

ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/AUV511-EN REV. B

UviTec™ Sensor

TSS



Measurement made easy

Water quality monitoring solutions

About ABB Continuous Water Analysis

ABB's Continuous Water Analysis product line is a world leader with a broad portfolio that measures...

Aluminum, Ammonia, Benzene, BOD, COD, Chlorine, Chromium VI, Color, Conductivity, Dissolved Oxygen, DOC, Fluoride, Hydrazine, Hydrocarbons, Iron, Manganese, Monochloramine, Nitrate, Nitrite, Permanganate, pH, ORP, Phosphate, Silica, Sodium, Surfactants, TOC, TSS, Turbidity, UV254, UVT and more!

About UviTec products

UviTec products use spectrophotometric and fluorescence measuring techniques to deliver lab-quality water analysis results in the process environment. Through the power of UV/VIS technology, UviTec solutions enable rapid detection of a wide range of water quality parameters and compounds in real time.

Features & benefits of this product

- Affordable real-time total suspended solids (TSS) monitoring
- Operator friendly, low maintenance design
- Bypass-style sensor with multiple flow cell selections to meet application demands
- Quick and simple optical measurements
- Long-life LED light source
- Reagent-free operation

UviTec TSS sensor

ABB's bypass UviTec TSS sensor provides affordable real-time measurement of total suspended solids (TSS) in water or wastewater. Designed to meet the needs of a wide array of site-specific conditions, the TL series offers multiple flow cell designs and sensor path length selections for the desired measurement range.

Controllers and accessories

Our innovative modular product platform ensures our clients gain the real-time water quality monitoring system that meets their specific demands and budget. With multiple controller and accessory options available such as automatic chemical cleaning systems that lower maintenance while improving system performance, ABB provides a total solution for all of your unique water quality monitoring needs.

Liquid Ai-compatible

Our Liquid Ai™ data services complement our real-time water quality monitoring systems. Calibration Health Monitoring ensures accuracy and reliability are maintained so our clients can have the utmost confidence in their results, while our Remote Monitoring platform enables access to data anywhere, anytime.

Measurement principle

ABB's UviTec TSS sensor utilizes near infrared light for measurement to minimize or eliminate interference from other absorbing compounds. Benefiting from ABB's LED technology, accurate and stable measurements are obtained with minimal maintenance or operator intervention. ABB's innovative TSS sensor is advancing water and wastewater management.

Areas of application

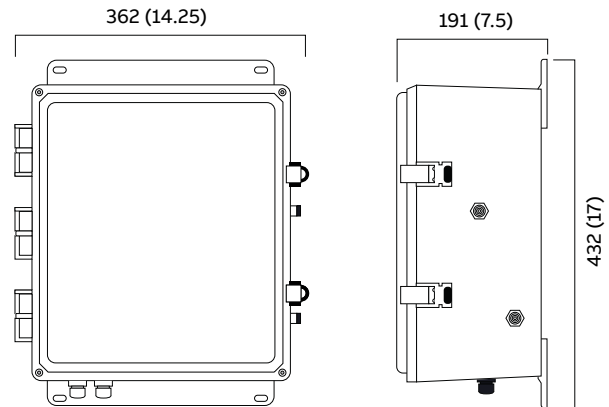
- Municipal wastewater
- Industrial process water
- Industrial wastewater

Dimensions

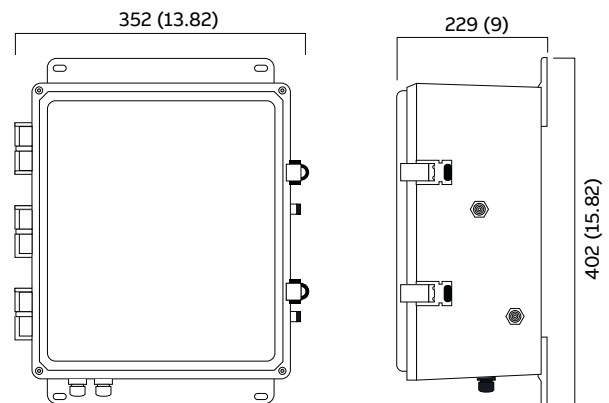
The UviTec TSS sensor is a bypass cabinet instrument installed directly on a wall, railing or system backboard. Sample is supplied to the sensor from either a pressurized source or from an open-channel using an accessory pumping system.

Dimensions shown in mm (in).

Dimensions for 1000 & 2000 Series



Dimensions for 4000 Series



Sensor selection

Table 1 Sensor selection

Model	Description
1000	Ideal for closed loop, high pressure or high solids wastewater monitoring applications
2000	Ideal for general water monitoring applications
4000	Ideal for high purity water monitoring applications

Specifications

Model

1000 Series
2000 Series
4000 Series

Path length

1000 Series
0.5, 1, 2, 4, 10 mm
2000 Series
1, 2, 4, 8 mm
4000 Series
25, 50, 100, 150 mm

Parameters

Total Suspended Solids (TSS)

Range

Depends on model selected. Refer to Table 2 on page 5.

Units

mg/L, ppm

Sampling time

30 seconds

Calibration

Factory parameter calibration allows field adjustment as required.

Cleaning

In-situ chemical cleaning makes cleaning quick and easy. Automatic chemical cleaning is optional.

Self-diagnostics

Detection and diagnosis of internal system fault

Alarms

Dry contact terminals allow for operator configurable alarms for: high and low set points, low lamp output, leak detected, system fault, etc.

Humidity control

Humidity sensor with large plug-in regenerating desiccant system

Wavelengths

Near infrared (NIR)

Light source

LED

Flow rate

1000 Series
500 to 1,000 mL/min
2000 & 3000 Series
300 to 1,000 mL/min

Pressure rating

1000 Series
5.86 bar (85 psi) max.
2000 & 4000 Series
1.38 bar (20 psi) max.

Fluid connections

1000 Series
9.5 mm (0.375 in) OD tube push-in fittings
2000 & 4000 Series
6.35 mm (0.25 in) OD tube push-in fittings

Wetted materials

1000 Series
Kynar®, FEP, quartz, SS316L, Viton™
2000 & 4000 Series
Kynar, polyethylene, quartz, SS 316L, Viton

Electrical/comm.

From Controller

Ambient temperature

0 to 45 °C (32 to 113 °F)

Water temperature*

0 to 35 °C (32 to 95 °F) at 21 °C (69.8 °F)
Ambient temperature

Enclosure

NEMA 4X, wall-mountable

Weight

1000 & 2000 Series
9.97 kg (22 lb)
4000 Series
10.88 kg (24 lb)

Dimensions (H × W × D)

1000 & 2000 Series
432 × 362 × 190 mm
(17 × 14.25 × 7.5 in)
4000 Series
402 × 351 × 229 mm
(15.82 × 13.82 × 9.00 in)

* Water temperature range based on material compatibility only. Contact ABB to verify application.

Sensor models and range*

Includes UviTec TSS sensor, flow cell, calibration bottle and dehumidifier.

Controller and accessories sold separately.

Table 2 Sensor models and range

Model	Path length	TSS (mg/L)
TL1005	0.5 mm	0 to 40,000
TL1010	1 mm	0 to 20,000
TL1020	2 mm	0 to 10,000
TL1040	4 mm	0 to 5,000
TL1100	10 mm	0 to 2,000
TL2010	1 mm	0 to 20,000
TL2020	2 mm	0 to 10,000
TL2040	4 mm	0 to 5,000
TL2080	8 mm	0 to 2,500
TL4025	25 mm	0 to 800
TL4050	50 mm	0 to 400
TL4100	100 mm	0 to 200
TL4150	150 mm	0 to 150

Controllers

Controllers include proprietary inputs for UviTec sensors and accessories.

Table 3 UviTec Controllers

Part number	Name	Description
3KXA300301 V	UviTec Controller	Wall-mounted controller with 4-line x 20-character backlit LCD display. Includes Modbus® RTU (RS485), 1 channel of 4 to 20 mA out and digital I/O module
3KXA300302 V	UviTec Controller Pro	Wall-mounted controller with 307 mm (12.1 in) color LCD touch panel PC interface (PC external on door model). Includes Modbus TCP

Accessories

Table 4 UviTec accessories

Part number	Name	Description
3KXA300000U0001	UviTec Clean System I	Automatic chemical cleaning system for use with 2000 series models
3KXA300000U0002	UviTec Clean System II	Automatic chemical cleaning system for use with 4000 series models
3KXA300000U0003	UviTec Pump Clean System I	Self-priming pump and automatic chemical cleaning for use with 2000 and 3000 series models
3KXA300000U0004	UviTec Pump Clean System II	Self-priming pump and automatic chemical cleaning for use with 4000 series models
3KXA300000U0009	UviTec Pump Clean Pro System (pressurized)	For high solids sample water, automatic chemical cleaning and pumping system for up to 7.62 m (25 ft) vertical lift or 30.48 m (100 ft) horizontal in pressurized installation (no air compressor)
3KXA300000U0010	UviTec Pump Clean Pro System (non-pressurized)	For high solids sample water, automatic chemical cleaning and pumping system for up to 7.62 m (25 ft) vertical lift or 30.48 m (100 ft) horizontal in non-pressurized/ open channel installation (no air compressor)
3KXA300000U0013	UviTec Dual Feed II	Dual feed option includes Digital I/O module for use with controllers

* Stated ranges are approximate, dependent on industry, site and application. Contact ABB to confirm model selection.

Ordering information

UViTec TSS Sensor (ABB part number: 3KXA300511 V)	AUV511/	XX	X	XXX	Options
Parameter					
TSS		TL			
Series					
1000 Series for closed loop, high pressure/high solids wastewater monitoring			1		
2000 Series for general water monitoring			2		
4000 Series for high purity water monitoring			4		
Path length*					
0.5 mm				005	
1 mm				010	
2 mm				020	
4 mm				040	
8 mm				080	
10 mm				100	
25 mm				025	
50 mm				050	
100 mm				100	
150 mm				150	

Optional ordering codes

Add 1 or more of the following codes after the standard ordering information to select any additional options if required:

Sample handling

Clean System I for use with 2000 series models (pressurized samples) – Modbus	SC3
Clean System II for use with 4000 series models (pressurized samples) – Modbus	SC4
Pump Clean System I for use with 2000 series models (non-pressurized samples) – Modbus	SP3
Pump Clean System II for use with 4000 series models (non-pressurized samples) – Modbus	SP4
Pump Clean Pro System for use with 1000 series models (pressurized)	SP5
Pump Clean Pro System for use with 1000 series models (non-pressurized)	SP6

Pump Clean Pro Upgrades (multiple sel)

Rinse valve	PUR
Second cleaning valve	PUS
Compressed Air system	PUC

Additional sample handling (multiple sel)

De-bubbler to remove bubbles from sample	SH1
Dual Feed II system enables measurement of two water samples with one analyzer	SH3

Documentation language

English	M5
German	M1
Italian	M2
Spanish	M3
French	M4

Liquid Ai – Calibration service

Calibration health – One time (basic)	LC1
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Liquid Ai – Annual subscriptions

Remote monitoring dashboard – Annual	LD4
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Trademarks

- Kynar is a registered trademark of Arkema Inc.
- Liquid Ai is a trademark of ABB Limited.
- Modbus is a registered trademark of Schneider Electric USA, Inc.
- UviTec is a trademark of ABB Limited.
- Viton is a trademark of The Chemours Company FC, LLC.

* Refer to path lengths available for each series in "Specifications" on page 4.

ABB Measurement & Analytics

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