Installation Instructions - Supplemental

REPLACING THE EOS BTCII USER INTERFACE or PIM MODULE on **Power VTX**® Water Heaters
For model prefixes 50 through 100

Power VTX Models 50 through 100

The following instructions are included to assist in the proper replacement of the EOS BTCII User Interface or PIM Module. Installation and service must be performed by a qualified installer or service agency.

Part Number **138402 KIT, HMI BTCII REPLACEMENT FOR PVX WH** is for BTCII replacement (Display) .
Part Number **138396 KIT, PIM DEV PROGRAMMING REPLACEMENT FOR PVX WH** is for PIM replacement.

I.   REPLACING THE BTCII DISPLAY BOARD
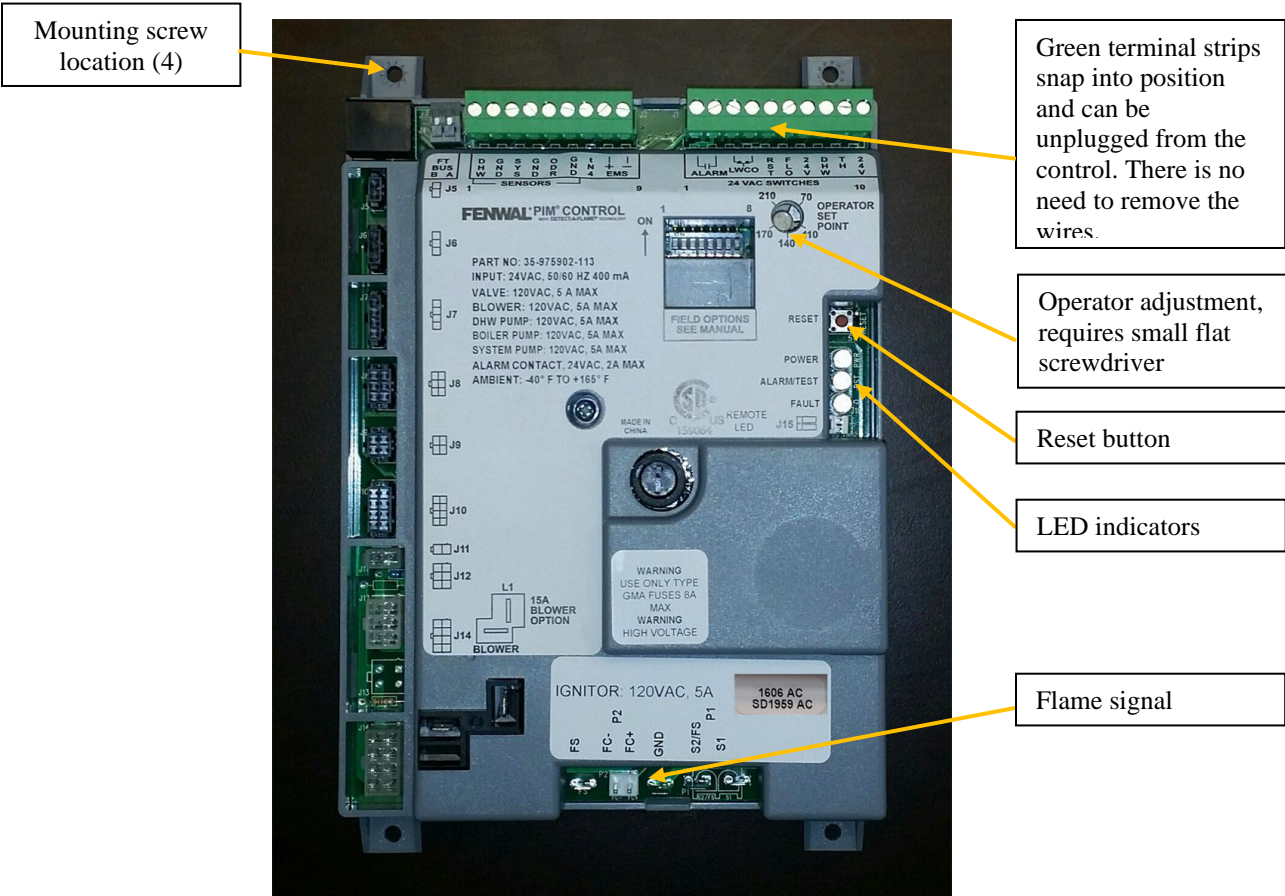

(BACK SIDE OF DISPLAY)
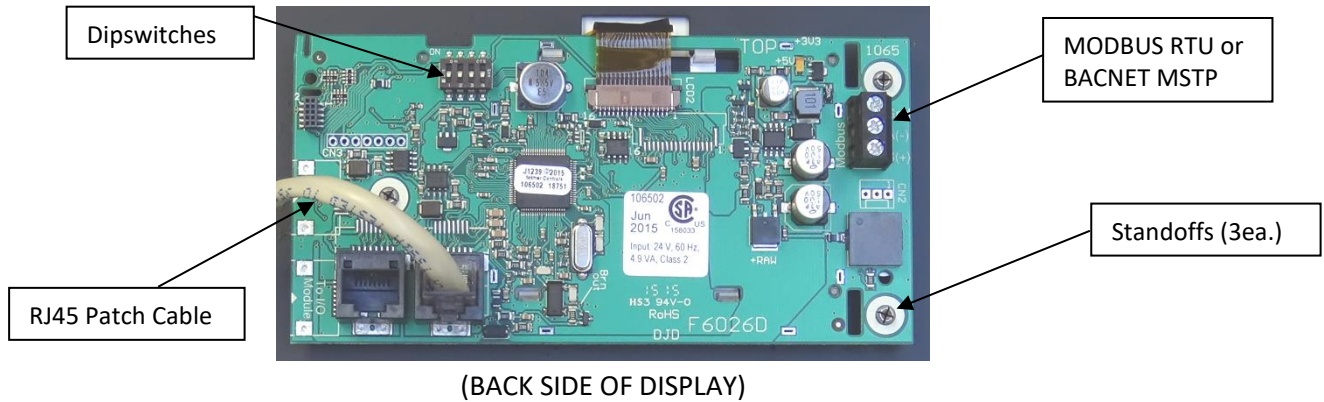
If wires are connected to the MODBUS RTU/BACNET MSTP connector, then you must backup the NETWORK parameters before proceeding.

1. Turn water heater power switch to the OFF position.
2. Shut OFF electrical service to the unit.
3. Open heater panel door.
4. Unplug the RJ45 patch cable from the back of the BTCII display board.
5. If Building Automation is connected to the 3 screw terminals, mark and disconnect them.
6. There are three spring action metal standoffs that hold the PC board to the panel:
    a. Use a needle-nose plier to pinch each standoff to loosen the PC board.
    b. Lightly press the display face from the front of the panel and separate the BTCII User Interface from the panel. (The edges of the display face may stick slightly to the window in the front panel overlay.)
7. Position the replacement BTCII display board over standoffs and lightly press into place. To prevent bending damage to the board, use a nut driver or similar hand tool to isolate the force around the standoffs.
8. Plug in the RJ45 patch cable. Verify the dipswitch settings on the new board are set the same as the existing board. (Reconnect automation wires if used.)
9. Turn ON electrical service to the unit.
10. Turn water heater power switch to ON position. Note, you may have to cycle power off and on again to fully initialize with the PIM control.

At this point, proceed to reset defaults and then setting up parameters in the control.

II.   REPLACING THE PIM

Mounting screw location (4)

Green terminal strips snap into position and can be unplugged from the control. There is no need to remove the wires.

Operator adjustment, requires small flat screwdriver

Reset button

LED indicators

Flame signal

1. Turn water heater power switch to the OFF position.
2. Shut OFF electrical service to the unit.
3. Open heater panel door.
4. Unplug all wiring from the control. The green terminal strips at the top of the control snap into position and can be removed from the control. There is no need to unscrew the wires from the terminal strip. Note wire color and position for the Igniter S2/FS/S1.
5. Remove mounting screws from all four corners of the existing PIM control. Remove the PIM control.
6. Secure the replacement PIM control to the back of the control box using the mounting screws.
7. Reconnect all wiring plugs to the control face.
8. Turn ON electrical service to the unit.
9. Turn water heater power switch to ON position. Note, you may have to cycle power off and on again to fully initialize with the PIM control.

At the point, proceed to reset defaults and then setting up parameters in the control.

III.   SETTING UP PARAMETERS IN THE CONTROLS

After replacing the PIM or BTCII, the control must be reset and then several parameters entered. When replacing the BTCII display, record the NETWORK menu, you will need to enter those values.

The **OPERATOR** is the failsafe operating set point manually established on the PIM control should the user interface BTCII control fail. The new PIM control needs to have the OPERATOR parameter set to the factory default for the heater of 120°F. If the operating set point of the heater differs from that setting, it can also be adjusted in the field if desired.

Reset to defaults
Enter Menus system ....
Navigate to **TOOLBOX** menu using **ITEM BACK**
Enter **TOOLBOX** menu by pressing **ENTER**
On the **ACCESS** screen, hold the #4 Button to change **ACCESS** to **ADV**anced.
Navigate to **RESET DEFAULTS** using **NEXT ITEM**
Press **ENTER**, display will show **SEL**, then **DONE**.
After **DONE** wait 15 seconds and cycle power on the heater.
Note: Reset Defaults does not affect parameters in the **NETWORK** menu.

ID Card Value

Proceed with **ADJUSTING PARAMETERS**

| Parameter	Menu	Power VTX Model			
		50	75	100	
SETPOINT	SETUP	120	120	120	Default, or as needed at the site.
HTR DIFF	SETUP	4	4	4	
HTR OFFSET	SETUP	5	5	5	
HTR RANGE	SETUP	6	6	6	
PUMP OFFSET	SETUP	0	0	0	Must be entered after changing the BCTII or PIM
PUMP DIFF	SETUP	5	5	5	
START MOD	SOURCE	40	40	40	
MIN MOD	SOURCE	25	25	25	
MAX MOD	SOURCE	75	100	85	
OPERATOR	SOURCE	120	120	120	Adjust if PIM is changed.
ID CARD	SOURCE	004	004	006	Indicates what ID card is installed. Cannot be changed.

IV.   ADJUSTING THE CONTROL PARAMETERS

1. To change the water heater **SET POINT** value:
    a. From the normal View Menu, press and hold the **Home Button** for 3 seconds to enter the Control System Menu.
    b. The first menu displayed is the **SETUP** Menu. Press **ENTER** to enter the **SETUP** Menu.
    c. Navigate to the **SETPOINT** parameter using the **NEXT ITEM** buttons. Use the arrow buttons to adjust the set point value as per the parameter table shown or as required by the facility.
    d. To exit and return to normal View Menu, press the **Home Button** 2 times or wait 60 seconds.

2. The remaining parameters require **ACCESS** to be set to **ADV** before you can edit them:
   a. Enter Control System Menu (press and hold the **Home Button** for 3 seconds).
   b. Press **NEXT ITEM** or **ITEM BACK** buttons to navigate to the **TOOL BOX** menu.
   c. Press the **ENTER** button.
   d. The first parameter in the **TOOL BOX** menu is the **ACCESS** level screen.
   e. Hold the #4 button to change to **ADV** level access. (Repeat holding #4 button to disable the **ADV** level access).
   f. To exit and return to normal View Menu, press the **Home Button** 2 times or wait 60 seconds.

3. To change the **DIFF**, **OFFSET** or **RANGE** values while in **ADV ACCESS**:
   a. Enter Control System Menu (press and hold the **Home Button** for 3 seconds).
   b. The first menu displayed in the **SETUP** menu. Press **ENTER** to enter the **SETUP** Menu.
   c. Once in the **SETUP** menu, use the **NEXT ITEM** button to move to the **(HTR) DIFF**, **(HTR) OFFSET**, **(HTR) RANGE, (PUMP) OFFSET, (PUMP) DIFF. (HTR)** and **(PUMP)** are displayed on the left under **STATUS.** Using the arrow buttons in each parameter, enter the value as per the corresponding parameter for the model heater as per the table shown. If arrows are not displayed, hold #4 button for 3 seconds to make them appear.
   d. To exit and return to normal View Menu, press the **Home Button** 2 times or wait 60 seconds.

4. While in **ADV** access, change the **OPERATOR**, **MIN MOD**, **START MOD**, and **MAX MOD** parameter values:
   a. Enter Control System Menu (press and hold the **Home Button** for 3 seconds).
   b. Press **NEXT ITEM** or **ITEM BACK** buttons to navigate to the **SOURCE** MENU.
   c. Press **ENTER** to enter the **SOURCE** MENU.
   d. Once in the **SOURCE** MENU, use the **NEXT ITEM** button to move to **OPERATOR.**

   If you are only replacing the BTCII display, this will likely still be set correctly.
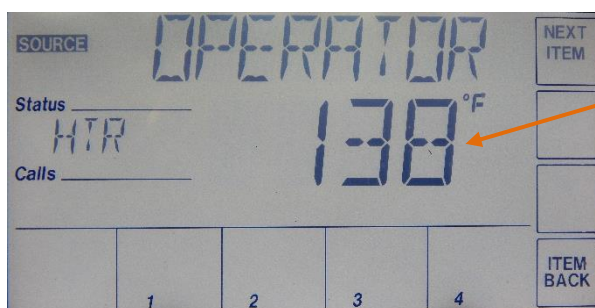
STAND ALONE OPERATOR ADJUSTMENT. Adjust screw until parameter reading **matches the operating set point.**
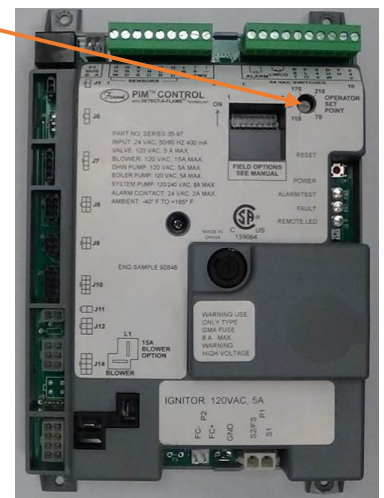
   (a) This is adjusted with a small flat head screwdriver on the FENWAL PIM ignition module labeled "**OPERATOR SET POINT**". Adjust with screwdriver and note the setting in the display. Do not reference the index printed on the PIM module. Tip: Every couple of minutes, navigate away and back to the **OPERATOR** parameter to avoid display timeout.
   e. Press **NEXT ITEM** to the **MIN MOD**, **START MOD**, and **MAX MOD** parameters. Using the arrow buttons, enter the values as per the parameter table shown.
   Note: If the arrow buttons are not be visible, push and hold the **#4 button** until the **UP** and **DOWN** arrows appear.
   f. To exit and return to normal View Menu, press the **Home Button** 2 times or wait 60 seconds.

5.   Return BTCII control to the **USER** access level (refer previous instructions for setting **ACCESS** to **ADV**. After toggling off **ADV**, use the arrows to change from **INST** to **USER**).

V.   Updating BUILDING AUTOMATION SYSTEM when using BACNET MSTP or MODBUS RTU.

1.   Recording NETWORK values:

a.   If updating a display that is already integrated into a BUILDING AUTOMATION SYSTEM using BACNET MSTP or MODBUS RTU, then you will want to write down the parameters in the NETWORK menu. After updating the display, you will need to enter the values back into the NETWORK menu. Inform the Building Automation System that the heaters have had the controls updated and they may have to reconnect to the heaters in their software.

b.   Go to the NETWORK menu, hold the HOME button for 3 seconds, use ITEM BACK to get to TOOLBOX/MENU and then hit ENTER. Hold the #4 button for 3 seconds to change the ACCESS level to ADV. Hit the HOME button, then using NEXT ITEM navigate to the NETWORK menu. Press ENTER, and record all values stored in this menu.

c.   Please note, the MAC address, and DEVICE ID (7 digit number) will be different from one heater to the next.

2.   Restoring NETWORK values after replacing display:

a.   After resetting the control back to the proper settings for the model, then using the ADV ACCESS level, navigate to the NETWORK menu, and enter all the parameters as they were before you updated the display.   MAC address and DEVICE ID must be the same as before the update.   If the NETWORK menu has not been configured, then the controls contractor will need to do it, and they can find instruction in the EOS INTERFACE GUIDE AND POINT LIST document.

Record values Heater Serial Number: _____
BAS: _____ (NONE, BAC, MOD)
 If BACNET:
 MAC ADDRESS: _____
 BAUD: _____
 ID (INSTANCE): __ __ __ __ __ __
 Max InfoFrame: _____ Def 1
 Max Master: _____   Def 127

 If MODBUS RTU:
 MOD ADDRESS: _____
 BAUD: _____