PART 1  GENERAL

1.1 Section includes

A. Digital controller for digital sensors.

1.2 Measurement Procedures

1. Change sensors connected to the controller by unplugging and plugging sensors as necessary.
2. The controller accepts two sensor inputs from the following digital sensors in any combination.
   a. Hach LDO Luminescent Dissolved Oxygen Sensor
   b. Hach 5740 sc Membrane Dissolved Oxygen Sensor
   c. Hach pHD sc Differential pH and ORP Sensors
   d. Hach Digital PC sc and RC sc Combination pH and ORP Sensors
   e. Hach 3700 sc Electrodeless Conductivity Sensor
   f. Hach 3400 sc Contacting Conductivity Sensor
   g. Hach Nitratx sc Nitrate Sensor
   h. Hach Solitax sc Turbidity and Suspended Solids Sensor
   i. Hach 1720E Turbidimeter
   j. Hach FilterTrak 660 sc Laser Nephelometer
   k. Hach Amtax sc Ammonia Analyzer
   l. Hach Phosphax sc Phosphate Analyzer
   m. Hach Surface Scatter 7 sc High Range Turbidimeter
   n. Hach Evita Insitu 4100 sc Ammonium and Orthophosphate Sensors
   o. Hach 9184 sc Free Chlorine Amperometric Sensor
   p. Hach 9185 sc Ozone Amperometric Sensor
   q. Hach 9187 sc Chlorine Dioxide Amperometric Sensor
   r. Hach NH4D sc Ammonium Sensor
   s. Hach Sonatex sc Sludge Level Probe
   t. Hach UVAS sc SAC sensor

1.3 Alternates

A. Multi-parameter controllers that require field change-out of boards and/or e-proms are unacceptable.

1.4 System Description

A. Performance Requirements
   1. Accuracy:
      a. Less than 1 ppm: ± 0.1 ppm
      b. Greater than 1 ppm: ± 0.2 ppm
   2. Repeatability: ± 0.05 ppm
   3. Response time:
      a. Less than 40 seconds to 90% at 20 °C
      b. Less than 60 seconds to 95% at 20 °C

1.5 Certifications

A. General Purpose CSA/CSA_NRTL and FM (UL Pending)
B. Class 1, Div 2 Groups A thru D CSA/CSA_NRTL and FM (UL Pending)
C. EMI/RIF Conformance Exceeds US and meets European standard for conducted and radiated emissions and immunity.
D. Certified CE compliant for applications as specified by EN 50081-1 for emissions and EN 50082-2 for immunity.
1.6 Environmental Requirements

A. Operational Criteria
   1. Temperature: 32.0 to 140.0 °F (0.0 to 60.0 °C)

1.7 Warranty

A. Warranted for two years from date of shipment from manufacturers defects.

1.8 Maintenance Service

1. Clean controller keypad

PART 2 PRODUCTS

2.1 Manufacturer

A. Hach Company, Loveland, CO
   1. Hach Model sc100 Digital Controller

2.2 Manufactured Unit

A. The sc100 controller is microprocessor-based and is housed in a 1/2 DIN, NEMA 4X enclosure, rated IP66.
B. Connections for Hach digital sensors.

2.3 Equipment

A. The sc100 operates using 90 to 130 Vac or 180 to 230 Vac, 50/60 Hz power, 10 VA maximum.
B. The sc100 uses a menu-driven operation system.
C. The display of the sc100 is graphic dot matrix LCD with 128 x 64 pixels and LED backlighting.
D. The sc100 is equipped with temperature compensation.
E. The sc100 can support up to two probes.
F. The sc100 has a data logger with RS-232 capability.
G. Three electromechanical SPDT relays (Form C), user-configurable contacts rated 100 to 230 Vac, 5 Amp @ 30 Vdc resistive maximum, UL rated.
H. Two analog 4-20 mA outputs and/or optional selectable digital I/O, maximum impedance 500 Ohms.
I. Alarms
   1. Low alarm point
   2. Low alarm point deadband
   3. High alarm point
   4. High alarm point deadband
   5. Off delay
   6. On delay
J. Controls
   1. High/low phasing
   2. Setpoint
   3. Deadband
   4. Overfeed timer
   5. Off delay
   6. On delay
K. Communication
   1. RS-232 (optional)
   2. RS-485 (MODBUS): Advanced communications/networking with PLC or SCADA system directly from analyzer.
L. All user settings of the sc100 are retained indefinitely in memory (non-volatile, EEPROM).

2.4 Components

A. Standard equipment:
   1. Controller
   2. Mounting hardware

B. Dimensions
   1. 1/2 DIN
   2. Height: 144 mm (5.7 in.)
   3. Width: 144 mm (5.7 in.)
   4. Depth: 150 mm (5.9 in.)

C. Weight: 3.5 lbs. (1.6 kg)

2.5 Accessories

A. Sun shield
B. RS-232 MODBUS output card
C. RS-485 MODBUS output card

PART 3 EXECUTION

3.1 Preparation

A. Mount on rail, panel, pipe, or wall.
B. Sensor to analyzer distance: 300 m (985 ft.)

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

END OF SECTION