

ABB MEASUREMENT & ANALYTICS | DATA SHEET | DS/AUV510-EN REV. B

UviTec™ Sensor

Permanganate



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 permanganate monitoring
- Outputs as permanganate (mg/L or µg/L)
- Operator-friendly, low-maintenance design
- Quick and simple optical measurements
- Long-life LED technology
- Reagent-free operation

UviTec Permanganate sensor

ABB's UviTec Permanganate sensor has a very low detection limit that provides an early warning of overdosing, well before residual permanganate is visible in water. Designed with LED technology, this practical and affordable sensor measures permanganate continuously in real time.

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 Permanganate sensor uses the absorbance of light at multiple wavelengths to accurately detect permanganate levels. Compounds that may interfere with measurement, such as particles, are compensated for using additional reference wavelengths. The sensor uses a unique long path length measurement cell which enables the detection levels and sensitivity required in drinking water applications. The result is reliable, low-cost, real-time measurement of permanganate in water.

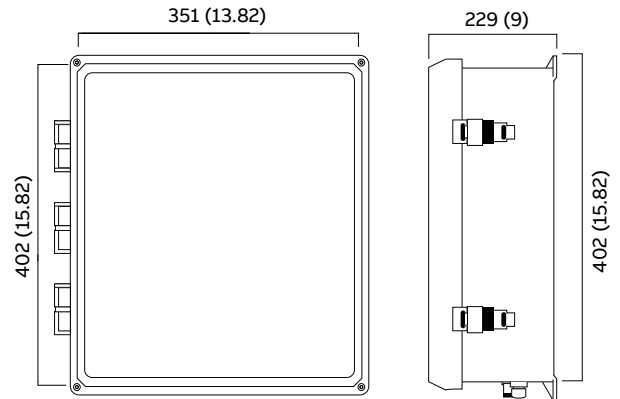
Areas of application

- Municipal drinking water.

Dimensions

The UviTec Permanganate 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.

Dimensions for permanganate sensor



Specifications

Path length

25, 50, 100, 150 mm

Parameters

Permanganate

Range

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

Accuracy

± 1 % full scale

Units

mg/L, ug/L, ppm, ppb

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

LED

Flow rate

300 to 1,000 mL/min

Pressure rating

1.38 bar (20 psi) max.

Fluid connections

6.35 mm (0.25 in) OD tube push-in fittings

Wetted materials

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

Weight

10.88 kg
(24 lb)

Dimensions (H × W × D)

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 permanganate sensor, flow cell, calibration bottle and dehumidifier.

Controller and accessories sold separately.

Table 1 Sensor models and range

| Model | Path length | Permanganate (mg/L) | Permanganate (µg/L) |
|---------|-------------|---------------------|---------------------|
| PML4025 | 25 mm | 0.1 to 20 | 100 to 20,000 |
| PML4050 | 50 mm | 0.05 to 10 | 50 to 10,000 |
| PML4100 | 100 mm | 0.025 to 5 | 25 to 5,000 |
| PML4150 | 150 mm | 0.02 to 3.5 | 20 to 3,500 |

Controllers

Controllers include proprietary inputs for UviTec sensors and accessories.

Table 2 UviTec Controllers

| Part number | Name | Description |
|--------------|-----------------------|--|
| 3KXA300301 V | UviTec Controller | Wall-mounted controller with 4-line × 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 3 UviTec accessories

| Part number | Name | Description |
|-----------------|------------------------|---|
| 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 approximate, dependent on industry, site and application. Contact ABB to confirm model selection.

Ordering information

| UviTec Permanganate Sensor (ABB part number: 3KXA300510 V) | AUV510/ | XXX | X | XXX | Options |
|--|---------|-----|---|-----|---------|
| Parameter | | | | | |
| Permanganate | | PML | | | |
| Series | | | | | |
| 4000 Series for high purity water monitoring | | | 4 | | |
| Path length | | | | | |
| 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 |
|---------------------------------------|-----|

Liquid Ai – Annual subscriptions

| | |
|--------------------------------------|-----|
| Remote monitoring dashboard – Annual | LD4 |
|--------------------------------------|-----|

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- Viton is a trademark of The Chemours Company FC, LLC.

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For more product information, visit:
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