Olpas TSS Concentration (Water monitoring)

OTE-TSSC - TSS monitoring in challenging environments 0-2 / 0-4 / 0-6 g/L (Chain mounting)

Overview - Olpas Tentacle

The Olpas Tentacle product range is a collection of concentration measurement instruments to measure Total Suspended Solids (TSS), Mixed Liquor Suspended Solids (MLSS), Suspended Sediment Concentration (SSC, or sediment loads) or %DS in Iron Sludge.

The Olpas Tentacle product range is designed for installation in open water, rivers, canals, sewers and overflows, tanks, silos or basins, for usage in water treatment plants, drink water production plants and water monitoring. The devices can be chain mounted, fixed mounted using brackets or installed in a guiding tube.

Tracking TSS (Total Suspended Solids) is crucial for gaining valuable insights into water quality evolution. Additionally, it serves as an alarm system for breakthroughs or overflows.
The durable Olpas Tentacle sensors are versatile, capable of installation in open water, rivers, or in challenging environments such as sewers and overflows. With extended maintenance intervals and low power consumption, the Olpas TSS monitor sensors provide an economical solution for TSS monitoring in challenging environments like sewers, overflows (sewer-side or nature-side) and WWTP-influent.
Featuring advanced (bio)fouling resistance and no need for fault-prone mechanical wipers, these sensors require minimal maintenance, thus significantly reducing service visits, while providing an accurate measurement.

The sensors can connect to a communication node for remote data-collection and use limited power.

1. Specifications

Technical OTE-TSSC: 0-2, 0-4, 0-6 g/L Suspended Solids

Measurement	Total Suspended Solids (TSS/MLSS) concentration in $g\,L^{-1}$
Measurement principle	OLPAS technology: Ultrasound Backscattering
Ultrasound frequency	3-8 Mhz
Fouling resistance	up to 2mm of (bio)fouling
Range	0-6 $g\,L^{-1}$ (See footnote [1])
Resolution	$<$ 0.05 % of full range (configuration dependent) [2]
Accuracy	$<$ 1 % of the measured value or 25 $mg\,L^{-1}$, whichever is greater [3]
Calibration	Factory calibrated, user calibration (on device) possible
Particle size range	Independent, nanometer - millimeter (concentration dependent)
Minimum water height	50 mm (sample volume depth, measured from tip of sensor)
Cleaning interval	1 month (advised), 3 months (max) (See footnote [4]) No automated mechanical cleaning requ

Hardware specifications

Length (excluding cable)	180 mm
Diameter	80mm
Operating Temperature	-10 - 55 °C (ice-free)
Storage Temperature	-20 - 60 °C
Pressure	0-6 bar or max. 60 m depth
Tensile strength of suspension Eye	max 500 N
Weight	1300g (1650g with 10m cable, 2180g with 25m cable)
Sensor density	approx. 1500 $kg\,m^{-3}$
Cable	PVC or PUR cable, 10 m (default), max 30 m (See footnote [5])
Housing material	Stainless steel (316) [6]body, PE housing [7]and nylon
Sensor Window Material	Epoxy [8]
Communication	RS485 Modbus RTU
Power Supply	5.5-24V DC, 1W average (at 5.5V), 1.5W peak
Connector	4-pin M12 female straight (VDD, GND, RS485-A, RS485-B)
Measurement frequency	1 Hz (one measurement per second, configuration dependent)
Communication node	nb-iot/LoRaWan communication nodes available

[1] Standard concentration ranges for TSS in sewers: 0-2g/L, 0-4g/L, 0-6 g/L. Contact Olpas for different concentration ranges.
[2] Technical parameter
[3] Empirically determined value, subject to change depending on exact process conditions
[4] Cleaning interval depends on process conditions
[5] Make sure to consider voltage drop in longer cables when operating at low voltage (5-12V). Every 10m cable can add up to 0.1W of power consumption.
[6] Contact Olpas for different (contact) materials (SS304, SS316(L), Titanium, Anodized aluminium,..) or dimensions
[7] Contact Olpas for different (contact) materials (SS304, SS316(L), Titanium, Anodized aluminium,..) or dimensions
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2. Dimensions

Schematic overview of the Tentacle sensor, all dimensions in mm.
The full length of the Tentacle (including suspension eye, without cable) is 180 mm.

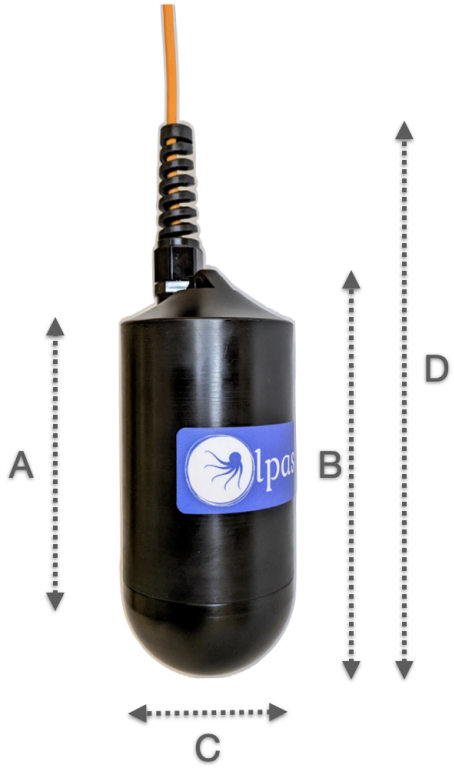

Figure 1. Overview of outside dimensions (v3)

All dimensions indicated in mm.

A	B	C	D
115	180	80	250

3. Overview

Figure 2. Olpas sensor - Tentacle range sensor with cable

Figure 3. Full Olpas sensor seen from the top, with standard connector

Figure 4. Olpas sensor (v1) installed in an overflow at nature side.

Figure 5. Olpas sensor (v1) installed in an overflow. Picture taken after overflow event.