

## PART 1 GENERAL

- 1.1 Section includes:
  - A. Multi parameter chlorine analyzer controller for monitoring and chemical control of free or total chlorine, conductivity, pH, ORP, temperature, flow and pressure
- 1.2 Measurement Procedures
  - A. The method of chlorine measurement will be by automated amperometric analysis.
- 1.3 System Description
  - A. Performance Requirements
    1. Chlorine
      - a. Type:  
Passive-operated sensor with gold cathode & silver/silver chloride anode
      - b. Measurement range:  
0.01-2, 0.05-10 or 5-200 mg/L (ppm) free or total chlorine
      - c. Resolution:  
0.01 mg/L (ppm)
      - d. Repeatability:  
1% of span
      - e. Drift  
1.5% per month
    2. Flow
      - a. Type:  
Inductive proximity switch
      - b. Measurement range:  
0-1,0000 m<sup>3</sup>/hr (0-11,000 GPD)
      - c. Accuracy:  
3-5% FS
      - d. Repeatability:  
0.01
    3. Pressure
      - a. Type:  
Pressure membrane
      - b. Measurement range:  
0-10 bar (0-145 psi)
      - c. Working pressure:  
0.3-1 bar (4.4-14.5 psi)
      - c. Accuracy:  
3% FS
      - d. Repeatability:  
0.05 bar (0.72 psi)
- 1.4 Certifications
  - A. ASTM, CE and UL approved
  - B. General Purpose UL/CSA 61010-1 compliant for conducted and radiated emissions CISPR 11 (Class A limits), EMC Immunity EN 61326-1 (Industrial limits), and EN 61010-1
  - C. IP65 dust and water ingress protection rating
- 1.5 Environmental Requirements
  - A. Operational Criteria
    1. Flow rate
      - a. 9 to 16 GPH (35 to 60 LPH)
    2. Pressure
      - a. 4.4 to 14.5 psi (0.3 to 1 bar)
    3. Operating temperature
      - a. Water temperature at 41°F to 113°F (5°C to 45°C)

- b. Ambient temperature 35°F to 131°F (1.8°C to 55°C)
- 4. Operating humidity
  - a. 1 to 90% non-condensing

#### 1.6 Warranty

- A. The product includes a 1-year warranty from the date of shipment

#### 1.7 Maintenance and Service

- A. Annual and Scheduled Required Maintenance
  - 1. Every 6-12 month's refill of electrolyte and membrane replacement on the chlorine probe based on water quality
- B. Unscheduled Maintenance
  - 1. Incoming water filter cleaning frequency is determined by the condition of the feed water
  - 2. Perform calibration and cleanings of all sensors as necessary

## PART 2 PRODUCTS

#### 2.1 Manufacturer

- A. Chemical Injection Technologies
  - 1. Model WATERGUARD® WG-602 Water Quality Analyzer for free or total chlorine, conductivity, pH, ORP, temperature.

#### 2.2 Manufactured Unit

- A. The WG-602 Water Quality Analyzer consists an IP65 enclosure, electronic control board module, required sensors in each flow cell, flow proximity switch, incoming water pre-filter, pressure regulator with gauge, solenoid valves for water control within the unit

#### 2.3 Equipment

- A. The analyzer electronics shall be in an IP65 rated dust and water protective enclosure
- B. The analyzer shall be capable of measuring free or total chlorine, conductivity, pH, ORP, temperature, flow and pressure without changing out of installed components
- C. Data measurements and alarms shall be displayed and logged in the data logger and transmitted via Modbus or Ethernet communication system
- D. System shall have remote monitoring and control capability via Modbus or Ethernet communication
- E. The system shall include flow cells for housing free or total chlorine, pH, temperature and ORP sensors
- F. The analyzer shall have Real Time Clock (RTC) standard (3.6V Lithium battery) in case of power failure.
- G. Measurements shall be taken every cycle per user's configuration

#### 2.4 Components

- A. Standard Equipment
  - 1. WG-602 analyzer
  - 2. Machined acrylic flow cells
  - 3. 130 micron incoming water pre-filter (external mounting)
  - 4. Chlorine sensor, free or total, pre-filled with electrolyte
  - 5. Flow proximity switch
  - 6. Mounting brackets
  - 7. User manual
- B. Optional Equipment
  - 1. pH sensor with electronic module
  - 2. Temperature sensor with electronic module
  - 3. ORP sensor with electronic module
  - 4. Conductivity (inductive or conductive) kit for external mounting (conductivity electronic module, meter with cable, flow cell, 150 mm flat cable, ½" fitting)
  - 5. 110 or 220 Volt power cord
- C. Dimensions & Weight:
  - 1. Controller: 15 x 7 x 5 inches (340 x 220 x 120 mm)

2. Mounting Board: 31.5 x 21.7 x 0.2 inches (800 x 550 x 5 mm)
3. Installed Weight (approximate): 22 lbs (9 kg)
4. Shipping box dimensions (approximate): 35 x 26 x 10 inches (890 x 660 x 254 mm)
5. Shipping weight (approximate): 36 lbs. (16.3 kg)

### PART 3 EXECUTION

#### 3.1 Preparation

1. Mounting
  - a. The WG-602 analyzer shall be wall or panel mounted. System shall to be installed vertical 90° to the ground
2. Inlet
  - a. (1/4 inch) tubing - 6 mm
3. Drain
  - a. (1/4 inch) tubing - 6 mm
4. Sampling outlet
  - a. (1/4 inch) tubing - 6 mm
5. Power
  - a. 110 or 220 Volt (with optional power cord)

#### 3.2 Installation

- A. Customer shall install the analyzer in strict accordance with the manufacturer's instructions and recommendation.
- B. The product sales representative or qualified technician will include a half-day of start-up training if requested.
  1. Customer will schedule a date and time for start-up.
  2. Customer may require the following people to be present during the start-up procedure.
    - a. General contractor
    - b. Electrical contractor
    - c. Chemical Injection Technologies factory trained representative
    - d. Owner's personnel
    - e. Engineer

END OF SECTION