

# Zio™ LCD Wall Modules

## TR70 AND TR70-H with Sylk™ bus

### OPERATING GUIDE



## APPLICATION

The TR70 and TR70-H<sup>a</sup> LCD Wall Modules provide an operator interface for monitoring and adjusting parameters in the wall module itself and in the programmable controller<sup>b</sup> to which it is wired. The wall module may be customized and supports both a contractor and a tenant user interface.

**NOTE:** This document illustrates the wall module configuration process using information from the *Honeywell Spyder™ User's Guide* (form 63-2662).

The wall module has a snap in mounting to a subbase that may be mounted on a wall, on a standard utility conduit box, or on a 60 mm wall outlet box. Wiring connections to the wall module are made through a cutout in the back of the wall module.

All models have a space temperature sensor, network bus jack, and an LCD panel with three softkeys and two Up/Down adjustment keys.

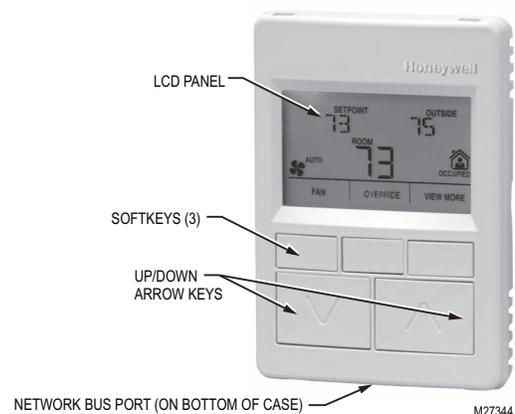
<sup>a</sup> The TR70-H model includes an onboard humidity sensor.

<sup>b</sup> Refer to the *Honeywell Spyder User's Guide* (form 63-2662) or the *ComfortPoint™ Programmable Controller User's Guide* (form 63-2663) depending on the programmable controller used.

## PREFACE

This Operating Guide is intended to provide configuration information (using the Niagara Workbench tool) and a general overview of the TR70 operator interface. Configuration begins with "Initial Power-up" on page 2, and the general overview begins with "Operating the Zio Wall Module" on page 22.

It is intended to guide you through the features and operation of the TR70 as you interface with the programmable controller and establish pre-programmed or custom configurations.



**Fig. 1. LCD Wall Module features.**

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## Compatibility

The Zio LCD Wall Modules operate with the Sylk Enhanced Spyder Controller or the Sylk Enhanced ComfortPoint Controller.

## INITIAL POWER-UP

### IMPORTANT

1. Make sure the TR70 wall module is properly mounted and properly wired and connected to the programmable controller.
2. Refer to the Zio™ LCD Wall Modules TR70 and TR70-H with Sylk™ bus – Installation Instructions, form 62-0271, for specific installation requirements.

Upon initial power-up before configuring the wall module, the LCD screen displays the phrase “PLEASE LOAD” in the Label/ Value area of Fig. 2. This phrase alternates with any onboard sensor display such as temperature.

Fig. 2 illustrates all the possible LCD Wall Module display elements. Only those elements pertinent to the current configuration and status actually display.

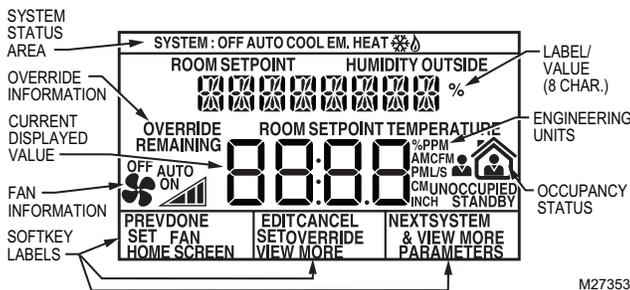


Fig. 2. TR70 Wall Module - LCD screen.

## SETUP AND CONFIGURATION

### Initial Setup and Configuration

Once the wall module is wired to the controller, you configure the wall module using the PC-based, Niagara Workbench Tool. Refer to the applicable programmable controller User’s Guide.<sup>a</sup> This tool is used to configure the wall module for either the Spyder or the ComfortPoint programmable controller.

### Confirm Bus Address Setting

Check to ensure that the Wall Module’s bus address dial (located on the back of the module) is set to one (1) to match the default setting of the configuration tool.

NOTE: Multi-drop installations are not available at this time. Only one wall module may be wired to the programmable controller.

## Selecting the Wall Module

There are two ways to configure the wall module:

- Select one of the 16 pre-programmed configurations within the Spyder Library (the most commonly used method).
  - or -
- Select the un-programmed S-Bus wall module configuration.

NOTE: The 16 pre-programmed configurations satisfy most application requirements. You can select a pre-programmed configuration and then Preview it to see if it works for your application.

## Selecting a Pre-Programmed Configuration

There are 16 pre-programmed configurations located in the Spyder Library. See Fig. 3 for a sample screen shot of the tool interface showing the Spyder Library and see “Pre-Programmed Configurations” on page 3 for descriptions.

1. Add the desired configuration to the wire sheet via a left click, drag, and drop. See callout 1 in Fig. 3.
2. Right click on the configuration’s function block to open the Configuration Properties menu. See callout 2 in Fig. 3.
3. Left click on the title, Configuration Properties. This action starts the Configuration Wizard. The Configuration Wizard steps (see Fig. 6 on page 6) are used to configure the wall module.

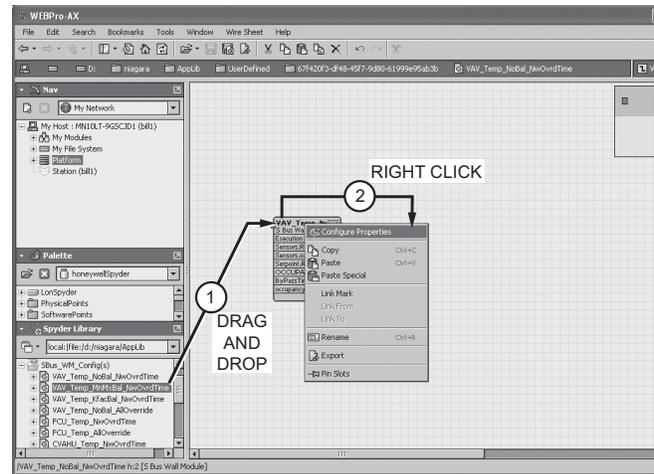


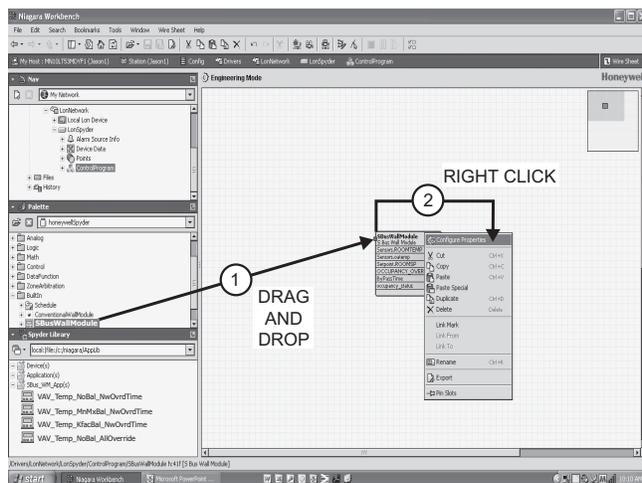
Fig. 3. Niagara Tool Interface - pre-programmed configuration selection.

<sup>a</sup> Refer to the *Honeywell Spyder User’s Guide* (form 63-2662) or the *ComfortPoint Programmable Controller User’s Guide* (form 63-2663) depending on the programmable controller used.

## Selecting the Un-programmed S-Bus Wall Module

You may use the Sylk S-Bus wall module function block from the Palette's Built-In folder (see Fig. 4). This configuration has nothing programmed except the room temperature parameter.

1. Add the Sylk S-Bus Wall Module function block to the wire sheet via a left click, drag, and drop. See callout 1 in Fig. 4.
2. Right click on the S-Bus Wall Module function block to open the Configuration Properties menu. See callout 2 in Fig. 4.
3. Left click on the title, Configuration Properties. This action starts the Configuration Wizard. The Configuration Wizard steps (see Fig. 6 on page 6) are used to configure the wall module.



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**Fig. 4. Niagara Tool Interface - un-programmed S-Bus wall module selection.**

## Pre-Programmed Configurations

The 16 pre-programmed configurations are starting points for customization. Just drag the configuration out of the Spyder Library (See “Selecting a Pre-Programmed Configuration” on page 2.), then start customizing it and making the required links in the wire sheet. You can select from the menu items (e.g. Home Screen Options; see Fig. 6 on page 6), make your changes, and save it as a custom configuration to complete the configuration process.

**NOTE:** If one of the pre-programmed configurations works for your application, then you can simply complete this section, preview it, and finish the configuration process by going to “Completing the Setup and Configuration” on page 16.

Each configuration includes:

- A default Home screen showing room temperature, room setpoint, and either outside air or indoor humidity.
- Seven additional Home screens choices are also pre-loaded.

Use the full-featured Preview option in the wall module tool to demo the configuration. See “Preview” on page 15.

## Configurations - Typical for TR70 Wall Modules

### VAV\_Temp\_NoBal\_NwOvrTime

Typical set-up for a VAV system. No balancing loaded, which frees up additional memory if greater controller parameter access is desired. Uses the network determined occupied override duration.

### VAV\_Temp\_MnMxBal\_NwOvrTime

Typical set-up for a VAV system pre-configured with a Min/Max Airflow balancing method (balancing can be done through the wall module keypad), and uses the network determined occupied override duration.

### VAV\_Temp\_KfacBal\_NwOvrTime

Typical set-up for a VAV system pre-configured with a K-Factor method of balancing (balancing can be done through the wall module keypad), and uses the network determined occupied override duration.

### VAV\_Temp\_NoBal\_AllOverride

Typical set-up for a VAV system. No balancing loaded, which frees up additional memory if greater controller parameter access is desired. Loaded with a user adjustable occupied override time from 30 minutes to 3 hours, as well as an adjustable vacation (multiple day) override (unoccupied), and a continuous unoccupied time.

### FCU\_Temp\_NwOvrTime

Typical set-up for a fan coil system pre-configured to use the network determined occupied override duration.

### FCU\_Temp\_AllOverride

Typical set-up for a fan coil system pre-configured to use the network determined occupied override duration. Loaded with a user adjustable occupied override time from 30 minutes to 3 hours, as well as an adjustable vacation (multiple day) override (unoccupied), and a continuous unoccupied time.

### CVAHU\_Temp\_NwOvrTime

Typical set-up for a CVAHU system pre-configured to show system status and system override (heat, cool, auto, etc., like a thermostat), and uses the network determined occupied override duration.

### CVAHU\_Temp\_AllOverride

Typical set-up for a CVAHU system pre-configured to show system status and system override (heat, cool, auto, etc., like a thermostat). This status can be removed. Loaded with a user adjustable occupied override time from 30 minutes to 3 hours, as well as an adjustable vacation (multiple day) override (unoccupied), and a continuous unoccupied time.

### Configurations including Humidity

These configurations are typical for TR70-H Wall Modules. The following configurations are equivalent to the TR-70 configurations, but these include the Humidity parameter.

- VAV\_TempHum\_MnMxBal\_NwOvrTime
- VAV\_TempHum\_KfacBal\_NwOvrTime
- VAV\_TempHum\_NoBal\_NwOvrTime
- VAV\_TempHum\_NoBal\_AllOverride
- FCU\_TempHum\_NwOvrTime
- FCU\_TempHum\_AllOverride
- CVAHU\_TempHum\_NwOvrTime
- CVAHU\_TempHum\_AllOverride

NOTE: At any time, any of the 16 configurations can be modified and saved to the library with a new configuration name. See Fig. 21 on page 16 for an illustration of the Save to Library pop-up window.

### Navigation and Memory Usage

The Honeywell Spyder Tool uses an intuitive, window-based interface. A Help button on each screen provides assistance with any entry or process.

#### IMPORTANT

*Use the Help button to display context specific help for the current window or pane display. See the lower left corner of Fig. 7 on page 6 for the location of the Help button.*

NOTE: At any time, clicking the Preview button (lower left of main window, see Fig. 7 on page 6) displays the updated wall module LCD as a pop-up. Preview simulates the actual wall module interface and allows you to verify the operation of the current configuration of the wall module. See “Preview” on page 15.

### Navigation

Table 1 describes the navigation buttons at the bottom of the wall module window. See the bottom of Fig. 8 on page 7 for the location of these buttons. Buttons are greyed when unavailable.

**Table 1. Navigation Buttons.**

Item	Function/Use
Help	When clicked, this button provides context sensitive help for the currently selected item or parameter.
Preview	When clicked, this button displays the updated wall module LCD in a pop-up window pane. Preview is fully interactive and simulates the actual wall module interface as currently configured (see “Preview” on page 15 for details).
Save to Library	For new custom configurations and standard configurations. Clicking the button opens the Save to Library screen (shown in Fig. 21 on page 16). This action allows you to save the entire current wall module configuration. The Save to Library button is disabled until you change the configuration (application). After a change is made, you can save the new configuration into the library under a new name.

**Table 1. Navigation Buttons. (Continued)**

Item	Function/Use
Back	Takes you backward one step in the wizard interface.
Next	Takes you forward one step in the wizard interface.
Finish	Clicking this button commits all changes to the database, closes the Configuration Wizard, and returns you to the wire sheet.
Cancel	Prompts you with a confirmation message. If you reply Yes, then all selections/entries made since the Save to Library button was last pressed are ignored, and the wizard interface quits.

#### SAVE BUTTON

A SAVE button is available on screens that allow entries or selections. It is enabled whenever any change is made on the screen, and allows you to save your selections/entries at any time. See the ROOMSP Details area of the Categories and Parameters window in Fig. 13 on page 9 for an example of the SAVE button.

Save is enabled whenever a change is made to the current page. When you press the SAVE button, the preview screen displays and your changes are reflected in the preview.

If you try to leave the current screen without saving (click another icon or press the Back or Next button) and have made changes, the LCD displays a warning message.

### Memory Usage

The wall module has a fixed amount of memory available for configuration data. A bar graph indicating current memory usage is provided in the lower left of the wall module window. See Fig. 8 on page 7.

NOTE: Memory usage must be less than 100% in order to download the configuration to the programmable controller.

If the memory bar graph is not visible, click the Show Wall Module Memory Usage check box in the lower left of the window. See the lower left corner of Fig. 8 on page 7 for an illustration.

Right clicking on the bar graph displays details of how the memory is currently being used.

The fill color of the bar graph changes according to the following memory levels:

- Less than 90% = blue
- Greater than 90%, but less than 100% = orange
- Greater than 100% = red

The following warning message displays when the memory usage is greater than 100%:

“Warning: Memory Limit Exceeded. The current wall module configuration requires more memory than the wall module model can support. You will need to change the configuration so that the memory usage is 100% or less before pressing the FINISH button.”

Clicking anywhere on the memory bar graph opens a pop up to display the Help specific to memory management as illustrated in Fig. 5.

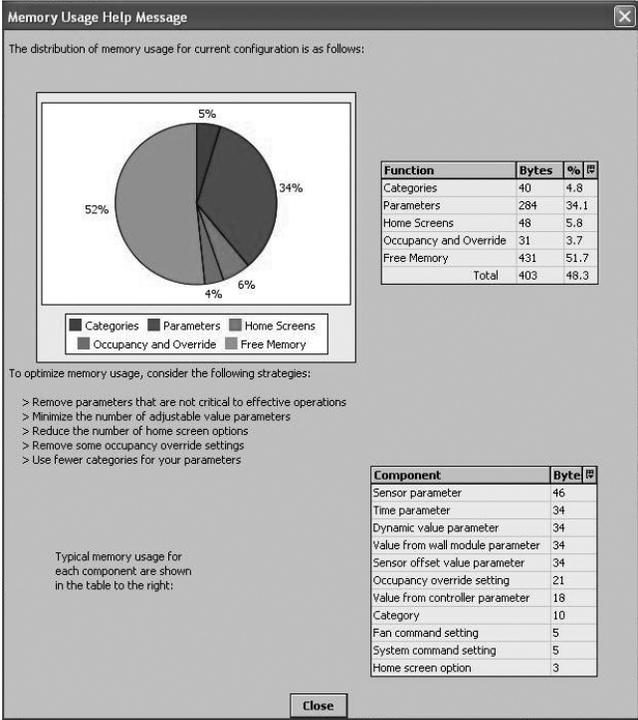
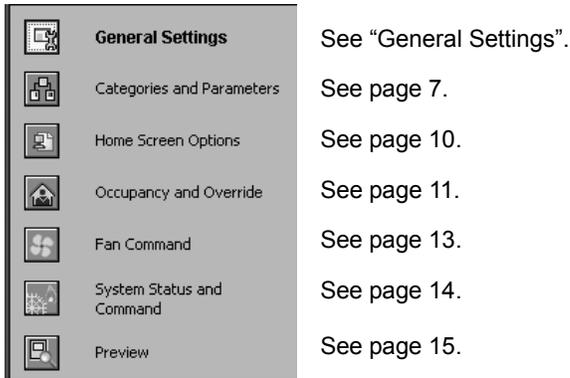


Fig. 5. Memory Usage Help screen.

## Wall Module Configuration

To begin configuring the wall module:

1. Right click on the configuration's function block to open the Configuration Properties menu. See callout 2 in Fig. 3 on page 2.
2. Left click on the title, Configuration Properties. This action starts the Configuration Wizard. The Configuration Wizard steps (see Fig. 6) are used to configure the wall module.



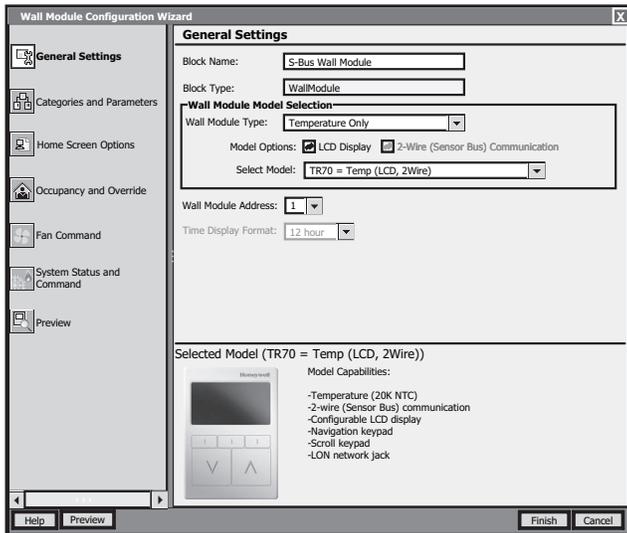
**Fig. 6. Wall Module - Configuration Wizard window showing Menu selections only.**

## General Settings

Using Fig. 7 and Table 2 as a guide, configure the General Settings. An image of the selected model and its capabilities updates in the display at the bottom of the window.

**Table 2. General Settings.**

Item	Function/Use
Block Name	The wizard displays S-Bus Wall Module.
Wall Module Type	Select the appropriate type (Temperature Only, or a combination of Temperature, and/or Humidity) from the drop down list.
Model Options	Click LCD Display.
Select Model	Select the appropriate model, TR70 or TR70-H, from the drop down list.
Wall Module Address	Use the factory default, 1, for the wall module connected to the programmable controller.
Time Display Format	Select 12 or 24 hour format.



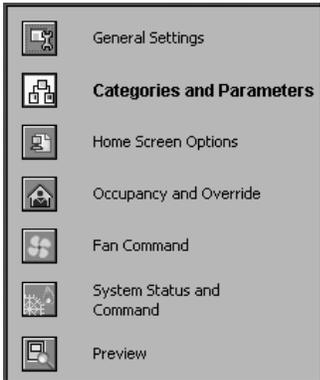
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**Fig. 7. General Settings screen (TR70 model shown).**

If you are creating a customized configuration or modifying a pre-programmed configuration, continue with “Categories and Parameters” on page 7.

If you are using a pre-programmed configuration as is, continue with “Preview” on page 16.

### Categories and Parameters



← Categories and Parameters selection from Wizard Menu

The categories and parameters menu item allows you to create, edit, and delete categories and parameters.

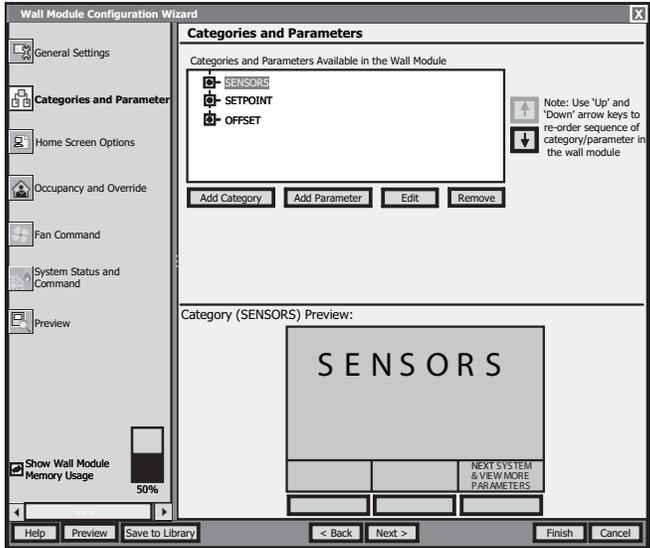
Parameters, and editing of categories and parameters begin on page 8.

#### ADDING A CATEGORY

Fig. 8 shows the categories listed in tree format in the main window where you can add, edit, or remove them. In the bottom pane, Category Preview (at the bottom of Fig. 8) shows the current selected item.

Clicking the Add Category button displays a details pane below the category and parameter tree as shown in Fig. 9.

NOTE: You can use the Remove button to delete unused categories and parameters to free up memory space.



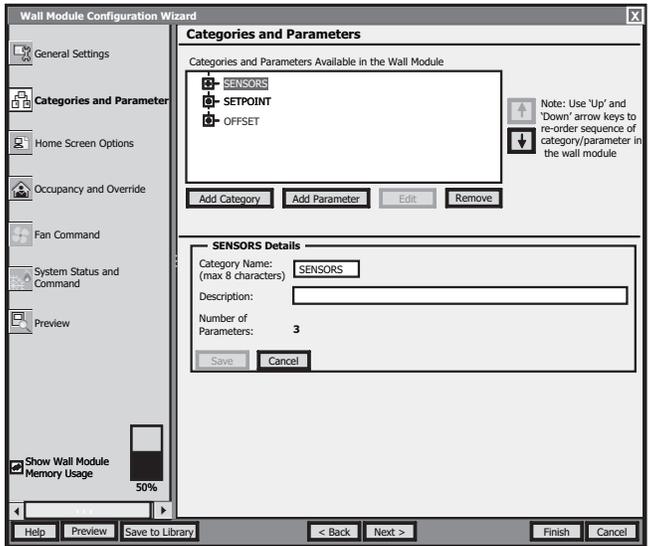
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Fig. 8. Category Preview.

#### CATEGORY DETAILS

When you select a category from the Categories tree list and click the Edit button, a details pane displays for that category (see Fig. 9 on page 7).

Here you can enter a category name, description, and the number of parameters for this category. The description text you enter displays when you mouse over the Preview screen.



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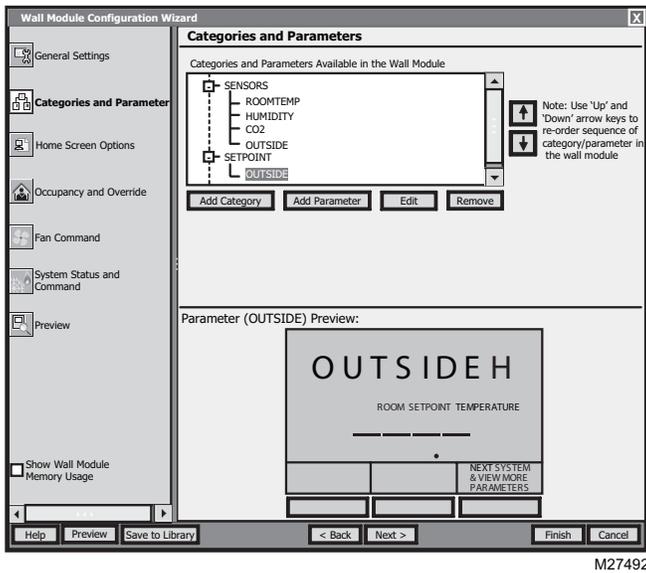
Fig. 9. Adding a Category.

**ADDING A PARAMETER**

Fig. 10 shows the categories and parameters listed in tree format in the main window. The parameters are listed under each category. Click on the box next to the category item to expand that item in the tree. You can add, edit, or remove parameters under each category. In the bottom pane, Category Preview (at the bottom of Fig. 10) shows the current selected item.

Clicking the Add Category button displays a details pane below the category and parameter tree as shown in Fig. 11.

**NOTE:** You can use the Remove button to delete unused categories and parameters to free up memory space.



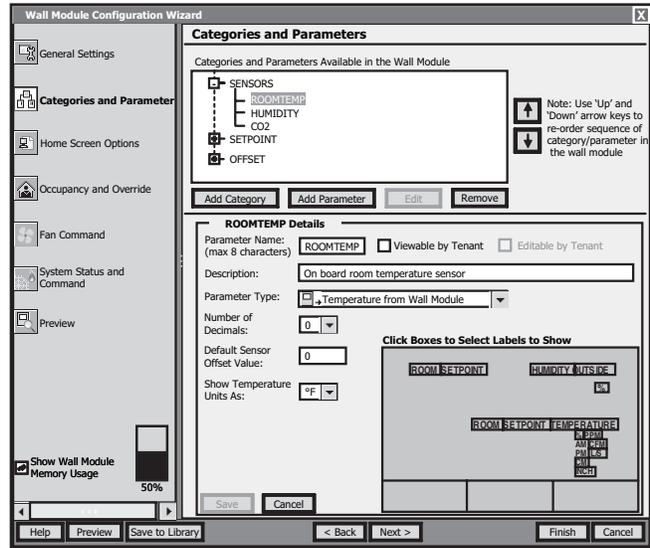
**Fig. 10. Parameter Preview.**

**PARAMETER DETAILS**

When you select a parameter from the tree list and click the Edit button, a details pane displays for that parameter.

Here you can select Viewable by Tenant and Editable by Tenant.

As an example, Fig. 11 shows the Details for the ROOMTEMP parameter. Here you would enter the description, select the parameter type from its drop-down list, enter the decimal accuracy, default sensor offset value, temperature units, and select the desired Home screen labels for the wall module.



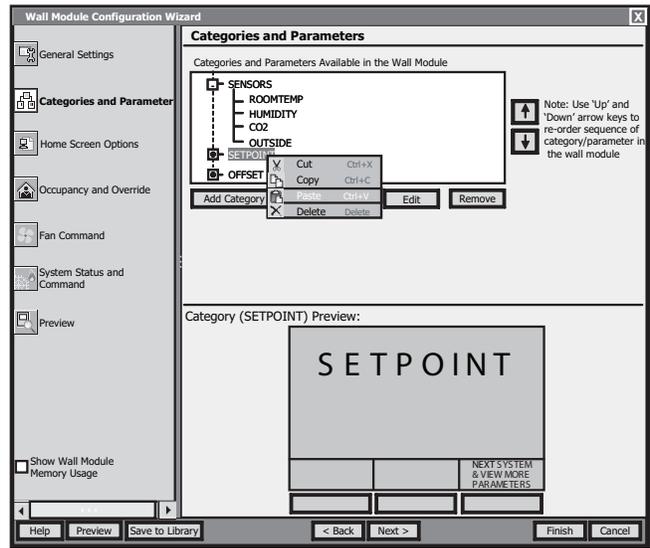
**Fig. 11. Adding a Parameter.**

**EDITING CATEGORIES AND PARAMETERS.**

A right-click accessible context menu allows you to cut, copy, paste, and delete parameters across categories. See Fig. 12.

You can also drag/drop parameters in the tree and the result is a copy/paste per standard Niagara behavior.

You can also click (highlight) any item in the tree and then click the Remove button to delete any selected parameter or its category.



**Fig. 12. Editing Categories and Parameters.**

## PARAMETER TYPES AND LIMITS

See Fig. 13 for an illustration of the Parameter Type drop down list. There is a limit to the number of parameters that can be configured. In addition to the parameter limit, there is also a memory limit (see “Memory Usage” on page 4).

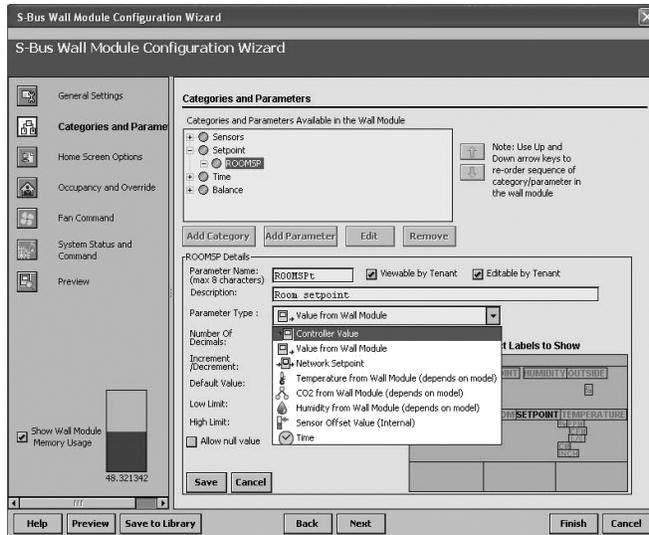


Fig. 13. Parameter Type selection.

The individual parameter maximums are:

- Inputs – up to 30 **Controller Values**
  - These are read-only inputs to the wall module and include system status and occupancy status, if configured. Controller Value parameters take up less memory than other parameters.
- Outputs – up to 19 **Values from Wall Module**
  - These are outputs from the wall module such as temperature or room setpoint.
- Input/Outputs – up to 10 **Network Setpoints**
  - A network setpoint is a network variable that you want to view and change at the wall module.
- Sensors
  - 2 sensors (**Temperature** and **Humidity**)
  - 2 **Sensor Offset Values** (temperature and humidity)

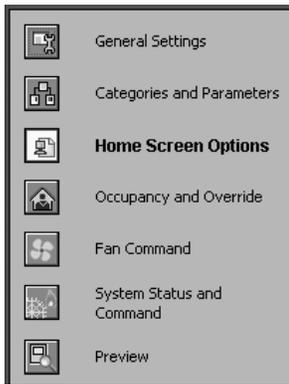
### IMPORTANT

*You can not maximize all of these parameters together. The size of the data files limits the total number. If you have more of one type of input or output, then you must have less of other(s). There are many combinations possible.*

NOTE: Network Variables need to be linked to the appropriate S-Bus wall module’s function block slots. See “Link Slots on the Wire Sheet” on page 17 for details.

Continue with “Home Screen Options” on page 10.

## Home Screen Options



← Home Screen Options selection from Wizard Menu

Fig. 14, shows the Home Screen Options window and lists the Home screens currently configured, where you can add, edit, or remove them.

### DEFAULT HOME SCREEN

The current default Home screen always displays at the top of the list. You can select any item in the list and click the Set As Default button to change the default Home screen.

**NOTE:** You can use the Remove button to delete unused Home screen options to free up memory space.

### PREVIEW

The bottom pane, Home Screen Option Preview, displays the current selected item's Home screen. When more than one Home screen is configured, you can click the softkey button rectangle, below "Next" in the preview pane, to cycle through all the Home screens in the list.

### ADD OR CHANGE HOME SCREENS

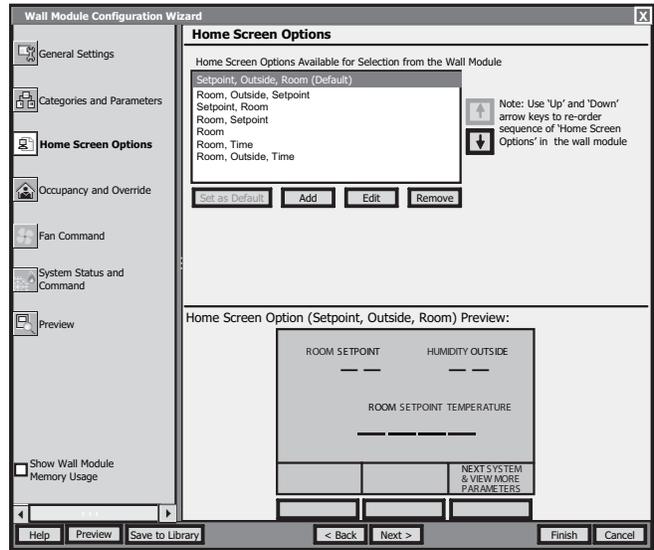
Clicking the Add or Edit button displays the Details pane below the Home screen options tree (see Fig. 15).

You use the Details pane to create or change a Home screen:

- The **Option Name** item allows you to enter a 1 to 32 character description that displays in the Home Screen Options Available list.
- The **Set as Default** selection, if clicked, causes this Home screen to be the initial Home screen for the wall module (after the configuration is downloaded to the wall module).
- The **Description** text you enter displays when you mouse over any Preview screen.
- Use the **Option Type** selection to choose either single or multiple (1 to 3) parameters to display on the Home screen.
  - For the Single Parameter option type, there is an option to display a custom label up to 8 characters in length.
- In the lower right of the window, you select the desired Home screen labels for the wall module. The number of labels is based on your Option Type selection.
  - When selecting a parameter to display on the Home screen, note the maximum number of digits allowed, which varies from 3 to 4 depending on where the parameter displays on the LCD.
  - Click on the desired label box above each parameter to choose that label text to display on the wall module.

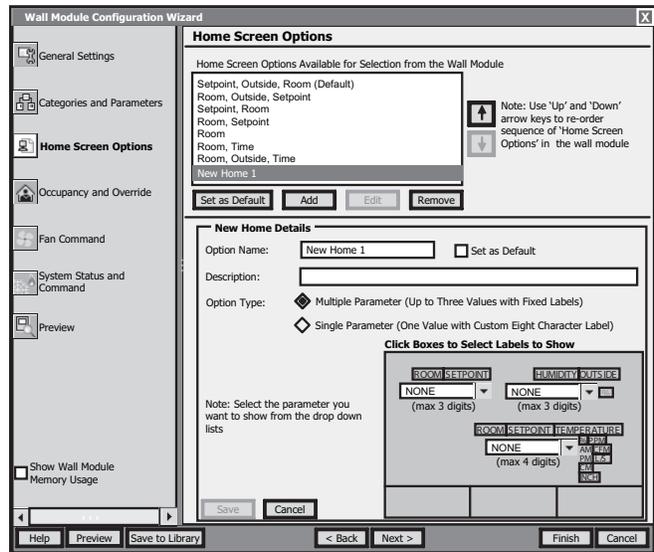
- When you complete your Home screen selections, click the Save button on the lower left of the Details pane.

After you choose the settings, use the Preview at the bottom left of the wizard window to exercise the Home screen and cycle through its options.



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Fig. 14. Home Screen Options.



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Fig. 15. Home Screen Details.

If you are finished with your configuration, go to "Preview" on page 15, otherwise continue with "Occupancy and Override" on page 11.

## Occupancy and Override

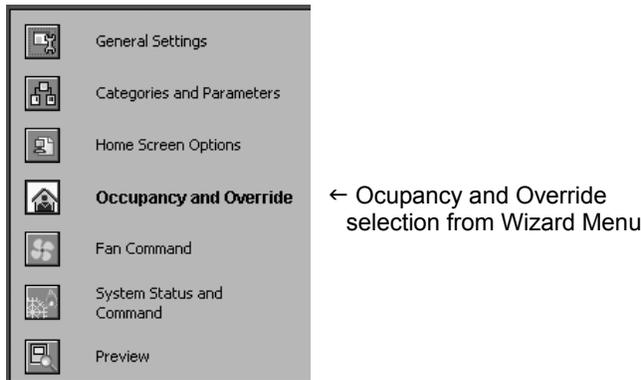


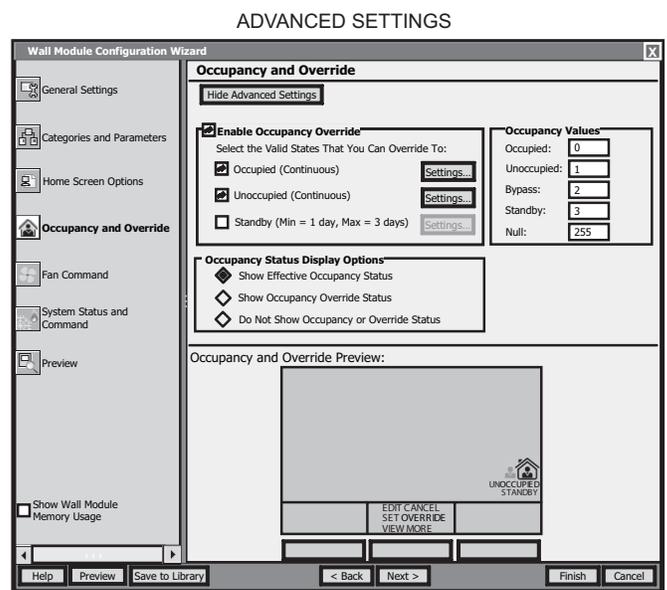
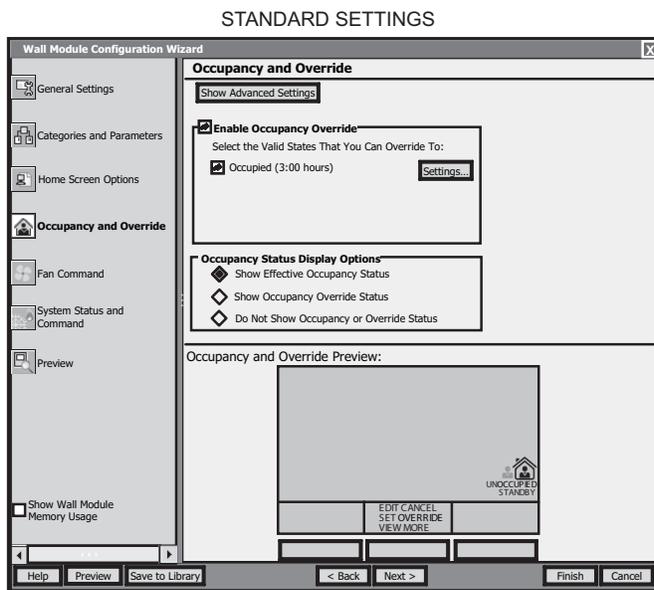
Fig. 16, shows the Occupancy and Override options in the main window for standard and advanced settings. Clicking the Show Advanced Settings button displays the advanced settings.

**NOTES:**

1. The preview at the bottom of the window displays the occupancy option currently selected.
2. If an Override option is selected, the Override softkey displays in the preview. Pressing the Override softkey cycles through the available override options.

**ENABLE OCCUPANCY OVERRIDE**

Clicking the Enable Occupancy Override box enables this feature and also enables the current Occupancy status (3:00 hours as shown in Fig. 16).



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**Fig. 16. Occupancy and Override screens.**

**OCCUPANCY STATUS DISPLAY OPTIONS**

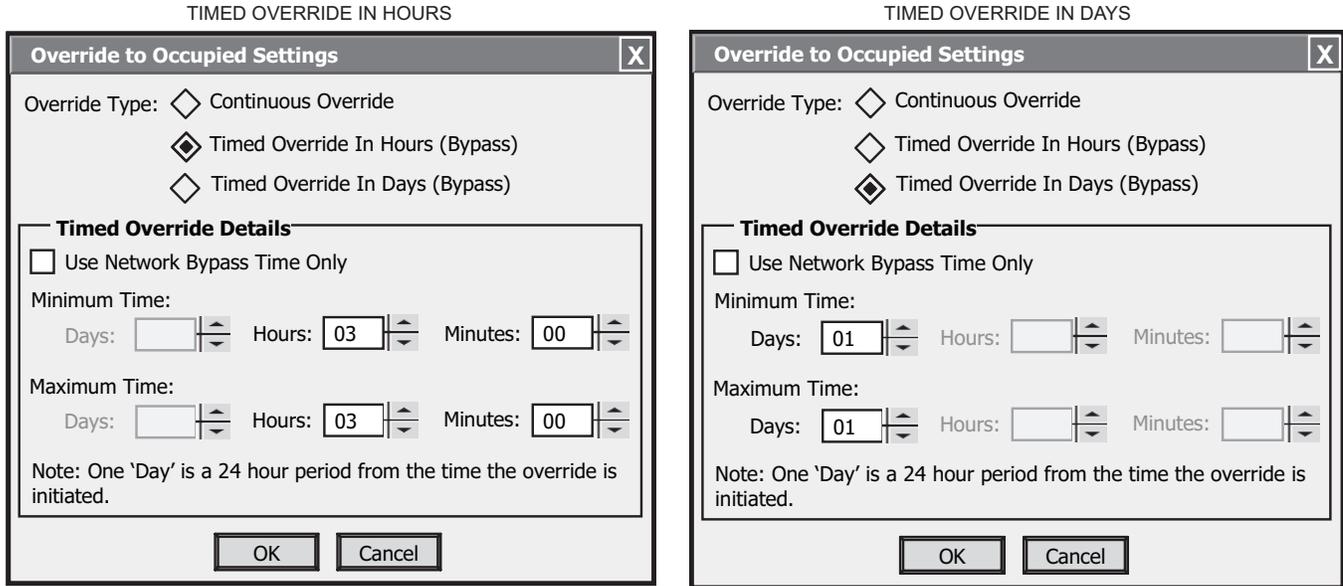
Here you select how the override status displays on the LCD. The options are:

- Show effective occupancy status – LCD shows the actual occupancy status taking into account the programmable controller configuration.

- Show occupancy override status – LCD shows the occupancy override status initiated from the LCD, independent of the programmable controller configuration.
- Do not show occupancy or override status – LCD does not show occupancy or override, regardless of what the user initiates and the programmable controller configuration.

**OVERRIDE SETTINGS**

Clicking the Settings button displays the Override to Occupancy settings pop-up (see Fig. 17), where you can select Continuous (default) or Timed (hours or days) Override settings.



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**Fig. 17. Override to Occupied Settings (Hours or Days).**

Clicking the Timed Override in Hours/Days boxes enable the Override details where you can enter the desired override timings.

Clicking the Use Network Bypass Time Only box disables all other override details. The timed override details will be determined by the programmable controller configuration. This option only applies to Occupancy override settings. Unoccupied and Standby do not use bypass.

**ADVANCED SETTINGS**

When the Show Advanced Settings button is clicked, overrides to Occupied, Unoccupied, and Standby options are possible.

The Override to Unoccupied selection’s Settings button displays pop-ups similar to the Override to Occupied Settings shown in Fig. 17, but the timings apply to Unoccupied status.

**NOTE:** The Override to Unoccupied Settings does not have a Network Bypass option.

If you are finished with your configuration, go to “Preview” on page 15, otherwise continue with “Fan Command” on page 13.

Fan Command

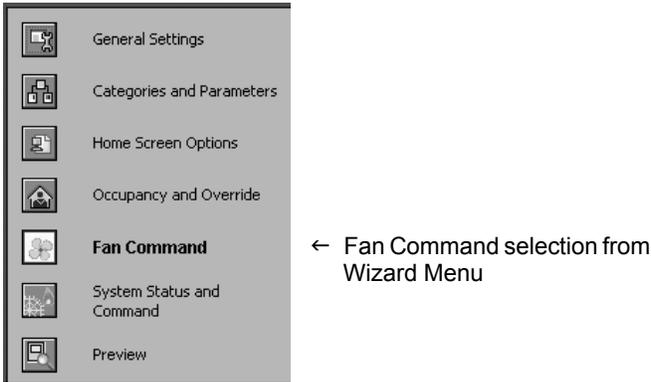
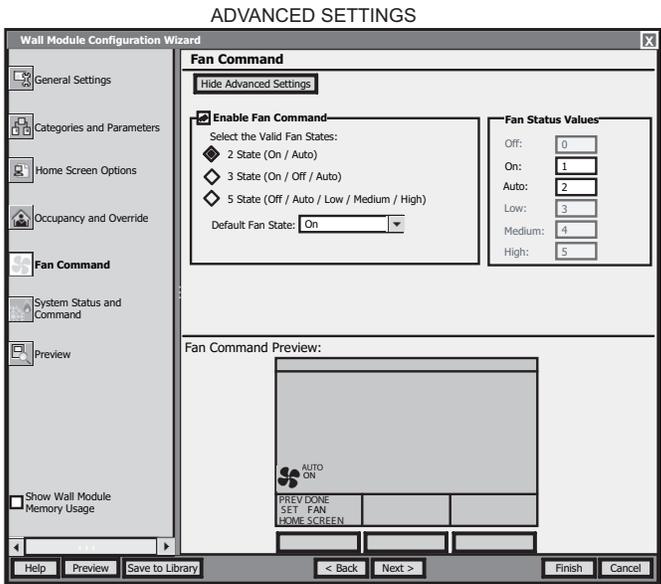
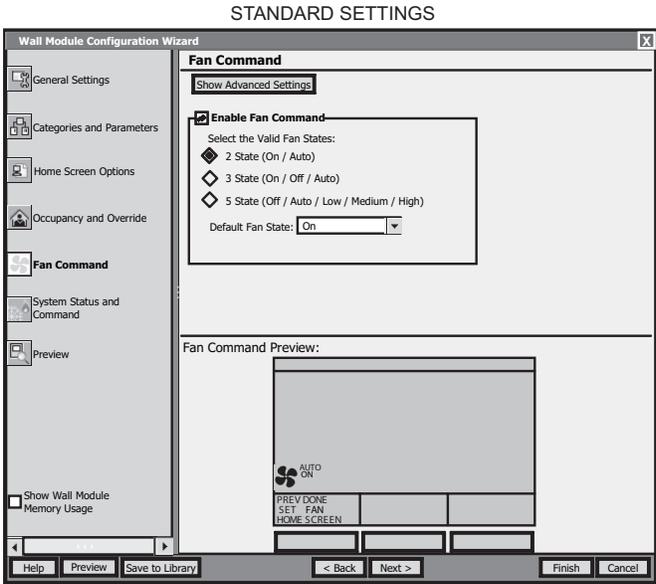


Fig. 18, shows the Fan Command options in the main window for standard and advanced settings. Clicking the Show Advanced Settings button displays the advanced settings.



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Fig. 18. Fan Command screens.

Clicking the Enable Fan Command box enables the fan state value selections.

After you choose the setting, use the Fan Command Preview at the bottom of the window to exercise the Fan softkey to cycle through the options.

The default Fan Command option is: 2 State (On / Auto). The default for the Fan State is selectable.

Table 3. Fan State Values.

Selectable Fan State	Fan State Values
2 State	On / Auto
3 state	On / Off / Auto
5 State	Off / Auto / Low / Medium / High <ul style="list-style-type: none"> <li>Low, medium, and high are the three states of the fan speed indicator triangle. See Fig. 27 on page 22 for an example.</li> </ul>

If you are finished with your configuration, go to “Preview” on page 15, otherwise continue with “System Status and Command” on page 14.

## System Status and Command

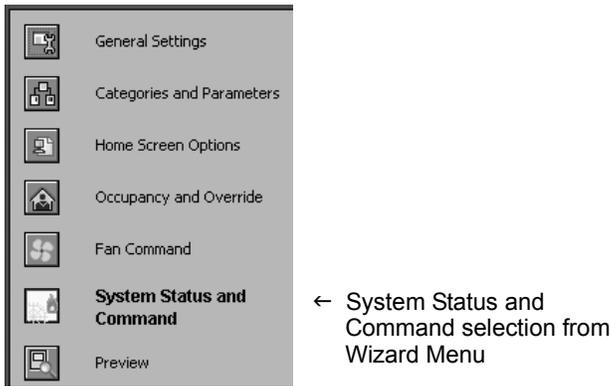
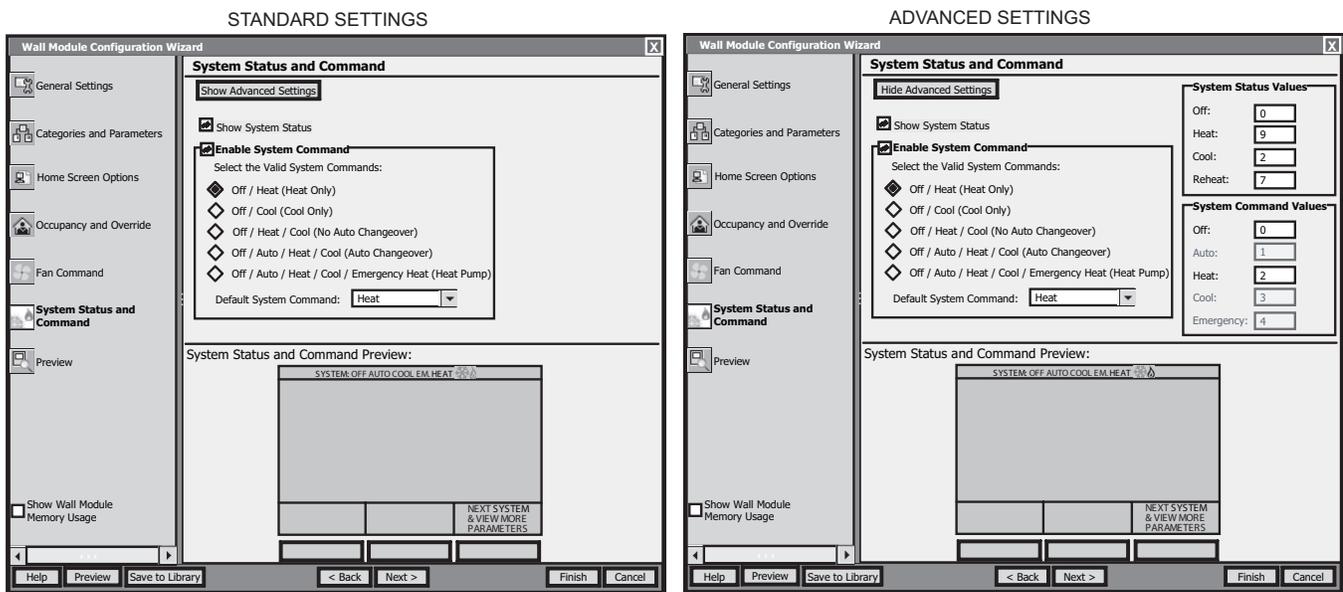


Fig. 19 shows the System Status and Command options in the main window. Clicking the Show Advanced Settings button displays the advanced settings.



M27374

Fig. 19. System Status and Command screen.

Clicking the Show System Status box enables the System Status line including the snowflake (cool) and flame (heat) icons and the System softkey on the LCD as shown in the Preview area at the bottom of the screen.

The System softkey on the LCD is enabled only when the Enable System Command option is selected.

The Enable System Command selections control the values that display on the System Status line at the top of the wall module's LCD screen.

The default System Command option is: Off / Heat (Heat Only). The default for the System State is selectable.

Table 4. System State Values.

Selectable System States
Off / Heat (Heat Only)
Off / Cool (Cool Only)
Off / Heat / Cool (No Auto Changeover)
Off / Auto / Heat / Cool (Auto Changeover)
Off / Auto / Heat / Cool / Emergency Heat (Heat Pump)

After you choose the setting, use the Preview button at the bottom of the window to verify your configuration.

To review your configuration, continue with "Preview" on page 15.

### Preview



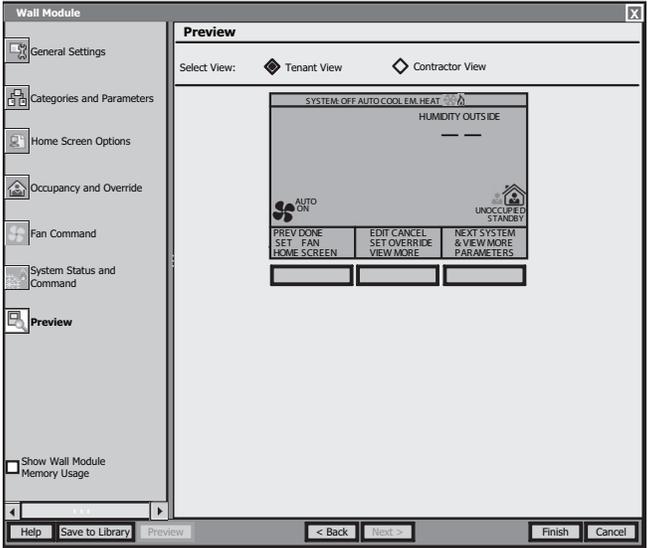
← Preview selection from Wizard Menu

Preview is a great way to verify all your configuration and setup parameters to ensure that they work exactly the way you want them to function.

Preview simulates the actual wall module interface and allows you to verify the operation of the current configuration of the wall module. Clicking on the three softkey rectangles below the labels of the preview display exercises the features you have configured.

**NOTE:** Since the up and down arrow keys do not display in Preview mode, no adjustments to parameters (e.g setpoint temperature) can be made.

Fig. 20 shows your current configuration of the wall module Home screen. You can select either the Tenant or Contractor view. The three softkeys in the preview LCD display are interactive and function just like the ones on the physical wall module display.



M27375

**Fig. 20. Preview screen.**

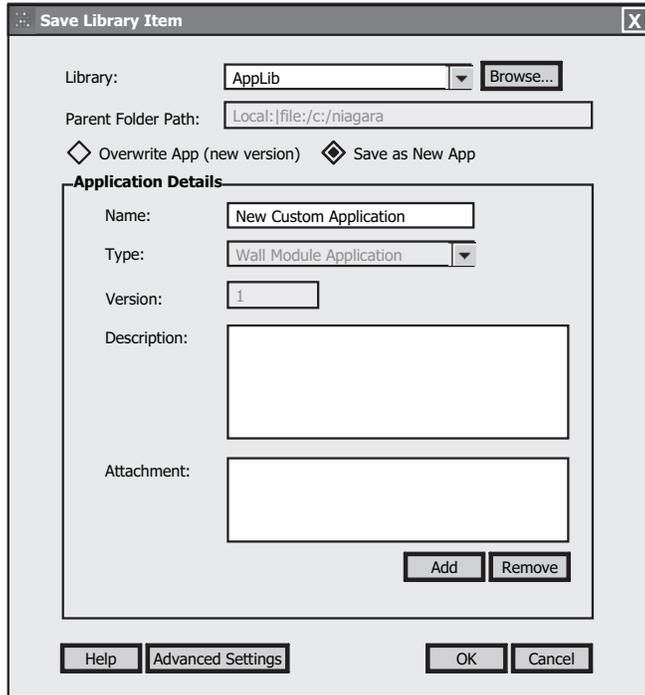
To complete the configuration, continue with "Completing the Setup and Configuration" on page 16.

## Completing the Setup and Configuration

For custom configurations, begin with “Custom Configurations Only”, otherwise continue with “All Configurations”.

### Custom Configurations Only

If you are customizing a configuration, use the Save to Library button to save your configuration. Clicking the button displays a pop-up window as illustrated in Fig. 21.



M27376

Fig. 21. Save to Library screen pop-up.

## All Configurations

To complete the configuration process, perform the following sections in this order:

1. “Preview”
2. “Confirm Memory Usage is within Limits”
3. “Finish the Configuration”
4. “Link Slots on the Wire Sheet” on page 17
5. “Download Configuration Logic to Controller” on page 19

### Preview

Use the Preview button or Preview menu selection to see how the wall module LCD screen will operate for your selected configuration (see “Preview” on page 15).

### Confirm Memory Usage is within Limits

Check the memory usage bar to make sure your configuration is within the memory limits of the wall module. See the lower left corner of Fig. 8 on page 7 for an illustration. Right clicking on the memory bar displays details about current memory usage. If necessary, go back and remove unneeded categories, parameters, or Home screens.

### Finish the Configuration

Click the Finish button to commit all your changes to the database, close the Configuration Wizard, and return to the wire sheet.

### Link Slots on the Wire Sheet

This section describes how parameters may be linked to the wall module. Refer the user to the Spyder User Guide, form 63-2662, for more specific information on variables and wire sheet logic.

The S-Bus Wall Module function block can be dropped into existing applications to replace the Conventional Wall Module block. You can see an example in Fig. 22.

When making links from existing blocks to the wall module function block input slots, there is no need to break the existing links from these existing blocks. The new tool allows for multiple output connections.

When connecting to slots on function blocks which lie on different wire sheets, remember that you can save time by using the Link Mark method, a standard Niagara Workbench linking mechanism.

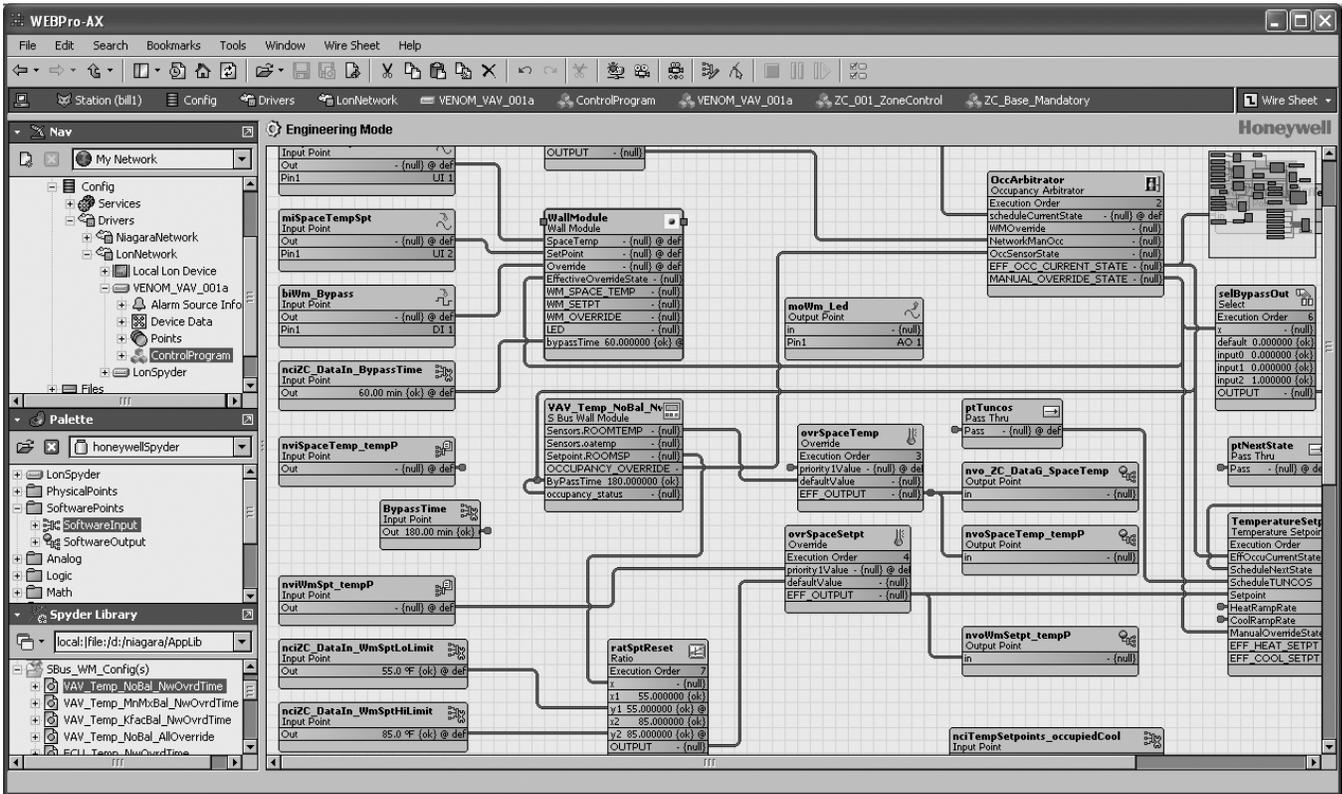


Fig. 22. Example of the S-Bus Wall Module block dropped into a Venom VAV application.

## Viewing the List of Network Variables

This section describes how to view the Network Variables.

1. Browse to Station > Config > Drivers > LonNetwork > LonSpyder.
2. Select ControlProgram > Views > NV Configuration View. The summary page appears with a list of pre-programmed Mandatory, Fixed, and Custom NVs in a tabular format. The table has the following columns:
  - NV Name: The name of the network variable.
  - Type: Indicates if the NV is of type NVI, NVO, NCI or Many to One NV.
  - Category: Indicates if the NV is Mandatory, Fixed, or Custom.
  - NV Container: Indicates where the NV is used.
3. The bottom half of the NV Configuration view displays the software points available on the wire sheet in a tabular format. The table has the following columns:
  - Point Name: The name of the software point (Software Input/Software Output) as it appears on the wire sheet.

- Field Names: Indicates if the NV is of type NVI, NVO, NCI or Many to One NV.
- Point Container: Indicates where the software point is used. All software points that are used in a Program within an application are also listed.

### NOTES:

- Mandatory NVs cannot be used in the application logic.
- Mandatory NVs cannot be edited or deleted.
- In a Fixed NV, only Internal Data Type can be modified.
- Custom NV is the user defined NV. A Custom NV can be edited or deleted.
- Fixed NVs marked as Fixed\_Dropable can be exposed on the wire sheet. Other fixed NVs cannot be exposed as points.
- For each point that is copied and pasted on the wire sheet, a new NV of SNVT type nearest to the selected data type is created automatically.

### Download Configuration Logic to Controller

This section describes how to download the configuration into the Sylk Enhanced Spyder Controller. Refer to the appropriate programmable controller user guide<sup>a</sup> for additional detail.

To download the configuration logic to a programmable controller:

1. Right click the device and select Actions > Download as shown in Fig. 23.
2. The Download dialog box displays as a pop-up. Click OK to download the logic to the controller as shown in Fig. 24.

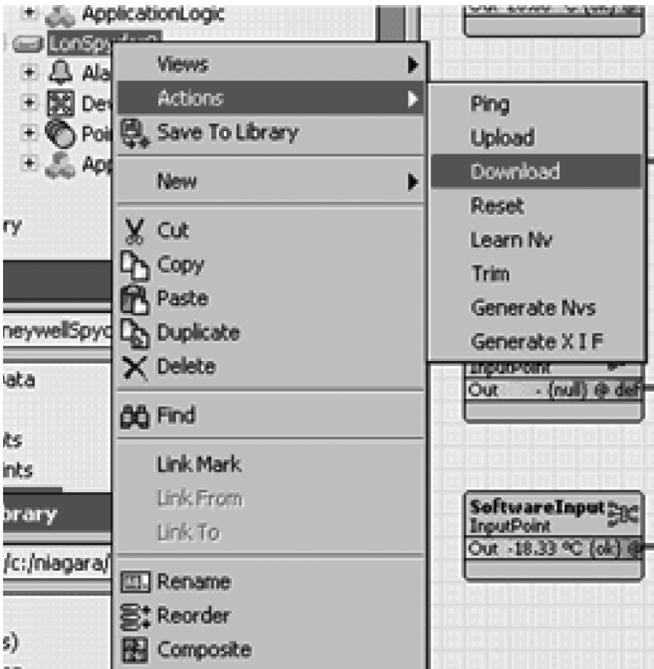


Fig. 23. Download to programmable controller (step 1).

<sup>a</sup> Refer to the *Honeywell Spyder User's Guide* (form 63-2662) or the *ComfortPoint Programmable Controller User's Guide* (form 63-2663) depending on the programmable controller used.



Fig. 24. Download to programmable controller (step 2).

Fig. 25 and Fig. 26 beginning on page 21 illustrate the download actions of the Niagara workbench application.

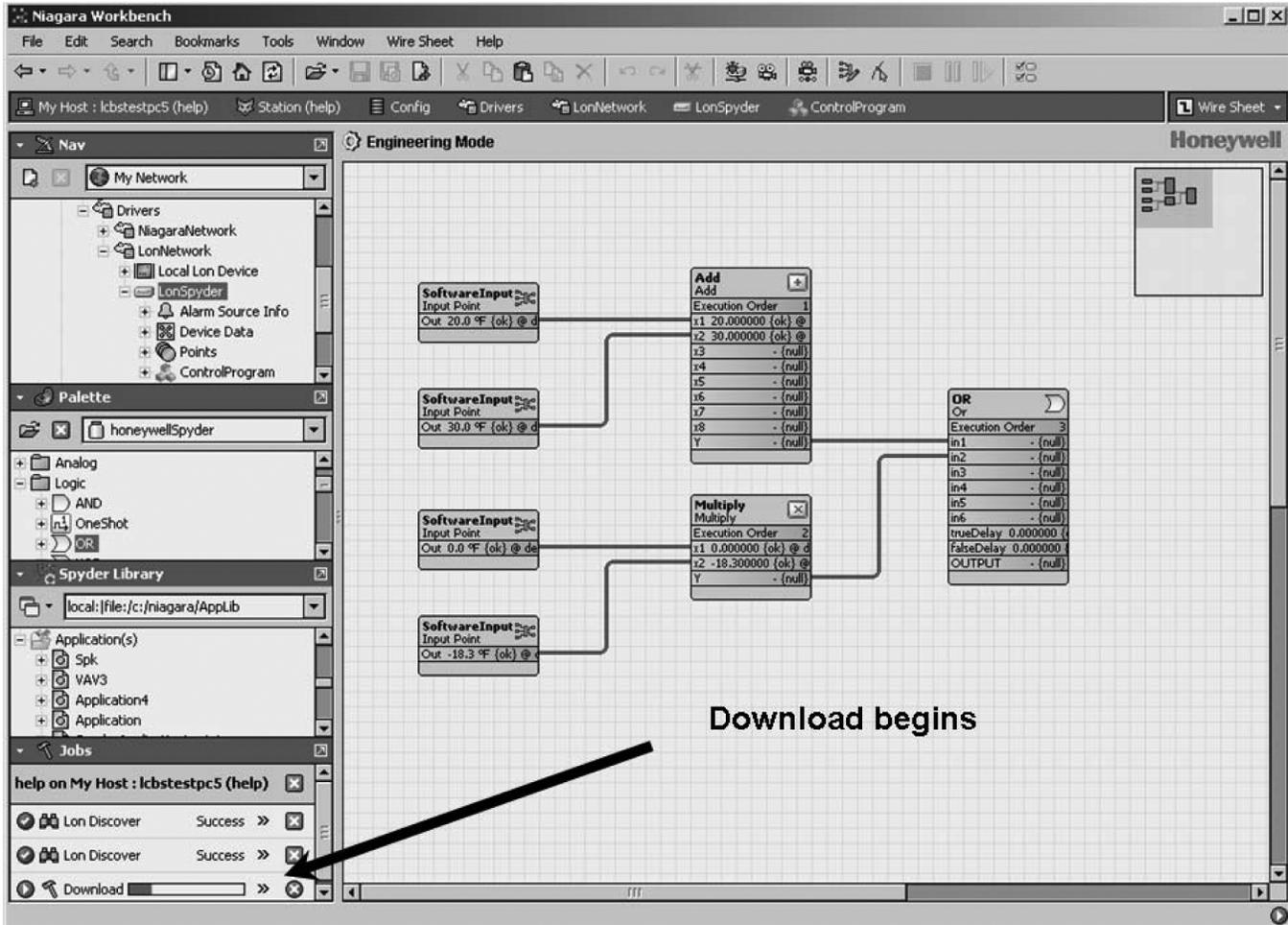
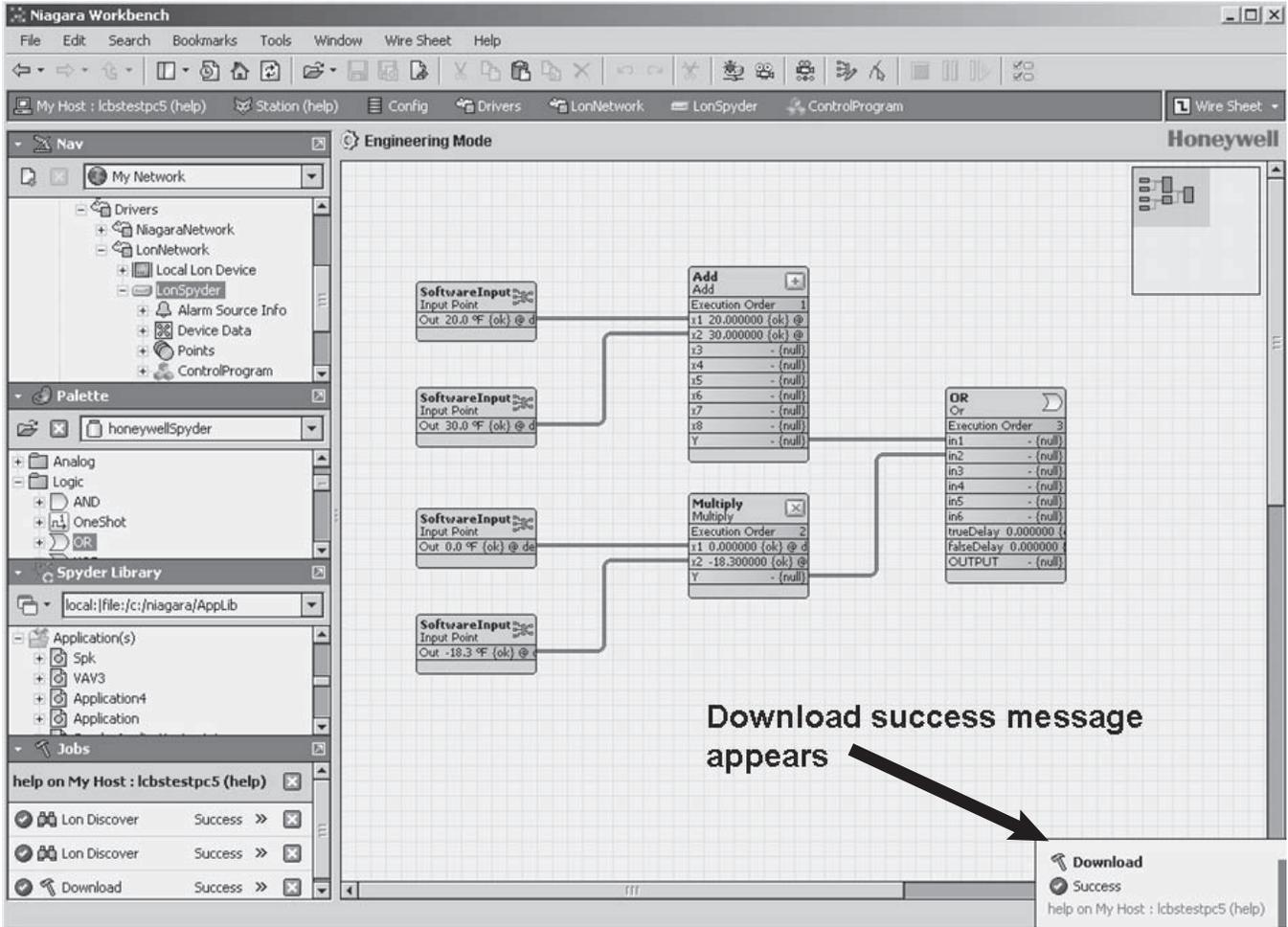


Fig. 25. Begin actual download to programmable controller.



M27497

Fig. 26. Complete actual download to programmable controller.

**Download Configuration to the Wall Module**

Whenever the wall module is powered, it communicates with the programmable controller every several seconds and uploads/downloads any new or changed configuration/parameter information.

This completes the configuration process for installation.

## OPERATING THE ZIO WALL MODULE

There are two modes of operation:

- **Contractor** mode provides features a contractor would use such as selecting the Home screen, selecting parameters the tenant can view, and monitoring/modifying controller parameters, which includes balancing.
- **Tenant** mode provides features a tenant would use such as changing the setpoint, fan speed or system mode, initiating override, or monitoring/modifying permitted controller parameters. See page 24 for information about Tenant Mode operation.

### Contractor Mode (Entering and Exiting)

Contractor mode allows access to the Setup function of the wall module.

To enter and exit the Setup function – Press the Up and Down arrow keys and the middle softkey all at the same time (see Fig. 1 on page 1 for key positions).

### Contractor Mode Operation

Contractor mode allows advanced options (such as modifying configured parameters) using the softkeys. Contractor mode also allows for customizing the tenant’s view including setting the tenant’s Home screen and controlling the tenant’s “View More” access, which can provide the tenant with a view of the configured parameters.

### Contractor Home Screen Softkeys

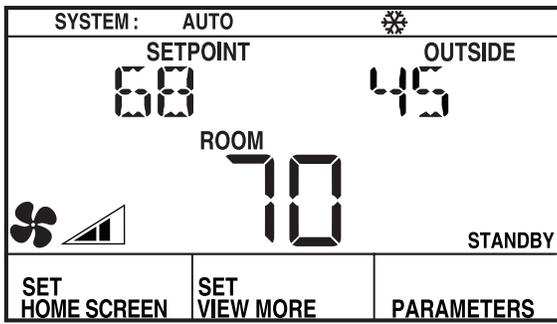


Fig. 27. Typical Contractor LCD display.

The three softkeys on the contractor Home screen (see Fig. 27) provide the following:

**SET HOME SCREEN** allows the contractor to choose among multiple Home screen options for the tenant.

The tenant’s Home screen choices are created by the Configuration Wizard and downloaded to the wall module. Each wall module may have different Home screen choices. The contractor, using the softkeys, may choose which Home screen should be used, and may configure the Tenant view to show a subset (or none) of the configured parameters.

- When the contractor clicks the SET HOME SCREEN softkey, The display changes as shown in Fig. 28, and the softkeys change to DONE, CANCEL, and NEXT.

- Clicking the NEXT softkey cycles through the configured<sup>a</sup> Home screens.
- Click the DONE softkey when the desired Home screen displays.
- The CANCEL softkey exits the Home screen display without saving any changes.

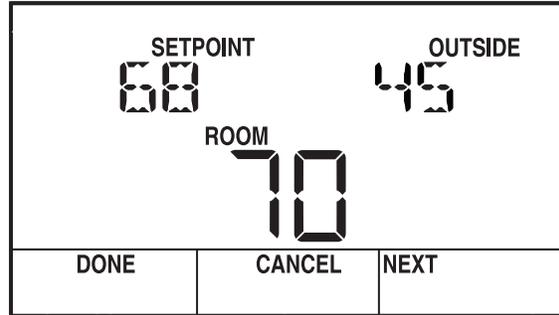


Fig. 28. Sample Contractor display showing Home screen setup.

**SET VIEW MORE** allows the contractor to provide parameter access (view only or adjustable) to the tenant’s VIEW MORE softkey.

- Clicking the VIEW MORE softkey displays the first configured parameter as shown Fig. 29, and the softkeys change to DONE, CANCEL, and NEXT.
- The Up and Down arrow keys switch the parameter between YES and NO (view or no view in Tenant Mode). YES means that the tenant has access to the parameter in the View More screen. NO means the tenant does not have access to the parameter.
- If NO is selected for all parameters, then the VIEW MORE softkey does not display in tenant mode.
- The NEXT softkey moves to the next parameter or category.
- Click the DONE softkey when finished.
- The CANCEL softkey exits VIEW MORE without saving any changes.

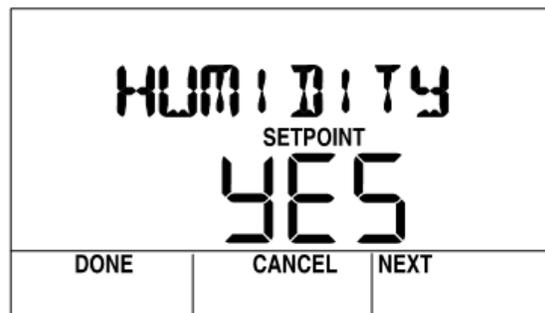


Fig. 29. Set View More parameter display.

<sup>a</sup> See “Home Screen Options” on page 10.

**PARAMETERS** allows the contractor to monitor and/or adjust parameters in the programmable controller.

- Clicking the PARAMETERS softkey displays the first configured category as shown in Fig. 29, and the softkeys change to DONE, EDIT, and NEXT.
- When clicked, the EDIT softkey drops you into the parameter list for the displayed category and displays the first parameter in that category (e.g. the HUMIDITY parameter in the SET PNTS category as shown in Fig. 30).
- If the parameter has been configured as adjustable by the tenant, the Up and Down arrow keys adjust the value of the parameter.
- The NEXT softkey displays the next parameter or category.
- Click the DONE softkey when finished.

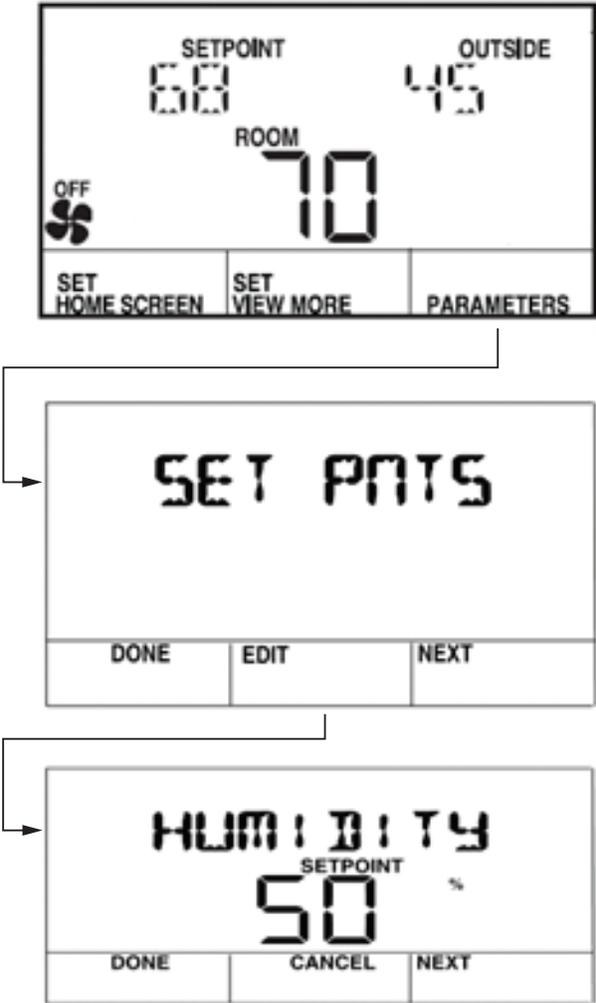
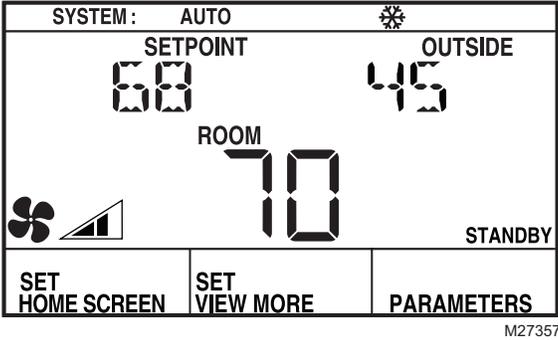


Fig. 30. Parameter display showing editing sequence.

**Sample Contractor LCD Displays**

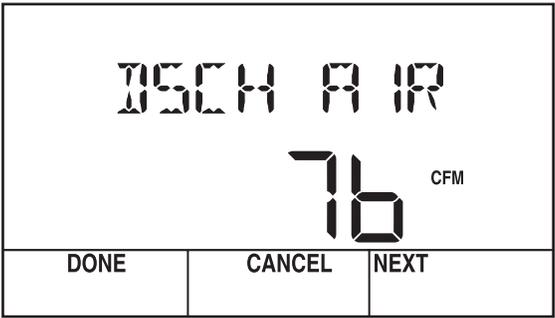
The contractor mode allows advanced options using the softkeys. Contractor mode also allows for customizing the Tenant view including setting the tenant's Home screen and View More access.

The LCD display may be customized for the contractor. This section includes three examples of the various contractor Home and Parameter screens that are configurable for the LCD Wall Module. Not all possible screens are illustrated here. There are many other configurable screens.



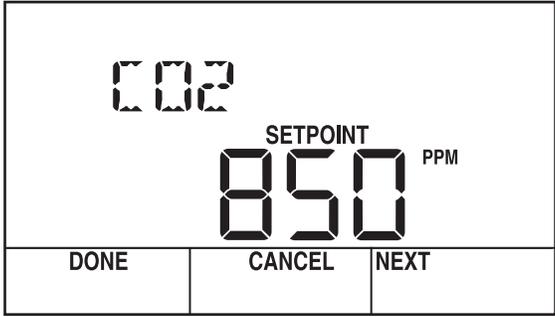
M27357

Fig. 31. Sample Contractor Home screen display with System Status, Setpoint, Outside Temperature, and Room Temperature (predominant).



M27358

Fig. 32. Sample Contractor parameter display showing a user-created discharge air parameter value.



M27359

Fig. 33. Sample Contractor parameter display showing sensor setpoint value (CO<sub>2</sub> sensor from controller).

NOTE: Any configured parameter may be displayed.

## Tenant Mode Operation

The tenant, using the softkeys and arrow keys, may change the setpoint, fan speed, system mode (heat/cool), or initiate override, if these features are configured. The tenant may change the Occupancy Override parameter to Occupied, Unoccupied, or Standby. And, the override can be timed in minutes, days, or be continuous.

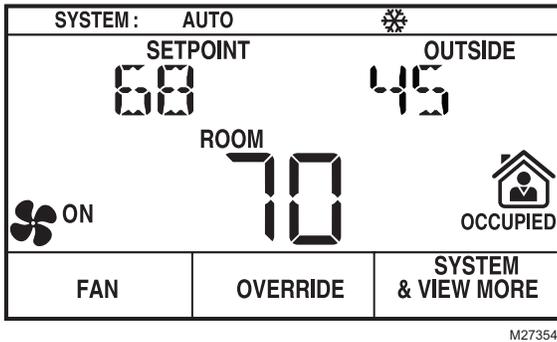


Fig. 34. Typical Tenant LCD display.

### TENANT HOME SCREEN SOFTKEYS

As shown in Fig. 34, there can be three softkeys configured for the tenant's Home screen – FAN, OVERRIDE, and SYSTEM & VIEW MORE.

#### NOTES:

1. The Fan and Override settings are optional for Home screen setup.
2. If the System Command option is not enabled, then the SYSTEM softkey does not display on the tenant's Home screen.
3. If there are no parameters configured for tenant access, the VIEW MORE softkey does not display on the tenant's Home screen.

**FAN** allows the tenant to adjust the fan settings depending on the fan options (2, 3, or 5 position) configured.

As shown in Fig. 35, each click of the FAN softkey changes the fan icon display between:

- 2 position: ON and AUTO
- 3 position: OFF, AUTO, and ON
- 5 position: OFF, AUTO, and the three states of the fan speed indicator (low, medium, and high)

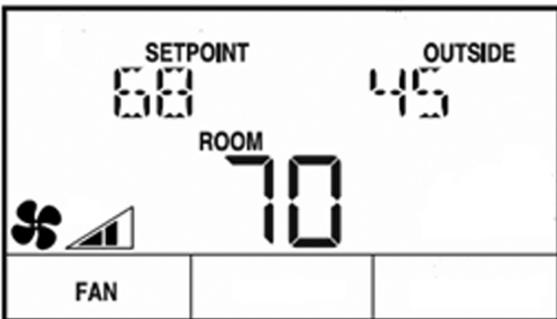


Fig. 35. Fan display for Tenant showing 5-position setting with fan at medium speed.

**OVERRIDE** allows the tenant to override the Occupancy settings (see Fig. 36).

- Depending on the occupancy/override configuration, each click of the OVERRIDE softkey changes the occupancy icon displays between STANDBY, OCCUPIED, and UNOCCUPIED.
- If an override is set by the tenant, the OVERRIDE softkey changes to CANCEL OVERRIDE.
- Clicking the CANCEL OVERRIDE softkey cancels the override.



Fig. 36. Override display for Tenant.

**SYSTEM & VIEW MORE** Depending on the configuration, this softkey allows the tenant to change the system state and view/adjust configured parameters (see Fig. 37).

- The first click displays the system information and the Up and Down arrow keys change the system state between OFF, AUTO, COOL, HEAT, and EM.HEAT (emergency heat).
- Clicking the VIEW MORE/NEXT softkey displays each viewable parameter.
- If the contractor enables tenant access to a parameter, then the tenant can use the Up and Down arrow keys to adjust the parameter's value, otherwise the tenant is able to only view the parameter and its value.

**NOTE:** When the contractor configures a parameter and selects the Editable by Tenant check box, this enables the tenant to adjust the parameter's value. See Fig. 13 on page 9 for an example.

- Click the CANCEL softkey to exit the display without saving any changes.
- Click the DONE softkey when finished.

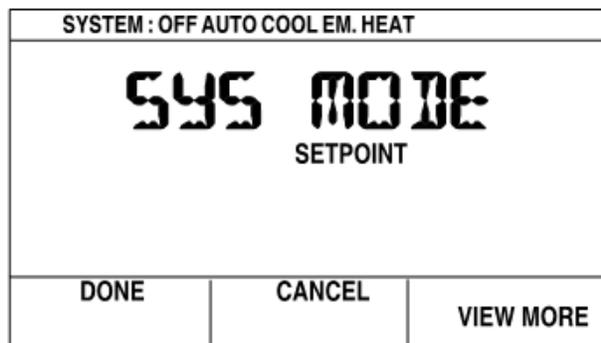


Fig. 37. System and View More display for Tenant.

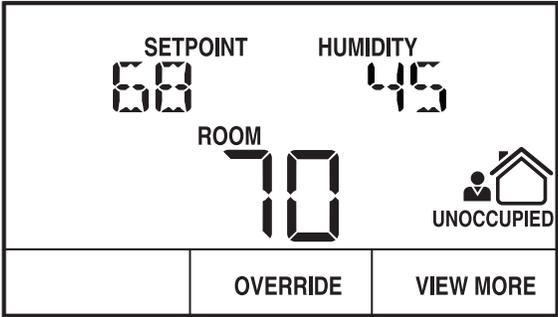
**Tenant Home Screen Display**

The LCD display may be customized for the tenant. This section includes a few examples of the various tenant Home screens that are configurable for the LCD Wall Modules. Not all possible Home screens are illustrated here. There are many other configurable Home screens.

NOTE: Home screens can display one to three of any of the following parameters: temperature setpoint, room temperature, room humidity, outdoor humidity, and outdoor temperature, and time, or one of virtually any parameter in the controller.

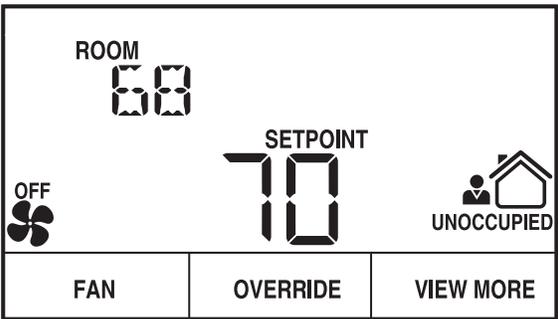
**SAMPLE TENANT HOME SCREEN DISPLAYS**

Figures Fig. 38 through Fig. 43 illustrate typical tenant home screens.



M27355

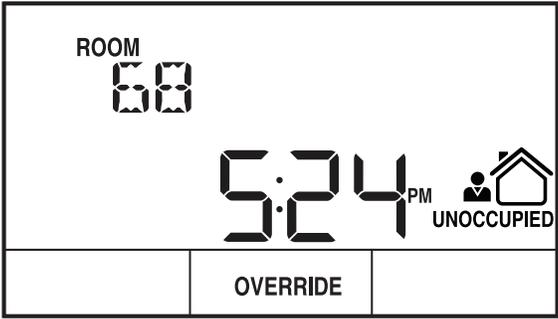
**Fig. 40. Sample Tenant Home screen with Humidity and Room Temperature (predominant).**



M27352

**Fig. 38. Sample Tenant Home screen with Room Temperature and Setpoint (predominant).**

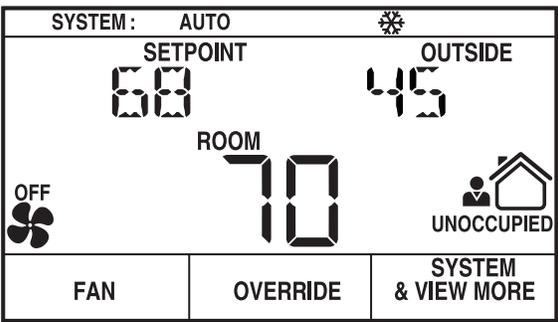
The Fan and Occupied settings are optional for Home screen setup. If there are no parameters configured for tenant access, the "View More" softkey does not display on the tenant's Home screen.



M27379

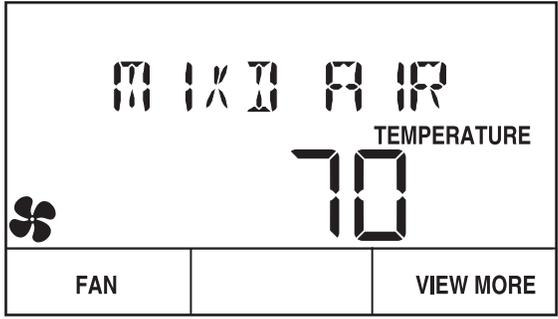
**Fig. 41. Sample Tenant Home screen with Room Temperature and Time (predominant).**

NOTE: In Fig. 41, there are no Fan, System, or View More softkey options configured for this Home screen.



M27354

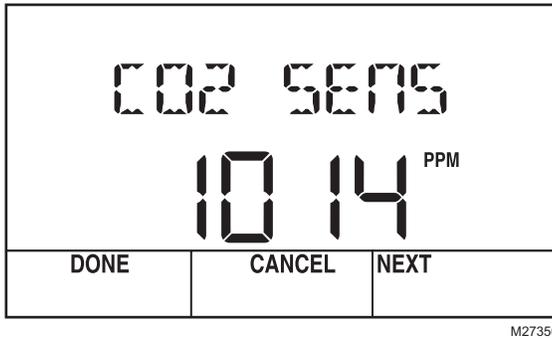
**Fig. 39. Sample Tenant Home screen with System Status, Setpoint, Outside Temperature, and Room Temperature (predominant).**



M27498

**Fig. 42. Sample Tenant Home screen with a single, custom parameter.**

NOTE: In Fig. 42, the Home screen is configured with only a single, custom parameter. See "Preview" on page 10.



M27356

**Fig. 43. View More display showing CO<sub>2</sub> sensor value from controller.**

NOTE: As shown in Fig. 43, any configured parameter may be displayed to the tenant.



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