ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/AUV412-EN REV. C

UviTec™ Probe

Spectrum



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
- Patent pending multiple wavelength UV-VIS probe
- (200 to 400 nm plus 860 nm)
- Operator-friendly, low-maintenance design
- Simple optical measurements, no reagents
- Multiple parameter configuration available
- Parameters include: BOD, COD, TOC, DOC, UV254, UVT, TSS, nitrate, nitrite, color, surfactants, contaminant alarms, spectral fingerprint, and custom alarm
- Turbidity compensation included
- Liquid Ai™ services-compatible

UviTec Spectrum probe

ABB's robust submersible Spectrum probe provides affordable real-time measurement of organic matter, nitrite, nitrate and other compounds in water or wastewater. The probe's rugged body is built to withstand harsh environments, with titanium or stainless steel options. Designed to meet the needs of many monitoring applications, the GA series offers multiple 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 compressed air 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. 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

The patent-pending Spectrum probe utilizes UV-VIS light continuously scanning the water at wavelengths between 200 to 400 nm with a resolution of 0.7 nm providing superior measurement performance in the UV light spectrum. Additionally, the Spectrum probe provides absorption measurement at 860 nm to allow further compensation for suspended and colloidal solids in the water that can otherwise reduce measurement accuracy of similar instruments. The probe benefits from ABB's innovative technology that compensates for lamp drift and fluctuations, providing an accurate and stable output over time. Spectrum probe parameters include BOD, COD, TOC, DOC, UV254, UVT, TSS, NO_3, NO_2, color, surfactants contaminant alarms, spectral fingerprint and custom alarms, dependent on application and industry.

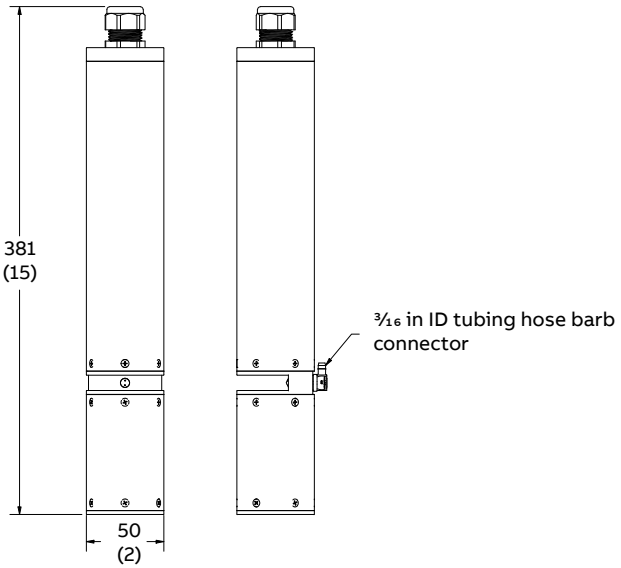
Areas of application

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

Dimensions

The probe is a submersible instrument installed directly in-situ using a pole mounting kit, chain mount, or tri-clamp. Dimensions shown in mm (in).

Probe dimensions



Probe mount options

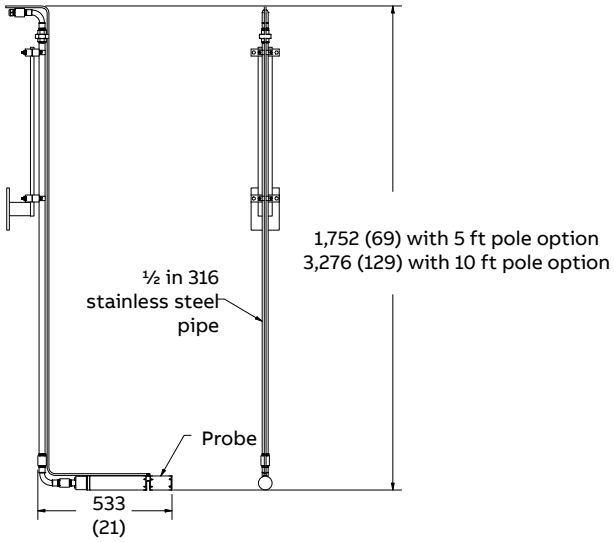


Figure 1 Pole mount

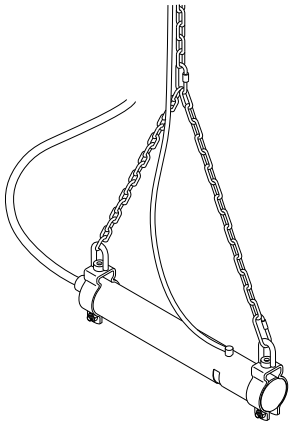


Figure 2 Chain mount

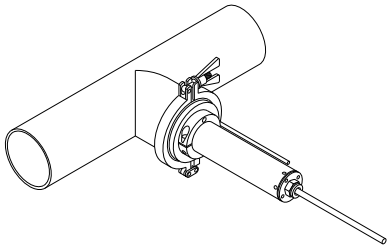


Figure 3 Tri-clamp

Specifications

Model
GA-X
GA-S

Path length
0.5, 1, 2, 4, 10 mm

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

Range
Depends on model selected.
Refer to Table 1 on page 5.

Units
mg/L, ppm, other parameter specific units

Sampling time
10 seconds

Calibration
Factory calibrated. Field adjustment of calibration is possible.

Cleaning
Automatic compressed air or pressurized water cleaning with optional Probe Clean System

Self-diagnostics
Detection and diagnosis of internal system fault

Alarms
Continuous detection of leaks, lamp output, humidity, temperature and electrical fault

Humidity control
Humidity sensor with desiccant pack

Resolution
0.7 nm

Wavelengths
200 to 400 nm plus 860 nm

Light source
Xenon flash lamp

Lamp life
5 years

Electrical/comm.
From Controller

Pressure rating
1.03 bar (15 psi)

Operating temperature*
0 to 45 °C
(32 to 113 °F)

Housing material
GA-X
Titanium (grade 2)
GA-S
Stainless steel (SS 316)

Wetted materials
GA-X
Titanium, epoxy, sapphire, SS 316, Viton™
GA-S
Epoxy, sapphire, SS 316, Viton

Weight**
GA-X
1.94 kg
(4.25 lb)
GA-S
2.92 kg
(6.45 lb)

Ingress protection type
IPX8

Dimensions (H × Ø)
515 × 51 mm
(20.3 × 2.0 in)

* Operating (water) temperature absolute maximum 55 °C (131 °F). Instrument performance reduced when operating outside recommended operating range. Contact ABB to verify application.

** Weight does not include cable. Cable weight: 0.70 kg (1.55 lb).

Probe models and range

Includes titanium (-X) or stainless steel (-S) Spectrum probe and 10 m (35 ft) of communication cable.
Controller, mounting kit and cleaning system sold separately.

Table 1 Probe 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)
GA-X2005/ GA-S2005	0.5 mm	0 to 3,000	0 to 6,000	0 to 1,600	0 to 40	0 to 20,000	0 to 100	0 to 440	0 to 100
GA-X2010/ GA-S2010	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
GA-X2020/ GA-S2020	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
GA-X2040/ GA-S2040	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
GA-X2100/ GA-S2100	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

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

Controllers

Controllers include proprietary inputs for UviTec sensors and accessories.

Table 2 UviTec Controllers

Part number	Name	Description
3KXA300302 V	UviTec Controller Pro	Wall mounted controller with touch panel PC interface (PC external on door model)

Accessories

Table 3 UviTec accessories

Part number	Name	Description
3KXA300000U0029	UviTec Probe Clean System	Cleaning valve module requires on-site compressed air or pressured water for automatic probe cleaning
3KXA300000U0030	UviTec Compressed Air System	Compressor for air cleaning when compressed air not available on-site
3KXA300000U0031	Probe mounting kit I	Probe mounting kit includes wall mount and two mounting brackets. No pole included.
3KXA300000U0032	Probe mounting kit II	Probe mounting kit includes wall mount and two mounting brackets. 1.5 m (5 ft) pole included.
3KXA300000U0033	Probe mounting kit III	Probe mounting kit includes wall mount and two mounting brackets. 3 m (10 ft) pole included.
3KXA300000U0034	Tri-clamp	Stainless steel clamp for mounting probe in line with process pipe.
3KXA300000U0035	Chain mount	Stainless steel chain for mounting probe in open channel

Ordering information

UviTec Spectrum probe (ABB part number: 3KXA300412 V)	AUV412/	XX	XX	XXX	Options
Parameter					
Spectrum		GA			
Probe material					
Stainless steel			S2		
Titanium			X2		
Path length					
0.5 mm				005	
1 mm				010	
2 mm				020	
4 mm				040	
10 mm				100	

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

Clean system (multiple sel)	
Probe Clean System	PCS
Compressed Air System	PUC
Probe mounting	
Pole mount kit I – No pole included	MK1
Pole mount kit II – 5 ft pole included	MK2
Pole mount kit III – 10 ft pole included	MK3
Tri-clamp	MT1
Chain mount	MC1
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	
Anomaly detecion – Annual	LA4
Remote monitoring dashboard – Annual	LD4

Trademarks

- Liquid Ai is a trademark of ABB Limited.
- UviTec is a trademark of ABB Limited.
- Viton is a trademark of The Chemours Company FC, LLC.

ABB Measurement & Analytics

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

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

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

© Copyright 2025 ABB.
All rights reserved.

DS/AUV412-EN Rev. C 01.2025