

The **chemEz** is a water treatment control system designed for controlling and monitoring cooling tower water levels, managing dissolved solids, and automating chemical dosing. It provides easy user configuration, reduces guess-work, minimizes human intervention, and diminishes the reliance on the demand of trained chemical treatment technicians.

CONTROLLER

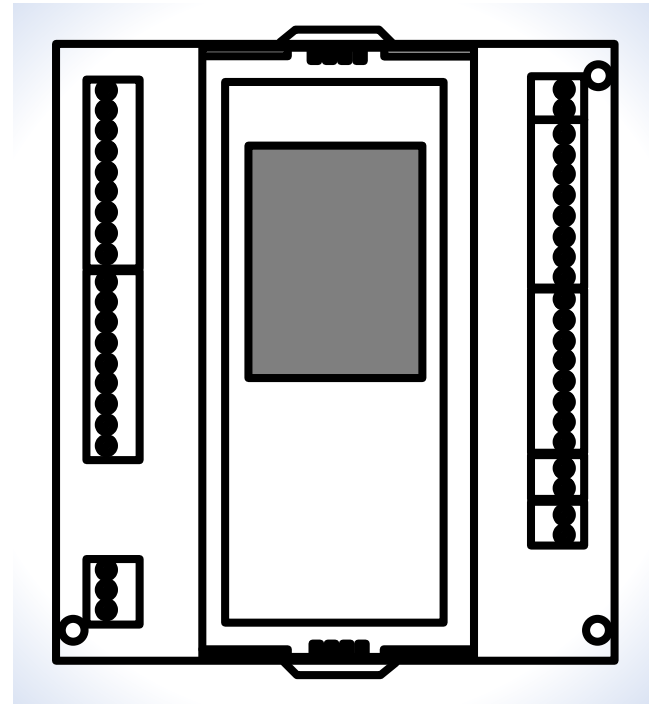
The **chemEz** equips operators with configurable, modular, and customizable control functions through an LCD. Peripheral devices can be terminated via hardwired inputs/outputs and/or integration via MODBUS.

- Pre-programmed and configurable
- Menu-driven LCD touch control panel
- Fully programmable with the ability to add features/sequences without updating hardware (customization available upon request).

COMMUNICATIONS

The **chemEz** can be standalone, integrated to a BACnet system and is capable of integrating MODBUS sensors.

- **Standalone:**
 - Configured and operated through LCD panel
- **BACnet MS/TP:**
 - BACnet Advanced Application Controller (B-AAC)
- **MODBUS:**
 - Requires MODBUS Expansion Module



CONTROL FUNCTIONS

The **chemEz** is factory enabled to operate a number of control functions listed when required peripheral devices are present. This allows for modular expansion to accommodate for cost constraints and allows cost-effective future expansion:

- Inhibitor Monitor & Control
 - *Directly track and dose scale dispersing and corrosion inhibiting chemicals.*
- Biocide Monitor & Control
 - *Use ORP feedback to maintain oxidizing biocide chemical blend above a minimum threshold to reduce bio-loads such as fungicide, bactericide, algacide, and molluscicide.*

- Bio-Dispersant Control
 - *Maintain clean surfaces by automatically dosing chemicals at a user-selected setpoint.*
- Conductivity Monitor & Control
 - *Maintain system Total Dissolved Solids (TDS) by bleeding basin water.*
- Water Level Monitor & Control
 - *Introduce fresh water to maintain proper levels as it is evaporated or bled off and drain for winterization.*
- Water Usage
 - *Actively meter water usage.*
- pH Monitoring & Alarming
 - *Actively track pH balance.*

- Chemical Container Refills
- Eductor System Assembly
- **Bio-Dispersant Chemicals:**
 - Dissolving Board
 - Chemical Bottle Refills
 - Eductor System Assembly
- **Conductivity Level:**
 - Conductivity Sensor (MODBUS enabled)
 - Control Valve (Bleed)
- **Water Level:**
 - Ultrasonic Level Sensor (MODBUS enabled)
 - Control Valve (Fill)
 - Control Valve (Drain)
- **Water Usage:**
 - Water Meter (Fill)
 - Water Meter (Bleed)
- **pH Monitoring & Alarming:**
 - pH Sensor (MODBUS enabled)
 - pH+ORP Sensor (MODBUS enabled)

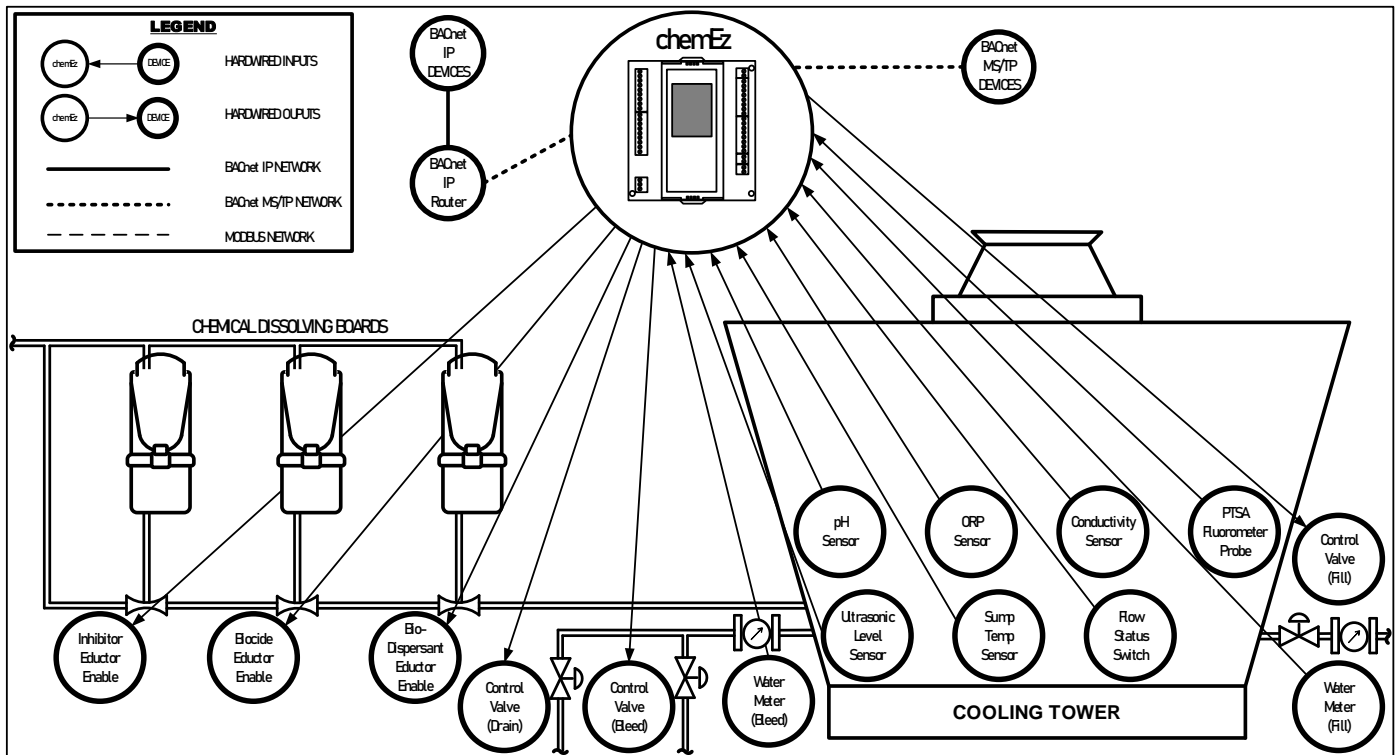
PACKAGES

- **Controller:**
 - chemEz
- **Add MODBUS Sensor(s):**
 - MODBUS Expansion Module
- **Inhibitor Chemicals:**
 - PTSA Fluorometer Probe (MODBUS enabled)
 - Dissolving Board
 - Chemical Disc Refills
 - Eductor System Assembly
- **Biocide Chemicals:**
 - ORP Sensor (MODBUS enabled)
 - pH+ORP Sensor (MODBUS enabled)
 - Dissolving Board

HARDWARE SPECS

- **Power Supply:** 24VAC, 5VA
- **LCD Display:** 2.8"
- **Binary Inputs:** 8BI
- **Analog Inputs:** 8AI
- **Binary Outputs:** 4BO with Hand / Off / Auto
- **Analog Outputs:** 6AO with Hand / Off / Auto and adjustable output signal knob
- **MS/TP Port:** Communication speed 9.6k, 19.2k, 38.4k, 76.8k BPS with auto select; MAX. length 1,200 meter
- **Environment:** 32F – 122F; 20 – 90%RH, non-condensing

CONTROL DIAGRAM



CONTROL DIAGRAM with MODBUS SENSORS

