PART 1 GENERAL

1.1 Section includes:

A. Sodium process analyzer for continuous monitoring of sodium in water.

1.2 Measurement Procedures

A. The sodium analyzer shall be continuous monitoring 1, 2 or 4 channel using ion selective electrode measurement method after pH conditioning and temperature compensation.

1.3 System Description

A. Performance Requirements

1. Measurement Range

a. Analysers without cationic pump: 0.01 ppb to 10,000 ppb

b. Analysers with cationic pump: 0.01 ppb to 200 ppm

2. Detection Limit

a. 0.01 ppb

3. Accuracy

a. Analysers without cationic pump:

* 0.01 ppb to 2 ppb: ± 0.1 ppb
* 2 ppb to 10,000 ppb: ± 5%

b. Analysers with cationic pump:

* 0.01 ppb to 40 ppb: ± 2 ppb
* 40 ppb to 200 ppm: ± 5%

4. Precision

a. <1.5% of reading or < 0.02 ppb, whichever is greater within 10°C (50°F) sample difference

5. Response time at T>90%

a. From 0.1 ppb to 10 ppb, T90 ≤ 3 minutes, T95 ≤ 4 minutes

b. From < 1ppb to 100 ppb, T90 < 2 minutes, T95 < 3 minutes (about 150s)

1.4 Certifications

A. CE compliant for conducted and radiated emissions CISPR 11 (Class A limits), EMC Immunity EN 61326-1 (Industrial limits), and EN 61010-1

B. General Purpose UL/CSA 61010-1 with cETLus safety mark

C. IP65 rating for PCBA Housing (Panel version)

D. NEMA 4 / IP65 (Enclosure version)

E. RCM

F. KC

G. EAC

H. CB

1.5 Environmental Requirements

A. Operational Criteria

* 1. Storage Temperature: -20 to 60 °C (-4 to 140 °F)
  2. Operating Temperature: 5 to 50 °C (41 to 122 °F)
  3. Relative Humidity: 10 to 80 %, non-condensing

1.6 Warranty

Warranted from manufacturer defects for two years (Europe) or one year (all other geographies) from date of shipment.

1.7 Maintenance and Service

A. Scheduled Maintenance

1. Weekly

a. Calibration of the instrument

2. Every 3 months

* + - 1. Refill calibration and reactivation solutions
      2. Refill electrolyte solution
      3. Refill conditioning solution (non-cationic applications)

3. Annually

* + - 1. Temperature calibration
      2. Reagent Tubing
      3. Replace electrode
      4. System check up (to be performed by Hach service group)
      5. External audit (to be performed by Hach service group)

4. Every 2 years

a. Solenoid valves change

1. Unscheduled Maintenance

1. Depending on sample composition, sample cells, electrodes and valves may need more frequent cleaning

PART 2 PRODUCTS

2.1 Manufacturer

A. Hach Water Quality Analytical Instruments (SHANGHAI) Co., Ltd.

Room 2645, 2/F, No.2001 North Yanggao Road (Zone F), Pilot Free Trade Zone, Shanghai, China

2.2 Manufactured Unit

A. The NA5600 sc Sodium analyzer consists of a microprocessor controlled analyzer designed to continually monitor concentration of Sodium (Na+) in a sample stream. The analyzer also has the capability to intake grab samples for internal measurement.

2.3 Equipment

A. Analyzer

* + - 1. The display screen shall be a colored 5.7” LCD screen, and shall include a dashboard view, with measurements recent calibration information, reagent status, and Prognosys indicators.
      2. The display screen shall be capable of graphing all available parameters on a scalable time.
      3. The analyzer shall be capable of a user selectable measurement cycle between 5 to 120 minutes (Single Channel).
      4. The analyzer must operate using 100-240 VAC, 50/60 Hz power.
      5. The analyzer must be able to conduct 2-point calibration using standards.
      6. Six electromechanical, UL rated, SPDT relays (Form C) are provided for user-configurable contacts rated at 5A, 250 VAC maximum.
         1. The following can be programmed:

Alarm

Warning

Scheduler

Feeder control

Event control

Specific event alarm (defined in analyzer)

* + - * 1. The following parameters can be assigned to a relay:

Sodium Measurement

* + - 1. Six isolated analog 0-20 mA or 4-20 mA outputs are provided with a maximum impedance of 600 ohms.
         1. The following can be programmed:

Controls:

Linear

Bi-linear

Logarithmic

PID

* + - * 1. The following parameters can be assigned to a 0-20mA or 4-20mA output:

Sodium Measurement

* + - 1. The analyzer shall have Prognosys capability to provide self and predictive diagnostics and provide preventive maintenance alerts and reminders
      2. The analyzer shall provide the user with built in help screens
      3. Sample shall be delivered to the analyzer at the pressure of 3–87 psi to preset pressure regulator
      4. The analyzer shall provide separate discharge lines for unchanged (bypass) and contaminated sample (waste)
      5. Software updates and data extraction shall be completed via an SD card
    1. Reagents and Standards

1. The analyzer shall have reagent and calibration solution with minimum cost of ownership through:

* + - 1. Constant buffering capacity from a highly absorbent cartridge plunging down to the bottom of the reagent bottle,
      2. Choices for conditioning reagent including ammonia (NH3), Diisopropylamine (DIPA),
      3. Nonproprietary reagents and fast bottle substitution,
      4. Reagent autonomy of minimum 50 days (Non-cationic application)
      5. No use of forcing gases or permeation tubing or pH electrode,
      6. No request for manual rejuvenation (HF etching) of electrode,
      7. Injection of calibration solution with solenoid pumps

2.4 Components

1. Standard Equipment
   1. NA5600sc Sodium Analyzer
   2. Installation Kit
   3. Installation Manual
   4. Operations Manual
   5. Maintenance and Troubleshooting Manual

1. Dimensions (H x W x D):

a. Analyzer with enclosure: 68.1 x 45.2 x 33.5 cm (26.8 x 17.8 x 13.2 in.)

b. Analyzer without enclosure: 68.1 x 45.2 x 25.4 cm (26.8 x 17.8 x 10.0 in.)

1. Weight:
   * 1. Analyzer with enclosure: 20 kg (44.1 lb) with empty bottles, 21.55 kg (47.51 lb) with full bottles
     2. Analyzer without enclosure: 14 kg (30.9 lb) with empty bottles, 15.55 kg (34.28 lb) with full bottles
2. Power:

The analyzer must operate using 100-240 VAC, 50/60 Hz power

2.5 Optional Accesories

1. Annual Maintenance Kit
2. Sample Filtration Kit
3. Modbus Module
4. HART Module
5. Profibus Network Card
6. US Power Cord Kit
7. EU Power Cord Kit
8. Static heat exchanger system capable 1-4 channels absorbing changes of heat

PART 3 EXECUTION

3.1 Preparation

1. Mounting

* + - 1. Panel mounting (Panel Version and Enclosure Version)
      2. Wall mounting (Enclosure Version)
      3. Table mounting (Enclosure Version)

2. Sample Inlet

a. Simple fittings for 6 mm O.D. tubing or ¼" O.D. in PE-low density combined with the tubing ø6mm - ø¼" adapter (HACH P/N 09245=A=8300). ¼" OD in PHED-PTFESS as option

3. Drain Outlet

a. Fitting, 1/2” stem OD, 11/16 OD x 1/8 W drain tubing (HACH P/N LZX278)

4. Sample Flow

a. 6 to 9 L/hour

5. Sample Pressure

a. 0.2 to 6 bar (3 to 87 psi)

6. Sample Temperature

a. 5 to 45 °C (41 to 113 °F)

3.2 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. a. General contractor
        1. Electrical contractor
        2. Hach Company factory trained representative
        3. Owner’s personnel
        4. Engineer

3.3 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