



Valves: 3303/3304 Retrofit: Air-Control To Master-Trol

RETROFIT MASTER-TROL WATER MANAGEMENT SYSTEM



3303 MASTER-TROL SYSTEM

Graphic May Show Some Available Options

Please visit www.acorneng.com for most current specifications

RETROFIT MASTER-TROL SYSTEM

The Retrofit Master-Trol Water Management System is versatile and intended to retrofit existing Air-Control valve bodies to Master-Trol system. The Electronic Valve Controller & system components together provide precise control, electronic water metering and visual indicators.

Retrofit valve assembly includes all components required to convert an Air-Control valve assembly to Master-Trol. Complete with solenoid valve assembly (Brass or Plastic), Pushbutton(s) if required, and station wires. Retrofit works with existing or optional new Master-Trol systems.

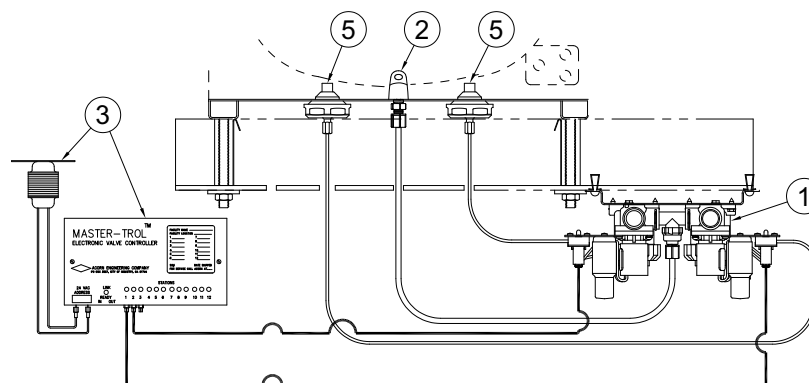
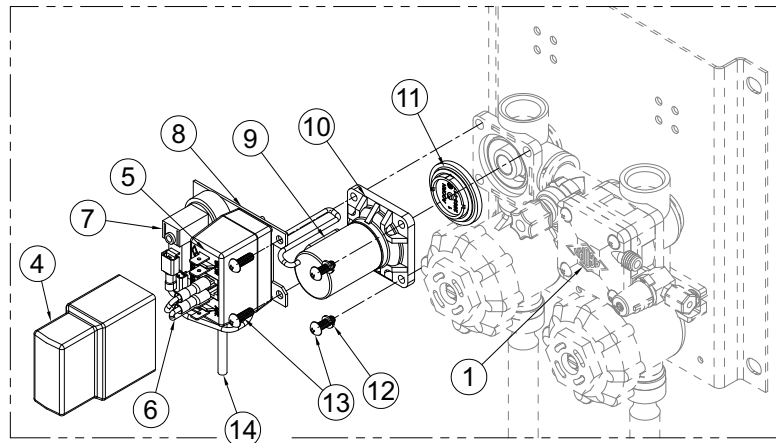
Each Electronic Valve Controller is capable of controlling 12 solenoids. Controllers are powered by a 24VAC, 50 VA, Class 2 UL/CSA listed transformer provided. Each Controller retains programmed settings in the event of power loss. The Controller can be preprogrammed at the factory to specified settings or programmed in the field with an optional computer or Master-Trol handheld programmer.

Versa-Link is an installer provided interface between an optional computer and Electronic Valve Controller(s). Each link can be up to 4,000 feet long and allows communication with up to 32 Electronic Valve Controllers for a combined capacity of 384 solenoids.

Optional Computers or handheld programmers are able to program and display data from each individual Controller or Versa-Link. Valve data from each Versa-Link can be displayed simultaneously on the optional desktop computer, allowing quick overview and programming of valves. Linking of the Controller to the computer is by others.

GUIDE SPECIFICATION - Add to fixture specification following model number selected:

For Water Valve Management: Provide and install the Acorn Master-Trol Water Management System Retrofit -EVS Electronic Valve System. System shall include Electronic Valve Controllers that are microprocessor driven and powered by 24 VAC 50 VA Class 2 UL/CSA listed transformer with a 3 amp fuse. Electronic Valve Controller is able to simultaneously direct up to 12 valves. An optional -CDT Desktop Server to be interfaced with 8 Versa-Links each capable of monitoring and controlling 384 solenoid valves for a total of 3,072 valves per system. Each Versa-Link can be up to 4,000 accumulated feet long. Programmed settings will be retained in Controller regardless of power loss. A slow-closing, anti-water hammer solenoid operated valve(s) shall be operated by means of vandal-resistant stainless steel pushbutton and momentary air switch. Optional piezo pushbuttons are available when 3303-PZ or 3304-PZ is selected in valve options. Wiring and connectors from desktop server to Electronic Valve Controllers are by others. 14 feet long station cables for connecting Electronic Valve Controller to valve assembly to be provided by Acorn. All connectors to be quick-disconnect plug type. All components must be installed per National Electrical Code (NEC) and local codes.



**MODEL #3304-PLS
ELECTRONIC VALVE SYSTEM
LAYOUT FOR LAVATORY FIXTURES**

NOTES:

- | | |
|--|--|
| 1. Existing Air-Control Valve, Plastic Body Shown Must Specify | 8. Branch Box Bracket |
| 2. Existing Bubbler | 9. 24 VAC Solenoid Assembly |
| 3. Electronic Valve Controller Includes 24VAC Transformer | 10. Solenoid Bonnet (Brass or Plastic), Must Specify |
| 4. Branch Box Boot Cover | 11. Water Diaphragm |
| 5. Air-Control Pushbuttons Shown, Must Specify | 12. #8 Lockwasher |
| 6. Branch Box Connector Wire | 13. #8-32 x 1/2" Long Phillips Screws |
| 7. Momentary Switch | 14. 3/16" O.D. x 3-3/4" Clear Tubing |

Valves: 3303 MASTER-TROL SYSTEM

MODEL NUMBER AND OPTIONS SELECTION



RETROFIT EXISTING ACORN AIR-CONTROL VALVES BODIES TO MASTER-TROL

WALL THICKNESS AND TYPE (Required If -PBP Pushrod Activated Pushbutton Is Specified)

Thickness: _____

Type: Concrete Block Steel

MODEL NUMBER (Must Specify)

- 3303 Electronic Valve System With Single Temperature Pushbutton
- 3304 Electronic Valve System With Hot & Cold Pushbuttons

EXISTING VALVE BODY TYPE (Must Specify)

- PLS Plastic Valve Body
- BRS Brass Valve Body

PUSHBUTTON SELECTION (Must Specify)

- Using Existing Pushbuttons
- Pneumatic Air-Control Pushbutton
 - PBH Hemispherical Pushbutton
- PBP Pushrod Actuated Pushbutton
- PZ Electronic Piezo Pushbutton (24 VAC)

MODEL NUMBER AND OPTIONS SELECTION MUST SPECIFY NUMBER OF CONTROLLERS REQUIRED:

If quantity differs from Acorn factory quote, additional controllers are at additional cost.

-EVS Master-Trol System (Optional)

BASE MODEL NUMBER(Must Specify)

- CDT Server, PC, 1 Min. Up to 8 Versa-Links
____ Qty.
- CDT Client, PC ____ Qty.
*CDT Server required.
- CPT Computer Palmtop, Programmer

SYSTEM MASTER-TROL OPTIONS (Must Specify):

- Customer Specified Programming - Contact factory for details. Recommended for unmonitored configurations.
- Wiring Diagram - Acorn Provided
*Floor plans must be provided by the customer to complete wiring diagram. 2 to 3 weeks lead time upon receipt of site floor plans
- Site Visit

CDT OPTIONS:(Must Specify)

- Monitor
 - 17" Screen, Standard
 - 19" Screen, with additional cost
 - Touch-Screen, with additional cost
 - 19" -21" -22"
- Printer
- Storage Media, Specify:
 - CDRW-CD Writeable
 - DVDR-DVD Writeable
 - Zip File Compressor

FOR ADDITIONAL INFORMATION OR CUSTOMER SPECIFIED PROGRAMMING OPTIONS AND REQUIREMENTS; SEE SUPPLEMENTAL PAGES FOLLOWING.

Please visit www.acorneng.com for most current specifications



CUSTOMER SPECIFIED PROGRAMMING & OPTIONS REQUIREMENTS (Factory Programmed):

LINK # _____ (From 1 to 8)	CONTROLLER ADDRESS # _____ (From 1 to 32)											
Station #	1	2	3	4	5	6	7	8	9	10	11	12
Valve On Time Default 10 Sec. (See Note Below)	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS
Lock-Out Time Default 1 Sec.	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS
Valve Cycle												
CI Cycle Interrupt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SC Single Cycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AM Accumulator Mode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Variable Lock-Out												
Variable Lock-Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Number of Activations Specify Count												
Time Window:	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS
Lock-Out Time:	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS
On Time:	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS
Station Queue												
Station Queue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Station Queue Delay:	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS	MM/SS
Paired Operation:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: **Valve On Time** for -EVS-FV Master-Trol Electronic Flush Valve selection is 3 seconds only.

⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

<p>Important: Installation instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions. <small>Dimensions are subject to manufacturer's tolerance of plus or minus 1/4" and change without notice. Acorn assumes no responsibility for use of void or superseded data. © Copyright 2004 Acorn Engineering Company</small></p>	
<p style="text-align: center;">Selection Summary</p> <p>Model No. & Option _____</p> <p>Quantity _____</p>	<p style="text-align: center;">Approved for Manufacturing</p> <p>Company _____ Title _____</p> <p>Signature _____ Date _____</p>



MASTER-TROL SYSTEM OVERVIEW

The Master-Trol Water Management System is versatile and available in several configurations to suit your needs and budget. Master-Trol System has proven to meet the needs of both correctional facilities and those facilities where water management is essential. With the optional computer server, the system is able to monitor and precisely control up to 3,072 solenoid valves. The Master-Trol System components include the Electronic Valve Controller, Solenoid Valve assemblies with Branch Box and Pressure Switch, pneumatic stainless steel pushbuttons, and interface hardware. Optional Master-Trol system with Piezo Pushbuttons, components include the Electronic Valve Controller, Solenoid Valve assemblies with Branch Box, Piezo Electronic Pushbuttons, and interface hardware.

The Electronic Valve Controller is designed to control up to twelve solenoid valves simultaneously. Each controller is powered by a 24VAC, 50VA, class 2 UL/CSA listed transformer provided. In the event of sudden power loss, all programmed settings are retained. Customer specified programming can be performed at the factory for stand-alone installations or linked together and optionally connected to a computer server provided by Acorn Engineering Company. The computer server can be used to monitor and program any Master-trol Controller connected to the system.

Versa-Link is an installer provided interface cable between an optional handheld -CPT Palmtop Computer or computer server and the Electronic Valve Controller(s). The link includes the interconnecting cable (24 gage, shielded twisted pair, data-transfer cable), terminal blocks and connectors. Each link can be up to 4,000 feet long and has the ability to communicate to a total of 32 controllers for a combined capacity of 384 solenoid valves.

The Branch Box is the interface between the controller, solenoid valve and pushbutton. The branch box is mounted to the solenoid valve or solenoid flush valve assembly. A six-conductor phone cable with modular connectors (station cable) connects the branch box to the electronic valve controller. One, 14-foot long station cable is provided with each valve solenoid.

The Stainless Steel Pushbutton(s) are fixture mounted and remain insulated at all times from any electrical or electronic circuits. Once actuated, the pushbutton pneumatically activates a pressure switch that provides an electronic signal to the electronic valve controller. Maximum ten feet leads to valve.

Optional Stainless Steel Piezo Pushbutton(s) are touch activated, fixture mounted and include no moving parts. The piezo pushbutton housing is completely insulated from the fixture and once actuated, the piezoelectric element in the switch provides an electronic signal through the branch box to the controller. Standard ten feet leads with optional lengths to be specified.

Optional Brass Valve body & checkstop assembly available, provides the lead-free requirements of NSF61, Section 9, 1997; and CHSC 116875.

Optional Computer servers are able to program, monitor and display valve data from each individual controller on a Versa-Link. Valve data from each Versa-Link can be displayed simultaneously, allowing a quick overview and programming of solenoid valves. Servers may be connected to an existing LAN (Local Area Network) and accessed by other computer clients on the same LAN using the provided client software. An optional -CPT Palmtop Computer is also available to access and program controllers individually or access a number of controllers that are connected to a Versa-Link.

Some of the features of computer server operation are listed below. For more information on settings and controls, please review the Master-Trol systems manual.

Optional Touch-Screen Monitor: With computer server can operate and monitor the Master-Trol Client program.

Cycle Interrupt: Permits manual off/on control. One push of the button initiates a programmed timing cycle; a second push during that cycle will stop the cycle.

Single Cycle: One push of the button initiates a programmed timing cycle. The solenoid valve will complete this cycle even if the button is subsequently pushed or held depressed during the cycle.

Lock-Out Time: Refers to programmed Lock-Out intervals between valve timing cycles. The valve will be disabled for the duration of this time period.

Remote Operation: Allows the computer operator to remotely actuate a valve solenoid overriding other controls.



Valve On Time: Refers to the programmed solenoid valve timing cycle. The solenoid valve will operate for the duration of the cycle.

Master-Trol Water Management Systems can be configured to suit the facility. See below for configurations available for Master-Trol.

◆ **Unmonitored Controller Only System**

An unmonitored controller system configuration consists of an Electronic Valve Controller factory preprogrammed per customer specifications. There may be one or more valve controllers at the facility, but they exist independent of each other. Each Electronic Valve Controller can connect up to 12 solenoid valves. In this system the valve controllers are not linked. Programming may be altered in the field by using an optional -CPT Palmtop Computer or -CLT Laptop Computer.

◆ **Unmonitored Single Versa-Link System**

An unmonitored Versa-Link system configuration enables one Versa-Link to connect to 32 controllers without a computer to monitor use. Valve controllers are factory preprogrammed per customers specifications.

The programming for all the valve controllers can be altered in the field from a single location on the link using an optional -CPT Palmtop Computer or -CLT Laptop Computer. Each Versa-Link is capable of connecting to 384 solenoid valves.

◆ **Monitored Single Versa-Link System**

A monitored Single Versa-Link system configuration enables one Versa-Link to connect up to 32 Master-Trol electronic valve controllers. The controllers are programmed and monitored in the field with an optional -CLT Laptop Computer or -CDT Computer Server. Each Versa-Link can control up to 384 solenoid valves.

◆ **Monitored Multiple Versa-Link System**

A monitored Multiple Versa-Link system configuration enables connection to up to eight Versa-Links each with 32 Master-Trol electronic valve controllers. The controllers are programmed and monitored in the field with an optional -CDT Computer Server or computer client. The computer includes the RS-485 interface card (which allows the connection of up to 8 Versa-Links) This system can monitor and control up to 3,072 solenoid valves.