ORBISPHERE K1100 LUMINESCENT OXYGEN SENSOR
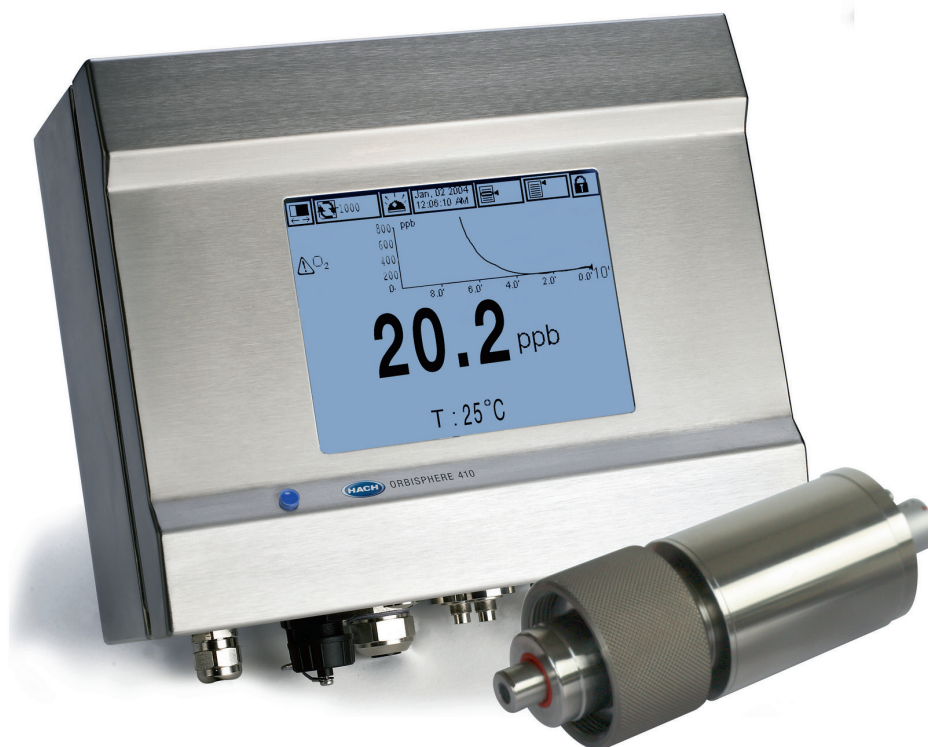
The first maintenance-free optical oxygen sensor for power plants.

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.

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Technical Data*

K1100 (Low Level Sensor)

Measuring range	0 - 2000 ppb dissolved O_2 (DO) (indicative values up to 5000 ppb)
Temperature range	Accurate from -5 to 50 °C Resistant to temperature from -5 to 100°C
Repeatability	± 0.4 ppb or 1 % whichever is greater
Reproducibility	± 0.8 ppb or 2 % whichever is greater
Accuracy	± 0.8 ppb or 2 % whichever is greater
Detection limit	0.6 ppb
Response time	(90%) <10 s (gas phase); <30 s (liquid phase)
Display	0.1 ppb
Calibration	Single point zero calibration with standard 99.999% nitrogen (quality 50) or equivalent oxygen free gas
Sample pressure	1 - 20 bar absolute

K1100 (High Level Sensor)

Measuring range	0 - 40 ppm dissolved O_2 (DO)
Temperature range	Accurate from -5 to 50 °C Resistant to temperature from -5 to 100 °C
Repeatability	± 0.015 ppm or 2 % whichever is greater
Reproducibility	± 0.02 ppm or 3 % whichever is greater
Accuracy	± 0.02 ppm or 3 % whichever is greater
Detection limit	0.015 ppm
Response time	(90%) <10 s (gas phase); <50 s (liquid phase)
Display	0.1 ppb
Calibration	Two points at cap replacement (zero and air), one during use (air)
Sample pressure	1 - 20 bar absolute

Orbisphere 410 Controller

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

Subject to change without notice.
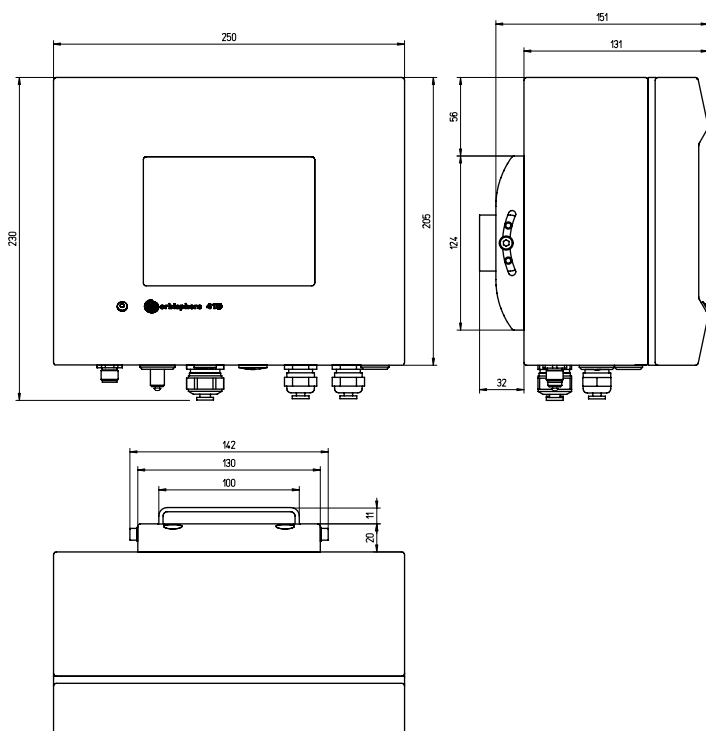
Dimensions
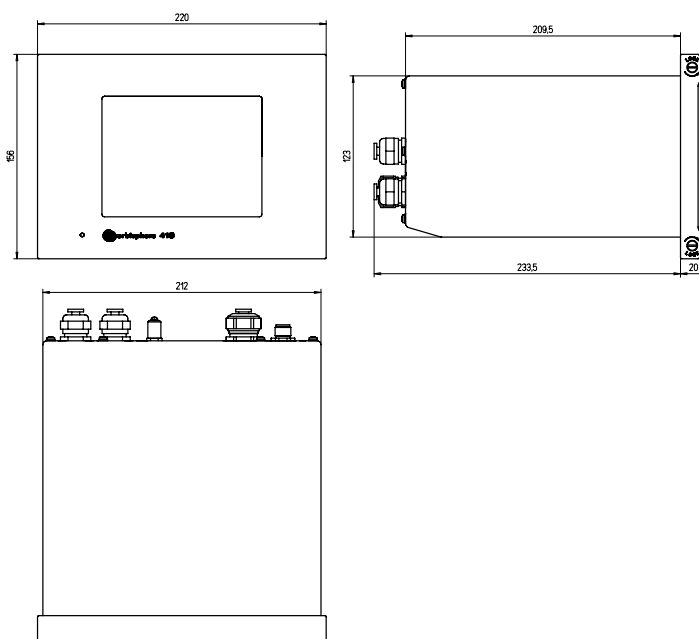
In millimeters.

Sensor
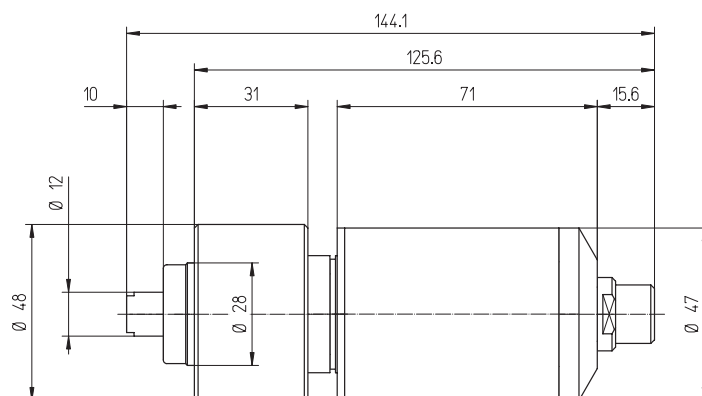
Controller (Wall / Pipe Mount)

Controller (Panel Mount)

Order Information

Pre-configured Systems

K1100-KTO-W-IMP   Kit containing sensor K1100-S00, controller 410K/W1C0000, 3 m cable (32510.03), 1/4" flow chamber (32001.011)

K1100-KTO-W-MET   Kit containing sensor K1100-S00, controller 410K/W1C0000, 3 m cable (32510.03), 6 mm flow chamber (32001.010)

K1100-KTO-P-IMP   Kit containing sensor K1100-S00, controller 410K/P1C00000, 3 m cable (32510.03), 1/4" flow chamber (32001.011)

K1100-KTO-P-MET   Kit containing sensor K1100-S00, controller 410K/P1C00000, 3 m cable (32510.03), 6 mm flow chamber (32001.010)

K110H-KTO-W-IMP   Kit containing sensor K1100-S00H, controller 410K/W1C0000, 3 m cable (32510.03), 1/4" flow chamber (32001.011)

K110H-KTO-W-MET   Kit containing sensor K1100-S00H, controller 410K/W1C0000, 3 m cable (32510.03), 6 mm flow chamber (32001.010)

K110H-KTO-P-IMP   Kit containing sensor K1100-S00H, controller 410K/P1C00000, 3 m cable (32510.03), 1/4" flow chamber (32001.011)

K110H-KTO-P-MET   Kit containing sensor K1100-S00H, controller 410K/P1C00000, 3 m cable (32510.03), 6 mm flow chamber (32001.010)

Controllers and Sensors

410K/W1C00000   Hach Orbisphere 410 Controller (Wall Mount)

410K/P1C00000   Hach Orbisphere 410 Controller (Panel Mount)

K1100-S00   Luminescent oxygen sensor for in-line applications, 0 - 2000 ppb, with 28 mm Orbisphere fitting

K1100-S00H   Luminescent oxygen sensor for in-line applications, 0 - 40 ppm, with 28 mm Orbisphere fitting

Accessories

K1100-L   Replacement luminescent spot for low range sensors (0 - 2000 ppb)

K1100-H   Replacement luminescent spot for high range sensors (0 - 40 ppm)

32510.05   Sensor cable 5 m

32001.011   Flow chamber in stainless steel (316) with 1/4 inch fittings. Supplied with EPDM O-rings.

32001.010   Flow chamber in stainless steel (316) with 6 mm fittings. Supplied with EPDM O-rings.

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