PART 1 GENERAL

* 1. Section includes
     1. Sensor that continuously measures conductivity and/or resistivity in aqueous solutions.
  2. Measurement Procedures
     1. The method of measurement will be contacting conductivity and resistivity with a probe or sensor.
  3. Alternates
     1. Probes or sensors that do not communicate with the Hach model sc100 or sc1000 digital controller will not be accepted.
  4. System Description
     1. Performance Requirements
        1. Measurement range: 0.057 to 200,000 µS/cm
        2. Accuracy: ±0.01% of reading, all ranges
  5. Certifications
     1. General Purpose CSA/CSANRTL and FM (UL Pending) when part of an approved system.
     2. Class 1, Div 2 Groups A thru D CSA/CSANTRL and FM (UL Pending) when part of an approved system.
  6. Environmental Requirements
     1. Operational Criteria
        1. Sample flow rate: 0 to 3 meters (0 to 10 feet) per second, maximum, fully immersed
        2. Operating temperature: dependant on probe selection
        3. Temperature and pressure limits, depending on materials. (Other mounting hardware or piping material may change the listed rating.):
           1. Compression fitting sensor:

With Kynar® (PVDF) compression fitting: 302°F at 25 psi (150°C at 1.7 bar) or 97° at 150 psi (36°C at 10.3 bar)

With 316 stainless steel compression fitting: 302°F at 200 psi (150°C at 13.7 bar)

With ball valve assembly: 257°F at 150 psi (125°C at 10.3 bar)

* + - * 1. Non-metallic general purpose sensor: 302°F at 100 psi (150°C at 6.8 bar) or 68° at 200 psi (20°C at

13.7 bar)

* + - * 1. Boiler/condensate sensor:

No hardware: 212°F at 300 psi (100°C at 20.7 bar)

With integral polypropylene j-box head: 198°F at 300 psi (92°C at 20.7 bar)

With integral aluminum or 316 stainless steel j-box head: 392°F at 300 psi (200°C at 20.7 bar)

* + - * 1. Sanitary (CIP) flange sensor:

Sensor only: 302°F at 100 psi (150°C at 6.8 bar)

With GLI sanitary mount hardware: 257°F at 150 psi (125°C at 10.3 bar)

* + - 1. Insertion depth: 102 mm (4 inches)
  1. Warranty
     1. The sensor is warranted for 1 year from date of purchase against material and workmanship.
  2. Maintenance Service
     1. Scheduled maintenance:
        1. Clean to maintain measurement accuracy. Schedule (days, weeks, etc.) is affected by the characteristics of the process solution and should be determined by operating experience.

PART 2 PRODUCTS

* 1. Manufacturer
     1. Hach Company, Loveland, CO
        1. Hach 3400-SC Contacting Conductivity Sensor
  2. Manufactured Unit
     1. The Hach 3400-SC Contacting Conductivity Sensor consists of:
        1. Conductivity probe with titanium or stainless steel electrodes
        2. Integral cable
        3. The sensor is individually factory-tested to determine its absolute four-digit cell constant and temperature constant for accuracy.
        4. Digital gateway device
  3. Equipment
     1. The Hach 3400-SC sensor works with Hach models sc100 or sc1000 controllers only.
     2. The probe has a built in Pt 1000 RTD temperature compensator.
     3. Wetted materials as follows:
        1. Compression fitting sensor:
           1. Electrodes: titanium or 316 stainless steel outer electrode for extended sensor body style used with ball valve assembly)
           2. Insulator: PTFE Teflon®
           3. O-ring seals: treated Viton®
        2. Non-metallic general purpose conductivity sensor:
           1. Electrodes: graphite
           2. Insulator: Ryton®
           3. O-ring seals: Viton®
        3. Boiler/condensate sensor:
           1. Electrodes: 316 stainless steel and titanium
           2. Insulator: PEEK®
           3. O-ring seals: fluoroelastomer
        4. Sanitary (CIP) flange sensor:
           1. Electrodes: 316 stainless steel
           2. Insulator: PTFE Teflon®
           3. O-ring seals: Viton®
  4. Components
     1. Standard equipment:
        1. Probe
        2. Integral cable
        3. Digital gateway
        4. Manual
     2. Dimensions: dependant on mounting configuration
     3. Weight: dependant on mounting configuration
  5. Accessories
     1. Plug-in extension cables to extend the distance between the sensor and cable up to 1000 meters (3240 ft.).
     2. Junction box for extension cables (6-position terminal strip supplied in integrally mounted junction box of polypropylene, aluminum, or 316 stainless steel). Must be used for lengths greater than 100 meters.
     3. Extension cables
     4. Mounting hardware
     5. Compression fittings
     6. Low-volume flow chamber

PART 3 EXECUTION

* 1. Preparation
     1. The sensor must be mounted to a Hach mounting assembly directly in the solution to be measured.
  2. Installation
     1. Contractor will install the analyzer in strict accordance with the manufacturer’s instructions and recommendation.
     2. 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.
           1. General contractor
           2. Electrical contractor
           3. Hach Company factory trained representative
           4. Owner’s personnel
           5. Engineer
  3. Manufacturer’s Service and Start-Up
     1. 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.
     2. 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.
     3. 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.
     4. Use of manufacturer’s service parts and reagents is required. Third-party parts and reagents are not approved for use.

END OF SECTION