Digital Turbidity Sensor
TURBINUM 442

- **Optical fiber IR measurement**
- **From 5 to 4000 NTU/FNU or 0 to 4500 mg/L**
- **90° measurement using infrared at 850 nm**
- **Modbus RS-485 digital output**
- **In accordance with standard 7067**

APPLICATIONS

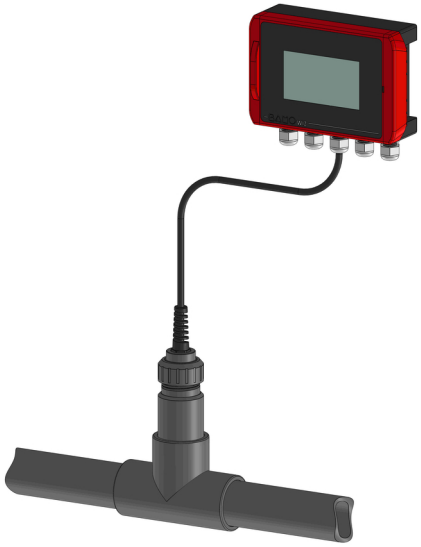
- Urban wastewater treatment (inlet/outlet controls)
- Sewerage network (load monitoring)
- Industrial water treatment
- Surface water monitoring, dredging site.

DESCRIPTION

The TURBINUM sensor measures turbidity using the nephelometric principle. It operates with a diode that emits infrared light at a wavelength of 850 nm, and another diode positioned at a 90-degree angle that detects the scattered radiation.

This optical technology requires minimal maintenance. The probe stores its calibration data internally. All measurements are processed directly within the sensor and transmitted via MODBUS communication.

The BAMOWIZ TUR, specifically developed for the TURBINUM sensor, provides local display and signal management. The device is equipped with a touchscreen for displaying measurements and includes additional functions such as alarm threshold configuration, 4-20 mA signal retransmission, and sensor calibration. It also features two 4-20 mA inputs for additional measurement capabilities. (See datasheet 442-01)



Example of installation with PVC mounting bracket and BAMOWIZ

CODE NUMBERS AND REFERENCES

Code	Reference	Description
442 020	TURBINUM-7M	Turbidity probe, MODBUS interface Cable length 7 meters, bare wires
Accessories: Immersion probe holder		
442 030	9442 PVC	PVC probe holder Ø50 (L = 0.5 to 2 meters)
130 112	9358 PE	Adjustable PE flange Ø50 for PVC probe holder
442 025	9442 Inox	Stainless steel probe holder Ø50 (L = 0.5 to 2 meters)
442 026	8342P	Stainless steel probe holder support
Accessories: In-line probe holder		
442 035	9242	inline support: Weld boss
442 040	9342	PVC mounting tee DN40 for TURBINUM sensor
Accessories: Extension cable		
453 110	C4B	Shielded extension cable, 4-conductor

For cable extensions or to facilitate removal of the probe, we recommend using M12 connectors.

Code	Reference	Description
453 099	M12 male connector + probe mounting	
453 105	C4B-5/CM12	5 m extension cable/M12 female connector
453 120	C4B-20/CM12	20 m extension cable/female M12 connector
453 130	C4B-30/CM12	30 m extension cable/female M12 connector

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TECHNICAL FEATURES

Measurement principle	90° infrared diffusion
Measurement scales:	**5 to 4000 NTU/FNU in 5 ranges:** • 5...50 NTU/FNU • 5...200 NTU/FNU • 5...1000 NTU/FNU • 5...4000 NTU/FNU • AUTO range **0 to 4500 mg/L:** • range from 0 to 500 mg/L according to standard NF EN 872 • range >500 mg/L according to standard NF T 90 105 2
Resolution	from 0.1 to 1 automatic depending on the range
Accuracy	< 5% of NTU/
Response time	< 5 seconds
Operating temperature	-10°C to +50°C
Operating pressure	Max. 5 bar
Protection rating	IP68
Temperature measurement	via NTC
Storage temperature	-10 °C to +60 °C
Signal interface	Modbus RS-485
Sensor power supply	7 to 12 Volts (max 13.2 V)
Consumption	Standby: 40 µA Average RS485 (1 measurement/second): 820 µA Current pulse: 500 mA Reverse polarity protection
Sensor dimensions	Diameter 27 mm, Length: 170 mm
Cable/Connectors	9 shielded conductors, polyurethane sheath, bare wires
Weight	300 g (sensor + 3 m cable)

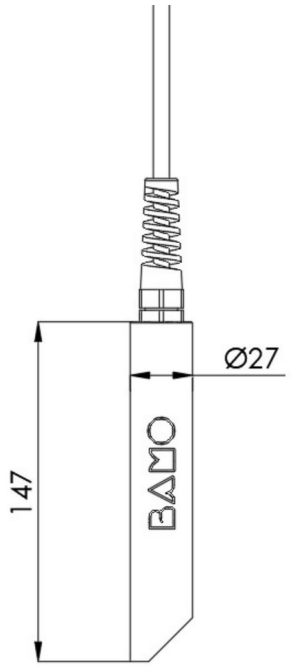
Materials in contact

Sensor head	PVC
Body	DELRIN
Optics	Quartz
Cable	Polyurethane sheath
Cable outlet	Polyamide

Recommendations:

- Optical lenses are vulnerable to chemicals (organic solvents, acids, strong bases, peroxide, and hydrocarbons).
- Avoid impacts or abrasion of the optics.

DIMENSIONS



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11-07-2025 D-442.02-EN-AB

TUR

442-02 /2

MOUNTING

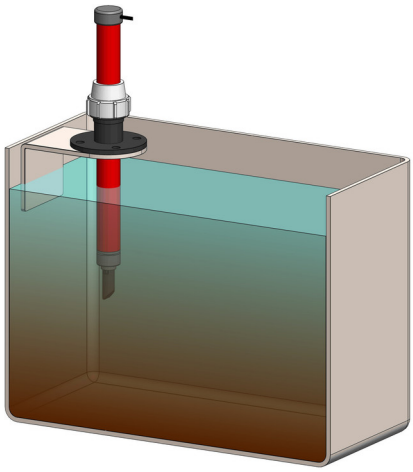
For installing sensors in immersion or insertion conditions in pipes, we recommend using suitable accessories supplied by BAMO.

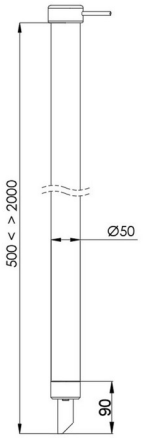
1) Accessories for installing the immersion probe.

When submerged, hold the sensor by its body and do not allow it to hang by the cable, as this may damage the sensor.
BAMO offers PVC or stainless steel holders (short and long versions) for installing the sensor in open tanks.

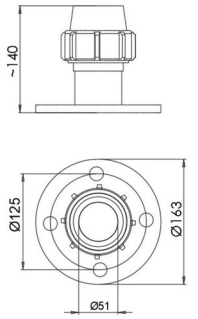
PVC immersion holder

The PVC model can be positioned on a mounting bracket with a sliding flange for easy installation and maintenance.





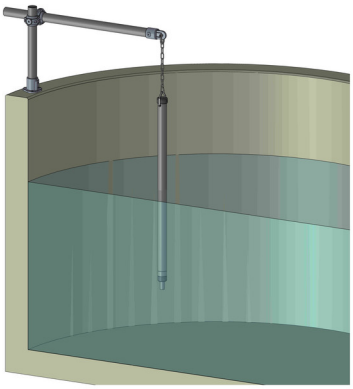
Probe holder 9442

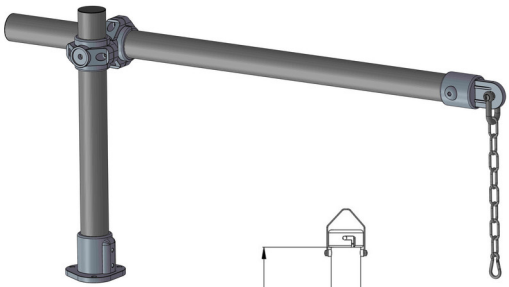


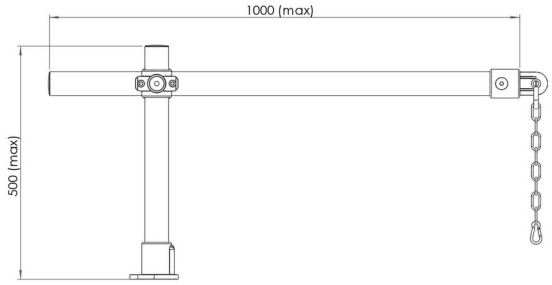
Adjustable flange 9358 PE

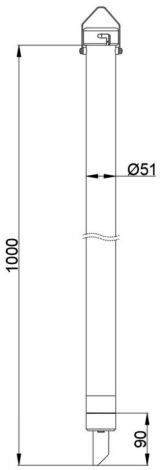
Stainless steel immersion holder

The stainless steel model should be positioned away from the edge of the pool using a 1-meter pole and a chain.









9442 Stainless steel probe holder and bracket

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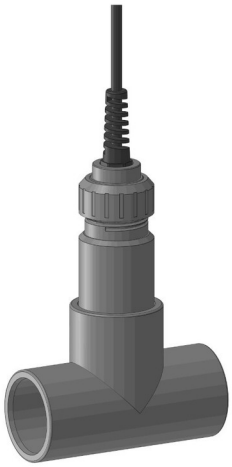
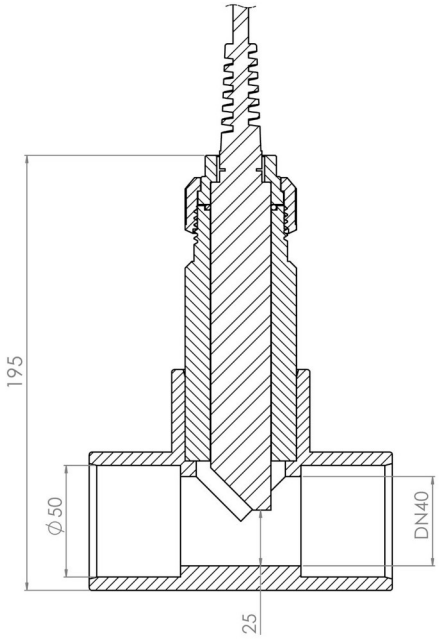
2) Accessory for installation in line

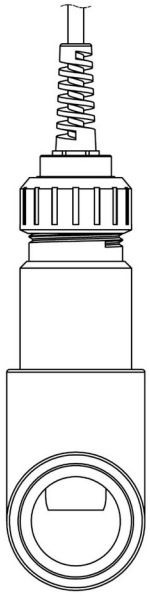
BAMO offers PVC or stainless steel brackets for installing the sensor on an in-line pipe.

PVC holder

The PVC support is suitable for DN40 piping.
In order to facilitate cleaning or maintenance operations on the probe, it is strongly recommended that valves be installed upstream and downstream of the support.

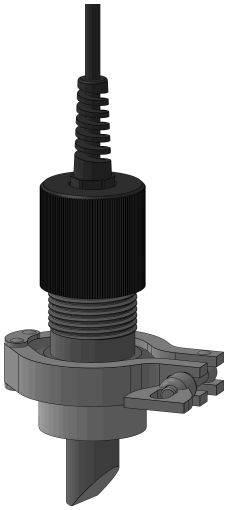


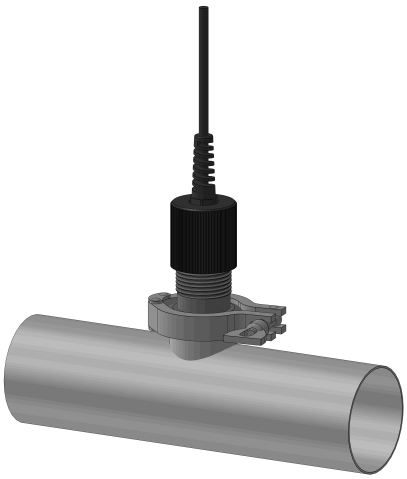




Stainless steel weld boss

The stainless steel weld-on bracket is suitable for pipes with an internal diameter greater than 72 mm.
Allow for a drilling diameter of 51 mm.





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