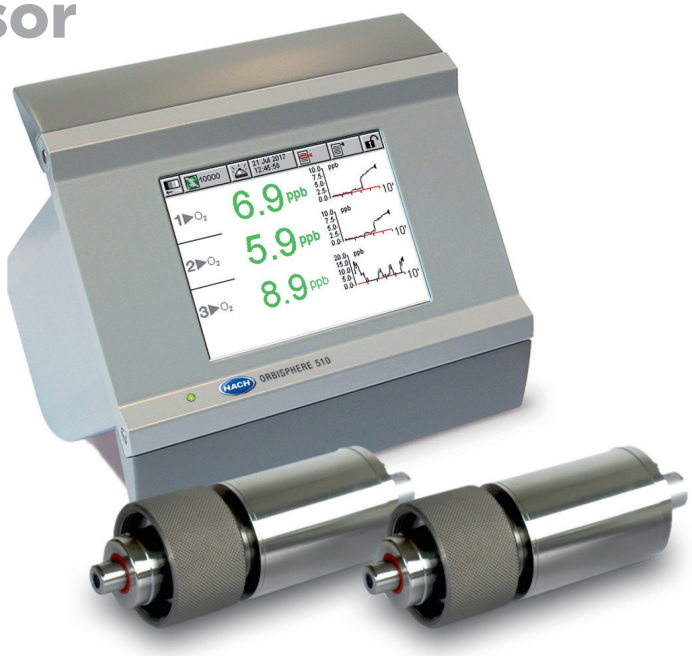
Orbisphere K1100 Luminescent Dissolved Oxygen Sensor

Applications
- Power (non-nuclear)

410 Monochannel System (O_2)



510 Multichannel System (O_2)

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

The Orbisphere K1100 optical sensor, together with the Orbisphere 410 single channel controller and the Orbisphere 510 multichannel 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 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.

HACH®
Be Right™

Technical Data*

K1100 (Low Level Sensor)

Range	0 - 2000 ppb dissolved O_2 (DO) (indicative values up to 5000 ppb)
Temperature Range	Accurate from -5 - 50 °C Resistant to temperature from -5 - 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
Lower Limit of Detection (LOD)	0.6 ppb
Response Time	(90%) <10 s (gas phase); <30 s (liquid phase)
Display Resolution	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 (14.5 - 290 psia)

K1100 (High Level Sensor)

Range	0 - 40 ppm dissolved O_2 (DO)
Temperature Range	Accurate from -5 - 50 °C (23 - 122 °F) Resistant - temperature from -5 - 100 °C (23 - 212 °F)
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
Lower Limit of Detection (LOD)	0.015 ppm
Response Time	(90%) <10 s (gas phase); <50 s (liquid phase)
Display Resolution	0.1 ppb
Calibration	Two points at cap replacement (zero and air), one during use (air)
Sample Pressure	1 - 20 bar absolute (14.5 - 290 psia)

Orbisphere Controller

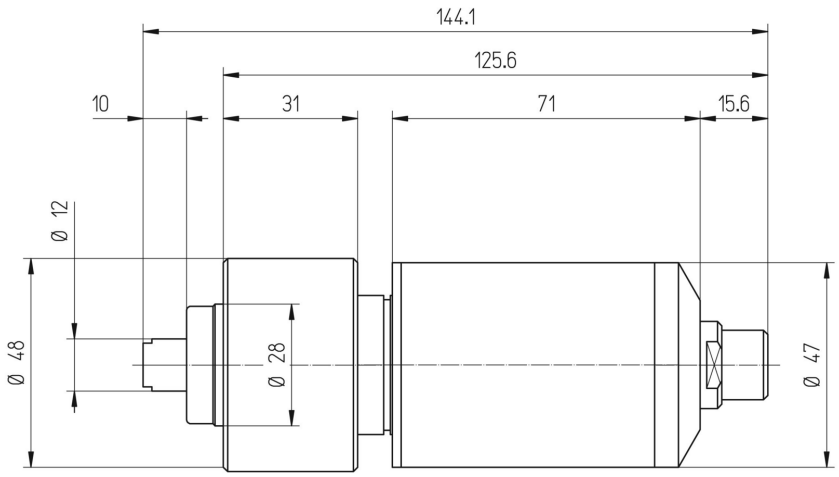
Enclosure Construction	Wall (pipe) mount: stainless steel Panel mount: aluminum
Enclosure Rating	Wall (pipe) mount: IP65, NEMA 4x Panel mount: IP65
Compliance Certifications	EMC: EN61326-1:2006 CE: EN61010-1:2010 ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
Display	Color TFT touch-screen display
Analog Outputs	3 smart 0/4-20 mA (500 ohms), programmable as linear or tri-liniear, configurable to send diagnostics 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 to 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 50 calibrations
User Interface	Touch-screen panel displays: concentration, trend graph, diagnostics, alarm status, historical data
Dimensions (H x W x D)	Wall dimensions: 230.5 mm x 250 mm x 160 mm (9.1 in x 9.8 in x 6.3 in) Panel dimensions: 156 mm x 220 mm x 253.5 mm (6.14 in x 8.86 in x 9.84 in)
Power	Universal 100/240 VAC @ 50/60 Hz, 25 VA 10-36 VDC, 25 W

**Subject to change without notice.*

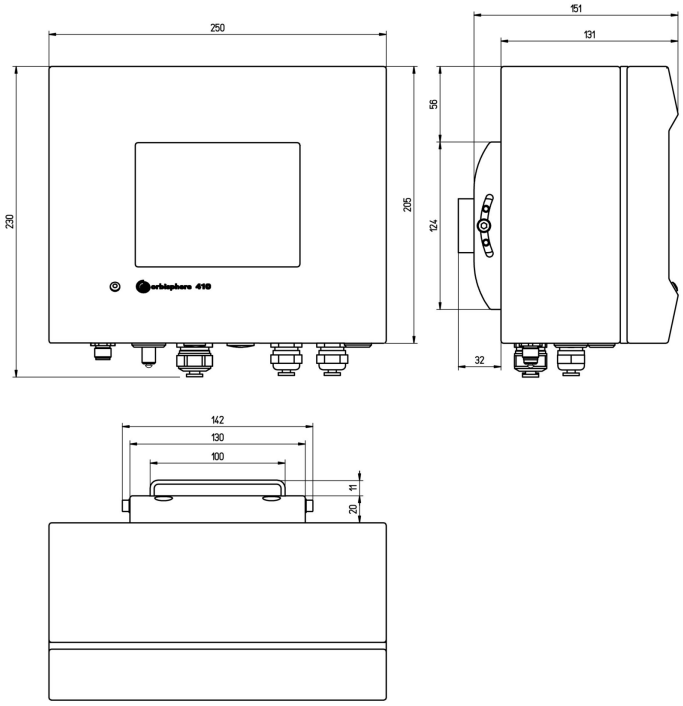
Dimensions

In millimeters.

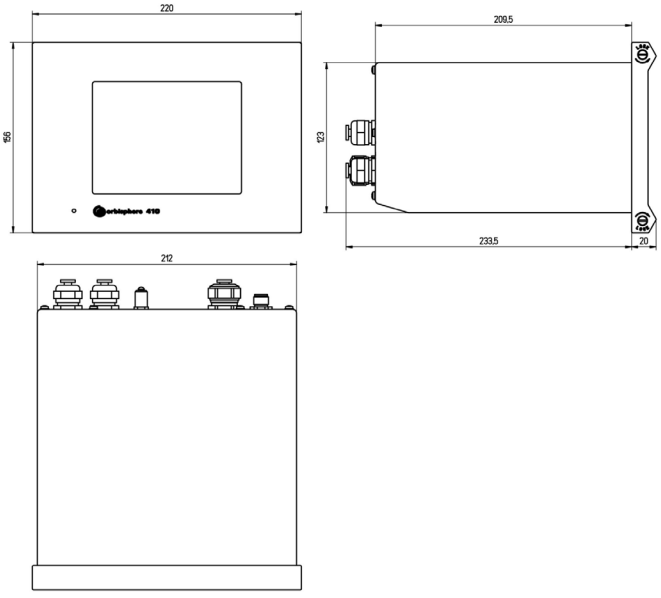
Sensor



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), ¼" 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-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), ¼" flow chamber (32001.011)
K110H-KTO-P-IMP	Kit containing sensor K1100-S00H, controller 410K/P1C00000, 3 m cable (32510.03), ¼" 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)
DGK510KK-W1025	Kit containing 1x dual-channel controller 510KK0/W1C00000, 2x sensor K1100-S00, 2x 5 m cable (32510.05), 2x 6 mm flow chamber (32001.010)
DGK510KK-P1025	Kit containing 1x dual-channel controller 510KK0/P1C00000, 2x sensor K1100-S00, 2x 5 m cable (32510.05), 2x 6 mm flow chamber (32001.010)
DGK510KK-W-IMP	Kit containing 1x dual-channel controller 510KK0/W1C00000, 2x sensor K1100-S00, 2x 10 m cable (32510.10), 2x ¼" flow chamber (32001.011)
DGK510KK-P-IMP	Kit containing 1x dual-channel controller 510KK0/P1C00000, 2x sensor K1100-S00, 2x 10 m cable (32510.10), 2x ¼" flow chamber (32001.011)
DGK510KKK-W-IMP	Kit containing 1x multi-channel controller 510KKK/W1C00000, 3x sensor K1100-S00, 3x 10 m cable (32510.10), 3x ¼" flow chamber (32001.011)
DGK510KKK-P-IMP	Kit containing 1x multi-channel controller 510KKK/P1C00000, 3x sensor K1100-S00, 3x 10 m cable (32510.10), 3x ¼" flow chamber (32001.011)

Controllers and Sensors

410K/W1C00000	Hach Orbisphere 410 controller (wall mount)
410K/P1C00000	Hach Orbisphere 410 controller (panel mount)
510KK0/P1C00000	Hach Orbisphere 510 dual-channel controller (panel mount)
510KK0/W1C00000	Hach Orbisphere 510 dual-channel controller (wall mount)
510KKK/W1C00000	Hach Orbisphere 510 multi-channel controller (wall mount)
K1100-S00	Luminescent dissolved oxygen sensor for in-line applications, 0 - 2000 ppb, with 28 mm Orbisphere fitting
K1100-S00H	Luminescent dissolved 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 to connect M/K-type sensors, 5 m (16.4 ft.)
32001.011	Flow chamber in stainless steel (316) with ¼" 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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