

ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/AUV503-EN REV. B

UviTec™ Sensor

Multi-color



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 multi-color monitoring
- Multiple wavelength sensor uses LED technology for superior measurement performance
- Wastewater to high-purity measurement ranges
- Bypass-style sensor with multiple flow cell selections to meet application demands
- Operator-friendly, low-maintenance LED design
- Reagent-free optical measurements
- In accordance with ISO7887:2011 Method B
- Simple to install and operate

UviTec Multi-color sensor

ABB's bypass UviTec Multi-color Sensor provides affordable real-time measurement of multiple colors in water or wastewater. Designed to meet the needs of many monitoring applications, the MCL series offers multiple flow cell designs and sensor path length selections to meet 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 sensor, controller and accessory options available, ABB provides a total solution for all of your unique water quality needs.

Liquid Ai-compatible

Our Liquid Ai™ data services complement our real-time water quality monitoring systems. Our Remote Monitoring platform is a powerful data management and visualization tool that enables access to data anywhere, anytime.

Measurement principle

ABB's UviTec Multi-color Sensor provides superior measurement performance across multiple wavelengths of light using LEDs. The sensor measures multiple colors in the water in accordance with ISO7887:2011 Method B. Compounds that may interfere with color measurement, such as particles, are compensated for using an additional reference wavelength. ABB's UviTec Multi-color sensor is advancing water and wastewater management.

Areas of application

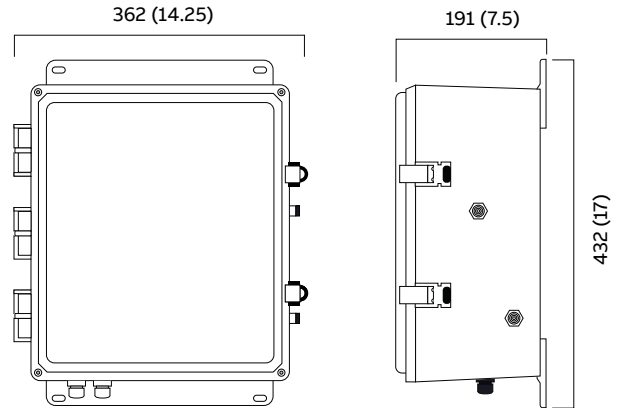
- Municipal drinking water.
- Municipal wastewater.
- Industrial process water.
- Industrial wastewater.

Dimensions

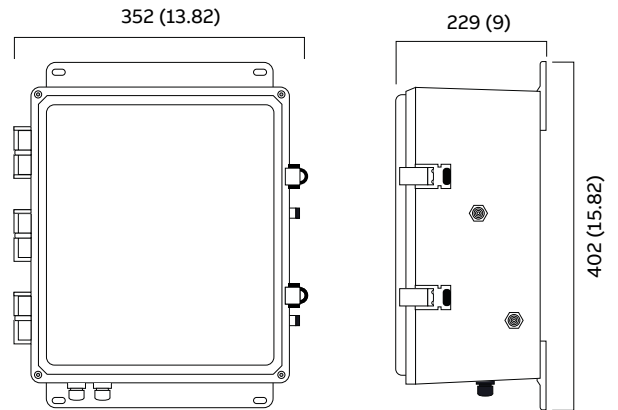
The UviTec Multi-color sensor is a bypass cabinet instrument installed directly on a wall, railing or system backboard. Sample is supplied to the sensor from either a pressurized source or from an open-channel using an accessory pumping system.

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

Color

Range

Depends on model selected. Refer to range chart.

Accuracy

± 0.5 % full scale

Units

1/m

Sampling time

30 seconds

Calibration

Factory calibrated. Field adjustment of calibration is possible.

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

Visible (VIS)

Light source

LED

Flow rate

1000 Series
500 to 1,000 mL/min
2000 & 4000 Series
300 to 1,000 mL/min

Pressure rating

1000 Series
5.86 bar (85 psi) max.
2000 & 4000 Series
1.38 bar (1.38 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, SS316L, Viton

Electrical/comm.

From Controller

Ambient temperature

0 to 45 °C (32 to 113 °F)

Water temperature*

0 to 90 °C (32 to 194 °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 titanium (-X) or stainless steel (-S) multi-color sensor and 10.6 m (35 ft) of communication cable.

Controller, mounting kit and cleaning system sold separately.

Table 2 Sensor models and range

Model number	Path length	Color (1/m)
MCL1005	0.5 mm	10 to 2,000
MCL1010	1 mm	5 to 1,000
MCL1020	2 mm	2.5 to 500
MCL1040	4 mm	1.2 to 250
MCL1100	10 mm	0.5 to 100
MCL2010	1 mm	5 to 1,000
MCL2020	2 mm	2.5 to 500
MCL2040	4 mm	1.2 to 250
MCL2080	8 mm	0.6 to 125
MCL4025	25 mm	0.2 to 40
MCL4050	50 mm	0.1 to 20
MCL4100	100 mm	0.05 to 10
MCL4150	150 mm	0.03 to 7

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

Product 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
3KXA300000U0013	UviTec Dual Feed II	Dual feed option includes Digital I/O module for use with controllers

* Stated ranges are based on testing in deionized water. Interfering substances that may be present in the water may reduce the upper end of the measuring range. Contact ABB to confirm model selection.

Ordering information

UviTec Multi-color Sensor (ABB part number: 3KXA300503 V)	AUV503/	XXX	X	XXX	Options
Parameter					
Multi-color		MCL			
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

For your local ABB contact, visit:
abb.com/contacts

For more product information, visit:
abb.com/measurement

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