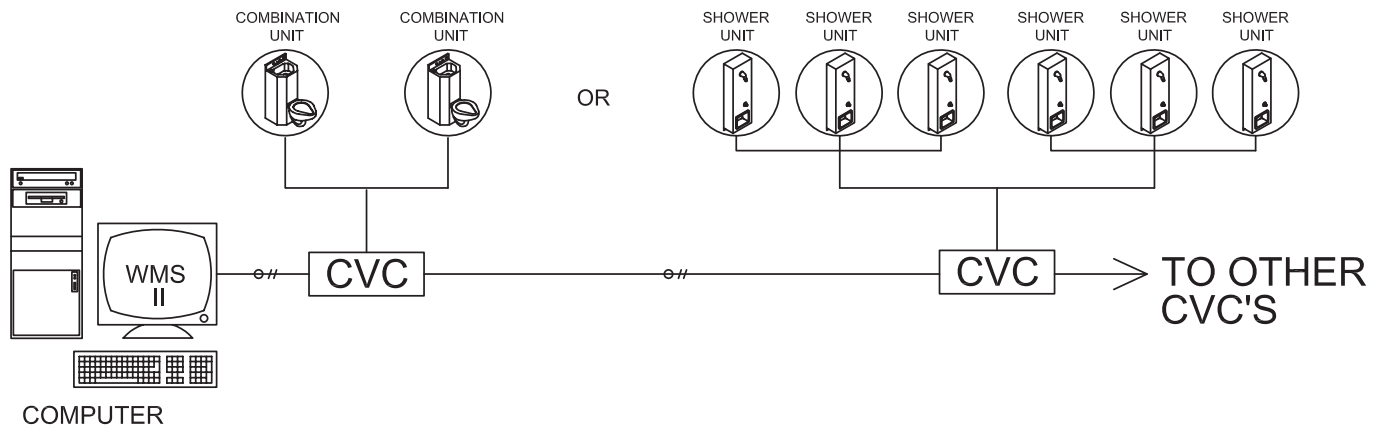


## WMS II Water Management System- Networked



### Recommended Specifications

Electronic water management system shall be:  
Willoughby Model: **WMS II**

Water management system shall be PC based and running on a Windows XP, Windows 7 or newer operating system. PC shall serve as the operator interface serving multiple individual trunks of networked Cell Valve Controllers.

Individual Cell Valve Controllers (CVC's) shall be located in the plumbing chase and shall control the operation of electronic lavatory valves, electronic shower valves and electronic-hydraulic flush valves. An option shall also be provided to control the operation of a master shut-off valve that provides water to an area of several cells or fixtures.

CVC's shall require 24 volts AC for operation and shall retain all memory of settings in the event of power interruption. System manufacturer shall supply 120/24 VAC step down transformers. Each CVC shall be capable of controlling up to 2 lavatory/toilet combination units (1 hot valve, 1 cold valve and 1 flush valve for each unit), 3 individual lavatories or up to 4 toilets with overflow sensing (6 toilets without overflow sensing) or combinations thereof for a total of 6 individual low voltage solenoid valves. CVC's shall be modular and capable of operating in a fully networked or stand-alone configuration.

A diagnostic light on the CVC indicates the presence of control power in the CVC. A flashing light indicates the computer in the CVC is operational. Another flashing light indicates network communication activity.

Valve output lights on the CVC shall provide the status of all valve outputs. An additional set of lights shall indicate the presence and type of any lockout condition on valve function.

Diagnostic push buttons on the CVC shall also be provided to enable maintenance personnel to activate valves and overflow functions from the plumbing chase.

Valve activation shall come from vandal-resistant stainless steel internally sealed push buttons. Push buttons shall require less than 5 pounds of force to activate. Push button housing shall be isolated from the low voltage wiring.

All solenoid valves shall be non-hold open and all metering times shall be independently adjustable. Metering time for each valve shall be adjustable from 1 to 60 seconds for each lavatory valve, 1 to 10 seconds for each flush valve and 1 second to 9 minutes and 59 seconds for each shower valve. Metering cycles shall be interruptible with a second push of the button. All the settings can either be set for a single fixture or a mass selection of all fixtures of the same type on the PC screen.

A programmable re-initiate delay feature for fixture functions shall be provided to control their amount of use to a preset threshold after which the function will be locked out for a preset period of time of up to four hours. A parallel pre-initiate delay feature shall also be provided to insert time between switch actuation and the subsequent valve actuation.

(CONTINUED ON BACK OF PAGE)



Configurable overuse limits shall be provided to control the amount of use of all fixture functions within a programmable time period of up to 24 hours. Overuse control shall be configurable to trigger only notification, latched lock out of the fixture function, or auto-limit of fixture function to prevent its overuse.

A fully networked system shall consist of CVC's in the plumbing chases and a PC workstation located in a control room which has a PC with a 15" or larger color monitor. Optional touch screen interface shall be available as an option.

The PC workstation shall display all fixtures and indicate their operations graphically in row and column format. An option to provide a representation of the facility floor plan may also be selected.

The workstation shall be capable of controlling up to 4 networks, each consisting of a maximum 127 nodes and up to 4,000 ft. of network wiring. Twisted 3-pair cable of CAT 3 rating shall be used for all network wiring (provided by others). Stand-alone CVC's not connected to a network shall be programmed via an optional portable device or programmed at the factory.

In the event of a loss of network communications or a loss of power, system timing parameters shall be retained in each CVC to allow fixtures to operate in the same way that they operated prior to the loss of power or the loss of network communications.

Supplied valve and switch cabling from the control board shall each be 8 feet with the option to easily add extensions if necessary for unique control mounting situations.

Note: Willoughby will require an electronic CAD file (DWG or DXF) of the facility floor plan identifying the fixtures to be controlled by the WMSII system.

#### 1.) Control System:

WMSII

#### 2.) Control Station:

Desktop PC

Standard Monitor (LCD)

Touch Screen (LCD) (additional cost)

Laptop PC

No PC (Stand-alone only)

#### 4.) Other Options:

Block Diagram Screen Layout (Standard)

Floor Plan Screen Layout (additional cost)

On-site Start-Up, Commissioning, and Training Session  
(must be scheduled 30 days prior to training and after complete installation and testing of the system)

Other \_\_\_\_\_

Other \_\_\_\_\_

#### THE NETWORKED SYSTEM SHALL BE CAPABLE OF:

- Enabling or disabling an individual fixture or an entire group of fixtures from the control station.
- Controlling the maximum number of simultaneous flushes (adjustable from 1 to 999) that can occur within a given time period (adjustable from 1 to 60 seconds).

#### (CONTINUED FROM BELOW):

- Automatically flushing a toilet after an adjustable period of non-use has passed to prevent trap from drying out and creating stagnate water.
- Allowing for remote actuation of fixtures from the control station
- Providing scheduled permit or lockout time periods per day for selected fixtures.
- Providing indication and reset capability of overflow alarms.
- Logging all valve activity chronologically including overuse and overflow occurrences.
- Providing 4 levels of security: view only, operator, supervisor, and administrator (Each level includes the functions of the previous lower level.)
- Providing an elapsed-time lock for a fixture to be dynamically locked for a specific period of time (adjustable from 1 minute - 4 hours)
- Providing an automatic actuation of fixture function at preset intervals (adjustable from 1 minute - 240 hours) (It can be used to remove all control from the fixture user and tie fixture function to regular timed intervals.)

##### ◦ View-only Security Level

- Move between display screens
- Observe fixture activity on screens
- Observe any loss of communications to fixture controllers
- Log into a higher security level

##### ◦ Operator Security Level

- Remote valve actuation
- Fixture lockout/reset
- Clear alarms (overflow and overuse)

##### ◦ Supervisor Security Level

- Set and adjust valve timing
- Set and adjust initiate and re-initiate delays
- Set and adjust permit (lockout) schedules
- Set and adjust overuse limits and responses
- Set alarm display options
- Turn on and set FlushGuard to limit simultaneous flushes
- Access fixture event log (if enabled by administrator)
- Use log files to analyze water-consumption history
- Enable and disable sound effects
- Access system user log file (if enabled by administrator)
- Optional selection of a 24 hour point at which all over-use counts will be reset

##### ◦ Administrator Security Level

- Create system user accounts with name, password, and security level defined
- Set and adjust network communication settings
- Enable and configure remote client connections to server
- Configure fixture event log files and user activity log files
- Set sound files to be used when sound feature is enabled

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