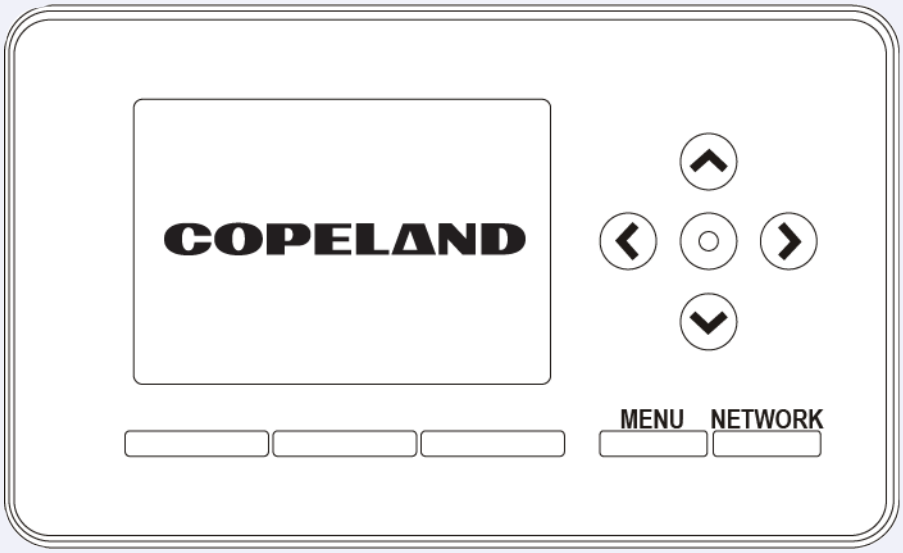
USER MANUAL

Commercial Communicating Programmable Thermostat

Installation and Operation Guide



White-Rodgers Part No. 0037-7303A

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1 Introduction

1.1 About this Guide

This manual describes how to install and configure the Commercial Communicating Programmable Thermostat (*P/N 810-1500*).

1.2 System Compatibility

This Commercial Communicating Programmable Thermostat replaces thermostats for the following types of system:

- Standard Heat & Cool Systems
- Two Stage Heat & Two Stage Cool Systems
- Air Source Heat Pump (with Aux. or Emergency Heat)
- Ground Source Heat Pump (with Aux. or Emergency Heat)
- Air or Ground Source Heat Pump (No Aux. or Emergency Heat)
- Standard Heat Only Systems
- Standard Central Air Conditioning
- Gas or Oil Heat
- Electric Furnace
- All Systems Listed Above with Economizer Control

⚠ CAUTION	**Failure to read and follow all instructions carefully before installing or operating this control could cause personal injury and/or property damage.** **To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.** **This product does not contain mercury. However, this product may replace a unit which contains mercury. Do not open mercury cells. If a cell becomes damaged, do not touch any spilled mercury. Wearing non-absorbent gloves, clean up the spilled mercury and place into a container that can be sealed.** **For proper disposal refer to www.white-rodgers.com for a location to send the product containing mercury.** **Do not use on circuits exceeding specified voltage. Higher voltage will damage control and could cause shock or fire hazard.**

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2 Getting Started

2.1 Pre-Installation Checklist

Before you begin to install your Commercial Communicating Programmable Thermostat:

- Read these instructions thoroughly.
- Check the package from your thermostat to make sure you have all of the required parts (see **Section 2.2, Required Items**).
- Assemble the required tools (see **Section 2.3, Required Tools**).

2.2 Required Items

- Thermostat (1)
- Wall anchors (2)
- Mounting screws (2)

2.3 Required Tools

- Flat blade screwdrivers – 1 large and 1 small
- Hand or power drill with 3/16 inch drill bit
- Wire strippers
- Level (optional)

2.4 Dimensions

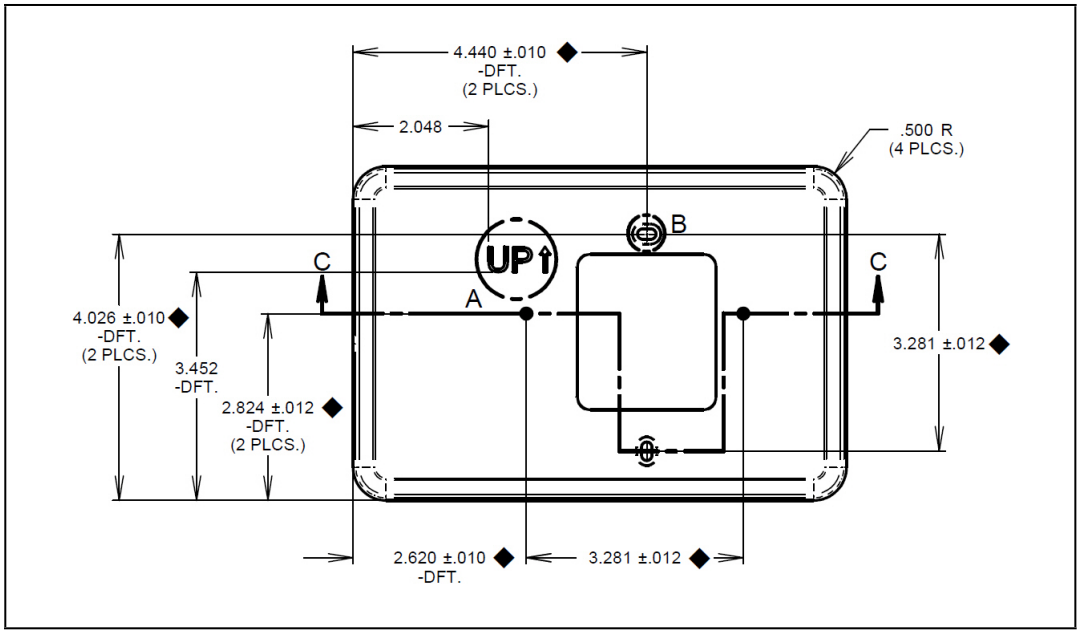

Figure 2-1 - Mounting Dimensions

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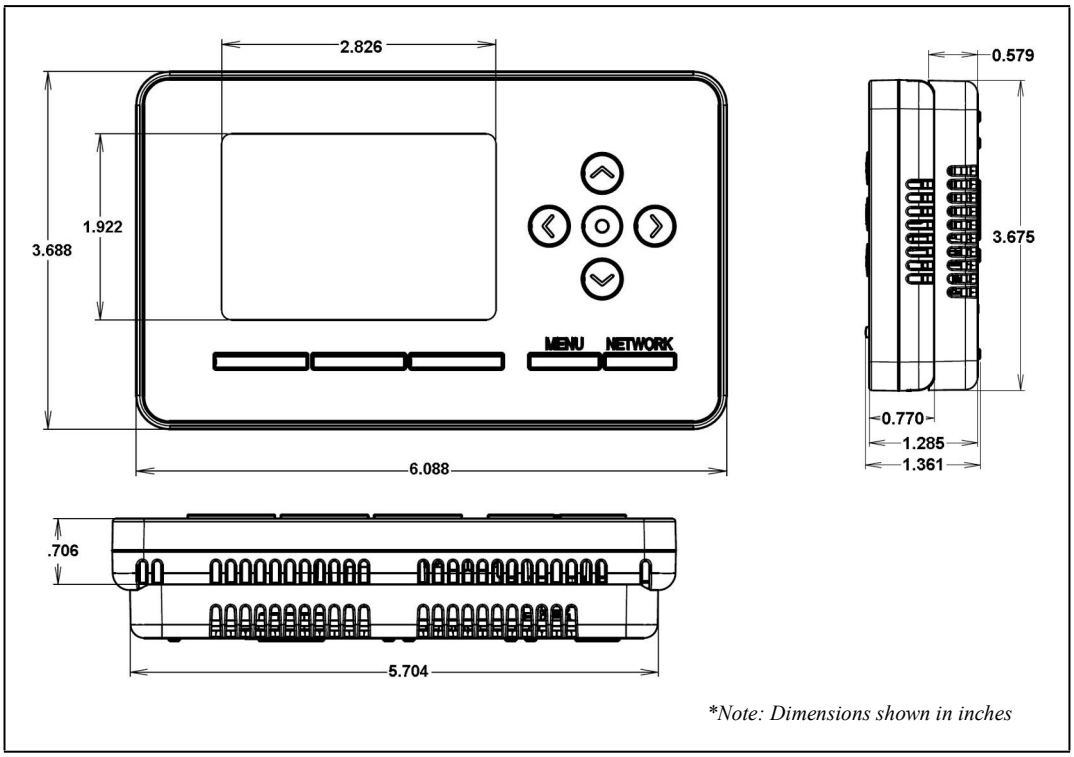

Figure 2-2 - Thermostat Dimensions

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3 Installing the Thermostat

3.1 Quick Guide

1. Removing the old thermostat.
    - Turn OFF power at the breaker.

WARNING To prevent electrical shock and/or equipment damage, disconnect electric power to the system at the main fuse or circuit breaker box until installation is complete.

    - Remove the cover from the old thermostat to expose the wires.
    - Identify each wire to corresponding terminal and disconnect.
    - Remove the old thermostat from the wall, making sure that the thermostat wires do not fall back into wall opening.
2. Mount the new thermostat.
    - Feed the thermostat wires through the thermostat hole.
    - Wire the new thermostat.
    - Turn ON the power at the breaker.
3. Configure the thermostat.
4. Check thermostat operation.
5. Getting to Know the Commercial Communicating Programmable Thermostat

The sections that follow provide detailed instructions for completing these steps.

3.2 STEP 1: Remove the Old Thermostat

WARNING To prevent electrical shock and/or equipment damage, disconnect electric power to the system at the main fuse or circuit breaker box until installation is complete.

3.2.1 Thermostat Components

The standard heat/cool thermostat normally consists of three basic parts:

1. **Cover**
2. **Base**, which you can remove by loosening all screws
3. **Switching sub-base**, which you can remove by unscrewing the mounting screws that hold it on the wall or adaptor plate

3.2.2 Removing the Old Thermostat

1. Remove the front cover of the old thermostat.
2. With wires still attached, remove the wall plate from the wall by unscrewing it. If the old thermostat has a wall mounting plate, remove the thermostat and the wall mounting plate as an assembly.
3. Identify each wire attached to the old thermostat as shown in **Figure 3-1**. Before removing wires from the old thermostat's switching sub-base, label each wire with the letter on the old thermostat. Ignore wire colors and use the letter designation only.
4. Disconnect the wires from the old thermostat one at a time.

WARNING Do not let wires fall back into the wall.

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TIP	You may want to wrap the wires around a pencil to keep them from falling back into the wall.

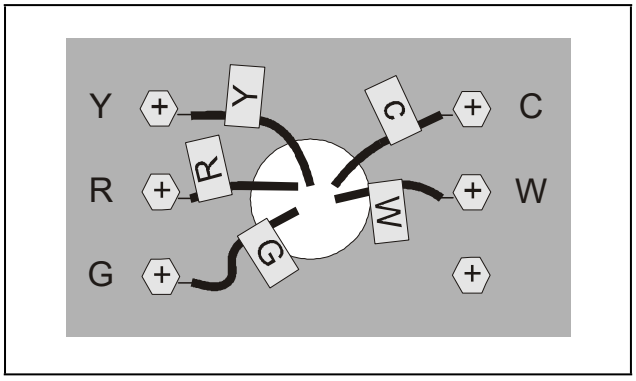

Figure 3-1 - Thermostat Wires with Labels

3.3 STEP 2: Mounting the New Thermostat

⚠ WARNING	Take care when securing and routing wires so they do not short to adjacent terminals or rear of thermostat. Personal injury and/or property damage may occur. To prevent personal injury and/or property damage, contact Customer Service at your utility company before attempting any step in the installation process that you are unsure about how to perform.

3.3.1 Mount the New Thermostat

1. Unpack the thermostat and separate the Mounting Plate from the thermostat. Remove the packing material from the thermostat. Gently pull the thermostat straight off of the base: hold the thermostat from the back by the lower corners with one hand, and pull the Mounting Plate off with the other hand.

NOTE	Forcing or prying on the thermostat will cause damage to the unit.

2. Feed the thermostat wires through the rectangular hole between the terminal blocks in the thermostat Mounting Plate.
3. Connect the wires to the thermostat Mounting Plate. Connect the wires beneath the terminal screws on the base. **Figure 3-2** shows the location of the wire terminals in the Commercial Communicating Programmable Thermostat. There are two sets of terminals on either side of the hole where the wires are fed through. Each terminal is labeled with a letter or a letter with a number (O, B, R, etc.).

Connect the wires as follows:

- Strip insulation about 3/8 inch from end of wire.
- Feed the thermostat wires through the rectangular hole in the thermostat Mounting Plate.
- Locate the terminal that the wire needs to connect to (refer to **Section 5, Wiring Chart**).
- Bend the wire slightly, insert the wire under the contact plate, and tighten the screw down onto the wire.

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For full details on where to connect each wire, see **Section 5, Wiring Chart**.

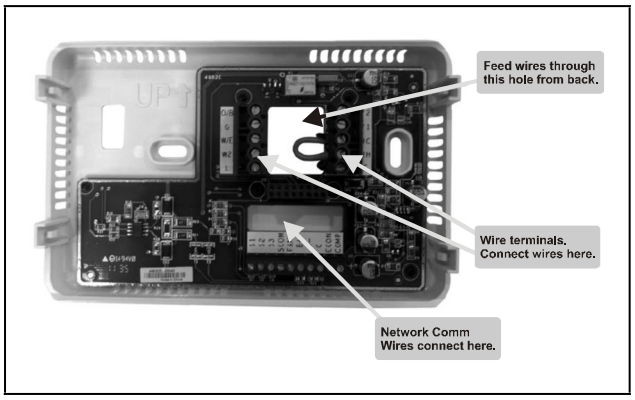

Figure 3-2 - Location of Wire Terminals

4. Mark mounting hole locations. Place the thermostat Mounting Plate over the hole in the wall and mark the mounting hole locations (**Figure 3-3**) using the Mounting Plate as a template.

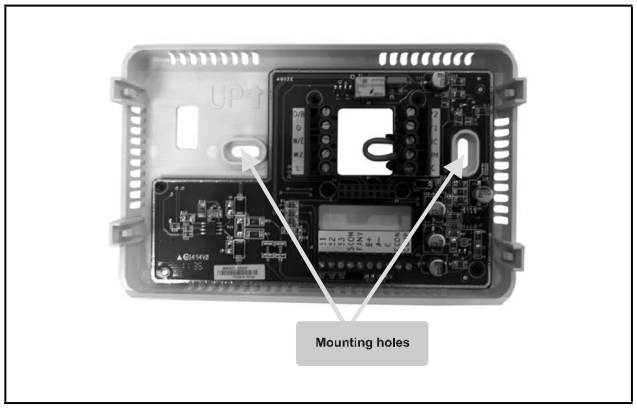

Figure 3-3 - Thermostat Mounting Hole Locations

5. Drill holes. Move the Mounting Plate out of the way. Drill mounting holes using a 3/16 inch drill bit.
6. Install the Mounting Plate. Fasten the Mounting Plate loosely onto the wall using the two mounting screws in the mounting holes. If desired, place a level against the bottom of the Mounting Plate and adjust until level before tightening screws. (Leveling is for appearance only and will not affect thermostat operation.) If you are using existing mounting holes, or if holes drilled are too large and do not allow you to tighten base snugly, use plastic wall anchors to secure the sub-base. Push excess wire into the wall and plug the hole with a fire resistant material (such as fiberglass insulation) to prevent drafts from affecting thermostat operation.
7. Fasten the thermostat to the Mounting Plate. The thermostat is designed with a quick connect feature between the thermostat unit and Mounting Plate. When installing the thermostat onto the Mounting Plate, make sure the retention tabs on the Mounting Plate are in line with the retention slots in the thermostat. Gently press the thermostat onto the Mounting Plate until you hear the retention tabs make a clicking sound and the thermostat is securely fastened to the Mounting Plate. *If the thermostat does not easily click onto the Mounting Plate, be certain not to press with excessive force or else damage could occur to the thermostat and/or Mounting Plate.*
8. Turn the power back ON at the breaker.

For wiring specifications, refer to **Section 5, Wiring Chart**.

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3.4 STEP 3: Configuring the Thermostat

3.4.1 Configure the Thermostat

1. Press the **SYSTEM** button one or more times to set the system to **OFF**.
2. Simultaneously press and hold the **LEFT** and **RIGHT** arrow buttons for 3 seconds to enter the I**nstallation Menu**. The display will show the first level of the Installation Menu.
3. While in the Installation Menu, **UP** and **DOWN** scroll the cursor up and down respectively, **LEFT** goes back one menu level and the **ACTION** button selects the highlighted menu item.
4. To exit all menus and return to the program operation, press the LEFT **arrow** button again to return to the home screen.

If no key is pressed within two minutes, the thermostat will revert to normal operation.

NOTE **It is important to select the proper setting for the first item on the configuration menu that specifies the type of HVAC system.**

3.4.2 Installation Menu Options

The installation menu table summarizes the configuration options. For more details on each Installation Menu option, see **Section 9, Description of Installation Menu Options**.

Table 3-1 - Installation Menu

Menu Name	Submenu	Press UP or DOWN arrow to Select Other Options (Default in Bold)	Comments
HVAC EQUIPMENT SETUP			
Outdoor	Air Conditioner: 1 Stage Air Conditioner: 2 Stage Air Source Heat Pump: 1 Stage Air Source Heat Pump: 2 Stage None		
Indoor	Air Handler: No Heat Air Handler: Electric Heat – 1 Stage Air Handler: Electric Heat – 2 Stage Furnace Gas / Oil – 1 Stage Furnace Gas / Oil – 2 Stage		
Network	Installation Info Network Status		
About This Device			Dedicated Screen
ADVANCED HVAC OPTIONS			
Cycle Rates	Heat	Comfort Standard Economy	
	Cool	Comfort Standard Economy	
	Back-up Heat	Comfort Standard Economy	Available with heat pump multistage configuration

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Table 3-1 - Installation Menu

Menu Name	Submenu	Press UP or DOWN arrow to Select Other Options (Default in Bold)	Comments
Compressor Lockout	On, **Off**		
Comfort Alert Active Protection	On, **Off**		
Frost Protection	On, **Off**		
O/B Configuration	**O: Cool**, B: Heat		
Fast Second Stage	Heat	On, **Off**	
	Cool	On, **Off**	
Dual Fuel		**Off**, Smart Fuel, Sensor	Available when Heat Pump and a Gas Furnace are specified in Equipment Setup
	Smart Fuel	1-9	If set to Smart Fuel
	Sensor	Balance Point **-20** to 30° F (Default -20)	If set to Sensor
	Aux Lockout	34 to **90**° F (Default 90)	If set to Sensor
HP comfort/economy		**Comfort**, Economy	
Heat Lockout Outdoor		Off -15 to 120° F	
Cool Lockout Outdoor		Off -20 to 95° F	
Compressor Optimization		On, **Off**	
Dehumidification		**Off**, OC, OD	
	Dehum Setpoint	Range: 40% to 80%	
Dead Band		Range: 2, 3, 4F	
Power-Up delay		Off 10sec to 120sec	

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3.5 STEP 4: Check the Thermostat Operation

⚠ CAUTION **To prevent compressor and/or property damage, if the outdoor temperature is below 55°F, DO NOT operate the cooling system.**

Once you have installed your new thermostat, you need to check that the fan, cooling system, and heating system are all operating properly.

If your system does not have a G terminal connection, skip to **Heating System**.

3.5.1 Check the Fan Operation

1. Press the **MENU** button and select **FAN ON** in the thermostat display. The blower should begin to operate. Place your hand by a vent to confirm blower is running.
2. Select **FAN AUTO** to return to standard setting. The blower will now cycle by calling for cool or heat.

3.5.2 Check the Cooling System

1. Press the **SYSTEM** button one or more times to select ☃☼☹.
2. Press the **DOWN** arrow button to adjust the thermostat setting 1° below room temperature. The blower should come on immediately on high speed, followed by cold air circulation.

NOTE **If compressor lockout is set to ON, the thermostat will not call for cool until after the 5-minute safety time period and will display the message A/C return < 5 min. After the 5 minutes expire the thermostat will call for cool.**

3. If the system is a multi-stage cooling system, adjust the temperature setting to at least 3° below room temperature. The second stage cooling should begin to operate.
4. Press the **UP** arrow button to adjust the temperature setting above room temperature. The cooling system should stop operating.

3.5.3 Check the Heating System

1. Press the **SYSTEM** button one or more times to select **HEAT** mode. If the auxiliary heating system has a standing pilot, be sure to light it.
2. Press the **UP** arrow button to adjust the thermostat setting to 1° above room temperature. The heating system should begin to operate.

NOTE **If the system is configured as a heat pump and compressor lockout is set to ON, the thermostat will not call for heat until after the 5-minute safety time period and will display the message A/C return < 5 min. After the 5 minutes expire the thermostat will call for heat.**

3. If the system is a multi-stage heating system, adjust the temperature setting to at least 3° above room temperature. If the system is configured for a multi-stage furnace (non-heat pump), the second stage of the heating should begin to operate. Within a very short period, the Back Up heat should begin to run and Back Up Heat will be displayed.
4. Press the **DOWN** arrow button to adjust the thermostat below room temperature. The heating system should stop operating.

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3.5.4 Check the Back Up Heating System (Heat Pump Systems Only)

The Back Up Heat bypasses the Heat Pump to use the heat source wired to E & W2 terminals of the thermostat. Back Up is typically used when compressor operation is not desired, the user prefers to utilize the back-up heat only or the compressor is not able to satisfy the demand for heat to the user's desire.

1. Press the **SYSTEM** button one or more times to select **Back Up Heat** mode. If the auxiliary heating system has a standing pilot, be sure to light it.
2. Press the **UP** arrow button to adjust the thermostat setting to 1° above room temperature. The AUX heating system should begin to operate. Back Up should display.

NOTE	**If compressor lockout is set to ON, the thermostat will not call for heat until after the 5-minute safety time period and will display the message A/C return < 5 min. After the 5 minutes expire the thermostat will call for Back Up heat.**

3. If the system is a multi-stage Back Up heating system, adjust the temperature setting to at least 3° above room temperature to turn on all stages.
4. Press the **DOWN** arrow button to adjust the thermostat below room temperature. The heating system should stop operating.

3.6 STEP 5: Getting to Know Your Thermostat

Before setting up your thermostat, you should familiarize yourself with its features and user interface. Your thermostat consists of two parts: the thermostat chassis and the Mounting Plate. To detach the two items, gently pull on the thermostat chassis until the retention tabs release. To attach the thermostat back onto the Mounting Plate, align the retention tabs on the Mounting Plate with the retention slots in the thermostat and gently press the two together until the retention tabs click. If the thermostat does not easily click onto the Mounting Plate, make sure not to press with excessive force or else damage could occur to the thermostat and/or Mounting Plate.

WARNING	**It is recommended to turn OFF the HVAC power before removing the thermostat from the Mounting Plate when installed.**

3.6.1 Thermostat Buttons

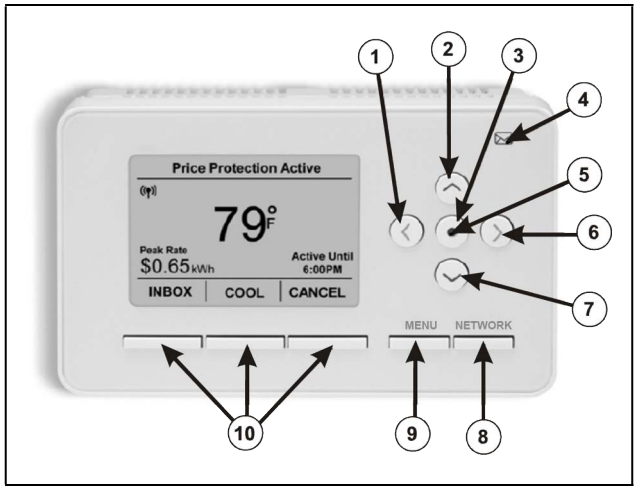

Figure 3-4 - Thermostat Buttons and Indicators

Table 3-2 - Functions of Buttons and Indicators

Button		Function
1	LEFT Arrow	Navigates menu items
2	UP Arrow	Raises temperature setpoint/ changes selected item
3	Action Button	Selects action of selected menu item
4	Mail LED	Indicates message in Inbox
5	LED	Indicates curtailment event is occurring. Wakes backlight.
6	RIGHT Arrow	Navigates menu items
7	DOWN Arrow	Navigates menu items
8	Energy Button	Takes user to the Energy Monitor Screen
9	Menu Button	Takes user to the Main Settings Menu
10	Soft Keys	Perform action listed on LCD above the button

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3.6.2 Thermostat Indicators and Display

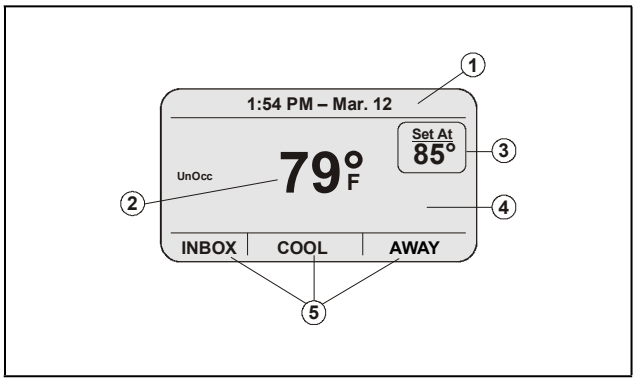


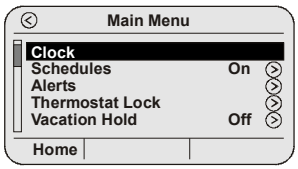
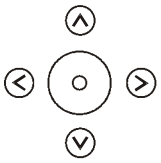
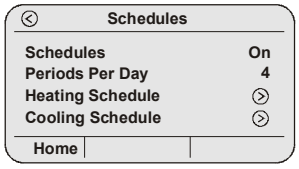
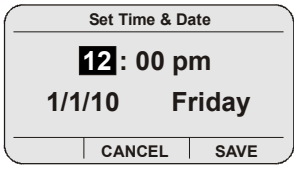
Figure 3-5 - Thermostat Display

Table 3-3 - Thermostat Display Screen Sections

Screen Section		Function
1	Messaging Area	Rotates day/time, thermostat and utility related messages
2	Temperature	Displays current measured room temperature
3	Setpoint Temperature	Displays currently programmed setpoint - Blank when OFF - SET AT changes to HOLD AT when in temporary or permanent hold
4	Rate Status	Displays current rate in effect (may be blank at base rate)
5	Soft Key Actions	Actions to be performed when corresponding button is pressed

3.6.3 Using the Navigation Keypad

Table 3-4 - Use of the Navigation Keypad

When on a menu screen, the five-way navigation pad functions as follows: Use the ⊙ and ⊙ arrows to move through the displayed menu listings. Use the ⊙ and ⊙ arrows to advance to the next screen or return to a previous screen. Use the ⊙ key to confirm a selection or advance to the next screen.		
The ⊙ key is also used to toggle back and forth between options, such as ON/OFF, as shown in the Schedules menu.		
When setting preferences for a specific menu option: Use the ⊙ and ⊙ arrows to change the setting of the highlighted item. Use the ⊙ and ⊙ arrows to tab between values. Use the three "soft keys" at the bottom of the screen to complete a step.		

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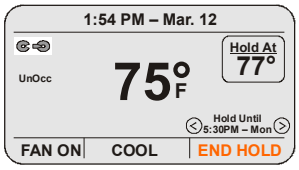
3.6.4 Initiating a Temporary Hold

TEMPORARY HOLD lets you override a programmed heating/cooling schedule for a brief period of time.

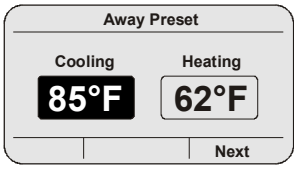
Table 3-5 - Initiate a Temporary Hold

Step 1:	To initiate a TEMPORARY HOLD, adjust the temperature by pressing the ▲ and ▼ arrows. To change the duration of the temporary hold, press the ◀ and ▶ arrows.	

3.6.5 Setting One-Touch Away Preset

AWAY PRESET lets you override a programmed temperature indefinitely. This feature will help you save money if you're going to be away from home for an extended period of time. The unit has been shipped with "Away" settings of 85° in the summer and 62° in the winter, but those temperatures can easily be changed with the touch of one key.

Table 3-6 - One-Touch Away Preset

Step 1:	To change the default setting, press the Away Key for three seconds. The screen shown will appear. Select your heat and cool away presets and press Next to proceed to save screen.	

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4 Customizing Thermostat Settings

4.1 Programming a Heating/Cooling Schedule

By programming a thermostat schedule, you can save energy while maintaining comfort. The Commercial Communicating Programmable Thermostat was installed with following pre-programmed, energy-efficient schedule. If this schedule meets your needs, no further action is required.

Table 4-1 - Heating/Cooling Schedule

HEATING				
	MORN	DAY	EVEN	NITE
Period	6:00am -8:00am	8:00am - 6:00pm	6:00pm - 10:00 pm	10:00pm - 6:00am
Mon-Fri	70° F	60° F	70° F	62° F
Sat-Sun	70° F	60° F	70° F	62° F

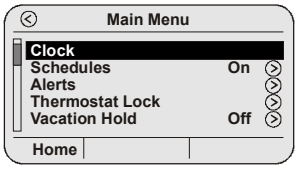
Table 4-2 - Heating/Cooling Schedule

COOLING				
	MORN	DAY	EVEN	NITE
Period	6:00am -8.00am	8:00am - 6:00pm	6:00pm - 10:00 pm	10:00pm - 6:00am
Mon-Fri	78° F	85° F	78° F	82° F
Sat-Sun	82° F	78° F	78° F	82° F

4.1.1 To Run the Thermostat as a Non-Programmable Model

Menu > Settings > Schedules

Table 4-3 - Running the Thermostat as a Non-Programmable Model

Step 1:	Press the **MENU** key.	
Step 2:	From the Settings menu, use the ⊙ and ⊙ arrows to select **SCHEDULES**. Press ⊙.	
Step 3:	If the **SCHEDULES** feature is **ON**, press the ⊙ key to turn it **OFF**.	

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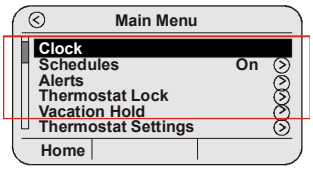
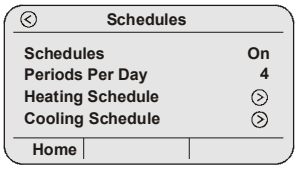
4.1.2 To Customize the Heating/Cooling Schedule

Menu > Settings > Schedules

You can easily change the day, time period or temperature settings of the pre-programmed schedule.

Table 4-4 - Customizing the Heating/Cooling Schedule

Step 1:	Press the **MENU** key.	
Step 2:	From the Settings menu, use the ▲ and ▼ arrows to select **SCHEDULES**. Press ▶.	
Step 3:	If the **SCHEDULES** feature is **OFF**, press **ENTER**. You should now see options to set a schedule for heating, cooling and periods per day. Start by deciding how many times during the day you want the temperature to change. If you want to set one temperature for daytime and one temperature for night time, select **2**. If you want to set four temperature settings throughout the day (morning, day, evening, night) select **4**. To make your selection, use the ▲ and ▼ arrows to select **PERIODS PER DAY**. Press **ENTER** to select either **2** or **4**.	

4.1.3 To Set a Heating/Cooling Schedule

Menu > Settings > Schedules > Set Heat (or Cool) Schedule

Table 4-5 - Setting a Heating/Cooling Schedule

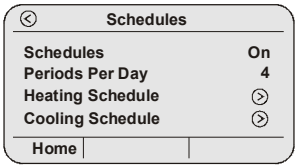
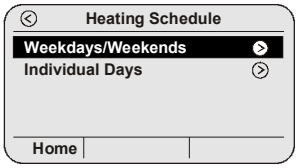
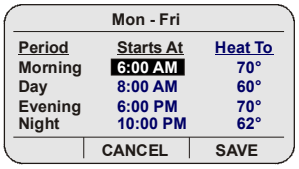
Step 1:	From the **SCHEDULES** menu, use the ▲ and ▼ arrows to select **SET HEAT SCHEDULE**. Press ▶.	
Step 2:	From the **HEAT SCHEDULE** screen, you can either: Set a separate schedule for weekdays and weekend days, OR Set a single schedule that will run seven days a week. Use the ▲ and ▼ arrows to make your selection. Press ▶.	
Step 3:	The first day part should be highlighted. Using the ▲ and ▼ arrows, adjust the start time for the first temperature setting. Times adjust in increments of 15 minutes. Once the start time is selected, press ▶ to move to the **HEAT TO** column.	
Step 4:	Repeat **steps 2** and **3** until all day periods are complete. When finished, press **NEXT**.	

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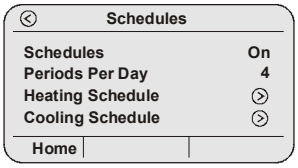
Table 4-5 - Setting a Heating/Cooling Schedule

Step 5:	When asked to confirm your selection, press **YES**.	
Step 6:	Return to the **SCHEDULES** menu, use the ▲ and ▼ arrows to select **SET COOL SCHEDULE**. Press ▶.	
Step 7:	Repeat **SET SCHEDULE steps 2-5** to set the cool schedule. When finished, press **NEXT**. When asked to confirm your selection, press **YES**.	

4.2 Setting the Thermostat Clock

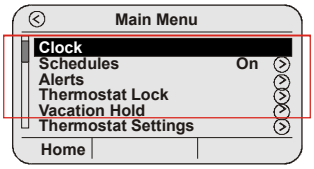
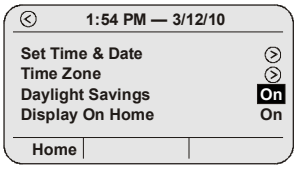
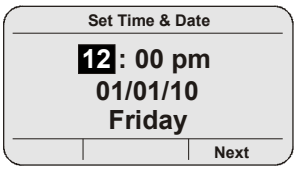
Menu > Settings > Clock

If the thermostat is connected to a smart meter, the time will be automatically set and maintained. To set or change the time/time zone, perform the following steps:

4.2.1 To Set the Time and Date

Menu > Settings > Clock > Set Time & Date

Table 4-6 - Setting the Time and Date

Step 1:	Press the **MENU** key.	
Step 2:	From the Settings menu, use the ▲ and ▼ arrows to select **CLOCK**. Press ▶.	
Step 3:	Use the ▲ and ▼ arrows to select **SET TIME AND DATE**. Press ▶.	
Step 4:	Use the ▲ and ▼ arrows to change the value in each field, ◀ and ▶ to toggle between fields. Once the time and date are set, press **NEXT**.	
Step 5:	When asked to confirm your selection, press **YES**.	

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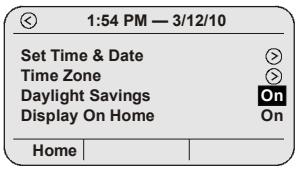
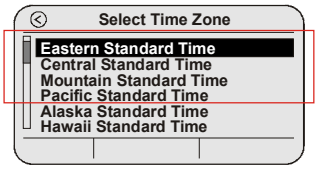
4.2.2 To Set Your Time Zone

Menu > Settings > Clock > Set Time Zone

Table 4-7 - Setting the Time Zone

Step 1:	From the **CLOCK** screen, use the ▲ and ▼ arrows to scroll through the menu listings until **TIME ZONE** is highlighted. Press ▶.	
Step 2:	Use the ▲ and ▼ arrows to select a time zone, then press **ENTER**.	

4.2.3 To Enable/Disable Daylight Saving Time

Menu > Settings > Clock > Daylight Saving

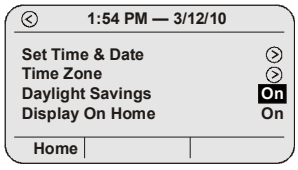
Step 1:	From the **CLOCK** screen, use the ▲ and ▼ arrows to select **DAYLIGHT SAVING.** Press ▶. Press **ENTER** to select either **ON** or **OFF**.	

Table 4-8 - Enabling/Disabling Daylight Savings Time

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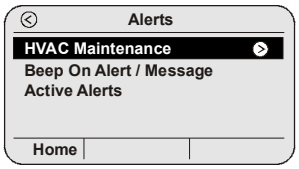
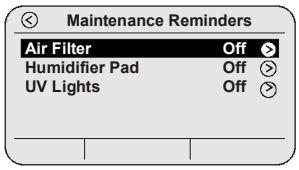
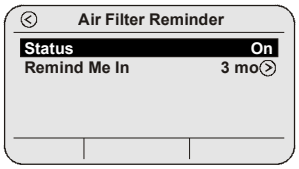
4.3 Setting Alerts

Menu > Settings > Alerts

The Commercial Communicating Programmable Thermostat is designed to alert you to important information about your energy use. You can set the unit to notify you - with an auditory beep or with a pop-up message - when a new load control or pricing event takes place, or when it's time to perform routine maintenance such as changing the filter on your HVAC unit. To enable alerts, perform the following steps:

4.3.1 To Set an Alert

Table 4-9 - Setting an Alert

Step 1:	From the **ALERTS** screen, you can choose to be alerted when it's time to perform routine HVAC maintenance. You can also choose the manner in which you'd like to be alerted: • By having the unit "beep" • Via pop-up message on the thermostat display Use the ⊙ and ⊙ arrows to select **HVAC MAINTENANCE**. Press ⊙.	
Step 2:	From this screen, you can choose to be reminded to change the air filter, humidifier pad and UV lights on your HVAC unit. Using the ⊙ and ⊙ arrows, select a reminder and press ⊙ to turn the reminder **ON**. To activate the selected reminder, press **ENTER**.	
Step 3:	Use the ⊙ and ⊙ arrows to select **REMIND ME IN**, then press ⊙.	
Step 4:	Use the ⊙ and ⊙ arrows to select the number of months from today that you'd like to be reminded to perform the routine maintenance. Press ⊙ to return to the **HVAC MAINTENANCE** menu.	
Step 5:	Repeat **steps 2-4** for any other equipment maintenance reminders of interest. Press ⊙ to return to the **ALERTS** menu.	

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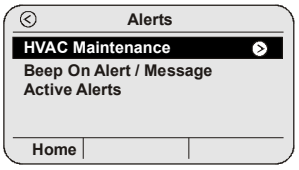
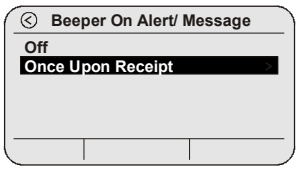
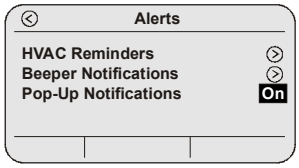
4.3.2 To Configure Alert Notification

Menu > Settings > Alerts > Beeper Notifications

Table 4-10 - Configuring Alert Notification

Step 1:	From the **BEEPER NOTIFICATIONS** screen, you can choose the manner in which you want to be alerted when you receive priority messages or notification of a utility event or peak rate. Use the ▲ and ▼ arrows to make a selection and press ▶.	
Step 2:	To change the default setting, use the ▲ and ▼ arrow keys to select whether you would like to turn the alert **OFF**, be alerted once when the message is received, or every 15 minutes until you acknowledge the alert. Make your selection then press **ENTER**. Repeat **steps 1-2** until all **BEEPER NOTIFICATIONS** are set. Press ◀ to return to the main **ALERTS** menu.	
Step 3:	To be alerted by text which pops up on your thermostat display, use the ▲ and ▼ arrow to select **POPUP NOTIFICATIONS**, then press **ENTER** to select either **ON** or **OFF**.	

4.4 Setting the Thermostat Lock

Menu > Settings > Thermostat Lock

Thermostat lock lets you prevent unwanted users from changing thermostat settings.

4.4.1 To Lock the Thermostat Display

Table 4-11 - Locking the Thermostat Display

Step 1:	From the **THERMOSTAT LOCK** screen, enter a three-digit combination that will be required to unlock the thermostat. Write down the code for safekeeping, then press **LOCK** in the bottom right corner of the display.	

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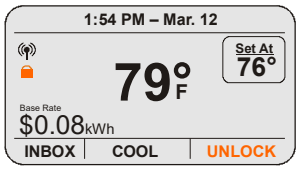
4.4.2 To Unlock the Thermostat Display

Table 4-12 - Unlocking the Thermostat Display

Step 1:	Press **UNLOCK** in the lower right hand corner of the display.	
Step 2:	Enter the **three-digit combination** you set, then press **UNLOCK**.	

NOTE **If you have forgotten your combination, simultaneously press the LEFT, MIDDLE and RIGHT keys at the bottom of the display for 20 seconds to unlock and reset the code to 000.**

4.5 Setting Vacation Hold

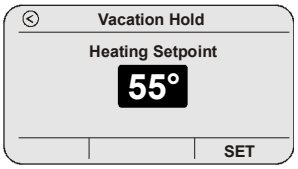
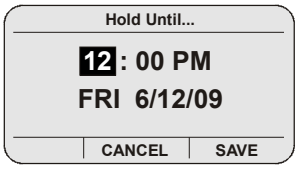
Menu > Settings > Vacation Hold

Vacation Hold lets you override your thermostat's programmed schedule while you are away and ensures that you return to a comfortable home.

4.5.1 To Set Vacation Hold

Menu > Settings > Vacation Hold

Table 4-13 - Setting Vacation Hold

Step 1:	From the **VACATION HOLD** screen, select the desired vacation hold temperature and press **SET**.	
Step 2:	Vacation hold can remain in effect for up to one year. Select the date and time on which you'd like the thermostat to return to its programmed schedule, then press **NEXT**.	
Step 3:	When asked to confirm your selection, press **YES**.	

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5 Wiring Chart

For all systems, the following terminals are wired according to whether you have a single or dual transformer system as shown:

Table 5-1 - Terminal Wiring Depending on Type of Transformer Used

	RH	RC	C	L	G
Single Transformer System	*[1] 24 VAC Hot Jumper should remain installed		24 VAC Common	System/Comfort Alert Diagnostics	Blower/Fan
Dual Transformer System	24 VAC – Heat *[2] REMOVE PROVIDED JUMPER	24 VAC – Cool *[2] REMOVE PROVIDED JUMPER	24 VAC Common	System/Comfort Alert Diagnostics	Blower/Fan

1. *FAILURE TO IDENTIFY GROUNDED COMMON COULD CAUSE SEVERE DAMAGE TO HVAC SYSTEMS.
2. *FAILURE TO REMOVE PROVIDED JUMPER ON DUAL TRANSFORMER INSTALLATIONS COULD CAUSE SEVERE DAMAGE TO HVAC SYSTEMS.

The following terminals on the thermostat Mounting Plate are wired according to the type of HVAC system connected to and the thermostat is configured as.

Table 5-2 - Terminal Wiring Depending on Type of HVAC System

	Y1	Y2	W/E	W2	O/B
Conventional HVAC	Cool Mode Stage 1	Cool Mode Stage 2	Heat Mode Stage 1	Heat Mode Stage 2	-
Heat Pump	Compressor Contactor	Compressor Stage 2	AUX Heat Stage 1	AUX Heat Stage 2	Reversing Valve

5.1 Communication and Sensor Connections/Terminals

Table 5-3 - Communication and Sensor Connections/Terminals

SCOM	S1	S2	S3	B+	A-	MCOM	EC_OUT	EC_COM
Sensor Common	OAT	Remote Indoor Temperature (RMT)	Supply Air Temperature	485 MODBUS Connections		485 MODBUS Shield	Economizer Analog Output (+)	Economizer Analog Output (-)

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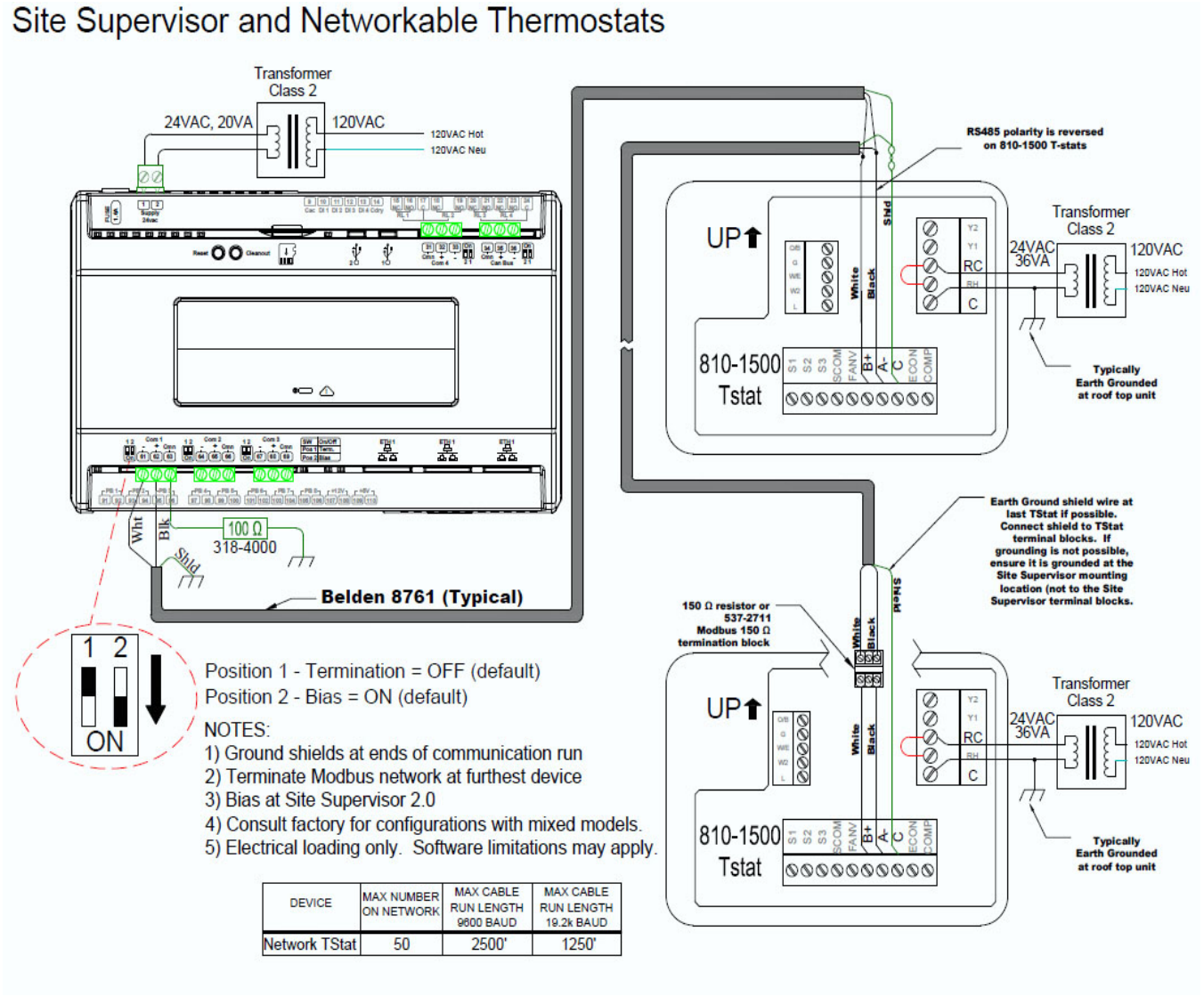
6 Wiring Connection to Site Supervisor



DEVICE	MAX NUMBER ON NETWORK	MAX CABLE RUN LENGTH 9600 BAUD	MAX CABLE RUN LENGTH 19.2k BAUD
Network TStat	50	2500'	1250'

Figure 6-1 - Site Supervisor Wiring

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7 E2 Setup

Connect the network cable to the three-terminal connector on the COM port that has been configured for the thermostat. The thermostat polarity markings are the same as E2; connect the thermostat B+ wire to the E2 RS485 + terminal and connect the thermostat A- wire to the E2 RS485 - terminal. The shield cable should be connected to the C terminal.

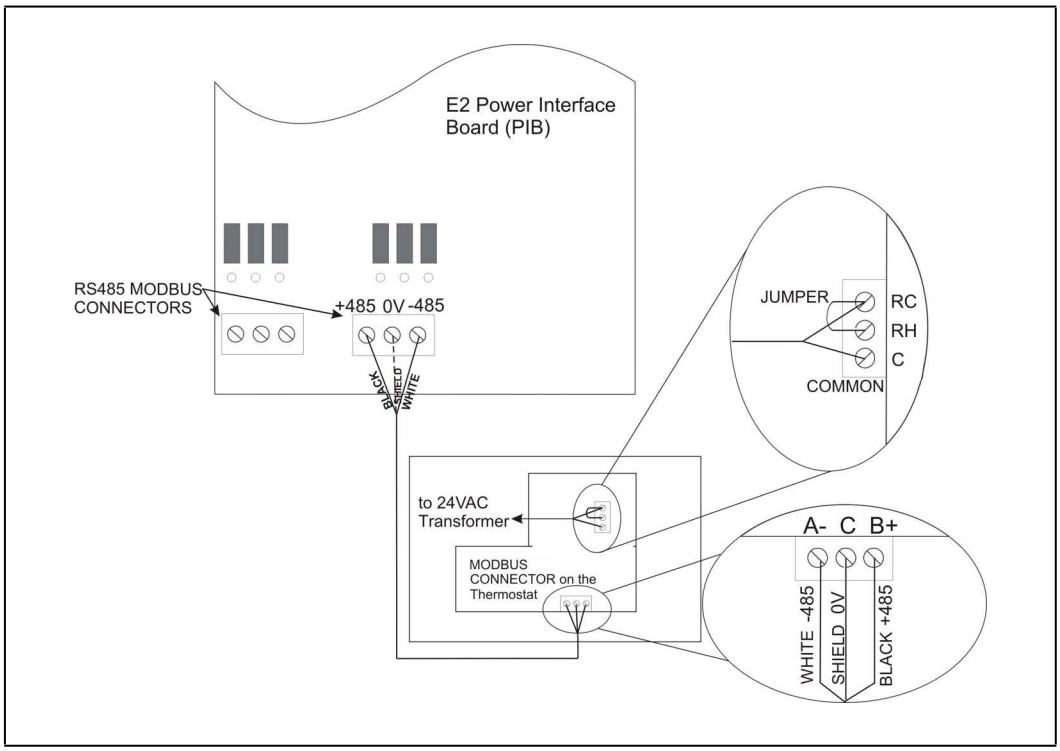

Figure 7-1 - E2 MODBUS connection

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8 Network Setup and Commissioning

8.1 COM Port Associations - E2 Versions 3.xx and Below

Connecting the thermostat to an E2 requires the E2 to be version 3.0 or above. Contact Copeland for upgrade information if the controller is a version before 3.0.

An E2 has up to three COM ports that can be assigned for MODBUS communication: COM2, an RS485 port on the E2 power interface board, and COM4 and COM6, which are optional ports requiring expansion cards.

COM ports can only be used for one function; in other words, if COM2 is set up as the I/O network, you cannot connect MODBUS devices to COM2. Ensure your E2 is equipped with an RS485 COM Card *(P/N 637-4890)* and configured in E2 General Services (Menu 7 3 1, **Serial** tab) to enable COM4 or an E2 Expansion COM Card *(P/N 637-4871)* to enable COM6.

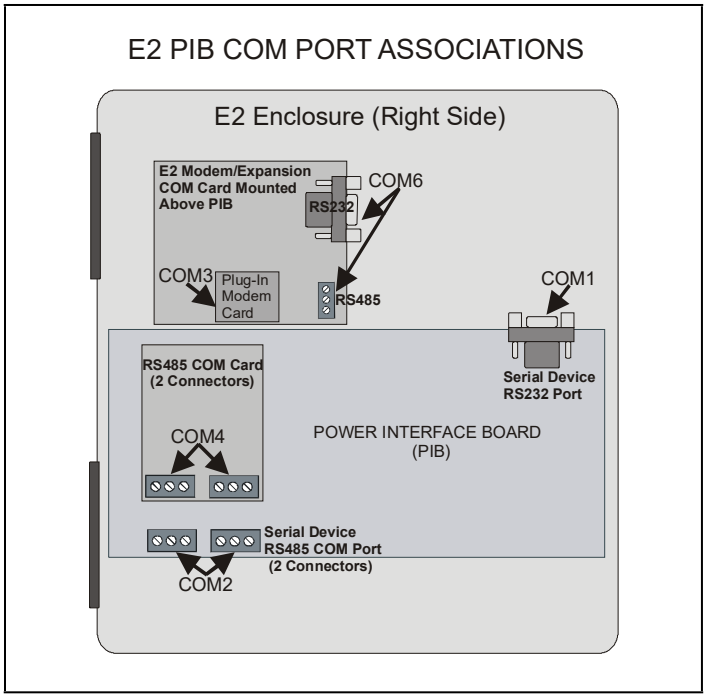

Figure 8-1 - Location of E2 COM Ports (E2 versions 3.xx and below)

Connect the MODBUS network cable to the three-terminal connector on the COM port you wish to assign as MODBUS.

8.2 COM Port Associations - E2 Versions 4.0 and Above

An E2 has three COM ports that can be assigned for MODBUS communication (COM2). COM ports can only be used for one function; in other words, if COM2 is set up as the I/O network, you cannot connect MODBUS devices to COM2. Ensure your E2 is configured in E2 General Services (Menu 7 3 1, **Serial** tab) to enable COM4 or COM6.

Connect the MODBUS network cable to the three-terminal connector on the COM port you wish to assign as MODBUS. Reverse polarity of +/- on RS485 cable from E2 to the device.

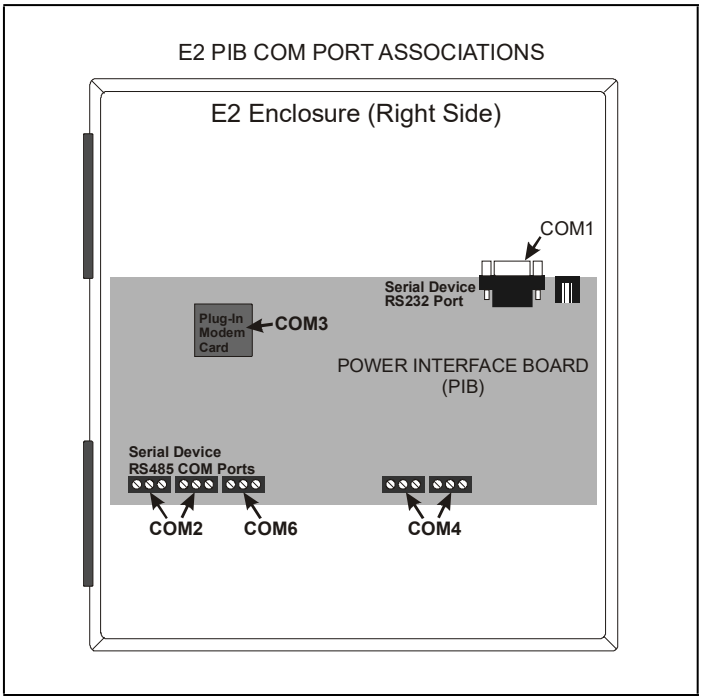

Figure 8-2 - Location of E2 COM Ports - E2 PIB Board (E2 version 4.0 and above)

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8.3 Set Up Network Ports

Before communicating to the thermostat, the port on the E2 that has the cable connected to the thermostat must be configured to use the thermostat.

1. Log in to the E2 with Level 4 access.
2. Press Menu followed by 7 3 1 - **General Controller Info**.
3. Press Ctrl + 3 to open the **Serial** tab of the General Controller Info setup screens:

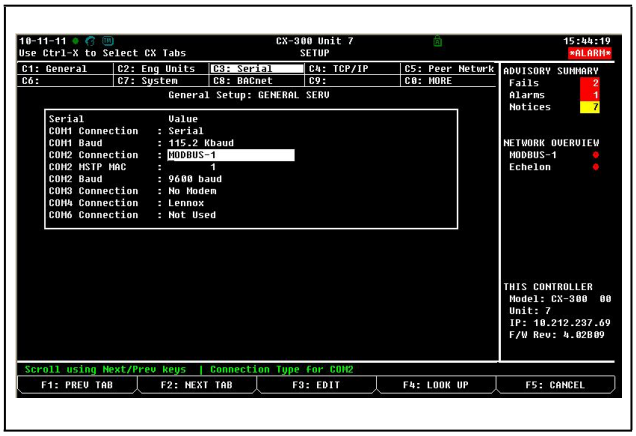

Figure 8-3 - Serial Communications Manager Screen

4. This screen will have a "**Connection**" field for all COM ports on the E2. Highlight the COM port connection field that will be used for MODBUS, and press F4 - **LOOK UP**. From the list of network types, select **MODBUS (1-3)**.
5. Four fields will become visible underneath the COM port connection field, which pertain to the way the device communicates:

- **Baud** - Default setting is **19.2k**. The baud rate setting should be set to match the baud rate dip switch settings of all thermostat devices. (All devices connected to the same COM port should be set to the same baud rate.)
- **Data Size** - Leave this field at the default value (**8**).
- **Parity** - Leave this field at the default value (**None**). The parity settings should be set to match the parity dip switch settings of all thermostat devices.
- **Stop Bits** - Leave this field at the default value (**1**).

6. Press Enter to save changes and exit.

8.4 Adding a Thermostat

To enable communications between the E2 and the thermostat units, the devices must be added and addressed in E2.

1. Log in to the E2 with Level 4 access.
2. Press Menu 7 7 2 - **Connected I/O Boards and Controllers.**

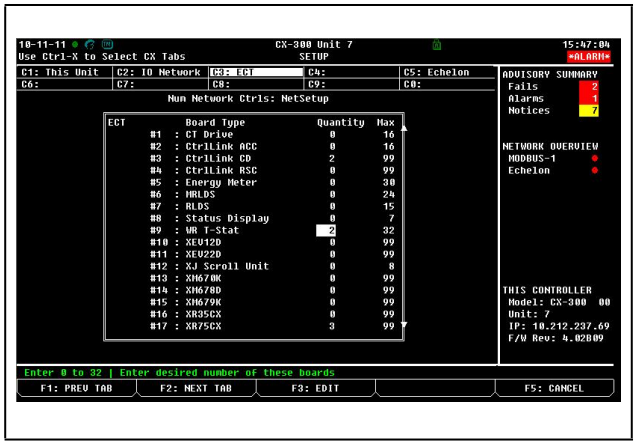

Figure 8-4 - Connected I/O Screen

3. In the Connected I/O screen, under the ECT tab, Enter the number of devices in the WR T-Stat number field.
4. Press Esc to return to the Network Setup menu, then select 1 - Network Summary.
5. Locate the thermostat units you added to the network list (press ↓ and ↑ to scroll through the list). The default name for the Commercial Communicating Programmable Thermostat increments up starting with WR T-Stat001. The two and three-letter designator does not apply here.

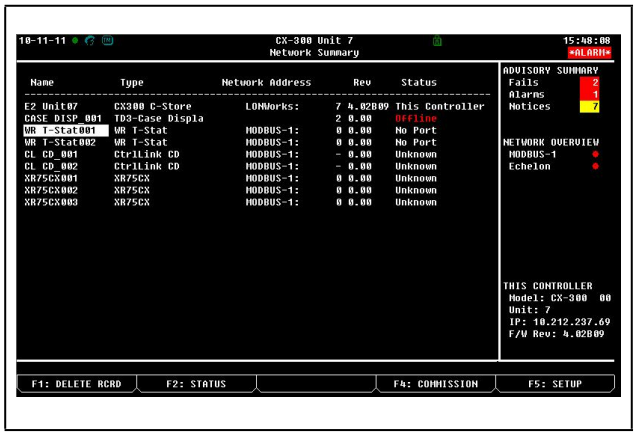

Figure 8-5 - Network Summary Screen

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6. By default, each thermostat's board number in the network list is indicated by a - (dash). To set the address and begin communication, press F4 to **Commission**. (If you have more than one MODBUS network, specify which network you want the device to belong to.) A screen will open that will allow you set the address:

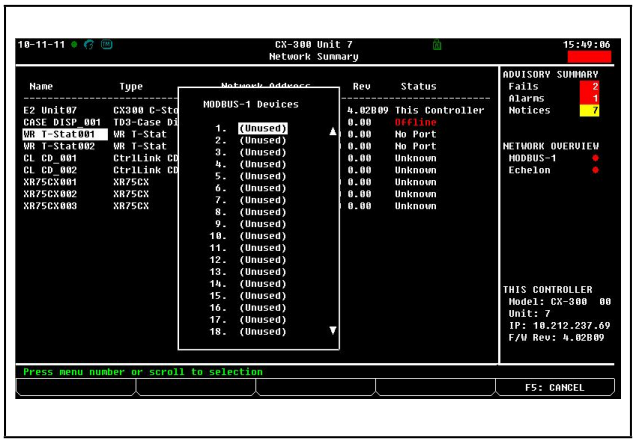

Figure 8-6 - Set the Address of the Thermostat

7. In the list of MODBUS devices, choose the address number corresponding to the thermostat's dip switch/jumper setting, and press . to select it. If a network ID has already been selected, its name will be shown next to the network ID in this list. If the network ID you are trying to assign has already been used, you must set the network ID dip switch/jumper on this device to a different number that is not being used.
8. Repeat **Steps 5** and **6** until each thermostat device has been commissioned.
9. When finished, press * to return to the **Network Setup** menu, then press 1 - **Network Summary** (**Figure 8-5**). Locate the thermostats you set up, and look at each device's status in the Status field. You will see one of the following messages:

- **Online** - The thermostat is communicating normally.
- **Offline** - The thermostat is not communicating, has not been commissioned, is not functional, or is not powered up. Verify the thermostat is powered up, wired correctly, and has the proper network address, baud rate, and parity.
- **Unknown** - The thermostat is not communicating or has not been commissioned. Verify the thermostat is powered up, wired correctly, and has the proper network address, baud rate, and parity.
- **No Port** - No port is set up in the E2 Serial Configuration Manager to be a MODBUS port.
- **Wrong FW Rev** - This message is likely caused by the thermostat having a firmware version older than the minimum revision required by E2 for communication. Replace the thermostat with a new controller that has the latest version of firmware on it.

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9 Description of Installation Menu Options

Following are detailed descriptions of the configuration menu options.

9.1 HVAC Equipment Setup

This menu item specifies the system configuration. It can be configured for Heat Pump or two stage heat/two stage cool multi-stage operation.

NOTE	**It is important to select the proper setting for this option, even if you skip the rest of the Configuration menu.**

If the system is a single or multi-stage conventional system, your options are:

Outdoor Options

- Air Conditioner: 1 Stage
- Air Conditioner: 2 Stage (default)
- Air Source Heat Pump: 1 Stage
- Air Source Heat Pump: 2 Stage
- None

Indoor options

- Air Handler: No Heat
- Air Handler: Electric Heat – 1 Stage
- Air Handler: Electric Heat – 2 Stage
- Furnace Gas / Oil – 1 Stage
- Furnace Gas / Oil – 2 Stage (default)

9.2 Advanced Setup

1. Advanced Setup – Cycle Rate

This menu item controls and provides choices of Comfort, Standard (default), and Economy cycle rates for Heating, Cooling and Back-up Heat (on heat pump configuration). Normal setting is standard if more frequent cycles are desired choose the Comfort selection. If less cycles are desired, choose the Economy selection.

2. Advanced Setup – Compressor Lockout

This menu item controls the compressor lockout feature. This feature is intended to help protect the compressor from short cycling. Some newer compressors already have a time delay built in and do not require this feature. Your compressor manufacturer can tell you if the lockout feature is already present in their system. When the thermostat compressor time delay occurs, **A/C return < 5 min** will be displayed on the messaging area of the thermostat.

Options for this menu item include:

- **OFF** – (Default) No compressor wait time. Assumes lockout feature is already present.
- **ON** – Waits 5 minutes before turning on the compressor after a power loss or during cooling/heating cycles. Protects the compressor from short cycling.

3. Advanced Setup – Comfort Alert Active Protection

The Commercial Communicating Programmable Thermostat is competitive with the Copeland Comfort alert protocol. When connected to the comfort alert module and active protection is selected, the thermostat will turn off the air condition/heat pump compressor if a condition exists that may potentially damage the system.

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4. Advanced Setup – Frost Protection

Frost protection when enabled ON provides protection by activating heat even if system switch is OFF when the Room Temperature falls to 42° F. Heat will stay on until room temperature rises above 42° F. If Thermostat is Heat Pump configured thermostat will use Auxiliary heat in Frost Protection mode.

5. Advanced Setup – O/B Configuration

This configures whether the O/B terminal for the heat pump reversing valve will be energized during cool (O) or heat (B) mode.

6. Advanced Setup – Fast Second Stage (Multistage Systems)

A selection of on will enable the thermostat to turn on all available stages whenever the setpoint it manually changed 3 degrees or more from the current room temperature.

7. Advanced Setup – Dual Fuel (Available When Configured for Heat Pump with Gas Furnace)

The thermostat has the capability to control dual fuel systems without an outdoor sensor or Smart Fuel logic.

8. Advanced Setup – Dual Fuel by Smart Fuel Operation

In the Smart fuel logic configuration, the Commercial Communicating Programmable Thermostat can determine when the heat pump is no longer efficient and optimize system changeover to the fossil fuel back-up. In the Smart Fuel Logic menu, you have a choice of 1-9 settings. Default setting is 5 and can be adjusted up to 9 to bring on fossil fuel sooner at higher outdoor temperature or down to 1 to keep the heat pump on at a lower outdoor temperature.

9. Advanced Setup – Dual Fuel by Sensor Operation (Available When Outdoor Sensor is Connected and Enabled)

In sensor configuration the Commercial Communicating Programmable Thermostat you can select the outdoor ambient temperature (HP Lockout) the system will switch from heat pump to fossil fuel (-20 to 30° F range). You can also select an outdoor ambient at which temperature and above the Auxiliary heat is disabled (Aux Lockout selection range 34 to 90° F).

10. Advanced Setup – Heat Pump Comfort / Economy Operation in Heat mode (Available when configured for Heat Pump)

Comfort mode: In Heating mode. If the heat pump is not able to satisfy the heating setpoint, the auxiliary heat will be energized to satisfy the same heating set point.

Economy mode: In Heating mode. If the heat pump is not able to satisfy the heating setpoint, the auxiliary heat will be energized to satisfy only when the temperature has dropped 2.0° F (1.1° C) below the heating setpoint. Selecting economy mode will add a deadband between the heat pump & auxiliary heat in heating mode. The actual temperature maintained will be lower than the true heating setpoint to maximize the heat pump efficiency.

11. Advanced Setup – Heat Lockout Outdoor (Available When Outdoor Air Sensor is Enabled)

Disables heating operation based on outdoor air temperature. When the outdoor air temperature is above this value, all heating is disabled. (Setting range is from -15 to 120° F.)

12. Advanced Setup – Cool Lockout Outdoor (Available When Outdoor Air sensor is Enabled)

Disables cooling operation based on outdoor air temperature. When the outdoor air temperature is below this value, all heating is disabled. (Setting range is from -20 to 95° F.)

13. Advanced Setup – Compressor Optimization

Allows for a more comfortable and efficient operation of heating and cooling. When the Compressor Optimization is enabled "on" the circulator blower (fan) will energize five seconds after the compressor energizes when cooling (and heating for heat pump applications). In cooling to extract additional cooling form the system the circulator blower (fan) will remain energized for twenty seconds after the compressor de-energizes when cooling.

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14. Advanced Setup – Dehumidification

This feature functions in the cooling mode and allows for dehumidification by enabling cooling operation to reduce humidity. You have two dehumidification mode choices: Optimum Comfort (OC) and Optimum Dehumidify (OD).

- **Optimum Comfort (OC)**: Operates by alerting the room temperature to a "feels like" temperature when the indoor humidity level is above the user setting. The altered temperature allows for longer cooling cycles to lower the indoor humidity.
- **Optimum Dehumidification**: Operates by initiating a cooling cycle when humidity level is above the user setting and the room temperature is not less than three degrees below the setpoint. Cooling will remain on until the humidity level drops to within 2% of the setting, or the room temperature falls to 3 degrees below the setpoint.

15. Advanced Setup – Deadband

Deadband is a user selectable temperature range the thermostat will maintain between the heating and cooling setpoints while operating in auto-changeover mode. In auto-changeover the cooling setpoint must be higher than the heating setpoint to avoid a conflict. The user can program the heat and cooling setpoints at the same setting and the deadband will resolve setpoint conflicts. Default setting is 2 with a range of 2 to 4° F.

16. Advanced Setup – Power-up Delay

The feature will momentarily delay system start-up after a power outage (each time 24VAC power supply to thermostat is interrupted and reapplied) the user can select a delay of operation of the system (fan, cooling or heating). This feature can be used to sequence start up multiple unit/thermostat in one location. The default value is OFF. The range of settings is from 10 sec to 120 sec.

9.3 Installation Menu

9.3.1 About the Device

This menu item provides access to a customer screen providing details about the thermostat and communication firmware version.

9.3.2 Economizer Settings

1. Mode

Installer can select between a fixed or variable damper operation.

2. Actuator Setting

Installer can select between 0-10VDC actuator or 2-10VDC actuator operation (**Table 9-1**).

3. Minimum Damper

Installer can select a minimum fresh air position for the damper. When the fan G terminal is ON and the thermostat is in occupied mode, the minimum fresh air position will be maintained.

4. Use for Cooling (Economizer) – Outdoor and Supply Air Temperature Sensors Required

Allows the operation of the mechanical cooling if the free cooling (economizer) cannot maintain the cooling setpoint.

- **OFF** -Typically applies when the SAT (supply air temperature sensor) is installed after the mechanical cooling refrigeration coils. In this case, mechanical cooling will never operate at the same time as free cooling.
- **ON** -Typically applies when the SAT (supply air temperature sensor) is installed before the mechanical cooling refrigeration coils in the mixing plenum. In this case, mechanical cooling is allowed when the free cooling (economizer operation) cannot maintain the cooling setpoint.

Default value: OFF.

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5. Changeover OT Setpoint – Outdoor Air Temperature Sensor Required

In Cooling mode. If the outdoor temperature is below this value, the cooling will be switched over from mechanical (compressor) to free cooling (economizer). 14 to 70° F (-10.0 to 21.0° C). Default value: 55° F(13.0° C).

6. Supply Air Setpoint – Supply Air Temperature Sensor Required

Installer can select the supply air setpoint that allows for economizer (free cooling) operation. Supply air setpoint. Free cooling supply air setpoint when economizer mode is enabled. Range 50 to 90° F (10.0 to 32.0° C). Default value: 55° F (13.0° C).

7. Economizer Delta – Outdoor Air Temperature Sensor Required

The Economizer Delta number is used to decide if the room temperature is above the outdoor temperature. If the indoor temperature is above the selected delta setting the economizer will be enabled. Range 1 to 10° F.

8. Occupancy Pre-purge

The feature is used prior to the occupied program periods. The thermostat will automatically turn on the circulator blower and open damper for a pre-purge up to three hours before the Day schedule period time. When enabled, the circulator blower is on during the occupied time until the unoccupied Night scheduled program time. Range OFF; 10 min; 30 min; 1 hr; 2 hr; 3 hr. ***Default: OFF.***

9.3.3 Sensor Settings

1. OAT Enable

Turns on the outdoor air temperature sensor

2. OAT Display

Outdoor Temperature displayed on home screen

3. OAT Offset

Installer offset of outdoor air temperature sensor to compensate for conditions (direct sunlight) affecting the sensor

4. IRT Enable

Turns on the indoor remote air temperature sensor

5. IRT Display

Displays indoor remote reading on home screen

Table 9-1 - Actuator Setting Options

Outside Air%	0%	5%	10%	15%	20%	25%	30%
Setting for 0~10VDC Actuator	0%	5%	10%	15%	20%	25%	30%
Setting for 2~10VDC Actuator	0 to 20%	24%	28%	32%	36%	40%	44%

6. IRT Offset

Installer offset of indoor remote air temperature sensor to compensate for conditions (lighting, office equipment) affecting the sensor.

7. IRT Weight

Define the weight of indoor temperature room temperature display calculation. Default value of 50% gives equal weighting between the remote sensor and thermostat internal sensor. Setting Range 0%, 25%, 50%, 75%, 100%

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8. SAT Enable

Turns on the supply air temperature sensor

9. SAT Display

Supply Temperature displayed on home screen

10. SAT Offset

Installer offset of supply air temperature sensor to compensate for conditions affecting the sensor

11. RH Display

Relative Humidity displayed on home screen

12. RH Offset

Installer offset of indoor humidity to compensate for conditions affecting the sensor

13. Fan Proof

When enabled, the thermostat will check the status of the fan proof input S4 terminal input. If the fan is not operating, all associated system functions are turned off and an alarm is initiated.

14. Sensor Status

This feature shows the user the status of each sensor. E2 can override the value from each sensor.

9.3.4 Network Button

Network Configuration is accessed by pressing the **NETWORK** button.

Network: Installation Info/ Network Status - This menu item provides access to a customer screen providing details on the installation and the Network Status.

Baud Rate - Set the baud rate for network connection.When the Baud Rate is highlighted in Installation Menu, the user can press the RIGHT button to access the Baud Rate screen. The default value is 9600. The option values include 19200 and 38400. UP, DOWN, LEFT, and RIGHT arrow buttons, refer to **Section 3.6.3, Using the Navigation Keypad**. LEFT, MIDDLE, RIGHT soft button and RIGHT arrow button are disabled.

Parity - Set the method for the Protocol Parity check. When the Protocol Parity is highlighted in Installation Menu, the user can press the RIGHT button to access the Protocol Parity screen. It will display as follows: The default value is None. The option values include Odd and Even. UP, DOWN, LEFT and RIGHT arrow buttons, refer to **Section 3.6.3, Using the Navigation Keypad**. LEFT, MIDDLE, RIGHT soft buttons and RIGHT arrow button are disabled.

Address - Set the address of thermostat. When the Address is highlighted in Installation Menu, the user can press the RIGHT arrow button to access the Address screen. It will display as follows: The default value is 136. The option Value is from 1 to 240. UP, DOWN, LEFT and RIGHT arrow buttons, refer to **Section 3.6.3, Using the Navigation Keypad**. LEFT, MIDDLE, RIGHT soft buttons and RIGHT arrow button are disabled.

Network Status - Get the network status between thermostat and a MODBUS RTU Master Building controller. When the Status is highlighted in Installation Menu, the user can press the RIGHT arrow button to access the status screen.

Network Message - Every message will appear in the Inbox (maximum inbox capacity = 5 messages). If the inbox reaches the maximum capacity and a new message comes in, the user cannot select which message to delete from the inbox (either the oldest, opened message will be erased or if all messages have not been opened or read, the oldest, unread message will be erased). The message header will display the time when mail was received. When there is an unread message, the Mail LED will display on the home screen. Unread messages will be bulleted and appear in bold. When the Inbox is highlighted in the Installation Menu, the user can press the RIGHT arrow button to access the Inbox screen.

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10 Troubleshooting Guide

No Heat/ No Cool/ No Fan (Common Problems)

Table 10-1 - No Heat/ No Cool/ No Fan (Common Problems)

Possible Cause	Corrective Action
Blown fuse or tripped circuit breaker.	Replace fuse or reset breaker.
Furnace power switch set to OFF.	Turn switch to ON.
Furnace blower compartment door or panel is loose or not properly installed.	Replace door panel in proper position to engage safety interlock or door switch.

No Heat

Table 10-2 - No Heat

Possible Cause	Corrective Action
Pilot light not lit.	Re-light pilot.
System switch not set to HEAT.	Press the **SYSTEM** button one or more times to select HEAT and press ⏶ to raise the temperature setpoint above room temperature.
Loose connection to thermostat or system.	Verify thermostat and system wires are securely attached.
Furnace Lock-Out Condition. Heat may also be intermittent.	Many furnaces have safety devices that shut down when a lock-out condition occurs. If the heat works intermittently, contact the furnace manufacturer or your HVAC contractor for assistance.
Heating system requires service or thermostat requires replacement.	Diagnostic: Press the **SYSTEM** button to select HEAT and press ⏶ to raise the temperature setpoint above room temperature. Within a few seconds the thermostat should make a soft click sound. This sound usually indicates the thermostat is operating properly. If the thermostat does not click, try the reset operation described on **Section 10.1, Reset Operation**. If the thermostat does not click after being reset, contact your HVAC contractor or place of purchase for a replacement. If the thermostat clicks, contact the furnace manufacturer or your HVAC contractor to verify the heating is operating correctly.

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No Cool

Table 10-3 - No Cool

Possible Cause	Corrective Action
System Switch not set to COOL.	Press the **SYSTEM** button to select COOL and press ⓥ to lower the temperature setpoint below room temperature.
Loose connection to thermostat or system.	Verify thermostat and system wires are securely attached.
Heating system requires service or thermostat requires replacement.	Diagnostic: Press the **SYSTEM** button to select COOL and press ⓥ to lower the temperature setpoint below room temperature. Within a few seconds the thermostat should make a soft click sound. This sound usually indicates the thermostat is operating properly. If the thermostat does not click, try the reset operation described on **Section 10.1, Reset Operation**. If the thermostat does not click after being reset, contact your HVAC contractor or place of purchase for a replacement. If the thermostat clicks, contact the furnace manufacturer or HVAC contractor to verify the heating is operating correctly.

No Heat or No Cool

Table 10-4 - No Heat or No Cool

Possible Cause	Corrective Action
Thermostat may be in Load Shed (a Control Event is in progress).	Wait for the Control Event to end.

Heat, Cool, or Fan Runs Constantly

Table 10-5 - Heat, Cool, or Fan Runs Constantly

Possible Cause	Corrective Action
Fan set to ON.	Change Fan to AUTO.
Possible short in wiring, thermostat, or HVAC system.	Check each wire connection to verify they are not shorted or touching together. No bare wire should stick out from under terminal screws. Try resetting the thermostat as described on **Section 10.1, Reset Operation**. If the condition persists, the manufacturer of your system or HVAC contractor can instruct you on how to test the HVAC system for correct operation. If the system operates correctly, replace the thermostat.

Blank Display and/or Keypad Not Responding

Table 10-6 - Blank Display and/or Keypad Not Responding

Possible Cause	Corrective Action
Voltage spike or static discharge.	Use the Reset Operation described on **Section 10.1, Reset Operation**.

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Furnace (Air Conditioner) Cycles Too Fast or Too Slow (Narrow or Wide Temperature Swing)

Table 10-7 - Furnace (Air Conditioner) Cycles Too Fast or Too Slow (Narrow or Wide Temperature Swing)

Possible Cause	Corrective Action
The location of the thermostat and/or the size of the heating system may be influencing the cycle rate.	Digital thermostats normally provide precise temperature control and may cycle faster than some older mechanical models. A faster cycle rate means the unit turns on and off more frequently, but runs for a shorter time so there is no increase in energy use. If you would like to increase the cycle time, choose Economy for slow cycle in the menu.

Second and Third Stage Won't Come On

Table 10-8 - Second and Third Stage Won't Come On

Possible Cause	Corrective Action
Your thermostat is designed to determine the optimum time to activate the second stage. Simply raising the temperature in heating or lowering it in cooling will not always force the thermostat to bring the second stage on quickly. There is a time delay from 0-30 minutes depending on the performance of the first stage of the system.	Wait for the second or third stage to come on.

10.1 Reset Operation

If a voltage spike or static discharge blanks out the display or causes erratic thermostat operation, you can cycle the thermostat power by unplugging the thermostat from the baseplate for a few seconds then plugging the thermostat back onto the mounting plate.

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026-1729 R4

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