilities, the PRO OX-100B connects to a PC allowing remote viewing of all measuring functions of the oxygen monitor. This permits users the ability to access the data interface while standing up to 100 feet (30 meters) away and observe real time data recordings. The Intelligent Color Notification Signal System displays red, amber and green for a quick visual on operator set oxygen parameters. This visual traffic light display is universal with three different background colors to give different messages for operators. Red tells the operator one must continue to purge with argon. Yellow alerts the operator one is approaching an acceptable level but must continue to purge. Green indicates the operator can commence welding as the oxygen level is at or below the set parameter. These acceptable oxygen levels can be customized to the users specifications. For applications requiring even lower concentrations, continue to purge with inert gas for an additional 2 to 3 minutes after the 0.01% level has been reached. The PRO OX-100 / PRO OX-100B accurately measures low concentrations of oxygen in purged tubing and high purity welds, ensuring a high quality finish.

Other features of the PRO OX[®]-100 include:

- » Self-calibrating
 - » Internal Pump
 - » Data Logging
 - » Audiovisual Alarm
 - » Digital Backlit Display
 - » Up to 4 languages (English, German, Spanish, Portuguese)
 - » Compatible with Different Voltage and Frequency Specifications
 - » Plug-N-Play Software
-

Additional features of the PRO OX[®]-100B include:

- » Bluetooth Transmitting Capabilities
 - » Real Time Recording of Unlimited Data
 - » Remote Viewing of Real Time Data
 - » Intelligent Color Notification Signal System
-

Airtight & Impact Resistant Carrying Case Containing:

- » Neoprene Extension Tubing with Quick Connect Fitting and Stainless Steel Probe
- » Rechargeable Battery, Power Supply/Charger
- » USB Cable
- » Support Stand
- » Phillips Head Screwdriver

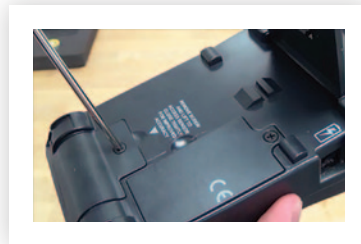
1.2 Set-Up and Installation

1.2.1 Installing the Oxygen Sensor

Note: The PRO OX-100 / PRO OX-100B sensor is pre-installed. If the monitor is not in operation for a month or more, it is suggested that the sensor be removed and stored in the provided clear vial.

Your PRO OX®-100 / PRO OX®-100B is delivered with the sensor pre-installed at the factory. Please follow the instructions below when the sensor is removed for storage.

1. Lift up kickstand on back of unit.
2. Open the sensor housing cover with a Phillips head screwdriver.
3. Plug the sensor in the sockets inside the housing.
Warning: Once sensor is installed; unit must sit for a minimum of 4 hours prior to use
4. Close the sensor housing cover tightly with a Phillips head screwdriver.



Push sensor to the left to install.
Warning: Do not touch surface

1.2.2 Battery, Power Supply/Charger

The PRO OX-100 / PRO OX-100B Kit is equipped with a 9V, high-capacity, rechargeable Ni-MH Battery and a standalone power supply/charger.

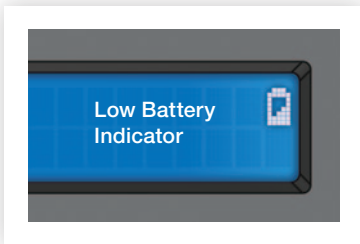


Any brand of non-rechargeable 9V battery may be used in place of the battery provided. However, the use of a non-rechargeable 9V battery, other than the one provided with purchase, may increase the need to replace the battery more frequently.

Note: The provided power supply/charger should not be used with any other 9V battery.

- » Access the battery compartment by unscrewing the battery housing door using a Phillips head screwdriver (provided).
- » Plug the battery in the sockets inside the battery housing.
- » Close the battery housing cover tightly with a Phillips head screwdriver.

1.2.2A Installing the Battery



1.2.2B Charging the Battery

- » The monitor will indicate “low battery” when the charge drops below a threshold voltage (see picture above left).
- » Turn the Power Switch to the OFF position.
- » Connect the power supply/charger cable into the port (see picture above right).
- » Connect the power supply/charger plug into the nearest working outlet (110V for US type/220V for EU type).
- » After charging, disconnect the power supply/charger from the outlet and disconnect the cable from the Pro OX unit. Return to the proper location in the carrying case.
- » Turn the Power Switch to the ON position.

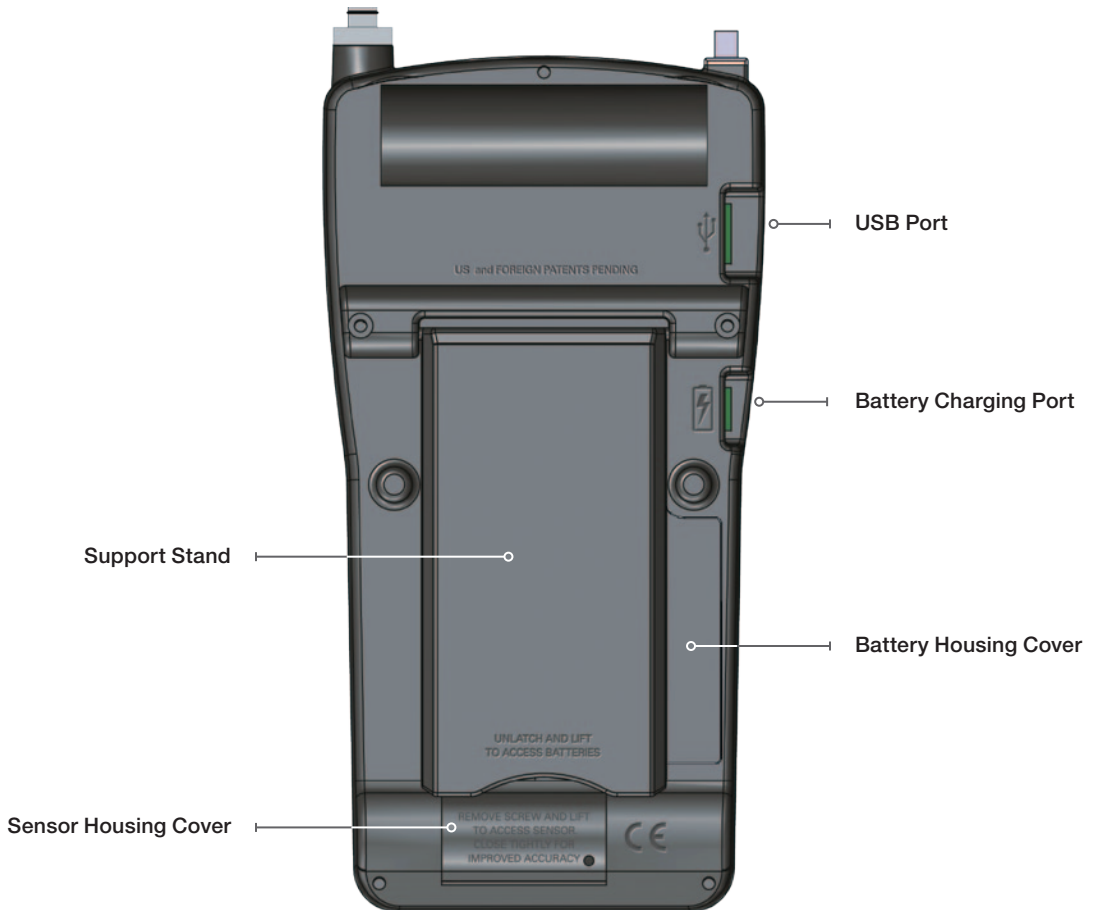
1.3 System Components

Figure 1 – Front View



1.3 System Components

Figure 2 – Rear View



1.3.1 Oxygen Sensor

The PRO OX®-100 / PRO OX®-100B Oxygen Sensor is a miniature sensor that measures oxygen volume directly. The sensor self-calibrates with ease. The measurement range of the sensor is 0.00-21.0% oxygen by volume and is calibrated using ambient air. Guaranteed for one (1) year, the sensor should be stored and sealed in the provided clear container (or something similar if lost) at a temperature between 37-68°F (3-20°C) .

1.3.2 Digital Display

The backlit Digital Display window provides an accurate, easy-to-see reading of the oxygen measurement in any well-lit or dark environment.

1.3.3 Operation Control Keypad

The Operation Control Keypad features various multi-function buttons. When the unit is turned on, it will display:



This screen is referred to as the MAIN SCREEN. When displayed, the functions printed on the monitor housing are operational

AUTO CAL button: This button updates the oxygen sensor air calibration. If the oxygen sensor calibration update is successful, the unit will indicate “**CALIBRATION DONE**” on the digital display.

Note: *Calibration should only be performed in ambient air.*

SPOT or CONT modes, *simply press the respective button again.*

SPOT button: This button measures oxygen content in recurring intervals of time. PRO OX-100 / PRO OX-100 draws a sample for 30 seconds. A reading will then appear and hold until the user presses the **SPOT** button again.

CONT button: This button is used to obtain continuous oxygen level readings.

Note: *To end either SPOT or CONT modes, simply press the respective button again.*

1.3.3 Operation Control Keypad Continued

When the **MENU** button is pressed, the function of the buttons become operational. The functions are as follows:

- » **MENU** button: This allows the operator to access the menu of the unit. When the unit is already in **MENU** mode, pressing the **MENU** button again takes the operator back to the Main Screen.
- » **ENTER** button: Allows the user to select options and values in settings.
- » **LEFT** Arrow ← button: Allows the user to move to the left on the options list or increase/decrease values in settings.
- » **RIGHT** Arrow → button: Allows the user to move to the right on the options list or increase/decrease values in settings.

The stainless steel probe draws the sample gas into the monitor. The 0.08 inches (2.1mm) probe may be inserted into very narrow root gaps for gas sampling. The stainless steel probe is connected to neoprene extension tubing, able to withstand high temperatures up to 300+°F (149+°C). Attach neoprene extension tubing with female fitting to the Quick Connect Fitting on the top right side of the PRO OX®-100 / PRO OX®-100B. Pull gently to ensure the connection is securely in place. Insert the stainless steel probe to the end of the neoprene tube without a fitting. Before taking an oxygen measurement, ascertain both connections are tightly secured. This extension enables remote monitoring up to five (5) feet (1.5 meters). The tubing can easily be removed with the push of a button. No tools are necessary.

1.3.4 Stainless Steel Probe and Neoprene Tubing



The monitor support stand, located on the backside of the monitor, allows the monitor to be propped up at angle for better viewing of the screen. The stand conveniently folds away when not in use.

1.3.5 Monitor Support Stand

1.3.6 Accessories Kit



- » PRO OX[®]-100 / PRO OX[®]-100B Monitor and Sensor
- » Polycarbonate Carrying Case
- » Neoprene Extension Tubing (5' or 1.5 M)
with Quick Connect Fittings
- » Slender Stainless Steel Probe
- » Rechargeable Battery, Power Supply/Charger:
(US and Euro Formats)
- » USB Cable
- » Support Stand
- » Phillips Head Screwdriver
- » Quick Instruction Card

CHAPTER 2 Monitor Operation

2.1 Operating Instructions

- » An **ON/OFF** switch is located at the top of unit.
- » Upon initial activation, the screen will display:

2.1.1 Starting the Unit



- » Press and hold the **"MENU"** button
- » After a few seconds, the screen will display:

2.1.2 Set Date and Time



- » Press the **"ENTER"** button to select **"SETUP: SET DT/TM"**



- » Use the **"RIGHT"** → and **"LEFT"** ← Arrow buttons to increase or decrease **"HOUR"** value
- » Press the **"ENTER"** button to set value

2.1.2 Set Date and Time Continued



- » Use the "RIGHT" → and "LEFT" ← Arrow buttons to increase or decrease "MINUTE" value
- » Press the "ENTER" button to set value



- » Use the "RIGHT" → and "LEFT" ← Arrow buttons to increase or decrease "SECOND" value
- » Press the "ENTER" button to set value



- » Use the "RIGHT" → and "LEFT" ← Arrow buttons to increase or decrease "DAY" value
- » Press the "ENTER" button to set value

2.1.2 Set Date and Time Continued



- » Use the “RIGHT” → and “LEFT” ← Arrow buttons to increase or decrease “MONTH” value
- » Press the “ENTER” button to set value



- » Use the “RIGHT” → and “LEFT” ← Arrow buttons to increase or decrease “YEAR” value
- » Press the “ENTER” button when desired year
- » Press the “MENU” button to return to main screen



2.1.3 Set Alarm ON/OFF

Note: Audiovisual Alarm is factory set to “ALARM DISABLED”

- » Press and hold the “MENU” button
- » Next press the “RIGHT” → Arrow button until you see “SETUP: SET ALARM”, displayed below



2.1.3 Set Alarm ON/OFF Continued

- » Press the **“ENTER”** button to select **ALARM** setup
- » When **“ALARM DISABLED”** (factory setting) is shown, use the **“RIGHT”** Arrow **→** button to display PPM value shown below



- » Use the **“RIGHT”** **→** and **“LEFT”** **←** Arrow buttons to increase or decrease **“ALARM”** set value
- » Press the **“ENTER”** button to Save and Exit
- » Press the **“MENU”** button to return to main screen



- » To disable alarm - once alarm is at 100 PPM, press the **“LEFT”** **←** Arrow button until the **“ALARM DISABLED”** appears on the screen

2.1.4 Set Language

- » Press and hold the **“MENU”** button
- » Next press the **“RIGHT”** **→** Arrow button until you see **“SETUP: LANGUAGE”** displayed



- » Press the **“ENTER”** button to select language setup

2.1.4 Set Language Continued



- » Choose the language (German, Spanish, Portuguese, English) you prefer
- » Press “**ENTER**” button to Save and Exit
- » Press “**MENU**” button to return to main screen

-
- » Press and hold the “**MENU**” button
 - » Next press the “**RIGHT**” → Arrow button until you see “**SETUP: VIEW LOG**” displayed

2.1.5 View Log



- » Press the “**ENTER**” button to select the “**LOG**” viewer



- » Use the “**RIGHT**” → and “**LEFT**” ← Arrow buttons to navigate through the log. The screen will display up to a total of 50 data points
- » To exit the “**LOG**” viewer, press the “**ENTER**” button to return to the “**SETUP**” screen



- » Press the “**MENU**” button to return to main screen

2.1.6 Clear Log

- » Press and hold the **“MENU”** button
- » Next press the **“RIGHT”** → Arrow button until you see **“SETUP: ERASE LOG”** displayed below



- » Press the **“ENTER”** button to begin erasing all data points in the log



- » Once the screen displays **“DONE”**, all the data points have been erased from the log
- » Press the **“MENU”** button to return to the main screen

2.1.7 Calibrating

Note: *If unit is not properly calibrated, it will display **“CALIBRATION ERR.”** and immediately return to the main screen. The sensor must be correctly installed to ensure proper calibration. Calibration ERR could also be a sign of a depleted sensor. Contact Aquasol customer service for sensor replacement*

- » When the PRO OX[®]-100 / PRO OX[®]-100B unit is at the main screen, the operator can press the **“AUTO CAL”** button to begin calibration
- » The unit will automatically begin to sample ambient air and automatically calibrate. The unit will display:



- » Once calibration is complete the unit will show **“CALIBRATION DONE”**, displayed below, and immediately return to the main screen

2.1.7 Calibrating Continued



- » The unit is now ready to use

This mode allows the operator to quickly get a spot reading at any point and at any time, during or after welding. When using this mode, the unit will only run for 30 seconds and stop. The oxygen percentage value will show on the screen when complete. Every Spot reading is recorded on memory.

2.1.8 Using the Spot Reading Mode

- » When the PRO OX[®]-100 / PRO OX[®]-100B unit is at the main screen, the operator can press the **“SPOT”** button
- » The unit will then begin to run as displayed on the screen below:



- » Once the spot reading is complete, the PRO OX-100 / PRO OX-100B will display the oxygen percentage value. The operator can press the **“SPOT”** ← Arrow button again to return to the main screen



2.1.9 Using the Continuous Reading Mode

This mode allows the operator to continuously monitor the oxygen level. Continuous monitoring may be desired during pre-welding as well as with use of the alarm system. With the alarm system, once the set value is reached, the alarm will beep and the light indicator of the audiovisual alarm will flash intermittently, until the operator presses the "**CONT**" button to acknowledge the alarm. Leaving the unit in continuous mode for a long period of time will drain the battery quickly. It is recommended that the battery be fully charged before using this mode.

- » When the PRO OX[®]-100 / PRO OX[®]-100B unit is at the main screen, the operator can press the "**CONT**" button
- » The unit will then begin to run as displayed on the screen below:



AQUASOL 01:49PM
RUNNING

- » During operation, the unit will constantly update the latest oxygen level displayed below:



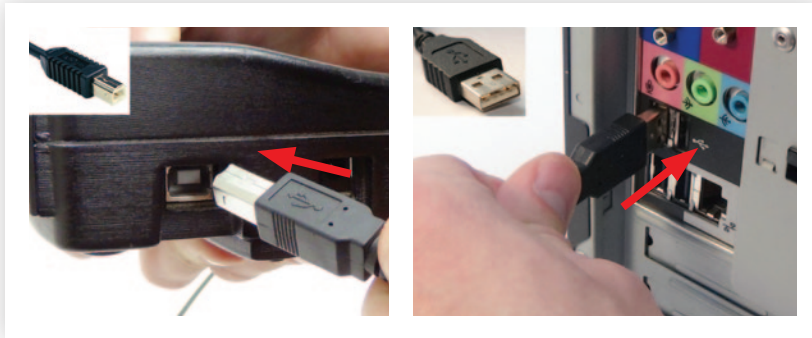
AQUASOL 01:50PM
20.90% 209000PPM

- » Oldest data is erased after 50 logs
- » **Exception:** Because the PRO OX-100B is equipped with a Bluetooth transmitting device, unlimited data can be stored on any Windows 10 device such as a computer, laptop or phone. Refer to section 2.3 for instructions.
- » To exit out of the continuous mode, press the "**CONT**" button after the screen displays the reading.

- » Press the “POWER SWITCH” to “ON” position
- » Connect the oxygen monitor to the computer via USB cable as shown below:

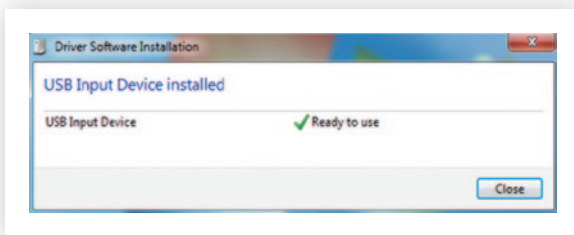
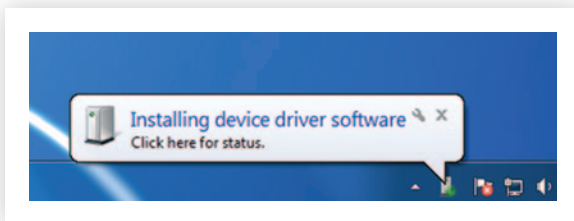
2.2 Computer Interfaced Operations for PRO OX[®]-100

2.2.1 Connecting Device to Computer



- » The device driver for the monitor will automatically be installed. If the installation starts successfully, you will see the following images:

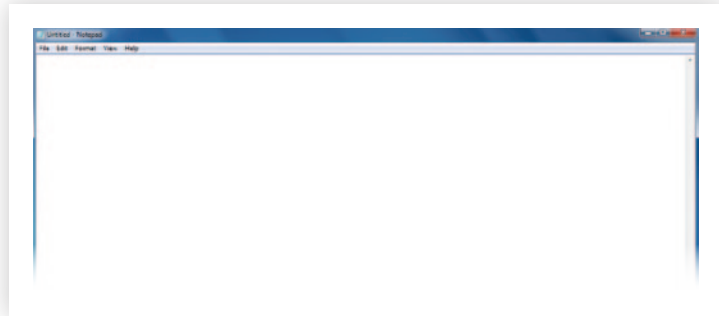
Note: Device drive installation may take as long as 10 minutes.



- » Once the driver has been installed it is not necessary to repeat this step unless the operator uses a different PC or if the operating system is changed or upgraded

2.2.2 Setting Up Data Transfer

- » Open Notepad, or any text editor.
- » To open Notepad, follow the below instructions:
Start > All Programs > Accessories > Notepad



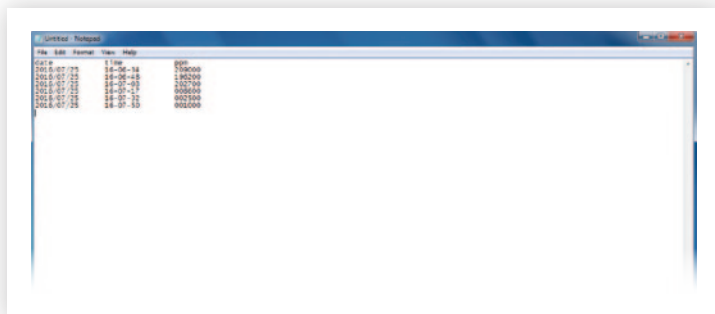
2.2.3 Starting Data Transfer

Set the PRO OX[®]-100 to “**PC MODE**”.

- » Press the “**MENU**” button
- » Next press the “**RIGHT**” → Arrow button until you see “**SETUP: PC MODE**”, displayed below
- » Press the “**ENTER**” button to set monitor to PC mode

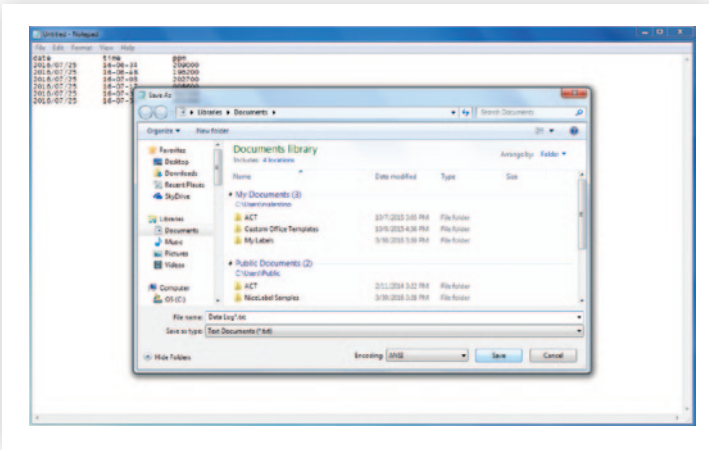


- » The logs will automatically be imported into the notepad after 20-30 seconds.



- » Once the logs are imported, the cursor will stop moving.
Wait 5 seconds
- » To save the Log. Click File **SAVE AS**. Save in designated location

2.2.4 Saving Data Transfer



- » After using the software, the user must turn the power switch of the oxygen monitor to the **OFF** position in order to exit the **“COMPUTER MODE”**



2.2.5 Erasing Data Logs

- » Disconnect the USB Cable from the computer and the PRO OX®-100 monitor
- » Restart the PRO OX-100 monitor
- » Press the **“MENU”** button
- » Next press the **“RIGHT”** → Arrow button until you see **“SETUP: ERASE LOG”** displayed below



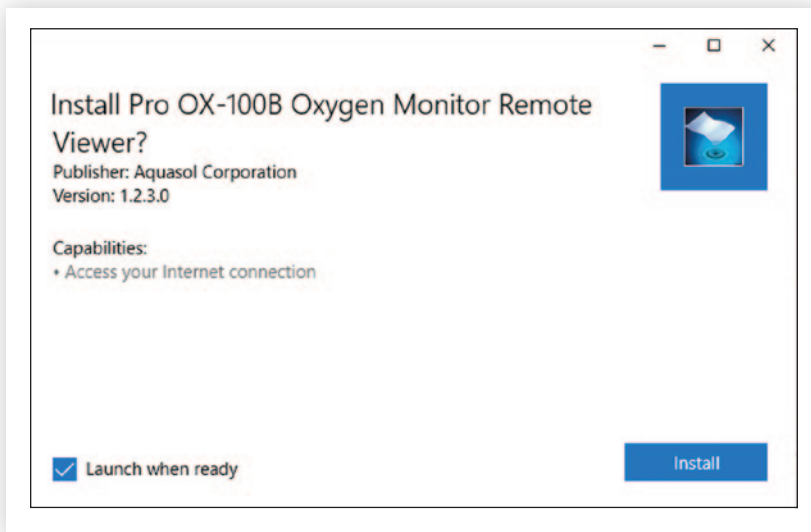
- » Press the **“ENTER”** button to begin erasing all data points in the log



- » Once the screen displays **“DONE”**, all the data points have been erased from the log
- » Press the **“MENU”** button to return to the main screen

The PRO OX-100B is equipped with a Bluetooth transmitting device which allows the oxygen monitor to send the oxygen readings wirelessly to any Bluetooth receivable device (i.e. Computer/Laptop). In order for this feature to work properly, the user must follow these steps for proper installation of the software/app on their device.

1. Click on the appropriate link on Aquasol's website, <http://www.aquasolwelding.com/oxygen-analyzer-for-welding>. If the link cannot be found, contact Aquasol Corporation at **(716) 564-8888** or via email at info@aquasolcorporation.com for further instructions and assistance.
2. When clicked, the following pop-up window will display



3. Click **"Install"** to proceed.
 - a. The application should automatically load after installation within ~1 minute

2.3 Computer Interfaced Operations for PRO OX® -100B

2.3.1 Initial App/ Software Installation

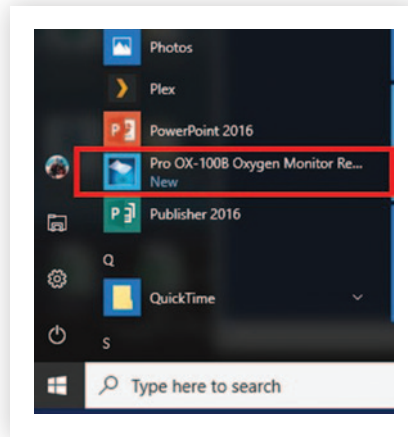
Note: To use the Pro OX-100B Bluetooth capabilities your computer must be equipped with Bluetooth hardware. If not built in, a Bluetooth adapter can be purchased separately.

Note: The current version of the Pro OX-100B Remote Viewer Software/App is **ONLY AVAILABLE** for Windows 10 Operating System at this time.

2.3.2 Using the Remote Viewer App/Software

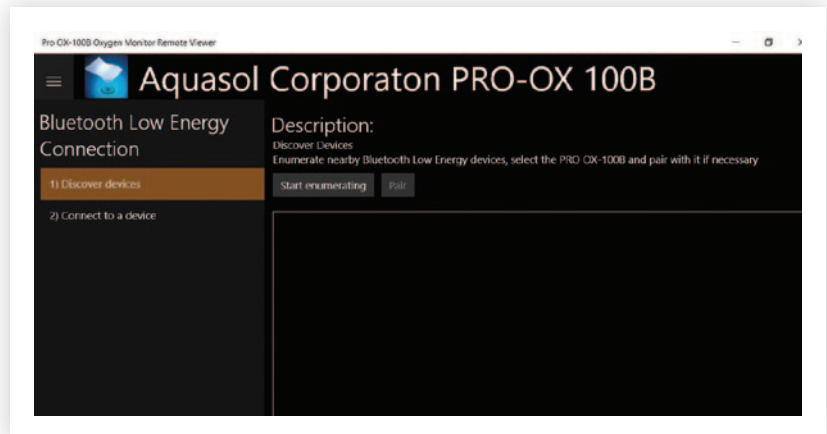
To use the Pro OXB Remote Viewer **App/Software** on your device, refer to the below installation instructions:

STEP 1: To begin, open the **App/Software**, which can be found in the start menu as illustrated below:



STEP 2: With the **App/Software** open, the main screen will appear as illustrated below.

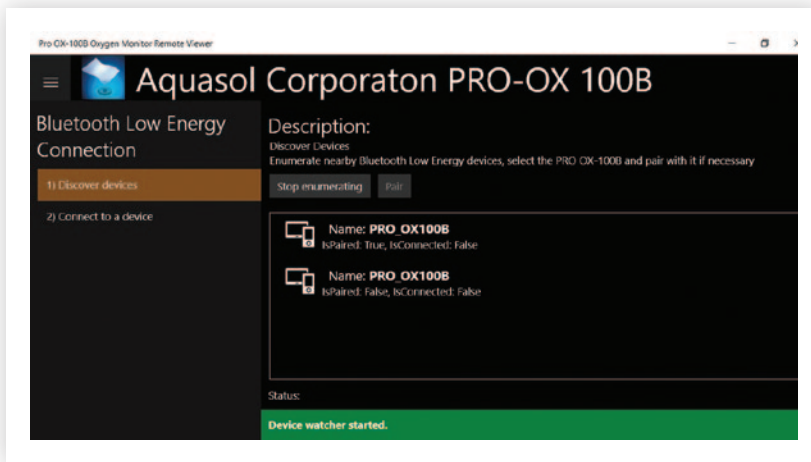
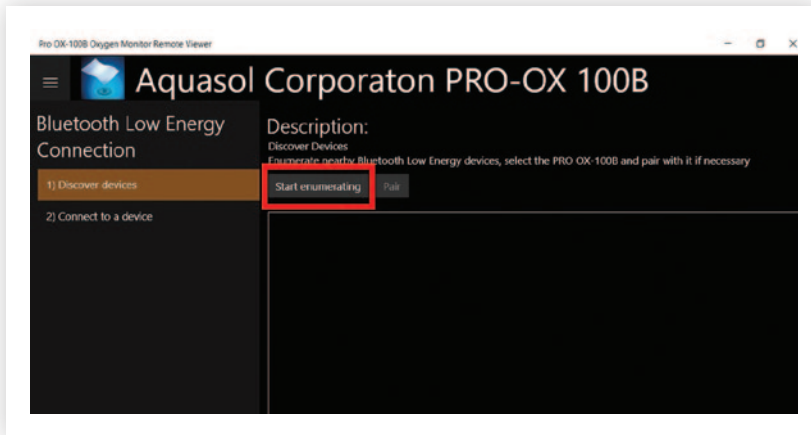
- » Switch the Pro OX-100 B Oxygen Monitor to the **ON** position
- » If the oxygen monitor has previously been connected to your device, proceed to **Step 6**



STEP 3: Press the “**Start enumerating**” button and wait for your Pro OX-100B monitor to be listed on screen, as illustrated below in the first photo. On the bottom of the screen, a green icon will display “**Device watcher started**” as seen in the second photo.

2.3.2 Using the Remote Viewer App/Software Continued

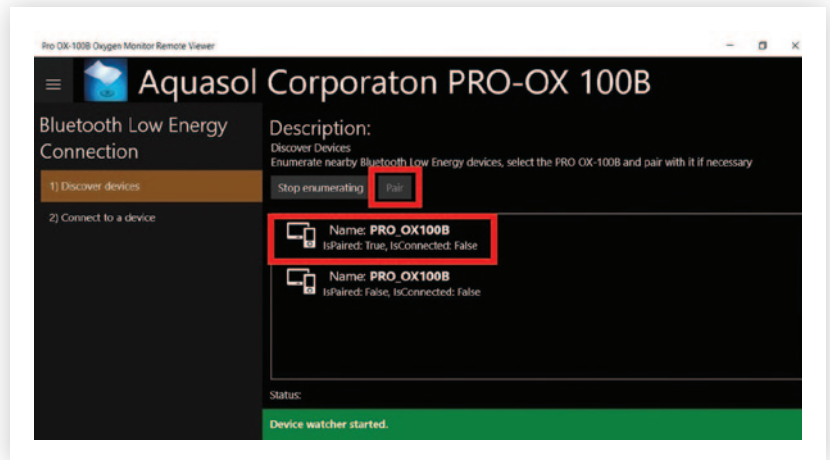
Note: If you have multiple oxygen monitors, turn off the monitors that are not being connected to improve the pairing process



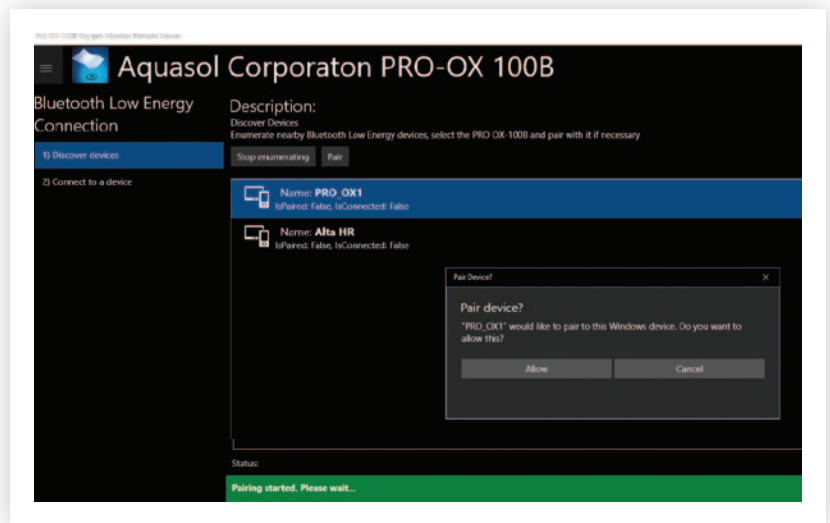
2.3.2 Using the Remote Viewer App/Software Continued

STEP 4: Select the monitor you wish to pair, then press the “Pair” button. (If the device is already paired, continue to the next step.)

1. Once the monitor is selected, the text on the Pair button will change to white (similar to enumerating button)

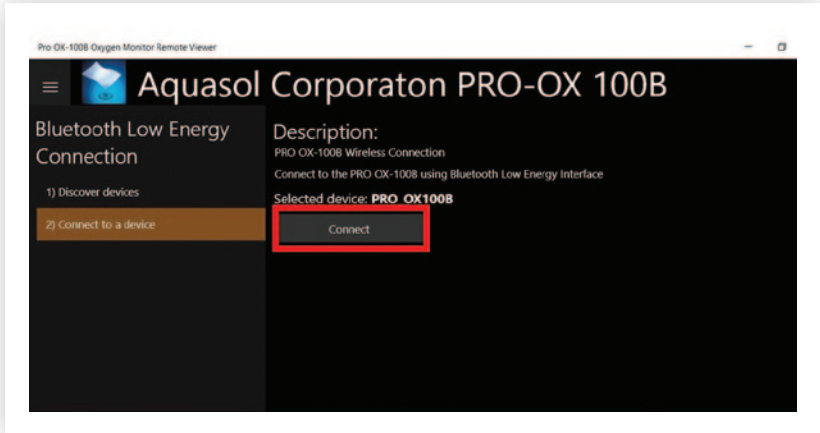


2. Once you select this option, a pop-up window will ask to allow to pair the oxygen monitor and the software.
3. Select “Allow” to proceed.

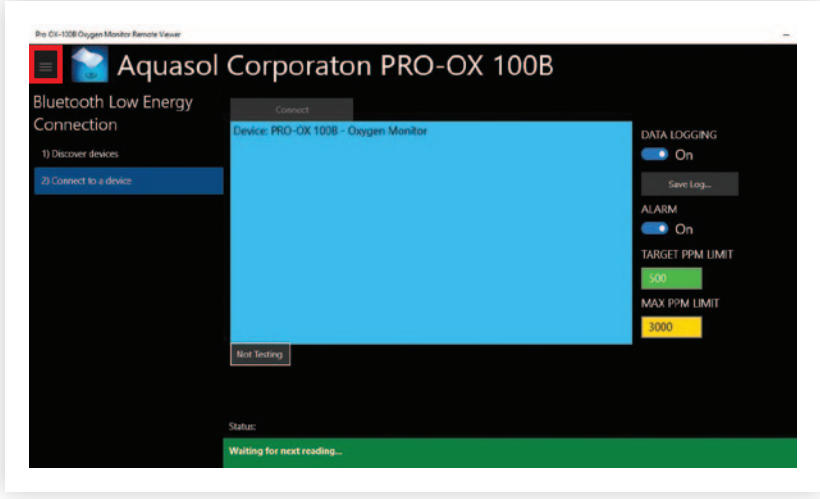


4. A second pop-up menu should say “connection successful”.

STEP 5: Click “2) Connect to a device” below the “Bluetooth Low Energy Button” on the left side of the screen to complete the connection.



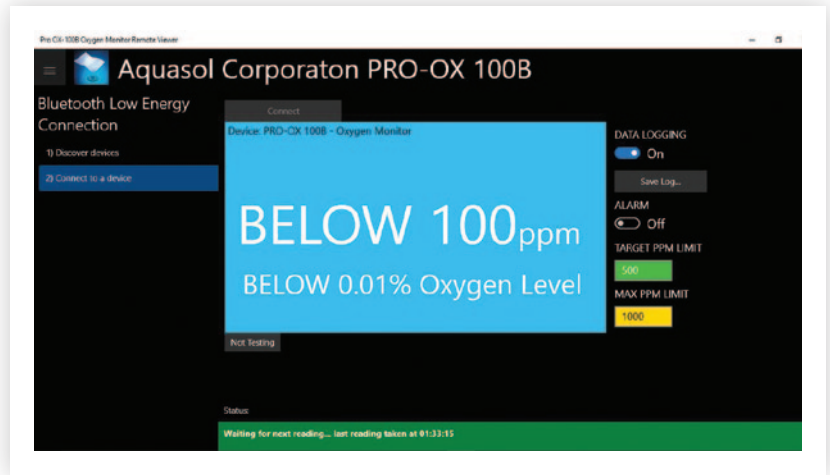
STEP 6: The main screen of the Pro OX-100B Remote Viewer will appear as illustrated below. To view in full screen click the upper left corner button as highlighted below.



STEP 7: The software has now been successfully connected to your Pro OX-100B oxygen monitor. You can begin operating the monitor. See operations manual for further instructions on operation modes

2.3.3 Alarm

To disable the alarm system, press the on/off toggle button underneath “**ALARM**”. The background color will indicate if the alarm is enabled or disabled. The background color serves as an indicator for the alarm status. The color will always be blue if the alarm is disabled. If the alarm is enabled, it will change to colors similar to a traffic light (red, yellow or green) depending on the oxygen level reading.



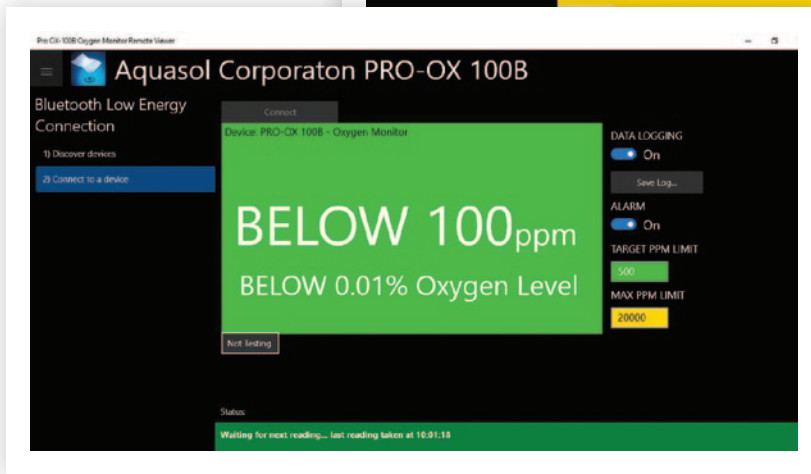
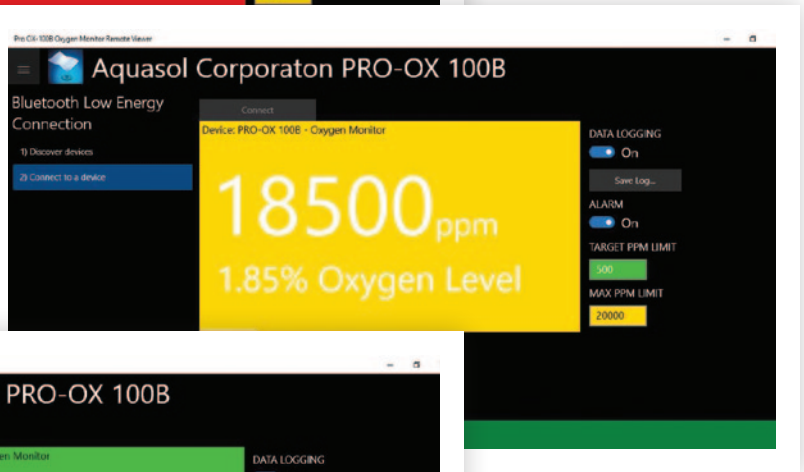
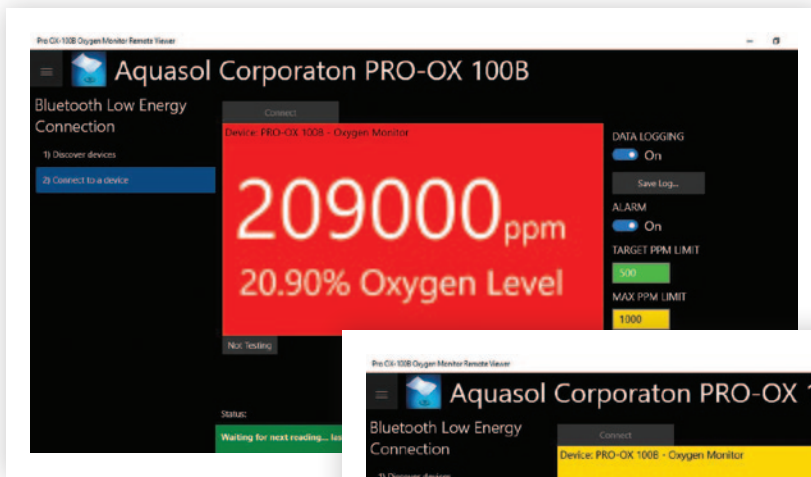
When using the alarm system, you can customize oxygen level limits by changing the number in the “**Target PPM Limit**” or “**Max PPM Limit**” boxes.

- » Target PPM Limit – is the ideal oxygen level as input by the operator. If the oxygen level is at or below this value, the screen will be **green** in color.
- » Max PPM Limit – is the highest acceptable oxygen level as input by the operator. If the oxygen level is at or below this value, but above the Target PPM Limit, the screen will be yellow in color. The welder should take caution when welding at these levels.

***Target PPM and Max PPM are subjective and as dictated by Welding Engineer or Project Manager**

Anything higher than the Max PPM Limit will change the screen color to red. This can be interpreted as meaning the oxygen level is too high. The welder should wait for the level to lower before welding. Examples of each of the colored screens are indicated to the right:

2.3.3 Alarm Continued



STEP 9: Once the welding process has been completed and the user is ready to upload data, click **“SAVE LOG”** and choose which folder the data files are to be uploaded to.

Data logging for the software will always default to the **ON** position.

Note: These files will be saved as a “plaintext” document, or .dat file, which is formatted for easy export to excel or any other data management file program

3.1 Storage

CHAPTER 3 Maintenance

The PRO OX[®]-100 / PRO OX[®]-100B Monitor should be kept in a location where it will not be subjected to temperatures below 32°F (0°C) or above 130°F (50°C) for extended periods of time.

3.1.1 Long Term Storage

If the PRO OX-100 / PRO OX-100B Monitor is to be stored for a period of one month or longer, it is strongly recommended that the battery and the oxygen sensor be removed to prolong its operating life. It is also recommended that the oxygen sensor be sealed and stored. Storage temperature for the oxygen sensor should not fall below 37°F (3°C) and above 68°F (20°C).

3.1.2 Short Term Storage

If the PRO OX-100 / PRO OX-100B Monitor is to be stored for a period of one month or less, the oxygen sensor and the battery may be left inside the unit. Remove the the oxygen sensor and the battery if stored more than one (1) month. Make sure that the monitor is switched OFF to prolong battery life.

3.2 Oxygen Sensor Replacement

Please contact Aquasol's Customer Service Department to order a new PRO OX-100 / PRO OX-100B oxygen sensor.

Please follow the instructions below to replace the oxygen sensor:

1. Remove sensor housing cover with a Phillips head screwdriver.
2. Pull out and remove the oxygen sensor from the socket. Please dispose of the oxygen sensor in accordance to local laws regarding disposing batteries. Clean the sensor housing and the sensor cover with a clean, dry, lint-free cloth.
3. Plug the new sensor into the socket.
4. Replace the sensor housing cover with a Phillips head screwdriver and close tightly.
5. Allow the new oxygen sensor to stay in the housing for 4 hours prior to calibrating to ensure sensor stabilization. Perform Oxygen Sensor Calibration as described in section 2.1.8.

For assistance, please contact:

Aquasol Corporation

Attn: Customer Service Department
80 Thompson Street
N. Tonawanda, NY 14120 USA

Tel: (716) 564-8888

Toll Free: (800) 564-9353

Fax: (716) 564-8889

Email: info@aquasolcorporation.com

www.aquasolwelding.com

CHAPTER 4 Appendices

4.1 Appendix A Spare Parts List

PART NUMBER	DESCRIPTION
P-OX Manual	Operations Manual
P-OX Sensor	Oxygen Sensor
P-OX USB	USB Cable
P-OX Batt	Rechargeable Battery
P-OX Charger/US	Power Supply/Charger
P-OX Charger/EU	European Power Supply/Charger
P-OX Case	Oxygen Monitor Carrying Case
P-OX Tube	Neoprene Extension Tubing
P-OX Probe	Stainless Steel Probe

4.2 Appendix B Specifications

PRO OX®-100 Oxygen Sensor	Rapid response electrochemical sensor
Measurement Range	0.00 – 21.0% Oxygen concentration by volume
Display Resolution	0.00 – 24.99% (2 decimal places)
Accuracy	@ 99.995% Ar +/- 0.01%
Response Time	T90 < 15 seconds
Warm Up Time	Negligible
Humidity	0-95% non-condensing
Operating Temperature	32°– 122°F (0°– 50°C)
Storage Temperature	37°– 68°F (3°– 20°C)
Sample Flow	1.0 LPM maximum
Sample Pressure	10 PSI (Pounds Force per Square Inch) maximum
Power	One 9V NiMH Cell Battery
Battery Charge Times	2 hour minimum

4.2 Appendix B Specifications Continued

	PRO OX®-100 / PRO OX®-100B Oxygen Monitor	PRO OX®-100 / PRO OX®-100B Complete Kit
Weight	Weighs approximately 1 lb (0.45 kg) with batteries and oxygen sensor installed.	Weighs approximately 4 lbs (1.8 kg) with monitor, carrying case and all accessories
Dimensions	Length: 6.75 in (171.45 mm) Width: 3.55 in (90 mm) Height: 1.50 in (38.1 mm)	Length: 11 in (280 mm) Width: 9 in (230 mm) Height: 3.85 in (98 mm)

Aquasol Corporation reserves the right to amend these specifications as necessary.

4.3 Appendix C Warranty and Intended Use

Aquasol Corporation warrants to the purchaser that the PRO OX-100 / PRO OX-100B Oxygen **Monitor** is free from defects in material and workmanship for a period of one (1) year from the date of shipment from Aquasol Corporation.

Aquasol Corporation warrants to the purchaser that the PRO OX-100 / PRO OX-100B **Sensor** is free from defects in material and workmanship for a period of one year from the date of shipment from Aquasol Corporation.

Aquasol Corporation's liability will be limited to the repair or replacement, at our factory, of parts found to be defective within the warranty period, as determined by Aquasol Corporation. The parts will be repaired or replaced free of charge if a Returned Goods Authorization (RGA) is issued and the unit is shipped prepaid to the Aquasol Corporation Customer Service Department. This warranty is void if the product has been subject to misuse or abuse, including but not limited to:

1. Exposure to water, humidity, temperature, shock or pressure outside of the listed specifications
2. Has not been operated or installed in accordance to the operating and maintenance instructions
3. Repairs which were not performed by one of its authorized dealers
4. If the identifying markings on the product label have been altered or removed

4.3 Appendix C Warranty and Intended Use Continued

The seller assumes no liability for consequential damages of any kind, and the buyer, by acceptance through purchase of this product, will assume all liability for the consequences of its use or misuse by the buyer, their employees, or others.

Aquasol Corporation reserves the right to use any materials in the manufacture, repair or service of the products and to modify the design as deemed suitable, in so far as these materials or modifications maintain the stated warranty.

PRO OX[®]-100 / PRO OX[®]-100B Oxygen Monitor was designed to provide the trained operator with useful information relating to the concentration of oxygen. This information may be used in process control or to minimize possible hazardous conditions, which may be present in various processes. It is the sole responsibility of the buyer/user to determine if this product is suitable for the intended application.

Before implementation, the user must fully understand the operation and limitations of this instrument as well as the application for its use. The responsibility for the proper application, operation, installation, and maintenance of the PRO OX-100 / PRO OX-100B Oxygen Monitor is the sole obligation of the trained operator. The purchaser must ensure that the operator of the PRO OX-100 / PRO OX-100B Oxygen Monitor has been properly trained in the use of the unit as well as the possible hazards associated with its use or with the intended application.

Aquasol Corporation will not assume any liability for misuse due to operator error.

THESE WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, OR IMPLIED INCLUDING WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE.

4.4 Appendix D Maintenance Log

Use this Maintenance Log to record and track routine maintenance tasks.

TASK	RECOMMENDED FREQUENCY	DATE MAINTAINED						
Calibrate Sensor	At least once a week depending on use	Date	Date	Date	Date	Date	Date	Date
		Date	Date	Date	Date	Date	Date	Date
Replace Batteries	Once Low Battery Light Turns On	Date	Date	Date	Date	Date	Date	Date
		Date	Date	Date	Date	Date	Date	Date
Sensor Replacement	As needed (1 year guarantee)	Date	Date	Date	Date	Date	Date	Date

4.5 Appendix E Troubleshooting Guide

PROBLEM CODE	AREA	PROBLEM FEATURES	PROBLEM	SOLUTION
1	Pump	Pump does not start when pressing SPOT or CONT button	Pump is damaged	Return it to Aquasol Corporation
2	Screen	No display after switching on the oxygen monitor	Battery drained	Switch off and plug the monitor into the charger for 1 hour to 1 hour 15 minutes. If it still doesn't light up, replace the battery
			LCD is damaged	Return it to Aquasol Corporation
3	Screen	Display screen shows strange symbols after switching on the oxygen monitor	Display hanged	Restart the machine. If problem persists return it to Aquasol Corporation
4	Key	No change when pressing any key/all keys	Keypad damaged	Return it to Aquasol Corporation
5	Program	Display shows wrong time	Date and Time not set	Set Date and Time as per instruction
6	Program	Cannot set the alarm	Program is corrupted	Return it to Aquasol Corporation

Note: Please refer to a problem code when you talk to an Aquasol Customer Service Representative.

4.5 Appendix E Troubleshooting Guide Continued

PROBLEM CODE	AREA	PROBLEM FEATURES	PROBLEM	SOLUTION
7	Alarm	Audiovisual alarm does not set off	Alarm is disabled	Please go to section 2.1.3 to set alarm on/off
			Alarm is damaged	Return it to Aquasol Corporation
8	Alarm	Alarm goes off but light does not blink	Light indicator is damaged	Return it to Aquasol Corporation
9	Sensor	Reading shows 00.00%	Sensor loose	Open sensor cover and make sure the sensor is tightly connected to ports
			Sensor depleted	Request replacement sensor
10	Computer	Automatic driver installation fails	Device disconnected	Unplug and re-plug the device into a different USB port if available
11	Computer	No logs are imported	Notepad was not Active Window	Unplug the device and restart it. Open notepad and follow the instructions to import logs
			Logs erased manually	View Log on Pro Ox-100 to ensure log has not been erased. Follow instructions contained in section 2.2
12	Computer	USB Device not recognized	Device is unable to connect to PC	Use a USB Hub, i.e., connect the Pro Ox-100 to a USB hub and plug the Hub to the PC

4.5 Appendix E Troubleshooting Guide Continued

PROBLEM CODE	AREA	PROBLEM FEATURES	PROBLEM	SOLUTION
13	Computer	Bluetooth Software	Software cannot find Bluetooth monitor	Ensure Pro OX is on and at the main screen
				Ensure Pro OX is fully charged
				Ensure your computer has a BLE received (Bluetooth Low Energy). BLE must be 4.0 or higher. If not, a Bluetooth 4.0 USB Dongle adapter must be purchased
				Ensure your Operating System is Windows 10
14	Computer	Bluetooth Software	Software cannot connect properly to monitor	Ensure Pro OX is on and at the main screen
				Ensure Pro OX is fully charged
				Ensure connection setting for each drop down menu are correct before clicking connect
				Ensure your computer has a BLE received (Bluetooth Low Energy). BLE must be 4.0 or higher. If not, a Bluetooth 4.0 USB Dongle adapter must be purchased
				Ensure your Operating System is Windows 10
15	Computer	Bluetooth Software	Monitor loses connection during operation	Ensure battery is fully charged
				Operate the monitor at a closer distance

Notes

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N. Tonawanda, NY 14120 USA

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