PART 1 GENERAL

1.1 Section includes:
- A. Instrument for monitoring turbidity in water accordance/compliance with DIN EN ISO 7027.

1.2 Measurement Procedures
- A. The method of measuring turbidity will be nephelometric using pulse scattered infrared light at 860nm at a 90° angle in accordance with/compliance with DIN EN ISO 7027.

1.3 Alternates
- A. Other methods of turbidity measurement including those that require a sample cell, those with incandescent light sources, or turbidimeters used for EPA reporting are not acceptable.

1.4 System Description
- A. Performance Requirements
  1. Range
     a. 0.0001 to 1000 FNU (1 FNU = 1 NTU)
  2. Resolution
     a. 0.0001 to 0.9999 / 1.000 to 9.999 / 10.00 to 99.99 / 100 to 1000 FNU (NTU)
  3. Precision
     a. ±0.008 FNU or ±1% of reading (0 to 10 FNU)
  4. Repeatability
     a. ±0.003 FNU or ±5% of reading (0 to 2 FNU)
  5. Response time
     a. 1 to 60 seconds (user adjustable)

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 connected to an sc controller.
- B. Safety: General Purpose UL/CSA 61010-1 with cETLus safety mark when connected to an sc controller
- C. Australian C-TICK and Korean KC Markings when connected to an sc controller.
- D. IP 65 Enclosure Rating

1.6 Environmental Requirements
- A. Operational Criteria
  1. Operating Temperature
     a. 36 to 104 °F (2 to 40°C)
  2. Sample Temperature
     a. 122 °F (50 °C) maximum
  3. Sample Pressure
     a. 87 psi at 68°F (6 bar at 20°C)
  4. Sample flow rate
     a. Minimum: 0.2 L/min
     b. Maximum: 1L/min
  5. Sample Salt Content (for *seawater* version ONLY)
     a. Tested up to 65 g/L

1.7 Warranty
- A. The sensor includes a one-year warranty from the date of shipment.

1.8 Maintenance Service
- A. Scheduled Maintenance
  1. Every 1200 Cycles
     a. Replace wiper profile (only on *plus* and *seawater* versions)
  2. Every Two Years
     a. Replace desiccant
     b. Monitor test equipment with CVM Dry Calibration
- B. Unscheduled Maintenance
  1. Clean measuring chamber
     a. Dependent on substances contained in the water
  2. Check Zero Point
     a. Dependent on substances contained in the water
  3. Check Gradient
     a. At least once per year

PART 2 PRODUCTS

2.1 Manufacturer
- A. Hach-Lange GmbH, Berlin, Germany
  1. Ultraturb sc Basic/Plus/Seawater Turbidimeter

2.2 Manufactured Unit
- A. The Ultraturb sc Turbidimeter consists of an 860nm LED light source, detection system, and internal light trap. Sample chamber wiper available for *plus* and *seawater* versions.

2.3 Equipment
- A. The Ultraturb sc functions when attached to Hach model sc200 or sc1000 controllers only. (Additional specifications can be found in the CSI documents for these particular controllers)
- B. The Ultraturb sc turbidimeter operates continuously.
- C. The Ultraturb sc turbidimeter provides user selectable bubble rejection, alarm and controller output hold, and self-test diagnostics.
- D. The sc200 controller is capable of functioning with one or two Ultraturb sc turbidimeters; the sc1000 controller is capable of functioning with up to eight Ultraturb sc turbidimeters.
- E. Wetted materials as follows:
  1. Measuring window:
     a. Quartz
  2. Measuring Chamber:
     a. Noryl GFN2
  3. Wiper axle:
     a. Stainless Steel 1.4571
  4. Wiper arm (*seawater* version only):
     a. Titanium Alloy
  5. Wiper profile
     a. Silicone

2.4 Components

A. Standard Equipment
   1. Ultraturb sc sensor with appropriate cable length
   2. User Manual
   3. Factory Test Certificate
   4. Accessory Set
   5. Wiper Set (only for *plus* and *seawater* versions)
B. Dimensions: 9.9 x 9.4 x 4.3 in. (250 x 240 x 110 mm)
C. Weight: 3.3 lbs (1.5 kg)

2.5 Optional Accessories

A. Certified Verification Module Dry Standard (available individually in 0.6, 1.5, 6, 15, or 25 FNU)
B. Extension Cable
C. Filters for Zero Point Calibration
D. Formazin Turbidity Standard

PART 3 EXECUTION

3.1 Preparation

1. Mounting
   a. Wall mount only
2. Sample inlet
   a. 13 mm ID tubing
3. Drain
   a. 13 mm ID tubing

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