PART 1 GENERAL

1.1 Section includes

* + 1. Nitrate sensor for continuously monitoring nitrate in water.
    2. Includes the capability to remotely monitor sensors on any browser-enabled device and present

diagnostics on the overall health of the measurements (on Predictive Diagnostics-enabled sensors),

as well as upcoming and required maintenance - reducing user risk and downtime.

1.2 Measurement Procedures

A. The method of measuring nitrate will be ultraviolet (UV) light absorption at 210 nm.

1. A reference beam at 230 nm will provide a reference standard to correct for interference by turbidity and organic matter.

1.3 Alternates

1. Other methods of nitrate measurement, such as colorimetric, amperometric, potentiometric, and iodometric with electrodes, or those that require reagents are not acceptable.
2. Other instruments that do not have predictive diagnostic capabilities are unacceptable.

1.4 System Description

1. Performance Requirements
   1. Measurement range (depending on model): 0.1 to 100 mg/L for nitrate (NOX-N)
   2. Accuracy (depending on model): ± 5 percent of mean ± 1.0 or better
   3. Resolution (depending on model): 0.1 or 0.5 mg/L
   4. Detection limit (depending on model): 0.1 to 100 mg/L
   5. When connected to a multi-parameter digital controller the overall status of the instrument performance is displayed as a percentage value via a measurement indicator
   6. When connected to a multi-parameter digital controller the overall time remaining until maintenance tasks are due is displayed in days

1.5 Certifications

A. Not applicable

1.6 Environmental Requirements

A. Operational Criteria

1. Operating temperature: 0 to 40 degrees C (36 to 104 degrees F)

2. Operating pressure: 0.5 bar (7.2 psi) maximum

1.7 Warranty

A. The product includes a one-year warranty from the date of shipment.

1.8 Maintenance Service

A. Scheduled maintenance:

1. Check condition of wiper blades: monthly

2. Change wiper blades: after approximately 20,000 cycles

3. Replace sensor seals: yearly

B. Unscheduled maintenance

1. Replace UV lamp

PART 2 PRODUCTS

2.1 Manufacturer

A. Hach Company, Loveland, CO

1. NITRATAX Nitrate Sensor [select one] Model NITRATAX plus sc, Model NITRATAX eco sc, or

Model NITRATAX clear sc

2.2 Manufactured Unit

A. The NITRATAX Nitrate Sensor consists of an immersible stainless steel probe with 10-meter cable.

2.3 Equipment

A. The sensor is equipped with a self-cleaning wiper system to prevent erroneous values and maintenance problems caused by surface films or particles.

B. The sensor uses no reagents.

C. The sensor compensates for interference from turbidity and organic contamination of up to 150 mg/L. D. The sensor has the following characteristics:

1. Enclosed in corrosion-resistant, V4A stainless steel.

2. Uses 2-beam ultraviolet absorption technology with 2-mm path length.

3. The measurement beam has a wavelength of 210 nm and is absorbed by nitrate and nitrite.

4. The reference beam has a wavelength of 230 nm and is used to compensate for turbidity in the measured medium.

E. The measurement interval is user-selectable from one to 30 minutes. Up to 12 signals can be averaged.

2.4 Components

A. Standard equipment:

1. Probe

2. Cable

3. Manual

B. Dimensions

1. Model NITRATAX plus sc:

a. Length: 13.1 inches (33.3 cm)

b. Diameter: 2.8 inches (7.0 cm)

2. Model NITRATAX eco sc:

a. Length: 12.9 inches (32,7 cm)

b. Diameter: 2.8 inches (7.0 cm)

3. Model NITRATAX clear sc:

a. Length: 12.7 inches (32.3 cm)

b. Diameter: 3.0 inches (7.5 cm)

C. Weight: approximately 8.2 pounds (3.7 kg)

2.5 Accessories

A. Bypass panel (flow-through sample cell) for use when direct immersion is sample is impractical

B. Replacement wipers

C. Fixed point installation kit

D. Calibration kit

E. Cable extensions

PART 3 EXECUTION

3.1 Preparation

A. The optional fixed point installation kit recommended for mounting the probe.

B. The probe can be mounted to a bypass panel when direct immersion in a sample stream is impractical.

3.2 Installation

A. Contractor will install the analyzer in strict accordance with the manufacturer’s instructions and recommendation.

B. Manufacturer’s representative will include a half-day of start-up service by a factory-trained technician, if requested.

1. Contractor will schedule a date and time for start-up.

2. Contractor will require the following people to be present during the start-up procedure. a. General contractor

b. Electrical contractor

c. Hach Company factory trained representative d. Owner’s personnel

e. Engineer

* 1. Manufacturer’s Service and Start-Up
     1. Contractor will include the manufacturer’s services to perform start-up on instrument to include basic operational training and certification of performance of the instrument.
     2. Contractor will include a manufacturer’s Service Agreement that covers all the manufacturer’s recommended preventative maintenance, regularly scheduled calibration and any necessary repairs beginning from the time of equipment startup through to end user acceptance / plant turnover and the first 12 months of end-user operation post turnover.
     3. Items A and B are to be performed by manufacturer’s factory-trained service personnel. Field service and factory repair by personnel not employed by the manufacturer is not allowed.
     4. Use of manufacturer’s service parts and reagents is required. Third-party parts and reagents are not approved for use.

END OF SECTION