



# NT3 Series UV Nitrate and Nitrite Sensors

## Applications

- Wastewater
- Drinking Water



## The Power of Two: Nitrate and Nitrite in One

Improve your experience in nitrate and nitrite measurement with Hach's new NT3 Series sensors. Backed by a legacy of reagent-free UV absorbance technology expertise, Hach's NT3100sc UV Nitrate and NT3200sc UV Nitrate and Nitrite Sensors are equipped to meet your unique application needs. Whether measuring nitrate and nitrite in municipal sewage treatment plants, surface water, untreated water or treated drinking water, you'll have the choice of 3 different path lengths to fit your measurement ranges and turbidity compensation needs.

### No time for downtime

Make your best process decisions to ensure water quality when you have reliable and real-time data. The Hach® NT3100sc and NT3200sc use internal smart sensors to proactively alert you of potential measurement issues so you have confidence in your process health. We'll help you reduce time spent on troubleshooting, validations, and avoid unplanned equipment downtime.

### Optimize your process with smart decisions

The NT3100sc UV nitrate sensor features improved accuracy and low-level detection to help you optimize your plant performance and ensure regulatory compliance now and into the future. The NT3200sc UV sensor comes with dual parameters of nitrate and nitrite when measuring both independently is needed. Hach's proven wiper technology keeps your system clean and our enhanced one-step, tool-free, wiper replacement reduces maintenance and improves your experience.

### Hach service and support - there when you need us

For nearly a century, Hach has been a leader in water quality analysis. Backed by a legacy of UV absorbance technology expertise, our Technical Support, Field Service, and Central Service Teams work together to help you maximize instrument uptime, ensure data integrity, maintain operational stability, and reduce compliance risk.

## Technical Data\*

Model	NT3100sc UV Nitrate Sensor		
Path length	1 mm	2 mm	5 mm
Measuring range <sup>1</sup>	0.1 - 90 mg/L NO <sub>3</sub> -N	0.05 - 50 mg/L NO <sub>3</sub> -N	0.02 - 25 mg/L NO <sub>3</sub> -N
Detection limit	0.1 mg/L NO <sub>3</sub> -N	0.05 mg/L NO <sub>3</sub> -N	0.02 mg/L NO <sub>3</sub> -N
Accuracy <sup>2</sup>	± 5% of reading ± 0.1 mg/L NO <sub>3</sub> -N	± 4% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 0.05 - 22 mg/L, ± 5% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 22 - 50 mg/L	± 3% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 0.02 - 13 mg/L, ± 5% of reading ± 0.1 mg/L NO <sub>3</sub> -N from 13 - 25 mg/L
Model	NT3200sc UV Nitrate and Nitrite Sensor		
Path length	1 mm	2 mm	5 mm
Measuring range <sup>1,2</sup>	0.3 - 70 mg/L NO <sub>3</sub> -N; 0.4 - 92 mg/L NO <sub>2</sub> -N	0.15 - 34 mg/L NO <sub>3</sub> -N; 0.15 - 61 mg/L NO <sub>2</sub> -N	0.07 - 17 mg/L NO <sub>3</sub> -N; 0.06 - 23 mg/L NO <sub>2</sub> -N
Detection limit <sup>2</sup>	0.3 mg/L NO <sub>3</sub> -N; 0.4 mg/L NO <sub>2</sub> -N	0.15 mg/L NO <sub>3</sub> -N; 0.15 mg/L NO <sub>2</sub> -N	0.07 mg/L NO <sub>3</sub> -N; 0.06 mg/L NO <sub>2</sub> -N
Accuracy <sup>2</sup>	± 4% of reading ± 0.6 mg/L NO <sub>3</sub> -N, ± 4% of reading ± 0.6 mg/L NO <sub>2</sub> -N	± 3% of reading ± 0.3 mg/L NO <sub>3</sub> -N, ± 3% of reading ± 0.2 mg/L NO <sub>2</sub> -N	± 3% of reading ± 0.1 mg/L NO <sub>3</sub> -N, ± 5% of reading ± 0.24 mg/L NO <sub>2</sub> -N

1) Not expressed for mixed NO<sub>x</sub> concentration. Measured with NO<sub>3</sub>-N for NT3100sc and NO<sub>3</sub>-N/NO<sub>2</sub>-N for NT3200sc standard solutions.

2) Measured in lab conditions.

General - NT3100sc and NT3200sc	
Measuring principle	UV absorption measurement, reagent-free
Resolution	0.01 - 999.9
Sludge Compensation	Yes
Measuring interval	15, 30 seconds, 1, 5, 10, 30 minutes
Response time	T100: 1 minute
Cable length	10 m (33 ft) Extension cables are available: 5, 10, 15, 20, 30 and 50 m. The maximum cable length is 60 m (190 ft).
IP Rating	IP68
Pressure range	Sensor pressure limit: 0.5 bar
Ambient temperature	2 - 40 °C (36 - 100 °F), 95% relative humidity, non-condensing
Sample temperature	2 - 40 °C (36 - 100 °F)
Dimensions	70 x 402 mm (3 x 15.8 inches) approximately
Weight	4.8 kg (10.58 lb) with 10 m cable
Material	Sensor enclosure: Stainless steel Enclosure seals: Silicone Wiper axle, arm (5 mm) and wiper blade carrier (1 mm and 2 mm): Stainless steel Wiper blade: Silicone Measuring window: Quartz glass Sensor cable: Polyurethane (PUR) Cable gland: Stainless steel Seal cable gland: Silicone HT
Process connection	Immersion directly in media Bypass with Flow Through Unit Sedimenter
Certifications	CE, CMIM, UKCA, FCC, and ISED approved
Signal average time	1 to 12 measurements
Power consumption	9 W
Controller compatibility	SC Controller

\*Subject to change without notice.

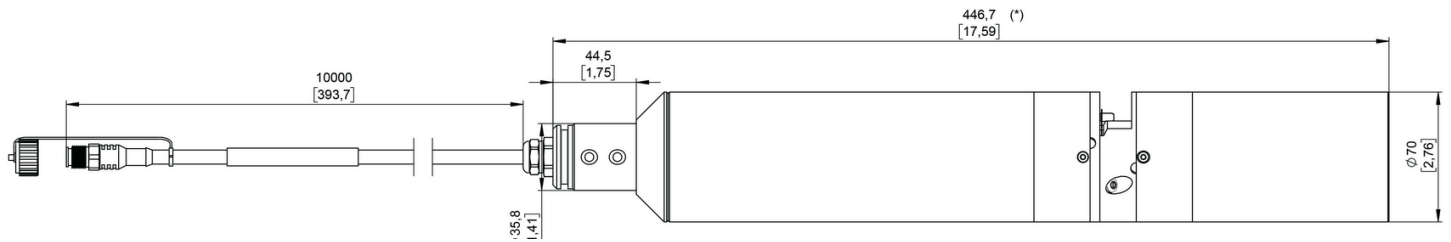
## Principle of Operation

Nitrate dissolved in water absorbs UV light with wavelengths below 250 nm. The nitrate and nitrite absorption of UV light makes it possible to photometrically determine the nitrate and nitrite dissolved without reagents. The sensor is put directly in the medium. The color of the medium does not have an effect on the measurement because the measuring principle is based on the analysis of invisible UV light.

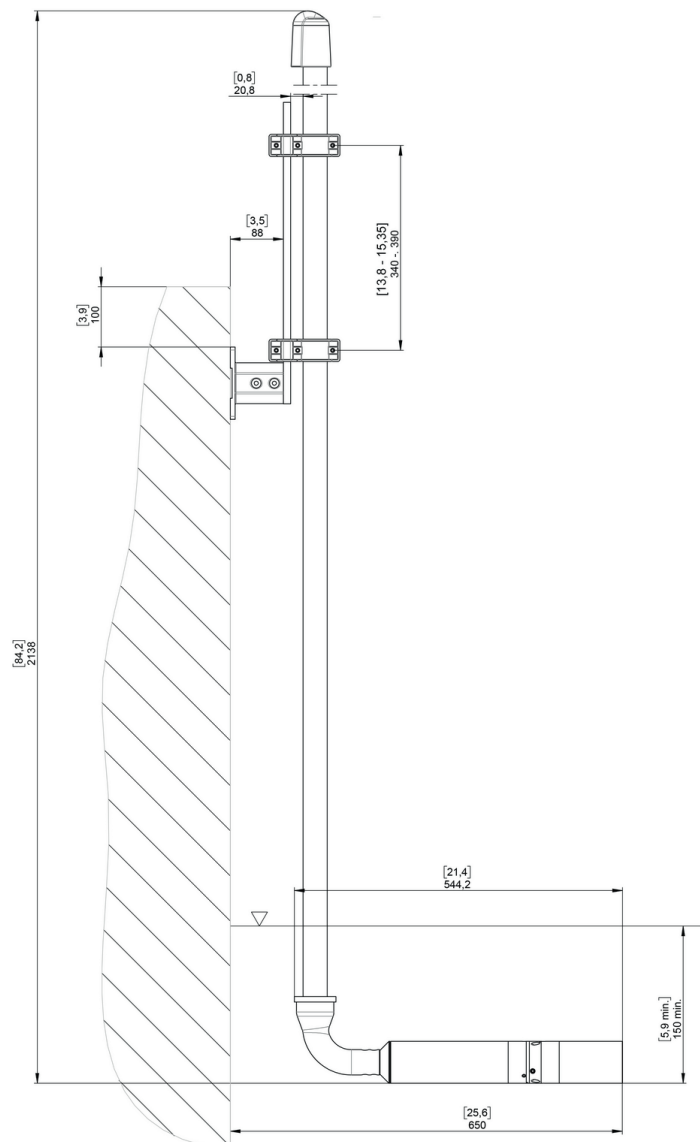
## Dimensions

[mm]

Sensor



Sensor mounting



## Applications

**NT3100sc:** General recommendation. Each application needs to be assessed for NO<sub>x</sub> concentrations and turbidity.

Model: NT3100sc UV Nitrate Sensor			
Path length	1 mm	2 mm	5 mm
<b>Wastewater Application</b>			
Influent monitoring	✓	✓	
Process monitoring - Nitrification/Denitrification	✓	✓	
Process monitoring - Nitrification/Denitrification with sludge concentration >5000 mg SS/L	✓		
Effluent		✓	✓
<b>Drinking Water Application</b>			
Raw drinking water		✓	✓
Finished water/Distribution			✓

**NT3200sc:** When both nitrate and nitrite are present, the accuracy of NO<sub>2</sub>-N and maximum NO<sub>x</sub>-N concentrations are reduced. The max NO<sub>3</sub>-N value can vary depending on the UV absorbance of the matrix. Examples of parameters impacting absorbance: solids, organics, humic acids, and salts (e.g., fluoride). This table is used to help choose the best path length for your conditions. Contact your local Sales Representative to discuss your specific application.

Model: NT3200sc UV Nitrate and Nitrite Sensor			
Path length	1 mm	2 mm	5 mm
<b>Wastewater Application</b>			
Process monitoring - Nitrification/Denitrification	● (max. 30 mg/L NO <sub>3</sub> -N)	✓ (max. 5-10 mg/L NO <sub>3</sub> -N)	
Process monitoring - Nitrification/Denitrification with sludge concentration >5000 mg SS/L	● (max. 25-30 mg/L NO <sub>3</sub> -N)	✓ with filtration (max. 5-10 mg/L NO <sub>3</sub> -N)	
Process monitoring - Anammox/Nitrification mainstream	✓ (max. 10-30 mg/L NO <sub>3</sub> -N)		
Effluent	● (max. 30-70 mg/L NO <sub>3</sub> -N)	✓ <sup>1</sup> (max. 20 mg/L NO <sub>3</sub> -N)	✓ (max. 5 mg/L NO <sub>3</sub> -N)
<b>Drinking Water Application (Units in NO<sub>3</sub>)</b>			
Finished water/Distribution	● (max. 200-300 mg/L NO <sub>3</sub> )	✓ <sup>2</sup> (max. 65-88 mg/L NO <sub>3</sub> )	✓ <sup>3</sup> (max. 22 mg/L NO <sub>3</sub> )

✓ Suitable application

● Limited accuracy for nitrite

<sup>1</sup> Limited accuracy for nitrite with NO<sub>3</sub>-N values >10 mg/L

<sup>2</sup> Limited accuracy for nitrite with NO<sub>3</sub> values >80 mg/L

<sup>3</sup> Only in low (~0 mAbs/mm) UV absorbance matrix

## Order Information

### Sensors

<b>LXV448.99.11001</b>	NT3100sc UV Nitrate Sensor, 1 mm path length
<b>LXV448.99.21001</b>	NT3100sc UV Nitrate Sensor, 2 mm path length
<b>LXV448.99.51001</b>	NT3100sc UV Nitrate Sensor, 5 mm path length
<b>LXV448.99.12001</b>	NT3200sc UV Nitrate and Nitrite Sensor, 1 mm path length
<b>LXV448.99.22001</b>	NT3200sc UV Nitrate and Nitrite Sensor, 2 mm path length
<b>LXV448.99.52001</b>	NT3200sc UV Nitrate and Nitrite Sensor, 5 mm path length

A Hach SC controller is required to operate the NT3100sc and NT3200sc sensors, controller must be purchased separately.

### Accessories and Consumables

<b>LZY714.99.53220</b>	Mounting hardware system with brackets, 90° adapter, stainless steel
<b>LZX869</b>	Flow through unit, 2 mm
<b>LZX867</b>	Flow through unit, 5 mm
<b>LXZ448.99.00002</b>	Wiper blade, 1 mm, pk/5
<b>LXZ448.99.00003</b>	Wiper blade, 2 mm, pk/5
<b>LXZ448.99.00033</b>	Wiper blade, 5 mm, pk/5
<b>LCW943</b>	Nitrate standard, 40 mg/L NO <sub>3</sub> (9.04 mg/L NO <sub>3</sub> -N), 500 mL
<b>LCW825</b>	Nitrate standard, 50 mg/L NO <sub>3</sub> (11.3 mg/L NO <sub>3</sub> -N), 500 mL
<b>LCW944</b>	Nitrate standard, 75 mg/L NO <sub>3</sub> (16.9 mg/L NO <sub>3</sub> -N), 500 mL
<b>LCW945</b>	Nitrate standard, 150 mg/L NO <sub>3</sub> (33.9 mg/L NO <sub>3</sub> -N), 500 mL
<b>LCW963</b>	Nitrite standard, 40 mg/L NO <sub>2</sub> (12.2 mg/L NO <sub>2</sub> -N), 500 mL
<b>LCW964</b>	Nitrite standard, 75 mg/L NO <sub>2</sub> (22.9 mg/L NO <sub>2</sub> -N), 500 mL
<b>LCW966</b>	Nitrite standard, 150 mg/L NO <sub>2</sub> (45.7 mg/L NO <sub>2</sub> -N), 500 mL

Additional Accessories and Consumables are available. Please contact Hach for more information.



This instrument connects to Claros, Hach's innovative Water Intelligence System. Claros allows you to seamlessly connect and manage instruments, data, and process – anywhere, anytime. The result is greater confidence in your data and improved efficiencies in your operations. To unlock the full potential of Claros, insist on Claros Enabled instruments.



With Hach Service, you have a global partner who understands your needs and cares about delivering timely, high-quality service you can trust. Our Service Team brings unique expertise to help you maximise instrument uptime, ensure data integrity, maintain operational stability, and reduce compliance risk.

