

Intrinsically safe portable analyzer



ATEX

O₂, H₂

3650 EX

ATEX system



Portable Series 3650 Ex

Truly portable (2.4 kg) logging analyzer ideal for chemical industry applications throughout the manufacturing, transportation, and storage processes.

Appropriate for risk-free measurement in hazardous areas conforming to ATEX 94/9/EC directive: Ex II 1 G , EEx ia IIC T4.

Used to measure in aqueous or non-aqueous samples such as organics, olefins, fuels, monomers, aromatics, speciality chemicals, water, and other liquids and gases.

Unique membrane covered sensor enables wide range of gas analyses without interference from pressure, flow, moisture, or other gases.

Stores up to 500 readings which can be easily downloaded to a PC for analysis

3650Ex Instrument

Orbisphere's 3650Ex portable analyzer family measures oxygen (O₂) or hydrogen (H₂) in areas where hazardous and flammable conditions are possible. It displays continuous line sample measurements and logs the results internally for later review. It can be used for liquid (dissolved) or gaseous samples, and a special "dual-use" is available for oxygen.

The stainless steel chassis (IP67 / NEMA 4x) makes it strong and robust to handle harsh plant environments. When coupled with a choice of membrane covered, electrochemical sensors, the 3650Ex is suitable for sampling dissolved concentrations from trace ppb to supersaturation, and gaseous concentrations from ppb to percent (%) levels.

Sensors

The exclusive guard ring electrochemical sensor technology reduces residual signals to negligible levels, eliminating the need for zero point calibration. This sensor technology also provides for very fast response times, essential for multiple measurement applications. The sensor is provided with a stainless steel screw-on protection cap that produces a tighter membrane seal for low drift and extended service life.

These sensors can be constructed from a variety of chemically resistant materials and use an assortment of membranes with permeability and chemical resistance optimizing longterm measurement performance.



Software capabilities

Parameter adjustments

The PC software permits setting the analog output range as desired, changing the alarm limits, and adjusting the thermal cutoff point. It lets you specify the type of sample (dissolved or gaseous) and the type of membrane used.

Diagnostic tools

The PC software allows you to verify the PC-to-instrument links, sensor-to-instrument signals and has a special keypad and LCD test. The instrument's date and time can also be set.

Monitoring

Real-time running chart of your dissolved gas concentrations, temperature, and pressure for trend analysis can be "monitored". The vertical scale and time-line can be customized to meet your application's requirements.

The data can be copied into other Windows® programs for spreadsheet or database analysis.

Configuration view

Allows you to verify all the instrument settings. For example: instrument measurement configuration real time sampling rate, and calibration status.

Calibration

While Orbisphere analyzers are designed to require calibration only after a sensor service (which may in turn occur only once per year), you may wish to calibrate more frequently. All this requires is just a few front-panel keystrokes.

Direct calibration method

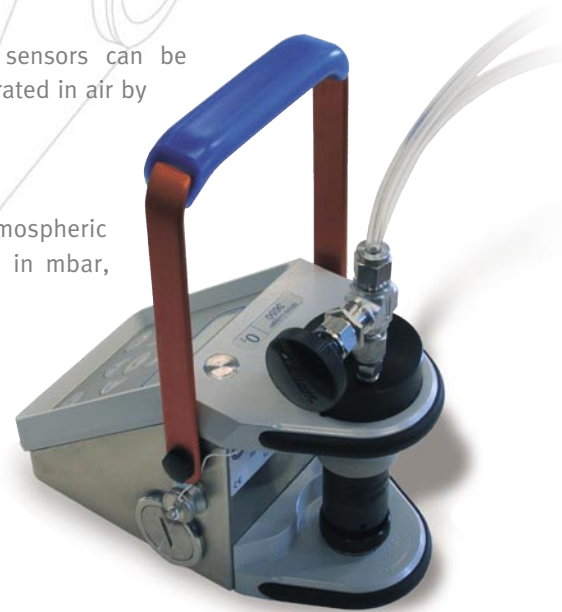
This option allows you to calibrate against a liquid or gaseous sample of known concentration. You just enter the gas concentration via the keyboard.

In air calibration method

Orbisphere's electrochemical O₂ sensors can be quickly, easily, and accurately calibrated in air by measuring its oxygen content.

Barometric Pressure

The instrument's internal atmospheric pressure sensor can be calibrated, in mbar, against your own barometer.



ATEX 94/9/EC directive CENELEC marking explanation

Ex Equipment for potentially explosive atmospheres.

II *Equipment group:* surface (not for use in mines).

I G *Category:* equipment that may be used in the presence of ignitable gases, vapors, and mist (excluding dust) up to zone 0. In the zone 0 the ignitable concentration of flammable gases, vapors, and liquids can exist continuously under normal operating conditions.

EEx Intrinsically safe apparatus built to CENELEC European standards.

ia *Type of protection:* the highest category, based on a safety factor 1.5 on two faults.

No combination of two faults in the analyzer can produce a spark, or heating, causing ignition of an explosive atmosphere.

IIC *Gas group:* corresponds to the most flammable gases, including acetylene and hydrogen.

T4 Temperature class: maximum surface temperature of 135°C for an ambient temperature of 45°C.

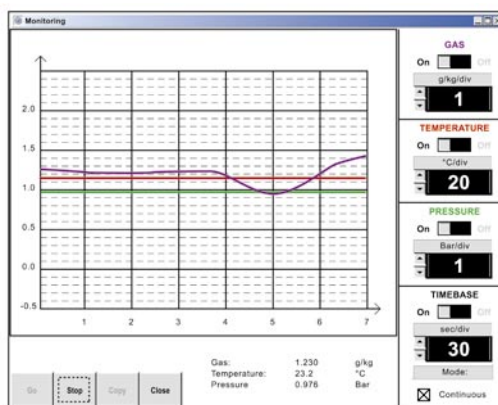
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Accessories

Model n°	Item Description
29122.x	PC interface box with 32511 and 32538 cables. (X: A=95-130VAC; B=207-253VAC).
311xxE.xx	Oxygen sensor
312xxE.xx	Hydrogen sensor
32007E.xx	Flow chamber, stainless steel (available with 6 mm and 1/4 inch fittings)
32051A	Sample tube adapter
32301	Electrochemical sensor cleaning and regeneration center
32511.03	Instrument-to-interface box cable for 3650Ex
32513E.04	4 meter sensor cable
32538.02	Interface box-to-computer cable (RS 232)
32689	WinLog97 Windows program software
32813	Rubber gasket for 6mm or 1/4 inch tubing, used with 32051A
32814	Rubber gasket for 8mm tubing, used with 32051A
32960	3.6V primary Li battery for 3650Ex

Instrument Description

Power requirements	Model 32960 Intrinsically safe 3.6V Li battery
Power autonomy	100 hours continuous use
Operating limits	-10 to +45 °C
Enclosure	IP67 / NEMA4, all stainless steel
Signal Drift	0.5% of reading between services
Dimensions (W x H x D)	115 x 150 x 220 mm
Weight	2.4 kg
Digital interface	RS-232, via model 29122 interface box
CE certification	LCIE 03 ATEX 6003X Ⓜ II 1 G EEx ia IIC T4 EMC standards: EN 50014 (1997 + A1 + A2) EN 50020 (2002)



“Stored data allows sample concentration and temperature to be monitored.”

Instrument configurations

Model	Gas measured	Units
3650 Ex / 1xx	O ₂ Dissolved	ppb / ppm ; ppm
	O ₂ Gaseous	% / ppm; % ; kPa / Pa ; bar / mbar
3650 Ex / 2xx	H ₂ Dissolved	ppb / ppm ; ppm ; cc / hg
	H ₂ Gaseous	% / ppm; % ; kPa / Pa; bar / mbar

Note:

Temperature units are available in Centigrade (°C) or Farenheit (°F) on all models.

Instruments are user-configured for a particular membrane, depending on application. This determines display resolution and measurement limits.

Instruments also available in dual use configuration with both dissolved (ppm) and gaseous (%) options.



In the interest of continued product development, Orbisphere reserves the right to make improvements to this literature and/or the products it describes, without notice or obligation.

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