

NITRATATM UV Nitrate Sensors

Nitrate

Features and Benefits

UV Analysis—Eliminates Reagents, Sampling, and Sample Conditioning

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

UV Absorption Method—Proven, Continuous, Precise

NITRATA sensors rely on the principle that molecular bonds can absorb ultraviolet (UV) light—in this case, nitrate (NO₃) and nitrite (NO₂) absorbs UV light at 210 nm. As the concentration of nitrate or nitrite increases, UV absorption also increases. A built-in photometer measures the primary UV 210-nm beam, while a second beam of UV light at 350 nm 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 (NO₃) or nitrate-nitrogen (NO₃-N).

Choice of Three Models

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

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

NITRATA clear sc—Process sensor for continuous measurement in 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 eliminates 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

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

DW = drinking water WW = wastewater municipal PW = pure water / power
IW = industrial water E = environmental C = collections FB = food and beverage



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

Wastewater—Monitor influent, effluent, and aeration basin water. Control the 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” sc100 Digital Controller

There's no complicated wiring or set up procedures with the Hach sc100 controller. Just plug in any Hach digital sensor and it's ready to use—it's “plug and play.”

One or two sensors—Use the sc100 Digital Controller to receive data from up to two Hach digital sensors in any combination.

Communications—Multiple alarm/control schemes are available using three relays and two PID control outputs. Communications use analog 4-20 mA and digital MODBUS[®]/RS485, MODBUS[®]/RS232 protocols. (Other digital protocols are available. Contact your Hach representative for details.) Every sc100 controller is equipped with wireless communication through an infrared port.

Data logger—A built-in data logger collects measurement data, calibration, verification points, and alarm history for up to 6 months.



Be Right[™]

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 the mean ± 0.5	± 5% of the mean ± 1.0	± 5% of the mean ± 0.5
Resolution	0.1 mg/L	0.5 mg/L	0.1 mg/L
Sludge Compensation	Yes	Yes	—
Measurement Interval	15 seconds	5 minutes	5 minutes
Response Time (T100)	15 seconds	15 minutes	5 minutes
Available with Bypass	Yes	No	Yes
Material			
Stainless steel with double seal	Yes	—	—
Stainless steel with single seal	—	Yes	Yes
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.)	32.7 x 7.0 cm (12.9 x 2.8 in.)	32.3 x 7.5 cm (12.7 x 3.0 in.)

*Specifications subject to change without notice.



Hach NITRATAX UV Nitrate Sensors use UV light absorption to assess 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.

NITRATAX UV Nitrate sensor wiper.

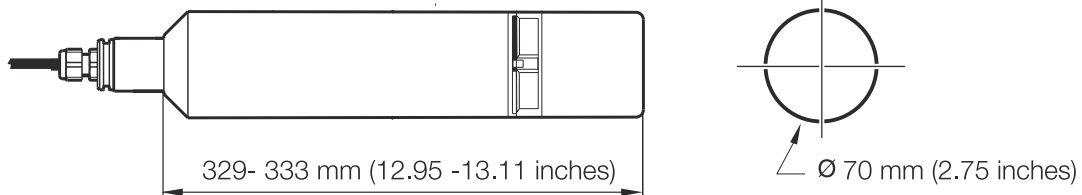
Engineering Specifications

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 dependant) 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 up to 150 mg/L.
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 Hach Company.

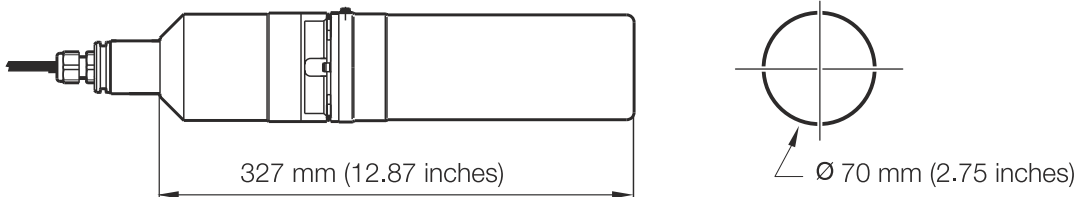
Dimensions

Hach NITRATAX 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



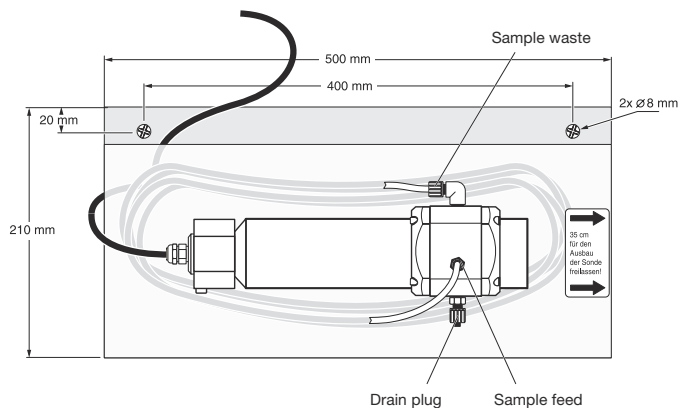
NITRATAX eco sc



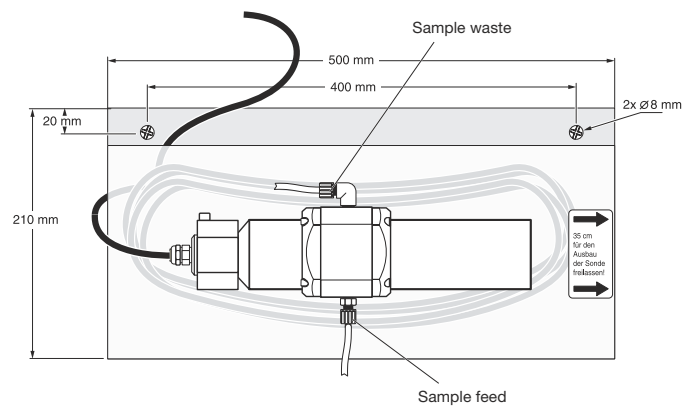
NITRATAX clear sc



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

- 61392-00** NITRATAX plus sc system includes sensor with 2 mm path length, mounting hardware, and sc100 controller
- 61395-00** NITRATAX plus sc system includes flow-through cell sensor with 2 mm path length, mounting hardware, and sc100 controller.
- 61394-00** NITRATAX eco sc system includes sensor with 1 mm path length, mounting hardware, and sc100 controller
- 61393-00** NITRATAX clear sc system includes sensor with 5 mm path length, mounting hardware, and sc100 controller
- 61396-00** NITRATAX clear sc system includes flow through cell sensor with 5 mm path length, mounting hardware, and sc100 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

Lit. No. 2464

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In the interest of improving and updating its equipment, Hach Company reserves the right to alter specifications to equipment at any time.

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

58690-00

Sun shield for the sc100 controller

Cable Accessories

- 58670-00** Junction box for extension cables
- 57960-00** Extension cable, 7.6 m (25 ft.)
- 57961-00** Extension cable, 15.2 m (50 ft.)
- 57962-00** Extension cable, 30.5 m (100 ft.)

Model sc100 Controller

(see Lit. #2463)

LXV401.52.00002

sc100 Controller, standard

LXV401.52.01002

sc100 Controller with RS-232 (MODBUS®)

LXV401.52.02002

sc100 Controller with RS-485 (MODBUS®)

Model sc1000 Controller

(see Lit. #2403)

LXV402.99.00002

sc1000 Display Module

LXV400.99.1R572

sc1000 Probe Module, 4 sensors, 4 mA Out, 4 mA In, 4 Relays, 110-230V

LXV400.99.1B572

sc1000 Probe Module, 4 sensors, 4 mA Out, 4 mA In, 4 Relays, RS-485 (MODBUS), 110-230V

LXV400.99.1F572

sc1000 Probe Module, 4 sensors, 4 mA Out, 4 mA In, 4 Relays, PROFIBUS DP, 110-230V

LXV400.99.1R582

sc1000 Probe Module, 6 sensors, 4 mA Out, 4 mA In, 4 Relays, 110-230V

At Hach, 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.

For current price information, technical support, and ordering assistance, contact the Hach office or distributor serving your area.

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Be Right™