

UV-Vis COD Sensor

COD / BOD / TOC / Turbidity / TSS
Sensor Catalogue

Agasthya 2026 Series

BI-COD-Ext-R

R(range) : 100, 200, 500,1000 mg/L



Multi-Parameter Monitoring

COD, BOD, TOC, Turbidity & TSS
in one sensor



Real-Time Results

Continuous online measurement



Digital Interface

RS485 (Modbus RTU)



Industrial Ready

Suitable for ETP, STP & process industries



Fast Response Time

Quick and stable readings



UV-Visible Absorbance Technology

Accurate optical measurement system



Continuous Flow Design

Extractive inline monitoring



Simple Calibration

Easy 2-point field calibration



Robust Build

Stainless steel, IP65 enclosure



Reliable Performance

Works in harsh environments

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OVERVIEW

The UV-Vis, Multi-Parameter Water Quality Sensor is an extractive type optical measurement system designed for continuous real-time monitoring of organic load and suspended solids in water. The sensor uses UV-visible absorbance light measurement technology to analyze Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), Total Organic Carbon (TOC), Turbidity, and Total Suspended Solids (TSS) values. This sensor is designed for industrial and municipal wastewater monitoring where continuous process control and compliance monitoring are required.

KEY FEATURES

- Online real-time measurement of COD, BOD, TOC, Turbidity, and TSS
- UV-Vis optical measurement with stable LED source
- Extractive flow-through design for continuous monitoring
- Fast response time and stable optical baseline
- Suitable for industrial and municipal wastewater applications
- RS485 communication support
- Supports easy 2-point field calibration
- Robust enclosure for harsh environment

APPLICATIONS

- Effluent treatment plants (ETP / STP)
- Boiler discharge and process water monitoring
- Industrial wastewater monitoring
- Chemical, pharmaceutical and food industries
- Municipal wastewater treatment plants
- Continuous compliance monitoring system

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PRINCIPLE

The sensor technology is based on the principle of UV-visible absorbance and visible light transmission. Organic compounds in water absorb UV light. The reduction in UV intensity due to absorption is used to analyze COD & calculate BOD and TOC.

Turbidity and suspended solids affect visible light transmission and scattering. The intensity of scattered light is used to analyze the concentration of turbidity and TSS.

TECHNICAL SPECIFICATIONS

Measurement Specifications*		
Measurement Technology	Light Absorption	
Optical Path Length	2mm	5mm
Range	COD (R [†]): 0-1000 mg/L	COD (R [†]): 0-500 mg/L (standard)
	BOD: 0-600 mg/L	BOD: 0-300 mg/ L
	TOC: 0-500 mg/L	TOC: 0-250 mg/L
	TSS: 0-2000 mg/L	TSS: 0-1000 mg/L
	Turbidity: 0-1000 NTU	Turbidity: 0-500 NTU
Accuracy	±2.5%	
Repeatability	±2%	
Resolution	0.1 mg/L / 0.1 NTU	
Response Time (T90)	16 Sec	
Sample Temperature	0-40°C	
Operating Temperature	0-40°C	
Electrical & Mechanical Specifications		
Supply Voltage	12 V DC	
Current Consumption	50 mA (Typical)	
Flow control	0.5 L/min to 1 L/min	
Communication / Digital Interface	RS485 (Modbus RTU)	
Housing	Stainless steel	
Dimension	142 x 144 x 86 (mm)	
Weight	2.3 kg	
IP Rating	IP65	
Storage Temperature	-20°C to 80°C	

*under laboratory conditions

** based on KHP solution

[†]Range - R: Defines the model no,
R can be 100, 200, 500, 1000

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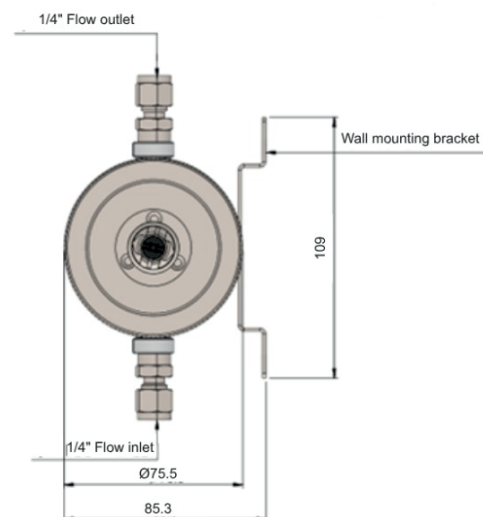
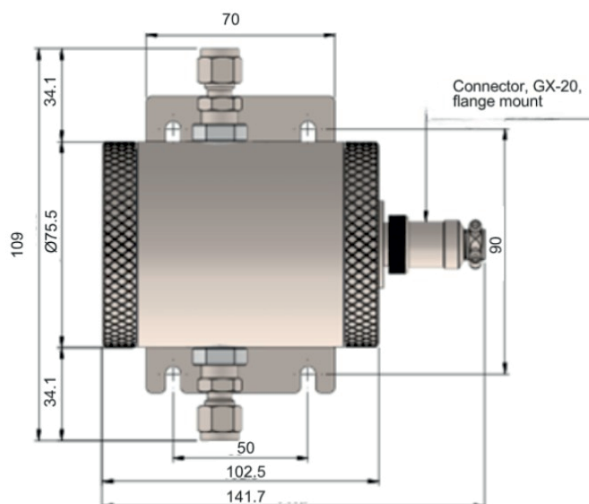
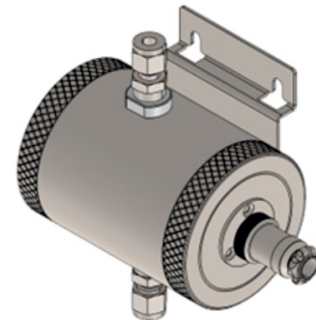
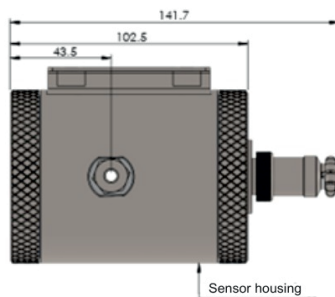
COD / BOD / TOC / Turbidity / TSS Sensor

INSTALLATION

Mechanical Installation

The sensor is designed for inline extractive installation with sample inlet and outlet connections. Proper flow direction must be maintained (bottom-to-top recommended) to avoid air bubble accumulation.

Mass: 2.3 KG



Note:
All dimensions are in millimeters unless otherwise specified.

UV-Vis COD Sensor

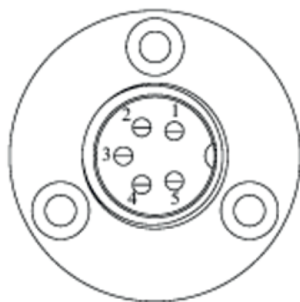
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Electrical Installation & Wiring

The sensor supports digital communication via RS485. Wiring should be done as per standard Modbus installation practices with proper shielding and grounding.



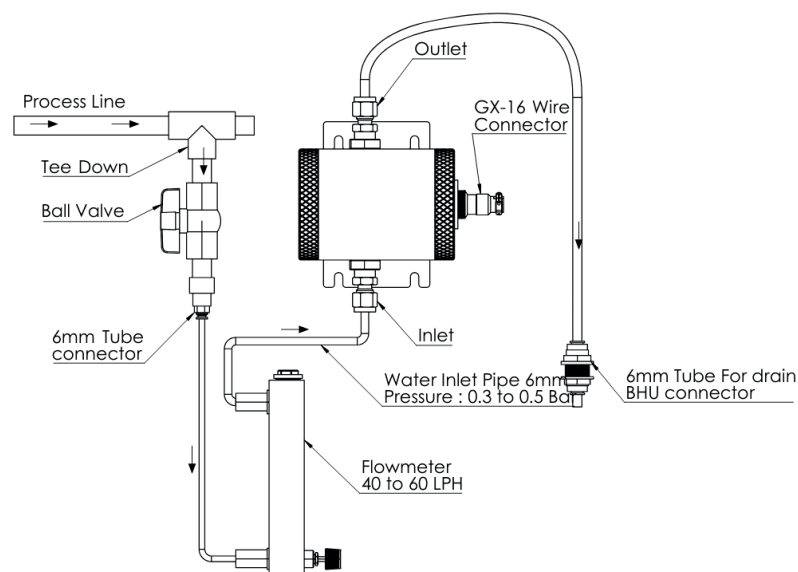
Face View (Male)



Face View (Female)

- 1.Power (12V)
- 2.Ground
- 3.RS485 A
- 4.RS485 B
- 5.Pin Connector

FLOW DIAGRAM



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COMPARISON WITH OTHER COD SENSORS IN MARKET

Parameter	Bhoomi COD Sensor	Typical Market Products
Measurement Principle	Advanced multi-wavelength UV- Vis / dual-beam technology	Mostly single UV254 absorption
Accuracy	High precision ($\pm 2.5\%$ or better)	Moderate accuracy ($\pm 5-10\%$)
Maintenance	Low maintenance design	Frequent manual cleaning required
Service	Part level replacement or repairable is possible	The complete system has to be replaced. No part level replacement is possible
Reagents	Reagent-free operation (eco-friendly)	Some require chemical digestion / reagents
Response Time	Fast (<60 sec real-time monitoring)	Slower or batch-based readings
Multi-Parameter Capability	COD + Turbidity / TOC / BOD correlation	Mostly COD only
IoT / Connectivity	Cloud + remote monitoring (IoT enabled)	Limited or no remote access
Installation	Flexible (inline + bypass)	Limited installation options
Calibration	Minimal / smart calibration	Frequent manual calibration
Durability	Industrial-grade (SS316 / IP65)	Standard housing
Communication	Digital (RS485 / Modbus / SCADA ready)	Basic analog/digital outputs
Application Range	Municipal + Industrial + Smart water system	Mainly wastewater plants

OUR LIQUID ANALYZERS PRODUCT RANGE



Multiparameter Water Quality
Monitoring System
BI 1000



Water Sensors



Single & Dual
Channel Controllers
BI 13X0-C, BI 13XX-C

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