

# ResidualHQ<sup>®</sup>

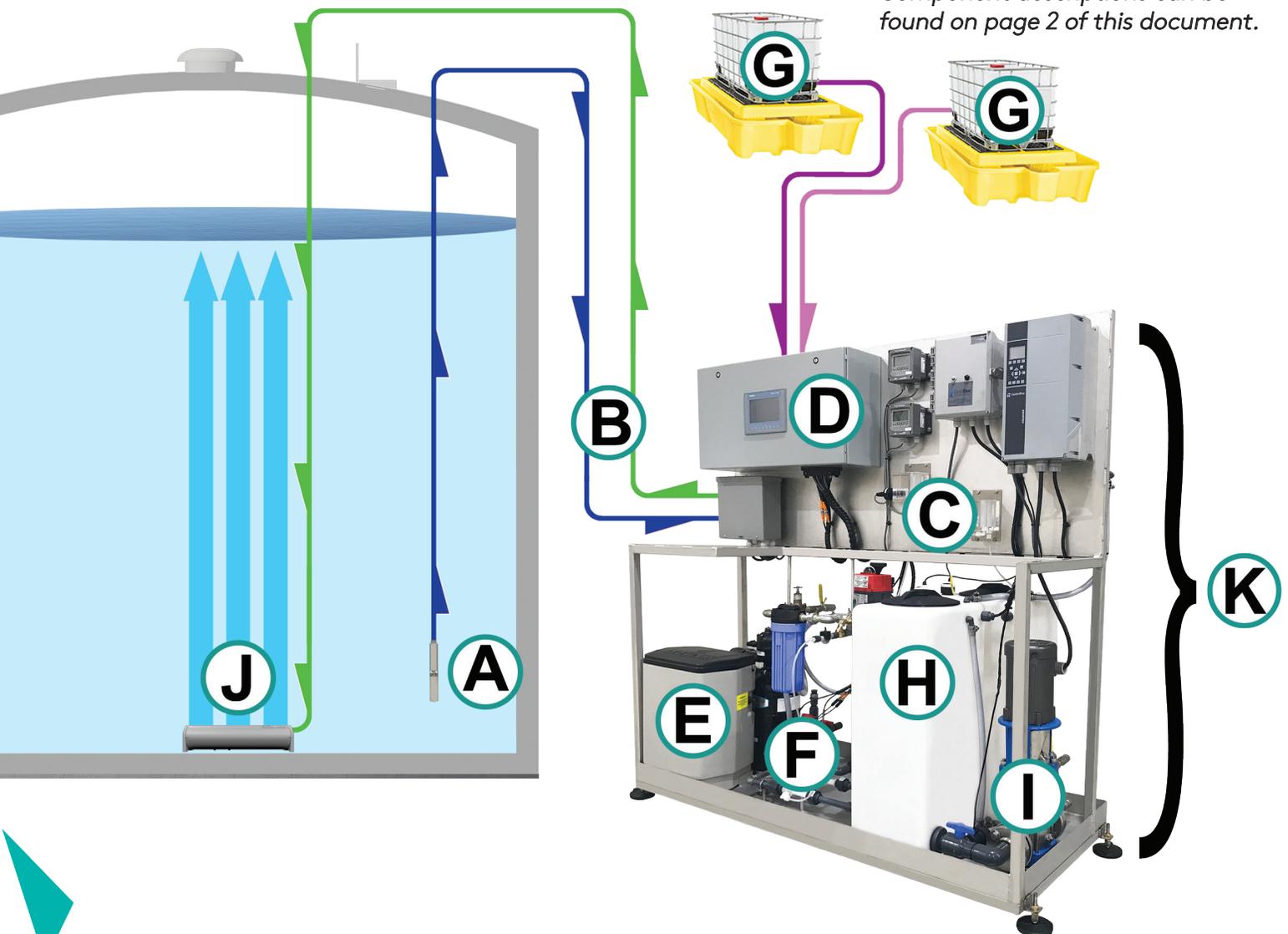
## Automated Disinfectant Control

### What is the ResidualHQ?

The ResidualHQ<sup>®</sup> is a continuous operation disinfectant control system utilizing simple & proven technologies in harmonious operation to provide a complete solution for your disinfectant residual management. This component overview will help identify and briefly describe the major components of the ResidualHQ<sup>®</sup> system.

- A.** In-Tank Submersible Sample Pump
- B.** Sample & Delivery Lines
- C.** Amperometric Chlorine Sensor(s)
- D.** Controller
- E.** Water Softener
- F.** Injector Assembly
- G.** Bulk Disinfectant Storage
- H.** Pre-Mix Feed Tank
- I.** Return Delivery Pump
- J.** In-Tank Mixer(s)
- K.** Workstation

*Component descriptions can be found on page 2 of this document.*



# Component Overview

(continued)

## ResidualHQ<sup>®</sup> Main Component Descriptions

**A. In-Tank Submersible Sample Pump-** Chlorine residual monitoring does little good if samples are not continuously available or taken from a representative location. Utilizing a submersible pump located in the tank water column, the ResidualHQ<sup>®</sup> will sample water from the location best suited for each application. The ResidualHQ<sup>®</sup> also utilizes this pressurized motive flow to automatically flush & clean injection components as well as dilute & mix disinfectant.

**B. Sample & Delivery Lines-** Only two lines are required: the Sample Line from the tank and the Delivery Line to the tank. These lines are never left full of stagnant disinfectant due to continuous self-cleaning of the system. The ResidualHQ<sup>®</sup> simply circulates water used for sample collection back to the tank whenever there is no active disinfectant injection. The Workstation comes standard with FNPT connections for easy and flexible attachment.

**C. Amperometric chlorine sensor(s)-** Continuous monitoring and logging of Total and/or Free Chlorine residual concentrations utilizing reagent-free, low-maintenance, amperometric membrane sensors.

**D. Controller-** The ResidualHQ<sup>®</sup> Controller coordinates system actions for simplified residual monitoring and disinfectant injection control. It can also track disinfectant usage, control tank mixers, and accept external or existing sensor data. Local and remote monitoring & control are made available through integrated touchscreen, tactile buttons, and/or Modbus protocols.

**E. Water Softener-** Efficient, non-electric operation means less waste and salt use. Utilizes motive water provided by the sample pump to supply softened water for rinsing and injection. This is a proven technique to mitigate scaling issues commonly associated with vacuum injection.

**F. Injector Assembly-** A simple collection of solenoid valves and venturi injectors work together to control soft water use and direct chemical feeds. Injection components are automatically flushed and chemical feed rates & ratios are electronically controlled. Chemical injection is accomplished with few moving parts and no concentrated chemical under pressure.

**G. Bulk Disinfectant Storage-** Bulk disinfectant storage tanks or secondary containments do not come standard; however, the ResidualHQ<sup>®</sup> has been designed to utilize a large variety of bulk disinfectant storage options either already existing on location or available from your chemical supplier. A 1/2" or larger gravity feed line from each respective storage tank is all that is required to connect to the ResidualHQ<sup>®</sup>.

**H. Pre-Mix Feed Tank-** Patent pending. Concentrated disinfectant is safely and energetically diluted at the ResidualHQ<sup>®</sup> workstation before being delivered to the tank for distribution. Primary injection components are now easily accessible requiring no tank entry.

For chloraminated systems, concentrated disinfectants are not exposed to one another. They are instead diluted & sequentially mixed at configurable ratios ensuring consistent chloramine formation and more effective residual boosting.

**I. Return Delivery Pump-** Once the disinfectant chemical has been diluted and effectively mixed, the solution is delivered to the tank at considerably lower concentrations (in the case of sodium hypochlorite, 12.5% bulk chemical is typically reduced to a maximum of 0.15%). The "Pre-Mixed" disinfectant is delivered to the inlet of an in-tank mixer where it is diluted further before distribution into the water column. This eliminates hotspots and ensures disinfectant is being effectively used.

**J. In-Tank Mixer(s)-** Mixers are important water quality tools and are critical components to effectively distribute and circulate disinfectant throughout the water column. This leads to more efficient chemical use and more consistent disinfectant residual levels.

**K. Workstation-** The Workstation is comprised of a number of system components allowing for convenient integration, operation, and maintenance.

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