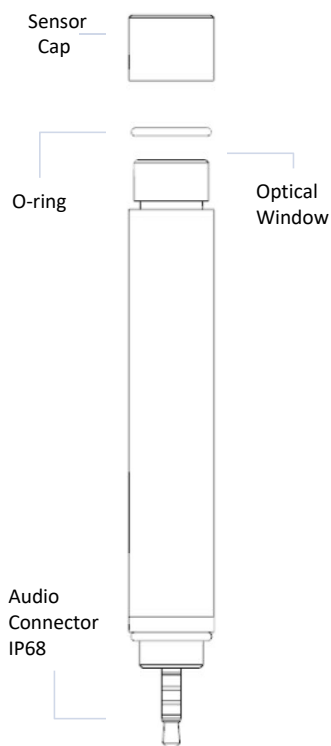


Optical Dissolved Oxygen Sensor



Optical Dissolved Oxygen Sensor

The Broadsensor optical DO sensor (diameter 16mm) is coated with a luminescent material. Blue Light from an LED strikes the luminescent chemical on the sensor. The luminescent chemical instantly becomes excited and then as the excited chemical relaxes, it emits red light. The red light is detected by a photo diode. The time it takes for the chemical to return to a relaxed state is measured by referring an independent red LED light. Oxygen has a dampening effect on this reaction. The oxygen concentration is proportional to the time it takes for the luminescent material to return to a relaxed state.



Key Advantages:

- Smart sensor retains all calibration in the sensor
- Membrane-less, no electrodes design
- Flow Independent and No oxygen consumption
- No warm-up time required
- Easy to store
- User-replaceable sensor cap
- Low drift and long life time
- All made by Broadsensor, including fluorescent film
- Support salinity compensation
- Digital output, support RS485 Modbus protocol

Technical Specifications

Measurement Method	luminescence quenching technique
Range	0-20mg/L or 0-200% Air Sat.
Resolution	0.01mg/L
Accuracy	± 3% reading or 0.05mg/L w.i.g
Operating temperature	0~45°C
Storage Temperature	-10~50°C
Min. Detection Limit	0.05mg/L
Warranty	1 year
Depth	IP68
Power	DC5V 5%
Output	RS485, Modbus RTU Protocol
Materials	Titanium
Dimensions	Length 143mm(Default),diameter 16mm
Flow Rate	< 3 m/s
Response time	Minimum 30s T90
Field life*	Sensor 2 years or greater, sensor cap 2 years or greater
Recommended Calibration maintain Frequency *	Sensor 6 months

Note:

*Field life and calibration frequency dependent on site conditions.

**w.i.g which is greater.

Default: Baud rate: 9600 8N1, Modbus RTU, 32-bit IEEE 754 floating-point value(little-endian).

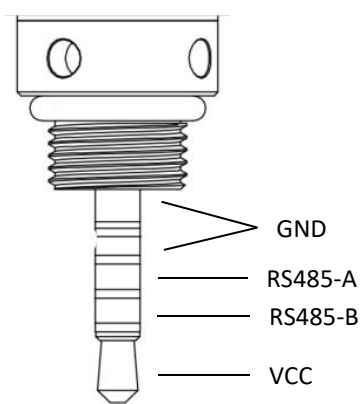
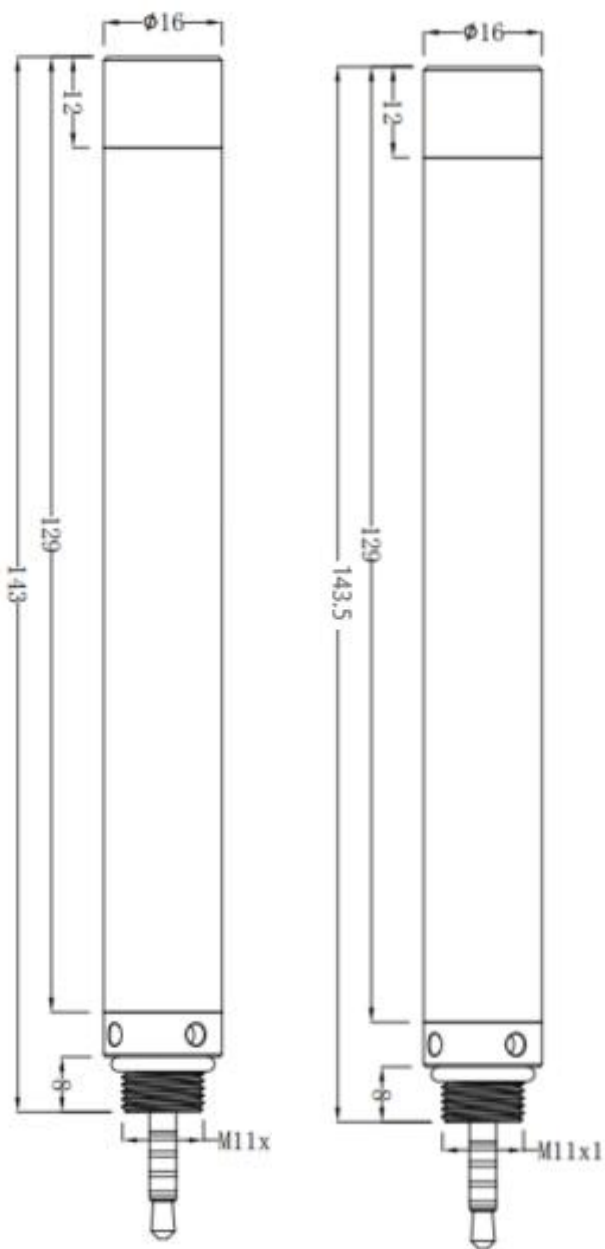
Register Table

Address	Length	Type	Access	Description
0x0009	4	Char	R	SN number. e.g. V2103021
0x000E	1	UShort	R/W	MODBUS address, default 0x01
0x0012	1	UShort	R/W	Baud rate 0-1200, 1-4800, 2-9600(default), 3-19200 4-38400, 5-115200
0x0014	1	UShort	R	Sensor alarm, reset to be 0x00(no alarm) after reading. 0x01-temperature alarm(out of 0-50°C) 0x02-Leakage alarm(inside humidity is over 50%) 0x04-user calibration data alarm (out of 0.5<K<2, -100<B<100) 0x80-Power supply voltage alarm(out of 4.5-13V)
0x0605	1	UShort	R/W	Float data format 0-DCBA, 1-BADC, 2-CDAB, 3-ABCD (Default, little-endian)
0x0030	2	Float	R	Temperature, °C
0x0032	2	Float	R	DO data, mg/L
0x0034	2	Float	R	DO data, %Sat, e.g. 0.77 is 77% Sat.
0x0046	2	Float	R/W	Salinity compensation data, Unit: ppt, default 0.0
0x0060	2	Float	R/W	DO user calibration slope, K, default K=1.0
0x0062	2	Float	R/W	DO user calibration offset, B, default B=0

Note:

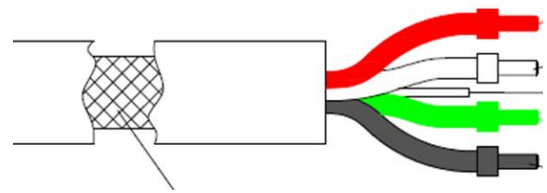
- 1, Do not access the register which is not in this document.
- 2, Normal flow: Power on->delay 50mS->read SN(optional)->delay 2S or longer->read sensor data(DO NOT use one frame to get data if they are in discontinuous address)-> delay 2s or longer-> read sensor data.
- 3, Read and write user calibration data must be in ONE frame.
e.g. Read frame: 01 03 00 60 00 04 44 17 , write/set frame: 01 10 00 60 00 04 08 9A 99 99 3F CD CC 4C BF 34 CF, set K=1.2 B=-0.8.

Dimensions and Cable information



Note:
1, unit: mm
2, normal

Note:
1, unit: mm
2, pressure-proof



- Red--VCC
- White--RS485-B
- Bare—Shielding
- Green--RS485-A
- Black--GND

Sensor	Clean frequency*	Check inside humidity	Replace O-ring	Calibration frequency	Replace consumable part
Optical DO	1-4 days	6 months	12-24 months	6 months	24-36 months**
Conductivity	4-8 weeks	6 months	12-24 months	6 months	No consumable part
Turbidity	0.5-3 days	6 months	12-24 months	3 months	No consumable part
Chlorophyll a	0.5-3 days	6 months	12-24 months	3 months	No consumable part
BGA	0.5-3 days	6 months	12-24 months	3 months	No consumable part
NH4-N	0.5-3 days	6 months	12-24 months	2-3 weeks	3-6 months
pH	0.5-3 days	6 months	12-24 months	4-8 weeks	6-12 months
UV254 COD	0.5-3 days	4-8 weeks	12-24 months	3 months	No consumable part
Oil in water	0.5-3 days	4-8 weeks	12-24 months	3 months	No consumable part
CDOM/fDOM	0.5-3 days	4-8 weeks	12-24 months	3 months	No consumable part

Note:

1, * is without wiper system

2, **is sensor cap

3, The O-ring between sensor and wiper is suggested to replace every 6-18 months. About the specifications of the O-ring, please contact our staff.

BroadSensor Technologies Co.,Ltd

Addr: 3rd Floor, Building F, Yeeda Science& Technology Park,
No.11 Jinpu Road, Suzhou Industrial Park, China, 215123

Tel: +86-512-88960831

Fax: +86-512-62988329

Email: sales@broadsensor.com

Web: www.broadsensor.com

Ordering info:

PN: 610116 Titanium

PN: 710003 sensor cap 16mm, M1.0, titanium

PN: 710004 sensor cap 16mm, M1.0, titanium
2mm base material, for pressure-proof

2024. All right reserved