Optical Turbidity Sensor

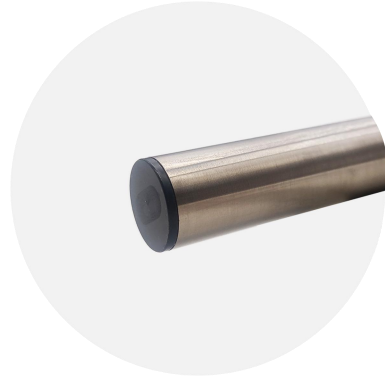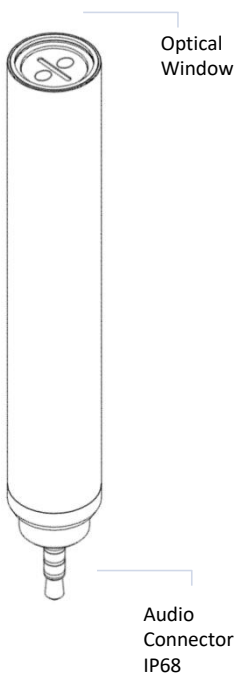## Optical Turbidity Sensor

Optical
Window

Broadsensor measures turbidity with an 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.

Audio
Connector
IP68

Key Advantages:

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

BROADSENSOR

Bring value
To your process

Technical Specifications

Measurement Method	scattered light at 90 degrees, ISO7027
Range	0.3~1000NTU
Resolution	0.1NTU
Accuracy	$\pm$5% reading or 0.5NTU w.i.g
Operating temperature	0~45℃
Storage Temperature	-10~50℃
Min. Detection Limit	0.3NTU
Warranty	1 year
Depth	IP68,10m Max
Power	DC5V 5%
Output	RS485，Modbus RTU Protocol
Materials	Titanium, PVC，PMMA
Dimensions	Length 143mm(connector is not included), diameter 16mm
Flow Rate	< 3 m/s
Response time	Minimum 10s 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.
**w.i.g which is greater.

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

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
0x0034	2	Float	R	Temperature, ℃， it is LED temperature, not water
0x0036	2	Float	R	Turbidity data, NTU
0x0038	2	Float	R	SS(Suspended solid) data, mg/L, calculated from turbidity 1NTU=1mg/L SS default
0x003A	2	Float	R	Transparency data, unit: cm, calculated from turbidity
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:

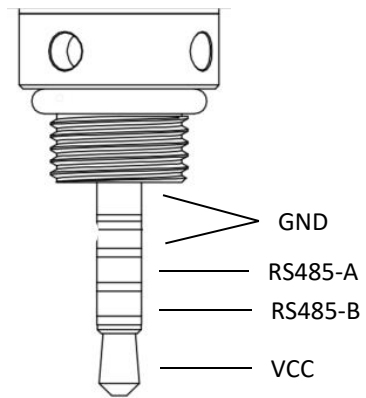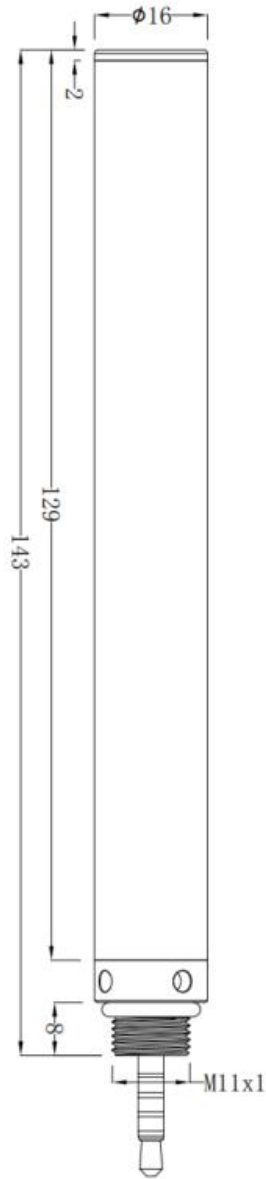1, Do not access the register which is not in this document.

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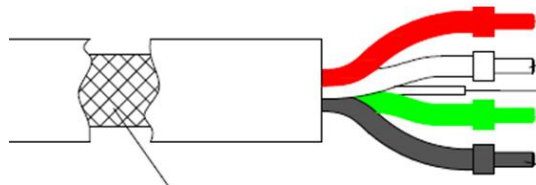
3, Read and write user calibration data must be in ONE frame.

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.

BROADSENSOR

Bring value
To your process

Ø16

2

129

143

8

M11x1

GND

RS485-A

RS485-B

VCC

Note:
1, Unit: mm

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: 610212 0.3~1000NTU