

PART 1 GENERAL

- 1.1 Section includes:
- A. Built in predictive diagnostics capability which increases available operation time. The predictive diagnostics produces alerts for upcoming maintenance tasks by monitoring the instrument's internal components and tracking service requirements. When connected to a properly equipped controller the controller will display status indicators for each sensor with predictive diagnostics capability.
- 1.2 Measurement Procedures
- A. The predictive diagnostic software displays indicators for measurement health and service requirements on the controller display
- 1.3 Alternates
- A. Controller & instruments that do not have predictive diagnostic capabilities are unacceptable
- 1.4 System Description
- A. Performance Requirements
 1. Overall status of instrument performance is displayed as a percentage value via a measurement indicator
 2. A measurement indicator categorizes the health of the instrument into three color-code zones:
 - a. Green zone: >75%
 - b. Yellow zone: 50-75%
 - c. Red zone: <50%
 3. Overall status of instrument performance is composed of specific measurement indicator inputs, each with their own percentage value
 4. The total measurement indicator percentage value is a compilation of 5-15 sensor driven variables evaluated based on a patent protected methodology
 5. Users can view individual sensor driven inputs including descriptions and status for the measurement indicator
 6. Overall time remaining until maintenance tasks are due is displayed in days
 7. A service indicator which categorizes the time remaining into three color-code zones:
 - a. Green zone: >7 days (adjustable from >7 to >14 days)
 - b. Yellow zone: <7 to 2 (adjustable from <7 to <14 days)
 - c. Red zone: <1 day
 8. The total service indicator percentage value is a compilation of 5-15 sensor driven variables evaluated based on a patent protected methodology
 9. Users can view individual sensor driven inputs including descriptions and status for the service indicator
- 1.5 Certifications
- A. EMC: CE compliant for conducted and radiated emissions CISPR 11 (Class A limits), EMC Immunity EN 61326-1 (Industrial limits)
 - B. Safety: General Purpose UL/CSA 61010-1 with cTUVus safety mark
 - C. Australian C-TICK and Korean KC Markings
 - D. FCC ID QIPMC56/IC ID 267W-MC56
 - E. IP65 dust and water ingress ratings
- 1.6 Environmental Requirements
- A. Operational Criteria for the Prognosis communication card
 1. Working temperature: 0 to 50°C (32 to 122°F)

2. Storage temperature: -25 to 85 °C (-13 to 185°F)
3. Humidity Requirements: 0 to 95% relative humidity, non-condensing

1.7 Warranty

- A. Warranted for 12 months from the date of shipment from manufacturer's defects

1.8 Maintenance Service

- A. Unscheduled Maintenance
 1. Firmware updates as required by the manufacturer

PART 2 PRODUCTS

2.1 Manufacturer

- A. Hach Lange GmbH, Berlin, Germany

2.2 Manufactured Unit

- A. The communication card is available with the following power requirements
 1. 100-230 V AC
- B. The communication card uses a menu driven operation system
- C. The communication card indicator readings are displayed on and LED controller screen
- D. The communication card shall have worded operation menus in 19 languages
- E. The following can be programmed on the communication card
 1. Times remaining for upcoming maintenance tasks that determine the boundaries for the yellow zone on the service indicator bar
 2. Blink mode criteria for the service indicator
 3. Blink mode criteria for the measurement indicator

2.3 Equipment

- A. Materials
 1. Processor: Pentium®1, MMX compatible, 500 MHz clock rate
 2. Flash memory: 2 GB compact flash card
 3. Internal working memory: 256 MB DDR-RAM
 4. Interface: RJ 45 (Ethernet), 10/100 MBit/s
 5. Diagnostic LEDs: Power, LAN speed, LAN activity, TC status, flash access
 6. Expansion slot: Compact flash type II slot with ejection mechanism
 7. Internal clock: Battery-buffered clock for time and date (battery can be replaced)
 8. Operating system: Microsoft Windows®2 CE or Microsoft Windows Embedded Standard
 9. Control software: TwinCAT PLC Runtime or TwinCAT NC PTP Runtime
 10. System bus: 16 Bit ISA (PC/104 standard)
 11. Power supply: Via system bus (through power supply module CX1100-0002)

2.4 Components

- A. Standard Equipment
 1. Diagnostic communications card
 2. Controller
 3. Mounting Hardware for wall, pipe and panel mounting
- B. Dimensions: (50 x 95 x 19) mm³
- C. Weight: 24.7 grams

2.5 Optional Accessories

- A. Digital sensors compatible with the digital communications card
 - 1. Ammonium ion-selective electrode
 - 2. Nitrate ion-selective electrode
 - 3. Ammonium and nitrate ion-selective electrode
 - 4. Nitrate Analyzer
 - 5. Phosphate Analyzer
 - 6. Ammonium Analyzer
 - 7. Turbidity and suspended solids probe
 - 8. Sludge level probe
 - 9. Luminescent dissolved oxygen probe
 - 10. Silica Analyzer
 - 11. Phosphate Analyzer

PART 3 EXECUTION

3.1 Preparation

- 1. The diagnostic communications card mounted in the PLC cabinet on DIN rail

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