# Section 2.14
## Heat Recovery Ventilators

The Network System supports up to eight heat recovery ventilators (HRVs) or energy recovery ventilators (ERVs). The primary difference between an HRV and ERV is the heat exchanger core. The HRV transfers heat, while the ERV transfers heat and a small amount of water vapor (for humidification). HRVs are more common in colder climates with longer heating seasons. ERVs are more common in warmer, more humid climates with longer cooling seasons.

The standard functionality support for this type of equipment is single outputs for low-speed, medium-speed and high-speed fan operation.

Note: While the Network System supports up to three speeds on an HRV or ERV, functionality varies based on the manufacturer. Most manufacturers provide their own speed control for the units, and some are resistant to third-party controls. In most cases, the Network System can control up to two speeds.

This section deals specifically with the setup options for HRV and ERV equipment. **Section 3.2: Thermostat Setup** addresses configuring ventilation functionality (number of fan speeds).

This section covers the following topics.

· Naming the service area
· Enabling HRV manual runtime
· Setting up 20/40 operation
· Interlocking HRVs and air handlers
· Connecting volatile organic compound/ carbon dioxide (VOC/CO2) sensors
· Dehumidifying air zones with an HRV

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**).

⚠ **Important:** Remember to save all changes 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**.

### Naming the Service Area

It is a best practice to name each Heat Recovery Ventilator Control (HRV) (A9011200). HRV numeric designations (for example, HRV 1) correspond to the position of the address jumper covering the pins on the HRV board. The installer should know which unit is connected to which control before assigning names in the UCT software.

Refer to the following steps to name an HRV or service area.

1. From the **Main Menu**, click on the **Ventilation (HRVs)** button shown in **Figure 2.14-1** to display the Heat Recovery Ventilators (HRVs) screen shown in **Figure 2.14-2**. The screen will display a button for each HRV that is online and communicating with the Router Main Control (RTR) (A9011000).
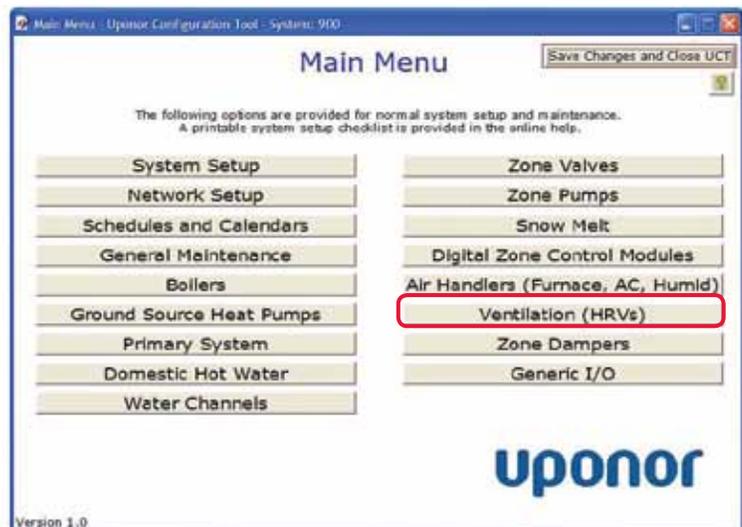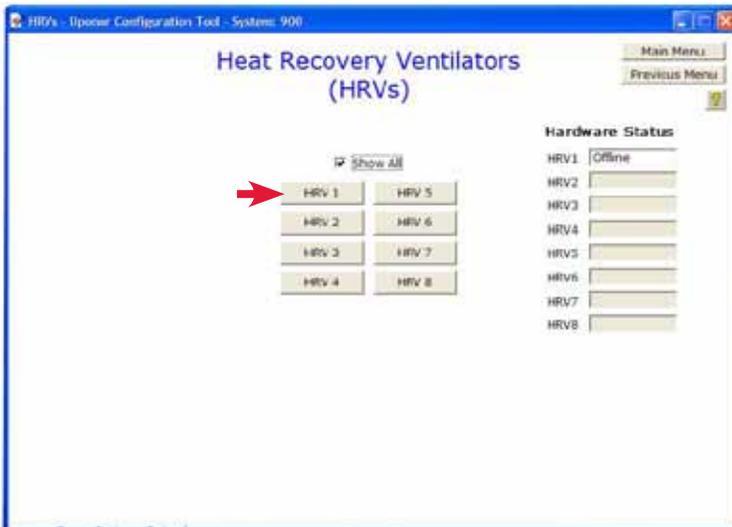


Figure 2.14-1: Main Menu Screen
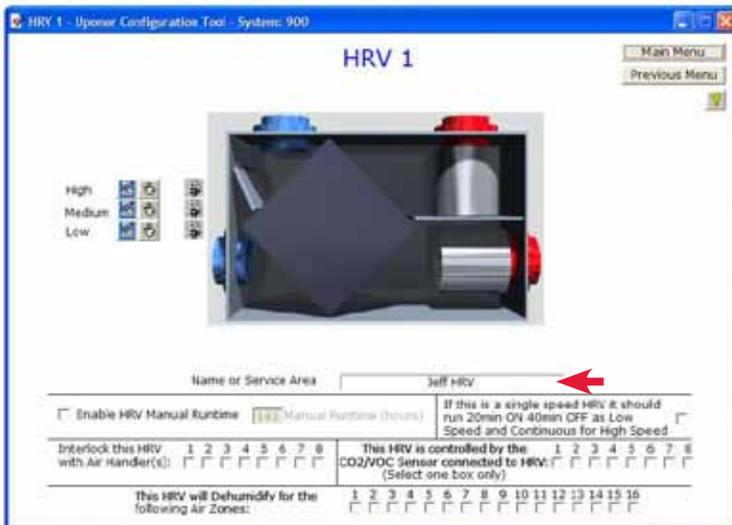
**Figure 2.14-2: HRV Status Screen**



**Figure 2.14-3: HRV Screen**



**Figure 2.14-4: HRV Manual Runtime Settings**

2. Click on an HRV button to display an HRV screen (see **Figure 2.14-3** for an example).

3. In the Name or Service Area field, enter a name or description that clearly identifies the unit (if more than one) or the spaces or floors that it will serve. The field is limited to 40 characters; do not use symbols. The name will initially display in pink text, but will turn to black text when accepted by the RTR.

## Enabling HRV Manual Runtime

The Network System allows the installer to define an automatic timeout if the end user manually turns on an HRV. Enabling this feature will automatically turn off an HRV after a set duration.

**Note:** This feature does not affect fan operation during a dehumidification call.

Refer to the following steps to enable HRV Manual Runtime.

1. From the **Main Menu**, click on the **Ventilation (HRVs)** button shown in **Figure 2.14-1** to display the Heat Recovery Ventilators (HRVs) screen shown in **Figure 2.14-2**. The screen will display a button for each HRV that is online and communicating with the RTR.

2. Click on an HRV button to display an HRV screen (see **Figure 2.14-3** for an example). **Figure 2.14-4** shows an enlarged view of the manual runtime settings.

3. Check the Enable HRV Manual Runtime box.

4. In the text box to the right, enter the Manual Runtime in hours. The new value will display in pink text initially, but will change to black when accepted by the RTR.

5. Repeat as needed for other HRVs.

**Note:** If the box for entering the runtime hours is gray and will not accept a value, the checkbox to enable this feature is not checked.

## Setting Up 20/40 Operation

In some applications, it may be necessary to set up the HRV to provide a timed interval to ventilate the building or home. The HRVs can be set up to run continuously. Another option is to cycle the ventilator between 20-minute periods of running and 40-minute periods of being off. If working with a single-speed unit or able to control only one speed, the installer must address following factors.

· When configuring the thermostat that controls ventilator functionality, the HRV must be set up for two speeds (even though low speed does not exist).

· The user will have to trigger 20/40 operation from the thermostat by setting the low-speed operation.

**uponor**

Refer to the following steps to enable 20/40 operation.

1. From the **Main Menu**, click on the **Ventilation (HRVs)** button shown in **Figure 2.14-1** to display the Heat Recovery Ventilators (HRVs) screen shown in **Figure 2.14-2**. The screen will display a button for each HRV that is online and communicating with the RTR.

2. Click on an HRV button to display an HRV screen (see **Figure 2.14-3** for an example). **Figure 2.14-5** shows an enlarged view of the settings.
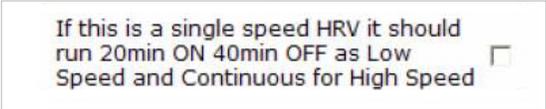


**Figure 2.14-5: 20/40 Operation Setup**

3. Click on the check box to the right.

4. Repeat as needed for other HRVs.

## Interlocking HRVs to Air Handlers

The Network System can provide a fan interlock option when running ventilators. Depending on the construction of the air system, the ventilation system may be standalone or distributed (meaning the ventilation air will use the air heating and cooling ductwork). Conventional control systems would require wiring and a relay to run the fan on the air handler when ventilation is needed. The Network system, however, requires no additional wiring or relays — only software setup changes.

Refer to the following steps to interlock an HRV with air handlers.

1. From the **Main Menu**, click on the **Ventilation (HRVs)** button shown in **Figure 2.14-1** to display the Heat Recovery Ventilators (HRVs) screen shown in **Figure 2.14-2**. The screen will display a button for each HRV that is online and communicating with the RTR.

2. Click on an **HRV** button to display an HRV screen (see **Figure 2.14-3** for an example). **Figure 2.14-6** shows an enlarged view of the settings.
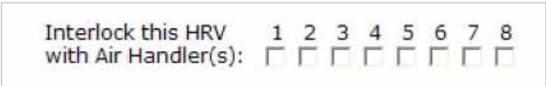


**Figure 2.14-6: HRV/Air Handler Fan Interlock Option**

3. Check the boxes for the air zones that require the air handler fan to turn on for humidity control.

## Connecting VOC/CO2 Sensors

The Network System supports the use of optional VOC/CO2 sensors as an added step toward improved indoor air quality (IAQ). When VOC/CO2 sensors detect high levels of carbon dioxide or VOCs (from paints, stains, new carpet, etc.), the Network System will automatically turn on one or more HRVs to bring fresh air into the space.

The Network System cannot automatically detect VOC/CO2 sensors, so the installer must change software settings to indicate VOC/CO2 sensors are installed.

Refer to the following steps to set up a VOC/CO2 sensor.

1. From the **Main Menu**, click on the **Ventilation (HRVs)** button shown in **Figure 2.14-1** to display the Heat Recovery Ventilators (HRVs) screen shown in **Figure 2.14-2**. The screen will display a button for each HRV that is online and communicating with the RTR.

2. Click on an **HRV** button to display an HRV screen (see **Figure 2.14-3** for an example). **Figure 2.14-7** shows an enlarged view of the settings.
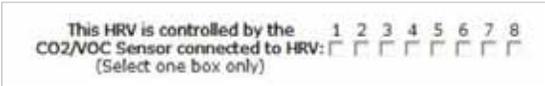


**Figure 2.14-7: VOC/CO2 Sensor Setup**

3. Click on the checkbox for the VOC/CO2 sensor connected to an HRV. For example, the screen shows the setup information for HRV 1. If the VOC/CO2 sensor is connected to HRV 5, but HRV 1 also needs to run when high levels of VOC/CO2 are detected, click on the checkbox for 5. This is a simple and easy way to have a VOC/CO2 sensor operate or interlock with multiple HRVs or ERVs.

## Dehumidifying Air Zones with an HRV

The Network System can also provide dehumidification control for air zones using HRVs. The idea is to increase cooling efficiency by first using dried, outdoor air to reduce humidity levels prior to bringing in conventional cooling.

> **Note: Section 3.2: Thermostat Setup** addresses defining air zones and dehumidification functionality. The following steps detail how the installer defines the air zones to which an HRV will provide ventilation when dehumidification is required.

Refer to the following steps to use an HRV to dehumidify an air zone.

1. From the **Main Menu**, click on the **Ventilation (HRVs)** button shown in **Figure 2.14-1** to display the Heat Recovery Ventilators (HRVs) screen shown in **Figure 2.14-2**. The screen will display a button for each HRV that is online and communicating with the RTR.

2. Click on an **HRV** button to display an HRV screen (see **Figure 2.14-3** for an example). **Figure 2.14-8** shows an enlarged view of the settings.



**Figure 2.14-8: Dehumidification/HRV Settings**

3. Check the boxes for the air zones that require the HRV to turn on for dehumidification control. Multiple air zones can be checked.

> **Note:** For any HRV features described in this section, the Ventilation option must be checked on at least one thermostat assigned to the HRV. See **Section 3.4: Thermostat Setup 2 Tab** for additional information.