sentronic

SentrOxy WQM-Series

Optical oxygen sensor

for water quality management

Smart and highly reliable sensor design with new key features

SentrOxy WQM



SentrOxy WQM

This innovative solution for optical dissolved oxygen measurement is designed for harsh and demanding environmental conditions.
Based on the optical principle of fluorescence quenching, SentrOxy WQM dissolved oxygen sensors combine high measurement performance with low maintenance and operating costs.
With its focus on aquaculture management, SentrOxy WQM is ready for implementation in water treatment plants, land and sea based fish farming, open-pen production facilities, recirculation systems, hatchery operations, etc.
The precise sensor optics allow the implementation of two separate optical measurement channels which take measurements in different areas of the same sensitive sensor spot. This innovative and patented principle allows for real-time referencing. This makes your measurement much more reliable and informs you about mechanical defects of the membrane or measurement falsification caused by air bubbles.
The solid oxygen sensitive sensor spot contains no fragile membranes or electrolyte and is part of a robust replaceable cap. Only having to replace or clean the sensitive measuring cap from time to time minimizes service time and costs. Each sensor is furnished with pre-loaded calibration coefficients.
The sensors can be connected directly to a process control system by using the two 4(0)–20 mA analogue outputs including a watchdog function and different alarm levels, or the digital RS485 interface with Modbus protocol. An additional transmitter is not necessary. For calibration or qualification in your laboratory Sentronic can provide a USB converter and a WIFI unit, both incl. a software package, as options.

Smart and highly reliable sensor design with new key features:

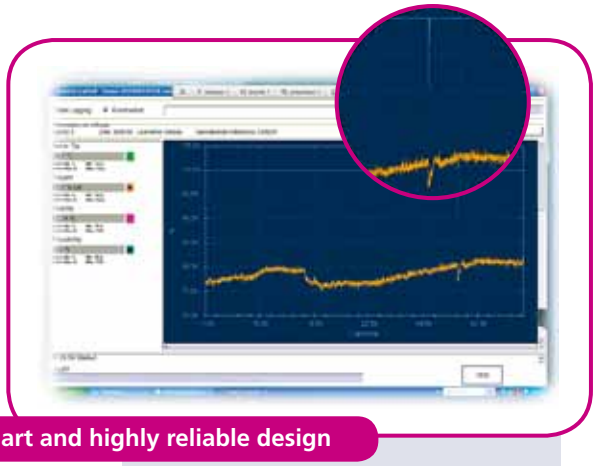
- Robust optical oxygen sensor for harsh and demanding environmental conditions
- Non-corroding POM housing for use in high salinity environments
- Universal design with threads for easy mounting of various accessories
- Seawater resistant cable with UL certification
- Low surface energy coating over sensitive measuring part for easy cleaning
- Cooper cap available to reduce biofouling for seawater applications
- Easy adjustment by connecting the trigger input to the ground
- IP68 / NEMA 6
- Monitoring of sensor health status
- Pre-calibrated, long-term stable, sensitive measuring cap
- Internal data logger
- Comprehensive operation with Sector-standard 4(0)–20 mA interface

Robust housing



- Non-corroding POM housing
- IP68 / NEMA 6
- Threads to mount different accessories directly
- Built-in temperature sensor

Smart and highly reliable design



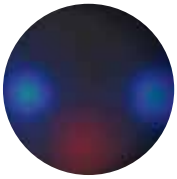
- Two separate measuring channels permit real-time verification of the measurement values
- Continuous monitoring of measured values and reference value at different positions of the sensitive membrane
- The plausibility value provides a warning if the difference is outside the specified range

Measuring caps



- No fragile membranes or electrolyte
- Low surface energy coating over sensitive measuring part
- Cooper cap for seawater applications
- Unique serial number for identification

Dual-channel optics



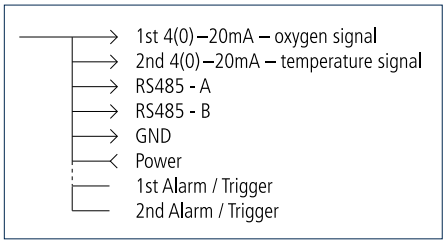
Made in Germany

Future-proof:
All in one - connection

SentrOxy WQM sensors are pre-configured according to application. By using the digital interface (RS485 or additionally a USB converter or a WIFI unit) the sensor can be reconfigured according to customer desire. For example, the following parameters can be freely configured:

- Measurement sampling rate
- Method of measurement value handling
- Different alarm levels from 21 mA up to 25 mA configurable
- Reference value for single-point calibration
- Method for data logging
- Enable / disable auto run mode

The sensors can be connected directly to a process control system by using the analogue or digital interfaces, which can be used in parallel:



An additional transmitter is not necessary. The MODBUS register or the Sentronic protocol enable customers to implement the sensor in their own applications easily.

4 (0) – 20 mA Transmitter



Installation and operation

- Connect the sensor to an existing analogue process unit
- Measurement values will be emitted automatically in the configured mode as long as the power is switched on

Maintenance

- Single-point calibration can be invoked by closing the trigger input to ground
- Reset the lifetime counter of the measuring cap by closing the 2nd trigger to ground after changing the measuring cap
- Occasional cleaning the sensitive measuring cap manually or automatically with the aid of the cleaning head

Digital connection with RS485 and MODBUS RTU



Installation and operation

- Connect the sensor to an existing process unit (PLC, DCS, ICS, SCADA)
- Program the process unit with specific MODBUS RTU registers
- Operate with MODUS RTU registers
- Extensive additional status information in measurement protocol
- CFR21 part 11 conformity (user rights, time stamp, histories)
- Access to extensive health information at any time
- Configuration of the reference points for calibration (single-point, two-point)

Maintenance

- Execution of calibrations (single-point, two-point) via MODBUS command
- Occasional cleaning the sensitive measuring cap manually or automatically with the aid of the cleaning head

Data-logger mode for offline measurement



Installation and operation

- Connect power supply to the sensor on the field measuring point (battery, power from car)
- Automatic measurement value sampling starts
- Data is stored in an internal data logger (14 000 data records)
- Depending on the logging interval the data can be stored over many days
- Read out the data-logger using a digital interface (Modbus, USB converter or WIFI unit)

Maintenance

- Occasional cleaning the sensitive measuring cap manually or automatically with the aid of the cleaning head

SentrOxy Accessories

Sensor accessories
Versatile accessories simplify the use of the sensor. SentrOxy WQM sensors have threads on each end for attaching the accessories.

Protection cap
This cap protects the sensitive sensor element against fish bite and mechanical damage.



Pipe mounting adapter
This adapter is used to attach the sensor to a 1.5" NPT male threaded pipe.



Cleaning head
The cleaning head allows automatic cleaning of the sensitive element with an air stream. This accessory also provides mounting holes for a strain relief cable, assembling additional weights or for fixing.



Technical Parameters

Technology	Optical oxygen sensor based on fluorescence quenching
Electronics	Microprocessor controlled opto-electronics
Power supply	7 – 40 VDC
Interface	2 x 4 (0) – 20 mA RS485 with Modbus protocol 2x digital alarm output/trigger input configurable Optional: USB Converter wireless communication module
Memory	EAN, S/N, location Calibration data Calibration history Cap ID Alarm history
Alarm function	Watchdog: >21 mA at analog output, different alarm levels between 21 – 25 mA configurable Digital alarm channel: LVTTL
Data logging	Internal data logger (14 000 data records)
Measurement range	0.01 – 20 mg/l 0.1 – 200% air saturation
Accuracy at 25°C	0 – 100% sat.: ± 0.5% measuring range end 100 – 200% sat: ± 1% measuring range end
Response time 25°C, air to N2	T90 < 60 s

Order Information

SentrOxy WQM L5202	10 m cable (other length on request)	2520801200129
SentrOxy DIS L1102 WQM	measuring cap, POM	2520801600110
SentrOxy DIS L1101 WQM	meas. cap, POM and copper	2520801700117
SentrOxy ACC 2001 WQM	protection cap, POM	2520802000124
SentrOxy ACC 2002 WQM	cleaning head	2520802100121
SentrOxy ACC 2003 WQM	pipe mounting adapter	2520802200128

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