

PART 1 GENERAL

- 1.1 Section includes:
 - A. Sensor that continuously measures conductivity and/or resistivity in aqueous solutions.
- 1.2 Measurement Procedures
 - A. The method of measurement will be contacting conductivity and/or resistivity with a probe or sensor
- 1.3 Alternates
 - A. Probes or sensors that do not communicate with Hach model sc200 or Polymetron 9500 controllers will not be acceptable.
- 1.4 System Description
 - A. Performance Requirements for 8310 Sensor
 - 1. Cell Constant: 0.01 cm^{-1}
 - 2. Measurement Range: $0.01\text{-}200 \text{ }\mu\text{S/cm}$
 - B. Performance Requirements for 8311 Sensor
 - 1. Cell Constant: 0.1 cm^{-1}
 - 2. Measurement Range: $0.1\text{-}2000 \text{ }\mu\text{S/cm}$
 - C. Performance Requirements for 8312 Sensor
 - 1. Cell Constant: 1 cm^{-1}
 - 2. Measurement Range: $1\text{-}20000 \text{ }\mu\text{S/cm}$
- 1.5 Certifications
 - A. EMC: CE compliant for conducted and radiated emissions CISPR 11 (Class A limits), EMC Immunity EN 61326-1 (Industrial limits) when part of an approved system
 - B. Safety: General Purpose UL/CSA 61010-1 with cETLus safety mark when part of an approved system
 - C. Australian C-TICK and Korean KC Markings when part of an approved system
- 1.6 Environmental Requirements
 - A. Operational Criteria
 - 1. Maximum Operating Temperature: $60 \text{ }^{\circ}\text{C}$ at 2 bar ($140 \text{ }^{\circ}\text{F}$ at 29 psi)
 - 2. Maximum Sample Temperature: $125 \text{ }^{\circ}\text{C}$ at 10 bar ($257 \text{ }^{\circ}\text{F}$ at 145 psi)
 - 3. Maximum Pressure: 10 bar at $25 \text{ }^{\circ}\text{C}$ (145 psi at $77 \text{ }^{\circ}\text{F}$)
 - 4. Flow Rate: 20L/hr minimum (60 L/hr ideal)
 - 5. Relative humidity: 10 to 95%, non-condensing
- 1.7 Maintenance Service
 - A. Scheduled Maintenance
 - 1. Annually
 - a. Temperature
 - 1) Calibration
 - b. Measurement
 - 1) Calibration

- c. Instrument Qualification
 - d. External Audit
- B. Unscheduled Maintenance
 - 1. Clean sensor with appropriate cleaning solution at appropriate intervals depending on the sample tested.

PART 2 PRODUCTS

- 2.1 Manufacturer
 - A. Hach Lange Sàrl, Geneva, Switzerland
- 2.2 Manufactured Unit
 - A. The 831x series conductivity sensor consists of:
 - B. A contacting conductivity sensor composed of stainless steel or graphite and polysulfone.
 - C. Integral Cable
 - D. The sensor is individually factory-tested to determine its absolute cell constant and temperature constant for accuracy.
- 2.3 Equipment
 - A. The Polymetron 831x Conductivity Sensors work with Hach model sc200 or Polymetron 9500 controllers only.
 - B. The probe has a built in Pt 100 temperature compensator.
 - C. Wetted materials as follows:
 - 1. 8310 Sensor
 - a. Electropolished Stainless Steel
 - b. Polysulfone
 - 2. 8311 Sensor
 - a. Stainless Steel
 - b. Polysulfone
 - 3. 8312 Sensor
 - a. Graphite
 - b. Polysulfone
- 2.4 Components
 - A. Standard equipment
 - 1. Sensor
 - 2. Integral Cable
 - B. Dimensions:
 - 1. 8310 and 8311 sensors: 115 mm x 35 mm (4.5 in x 1.4 in)
 - 2. 8312 sensors: 108 mm x 35 mm (4.3 in x 1.4 in)
 - C. Weight:
 - 1. 8310 and 8311 sensors: 0.15 kg (0.33 lbs)
 - 2. 8312 sensor: 0.3 kg (0.66 lbs)

2.5 Optional Accessories

- A. Cables
 - 1. 5m (16 ft)
 - 2. 10 m (33 ft)
 - 3. 20 m (66 ft)
- B. Application specific mounting hardware
- C. Flow-through chamber

PART 3 EXECUTION

3.1 Preparation

- A. The sensor must be mounted to a Hach mounting assembly directly in the solution to be measured.

3.2 Installation

- A. Contractor will install the analyzer in strict accordance with the manufacturer's instructions and recommendation.
- B. Manufacturer's representative will include a half-day of start-up service by a factory-trained technician, if requested.
 - 1. Contractor will schedule a date and time for start-up.
 - 2. Contractor will require the following people to be present during the start-up procedure.
 - a. General contractor
 - b. Electrical contractor
 - c. Hach Company factory trained representative
 - d. Owner's personnel
 - e. Engineer

3.3 Manufacturer's Service and Start-Up

- A. Contractor will include the manufacturer's services to perform start-up on instrument to include basic operational training and certification of performance of the instrument.
- B. Contractor will include a manufacturer's Service Agreement that covers all the manufacturer's recommended preventative maintenance, regularly scheduled calibration and any necessary repairs beginning from the time of equipment startup through to end user acceptance / plant turnover and the first 12 months of end-user operation post turnover.
- C. Items A and B are to be performed by manufacturer's factory-trained service personnel. Field service and factory repair by personnel not employed by the manufacturer is not allowed.
- D. Use of manufacturer's service parts and reagents is required. Third-party parts and reagents are not approved for use.

END OF SECTION