SENTEC AS

OXYnor Optical Sensor for Measuring Oxygen and Temperature Modbus RTU, ASCII or 4-20 mA interface

1. Overview

The **OXYnor** is a single channel module for measuring oxygen and temperature. It consists of a phase detection board for luminescence detection integrated in a 12 mm stainless steel fitting.

The small outer dimensions and low power consumption enable a simple integration into custom monitoring & control systems.

As a digital interface it uses RS-485 Modbus RTU (option RS-485 ASCII proprietary). A serial communication protocol is offered for data exchange between a PC or another host unit and the **OXYnor Unit**

2. Features

- Simple integration (12 mm steel fitting)
- Low power consumption
- Luminescence lifetime detection via a precise phase detection board
- No oxygen consumption, no need for flow to meassure
- Meassure in any possition, also horizontal and up side down.

1. Technical Specification

OXYnor Series	
Specification	
Oxygen sensor OXYnor	Optical technology based on luminescence quenching
Dynamic range[a]	0 – 250% oxygen, special calibration up to 500% air saturation available on request
Resolution[a]	1 ± 0.02 %O2 20.9 ± 0.1 %O2 50 ± 0.4 %O2
Limit of Detection[a]	0.03% O2; 20 ppb DO
Deviation from certified gas mixtures at 20°C	1 ± 0.05% O2; 20.9 ± 0.2 % O2;
Application	Gaseous and dissolved oxygen
Response time in liquid, t90[b]	< 30s for the standard cap, faster responce time cap available upon request
Response time in gas, t90[c]	< 10s
Temperature compensation of the oxygen concentration	0 to 50°C
Maximum pressure	5 Bar
OXYnor is not resistant against	- Pure Chlorine gas - Organic solvents (CHCl3, toluene, acetone, …) - Steam Sterilization (121°C)
Storage stability of the sensor cap[d]	5 years

Oxygen Consumption	None
Calibration	One or two point calibration
Sampling rate	1 s up to 9 min 59 s
Temperature sensor	NTC
Temperature performance	Better than ± 1°C
Supply voltage	5 – 30 VDC for OXYnor WR(M); 7 – 30 VDC for OXYnor WR-AO
Power consumption in active mode	max. 1 W
Power consumption in stand-by mode	< 0.15 W
Temperature: operating / storage	0 °C to 50 °C / - 10 °C to 70 °C
Housing	Stainless steel, 1.4404, PE
Dimensions	12 x 106 mm for OXYnor WR(M); 135 mm for OXYnor WR-AO
Cable length	Standard 5 m (other cable length on request)
Digital interface	OXYnor-RS485-L5: RS485 Modbus RTU OXYnor-RS485-L5: RS485 ASCII proprietary, half duplex (Baud rate: 19200, Data bits: 8, Parity: No, Stop bits: 1, handshake: No)
Analog out	OXYnor RS485-AO-L5, additional 4-20 mA output for temperature

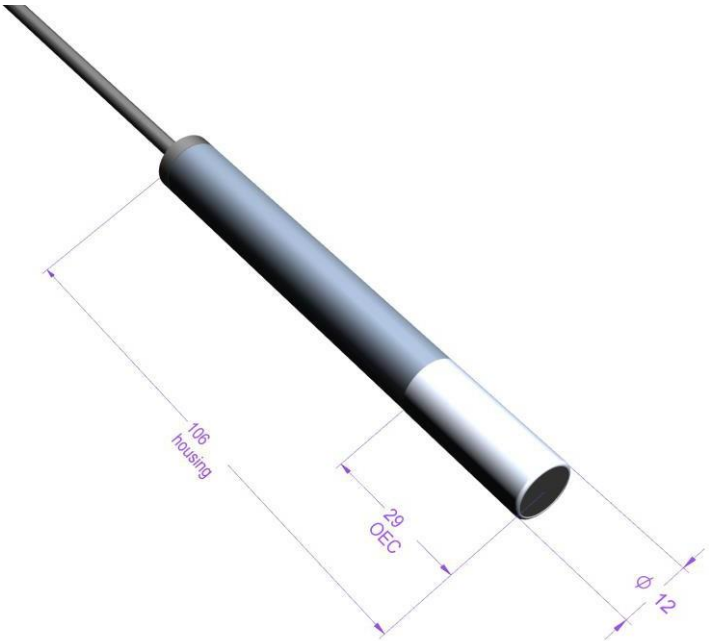
[a]: at 20 °C, 960-980 hPa; humidified gas mixtures

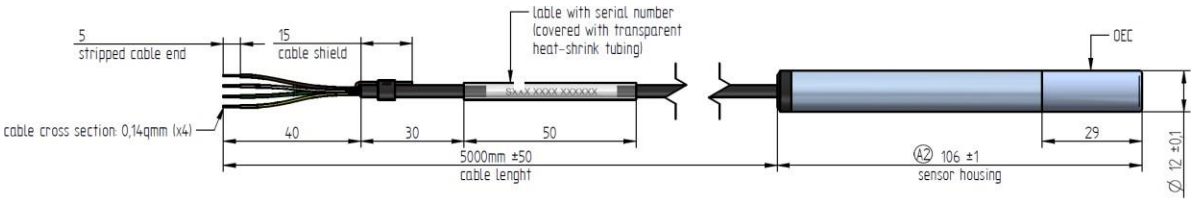
[b]: The response time in liquid was determined changing from air saturated water to a freshly prepared 1% sodium sulfite solution containing $CoCl_2$ as catalyst;

[c]: The response time in gas was determined changing from 20.9% oxygen gas to nitrogen 5.0;

[d]: storage conditions: dry at 20 °C, excluding the sensor spots from light.

2. Dimensions of OXYnor RS485-L5 and OXYnor RS485M-L5





3. Dimensions of OXYnor RS485-4AO-L5