

DigiSmart™ UPGRADE INSTALLATION INSTRUCTIONS (DSUK01B Kit)

The installation and servicing of the equipment should be done by qualified, experienced technicians.

Description

Control board installation procedures are described in detail in these instructions. Read and follow these instructions carefully before placing the control board. Failure to do so may result in control board damage.

IMPORTANT NOTE: Damage to the control board can occur from failure to disconnect the power supply or failure to set the master switch (located on the control board) to OFF before removing the low voltage terminal strip cover from an installed control board. Damage to this board by not following these instructions is considered misuse and not covered under either the standard unit warranty or any extended service contract.



WARNING

GOODMAN WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU INSTALL OR PERFORM SERVICE ON THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. MANY JURISDICTIONS REQUIRE A LICENSE TO INSTALL OR SERVICE HEATING AND AIR CONDITIONING EQUIPMENT.

Electrostatic Discharge (ESD)

Before removing the new control board from the static wrap, it is very important to discharge any static electricity. This can be accomplished in two methods. Servicer can wear a ground strap or by touching the metal chassis before replacing the board.



WARNING

HIGH VOLTAGE

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS KIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



Do not install this kit on a unit with hydronic heat.

Preparation

1. Disconnect power to the unit by unplugging the power cord at the wall outlet or subbase, or disconnect power at the fuse box or circuit breaker.

ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer.
This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual.
Pay special attention to all safety warnings. Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember, it is your responsibility to install the product safely and to know it well enough
to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting.
Most dealers have a list of specific good safety practices...follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices.
However, if there is a direct conflict between existing practices and the content of this manual,
the precautions listed here take precedence.

*Due to policy of continual product improvement, the right is reserved
to change specifications and design without notice.*

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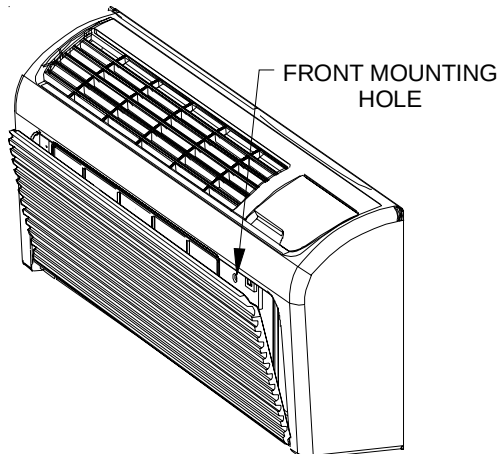
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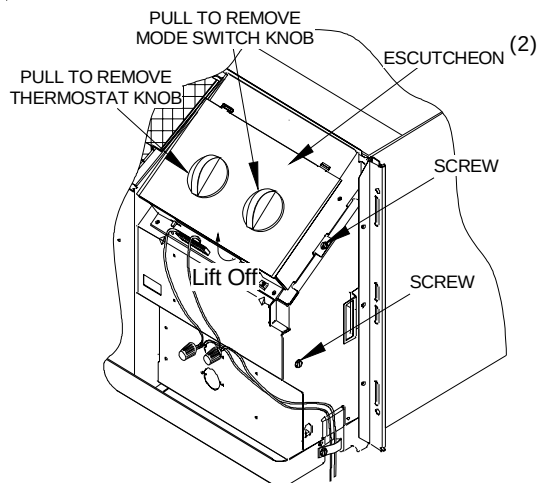
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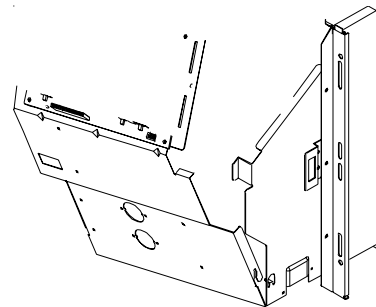
2. If the cabinet front is screwed to the chassis, remove the 1/4" screw (or screws) located behind the inlet grille. Pull the inlet grille forward from the top of the grille to access screw(s).



3. Remove cabinet front from chassis by tilting the bottom of the front forward, lifting slightly up and forward.
4. Remove and discard control knobs, escutcheon.



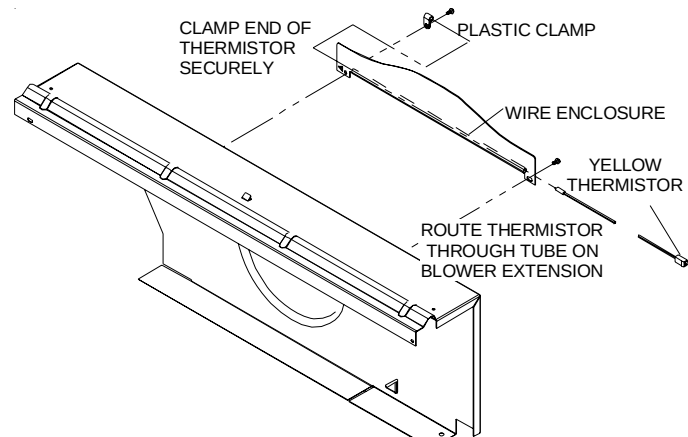
5. Remove the two mounting screws located on each side of the control cover. Set aside. Remove and discard control cover. Remove the screw on the right side, if present.
6. If a remote thermostat or any low voltage accessory is being used, remove the low voltage terminal strip.
7. Remove the control board by removing the control board wires and thermistor leads from the control board. Remove the four screws that secure the control board to the control panel. Remove and discard the control board.
8. Tilt the control panel forward on hinges for access to control compartment.



9. Carefully cut and remove the gasket on the left and right sides of discharge screen. Remove the two 5/16" screws holding the indoor exhaust screen above the indoor coil. Remove the indoor exhaust screen.
10. Remove the two 1/4" screws connecting the heater panel to the evaporator coil.
12. Remove the two screws mounting the air baffle to the top of the heater panel and remove and discard the air baffle.

Installation

13. Install the new air baffle. Route the yellow thermistor probe from right to left through the wiring tube enclosure. Mount the black tip of the yellow thermistor probe in the plastic clip provided. Hold the plastic clamp in place and secure the clamp to the left end of heater panel using one of the original screws. Replace the screw on the right end of the air baffle being careful not to damage the wiring insulation on the probe.

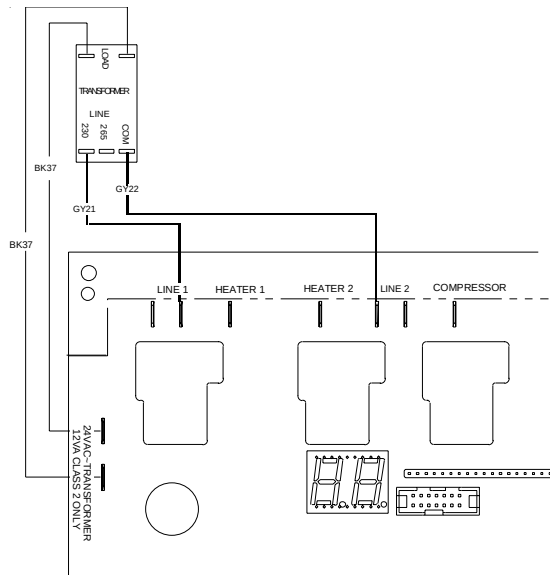


14. Replace the heater panel, routing the yellow wire around the right end of the heater panel and into the control panel pulling snug to prevent the wire from being entangled in the blower wheel or being visible from above. Replace the two screws mounting the heater panel to the evaporator coil.
15. Replace the exhaust grille and two mounting screws.
16. If existing unit has a remote mounted "off board" transformer for board power, proceed to step 17. Otherwise, mount the supplied transformer on the inside of the control panel just below the control board using the screws provided.
17. After discharging any static from your body to the chassis, remove the new control board from its packaging and place on the control panel and mount with the four screws removed in step 7.

18. Plug the thermistor probes removed in step 7 onto the new control board per color-coded terminals. Plug the additional yellow thermistor probe onto the corresponding yellow IDT terminal. Be careful not to route the thermistor probe wires over the numeric display.
19. Connect the two black 37 wires from the load "low voltage" side of the transformer to the 24VAC connections on the left side of the control board.
20. Connect the grey 21 wire to either of the Line 1 terminals on the control board. Then connect the other end of the grey 21 wire to either the 230 volt terminal or the 265 volt terminal on the transformer.

NOTE: Refer to the model number for voltage information. The sixth character designates the voltage: 3=230 volt, 4=265 volt.

Connect the grey 22 wire from the COM on the transformer to either of the Line 2 terminals on the control board.



21. If the unit has a condensate pump, go to step 22A. If the unit has a power vent or power door, go to step 22B. Otherwise proceed with step 22C. Refer to wiring diagrams in back of manual.

22A. Condensate Pump Units Only

Reconnect the wires across the top terminals of the control board. Connect as follows:

- Red 33 to Line 1
 - Brown 34 to Heater 1
 - Brown 34 to Heater 2
 - Power cord (or black 18) to Line 2
 - Violet 12 and yellow 3 to Compressor
 - Black 16 to Fan High
 - Red 17 to Fan Low
 - 19 from reversing valve and Yellow 1 to Rev. Valve.
- Connect the yellow 5 wire to the 230 or 265-volt terminal as applicable using the piggyback terminal on the yellow 5 wire. Go to step 23.

22B. Power Vent/Power Door Units Only

Reconnect the wires across the top terminals of the control board. Connect as follows:

- Red 33 to Line 1
 - Brown 34 to heater 1
 - Brown 34 to Heater 2
 - Power cord (or black 18) to Line 2
 - Violet 12 to Compressor
 - Blue 4 to Fan high
 - Blue 15 and Blue 10 to Fan Low
 - 19 from reversing valve to Rev. Valve
- Connect the white 7 wire to the 230 or 265-volt terminal as applicable using the piggyback terminal on the white 7 wire. Go to step 23.

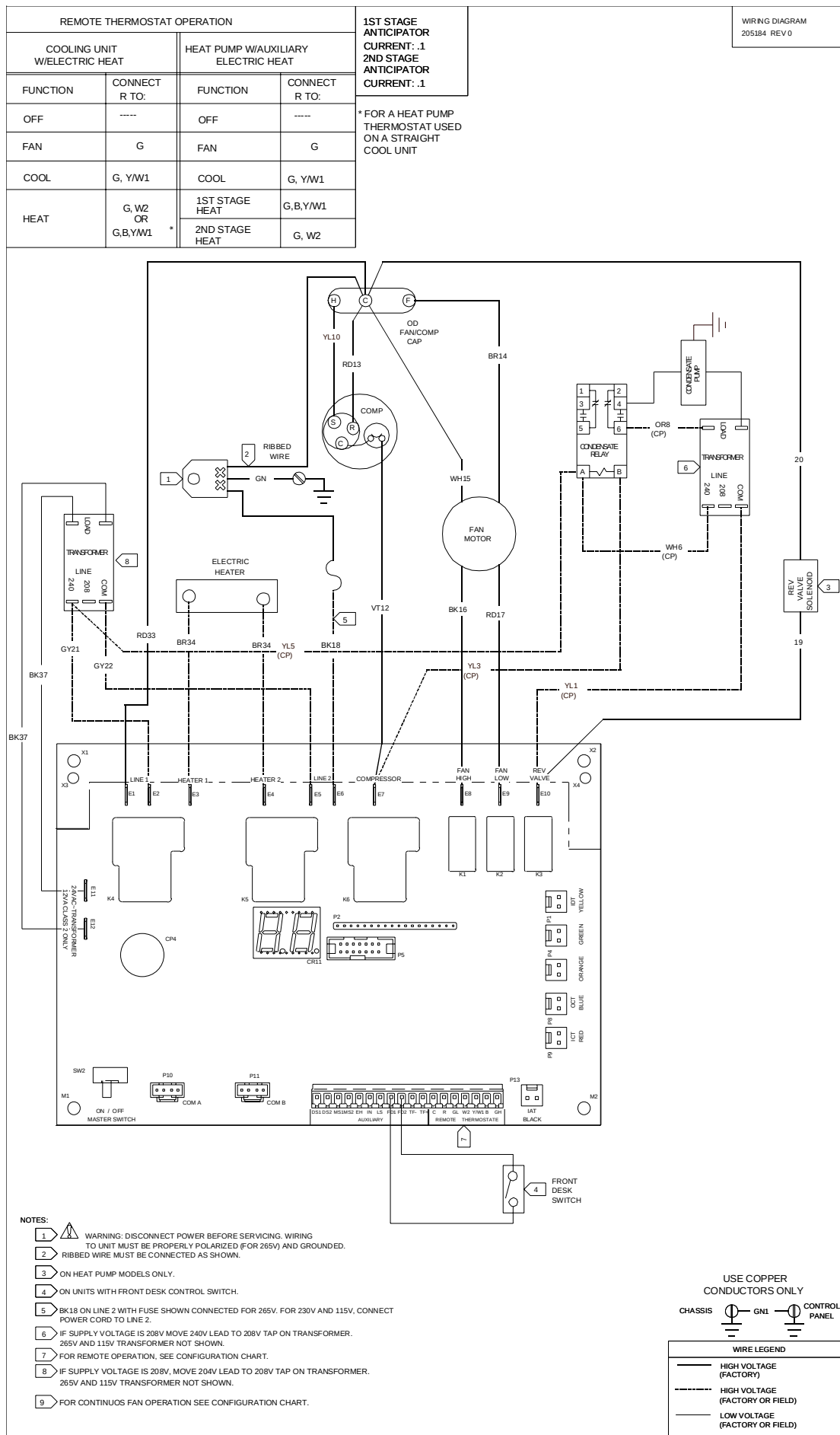
22C. Reconnect the wires across the top terminals of the control board. Connect as follows:

- Red 33 to line 1
- Brown 34 to heater 1
- Brown 34 to heater 2
- Power cord or black 18 to line 2
- Violet 12 to compressor
- Black 16 to Fan High
- Red 17 to Fan Low
- 19 from reversing valve to Rev. Valve.

23. If any remote thermostat or low voltage accessory is being used, reconnect the low voltage pin connector to the low voltage terminal strip on the control board using the 14 pins to the right. There should be four exposed pins on the left.
24. The control board cover is now ready to be installed. Connect the ribbon cable to the 18 pin terminal strip to the right of the 2 digit LED display. Take caution not to bend or fold the ribbon. Ensure that no wires are pinched or caught between the control cover and the panel and then reinstall the screws removed in Step 3.
25. Set the master switch to ON. Restore electrical power and verify unit functionality.
26. Replace the front in reverse order as removed in Steps 2 and 3.

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

Configuration Settings

The control can be configured to operate a wide range of options. The options listed below with the * are the factory default settings. If these are acceptable, then the unit does not require any additional configuration and is fully operable. To configure the unit, first select the configuration feature code setting and then an option code to change from the factory default setting.

To **enter configuration feature mode**:

1. **Press and continue to hold** the up and down arrow keys and quickly **press** the **OFF** key **twice within a two (2) second time frame**. The display will alternate between displaying the feature code **C1**, for example, and the option code **0** (factory default setting). The lower right dot on the display will flash.

To select a configuration **feature code**, press the **HEAT** key until the desired configuration comes up. To scroll to a previously viewed configuration codes press the **COOL** key.

Once you have scrolled to the correct feature, then to select the **option code** for your desired configuration, press either the up or down key to scroll through the options of the selected feature code.

To **exit configuration mode**:

1. **Press** the **OFF** key. Configuration feature mode will also exit **if no keys are pressed** for a period of **two (2) minutes**.

Configuration Settings

Feature Code	Description	Option Code	Description
---	Start Configuration position		
C1	Interface Usage	0*	Unit is only controlled by the PTAC touchpad.
		rE	Unit is both controlled by a wireless thermostat and/or the touchpad.
		L5	Unit is controlled by a wired thermostat via the low voltage terminals only.
C2	Fan Operation	Au*	The fan only runs with the call for heating or cooling.
		On	The fan runs continuously except in the OFF position.
		C	The fan runs continuously in cooling and cycles with call for heating.
		bP	Unit is equipped with fan operation button for guest selection of fan cycling.
		bA	Unit is equipped with fan operation button, but self reverts to cyclic fan.
		bC	Unit is equipped with fan operation button, but self reverts to continuous fan.
		A	The fan always runs even in OFF mode
		C	Cooler only with or without electric heat.
C3	Reverse Cycle Operation	H*	Heat Pump.
C4	Room Identification first two digits	00-99	Set first two digits of room identification
C5	Room Identification last two digits	00-99	Set last two digits of room identification
C6	Wired Occupancy	0*	"No Occupancy" detection devices
		1	Wired Door Switch and Motion Sensor present
		18	Enter "No Occupancy" routine 18 hours after last control selection
C7	Wired Motion Sensor Type	0*	Normally Closed Device (Open when sensing motion)
		1	Normally Open Device (Closed when sensing motion)
C8	Cooling Temperature Limiting	60*-72	Select temperature between 60 and 72 for minimum cooling set point
C9	Heating Temperature Limiting	68-90, 80*	Select temperature between 68 and 90 for maximum heating set point
C0	Reverse Cycle "B" or "O" selection for thermostat	8*	Mating thermostat has a "B" terminal
		0	Mating thermostat has an "O" terminal
c2	Wired Unrented Set Back	0*	Not Active
		A	Active
c3	Unrented Cooling Temperature	60-90, 79*	Select temperature between 60 and 90 minimum unrented cooling set point.
c4	Unrented Heating Temperature	60-90, 63*	Select temperature between 60 and 90 minimum unrented heating set point.
Cb	Dehumidification	0*	Not Active
		1	Active
		U	Active in No occupancy / Unrented State
CC	Dehumidistat call for a drop in temperature	3-8	3-8
Cd	English/Metric Temperature	F*	Fahrenheit Scale
		C	Celsius Scale
CE	Freeze Protection	1*	On
		0	Off
CF	Hi. Speed Cooling Smart Temperature	5*-9	5-9
CH	Hi Speed Heating Smart Temperature	6-8*	6-8
CJ	2nd Stage Heat. Dif.	4*-8	4-8
		--	No electric heat
d1	Room Air Mix Cooling	1*	On
		0	Off
d2	Room Air Mix Heating	0*	Off
		1	On
d3	Air Mix Fan Speed	L*	Low
		H	High
d4	Heating Smart Speed	0	Not Available
		1*	Available
d5	Refrigeration Warnings and OCT Cooling Lockout	1	Enabled
		0*	Dis-enabled
d6	Sensorless Un-Occ. Time and Fan Revert Time	1-32	1- 32, 18*
d7	1st Un-Occ. Set Back Temperature	1-16	1-16, 2*
d8	1st Un-Occ. Set Back Time	.1, .5, 1-24	.1, .5, 1-24, .5*
d9	2nd Un-Occ. Set Back Temperature	1-16	1-16, 3*
dA	2nd Un-Occ. Set Back Time	.1, .5, 1-24	(d8)-24, 1*
dB	3rd Un-Occ. Set Back Temperature	1-16	1-16, 6*
dC	3rd Un-Occ. Set Back Time	.1, .5, 1-24	(dA)-24, 3*

*Indicates factory default.

Diagnostic Maintenance & Status Report

The Diagnostic Maintenance & Status Report provides detailed information on PTAC control operation and operational status including present modes, failures, airflow restriction warnings, operating temperatures, and past failures. The lower right hand dot on the center display flashes in this mode. In some cases the green LED located in the lower left hand corner of the touchpad below the OFF key will also be lit. This Green LED "Status Light" only illuminates if there is an status code that has been activated and should be reviewed. In most cases, this light indicates that the indoor room filter is dirty should be cleaned or replaced. **NOTE:** Dirty filters cause the unit to consume more energy than normally needed to condition a room. Once the filter has been cleaned or replaced, the LED should go out. If the LED is still illuminated after the filter has been cleaned, activate the Diagnostic and Status mode to view any active codes. The unit may need additional cleaning or maintenance of the evaporator or condenser coils. Please perform this step before calling a servicer. **A servicer should be called only if cleaning the filter or coils does not clear the status code or the code indicates that servicer should be called.**

DIAGNOSTIC STATUS REPORT MODE.

To enter **Diagnostic Status Report mode**, press and hold the up and down  arrows and, while holding, quickly press the **COOL** key  twice.

ACTIVE FAILURES.

- If there are no active failures or lockouts, the display will show a double dash, "- -". If there is a code listed, see the unit "Diagnostic Codes" chart for a list of definitions.

OPERATING TEMPERATURES.

- If not in Diagnostic Status Report Mode, enter as instructed above and press the Fan Speed  key.
- If already in Diagnostic Status Report mode, press the Fan Speed  key. The display will show the temperature of the desired set point, **SP**; the temperature at the wireless thermostat, **rL**; the indoor ambient temperature behind the filter, **IA**; the indoor coil temperature, **IC**; the indoor discharge air temperature, **Id**; the outdoor coil temperature, **OC**; the outdoor ambient temperature, **OA**; and the spare probe temperature, **IH**. If any of the probes are not populated the display will show the corresponding failure code.

PAST FAILURE LOG

- If not in Diagnostic Status Report Mode, enter as instructed above and press the Fan Speed  key twice.
- If already in Diagnostic Status Report mode, press the Fan Speed  key. While the display is showing operating temperatures, the last 10 failure codes active or past can be requested by pressing the Fan Speed  key again. The codes are displayed last entry first followed subsequently by each preceding code.

Note that modes F1 and Fd are also displayed in the normal control operation (see "Diagnostic Codes" chart).

To exit **Diagnostic Status Report mode**, press the OFF  key.

Diagnostic Codes

CODE		STATUS	DISPLAY	ERROR LIGHT	SUGGESTED ACTION
MODES	FP	Freeze Protection Engaged. The room temperature measured by the wireless remote thermostat or indoor ambient thermistor active sensor falls below 40°F.	Y	N	No Action required. This setting will disengage when the room temperature rises above 43°F.
	Fd	Front Desk switch is closed. All outputs are switched off.	Y	N	Open front desk switch to allow occupant unit operation.
	EH	Emergency Hydronic Engaged. The EHH switch is closed. Compressor is switched off.	Y	N	Open front emergency hydronic switch to allow occupant unit operation.
	LS	Load Shedding Engaged. The LS switch is closed. Compressor and Electric heat is switched off.	Y	N	Open load shedding switch to allow occupant unit operation.
	On	Control is configured to respond to a wired thermostat	Y	N	No action if a wired thermostat is being used. Otherwise, see Configuration Settings.
FAILURES	F1	Indoor Ambient Thermistor reads outside the range -20°F to 200°F & the wireless thermostat is not communicating to the unit control or	Y	Y	Replace black Indoor Ambient Thermistor or Wireless Remote Thermostat.
		Indoor Ambient Thermistor (IAT) without a wireless remote thermostat reads outside the range -20°F to 200°F.			
	F2	Wireless Remote Thermostat failure	N	N	Replace Wireless Thermostat.
	F3	Indoor Ambient Thermistor reads outside the range -20°F to 200°F	Y	N	Replace black Indoor Ambient Thermistor.
	F4	Indoor Coil Thermistor either above or below operating tolerances.	N	Y	Replace Red Indoor Coil Thermistor .
	F5	Wireless Thermostat failure.	N	Y	Attempt to rebind Wireless Thermostat or Replace Wireless Thermostat.
	F6	Indoor Discharge Thermistor either above or below operating tolerances.	N	Y	Replace Yellow Indoor Discharge Thermistor.
	Fb	Low Remote Battery Warning.	N	Y	Replace Batteries in Wireless Devices.
	H1	High Voltage Protection engaged. Power supply voltage is too high.	Y	N	Check for incoming power at correct voltage.
	br	Brown Out Protection engaged. Power was lost or voltage is low.	N	N	Check for incoming power at correct voltage.
AIRFLOW WARNINGS	L6	Discharge Air Too Hot.	N	Y	Clean Filter or Remove Air Blockage.
	L8	Air Restriction in Heating.	N	Y	Clean Filter or Evaporator Coil.
	L9	Air Restriction in Cooling.	N	Y	Clean Filter or Evaporator Coil.
	LC	Outdoor Coil Thermistor temperature high.	N	Y	Clean Condenser Coils, Check Fan for fault. Code will reset after cleaning.
	C0	Clean Outdoor Coil.	N	Y	Check for Blocked Outdoor Air.
	C1	Clean Indoor Coil / Filter.	N	Y	Check for Blocked Indoor Air.
	C2	Indoor Air Recirculation. Large delta between thermostat and return.	N	Y	Clean Filter or Remove Air Blockage or Close Vent Door or Improve indoor to outdoor seal.
	C5	Outdoor Coil temperature too high for outdoor ambient temperature.	N	Y	Check for Blocked Outdoor Air or Clean Coil.
REFRIGERATION WARNINGS	C3	Indoor Coil is freezing up.	N	Y	Clean filter, Check for fan and blower operation, Check for Refrigerant loss or Restricted capillary tube.
	C4	Indoor Coil froze up.	N	Y	Clean filter, Check for fan and blower operation, Check for Refrigerant loss or Restricted capillary tube.
	C6	Poor Unit Performance.	N	Y	Check for blower motor, compressor, or electric heat operation.

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NOTE: SPECIFICATIONS AND PERFORMANCE DATA LISTED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE

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