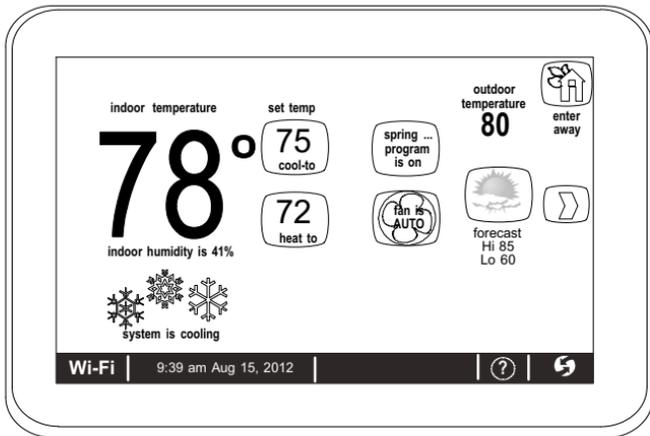




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 ALLIED AIR ENTERPRISES
 215 METROPOLITAN DR.
 WEST COLUMBIA, SC 29170



THIS MANUAL MUST BE LEFT WITH THE HOMEOWNER FOR FUTURE REFERENCE

NOTICE

Read this manual before programming this thermostat.
 Use this thermostat only as described in this manual.

INSTALLER'S SYSTEM SETUP GUIDE

Comfort Sync™ Thermostat

Touchscreen Programmable Communicating Thermostat

CONTROLS

507175-01
 6/2016
 Supersedes 3/2016

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

Installation and service must be performed by a licensed professional HVAC installer (or equivalent) or service agency.

Comfort Sync™-Enabled Units

A80DS2V	A80US2V2	A96DS2V	A96US2V
A97DSMV	A97USMV	BCE4M_S	BCS2M_S
4SCU16LS	4SCU18LS	4SCU20LX	4SHP16LS
4SHP18LS	4SHP20LX		



0616

507175-01

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WARNING

This is a 24VAC Class 2 thermostat. Do not install on voltages higher than 30VAC.

Do not switch system to cool if the outdoor temperature is below 45°F (7°C). This can damage the cooling system.

Shipping and Packing List

1 - Comfort Sync™ Thermostat	4 - Mounting Screws
4 - Wall Anchors	
1 - Homeowner's Manual	
1 - Warranty Card	

Comfort Sync™ Thermostat - Technical Description and Features

The 24VAC Comfort Sync™ thermostat is an electronic communicating, color display touchscreen and 7-day programmable thermostat. It stores system parameters and settings in non-volatile memory (i.e., it retains data when electrical power fails or is turned off).

The Comfort Sync™ thermostat can connect to online services via the Internet through the homeowner's Wi-Fi access point. After online registration is completed, the system may then be accessed by the homeowner from anywhere using a remote Internet connection via computer or personal communicating device.

Refer to page 27 for information on making connections to the thermostat.

This thermostat supports:

- Wireless bands 802.11b, 802.11c and 802.11n
- Three languages (English, French, Spanish)
- Air conditioning or heat pump units with up to four stages of heat / two stages of compressor operation (2 stages of heat pump heating, 2 stages of auxiliary back-up heating and 2 stages of emergency heating)
- Multiple-stage heat / cool and universal compatibility (gas/electric/heat pump/air conditioner).
- Dual-fuel capable (Comfort Sync™-enabled HP only) with two balance points.
- Indoor air quality with time-based notification of consumables including media filters, UVC bulbs and humidifier pads.
- Humidification measurement and control.
- Dew point adjustment control
- Multiple-stage HVAC systems
- Equipment maintenance reminders
- Autochangeover mode -- Permits control of heating, cooling, humidification, and dehumidification without user involvement

OUTDOOR TEMPERATURE SENSOR

All Allied branded communicating outdoor units contain a built-in outdoor temperature sensor.

Installation and Setup

COMMUNICATION ERROR SCREEN

During initial thermostat start-up if the following screen appears (see figure 1), this will indicate that the thermostat has been incorrectly wired or has shorted wires. Turn power off to the system and verify that all wiring is correct.



Figure 1. Communication Error Screen

Adjusting System Setting

SET TIME AND DATE

Use the arrows to select **Time and Date**; touch **edit** to proceed to the “Set current time and date” screen.

When “Time and Date” screen appears, enter the correct date as follows:

- Use the left and right arrows to change the month and year.
- Touch a day of the month to select it.
- Touch on the hour or minute; up down arrows appear to allow change.
- Touch the **am/pm** field to toggle it between am and pm.
- When the correct date and time is set, touch **save** to save settings and return to previous settings screen.

Touch **next** to continue to next screen.

CIRCULATE FAN ON TIME SETTING

“Circulate” is enabled on the user’s **home** screen or **system settings** page. It keeps air circulating from 15% to 50% percent of time. The following settings approximate how long the fan will run at these typical settings:

15% (9 minutes fan run time per hour)

25% (15 minutes fan run time per hour)

35% (21 minutes fan run time per hour)

45% (27 minutes fan run time per hour).

NOTE - If the circulate fan mode is on, a timer is set to measure all the time that the fan is blowing, regardless if it is running to deliver heating or cooling or just for air circulation.

The following table lists all of the installer configurable system level parameters available from the installer setup screens. After adjusting system settings, select **next** to continue.

Table 1. System Settings

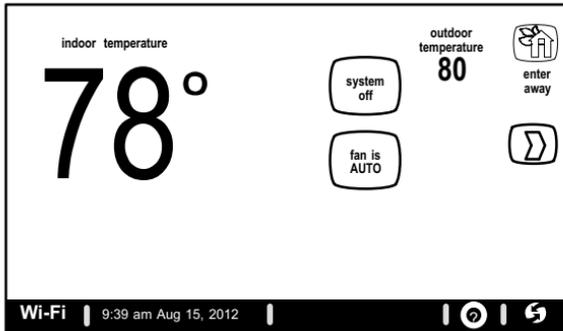
Parameter Name	Default	Parameter Value Setting	Increment
Time and Date	—	(Time/date elements screen)	—
Daylight Saving Time	Enabled	Enabled, Disabled	—
Circulate Fan ON Time	35%	Range 15 to 45%	1%
Temperature Unit	Fahrenheit	Fahrenheit or Celsius	—
System Name	—	(keyboard input screen)	—
Dealer Name	Allied	(keyboard input screen)	—
Dealer Address	—	Note: When adding the dealer number, all other dealer fields will auto populate once thermostat registration is completed.	—
Dealer Phone	—		—
Dealer Email	—		—
Dealer Website	—		—

Establishing Wi-Fi and Internet Connections

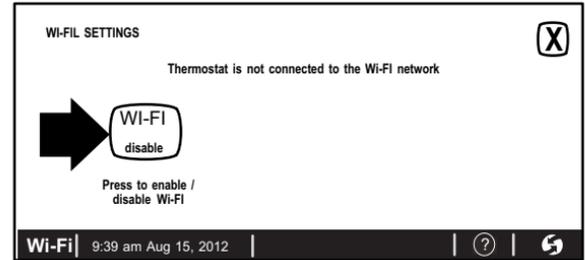
WI-FI ROUTER CONNECTIVITY

(Thermostat to homeowner's Wi-Fi router). "Wi-Fi" in the bottom left corner is the "button" used to access the Wi-Fi settings screen. "Wi-Fi" with a  beneath it indicates a prior connection to the server has been lost. If a connection had been lost, then re-established, the triangle goes away. Wi-Fi must be enabled, you must agree to the User Agreement, a local network must be chosen, and a password may need to be entered. Follow the step-by-step procedure outlined below.

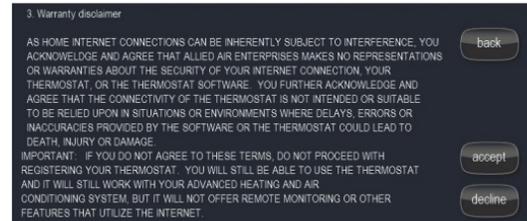
1. Touch **Wi-Fi**.



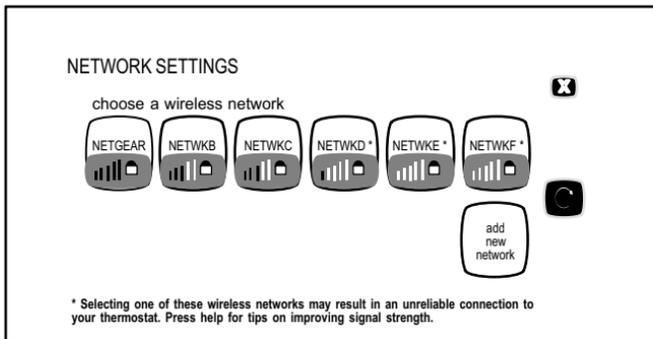
2. Touch **Wi-Fi disabled**.



3. Touch **Next, Next, Accept**



4. Touch **Network Settings**.
5. Touch the applicable network icon for your home Wi-Fi network.



6. Touch the password field (if secure network)



7. Type in the password (if secure network) using the pop-up online keyboard by touching screen at blank line.
8. Touch save (if secure network).
9. Touch **connect**.
10. The Network Settings screen will appear. If connection is successful, the selected the access point will show **connected**.

If connection was not successful, use the troubleshooting tips in the next section.

Troubleshooting Wi-Fi

ROUTER / MODEM CHECK IF CONNECTION FAILS

1. Make sure the router and modem are turned on.
2. Check for connections to other wireless devices and internet connection.
3. Make sure the Comfort Sync™ thermostat's Wi-Fi is enabled and connected to the home network (AP).
4. If having difficulty connecting to the router, online research the router model number and/or internet provider to discover and verify that the router band is set to B, G or N bands. You will need to access the routers utility program to make any changes. If not accessible please contact your service provider for help. The thermostat will connect to B, G or N band routers at this time. NOTE: When set to B or G bands, video streaming will likely be slower than N band. If homeowner has implemented a dedicated N band router for the purpose of video streaming, a separate router for the thermostat may be required.
5. Reboot your router
 - A Unplug your power cord, wait 30 seconds, then reconnect. If you have multiple routers, try rebooting all of them when problems occur.
 - B If there are multiple routers you must have different name and password for each one.
 - C On your computer, turning Wi-Fi off and then back on will force the system to rescan for available networks. Do you see the network your thermostat is trying to connect to?
6. Power cycle the thermostat.
7. Keep cordless phones, microwaves and other electrical equipment at least 3.5 feet (1m) away from access point.
 - A Try moving your router closer to the device if possible. If connection is improved, then there is probably some interference. Must have signal stronger than -70db (also, see Router Signal Strength on page 3); anything less will have signal losses or not connect at all.
 - B Adjust the direction of the router toward the thermostat. Adjust the routers antenna. A signal repeater may be needed.

8. Try changing channels on the access point and test it out with one of your internet devices (i.e. laptop, desktop). The IP address to the server from the thermostat will be close to the same IP address from the computer to the server (www.mycomfortsync.com).

COMPUTER CONNECTIONS:

1. On Access Point, Login to configuration (usually web based interface) → go to Wireless Settings select a different channel → Save settings.
2. Devices cannot change Wi-Fi channel. It is set only at the router.
3. On the thermostat, disable, then re-enable the Wi-Fi connection.
4. Antenna in thermostat is fixed and cannot be moved. Location of your access point with respect to the thermostat is very important.
5. Baby monitors, garage door openers and wireless video cameras may create signal interference.
6. Check your encryption key (Password).
7. Double check and re-enter your WEP/WPA encryption keys / pass-phrases (usually found on the router). If set to WEP security, change to WPA if allowed.
8. In your thermostat's wireless settings, verify that your encryption key (password) is correct. There can not be spaces at the end of the SSID or Password.
9. It is important to note that number of walls that the signal must pass thru to reach the thermostat can be an issue. (e.g. 4 indoor walls, or 1 outdoor wall + 2 indoor walls could mean a weak signal at the thermostat).
10. The addition of a signal repeater or extender maybe an option. (desktop or wall outlet plug-in devices are available online or at your local electronics stores in price range \$70 - \$150).
11. If multiple routers are in the home make sure each router has a different name.
12. If you don't get the pop up box that says the registration request has been forwarded, then the email was not sent to the server and the return registration link will not be sent to your email address. Try all the router troubleshooting procedures and if you still can't get it to send the email, cycle the power to the thermostat. This will cause the thermostat

to ask for the Allied server mac address again and try to resend the email.

13. If all is correct, refer user to their Router manufacturer and Network provider. Router may have incoming fire wall check with service provider.

ROUTER SIGNAL STRENGTH

After connecting to your router, you can check your signal strength by pushing the Wi-Fi icon on the home screen, then the networks button, then your network button, then the AP info button (see figure 2).

A strong wireless signal (RSSI) is indicated by a NEGATIVE decibel number in the range from -46 to -58db; anything greater than -80db will not connect.

If you are connected but have a signal above -70db then you may consider adding a signal repeater/extender or making some of the other router adjustment mentioned in the Router / Modem Check section

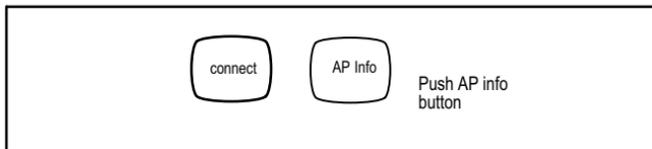


Figure 2. Access connection data

```
AT+NSTAT=?
MAC=00:ID:C9:A0:40:95
WSTATE=CONNECTED MODE=AP
BSSID=98:FC:11:47:B9:00 SSID= LINKSYS* CHANNEL=6 SECURITY=NONE
RSSI=-78
IP ADDR=192.168.8.117 SUBNET=255.255.255.0 GATEWAY=192.168.8.1
DNS1=192.168.1.1 DNS2=0.0.0.0
RXCOUNT=14 TXCOUNT=345
OK
```

Figure 3. Connection data

Thermostat Registration with Allied Server

(Homeowner's router and Internet Service Provider [ISP] to the Allied Server). This connection is used when registering your thermostat. (Connection is up or down and there is no strength indicator for this).

When there is not a good internet connection from the router to the internet, the thermostat will not register. You will only know this if you input your e-mail address and system description and touch on the register button and see the thermostat "clocking" and the registration request pop up box is not show.

If the the registration request pop-up box is shown then you should receive an email back from the server to your email address directing you to the consumer portal to make an account on the Allied server. If you don't see it in your inbox make sure you check you Junk and Spam mail boxes.

If you don't get the pop-up box that says the registration request has been forwarded then the email was not sent to the server and the return registration link will not be sent to your email address. Try all the router troubleshooting procedures and if you still can't get it to send the email, cycle the power to the thermostat. This will cause the thermostat to ask for the Allied server mac address again and try to resend the email. **If multiple routers are in the home make sure each router has a different name.**

iPhone® app, iPad® app, and Android™ app can be downloaded from the App Store or Android™ Play Store.

1. Touch **Wi-Fi**.
2. Touch **Thermostat not registered**.
3. Type in homeowner's email twice (this ensure the email is typed correctly); enter **System Desc**.
4. Touch **register**.
5. Message appears while (see figure 4).

Registration request has been forwarded.
Please check your email for instructions to complete registraiton.
If you do not receive an email, please ensure you entered your email address accurately and/or check your spam folder.

Figure 4. Screen Message after Thermostat Registration is Completed

User Account Registration for Allied Server Access

COMFORT SYNC Dashboard Log Out Help

My Profile My System My Dealer

Welcome Sundar Natarajan!
Update your profile using the form below.

*First Name

*Last Name

*Phone

Mobile Phone

*Primary Email
*****@*****.com [Change Email](#)

Password
***** [Change Password](#)

* indicates a required field

Figure 5. Registration Screen

NOTE - This following information is customer setup instructions and is shown here to allow the installer to help walk the customer through the setup process.

After registering through your Comfort Sync™ thermostat interface, go to the homeowner's computer and locate the email sent from the server.

NOTE - if the customer has already setup an account, click the “Click Here” button to access that account.

Click on the Register link; the screen (to the left) will appear. Fill in the User Name and Password fields and check the agree to terms and conditions box. Click **Create User** button.

A series of pages and prompts follows to provide guidance through profile setup and user preference definitions.

Firmware Update

FIRMWARE UPDATE BUTTON

1. Firmware Update (Off) – No automatic firmware updates.
2. If the status is changed from Off to Auto, it will trigger an immediate check and update for the firmware update. This can take up to 1 hour to complete depending on the user's internet speed, signal strength, internet traffic, etc.
3. Changing from Auto to Off during a download will NOT stop the current download if it is already in process.
4. Firmware Update (Auto) – (Default state). If enabled, the thermostat checks for firmware update a few minutes after commissioning and then every 24 hours in early morning hours.
5. Once a download is completed, the thermostat stops all activity for up to 3 seconds, restarts for 5 seconds, then continues with normal operation. All prior system and user settings are retained (Equipment, programs, Wi-Fi settings, etc.). Note a variation in indoor temperature may be observed after restart. This is normal operation of the thermostat while the temperature sensor algorithms adjust after a restart of the system.

Adding Non-Communicating Outdoor Unit and Accessories

OUTDOOR UNIT (AIR CONDITIONER OR HEAT PUMP)

To add (or remove) an outdoor unit that is not Comfort Sync™-enabled, you must be at the “Add or Remove Non-communicating equipment?” screen.

1. Touch the **yes** button next to **Add or Remove Non-communicating equipment?**
2. In the “non-communicating device list” screen, use the arrows to highlight **Outdoor Unit Type** and touch **edit**.
3. Touch one of the radio buttons to select a 1-or 2-stage air conditioner unit or a 1-or 2-stage heat pump unit; touch **save**.
4. Use arrows to highlight any red colored text in the device list (e.g. select **Outdoor Unit Capacity**; text turns white). Touch **edit**.
5. Use either the up or down arrows to display the correct size outdoor unit. Touch **save** to continue.

*NOTE - If the defaults are correct, you do not have to make any changes, but you must touch **save**. When all red text is gone, the **back** button will appear; touch it to return to the “Add or Remove Non-communicating equipment?” screen.*

ADDING A HUMIDIFIER

Before adding a humidifier, be sure that the:

- Humidifier is wired to the furnace or air handler control as shown in the included quick start guide.
- Entire system is wired, powered up, and the thermostat has detected the system's installed communicating devices, and you are at the “Add or Remove Non-communicating equipment?” screen.

To add (or remove) a humidifier:

1. Touch the **yes** button on this screen.
2. In the “non-communicating device list” screen, use the arrows to highlight **Humidifier** (note the current value, **Not Installed**) and touch **edit**.
3. Touch one of the radio buttons to select the **Bypass (24VAC) Humidifier** (or select **Not Installed**, if removing humidifier); touch **save**.

- The previous screen returns, but the current value now shows your selection. Touch the **back** button.
- The “Add or Remove...” screen reappears with your addition shown in the system devices list. At this point, you may add more equipment (touch **yes**) or if finished, touch the **next** button to advance to the “Adjust a setting...” screen.

NOTE - Adding humidity regulating non-communicating devices may be a 2-step procedure:

- First** the device must be installed and wired. After the humidifier is installed, the setting under the "System" mode "Humidification Control Mode" defaults to "Basic".
- Second**, if you want another mode, i.e. Precision, Basic Dew Point, or Precision Dew Point, the device requires further configuration.

ADDING AUXILIARY DEHUMIDIFIER

Before adding a dehumidifier, be sure that:

- the dehumidifier is wired to the furnace or air handler control as shown on the optional accessories wiring diagram located in the provided quick start guide.
- the entire system is wired, powered up, and the thermostat has detected the system's installed communicating devices, and you are at the “Add or Remove Non-communicating equipment?” screen.

To add (or remove) a dehumidifier, you must be at the “Add or Remove Non-communicating equipment?” screen.

- Touch the **yes** button on this screen.
- In the “non-communicating device list” screen, use the arrows to highlight **Dehumidifier** and touch **edit**. Note the current value (e.g. Not Installed).
- Touch one of the radio buttons to select the **Auxiliary Dehumidifier** (or select **Not Installed**, if removing dehumidifier); touch **save**.

NOTE - Humiditrol is not an available accessories. Do not select this option.

- When you scroll to the dehumidifier device, (Note the current value, e.g. **Auxiliary Dehumidifier**.) Click **back** to return to the “Add or Remove...” screen.

- The “Add or Remove...” screen reappears with your addition shown in the system devices list. At this point, you may add more equipment (touch **yes**) or if finished, touch the **next** button to advance to the “Adjust a setting...” screen.

AUXILIARY DEHUMIDIFIER OPERATION

When this option is selected, dehumidification will be allowed under the following conditions, provided **there is NO call for humidification**:

- In the absence of heating or cooling calls, or
- Simultaneous with blower only calls.

If the blower is required to operate while the auxiliary dehumidifier is running, a separate wire must be installed from the auxiliary dehumidifier to the indoor unit's G thermostat input that will energize G when the auxiliary dehumidifier is running (see provided quick start guide)

Auxiliary dehumidification is controlled by the thermostat dehumidification demand.

Adjusting Humidification and Dehumidification Settings

HUMIDIFICATION SETTINGS — SYSTEM DEVICES SCREEN

Pre-adjustment REQUIREMENTS:

- First** the device has been **installed**.
- Second**, you pressed **next** at the “Add or Remove...” screen.

DISPLAY, BASIC AND PRECISION—These modes allow user control of relative humidity between 15 and 45%. These conditions must be met for either mode to operate:

- humidification mode has been enabled, and
- the unit is in HEAT mode, and
- humidification demand exists (24V present at H), and
- DISPLAY** mode indicates humidification is OFF.
- BASIC** mode mode also requires presence of heating demand [Y for HP heat, or W for gas heat (W may be energized with G de-energized)].
- PRECISION**—(Available only if Wi-Fi is operational or outdoor sensor is attached)

Basic Dew Point Control adjustment mode will change the humidification setpoint based on the outdoor temperature and a user-defined dew point adjustment setting.

Precision Dew Point Control adjustment mode will operate when these conditions are met:

- humidification mode has been enabled, and
- the unit is in HEAT mode, and
- humidification demand exists (24V present at H).

Configure the device as follows:

1. In the “system devices” list, use the arrows to highlight **System**. Touch **edit**.
2. In the “System” list, use the arrows to highlight **Humidification Control Mode**. Touch **edit**.
3. Touch one of the radio buttons to select the mode of humidification control; touch **save**. (After saving, check that the current value now shows the new selection).
4. Touch the **back** button to return to “Adjust a setting...” screen.

NOTE - If the defaults for the settings are shown in red, you are not required to make any changes, but you must go into the edit tool, and touch save. When all red text is gone, the back button will appear; touch it to return to the “Adjust a setting...” screen.

HUMIDIFICATION SETTINGS — FEATURE SCREEN

1. From the **Main Screen**, touch the **right arrow** icon to go the the **Features** screen.
2. From the **Features** screen, select **system** settings.
3. Touch the button for the humidification settings you want to adjust; if it says humidifier OFF, one touch will display a selection for ON.
4. When you touch the **set-to** button, the arrows appear, allowing you to change to the desired humidity percentage setting.

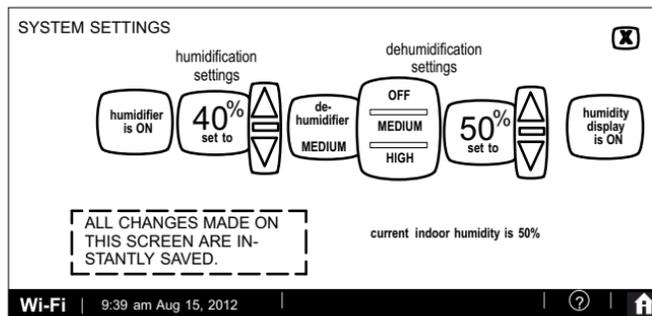


Figure 6. Humidification Setting

DEHUMIDIFICATION SETTINGS — SYSTEM DEVICES SCREEN

Pre-adjustment REQUIREMENTS

- **First** the device has been **installed**
- **Second**, from the “Add or Remove Non-communicating equipment?”, touch **next**.
- **Third**, in the “Adjust a setting...” screen, configure the device as follows:
 1. In the “system devices” list, use the arrows to highlight **System**. Touch **edit**.
 2. Use arrows to highlight **Min Dehumidification Setpoint**; touch **edit**. Note the current value (e.g. 40).
 3. Use arrows to make changes; touch (After saving, check that the current value now shows the new selection).
 4. Touch the **back** button to return to “Adjust a setting...” screen.

DEHUMIDIFICATION SETTINGS — FEATURE SCREEN

1. From the **Main Screen**, touch the **right arrow** icon to go the the **Features** screen.
2. From the **Features** screen, select **system** settings.
3. Touch the button of the dehumidification settings you want to adjust; if it says de-humidifier OFF, one touch will display a selection for OFF, MEDIUM or HIGH.

4. Selecting MEDIUM or HIGH will bring on the **set-to** button.
5. When you touch the **set-to** button, the arrows appear, allowing you to change to the desired de-humidifier percentage setting.

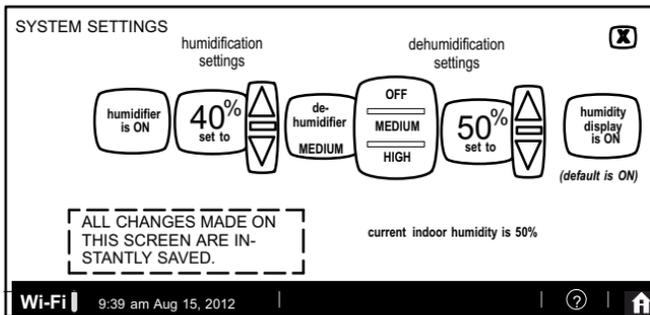


Figure 7. Humidifier Controls

HOW DEHUMIDIFICATION MODE WORK — NO EXTERNAL DEHUMIDIFICATION DEVICE

NOTE - OFF, MEDIUM and HIGH dehumidification modes are also a function of the HVAC system with NO external dehumidification devices installed.

In **OFF** mode, dehumidification if off.

In **MEDIUM** mode, dehumidification occurs if these conditions are met and signals are present at specific terminals:

- dehumidification has been enabled on installer settings, and
- the unit is in COOL mode, and
- dehumidification demand exists (RH above setpoint), and
- cooling demand exists (Y1 energized).

In **HIGH** mode, dehumidification occurs if all BASIC conditions are true, except cooling demand may or may not be present. Also note that:

- **Maximum overcool from cooling setpoint is 2°F.**
- **Deadband** temperature is limited to a minimum of 5°F (instead of 3°F in **DRY** or **MODERATE** modes) because of 2°F overcooling.

Using the Tests / Diagnostics Features

TO SELECT TESTS TO RUN

Use the following procedure to run test for various heating and cooling stage operations.

1. Select a specific tests (1) to run or use the **select all** (2) button to run all configurations. Use the **deselect all** (3) button to un-check desired test.
2. Touch the **start** button (4) to run all selected tests or touch **skip tests** (5) to end the test procedure.
3. After the tests are completed or you have selected skip test select the exit button to end.

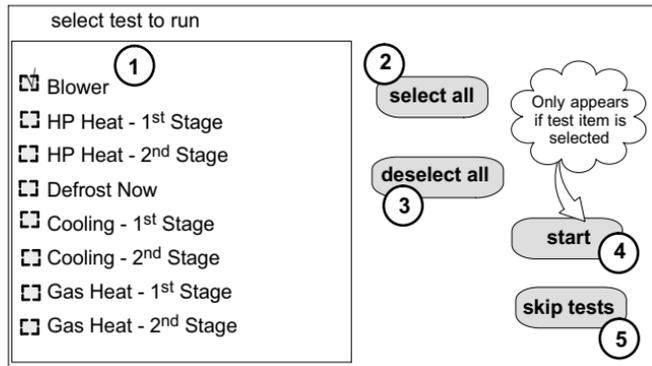


Figure 8. Selecting Tests

NOTE - Test mode lasts for 30 minutes (with the temperature updating every 30 seconds) except for the defrost test, which lasts 30 seconds. Tests feature provides the technician time to manually verify the equipment operation.

The **tests** feature is available after **setup** has been completed once. After you touch **next** in the final **setup** screen, the “select tests to run” screen (figure 8) will appear. (If you want you may skip tests; touch **skip tests**.)

To run all of the tests, touch **select all**. All boxes in the list of tests will be checked. Or, touch box(es) next to test(s) to run certain tests.

After the tests have been started, the screen will describe which test is running and shows a diagnostic summary of each test (see figure 9). After reviewing the results and concluding that no further tests are needed, touch **next** to proceed to next test. The technician must verify that the test procedure is producing the desired result at the equipment.

After pressing **next** after the final test, the **Testing finished** screen will appear (figure 10). At this point, use the **EXIT** button (if you have completed the required setup), or use **diagnostics** button (to analyze the system), or use **equipment** button (if you wish to make any changes to device details).

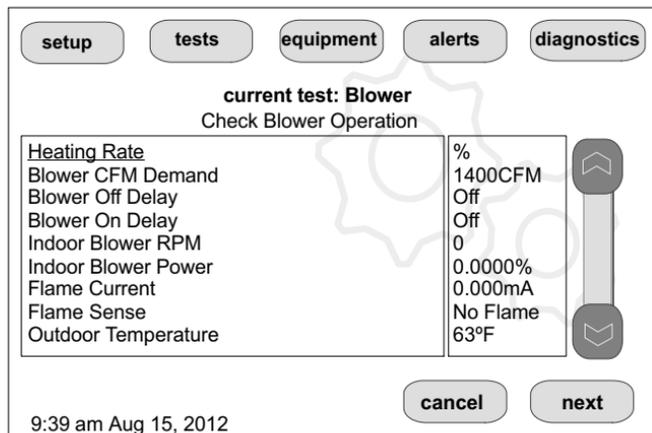


Figure 9. Typical Tests Results Screens



Figure 10. Testing Finished Screen

Touch **confirm** to continue system configuration; the screen will change to the system discovery screen. At this point, the program goes through the same setup as the initial setup process which begins on page 3.

NOTE - "Compatible device found" screen (shown below) appears only when a device has been removed and replaced with a compatible device.

Missing	Found Compatible
Device Equipment Type No.	Device Equipment Type No.
Model No. (control model no.)	Model No. (control model no.)
Serial No. (control serial no.)	Serial No. (control serial no.)

Settings were not copied

HOMEOWNER SERVICE ALERT CODES

Number	Value	Number	Value
3000	Filter 1	3002	Humidifier Pad

3001	Filter 2	3003	UV Light
3004	Maintenance	4000	User Wi-Fi state change, disable
4001	Firmware download failed	4002	Image file download failed

Alert Codes

The following tables list all alert codes used for troubleshooting system components.

Table 1. Alert Codes and Troubleshooting

Alert Code	Priority	Alert Text	Steps to clear
10	Critical	(Thermostat) The thermostat has found an unknown device on the system.	Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button. An unknown device is seen on the sub-net in or outside of configuration mode. Clear by reconfiguring the system. Touch the setup tab, touch start, and touch confirm. If problem persists, then check all DEVICE connections to make sure they are Comfort Sync™-compatible.
11	Critical	(Thermostat) The thermostat cannot find a previously installed unit.	Check all connections and cycle system power. If problem persists, clear by reconfiguring the system. Press the setup tab, touch start, and touch confirm. If problem persists, then check all DEVICE connections to make sure they are Comfort Sync™-compatible.
12	Critical	(Thermostat) The thermostat cannot find an Comfort Sync™-enabled indoor unit.	Thermostat did not find an Indoor Unit. Make sure there is an Comfort Sync™ indoor unit on the system. Check R, i+, i- and C connections, ohm wires and cycle power. Replace indoor unit control board if there is no response.
14	Critical	(Thermostat) The thermostat found more than one thermostat, more than one indoor unit, or more than one outdoor unit on the system.	Check wiring and remove duplicate equipment. Reconfigure system.
18	Minor	(Thermostat) The outside temperature is below the level where the heat pump is programmed to heat the home. The system will not use the heat pump to warm your home.	Notification only - Outdoor Temp is below the Low Balance Point. Heat Pump will not be used to service a heating demand.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
19	Minor	(Thermostat) The outside temperature is higher than the level where the furnace or electric heat is programmed to work. The system will only use the heat pump to warm your home.	Notification only - Outdoor Temp is above the High Balance Point. Indoor Unit (furnace or air-handler) will not be used to service a heating demand.
29	Critical	(Thermostat) The thermostat is reading an indoor temperature that is higher than 99°F. The thermostat will not allow any heating operation to begin until it senses a temperature lower than 99°F.	Indoor temperature rose above 99°F during a heating or cooling demand. Heating operation is not allowed. Check to ensure that Heating Equipment is not stuck ON (reversing valve, etc.). Check the accuracy of the thermostat temperature sensor. Select cooling system mode to cool the indoor space.
30	Moderate	(Thermostat) The thermostat is reading an indoor temperature that is lower than 40°F. The thermostat will not allow any cooling operation to begin until it senses a temperature higher than 40°F.	Indoor Temp fell below 40°F. Cooling operation is not allowed. Check to ensure that cooling equipment is not stuck ON. Check accuracy of the thermostat temperature sensor. Select heating system mode to heat the indoor space to above 40°F.
31	Critical	(Thermostat) The thermostat has lost communication with the (<i>furnace, air-handler or outdoor unit</i>) for more than 3 minutes.	[<i>Indicated unit</i>] has not communicated with thermostat for more than 3 minutes. Check connections. Ohm wires. If fault persists, then cycle power. Fault clears after communication is restored.
32	Moderate	(Thermostat) The (<i>furnace, air-handler or outdoor unit</i>) is resetting itself.	[<i>Indicated unit</i>] is resetting itself. This event may occur during a power outage or power fluctuation in the system. If persistent or if it coincides with the system operation then proceed with the following steps. Check the power connections, check the amp draw at the transformer (the transformer maybe overloaded) and check 24VAC voltage at the DEVICE. The alarm is only cleared by pressing the clear button on the Installer Alerts Tab. If the fault persists after checking the connections, replace the unit's control board.
34	Critical	(Thermostat) The thermostat does not know the capacity (tonnage) of the (<i>furnace, air-handler or outdoor unit</i>). Please program the correct capacity of the (<i>furnace, air-handler or outdoor unit</i>).	[<i>Indicated unit</i>] is missing the programmed unit capacity. Go to [<i>Indicated unit</i>] and program the unit capacity manually. See the unit IOM for programming instructions. Remove power to thermostat before programming the unit control board. Once programming is complete, reconnect thermostat wires and reconfigure system.

Table 1. Alert Codes and Troubleshooting			Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.
Alert Code	Priority	Alert Text	Steps to clear
36	Critical	(Thermostat) The system has been heating for at least 15 minutes, without a demand for heating.	Run the system in diagnostic mode and verify that it matches actual equipment operation. Check for other alarms/codes that may be preventing the system from operating as expected. Step 1: Check all heating equipment to determine cause of heating demand. Step 2: Recycle power. System will clear code when it detects condition has cleared.
37	Critical	(Thermostat) The system has been cooling for at least 15 minutes, without a demand for cooling.	Run the system in diagnostic mode and verify that it matches actual equipment operation. Check for other alarms/codes that may be preventing the system from operating as expected. Step 1: Check all cooling equipment to determine cause of cooling demand. Step 2: Recycle power. System will clear code when it detects condition has cleared.
38	Critical	(Thermostat) The system has not been able to turn on the heating for more than 45 minutes. The system will go offline for 60 minutes and try again.	Run the system in diagnostic mode and verify that it matches actual equipment operation. Check for other alarms/codes that may be preventing the system from operating as expected. Step 1: Check all heating equipment to determine cause. Step 2: Recycle power. System will clear code when it detects condition has cleared.
39	Critical	(Thermostat) The system has not been able to turn on the cooling for more than 45 minutes. The system will go offline for 60 minutes and try again.	Run the system in diagnostic mode and verify that it matches actual equipment operation. Check for other alarms/codes that may be preventing the system from operating as expected. Step 1: Check all cooling equipment to determine cause. Step 2: Recycle power. System will clear code when it detects condition has cleared.
105	Critical	(Thermostat / Furnace / Air Handler / Outdoor Unit) The <i>(Thermostat, furnace, air-handler or outdoor unit)</i> has lost communication with the rest of the system.	Equipment is unable to communicate. This may indicate the existence of other alarms/codes. In most cases errors are related to electrical noise. Make sure high voltage power is separated from RSBus. Check for incorrectly wired and/or loose connections between the Thermostat, indoor unit and outdoor unit. Check for a high voltage source of noise close to the system. Generally, this is a self-recoverable error.
110	Critical	(Furnace) The line voltage is too low.	This alarm/code may appear during a brownout. Line voltage is below its designed operating value. Check and correct the power line voltage.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
111	Critical	(Furnace) The line power voltage wiring is reversed.	The unit is reporting that its power line and neutral are reversed. Turn off the power to the system and correct the line power voltage wiring. System resumes normal operation 5 seconds after fault recovered.
112	Critical	(Furnace) The reporting device cannot find earth ground. The thermostat will shut down the system.	Provide proper earth ground to the equipment. System resumes normal operation 5 seconds after fault recovered.
113	Critical	(Furnace) The line voltage is too high.	Line voltage high (voltage higher than nameplate rating). Provide power voltage within proper range. System resumes normal operation 5 seconds after fault recovered.
114	Critical	(Furnace / Air Handler) There is a frequency/distortion problem with the power to the <i>(furnace or air-handler)</i> .	This alarm/code may indicate transformer overloading. Check the voltage and line power frequency. Check the generator operating frequency, if the system is running on back-up power. Correct voltage and frequency problems. System resumes normal operation 5 seconds after fault recovered.
115	Critical	(Furnace / Air Handler) The 24VAC to the <i>(furnace or air-handler control board)</i> is lower than the required range of 18 to 30VAC.	24-Volt Power Low (Range is 18 to 30 volts). Check and correct voltage. Check for additional power-robbing equipment connected to system. This alarm/code may require the installation of an additional or larger VA transformer.
117	Minor	(Furnace) The reporting unit has poor earth grounding.	Provide proper grounding for the unit. Check for proper earth ground to the system. The alarm/code will clear 30 seconds after it is corrected.
120	Moderate	(Thermostat / Furnace / Air Handler / Outdoor Unit) There is a delay in the <i>(Thermostat, furnace, air-handler or outdoor unit)</i> responding to the system.	Typically, this alarm/code does not cause any issues and will clear on its own. The alarm/code is usually caused by a delay in the outdoor unit responding to the thermostat. Check all wiring connections. Cleared after unresponsive device responds to any inquiry.
124	Critical	(Thermostat / Furnace / Air Handler / Outdoor Unit) The thermostat has lost communication with the <i>(furnace, air-handler or outdoor unit)</i> for more than 3 minutes.	Equipment lost communication with the thermostat. Check the wiring connections, ohm wires and cycle power. The alarm stops all associated HVAC operations and waits for a heartbeat message from the unit that's not communicating. The alarm/fault clears after communication is re-established.
125	Critical	(Thermostat / Furnace / Outdoor Unit) There is a hardware problem on either the <i>(Thermostat, furnace control board, air-handler control board or outdoor unit control board)</i> .	There is a control hardware problem. Replace the control if the problem prevents operation and is persistent. The alarm/fault is cleared 300 seconds after the fault recovers.
126	Critical	(Furnace / Outdoor Unit) There is an internal communication problem with the <i>(furnace control board, air-handler control board or outdoor unit control board)</i> .	There is an internal hardware problem on the control. Typically the control will re-set itself. Replace the control if the problem prevents operation and is persistent. The alarm/fault is cleared 300 seconds after the fault recovers.

Table 1. Alert Codes and Troubleshooting			Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.
Alert Code	Priority	Alert Text	Steps to clear
130	Moderate	(Air Handler) An air-handler configuration jumper is missing.	Configuration jumper(s) missing on control (applicable in non-communicating applications only). Replace the jumper or put wire between terminals on control. Cleared after jumper is connected.
131	Critical	The (<i>Thermostat, furnace, air-handler or outdoor unit</i>) control parameters are corrupted.	Reconfigure the system. Replace the control if heating or cooling is not available.
132	Critical	(Air Handler) The device's control software is corrupted.	Recycle power. If failure re-occurs, replace the control. System reset is required to recover.
180	Critical	(Furnace / Air Handler / Outdoor Unit) The thermostat has found a problem with the (<i>furnace, air-handler or outdoor unit</i>) outdoor sensor.	In normal operation after control recognizes sensors, the alarm will be sent if valid temperature reading is lost. Compare outdoor sensor resistance to temperature/resistance charts in unit installation instructions. Replace sensor pack if necessary. At the beginning of (any) configuration, furnace or air-handler control will detect the presence of the sensor(s). If detected (reading in range), appropriate feature will be set as 'installed' and shown in the 'About' screen. The alarm/fault will clear upon configuration, or sensing normal values.
200	Critical	(Furnace) The furnace roll out limit switch is open.	Correct the cause of roll out trip. Reset roll out switch. Reset power to clear. Test the furnace operation. The alarm/fault clears after the furnace roll out switch is closed.
201	Critical	(Furnace / Air Handler) The system has lost communication with the (<i>furnace or air-handler</i>) indoor blower motor.	Lost communication with indoor blower motor. Possible causes include: power outage, brown-out, motor not powered, loose wiring, condensation on air handler control without cover on breaker. Problem may be on control or motor side. Cleared after communication is restored.
202	Critical	(Furnace / Air Handler) The unit size code for the (<i>furnace or air-handler</i>) and the size of blower motor do not match.	Incorrect appliance unit size code selected. Check for proper configuring under Unit Size Codes for Furnace/Air Handler on configuration guide or in installation instructions. The alarm/fault clears after the correct match is detected following a reset. Remove the thermostat from the system while applying power and reprogramming.
203	Critical	(Furnace / Air Handler) The unit size code for the (<i>furnace or air-handler</i>) has not been selected.	No appliance unit size code selected. Check for proper configuring under: Unit Size Codes for Furnace/Air Handler on configuration guide or in installation instructions. Critical Alert. The alarm/fault clears after the correct match is detected following a reset. Remove the thermostat from the system while applying power and reprogramming.
204	Critical	(Furnace) There is a problem with the furnace gas valve.	Check gas valve operation and wiring. The alarm/fault clears after the issue is corrected.
205	Critical	(Furnace) The furnace gas valve relay contact is closed.	Check wiring on control and gas valve. The alarm/fault clears after the issue is corrected.
206	Critical	(Furnace) The furnace gas valve 2nd stage relay is faulty.	Furnace will operate on 1st stage for the remainder of the heating demand. The alarm/fault will clear after the issue is corrected. If unable to operate 2nd stage, replace control.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
207	Critical	(Furnace) The furnace hot surface igniter is open.	Measure the resistance of hot surface igniter. Replace the it if it is not within the specified range found in IOM. The alarm/fault clears after the issue is corrected.
223	Critical	(Furnace) The furnace low pressure switch is open.	Check pressure (inches w.c.) of low pressure switch closing during a heat call. Measure operating pressure (inches w.c.). Inspect vent and combustion air inducer for correct operation and restriction. The alarm/fault clears after the issue is corrected.
224	Critical	(Furnace) The furnace low pressure switch is stuck closed.	Check operation of low pressure switch to see if it is stuck closed for longer than 150 seconds during a heat call . Measure operating pressure (inches w.c.). Inspect vent and combustion air inducer for correct operation and restriction. The alarm/fault clears after the issue is corrected.
225	Critical	(Furnace) The furnace high pressure switch is failing to close.	Check pressure (inches w.c.) of high pressure switch closing during a heat call. Measure operating pressure (inches w.c.). Inspect vent and combustion air inducer for correct operation and restriction. The alarm/fault clears after the issue is corrected.
226	Critical	(Furnace) The furnace high pressure switch is stuck closed.	Check operation of high pressure switch closing during a heat call. Measure operating pressure (inches w.c.). Inspect vent and combustion air inducer for correct operation and restriction. The alarm/fault clears after the issue is corrected.
227	Moderate	(Furnace) The furnace low pressure switch is open in run mode.	Check pressure (inches w.c.) of low pressure switch closing during a heat call. Measure operating pressure (inches w.c.). Inspect vent and combustion air inducer for correct operation and restriction. The alarm/fault clears after the issue is corrected.
228	Moderate	(Furnace) The furnace control is not able to calibrate the pressure switch.	Unable to perform pressure switch calibration. Check vent system and pressure switch wiring connections. Check the drain trap for blockage. The alarm/fault clears after a successful calibration.
229	Minor	(Furnace) The furnace control has switched to high fire ignition because the low fire pressure switch did not close in the allowed time.	IFC switched to high fire ignition because low fire pressure switch did not close in allowed time. No action is needed.
240	Moderate	(Furnace) The furnace flame current is low.	Check micro-amperes of the flame sensor using thermostat diagnostics. Clean or replace the flame sensor. Measure voltage of neutral to ground to ensure good unit ground. The alarm clears after a proper micro-amp reading has been sensed.
241	Critical	(Furnace) The furnace flame is going out while the furnace is heating.	Shut off gas. Check for a gas valve leak. Replace the gas valve if needed. The alarm/fault will clear when a heat call ends successfully.
250	Moderate	(Furnace) The furnace primary limit switch is open.	Check for proper firing rate on furnace. Ensure there is no blockage in the furnace and the duct work. Check for proper air flow. If limit switch is not closed within 3 minutes, the unit will go into 1-hour Watchguard mode. The alarm/fault will clear when a heat call ends successfully.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
252	Moderate	(Furnace) The furnace discharge air-temperature is high.	Check temperature rise, air flow and input rate. Check for dirty filters. The alarm/fault will clear when a heat call ends successfully.
270	Critical	(Furnace) The furnace is in Watchguard mode. The furnace igniter cannot turn on the flame.	Check for proper gas flow. Ensure that igniter is lighting burner. Check flame sensor current. Check for dirty filters. The alarm/fault will clear on successful ignition.
271	Critical	(Furnace) The furnace is in Watchguard mode. The furnace low pressure switch is open.	Check pressure (inches w.c.) of low pressure switch closing during a heat call. Measure operating pressure (inches w.c.). Inspect vent and combustion air inducer for correct operation and restriction. The alarm/fault will clear on successful ignition.
272	Critical	(Furnace) The furnace is in Watchguard mode. The furnace low pressure switch is open during run mode.	Check operation of low pressure switch to see if it is stuck open during a heat call. Measure operating pressure (inches w.c.). Inspect vent and combustion air inducer for correct operation and restriction. The alarm/fault will clear when a heat call ends successfully.
273	Critical	(Furnace) The furnace is in Watchguard mode. The furnace flame is going off during a heating cycle.	Check micro-amperes of flame sensor using thermostat diagnostics. Clean or replace sensor. Measure voltage of neutral to ground to ensure good unit ground. The alarm/fault will clear when a heat call ends successfully.
274	Critical	(Furnace) The furnace limit switch has been open for more than 3 minutes.	The system will go into Watchguard mode. Check firing rate and air flow. Check for blockage. The alarm/fault will clear when a heat call ends successfully.
275	Critical	(Furnace) The furnace flame is out of sequence.	The system will go into Watchguard mode. Shut off gas. Check for gas valve leak. The alarm/fault will clear on next successful ignition.
276	Critical	(Furnace) The furnace is not able to calibrate or the high pressure switch opened or failed to close in run mode.	The system will go into Watchguard mode. Check vent system and pressure switch wiring connections. The fault/alarm will clear when the furnace calibrates itself successfully.
290	Critical	(Furnace) There is a problem with the furnace ignition circuit.	The system will go into Watchguard mode. Measure resistance of hot surface igniter. Replace the hot surface igniter if it is not within specifications. The alarm/fault will clear on next successful ignition.
291	Critical	(Furnace) The heating airflow is below the minimum required level.	The system will go into Watchguard mode. Check for dirty filters and other air flow restrictions. Check blower performance. The alarm/fault will clear when a heat call ends successfully.
292	Critical	(Furnace / Air Handler) The <i>(furnace or air-handler)</i> indoor blower motor will not start.	The system will go into Watchguard mode. Indoor blower motor unable to start. This could be due to seized bearing, stuck wheel, obstruction etc. Replace motor or wheel if assembly does not operate or meet performance standards. The alarm/fault clears after the indoor blower motor starts successfully.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
294	Critical	(Furnace) There is over current in the furnace inducer motor.	The system will go into Watchguard mode. Check combustion blower bearings, wiring and amps. Replace if does not operate or does not meet performance standards. The alarm/fault clears after inducer current is sensed to be in-range after the ignition following the Watchguard mode or reset.
295	Minor	(Furnace) The indoor blower motor is over heating.	Indoor blower motor over temperature (motor tripped on internal protector). Check motor bearings and amps. Replace if necessary. The alarm/fault clears after blower demand is satisfied.
310	Critical	(Furnace / Air Handler) There is a problem with (furnace or air-handler) discharge air sensor.	Compare outdoor sensor resistance to temperature/resistance charts in installation instructions. Replace sensor if necessary. The alarm/fault is cleared 30 seconds after fault is detected as recovered.
311	Minor	(Furnace) The heat firing rate has been reduced to match available airflow (cutback mode).	Warning Only. Furnace blower in cutback mode due to restricted airflow. Reduce firing rate every 60 seconds to match available CFM. Check filter and duct system. To clear, replace filter if needed or repair/add duct. 2-stage controls will reduce firing rate to 1st stage. The alarm/fault clears when a heat call finishes successfully.
312	Minor	(Furnace / Air Handler) The blower cannot provide the requested CFM due to high static.	Warning Only. Restricted airflow - Indoor blower is running at a reduced CFM (Cutback Mode - The variable speed motor has pre-set speed and torque limiters to protect the motor from damage caused by operating outside of design parameters (0 to 0.8" e.g., total external static pressure). Check filter and duct system. To clear, replace filter if needed or repair/add duct. The alarm/fault is cleared after the current service demand is satisfied.
313	Minor	(Furnace / Air Handler) The indoor and outdoor unit capacities do not match.	Check for proper configuring in installation instructions. Alarm is just a warning. The system will operate, but might not meet efficiency and capacity parameters. The alarm will clear after commissioning is complete.
344	Critical	(Furnace) Relay Y1 Failure	Y1 relay failed; operation stopped. Alarm clears 300 seconds after Y1 input sensed OFF.
345	Critical	(Air Handler / Heat Pump) The "O" relay on the air-handler has failed. Either the pilot relay contacts did not close or the relay coil did not energize.	O relay / Stage 1 failed. Pilot relay contacts did not close or the relay coil did not energize. Replace control. Cleared after the fault recovered following reset.
346	Critical	(Air Handler) The heat pump jumper was not removed on the air-handler control board.	Configuration link(s) not removed on control. Cut O-R. Applicable with non communicating outdoor unit with communicating indoor system.
347	Critical	(Furnace / Air Handler) The "Y1" relay on the (furnace or air-handler) has failed. Either the pilot relay contacts did not close or the relay coil did not energize.	Operation stopped. Y1 relay / Stage 1 failed. (Pilot relay contacts did not close or the relay coil did not energize; no input back to IFC chip). Critical Alert. Cleared after reset and Y1 input sensed.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
348	Critical	(Furnace / Air Handler) The “Y2” relay on the (furnace or air-handler) has failed. Either the pilot relay contacts did not close or the relay coil did not energize.	Y2 relay / Stage 2 failed. (Pilot relay contacts did not close or the relay coil did not energize; no input back to IFC chip). Critical Alert. Cleared after reset and Y1 input sensed.
349	Critical	(Furnace) The “O” to “R” jumper on the furnace needs to be restored.	Configuration link R to O needs to be restored. Replace link or hard-wire. Applicable in non communicating mode. Critical Alert.
350	Critical	(Air Handler) The air-handler’s electric heat is not configured.	Heat call with no configured or incorrectly configured electric heat. Check for proper configuring under Configuring Electric Heat Stages in the air handler installation instructions. Cleared after electrical heat detection is successful.
351	Critical	(Air Handler) There is a problem with the air-handler’s 1st stage electric heat. Either the pilot relay contacts did not close, or the relay coil in the electric heat section did not energize.	Heat section / Stage 1 failed. (Pilot relay contacts did not close, or the relay coil in the electric heat section did not energize.) Air handler will operate on 1st stage for remainder of the heat call. Will clear after fault recovered.
352	Critical	(Air Handler) There is a problem with the air-handler’s 2nd stage electric heat. Either the pilot relay contacts did not close, or the relay coil in the electric heat section did not energize. The air-handler will operate on 1st stage electric heat until the issue is resolved.	Heat section / Stage 2 failed (Same as Code 351).
353	Critical	(Air Handler) There is a problem with the air-handler’s 3rd stage electric heat. Either the pilot relay contacts did not close, or the relay coil in the electric heat section did not energize. The air-handler will operate on 1st stage electric heat until the issue is resolved.	Heat section / Stage 3 failed (Same as Code 351).
354	Critical	(Air Handler) There is a problem with the air-handler’s 4th stage electric heat. Either the pilot relay contacts did not close, or the relay coil in the electric heat section did not energize. The air-handler will operate on 1st stage electric heat until the issue is resolved.	Heat section / Stage 4 failed (Same as Code 351).

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
355	Critical	(Air Handler) There is a problem with the air-handler's 5th stage electric heat. Either the pilot relay contacts did not close, or the relay coil in the electric heat section did not energize. The air-handler will operate on 1st stage electric heat until the issue is resolved.	Heat section / Stage 5 failed (Same as Code 351).
370	Critical	(Furnace) The furnace control has not received 24VAC power for 2 minutes or more.	Control sees the loss of 24VAC for 2 minutes . Terminate all services and wait for interlock switch to close. The alarm will clear when 24VAC is continuously sensed on DS terminal for a minimum of 10 seconds or on a power reset. If 2 stage with float switch, the IFC control R-DS is open.
400	Critical	(Outdoor Unit) The compressor internal overload has tripped.	Thermostat demand Y1 is present; but, compressor is not running. Check power to unit. Clears the error after current is sensed in both RUN and START sensors for at least 2 seconds, or after service is removed, or after power reset.
401	Moderate	(Outdoor Unit) Either the compressor ran for more than 18 hours continuously trying to cool the home or the refrigerant pressure in the system is low.	Compressor ran more than 18 hours to satisfy a single thermostat demand. Will not lock-out system. If 2 stage, units with blinking LED light controls, unit will run in low speed; units with 7-segment display will display code, but continue to run in high speed. If a Heat Pump, and if outdoor temp is less than 65 degrees, code is ignored. Clears the error after 30 consecutive normal run cycles or power reset. Also monitors low pressure switch trips.
402	Critical	(Outdoor Unit) Either the discharge or suction pressure level is out-of-limits, or the is compressor overloaded.	Discharge or suction pressure out-of-limits, or compressor overloaded. Clears the error after 4 consecutive normal compressor run cycles.
403	Moderate	(Outdoor Unit) The compressor ran for less than 3 minutes to satisfy a thermostat demand.	Compressor runs less than 3 minutes to satisfy a thermostat demand. Clears the error after 4 consecutive normal run cycles or power reset.
404	Critical	(Outdoor Unit) The compressor rotor is locked up. This could be due to a short circuiting of the run capacitor, seizing of the bearings or excessive liquid refrigerant etc.	Compressor rotor locked up due to run capacitor short, bearings are seized, excessive liquid refrigerant, etc. (NOTE: May need to install hard start kit). Clears the error after 4 consecutive normal run cycles or after power reset.
405	Critical	(Outdoor Unit) The compressor circuit is open. This could be due to a power disconnection, open fuse etc.	Compressor circuit open (due to power disconnection, open fuse, etc.) Clears the error after 1 normal compressor run cycle.
406	Critical	(Outdoor Unit) The required amount of current is not passing through the start current transformer.	Required amount of current is not passing through Start current transformer. Clears the error after current is sensed in START sensor, or after power reset.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
407	Critical	(Outdoor Unit) The required amount of current is not passing through run current transformer.	Required amount of current is not passing through Run current transformer. Clears the error after current is sensed in RUN sensor, or 1 normal compressor run cycle, or after power reset
408	Critical	(Outdoor Unit) The compressor is running continuously.	Compressor runs continuously. Clears the error after 1 normal compressor run cycle or after power reset.
409	Moderate	(Furnace / Air Handler / Outdoor Unit) The secondary voltage for the (<i>furnace, air-handler or outdoor unit</i>) has fallen below 18VAC. If this continues for 10 minutes, the thermostat will turn off the (<i>furnace, air-handler or outdoor unit</i>).	Secondary voltage is below 18VAC. After 10 minutes, operation is discontinued. Clears the code after voltage is higher than 20 VAC for 2 seconds or after power reset.
410	Moderate	(Outdoor Unit) The outdoor unit pressure is below the required limit.	Unit pressures are below the lower limit. Pressure switch opens at 40 psig (system shuts down) and closes at 90 psig (system restarts).
411	Critical	(Outdoor Unit) The low pressure switch has opened 5 times during one cooling cycle. As a result, the thermostat has shutdown the outdoor unit.	Open low pressure switch error count reached 5 strikes. Check system charge using approach and sub cooling temperatures. Reset by putting outdoor unit control in test mode or resetting low voltage power.
412	Moderate	(Outdoor Unit) The outdoor unit pressure is above the required limit. The system will shut down.	Unit pressure is above the upper limit. System is shut down. The high pressure switch for HFC-410A will open at 590PSIG and close at 418PSIG. Confirm that the system is properly charged with refrigerant. Check condenser fan motor, TXV, indoor unit blower motor, stuck reversing valve or clogged refrigerant filter. Confirm that the outdoor unit is clean. The alarm clears after the pressure switch closes or a power reset
413	Critical	(Outdoor Unit) The high pressure switch has opened 5 times during one cooling cycle. As a result, the thermostat has shutdown the outdoor unit.	Open high pressure switch error count reached 5 strikes. Check system charge using approach and sub cooling temperatures. Check outdoor fan operation. Check for dirt or debris blocking air flow to outdoor unit. Reset by putting outdoor unit control in test mode or resetting low voltage power.
414	Critical	(Outdoor Unit) The discharge line temperature is higher than the recommended upper limit of 279°F.	Discharge line temperature is > 279°F. Make sure coil is clean and airflow unobstructed in and out of condenser. Check system operating pressures and compare to unit charging charts in installation manual. Clears after discharge temperature is < 225°F.
415	Critical	(Outdoor Unit) The discharge line temperature has been consistently higher than the recommended upper limit of 279°F.	Discharge line high temperature error count reached 5 strikes. Make sure coil is clean and airflow unobstructed in and out of condenser. Check system charge using approach and sub cooling temperatures. Reset by putting outdoor board in test mode or resetting low voltage power.

Table 1. Alert Codes and Troubleshooting

Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
416	Critical	(Outdoor Unit) The outdoor coil sensor is either open, short-circuited or the temperature is out of sensor range. As a result the outdoor unit control will not perform any defrost tempering.	Sensor being detected open or shorted, or temperature is out of sensor range. Outdoor unit control will not perform demand or time/temperature defrost operation. (System will still heat or cool.) Clears when outdoor unit control detects proper sensor readings.
417	Critical	(Outdoor Unit) The outdoor unit sensor is either open, short-circuited or the temperature is out of sensor range. As a result the outdoor unit control will not perform any defrost tempering.	Outdoor unit control detects open or shorted sensor, or temperature that is out of sensor range. Critical Alert after 10 minutes. Reset by replacing sensor. This fault is detected by allowing the unit to run for 90 seconds before checking sensor resistance. If the sensor resistance is not within range after 90 seconds, the board will count one fault. After 5 faults, the board will lock out. Check for proper sensor reading and attachment to line. Replace if out-of-specifications.
418	Moderate	(Outdoor Unit) There is a faulty "W" output circuit.	Faulty W output circuit.
419	Critical	(Outdoor Unit) The "W" output on the outdoor unit has reported more than 5 errors. As a result, the system has shutdown the outdoor unit.	W output hardware fault count reached 5 strikes.
420	Critical	(Outdoor Unit) The "W" output terminal on the outdoor unit is not wired correctly	Defrost cycle lasts longer than 20 minutes. Check heat pump operation. Cleared when W1 signal is removed. Applicable only in communicating mode with non-communicating heat pump.
421	Critical	(Air Handler). The heat pump defrost cycle has taken more than 20 minutes to complete.	Voltage sensed on W output terminal when Y1 out is deactivated.
700	Moderate	(Thermostat) The temperature sensor in the thermostat is not working properly.	Recalibrate thermostat to clear. Replace thermostat if needed.
701	Moderate	(Thermostat) The thermostat is reading indoor temperatures above the pre-programmed limit.	Recalibrate thermostat to clear; cool thermostat; adjust setpoint. Replace thermostat, if needed.
702	Moderate	(Thermostat) The thermostat is reading indoor temperatures below the pre-programmed limit.	Recalibrate thermostat to clear; warm thermostat; adjust setpoint. Replace thermostat, if needed.
703	Moderate	(Thermostat) The humidity sensor in the thermostat is not working properly.	Recalibrate thermostat to clear; adjust setpoint. Replace thermostat, if needed.

Table 1. Alert Codes and Troubleshooting

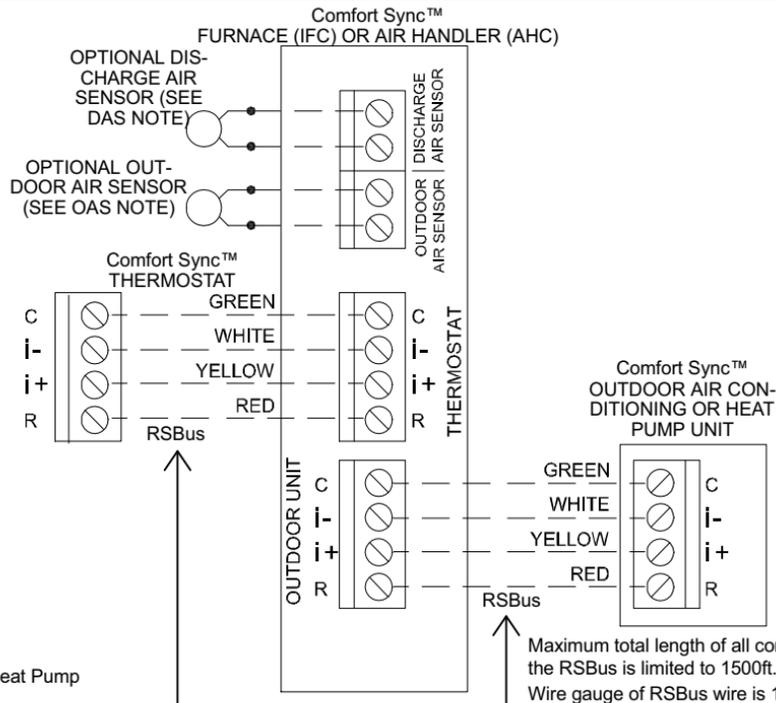
Critical alerts are displayed on Home (user) screen, in the Homeowner alert button, and in the Installer alert button. Minor and Moderate alerts are found only in the Installer alert button.

Alert Code	Priority	Alert Text	Steps to clear
704	Moderate	(Thermostat) The thermostat is reading indoor humidity levels above the pre-programmed limit.	Recalibrate thermostat to clear. Replace thermostat, if needed.
705	Moderate	(Thermostat) The thermostat is reading indoor humidity levels below the pre-programmed limit.	Recalibrate thermostat to clear. Replace thermostat, if needed.
Ohm Check	—	The ohm reading in the system is either too high or too low.	Ohm reading between i+ and i- anywhere on the RSBus with supply power off should be between 70 and 90 ohms. If above 90 ohms, check and repair wiring, splices or other wiring defects that may be causing the excessive resistance. If less than 70 ohms, check for shorted wires.

Comfort Sync™ Communicating System Wiring

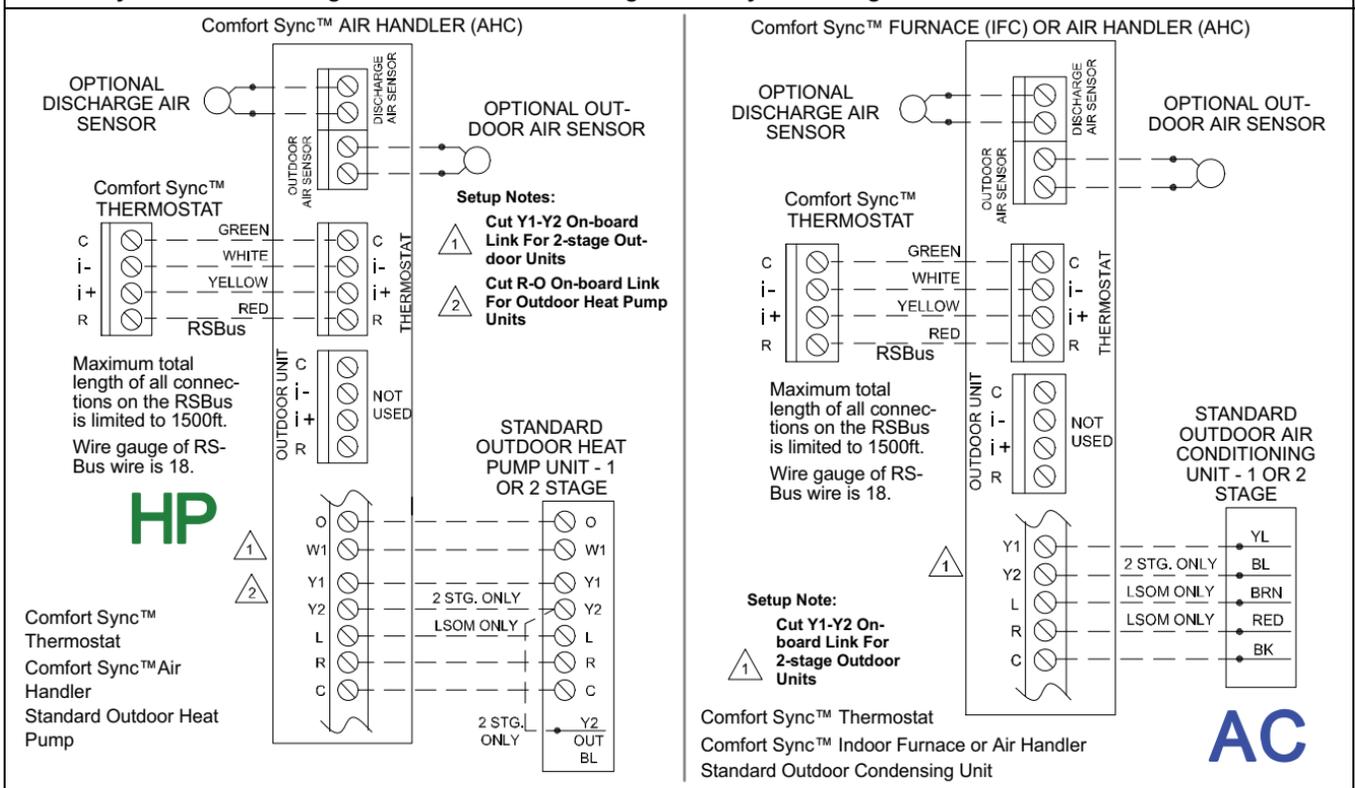
DAS NOTE - The discharge air sensor is intended to be mounted downstream of the furnace heat exchanger and air conditioning coil. It must be placed in free airflow, where other accessories (such as humidifiers, UV lights, etc.) will not interfere with its accuracy. Wiring distance between the IFC or AHC and the discharge air sensor should not exceed 10ft when wired with 18-gauge thermostat wire.

OAS NOTE - Wiring distance between the IFC or AHC and the outdoor temperature sensor should not exceed 200ft when wired with 18-gauge thermostat wire.



- Comfort Sync™ Thermostat
- Comfort Sync™ Indoor Furnace or Air Handler
- Comfort Sync™ Outdoor Condensing Unit or Heat Pump

Comfort Sync™ Communicating Indoor / Non-Communicating Outdoor System Wiring

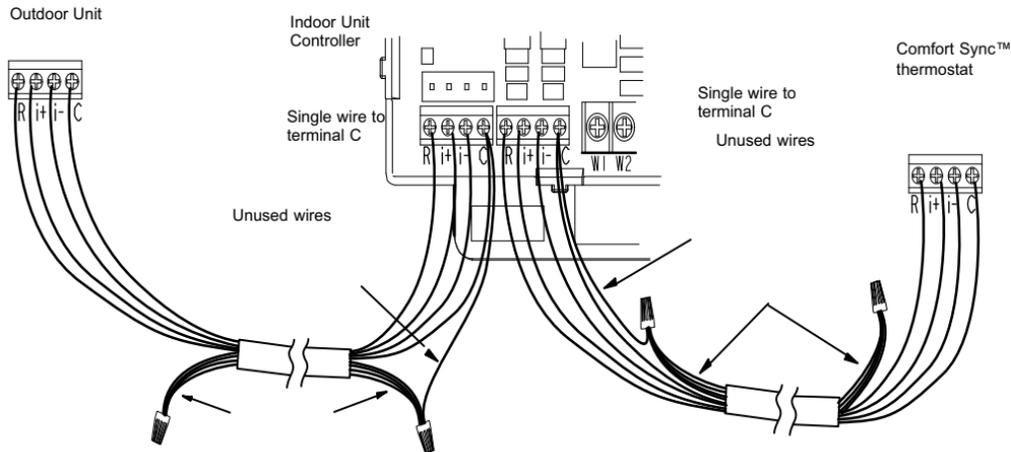


Thermostat Wire Termination in Communicating System

RSBus

Minimum wire size is 18 gauge

Note: Comfort Sync™ thermostat does not require shielded cable wiring.



BEST PRACTICES! Keep all communication wiring as far away from house electrical wiring and large electrical appliances as possible (15' [5m] recommended).

Maximum total length of all connections on the RSBus is limited to 1500 ft. (450 m). Max. length between components is 300 ft. (90 m).

Communicating systems using the Comfort Sync™ thermostat require four thermostat wires between the thermostat and the furnace/air handler control and four wires between the outdoor unit and the furnace/air handler control. When a thermostat cable with more than four wires is used, the extra wires must be properly connected to avoid electrical noise. The wires must not be left disconnected.

Use wire nuts to bundle the unused wires at each end of the cable. A single wire should then be connected to the indoor unit end of the wire bundle and attached to the "C" terminals as shown in the diagram above.

This is not an issue in non-communicating systems.

Using the Secure Web Portal

Access all the great Wi-Fi enabled features on your Comfort Sync™ thermostat from our secure web portal.

www.mycomfortsync.com

After signing in, you'll be able to view your Comfort Sync™ system settings, adjust the temperature and view reminders and alerts – just as you would on your Comfort Sync™ thermostat at home. With a familiar look and settings this simple, you should feel right at home. Don't forget to check out the available Apps.

From the web portal welcome page, you may also click on links to launch an interactive demo or learn more about Comfort Sync™.

Screen-Saver

HOW DO I TURN ON SCREEN-SAVER

1. From the thermostat **Home** screen, press **Ⓧ**.
2. Press the **display setting** button.
3. Press the **screen saver** button.
4. From the pop-up menu, select **on** for the screen-saver.
 - When set to **off**, the screen stays on.
 - When set to **on**, after 30 seconds of inactivity the screen will go blank

Accessing Installer Screens and Changing Equipment Parameters

To access the installer screens after the unit has been placed in operation and the user home screen is displayed, touch the Allied logo and hold for 5 seconds. The system will access the installer screens.

A message screen stating “Qualified equipment installer warning” screen appears.

1. When pressing **yes**, the thermostat will search for communicating devices in the system.
2. When pressing **no**, the thermostat returns to the main screen.
3. When pressing **reset**, the thermostat resets all parameters to factory default, searches for communicating equipment and erases all information concerning non-communicating equipment previously stored in the thermostat.

After initial installation, if an alert is present when you are making changes to settings, no action on the alert is mandatory.

Press **equipment** if you need to set up equipment parameters and edit details of devices in the system.

Press **diagnostics** if you need to analyze the system (see page 12).

If any component of the HVAC system has been changed, e.g. replacing an outdoor sensor, reconfiguring the system will be required. To begin reconfiguring a system (after you have accessed the program from the Allied logo [previous page]), touch the **setup** button. The “Start system

configuration” screen will appear. Press **start** to proceed. The “Re-configure confirmation” screen will appear. This reminder notes that *system configuration* may affect some existing device settings and prompts to **confirm** or **cancel** the configuration process.

Press **confirm** to continue system configuration; the screen will change to the system discovery screen. At this point, the program goes through the same setup as the initial setup process which begins on page 3.

NOTE - “Compatible device found” screen (shown below) appears only when a device has been removed and replaced with a compatible device.

Missing	Found Compatible
Device Equipment Type No.	Device Equipment Type No.
Model No. (control model no.)	Model No. (control model no.)
Serial No. (control serial no.)	Serial No. (control serial no.)
Settings were not copied	

ADJUSTING EQUIPMENT PARAMETERS AFTER INITIAL INSTALLER SETUP

1. From the **Home Screen**, touch and hold **Allied** until the warning screen appears. Press **yes** to continue.
2. Press **equipment** to change equipment parameters and edit details of devices in the system without having to re-run the setup program.
3. Select the **equipment** button to continue. The **system devices** screen will open. Use the arrows to select a device and touch **edit**.
4. Use the arrows to highlight a setting and then touch **edit**.
5. When finished, touch **back**; equipment parameters screen then touch **next**. “Select tests to run screen appears”; either run tests as before or touch **skip tests**.