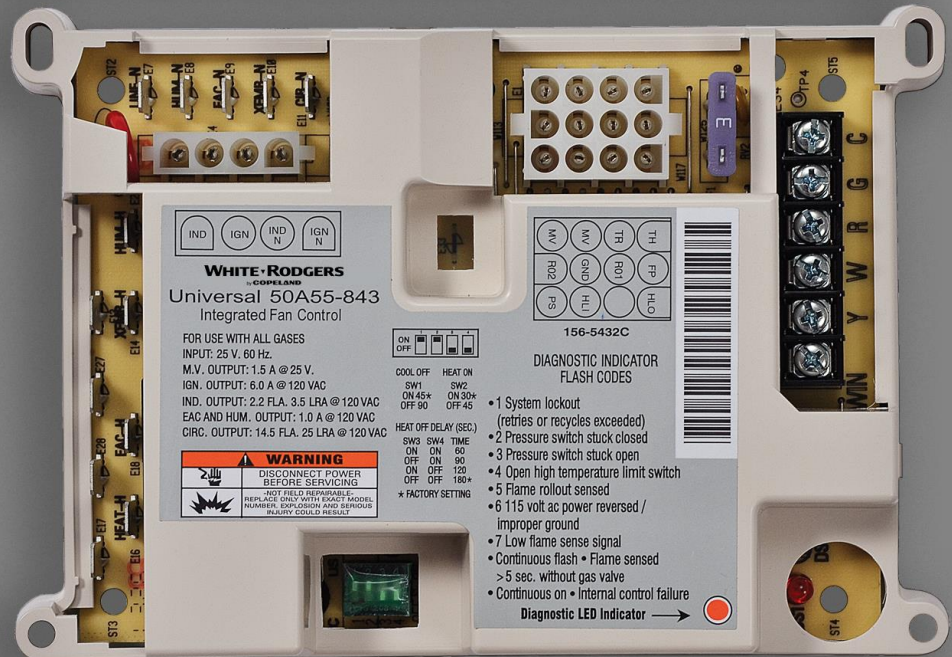
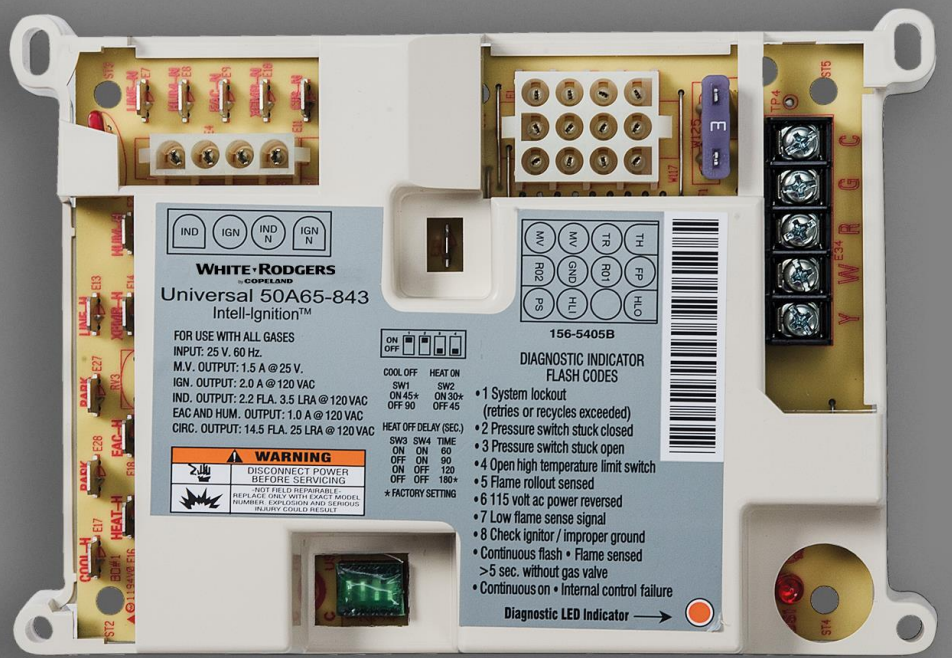


COPELAND

White-Rodgers Single Stage Integrated Furnace Controls

50A55-843 for 120 Volt Hot Surface Ignitors and PSC Blowers

50A65-843 for 80 Volt Hot Surface Ignitors and PSC Blowers





Business and Product Overview

White-Rodgers Offers Three Universal Single Stage IFCs

50A55-843

- 120V Hot Surface Ignition
- Single Stage Heat
- PSC Blower



130+ Cross-references

50A65-843

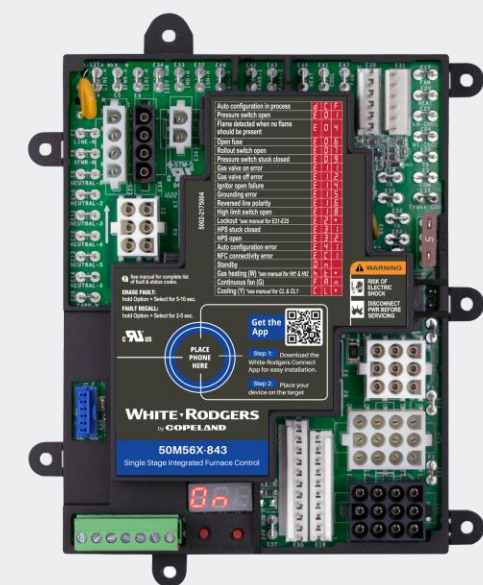
- 80V Hot Surface Ignition
- Single Stage Heat
- PSC Blower



35+ Cross-references

50M56X-843

- 120v HotRod Ignitor included
- Second-Stage cooling & dehumidification options
- Configurable for both PSC & ECMx blower motors



550+ Cross-references

50A55-843 and 50A65-843 Key Features

The 50A55-843 and 50A65-843 IFC's are designed for furnaces with single stage PSC blower motors

- Two universal models replace over 160 models in the field
- Each model features multiple mounting options, LED fault indicators and dipswitch controlled fan timings
- 50A55-843 is compatible with 120V hot surface ignitors
- 50A65-843 is compatible with 80V hot surface ignitors



50A55-843



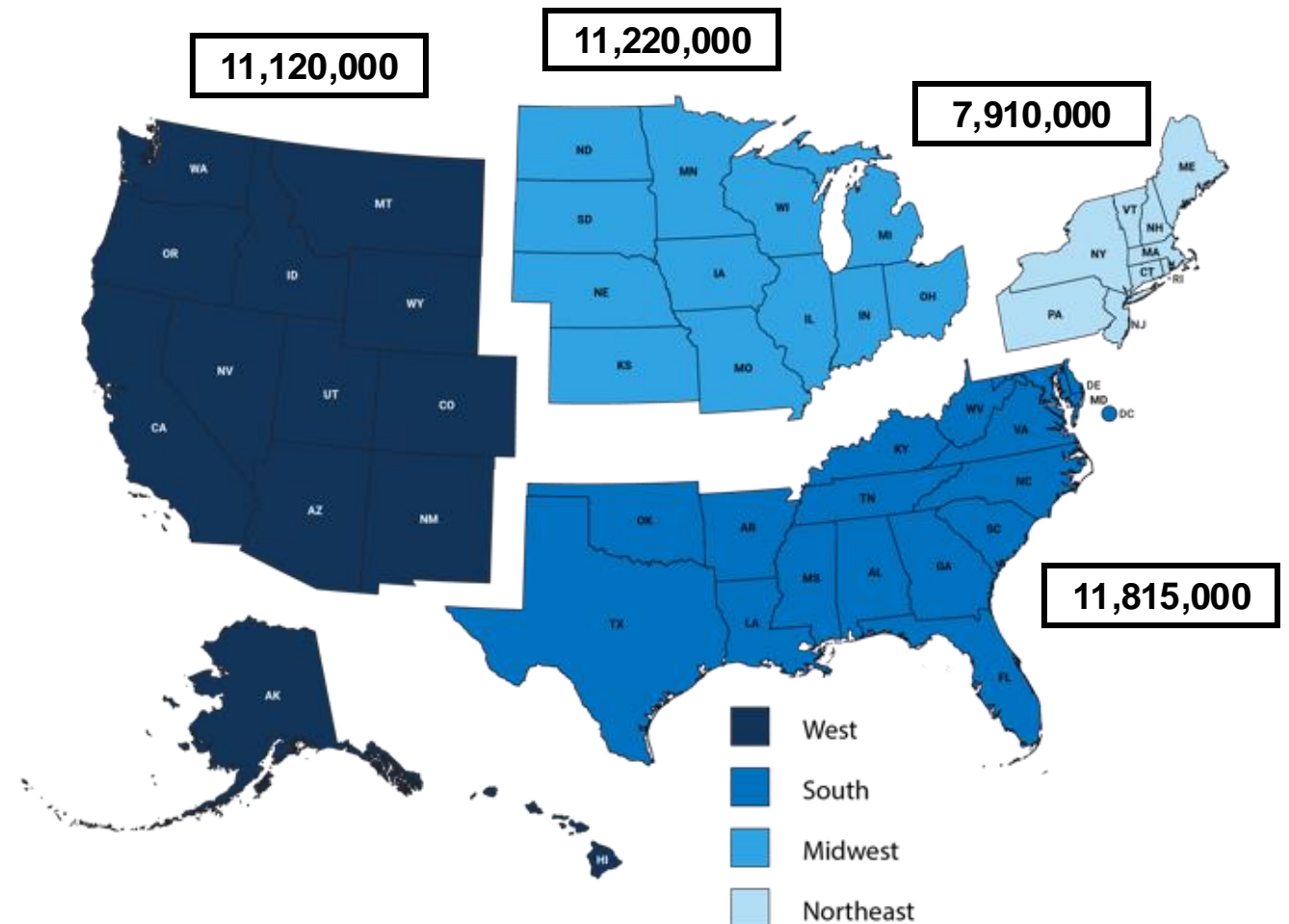
50A65-843

Market

The US market for single stage gas furnace applications offers a huge opportunity for control replacements.

50A55-843 and 50A65-843 models target high volume older furnaces using single stage PSC motors and 120V or 80V hot surface ignitors.

Single Stage Homes Total: 42,065,000



40 million* single stage gas furnaces were installed in the last twenty years in the US, so the replacement market for these controls should be strong, wherever you are.

*WR Estimate

Features and Benefits

FEATURE	FUNCTION	BENEFIT
Universal design	Saves inventory space – multiple boards replaced by choosing either the 80V or 120V ignitor voltage	Minimizes truck stock
Extra motor/park terminals	Provides safe landing for extra motor lead wires without having to cut off connectors and seal wire ends	Gives technician quick way to secure extra wires
Electronic air cleaner connection	Powers EAC when fan comes on	Saves time installation time
Humidifier connections	Powers Humidifier on heat call	Saves time installation time
Status & fault LED indicator	Pinpoints system issues during installation or service	Allows rapid troubleshooting to resolve component or connection issues
Mounting hole template included	Assures quick and accurate fitment	Saves installation time



50A55-843



50A65-843

What Our Customers are Saying about White-Rodgers Universal Single Stage IFCs

March 11, 2019

- *“Thanks guys! Worked great with easy installation for me.”*

November 26, 2013

- *“I keep this on my service truck instead of 20+ different OEM boards. Fits a lot of different makes and models of furnaces.”*

January 16, 2022

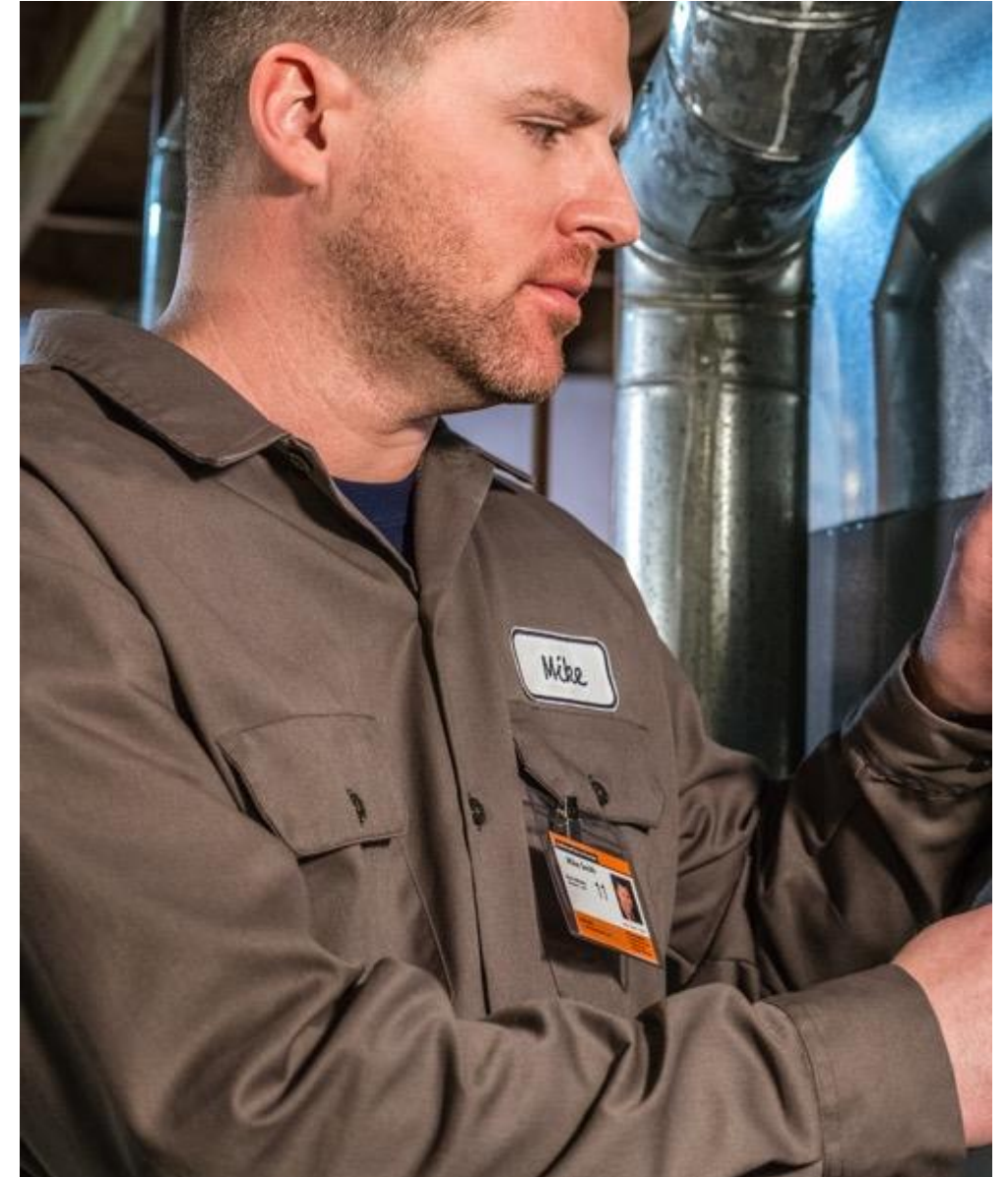
- *“The product was installed and works perfectly. So far I am very satisfied.”*

February 8, 2020

- *“Easy to install and tech service on the phone is very helpful.”*

October 10, 2012

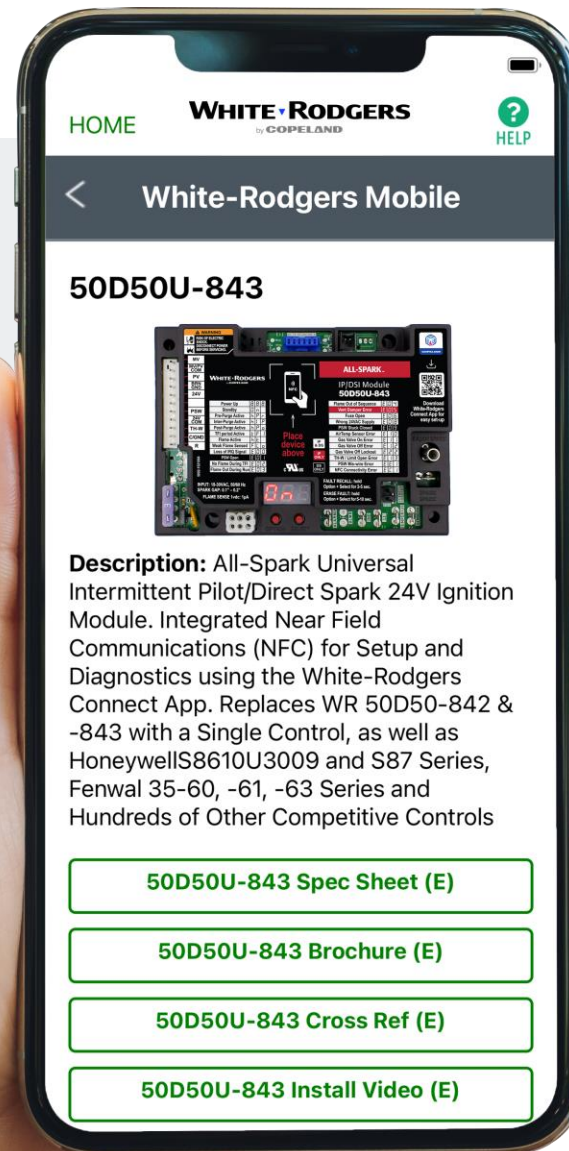
- *“Works great. I installed it tonight and it is working like a charm.”*



Comprehensive Cross Reference & Product Information

Find the right part while on the job.

Search by OEM, Competitor and White-Rodgers part numbers.



Your on-the-go resource for:

- Complete cross reference
- Product information and spec sheets
- Installation information and videos
- Wiring diagrams
- Select product by features
- Priority technical support

WR Mobile App

Search for “WR Mobile” in both Apple and Google Play Stores



Desktop Version

Access the online version [HERE](#)

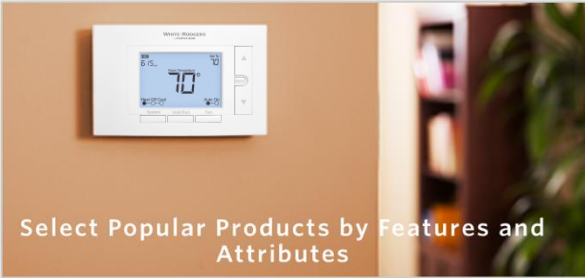
White-Rodgers Cross Reference

Go to: <https://webapps.copeland.com/wrproductselector/>


- Enter the Model Number or click on: Search Replacement Heating Controls by Major OEM Brand

COPELAND**WHITE-RODGERS™**


White-Rodgers Cross-Reference and Product Information



Select Popular Products by Features and Attributes



Search Replacement Heating Controls by Major OEM Brand

ENTER MODEL NUMBER 

Our commitment to you

Industry Leading Products

- Used by more OEM's
- Offering the widest range of Universal Replacement Controls

Ease of Installation

- Simple, easy to understand instructions

Product Reliability

- Quality Control assures reliable products

Affordable

- Competitive pricing

Supported by Knowledgeable Representatives

- Contractor direct phone support





Technical Overview

What's an “IFC”?

IFC stands for “Integrated Furnace Control”

Originally, furnaces had separate controls for the ignition/combustion process and controlling the blower. IFC's integrate these functions together. One control monitors and integrates all functions.

IFC jobs include:

- Monitoring flue integrity for safe combustion venting
- Provides ignition and flame supervision to ensure safety
- Operates the combustion inducer motor
- Controls the fan/blower and associated on/off time delays
- Monitors and protects the furnace from overheating
- Interfaces with the thermostat wiring
- Provides pinpoint diagnostic troubleshooting



50A55-843



IFC History

1935

- An electric fan to distribute the heated air through ductwork of a coal fired furnace within the home is patented.
- Mechanical temperature switches are used to control when the blower turns on/off.

1968

- An Intermittent Spark ignition system is introduced to replace Standing Pilot Systems.



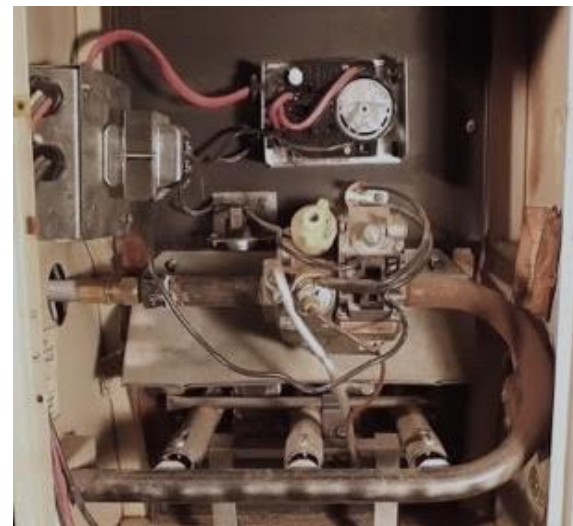
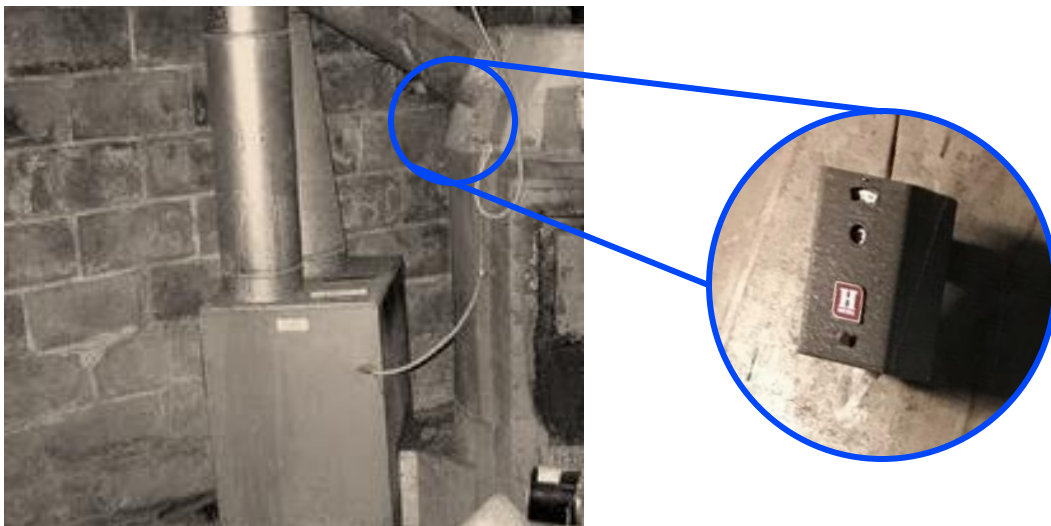
1988

- A Furnace Blower Control using a microprocessor to time the fan blower on & off instead of a temperature sensing control is patented.

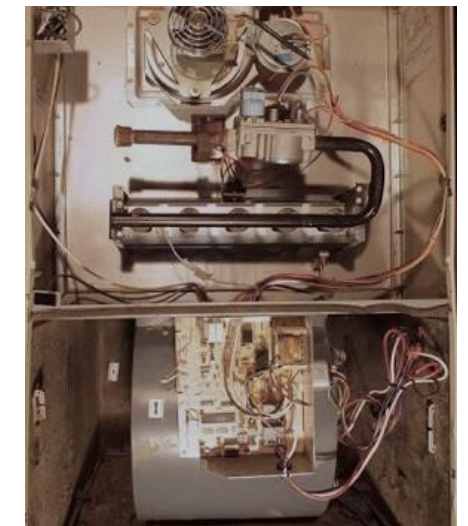
1990

- A fully Integrated Furnace Control that controls the gas valve, gas ignition, flame sensing, fan blower operation, induced draft control and sensing, & limit function control is patented.

Non-integrated Control Operated Furnaces



Integrated Furnace Control



IFC Options / Differences

Ignition Types



- **Hot Surface Ignition** using Silicon Carbide or Silicon Nitride ignitors at 120 or 80 Volts
- **Direct Spark Ignition** uses a spark probe to directly ignite burner gas
- **Proven or Intermittent Pilot** first checks for pilot ignition prior to opening the main gas valve

Gas Valve Stages



Furnace **Gas Valves** are often single stage but can also be made with multiple stages or special opening characteristics.

Most common valves in service are:

- **Single Stage**
- **Two-Stage** featuring high/low fire. They usually initially open to 40% with second stage opening to 100%

Blower Motor Types



- **PSC or Permanent Split Capacitor motors** were regulated out of new residential furnaces made after July 3rd, 2019
- **ECMx or X-13 motors** use a controller to maintain constant torque on the blower shaft.
- **ECMv or Constant Speed motors** use a controller to maintain a constant airflow speed.

IFC 120V vs. 80V Hot Surface Ignitors

IFC's with 120V Silicon Carbide hot surface ignitors were introduced in 1990 and have been in continuous production since. The 50A55-843 replaces IFC's using 120V ignitors, PSC inducer/blower motors and single stage gas valves.

IFC's with 80V Silicon Nitride ignitors were used in furnaces from about 1997 to 2006. The 50A65-843 replaces IFC's using 80V ignitors, PSC inducer/blower motors and single stage gas valves.



TECH TIP: Some original IFC's with 80V ignitor output can be replaced by an IFC with 120V ignitor output. The White-Rodgers Cross Reference calls out 80V models that can be directly replaced with 80V controls or upgraded to 120V control and ignitor.

120V



767A-357



767A-370

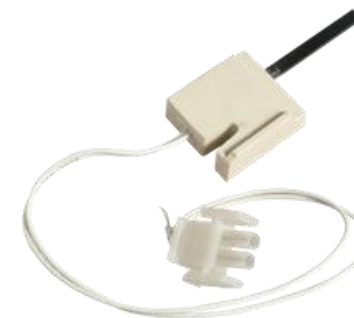


767A-371



Hotrod 21D64-2

80V



768A-845



768A-844

50A55-843/50A65-843 What's In The Box?

- 1– Integrated Furnace Control
- 1– Installation Instructions
- 1– Cross Reference Sheet
- 3– White extension wires
- 1– Black extension wire
- 1– Trane rollout jumper wire
- 1– Amana/Goodman 2 to 4-pin Inducer/ignitor adapter harness



White-Rodgers Universal 50A55-843/ 50A65-843 Components

80V Components:

1. 24V Thermostat Bus
2. Status / Fault LED
3. Replaceable Fuse
4. 12-pin Molex Connector
5. Heat On/Off, Fan Dipswitches



50A55-843

120V Components:

6. 5 Line Neutral Spades
7. 4-pin Inducer/Ignitor Molex Plug
8. 120V Humidifier Spade
9. 120V Transformer Spade
10. Line 120V Input Spade
11. Electronic Air Cleaner Spade
12. 2 Extra Blower Speed Park Spades
13. PSC Blower Heat Spade
14. PSC Blower Cool Spade

Adjustable Fan Delay Dipswitch Functions

Dipswitch Settings

OPTION SWITCH POSITIONS

COOL delay- to-fan-off:	Set switch #1	
45 sec.*	On	
90 sec.	Off	
HEAT delay- to-fan-on:	Set switch #2	
30 sec.*	On	
45 sec.	Off	
HEAT delay- to-fan-off:	Set switch #3 #4	
	On	On
	Off	On
	On	Off
	Off	Off

* Factory setting



50A55-843



TECH TIP: Power must be cycled after dipswitch settings are made.

50A55/50A65-843 Diagnostics

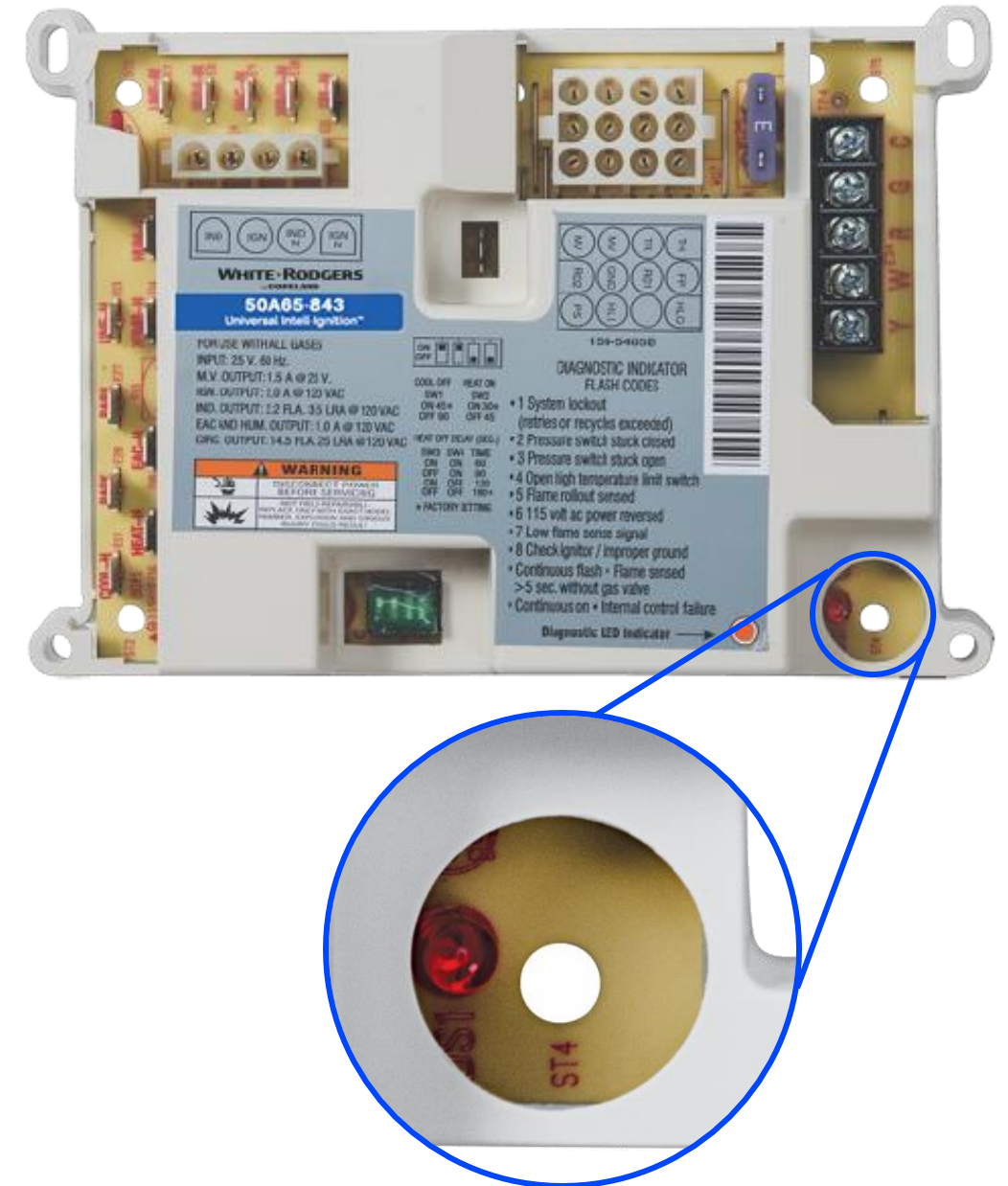
System troubleshooting is easy using flash code diagnostics

These controls continuously monitor their own operation and the operation of the system. **If a failure occurs, the LED will indicate a failure code as shown below. If the failure is internal to the control, the light will stay on continuously. In this case, the entire control should be replaced, as the control is not field-repairable.**

If the sensed failure is in the system (external to the control), the LED will flash in the following flash-pause sequences to indicate failure status (each flash will last approximately 0.25 seconds, and each pause will last approximately 2 seconds).

1 flash, then pause	System lockout
2 flashes, then pause	Pressure switch stuck closed
3 flashes, then pause	Pressure switch stuck open
4 flashes, then pause	Open limit switch
5 flashes, then pause	Open rollout switch
6 flashes, then pause	115 Volt AC power reserved/improper ground
7 flashes, then pause	Low flame sense signal
Continuous flashing (no pause)	Flame has been sensed when no flame should be present (no call for heat)

The LED will also flash once at power-up.





Installation Overview

50A55-843/50A65-843 What's In The Box?

- 1– Integrated Furnace Control
- 1– Installation Instructions
- 1– Cross Reference Sheet
- 3– White extension wires
- 1– Black extension wire
- 1– Trane rollout jumper wire
- 1– Amana/Goodman 2 to 4-pin Inducer/ignitor adapter harness



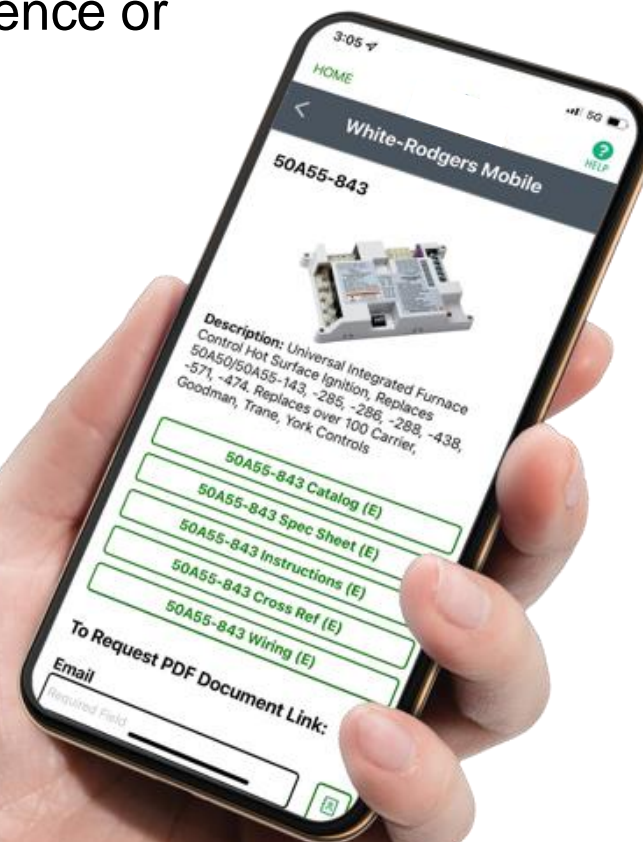
Disconnect Power and Gas

- 1 Turn off the power and gas to the furnace and remove the access panels.



Check Cross Reference

- 2 Check the old part number against the 50A55-843/50A65-843 box reference or WR Mobile.



WHITE-RODGERS
by COPELAND


Régulateur de fournaise **intégré**

50A55-843

Applications
mono-étage

Moteur de
ventilateur PSC

Allumage HSI 120 V



Adopté par les **PROs**

Garantie limitée de 1 an

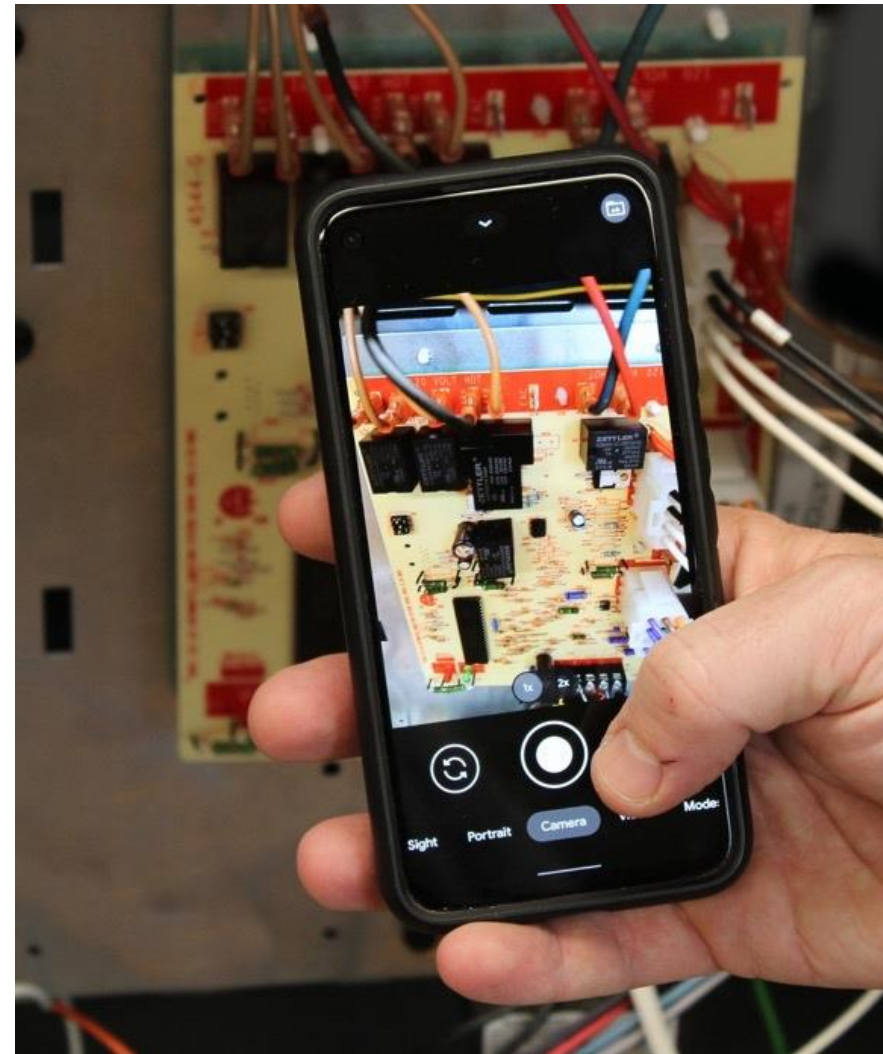
WHITE-RODGERS
by COPELAND

Cross Reference Replacement / Tableau de renvoi des remplacements

Climatic Corp. 117284	10207704	1380686	Thermo Products 350486	D341235P02
Dayton/WW Grainger 3XA75	10207704	1380698	Trane CNT02789	X13120666010
4DG53	10207706	1380699	CNT02891	X13130436-01
4DG54	10207706	Johnstone Supply L38-798	CNT03799	X13130436-02
4DG55	10207709	L38-799	D341235P01	X13130436-04
4DG56	10207710	L38-800	50A55-3797	X13640678040
	10207714	L38-801	50A55-474	X13650597010
Fedders 194300330001	GW Berkheimer 75671	Lennox 12L4201	50A55-571	D341122P01
30757	75672	56L8501	Trane/American Standard CNT1684	D341235P03
Goodman 102077-14	HD Supply 78712	X4459	CNT1686	50A55-476
10207719	83388	X445901	CNT1687	
Goodman/Amana PCBBF117	Hughes Supply 084141	Metropac 14028	D330927P01	continued...
102077-02	ICP/Carrier 1010806	14029	D330930P01	(suite)
102077-03		14030	D330934P01	
		14031	D340035P01	
			D340774P01	

Take a Picture of Wiring

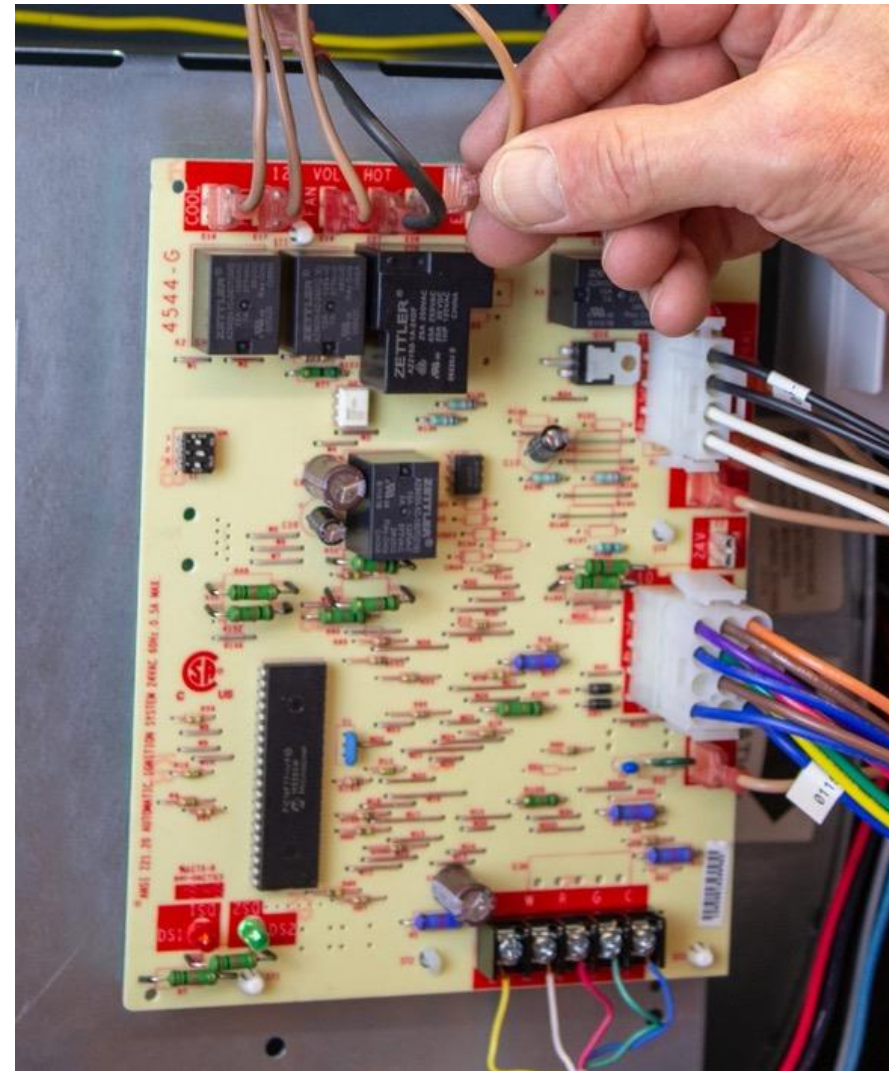
- 3 Take pictures before removing any wiring.
Label existing wiring, as necessary.



Disconnect Wiring

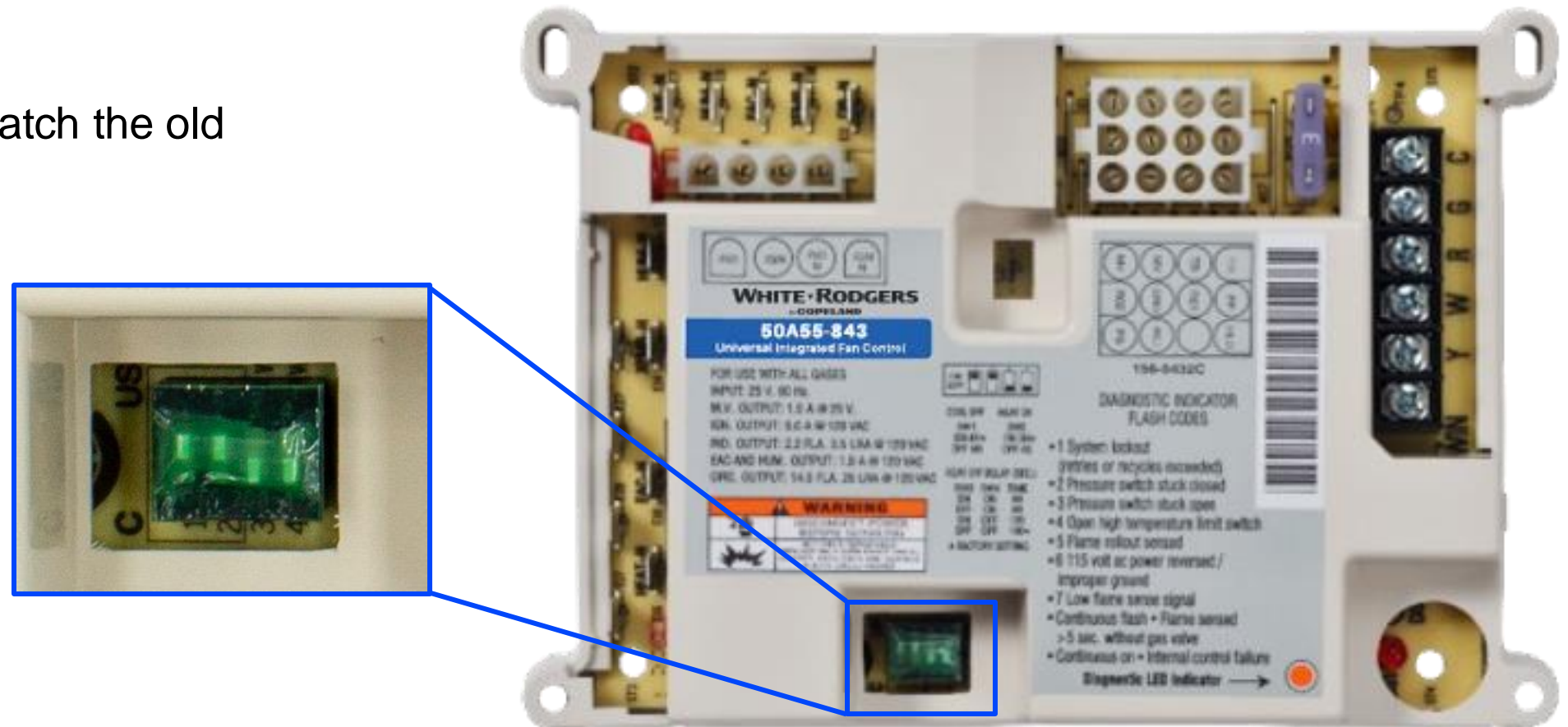
4

- Molex connectors
- Thermostat wiring
- Blower motor wires
- 120V line voltage connections
- Transformer connections
- Remove the old board



Dipswitch Settings

- 5** Set fan delay dipswitches to match the old control settings.



TECH TIP: The switches can be moved with a small screwdriver.

Finish Connecting 24 VAC Harness

- 6 Mount the new control using the old mounting holes or re-drill using the mounting hole template included in the instruction sheet.



Connect Wiring Harnesses

- 7 Connect the harnesses to the new control.



Connect Remaining Wires

8 Connect low voltage thermostat wires and remaining 120 VAC hot and neutral wires shows in the table below



50A55-843 TERMINAL	TERMINAL TYPE	SYSTEM COMPONENT CONNECTION
W	Terminal block with captive screws	low voltage thermostat W terminal (or equivalent)
G		low voltage thermostat G terminal (or equivalent)
R		low voltage thermostat R terminal (or equivalent)
Y		low voltage thermostat Y terminal (or equivalent)
		(2nd wire from Y terminal goes to 24 VAC HOT side of compressor contactor coil)
C		24 VAC COMMON side of compressor contactor coil
TWIN*		one wire twinning terminal
COOL	spade terminal	circulator blower COOL SPEED terminal
HEAT	spade terminal	circulator blower HEAT SPEED terminal
PARK (2 TERMINALS)	spade terminal	unused circulator blower terminals
LINE	spade terminal	input voltage (120 VAC) HOT side
XFMR	spade terminal	24 VAC transformer line voltage HOT side
EAC (optional)	spade terminal	electronic air cleaner HOT side
HUM (optional)	spade terminal	humidifier HOT side
CIR N	spade terminal	circulator blower NEUTRAL terminal
LINE N	spade terminal	input voltage (120 VAC) NEUTRAL side
XFMR N	spade terminal	24 VAC transformer line voltage NEUTRAL side
EAC N (optional)	spade terminal	electronic air cleaner NEUTRAL side
HUM N (optional)	spade terminal	humidifier NEUTRAL side

Connect Power and Gas

- 9 Replace the access panel. Restore the electrical power and gas supply. Refer to the furnace installation instructions for start-up and check-out procedures.



Troubleshooting

If the system fails to start properly, review the troubleshooting tips included in your instruction sheet.

If the sensed failure is in the system (external to the control), the LED will flash in the following flash-pause sequences to indicate failure status (each flash will last approximately 0.25 seconds, and each pause will last approximately 2 seconds).

LED	FAILURE STATUS
1 flash, then pause	System lockout
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5 flashes, then pause	Open rollout switch
6 flashes, then pause	115 Volt AC power reversed/Improper
7 flashes, then pause	Low flame sense signal
Continuous flashing (no pause)	Flame has been sensed when no flame should be present (no call for heat)

The LED will also flash once at power-up.

COPELAND

Thank you.