Instruction Sheet
PN 51A-499AOZ/rev.E
January 2006

Model 499A OZ

Ozone Sensor

For additional information, please refer to the Instruction Manuals CD shipped with this product, or visit our website at *www.emersonprocess.com/raihome/liquid/*.

SPECIFICATIONS - SENSOR

Pressure: 0 to 65 psig (101 to 549 kPa abs)
Temperature: 32 to 122°F (0 to 50°C)
Process Connection: 1 inch MNPT
Wetted Parts: Noryl[1], Viton[2], Teflon[3] TFE, silicone
Cathode: gold

[1] Noryl is a registered trademark of General Electric.
[2] Viton is a registered trademark of E.I. duPont de Nemours & Co.
[3] Teflon is a registered trademark of E.I. duPont de Nemours & Co.

CAUTION

SENSOR/PROCESS APPLICATION COMPATIBILITY

The wetted sensor materials may not be compatible with process composition and operating conditions. Application compatibility is entirely the responsibility of the user.

CAUTION

Do not exceed pressure and temperature specifications.

Pressure: 65 psig max (549 kPa abs max)

Temperature: 32 to 122°F (0 to 50°C)

SPECIFICATIONS - FLOW CELLS

Type	PN	Wetted Materials	Process Connection	Maximum Temperature	Maximum Pressure
1-1/2 in. tee	23567-00	CPVC, Buna N	1-1/2 in. socket	122°F (50°C)	65 psig (549 kPa abs)
2 in. tee	915240-03	PVC, Buna N	3/4 in. NFPT	120°F (49°C)	60 psig (515 kPa abs)
	915240-04		1 in. NFPT		
	915240-05		1-1/2 in. NFPT		
Low Flow	24091-00	Polyester/Polycarbonate, 316SS, Silicone	1/4 in. tubing	122°F (50°C)	65 psig (549 kPa abs)

ROSEMOUNT® Analytical

EMERSON™ Process Management

INSTALLATION

Flow through	1 to 5 gpm (3.8 to 19 L/min)
Open channel	1 ft/sec (0.3 m/sec)
Low flow cell	2 to 5 gph (7.6 to 19 L/hr)

*The Model 499AOZ sensor is **NOT** recommended for submersion into tanks, basins, or ponds.*

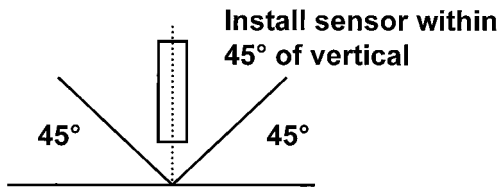


FIGURE 1. Sensor Orientation

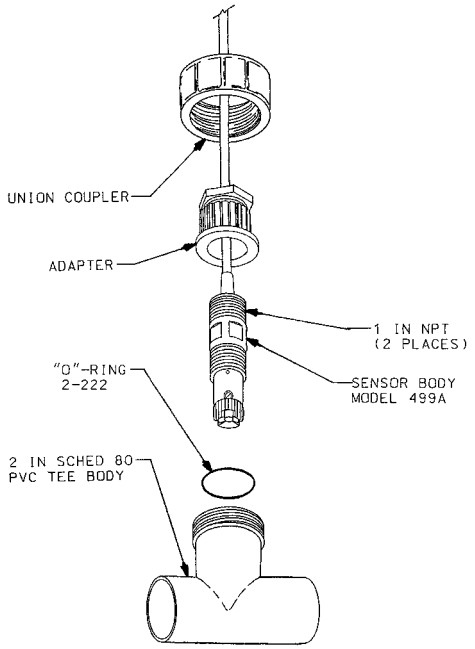


FIGURE 2. Flow-Through 2 in. Tee

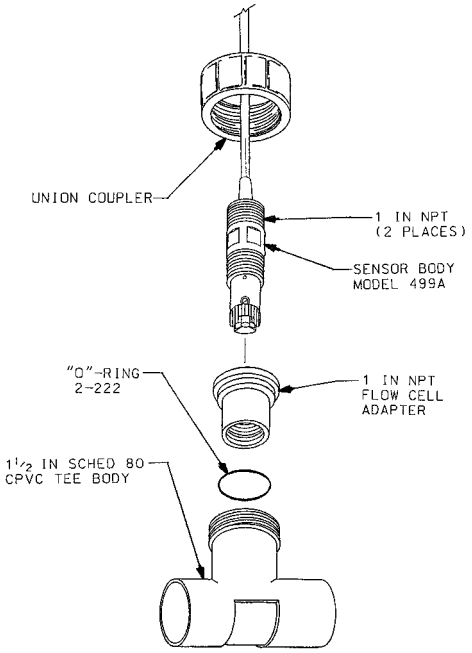


FIGURE 3. Flow-Through 1-1/2 in. Tee

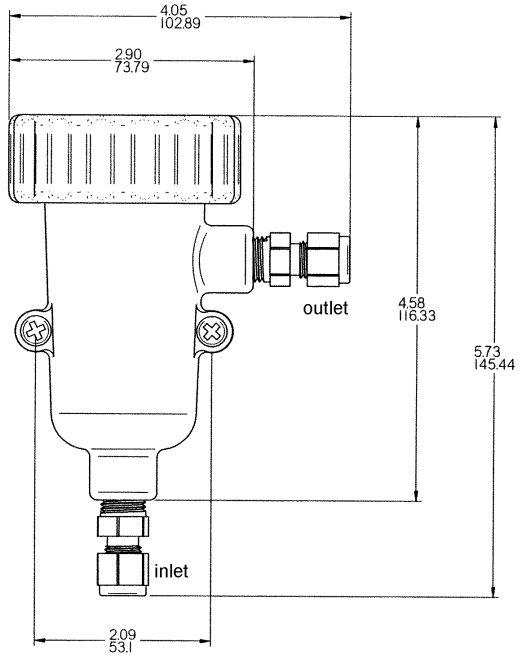


FIGURE 4. Low Flow Cell (PN 24091-00)

WIRING

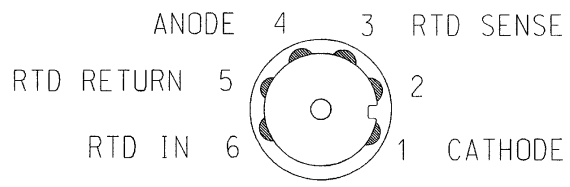


FIGURE 5. Pin Out Diagram for Model 499ACL-01-VP Sensor (top view of connector end of sensor)

When making connections through a junction box (PN 22719-02), wire point-to-point.

NOTE:

Use a wire nut and pigtail (included) when connecting several wires to the same terminal.

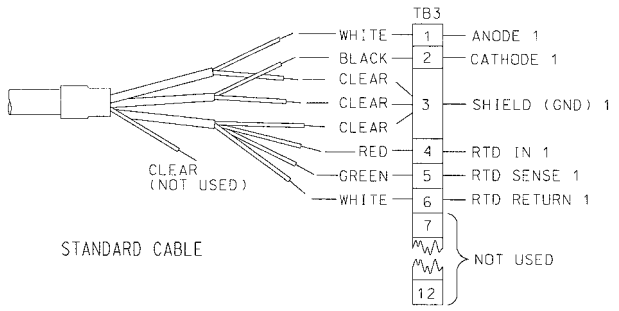


FIGURE 6. Wiring Sensor with Standard Cable to Model 1055 Analyzer

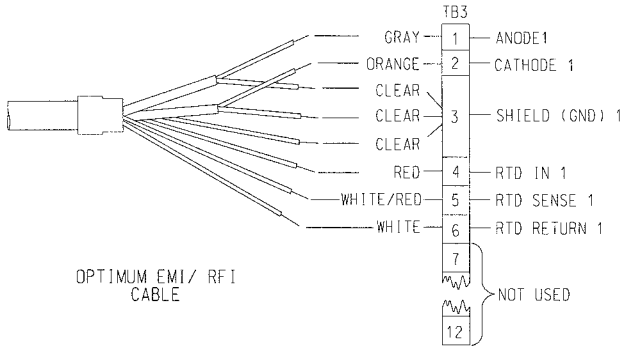


FIGURE 7. Wiring Sensor with Optimum EMI/RFI or Variopol Cable to Model 1055 Analyzer

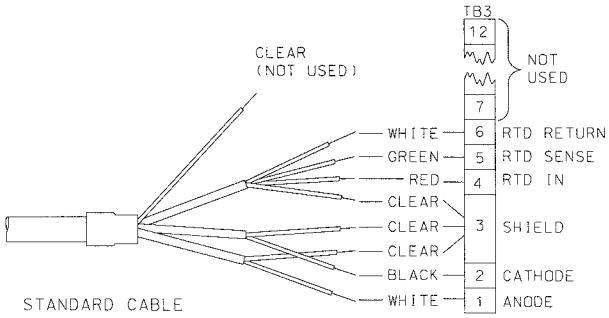


FIGURE 8. Wiring Sensor with Standard Cable to Model 54eA Analyzer

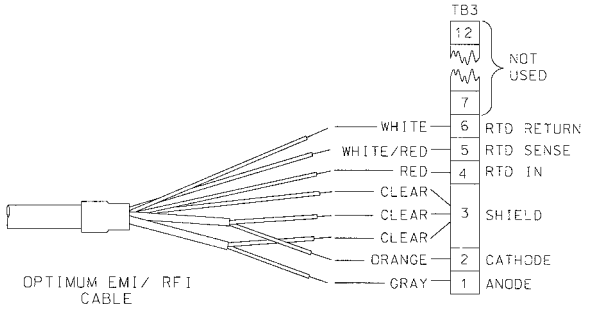


FIGURE 9. Wiring Sensor with Optimum EMI/RFI or Variopol Cable to Model 54eA Analyzer

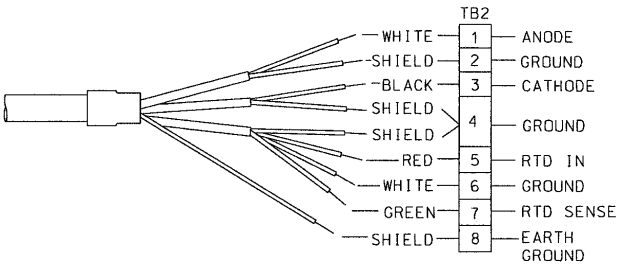


FIGURE 10. Wiring Sensor with Standard Cable to 1054A and 1054B Analyzers

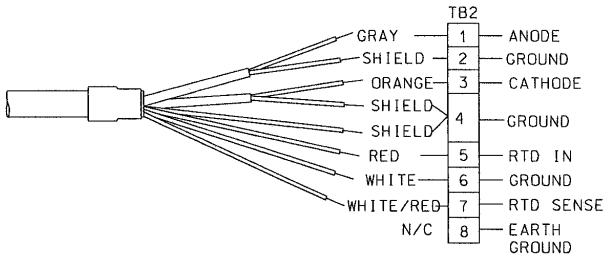


FIGURE 11. Wiring Sensor with Optimum EMI/RFI or Variopol Cable to 1054A and 1054B Analyzers

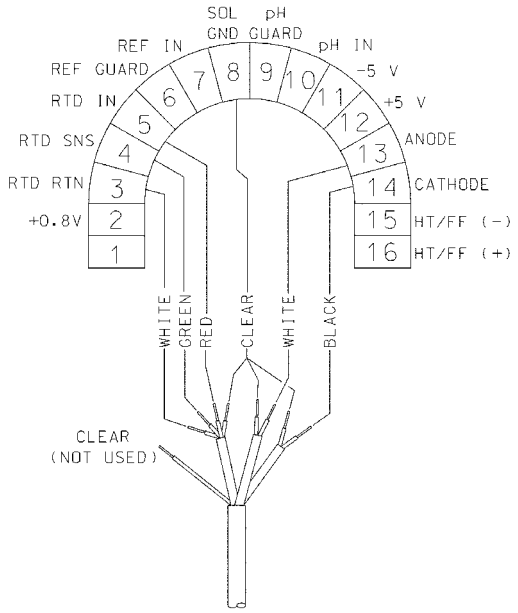


FIGURE 12. Wiring Sensor with Standard Cable to 5081-A Transmitter.

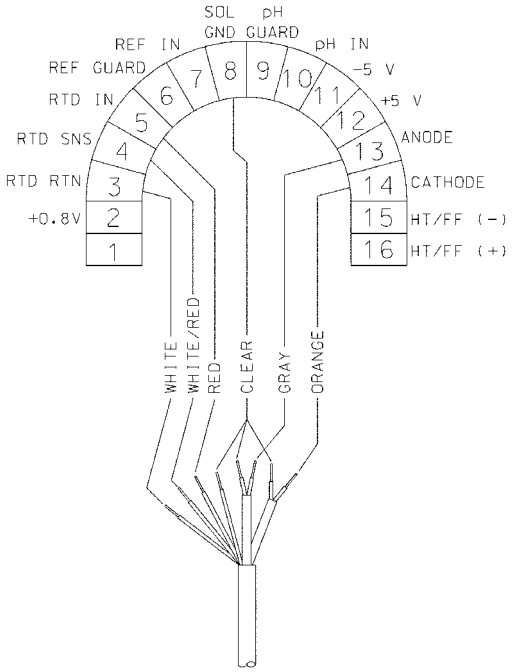


FIGURE 13. Wiring Sensor with Optimum EMI/RFI or Variopol Cable to 5081-A Transmitter.

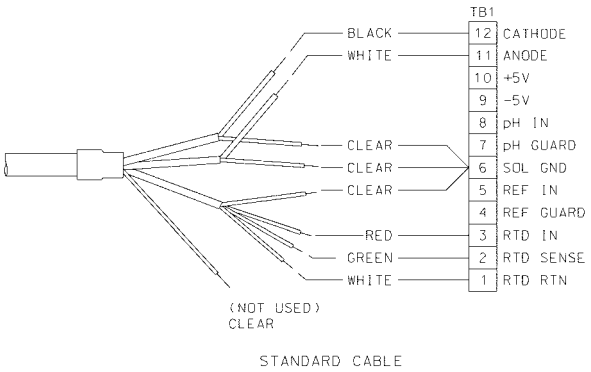


FIGURE 14. Wiring Sensor with Standard Cable to Xmt-A Transmitter.

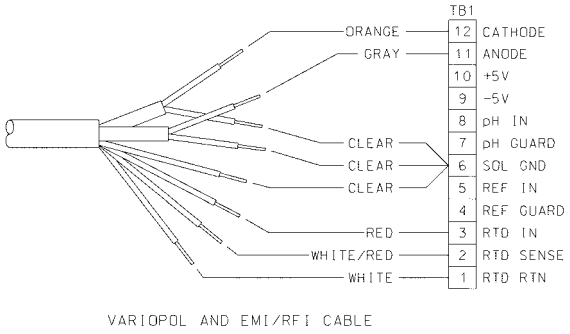
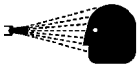


FIGURE 15. Wiring Sensor with Optimum EMI/RFI or Variopol Cable to Xmt-A Transmitter.

MAINTENANCE

Periodic maintenance and cleaning is required for best performance of the sensor. Generally, the membrane and fill solution should be replaced every four to six months. Sensors installed in harsh or dirty environments require more frequent maintenance. The optimum maintenance frequency is best determined by experience.

CAUTION: PRESSURIZED SPRAY INJURY
Before removing the sensor from the process stream for maintenance, be sure the process pressure is reduced to 0 psig and the process temperature is at a safe level!



CAUTION
Fill solution may cause irritation. May be harmful if swallowed. Read and follow manual.

CLEANING THE MEMBRANE.

Keep the membrane clean and free from dirt. Clean the membrane with water sprayed from a wash bottle. Use a soft tissue to **gently** wipe the membrane.

REPLACING THE ELECTROLYTE SOLUTION AND MEMBRANE.

1. Unscrew the membrane retainer and remove the membrane assembly and O-ring. See Figure 14.
2. Hold the sensor over a container with the cathode pointing down.
3. Remove the fill plug and allow the electrolyte solution to drain out.
4. Inspect the cathode. If it is tarnished, clean it by gently rubbing in the direction of the existing scratches (do not use a circular motion) with 400-600 grit silicon carbide finishing paper. Rinse the cathode thoroughly with water.
5. Wrap the plug with several turns of pipe tape and set aside.
6. Prepare a new membrane. Hold the membrane assembly with the cup formed by the membrane and membrane holder pointing up. Fill the cup with electrolyte solution. Leave the membrane assembly filled with electrolyte solution and set it aside.
7. Hold the sensor at about a 45-degree angle with the cathode end pointing up. Add electrolyte solution through the fill hole until the liquid overflows. Tap the sensor near the threads to release trapped air bubbles. Add more electrolyte solution if necessary.
8. Place the fill plug in the electrolyte port and begin screwing it in. After several threads have engaged, rotate the sensor so that the cathode is pointing up and continue tightening the fill plug. Do not overtighten.
9. Place a new O-ring in the groove around the cathode post. Cover the holes at the base of the cathode stem with several drops of electrolyte solution.
10. Insert a small **blunt** probe, like a toothpick with the end cut off, through the pressure equalizing port. See Figure 14.

    NOTE

    Do not use a sharp probe. It will puncture the bladder and destroy the sensor.

    Gently press the probe against the bladder several times to force liquid through the holes at the base of the cathode stem. Keep pressing the bladder until no air bubbles can be seen leaving the holes. Be sure the holes remain covered with electrolyte solution.
11. Place a drop of electrolyte solution on the cathode, then place the membrane assembly over the cathode. Screw the membrane retainer in place.
12. The sensor may require several hours operating at the polarizing voltage to equilibrate after the electrolyte solution has been replenished.

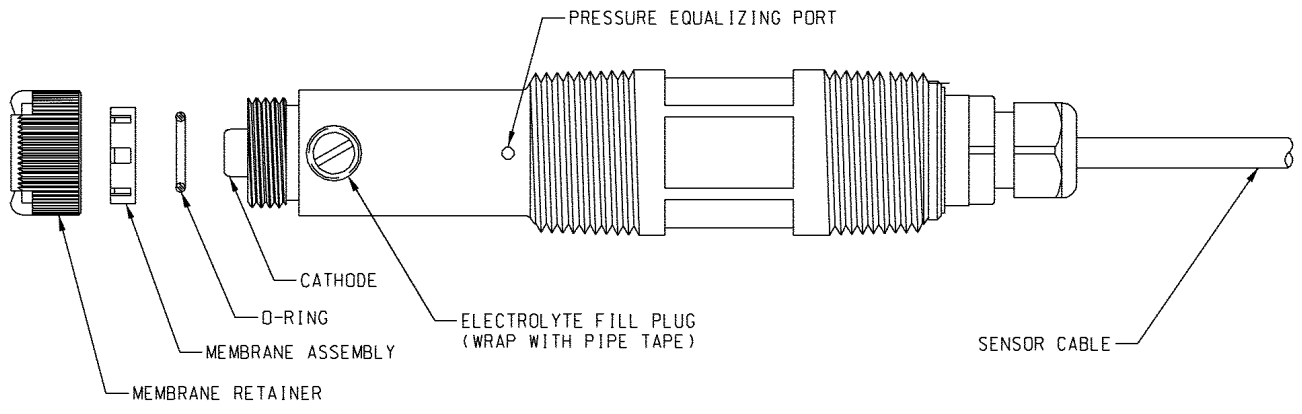


FIGURE 16. Sensor Parts

SPARE PARTS

33523-00	Electrolyte Fill Plug
9550094	O-Ring, Viton 2-014
33521-00	Membrane Retainer
23501-04	Ozone Membrane Assembly: includes one membrane assembly and one O-ring
23502-04	Ozone Membrane Kit: includes 3 membrane assemblies and 3 O-rings
9210299	#3 Ozone Sensor Fill Solution, 4 oz (120 mL)

ORDERING INFORMATION

The Model 499AOZ sensor is intended for the determination of dissolved ozone in a variety of municipal and industrial applications. The sensor is generally intended for mounting in an off-line flow cell. The sensor is available with either an integral cable or a VP6.0 quick disconnect fitting. Three replacement membrane assemblies, three o-rings and a 4-oz (125 mL) bottle of electrolyte solution are provided with each sensor.

MODEL 499AOZ DISSOLVED OXYGEN SENSOR	
CODE	**Required selection**
54	For use with Model 1054AOZ, 1054BOZ, 1055-26, 54eA, Xmt-A, and 5081-A analyzers

CODE	Optional selection
60	Optimum EMI/RFI cable (not available with -VP option)
VP	Sensor with Variopol 6.0 fitting (interconnecting cable must be ordered separately)
499AOZ -54 -VP	EXAMPLE

FOR FIRST TIME VARIOPOL INSTALLATIONS

PART #	DESCRIPTION
23747-02	VP 6.0 interconnecting cable, 10 ft (3 m)
23747-03	VP 6.0 interconnecting cable, 50 ft (15 m)

For junction box and connecting cable between junction box and analyzer, see **ACCESSORIES**. The cable in PN 9200275 (unterminated) and PN 23747-00 (terminated) is the same cable used in the VP interconnecting cable.

ACCESSORIES

PART #	DESCRIPTION
23567-00	1-½ in. flow through tee with 1-½ socket connections
914240-03	2-in. flow through tee with ¾-in FNPT connections
915240-04	2-in. flow through tee with 1-in FNPT connections
915240-05	2-in. flow through tee with 1-½-in FNPT connections
24091-00	Low flow cell with ¼-in OD tubing compression fittings
9390004	Rotameter: 0.5 - 5.0 gph
22719-02	Junction box, 8 terminals
9200266	Extension cable for option -54, unterminated (specify length)
9200275	Extension cable for optimum EMI/RFI cable, unterminated (specify length)
23747-00	Extension cable for optimum EMI/RFI cable, terminated (specify length)
2001492	Stainless steel tag
23501-04	Dissolved ozone membrane assembly: includes one membrane assembly and O-ring
23502-04	Dissolved ozone membrane assembly: includes three membrane assemblies and three O-rings
9210299	#3 Dissolved ozone sensor fill solution, 4 oz (125 mL)

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