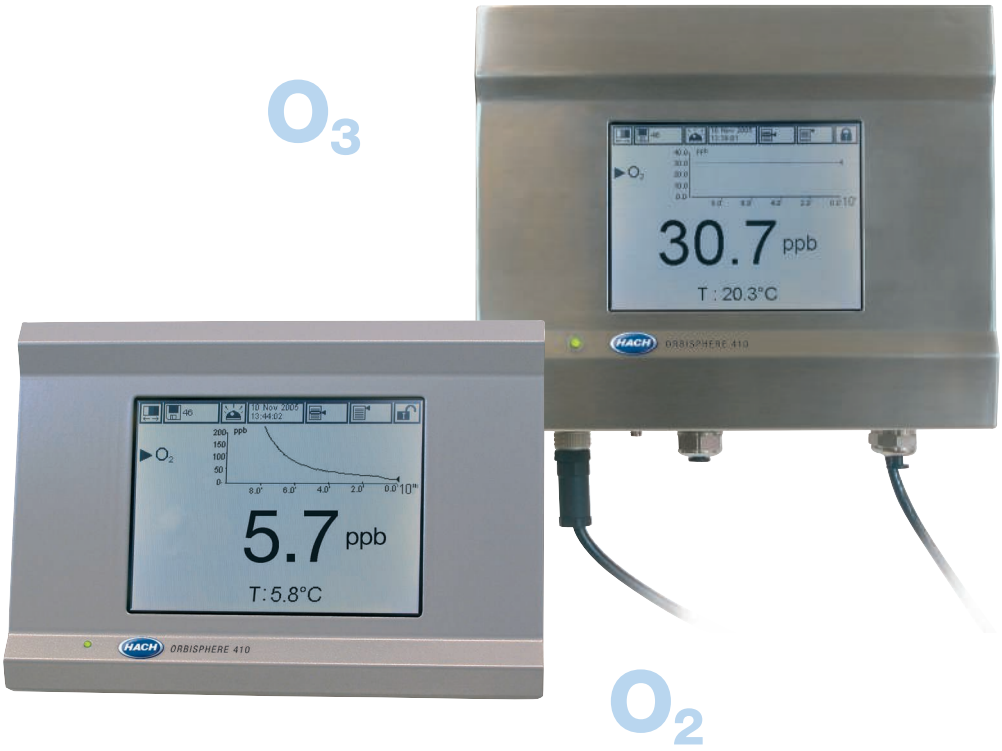
INFORMATION
PROCESS ANALYSIS
GAS ANALYSER
ORBISPHERE 410



ORBISPHERE 410 gas analyser

- **Dissolved concentrations from 0.1 ppb to super-saturation**
- **Easy to use, intuitive software using clear, monochrome touch-screen**
- **Internal diagnostics and reminders for maintenance and calibration**
- **IP65 enclosure designed for harsh industrial environments**

Precise monitoring capability

Designed to complement the ORBISPHERE high quality oxygen and ozone sensors these instruments provide accurate, repeatable trace level measurements and an impressive level of data management.

Applications

These process monitoring instruments are designed for applications in the power generation, electronics, life sciences, beverage, chemical and water treatment industries.

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Precise process monitoring

Operation

All functions of ORBISPHERE 410 instruments are accessed through the monochrome, touch screen. This screen acts as display and keyboard.

ORBISPHERE 410 instruments are designed for ease of use. After simple installation the system is measuring your process in minutes.

The main measurement window continuously displays real time process readings, graphed sensor trends (user selectable from last 1 minute to last 1 hour), alarm limits, temperature and event occurrence.

Sensor life can be extended during CIP cleaning and other high temperature procedures through automatic isolation of the sensor above a pre-selectable level. Common interference effects due to CO_2, H_2S, salinity and chlorinity can be eliminated during the configuration process.

Measurement, configuration, calibration and standard service routines are called up using the simple to follow menus on screen. Access levels are password protected supporting regulatory compliance to standards such as ISO and 21 CFR Part 11, ensuring problem free audits and reducing compliance costs.

Calibration

The ORBISPHERE 410 software defines the step-by-step process for calibration of both measured gas and interferences. ORBISPHERE's unique air cal or direct value calibration may be used for electro-chemical sensors.

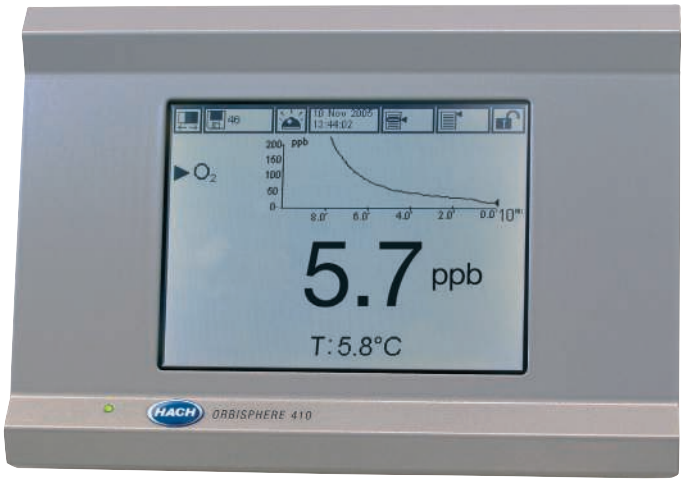
Traceability is ensured through a report that is generated following each calibration. A log file, containing details of the previous 10 calibrations undertaken, further supports traceability.

Barometric pressure calibration for the instrument's internal sensor may be simply carried out by comparison with a precision certified barometer.

Communication

Digital communication uses industry standard protocols including Profibus DP, USB, and Ethernet in addition to traditional analogue outputs and alarm relays. These may all be configured in terms of function, content and behavior.

ORBISPHERE 410 instruments are compatible with ORBISPHERE O_2 and O_3 electrochemical sensors including Smart sensors and ORBISPHERE O_2 optical sensors. Smart sensors can be calibrated in the laboratory before installing on-line and store their own calibration information, so allowing laboratory precision calibration and minimising process downtime.



ORBISPHERE 410 instruments are available in 2 versions.
Wall and pipe version: Mounting is facilitated by use of simple to attach brackets that allow adjustment of the instrument to afford optimum screen viewing angle. Panel mount: version Quick and easy mounting from the front of the panel using concealed screws.

Benefits

- ➔ High level of measurement accuracy and rapid response time means reliable and effective process monitoring
- ➔ Easy to use, intuitive software navigation is simple to use for line operators, flexible enough to meet the needs of technical personnel
- ➔ The monochrome, touch-screen in a stainless steel enclosure conforming to IP65 defines a robust unit built to handle the industrial environment
- ➔ Data storage of up to 1,000 measurements, last 1,000 operator actions and details of last 10 calibrations
- ➔ Internal diagnostics simplify trouble-shooting and issue reminders for maintenance and calibration
- ➔ Software password protection offers five levels of controlled access, minimising the risk of errors in operation or configuration
- ➔ Adjustable alarms and outputs provide assurance that any out of specification events are appropriately registered
- ➔ Suitable for sampling dissolved concentrations from ppb to supersaturation, and gaseous concentrations from ppm to percent level
- ➔ Multiple communication options including USB, Ethernet and Profibus

Validation and Diagnostics

To ensure continuous high performance and simplify maintenance ORBISPHERE 410 instruments offer a number of diagnostic features including:

- Notification that calibration is due – ensures QC procedural compliance
- Notification that a sensor service is due – preventative maintenance planning
- Sensor service diagnostics – minimises downtime
- System alarms transmitted through analog output – continuous status indication

Technical data

Measurement		Resolution: 0.1 ppb oxygen for electro-chemical sensors
		Accuracy and response time: determined by sensor
Sensor options		Orbisphere 311XX and A1100 electrochemical oxygen sensors
		Orbisphere 313XX and C1100 electrochemical ozone sensors
		Orbisphere 31XXXs oxygen or ozone smart sensors
		Orbisphere X1100 optical oxygen sensor
Units	Gas concentration	Configurable for gas or liquid phase with multiple unit options
	Temperature	Sample temperature with unit options (K, °C, °F)
	Pressure	Barometric pressure with multiple unit options
Sample frequency		Continuous measurement for EC; measurement from 2 sec for optical sensors
Interference correction		Chlorinity correction, Salinity correction, CO_2 insensitivity, H_2S insensitivity
Communications		RS485, USB client, USB Host, Ethernet, Profibus DP (optional)
Analogue output		Three smart 4–20 mA or 0–20 mA (software configurable), R maximum 600 Ω
Relays		Three measurement alarm relays (1 A – 30 VAC or 0.5 A – 50 VDC)
		One instrument system alarm relay (1 A – 30 VAC or 0.5 A – 50 VDC)
CE Certifications		Electromagnetic compatibility standards: EN 61326-1- A1 & A2
		Safety standard: EN 61010-1
		ETL, conforming to UL 61010-1 and CSA 22.2 No. 61010-1
Calibration data		Holds calibration records for last 10 calibrations
Data storage		Rolling or store once mode for up to 1,000 measurements and 1,000 last operator actions
Password protection		Five levels of authorised access to configuration and data management
Power requirements	Mains units	Universal 85–264 VAC @50/60 Hz, 25 VA; or 10–36 VDC, 25 W
Power consumption		Maximum 6 W
Operating limits		-5 °C to 50 °C
		0 to 95% non-condensing relative humidity
Thermal cut-off		Configurable thermal cut-off for sensor protection
Enclosure	Wall/Pipe	Stainless steel, IP65, NEMA 4
	Panel	Aluminium, IP65
Display		Monochrome STN 320 x 240 pixels with LED backlight
Keypad		Touch-screen panel
Languages		5 major European languages are available as standard Chinese (C), Japanese (J) or Korean (K) versions can be ordered specifically
Dimensions	Wall/Pipe	Height: 230.5 mm / Depth: 160 mm / Width: 250 mm
	Panel	Height: fascia – 156 mm, enclosure – 123 mm / Depth: 250 mm
		Width: fascia – 220 mm, enclosure – 214 mm
Weight	Wall/Pipe	3.4 kg
	Panel	2.9 kg

* Certain elements of the performance specification are only available as options to the standard unit.
Please discuss your specific needs with a HACH LANGE representative. These datas are subject to change without notice.

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