

### Technical Specifications

Accuracy:	< ±2% of FS range under constant conditions
Analysis:	0-100% oxygen
Application:	Verify O <sub>2</sub> content of scuba compressed air tanks
Calibration:	Certified dry 100% oxygen or air after 8 hrs of use
Compensation:	Temperature
Connections:	1x16 mm thread (see options below)
Controls:	Soft touch keypad for ON/OFF and Calibration
Dimensions:	2.72" x 4.1" x 1.35"; weight 7 oz. (196 grams)
Display:	3 digit LCD 1.1" x .625"; resolution 0.1% O <sub>2</sub>
Flow Sensitivity:	None between 0.2 to 10 liters per minute
Humidity:	Non-condensing 0-95% RH
Linearity:	± 1% under constant conditions
Pressure:	Inlet - ambient or regulated; vent - atmospheric
Power:	(2) 1.5V AA alkaline batteries; 13,000 hrs of use
Response Time:	90% of final FS reading in 10 seconds
Sensitivity:	< 0.5% of FS range
Sensor:	AII-11-75-PO2 D
Sensor Life:	32 months in air at 25°C and 1 atmosphere
Storage Temp.:	-20° to 60°C (-4°F to 140°F) on intermittent basis
Temp. Range:	5° to 45°C (41°F to 113°F)
Warm-up Time:	None
Warranty:	12 months analyzer; 12 months sensor

### Options & Accessories

- AII-11-75-PO2R D Remote Oxygen Sensor Kit
- A-3388 Adapter, Dome to Sensor
- A-3609 Adapter, Dome to 1/8" Tube
- A-3671 Adapter, BC with Restrictor to Sensor
- A-3673 Adapter, BC with Restrictor to 1/8" Tube
- A-3676 Adapter, 1/8" Tube to Sensor
- A-3677 Adapter, DIN to 1/8" Tube
- A-3678 Adapter, A-Yoke to 1/8" Tube
- FITN-1009 Tee Adapter 15mm ID x 22mm ID x 22mm OD
- FITN-1112-1 Flow Diverter
- HRWR-1157 Screwdriver
- HRWR-1158 Lanyard
- TUBE-1018 Tubing, 1/8" x 3'
- A-3657-1 Dovetail Mounting Kit
- HRWR-1075 Dovetail Female Clamp Pole/Shelf



**Diving**

## Palm O<sub>2</sub> Oxygen Analyzer

Easy user interface ... one touch controls

Simple to use ... accurate reliable results

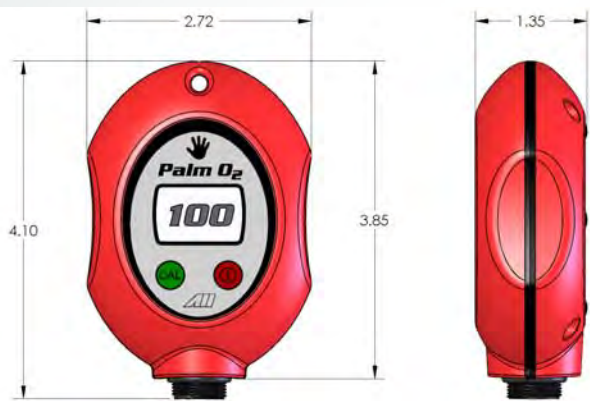
One touch calibration ... 100% O<sub>2</sub> or air

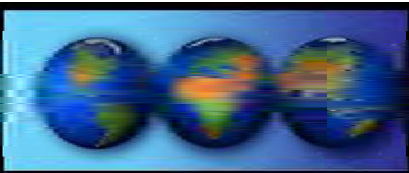
Long battery life ... 13,000 hrs of use

Advanced sensor technology

State of the art electronics

Certified ISO 9001:2008 QA System





**NEW**

# Palm O<sub>2</sub> Oxygen Analyzer

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Certified ISO 9001:2008 QA System



**Diving**

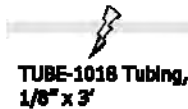
## Optional Accessories



A-3388 Adapter,  
Dome to Sensor



A-3676 Adapter,  
1/8" Tube to Sensor

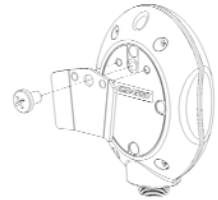


TUBE-1018 Tubing,  
1/8" x 3'



A-3609 Adapter,  
Dome to 1/8" Tube

A-3657-1 Dovetail Mounting Kit



A-3657 Dovetail Bracket  
HRWR-1162 Screw 1/4-20 x 3/8"



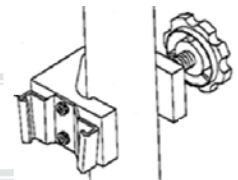
A-3671 Adapter, BC with  
Restrictor to Sensor



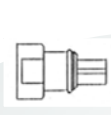
A-3673 BC with  
Restrictor to 1/8" Tube



A-3678 Adapter,  
A-Yoke to 1/8" Tube



HRWR-1075 Dovetail  
Clamp Pole or Shelf



FITN-1112-1  
Flow Diverter



FITN-1009  
Tee Adapter



A-3677 Adapter, DIN  
to 1/8" Tube

HRWR-1157 Screwdriver

HRWR-1158 Lanyard

## Remote Oxygen Sensor Kit



Palm O2 DR with A-3654  
Remote Sensor Connector



CABL-1009 Cable 6 ft.  
Phone Plug with Lock Nut

AII-11-75-PO2RD  
Oxygen Sensor



**Analytical Industries Inc.**

## ***Instructions for Use***



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**UKAS**  
QUALITY  
MANAGEMENT

061



## ***Palm O<sub>2</sub> D Oxygen Analyzer***

# 1 Introduction

Congratulations on your purchase, these Instructions for Use describe the precautions, set-up, operation, maintenance and specifications of the Palm O2 Oxygen Analyzer.



This symbol means CAUTION – Failure to read and comply with the Instructions for Use could damage the device and possibly jeopardize the well being of the user.

**Note:** Analytical Industries Inc. cannot warrant any damage resulting from the misuse, unauthorized repair or improper maintenance of the device.

## 1.1 Indications for Use

The Palm O2 Oxygen Analyzer is intended to measure and display the concentration of oxygen in compressed breathing air tanks intended for scuba diving.



Users must read the following statements as they are essential to reducing the risk of use error due to ergonomic features of the device or the environment in which the device is intended to be used.

The device has been designed and manufactured in such a way that when used under the conditions and for the purposes intended, they will not compromise the safety of the users or other persons.

Conformity with essential requirements has been demonstrated by verifying the performance of the device under normal conditions, bench testing and determining that undesirable malfunctions constitute minimal risk to users.

Do not sterilize, autoclave, liquid sterilize, immerse in any liquid or expose the device or accessories to steam, ethylene oxide or radiation sterilization.

The device is intended to be re-usable. Should the device or accessories come in contact with patient bodily fluids, either dispose of the device or clean with a soft cloth dampened with 70% isopropyl alcohol solution in water and allow the components to air-dry before re-use.

Do not operate the analyzer near equipment capable of emitting high levels of electromagnetic radiation as the reading may become unstable.

<b>ction</b>	1
ications for Use	1
nded Use	2
ice Description	3
<b>Control Certification</b>	4
<b>arnings</b>	6
ents of Shipping Container	6
ontrols	6
t-Up Test	7
oration	9
nting	10
<b>on</b>	10
inciple of Operation	11
lication Considerations	12
oration	12
plling	14
<b>ance</b>	14
iceability	14
ery Replacement	14
gen Sensor Replacement	15
sembly	16
ote Oxygen Sensor Replacement	17
<b>shooting</b>	18
<b>ations</b>	19
re Parts & Optional Accessories	20
<b>ty</b>	22
<b>I Safety Data Sheet (MSDS)</b>	23
posal	23



statements below as they are essential to reducing risk due to ergonomic features of the device or the device is intended to be used.

who have read, understand and agree to follow the instructions to operate the device.

Use for future reference.

trained authorized personnel. Failure to do so may void the warranty.

accessories before operating and ensure: (a) there is no physical damage; (b) the sensor (particularly the sensing connections) are dry; and, (c) the sensor is installed in a humidifying device for accurate calibration and

own source of dry air or 100% oxygen before using the device for continuous use; (b) when the temperature or humidity environment changes; (c) if the oxygen sensor is disconnected and reconnected; (d) after the battery or oxygen source is replaced.

(a) install the optional accessories as shown in Section 6.1.2. There is a tight fit between the components.

that or controlled atmospheres unscrew and remove the oxygen sensor.

accessories in accordance with Section 6.1.2.

Section 6.2: (a) replace the batteries when the 'LO' indicator appears in the LCD and (b) calibrate the analyzer after re-

placement or replacement Section 6.3 or 6.5: allow the device to stabilize for 15-20 minutes in ambient air before attempting

turning the power OFF and removing the batteries if the device has operated for over thirty (30) days.

procedure that caused a perceived malfunction and the hints in Section 7 before concluding the device is defective. Contact the manufacturer for assistance.



**NEVER** operate the device in any manner described below doing so may compromise the clinical condition or the safety of patients, users or other persons.

- If the reading is unstable or a malfunction is suspected.
- After the 'ERR' or 'LO' messages are displayed on the LCD.
- Near equipment capable of emitting high levels of electromagnetic radiation (EMI) or radio frequency interference (RFI).
- Expose the device; particularly the LCD display or sensor to sources of extreme heat, cold or excessive sunlight beyond the device's storage temperature range, refer to Section 8 for extended periods of time.
- In a gas stream with a vacuum greater than 14" water column.
- Immerse the device, oxygen sensor or optional coiled cable in any liquid.
- Outside of the parameters specified in Section 8 particularly at flow rates greater than 10 liters per minute - the backpressure generated produces erroneously high oxygen readings.
- Calibrate: (a) with 20.9% oxygen or room air with the intent of taking oxygen measurements at oxygen levels above 30% oxygen; (b) in a humidified gas stream or atmosphere; (c) without allowing a newly installed sensor to stabilize for 15-20 minutes in ambient air.
- Attempt to sterilize, autoclave, liquid sterilize, immerse in any liquid or expose the device or accessories to steam, ethylene oxide or radiation sterilization.
- Open the main compartment of the device, except to change the integral oxygen sensor.
- Open the oxygen sensor or probe the sensing surface, refer to Section 10 in the event the sensor should leak and someone comes in contact with the electrolyte from inside the sensor.
- Optional remote sensor with a cable that appears worn, torn or cracked, or, allow an excess length of cable near the patient's head or neck; secure it to the bed rail or other suitable object to avoid the possibility of strangulation.
- Allow the device or oxygen sensor to be serviced, repaired or altered by anyone except trained personnel – failure to do so may endanger the patient or damage the device rendering the warranty null and void.

**Container:**

Use

remote sensor option accessories.

ed with the batteries installed at the factory and use.

secured in a plastic bags and stored next to theainer.

s for shipping damage. If any component appears operate the device and contact the manufacturer 9.

micro-processor

2) pushbuttons

the front cover.

on routine.

he electronics

bove right, not only sup-  
s but initiates diagnostic  
battery voltage.

ected during the Start-  
peration causes the LCD  
etween LO and the oxy-  
PLING mode.

utput must be confirmed  
vice as described in the

**4.4 Calibration**

Electrochemical oxygen sensors generate slightly different signal outputs under identical conditions due to variations in the thickness of the sensing membrane and manufacturing process.



Simulate the application for optimum accuracy: Review Sections 3 Safety Warnings and 5.2 Application Considerations before proceeding.



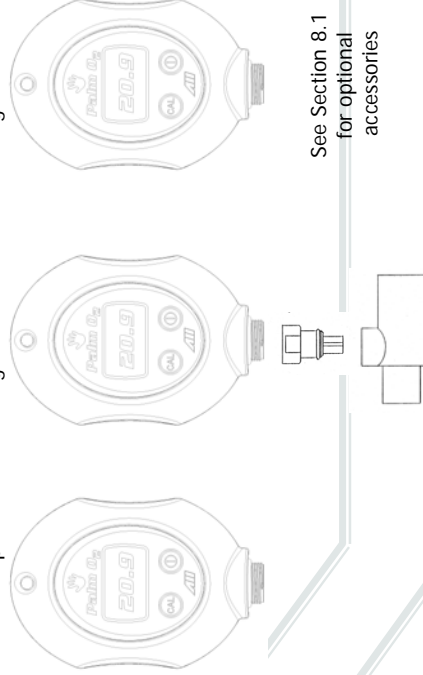
The devices are designed to meet the requirements for both ambient and elevated oxygen measurements but should **NEVER** be calibrated with air or 21% oxygen with the intent of taking oxygen measurements at oxygen levels above 30% oxygen.



Accordingly, the devices may be calibrated with either air (20.9%) or 100% oxygen which requires the user to make a conscious decision to bypass or skip the recommended 100% oxygen calibration.

**Set-Up:**

Static Atmosphere      Flowing Gas Stream      Flowing from Tank



See Section 8.1 for optional accessories

known source of dry air, before using each day in continuous use; (b) when the pressure of the operating gas or electronics. Dropping the device will damage the sensor and electronics.



the calibration gas (refer to section 4.5) for approximately 30 seconds to stabilize.

sensor to the calibration routine is complete. Press the calibration pushbutton for three (3) seconds.

top right, during the calibration routine, the device takes 15-20 seconds.

lines from the sensor's output to the device is being calibrated to 21% oxygen.

successful, the LCD will display '20.9' at the bottom right, the oxygen sensor is calibrated to 21% oxygen and returns to the normal gas and begins sampling.



#### Calibration Fails

If the calibration fails, the LCD will display ERR as illustrated.



An unsuccessful calibration can be caused by several problems with the sensor, calibration gas or electronics. Dropping the device will damage the sensor and electronics.



Do not proceed until corrective action is taken and the device is calibrated successfully.

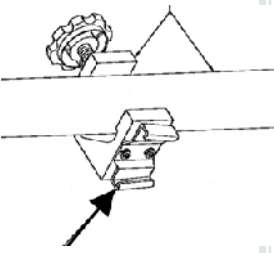


If after three (3) unsuccessful attempts to calibrate: review section 7 for possible causes and corrective action or contact Advanced Instruments Inc. at 909-392-6900.



#### 4.5 Mounting

The device can be mounted to a 1" diameter pole or a book shelf using the optional Dovetail Mounting Kit (P/N A-3675-1) and Dovetail Female Clamp Pole/Shelf (P/N HRWR-1075) as illustrated below.



The dovetail male bracket, top left and middle, is secured to the rear of the enclosure with one (1) screw and held in place by registration holes molded into the enclosure.

The 1" diameter dovetail female, top right, clamp pole/shelf is an optional accessory commonly found in medical applications.

The v-shaped male component simply slides into and out of the pole or shelf mounted female section.

er utilizes an electrochemical galvanic fuel cell type that is extensively used to measure oxygen concentration in gas streams. Oxygen, the fuel for this electrochemical cell, diffuses into the sensor through a gas permeable membrane. The oxygen sensor's electrical current varies linearly with oxygen concentration. The signal also varies with changes in ambient temperature. The temperature coefficient is typically 2.54% of the signal or reading per degree C change in temperature.

The temperature dependent current signal output is compensated by using a resistor-thermistor network. With a proper resistor-thermistor network, the signal can be compensated to within  $\pm 5\%$  of the oxygen reading over the 5-45°C temperature range. This is the worst case situation when going from one extreme of the operating temperature range to the other. The error will be eliminated when the thermistor in the temperature compensation network and the electrolyte inside the sensor reach thermal equilibrium in approximately 45-60 minutes.

Erroneous oxygen readings can result if the gases flowing over the sensing area of the sensor are not at ambient temperature. This occurs because the sensor is exposed to different temperatures. The sensing area of the sensor is o-ring sealed in the sample gas and the temperature compensation network at the rear of the sensor is exposed to ambient temperature.

**Effect of Pressure**  
Electrochemical sensors actually measure the partial pressure, not the percentage, of oxygen in the gas stream they are exposed to. These sensors are accurate at any pressure provided the pressure is constant and the analyzer has been calibrated at the same pressure as the sample gas measured.

For example, when connected to a gas stream where the pressure varies, oxygen sensor causes the analyzer to display fluctuating oxygen readings. The fluctuations in the readings displayed are not related to a change in the oxygen percentage but to the change in partial pressure.

Calibrate at the temperature and pressure (altitude) at which the analyzer will be operated.

## 5.2 Application Considerations

### Effect of Temperature

All membrane clad electrochemical sensors are temperature dependent due to the expansion and contraction of the Teflon sensing membrane. As result more or less of the sample gas including oxygen to be reacted diffuses into the sensor. The oxygen sensor's electrical current signal output varies linearly with oxygen concentration. The signal also varies with changes in ambient temperature. The temperature coefficient is typically 2.54% of the signal or reading per degree C change in temperature.

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Calibrate at the temperature and pressure (altitude) at which the analyzer will be operated.

by non-condensing relative humidity (RH). How-  
vapor or moisture increases the total pressure  
the oxygen concentration of the gas mixture  
reading.

ating on the sensing area or the electrical connec-  
tors can adversely impact the performance of elec-  
trical connection blocks the diffusion path of oxygen into the  
oxygen reading to 00.0 if the condensation covers  
condensation on the electrical connections at the rear  
oxygen readings. Remedy either situation by shaking  
allowing the sensor to air dry.

many instances as a sensor failure, excessive con-  
densation wiping away the condensation with a soft cloth  
to air dry.

#### Radiation

00 MHz electromagnetic field, the analyzer is sus-  
ceptible to those between 930 and 990 MHz.

analyzer near equipment capable of emitting high  
magnetic radiation. Do not continue to operate the  
analyzer if the reading becomes unstable.

analyzer during normal operation involves the same  
procedures as those described in Sections 4.4 Start-up  
and the same cautions to review Sections 3 Safety Warn-  
ing Considerations.

TS are completed successfully the devices default

analyzer if the reading is unstable or if a malfunction  
indication is required as indicated herein, do not pro-  
ceed with calibration successfully.

#### 5.4.1 Flowing Gas Streams

1. Place the sensing area of the sensor into the gas stream to be analyzed upstream of any humidification equipment.
2. Assure that the flow rate of the gas stream does not exceed ten (10) liters per minute. Exceeding ten (10) liters per minute generates backpressure.
3. Check the gas stream and particularly the mechanical connection for leaks that dilute the gas stream with ambient air.
4. Assure there are no restrictions in the circuit downstream of the sensor that could generate backpressure on the sensor.
5. Select a means of flowing gas to the sensor, see below and Section 8.1.
6. Ensure the method selected (a) facilitates the movement of gas to and from (sensor adapters include a vent hole) the sensing area of the sensor, (b) forms a tight seal between the components and (c) limit the flow past the sensor to a rate of 5-8 liters per minute or slightly crack a tank of breathing air until it first hisses out.
7. Once the sensor is exposed to the gas stream allow approximately sixty (60) seconds for the reading to stabilize as displayed by the LCD.



#### 5.4.2 Static Atmospheres

Expose the sensing area of the sensor to the atmosphere allow-  
ing approximately sixty (60) seconds for the reading to stabilize  
and observe the reading displayed by the LCD.



If placing the entire sensor inside the controlled atmos-  
phere review Section 5.2



Safety Warnings and Section 7 Troubleshooting for the devices.

partment of the analyzer, as it contains no service-empt to repair the analyzer or sensor by yourself as or which could void the warranty.

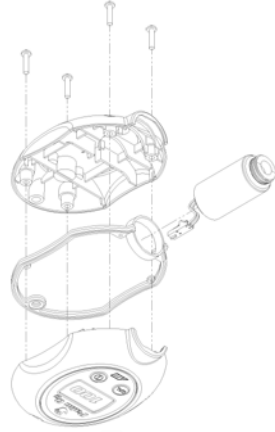
#### Instructions

sensor and accessories with a soft cloth dampened isopropyl alcohol solution (70% isopropyl alcohol rry, before re-use. Allow the components to air-dry

alyzer is powered by two 1.5V AA alkaline batteries 3,000 hours.

circuit monitors the battery supply directly to the LCD when the bat- at level that activates the battery

the top section or front of the ana- als mounted directly on the PCB



#### Procedure:

1. Open the enclosure: Remove the four (4) Phillips screws from the rear of the enclosure, FIG 1.
2. Separate the enclosure and place it on a flat surface, FIG 2.
3. Remove the battery: Grasp the middle of a battery and gently pull straight up.
4. Locate the positive (+) and negative (-) terminals on the battery.
5. Assure the battery contacts are clean.
6. Align the battery's positive (+) terminal with the corresponding (+) battery symbol printed on the PCB Assembly.
7. Install the battery: Align the battery over the terminal clip mounted on the PCB Assembly and press down until the battery snaps into place, FIG 2.
8. Repeat steps 3-7 with the remaining battery.
9. Reassemble the device as shown in section 6.4
10. Calibrate, see section 4.4, the device after replacing the batteries.

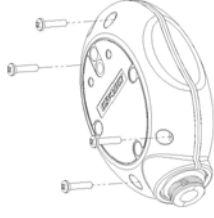


FIG 1



FIG 2

#### 6.3 Oxygen Sensor Replacement - Standard Integral Sensor

The design of the electronics is intended for only the Analytical Industries Inc. AII-11-75-PO2 or AII-11-75-PO2R Oxygen Sensors. Use of a different oxygen sensor may result in an erroneous oxygen reading.



**NEVER** - Open the oxygen sensor or probe the sensing surface, refer to Section 10 in the event the sensor should leak and someone comes in contact with the electrolyte from inside the sensor.

#### Procedure - Standard Integral Sensor

1. See 6.2 step 1 above.
2. See 6.2 step 2 above.
3. Disconnect the oxygen sensor: Press down on the latch arm, see arrow, and pull back on the male connector attached to the sensor from the female connector attached to the PCB Assembly, FIG 3.

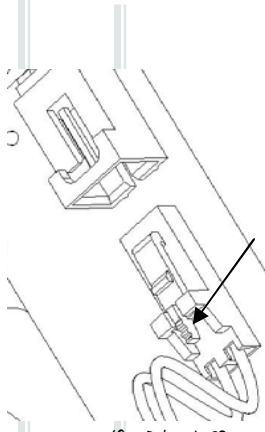


FIG 3

sensor, FIG 4:  
 the sensor where  
 are attached.  
 the sensor out  
 or, arrow right,  
 get that seals the  
 enclosure.

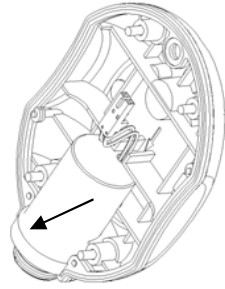


FIG 4

the sensor:  
 the sensor as shown  
 install.  
 to the molded collar, arrow  
 outer shoulder with the front edge of the collar.  
 on peg indicated by the arrow circled in FIG 5.  
 le where the wires exit the sensor onto the  
 3 5.

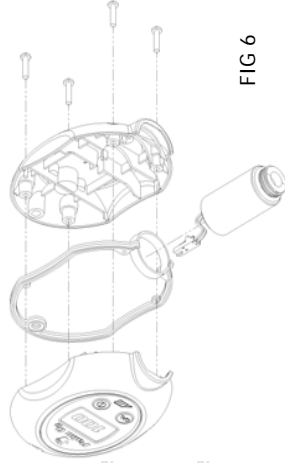


FIG 5

erse section step 3.  
 as shown in section 6.4.  
 .4, the device after replacing

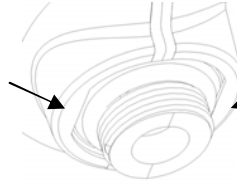


FIG 6

after replacing the sensor or  
 points:  
 ed in the terminal clip.  
 registered onto the 4 pegs molded into  
 the enclosure.

ed as shown in FIG 5 and FIG 7 and the connecting  
 ound when closing up the enclosure and tightening  
 6.

### 6.5 Oxygen Sensor Replacement - Optional Remote Sensor

The design of the electronics is intended for only the Analytical Industries Inc. AII-11-75-PO2 or AII-11-75-PO2R Oxygen Sensors. Use of a different oxygen sensor may result in an erroneous oxygen reading.



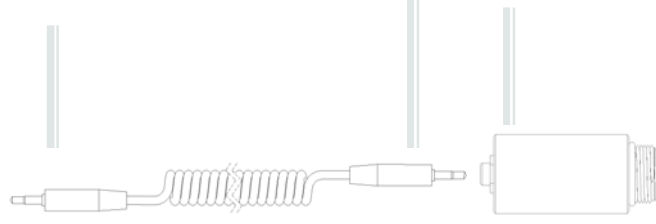
**NEVER** - Open the oxygen sensor or probe the sensing surface, refer to Section 10 in the event the sensor should leak and someone comes in contact with the electrolyte from inside the sensor.



With this configuration the integral oxygen sensor is replaced by a connector module (P/N A-3654). The external oxygen sensor (P/N AII-11-75-PO2R) is connected to the module by a cable (P/N CABL-1009) with phone plug and locking nut attached at both ends. The cable is coiled and extends to 6 ft.

### Procedure - Optional Remote Sensor

1. Unscrew the locking nut from the connector located at the rear of the oxygen sensor.
2. Remove the new replacement sensor from its shipping packaging.
3. Insert the phone plug into the connector at the rear of the oxygen sensor and finger tighten the locking nut.
4. Allow the new replacement oxygen sensor to stabilize for approximately 30 minutes in its new environment.
5. Calibrate, see section 4.4, after replacing the remote oxygen sensor.



## ing

ive action does not resolve the problem return the  
ice.

Corrective Action	
ysis-	Turn device ON – if it successful passes calibration – proceed
is	Replace batteries Check battery polarity Check and/or clean battery contacts
er is	Replace battery and calibrate device
alyzer	Replace oxygen sensor
	Replace battery
	Calibration routine in process – wait until completed
_CD gen	Replace sensor
dry hifts	Check primary oxygen delivery device Replace sensor that is nearing the end of its useful life
: or	Relocate analyzer away source of RF or electromagnetic radiation emissions. Wait 5 minutes and repeat calibration Replace sensor, repeat calibration

## 8 Specifications

Accuracy:	< 2% of FS range under constant conditions
Analysis:	0-100% oxygen
Alarms:	Analyzer none
Calibration:	Certified dry 100% oxygen or air after 8 hrs of use
Compensation:	Temperature
Connections:	1x16mm thread or o-ring diverter
Controls:	Soft touch keypad for ON/OFF and CAL
Dimensions:	2.72" x 4.1" x 1.35"; weight 7 oz. (196 grams)
Display:	3 digit LCD 1.1" x .625"; resolution 0.1% O <sub>2</sub>
Flow Sensitivity:	None between 0.2 to 10 liters per minute
Humidity:	Non-condensing 0-95% RH
Linearity:	± 1% under constant conditions
Pressure:	Inlet – ambient or regulated; vent - atmospheric
Power:	(2) 1.5V AA alkaline batteries; 13,000 hrs of use
Response Time:	90% of final FS reading in 10 seconds
Sensitivity:	< 0.5% of FS range
Sensor:	All-11-75-PO2D; optional remote sensor All-11-75-PO2RD
Sensor Life:	32 months in air at 25°C and 1 atmosphere
Storage Temp.:	-20° to 60°C (-4°F to 140°F) on intermittent basis
Temp. Range:	5° to 45°C (41°F to 113°F)
Warm-up Time:	None
Warranty:	12 months analyzer; 12 months sensor (any application)

**Additional Accessories**

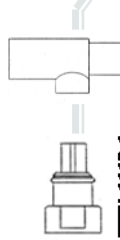
Flow Sensor  
 1.5V AA Alkaline  
 Battery Use

Notes:



CABL-1009 Cable 6 ft.  
 Phone Plug with Lock Nut

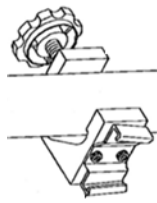
AII-11-75-PO2RD  
 Oxygen Sensor



FITN-1112-1  
 Flow Diverter

FITN-1009  
 Tee Adapter

HRWR-1157 Screwdriver  
 HRWR-1158 Lanyard



HRWR-1075 Dovetail  
 Clamp Pole or Shelf

Kit

x 3/8"



A-3676 Adapter,  
 1/8" Tube to Sensor



TUBE-1018 Tubing,  
 1/8" x 3'



A-3673 BC with  
 Restrictor to 1/8" Tube



A-3678 Adapter,  
 A-Yoke to 1/8" Tube



A-3677 Adapter, DIN  
 to 1/8" Tube

**Notes:**

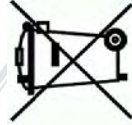


## 10 Material Safety Data Sheet (MSDS)

Product name	Electrochemical Galvanic Fuel Cell Oxygen Sensor
Exposure	Sealed device with protective coverings, normally no hazard
Ingredients	Carcinogens - none; Potassium Hydroxide (KOH), Lead (Pb)
Properties	Completely soluble in H <sub>2</sub> O; evaporation similar to H <sub>2</sub> O
Flash Points	Not applicable, non-flammable
Reactivity	Stable; avoid strong acids, emits fumes when heated
Health Hazard	KOH entry via ingestion - harmful or fatal if swallowed; eye - corrosive, possible loss of vision; skin contact - corrosive, possible chemical burn. Liquid inhalation is unlikely. Lead - known to cause birth defects, contact unlikely
Symptoms	Eye contact - burning sensation; skin contact - slick feeling
Protection	Ventilation - none; eye - safety glasses; hands - gloves
Precautions	Do not remove Teflon and PCB coverings; do not probe with sharp objects; avoid contact with eyes, skin and clothing.
Action KOH Leak	Use rubber gloves, safety glasses and H <sub>2</sub> O and flush all surfaces repeatedly with liberal amounts of H <sub>2</sub> O

### 10.1 Disposal

Oxygen sensors and batteries should be disposed of in accordance with local regulations for batteries.



WEEE regulations prohibit electronic products from being placed in household trash bins.

Electronic products should be disposed of in accordance with local regulations.

ditions, the analyzer and sensors are warranted to  
is and workmanship for the period specified in the  
ns. To make a warranty claim, you must return the  
postage prepaid to:

al Industries Inc.  
tropolitan Place  
Ca 91767 USA  
92-6900, F: 909-392-3665  
[aii1@aii1.com](mailto:aii1@aii1.com), W: [www.aii1.com](http://www.aii1.com)

sole discretion shall determine the nature of the  
ined to be eligible for warranty we will repair it or,  
o charge to you. If we choose to repair your item,  
ioned replacement parts of the same or upgraded  
anty we will give and it sets forth all our responsi-  
press or implied warranties.

e date of shipment from Analytical Industries and is  
r who submits a claim for a given serial number  
readable to be eligible for warranty and will not  
ustomer or beyond the warranty period under any

normal wear and tear; corrosion; damage while in  
om misuse or abuse; lack of proper maintenance;  
ification of the analyzer; fire; flood; explosion or  
wner's Manual.

at liable for losses or damages of any kind; loss of  
tal or consequential losses or damages; damages  
misuse, abuse, lack of proper maintenance; unau-  
n of the analyzer.

and 5:00pm PST Monday thru Thursday or before  
technicians will assist you in diagnosing the prob-  
ropriate course of action.