

# NITRATAX™ sc UV Nitrate Sensors

Nitrate

## Features and Benefits

### UV Analysis—Eliminates Reagents, Sampling, and Sample Conditioning

Using advanced ultraviolet (UV) absorption technology, Hach 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 ( $\text{NO}_3$ ) and nitrite ( $\text{NO}_2$ ) 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 ( $\text{NO}_3$ ) 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 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 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 Hach NITRATAX sc UV Nitrate Sensors require little maintenance and offers remarkably low cost of operation.*

DW

WW

IW

E

**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” Hach sc Digital Controllers

There are no complicated wiring or set up procedures with any Hach sc controller. Just plug in any combination of Hach 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 Hach 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 Hach representative for details.)

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

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



Be Right™

## Specifications\*

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

\*Specifications subject to change without notice.

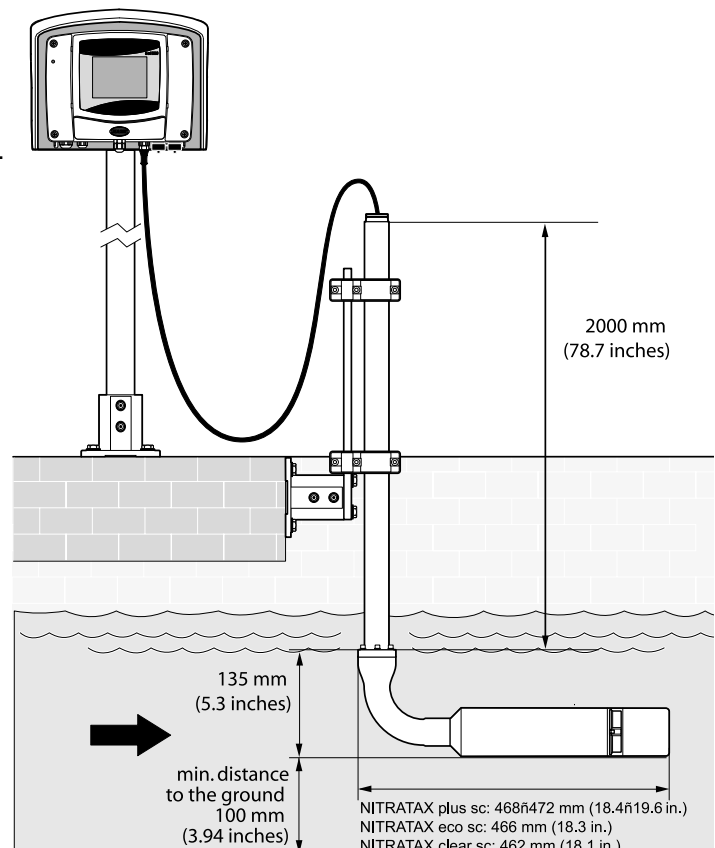
### Hach NITRATAX sc UV Nitrate Sensors use UV light absorption to assess the sum of nitrates and nitrites in aqueous sample streams.

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).



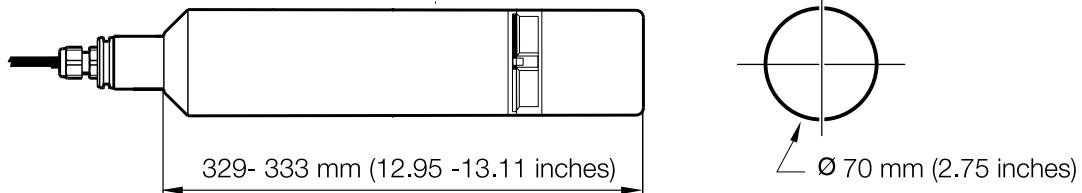
## Engineering Specifications

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 Hach Company.

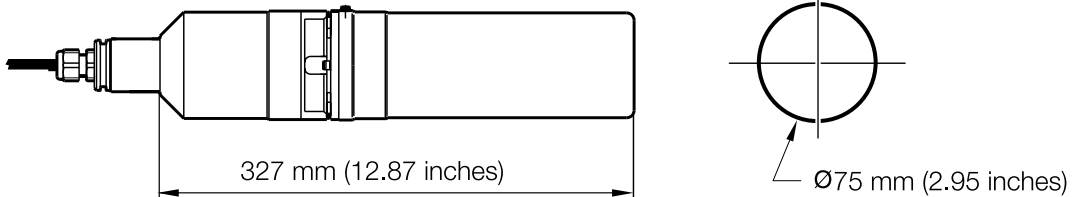
## Sensor and Bypass Panel Dimensions

Hach 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.

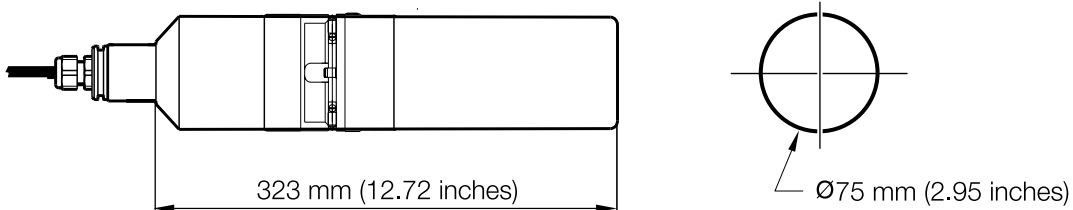
*NITRATAX plus sc*



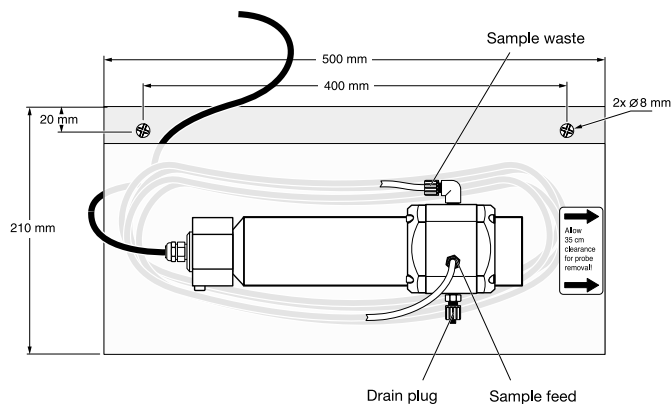
*NITRATAX eco sc*



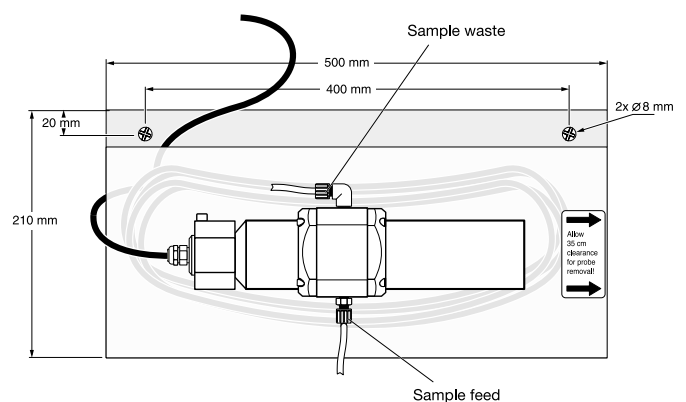
*NITRATAX clear sc*



*NITRATAX plus sc Bypass Panel*



*NITRATAX clear sc Bypass Panel*



## Ordering Information

### Sensor Selection

	NITRATAX plus sc	NITRATAX eco sc	NITRATAX clear sc
<b>Wastewater Application</b>			
Anoxic Zone	X	-	-
Aeration Tank	X	●	-
Plant Effluent	X	-	X
Sequencing Bath Reactor (SBR)	X	X	-
Cascade	X	●	-
<b>Drinking Water Application</b>			
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

<b>6139200</b>	NITRATAX plus sc system includes sensor with 2 mm path length, mounting hardware, and sc100 controller
<b>6139500</b>	NITRATAX plus sc system includes flow-through cell sensor with 2 mm path length, mounting hardware, and sc100 controller.
<b>6139400</b>	NITRATAX eco sc system includes sensor with 1 mm path length, mounting hardware, and sc100 controller
<b>6139300</b>	NITRATAX clear sc system includes sensor with 5 mm path length, mounting hardware, and sc100 controller
<b>6139600</b>	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

#### 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 NO<sub>3</sub> (5.56 mg/L NO<sub>3</sub>-N)

#### LCW825

Calibration standard 50 mg/L NO<sub>3</sub> (11.3 mg/L NO<sub>3</sub>-N)

#### LCW826

Calibration standard 100 mg/L NO<sub>3</sub> (22.6 mg/L NO<sub>3</sub>-N)

#### LCW827

Calibration standard 200 mg/L NO<sub>3</sub> (45.2 mg/L NO<sub>3</sub>-N)

#### LCW863

Calibration standard 400 mg/L NO<sub>3</sub> (90.4 mg/L NO<sub>3</sub>-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 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.*

*In the United States, contact:*

HACH COMPANY World Headquarters  
P.O. Box 389  
Loveland, Colorado 80539-0389  
U.S.A.  
Telephone: 800-227-4224  
Fax: 970-669-2932  
E-mail: orders@hach.com  
**www.hach.com**

*U.S. exporters and customers in Canada, Latin America, sub-Saharan Africa, Asia, and Australia/New Zealand, contact:*

HACH COMPANY World Headquarters  
P.O. Box 389  
Loveland, Colorado 80539-0389  
U.S.A.  
Telephone: 970-669-3050  
Fax: 970-461-3939  
E-mail: intl@hach.com  
**www.hach.com**  
**www.hach-latinoamerica.com**

*In Europe, the Middle East, and Mediterranean Africa, contact:*

HACH LANGE GmbH  
Willstätterstraße 11  
D-40549 Düsseldorf  
GERMANY  
Tel: +49 (0) 211 5288-0  
Fax: +49 (0) 211 5288-143  
E-mail: info@hach-lange.de  
**www.hach-lange.com**

Lit. No. 2464 Rev 2

F9 Printed in U.S.A.

©Hach Company, 2009. All rights reserved.

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



**Be Right™**