

Section 2.12

Snow Melting

The Network System supports up to four snow-melting zones. You can control the zones through semi-automatic or automatic operation, and a single system can use both modes of operation.

For semi-automatic operation, a user initiates the snow-melt function through one of the following interfaces:

- Button on the Snow Melt Control (A9013051)
- Remote pushbutton, which is wired to the Snow Melt Control
- Touch Panel Interface (TPI) (A9070000)
- Web interface (www.myuponor.net)

Once the slab reaches the target melting temperature, heating will continue for an adjustable amount of time and then shut off. If snow remains on the surface, the user can run the function again. The user may also wish to lengthen the snow melt runtime.

For automatic operation, a sensor detects snow and initiates snow melting. The Network System heats the surface to the target temperature and maintains that temperature. Automatic operation uses the same timeout feature as semi-automatic operation. In automatic operation, the timer does not start until the sensor is clear from snow or moisture. When the sensor detects a dry condition and the timer has reached zero, the snow-melting equipment for that zone will turn off.

Table 2.12-1 lists the Network System equipment needed for each type of snow-melt operation.

Snow Melt Function	A9013051	A9013052
Semi-automatic	X	X
Automatic		X

Table 2.12-1: Snow-melt Equipment

This section covers the following topics.

- Viewing the status of snow-melt zones
- Setting up mixing or secondary pumps
- Attaching zone pumps
- Setting up Idle feature
- Setting snow-melt operating conditions

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 has reviewed the documentation on using UCT elements (**Section 1.7**).



Important: Remember to save all changes to flash memory. Changes not saved to flash will be lost if Supply Water Temperature Control (SWT) (A9013000) loses power. See **Section 5.1: Save to and Load from Flash** for additional information.

Viewing Snow-melt Zone Status

Refer to the following steps to see the Snow Melt Controls connected to the SWT and view the status of the snow-melt zones.

1. From the **Main Menu**, click on the **Snow Melt** button shown in **Figure 2.12-1**. This displays the Snow Melt screen shown in **Figure 2.12-2**. The screen will display the snow melt zones that are currently connected to the SWT.

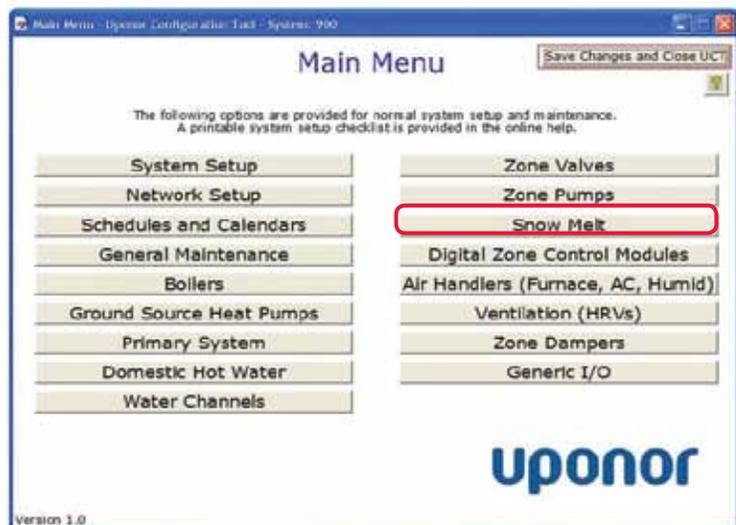


Figure 2.12-1: Main Menu Screen

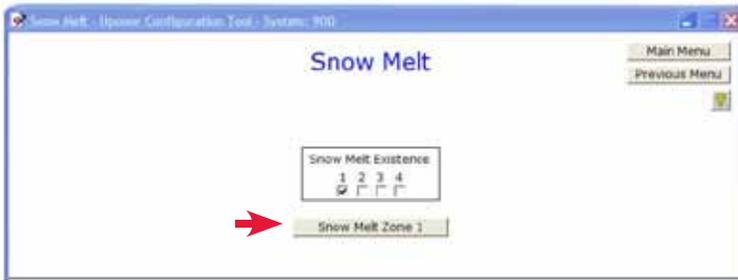


Figure 2.12-2: Available Snow Melt Zone Screen

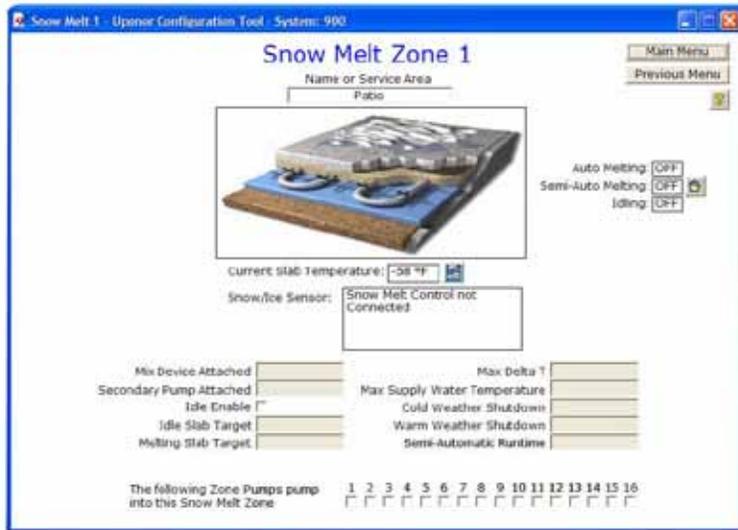


Figure 2.12-3: Snow Melt Details Screen

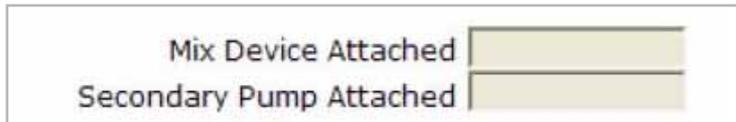


Figure 2.12-4: Snow Melt Mix and Secondary Pump Settings

Note: If the screen does not show any snow-melt zones, verify the connections from the SWT to the Snow Melt Control.

- Click on a **Snow Melt** button to bring up a Snow Melt Zone screen which displays additional graphics shown in **Figure 2.12-3**.

The following fields indicate the status of the snow-melt zone.

- Current Slab Temperature displays below the snow melt slab detail. A reading of -58°F (-50°C) indicates the 10K sensor is not connected or the Snow Melt Control is not properly connected to the SWT.

- The Snow/Ice Sensor field displays the status of the sensor. Status options are:
 - Snow Melt Control not Connected
 - No Snow/Ice Detected
 - Snow/Ice Detected
- The Auto Melting field indicates if the Automatic Snow and Ice Sensor (A9013052) has detected moisture and turned on the melting function. Status will display as Off or On. If the system is not using an Automatic Snow and Ice Sensor, the status will never change from Off.
- The Semi-Automatic Melting field indicates if the snow-melt function has been manually activated. Status will display as Off or On.
- The Idling field indicates whether the snow melt zone is currently idling. Status will display as Off or On. If the Idle feature is not enabled, this status will never change from Off.

Setting up Mixing or Secondary Pumps

Depending on the configuration of the mechanical system and piping, it may be necessary for the Network System to provide a mixed water temperature to the slab or snow-melt area to prevent overheating or excessive energy use.

Refer to these steps to set up a mixing device and secondary pump for a snow melt zone.

- From the **Main Menu**, click on the **Snow Melt** button to display the Snow Melt screen shown in **Figure 2.12-2**.
- Click on a **Snow Melt Zone** button. See **Figure 2.12-4** for an enlarged view of the Mix Device Attached and Secondary Pump Attached fields on the Snow Melt Zone screen.
- In the Mix Device Attached field, enter a value between one and six:
 - One through five correlate to the Mix Ports on the SWT. For example, "2" indicates the Mix 2 port on the SWT. This value tells the Network System the associated mixing device needs to be activated for snow melting. See **Section 2.9: Water Temperature Mixing** for information on setting up the mixing device.
 - Entering "6" indicates there will be no mixing device between the boiler(s) and the snow-melt slab, and the boiler(s) will control the supply temperature to the slabs.

Note: WTC6 must be set up for this configuration to operate properly; see **Section 2.5: Boilers**. If condensing boilers are used and set up to control water temperature, enter “6” in the Mix Device Attached field.

- In the Secondary Pump Attached field, enter a value between one and five:
 - One through five correlate to the Secondary Pump Ports on the SWT. For example, “4” indicates the Secondary 4 port on the SWT. This value tells the Network System the associated secondary pump needs to be activated for snow melting. When using a mix device and secondary pump, these values must be the same.

Note: If using Zone Pumps (more than one pump to supply the snow-melt zone), refer to the following section: **Attaching Zone Pumps**.

Attaching Zone Pumps

A secondary pump or zone pumps can be used to circulate water for a snow-melt zone. If a single pump is used for a snow-melt zone — regardless of whether a mixing device is used — consider setting this pump as a secondary pump. Connect the pump to the Secondary Pump port, and then assign a “virtual” mix assignment. This approach may save the cost of the Zone Pump Control (ZPC) (A9014000). If multiple pumps are used due to the size or configuration of the snow-melt area, set up zone pumps for operation.

Refer to the following steps to set up zone pumps for a snow-melt zone.

- From the **Main Menu**, click on the **Snow Melt** button to display the Snow Melt screen.
- Click on a **Snow Melt Zone** button. See **Figure 2.12-5** for an enlarged view of the snow melt zone pump settings.
- Click the checkboxes to indicate which pumps should run for snow melting in a specific zone. The numbers relate directly to the ports on the ZPC. For example, if zone pumps two, six and 13 are checked, ports two, six and 13 are active on the ZPC when snow melting is required.



Figure 2.12-5: Snow Melt Zone Pump Settings



Figure 2.12-6: Snow Melt Idle Settings

Setting up Idle Feature

The Idle feature maintains the snow-melt slab at a minimum temperature so that the slab can reach the target snow-melt temperature more quickly. By using the Idle feature, melting can begin more quickly after snow falls.

Refer to these steps to set up the Idle feature for a snow-melt zone.

- From the **Main Menu**, click on the **Snow Melt** button to display the Snow Melt screen.
- Click on a **Snow Melt Zone** button. See **Figure 2.12-6** for an enlarged view of the Idle Enable and Idle Slab Target fields on the Snow Melt Zone screen.
- Check the **Idle Enable** box.
- Enter the minimum slab temperature to be maintained.

Note: Minimum slab temperature will not be maintained when the outdoor temperature rises above the Warm Weather Shutdown value or falls below the Cold Weather Shutdown value.

Max Delta T	<input type="text"/>
Max Supply Water Temperature	<input type="text"/>
Cold Weather Shutdown	<input type="text"/>
Warm Weather Shutdown	<input type="text"/>
Semi-Automatic Runtime	<input type="text"/>

Melting Slab Target

Figure 2.12-7: Snow Melt Operation Settings

Setting Snow-melt Operating Conditions

The installer needs to define how the snow-melt slab or area should operate and under what conditions. Setup might be based on efficiency and economy or climatic data. Each snow-melt zone can be set up independently with different operating parameters.

Refer to these steps to set up a snow-melt zone.

1. From the **Main Menu**, click on the **Snow Melt** button to display the Snow Melt screen.
2. Click on a **Snow Melt Zone** button. See **Figure 2.12-7** for an enlarged view of the snow melt operation settings.
3. In the Melting Slab Target field, enter the slab temperature needed to melt snow. This setting is typically 35°F (1.7°C) or higher. The placement of the 10K sensor in the slab affects the setting. For example, a melt temperature of 35°F (1.7°C) when the slab sensor is at the bottom of the 4" slab may generate a surface temperature of only 30°F (-1.1°C), which won't melt snow.
3. Enter a value in the Max Delta T field to protect the slab from thermal shock. Thermal shock occurs when water that is too hot enters the snow-melting slab and causes rapid expansion that may damage the slab. Setting the Max Delta T protects the slab by only allowing the supply temperature to rise when the return temperature is within the Delta T. For example, if the supply to the slab is 100°F (38°C), the return is 45°F (7°C) and the Max Delta T is 30°F (15°C), the Network will either reduce the 100°F (38°C) supply or not allow the supply temperature to increase above 100°F (38°C) until the return reaches 70°F (21°C).

Note: A mixing device must be installed in the piping to the snow-melt zone to control the Delta T properly.

4. Enter a value in the Max Supply Water Temperature field. This value limits the supply water temperature that enters the snow-melt slab.

Note: If the Network System is not controlling a mixing device or the boiler discharge temperature, the control will not be able to prevent the water temperature from exceeding the maximum limit.

5. Enter a value in the Cold Weather Shutdown field. This value is the coldest outdoor temperature at which snow melting will operate. Outdoor temperatures lower than this setting will prevent both melting and idle modes of snow melt operation.
6. Enter a value in the Warm Weather Shutdown field. This value is the warmest outdoor temperature at which snow melting will operate. Outdoor temperatures that are higher than this setting will prevent both Melting and Idle modes of snow-melt operation. Exceeding this temperature will also prevent manual starts.
7. Enter a value in the Semi-Automatic Runtime field. This value defines the duration that the snow-melt zone will run or continue to maintain its melting temperature after the Melting Slab Target has been reached.