ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/AUV602-EN REV. B

# UviTec Sensor

## Spectrum (Xenon flash)



# 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**
- Reliable real-time water quality information
- Multiple wavelength UV-VIS sensor (200 to 750 nm)
- Wastewater to high purity measurement ranges
- Bypass-style sensor with multiple flow cell selections to meet application demands
- Simple optical measurements, no reagents
- Multiple parameter configuration available

## UviTec Spectrum sensor

ABB's bypass UviTec Spectrum sensor provides real-time measurement of organic matter, nitrate and other compounds in water or wastewater. Designed to meet the needs of many monitoring applications, the GL 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 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

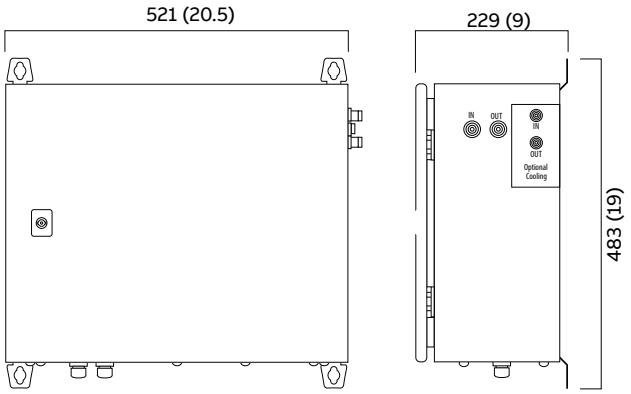
ABB's UviTec Spectrum sensor utilizes UV-VIS light for measurement, continuously scanning the water with multiple wavelengths, configurable up to 40 between 200 to 750 nm. The sensor benefits from ABB's innovative Split-Sense Pro technology that compensates for lamp drift and fluctuations, providing an accurate and stable output overtime. GL series spectrum sensor parameters include BOD, COD, TOC, DOC, UV254, UVT, TSS, $NO_3$, $NO_2$, color, permanganate, contaminant alarms, spectral fingerprint and custom alarms, dependant on application and industry.

## Areas of application

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

## Dimensions

The UviTec Spectrum 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).




## 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, 150 mm

### Parameters
BOD, COD, TOC, DOC, UV254, UVT, TSS, nitrate, nitrite, permanganate, color, contaminant alarms, spectral fingerprint, custom alarm

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

### Units
Parameter specific (mg/L, cm-1, % or PCU)

### Sampling time
1 minute

### 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
Configurable up to 40 wavelengths between 200 to 750 nm

### Light source
Xenon flash lamp

### Lamp Life
2 to 5 years

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

### Enclosure
NEMA 4X, wall-mountable

### Weight
19.95 kg
(44 lb)

### Dimensions (H × W × D)
483 × 521 × 229 mm
(19.0 × 20.5 × 9.0 in)

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

## Sensor models and range*

Includes UV-VIS spectrum sensor, flow cell, calibration bottle and dehumidifier. Controller and accessories sold separately.

**Table 2 Sensor models and range****

| Model | Path length | BOD (mg/L) | COD (mg/L) | TOC/DOC (mg/L) | UV254 (cm-1) | Color (PCU) | $NO_3$-N (mg/L) | $NO_3$ (mg/L) | $NO_2$-N (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| GL1005 | 0.5 mm | 0 to 3,000 | 0 to 6,000 | 0 to 1600 | 0 to 40 | 0 to 20,000 | 0 to 100 | 0 to 440 | 0 to 100 |
| GL1010 | 1 mm | 0 to 1,500 | 0 to 3,000 | 0 to 800 | 0 to 20 | 0 to 10,000 | 0 to 50 | 0 to 220 | 0 to 50 |
| GL1020 | 2 mm | 0 to 750 | 0 to 1,500 | 0 to 400 | 0 to 10 | 0 to 5,000 | 0 to 25 | 0 to 110 | 0 to 25 |
| GL1040 | 4 mm | 0 to 375 | 0 to 750 | 0 to 200 | 0 to 5 | 0 to 2,500 | 0 to 12.5 | 0 to 55 | 0 to 12.5 |
| GL1100 | 10 mm | 0 to 150 | 0 to 300 | 0 to 80 | 0 to 2 | 0 to 1,000 | 0 to 5 | 0 to 22 | 0 to 5 |
| GL2010 | 1 mm | 0 to 1,500 | 0 to 3,000 | 0 to 800 | 0 to 20 | 0 to 10,000 | 0 to 50 | 0 to 220 | 0 to 50 |
| GL2020 | 2 mm | 0 to 750 | 0 to 1,500 | 0 to 400 | 0 to 10 | 0 to 5,000 | 0 to 25 | 0 to 110 | 0 to 25 |
| GL2040 | 4 mm | 0 to 375 | 0 to 750 | 0 to 200 | 0 to 5 | 0 to 2,500 | 0 to 12.5 | 0 to 55 | 0 to 12.5 |
| GL2080 | 8 mm | 0 to 187 | 0 to 375 | 0 to 100 | 0 to 2.5 | 0 to 1250 | 0 to 6.25 | 0 to 27.5 | 0 to 6.25 |
| GL4025 | 25 mm | 0 to 60 | 0 to 120 | 0 to 32 | 0 to 0.8 | 0 to 400 | 0 to 2 | 0 to 8.8 | 0 to 2 |
| GL4050 | 50 mm | 0 to 30 | 0 to 60 | 0 to 16 | 0 to 0.4 | 0 to 200 | 0 to 1 | 0 to 4.4 | 0 to 1 |
| GL4150 | 150 mm | 0 to 10 | 0 to 20 | 0 to 5.3 | 0 to 0.13 | 0 to 33 | 0 to 0.33 | 0 to 1.45 | 0 to 0.33 |

Range for TSS, permanganate, contaminant alarms, spectral fingerprint, and custom alarms are site-specific. Contact ABB for details.

## Controllers

Controllers include proprietary inputs for UviTec sensors and accessories.

**Table 3 UviTec Controllers**

| Part number | Name | Description |
|---|---|---|
| 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 approximate, dependent on industry, site and application. 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 |
| 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 |

# Ordering information

| UviTec Spectrum (Xenon Flash) Sensor (ABB part number: 3KXA300602 V) | AUV602/ | XX | X | XXX | Options |
|---|---|---|---|---|---|
| **Parameter** | | | | | |
| Spectrum (Xenon Flash) | | GL | | | |
| **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 | |
| 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 (standard) | LC2 |
| Calibration health – One time (advanced) | LC3 |
| **Liquid Ai – Annual subscriptions** | |
| Remote monitoring dashboard – Annual | LD4 |

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

## 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

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