

# CENTURION

## PLC Controlled Systems

In the Roman army, a Centurion™ was a commander of men, a field commander with direct charge and complete authority. Water King has designed a rugged, field tested controller for water softeners and filters. The unit has the following advantages:

- Full featured operations program
- Reliable, easily maintained, easily repaired hardware
- NEMA 4 enclosure

The Centurion™ program relies on the lead-lag sequence to control the steps necessary to regenerate multiple water softeners. Each softener has a flow meter with a computerized totalizer. The operator can set the volume of water to be treated by each softener to allow full utilization of the softening capacity of each softener (called demand regeneration). At low flows, the system is designed for the unit with the least capacity remaining to be the lead unit or first on line. As the flow increases, the

other units are brought into service based on demand (flow) and capacity remaining in each unit. As the flow decreases, all units in service remain in service until the lowest possible flow. This gives minimum leakage by operating at the least possible flow that still prevents channeling. Each unit has two set points, a minimum and a maximum or a lead and a lag. Demand regeneration allows maximum utilization of resin capacity thereby minimizing salt and rinse water requirements.

The Centurion™ has a full color operator interface with a 26-button panel. The operation screens are designed to be user friendly and easily programmed. The operator simply sets the unit capacities and flow rates – the Centurion™ does the rest.

The Centurion™ can operate either a valve nest or a bank of Task Master™ valves.

Water King incorporates manufactured products by Allen-Bradley. Allen-Bradley products can be serviced anywhere in the world thus minimizing downtime if repairs are needed. In addition Allen-Bradley has the best longevity in controller systems. A perfect match to Water King's longevity in the soft water business.

The Task Master™ valve has been modified to provide full position indication, when used with the Centurion. The Task Master™ valve / Centurion verifies all five softening cycles – service, backwash, brine, slow rinse and fast rinse.



**“FOR I AM A MAN UNDER AUTHORITY, HAVING SOLDIERS UNDER ME: AND I SAY TO THIS MAN, GO, AND HE GOETH; AND TO ANOTHER, COME, AND HE COMETH; AND TO MY SERVANT, DO THIS, AND HE DOETH IT.”**  
MATHEW 8:9 KJV

## CAT440.2

### PROGRAM CAPABILITIES ARE:

- Operate 1 to 4+ vessels
- Operate in lead-lag mode
- Timed brine cycle
- Full demand regeneration
- Flow and total volume readouts
- Take any tank out of service
- Manually regenerate any softener upon command

PLC - CENTURION™		
# Of Units Served	Part Number w / Task Master™	Part Number w / Nested
2	C-20	C-21
3	C-30	C-31
4	C-40	C-41

### STANDARDS

- Hoffman Panel: NEMA 4 FG enclosure, 20x16x8
- Allen-Bradley MicroLogix™ 1500 Controller with two communication ports and data logging capability
- 120 VAC Input, 24 VDC Output with 5 amp capacity
- Real Time clock
- Double pole double throw isolation relays for the Taskmaster™ Valves
- Data logger download Cable and software
- Memory Module
- Windows-Based software – (connection by serial connection or remote via modem)
- PanelView™ 300 Operator Interface

### OPTIONS

- Audible or visual alarm
- Data logging
- Remote access via modem
- Position indication for Task Master™ Valve
- Ability to reset volume until regeneration
- Manually sequence Task Master™ Valve
- All timing and sequencing by the computer – No mechanical timers

## CENTURION™ AND TASK MASTER™

The tried and true five cycle Task Master™ valve has just stepped into the new century. The Task Master™ has always been a rugged, reliable, easily repaired water softening and filtration valve. Previous generation of controllers sent a regeneration signal to the valve to begin timed cycling of the valve. With the Centurion™ the electromechanical timers have been eliminated. All timing, sequencing, and programming are done by the real time clock in the PLC. The electrical portion of the Task Master™ has been greatly simplified by elimination of the timer on each valve.

More importantly, **the Task Master™ / Centurion™ system now has full position indication.** The reliable positioning system using opposing switches operated by a cam remains. Position indication cams are now available. These provide positive feed back to the Centurion™. Position indication allows for error detection in valve sequencing. Position indication on a five cycle valve is an industry first.

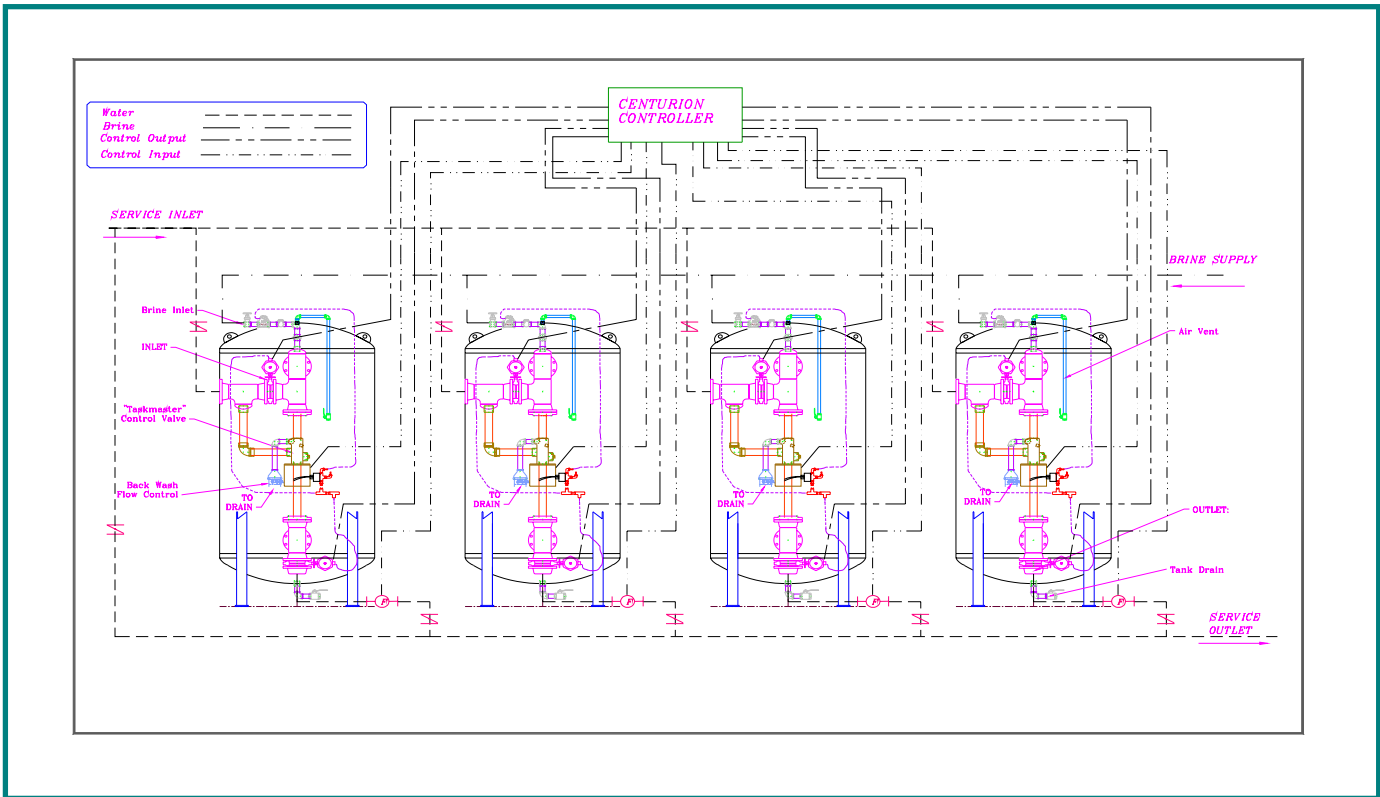
## CENTURION™ - VALVE NEST

A valve nest for a softener has six valves. These are controlled by a stager for each vessel. The Centurion™ provides demand regeneration, lead-lag unit sequencing, and independent brine control, for up to four softeners.

Water King can provide a valve nest using pneumatically or hydraulically operated diaphragm valves or electric valves depending on customer's requirements. Specific control of brining by PLC is included. An auxiliary contact is available for operation of a brine pump or brine feed valve.



## CAT 440.4



### Fourplex with Centurion PLC

- NOTES:**
1. CENTURION™ CAN OPERATE NOT ONLY MULTIPLE WATER SOFTENER SYSTEMS BUT ANY COMPLEX SYSTEM THAT INCLUDES MULTIPLE FILTERS, UV SYSTEMS, RO SYSTEMS, PUMPS, ECT.
  2. CUSTOM PROGRAMMING IS AVAILABLE.