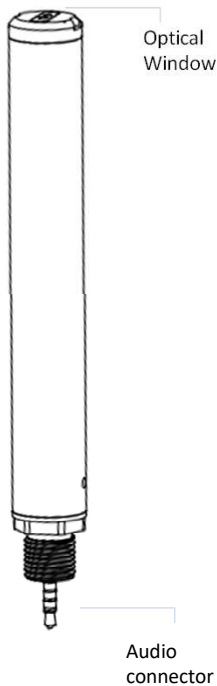


Optical Turbidity Sensor v2.0



Optical Turbidity Sensor



BroadSensor measures turbidity with a fiber optics sensor. An 860nm light from the emitter enters the sample via fiber and scatters off particles in the water. The scattered light at 90 degrees, enters a PD detector via fiber. This follows the nephelometric technique of measurement, and values are expressed in nephelometric turbidity units (NTUs). It follows the ISO7027 standard.

Key Advantages:

- Fiber optics path
- Ambient light rejection technology
- Internal temperature compensation
- Easy to calibrate
- Low calibration solution volume, 50mL minimum
- Provide SS and transparency output(calculated from turbidity)
- Support inside leakage alarm
- RS485 Modbus RTU output

Specification



Technical Specifications

Measurement Method	scattered light at 90 degrees, ISO7027
Range	0.3~100NTU, 0.3~1000NTU, 1.0~4000NTU
Resolution	0.01NTU, 0.1NTU, 1.0NTU
Accuracy	+/-3% FS
Operating temperature	0~45°C
Storage Temperature	-10~50°C
Min. Detection Limit	0.3NTU
Warranty	1 year
Depth	IP68, 10m Max
Power	DC 5~12V 10mA (normal)
Output	RS485 and Modbus protocol
Materials	POM, PMMA, SS316
Dimensions	Length 187mm, diameter 22mm
Flow rate	< 3 m/s
Response time	Minimum 30s T90
Field life*	Sensor 2 years or greater
Recommended Calibration maintain Frequency *	Sensor 6 months

Note: *Field life and calibration frequency dependent on site conditions.

Software interface and register map



Default: Baud rate: 9600 8N1, 32-bit IEEE 754 floating-point value(little-endian)
Modbus address is 0x01.

Address	Length	Type	Access	Description
0x0009	4	Char	R	SN number. e.g. V0203021
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)
0x0030	2	Float	R	Temperature, °C
0x0034	2	Float	R	Temperature, it is a mirror of 0x0030, it is as same as 0x0030
0x0036	2	Float	R	Turbidity data, NTU
0x0038	2	Float	R	SS(Suspended solid) data, mg/L, calculated from turbidity
0x003A	2	Float	R	Transparency data, unit: cm, calculated from turbidity
0x0056	2	Float	R	Inside humidity data, e.g. 77.8 is 77.8%
0x0060	2	Float	R/W	Turbidity user calibration slope, K, default K=1.0
0x0062	2	Float	R/W	Turbidity user calibration offset, B, default B=0
0x00B0	2	Float	R/W	SS user calibration slope, K, default K=1.0
0x00B2	2	Float	R/W	SS user calibration offset, B, default B=0
0x00B4	2	Float	R/W	Transparency user calibration slope, K, default K=1.0
0x00B6	2	Float	R/W	Transparency 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.

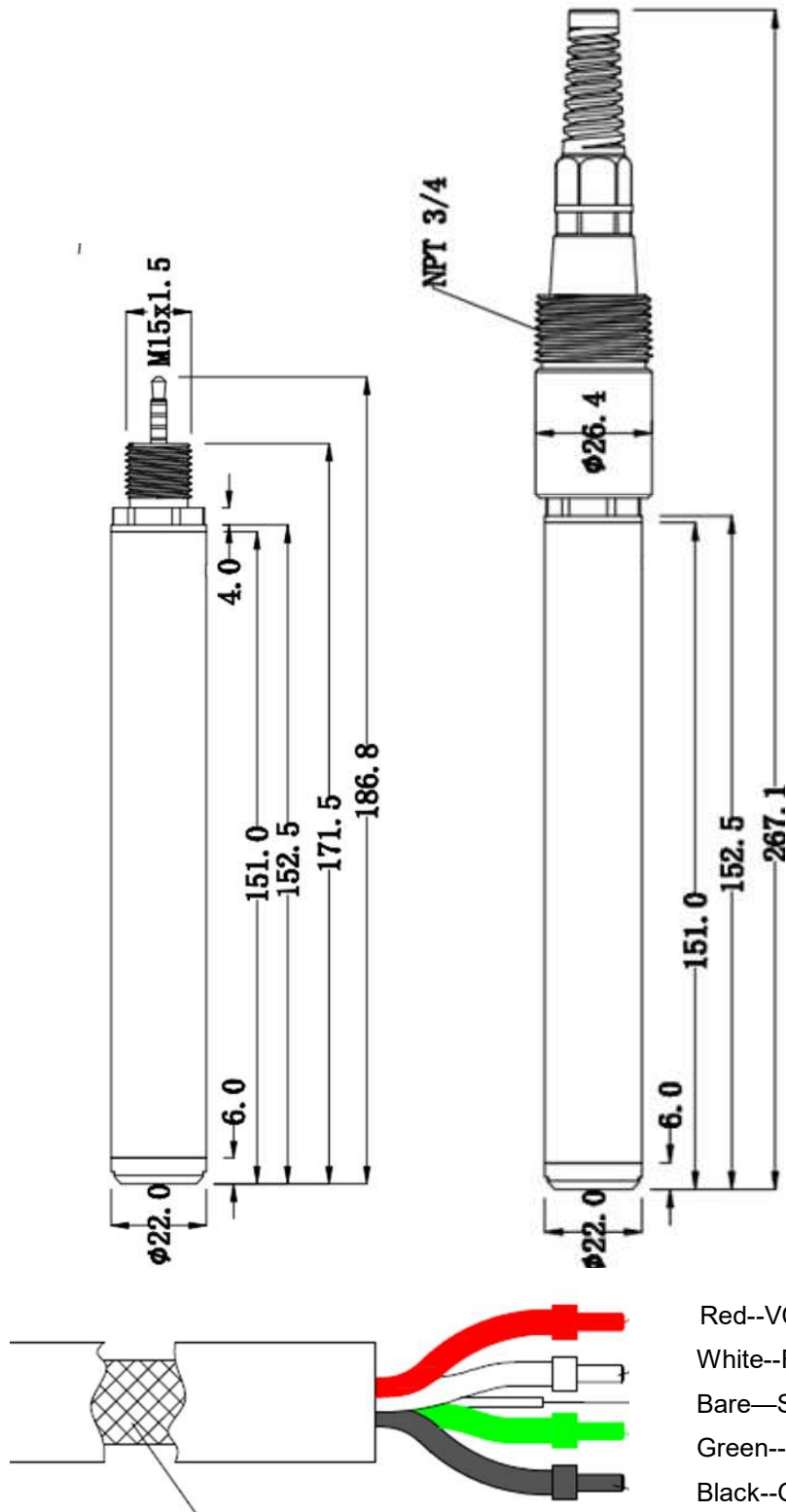
3, Read and write user calibration data must be in ONE frame.

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.

Dimension and cable information



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Note:
1, Unit: mm
2, Tolerance: $\pm 0.2\text{mm}$

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

Maintenance and ordering information



Sensor	Clean frequency*	Clean frequency**	Check inside humidity	Replace O-ring	Calibration frequency	Replace consumable part
Optical DO	1-4 days	4-8 weeks	6 months	12-24 months	6 months	24-36 months
Conductivity	4-8 weeks	4-8 weeks	6 months	12-24 months	6 months	No consumable part
Turbidity	0.5-3 days	4-8 weeks	6 months	12-24 months	3 months	No consumable part
Chlorophyll a	0.5-3 days	4-8 weeks	6 months	12-24 months	3 months	No consumable part
BGA	0.5-3 days	4-8 weeks	6 months	12-24 months	3 months	No consumable part
NH4-N	0.5-3 days	4-8 weeks	6 months	12-24 months	2-3 weeks	3-6 months
pH	0.5-3 days	4-8 weeks	6 months	12-24 months	4-8 weeks	6-12 months
UV254 COD	0.5-3 days	4-8 weeks	6 months	12-24 months	3 months	No consumable part
Oil in water	0.5-3 days	4-8 weeks	6 months	12-24 months	3 months	No consumable part
CDOM/fDOM	0.5-3 days	4-8 weeks	6 months	12-24 months	3 months	No consumable part
Wiper	4-8 weeks	4-8 weeks	NA	18 months	NA	18 months***

Note:

- 1, * is without wiper system
- 2, ** is with wiper system.
- 3, *** are dynamic sealing parts
- 4, The O-ring between sensor and wiper is required to replace every 12 months.
- 5, Field life and calibration frequency dependent on site conditions.

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.broadesnsor.com

Order info:

PN: 620211 0.3-1000 NTU
PN: 620211-1 0.3-100 NTU
PN: 620211-2 1.0-4000 NTU
PN 810005-xx PUR cable(audio connector)
xx is cable length, unit is meter