

ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/AUV512-EN REV. B

# UviTec™ Sensor

## Chromium VI



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# 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 chromium VI monitoring
- Multiple wavelength sensor uses UV LED technology for superior measurement performance
- Wastewater to high purity measurement ranges
- Operator-friendly, low-maintenance design
- Quick and simple optical measurements
- Reagent-free operation

## UviTec Chromium VI sensor

ABB's UviTec Chromium VI sensor provides affordable real-time measurement of chromium VI in water or wastewater. Designed to meet the needs of many monitoring applications, the CRL series offers multiple 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 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 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 Chromium VI sensor provides superior measurement performance across multiple wavelengths of light using UV LEDs. Many compounds absorb light in the UV-VIS spectrum, and how much the compounds absorb is directly proportional to their concentration. Compounds that may interfere with chromium VI measurement are compensated for using additional reference wavelengths. ABB's innovative Chromium VI sensor is advancing water and wastewater management.

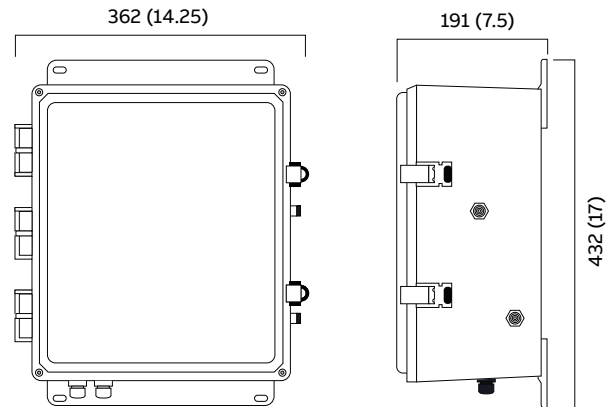
## Areas of application

- Municipal wastewater.
- Industrial wastewater.

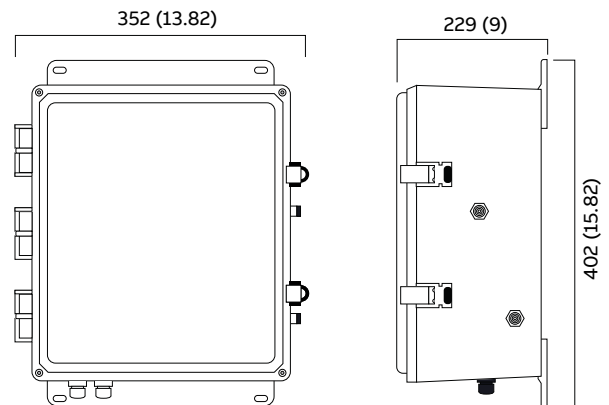
## Dimensions

The UviTec Chromium VI 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

Chromium VI

### Range

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

### Accuracy

± 1 % full scale

### Units

mg/L, ppm

### 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, leaks, system fault, etc.

### Humidity control

Humidity sensor with large plug-in regenerating desiccant system

### Wavelengths

Multiple wavelengths

### Light source

UV 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 (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 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 Chromium VI sensor, flow cell, calibration bottle and dehumidifier.

Controller and accessories sold separately.

Table 2 Sensor models and range\*\*

Model	Path length	Chromium VI (ppm) pH 9 or higher	Chromium VI (ppm) pH 6-9	Chromium VI (ppm) pH 3-6
CRL1005	0.5 mm	0 to 288	0 to 400	0 to 576
CRL1010	1 mm	0 to 144	0 to 200	0 to 288
CRL1020	2 mm	0 to 72	0 to 100	0 to 144
CRL1040	4 mm	0 to 36	0 to 50	0 to 72
CRL1100	10 mm	0 to 14	0 to 20	0 to 28
CRL2010	1 mm	0 to 144	0 to 200	0 to 288
CRL2020	2 mm	0 to 72	0 to 100	0 to 144
CRL2040	4 mm	0 to 36	0 to 50	0 to 72
CRL2080	8 mm	0 to 18	0 to 25	0 to 36
CRL4025	25 mm	0 to 6	0 to 8	0 to 12
CRL4050	50 mm	0 to 3	0 to 4	0 to 6
CRL4100	100 mm	0 to 1.5	0 to 2	0 to 3
CRL4150	150 mm	0 to 1	0 to 1.5	0 to 2

## 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

\* 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.

\*\* Higher maximum range possible with use of Dilution System option.

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

## Ordering information

UviTec Chromium VI Sensor (ABB part number: 3KXA300512 V)	AUV512/	XXX	X	XXX	Options
<b>Parameter</b>					
Chromium VI		CRL			
<b>Series</b>					
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		
<b>Path length*</b>					
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

- Liquid Ai is a trademark of ABB Limited.
- Kynar is a registered trademark of Arkema Inc.
- 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.





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