Nitrate HYDRA®-DS

ELECTRO-CHEMICAL DEVICES

Features

- Nitrate ISE electrode
- Cl -and Temp. electrodes
- Nitrate, Ammonium Option
- Rugged PVC design
- Integral Spray Head Cleaner
- Calibration stored in Sensor

Benefits

- Fast and Accurate Nitrate Measurement NO_3- or NO_3--N
- Fully compensated for Cl- interferences & Temperature
- Follow nitrification progress
- Removable electrode guard for easy maintenance
- Clean sensor in situ with pressurized water or air
- Digital Sensor for use with T80 Universal Transmitter

NO3- N HYDRA®-DS

Description

The HYDRA® Nitrate Analyzer measures the concentration of dissolved nitrate as nitrogen (NO_3^--N) in water. The sensor uses two electrodes to determine the NO_3^--N concentration, a Nitrate Ion Electrode and a Chloride Ion Electrode. It is designed for use in all kinds of water. Typical applications include monitoring environmental waters, lakes, streams and wells as well as wastewater treatment in aeration basins and effluent.

Nitrogen primarily enters a municipal wastewater treatment plant as ammonia/ammonium compounds. Nitrification oxidizes the toxic ammonium ion into much less toxic nitrate ion using an aerobic activated sludge process. De-nitrification reduces the nitrate ion (NO_3^-) to nitrogen gas (N_2) by an anoxic reaction in the same treatment basin or in a separate anaerobic digester. The NO_3^--N measurement can optimize the methanol being fed to the digester, minimizing cost, and also provide a trend of the total nitrogen (TN) in the effluent.

The Nitrate Ion Electrode provides the primary measurement. A second electrode measures the Chloride ions in the sample. The chloride ion due to its similar size and charge to the nitrate ion, causes a positive interference in the measurement. The Chloride Ion Electrode measures the amount of chloride ion present in the sample and the T80 transmitter subtracts the appropriate amount of signal from the Nitrate Measurement.

An optional pH or NH_4^+electrode is also available in the HYDRA®-NO3 sensor. While not required for the measurement an optional pH or ammonium electrode can provide valuable information about the process. Temperature is measured and used to compensate each of the measurements. Ion electrodes tend to be less well behaved than pH electrodes so for the best results, calibrate the sensor near the process temperature. The rugged Nitrate HYDRA®-DS sensor has a 1 ¼" NPT rear facing thread for attaching an extension/immersion tube for easy installation from catwalks or handrails. The Nitrate HYDRA-DS sensor is submersible with an IP68 degree of ingress protection. A removable electrode guard facilitates easy electrode replacement when necessary. The Nitrate HYDRA-DS sensor is a digital sensor that allows any size length of cable.

The Nitrate HYDRA®-DS Analyzer displays the required measurements on the Home Screen. Provides (2) 4-20 mA outputs and three Alarm Relays. It is configured to periodically actuate a cleaning cycle using the integral spray cleaner in the sensor. This minimizes the formation of biofi lmsand other coatings on the electrodes, keeping maintenance to a minimum. The period and duration of the cleaning cycle is user configurable. The 4-20 mA output is held at either the last value or a preset value during the cleaning.

Specifications

Sensor

Sensor
A Three Electrode system with spray cleaner, Nitrate ISE (NO_3^-- N) is the primary measurement. The Chloride ISE is used to compensate the NO_3^- signal. An optional pH or NH4 electrode is available for additional measurements. The Sensor is waterproof with an ingress rating of IP 68.

Measurement Range
NO_3^-- N: 0.1 to 14,000 ppm
NH_4^+- N: 0.1 to 14,000 ppm

Operating Temperature
0° to 50° C (32° F to 122° F)

Min/Max Flow Rate
Minimum 0.1 m/s
Maximum 3.0 m/s

Wetted Materials
PVC, PES, PVDF, PTFE, Viton, Glass, 316 SS

Accuracy
± 3% of reading, dependent on Calibration

Response Time
T90 1 minute

Electrode Life
ISEs: 4- 6 months, typical
pH electrode: 6-12 months, typical

T80 Analyzer

Measurements
Nitrate: 0.1 to 14,000 ppm as NO_3^-- N
Chloride: 2.0 to 35,000 ppm
Ammonium: 0.01 to 14,000 ppm as NH_4^+- N
Temperature: 0° to 100° C (32° F to 212° F)

Compensation
Chloride: 0.1 to 1000 ppm
pH: No pH compensation

Display
2.5" X 1.75" backlit LCD

Enclosure
NEMA 4X, LxWxD: 5.7" x 5.7" x 3.5"

Outputs
(2) 4-20 mA
Configured: 0.1 to 50 mg/l NO_3^-- N
0 - 14 pH

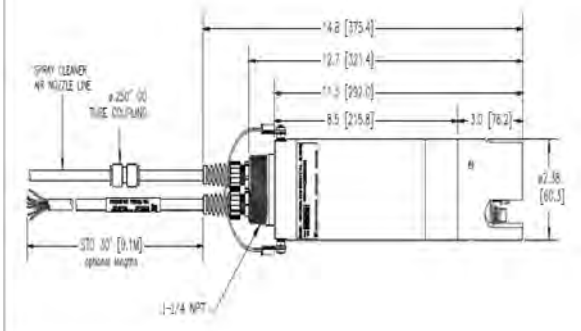
Input Power
110/220 VAC @ 50/60 Hz

Alarm Relay Ratings
(2) SPDT 230 VAC/5A
Relay(1) Spray Cleaner, Relay(2) Alarm

Part No.	Model and Product Description
1290130-3	HYDRA® NO_3-N Sensor, complete, NO_3, Cl^-, pH, Temp, Spray Cleaner head and 30 ft. cable
1290130-4	HYDRA® NO_3-N Sensor, complete, NO_3, Cl^-, Temp, Spray Cleaner head and 30 ft. cable (No pH Electrode)
T80-11-212-01	T80 Transmitter NO3-N Analyzer, Cl-, pH, (2) 4-20 mA output, 0.1 - 50 ppm NO3-N and (3) relays*

Part No.	Spare Parts and Accessories Description
2005086.VIT	Nitrate Electrode Cartridge (recommended spare)
2005008.VIT	Chloride Electrode Cartridge (recommended spare)
2005145.VIT	pH Electrode Cartridge (recommended spare)
3300854-1	Replacement Spray Nozzle
3501078-1	PVC Front Sensor Guard
2010465	Nitrate Calibration solution, NO_3-N 10 ppm
2010452	Nitrate Calibration solution, NO_3-N 100 ppm
2010460	Chloride Calibration solution, 10 ppm
2010454	Chloride Calibration solution, 100 ppm
2010100	pH 4 Buffer Calibration solution
2010101	pH 7 Buffer Calibration solution
1000300-1	4-20 mA USB Data Logger

* Consult Factory for Part# and pricing of other configurations



Ammonium Hydra-DS Dimensions

Specifications subject to change without notice.

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CERTIFIED ISO9001 QUALITY SYSTEM