



Valves: MTP Series

MASTER-TROL® PLUS WATER MANAGEMENT SYSTEM



MASTER-TROL® PLUS SYSTEM

Graphic May Show Some Available Options

Please visit www.acorneng.com for most current specifications.

MASTER-TROL® PLUS SYSTEMS

The Master-Trol® PLUS Water Management System is a versatile system that provides precise control over the water usage in a facility. This electronic controller and valve system can be installed in multiple configurations and has the option of a computer interface that can be centrally located to provide remote programming and monitoring capabilities.

The MTP (Master-Trol® PLUS) Controller is a modular device that consists of a Main Module and Sub-Modules. The Main Module can be installed alone and provide control of up to 4 solenoid valves. If more capacity is required, then Sub-Modules can be added to provide control over more valves. Each Main Module can support up to 2 Sub-Modules and each Sub-Module adds an additional 4 ports. The Main Module and Sub-Module combinations can provide controllers with capacities for 4, 8, and 12 valves. All MTP enclosures will have a minimum IP54 rating.

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

Optional Computers are able to program and display data from each individual valve, cell, area or building. 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 MTP Controller(s) 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® PLUS Water Management System Option –MTP Master-Trol® PLUS. **For Flush Valve Management:** Provide and install the Acorn Master-Trol® PLUS Water Management System Option –MTPFV Master-Trol® PLUS System with solenoid type flush valve. System shall include electronic valve controllers that are microprocessor driven and powered by 120V/24VAC 50VA Class 2 UL/CSA listed transformer. Electronic valve controller is able to simultaneously direct up to 12 valves. All controller enclosures will have a minimum IP54 rating. An optional –MTPS Desktop Server to be interfaced with up to 8 Versa-Links. Each link will be capable of monitoring and controlling 384 solenoid valves for a total of 3,072 valves per individual server. Each Versa-Link can be up to 4,000 accumulated feet long. Programmed settings will be retained in controller regardless of power loss. A soft closing solenoid operated valve(s) and optional –MTPFV electronic flush valve shall be operated by means of vandal resistant stainless steel pushbutton and momentary air switch. Optional piezo pushbuttons are available when –MTPP is selected in valve options. The system shall be compatible with -PFB Power Fail Bypass valves that continue to provide drinking water in the event of a power loss without the need for batteries. Wiring and connectors from desktop server to electronic valve controllers are by others. 15 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. This sheet to be used in conjunction with fixture submittal with the appropriate -MTP options selected.



Valves: MTP MASTER-TROL® PLUS SYSTEMS

MODEL NUMBER AND OPTIONS SELECTION

SPECIFY TOTAL NUMBER OF INDIVIDUAL VALVES THAT WILL BE CONNECTED TO THE MASTER-TROL® PLUS SYSTEM:

Total No. of Valves (Ex.: Hot & Cold = 2 Valves | Single Temp. = 1 Valve | Flush Valve = 1 Valve | ADA Shower = 2 Valves)

BASE MODEL NUMBER

- MTPS Server Software and Computer
- (Specify if Required)**
- BMS Connection for BMS Interface
*MTPS Server Required
- FP Floor Plan Navigation
- BMS-FP Connection for BMS Interface & Floor Plan Navigation
*MTPS Server Required
- MTPC Client Software and Computer
*MTPS Server Required

MASTER-TROL® PLUS SYSTEM OPTIONS:

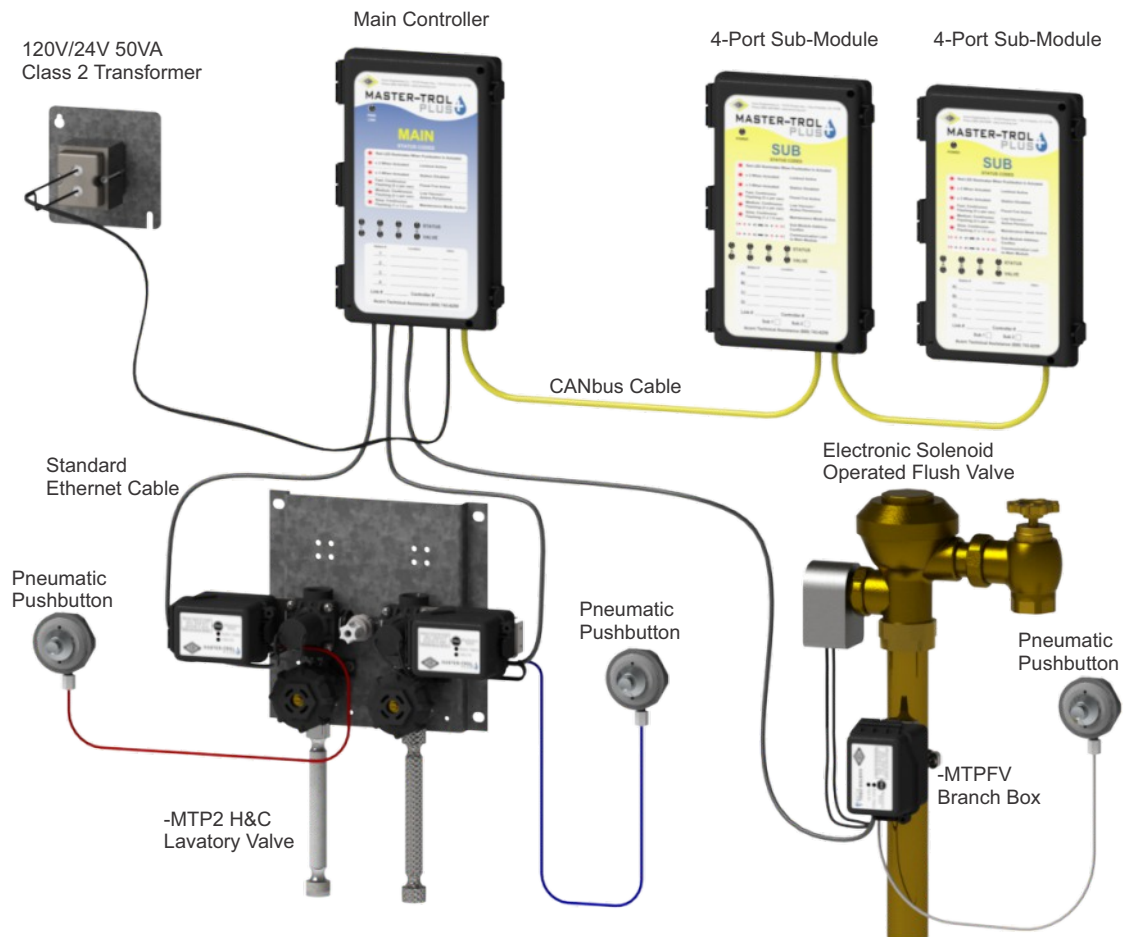
- MTP-CPT Handheld Programmer
- Site Visit
- Wiring Diagram - Acorn Provided
*Floor plans must be provided by the customer to complete wiring diagram.

MONITOR OPTIONS:

- Standard Monitor
 - MTM17 17" Screen
 - MTM19 19" Screen
- Touch Screen Monitor
 - MTS22 22" Screen
 - MTS27 27" Screen

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

Please visit www.acorneng.com for most current specifications.



Basic 12-Station Master-Trol® PLUS Setup for H&C Lavatory and Flush Valve

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



MASTER-TROL® PLUS SYSTEM OVERVIEW

The Master-Trol® PLUS Water Management System is a versatile system that can be installed in multiple configurations to suit any facility's needs. It can be installed as a standalone or communicating system and can be accessed with an optional Master-Trol® PLUS Server computer or portable interface device. A single Master-Trol® PLUS computer can monitor and control up to 3,072 solenoid valves. The Master-Trol® PLUS system is also compatible with AcornVac Vacuum Plumbing Systems. Fixtures ordered with Master-Trol® PLUS components will include the Master-Trol PLUS controller, solenoid valve assemblies with branch box interface, and pneumatic stainless steel pushbuttons. Optional Piezo Pushbuttons are also available for fixtures with the Master-Trol® PLUS system.

The Master-Trol® PLUS (-MTP) controller has a modular design that consists of one Main Controller and up to two Sub-Modules. A Main Controller can control up to 4 solenoid valves and can be installed as a standalone or communicating system. Up to two Sub-Modules can be added to a Main Controller to create an eight or twelve valve controller. The controllers are powered by a 24VAC, 50VA, class 2 UL/CSA listed transformer. In the event of a power loss, all programmed setting are retained. For standalone installations the controllers can be pre-programmed with customer specified programming prior to shipping. For communicating installations the controllers can be linked together and monitored/programmed by an optional Master-Trol® PLUS Server computer or portable interface device. All connections to the controller are housed within the controller's enclosure which is IP54 rated for protection against water and dust intrusion.

A Versa-Link is an installer provided interface cable between an optional portable interface device or Master-Trol® PLUS Server computer and the controllers located in the plumbing chases. The Versa-Link is made up of 24 AWG shielded, twisted pair, data communication cable. Each Versa-Link cable can have a combined length of up to 4,000 feet and can connect up to 32 Master-Trol® PLUS controllers. One Versa-Link with 32 controllers can accommodate communications with up to 384 individual valves.

The Branch Box is the interface between the controller, solenoid valve and pushbutton. The Branch Box is typically pre-mounted next to the solenoid valve or provided loose for field mounting near the solenoid flush valve assembly. A standard RJ-45 Ethernet cable (station cable) connects the Branch Box to the Master-Trol® PLUS controller. One standard 15 foot long station cable is provided for each solenoid valve ordered. Non-standard lengths are provided by others. All connections to the branch box are housed within the branch box's enclosure which is IP54 rated for protection against water and dust intrusion. The branch box also features status LED's that will let you know the status of the valve. There is also a maintenance button that allows the valve to be actuated from the plumbing chase. If the maintenance button is held for 5 seconds then it places the valve in "Maintenance Mode". This mode disables the fixture button while still allowing the valve to be actuated using the maintenance button on the branch box.

The Electronic Valves for lavatories, showers and drinking fountains are all pre-assembled onto a mounting plate for easy installation. The plastic valve assemblies are manufactured for durability and reliability. We also offer an optional brass valve assembly harsher environments. The all valve assemblies meet the lead-free requirements of NFS61, Section 9, 1997; and CHSC 116875.

The Power Fail Bypass Valve is a valve option that gives you the control of an electronic valve but also works in the event of a power loss. This allows the fixture user to still obtain drinking water when power is lost and the Master-Trol® PLUS controllers are not connected to emergency power. This option does not require any batteries that would need to be maintained and replaced periodically.

Several Actuator types are available. The standard actuator type is a **stainless steel pneumatic pushbutton** that is mounted to the fixture using anti-rotational punching. The pneumatic pushbuttons remain insulated at all times from any electrical or electronic circuits. The maximum distance between a pneumatic pushbutton and the electronic valve is 10 feet. We also offer optional **stainless steel piezo pushbuttons** that are touch activated and have no moving parts. They are also mounted to the fixture using anti-rotational punching and come standard with 10 foot wire leads. Optional lengths can be specified. The last optional actuator type is an **Acorn Infrared Sensor**. The Infrared Sensor is powered by the Master-Trol® PLUS controller and is typically used for installations where infection control is a concern.

A Permissive Device can be added to a controller for added control. A vacuum transducer or switch can be connected to a Master-Trol® PLUS controller to disable selected valves when vacuum levels on an AcornVac® Vacuum Plumbing System drop below specified levels or when a switch closure is detected.

The Master-Trol® Plus Server (-MTS) computer is a standard desktop computer that is factory loaded with the necessary hardware and software required to communicate with the Master-Trol® Plus controllers. It is able to monitor and program valve data for each individual controller connected to a Versa-Link. The Master-Trol® PLUS interface hardware allows the computer to connect and communicate with up to eight Versa-Links. Each Versa-Link can accommodate up to 32 controllers and each controller can control up to 12 valves. That is a combined total of 3,072 valves that can be connected to one Master-Trol® PLUS server computer. Each Versa-Link can run a maximum combined length of 4,000 feet. The Master-Trol® PLUS server computer can be connected to a facilities existing LAN (Local Area Network) and be accessed by other computers on the same network using the provided client software. An **optional floor plan view** interface is available that provides a visual representation of a facilities layout with fixture icons that change to represent the valves current status. **An Optional Touchscreen Monitor** also available. Another optional feature is a **BMS (Building Management System) connection** that supplies an access port to connect the facilities BMS to the Master-Trol® PLUS server. This connection allows the BMS to remote operate and enable/disable valves on the Master-Trol® PLUS server computer by using a Modbus protocol. The BMS programming and communication cable are provided by others.



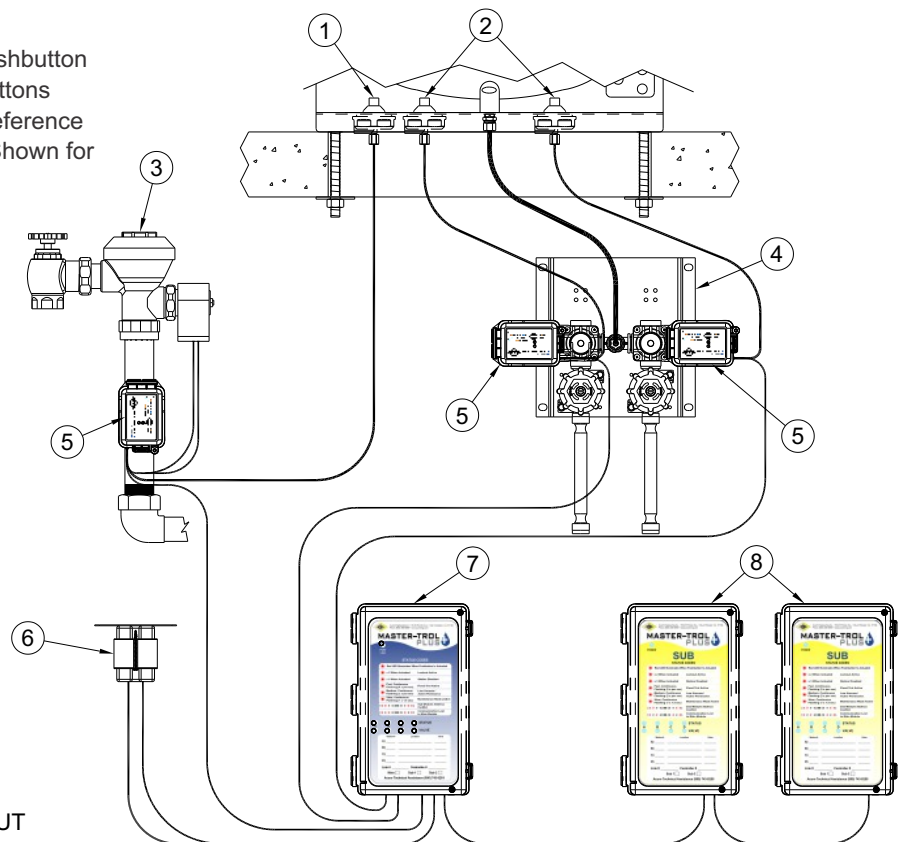
•Master-Trol® PLUS Software Features: Some of the Master-Trol® Plus software features are listed below. For more information on settings and controls, please review the Master-Trol PLUS User Manual.

- **Multi-Server Client Software** – The client software is capable of monitoring and controlling valves on multiple Master-Trol® PLUS server computers.
- **On-Time** – Refers to the programmed timing cycle of a solenoid valve. The solenoid valve will operate for the duration of the specified on-time. On-Time can be up to 1 hour and set in 1/10th second increments.
- **Lock-out Time** – Refers to a specified length of time the valve will not operate after an actuation has occurred. If set, a lock-out time will temporarily disable the valve for a specified set time after each activation of the valve. Lock-Out Time can be up to 24 hours and set in one minute increments.
- **Variable Lock-Out** – This feature allows you to specify the number of activations that can occur before a lock out is implemented. If the specified number of activations occurs within a specified window of time then the valve is disabled for the specified Lock-Out time.
- **24-Hour Limits** – This feature allows you to limit how many activations or how much accumulated time a valve can operate within a 24 hour time period. At the end of a 24 hour period the user's limits are automatically reset for the next 24 hour period.

- **Windows of Operation** – This feature lets you specify windows of time where the valve is enabled. The valve is disabled outside of these windows of time. The feature also allows you to specify the days of the week that the windows are valid.
- **Auto Cycle** – If a valve has this feature enabled then it will automatically cycle once every 24 hours at a specified time. This is typically used on valves that receive very little usage to prevent the waste trap from drying out, stagnant water, and to help keep the valves lubricated.
- **Permissive Control** – This feature allows you to use permissive devices (vacuum transducer or switch) to enable and disable valves. If a vacuum transducer is connected to the controller then a valve can be programmed to disable if the vacuum level drops below a specified level. If a switch is connected to the controller then a valve can be programmed to disable when the switch circuit is closed. Permissive devices only control the valves on the controller to which the device is connected.
- **Alarms** – Audible and visible alarms can be set to alert personnel to situations that may require immediate attention.
- **Optional Graphical Floor Plan View** – This option provides a graphical layout of the facility to be used for navigating through the Master-Trol® PLUS client software. Each fixture is represented by a graphical icon that changes appearance when the status of the valve changes.

NOTES:

1. MTPFV Flush Valve Pneumatic Pushbutton
2. MTP2 Lavatory Pneumatic Pushbuttons
3. Solenoid Flush Valve Shown for Reference
4. MTP2 Hot & Cold Solenoid Valve Shown for Reference
5. Branch Box / Pneumatic Switch
6. 120V/24VAC 50VA Transformer
7. Main Controller
8. 4-Port Sub-Module



MODEL MTP2 / MTPFV
ELECTRONIC VALVE SYSTEM LAYOUT
FOR COMBINATION FIXTURES