

Infinity/Evolution Controls Training Day 2



Instructor
Joe Sutterfield



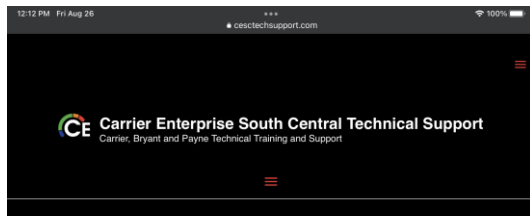
Co-Host
Richard Gambaro



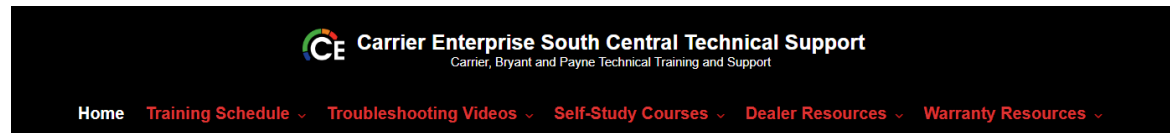
NEW for Fall 2022

cesctechsupport.com

Tablet View



Desktop View



Mobile View



NEW Training Website for Fall 2022
[Click Here for FAQ's](#)

WELCOME TO CARRIER ENTERPRISE'S
TECHNICAL SUPPORT SITE



Welcome to Carrier Enterprise's Technical site, built by HVAC tech's for HVAC tech's. Our goal is to help today's HVAC Technician gain a better understanding in installation, operation and servicing of the Carrier, Bryant, and Payne equipment. As products continue to be enhanced with improvements and technology advancements that are incorporated into the equipment.

We start by providing first class instruction to each technician that attends our training. Our goal is to enhance each technician's knowledge level in HVAC fundamentals, as well as in the areas of Carrier, Bryant and Payne equipment. As a result, installation and troubleshooting efficiency will increase, leading to an increase in your technician's profitability. Whether it is in our training rooms or utilizing our new virtual web classroom, your technicians will receive an education that is second to none.

All In-person, Zoom & Self-Study technical training courses are eligible for NATE



Need a Carrier manual? Click here!

Need a Bryant manual? Click here!

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WELCOME TO CARRIER
ENTERPRISE'S TECHNICAL
SUPPORT SITE



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Our NEW website is designed for Technicians by Technicians

Within the site you will find the following:

- ALL training classes for the upcoming seasons — you can subscribe to the calendar, so you have it at your fingertips.
- Self-Study courses — courses you can take at your own pace.
- Field reporting forms — (more coming soon)
 - Infinity/Evolution communication troubleshooting
 - Refrigerant leak reporting
 - Site visit request
 - DOA compressor
 - System Analyzer



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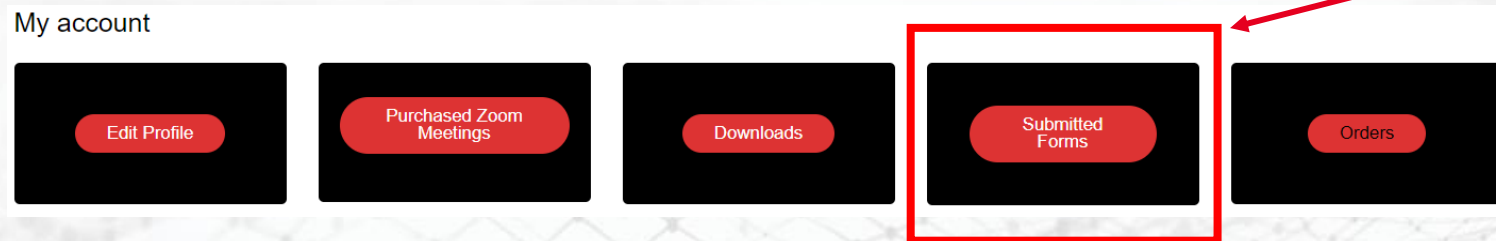
- Dealer Service Bulletins
- Service Manuals
- OVER 50 troubleshooting and service videos such as:
 - Fault code troubleshooting
 - ECM motor troubleshooting
 - Clocking gas meters
 - EcoBlue motor setup
 - Ductless diagnostics



NEW for Fall 2022

cesctechsupport.com

- Each user will require their own login and password and it's easy to set up
- All training registration, self-study courses, classes and class tests will now be through the new site
- All the previous Google help links are slowly going away as we add them to this site
 - If you go to the Google help links, you will be redirected to the new site if the form is ready for use on the new site.
- You will be able to see all forms that you have submitted all in one place under “My Account”



NEW for Fall 2022

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While logged into your account you also have access to:

- ALL the forms you have previously submitted
- ALL your courses/classes attended or purchased, and the content associated with each course or class

Please give us feedback on anything you would like to see on the site

In the upper right-hand corner once logged in, there is a “contact us” button:

- We value your feedback and any/all suggestions you can throw our way

Helpful Mobile Apps

Carrier® Bryant® & CE Mobile Apps



CE - HVAC Contractor Assist 17+
Watsco, Inc.
★★★★★ 4.6, 212 Ratings
Free



Carrier Enterprise HVAC Assist
Watsco, Inc. Productivity ★★★★★ 323
Everyone
You don't have any devices.
[Add to Wishlist](#) [Install](#)



One App for Service



One App for Service

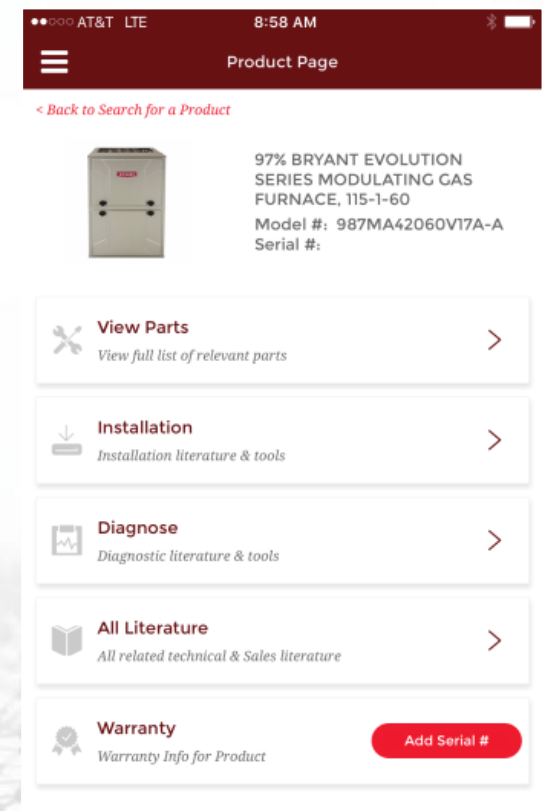
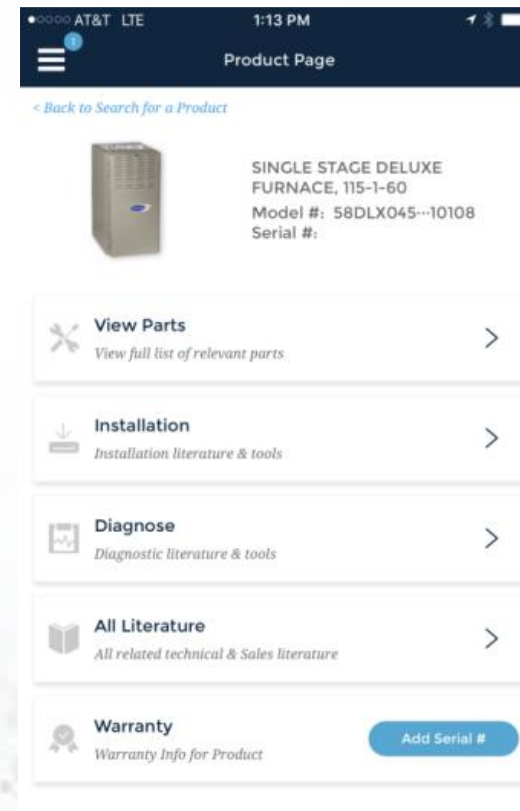


Available on all Apple® & Android® Phone and Tablet Devices

Carrier/Bryant Service Technician Apps – One Page Summary



- Barcode scanning of unit's serial or model number
- Literature list for models and ability to search all available literature
- Product Catalog model lookup
- Bill of Material parts list including part supersession
- Warranty entitlement & service history
- Aftermarket components cross reference tool
- Distributor store locator
- Tech Tips videos for installation guides, troubleshooting help and best practices
- Instant authentication with support for fingerprint and facial recognition on compatible devices
- Interactive Troubleshooting tool



USING HVAC CONTRACTOR ASSIST MOBILE APP



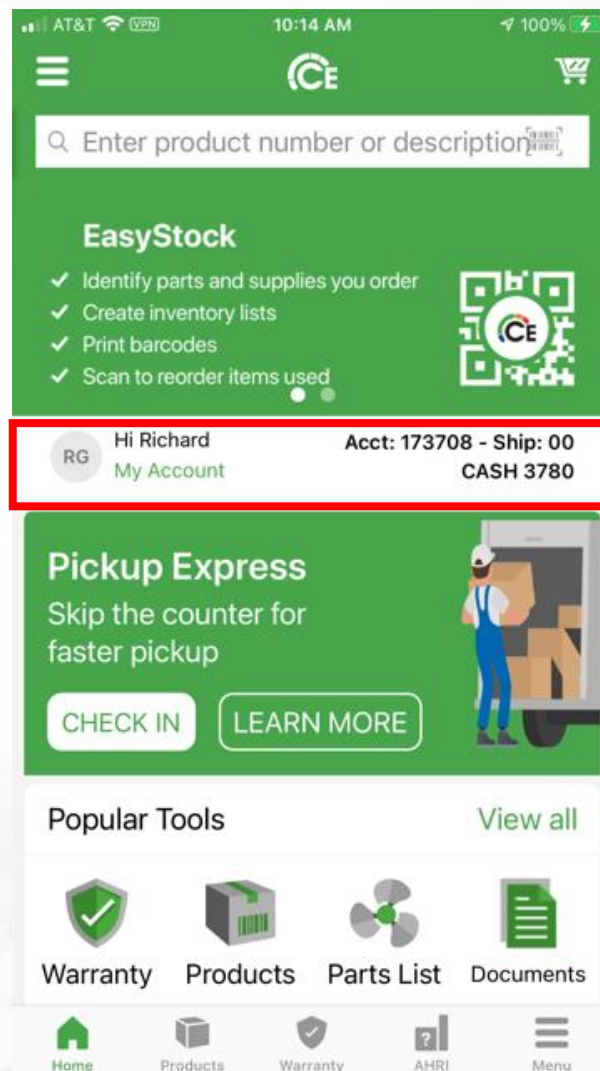
Wingman Tech Support Assistance

Wingman Tech Support Assistance



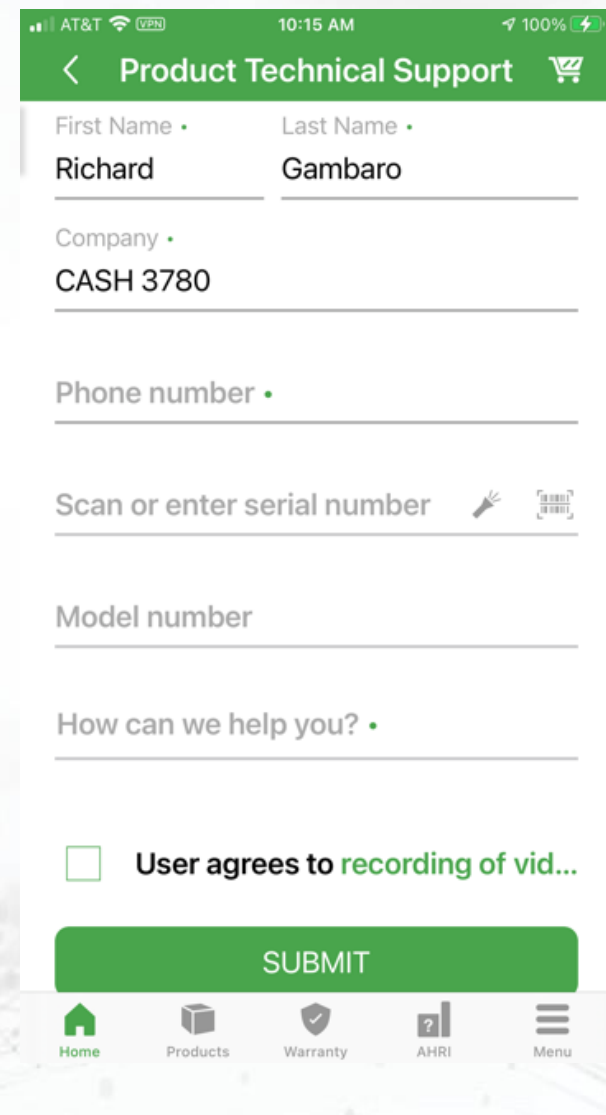
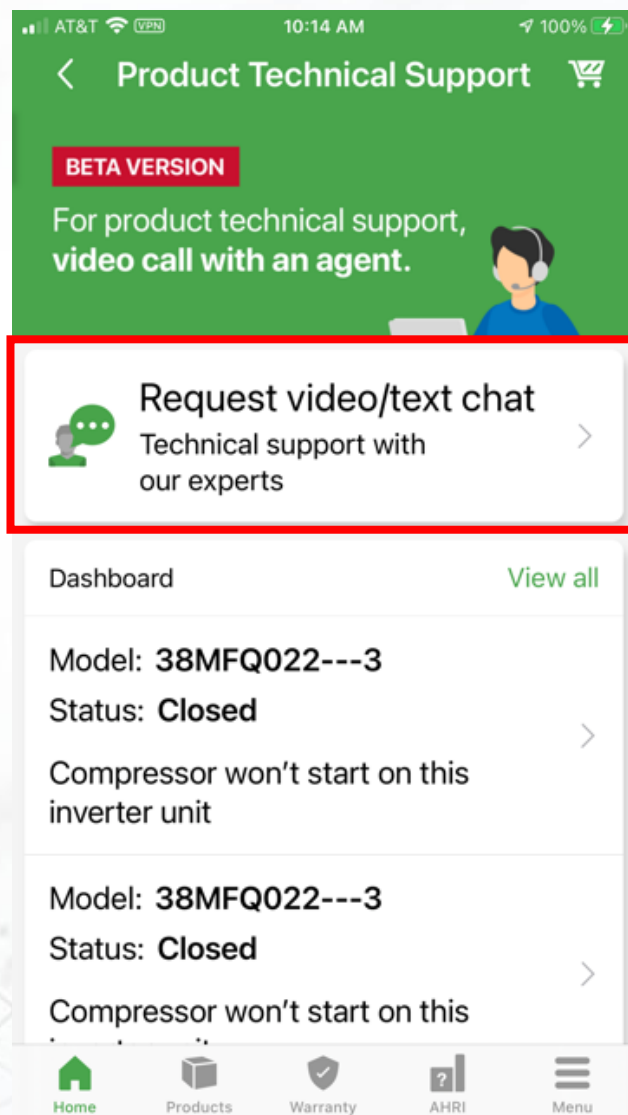
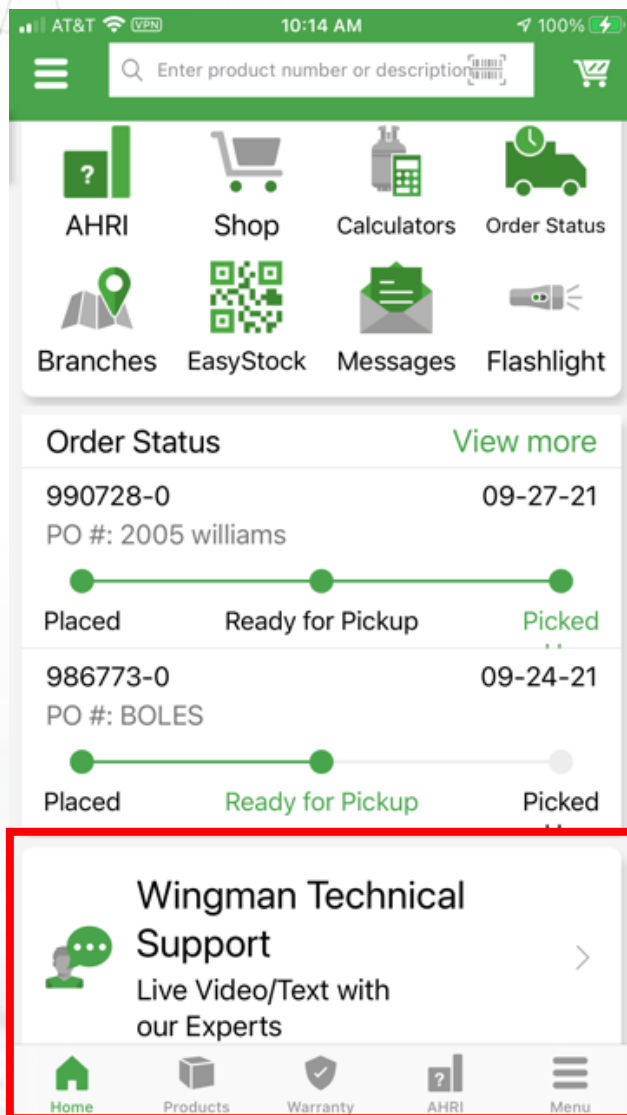
CE - HVAC Contractor Assist 17+
Watsco, Inc.
★★★★★ 4.6, 212 Ratings
Free

You will need the CE app installed on your phone or tablet and you must be logged into your account. (If you have questions on how to get a login, please contact your salesman for assistance)



Available on all Apple® & Android® Phone and Tablet Devices

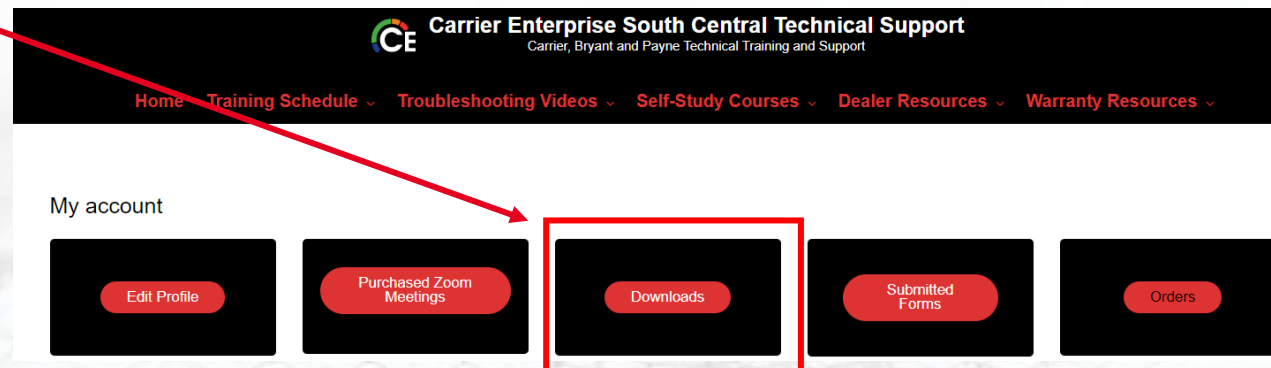
Wingman Tech Support Assistance



Important Changes

1. NATE credits should be posted within 5 business days from the end of the second day of training. We cannot tell you when NATE will post the credits to their site though.
2. All certificates can be located under “My Account” within the cesctechsupport.com website for webinar-based training.
3. There is a final quiz at the end of day 2 which you must pass with a minimum grade of 75. If you fail to pass the test you may re-take the exam one time. Failure to pass the exam the second time will require you to re-take the training.
4. All webinar based downloadable material can also be found under “My Account” >

“Downloads”





DAY 2 FINAL TEST

A passing grade of 75 is required in order to receive credit for the class.

If you fail to pass the test the first time you may re-take the test again but if you do not pass the test the second time you will be required to retake the course again.

The link for the test will be at the end of each day's presentation and you **WILL BE REQUIRED** to login into your cesctechsupport.com account.

If you do not have an account with CE use account number 991122.



Rest Room Breaks



Go When You Gotta Go! Just Hurry Back.
Cause We Ain't Waitin!

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Instructor
Joe Sutterfield



Co-Host
Richard Gambaro



Infinity/Evolution Controls Day 2



-B Controller



turn to the experts™

Infinity® Touch
User Interface



-C Controller



Heating & Cooling Systems

EVOLUTION® CONNEX™
User Interface

Configuration



Home Display Screen



Main Display Screen



System Mode



Service Setup



Second Menu Display Screen



Installation & Service



Setup



Thermostat – Setup



Thermostat – Auto Mode And Deadband







- Enable/Disable Auto mode
- 5 through 120 minutes changeover time
- Deadband = 0° F to 6° F in 1° increments
- 2° F minimum difference between heating and cooling setpoint temperatures




Thermostat – Offsets And Reset

- Temperature Offsets
 - -5° F to +5° F, 1° F increments
- Humidity Offset
 - -10% to +10%, 1% increments


set desired offsets

OUTDOOR TEMP	HUMIDITY
+5°	-10 %
	
	
cancel	save



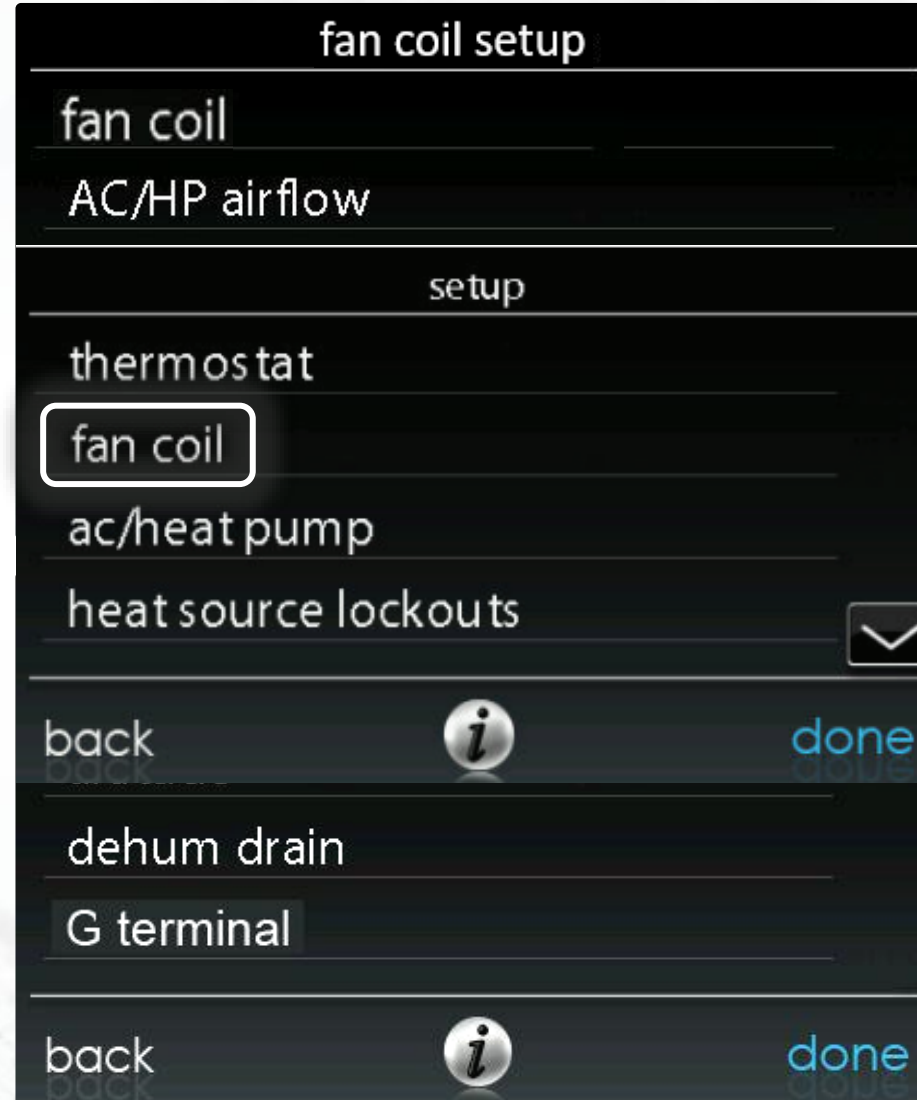
reset factory defaults for

PROGRAM SCHEDULE	USER SETTINGS	INSTALL SETTINGS	LAST 10 FAULTS
yes	yes	yes	yes
no	no	no	no
cancel	save		



Set Up Fan Coil

- Fan Coil Airflow Limits
 - Comfort or Efficiency
- Elect. Heat Staging
- Air Conditioning & Heat Pump Cooling Airflow
 - Comfort, EFF325, EFF350, Maximum, and Quiet
- Heat Pump Heating Airflow
 - Comfort, EFF325, EFF350, and Maximum
- Dehumidification Airflow
 - High and Normal



fan coil setup

fan coil

AC/HP airflow

setup

thermostat

fan coil

ac/heat pump

heat source lockouts

back

i

done

dehum drain

G terminal

back

i

done

Set Up Furnace

- Furnace Airflow
 - Comfort or Efficiency
- Low Heat Rise ON/OFF
- Air Conditioning & Heat Pump Cooling Airflow
 - Comfort, EFF325, EFF350, Maximum, and Quiet
- Heat Pump Heating Airflow
 - Comfort, EFF325, EFF350, and Maximum
- Dehumidification Airflow
 - High and Normal

furnace set up

furnace airflow

AC/HP airflow

setup

thermostat

furnace

ac/heat pump

heat source lockouts

back

i

done

altitude

dehum drain

G terminal

back

i

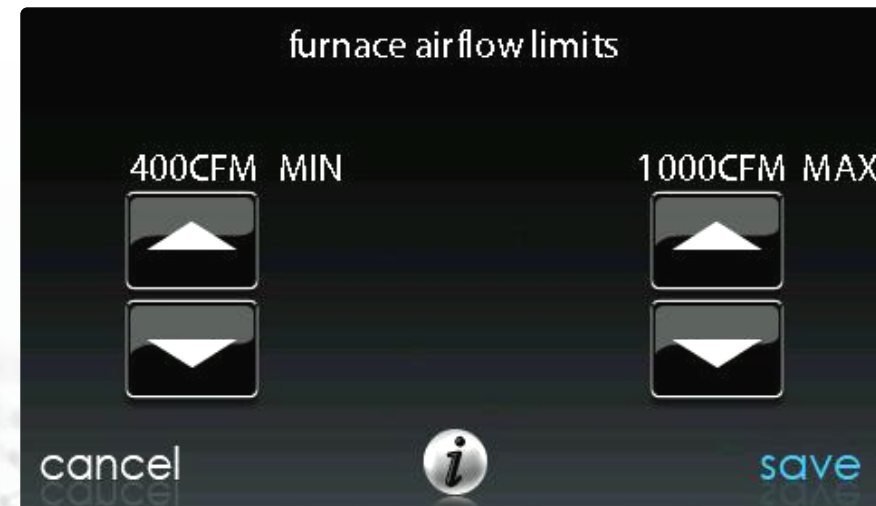
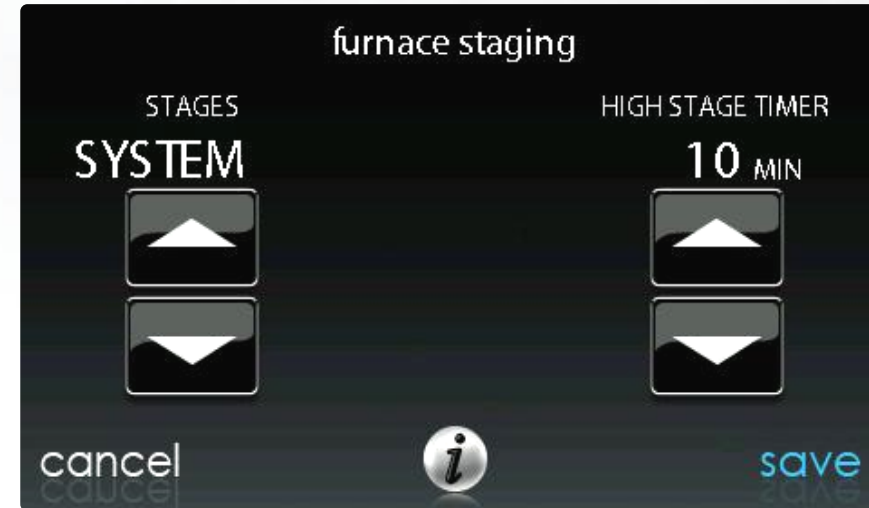
done

Airflows



Furnace Staging

- Staging
 - Low, *Low-Medium, *Low-High, Medium, *Medium-High, High, Furnace, and System
- Airflow Limits*
 - *MIN - . Modulating limits increase minimum capacity
 - *MAX – Modulating limits decrease maximum capacity
- Off Delay
 - 90, 120, 150, and 180 seconds
- Altitude
 - Installed elevation
- Dehum Drain
 - Fan OFF at end of cooling (Continuous Fan Application)

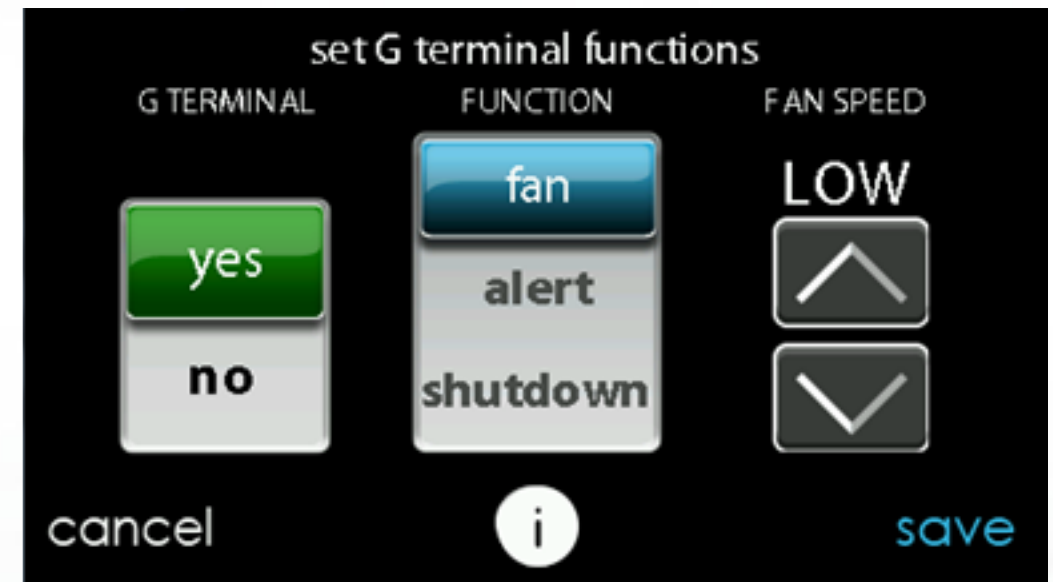


* These only apply to modulating furnaces

“G” Terminal

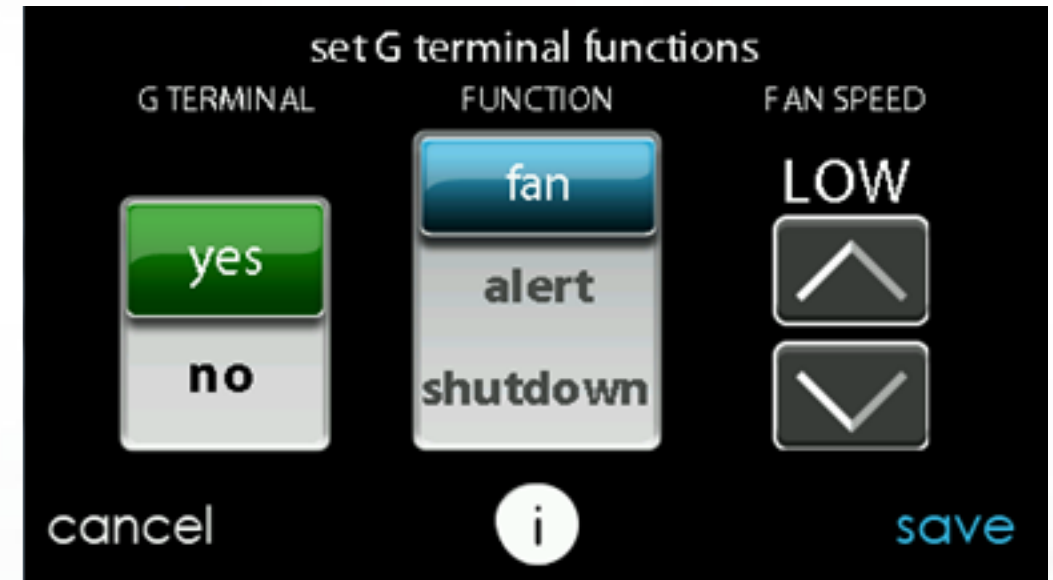
The detailed instructions on how to perform the task of turning on the “G” option is in the User Interface Installation Manual.

You can only use the “G” fan function for the fresh air.



“G” Terminal

- G Terminal (Furnace and Fan Coil)
 - Switch or relay between “R” and “G” terminal
- Fan Speed
 - Low
 - Medium
 - High

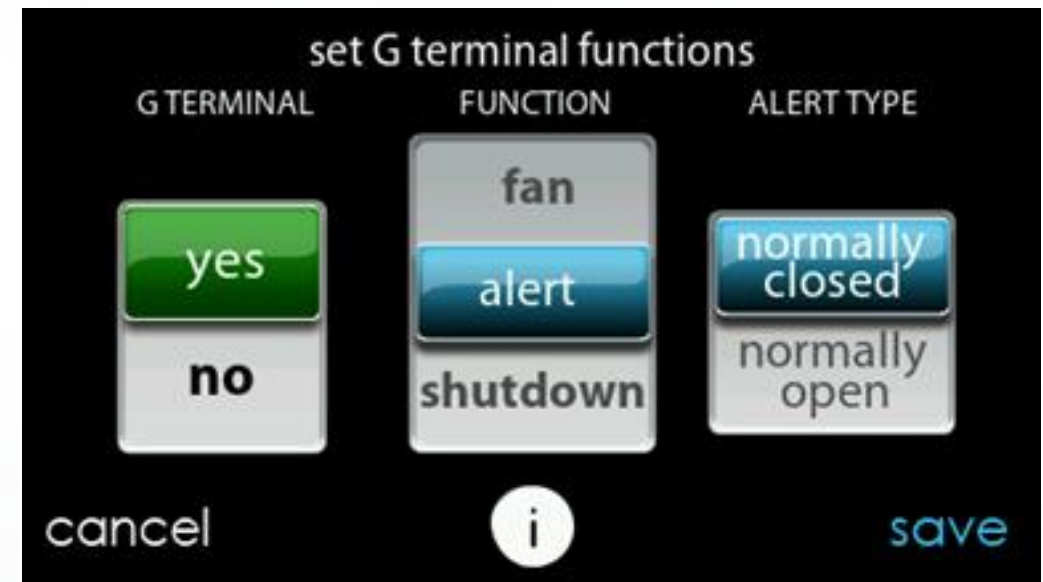


“G” Terminal

The detailed instructions on how to perform the task of turning on the “G” option is in the User Interface Installation Manual.

Use the alert function to select the contact state for an alert.

Select Normally Open or Normally Closed, and then save your selection.



“G” Terminal

The detailed instructions on how to perform the task of turning on the “G” option is in the User Interface Installation Manual.

Once the G Terminal Alert label has been entered, it is shown both on the main screen and in the notification email when the alert becomes active. You can edit the message in these boxes.

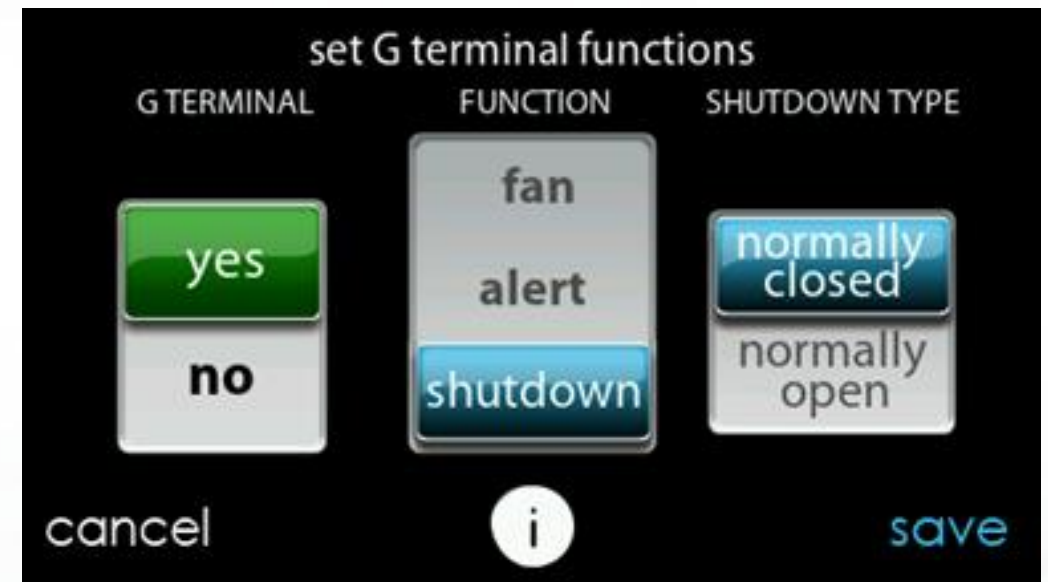


The screenshot shows a configuration screen for the GTerminal Alert label. At the top, the title "GTerminal Alertlabel" is displayed. Below it, the text "message to display:" is followed by three input fields. The first field contains the text "AUXILIARY", the second field contains "INPUT (G)", and the third field contains "ALERT". At the bottom of the screen, there are three buttons: "cancel" on the left, an information icon (a lowercase 'i' inside a circle) in the center, and "save" on the right.

“G” Terminal

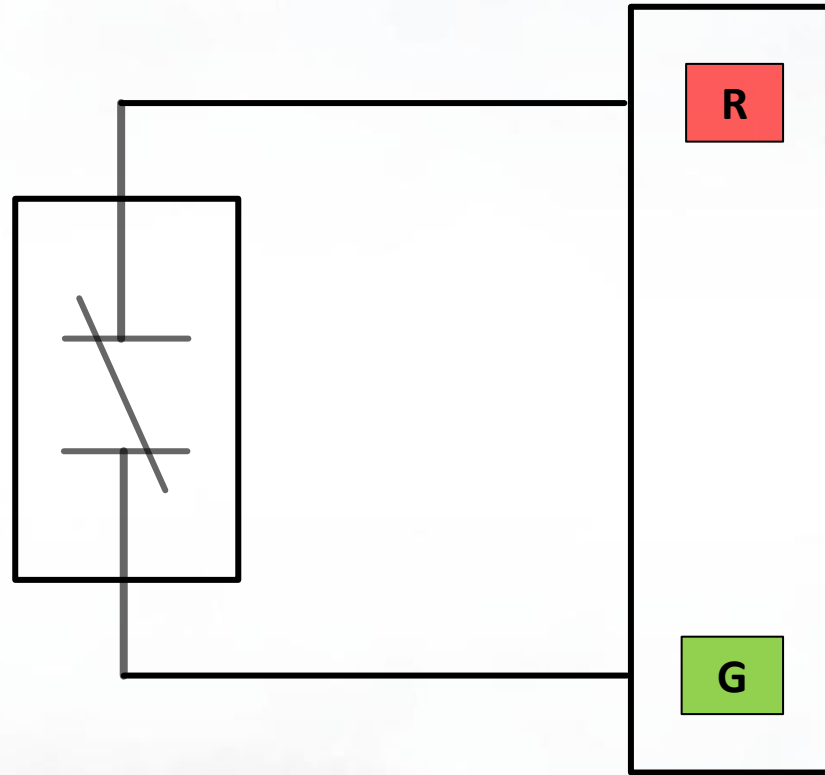
The detailed instructions on how to perform the task of turning on the “G” option is in the User Interface Installation Manual.

You can only use the “G” function for either the fresh air under the fan selection or the float switch under the shutdown selection but not both. If you have both it is recommended that you break “R” for the float switch.



“G” Terminal

Float Switch



FE Fan Coil or Variable
Speed Furnace

G Input Wiring for Shutdown Operation
Select contact type either (N.O. / N.C.)

Outdoor Unit Setup – Display 1



- Cooling Lockout
 - None, 45, 50 or 55° F
- Defrost Interval (Heat Pump)
 - 30, 60, 90, 120 minutes and Auto
- Low Ambient Cooling
 - Yes or No
 - Cooling Lockout



Outdoor Unit Setup – Display 2

- Quiet Shift
 - On or Off
- AC/Heat Pump rpm max
 - Only functions with variable-speed compressor
- High Heat Latch
 - Select outdoor temperature and speed/stage
- High Cool Latch
 - Select outdoor temperature and speed/stage



Outdoor Unit Setup – Display 3

- Defrost Fan Delay
 - With accessory electric heaters
 - Shown only if entered
 - Not shown if self-identified
- Brownout Disable
 - Voltage detection feature
 - Must have HK38EA015 defrost control board or greater outside
- Energy Efficiency
 - Off, On
(Temperatures between 20°F to 50°F)



Heat Source Lockout



Accessories



Selecting Filter Type

- Change Service Interval Notification To User
 - Replace or Clean Filter
 - 1 to 18 months
 - Default 3 months
- Pressure Monitoring (not available or effective with air cleaners that do not use filter media, such as Electric Air Cleaners):
 - Enable or Disable. Default = Enable



Installed Filter

1-inch to 4-inch media
Electronic Air Cleaner
Air Purifier

vs.

Menu Selection

= AIR FILTER
= EAC
= AIR PURIFIER

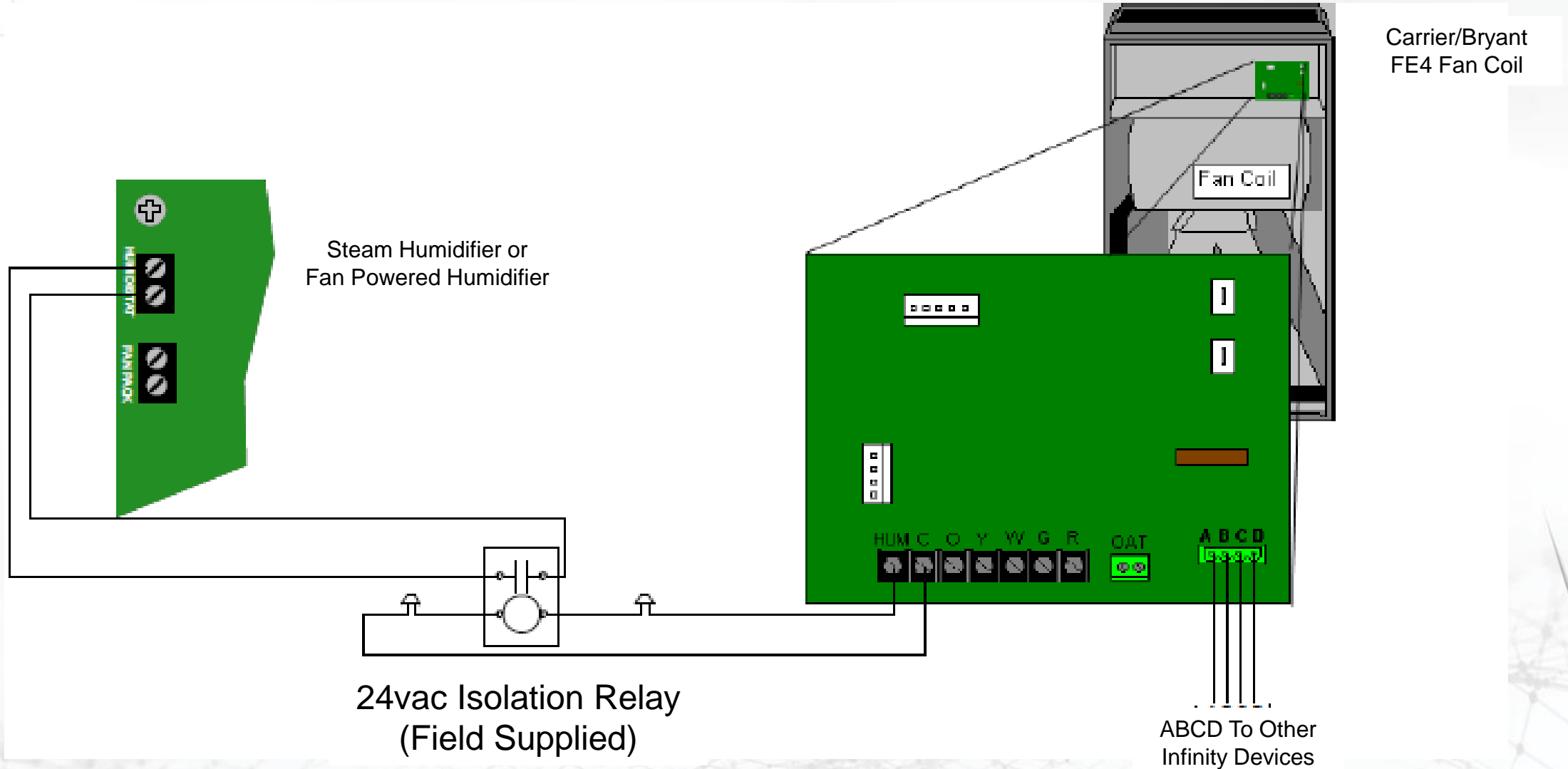
Humidifier



- Humidifier Installed:
 - Yes or No. Humidifier selection made during installation; otherwise, default = No
- Change Pad:
 - Selectable from 1 to 24 months. Default = 12 months
- Humidify with Fan:
 - Yes or No. Default = No



Steam/Fan Powered Humidifier Wiring



UV Lights

UV Lights:

- Touch either YES or NO symbol
- YES - if a UV light is in system
- Select SAVE
- Change service interval notification to user
 - Change UV lights
 - 1 to 48 months
 - Default 12 months



Ventilator

- Change service interval notification to user
 - Clean ventilator pre-filter
 - 60, 90, 120, 150 or 180 days
 - Default 90 days



Polling Question 1

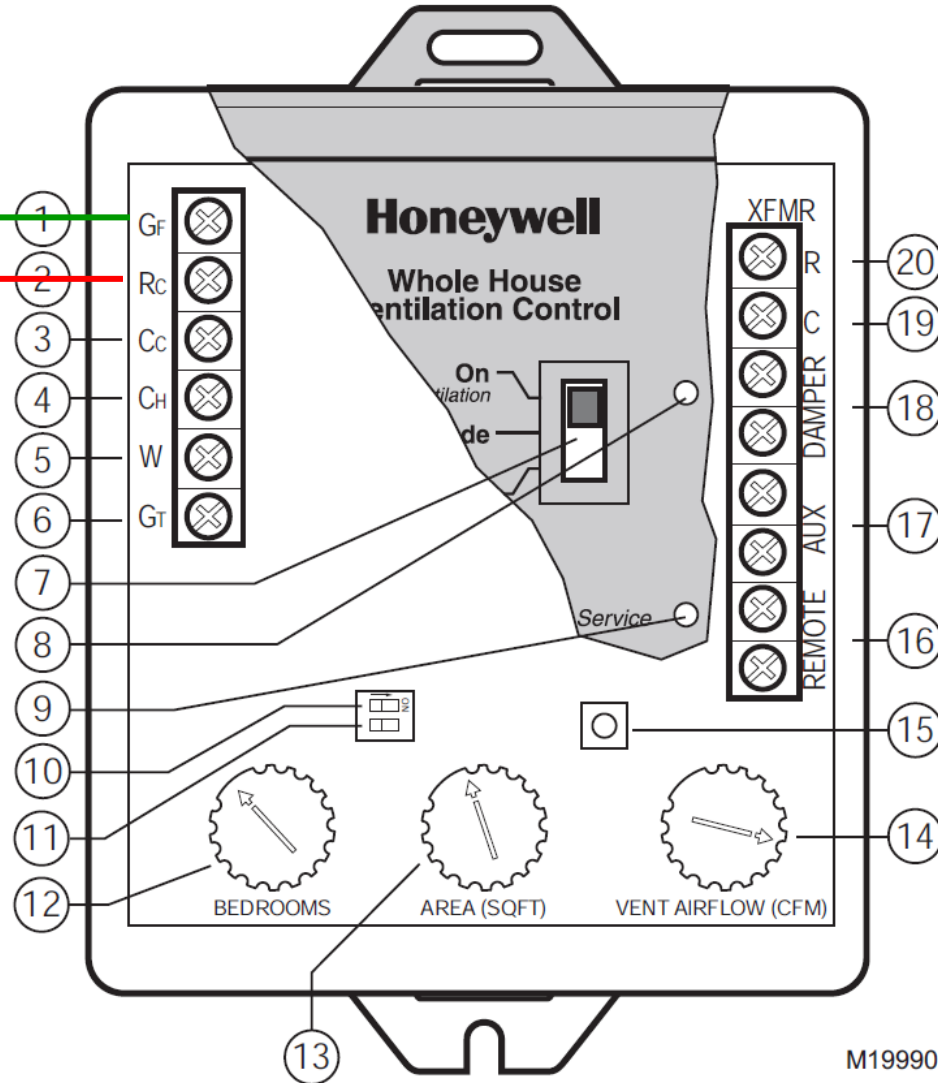
AC/HP Airflow

If you are viewing this as a group,
come to a collective decision and
provide 1 answer.



1 Minute Clock

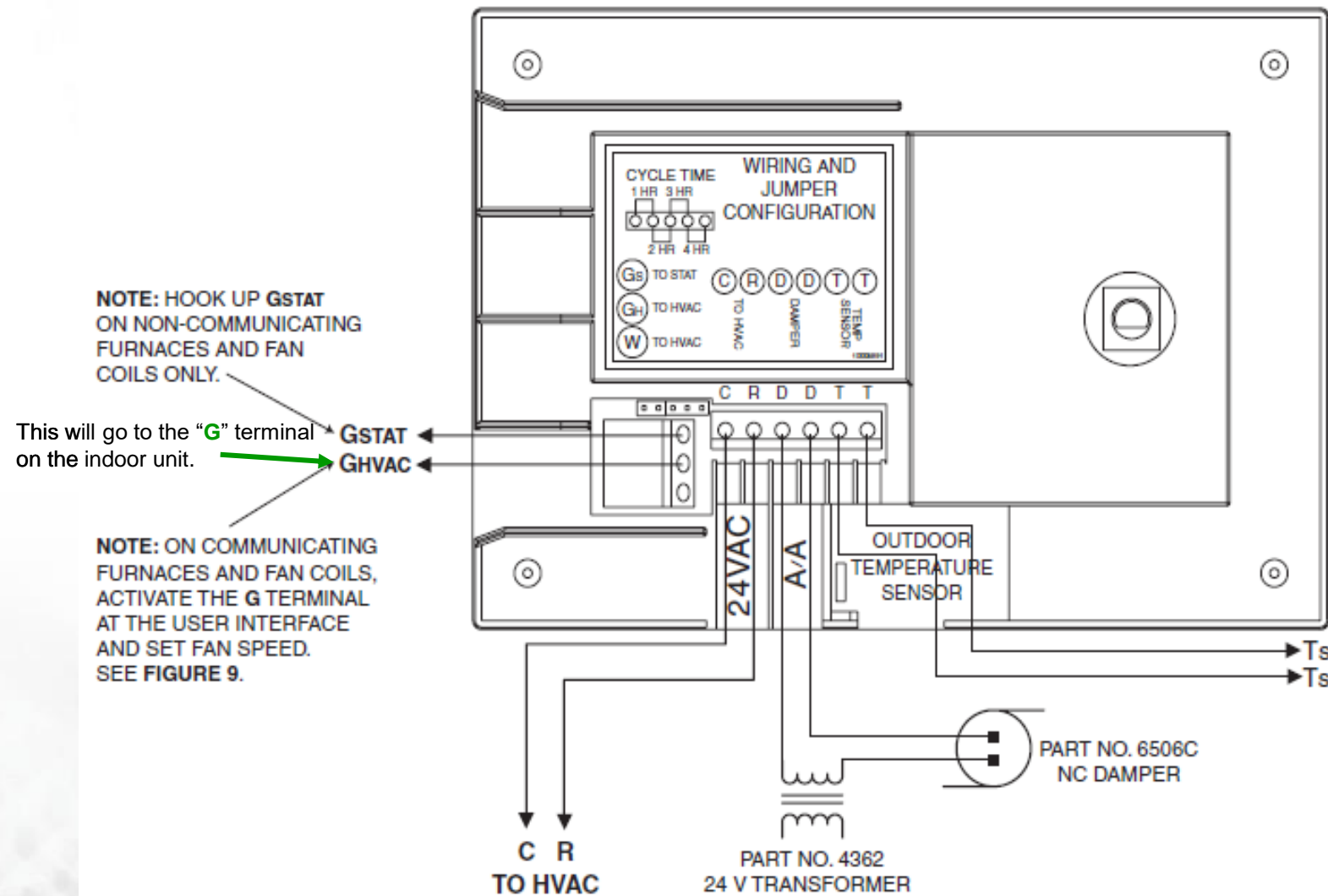
Honeywell Y8150 Ventilation Control



Green goes to the “**G**” terminal on the low voltage strip in the indoor unit and **Red** goes to the “**R**” terminal on the low voltage strip in the indoor unit.

M19990

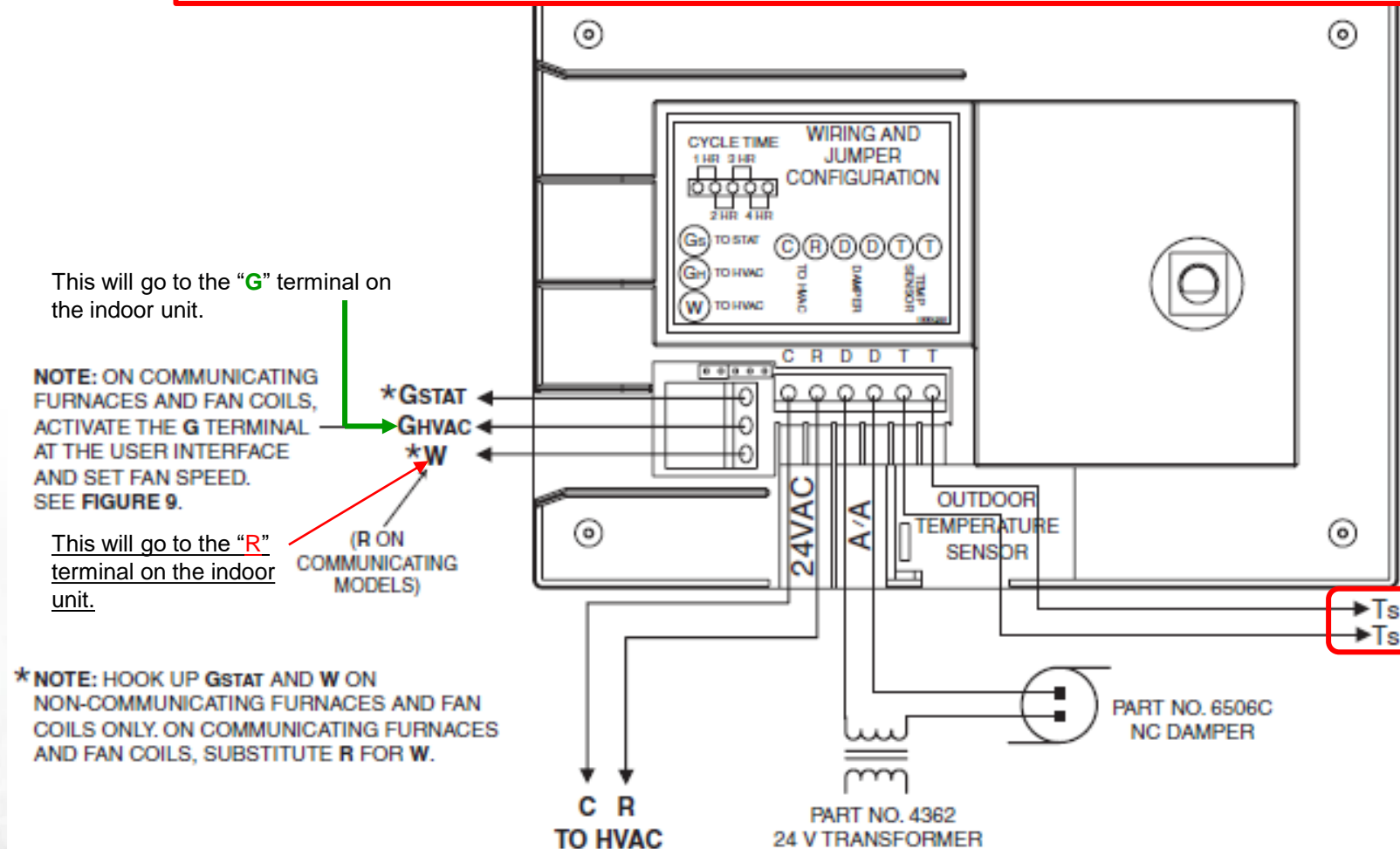
Carrier Fresh Air Damper and Control Kit



Carrier Fresh Air Damper and Control Kit



If fresh air ventilation is required below 20°F db outside, then wire controller as shown



Hydronic Heat



Hydronic Heating

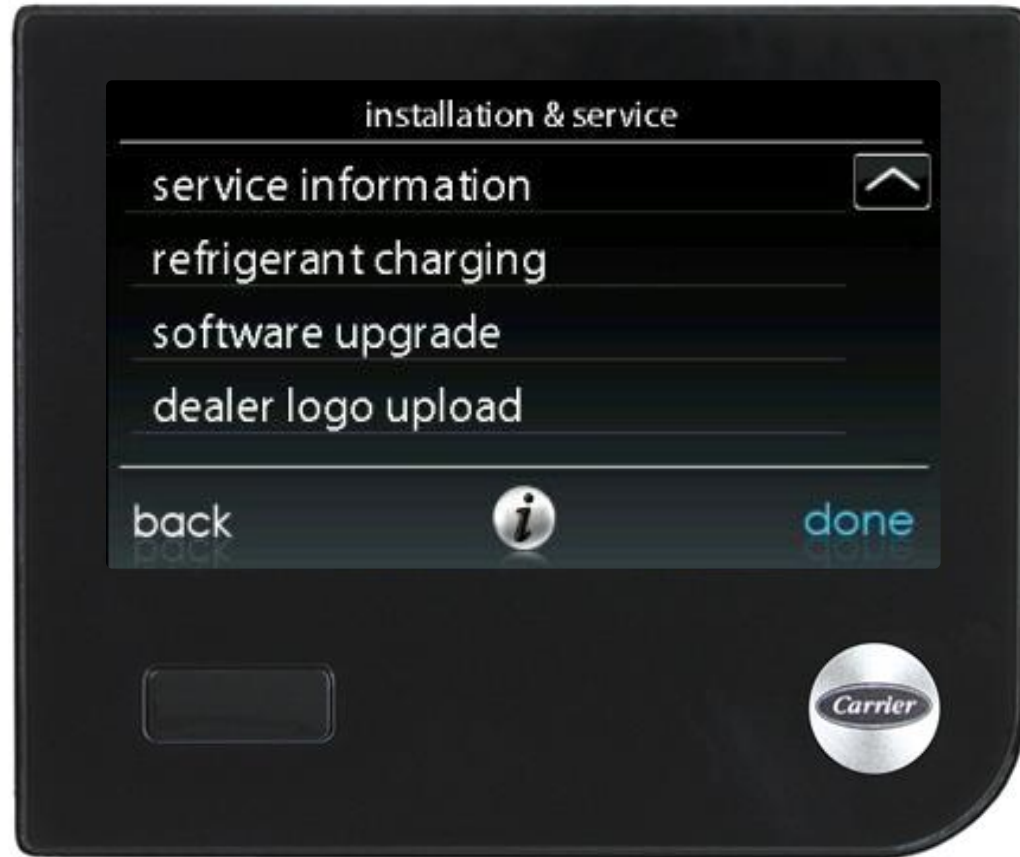
- Hydronic Heat Kit: KFAIF0101HWC
- Consists of a circuit board, relay, and wire harness
- Relay wires into Hydronic Heat System
- Recognized by Communicating Control as Hydronic Heat
- Displays HYDRONIC HEAT
- Requires fan coil board HK38EA012 or newer

Hydronic Heat Setup

- Hot Water Lockout – YES or NO
 - YES, 5 to 55° F
- Heat Pump Lockout – YES or NO
 - YES, 5 to 55° F
- Defrost with Water – YES or NO
- Heating Airflow
 - Off, 500 CFM (MIN) to 400 CFM/TON
- Blower On Delay
 - 0 to 240 seconds
- Blower Off Delay
 - 0 to 240 seconds



Variable Speed Heat Pump (VSHP)



Refrigerant Pumpdown



Evacuation and EXV Check



Refrigerant Charging Check



Refrigerant Charge Calculation




refrigerant charging setup

furnace coil: CNPHP6024ALA



line set: 15 ft

vapor line: 5 /8 in

back 

line settings

line set 15 ft


cancel

charge weigh in

expected factory charge: 9 lb 8 oz

add for line set: 1 lb 4 oz

add for indoor coil: 0 lb 6 oz

back  next

Service Valve Subcool Charging



service valve subcool

target service valve subcool: 8.3 F

back 

service valve subcool

please wait...

target service valve subcool: 8.3 F

stabilization time:


mode//speed: cool//

EXV position:

indoor airflow:

back 

service valve subcool

outdoor coil temp:	102 F	
indoor temp:	78 F	
outdoor temp:	91 F	
compressor discharge pressure:	364 psig	
accumulator suction pressure:	159 psig	

back  done



Start Up



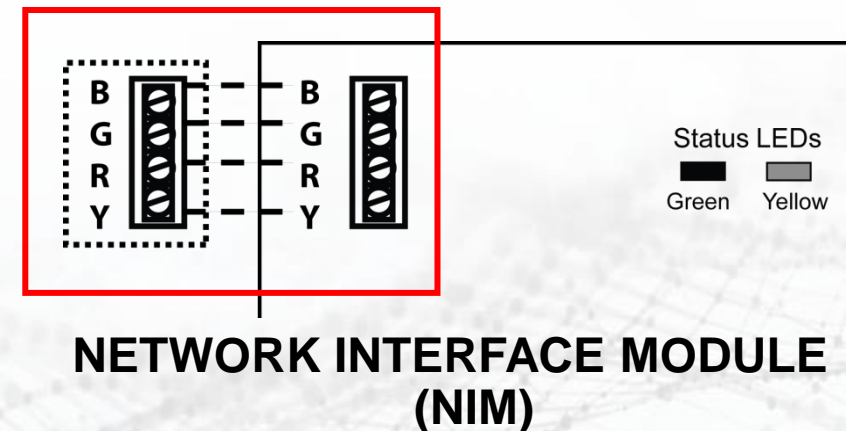
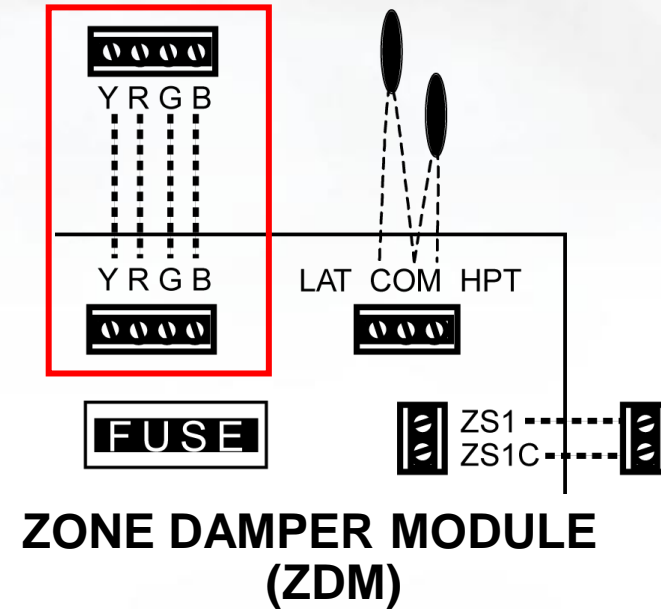
Check Before Starting Unit

- With the power off, check all electrical connections to ensure that they are correct and tight.
- Make sure all filters, panels, and covers are in place.
- Turn on the power at the breaker box and at the unit disconnects.
- Energize the crankcase heater for 24 hours before starting the system. To energize the crankcase heater only, set the indoor UI to the OFF position and close the power disconnect to the unit.
- Check that the condensate system drains properly, and that any condensate pump (if used) is working properly.
- Check that the system is properly charged with refrigerant.

ERV/HRV Not Recognized by System



- Check wiring:
 - Ventilator wired to YELLOW, RED, GREEN, and BLUE terminals of ZDM or NIM
- Check for 12 volts between Y(+12 vdc) and B (ground) on ventilator
 - Make sure ventilator powered



Equipment Summary

- Touch INSTALLATION in the SERVICE menu to change choices
- Touch the word DONE to save choices and return to Main display screen



Mistake on Start-up Screen

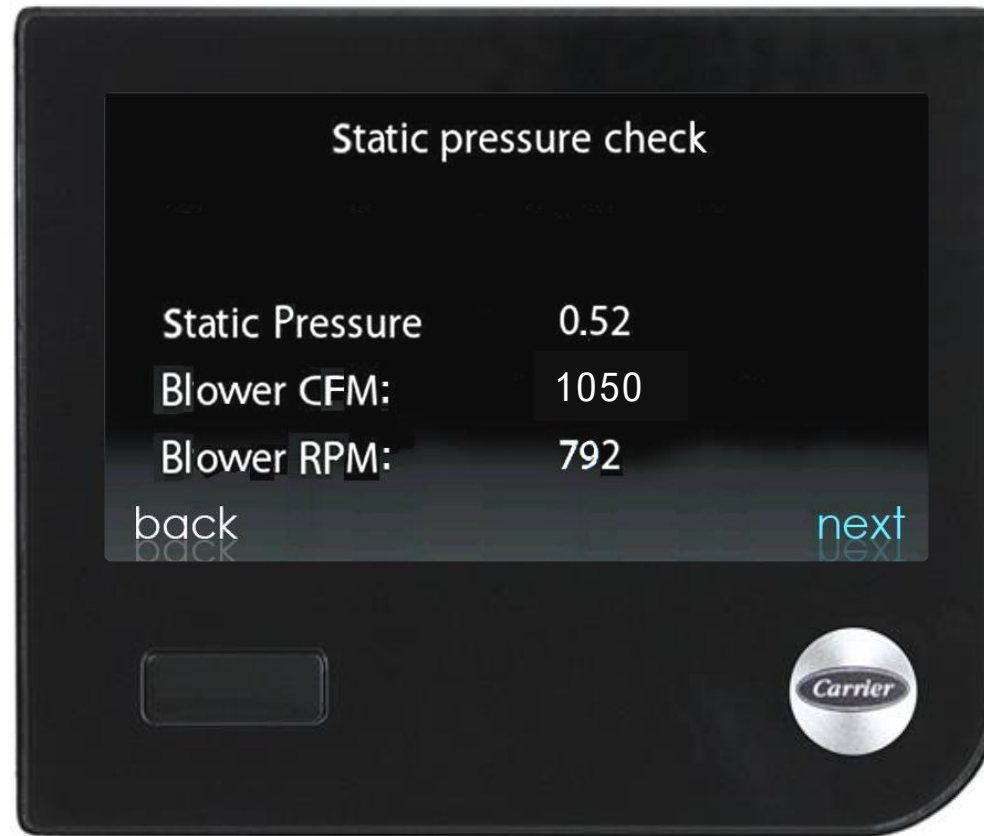
- **Change ventilator from NO to YES**
- Touch DONE to return to main display screen
- Touch the word MENU
- Touch the SERVICE symbol and hold for 10 seconds
- Touch the word INSTALLATION then NEXT
- Make corrections



System Static Pressure

At the desired airflow, the controller measures:

- Duct static pressure, system cfm, and motor rpm



Clean or Replace Filter

- CLEAN OR REPLACE FILTER is displayed after a short period of time:
- Probable cause:
 - System static pressure approaching equipment capability
 - Check/replace filter
 - Evaluate ductwork for lower system static pressure
 - Disable pressure measurement in filter setup screen



Infinity / Evolution Control TrueSense™ Filter Detection

At 1:00 PM each day, or when the user switched the system from OFF to any operating mode, the fan will run at either 233 CFM X ton of cooling capacity or (90% High Heat Airflow X 1.5), whichever is higher for one minute after heating/cooling is turned off (A heating or cooling call will be interrupted if in progress at 1:00 PM). If the furnace staging is set to LOW, then use the low furnace airflow X 1.5 or cooling airflow (233 CFM X ton), whichever is highest. Blower RPM measurements are then taken, and a static pressure is calculated.

If the blower has not run in the past 24 hours, the measurement will not be made. If the system is off and the fan is off (or Auto), the current measurement will not be performed.

Infinity / Evolution Control TrueSense™ Filter

Detection Current & Past Functionality



Versions 3,5,6,8
Software (Older
UI's)

Initial Static	100% Used
0.1	0.64
0.2	0.68
0.3	0.72
0.4	0.76
0.5	0.80
0.6	0.84
0.7	0.88
0.8	0.92
0.9	0.96

Version 10
Software through
(-A) & (-B) Models

Initial Static	100% Used
0.1	0.64
0.2	0.68
0.3	0.72
0.4	0.76
0.5	0.80
0.6	0.84
0.7	0.88
0.8	1.22
0.9	1.26
1.0	1.30
1.1	1.34
1.2	1.38
1.3	1.42
1.4	1.46

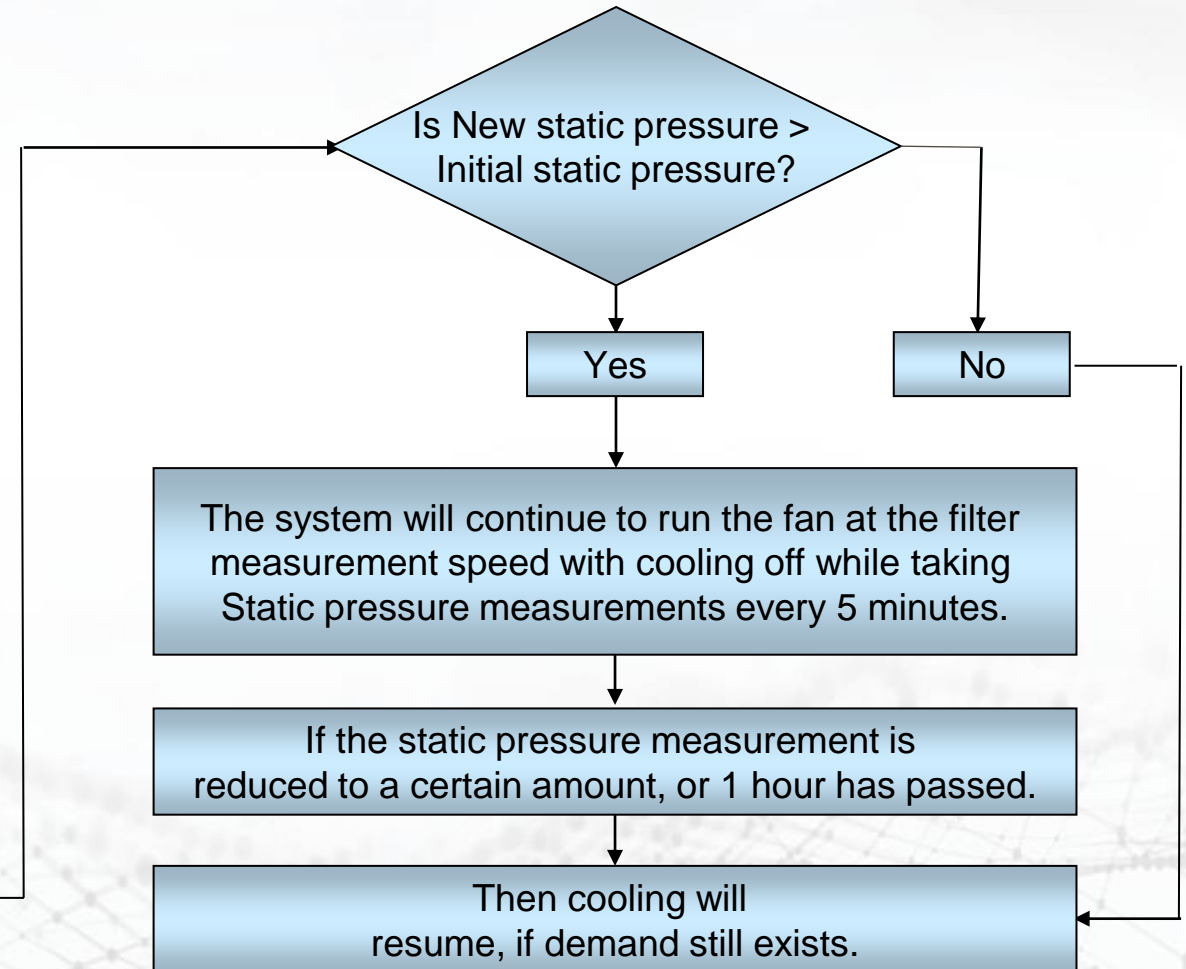
Infinity / Evolution Frozen Coil Detection



Start New Cooling Call
The system will periodically measure static pressure and compare that static pressure to the initial static pressure of the system at the start of cooling demand.

If this new filter static pressure measurement has increased by a 0.2" over the last "official" filter measurement then the coil will be declared as frozen.

Shut down cooling
Perform Filter Check





Checkout

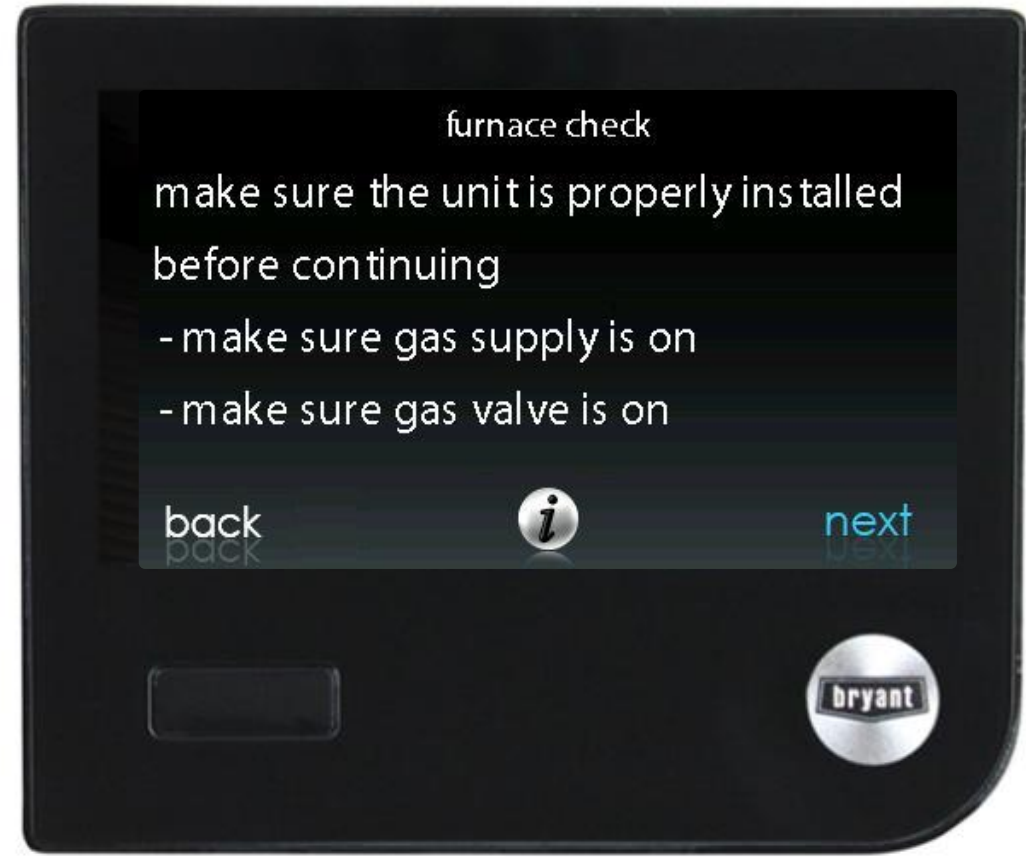


Checkout Menus

- Touch main display screen
- Touch the word MENU
- Touch and hold the SERVICE symbol
- Touch the word CHECKOUT



Checkout Equipment



Furnace Check



Heat Pump Check



Static Pressure Check

When viewing service screen:

- Airflow is *requested* – not actual
- Static pressure is *calculated* on
 - Requested airflow
 - RPM
 - Known system characteristics
- RPM is *actual*

Static pressure accuracy is *limited* when RPM reaches 1250 on some furnaces

- See product data to determine airflow performance
- Maximum about 1300 RPM (varies with model)



Humidifier and Ventilator Check



During AC/HP Checkout, what Airflow Should be Delivered with 2-Stage Outdoor Equipment?

- 2-Stage Units run at 367 CFM/Ton on High-Speed Cooling during Checkout Mode and 350 CFM/Ton in Heat Pump Mode.
- 2-Stage Units run at 228 CFM/Ton on Low-Speed during Checkout Mode and 275 CFM/Ton in Heat Pump Mode.
- 1-Stage Units run at 350 CFM/Ton during Checkout Mode.

***** Changes made to airflow settings will NOT be seen in the checkout mode/screen.*****

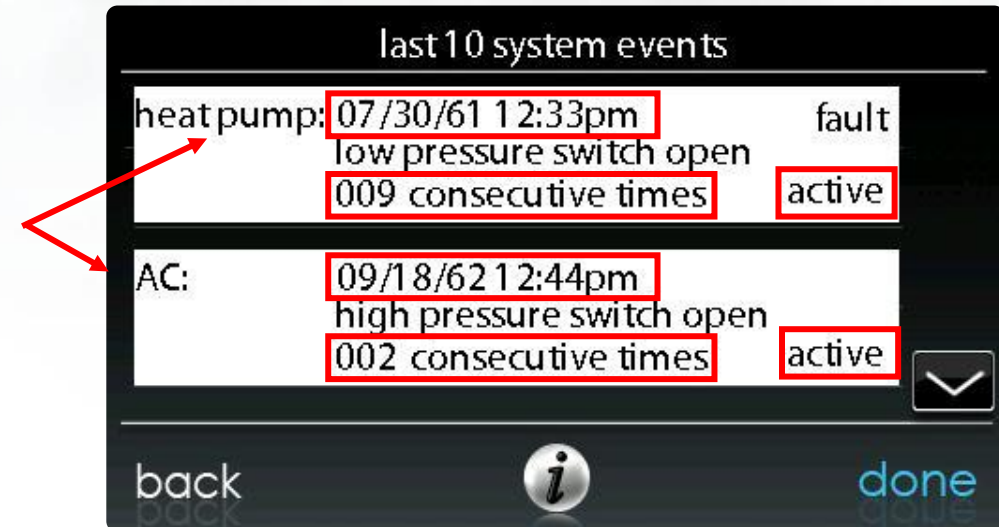
Which means that if you have the airflow set to Comfort, Efficiency or Maximum it will be ignored during checkout mode.

Service Information



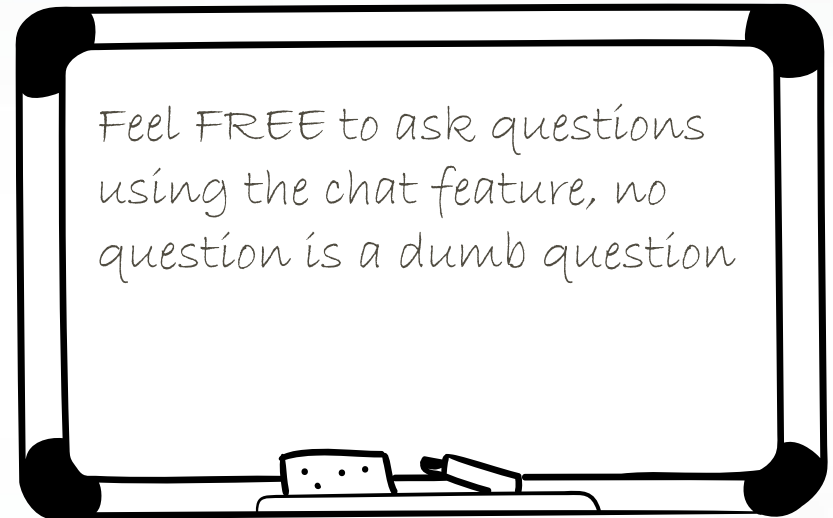
Last 10 System Events

- Active = Event currently in effect
- Technician records date and events
- Events stored in memory
- Reset in resettable faults
- Equipment identified by event



BREAK TIME

5 ***MINUTES***



Troubleshooting



System Troubleshooting



- System tracks malfunctions
 - Equipment circuit boards display fault code sequences
 - System stores malfunctions as fault codes in user interface
- User interface messages and fault codes provide probable cause
- Following user interface screens are helpful



System Malfunction Screen

- Screen shows a system malfunction if a fault occurs that shuts down the equipment
- May clear on its own if it is a 5-minute or 15-minute lockout. 4-hour lockouts will reset after they have timed out the 4- hours or sooner if power is cycled
- Try resetting power to see if the fault goes away, if it does not come back the controller may have just needed to be reset.
- Check the system for the cause especially if the fault reoccurs
- There are three specific types - The Display column indicates if the code is an **Event** (**E**), **Fault** (**F**) or **System Malfunction** (**S**) for display purposes.
- Resettable faults are located under Service Info>Run/Fault History> Indoor Unit or Outdoor Unit. These faults/errors are stored in the indoor or outdoor control boards. The last 10 system faults are stored in the User Interface and can be reset.



Second User Interface (Checking Communication)



Checking Communication with Outdoor Unit

The purpose of this test is to make sure that the communication wiring going to the outdoor unit is capable of communications.

First make sure that the outdoor unit is powered. You should have 24 vac between UTIL & C on the board. If not, you need to find out why, correct it and try to establish communications.

Remove the User Interface (UI) from it's backplate and take it to the outdoor unit.

To Indoor Unit



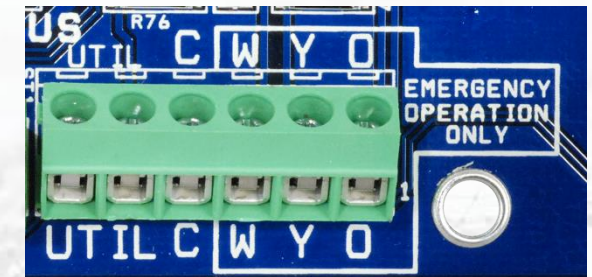
Green Plug



Remove the Green ABCD plug from the outdoor board and push it directly onto the pins on the back of the UI. Add two wires from the outdoor board to the Green plug on C & D.

You should be able to establish communications with the indoor unit from the UI. If not, then there are problems with wiring, and it needs to be fixed. If you can communicate with the indoor unit there might be a problem with the outdoor board.

When connecting to 5 stage units the UI needs version 10 software or greater to communicate if it is a -A UI.



Outdoor Board

Second User Interface (Service Tool)

Service Tool connected to the Outdoor Unit

When the 2nd UI starts to communicate with the system, the main UI indoor displays “Service Tool attached” and the UI becomes inactive. The 2nd UI has only the service screen menus.

First make sure that the outdoor/indoor units are powered.

You should connect to the A, B, UTIL & C on the outdoor control board.

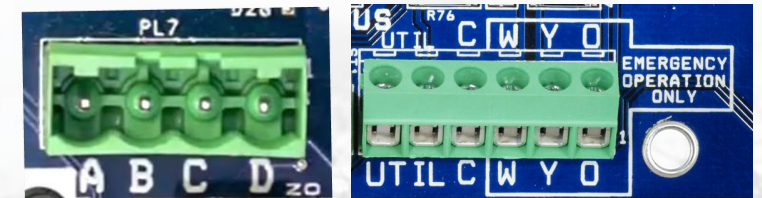
Connect the extra Green ABCD plug to the terminals on the outdoor control board with some field supplied thermostat wire (*do not unwire the outdoor unit*) and push the Green Plug directly onto the pins on the back of the UI.



Extra Green Plug



Outdoor Board



You will be able to establish communications with the system from the 2nd UI and control the system from the 2nd UI.

When connecting to 5 stage units the UI needs version 10 software or greater to communicate if it is a –A UI.

Second User Interface (Service Tool)

Service Tool connected to the Indoor Unit

When the 2nd UI starts to communicate with the system, the main UI indoor displays “Service Tool attached” and the UI becomes inactive. The 2nd UI has only the service screen menus.

First make sure that the outdoor/indoor units are powered.

You should connect to the A, B, C & D on the indoor control board.

Connect the extra Green ABCD plug to the terminals on the indoor control board with some field supplied thermostat wire (*do not unwire the indoor unit*) and push the Green Plug directly onto the pins on the back of the UI.



You will be able to establish communications with the system from the 2nd UI and control the system from the 2nd UI.

When connecting to 5 stage units the UI needs version 10 software or greater to communicate if it is a –A UI.



Extra Green Plug

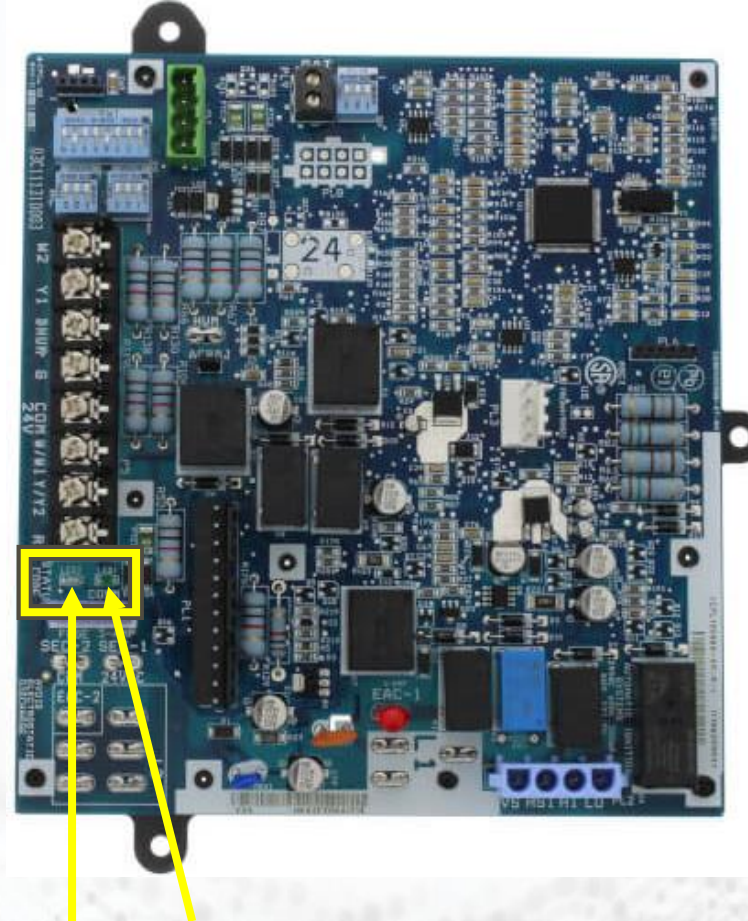


Indoor Board

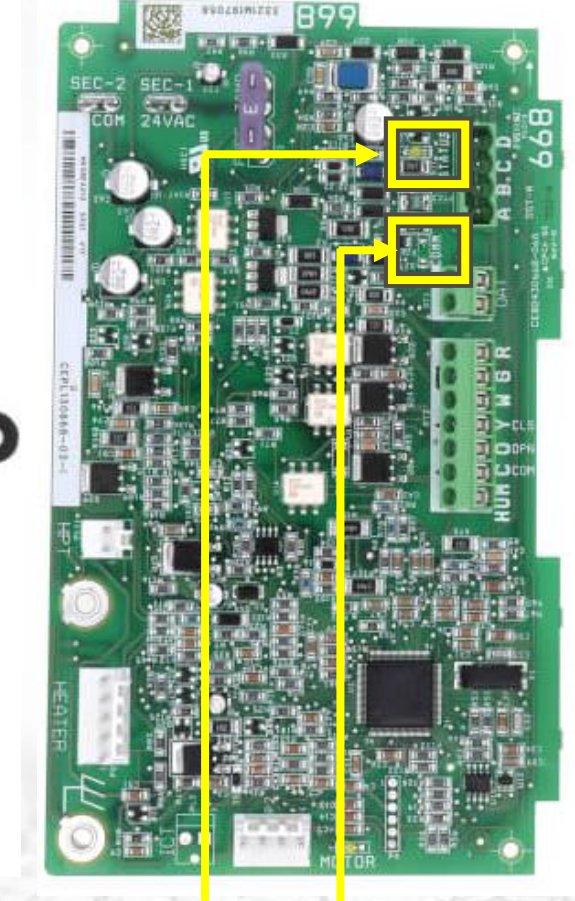


Circuit Board LEDs

- LEDs on all circuit boards
 - Indoor unit
 - Outdoor unit
 - Zone Damper Module
 - Network Interface Module
- Provide fault code when malfunction occurs
- Fault codes provided in the supplements section of the service manual to facilitate troubleshooting

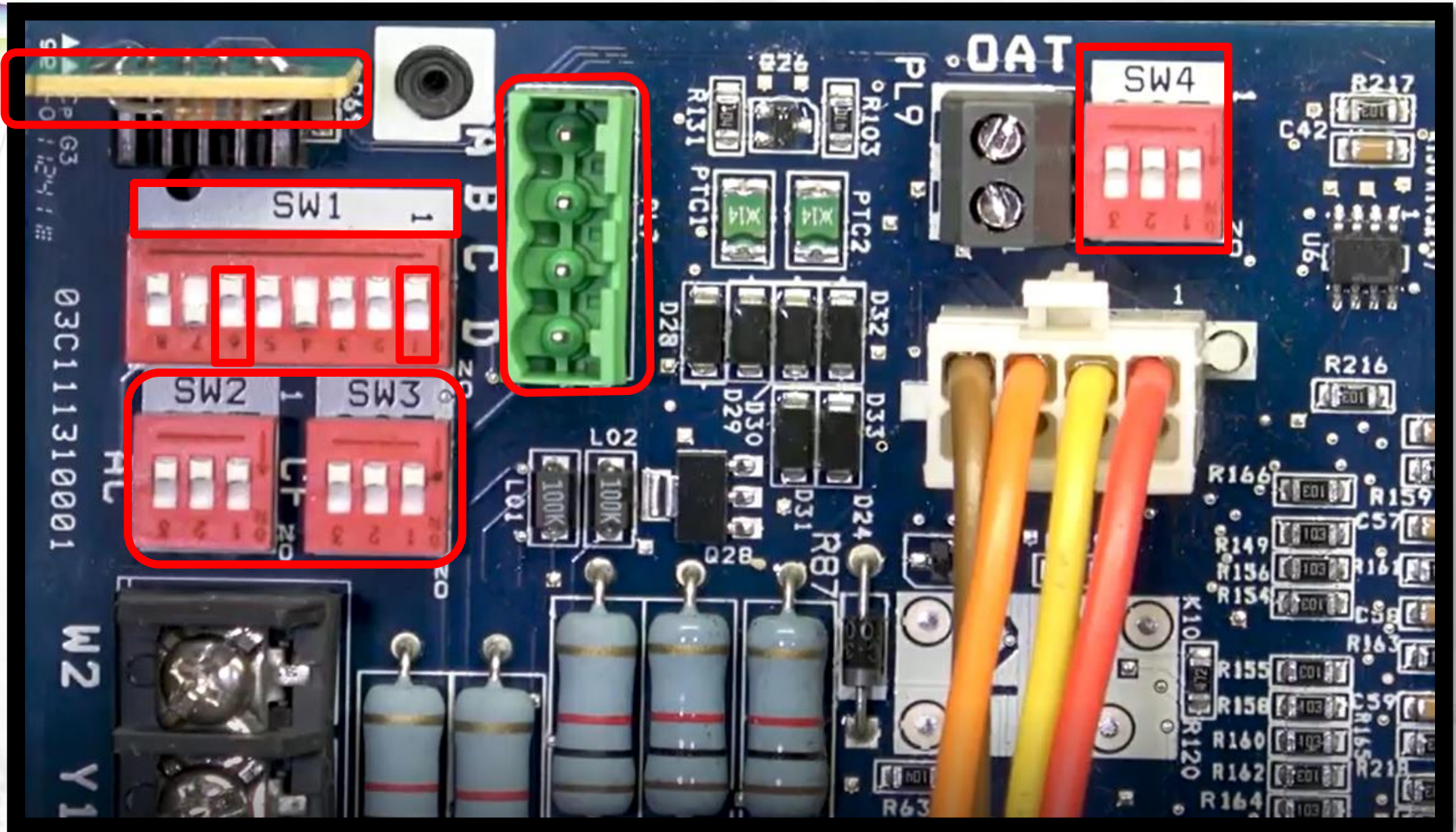


Status Comm
Furnace Control



Status Comm
Fan Coil Control

Circuit Board Layout



User Interface Does Not Power Up

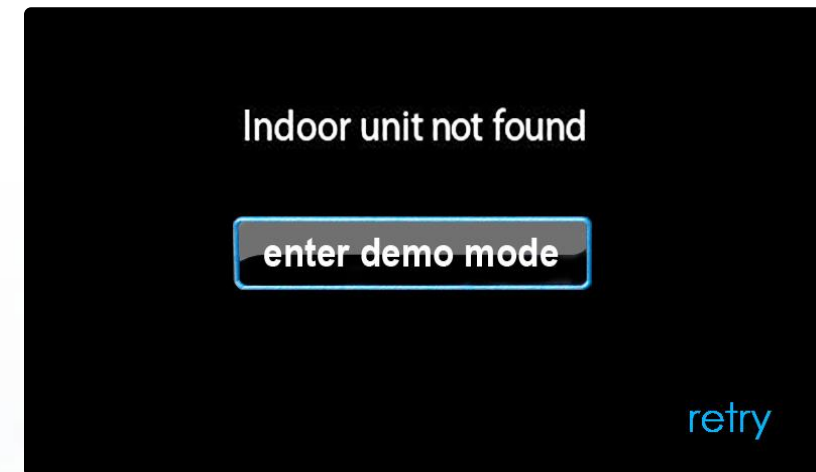


- 24 vac at C-D terminals at UI
- 24 vac at C-D terminals at indoor control board
- Indoor unit power on
- Indoor amber LED lit
- Check fuse at indoor unit circuit board
- Check wiring to ABCD terminals
- Match all colors at all terminals



Indoor Unit Not Found

- Display: INDOOR UNIT NOT FOUND
- Check for green LED at indoor unit circuit board
- Check wiring to ABCD terminals
- Match all colors at all terminals
- Avoid communication bus run next to power wiring
- Touch RETRY in lower right corner of UI screen
- If still “INDOOR UNIT NOT FOUND” **enter demo mode**
 - Disconnect electronic devices from indoor unit
 - Leave only indoor unit connected
 - Try again
- If still “INDOOR UNIT NOT FOUND”: **enter demo mode**
 - Connect User Interface direct to indoor unit with short piece of thermostat wire
- If for furnace, CANNOT COMMUNICATE WITH EQUIPMENT:
 - Turn off all DIP-switches at SW-4



Communication Error – No Communication



If you look closely, you will see that the ABCD label was applied to the controller upside down.

The tech wired the controller based on the label which was backwards.

Remember that ABCD goes from left to right always.

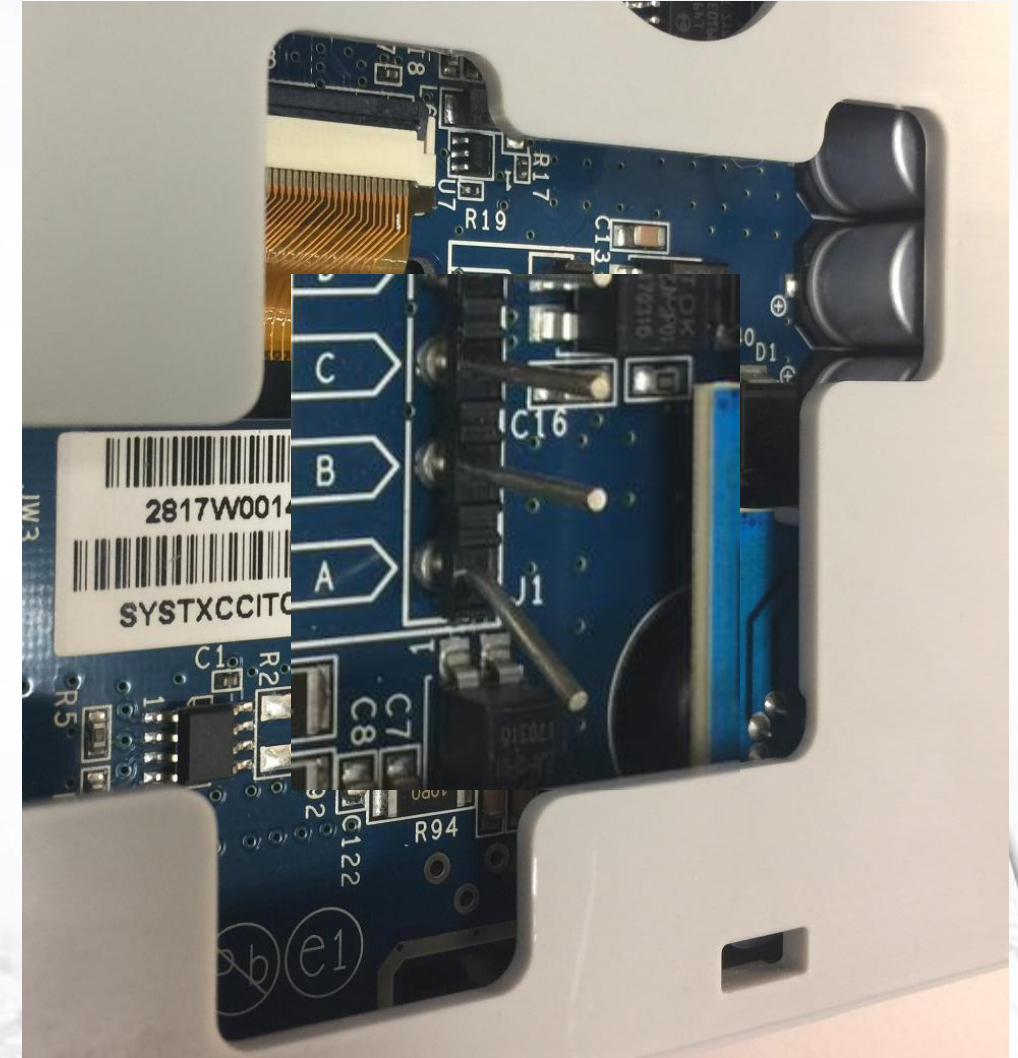


Communication Error – No Communication



If you look closely, you will see that the A pin was bent when the tech applied to the controller to the subbase.

The tech was having difficulties getting the User Interface to lock into the subbase, so he just pressed a little harder and got it to latch but then had no communications.



Outdoor Unit Not Found



Display says outdoor unit not found:
(I have a communicating outdoor unit)

- Recheck wiring to the wiring connector on the outdoor unit
- Make sure all colors match for every terminal
- Check for power to the outdoor unit.
- Check communication voltage on outdoor control board.
- Disconnect green plug from unit and check communication voltage on wires from indoor unit



Troubleshooting the Comm. Bus

TABLE 1
Advance Troubleshooting
Fan Coil / Furnace / 2-spd. Communication Bus

FE Control Board
Furnace Control Board
Two-Speed Control Board

-Voltage Readings -
 With board Power applied, and No U.I. connected

A to B	4-5 vdc (steady)
A to C	4-5 vdc (steady)
B to C	~.01 to 0.3 vdc (steady)
C to D	24 vac

The above readings are meant to prove that the communication driver is not dead or shorted. It does not guarantee that the unit will communicate. If a communication problem still exists and the voltage readings are good, an external short in the thermostat wire or a miss-applied accessory may be the cause.

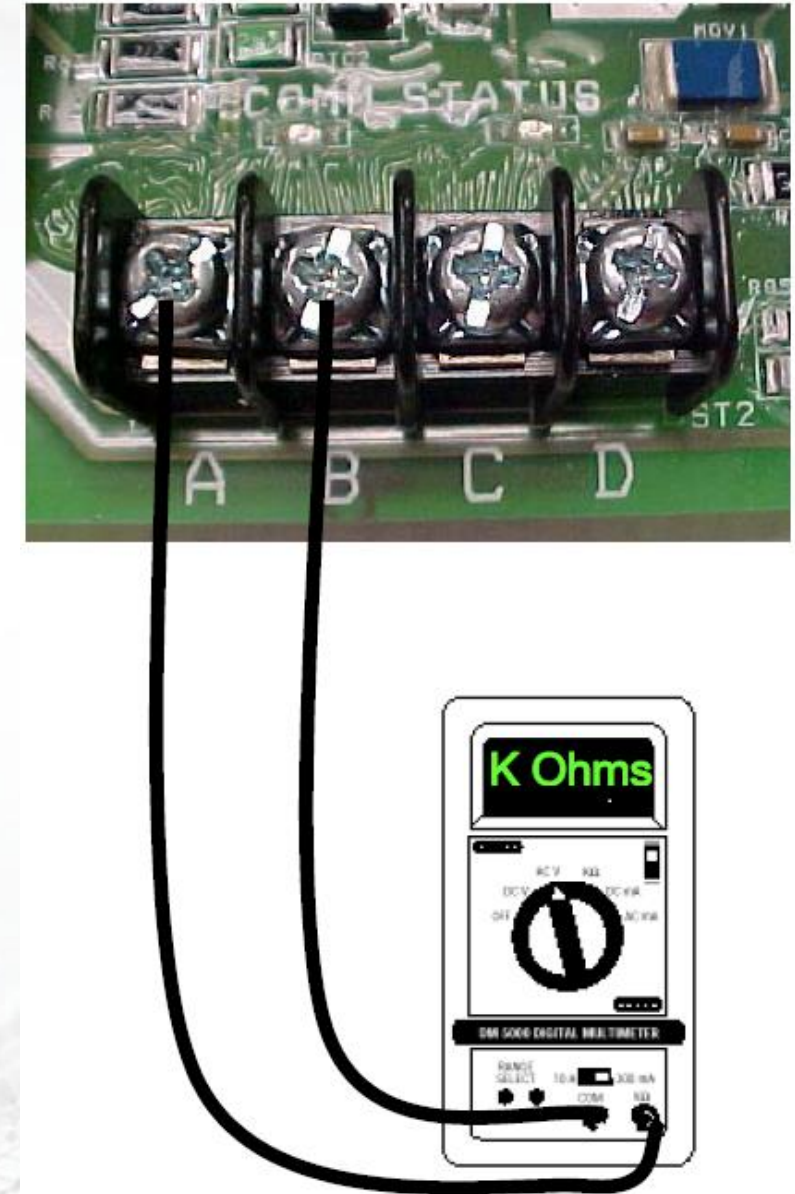
Troubleshooting the Comm. Bus

TABLE 1 Advance Troubleshooting Fan Coil / Furnace / 2-spd. Communication Bus	
FE Control Board Furnace Control Board Two-Speed Control Board	
-Voltage Readings - <u>With board Power applied, and U.I. Applied</u>	
A to B	~2.5 to 5 vdc (pulsating)
A to C	~2.5 to 5 vdc (pulsating)
B to C	~0.1 to 0.9 vdc (pulsating)
C to D	24 vac

The above readings are meant to prove that the communication driver are functioning and not dead or shorted and the wiring between the devices is OK. If voltages check out correct and a communication problem still exists, it could be a bad board failure.

Communication Faults

- NO COMMUNICATION? (Proving if board(s) are good or bad)
- Turn power off and disconnect all the ABCD wires at each board before checking the resistance (K ohms) across the A-B of each board.
- UI, UIZ, Zone Board, Smart Sensor, NIM, Touch UI's = A-B **71-75 K ohms**
- Furnace & Fan Coil = A-B **17-19 K ohms**
- 1 & 2 Speed & Variable Speed Outdoor Boards = A-B **28-34 K ohms**; A-C **16-20 K ohms**; B-C **13-15 K ohms**
- 5 Stage Inverter AOC Boards =
 - A-B **28-34 K ohms** (old versions)
 - A-B **15-17 K ohms** (newer versions) ***Date code of 141203 on AOC Board***



OAT & OCT Sensor Location, Failures, Causes & Fixes

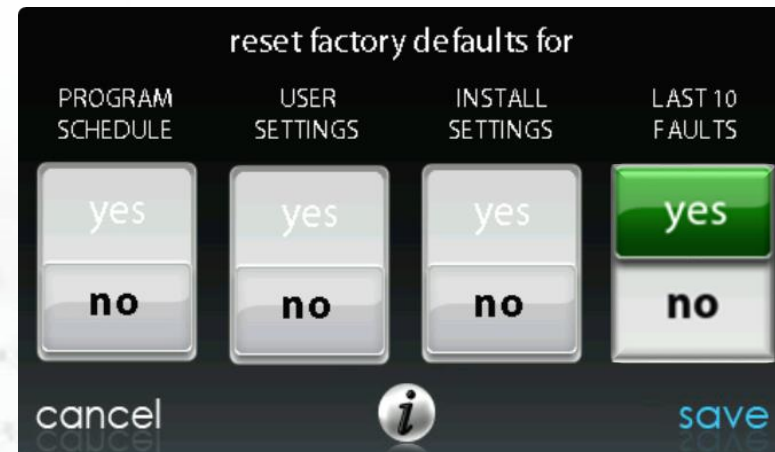


One thing that can cause the OAT sensors to fail is that the sensor is not removed when brazing the refrigerant lines into the service valves directly below the sensor. The OCT can become loose (not tightly secured) or has come completely loose from the line. Both sensors come in one harness with a 4 pin Molex connector. If either sensor should fail the unit (A/C or HP) will continue to operate with default parameters. If the OAT sensor should fail, low ambient cooling will not be allowed and the one--minute outdoor fan off delay will not occur. If the OCT sensor should fail, low ambient cooling will not be allowed, and the HP will use a 30-minute timer for defrost and will exit after 5-minutes.



System Fault Reset Locations

- Resettable faults are located under Service Info>Run/Fault History> Indoor Unit or Outdoor Unit.
- These faults/errors are stored in the indoor and outdoor control boards.
- The last 10 system faults are stored in the User Interface and can be reset by going to the Installation & Service screen>Setup>Thermostat>Reset Factory Defaults [which brings up 4 choices.



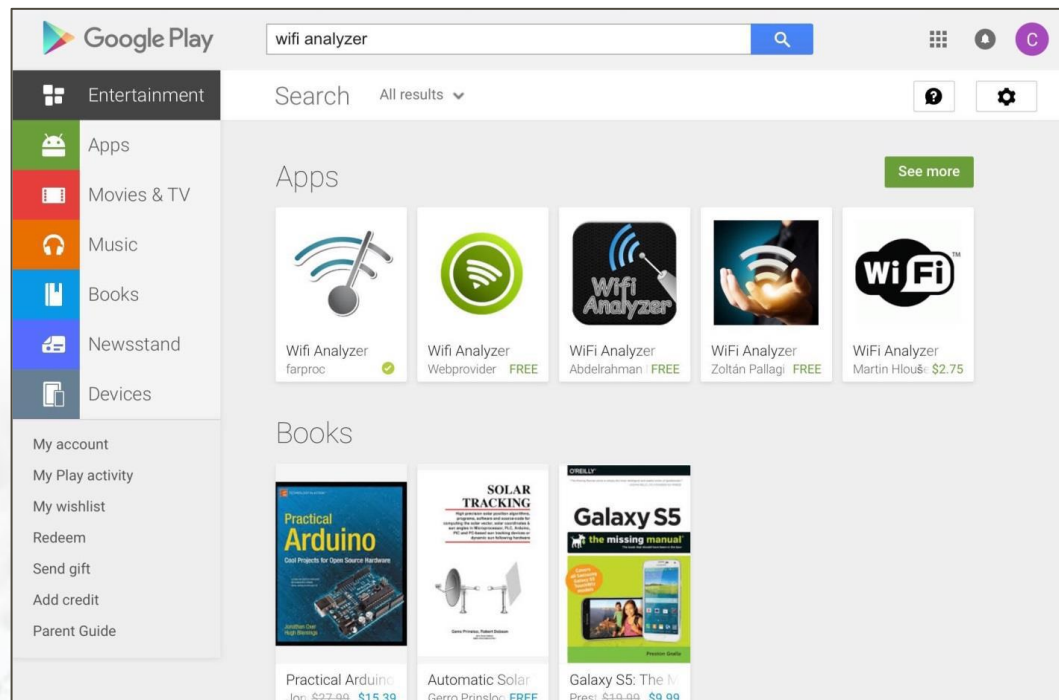
Local Wi-Fi Connection Troubleshooting



Busy/Congested Network Assessment:

If you have an Android device, there are several apps you can use to help “see” what the network climate looks like around you. If you have an Apple device, I have yet to find a free app that works as well.

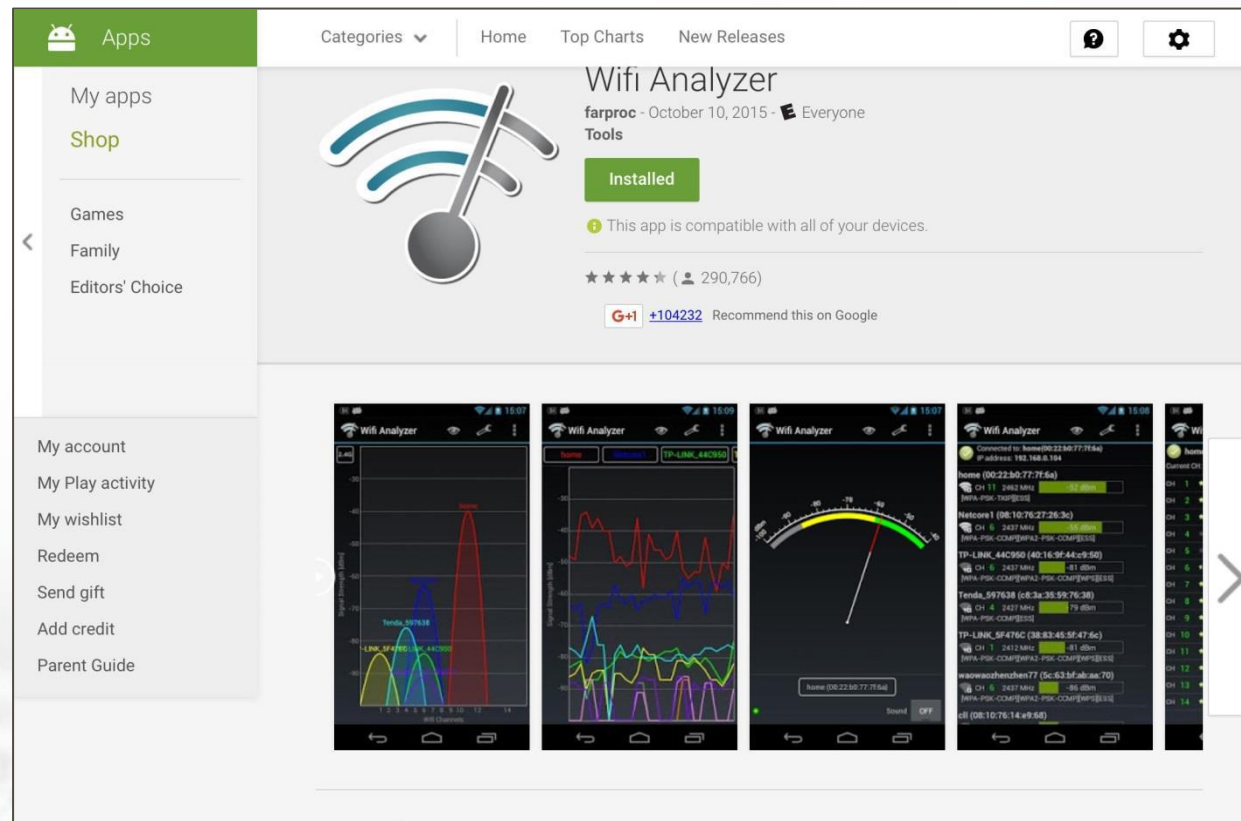
Below you can see the search criteria and the app that I prefer, **Wi-Fi Analyzer by Farproc**. It's free and it provides the type of information that we want to know. (Google Play Store)



Local Wi-Fi Connection Troubleshooting



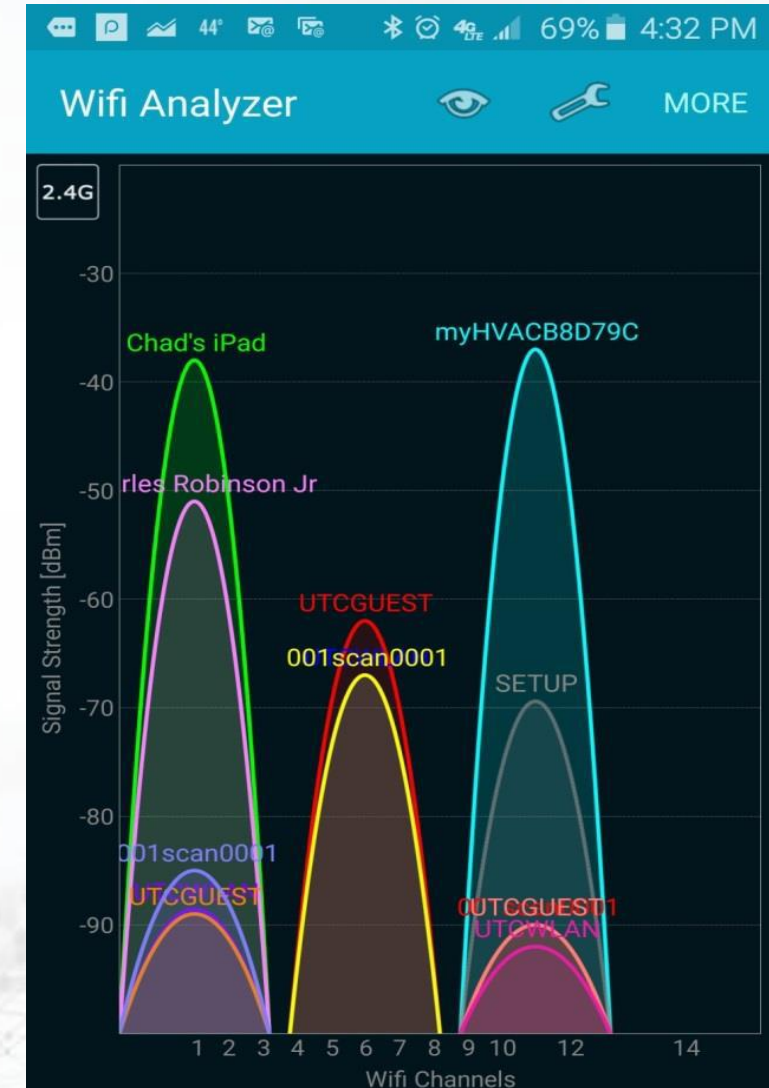
Below, you can see the Google Play Store info about the Wifi Analyzer app. The graphs are particularly helpful in determining where the congestion lies.



Local Wi-Fi Connection Troubleshooting



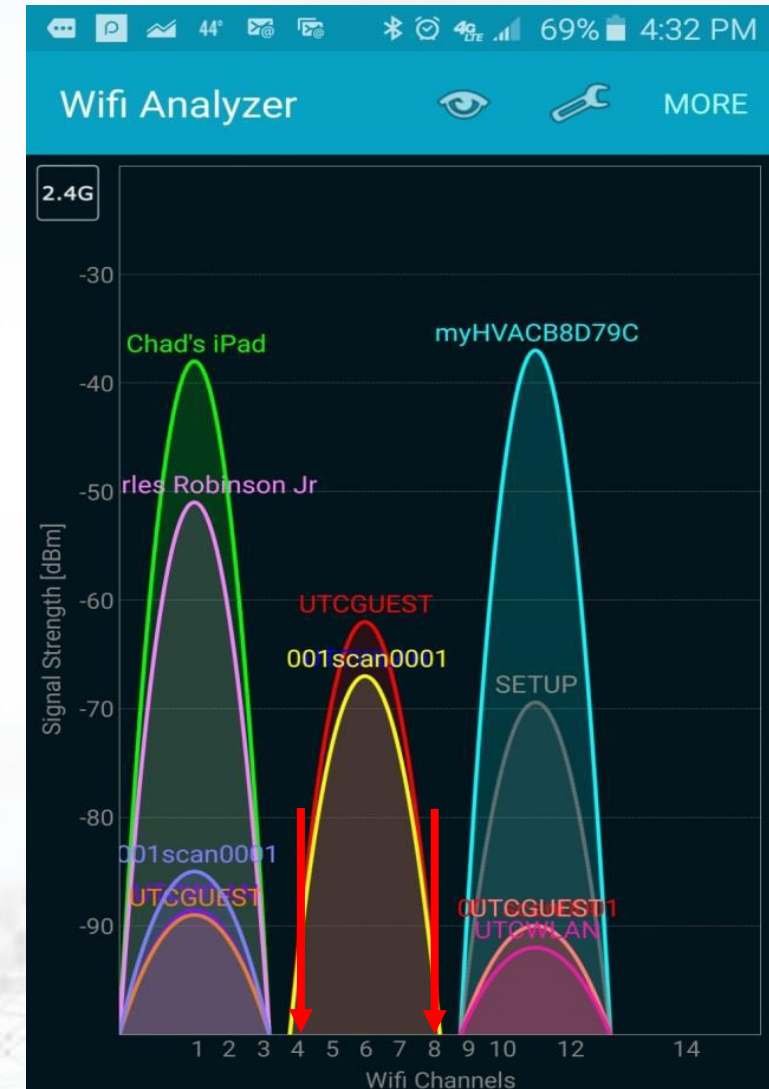
- Network
 - Some networks have a lot of radio chatter. This app can help us to see this.
 - Our radio doesn't compete well on very busy networks.
 - Some of this competition can be from neighbor's networks.
 - Changing the channel on the router can help.
 - You could use Wi-Fi Analyzer (Android® only) to help identify a congested network.
- TP-Link ® Routers
 - The TP-Link is used as a 2nd or dedicated network for the UI.
 - It can help a situation where the UI is having trouble staying connected to the homeowner's network, or if there seems to be a compatibility issue between the homeowner's router and the UI.



Local Wi-Fi Connection Troubleshooting



- Here is a screen shot from our local network.
- From this screen, its evident what channels are the busiest and what networks have the highest signal strength.
- Typically, signal strength is an indication of how close physically, the router is to you. In the example above, it would be a good idea to change your router channel to 4 or 8 to get into a clearer area of wireless bandwidth.



Local Wi-Fi Connection Troubleshooting

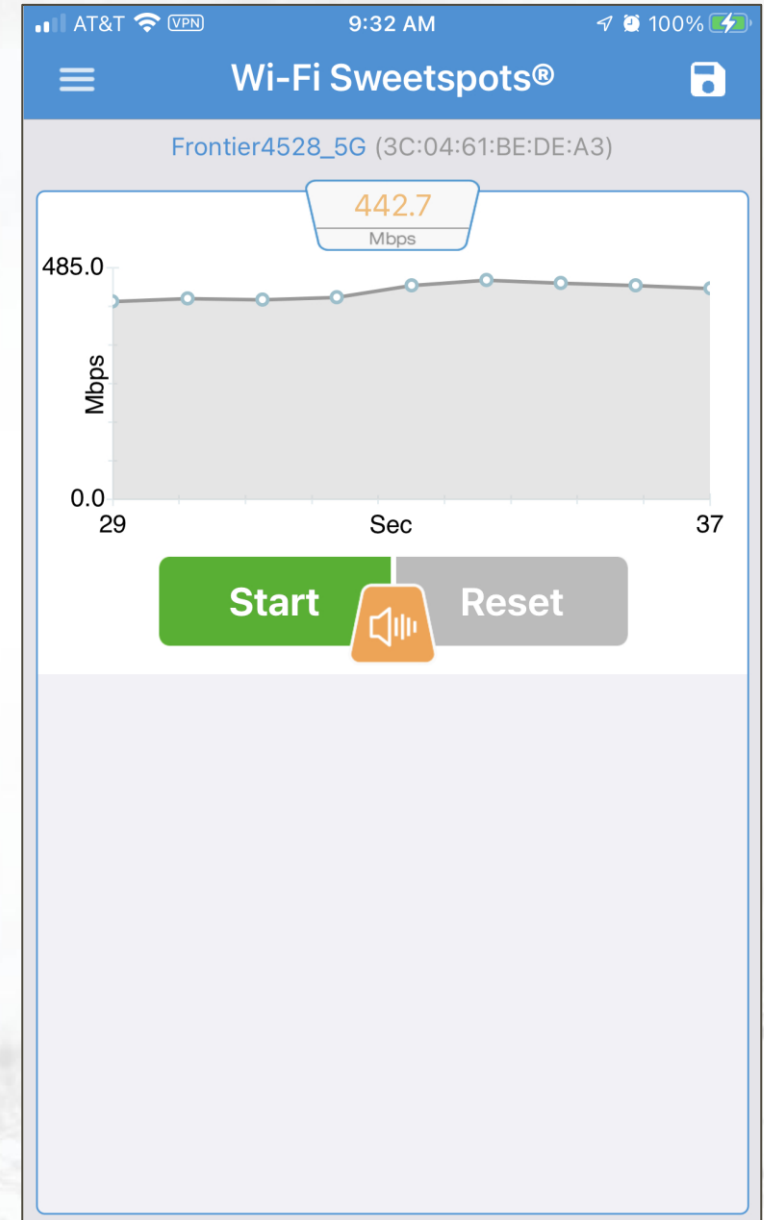


Busy/Congested Network Assessment:

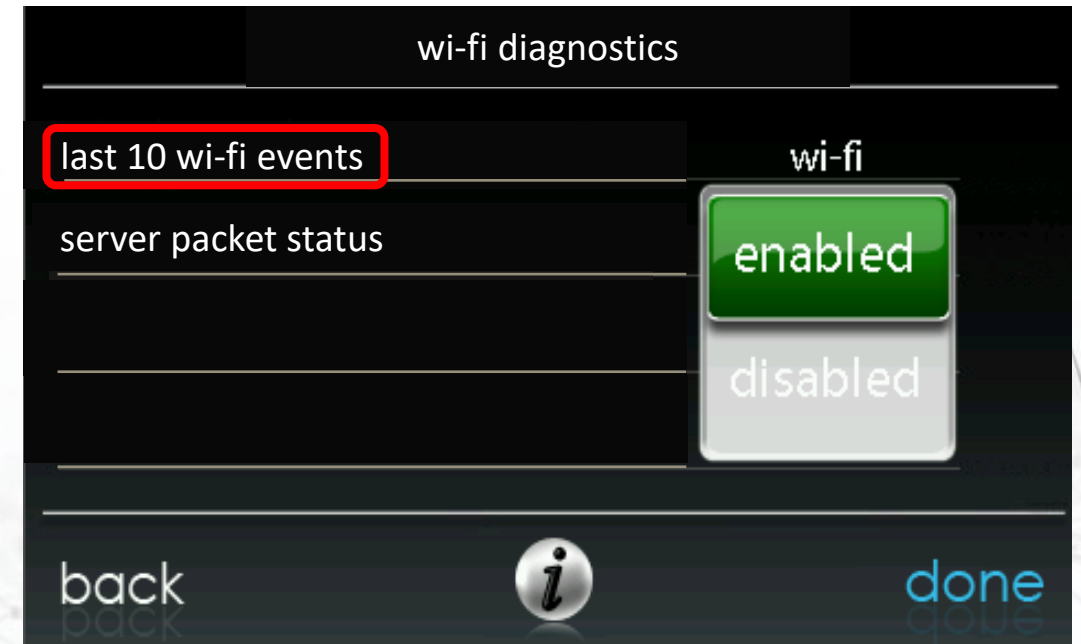
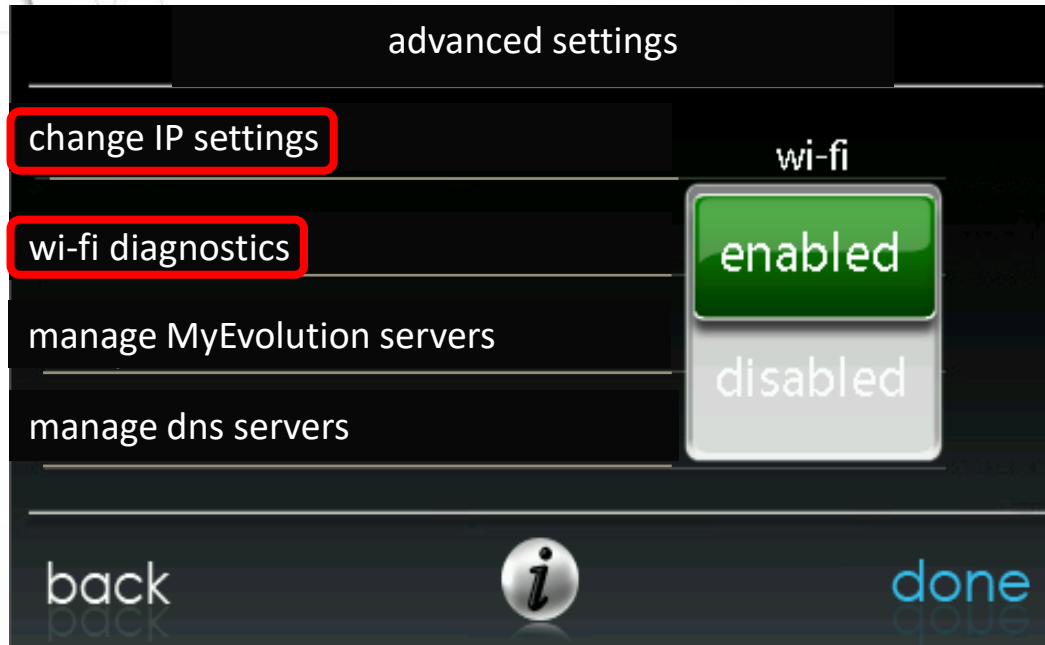
If you have an IOS device, here is another app you can use to help “see” what the network climate looks like around you.

You can see the signal strength that the app shows for the network you are connected on. It does not show all the devices connected to the homeowner's network, but it will allow you to see the signal strength which is a good indication on how busy the network is and its signal strength.

Let's say that the router was across the house or on a different floor, this could tell you if installing signal repeaters might help boost the signal.



Local Wi-Fi Connection Troubleshooting



Last 10 Wi-fi Events

- Below is an example of what the last 10 Wi-Fi events would look like for a UI present on a busy/congested network. You can see that it is connecting and disconnecting from the local network often ~ every few minutes. This short connection time is not long enough for the UI to transmit the necessary information to the server, and will appear as a server connection issue, when it really can be traced back to the local network.

Menu>Wireless>Advanced Settings>down arrow>Wi-Fi Diagnostics>Last 10 Wi-Fi Events

- Time Event Type**

12/06/15 16:16:23 connected to remote server
 12/06/15 16:16:08 connected to local Wi-Fi network
 12/06/15 16:14:22 lost connection to local Wi-Fi network
 12/06/15 15:46:07 connected to local Wi-Fi network
 12/06/15 15:44:01 lost connection to local Wi-Fi network
 12/04/15 22:11:45 connected to remote server
 12/04/15 22:07:18 lost connection to remote server
 12/04/15 21:43:45 connected to remote server
 12/04/15 21:38:23 lost connection to remote server
 12/04/15 19:41:00 connected to remote server



Local Wi-Fi Connection Troubleshooting



One way to determine if the router and UI are compatible is to try pinging the UI. You will need the UI's IP address, found on the Wireless menu, under IP Settings. To ping, your computer/phone/tablet must be connected to the same router that the UI is connected to. With a windows pc, you can use the ping command through the command prompt to reach the UI. Ping 192.168.1.171, for the UI below, for example. If you get a response from the UI, the router is allowing its communications to go through. If not, the router is not allowing its communications to go through.

A screenshot of a mobile device's "IP settings" menu. The menu has a dark background with yellow text. It includes fields for "IP type" (set to DHCP), "IP address" (192.168.1.171), "subnet mask" (255.255.255.0), and "default gateway" (192.168.1.254). At the bottom are "cancel", an information icon, and "save" buttons.

IP settings	
IP type:	<input checked="" type="radio"/> DHCP <input type="radio"/> static
IP address:	192.168.1.171
subnet mask:	255.255.255.0
default gateway:	192.168.1.254
cancel save	

Local Wi-Fi Connection Troubleshooting



Example of ping command on a PC.

```
C:\Users\bact34k>ping 161.145.43.2

Pinging 161.145.43.2 with 32 bytes of data:
Reply from 161.145.43.2: bytes=32 time=1ms TTL=128
Reply from 161.145.43.2: bytes=32 time=1ms TTL=128
Reply from 161.145.43.2: bytes=32 time=1ms TTL=128
Reply from 161.145.43.2: bytes=32 time=5ms TTL=128

Ping statistics for 161.145.43.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 5ms, Average = 2ms

C:\Users\bact34k>
```


Local Wi-Fi Connection Troubleshooting



There are smart phone apps, like Network Ping Lite that can be downloaded and used on a jobsite to ping the UI. An example screenshot is shown.

If the router is denying communication, what now? You may be able to get things working by simply installing the TP-Link and connecting to the homeowner router. If it's a router compatibility issue, it may only affect the wireless communication between the homeowner router and UI when talking wirelessly. The TP-Link is one way of bypassing the wireless communication problem with the homeowner UI. You may also be able to use a Wi-Fi range extender (repeater), which would also accomplish the same thing.



Network Ping Lite
Business
★★★★★ 15

IP Address to ping:

192.168.254.130



Delay: 2000 ms

Stop

Clear

```
PING 192.168.254.130 (192.168.254.130)
44 bytes from 192.168.254.130 : icmp_seq=0 ttl=255 time=389 ms
44 bytes from 192.168.254.130 : icmp_seq=1 ttl=255 time=14 ms
44 bytes from 192.168.254.130 : icmp_seq=2 ttl=255 time=19 ms
44 bytes from 192.168.254.130 : icmp_seq=3 ttl=255 time=28 ms
44 bytes from 192.168.254.130 : icmp_seq=4 ttl=255 time=19 ms
44 bytes from 192.168.254.130 : icmp_seq=5 ttl=255 time=19 ms
44 bytes from 192.168.254.130 : icmp_seq=6 ttl=255 time=21 ms
44 bytes from 192.168.254.130 : icmp_seq=7 ttl=255 time=293 ms
44 bytes from 192.168.254.130 : icmp_seq=8 ttl=255 time=19 ms
--- 192.168.254.130 ping statistics ---
9 packets transmitted, 9 packets received, lost 0.0 %
```



Dealer Information



Dealer Contact Information and Logo Upload Instructions



There are three ways to upload the Dealer Information into the new Touch Controllers.

1. You can manually load the information into the Touch Controller using either a **USB Drive** or a **Micro SD Card** depending on the Touch Controller using the **Export Tool App** you downloaded on your computer.
2. You can add your Dealer information into the Touch Controller when you set up the homeowners **Online Account**.
3. The new –B Touch Controllers have the ability on the –B Touch Controller to **Manually** type the information in the Touch Controller using the onboard keypad. (You can't add a logo this way though).



How to Upload a Screen Saver, Schedule, Dealer Info/Logo to a USB or a Micro SD Card

You can add a Screen Saver, Schedule, Dealer Info/Logo and Software Updates into the Touch Controller by using a USB or A Micro SD Card. We have already covered how to upload software so let's discuss how to upload a Screen Saver, Schedule, Dealer Info/Logo into the Touch Controllers. Download the Export Tool Application from either the www.myinfinitytouch.carrier.com or www.myevolutionconnex.bryant.com website, the Export Tool is the same for both brands.

Once you download the Export Tool, I recommend placing it on your desktop for easy access. If the homeowner wanted to add a Screen Saver or a Schedule to the User Interface, there are instructional videos located in the www.myinfinitytouch.carrier.com or www.myevolutionconnex.bryant.com web pages under the “**Learn More**” tab. This is also where the homeowner will download the desktop application to their computer under the **Upload Application > PC Application or MAC Application**.

***Note:** The Photo Export and Schedule Export features are only available in the desktop Export Tool.



Polling Question 2

Communication Voltages

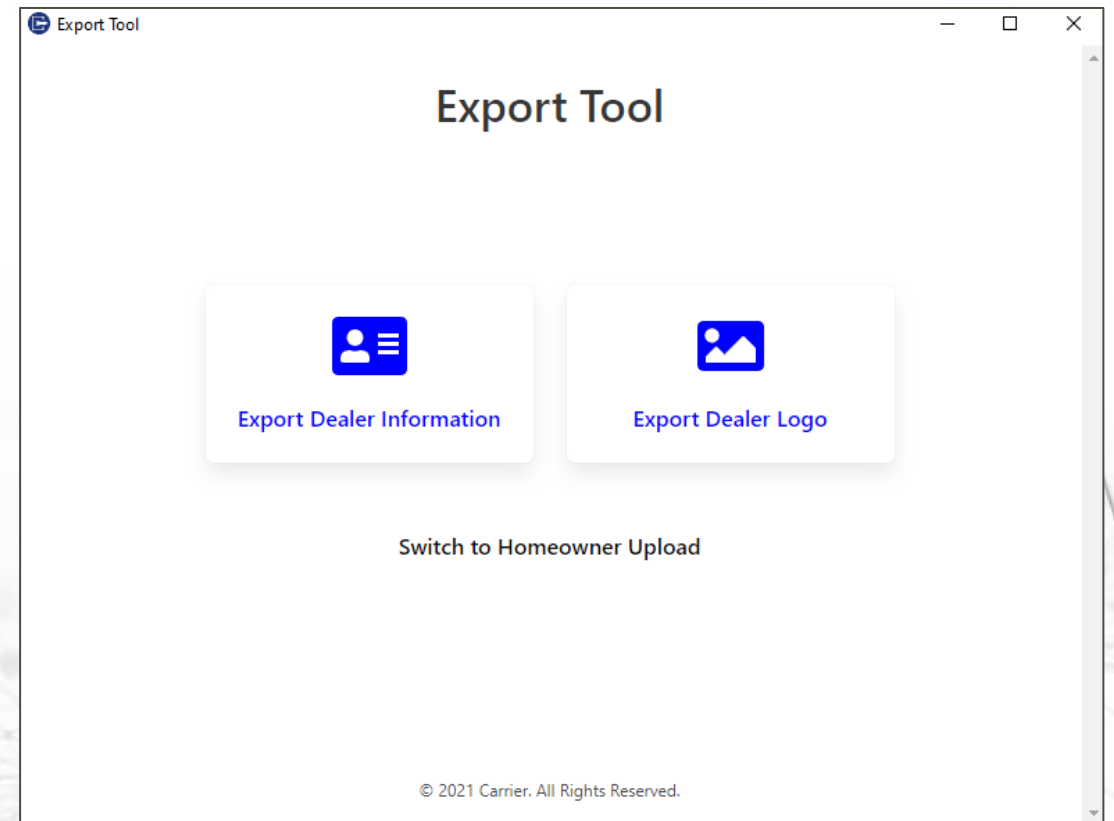
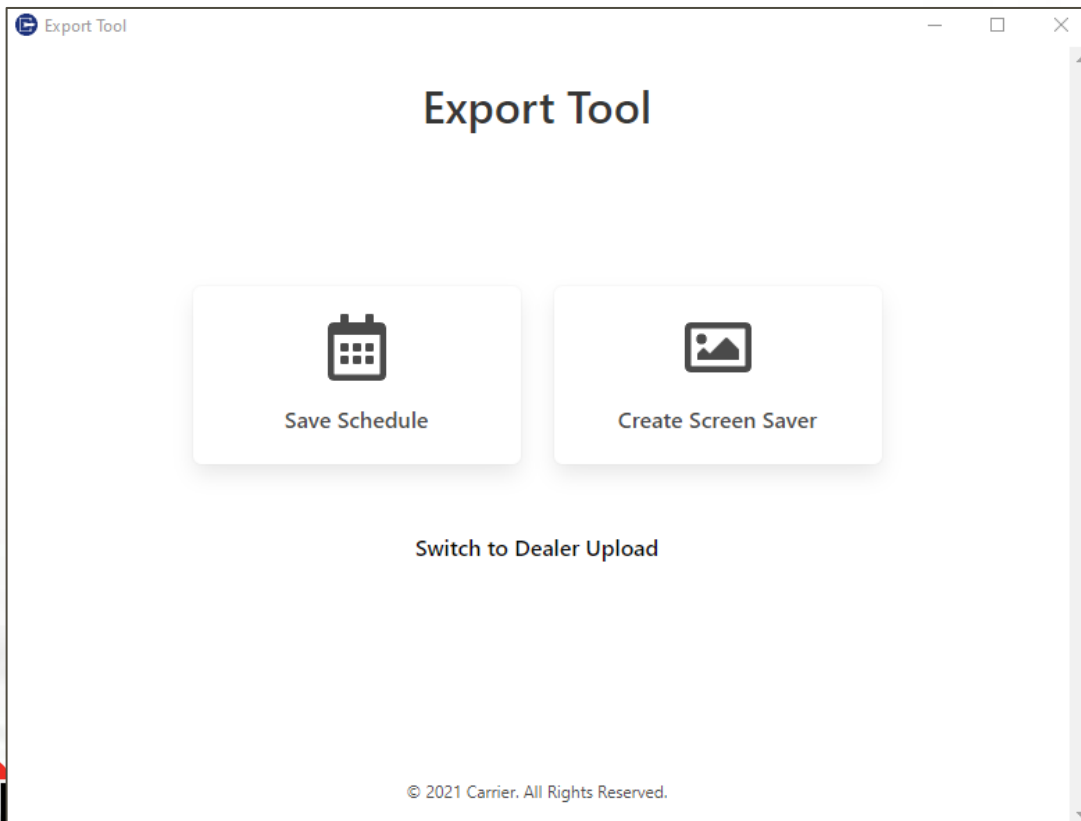
If you are viewing this as a group,
come to a collective decision and
provide 1 answer.



1 Minute Clock

Export Tool Instructions

Once you open the application you will have two choices. Either the Homeowner Upload screen or the Dealer Upload screen.



Dealer Export Tool Instructions



Export Tool

Export Tool

Export Tool

< Main Menu

Next >

Postal Code

Within Miles

Brand

US or Canadian

10

25

50

Carrier

Bryant

Company Name

Contact First Name

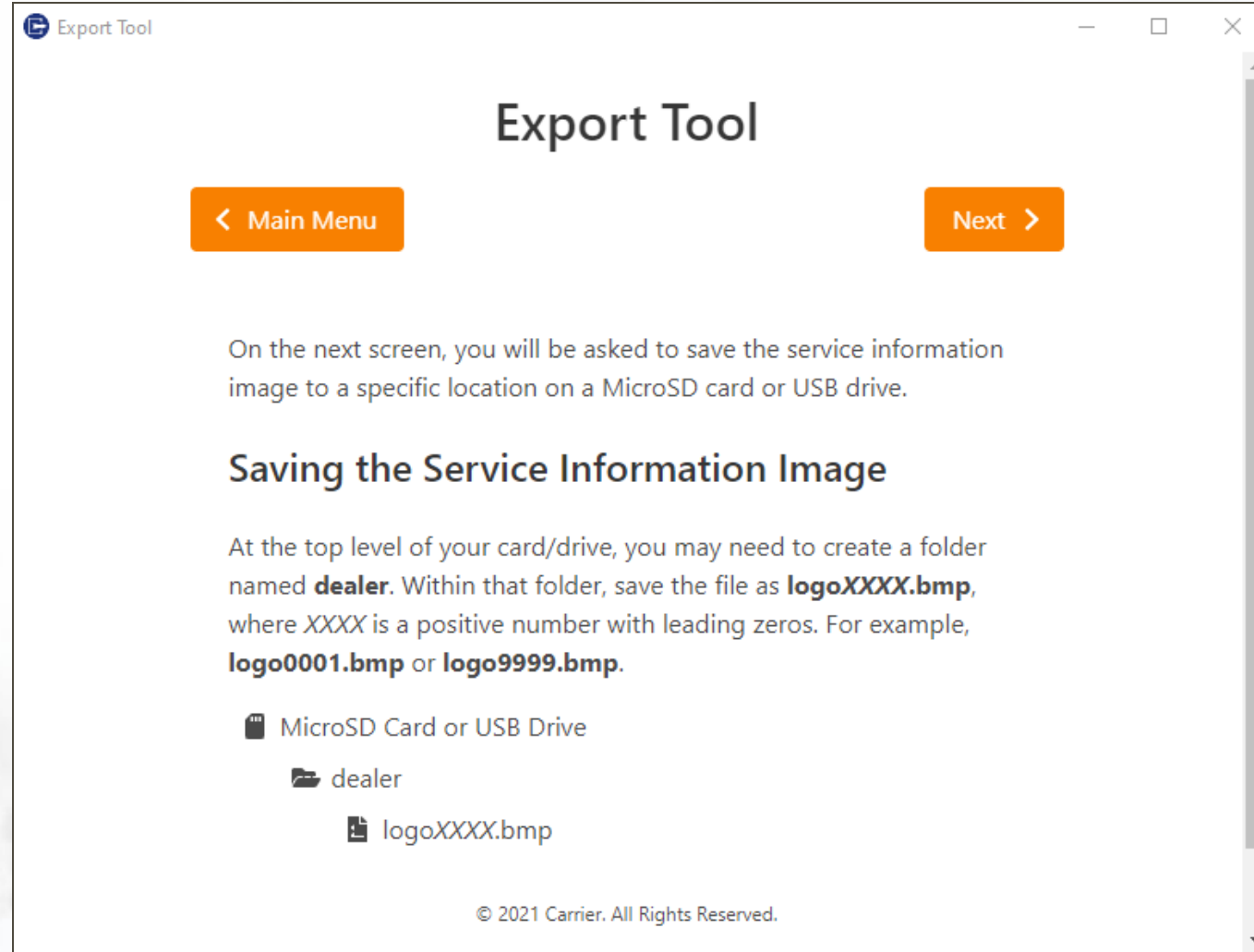
Contact Last Name

Street Address 1

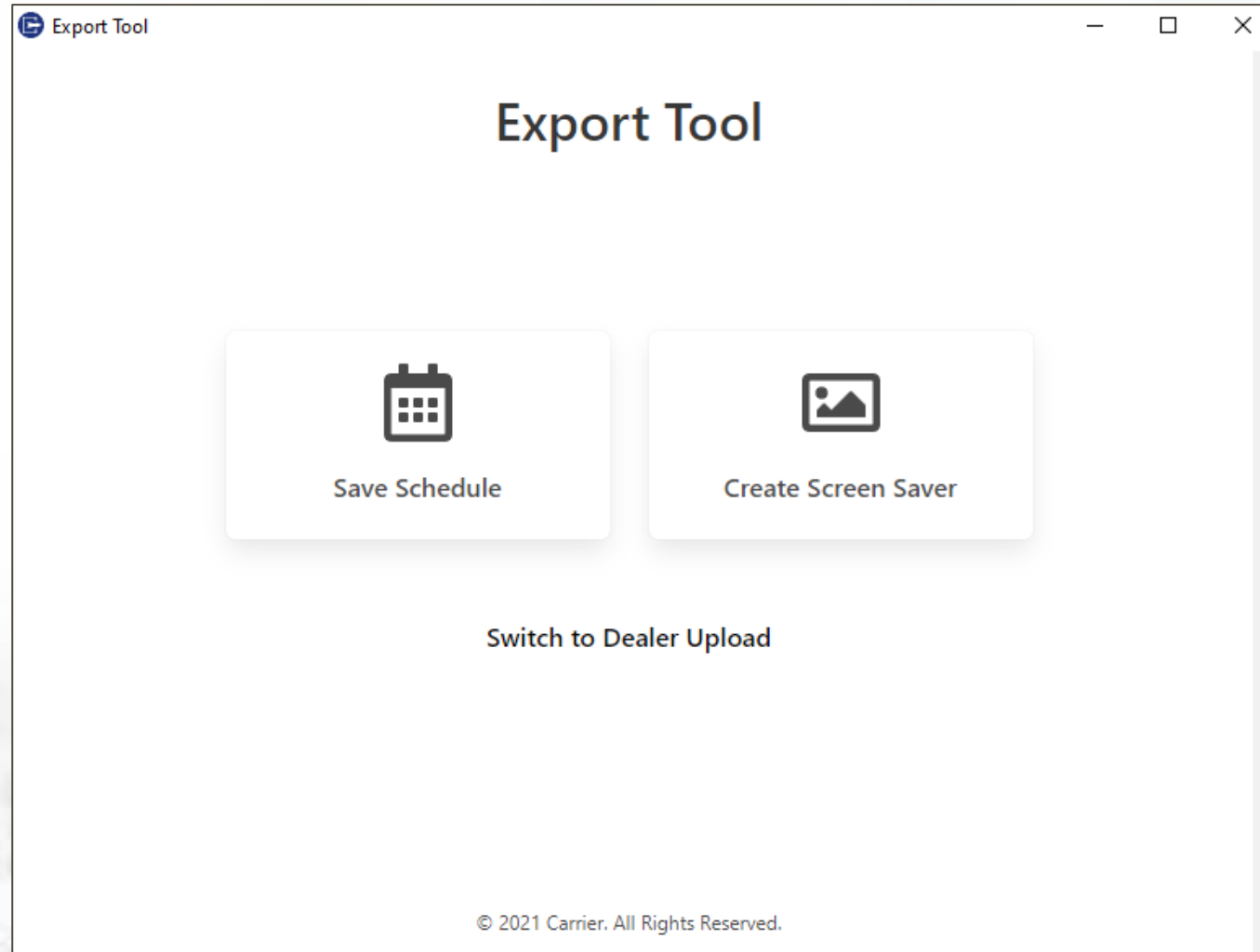
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Dealer Export Tool Instructions



Homeowner Export Tool Instructions

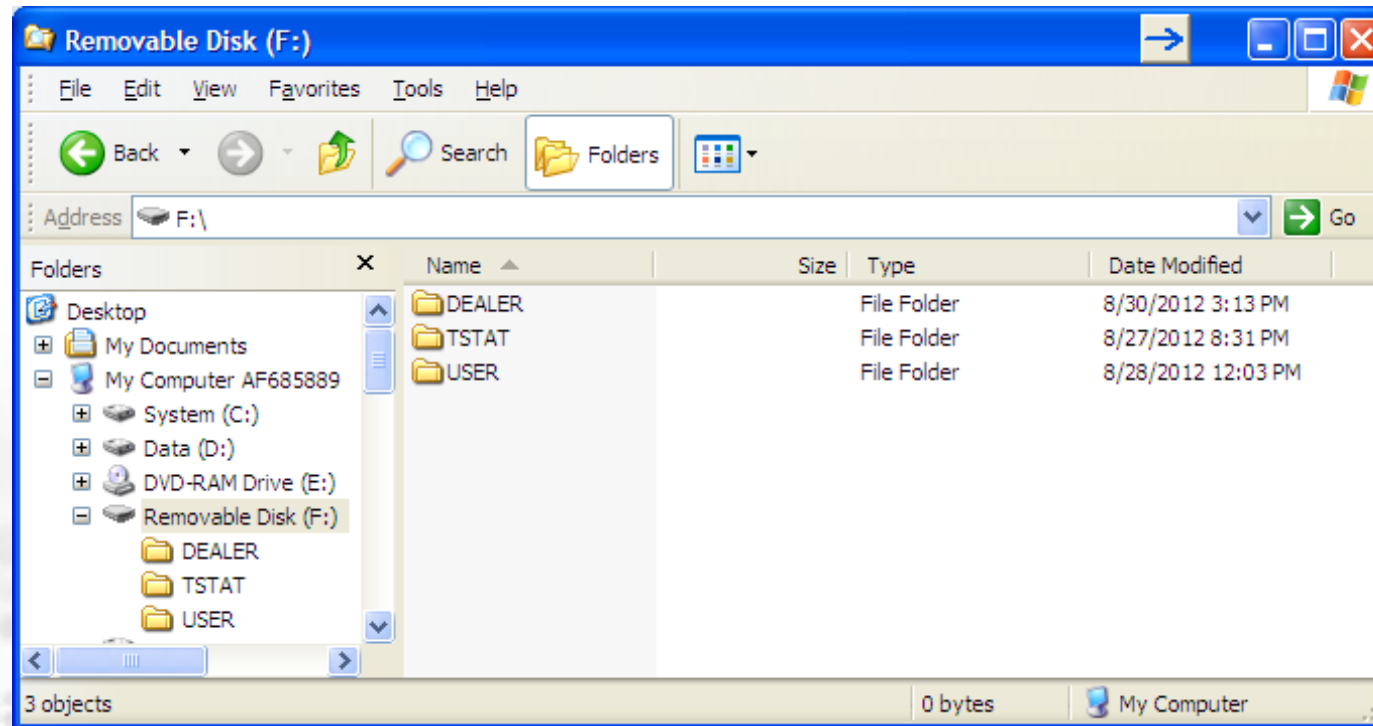


Dealer Contact Information and Logo Upload Instructions

In the top level of the USB or Micro SD Card directory, add a folder named “**DEALER**”. This is the location where the dealer contact information and logo will be stored.

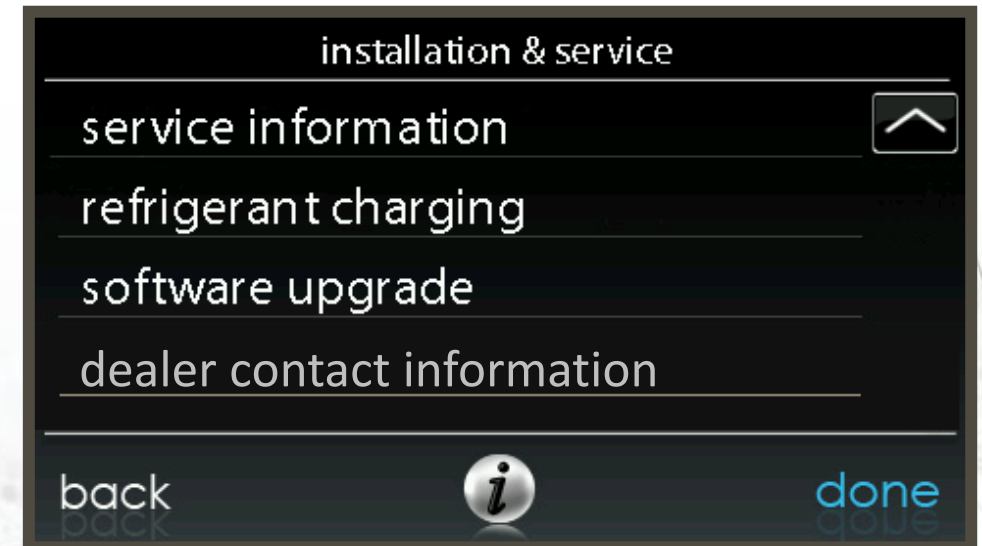
For your information, the “**TSTAT**” folder is used for software updates for the Touch Control.

The “**USER**” folder is used for uploading user photos and comfort schedules.

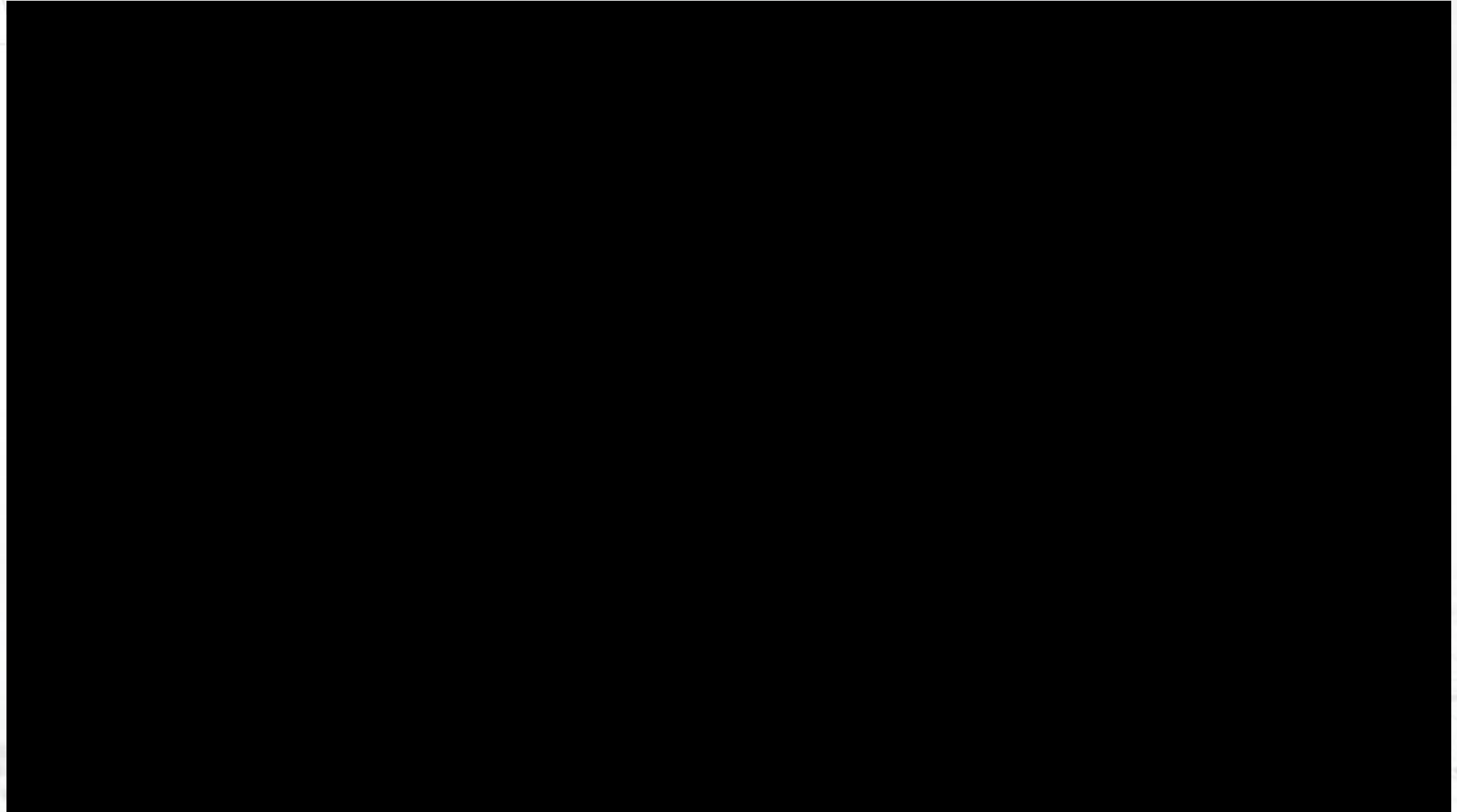


Dealer Contact Information and Logo Upload Instructions

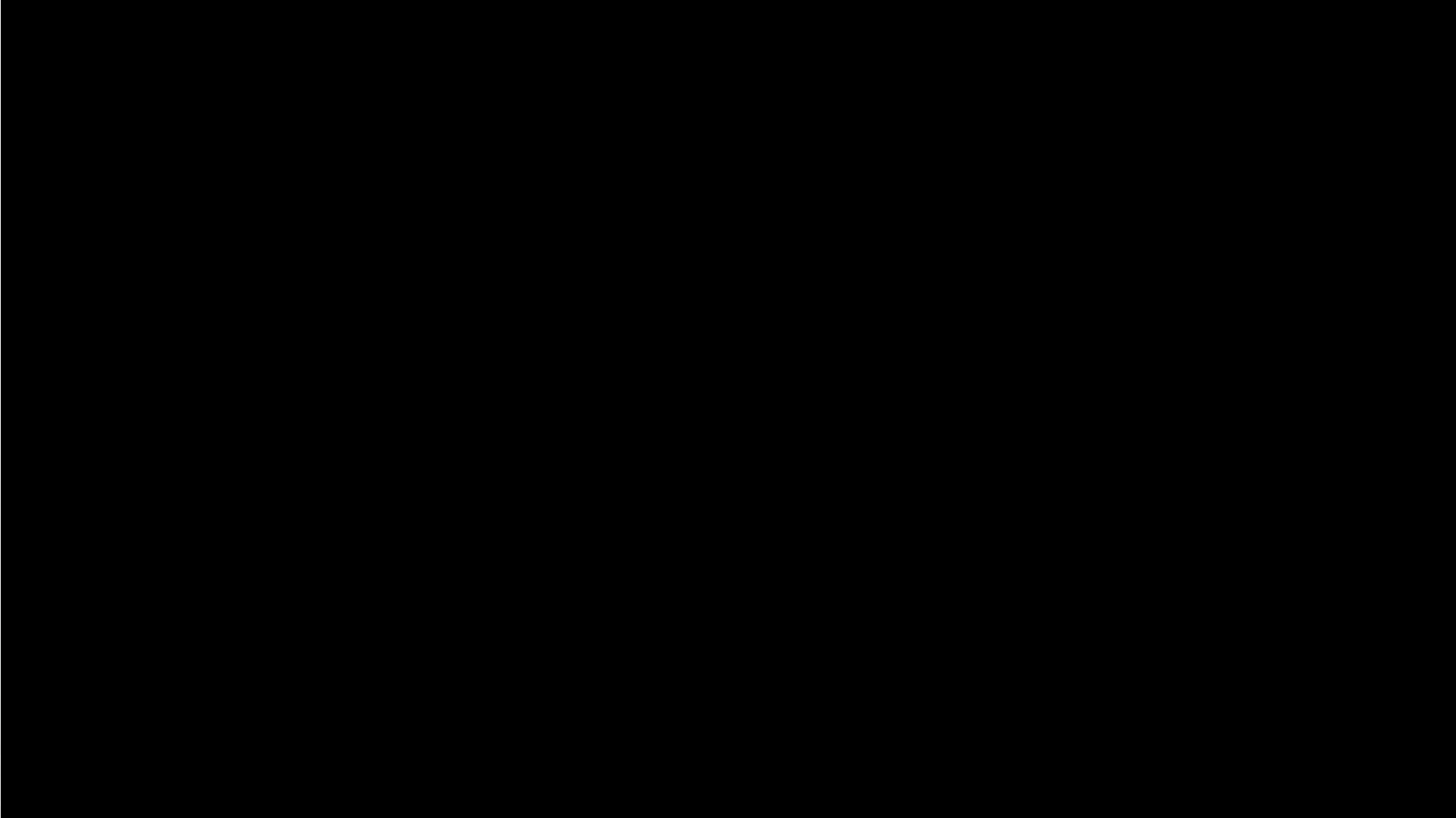
Safely remove the USB or Micro SD Card from your computer and plug it into the bottom of the Touch Control. Touch and hold the Service icon on the wall control Menu for about ten seconds until it turns green, and the Installation and Service screen appears. Select Dealer Logo Upload option.



APP Usage - Using the Infinity[®] Touch Control App



Managing an Infinity® Touch Control Account



Password Reset

Sign in

Username

Password

Your account has been locked for security reasons.

ok

Log In

Create new account

Forgot Username or Password?



Get the new Carrier Home mobile app.

Download on the
App Store



GET IT ON
Google Play



Go to downloads

Forgot Username or Password

Forgot Password

If you've forgotten your password or have been locked out of your account, enter your username. If you're not certain what your username is, see the Forgot Username section below. If you're not certain what your username or account email is, please [contact technical support](#).

Username *

Submit

Forgot Username

If you've forgotten your username, enter your account email below. If you're not certain what your account email is, please [contact technical support](#).

Account Email *

Submit

Create new account

Login

If the homeowner has forgotten their password, they can go to the webpage

www.myinfinitycarrier.com or www.myevolution.bryant.com and go to the Login in tab and click on the forgot password tab. If they can't remember their username, they can enter their email address and reset their password still.

Dealer Portal



A screenshot of a web browser displaying the HVAC Partners Dealer Portal. The browser's address bar shows "hvacpartners.com". The page header includes the HVAC PARTNERS logo, a user profile for "Richard Gambaro" with a "Sign Out" button, and a navigation bar with links for Products, Marketing, Support, Learning, Ordering, and Admin. A search bar is also present. The Marketing menu is expanded, showing options like Marketing Your Business, Sales Tools, Market Funds, Accounts, Recruiting, Sales Literature, Dashboards & Portals, Programs & Promotions, and Software. The "Dashboards & Portals" option is highlighted with a red box. The main content area includes a "My Dashboard" section, a "What's New" section with recent updates, and a "Quick Links" section with icons for EPIC Internet Explorer and EPIC Multi-Browser. The Windows taskbar at the bottom shows various application icons and the system clock indicating 12:36 AM on 1/13/2021.



Dealer Portal



My Dashboard x Epic Multi Browser x ServiceBench - Servi x Training Exams - Go x Infinity / Evolution C x Carrier Enterprise | C x Webinar Information x + -

hvacpartners.com

Apps CE Intranet | Comfo... Salesforce Bookeo Sign In - Zoom ServiceBench Nate Concur Carrier.HVACpartne... Google Voice Watsco Works Login Other bookmarks

What's New

- 101-201 1/6/2021
- BY-103 1/6/2021
- PMB20-114 2021 RC Training Schedu 1/6/2021 Parts
- 48TC18-29 WeatherMaker® Single P 1/6/2021 Installation
- BY-106-21-01: LCML Inter-Company 1/8/2021 Product

Dashboards & Portals

- Commercial Marketing Home Page
- Bryant Commercial Tool Box
- RTUs with EcoBlue Technology Marketing Portal
- Axon Fan Technology Marketing Portal
- Connected Portal**
- Commercial Social Media
- Dealer Dashboard
- Channel Performance Center-Distributor
- Healthy Buildings

Quick Links

- EPIC Internet Explorer
- EPIC Multi-Browser
- RC Distributor
- Fast Track Quoting
- RC Community
- HVAC Parts
- RC Online
- Xref Distributor
- Xref Dealer
- [MY] Learning Center
- TM Playbook
- Customer Gateway
- Dealer Bin
- PUP Personal User

https://hvacpartners.com/Pages/MT/Programs Promotions/ConnectedCont.aspx

12:40 AM 1/13/2021



Dealer Portal

Richard Gambaro
Sign Out

Products
Marketing
Support
Learning
Ordering
Admin

Search

CONNECTED PORTAL

turn to the experts

Connected Portal

Heating & Cooling Systems

Connected Portal

RESOURCES

Title	Print Date
Carrier® Connected Home Diagnostic Portal	11/01/2019
Bryant® Connected Home Diagnostic Portal	10/10/2019

Showing 1 to 2 of 2 entries

A SAFE CHOICE

CERTIFIED OEM QUALITY & PERFORMANCE

THINK INSIDE THE BOX

CERTIFIED OEM QUALITY & PERFORMANCE

Competitive Comparison Tool

Dealer Portal



Connected Portal

Welcome CE Corporate

Log Out

Search Dealers

Dashboard

Dealers

Advanced Search

Resources

Updates

Jan 5. During the holiday period we have been restoring moved Infinity Touch accounts to their correct dealers in the Connected Portal, which triggers an email to the homeowner and an email to the dealer. We have found that in some cases multiple emails are being sent to homeowners, and we are investigating the root cause. Further, it's been reported and confirmed that some dealers have received notification emails meant for other dealers. Please disregard these notifications sent in error. We have determined the root cause of this, and further restorations will send the dealer notifications to the correct address if a notification address is provided on the dealer's Settings page. If no address is provided, no email will be sent. We apologize for these customer and dealer emails sent in error. Finally, we want to point out that Connected percentages in the Portal are rounded to integer values (e.g., 79.928 --> 80%), while in FAD and MOE scorecards the percentages are expressed to two decimal places (e.g., 79.928 --> 79.93%). Thus, 80% shown in the Portal may register below 80% for the scorecard.

DASHBOARD

Lifetime Analysis

62,930

Connected Controls

47,356

Queued Controls

2,962

Connected Dealers

54,236

Connected Customers

REPORTS

Connected Controls

Month over Month Analysis

Dealer Logins

Year-to-Date Analysis

Dealer Portal



Dealer Portal

Welcome

Log Out

Search Customers

Dashboard

Customers

Opportunities

Settings

Dashboard

01/01/2018 - 04/10/2018

Statistics

Connected Customers

109

Alerts

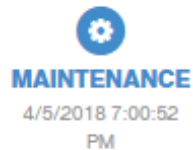
5

Opportunities

271

Alerts

All 0 Critical Alerts 1 Moderate Alerts 4 Maintenance Alerts



Code 3130: Time To Change Your Furnace Filter, it was last changed on Jan 6, 2018

customer [Ron Darley](#)

Details

Hide



Code 3130: Time To Change Your Furnace Filter, it was last changed on Jan 4, 2018

customer [Ben Turner](#)

Feedback

Dealer Portal



Connected Portal

Welcome

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Settings

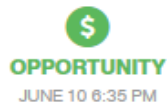
Resources

Updates

FAQ

Opportunities

Active Opportunities



You have **12 Infinity/Evolution version A controls** that are listed as having firmware below version CESR131493-14.02.

Download Report



You have **29 Infinity/Evolution version B controls and 0 ION controls** that are listed as having firmware below version CESR131626-04.05.

Download Report



You have **0 Infinity/Evolution version C controls** that are listed as having firmware below version CESR131755-1.05.





298 thermostats have not been registered to a remote access account. To access information for these controls the homeowner must register the thermostat with a remote access account at www.carrier.com/myhome or through the mobile application.

Download Report

Feedback

Dealer Portal




turn to the experts

Dealer Portal

Log Out

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Opportunities

Settings

Add New Control

Customers

01/01/2018 - 04/10/2018

Statistics

Connected Customers

109

View

Customer Queue

150

View

Customer Directory

sort by Alphabetical Find Customer

model: Infinity® Touch Control

Details

model: Cōr™ Wi-Fi® Thermostat

Details


model: Infinity® Touch Control

Details


Dealer Portal

You can see that we can look at the equipment and different values like status, configuration and we can even edit some configurations. We can also look up documents, warranty and service history.


System 1 System Settings



Infinty® Touch Control
model SYSTXCCITW01-A [product documentation](#)
serial [REDACTED] [warranty lookup](#) [service history](#)
firmware CESR131493-14.01
data sharing view status: **Enabled**
view config: **Enabled**
edit config: **Enabled** [Details](#)



Infinty® 80 Gas Furnace
model 58CVA110---16120 [product documentation](#)
serial [REDACTED] [warranty lookup](#) [service history](#)
firmware CESR131516-24
[Details](#)



Infinty® 17 Central Air Conditioner
model 24ANB748A00310 [product documentation](#)
serial [REDACTED] [warranty lookup](#) [service history](#)
firmware CESR131390-11
[Details](#)

Dealer Portal

Control Details



Infinity® Touch Control

model SYSTXCCITW01-A

[product documentation](#)

serial

[warranty lookup](#)

[service history](#)

[remove dealer](#)

[Print](#)

Status as of Tuesday, April 10, 2018 12:44:49 PM ET

Zone 1

73°

Indoor Temp

62°

Outdoor Temp

81°

Cool To

38%

Indoor RH

70°

Heat To

SYSTEM ACTIVITY

Fan **OFF**

Air Conditioner **OFF**

Heat **OFF**

Auxillary Heat **OFF**

PROGRAM SETTINGS

Wake **SET** 06:30 AM S M T W T

Away **ACTIVE** 09:30 AM S M T W T

Home **SET** 08:30 AM S M T W T

Home **SET** 06:00 PM S M T W T

Sleep **SET** 09:15 PM S M T W T

[Notifications](#)

[Event Log](#)

[Detailed Status](#)

[System Information](#)

Dealer Portal



My home



Côr™ WI-Fi® Thermostat

model TP-WEM01 [product documentation](#)

serial [REDACTED] [warranty lookup](#) [service history](#)

esn [REDACTED]

firmware 4.0.0.653

data sharing view status: **Enabled**

view history: **Disabled**

[Details](#)



Unknown

model 25HCB648A003 [product documentation](#)

serial [REDACTED] [warranty lookup](#) [service history](#)

firmware - -

Service Notes

[+ new entry](#)

No service logs exist

[Full Log](#)

Dealer Portal



Control Details



Côr™ Wi-Fi® Thermostat

model TP-WEM01

[product documentation](#)

serial [REDACTED]

[warranty lookup](#)

[service history](#)

[remove dealer](#)

[Print](#)

Status as of 2018-04-10 11:47:57 ET

68°

Indoor Temp

75°

Cool To

The homeowner has not enabled this feature. In order to view this information the homeowner must enable the notification preference in their web portal to allow the dealer to view program schedule & configuration.

37%

Indoor RH

68°

Heat To

Event Log





Carrier Enterprise South Central



Thank you for ATTENDING!
DON'T LEAVE JUST YET!!!

**Questions ?
Ask in chat
or unmute**

**VERY IMPORTANT – IF YOU DO NOT HAVE A LOGIN FOR
[CESCTECHSUPPORT.COM](https://cesctechsupport.com), PLEASE
SCAN THE QR CODE TO GET REGISTERED
SO, WE CAN PROCEED TO THE QUIZ**



**If you just registered or do not see this class within your
“Purchased Zoom Meetings” please scan the below QR
Code and add/enroll in the course**



Infinity Evolution Controls Course Page Link

End of Day 2

****Important** Test Taking Information**



1. Scan the QR Code to go to [YOUR ACCOUNT](#) login page.
2. If you are not currently logged in, you will be required to in order to access your test
3. Navigate to “Purchased Zoom Meetings”
4. Select today’s course
5. Complete your final test
6. Upon completion and passing your test you will be able to print your certificate