

- Portable carrying case option for the 4401OXY Oxygen Analyzer
- **FAST** - Measures natural gas samples from % level to trace ppm O₂ in minutes.
- Includes sample system with filtration and drain for wet gas measurements
- Quick-connect sample bulkhead inlet and outlet tubing
- LOD = 0.5 ppm O₂ gas phase
- No membranes to foul; No electrolytes to poison; No consumption of O₂
- No harmed by: CO₂, H₂S or hydrocarbons. No amines scrubbers required!
- Ready to use. Stays calibrated between short and longterm use.



The PSC3-OXY provides a portable carrying case for trace level oxygen measurement in the field. The self-contained rugged and weather resistant case includes sample conditioning for wet, dirty natural gas with quick connect fittings for the sample inlet and outlet. The PSC3-OXY seamlessly integrates with the reliable Barben 4401OXY optical oxygen analyzer, BOSx FiberSense oxygen sensor, and PT1000 RTD (all included).

Barben Analytical's 4401OXY analyzer optically measures oxygen by utilizing the quenched luminescence of an oxygen specific luminophore. It provides a NEMA 4X rating and is suitable for hazardous areas (Class I, Div 2 Groups A, B, C, D).

BOS optical oxygen sensors are impervious to typical O₂ poisons (H₂S) and interferences (combustibles, magnetic, CO₂ and H₂) with quick response, high accuracy and long-term stability. Accurate measurements are achieved without the need for scrubbers or other advanced sample conditioning systems. The quick response allows for use from ambient down to trace ppm within a few minutes.

Typical Applications

- O₂ measurements in natural gas pipelines
- O₂ leak detection at compressors
- Vapor Recovery Unit (VRU) testing
- Trace level oxygen in flare gas

Limit of Detection: 0.5 ppm O₂ @ 1atm, 20°C (0.0005 hPa)

Features

- All-in-one analyzer, sensors and sample system
- Hooks directly to natural gas sampling port (1/4" T) and exhaust at a distance with tubing outlet
- UL rated power cord plug with locking engagement
- Detachable door for easy use
- Sample System for wet, dirty gases
 - 15µ particulate filter
 - 0 to 30 PSIG pressure regulator with gauge
 - Coalescing filter with visible drain and valve
 - 0 to 8 SLPM flow-meter
 - Inlet: Quick connect stem SS-QC4-D1-400
 - Outlet: Quick connect female SS-QC4-B1-400

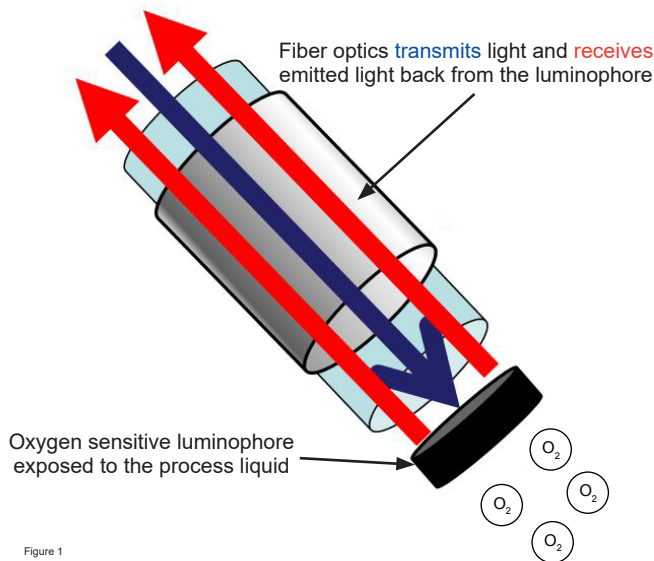
Precision Optical Oxygen Measurement

PSC3-OXY Portable Oxygen Analyzer

Principle of Operation

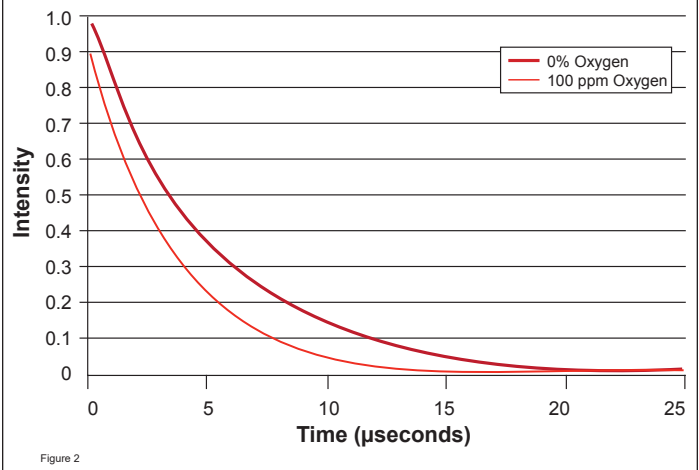
The PSC-OXY includes Barben's proven 4401OXY optical oxygen analyzer. The 4401OXY is a phase fluorometric analyzer that utilizes phase modulation to evaluate the luminescent decay time of an oxygen specific luminophore to calculate oxygen concentration. The sensor comprises of a small luminophore embedded in a polymeric matrix at the end of a fiber optic cable allowing for an extremely sensitive and accurate measurement of the partial pressure of oxygen that is applicable in both gas phase and liquid phase.

Light transmission through fiber optic to luminophore

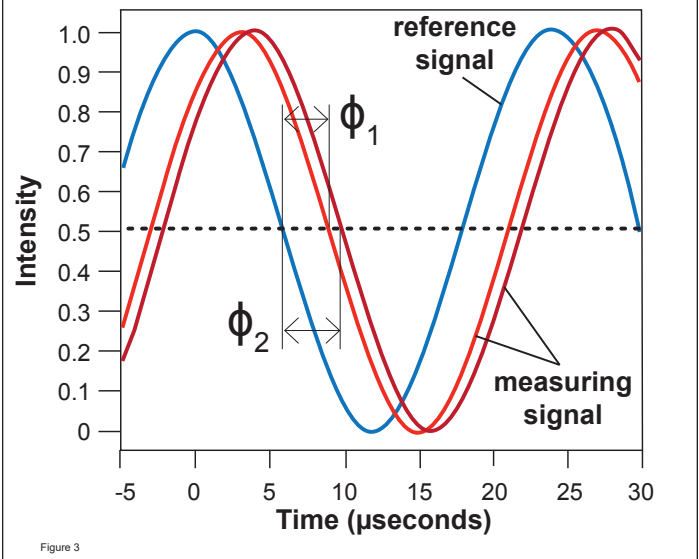


The analyzer uses an LED to emit blue light through fiber optic cable down the sensor tip [Fig 1]. The sensor tip contains the luminophore which absorbs the energy and rises to an excited state. In the absence of oxygen the excited luminophore will fall back to its ground state at a specific rate and in the process emits a red shifted light which is transmitted to the analyzer (spectrometer) via the optic cable where it is detected by a photomultiplier tube. When oxygen is present it quenches the fluorescence at a rate proportional to the oxygen concentration [Fig 2.]. The phase shift between the excitation source and the fluorescent signal is measured and the oxygen concentration is calculated [Fig 3].

Effects of 100 ppm oxygen quenching



Sinusoidal Modulation and the phase shifted output



Precision Optical Oxygen Measurement PSC3-OXY Portable Oxygen Analyzer

PSC3-OXY Specifications	
Part Numbers (Ordering Information)	
PSC3-OXY-BOS3-DC	12-24VDC* Operational Power, 4401OXY with FM / CSA Approval, 0 to 300 ppm Range
PSC3-OXY-BOS3-AC	100-240VAC Operational Power, 4401OXY with FM / CSA Approval, 0 to 300 ppm Range
PSC3-OXY-BOS1-DC	12-24VDC* Operational Power, 4401OXY with FM / CSA Approval, 0 to 4.2% Range
PSC3-OXY-BOS1-AC	100-240VAC Operational Power, 4401OXY with FM / CSA Approval, 0 to 4.2% Range
	* Input power must not exceed 24VDC
Input Information	
Sensor Input	(1) O ₂ optical input BOS FIBERSENSE sensor, (1) PT1000 input (Part# B1150-1005)
User Adjustable Options	
Units: User Selectable	Gas Phase: % air-saturation, % oxygen, hPa, Torr, ppm. Liquid Phase: hPa, Torr, ppm, ppb, μmol
Calibration	Conventional two-point calibration
Sampling Rate	Programmable from 3 seconds to 1 hour
Environmental (Based on ratings for 4401OXY Analyzer)	
Environmental Rating	NEMA 4X
Operating Temperature	0 to +50°C (32 to 122°F)
Storage Temperature	-10 to +65°C (14 to 149°F)
Max. Operating Relative Humidity	95%
Physical	
Dimensions H x W x D (Inches)	18 x 12 x 17 inches (21.3 x 25.4 x 21.3 cm)
Weight (lb)	28 lb (12.7 kg)

BOS FIBERSENSE Specifications		
	BOS1 - % Level Gas Phase O ₂ @ 1atm, 20°C	BOS3 - ppm Level Gas Phase O ₂ @ 1atm, 20°C
Measurement Range	0 - 4.2 % O ₂ 0 - 41.4 hPa	0 - 300 ppm with over-range of 1000 ppm
Limit of Detection	0.002 % O ₂	0.5 ppm O ₂
Resolution @ 20°C and 1013 hPa	± 0.0007% at 0.002 %O ₂ ± 0.007 hPa at 0.023 hPa ± 0.0015% at 0.02%O ₂ ± 0.015 hPa at 2.0 hPa	10 ± 0.5 ppm; 100 ± 0.8 ppm; 200 ± 1.5 ppm
Response Time (T₉₀)	< 6 sec.	< 3 sec. based on 0 - 300 ppm measurement range
Accuracy @ 20°C	0.002 % O ₂ (g), or 3% of the measured value whichever is greater	± 2ppm or ± 5% of measured value whichever is greater (or as partial pressure, +/- 0.002 hPa)
Drift from Photodecomposition	< 2.0 ppb within 30 days (1 min sample rate)	< 2.0 ppm within 30 days (1 min sample rate)
Operating Temperature Range	0 to 50°C (32 to 122°F)	
Allowable Sensor Temperature	90°C (194°F) non-continuous	
Cross Sensitivity for BOS1 & BOS3 Sensors Listed above		
No cross-sensitivity for carbon dioxide (CO ₂), hydrogen sulfide (H ₂ S), ammonia (NH ₃), gaseous sulfur dioxide (SO ₂), no cross-sensitivity to pH (1-14), ionic species like sulfide, sulfate or chloride. Usable in methanol, ethanol-water mixtures, and in pure methanol & ethanol. Avoid organic solvents like chloroform, toluene, acetone, and methylene chloride along with any gaseous chlorine (Cl ₂).		

Agency Approvals (for 4401OXY Optical Oxygen Analyzer)

Class 3600 - Electrical Equipment for Use in Hazardous (Classified) Locations - General Requirements
 Class 3611 - Non-Incendive Electrical Equipment for Use in Class I & II Division 2, and Class III, Divisions 1 & 2 Hazardous Locations
 Class 3810 - Electrical Equipment for Measurement, Control, and Laboratory Use
 CSA C22.2 No. 142-M1987 (R2004) - PROCESS CONTROL EQUIPMENT - Industrial Products
 CSA STD C22.2 No. 213-M1987 (R2004) - Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
 ANSI/NEMA-250 - Enclosures for Electrical Equipment (1000 Volts Maximum)



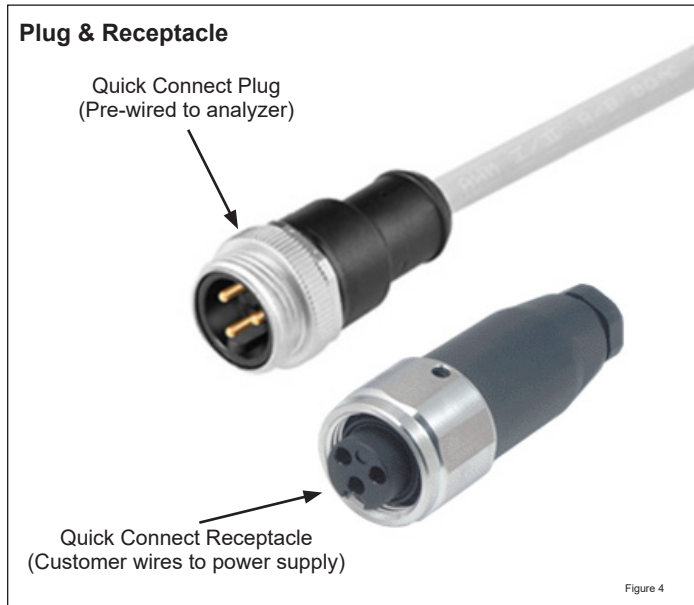
Precision Optical Oxygen Measurement

PSC3-OXY Portable Oxygen Analyzer

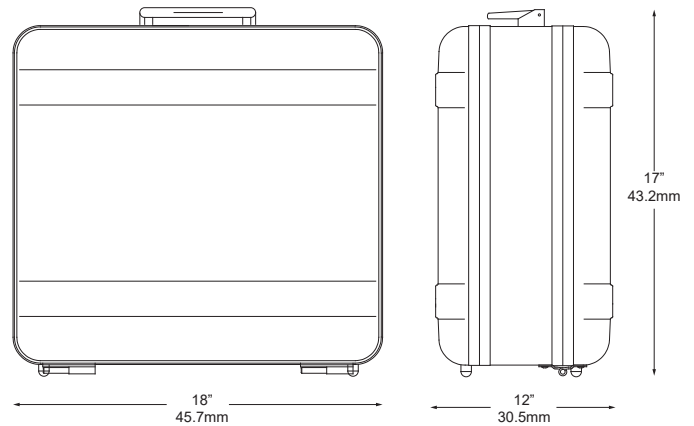
Power Options

The PSC-OXY comes pre-wired for either AC or DC power. A male quick connect plug on a short length of cable [fig 5] is included within the carry case. A female receptacle is supplied to allow the customer to wire to their own power supply. Both plug and receptacle are UL rated for full load.

Barben Analytical highly recommends that power conditioning be used if the external power supply could have variable voltage.



PSC3-OXY Dimensions (with cover)



Contact Us

Barben Analytical is a leading supplier of analytical measurement technology targeting the industrial marketplace. It is a wholly owned subsidiary of Ametek.

Ametek has nearly 14,000 colleagues at over 120 manufacturing locations around the world. Supporting those operations are more than 80 sales and service locations across the United States and in more than 30 other countries around the world.

Barben Analytical
5200 Convair Drive
Carson City, NV 89706 USA

Toll Free: +1 (800) 993-9309
Phone: +1 (775) 883-2500
Fax: +1 (775) 297-4740
email: Sales.Barben@Ametek.com
Web: www.BarbenAnalytical.com

Barben Analytical reserves the right to make technical changes or modify the contents of this document without prior notice. We reserve all rights in this document and in the subject matter and illustrations contained within.

© 2018, by AMETEK, Inc. All rights reserved • PSC3_Datasheet_RevB • July, 2018

AMETEK

USA • BELGIUM • CHINA • SINGAPORE
Toll Free +1(800)993-9309 • Phone +1(775)883-2500 • Fax +1(775)297-4740
Sales.Barben@ametek.com • www.BarbenAnalytical.com

