**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 NH₄⁺ or NH₄⁺-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

**Description**

The Ammonium HYDRA®-DS Analyzer measures the concentration of dissolved ammonium as nitrogen (NH₄⁺-N) in water. The sensor uses three electrodes to determine the NH₄⁺-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 (NH₄⁺) not ammonia (NH₃). Ammonium ion and ammonia coexist in a pH dependent ratio in solution. The more acidic pH values favor the NH₄⁺ and the more basic values favor dissolved ammonia gas, NH₃. The pH Electrode measures the pH and the T80 Universal Transmitter calculates the total NH₄⁺-N concentration based on the pH vs. NH₄⁺ concentration profile stored in the instrument. Temperature is measured and used to compensate each of the three electrode measurements. While the pH Electrode’s response is very well defined with respect to temperature, the ion electrodes, NH₄⁺ 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.
### Specifications

**Sensor**

Three Electrode system with spray cleaner, Ammonium ISE (NH₄⁺-N) is the primary measurement. The Potassium ISE and pH glass electrodes are used to compensate the NH₄⁺ signal. The Sensor is waterproof with an ingress rating of IP68.

**Measurement Range**

NH₄⁺-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 NH₄⁺-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 NH₄⁺-N

0 - 14 pH

Optional HART configuration

**Power**

110/220 VAC @ 50/60 Hz

**Alarm Relay Ratings**

(3) SPDT 230 VAC/5A

Spare Parts and Accessories Description

- **Part No.** 2005083.VIT: Ammonium Electrode Cartridge (recommended spare)
- **Part No.** 2005034.VIT: Potassium Electrode Cartridge (recommended spare)
- **Part No.** 2005145.VIT: pH Electrode Cartridge (recommended spare)
- **Part No.** 3300854-1: Replacement Spray Nozzle
- **Part No.** 3501050-1: PVC Front Sensor Guard
- **Part No.** 2010449-1: Ammonium Calibration solution, NH₄⁺-N 10 ppm
- **Part No.** 2010446-1: Ammonium Calibration solution, NH₄⁺-N 100 ppm
- **Part No.** 2010441-1: Potassium Calibration solution, 10 ppm
- **Part No.** 2010444-1: Potassium Calibration solution, 100 ppm
- **Part No.** 2010100: pH 4 Buffer Calibration solution
- **Part No.** 2010101: pH 7 Buffer Calibration solution
- **Part No.** 1000300-1: 4-20 mA USB Data Logger

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

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