Section 2.8
Domestic Hot Water

The Network System supports a variety of setup options for domestic hot water (DHW) tanks and DHW recirculation:

- Single DHW tank
- Single DHW tank with recirculation
- Two DHW tanks

By definition, a DHW tank is a tank that stores hot water and is heated by one or more boilers. In a two-tank installation, the Network System operates or heats both tanks through a single heating plant using pumps.

This section covers the following topics:

- Defining the number of DHW tanks and tank setpoints
- Setting up a single DHW tank with recirculation
- Setting up boiler purge
- Turning off the primary pump during DHW calls
- Setting up Legionella prevention
- Domestic Hot Water Screen field definitions

Before proceeding, make sure the following steps are complete.

❑ All Uponor Configuration Tool (UCT) software (A9090000) components are installed (**Section 1.5**).

❑ The computer is correctly connected to the Network System (**Section 1.6**).

❑ The installer is familiar with using UCT elements (**Section 1.7**).

> **Note:** Remember to save all changes to the DHW setup to flash memory. Changes not saved to flash will be lost if the Primary Equipment Control (PEC) (A9012000) loses power. See **Section 5.1: Save to and Load from Flash**.

Defining the Number of DHW Tanks and Temperature Setpoints

You can configure the Network System to heat one or two tanks from the hydronic heating plant. Refer to the following steps to define the number of tanks in a system.

1. From the **Main Menu**, click the **Domestic Hot Water** button shown in **Figure 2.8-1**. This will open the Domestic Hot Water screen shown in **Figure 2.8-2**. The screen will display a single tank as the default configuration.
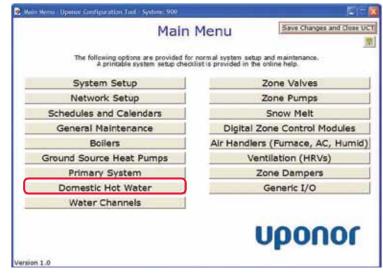

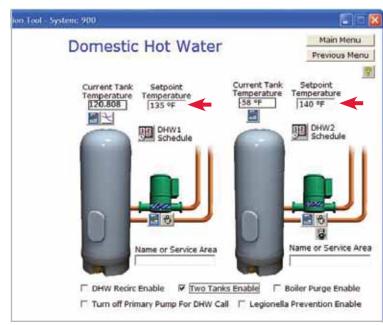**Figure 2.8-1: Main Menu Screen**

Figure 2.8-2: Domestic Hot Water Screen

Figure 2.8-3: DHW Two-tank Screen

Figure 2.8-4: Main Menu Screen

Figure 2.8-5: Domestic Hot Water Screen

2. Enter the number of tanks.

- If the system uses a single tank, no changes are necessary.
- If the system uses two tanks, check the Two Tanks Enable box. After checking the box, the screen will display a second tank, as shown in **Figure 2.8-3**.

3. Enter the temperature setpoint(s) for the tank(s). Note that the text will be pink as you enter the setpoint, but it will change to black when the PEC accepts the change.

> **Note:** A Current Tank Temperature reading of -58°F (-50°C) indicates the tank sensor is not connected to the Pump Relay (A9013030) (or the PEC, if pumps are not used). The DHW control program will determine there is no need for DHW control and automatically turn off. Check the wiring.

Setting up a Single DHW Tank with Recirculation

Recirculation prevents delays in delivering hot water to a fixture and conserves water. You must install a recirculation loop for this feature to work properly.

Refer to the following steps to set up a single tank with recirculation.

1. From the **Main Menu**, click the **Domestic Hot Water** button shown in **Figure 2.8-4**. This will display the Domestic Hot Water screen shown in **Figure 2.8-5**.

2. Check the **DHW Recirc Enable** box, indicated by the red arrow in **Figure 2.8-5**. After checking the box, the screen will display a recirculation pump image and several additional fields, as shown in **Figure 2.8-6**.

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3. Enter the Setpoint Temperatures for the tank and the recirculation line. Note that the text will be pink as you enter the setpoint, but it will change to black when the PEC accepts the change.

> **Note:** A Current Tank Temperature reading or Current Recirculation Line Temperature reading of -58°F (-50°C) indicates the sensors are not connected to the Pump Relay (or the PEC, if pumps are not used). Check the wiring.

Setting up Boiler Purge

Some boilers retain residual heat inside the heat exchanger after the DHW tank reaches the target temperature. The Network System offers a feature to purge the heat to the tank rather than allowing it to dissipate into the mechanical room. The purge feature allows the DHW pump to run when the supply temperature is 20°F greater than the tank setpoint temperature after the DHW call ends. Placement of the primary supply sensor is critical to making this feature work correctly. Be sure to install the sensor after the supply of the last boiler (if using multiple boilers) and before the tee for the DHW tank.

Refer to the following steps to enable boiler purging.

1. From the **Main Menu**, click the **Domestic Hot Water** button shown in **Figure 2.8-7**. This will display the Domestic Hot Water screen shown in **Figure 2.8-8**.

2. Check the **Boiler Purge Enable** box, indicated by the red arrow in **Figure 2.8-8**.

Figure 2.8-6: Single DHW Tank with Recirculation

Figure 2.8-7: Main Menu Screen

Figure 2.8-8: Domestic Hot Water Screen
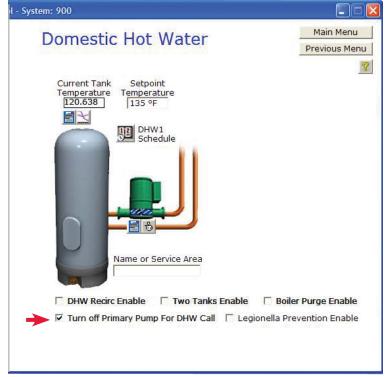
Figure 2.8-9: Main Menu Screen

Figure 2.8-10: Domestic Hot Water Screen

Turning off the Primary Pump During DHW Calls

You may wish to configure the system so the primary pump shuts off during a DHW call. This feature is commonly used with modulating-condensing (mod-con) boilers. Mod-con boilers are often used to control supply water temperature (SWT) at the lower temperatures required for radiant heating applications and other lower-temperature heat emitters. When DHW is needed, the mod-con boiler fires to generate higher-temperature water. At the same time, the primary pump turns off to protect radiant panels from hot boiler water (180°F/82.2°C). You can also use this feature to reduce the recovery time to reheat the tank due to boiler sizing.

Refer to the following steps to configure the pump to shut off during a DHW call.

1. From the **Main Menu**, click the **Domestic Hot Water** button shown in **Figure 2.8-9**. This will display the Domestic Hot Water screen shown in **Figure 2.8-10**.

2. Check the **Turn off Primary Pump for DHW Call** box.

Setting up Legionella Prevention

Homeowners often lower room setpoints and shut off DHW heating when they plan to be away from home for an extended period of time. While these moves save energy, they increase the risk of Legionella bacteria growing in the DHW tank. Legionella grows at temperatures below 100°F (37.8°C). If the tank temperature drops below 68°F (20°C), the bacteria is dormant, but survives. Enabling Legionella prevention will heat the tank to 140°F (60°C) after five days of inactivity or tank temperatures below 90°F (32.2°C) to kill the bacteria.

Refer to the following steps to activate Legionella prevention.

1. From the **Main Menu**, click the **Domestic Hot Water** button shown in **Figure 2.8-11**. This displays the Domestic Hot Water screen shown in **Figure 2.8-12**.

2. Check the **Legionella Prevention Enable** box.

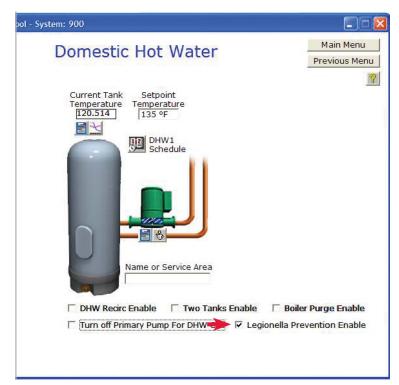**Figure 2.8-11: Main Menu Screen**

Figure 2.8-12: Domestic Hot Water Screen

Domestic Hot Water Screen Definitions

This section defines fields on the Domestic Hot Water screen.

- **Current Tank Temperature:** This field displays the current temperature of the associated DHW tank.

- **Setpoint Temperature:** This field displays the setpoint temperature of the associated DHW tank. When the tank temperature falls 9°F (5°C) below the setpoint, the system initiates a DHW call.

- **Name or Service Area:** This field is for entering the name of the tank or the area the tank services.

- **DHW Recirc Enable:** This checkbox indicates if a recirculation pump is enabled. If the box is checked, the pump will run to keep a minimum water temperature at the recirculation sensor when the associated schedule is on. When the schedule is off, the recirculation pump does not run, and the water temperature in the recirculation line will lower to room temperature.

- **Current Recirculation Line Temperature:** This field displays the recirculation sensor reading of the current water temperature in the recirculation line.

- **Setpoint Temperature:** This field displays the recirculation line water temperature the Network System will maintain when the schedule is on.

- **Two Tanks Enable:** Checking this box indicates a second DHW tank.

- **Boiler Purge Enable:** Checking this box purges excess heat from the boiler to the DHW tank if the tank temperature is below setpoint and a space-heating call for the boiler has just ended.

- **Turn off Primary Pump for DHW Call:** Checking this box shuts off the primary pump during a DHW call.

- **Legionella Prevention Enable:** Checking this box will periodically reheat the DHW tank during extended off periods to prevent Legionella bacteria growth.

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