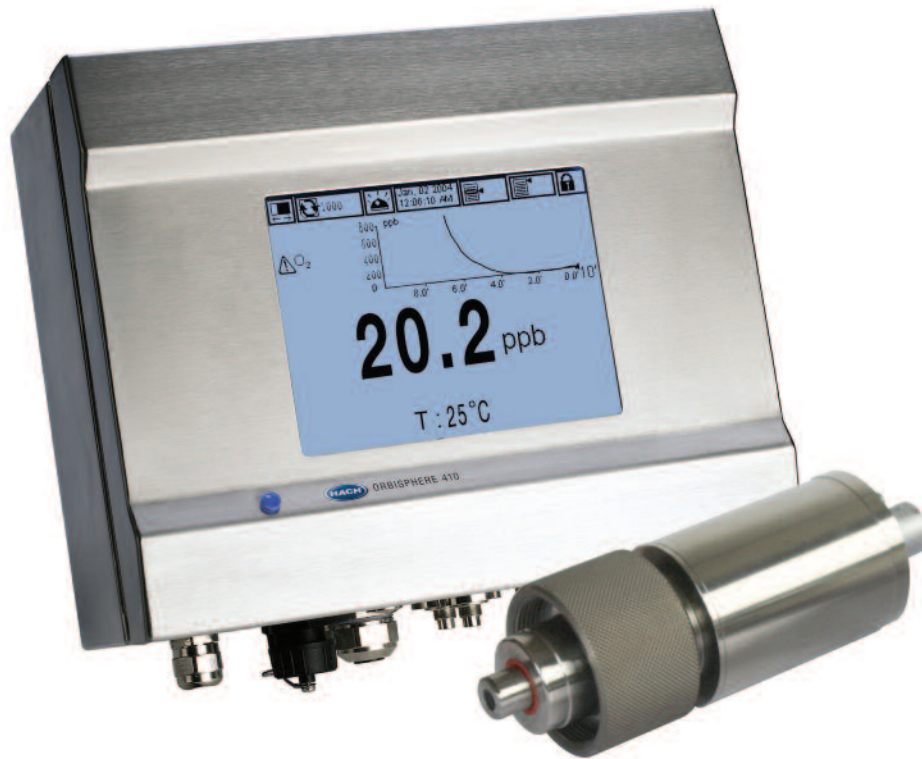


# ORBISPHERE K1100 LUMINESCENT OXYGEN SENSOR

## Applications

- Power
- Industrial Water



## The first maintenance-free optical oxygen sensor for power plants.

The ORBISPHERE K1100 optical sensor, together with the ORBISPHERE 410 controller, offers a new way of monitoring oxygen in power plants. ORBISPHERE sensors set the industry standards for oxygen measurement by offering peace of mind to every water chemist.

### One Calibration Per Year

One zero point calibration per year is all that is needed with the K1100 sensor. Designed for minimal drift, luminescent technology makes the K1100 sensor the most stable sensor with the longest calibration interval in the industry.

### No Membranes = Two Minutes of Maintenance

With no membranes to replace and no electrolyte solution to replenish, the K1100 requires only two minutes of maintenance per year. Corrosive or hazardous chemicals are not required, making the annual task faster, easier and safer without reducing measurement precision.

### Low Cost Retrofit

The complete system consists of a 410 Controller, a flow chamber, and the K1100 Luminescent Dissolved Oxygen Sensor. The sensor is compatible with Hach ORBISPHERE 28 mm flow chambers, eliminating the need for engineering changes. Installation is fast and easy and does not require special preparation.

### A New Level of Confidence

The K1100 optical sensor is the first to use luminescent measurement technology to measure both ppb and ppm oxygen levels in power plants. Since 1978, Hach ORBISPHERE sensors have set the industry standard for oxygen measurement by delivering confidence to every water chemistry manager. The K1100 maintains this tradition and offers significant operating and cost benefits.

## Specifications\*

### K1100 (Low Level Sensor)

<b>Range</b>	0 to 2000 ppb (Dissolved O <sub>2</sub> )
<b>Temperature range</b>	Accurate from -5 to 50 °C (23 to 122°F) Resistant to temperature from -5°C to 100°C (23 to 212°F)
<b>Repeatability</b>	± 0.4 ppb 1 % whichever is greater
<b>Reproducibility</b>	± 0.8 ppb 2 % whichever is greater
<b>Accuracy</b>	± 0.8 ppb 2 % whichever is greater
<b>Lowest Detection Limit</b>	0.6 ppb
<b>Response Time</b>	(90%)< 10 s (gas phase) <30 s (liquid phase)
<b>Display Resolution</b>	0.1 ppb
<b>Calibration</b>	Single point zero calibration with standard 99.999% nitrogen (quality 50) or equivalent oxygen free gas
<b>Sample Pressure</b>	1 to 20 bar absolute (14.5 to 290 psia)

### K1100 (High Level Sensor)

<b>Range</b>	0 to 40 ppm (dissolved), 100% O <sub>2</sub>
<b>Temperature range</b>	Accurate from -5 to 50 °C (23 to 122°F) Resistant to temperature from -5°C to 100°C (23 to 212°F)
<b>Repeatability</b>	± 0.015 ppm or 2 % whichever is greater
<b>Reproducibility</b>	± 0.02 ppm or 3 % whichever is greater
<b>Accuracy</b>	± 0.02 ppm or 3 % whichever is greater
<b>Lowest Detection Limit</b>	0.015 ppm
<b>Response Time</b>	< 50 s (liquid phase)
<b>Display Resolution</b>	0.1 ppb
<b>Calibration</b>	Two points at cap replacement (zero and air), one during use (air)
<b>Sample Pressure</b>	1 to 20 bar absolute (14.5 to 290 psia)

### ORBISPHERE 410 Controller

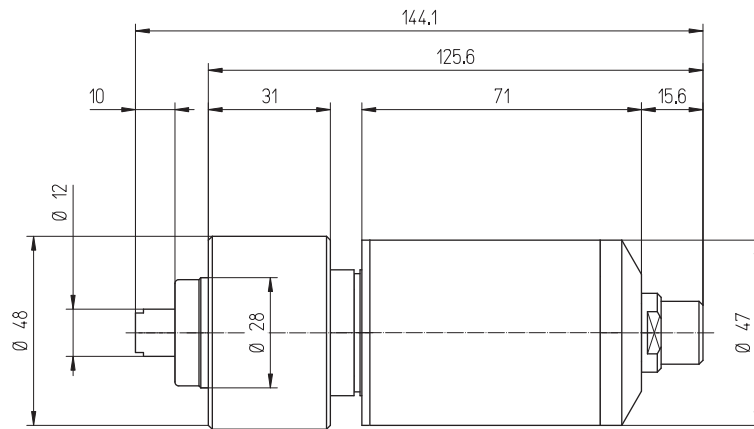
<b>Enclosure Construction</b>	Wall (pipe) mount: stainless steel Panel mount: aluminum
<b>Enclosure Rating</b>	Wall (pipe) mount: IP65, NEMA 4x Panel mount: IP65
<b>Compliance certifications</b>	EMC: EN61326-1:2006 CE: EN61010-1:2010 ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
<b>Display</b>	Color TFT touchscreen display
<b>Analog Outputs</b>	3 smart 0/4 - 20 mA (500 ohms), programmable as linear or tri-linear, configurable to send diagnostics or alarm information
<b>Relays</b>	3 measurement alarm relays (2A-30 VAC or 0.5A-50 VDC), configurable to send diagnostics information  1 system alarm relay (2A-30 VAC or 0.5A-50 VDC)
<b>Communication</b>	RS485  Profibus DP (Optional)  Ethernet  USB-client to download data from a computer  USB-host to download data with a USB memory stick
<b>Data Storage</b>	Rolling buffer or store once mode for up to 1000 measurements and 1000 operator actions  Holds calibration records for last 10 calibrations
<b>User Interface</b>	Touch screen panel displays: concentration, trend graph, diagnostics, alarm status, historical data
<b>Dimensions (H x W x D)</b>	Wall Dimensions: 9.1 in x 9.8 in x 6.3 in (230.5 mm x 250 mm x 160 mm)  Panel Dimensions: 6.14 in x 8.86 in x 9.84 in 156 mm x 220 mm x 253.5 mm
<b>Power supply</b>	Universal 100/240 VAC @ 50/60 Hz, 25 VA  10-36 VDC, 25 W

\*Subject to change without notice.

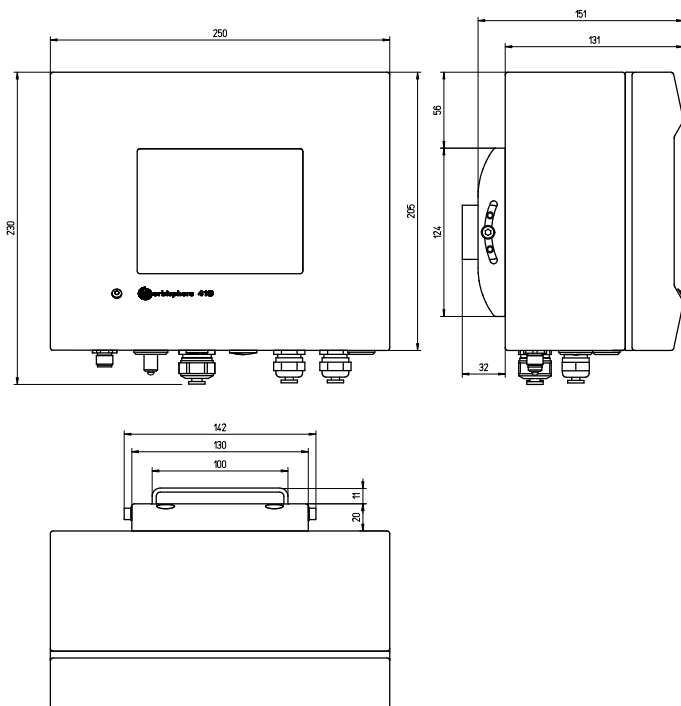
## Dimensions

In millimeters.

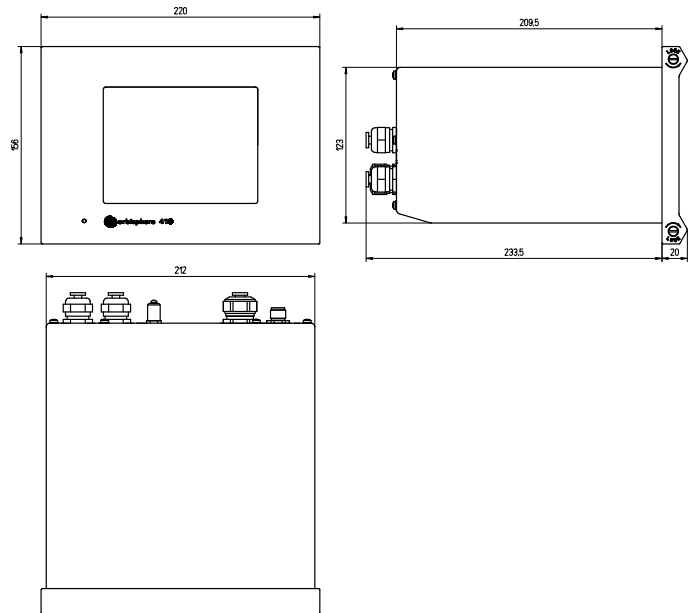
Sensor



Controller (Wall / Pipe Mount)



Controller (Panel Mount)



## Ordering Information

### Pre-Configured Systems

<b>K1100-KTO-W-IMP</b>	Kit containing K1100-S00 sensor, 410K/W1C00000 controller, 32510.03 3 m cable, 32001.011 1/4" flow chamber
<b>K1100-KTO-W-MET</b>	Kit containing K1100-S00 sensor, 410K/W1C00000 controller, 32510.03 3 m cable, 32001.010 6 mm flow chamber
<b>K1100-KTO-P-IMP</b>	Kit containing K1100-S00 sensor, 410K/P1C00000 controller, 32510.03 3 m cable, 32001.011 1/4" flow chamber
<b>K1100-KTO-P-MET</b>	Kit containing K1100-S00 sensor, 410K/P1C00000 controller, 32510.03 3 m cable, 32001.010 6 mm flow chamber
<b>K110H-KTO-W-IMP</b>	Kit containing K1100-S0H sensor, 410K/W1C00000 controller, 32510.03 3 m cable, 32001.011 1/4" flow chamber
<b>K110H-KTO-W-MET</b>	Kit containing K1100-S0H sensor, 410K/W1C00000 controller, 32510.03 3 m cable, 32001.010 6 mm flow chamber
<b>K110H-KTO-P-IMP</b>	Kit containing K1100-S0H sensor, 410K/P1C00000 controller, 32510.03 3 m cable, 32001.011 1/4" flow chamber
<b>K110H-KTO-P-MET</b>	Kit containing K1100-S0H sensor, 410K/P1C00000 controller, 32510.03 3 m cable, 32001.010 6 mm flow chamber

### Controllers and Sensor

<b>410K/W1C00000</b>	Hach ORBISPHERE 410 Controller (Wall Mount)
<b>410K/P1C00000</b>	Hach ORBISPHERE 410 Controller (Panel Mount)
<b>K1100-S00</b>	Luminescent oxygen sensor for in-line applications, 0-2 ppm, with 28 mm ORBISPHERE fitting
<b>K1100-S00H</b>	Luminescent oxygen sensor for in-line applications, 0-40ppm, with 28 mm ORBISPHERE fitting

### Accessories

<b>K1100-L</b>	Replacement luminescent spot for low range sensors (0-2 ppm)
<b>K1100-H</b>	Replacement luminescent spot for high range sensors (0-40 ppm)
<b>32510.05</b>	Sensor Cable 5 m (16.4 ft.)
<b>32001.011</b>	Flow chamber in stainless steel (316) with 1/4" fittings. Supplied with EPDM O-rings
<b>32001.010</b>	Flow chamber in stainless steel (316) with 6mm fittings. Supplied with EPDM O-rings

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