

Section 3.8

Setting Up a Radiant Floor Heating Zone

This section provides a step-by-step example of setting up a radiant floor heating (RFH) zone. **Figure 3.8-1** shows a typical wiring and piping schematic for the Network System. This example includes three radiant zones, manifold actuators and a modulating valve that mixes cooler water with high-temperature boiler water for use with radiant floors. For clarity, **Figure 3.8-1** does not include sensors and other details.

Wiring

The schematic shows the following connections.

- A Digital Zone Control Module (DZCM) (A9011500) is connected to the Router Main Control (RTR) (A9011000) via a Cat5 wire. The Cat5 wire is plugged into DZCM 1 port on the RTR. Be sure to make DZCM connections sequentially: start with DZCM port 1, then use DZCM port 2, and so on. Never skip a DZCM port.
- Thermal Valve Actuators (A9010501) are plugged into the DZCM. These actuators come with the correct plug needed to easily connect to the DZCM actuator ports. If using a third-party, four-wire thermal actuator, the amp draw must be less than 0.25A, and an actuator whip (A9011501) will be required for each one.
- The modulating valve is connected to the Mix 2 port on the Supply Water Temperature control (SWT) (A9013000) using a Cat5 wire.
- The secondary pump used to move water through the manifold is connected to the Secondary port on the SWT control using a Cat5 wire.
- The boiler is connected to the TT1 port on the Primary Equipment Control (PEC) (A9012000) using a Cat5 wire.
- The primary pump is connected to the Primary Pump port on the PEC using a Cat5 wire.
- The RTR, PEC and SWT are wired together with the power/communication adapter that comes with the PEC and SWT.

Setup

The following steps explain how to make the proper equipment assignments based on the connections shown in **Figure 3.8-1**.

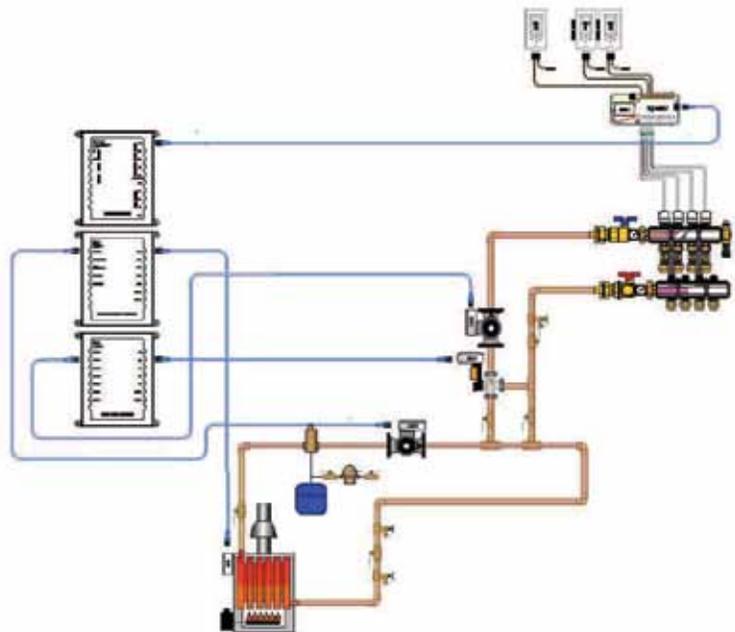


Figure 3.8-1: Radiant Floor Heating Piping and Wiring

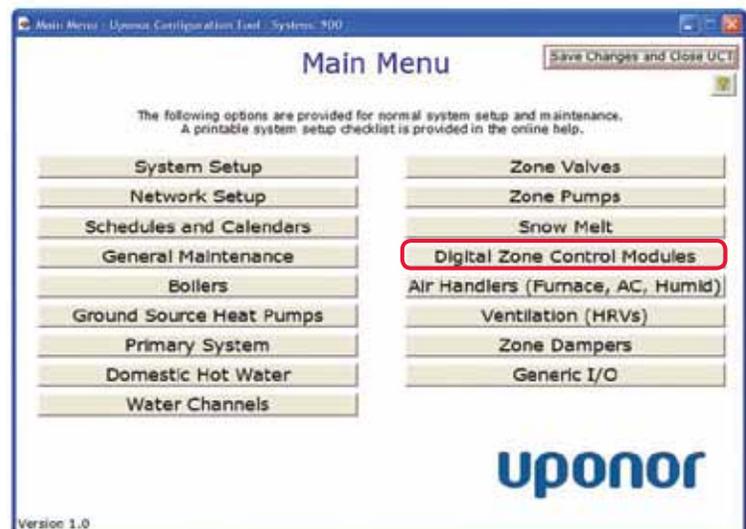


Figure 3.8-2: Main Menu Screen

1. From the **Main Menu** screen in the Uponor Configuration Tool (UCT) software (A9090000), click on the **Digital Zone Control Modules** button shown in **Figure 3.8-2** to display The Digital Zone Control Modules (DZCMs) screen shown in **Figure 3.8-3**.

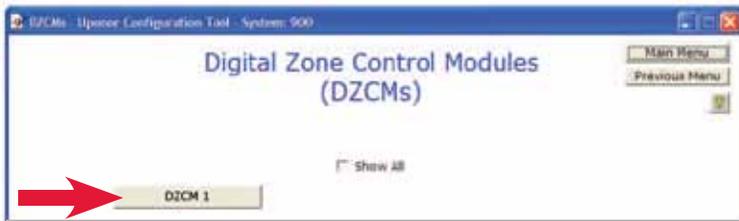


Figure 3.8-3: DZCM Availability Screen



Figure 3.8-4: Thermostat Tiles

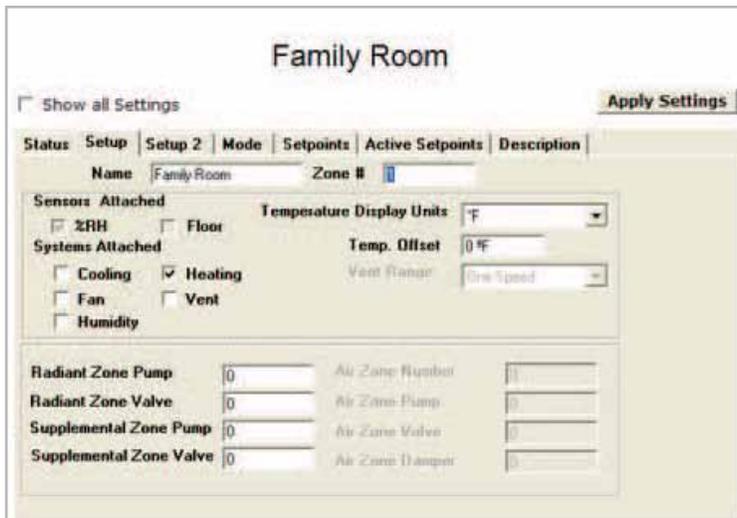


Figure 3.8-5: Setup Tab

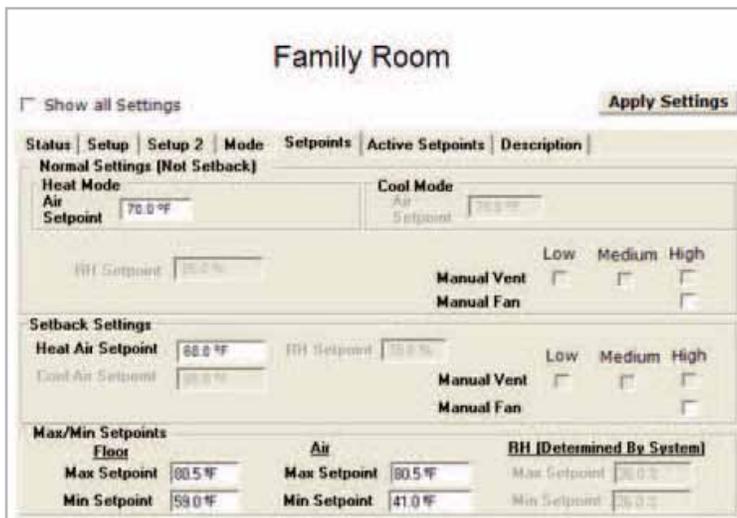


Figure 3.8-6: Setup 2 Tab

2. Click on the **DZCM 1** button. (As this example includes only one DZCM, only one DZCM button is shown. Other installations may have up to 12 DZCM buttons.)

3. Review the thermostat tiles shown in **Figure 3.8-4**. Verify the screen reflects the number of installed thermostats and how they are connected to DZCM 1.

4. Click on the first thermostat to be setup. The Thermostat Status screen will display.

5. Click on the Setup tab (see **Figure 3.8-5**).

6. Enter the following information:

- Name:** Enter a name that describes the area or room. Do not use symbols or characters.
- Zone Number:** Enter a number for the zone. This example is the first thermostat, so enter a "1" in the field. Never duplicate zone numbers.
- Systems Attached:** Check the boxes for the modes of operation the thermostat will control. For this example, check the Heating box.
- Temperature Display Units:** Select °F or °C for the temperature units that will appear on the thermostat and the Touch Panel Interface (TPI) (A9070000), if installed.

For this example, fields related to air zones are grayed out as fan and cooling modes were not selected. The Zone Pump and Zone Valve values are left as zeros as they are not required for this example.

7. Click on the **Setup 2** tab, shown in **Figure 3.8-6**.

8. Enter the following information to complete the equipment setup for this example:

- Water Channels:** In the Radiant Floor box, enter "2." This value directly relates to the Secondary and Mixing ports on the SWT. In **Figure 3.8-1**, the mixing device and pump are connected to these ports.
- Heat Stages:** As this example only uses one heat source (RFH), only Stage 1 is available. Check the box in Stage 1 under RFH.

For this example, fields related to air zones are grayed out as fan and cooling modes were not selected on the Setup tab. The remaining fields are left as zeros or not checked as they are not required for this example.

9. Click on the **Mode** tab.

10. Click the checkbox for Heat in the Mode area.

The first radiant zone is now ready to begin heating. For an actual installation, the installer should return to Step 4, select the next thermostat and configure it in the same manner.

These ten steps cover the minimum requirements to assign mechanical equipment. (The installer also needs to assign thermostat setpoints; however, this example was provided solely to explain configuring the heating devices.)

Sequence of Operation

The following explains a brief sequence of operation for radiant floor heating.

- The room temperature falls 0.5°F (0.25°C) below the heating setpoint and calls for heat.
- The DZCM begins to open the actuators based on the actuator map created at DZCM startup.
- When an actuator end switch closes, the WTC Calling Variable (value = 2) is sent to the RTR.
- The RTR will send the WTC call to the PEC and start the primary pump and boiler.
- The PEC will send the WTC call to the SWT to start the secondary pump and activate mixing (not the Mix output).
- The mixing valve will adjust the position of the valve based on the mix target, mix differential, and boiler return temperature and settings.

