Ammonium HYDRA®-DS

ELECTRO-CHEMICAL DEVICES

Features

- Ammonium ISE electrode
- K+, pH and Temp. electrodes
- Rugged PVC design
- Integral Spray Head Cleaner
- Calibration stored in Digital Sensor

Benefits

- Fast and Accurate Ammonium Measurement NH_4+ or NH_4+-N
- Fully compensated for pH, K+ interferences & Temperature
- Removable electrode guard for easy maintenance
- Clean sensor in situ with pressurized water or air
- Digital Sensor for use with T80 Universal Transmitter

NH4-N HYDRA®-DS

Description

The Ammonium HYDRA®-DS Analyzer measures the concentration of dissolved ammonium as nitrogen (NH_4^+-N) in water. The sensor uses three electrodes to determine the NH_4^+-N concentration, an Ammonium Ion Electrode, a Potassium Ion Electrode and a pH 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.

The Ammonium Ion Electrode provides the primary measurement. Any potassium ion in the sample generates a positive interference in the measurement, due to its similar size and charge to the ammonium ion. A Potassium Ion Electrode measures the amount of potassium ion present in the sample and T80 Transmitter subtracts the appropriate amount of signal from the Ammonium Measurement.

The Ammonium Ion Electrode only measures the ammonium ion (NH_4^+) not ammonia (NH_3). Ammonium ion and ammonia coexist in a pH dependent ratio in solution. The more acidic pH values favor the NH_4^+ and the more basic values favor dissolved ammonia gas, NH_3. The pH Electrode measures the pH and the T80 Universal Transmitter calculates the total NH_4+-N concentration based on the pH vs. NH_4^+ concentration profile stored in the instrument.

Temperature is measured and used to compensate each of thethree electrode measurements. While the pH Electrode's response is well defined with respect to temperature, the ion electrodes, NH_4^+ and K^+, tend to be less well behaved. For the best results, calibrate the sensors near the process temperature.

The Ammonium HYDRA®-DS Analyzer is configured to periodically actuate a cleaning cycle using the integral spray cleaner in the sensor. This minimizes the formation of biofilms or other coatings on the electrodes which keeps maintenance to a minimum. The period and duration of the cleaning cycles are user configurable. During the cleaning cycle the 4-20 mA output is held at either the last value or a preset value.

The rugged HYDRA®-DS Sensor has 1 ¼" NPT rear facing threads for attaching an extension/immersion tube for easy installation from catwalks or handrails. The HYDRA sensor is submersible with an IP68 degree of ingress protection. The HYDRA sensor can not be supported by the cable and the cable must not be immersed in the water.

A removable electrode guard facilitates easy electrode replacement when necessary. The HYDRA-DS is a digital sensor that allows any size length of cable.

Ammonium HYDRA®-DS

Specifications

Sensor

Sensor
Three Electrode system with spray cleaner, Ammonium ISE (NH_4^+- N) is the primary measurement. The Potassium ISE and pH glass electrodes are used to compensate the NH_4^+ signal. The Sensor is waterproof with an ingress rating of IP 68.

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

Operating Temperature
0° C 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 Transmitter

Measurements
Ammonium: 0.01 to 14,000 ppm as NH_4^+- N
Potassium: 0.01 to 40,000 ppm
pH: 0 to 14 pH
Temperature: 0° C to 100° C (32° F to 212° F)

Compensation
pH 4 - 10 pH
Potassium: 0.1 to 1000 ppm

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 & MODBUS
Configured: 0.1 to 50 mg/l NH_4^+- N
0 - 14 pH

Optional HART configuration

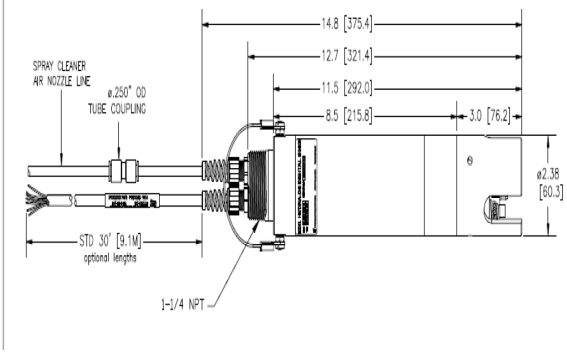
Input Power
110/220 VAC @ 50/60 Hz

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

Part No.	Model and Product Description
1290130-1	HYDRA®-DS NH_4-N Sensor, complete, NH_4, K^+, pH, Temp, Spray Cleaner head and 30 ft. cable
1290130-2	HYDRA®-DS NH_4-N Sensor, complete, NH_4, pH, Temp, Spray Cleaner head and 30 ft. cable (No K+ Sensor)
T80-11-212-01	T80 Transmitter NH_4-N Analyzer, K^+ compensated, (2) 4-20 mA output, 0.1 - 50 ppm NH_4-N and (3) relays*

* Consult Factory for Part# and pricing of optional configurations.

Part No.	Spare Parts and Accessories Description
2005083.VIT	Ammonium Electrode Cartridge (recommended spare)
2005034.VIT	Potassium Electrode Cartridge (recommended spare)
2005145.VIT	pH Electrode Cartridge (recommended spare)
3300854-1	Replacement Spray Nozzle
3501050-1	PVC Front Sensor Guard
2010449-1	Ammonium Calibration solution, NH_4-N 10 ppm
2010446-1	Ammonium Calibration solution, NH_4-N 100 ppm
2010441-1	Potassium Calibration solution, 10 ppm
2010444-1	Potassium Calibration solution, 100 ppm
2010100	pH 4 Buffer Calibration solution
2010101	pH 7 Buffer Calibration solution
1000300-1	4-20 mA USB Data Logger



Ammonium Hydra-DS Dimensions

Specifications subject to change without notice.

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CERTIFIED ISO9001 QUALITY SYSTEM