

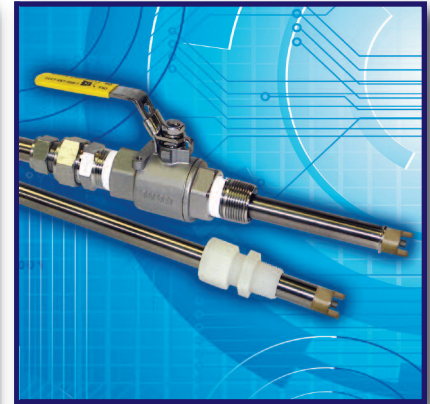


Features

- MVS10 or MVS17 Style Sensors
- Multiple materials of construction
- Integral Signal Conditioner
- Replaceable Electrode Cartridge
- Available with pH compensation

Benefits

- Insertion, Immersion or Valve Retractable Service
- 316 Stainless Steel, Titanium, Hastelloy
- Noise free transmission
- Simple and Economical Service
- Wide range of service from 2 pH to 10pH



Model MVS10/MVS17
Ammonium Ion Sensors

Description

The MVS10 and MVS17 sensors provide a stable and economical platform for the in line measurement of pH, ORP, Specific Ion, Dissolved Oxygen, Conductivity or Resistivity. The MVS10 is an insertion or immersion style sensor for use in pipe Tees or on the end of a Stand Pipe for immersion into a tank or pond. The MVS17 is a valve retractable design allowing insertion or removal of the sensor into a pipe without interrupting the process flow. Both sensor designs use easily replaceable electrode cartridges. ECD offers several ion selective electrode cartridges suitable for continuous online measurement.

The Ammonium Ion Selective Electrode cartridge develops a millivolt potential proportional to the concentration of ammonium ions in the measured solution. The Ammonium Ion sensors can be used with either the T23, 4-20 mA Transmitter or the C22 Controller with its dual channel or pH compensation capabilities. These analyzers will measure ammonium from 0.1 ppm to 14,000 ppm in the optimum pH range of 5-7 pH. Outside this pH range, large errors will occur in the alkaline pH ranges

where ammonium, NH_4^+ gives up a hydrogen ion forming ammonia, NH_3 .

Ammonium, NH_4^+ , is a conjugate acid with the $\text{pK}_a = 9.2$, at 9.2 pH half of the available ammonia is the measurable NH_4^+ and half is NH_3 . This generates a 50% error in the ammonium measurement at 9.2 pH and a 10 % error at 8.2 pH. This error can be compensated for by adding a pH sensor into the measurement loop. The C22 analyzer will report the total ammonium/ammonia concentration by measuring the available ammonium and adjusting the value in accordance with the pK_a and measured pH value.

Potassium ions, sodium ions, magnesium ions, hydrogen ions, all interfere with the ammonium measurement. Potassium is the worst with 8 potassium ions generating the same signal as 1 ammonium ion, sodium and magnesium are 800:1 If the potassium ion concentration is changing a K^+ compensation can be accomplished in the C22 with a potassium ion sensor.

The sensor is calibrated using two standard solutions differing in concentration by a factor of 10, i.e. 10 ppm and 100 ppm. This calibration sets the slope of the electrode, mV/decade and a zero potential for the sensor. In many cases the process solution's ionic strength, temperature and pH value differ widely from the calibration solutions characteristics. This will affect the zero potential of the ammonium sensor, an offset, but not affect the slope. Eliminate the offset by performing a process standardization. When the sensor has stabilized in the process solution take a grab sample of the process and determine the ammonium concentration and the adjust the analyzer to read this laboratory determined value.



Model T23 Transmitter



Model C22 Analyzer

Ammonium Ion Sensors

Specifications

MVS10 and MVS17 Sensors

Combination electrode cartridge with a PVC membrane measurement cell and a single junction, KCl/AgCl, reference electrode, signal conditioner, ATC

Electrode Slope

54 ± 5 mV per decade of concentration change

Measurement Range

Ammonium: 0.1 to 14,000 ppm

pH: 2 to 8 pH, 2 to 10.5 pH with pH compensation

Temperature Range

0° C to 40° C (32° F to 104° F)

Pressure Range

0 - 50 psig (0 - 3.5 barg)

Response Time

T90 in 10 seconds

Electrode Life

6 to 12 months

Interfering ions

Potassium, 8:1, Sodium 800:1, Magnesium 800:1

Wetted Materials

Radel, epoxy, PVC, PTFE, 316 SS, Viton O-Ring

Process Connections

MVS10 ¾" MNPT compression fitting

MVS17 1" MNPT Ball Valve

T23 Transmitter

General purpose, ½ DIN, NEMA 4X, 24 VDC 4-20 mA loop powered Transmitter, CE Marking, Auto ranging display, ppb → ppm → ppthousand

C22 Analyzer/Controller

General purpose, ½ DIN, NEMA 4X, 110/220 VAC, CE Marking, single or dual channel, with or without pH compensation, (1) 4-20 mA output and (2) Alarm Relays per channel, Auto ranging display, ppb → ppm → ppthousand

Part No.	Model and Product Description
1418060.3000.NH4	MVS10-C22-CBL-EG-2005083.VIT, NH ₄ ⁺ ISE sensor, 316 SS body, ¾" Diameter. x 10" length, 10 ft cable
1414060.3000.NH4	MVS10-T23-CBL-EG-2005083.VIT, NH ₄ ⁺ ISE sensor, 316 SS body, ¾" Diameter. x 10" length, 10 ft cable
1419060.3000.NH4	MVS17-C22-CBL-EG-2005083.VIT, NH ₄ ⁺ ISE sensor, 316 SS body, ¾" Diameter. x 17" length, 10 ft cable
1415060.3000.NH4	MVS17-T23-CBL-EG-2005083.VIT, NH ₄ ⁺ ISE sensor, 316 SS body, ¾" Diameter. x 17" length, 10 ft cable
1900101.1544	Model T23 Ammonium Ion transmitter, 24VDC loop powered, Universal Mounting Bracket (UMB)
16J01221.T000	Model C22 Ammonium Ion Analyzer, 110/220 VAC, (1) 4-20 mA output, (2) Alarm Relays, UMB
16JJ2421.TT00	Model C22 2 Channel Ammonium Analyzer, 110/220 VAC, (2) 4-20 mA outputs, (4) Alarm Relays, UMB
16JA2421.T1C0	Model C22 pH & Ammonium Ion Analyzer, 110/220 VAC, (2) 4-20 mA outputs, (4) Alarm Relays, UMB

Part No.	Spare Parts and Accessories Description
2005083.VIT	Ammonium Ion Electrode, Radel body, double junction Teflon Ref, 0.1-14,000 ppm, 0°-40°C
2010445	Ammonium Ion Calibration Solution, 1.0 ppm
2010446	Ammonium Ion Calibration Solution, 100 ppm
2005145.VIT	General Purpose pH electrode cartridge, double junction reference, 0-14 pH, 0°-100°C
3600064	MVS10 Compression Gland Fitting, all polypropylene, ¾" MNPT to ¾" tube fitting
2000072	MVS10 Compression Gland Fitting, 316 SS with Teflon ferrule, ¾" MNPT to ¾" tube fitting
2000264	MVS10 Immersion Assembly, 5 ft. x 1" stand pipe, ¾" FNPT fitting and T handle, requires 3600064
2000743	MVS17 Valve Retraction Assembly, polypropylene, 1" ball valve, 1" x ¾" tube fitting and safety lanyard.
2000745	MVS17 Valve Retraction Assembly, 316 SS, 1" ball valve, 1" x ¾" tube fitting and safety lanyard.

Specifications subject to change without notice.

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