

**PRODUCT INFORMATION**  
PROCESS ANALYSIS  
LIQUIDS + GASES ANALYSER  
ORBISPHERE 366X EX



## ORBISPHERE 366X EX ATEX Analyser System

→ **Wide range of gas analyses without interferences**

→ **Verifiable calibration in air, liquid, or gas standard with negligible drift**

→ **Easy installation**

### **Intrinsically safe operation**

The ORBISPHERE 366X EX family of instruments measures oxygen ( $O_2$ ) and hydrogen ( $H_2$ ) in areas where hazardous and flammable conditions are possible.

This instrument measures in aqueous or non-aqueous samples such as organics, olefins, fuels, monomers, aromatics, specialty chemicals, water and other liquids and gases.

### **ATEX certification**

ORBISPHERE 3662 EX: Instrument and sensor in the hazardous area have ATEX certification: II 1 G Ex ia IIC T6.

ORBISPHERE 3660 EX: Instrument in the safe area and the sensor in the hazardous area, have the ATEX certification: II (1)/1 G Ex [ia]ia IIC T6.



**LANGE**

# Precise process monitoring

## Operation

When coupled with a choice of membrane covered electrochemical sensors, the ORBISPHERE 366X EX is suitable for sampling and measuring dissolved concentrations from trace ppb to super saturation and gaseous concentrations from vppm to percent (%) levels. These sensors can be constructed from a variety of chemically resistant materials and use an assortment of membranes with permeability and chemical resistance to optimise long-term measurement performance.

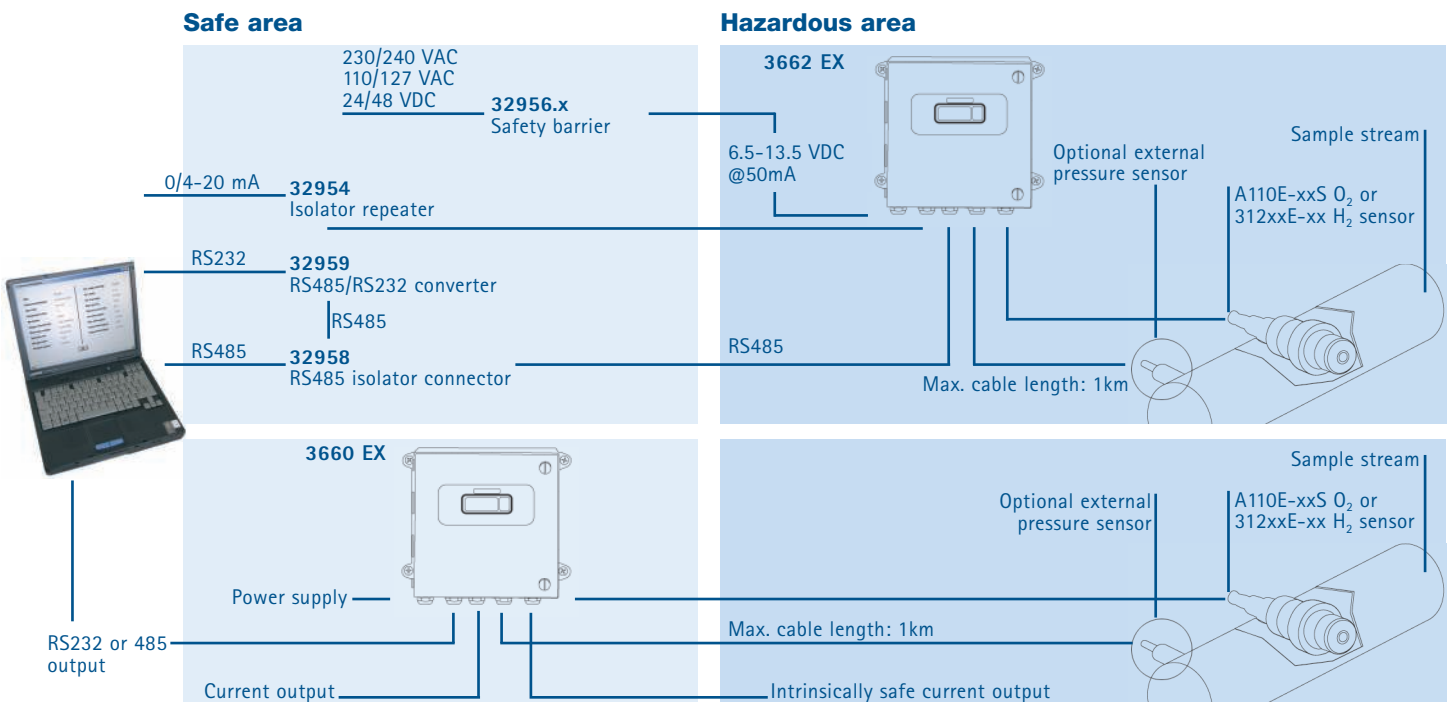
The ORBISPHERE 3662 EX comes into its own when it is necessary to mount both sensor and instrument inside a hazardous area. The complete system is designed to prevent any form of spark. It has current, voltage and RS485 outputs that should be connected to an isolated repeater to send the signal to the safe area.

The ORBISPHERE 3660 EX is suitable for installation outside of the hazardous area. This instrument receives a signal from a sensor which is installed in the hazardous area up to 1 km away.

The instrument has an intrinsically safe current output to stay in the hazardous area and current, alarms and serial outputs (RS232 or RS485) for connection in the safe area.

## Benefits

- Sampling with in-line and sidestream accessories
- Wide range of gas analyses without interferences from pressure, flow, moisture or other gases





**ATEX 94/9/EC directive  
CENELEC marking explanation**

**Ex II (1)1G** ATEX marking: Surface apparatus with permanent explosive gas presence. Equipment (sensor) to be used in the explosive area and safety device to be used in the safe area.

**Ex II 1G** ATEX marking: Surface apparatus with permanent explosive gas presence. Equipment (sensor) and safety device to be used in the explosive area.

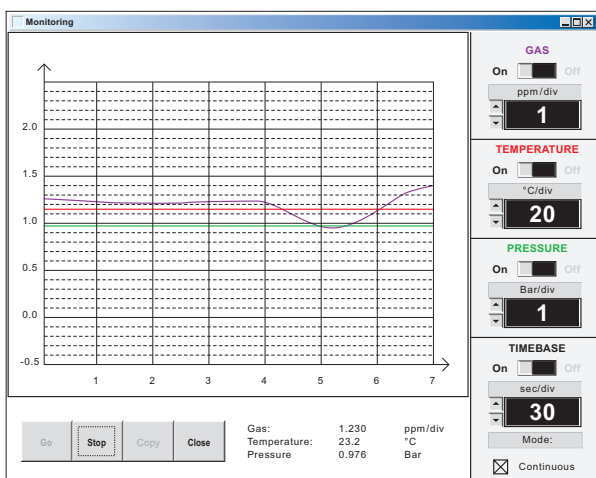
**1G** Category: Equipment may be used with the presence of ignitable gases, vapors, and mist (excluding dusts) up to zone 0. In zone 0 the ignitable concentration of flammable gases, vapors and liquids can exist continuously under normal operating conditions.

**Ex** Intrinsically safe apparatus built to CENELEC European standards.

**ia** Type of protection: intrinsically safe, the highest category, based on a safety factor 1.5 on two faults. No combination of two faults in the analyser can produce a spark or heating, eliminating risk of ignition in an explosive atmosphere.

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

**T6** Temperature class: maximum surface temperature of 85 °C for an ambient temperature of 45 °C.



ATEX 3660 Software



# Technical data

## 3662 EX

Power requirements	6.5 to 13.5 VAC @ 50 mA, 0.8 W through a Zener barrier
Serial link (hazardous area)*	RS485 (requires 32958 isolator to send the signal to the safe area)
Current output (hazardous area*)	0/4 to 20 mA, software adjustable, non-isolated, Rmax=100 (requires 32954 isolator/repeater to send the signal to the safe area)
Alarm output	Available in 0 to 4 mA current output range
Voltage output (hazardous area)*	0 to 2 V, software adjustable, non-isolated, Rmin=100k
CE Certification	EMC Standards: EN 61326: 2006
Intrinsically safe conformity	Ex II 1 G Ex ia IIC T6 under EC type Examination Certificate number LCIE 03 ATEX 6004 X for the 3662 EX

## 3660 EX

Power requirements	95 to 130 VAC/207 to 253 VAC ±10%, 50/60 Hz/20 VA 18 to 36 VDC, 10 Wmax
Serial link (hazardous area)*	RS232 or RS485
Current output (hazardous area)*	3 relays: high and low limits, system alarm, NO and NC contacts, current 1 A, voltage 24 VDC, power 24 W, hysteresis: ±1% of high or low limit
Alarm output	0/4 to 20 mA, software adjustable, non-isolated, Rmax=500
Voltage output (hazardous area)*	0/4 to 20 mA, software adjustable, non-isolated, Rmax=350/* Requires galvanic isolation
CE Certification	EMC Standards: EN 61326: 2006
Intrinsically safe conformity	Ex II (1)/1 G Ex [ia]ia IIC T6 under EC type Examination Certificate number LCIE 03 ATEX 6354

## INSTRUMENT CONFIGURATIONS

Model ORBISPHERE	Gas	Phase	Concentration units
366x EX / 1xx	O <sub>2</sub> **	Dissolved	ppb/ppm; ppm; mg/L
		Gaseous	Pa/kPa; mbar/bar; %; % sat; ppm/%
366x EX / 2xx	H <sub>2</sub>	Dissolved	ppb/ppm; cc/kg
		Gaseous	Pa/kPa; mbar/bar; %

\*\* = CO<sub>2</sub> and insensitive available. / Note: Temperature units are available in Centigrade (°C) or Fahrenheit (°F) on all models. For all information about sensor performances and possible configurations, please refer to the sensor datasheet.

Dimensions (W × H × D)	200 × 200 × 100 mm	Operating temperature	0 to 45°C
Weight	2.5kg	Enclosure rating	IP 65/NEMA 4X, all stainless steel
Sensor cable max length	1km	CE certification	EN 61326 2006

## ACCESSORIES

Model no.	Item Description	Model no.	Item Description
29501	Sensor socket pipe weld adapter		
A110E-xxS	Oxygen sensor	32538 RS-232	Cable for 32959 converter
312xxE-xx	Hydrogen sensor	32570E.Axxx	External pressure sensor, 0-3.5 bar (50 psia)
32001.xxx	Flow chamber for 0.25" or 6 mm	32696	ATEX 3660 Windows programme software
32003	ProAcc insertion/extraction valve for 1-4" pipe	32954	Isolator repeater for 4/20mA output, installed in safe area if 4/20mA is used (for 3662 EX)
32301	Electrochemical sensor cleaning and regeneration centre	32956.x	Power supply safety barrier for 3662 EX (X = A: 115 VAC, B: 230 VAC, C: 24/48 VDC)
32514E.mm	External pressure sensor cable ("mm" = length, standard length 3m)	32958	RS485 isolator for 3662 EX
32515E.mm	Sensor cable, ("mm" = length)	32959	RS485/RS232 converter or 3662 EX

Subject to change without notice.

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