HEAT-TIMER®

Installation and Operation Manual

ETV Platinum Plus

Electronic Tempering Valve with Safeguard

⚠ WARNING

This Heat-Timer control is strictly an operating control; it should never be used as a primary limit or safety control. All equipment must have its own certified limit and safety controls required by local codes. The installer must verify proper operation and correct any safety problems prior to the installation of this Heat-Timer control.

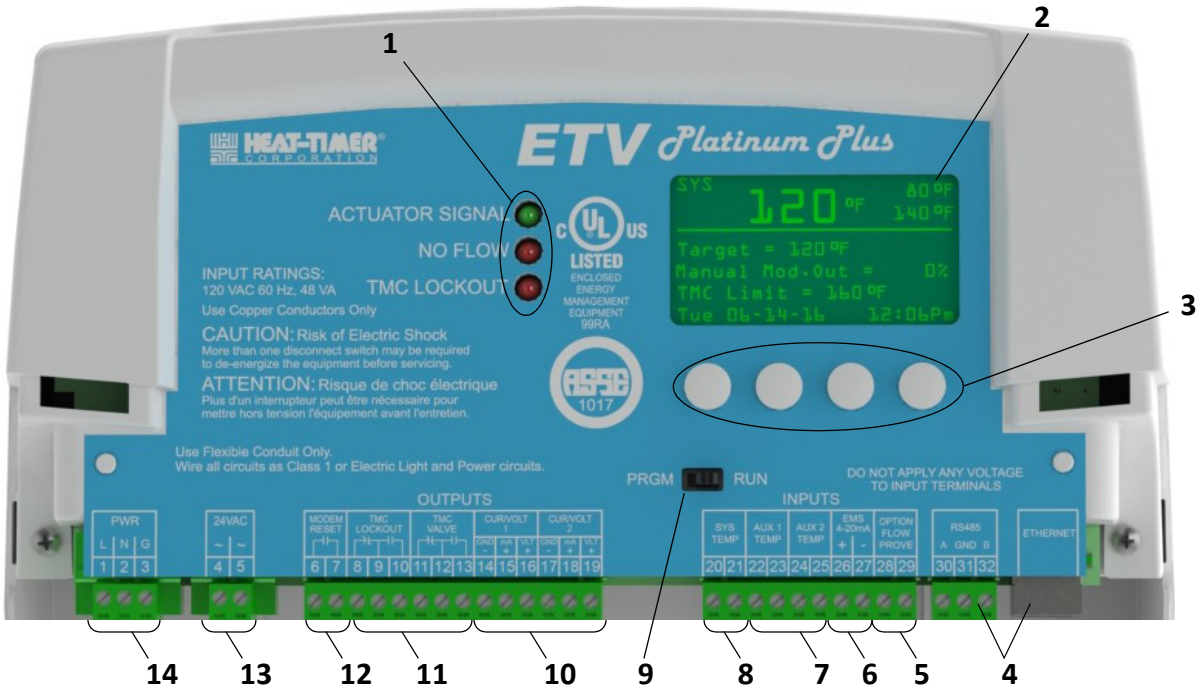
059305-00 Rev. B

Table of Contents

Controls, Indicators, and Connections 3
Detailed Operation 4
Overview 4
ETV Operating Concept 4
TMC Operating Concept 4
ETV + TMC Operating Concept 4
ETV Platinum Plus Inputs 5
System Temperature Sensor 5
Aux Sensor/Switch Inputs 5
Flow Prove 5
4-20mA Remote Setpoint 5
ETV Platinum Plus Outputs 6
Actuators 6
TMC Valve 6
TMC Lockout Output 6
Specifications 7
ETV Platinum Plus Control Module 7
ETV Platinum Plus Actuator 7
ETV Platinum Plus Valve Body 7
ETV Platinum Plus Stainless Steel Valve Sizing . . . 8
Installation Instructions 9
Required Materials (Not Supplied) 9
Design Considerations 9
General Piping Guidelines 10
Sensor Probe Locations 10
TMC (Safety) Valve Piping 10
Circulating Loop 11
Thermal Trap 11
Dual/Parallel Valve Piping 11
Valve Installation 12
Valve Direction – DIP Switch 1 12
Mounting the Actuator to the Mixing Valve 13
Mounting the ETV Platinum Plus Module 15
Mounting the Enclosure 15
Mounting the Display Module 16
Wiring the ETV Platinum Plus 17
Power Input Wiring 17
Output Wiring 17
Input Wiring 21
Communications Wiring 23
Completing the Wiring 24
Calibrating the Actuator 24
Initial Programming of the ETV Platinum Plus . . . 25
System Startup Menu 25
Piping Diagrams 32
One Mixing Valve and a TMC Safety Valve 32
Two Mixing Valves and a TMC Safety Valve 33
Two Temp Application 34
ETV Platinum Plus Display and Programming 35
ETV Platinum Plus Control Module Output Status LEDs 35
Display and Variable-Function Buttons 35
Default Display 36
Display Icons and Messages 36
Alarm Messages 37
Setting the Display Contrast 37
Resetting to Factory Default 37
ETV Platinum Plus Menus 38
Main Menu 38
Schedules Menu 42
Maintenance Menu 44
Lockout Menu 46
Troubleshooting 47
Notes 49

Controls, Indicators, and Connections

Figure 1: ETV Platinum Plus Controls, Indicators, and Connections



Item	Description	Item	Description
1	Output Status LEDs See “ETV Platinum Plus Control Module Output Status LEDs” on page 35.	8	System Temperature Sensor Input Connection
2	Digital Display See “Display and Variable-Function Buttons” on page 35.	9	Program/Run Switch Places the ETV Platinum Plus in programming mode or run (normal operation) mode. **NOTE:** Programming mode may be password protected.
3	Variable-Function Buttons See “Display and Variable-Function Buttons” on page 35.	10	Motorized Mixing Valve Modulating Signal Connections for Valve 1 and Valve 2.
4	Internet/BACnet/Modbus Connection Communications interface	11	TMC (Safety) Valve and Alarm Output Connections **NOTE:** The Outputs do not provide power. A separate power source must be provided.
5	Prove Input Connection	12	Communication Modem Reset **NOTE:** Used if internet communication is lost for more than one hour.
6	Remote Setpoint Connection	13	Actuator 24Vac Power Source Connection
7	Additional Sensor Inputs (2)	14	120Vac Power Input Connection

Detailed Operation

Overview

The ETV Platinum Plus (Electronic Tempering Valve) is a hot water temperature control capable of operating one or two electronic motorized mixing valves to regulate the system water temperature. The electronic mixing valves are controlled using any of its voltages or current output modulation signals. Its modulation PID is designed to respond quickly, which makes it suitable for domestic hot water applications.

The ETV Platinum Plus consists of four primary components:

- the ETV Platinum Plus control
- the electronic motorized Actuator
- the 3-way mixing valve
- an immersion temperature sensor

For added protection, the ETV Platinum Plus control can be configured to close the hot water supply to the mixing valve if the mixed outlet temperature exceeds the Alarm Limit. It does that by operating a TMC Safety Valve mounted on the hot water supply.

ETV Operating Concept

The ETV Platinum Plus control modulates the electronic motorized mixing valve to maintain a temperature setpoint. It does that by mixing two different water temperatures from two different sources; a hot water source and a cold-water source. The hot water source can be a hot water boiler, a hot water coil in a steam boiler, or a hot water storage tank. The cold water comes from the city water system.

The cold-water inlet is joined with the circulating loop return pipe to help maintain flow in the valve during periods of no usage. The ETV Platinum Plus operation requires the use of a circulating loop pump to maintain the loop temperature.

To save on energy, the ETV Platinum Plus provides a 7-day schedule to help reduce the water temperature during periods of low usage.

TMC Operating Concept

In addition to maintaining the mixed output setpoint, the ETV Platinum Plus helps protect the system from excessive water temperatures. It does that by closing a TMC valve feeding the mixing valve's hot water. When the mixed outlet exceeds the alarming temperature setpoint (see “TMC Setpoint” on page 40) for the delayed period (see “TMC Trigger Delay” on page 40), the control closes the TMC valve blocking all hot water flow to the mixing valve and triggers an alarm.

ETV + TMC Operating Concept

The ETV + TMC mode combines both the ETV and TMC modes. In this mode, the ETV Platinum Plus controls the valve to maintain temperature, and monitors the outlet temperature to ensure the specified temperature is not exceeded.

ETV Platinum Plus Inputs

System Temperature Sensor

The ETV Platinum Plus is designed to connect to the provided Heat-Timer temperature sensor probe (p/n 904092-00).

The sensor must be installed within 6 feet (1.8 meters) after the mixed outlet of the motorized mixing valve, and before any takeoffs.

Aux Sensor/Switch Inputs

Auxiliary inputs connected to the ETV Platinum Plus can configured as temperature sensors or switch sensors.

When configured as a switch sensor, the sensor detects open or close.

When configured as a temperature sensor, the sensor monitors water temperature. When placed in the return and hot inlet of the valve, the sensor can be configured as Feed-Forward to provide an additional feedback to the control for maintaining the accuracy of the desired setpoint temperature.

Auxiliary temperature sensors must be installed at least 6 feet (1.8 meters) from the valve, and after the cold and return lines join together.

NOTE: Alarms for auxiliary sensors are available with ICMS only.

Flow Prove

The Flow Prove input checks for the flow status before opening the mixing valve. If no flow status exists, the control will keep the mixing valve closed (fully COLD). However, if the no flow status occurs during normal valve operation, the ETV Platinum Plus will keep the mixing valve position at its latest opening percent.

4-20mA Remote Setpoint

The 4-20mA remote setpoint can be used when it is desirable to set the ETV Platinum Plus setpoint remotely using an EMS system. Any signal that is less than 2mA or greater than 22mA will close the mixing valve and trigger an alarm (see “Alarm Messages” on page 37).

NOTE: The ETV Platinum Plus does not source power to the 4-20mA terminals. The EMS system must provide the excitation voltage.

ETV Platinum Plus Outputs

Actuators

When the Control Mode is set to ETV or ETV + TMC, the control operates a single or dual motorized mixing valve to maintain the hot water temperature at the Setpoint. This is done by sending 24Vac power and a modulation signal to the mixing valve.

TMC Valve

When the Control Mode is set to TMC or ETV + TMC, the ETV Platinum Plus uses a TMC valve to close the hot water feed to the mixing valve when excessive mixed temperatures exceed the Alarm Limit (see “TMC Setpoint” on page 40) for the specified Delay Alarm period.

The control can manage either a Normally Open (N.O.) or Normally Closed (N.C.) TMC valve. Heat-Timer recommends the use of a N.C. TMC valve for better performance during power outages.

NOTE: The ETV Platinum Plus does not source power to the TMC valve terminals. An external power source is required.

TMC Lockout Output

The TMC Lockout can be used to provide a notification that the unit has gone into lockout. Devices that can be connected to the ETV Platinum Plus include: Vis-U-Alarm, audible alarm, Remote Management System, or any other device that requires a switch closure or open to trigger an alarm.

NOTE: The ETV Platinum Plus does not source power to the TMC Lockout terminals. An external power source is required.

The TMC Lockout LED will be lit whenever the control is in lockout. To exit TMC Lockout mode, the cause of the alarm must end, the System Sensor reading must drop below the TMC Limit, and the Reset button must be pressed (see “Reset Lockout” on page 46).

Specifications

ETV Platinum Plus Control Module

Voltage Input: 120Vac 60Hz

Maximum Input Rating: . . . . . 48VA max

Dimensions (W x H x D): . . . . . 11” x 9” x 3 ¾” (279.4mm x 228.6mm x 95.25mm)

Weight: 2.5lbs (1.13kg)

Modes of Operation: . . . . . ETV, TMC, ETV + TMC

ETV Setpoint: . . . . . 40°F to 200°F (4°C to 93°C)

Alarm Setpoint: . . . . . 40°F to 200°F (4°C to 93°C)

Modulation Output Signal: . . . . . 0-10V (default), 2-10V, 0-5V, 1-5V, 4-20mA

Output Relays: . . . . . 1 TMC Lockout
1 Modem Reset
1 Valve Output

Output Relay Rating: . . . . . TMC Lockout: 3A at 120Vac 60Hz
Modem Reset: 5A resistive at 120Vac 60Hz
Valve Output: 1A inductive at 120Vac 60Hz

Inputs: . . . . . System Temperature, Aux Temp 1 (Temp or Switch), Aux Temp 2 (Temp or Switch)
Flow Prove, Remote Setpoint (4-20mA)

User Interface: . . . . . Digital Display
Display Units: Temperature (°F and °C)
Status Indicators (3 LEDs)
Variable-Function Buttons (4)

ETV Platinum Plus Actuator

Voltage Input: 24Vac 60Hz

Power Consumption: . . . . . 18VA max

Input Signal: 0-10V

Weight: . . . . . 2.6 lbs (1.2 kg)

ETV Platinum Plus Valve Body

Body and Trim: . . . . . 304 Stainless Steel

Maximum Operating Temperature: . . . . . 300°F (149°C)

Maximum Working Pressure: . . . . . 225 psi

Stem Material: . . . . . 640 Stainless Steel

ETV Platinum Plus Stainless Steel Valve Sizing

Pressure Drop (psi)	Valve Size						
	½"	¾"	1"	1¼"	1½"	2"	2½"
Cv	5	7	12	18	29	46	73
3	8	12	20	32	50	80	126
4	9	15	23	37	58	93	145
5	10	16	26	41	64	103	162
6	12	18	28	45	70	113	178
7	13	20	31	50	78	125	192
8	14	21	33	53	83	132	205
9	15	22	35	56	88	140	218
10	16	23	36	58	91	145	230
11	17	24	38	62	97	154	241
12	18	25	40	64	100	160	252
	Gallons per Minute						

Installation Instructions

The ETV Platinum Plus installation process consists of the following basic steps:

1. Initial installation (see “Design Considerations” on page 9).
   - Piping the valves.
   - Locating and installing the sensors.
   - Piping the TMC safety valve (TMC modes only – Refer to the TMC valve installation manual).
2. Installing the mixing valve (see page 12)
3. Mounting the Actuator to the mixing valve (ETV and ETV + TMC modes only – see page 13).
4. Mounting the ETV Platinum Plus Module (see page 15).
5. Connecting the ETV Platinum Plus wiring (see “Wiring the ETV Platinum Plus” on page 17).
   - Power wiring
   - Output wiring
   - Input wiring
6. Optionally connecting the ETV Platinum Plus to a communications network (see “Communications Wiring” on page 23). Refer to the networking manual for configuration options.
7. Calibrating the Actuator (refer to page 24).
8. Completing initial programming of the ETV Platinum Plus (refer to page 25).

Required Materials (Not Supplied)

The following materials/tools are required for installation, but are not supplied:

- General tool kit (screwdrivers, wire strippers, power drill, etc.)
- 18 AWG cable (Heat-Timer p/n 703001-01 or equivalent #18⁄2 cable) – used for ETV Platinum Plus wiring

Design Considerations

When installing the system, certain design considerations must be taken into account. These include:

- General Piping Guidelines
- Sensor Probe Locations
- TMC (Safety) Valve Piping
- Circulating Loop
- Thermal Trap or proper use of check valves
- Dual/Parallel Valve Piping

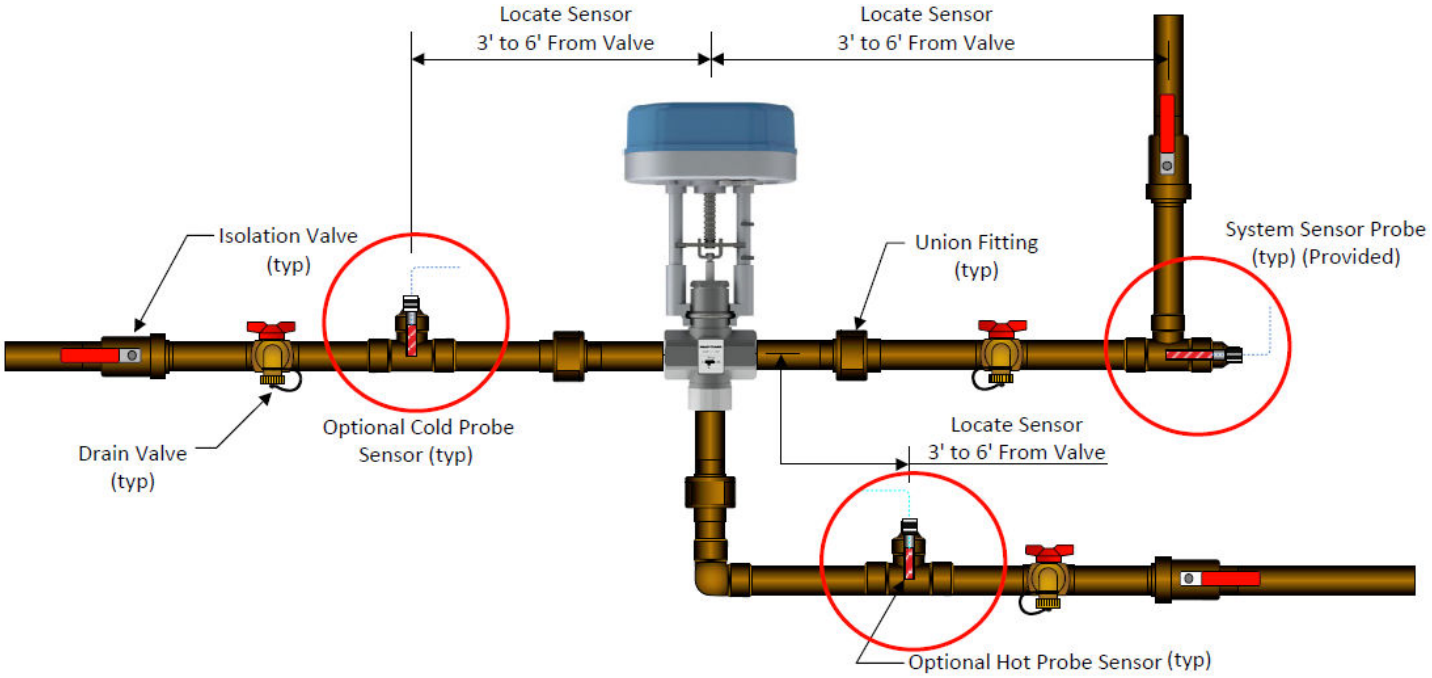
See “Piping Diagrams” on page 32 for more information.

General Piping Guidelines

The following guidelines must be observed when piping the system:

1. All piping, including the piping of the ETV valve body, must meet or exceed local, state, and/or federal guidelines, codes, and regulations.
2. Support all piping using hangers. DO NOT support piping by the unit or its components.
3. Use isolation valves (as shown in Figure 2) to isolate system components.
4. Use unions (as shown in Figure 2) to allow for servicing and, if required, removal of the ETV valve and sensors.
5. Include drain valves (as shown in Figure 2) to assist in servicing of the ETV valve and sensors.

Figure 2: Piping Guidelines



Sensor Probe Locations

Sensor probes must be installed within the flow of water in the pipe (see Figure 2). When possible, use a tee fitting rather than an elbow fitting where the piping changes direction within the allowable sensor placement distance from the valve. The sensor probe is then placed in the run of the tee fitting.

Refer To “ETV Platinum Plus Inputs” on page 5 for more information.

TMC (Safety) Valve Piping

The TMC (safety) valve is typically piped between the hot water source (a storage tank or boiler coil) and the Hot inlet of the ETV valve. For an optional ETV valve location, refer to “Piping Diagrams” on page 32.

Circulating Loop

For proper operation of the ETV Platinum Plus, the valve must be installed in a system with constant recirculation. The building recirculation must be piped in a manner that allows recirculating flow to the COLD side of the ETV valve and to the water heating source. Refer to “Piping Diagrams” on page 32.

The size of the recirculation loop and pump should be as follows:

ETV Valve Size	Minimum Flow
Up to 1"	5 gpm
1¼" and 1½"	10 gpm
over 2"	15 gpm

For optimum valve function, ensure the building recirculation temperature is at least 7°F lower than the desired setpoint temperature. In addition, it is recommended that the HOT water supplied to the ETV valve is at least 20°F above the desired setpoint.

Thermal Trap

A thermal trap must be used to prevent the higher temperature water in the hot water supply source from backing up and entering the cold-water inlet side of the mixing valve during low flow periods. The thermal trap can be installed either up or down. However, its drop must be a minimum of 32 inches (81.3cm) as measured from pipe-center to pipe-center.

In applications where piping a thermal trap is not feasible, or in applications where there is a recirculating pump between a heating source and storage tank, a check valve may be used.

Dual/Parallel Valve Piping

The ETV Platinum Plus control module can modulate two valves piped in parallel while maintaining a single setpoint temperature.

When piping two valves in parallel it is very important to ensure:

- the piping manifold is such that both valves receive balanced flows
- both valves have isolation valves properly piped in a manner to allow for isolating one valve while maintaining operation of the second valve

Refer to “Piping Diagrams” on page 32.

Valve Installation

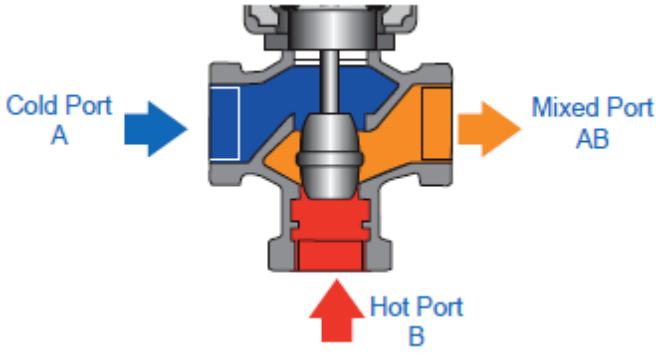
> **⚠ CAUTION**
>
> **Use a two-wrench method (using one wrench to prevent the valve body from turning or twisting) when tightening piping onto the valve body connections. Failure to support the valve body in this manner may cause damage to the valve body, or result in the "B" port coming loose, resulting in water leakage.**

NOTE: The valve and actuator can be mounted vertically (upright) or horizontally. **DO NOT** mount the valve and actuator upside down. Leave at least 12 inches (30.5cm) clearance on all sides between the valve/actuator and any objects (walls, pipes, controls, etc.).

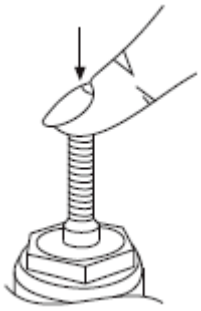
1. Pipe the valve as shown at right.

   Make sure to follow the port letter designation or the valve flow direction label.

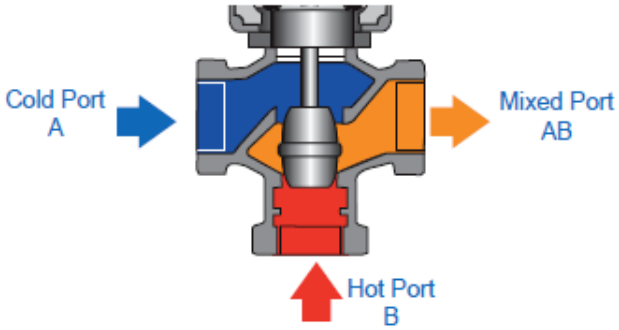
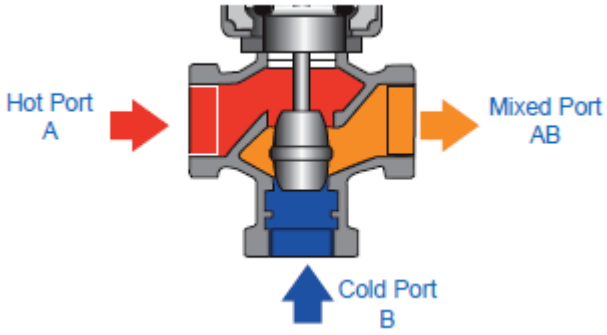
   NOTE: The valve body can be oriented in such a way that the Cold and Hot ports are interchangeable to accommodate existing piping. Refer to "Valve Direction – DIP Switch 1" on page 12.



2. Close the valve by manually pushing its shaft down.



Valve Direction – DIP Switch 1

DIP Switch 1 = ON	DIP Switch 1 = OFF
	

Mounting the Actuator to the Mixing Valve

NOTE: This section applies to ETV and ETV + TMC modes only.

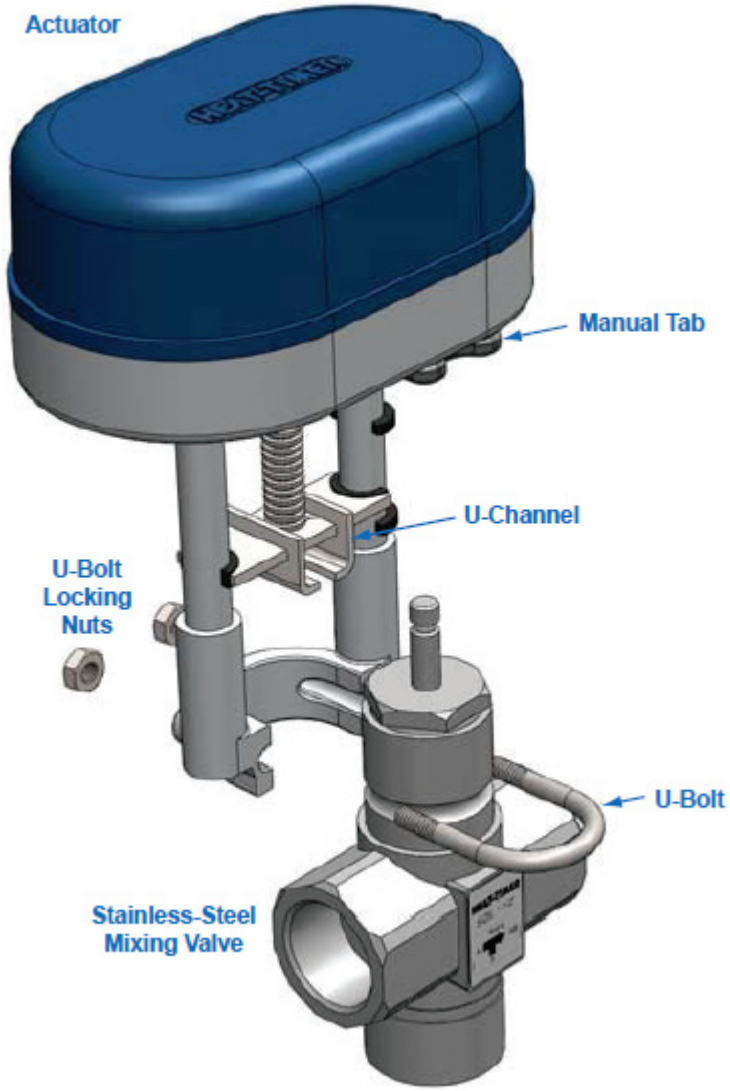
1. Before wiring or mounting the Actuator to the valve, manually close the Actuator (Figure 3).
   a. Lower the Manual Tab to place the Actuator in Manual Override mode.
   b. Turn the Manual Tab counter-clockwise to drive the threaded shaft to the fully closed position.
   c. Raise the Manual Tab to place the Actuator in Normal Operation mode.

   Figure 3: Manually Closing the Actuator

2. Mount the Actuator to the valve by sliding the valve stem groove into the Actuator U-channel. If necessary, use the Actuator manual tab to adjust the position of the U-channel until it is aligned with the valve stem groove.

   NOTE: The U-bolt must also be aligned with the valve groove, as shown in Figure 4.

Figure 4: Mounting the Actuator to the Valve

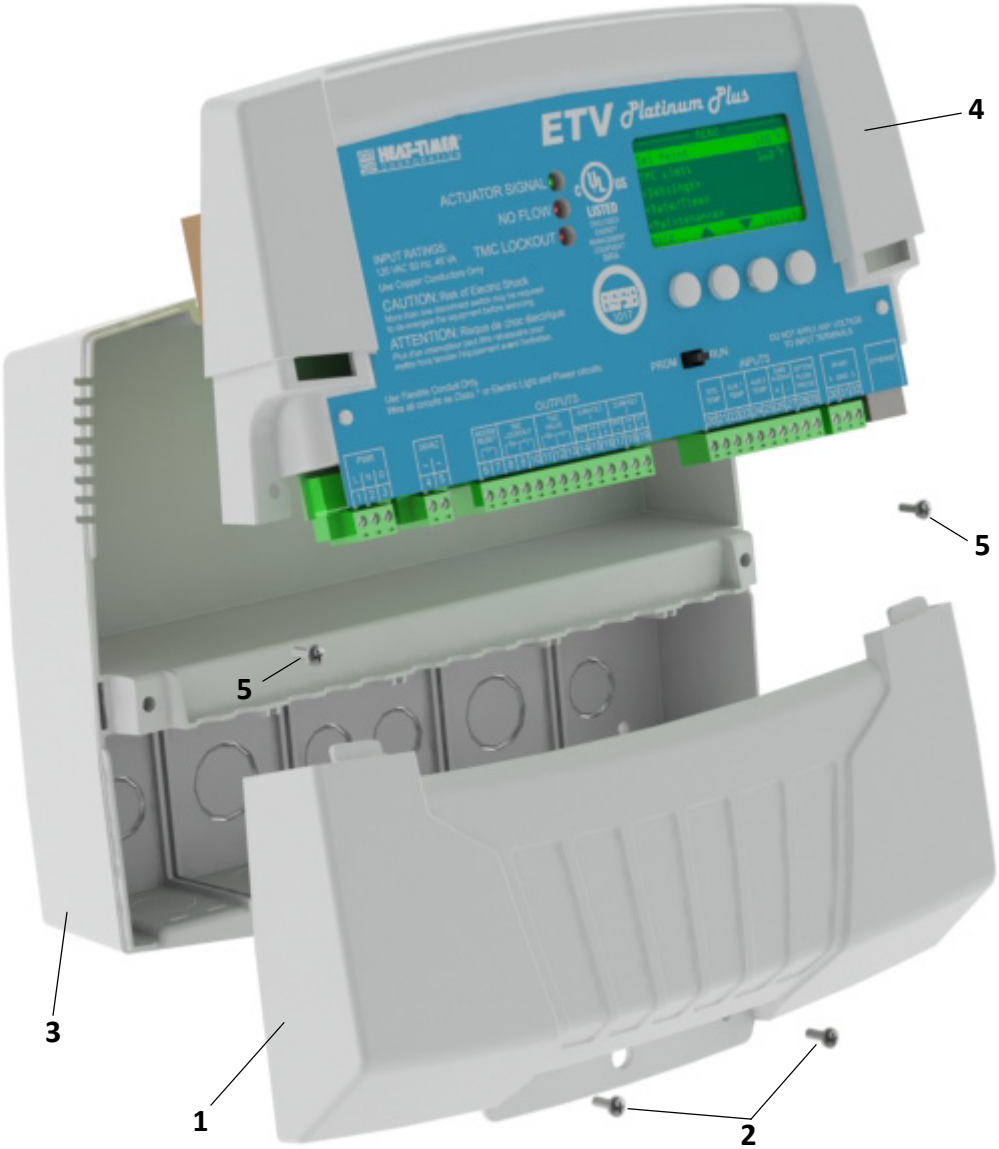


3. Insert the U-bolt around the valve groove and into the Actuator assembly.
4. Secure the U-bolt in place with two locking nuts, ensuring the locking nuts are tightened evenly.
   NOTE: The actuator may make a grinding noise if the locking nuts are not tightened evenly.

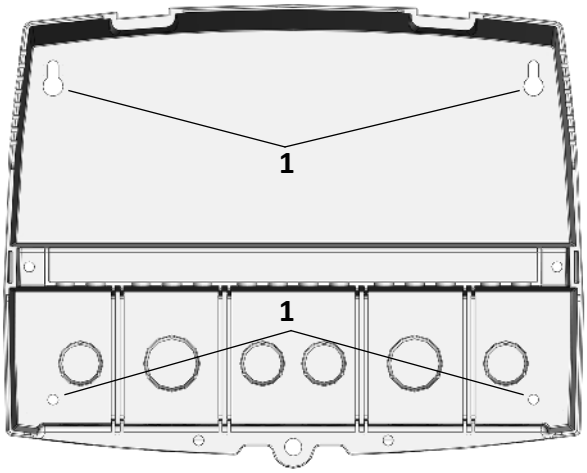
Mounting the ETV Platinum Plus Module

Mounting the Enclosure

1. Select an appropriate location to mount the ETV Platinum Plus. The location must meet the following minimum requirements:
   - The mounting surface should be flat and strong enough to hold the weight of the device.
   - The device can be mounted a maximum of 500 feet (152.4 meters) from the valve location, but should be mounted as near to the valve as possible to avoid excessive wire runs.
   - DO NOT mount the device in a location where it will be exposed to extreme heat, cold, humidity, or moisture.
2. Remove the Enclosure Wiring Cover (1) by removing the two lower screws (2) holding it to the base (3), and then remove the Display Module (4) by removing the two middle screws (5) holding it to the base.

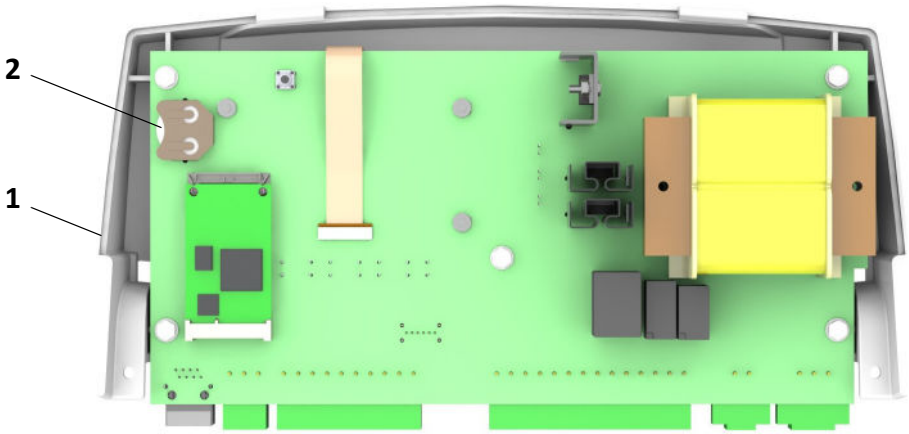


3. Position the Enclosure base in the desired location, and then secure the base in place using four screws (provided) through the mounting holes (1) on the back of the Enclosure base.



Mounting the Display Module

1. Turn the ETV Platinum Plus display module (1) over to reveal the battery (2) circuit board. Remove the plastic tab to activate the battery.



NOTE: The battery is a coin lithium battery (CR2032 - Heat Timer p/n 020002-00) that is used to maintain the control's date and time during power outages. The battery can maintain the clock for up to a total of 100 days.

> **⚠ CAUTION**
>
> **Do not remove the battery unless you plan to keep the control continuously powered. If the control has no power, the battery will lose its charge in 100 days.**

2. Position the Display Module into the base and secure it in place using the middle screws removed in Step 2 above.

   NOTE: Do not replace the Enclosure Wiring Cover until all wiring is completed.

3. Continue with "Wiring the ETV Platinum Plus" on page 17.

Wiring the ETV Platinum Plus

Power Input Wiring

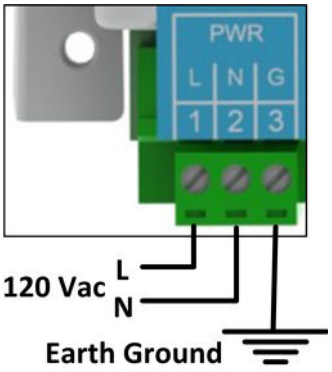
⚠ WARNING

ELECTRICAL SHOCK HAZARD! Disconnect electrical power to the device before servicing or making any electrical connections. Failure to do so may result in severe personal injury or death.

Use a separate circuit breaker for the control. Do not share the control power with other major equipment, pumps, or motors. Heat-Timer recommends the installation of a surge suppressor and a power switch before the power line connection.

Follow all local and state electrical codes when installing this unit. All wiring must meet or exceed local, state, or federal codes and requirements.

1. De-energize the circuit that will provide power to the ETV Platinum Plus by turning off the appropriate circuit breaker.
2. Run the 120Vac power wiring through one of the knockouts located on the bottom of the ETV Platinum Plus enclosure.



⚠ CAUTION

The input power wires must be N.E.C. Class 1. Class 1 voltage wiring must use a different enclosure knockout and conduit than any sensor wiring.

3. Connect the hot line to terminal 1 on the ETV Platinum Plus.
4. Connect the neutral line to terminal 2 on the ETV Platinum Plus.
5. Connect terminal 3 on the ETV Platinum Plus to earth ground. **DO NOT** use the neutral line as the earth ground!

⚠ WARNING

ELECTRICAL SHOCK HAZARD! To avoid the risk of electric shock, DO NOT re-connect electrical power until ALL wiring to the ETV Platinum Plus is completed. Failure to do so may result in severe personal injury or death.

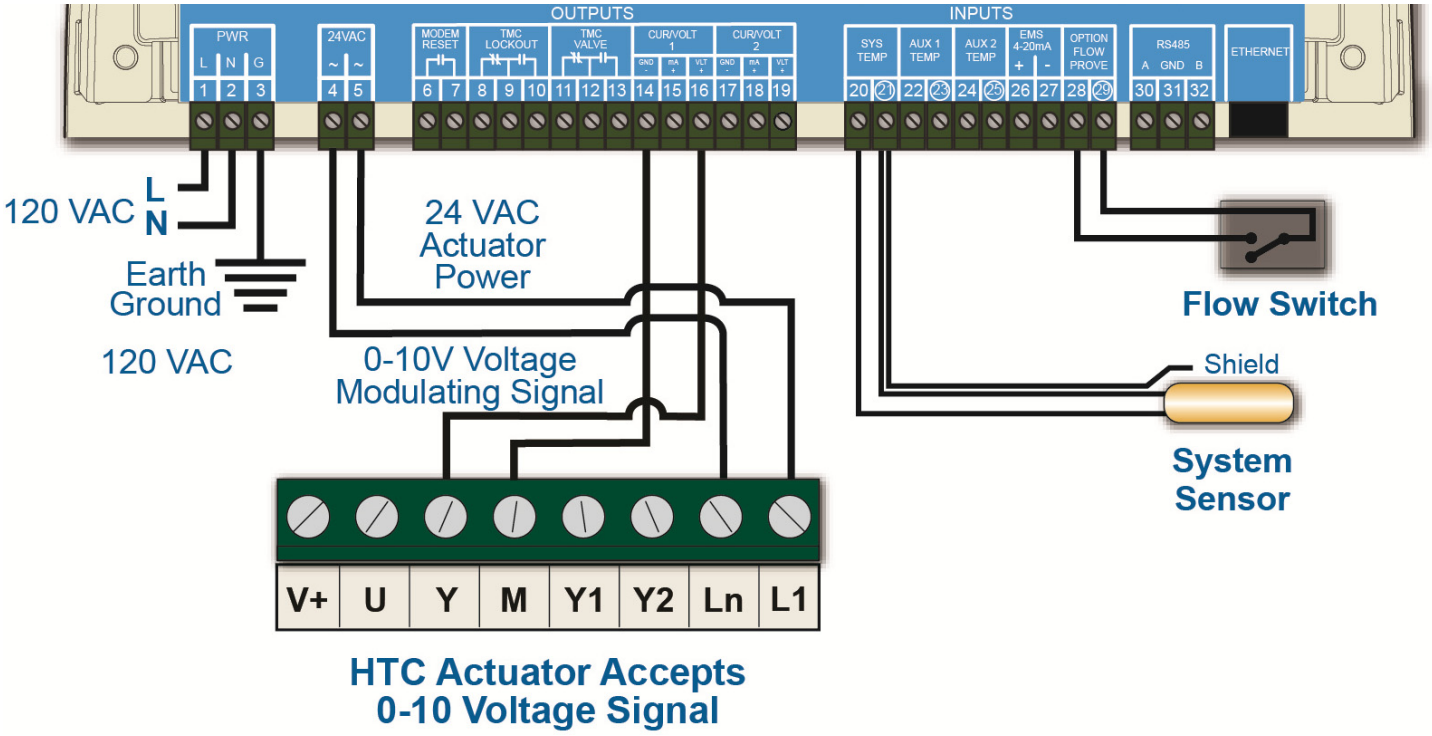
Output Wiring

NOTE: Output relays do not source power. A separate power source must be used when needed. Use the output relay to enable or disable equipment.

⚠ CAUTION

Class 2 voltage wiring (low-voltage sensor wires) must use a different enclosure knockout and conduit than any Class 1 voltage wiring.

Wiring the Actuator – Single-Valve Application



1. Run the wiring through a knockout located on the bottom of the ETV Platinum Plus enclosure to the Actuator terminal block.
2. Connect the Actuator voltage signal wire from Actuator terminal (Y) to terminal 16 on the ETV Platinum Plus.
3. Connect the Actuator ground wire from Actuator terminal (M) to terminal 14 on the ETV Platinum Plus.

NOTE: The ETV Platinum Plus can provide 24Vac power to a single Actuator. As an alternative, External Transformer Kit (Heat-Timer p/n 9500023-00) can be used to provide power to the Actuator.

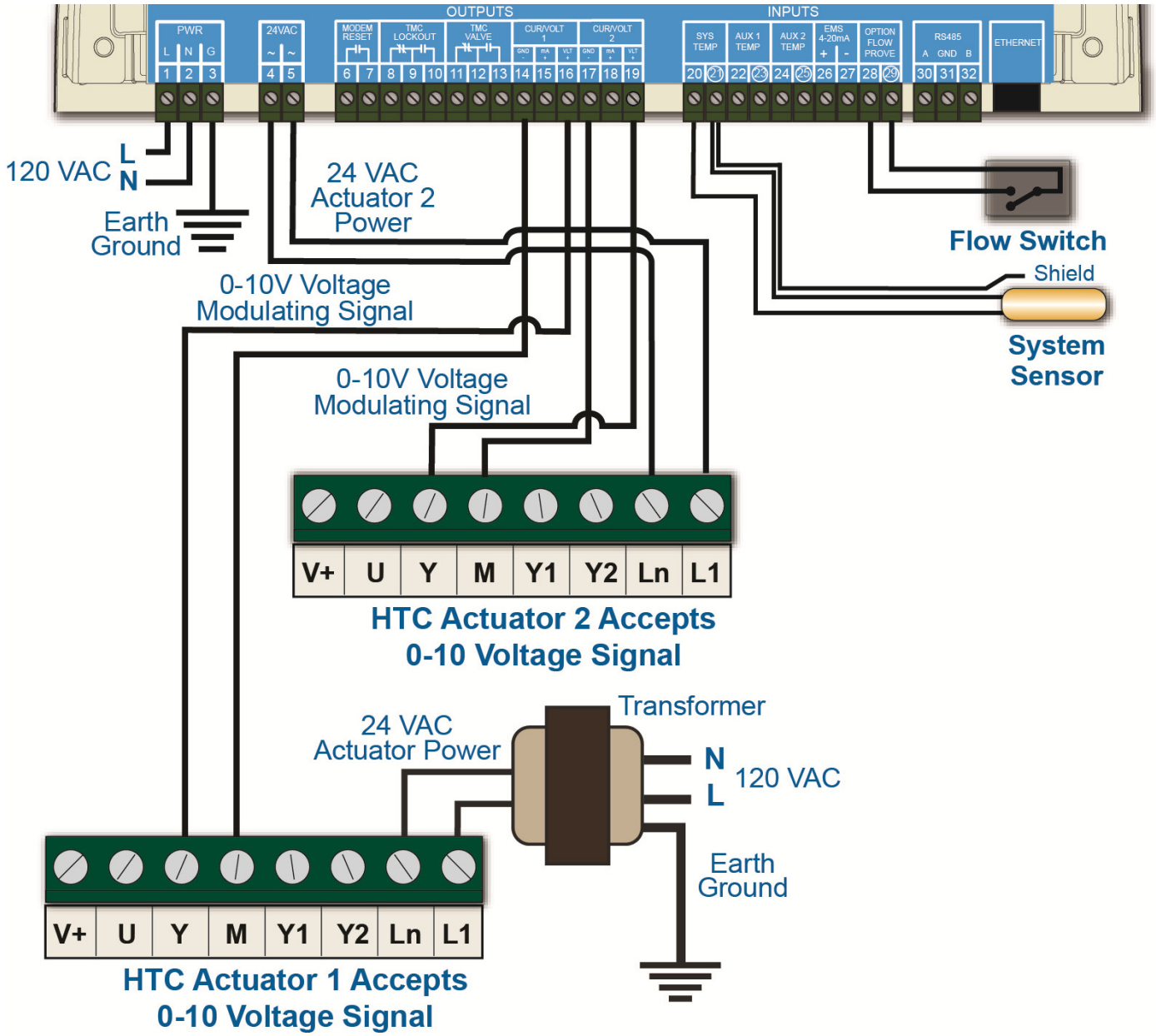
4. To connect 24Vac power from the ETV Platinum Plus to the Actuator:
   a. Run the Actuator's power wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.
   b. Connect the Actuator power wire from Actuator terminal (L1) to terminal 4 on the ETV Platinum Plus.
   c. Connect the Actuator power wire from Actuator terminal (Ln) to terminal 5 on the ETV Platinum Plus.
5. To optionally connect 24Vac power from the External Transformer Kit to the Actuator:
   a. Connect the first Actuator's (L1) and (Ln) terminals to the transformer's 24Vac terminals.
   b. Connect the optional second Actuator's (L1) and (Ln) terminals to the transformer's 24Vac terminals.

⚠ CAUTION

After assembling the Actuator to the valve and wiring the Actuator to the ETV Platinum Plus, the Actuator MUST be fully calibrated or the Actuator may not operate properly.

Refer to the HTC Actuator manual for calibration information.

Wiring the Actuator – Two-Valve Application



1. Connect the first Actuator:
   a. Run the wiring through a knockout located on the bottom of the ETV Platinum Plus enclosure to the Actuator terminal block.
   b. Connect the Actuator voltage signal wire from Actuator terminal (Y) to terminal 16 on the ETV Platinum Plus.
   c. Connect the Actuator ground wire from Actuator terminal (M) to terminal 14 on the ETV Platinum Plus.
2. Connect the second Actuator:
   a. Run the wiring through a knockout located on the bottom of the ETV Platinum Plus enclosure to the Actuator terminal block.
   b. Connect the Actuator voltage signal wire from Actuator terminal (Y) to terminal 19 on the ETV Platinum Plus.
   c. Connect the Actuator ground wire from Actuator terminal (M) to terminal 17 on the ETV Platinum Plus.

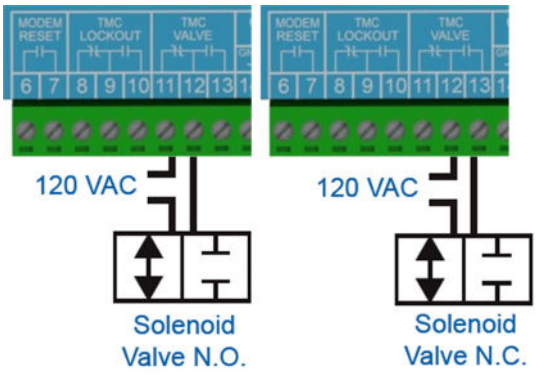
NOTE: The ETV Platinum Plus can provide 24Vac power to a single Actuator. As an alternative, External Transformer Kit (Heat-Timer p/n 9500023-00) can be used to provide power to the Actuator. When a second Actuator is installed, that Actuator must receive power from the supplied external transformer.

3. To connect 24Vac power from the ETV Platinum Plus to an Actuator:
   a. Run the Actuator's power wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.
   b. Connect the Actuator power wire from Actuator terminal (L1) to terminal 4 on the ETV Platinum Plus.
   c. Connect the Actuator power wire from Actuator terminal (Ln) to terminal 5 on the ETV Platinum Plus.
4. To connect 24Vac power from the External Transformer Kit to an Actuator:
   a. Connect the first Actuator's (L1) and (Ln) terminals to the transformer's 24Vac terminals.
   b. Connect the optional second Actuator's (L1) and (Ln) terminals to the transformer's 24Vac terminals.

> **⚠ CAUTION**
>
> **After assembling the Actuator to the valve and wiring the Actuator to the ETV Platinum Plus, the Actuator MUST be fully calibrated or the Actuator may not operate properly.**
>
> **Refer to "Calibrating the Actuator" on page 24 for calibration information.**

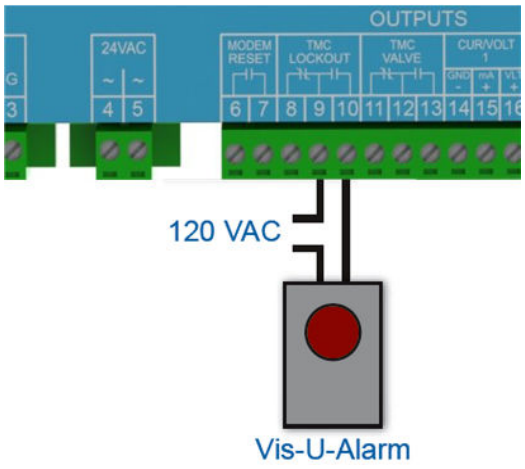
Wiring the TMC Valve

NOTE: The ETV Platinum Plus does not source power to the TMC valve terminals. An external power source is required and must be connected in series as shown in the diagram. Refer to "TMC Valve" on page 6 for information.



1. Run the TMC valve wire and the external power source wire through knockouts located on the bottom of the ETV Platinum Plus enclosure.
2. To connect a N.O. TMC valve:
   a. Connect the TMC valve wire to terminal 12 on the ETV Platinum Plus.
   b. Connect the external power source wire to terminal 11 on the ETV Platinum Plus.
   c. Connect the other Solenoid wire to the external power source.
3. To connect a N.C. TMC valve:
   a. Connect the TMC valve wire to terminal 13 on the ETV Platinum Plus.
   b. Connect the external power source wire to terminal 12 on the ETV Platinum Plus.
   c. Connect the other Solenoid wire to the external power source.

Wiring the TMC Lockout



NOTE: The ETV Platinum Plus does not source power to the TMC Lockout terminals. An external power source is required and must be connected in series as shown in the diagram. Refer to "TMC Lockout Output" on page 6 for information.

1. Run the alarm wire and the external power source wire through knockouts located on the bottom of the ETV Platinum Plus enclosure.
2. To connect a N.O. alarm device (requires switch closure to trigger):
   a. Connect the alarm device wire to terminal 9 on the ETV Platinum Plus.
   b. Connect the external power source wire to terminal 8 on the ETV Platinum Plus.
   c. Connect the other alarm device wire to the external power source.
3. To connect a N.C. alarm device (requires switch open to trigger):
   a. Connect the alarm device wire to terminal 10 on the ETV Platinum Plus.
   b. Connect the external power source wire to terminal 9 on the ETV Platinum Plus.
   c. Connect the other alarm device wire to the external power source.

Input Wiring

⚠ CAUTION

To avoid damage to the ETV Platinum Plus, NO VOLTAGE can be applied to the ETV Platinum Plus input terminals.

Class 2 voltage wiring (low-voltage sensor and communication wires) must use a different enclosure knockout and conduit than any Class 1 voltage wiring.

Wiring the System Temperature Sensor

NOTES:

- The System Temperature Sensor must be connected for the system to operate. Refer to page 5 for a description of the sensor.
- For acceptable sensor locations, refer to the diagram on page 10.
- Due to the internal logic and performance of the ETV Platinum Plus, the use of a standard brass tube thermistor may affect the accuracy and performance of the control. The use of Probe Sensor (Heat-Timer p/n 904222-00) supplied with the module is strongly recommended.

1. Run the System Sensor wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.

   NOTE: The sensor wires can be extended up to 500 feet (152.5 meters) using an 18 AWG shielded 2-conductor cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable).
2. Connect the System Sensor wires to terminal 20 and 21 on the ETV Platinum Plus.
3. Connect the shield to terminal 21 on the ETV Platinum Plus.

   NOTE: Do not connect the shield at the sensor end.

Wiring Aux Inputs – Sensors or Switches

NOTES:

- No voltage can be applied to terminal 22 or 23.
- Auxiliary inputs can be configured as temperature sensors or as switch sensors. When configured as a switch sensor, it must be connected to a device that provides an open or close (short) only.
- Standard brass tube sensors (Heat-Timer p/n 904220-00) can be used in a well. However, this is not recommended when using the Feed Forward function (refer to “Return Comp.” on page 28). Brass tube sensors can be used as temperature sensors, only.

1. To connect an Auxiliary temperature sensor:
   a. Run the sensor wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.

      NOTE: The sensor wires can be extended up to 500 feet (152.5 meters) using an 18 AWG shielded 2-conductor cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable).
   b. Connect the sensor wires to terminal 22 and 23 on the ETV Platinum Plus.
   c. Connect the shield to terminal 23 on the ETV Platinum Plus.

      NOTE: Do not connect the shield at the sensor end.
2. To connect a second Auxiliary temperature sensor:
   a. Run the sensor wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.

      NOTE: The sensor wires can be extended up to 500 feet (152.5 meters) using an 18 AWG shielded 2-conductor cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable).
   b. Connect the sensor wires to terminal 24 and 25 on the ETV Platinum Plus.
   c. Connect the shield to terminal 25 on the ETV Platinum Plus.

      NOTE: Do not connect the shield at the sensor end.

3. To connect an Auxiliary switch:
   a. Run the switch wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.

      NOTE: The switch wires can be extended up to 500 feet (152.5 meters) using an 18 AWG shielded 2-conductor cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable).

   b. Connect the switch wires to terminal 22 and 23 on the ETV Platinum Plus.
4. To connect a second Auxiliary switch:
   a. Run the switch wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.

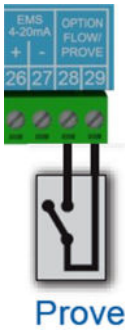
      NOTE: The switch wires can be extended up to 500 feet (152.5 meters) using an 18 AWG shielded 2-conductor cable (Heat-Timer p/n 703001-01 or equivalent #18/2 cable).

   b. Connect the switch wires to terminal 24 and 25 on the ETV Platinum Plus.

Wiring the Flow Prove

NOTE: Refer to “Flow Prove” on page 5 for information.

1. Run the Flow Prove wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.
2. Connect one wire to terminal 28 on the ETV Platinum Plus.
3. Connect the other wire to terminal 29 on the ETV Platinum Plus.



Wiring the 4-20mA Remote Setpoint

NOTE: The ETV Platinum Plus does not source power to the 4-20mA terminals. The EMS system must provide the excitation voltage. Refer to “4-20mA Remote Setpoint” on page 5 for information.

1. Run the 4-20mA Setpoint wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.
2. Connect the positive (+) wire to terminal 26 on the ETV Platinum Plus.
3. Connect the negative (–) wire to terminal 27 on the ETV Platinum Plus.

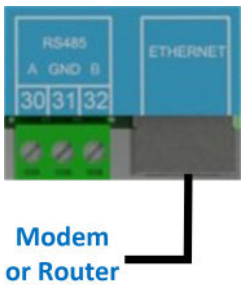
Communications Wiring

The ETV Platinum Plus can be connected to a network using either an internet (RINET), BACnet (IP or MSTP), or ModBUS connection.

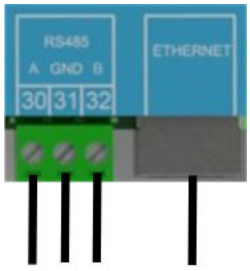
Internet (RINET) Communications Wiring

To connect the ETV Platinum Plus to the internet:

1. Run a CAT5 cable from the modem or router through a knockout located on the bottom of the ETV Platinum Plus enclosure.
2. Connect the CAT5 cable to the Ethernet connector on the ETV Platinum Plus.



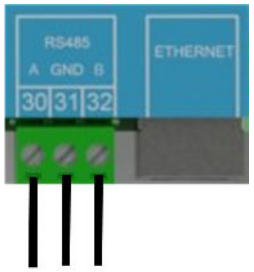
BACnet Communications Wiring



To connect the ETV Platinum Plus to a BACnet interface:

1. Run a CAT5 cable through a knockout located on the bottom of the ETV Platinum Plus enclosure.
2. Connect the CAT5 cable to the Ethernet connector on the ETV Platinum Plus.
3. Run the BACnet connection wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.
4. Connect the positive (+) wire to terminal 30 on the ETV Platinum Plus.
5. Connect the ground wire to terminal 31 on the ETV Platinum Plus.
6. Connect the negative (–) wire to terminal 32 on the ETV Platinum Plus.

ModBUS Communications Wiring



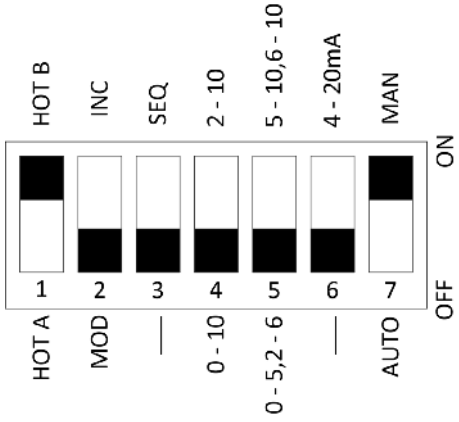
To connect the ETV Platinum Plus to a ModBUS interface:

1. Run the ModBUS connection wires through a knockout located on the bottom of the ETV Platinum Plus enclosure.
2. Connect the positive (+) wire to terminal 30 on the ETV Platinum Plus.
3. Connect the ground wire to terminal 31 on the ETV Platinum Plus.
4. Connect the negative (–) wire to terminal 32 on the ETV Platinum Plus.

Completing the Wiring

1. After all wiring to the ETV Platinum Plus is complete, replace the Enclosure wiring cover and secure it in place with two screws.
2. Optionally secure the enclosure using a padlock with a maximum shank diameter of ⅛".
3. Apply power to the ETV Platinum Plus and all Actuators.
4. Calibrate the Actuator and perform initial programming of the ETV Platinum Plus.

Calibrating the Actuator



NOTE: Each time the Actuator is assembled to the valve, the Actuator must be calibrated.

1. Close the valve feeding the tempering valve HOT port.
2. Ensure the Actuator Manual Tab is in the Normal Operation position (UP).
3. Remove the Actuator cover and ensure DIP switch 7 is in the ON (MAN) position.
4. Change DIP switch 7 to the OFF (AUTO) position then back to the ON (MAN) position.

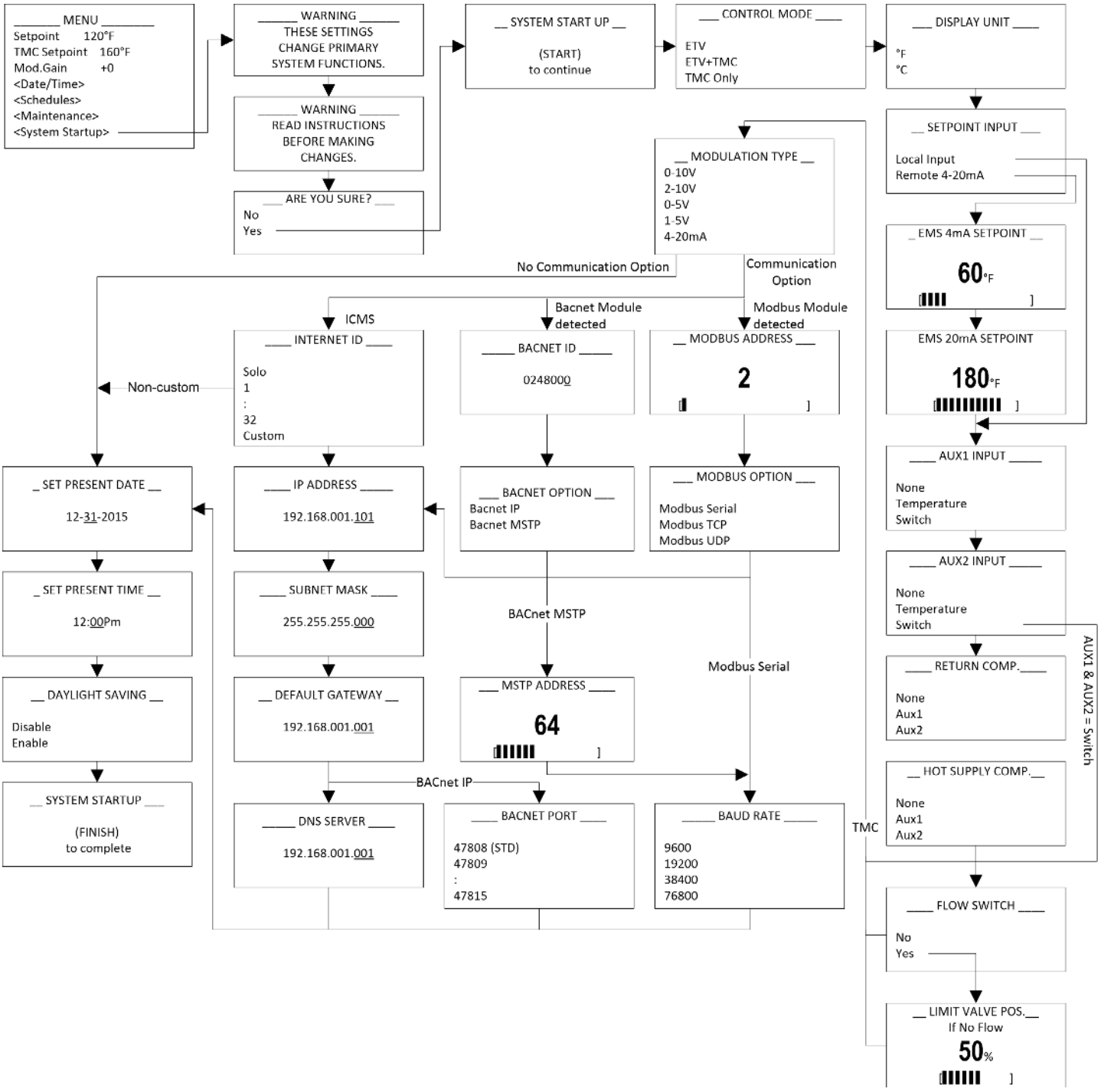
   The green and red LEDs start blinking, indicating calibration has started. The Actuator moves the valve stem up and down. Calibration is complete when the green LED is steady-on or blinking.
5. Replace the Actuator cover.
6. Open the valve feeding the tempering valve HOT port.

Initial Programming of the ETV Platinum Plus

System Startup Menu

When the ETV Platinum Plus is first powered-on and initialization is complete, the System Startup menu screens appear. Follow the System Startup menu screens to program the unit.

NOTE: If the System Startup menu screens to not appear, the ETV Platinum Plus has already been configured. To check the configuration or to make changes, select `System Startup` from the Main menu.



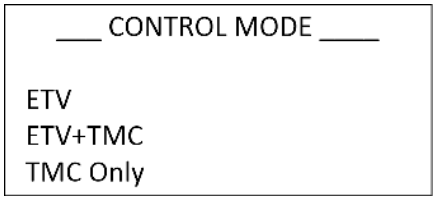
Control Mode

Selections: ETV, ETV + TMC, TMC Only

Default: ETV

Available in Control Modes: All

Menu Path: */System Startup > Control Mode*



Description:

ETV – controls the electronic mixing valve to regulate the water temperature. This mode can also accept the Flow Prove input to determine the mixing valve position during no flow periods.

TMC – triggers an alarm and shuts the hot water supply to the system using a TMC valve when experiencing excessive mixed temperature. This mode does not accept the Flow Prove input.

ETV + TMC – controls the electronic mixing valve to regulate the water temperature and the TMC valve and alarm to manage the hot water inlet. This mode also accepts the Flow Prove input to determine the mixing valve position during no flow periods. See “Wiring the Flow Prove” on page 23 and “Flow Switch” on page 29.

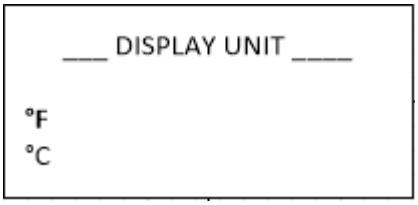
Display Unit

Selections: °F, °C

Default: °F

Available in Control Modes: All

Menu Path: */System Startup > Control Mode > Display Unit*

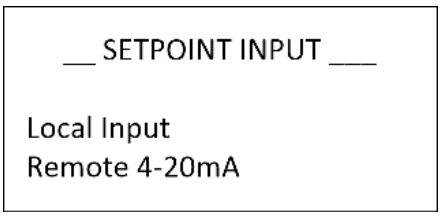


Description:

This option changes the sensors' display and all temperature settings standard to Fahrenheit or Celsius.

Setpoint Input

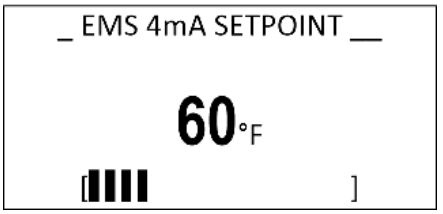
Selections: Local Input, Remote 4-20mA **Default:** Local Input



If Remote 4-20mA is selected:

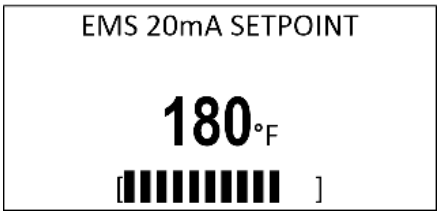
4mA range:
(40°F/4.5°C to 200°F/93°C)

Default: 60°F/16°C



20mA range:
(40°F/4.5°C to 200°F/93°C)

Default: 180°F/82°C



Available in Control Modes: All

Menu Path: */System Startup > Control Mode > Display Unit > Setpoint Input*

Description:

The ETV Platinum Plus can maintain a setpoint temperature either by selecting the temperature locally at the control or by receiving a remote setpoint temperature as a 4-20mA signal from EMS. See “Wiring the 4-20mA Remote Setpoint” on page 23.

If Remote 4-20mA was selected, the temperature range must be selected using the 4mA and 20mA settings.

If the Control Mode is set to ETV or ETV + TMC options, the Remote 4-20mA will always apply to the ETV Setpoint. However, if the Control Mode is set to TMC, the Remote 4-20mA will apply to the Alarm Limit.

Any signal below 2mA or above 22mA will close the motorized mixing valve in ETV or ETV + TMC mode. In the TMC mode, it will close the TMC valve and trigger the alarm. The display will show the message “EMS Open” or “EMS Short” to indicate this status.

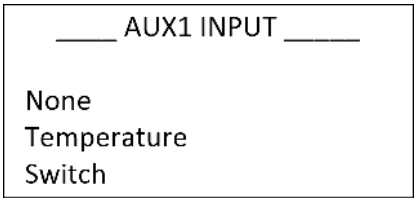
Aux1/Aux2 Input

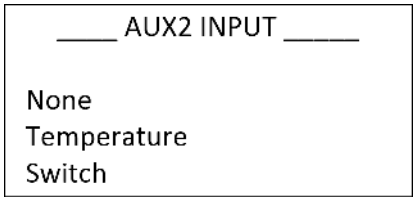
Selections: None, Temperature, Switch

Default: None

Available in Control Modes: All

Menu Path: */System Startup > Control Mode > Display Unit > Setpoint Input > AUX1 Input > AUX2 Input*





Description:

AUX1 and AUX2 inputs can be configured as a Switch sensor (which detects open or close conditions) or as a Temperature sensor (which can be used for anything that is temperature-related, including return and hot supply).

When "Temperature" is selected, the sensor can be used for return compensation and/or hot supply compensation to provide additional feedback to the control in order to maintain the desired setpoint temperature.

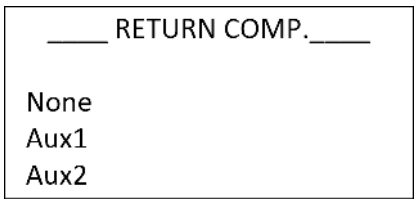
Return Comp.

Selections: None, Aux1, Aux2

Default: None

Available in Control Modes: ETV or ETV + TMC, AUX1/AUX2 = "Temperature"

Menu Path: */System Startup > Control Mode > Display Unit > Setpoint Input> AUX1 Input > AUX2 Input > Return Comp.*



Description:

If AUX1 or AUX2 input is configured as "Temperature", Return Comp can be used (Feed Forward). This is useful for improving the recovery when the Return temperature changes rapidly.

The sensor must be connected on the cold water return inlet of the valve (after the cold and return mix) in order to select this option.

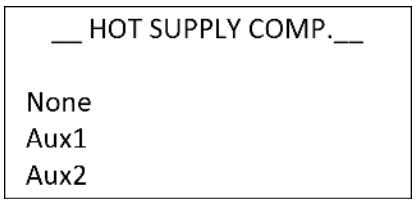
NOTE: When Return Comp. is used, a Sensor Probe must be installed. Only one sensor can be used. The sensor works best when it is 9 feet (2.7 meters) away and after the return and cold line meet.

Hot Supply Comp.

Selections: None, Aux1, Aux2 **Default:** None

Available in Control Modes: ETV or ETV + TMC, AUX1/AUX2 = Temperature

Menu Path: */System Startup > Control Mode > Display Unit > Setpoint Input> AUX1 Input > AUX2 Input > Return Comp. > Hot Supply Comp.*



Description:

If AUX1 or AUX2 input is configured as "Temperature", Hot Supply Comp can be used. This is useful for improving the recovery when the Hot Supply temperature changes rapidly.

The sensor must be connected on the hot water inlet of the valve in order to select this option.

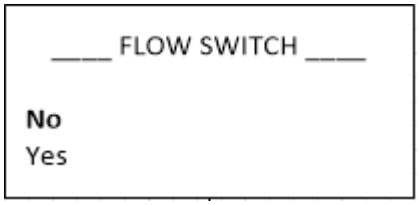
NOTE: When Hot Supply Comp. is used, a Sensor Probe must be installed. Only one sensor can be used.

Flow Switch

Selections: No, Yes **Default:** No

Available in Control Modes: ETV or ETV + TMC

Menu Path: */System Startup > Control Mode > Display Unit > Setpoint Input> AUX1 Input > AUX2 Input > Return Comp. > Hot Supply Comp. > Flow Switch*



Description:

All mixing valves require constant flow for accurate temperature control. Both ETV and ETV + TMC modes can accept a dry-contact Flow Prove input through terminals 25 and 26. See "Wiring the Flow Prove" on page 23.

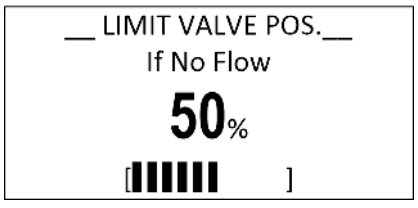
When Yes is selected and no flow is detected, the control will adjust the mixing valve down to the Limit Valve POS. setting (if the current valve position is greater than the Limit Valve POS. setting), or leave the mixing valve at its current position (if the current valve position is less than the Limit Valve POS. setting).

Limit Valve POS.

Selections: 0% to 100% **Default:** 50%

Available in Control Modes: ETV or ETV + TMC

Menu Path: */System Startup > Control Mode > Display Unit > Setpoint Input> AUX1 Input > AUX2 Input > Return Comp. > Hot Supply Comp. > Flow Switch = Yes > Limit Valve POS.*



Description:

When Flow Switch = Yes and no flow is detected, the control will adjust the mixing valve to the defined opening percentage if the valve is currently open more than the set value. If the current valve opening percentage is less than the set value, the valve will remain in its current position.

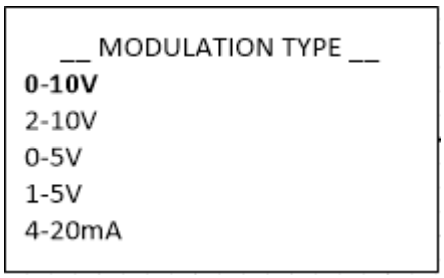
For example, if Limit Valve POS. is 30% and no flow is detected when the current valve opening percentage is 50%, the control adjusts the mixing valve down to the 30% open position. If the current valve opening percentage is 20% when no flow is detected, the valve will remain at the 20% open position.

Modulation Type

Selections: `0-10V, 2-10V, 0-5V, 1-5V, 4-20mA` **Default:** `0-10V`

Available in Control Modes: ETV or ETV + TMC

Menu Path: */System Startup > Control Mode > Display Unit > Setpoint Input> AUX1 Input > AUX2 Input> ... > Modulation Type*



Description:

The ETV is capable of operating a variety of 3-way valve Actuators. Heat-Timer factory-supplied Actuators are set to 0-10V signal.

The modulation signal selected must match the Actuator modulation signal.

Network Communication Options

Selections: Network communications settings

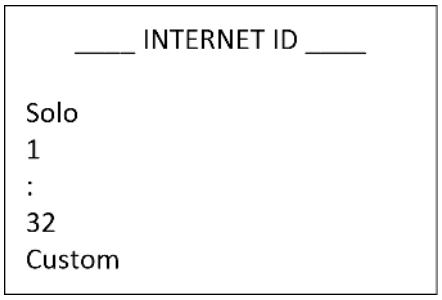
Available in Control Modes: All

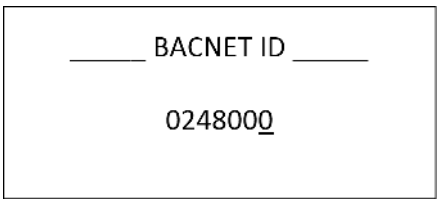
Menu Path: */System Startup > Control Mode > ... > Modulation Type > {comm options}*

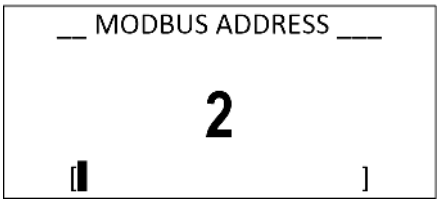
Description:

During startup, the ETV Platinum Plus detects an installed network option. If no network is detected, network configuration screens are bypassed.

- **RINET**–Internet ID (Solo, 1–32, or Custom)
  - Solo: if the ETV Platinum Plus is directly connected to the modem
  - Internet ID 1–32: if the ETV Platinum Plus is connected to a router (Port Forwarding must also be configured on the router)
  - Custom: IP address, Subnet mask, Default gateway, DNS server
- **BACnet**–BACnet ID, BACnet option (IP or MSTP)
  - BACnet IP: IP address, Subnet mask, Default gateway, BACnet port
  - BACnet MSTP: MSTP address and Baud rate
- **Modbus**–Modbus address, Modbus option (Serial, TCP, or UDP)
  - Modbus Serial: Baud rate
  - Modbus TCP or UDP: IP address, Subnet mask, Default gateway, DNS server







Set Present Date and Time

Selections: Numerical values for Month, Day, Year, and Time

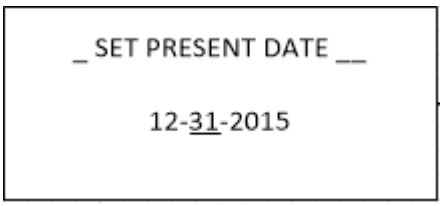
Available in Control Modes: All

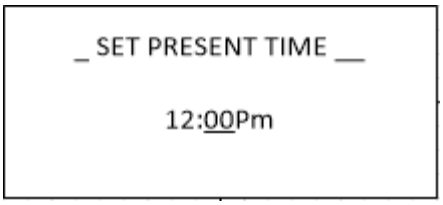
Menu Path: */System Startup > Control Mode > ... > Modulation Type > {comm options} > Set Present Date > Set Present Time*

Description:

Sets the present date and time on the control. The date and time are used to regulate the Schedule.

The ETV battery is used to maintain the date and time during power outages.





Daylight Saving

Selections: `Enable`, `Disable` **Default:** `Enable`

Available in Control Modes: All

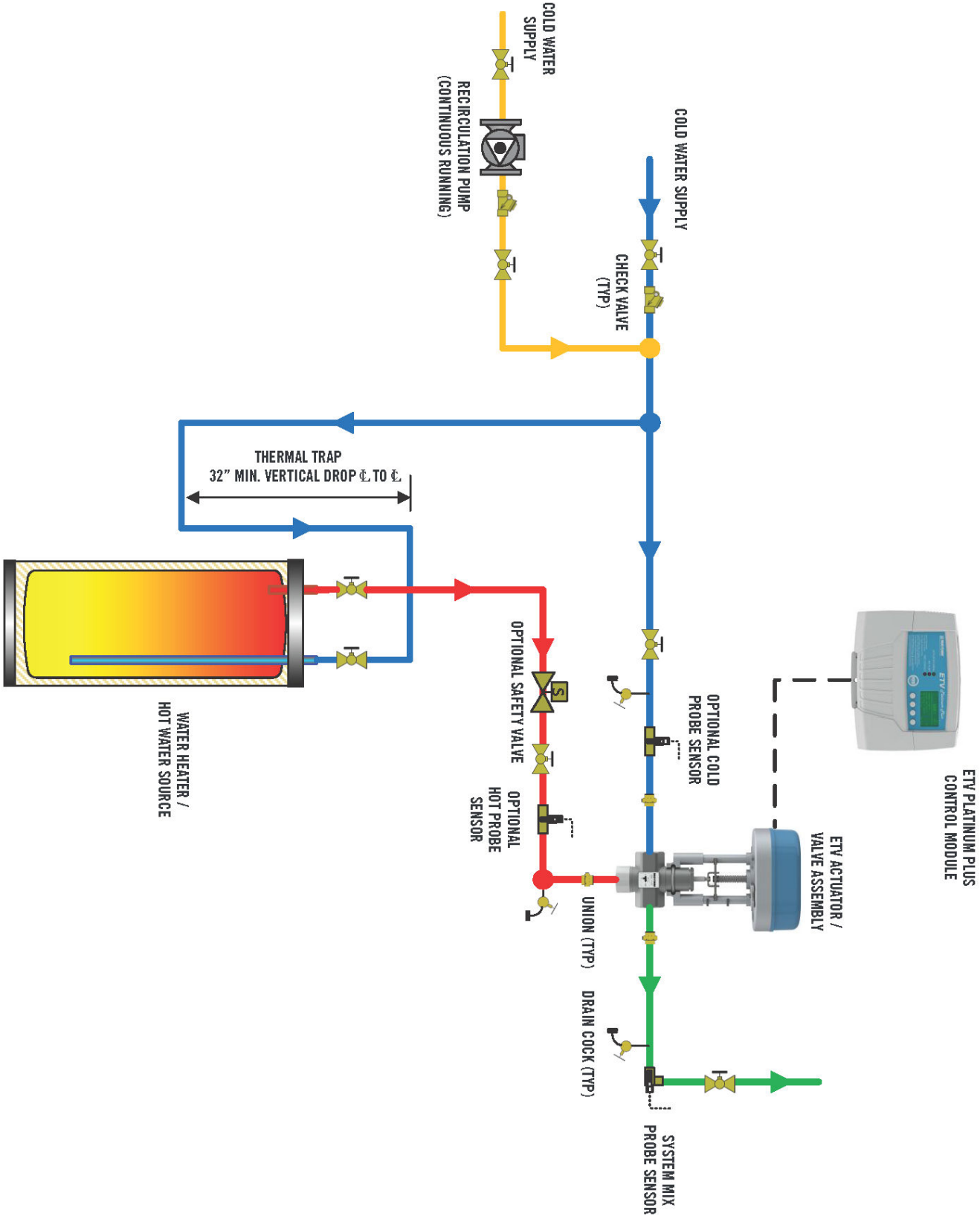
Menu Path: */System Startup > Control Mode > ... > Set Present Date > Set Present Time > Daylight Saving*

Description:

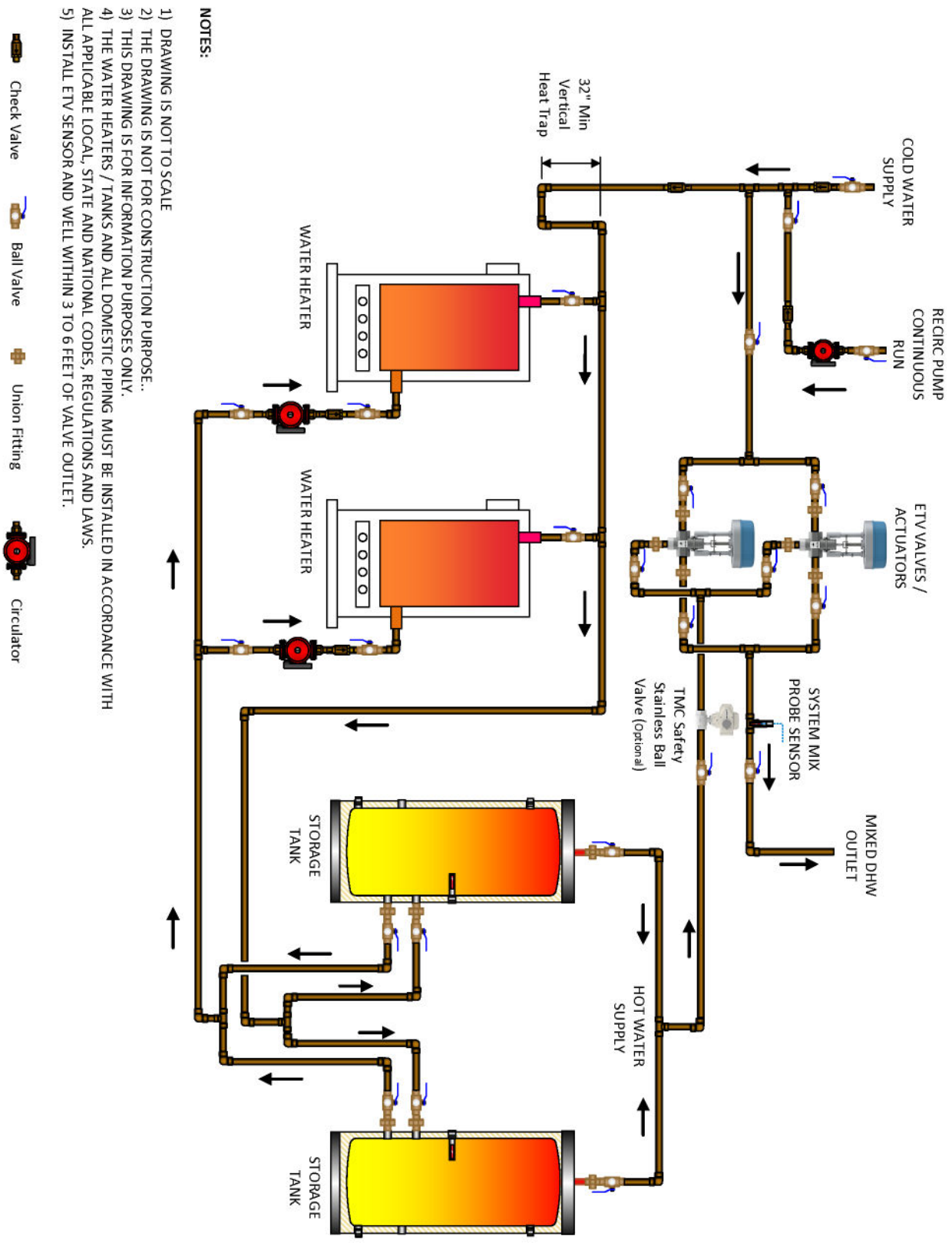
Enables or disables Daylight Saving mode. When enabled, the present time on the control will be automatically adjusted for Daylight Savings Time.

Piping Diagrams

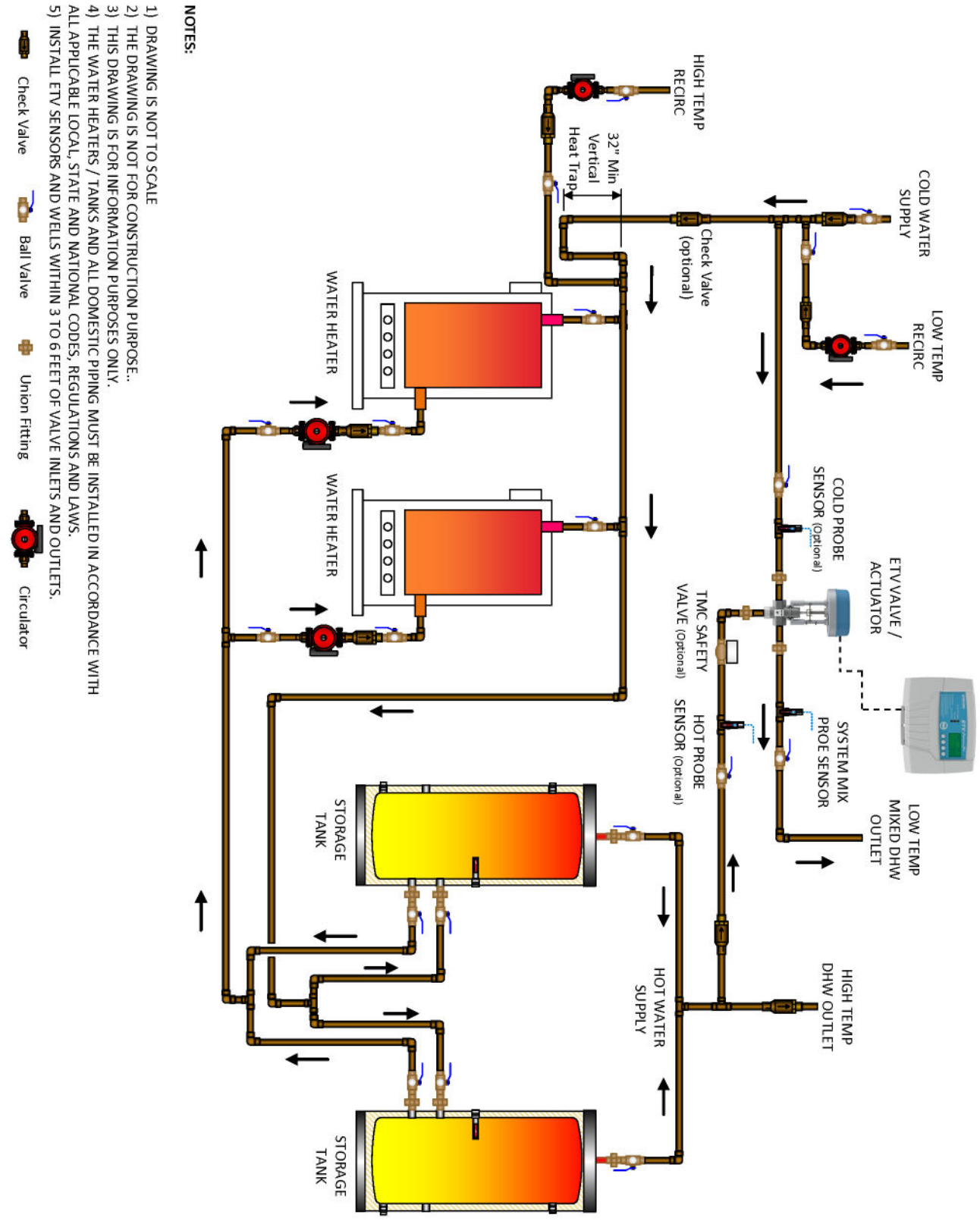
One Mixing Valve and a TMC Safety Valve



Two Mixing Valves and a TMC Safety Valve



Two Temp Application



ETV Platinum Plus Display and Programming

ETV Platinum Plus Control Module Output Status LEDs

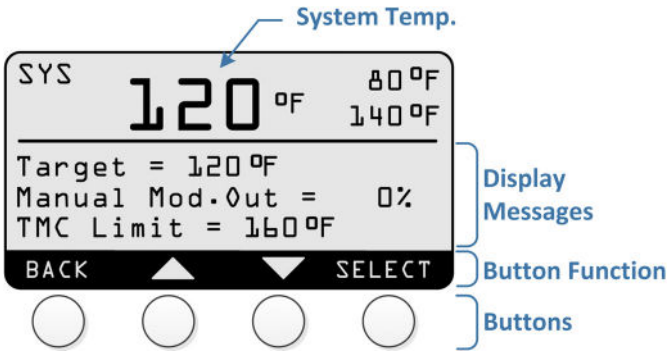
The ETV Platinum Plus has three output status LEDs:

LED	Description
Actuator Signal	Indicates the change in the mixing valve opening. Any time the ETV Platinum Plus changes the valve opening, the LED will turn on for approximately one second. If the LED remains lit, the control is sending the Actuator a “fully open” or “fully close” signal.
No Flow	Indicates no flow exists when lit.
TMC Lockout	Indicates the control is in lockout mode when lit. System temperature rises above the Alarm Limit for the Trigger Delay period, or a sensor has been disconnected. See “Alarm Messages” on page 37. After the alarm condition has been corrected, the ETV Platinum Plus must be manually reset to resume normal operation.

Display and Variable-Function Buttons

The ETV Platinum Plus display shows the system sensor temperature and operation messages. By default, the display shows the current Setpoint, Alarm Limit, or the Modulation Output percentage. See “Display Icons and Messages” on page 36 for more information.

The area above the variable-function buttons displays the current function for each button. This area may not be displayed if button activity is stopped for 30 seconds in the ETV + TMC mode.



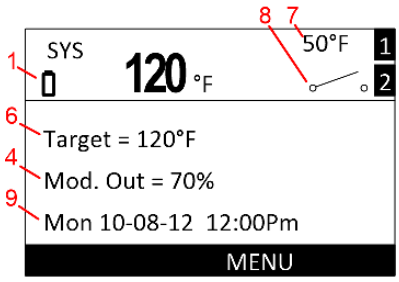
The display button functions vary based on the current screen displayed, as described in the following table:

Screen	Button			
	Left	▲	▼	Right
Default	Has no function	Has no function		**MENU** Enters the menu mode.
In Lockout	**LOCKOUT** Enters the Lockout Reset Menu.			
Lockout Reset	**BACK** Goes back one menu step.			**RESET** Ends current alarm.
Menu		Scrolls through the menu.		**SELECT** Selects current menu item.
Setting		Changes the current setting value.		**SAVE** Saves current setting.
Configuration				**NEXT** or **EXIT** Jumps to next view or exits.

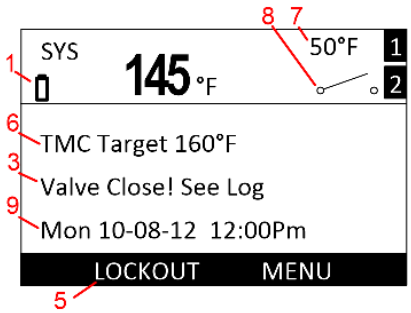
Default Display

The ETV Platinum Plus default display varies depending on selected Control Mode and alarm condition.

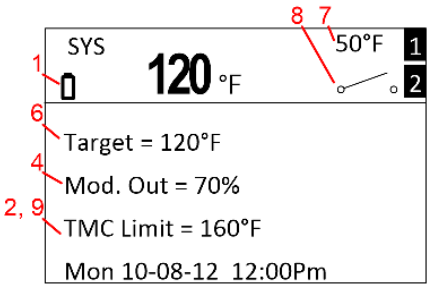
ETV Mode



TMC Mode



ETV + TMC Mode



NOTE: When in the ETV + TMC mode, the area above the variable function buttons that describe the button's function may not be displayed due to inactivity. Pressing the far-right button in the default display will enter into the Menu screen.

Display Icons and Messages

The following icons and messages may be displayed by the ETV Platinum Plus.

#	Mode	Message	Description
1	All		The battery icon blinks when the battery is weak.
2	TMC	TMC Limit = 160°F Valve Close! See Log	The alarm is set to be triggered when the system temperature exceeds the displayed setting for the specified Delay Alarm period. See "TMC Setpoint" on page 40. The system temperature exceeded the alarm limit. TMC lockout has occurred (the control closed the TMC valve). View the alarm logs (see "Alarm Log" on page 45). When in the ETV + TMC mode, this message will alternate with the "TMC Limit = 160°F" message.
3	TMC	Valve Open	The system temperature is below the alarm limit (TMC Alarm is not triggered). The control opened the TMC valve.
4	ETV	No Flow!	The Flow Switch option is enabled and no flow is detected. See "Wiring the Flow Prove" on page 23.
5	TMC	TMC Lockout Alarm	When a TMC Lockout occurs, "TMC Lockout" blinks. When an active alarm occurs, "Alarm" blinks.
6	All	Target Temperature EMS Open/Short	The control target temperature setting. When EMS is used and the signal fails, "EMS Open/Short" is shown.
7	All	Value or Switch Icon	When Aux 1 is configured as Temperature input, the value is shown. When Aux 1 is configured as Switch, the switch status icon is shown.
8	All	Value or Switch Icon	When Aux 2 is configured as Temperature input, the value is shown. When Aux 2 is configured as Switch, the switch status icon is shown.
9	All	Communication Lost!	Internet Communication (ICMS) option only. The control is set to communicate over a network and communication is not detected. This message will alternate with the date and time message.

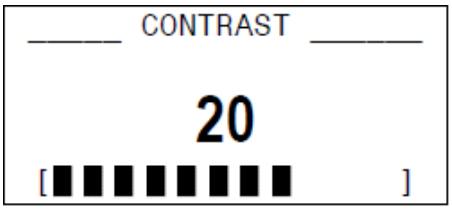
Alarm Messages

The ETV Platinum Plus logs all alarm messages, with the date and time of their occurrence (see “Alarm Log” on page 45). The following alarm messages may be displayed by the ETV Platinum Plus.

Message	Alarm Triggered	Description
Communication Loss	No	Internet Communication (ICMS) option only. The control is set to communicate over a network, but there is no communication between the control and the network.
EMS Input Failure	Yes	The control is set to use a 4-20mA remote setpoint. However, the signal is out of the 4-20mA range.
SYS Sensor Failure	Yes	The system sensor is reading either Short or Open. This triggers the alarm output in TMC or ETV + TMC mode.
SYS Temp Over Limit	Yes	The system sensor reading is above the alarm limit setting. See “TMC Setpoint” on page 40.

Setting the Display Contrast

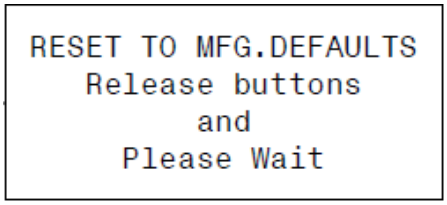
NOTE: The display contrast can only be changed when no alarm is active.



1. At the default screen, press and hold the left-most button for 5 seconds. Continue to hold the button while making adjustments.
2. Use the up and down buttons to change the contrast setting (0–30, default = 20).
3. Release the left-most button when the desired setting is reached.

Resetting to Factory Default

To set the ETV Platinum Plus back to its original factory default settings:



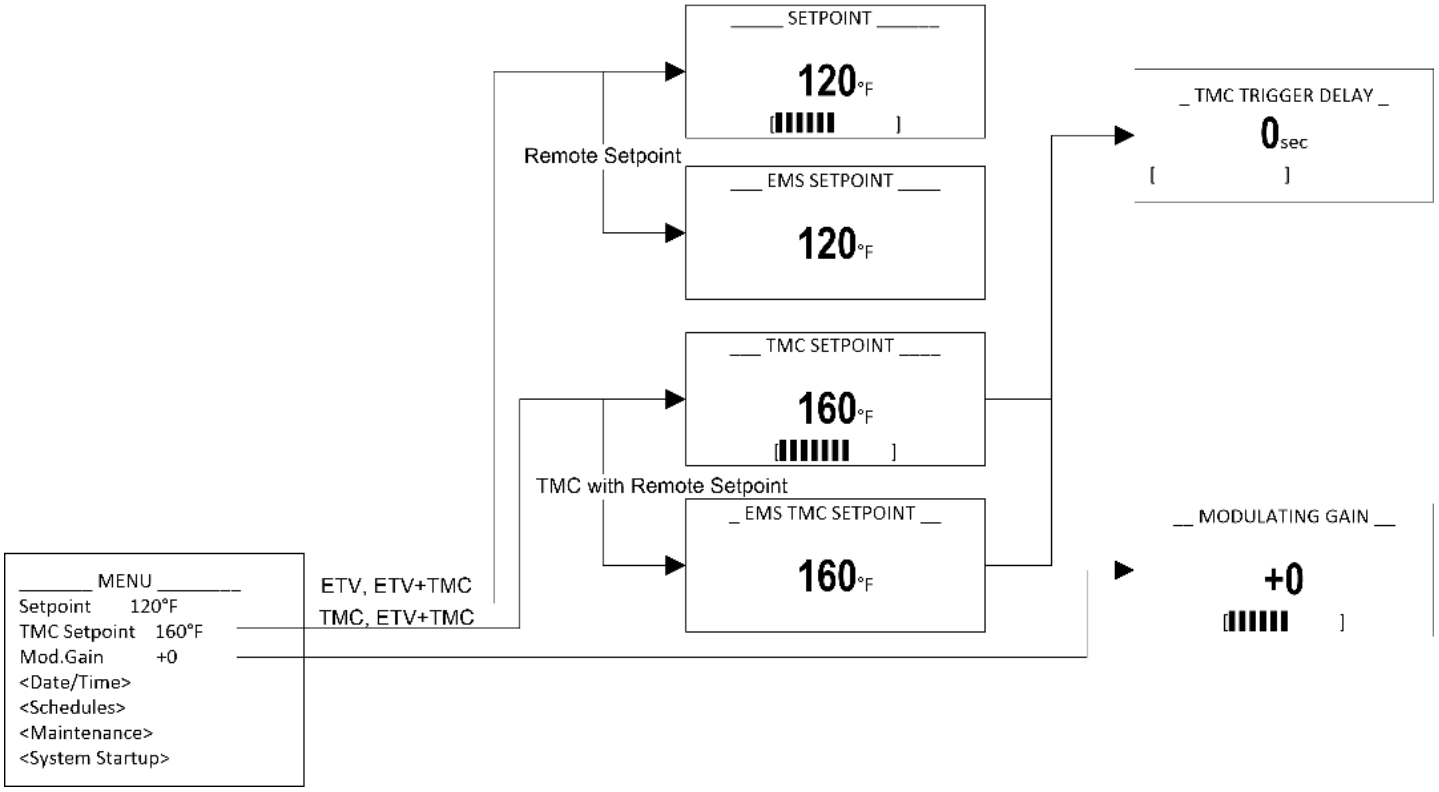
1. Remove power from the ETV Platinum Plus.
2. Press and hold the two right-most buttons on the ETV Platinum Plus while powering the control on.
3. Release the buttons when instructed to do so on the display.

   After resetting the control, the ETV Platinum Plus will go to the Startup menu (see “System Startup Menu” on page 25).

ETV Platinum Plus Menus

Main Menu

The main Menu is used to configure setpoints, TMC limits, and modulating gain.

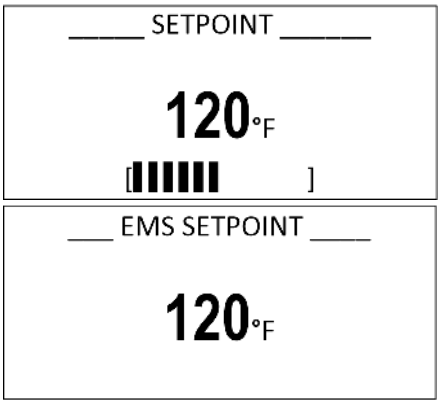


Setpoint

Selections: 40°F/4.5°C to 200°F/93°C **Default:** 100°F/38°C

Available in Control Modes: ETV or ETV + TMC

Menu Path: */Setpoint*



Description:

The Setpoint is the mixed valve outlet temperature the ETV will hold during normal operation. The temperature may fluctuate slightly around the Setpoint. The amount of fluctuation is controlled by the Gain setting (see “Modulating Gain” on page 41.)

If the Setpoint Input was set to EMS 4-20mA, the setpoint will be available as read-only and can only be changed remotely using the 4-20mA input signal (see “Setpoint Input” on page 27).

If a schedule is set, the schedule overrides the Setpoint (see “Schedules Menu” on page 42).

If the Setpoint is set to a value higher than 125°F (52°C), a scald warning is displayed. Select OK to acknowledge the warning and keep the current temperature setting. Select EDIT to return to the Setpoint screen to enter a lower temperature setting.

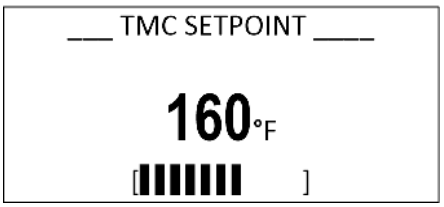
⚠ WARNING

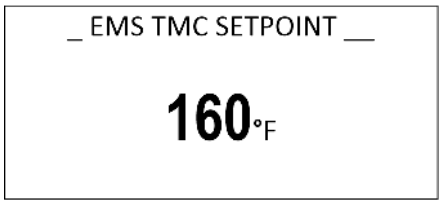
SCALD HAZARD! Water temperatures over 125°F (52°C) can instantly cause severe burns. Children, disabled, and the elderly are at highest risk of being scalded. If anyone using hot water in the building fits the above description, or if local codes or state laws require specific water temperatures at the outlet, it is recommended to not exceed at Setpoint limit of 125°F (52°C). Water drained from system drain valves may also be extremely hot. Make sure all connections are tight and direct all water flow away from personnel.

TMC Setpoint

Selections: 40°F/4.5°C to 200°F/93°C **Default:** 110°F/43°C

Available in Control Modes: TMC or ETV + TMC
Menu Path: */TMC Setpoint*





Description:

The TMC Setpoint is the mixed valve outlet temperature above which the ETV Platinum Plus will close the TMC valve and trigger an alarm. This action prevents the mixed outlet from reaching excessive temperatures. An alarm message is displayed (see "Alarm Messages" on page 37) and the event will be recorded in the Alarm Log (see "Alarm Log" on page 45).

If the Setpoint Input was set to EMS 4-20mA, the TMC Setpoint can only be changed remotely using the 4-20mA input signal. It will be available as read-only through the control (see "Setpoint Input" on page 27).

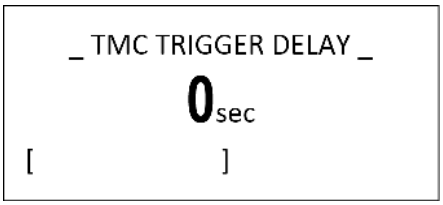
A TMC Trigger Delay can be adjusted to help eliminate false alarms (see "TMC Trigger Delay" on page 40).

⚠ WARNING

SCALD HAZARD! Water temperatures over 125°F (52°C) can instantly cause severe burns. Children, disabled, and the elderly are at highest risk of being scalded. If anyone using hot water in the building fits the above description, or if local codes or state laws require specific water temperatures at the outlet, it is recommended to not exceed at Setpoint limit of 125°F (52°C). Water drained from system drain valves may also be extremely hot. Make sure all connections are tight and direct all water flow away from personnel.

TMC Trigger Delay

Selections: 0 to 60 seconds **Default:** 15 sec
Available in Control Modes: TMC or ETV + TMC
Menu Path: */TMC Setpoint > TMC Trigger Delay*



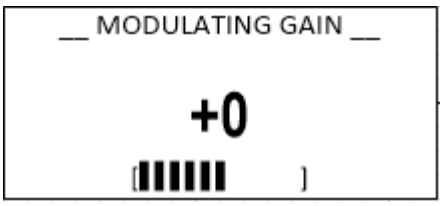
Description:

The TMC Trigger Delay prevents the alarm from being triggered immediately and the TMC valve from closing unless the alarm situation is maintained for the full delay period. This helps eliminate false alarm situations that normally may only last for a few seconds.

Modulating Gain

Selections: −10 to +10
Available in Control Modes: ETV or ETV + TMC
Menu Path: */Mod. Gain*

Default: +0



Description:

The Modulating Gain adjusts the PID aggressiveness of the control. The higher the gain, the more aggressive the ETV Platinum Plus adjusts the mixing valve based on changes in water temperature.

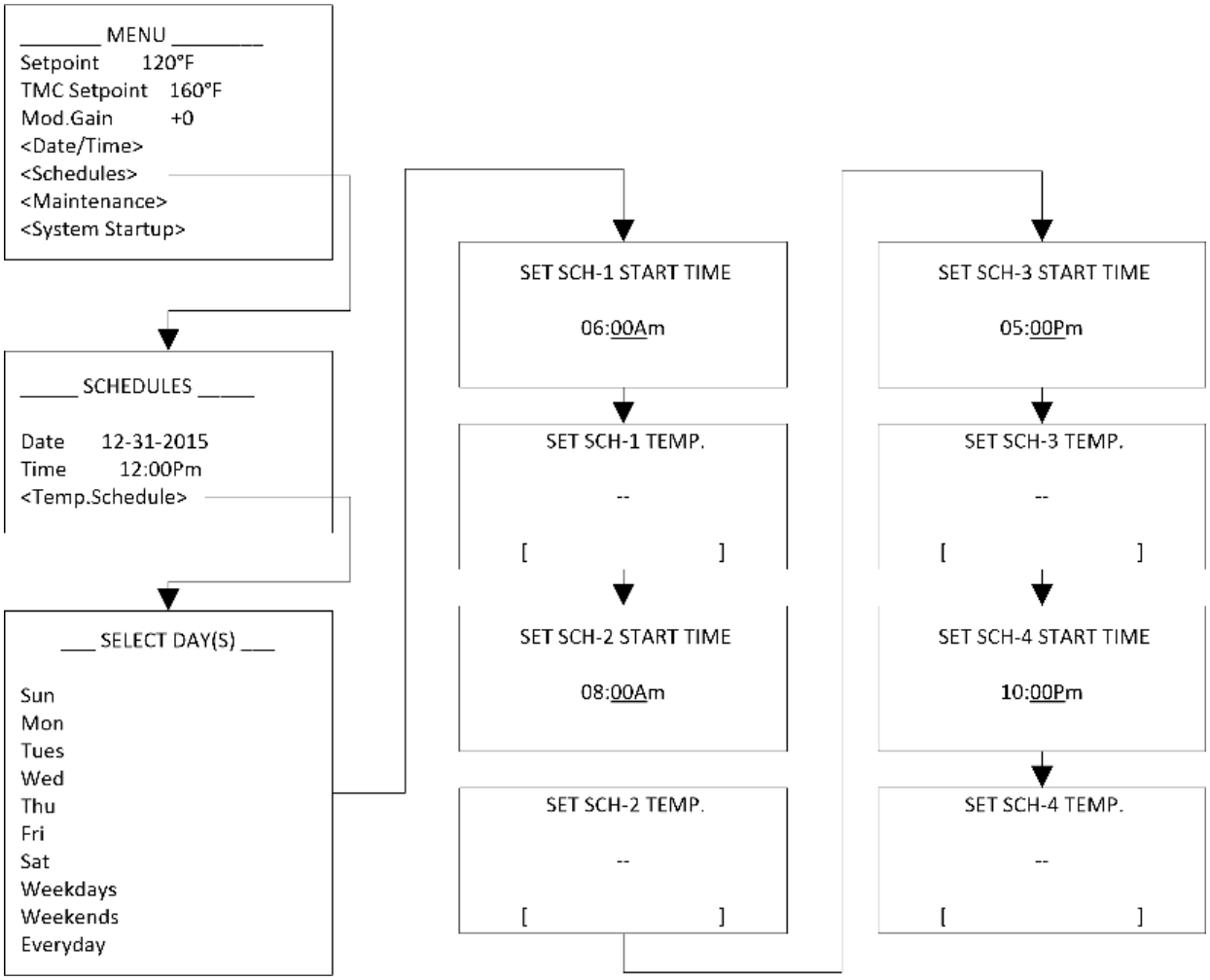
If the water temperature tends to oscillate quickly above and below the desired setpoint, reduce the gain. If the water temperature tends to stay consistently below or above the Set Point, increase the gain.

Start with a gain of “0”. Before making any additional gain changes, always wait at the least ten minutes after adjusting the gain to determine its affect on the system.

Schedules Menu

The Schedules menu is used to configure schedules that are used to set an absolute temperature. Up to four periods can be configured per day. Each period can have its own start time and temperature setting, and will maintain that temperature setting until the next scheduled period start time.

NOTE: Available only when Control Mode is set to `ETV` or `ETV + TMC` (see “Control Mode” on page 26). If a schedule is set, the schedule overrides the Setpoint setting (see “Setpoint” on page 39).



Select Days

Selections: Weekdays, Weekends, Everyday, or specific days

Available in Control Modes: All

Menu Path: */Schedules > Temp. Schedules > Select Days*

Description:

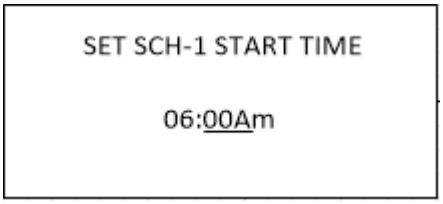
Select the days or group of days (weekends, weekdays, or everyday) to apply the schedule.

Set Schedule Start Time

Selections: Numerical values for Time

Available in Control Modes: All

Menu Path: */Schedules > Temp. Schedules > Select Days > Set SCH-1 Start Time*



Description:

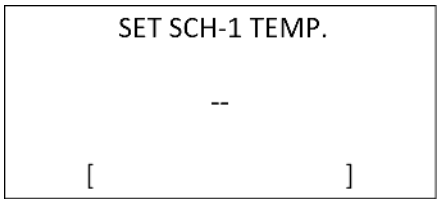
Specifies the schedule start time. Four Schedule Start Times can be set for each day. Each start time has its own temperature setting (see “Set Schedule Temperature” on page 43).

Set Schedule Temperature

Selections: `40°F/4.5°C` to `200°F/93°C` **Default:** `0°F/-18°C`

Available in Control Modes: All

Menu Path: */Schedules > Temp. Schedules > Select Days > Set SCH-1 Start Time > Set SCH-1 Override*



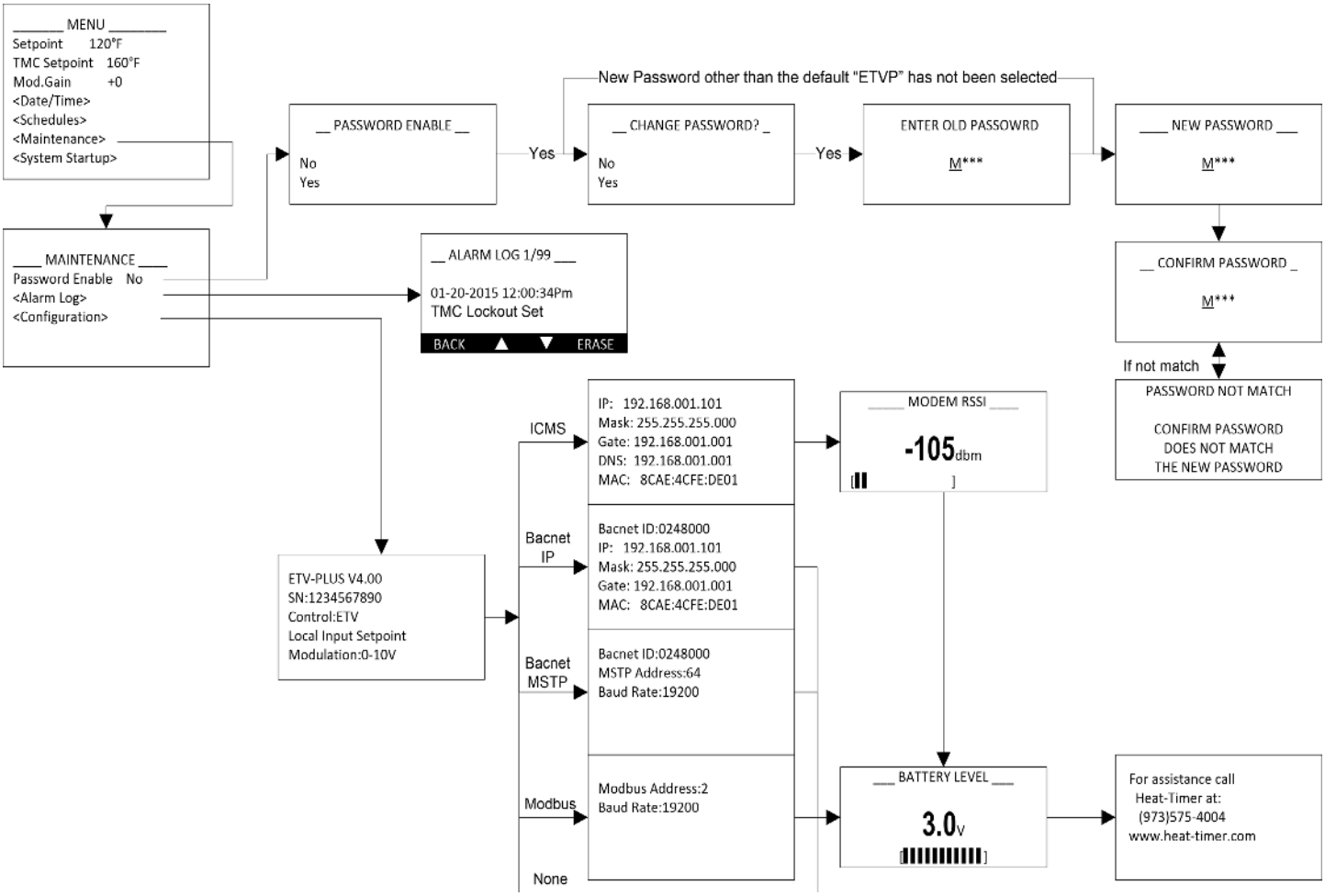
Description:

The the Temp. setting overrides the Setpoint and sets the system temperature to the entered value. The new Schedule Setpoint temperature is displayed on the screen with an asterisk (for example, `130F*`).

All Temp. settings for each day of the week must be set to guarantee that the default setting is replaced.

Maintenance Menu

The Maintenance menu is used to modify critical system behavior and view previous alarm conditions. It should only be used by system installers.



Password Enable

Selections: No, Yes

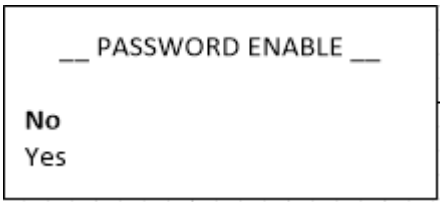
Default: No

Available in Control Types: All

Menu Path: */Maintenance > Password Enable*

Description:

When set to Yes, a password must be entered in order to access the ETV Platinum Plus programming menus. When enabled, the password can be set or changed. When setting/changing the password, it must be entered twice and both entries must match. If the password entries do not match, an error is displayed and the password must be re-entered.

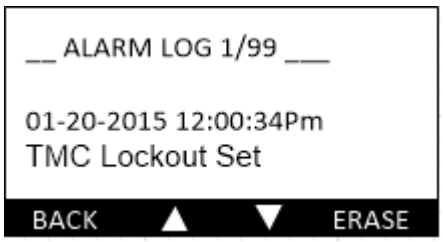


Alarm Log

Selections: Scroll list

Available in Control Modes: All

Menu Path: */Maintenance > Alarm Log*



Description:

The ETV Platinum Plus keeps a log of the last 99 alarms, including their date and time. For a list of possible alarms included in the Alarm Log, see “Alarm Messages” on page 37.

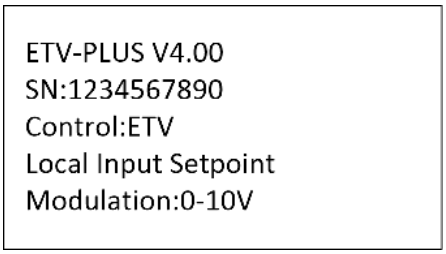
Use the two middle buttons to scroll through the alarm list. Single-press the `Erase` button to delete the currently displayed alarm. Long-press (at least 5 seconds) the `Erase` button to delete all alarm entries.

Configuration

Selections: None

Available in Control Modes: All

Menu Path: */Maintenance > Configuration*



Description:

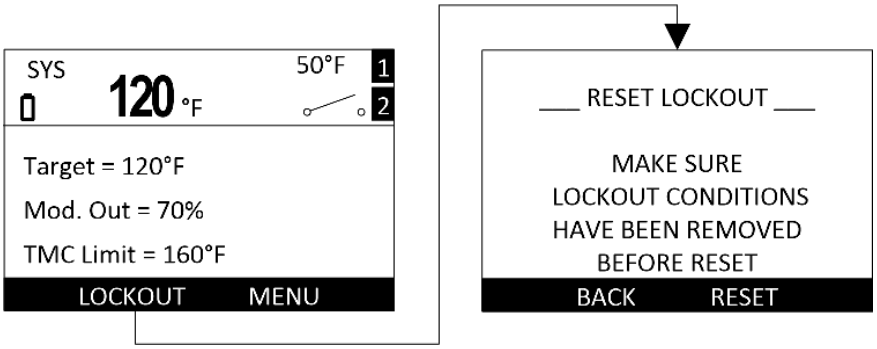
The Configuration menu provides access to screens that display the current configuration of the ETV Platinum Plus. Available information includes: software version, serial number, startup settings, communication settings, and battery level.

Press the `Next` button to advance through the configuration screens.

Lockout Menu

The Lockout menu is used to reset system lockouts.

NOTE: A Lockout condition is only generated when Control Mode is set to `TMC` or `ETV + TMC` (see “Control Mode” on page 26). Under specific conditions, the control triggers the alarm and logs the event in the Alarm Log (see “Alarm Log” on page 45).



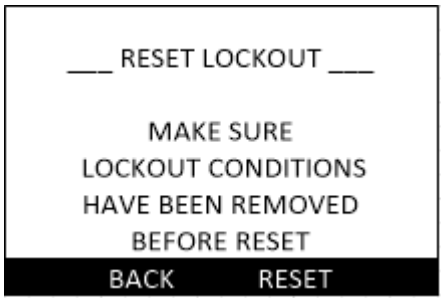
Reset Lockout

Selections: `RESET`

Available in Control Modes: TMC or ETV + TMC

Menu Path: *Lockout*

Default: N/A



Description:

The TMC Lockout outputs energize whenever the System Temperature rises above the Alarm Limit for the Trigger Delay period.

To reset the lockout, the conditions causing the lockout must be corrected first. Then, the lockout can be reset using the Reset Lockout menu. If the lockout was reset before the conditions are corrected, the lockout output will immediately be re-activated.

Troubleshooting

Symptom	Possible Cause	Recommended Action(s)
No display or distorted display.	No power to the ETV Platinum Plus Control Module, incorrect or defective wiring.	Verify the ETV Platinum Plus Control Module is receiving power, all power wiring is in good condition and connected. The ETV Platinum Plus Control Module requires 120Vac power to terminal 1 and 2, and earth ground wiring to terminal 3. Turn power to the ETV Platinum Plus Control Module off then back on. See “Power Input Wiring” on page 17.
Display shows sensor “Open”.	Sensor disconnected.	Verify the sensor is properly connected to the ETV Platinum Plus Control Module.
	Defective sensor, wires, or ETV Platinum Plus Control Module.	Short the sensor input wires. The display should read “Short”. • If the display still reads “Open”, the device is defective. Replace the ETV Platinum Plus Control Module. • If the display reads “Short”, test the sensor wiring for continuity. Replace the sensor/ wiring.
Display shows sensor “Short”.	Defective sensor, wires, or ETV Platinum Plus Control Module.	Remove the sensor wires from the input terminals. The display should read “Open”. • If the display still reads “Short”, the device is defective. Replace the ETV Platinum Plus Control Module. • If the display reads “Open”, test the sensor wiring for continuity. Replace the sensor/ wiring.
System reads incorrect temperature.	Probe sensor not properly installed.	Ensure the probe sensor is properly installed in the flow of the water stream. See “Sensor Probe Locations” on page 10.
	Defective sensor or ETV Platinum Plus Control Module.	Disconnect the wires from the input terminals. The display should read “Open”. • If the display does not read “Open", the device is defective. Replace the ETV Platinum Plus Control Module. • If the control reads “Open”, and the difference is within 5°F, replace the sensor.
No hot water.	If Flow Switch is set to "Yes" and the flow input is open, the mixing valve may be marginally closed.	Verify Flow Switch setting and the position of the mixing valve.

Symptom	Possible Cause	Recommended Action(s)
ETV Platinum Plus Control Module does not move the Floating Motorized Valve.	Valve wiring defective.	Verify all wiring is in good condition and connected. Verify voltage at the Actuator power terminals is between 20–24Vac. Voltage levels outside this range may cause the Actuator to not move or result in damage to the Actuator.
	Valve modulating signal incorrect.	Verify the ETV modulating signal is set to 0–10V to match the Actuator's signal. Use a DC voltmeter to read the modulation signal on terminals 13 and 15. If the Modulation Output % was at 40% (see "Default Display" on page 36), the signal should read 4Vdc. If it did not, the ETV control is damaged. Replace the ETV Platinum Plus.
	Actuator manual override engaged.	Ensure the actuator is not in manual override.
Outlet temperature fluctuates.	The ETV Platinum Plus requires the use of a circulating loop with a constantly running pump.	Verify proper operation of the pump.
Output temperature exceeds setpoint.	Improper piping.	If the Valve Modulation is at 0% during the time the outlet temperature exceeds the setpoint and does not decrease, check for heat migration from the water heating source through the COLD inlet piping to the valve.
No alarm output.	No power to the alarm or interface wiring disconnected.	Verify the alarm is receiving power, all power and interface wiring is in good condition and connected. The ETV does not provide power to alarms. Ensure an external power source is used. See "Wiring the TMC Lockout" on page 21.
No communication.	Incorrect network settings.	Ensure the network settings are correct. Refer to the troubleshooting section of the applicable network manual.

Notes

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WARRANTY

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