

# Rosemount™ 499ACL-03

## Monochloramine Sensor



### **A trusted sensor for measuring monochloramine**

The Rosemount 499ACL-03 sensor is designed to measure monochloramine without the need for a sample conditioning system. These amperometric sensors are ideal for use in drinking water and wastewater applications.

## Overview



### A simple sensor design

- Measure monochloramine without having to deal with messy reagents or expensive sample conditioning systems.
- Integral Pt-100 resistance temperature device (RTD) allows for automatic temperature compensation.
- Operates in samples up to 122 °F (50 °C) and 65 psig.
- Measures 0 to 15 ppm monochloramine.

### Ease of maintenance and installation

- 1-in. male national pipe thread (MNPT) process connections suitable for mounting in a low flow cell installed in a sidestream sample or directly in a chlorine contact basin.
- Replacing the membrane and electrolyte solution is fast and easy and requires no special tools or fixtures.
- Variopol (VP6) cable connection options, for quick cable-to-sensor release, eliminates cable twisting.

## Ordering information



Rosemount 499ACL-03 Monochloramine Sensors are available with either a 25-ft. (7.6 m) integral cable or a Variopol (VP6) quick disconnect connection for use with VP6 interconnecting cables (sold separately). Three replacement membrane assemblies, three O-rings, and a 4 oz. (125 mL) bottle of electrolyte solution are provided with each sensor.

**Table 1: Rosemount 499ACL-03 Ordering Information**

Option	Description
499ACL	Chlorine Sensor

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**Table 1: Rosemount 499ACL-03 Ordering Information (continued)**

Option	Description
<b>Sensor type</b>	
01	Free chlorine
02	Total chlorine (used with Rosemount TCL)
03	Monochloramine
<b>Transmitter compatibility</b>	
54	Rosemount 1056, 1066-DO, 56, and 5081-A compatible
<b>Cable options</b>	
–	Integral 25-ft. (7.6 m) optimum EMI/RFI protected cable
VP	Sensor with VP6 fittings (requires VP interconnecting cable)
02	Integral 15-ft. (4.6 m) optimum EMI/RFI protected cable
03	Integral 33-ft. (10 m) optimum EMI/RFI protected cable
50	Integral 50-ft. (15 m) optimum EMI/RFI protected cable
06	Integral 100-ft. (30 m) optimum EMI/RFI protected cable
<b>Special</b>	
–	No selection
99	Special (consult factory)
<b>Calibration and conformance certificates - optional level</b>	
CC	Certificate of Calibration (no test data given)
LC	Loop Calibration Certificate (sensor and transmitter calibrated together, with test data)
EC	Electronic Calibration Certificate (sensor calibrated against factory instrument, with test data)

## Specifications

**Table 2: Sensor Specifications**

Physical characteristics	Specifications
Range	0 to 6 ppm (mg/L)
Back pressure	0 psig (101 kPa abs). Sample must drain to atmosphere.
Temperature (operating)	32 to 122 °F (0 to 50 °C)
Process connection	1-in. male national pipe thread (MNPT)
Wetted parts	Noryl®, Viton®, silicone, wood, and Zitex® (PTFE)
Cathode	Gold mesh
Accuracy	Accuracy depends on the accuracy of the laboratory method used to calibrate the sensor.
pH range	Response is practically independent of pH between 7.0 and 10.0. Sensor current at pH 10.0 is within 5% of sensor current at pH 7.0.

**Table 2: Sensor Specifications (continued)**

Physical characteristics	Specifications
Linearity	2% (typical)
Interferences	Free chlorine and other oxidizing agents
Response time	<30 sec to 90% of final reading at 25 °C (77 °F)
Electrolyte volume	0.8 oz. (25 mL), approximately
Electrolyte life	3 months (approximately)
Cable length	See <a href="#">Table 1</a> for standard cable lengths.
Cable length (maximum)	300 ft. (91 m), up to 100 ft. (30.5 m) is standard.
Sample flow	Open channel: Minimum 0.2 ft./sec (0.06 m/sec) Low flow cell (PN 24091-00): 8 to 15 gph (30 to 57 L/hr) Low flow cell: 1 to 4 gal/hr (4 to 15 L/hr)
Drift	< 2% of reading per week
Weight/shipping weight	1 lb./3 lb. (0.5 kg/1.5 kg)

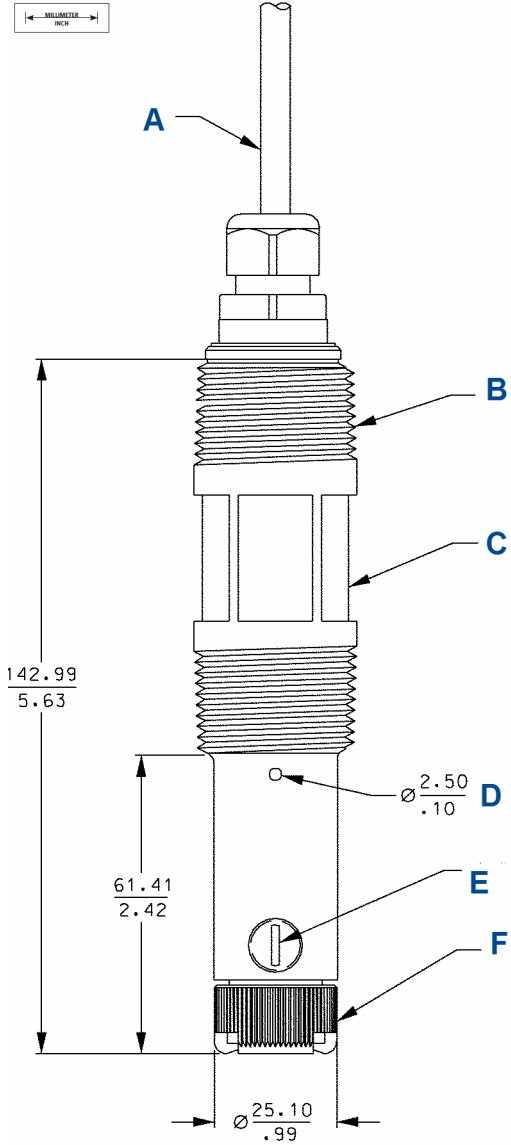
**Table 3: Other Specifications**

Type	PN	Wetted materials	Process connection	Maximum temperature	Maximum inlet pressure
Low flow cell <sup>(1)</sup>	24091-01: contains a bubble sweeping nozzle to keep bubbles from accumulating against the membrane.	Polycarbonate/polyester, 316 stainless steel, and silicone	Compression fitting for ¼-in. O.D. tubing or ¼-in. female national pipe thread (FNPT)	158 °F (70 °C)	90 psig (722 kPa abs). Sample must drain to open atmosphere.
Valved rotameter	9390004 for use with low flow cell PN24091-01	Acrylic, 316 stainless steel, and Viton	¼-in. NFPT (316 stainless steel)	150 °F (65 °C)	100 psig (858 kPa abs)

(1) Temperature and pressure specifications for the low flow cell exceed the temperature and pressure specifications for the sensor.

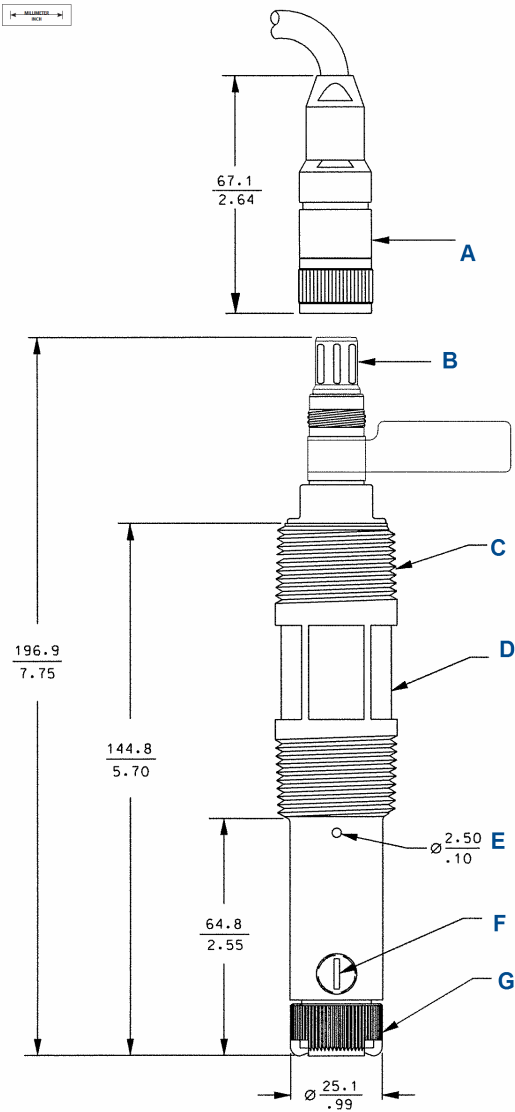
# Dimensional drawings

Figure 1: Standard Sensor with Integral Cable



- A. Sensor cable
- B. 1-in. national pipe thread (NPT), two places
- C. 1-3/16-in.-wrench opening
- D. Pressure equalizing port, two places
- E. 1/8-in. NPT, electrolyte fill plug
- F. Membrane retainer

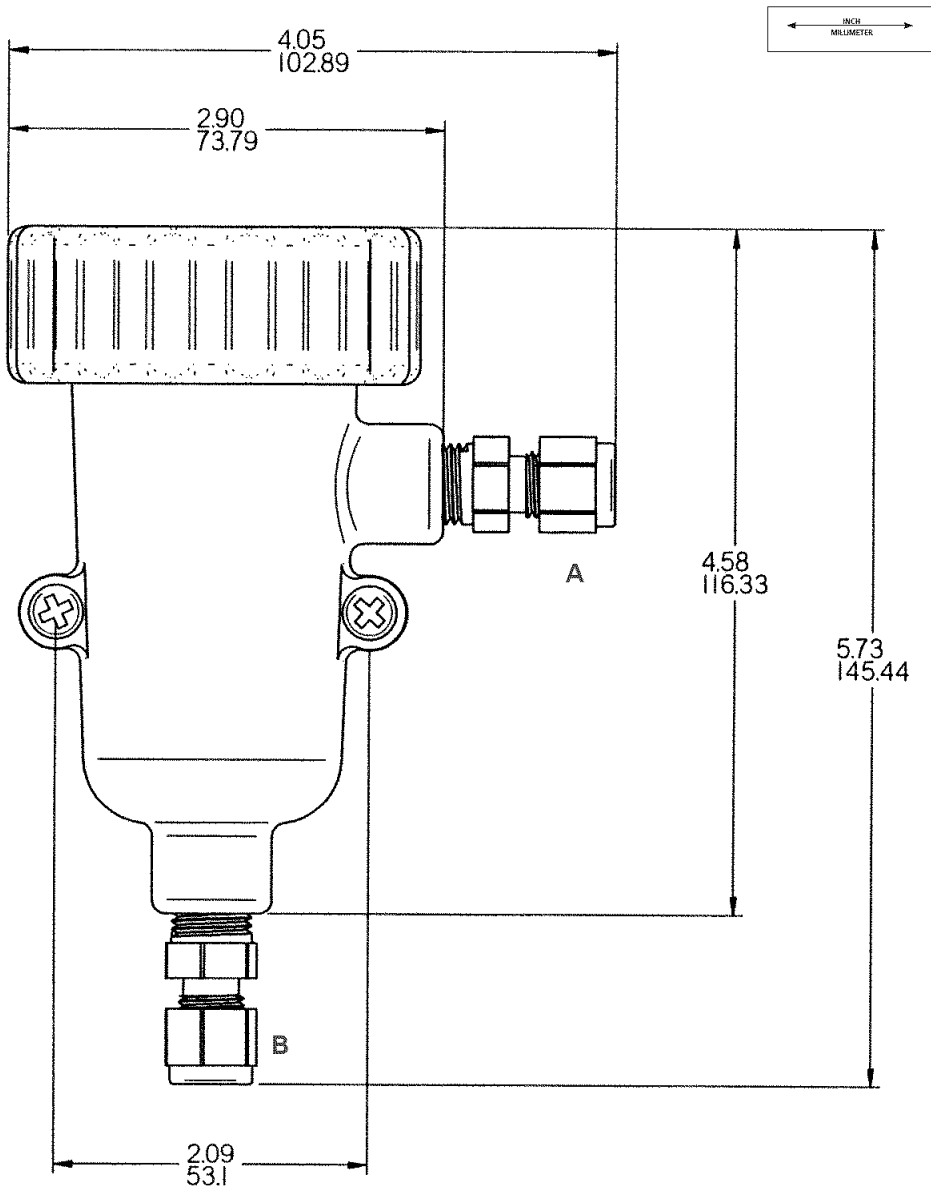
Figure 2: Sensor with Variopol Cable Connector



- A. Variopol receptacle (female connector)
- B. Variopol plug (male connector)
- C. 1-in. NPT, two places
- D. 1-3/16-in. wrench opening
- E. Pressure equalizing port, two places
- F. 1/8-in. NPT electrolyte fill plug
- G. Membrane retainer

Length of assembled sensor is 9.3 in. (236 mm).

Figure 3: Low Flow Cell (PN 24091-00)



- A. Outlet
- B. Inlet

The bubble-sweeping nozzle in the inlet is not shown.

## Accessories

Table 4: Connector Cable (Required for All First Time Installations)

Part number	Description
23747-02	Cable, VP 6, conductivity/amperometric, 10-ft. (3.0 m)

**Table 4: Connector Cable (Required for All First Time Installations) (continued)**

Part number	Description
23747-03	Cable, VP 6, conductivity/amperometric, 50-ft. (15.2 m)
23747-04	Cable, VP 6, conductivity/amperometric, 4-ft. (1.2 m)
23747-05	Cable, VP 6, conductivity/amperometric, 2.25-ft. (0.7 m)
23747-06	Cable, VP 6, conductivity/amperometric, 2.5-ft. (0.8 m)
23747-07	Cable, VP 6, conductivity/amperometric, 15-ft. (4.6 m)
23747-08	Cable, VP 6, conductivity/amperometric, 20-ft. (6.1 m)
23747-09	Cable, VP 6, conductivity/amperometric, 25-ft. (7.6 m)
23747-10	Cable, VP 6, conductivity/amperometric, 30-ft. (9.1 m)
23747-11	Cable, VP 6, conductivity/amperometric, 100-ft. (30.5 m)

**Table 5: Other Accessories**

Part number	Description
196-898754	Rotameter, 2.0 to 20 GPH
23567-00	Tee, flow-through, 1½-in.
23747-00	Interconnect cable, prepped, specify length, per foot
24091-00	Cell, low flow, ¼-in. inlet and outlet
24091-02	Cell, low flow, ¼-in. inlet and outlet, bubble-shedding nozzle
33211-00	Retrofit adapter PN 91524-xx tees
914240-03	Tee, flow-through, 2-in. PVC, ¾-in. national pipe thread (NPT)
914240-04	Tee, flow-through, 2-in. PVC, 1-in. NPT
915240-05	Tee, flow-through, 2-in. PVC, 1½-in. NPT
9200266-LQD	Cable, 5 conductors 2/22 GA 3/24 GA OD JKT PVC
9200275	Extension cable, shielded 9-cond, unprepped, specify length, per foot

**Table 6: Spare Parts**

Part number	Description
23501-02	Membrane assembly with O-ring, total chlorine (code -02), quantity-1
23501-05	Membrane assembly with O-ring, free chlorine, delta type (code -01-56), quantity-1
23501-08	Membrane assembly with O-ring, free chlorine (code -01-54), quantity-1
23501-09	Membrane assembly with O-ring, monochloramine (code -03), quantity-1
23502-02	Membrane assembly with O-ring, total chlorine (code -02), quantity-3
23502-05	Membrane assembly with O-ring, free chlorine delta type (code -01-56), quantity-3
23502-08	Membrane assembly with O-ring, free chlorine (code -01-54), quantity-3
23502-09	Membrane assembly with O-ring, monochloramine (code-03), quantity-3
23750-00	Fill plug with wood osmotic pressure relief port (code -03)
33521-00	Membrane retainer



**Table 6: Spare Parts (continued)**

<b>Part number</b>	<b>Description</b>
33523-00	Fill plug
9210356	Amperometric sensor fill #4, 4 oz. (125 mL) (code -01)
9210372	Fill solution for monochloramine sensor (code -03)
9210438	Fill solution for total chlorine sensor (code -02)
9550094	O-ring, Viton® 2-014





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