

NITRATAX™ sc UV Nitrate Sensors

Nitrate

Features and Benefits

UV Analysis—Eliminates Reagents, Sampling, and Sample Conditioning

Using advanced ultraviolet (UV) absorption technology, NITRATAX sc UV Nitrate Sensors offer unprecedented simplicity, accuracy, and economy in nitrate analysis. By continuously measuring the UV light absorbed by nitrates, NITRATAX sc sensors eliminate the need for reagents, sample conditioning, and frequent calibrations.

UV Absorption Method— Proven, Continuous, Precise

NITRATAX sc sensors rely on the principle that molecular bonds absorb ultraviolet (UV) light—in this case, nitrate (NO_3) and nitrite (NO_2) absorb UV light. As the concentration of nitrate or nitrite increases, UV absorption also increases. A built-in photometer measures the primary beam, while a second beam of UV light provides a reference standard and corrects for interference caused by turbidity and organic matter. Results are reported on the controller unit's alphanumeric display in mg/L of nitrate (NO_3) or nitrate-nitrogen ($\text{NO}_3\text{-N}$).

Choice of Three Models

NITRATAX plus sc—Process sensor for continuous measurement in drinking water, wastewater, or activated sludge. Turbidity compensation using reference measurement.

NITRATAX eco sc—Low cost sensor for measurement, especially for sewage treatment plants with intermittent aeration technology. Turbidity compensation using reference measurement.

NITRATAX clear sc—Process sensor for continuous measurement in clean water such as drinking water or wastewater effluent.

Self-Cleaning Sensor

With the sensor submerged in the sample stream, the detector windows are automatically cleaned by a built-in wiper that eliminate surface films or particles that can diminish accuracy.

Optional Bypass Panel

An optional Bypass Panel—or flow-through sample cell—is available for clean water applications when direct immersion in a sample stream is impractical. The Bypass Panel uses the same probes as the immersion sensors for greater flexibility.

Applications

NITRATAX sc sensors are the ideal choice to ensure consistent water quality, keep discharge waters clean, comply with regulatory requirements, and safeguard the environment.



Sophisticated, yet simple, technology means the NITRATAX sc UV Nitrate Sensors require little maintenance and offers remarkably low cost of operation.

Wastewater—Monitor influent, effluent, and aeration basin water. Control methanol feed and/or mixed liquor recycle denitrification process to minimize costs.

Drinking Water—Monitor nitrate levels in both influent and effluent streams before and after the disinfection process.

Agriculture—Measure and control nitrate discharges into rivers, lakes, wetlands, and other natural bodies of water.

Full-Featured “Plug and Play” sc Digital Controllers

There are no complicated wiring or set up procedures with any sc controller. Just plug in any combination of digital sensors and it's ready to use—it's “plug and play.”

One or multiple sensors—The sc controller family allows you to receive data from up to eight digital sensors in any combination using a single controller.

Communications—Multiple alarm/control schemes are available using the relays and PID control outputs. Available communications include analog 4-20 mA, digital MODBUS® (RS485 and RS232) or Profibus DP protocols. (Other digital protocols are available. Contact your representative for details.)

Data logger—A built-in data logger collects measurement data, calibration, verification points, and alarm history.

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Specifications*

	NITRATAX plus sc	NITRATAX eco sc	NITRATAX clear sc
Measuring Principal	Reagent-free UV absorption with patented 2-beam technique		
Measuring Gap/Path Length	1, 2, and 5 mm	1 mm	5 mm
Measuring Range	0.1 to 100.0 mg/L NO ₂₊₃ -N (1 mm) 0.1 to 50.0 mg/L NO ₂₊₃ -N (2 mm) 0.1 to 25.0 mg/L NO ₂₊₃ -N (5 mm)	1.0 to 20.0 mg/L NO ₂₊₃ -N (1 mm)	0.5 to 20.0 mg/L NO ₂₊₃ -N (5 mm)
Detection Limits	0.1 to 100 mg/L NO ₃ -N	1.0 to 20 mg/L NO ₃ -N	0.5 to 20 mg/L NO ₃ -N
Accuracy	±3% of reading or ±0.5 mg/L, whichever is greater	±5% of reading or ±1.0 mg/L, whichever is greater	±5% of reading or ±0.5 mg/L, whichever is greater
Resolution	0.1 mg/L	0.5 mg/L	0.1 mg/L
Sludge Compensation	Yes	Yes	—
Measurement Interval	1 minute	5 minutes	5 minutes
Response Time (T100)	1 minute	15 minutes	5 minutes
Available with Bypass	Yes	No	Yes
Sensor Construction			Stainless Steel 1.4581
Enclosure	Stainless Steel 1.4571		
Wiper Axle	Stainless Steel 1.4104	Stainless Steel 1.4571	
Wiper	Silicon		
Measuring Window	Quartz Glass		
Functional Verification	Using standard solutions		
Service Intervals	6 months or as experience dictates		
Maintenance Required (typical)	1 hour/month	2 hours/month	1 hour/month
Operating Temperature	2 to 40°C (36 to 104°F)		
Operating Pressure	0.5 bar (7.2 psi), maximum		
Cable Length	10 m (32.8 ft.)		
Dimensions (approximate)	33.3 x 7.0 cm (13.1 x 2.8 in.)	32.3 x 7.5 cm (12.7 x 3.0 in.)	32.7 x 7.5 cm (12.7 x 3.0 in.)

*Specifications subject to change without notice.

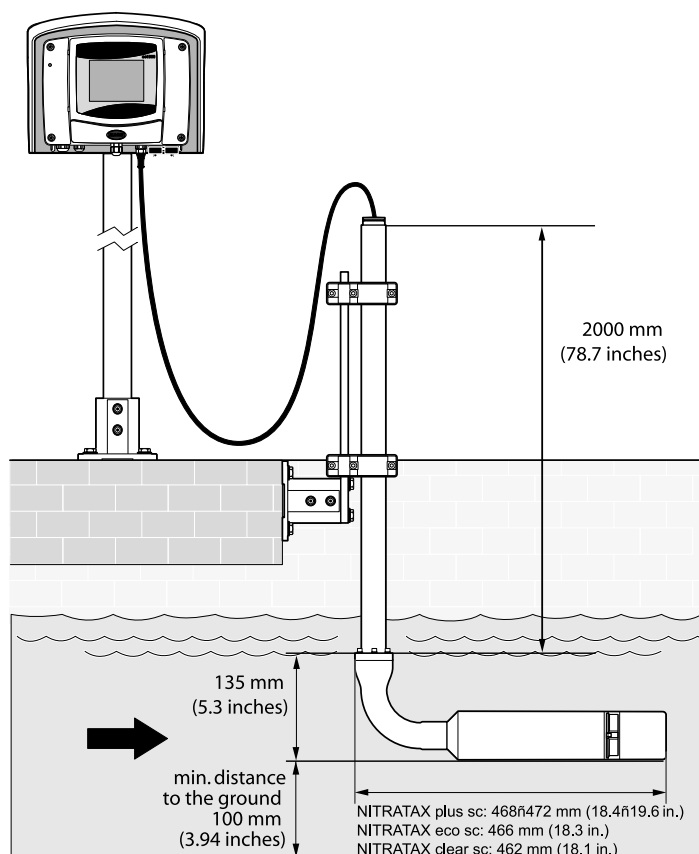
NITRATAX sc UV Nitrate Sensors use UV light absorption to assess the sum of nitrates and nitrites in aqueous sample streams.

A stainless-steel sensor immersed directly in the sample stream, provide continuous readings at exceptionally low operating cost.

- Two UV light wavelengths provide precise readings, compensating for solids and turbidity.
- With the sensor submerged in the sample stream, the detector windows are automatically cleaned by a built-in wiper, eliminating surface films or particles that can diminish accuracy.

Installation Dimensions

Installation for mounting NITRATAX sc using Fixed Point Installation Kit (LZX414.00.10000).



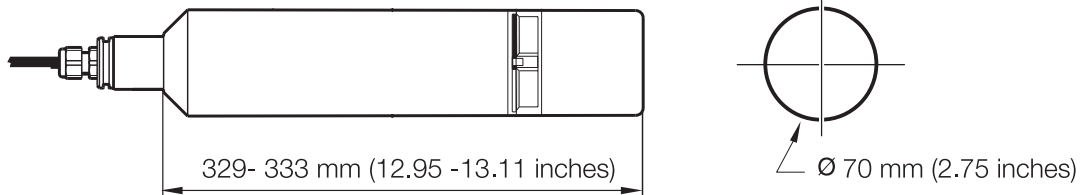
Engineering Specifications

1. The nitrate sensor shall be a continuous-reading sensor that utilizes a 2-beam ultra-violet absorption technology with a 1, 2, or 5 mm path length.
2. The measurement range shall be 0.1 to 100 mg/L $\text{NO}_2\text{-N}$ + $\text{NO}_3\text{-N}$, depending on model.
3. The measurement interval shall be user-selectable from 1 to 30 minutes (unit dependent) with the ability to average up to 12 signals depending upon unit selected.
4. The sensor shall compensate for the interference effects of turbidity and organic contamination.
5. The sensor shall provide reagent-free operation without the requirements of sample conditioning.
6. The sensor shall be self-cleaning via a wiper and retain a life-long factory calibration.
7. The sensor shall be warranted for one full year against defects in material and workmanship.
8. The sensor shall be the NITRATAX plus sc, NITRATAX eco sc, or NITRATAX clear sc UV Nitrate Sensor for nitrate measurement, manufactured by Company.

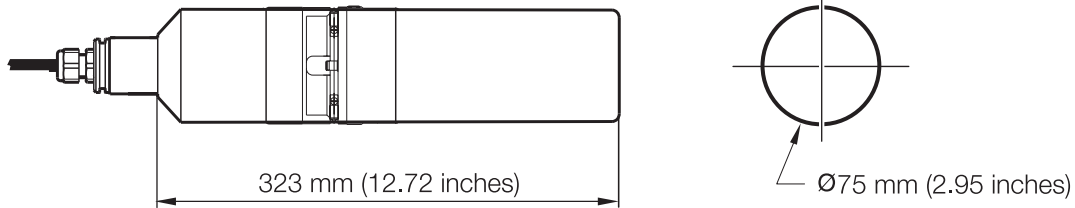
Sensor and Bypass Panel Dimensions

NITRATAX sc UV Nitrate Sensors can be installed using a fixed-point installation kit. With the cable supplied, the sensor can be used in a sample stream within 10 meters (32.8 feet) of the controller.

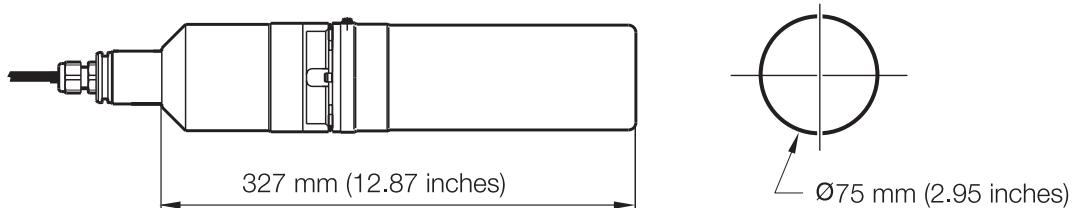
NITRATAX plus sc



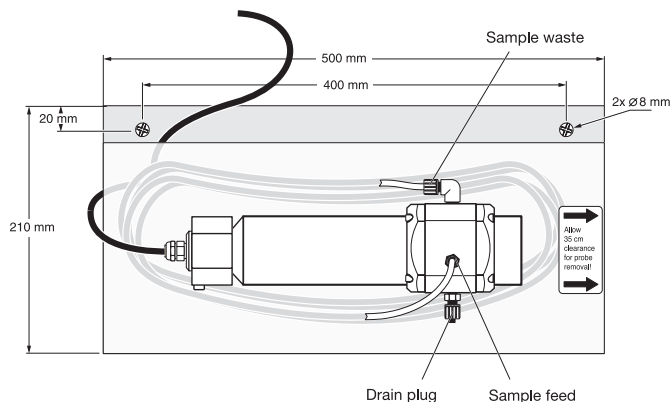
NITRATAX eco sc



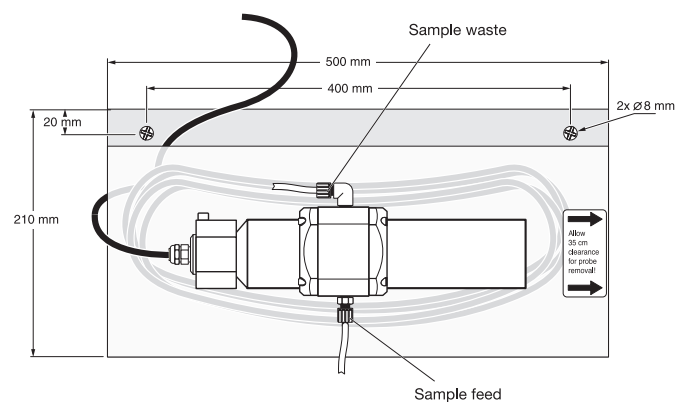
NITRATAX clear sc



NITRATAX plus sc Bypass Panel



NITRATAX clear sc Bypass Panel



Ordering Information

Sensor Selection

	NITRATAX plus sc	NITRATAX eco sc	NITRATAX clear sc
Wastewater Application			
Anoxic Zone	X	-	-
Aeration Tank	X	●	-
Plant Effluent	X	-	X
Sequencing Bath Reactor (SBR)	X	X	-
Cascade	X	●	-
Drinking Water Application			
Influent Monitoring	X	-	X
Water Blending	X	-	X
Denitrification Process	X	-	X
Outlet/Quality Control	X	-	X
Bypass/Flowthrough Cell	X	-	X

X = suitable ● = of limited suitability

NITRATAX sc

UV Nitrate Analyzer Systems

2984000	NITRATAX plus sc system includes sensor with 2 mm path length, mounting hardware, and sc200 controller
2984100	NITRATAX plus sc system includes flow-through cell sensor with 2 mm path length, mounting hardware, and sc200 controller.
2984200	NITRATAX eco sc system includes sensor with 1 mm path length, mounting hardware, and sc200 controller
2984300	NITRATAX clear sc system includes sensor with 5 mm path length, mounting hardware, and sc200 controller
2984400	NITRATAX clear sc system includes flow through cell sensor with 5 mm path length, mounting hardware, and sc200 controller

Individual NITRATAX sc

UV Nitrate Sensors

All sensors are equipped with 10 m (32.8 ft.) cable.

LXV417.99.10002

NITRATAX plus sc sensor, 1 mm path length

LXV417.99.20002

NITRATAX plus sc sensor, 2 mm path length

LXV417.99.50002

NITRATAX plus sc sensor, 5 mm path length

LXV420.99.50002

NITRATAX clear sc sensor, 5 mm path length

LXV415.99.10002

NITRATAX eco sc sensor, 1 mm path length

Accessories

LZX414.00.10000

Mounting hardware for sensor

LZX869

Flow-through cell for NITRATAX plus sc-sensors, 2 mm path length

LZX867

Flow-through cell for NITRATAX plus sc-sensors, 5 mm path length

LZX866

Flow-through cell for NITRATAX clear sc-sensors, 5 mm path length

LCW828

Calibration standard 25 mg/L NO₃ (5.56 mg/L NO₃-N)

LCW825

Calibration standard 50 mg/L NO₃ (11.3 mg/L NO₃-N)

LCW826

Calibration standard 100 mg/L NO₃ (22.6 mg/L NO₃-N)

LCW827

Calibration standard 200 mg/L NO₃ (45.2 mg/L NO₃-N)

LCW863

Calibration standard 400 mg/L NO₃ (90.4 mg/L NO₃-N)

LZX148

Spare wiper blades for 1 mm Nitratex, pk/5

LZX012

Spare wiper blades for 2 mm Nitratex, pk/5

LZX117

Spare wiper blades for 5 mm Nitratex, pk/5

Cable Accessories

5867000

Junction box for extension cables

5796000

Extension cable, 7.6 m (25 ft.)

5796100

Extension cable, 15.2 m (50 ft.)

5796200

Extension cable, 30.5 m (100 ft.)

At , it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...

Keep it pure.

Make it simple.

Be right.

This sensor requires a sc digital controller. Ask your representative for more information.