

Installation, Operation and Maintenance Manual

Trident™ Valve Controller

Installation Guide

⚠ WARNING



Read this manual **BEFORE** using this equipment. Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment. Keep this manual for future reference.



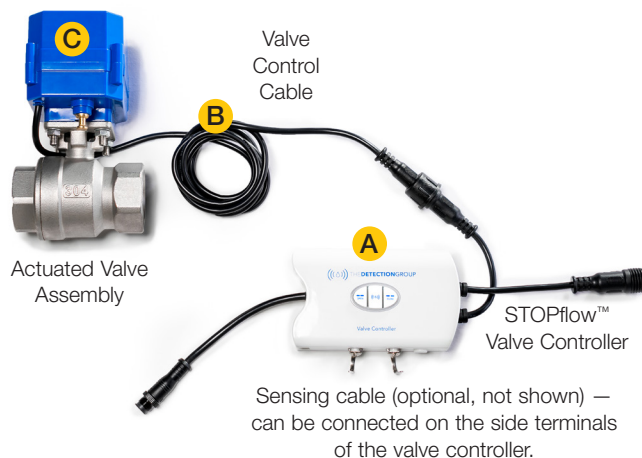
⚠ WARNING

You are required to consult and follow any applicable codes in the installation of this product.



What is Included

There are three pieces of equipment involved in a Trident™ valve controller install.



- A** DT-503 Trident™ Valve Controller
- B** DTVS-C25 & DTVS-C40 Valve Control Cable
- C** DT-505-X Actuated Valve Assembly in varying sizes

Equipment Details

Valve Controller

Requires standard 110v power. The power adapter (5' length) is connected to the tail that comes out of the left side of the valve controller.

- 2 CRV123 backup batteries are pre-installed. Battery tab needs to be pulled during installation.

Up to two valve connections can be made to a single valve controller using the two tails on the right side of the valve controller. As the Trident™ system is cloud based, any valve registered on the system can be closed based on any trigger event.

- The top tail is referred to as connection 1, slot 1 or valve 1. The bottom tail is connection 2, slot 2, or valve 2.

Valve Control Cable

A valve control cable is needed if the valve controller and actuated valve assembly are installed >5' apart.

- Valve control cables are available in 25' and 40' lengths and can be connected up to 120'.

Actuated Valve Assembly

Must be installed prior to Valve Controller installation.

Actuators for valves >1.25" have an indicator knob and a brass clutch.

- Once installed verify the brass plunger/clutch is fully pulled out and engaged. You should not be able to rotate the valve with the knob.

Should be installed in an accessible location.

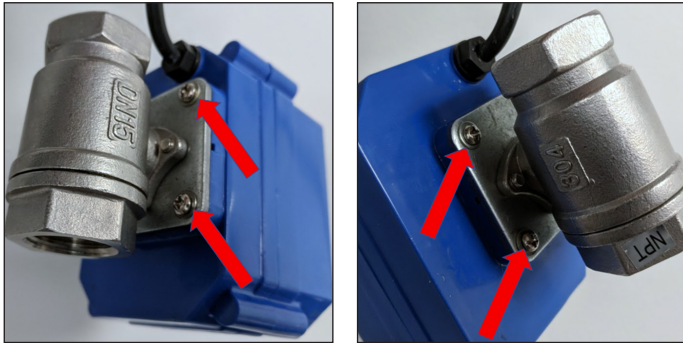
If you are installing a TDG valve near an existing valve, in most cases it is preferred to locate the TDG valve in line after the current valve.

For applications where separate lines provide hot and cold water, 2 valves will be required. Up to 2 valves can be operated by a single Valve Controller. Both valves will be closed independently.

Valves may be installed in either direction.

Control Wire Labeling

If the control wire must be run to a different location, ensure that the wire is labeled with the valve location and what it controls.



IMPORTANT: It is required that the screws used to attach the valve to the actuator are accessible to enable removal or replacement.

Valve Controller Installation

Determine the location where the **Valve Controller (A)** will be placed. The area should be within **Valve Control Cable (B)** distance of the **Valve(s) (C)** to be connected as well as the power outlet. If using the valve controller as a sensor, it is important to place the valve controller with the feet firmly resting on the floor. If using optional sensing cable, connect to the side terminals of the Valve Controller placing in low lying areas where water may accumulate.

Operating Information

Re-register Device

Press and Hold the Center Button for ~12 seconds. All lights will flash Blue and device will beep one time. Once the reboot completes the device will blink blue every 15 seconds with the addition of a blink based on the following:

1 Valve connected and open

1 **Blue** flash.

If valve is closed, this will be indicated by a **Red** flash.

2 valves connected AND open

2 **Blue** flashes.

If valve is closed, this will be indicated by a **Red** flash.

Valve Controller Installation and Registration Process

(For Trident™ Connected version only)

Determine installation location and install Velcro adhesive at appropriate height.

Connect power supply and pull battery tab.

Connect valve cables. If only one valve is being connected, use the top tail on the right side of the valve controller, Connection 1. If two valves are being used, make sure to note the name of the connections. (i.e., Connection 1-Cold water; Connection 2-Hot water).

Once powered up the valve controller will go through the registration process.

Indicated by an initial **Blue**, **Yellow** and **Red** indicator light and a single beep.

Followed by one Yellow every 15 secs, and a series of chirps as it communicates to the previously installed hubs.

Successful registration — 3 **Blue** and a single beep.

Failed registration — 3 **Red** and 3 beeps.

(If registration fails see Troubleshooting section attached.)

Device will blink Blue every 3 seconds.

- Connecting a valve will trigger the valve controller to add an extra led blink indicating valve status: blue open and red closed.

After connecting the valve(s) use the open/close buttons on the valve controller to test the valve functionality. Once verified, open the valves for normal operation.

Valve controller is now successfully registered. See Trident™ Management Studio section attached to complete the configuration.

Valve controller is now successfully commissioned.

Power-Cycle

Press and hold open and close buttons for ~12 seconds. All lights will flash (**Blue**, **Yellow**, **Red**) and device will beep one time.

Active Mode

Device checks for water every 15 seconds at the same time as the LED blink.

Any connected valves will blink their status every 15 seconds after the initial device status led:

Blue = Open

Red = Closed

Water Alarm Mode

Device blinks red and beeps once every 3 seconds.

Silence Alarm

- Press the Center Button the device will silence and then go into a lockout period in which the device will not sense water.
- During this lockout period the device will blink **Yellow** every 15 seconds.
- The default lockout period is 30 minutes.

Reset Device

- Press and hold the Center button for ~12 seconds to exit the “lockout period” and set the sensor to active mode, or wait for the lockout time to expire.
- Valves need to be manually opened by using the open button on the Valve Controller.

Status Indicators

STATUS	LIGHTS	SOUND
Boot	Blue Yellow Red	1 beep
Connecting	1× Yellow every 3s	
Good Setup	3× Blue	1 beep
Failed Setup	3× Red	3 beeps
Active	1× Blue every 15s	
Alarm	1× Red every 3s	1× short every 3s
Not Communicating	1× Red every 15s	
Silence	1x Yellow every 15s	
Reset	3× Blue	1 beep
Test	1× Yellow every 15s	1 beep
Battery Warning	1× Yellow every 15s	
Battery Alarm	1× Red every 15s	
External DC Alarm	1× Red every 15s	
Valve(s) Failed	Rapid Red	
Valve 1 Closed	2nd LED Red	
Valve 2 Closed	3rd LED Red	
Valve 1 open	2nd LED Blue	
Valve 2 Open	3rd LED Blue	

Controlling Valves

Open All Connected Valves:

Press Left Button

- In Process: LED Solid **Yellow**
- On Success: LED **Blue**
- Failure: Rapid **Red** LED (See Troubleshooting section)

Close All Connected Valves:

Press Right Button

- In Process: LED Solid **Yellow**
- On Success: LED **Blue**
- Failure: Rapid **Red** LED (See Troubleshooting section)

Troubleshooting

Components of the System



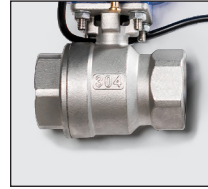
Trident Valve Controller

Sends commands to the actuator to open or close the valve



Valve Actuator

Receives commands from the Valve Controller and drives the valve



Valve

Connected to the pipe and physically controls the water when driven by the actuator

Troubleshooting by Piece

Valve Won't Actuate

Try to actuate using a different Valve Controller

- If it actuates, the Valve Controller was the issue — Problem Resolved
- If it does not actuate, actuator or control cable is the likely issue

Try to replace the actuator

- If it actuates, the actuator was the issue — Problem Resolved
- If it does not actuate, the valve is the likely issue

Try to turn the valve using a crescent wrench (only applies to valves >1.25" with an indicator knob and brass plunger-Prior to attempting to manually turn valve, depress the plunger to disengage the internal gears)

- If it doesn't turn the valve is the issue — Contact TDG for possible replacement
- If it does turn, then the issue needs to be escalated and testing will need to be repeated

Valve Controller

Issue: Buttons are not responsive

Resolution: the button plunger has been misaligned, and giving the button a pinch will help realign the plunger

Issue: Valve showing up as active when nothing connected

Resolution: Detach all valves and perform a power cycle by pressing the open/close button simultaneously for ~12secs till you hear a second beep

Issue: Valve showing up as disconnected when no valve is connected

Resolution: Detach all valves and perform a power cycle by pressing the open/close button simultaneously for ~12secs till you hear a second beep

Issue: Valve Controller showing power disconnected

Resolution: Confirm that the outlet power is active and power cycle the device, if still an issue, replace the power supply

Valve Actuator

Issue: Valve opens and closes, but shows as failed opening or failed closing

Resolution: Contact TDG for support

Issue: Valve doesn't actually turn even though actuator is moving

Resolution: For valves >1.25", on the actuator, check that the brass plunger is activated and out making sure that the gears are engaged

Valve

Issue: Valve does not actuate

Resolution: If other testing has pointed to the valve being the issue, confirm this by using a wrench to try and manually turn the valve (only applies to valves >1.25" with an indicator knob and brass plunger-Prior to attempting to manually turn valve, depress the plunger to disengage the internal gears). If it does not turn, or is hard to turn, valve should be replaced

Issue: Valve is leaking

Resolution: Contact TDG for support

Management Platform

Issue: The Management Platform does not show the expected information or what the LEDs are indicating

Resolution: Remove all valves physically, mark the valves as "not connected" on the platform, and then power cycle the device. See if any issues remain before reconnecting the valve

Issue: Can't login to the Trident Management Platform

Resolution: Contact your System Champion. They will be able to login and verify that you have login access, use the reset password option if needed

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