

Universal 2-Stage Integrated Furnace Controls

21M51U-843 for PSC Blowers

21V51U-843 for ECM Blowers

Business and Product Overview

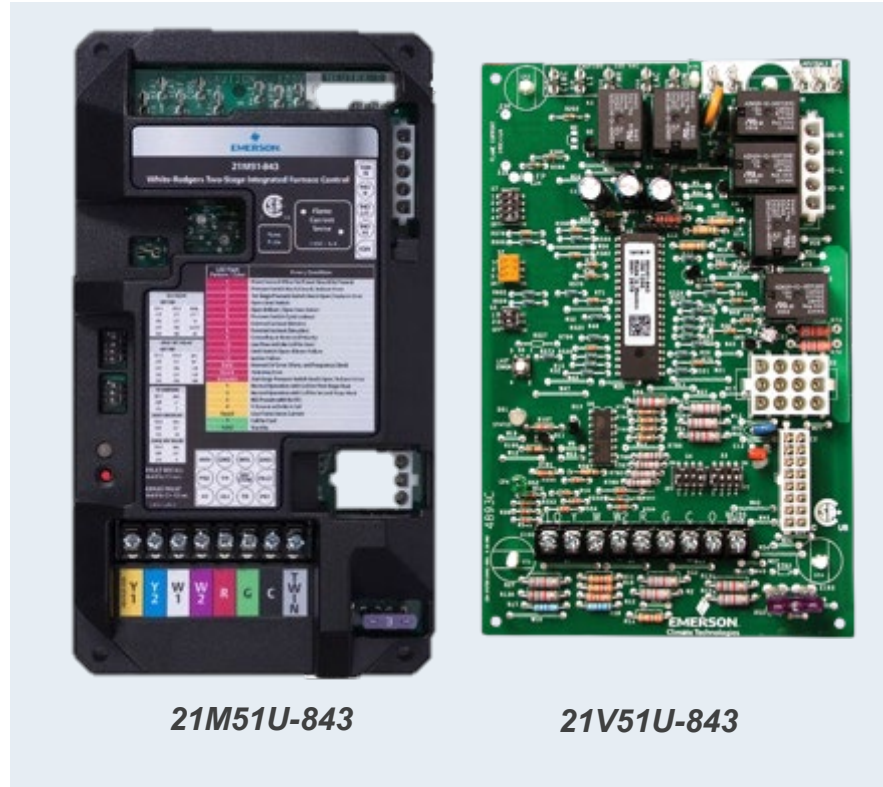
21M51U-843 & 21V51U-843

White-Rodgers Universal 2-Stage IFC

White-Rodgers 21M51U-843 & 21V51U-843 Universal 2-Stage Integrated Furnace Controls replace over 140 2-stage controls, offering a single microprocessor that oversees furnace functions including burner and blower operations.



Both controls include a 21D64-2 HotRod 120v Universal Ignitor, allowing for existing 80v ignition controls to be upgraded to 120v.



White-Rodgers Universal 2-Stage IFC

21M51U-843

- 2-stage
- HSI ignition furnaces
- PSC Blower motors



90 Cross-references

21V51U-843

- 2-stage
- HSI ignition furnaces
- ECM – Variable Speed Blower motors



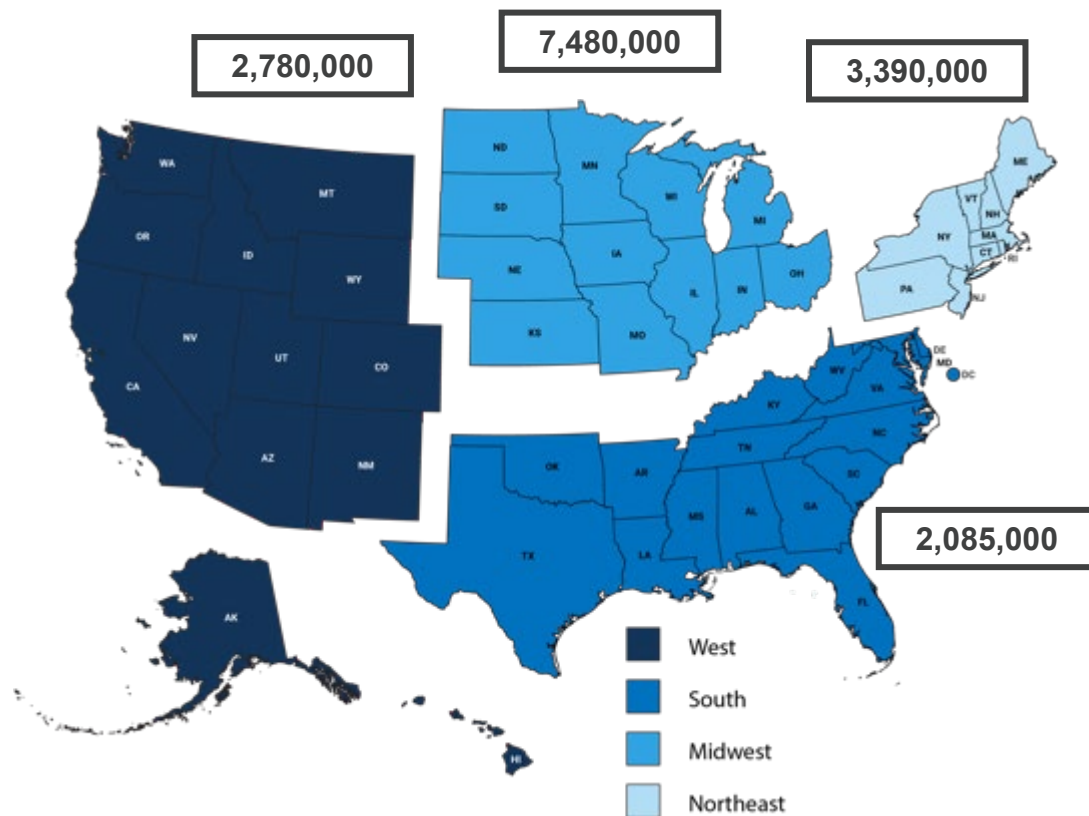
54 Cross-references

Market and Value Proposition

The US market for 2-stage applications offers a huge opportunity for replacements.

*15.7 million** 2-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.

2-Stage Home Market Projection: **15,735,000**



21M51U-843 Cross-Referenced Brands by Manufacturer

The 21M51U-843 replaces 90 different sku's



Goodman / Amana
22 sku's



Armstrong
6 sku's



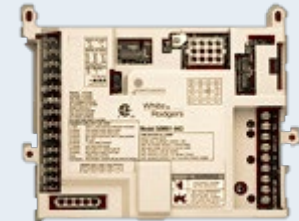
Johnstone
6 sku's



Lennox
8 sku's



White-Rodgers
3 sku's



Trane / American Standard
25 sku's



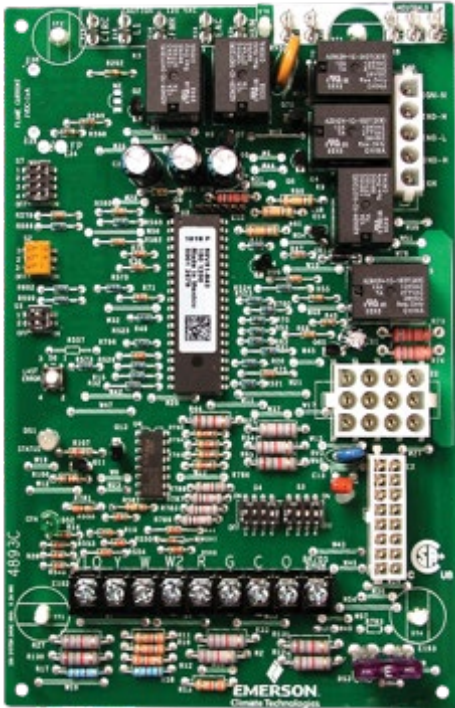
York / JCI
20 sku's



TECH TIP: Included in every box is a full Cross Reference sheet.

21V51U-843 Cross-Referenced Brands by Manufacturer

The 21V51U-843 replaces 54 different sku's



Lennox
9 sku's



Trane / American Standard
13 sku's



White-Rodgers
1 sku



York / JCI
10 sku's




Thermo Pride
1 sku



Goodman / Amana
20 sku's



 **TECH TIP:** Included in every box is a full Cross Reference sheet.

21M51U-843 What's in the Box?

- 21M51U-843 2-Stage PSC Universal Furnace Control
- 21D64-2 HotRod Ignitor
- Trane Ignitor Mounting bracket with 3x 1/2" Screws
- 5 Motor Lead Extensions
- Installation Sheet
- Cross Reference Application Data Sheet (Shading indicates 80V application where ignitor must be changed to 120V)



21V51U-843 What's in the Box?

- 21V51U-843 ECM Universal Furnace Control
- 21D64-2 HotRod Ignitor
- Trane Ignitor Mounting bracket with 3x 1/2" Screws
- 2 Adapter Interconnect Harnesses
- Installation Sheet
- Cross Reference Application Data Sheet (Shading indicates 80V application where ignitor must be changed to 120V)
- Fault Code Adhesive Label



Diagnostic Flash Codes	Monitor Oper OFF	
	Flashes	Time
1. Red Flash-Flame Switch Open	Flashes	Time
2. Red Flash-Pressure Switch Open	Flashes	Time
3. Red Flash-Flame Rollout Switch Open	Flashes	Time
4. Red Flash-Flame Rollout Switch Open	Flashes	Time
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99. Red Flash-Flame Rollout Switch Open	Flashes	Time
100. Red Flash-Flame Rollout Switch Open	Flashes	Time

21V51U-843 Cross Reference	
Module Model Number	Furnace Model
Módulo de Modelo del Módulo	Modelo de Calentador
15M9001	
150870-01	
150870-03	
15W90	
46M9001	G60DFV (X), G60UH or G61MPV
6W927	
74752	
50V81-120	N/A
50V81-121	N/A
20300002	N/A
30300004	N/A
20300002	Same as 50V81-288
50V81-288	N/A
AMV811550KA	
AMV811550KA	
ADV807030KA	
ADV809050KA	
AMV904530KA	
AMV807040KA	
AMV807040KA	

2-Stage Universal Features

FEATURE	White-Rodgers 21M51U-843	White-Rodgers 21V51U-843
Board Cross References	90	54
Ignitor Voltage Covered	80v & 120v	80v & 120v
120v Universal (HotRod) Hot Surface Ignitor Included	✓	✓
Current Flame Test Pads	✓	✓
Twinning Capable	✓	✗
Unused Motor / Park Terminals	1	N/A
Electronic Air Cleaner Voltage connections	120v	120v
Humidifier Voltage Connections	120v	120v
Status & Fault Tri-color LED indicator	Green – Amber – Red	Green – Amber – Red
Tri-color LED Displays Heat/Cool/Fan Status	✓	✓
Status & Fault Code Label on Control	✓	✓
Fault Recall & Clearing	Simple Push Button	Simple Push Button
Product Warranty	1 Year	1 Year

WR Mobile App

Always up-to-date and easy to use:

- Mobile App
- White-Rodgers Website



Your resource for:

- Product information and spec sheets
- Complete Cross Reference
- OEM compatibility
- Installation information and videos
- Wiring diagrams

Download:

- Go to your app store
- Type in **WR Mobile**
- Install the app



OR

- Open your camera
- Hold it over the QR code
- Tap “Open” on the pop-down
- Install the app



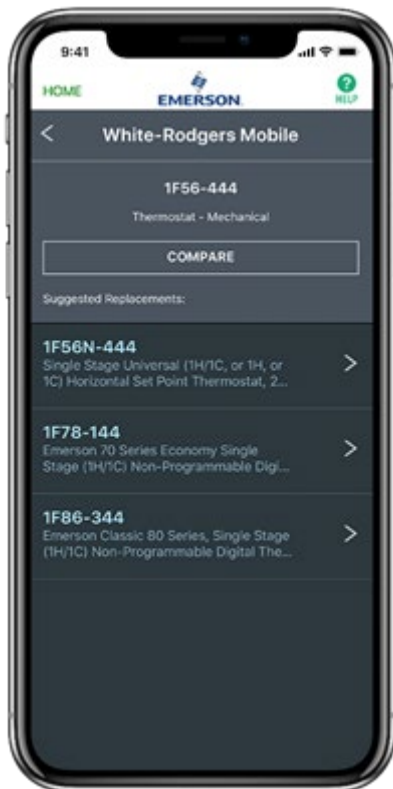
WR Mobile App

Easy to use!

Search by OEM, Competitive, or White-Rodgers Model Number



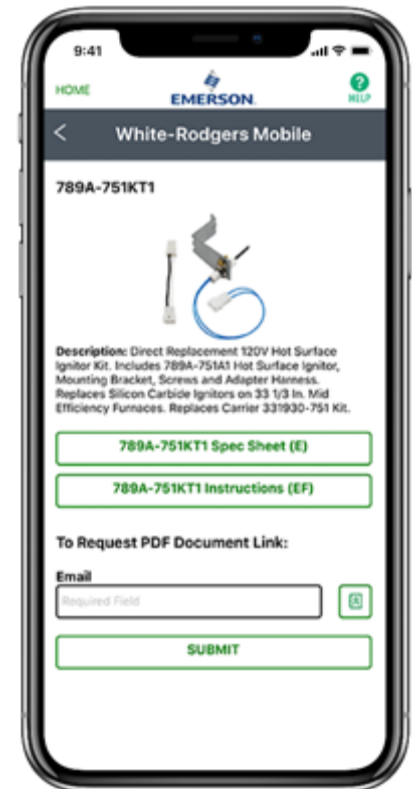
Product Number



Scrollable Product List



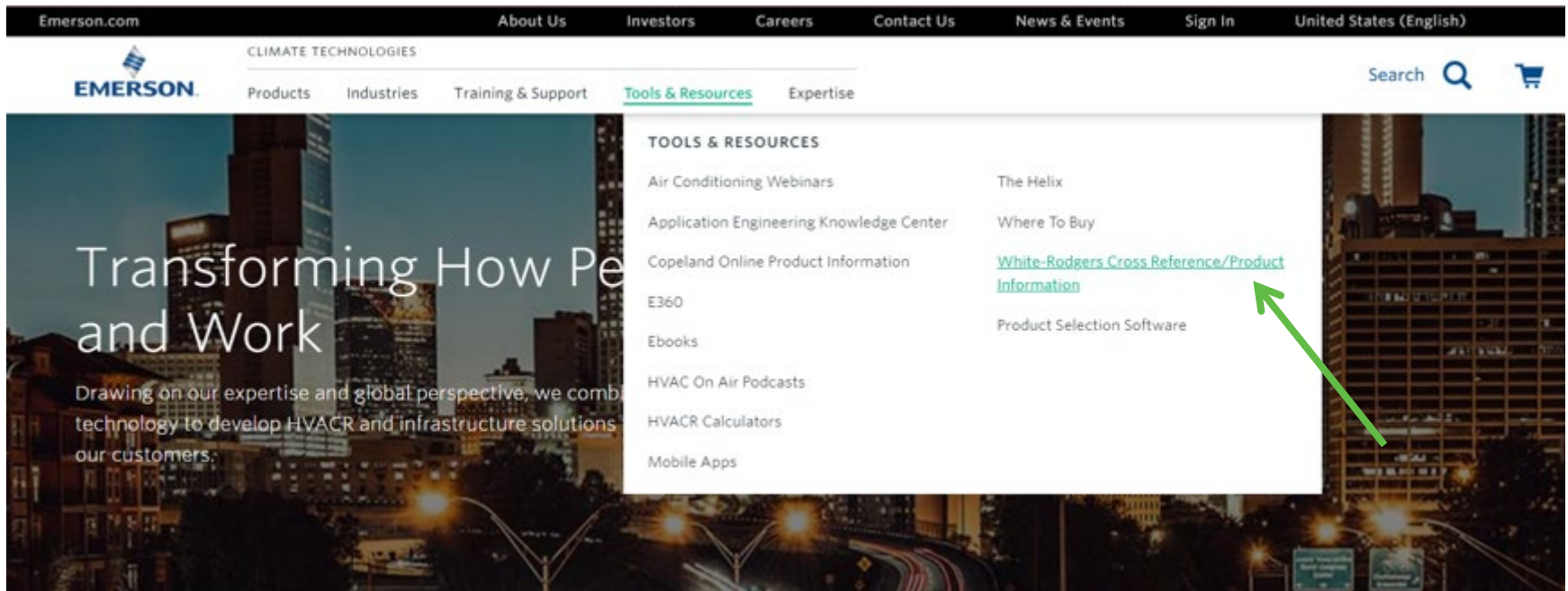
WR Replacement



White-Rodgers Cross Reference

Go to: www.whiterodgers.com

- Hover over Tools & Resources
- Click on: White-Rodgers Cross Reference/Product Information
- Enter the Model Number or click on: Search Replacement Heating Controls by Major OEM Brand



The screenshot displays the Emerson website's navigation menu. The top navigation bar includes links for Emerson.com, About Us, Investors, Careers, Contact Us, News & Events, Sign In, and United States (English). Below this, the 'CLIMATE TECHNOLOGIES' section features the Emerson logo and a menu with 'Products', 'Industries', 'Training & Support', 'Tools & Resources', and 'Expertise'. The 'Tools & Resources' dropdown menu is open, listing various resources such as 'Air Conditioning Webinars', 'Application Engineering Knowledge Center', 'Copeland Online Product Information', 'E360', 'Ebooks', 'HVAC On Air Podcasts', 'HVACR Calculators', and 'Mobile Apps'. A green arrow points to the link 'White-Rodgers Cross Reference/Product Information' within this menu. The background of the website shows a cityscape at night with the text 'Transforming How People and Work' and a sub-headline about HVACR solutions.

Why Contractors Trust White-Rodgers

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

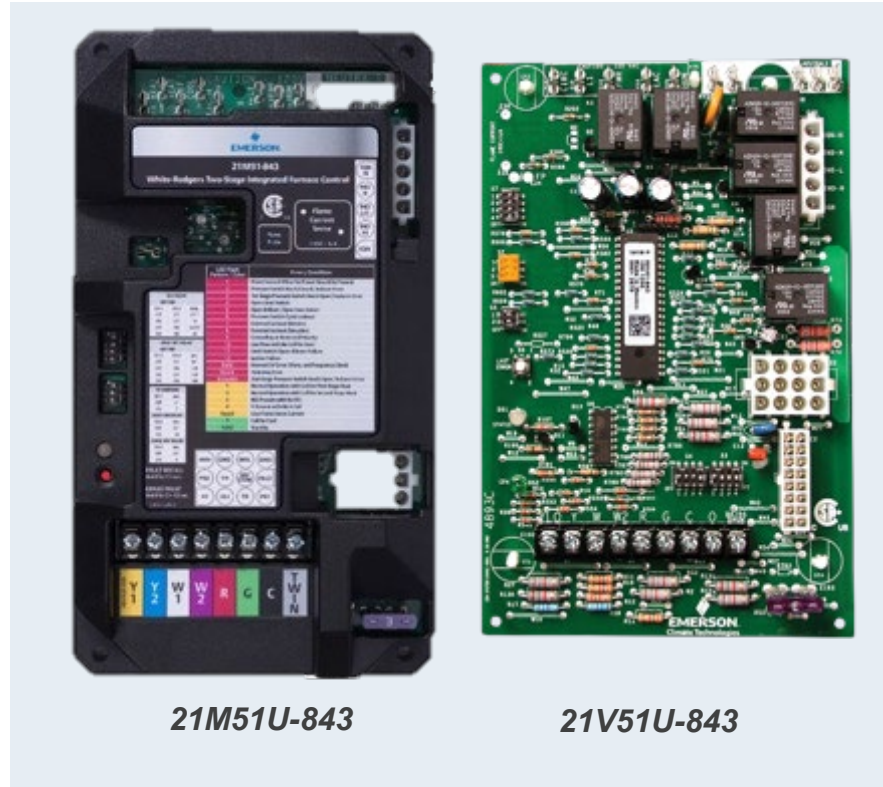
21M51U-843 & 21V51U-843

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Both controls include a 21D64-2 HotRod 120v Universal Ignitor, allowing for existing 80v ignition controls to be upgraded to 120v.



21M51U-843

21V51U-843

What is an IFC?

The term IFC is an acronym that stands for “Integrated Furnace Control”. Originally, furnaces had separate controls that operated the ignition and fuel burning separate from the blower motor. Now, the IFC monitors all functions and provides maximum safety with a single microprocessor.

IFC's can:

- Monitor flue blockage for safety
- Operate an inducer motor
- Provide gas ignition and monitor to ensure burning
- Monitor furnace from overheating for safety
- Turn the fan blower on and off at the correct time
- Oversee all thermostat requests
- Provide status codes to verify current state
- Provide fault codes to help troubleshoot



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.



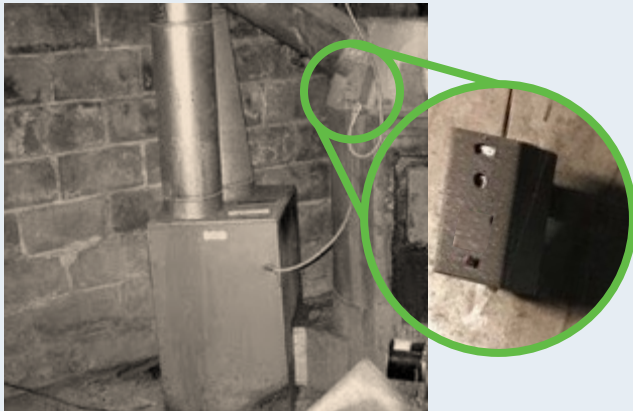
1988

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

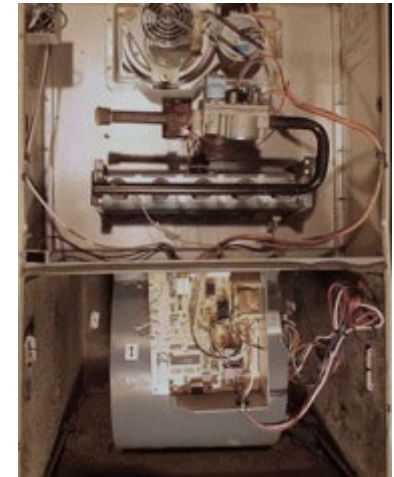
1990

- A fully Integrated Furnace Control that controls the gas valve, gas ignition, flame sensing, blower fan operation, induced draft sensing, & limit functions is patented.
- IFC's can turn on blowers and turn off gas in an overheating event.

Era when non-integrated controls operated furnaces



Universal 2-Stage IFCs



2-Stage Gas Operation

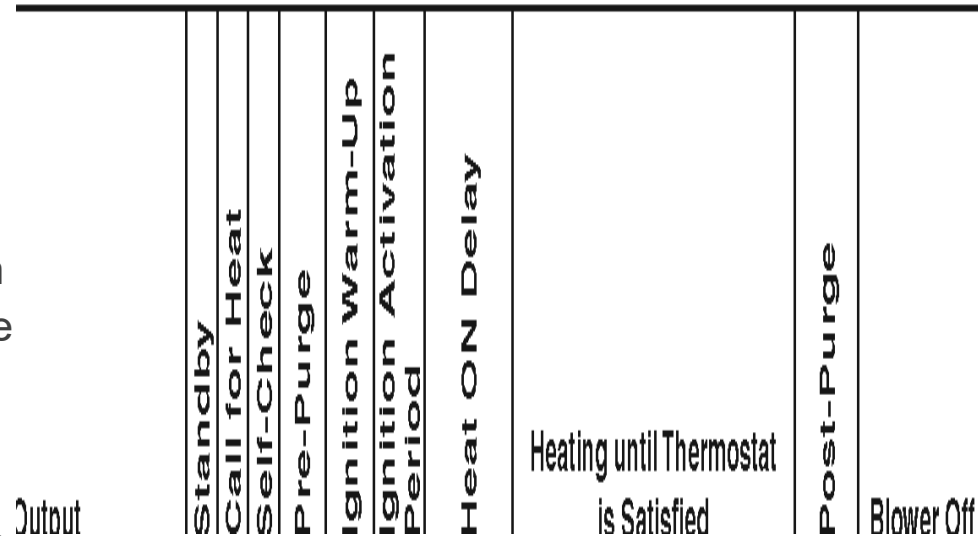
2-Stage furnaces operate with 2 levels of heating:

- A Low fire @ 60%-70% full capacity
- A High fire @ 100% full capacity

Stages can be controlled by several methods:

- A single stage thermostat and IFC dipswitch settings
 - W2 (2nd stage) can be set to come on
 - For a predetermined amount of time
 - Automatically based on operation algorithms
- A 2-Stage thermostat
 - W2 (2nd stage) is connected to W2 on the thermostat

ODE



TECH TIP: Properly sized & set-up 2-Stage furnaces operate quieter 60-80% of the time by burning on low fire.



2-Stage Universal IFC 21M51U-843 for PSC Blowers

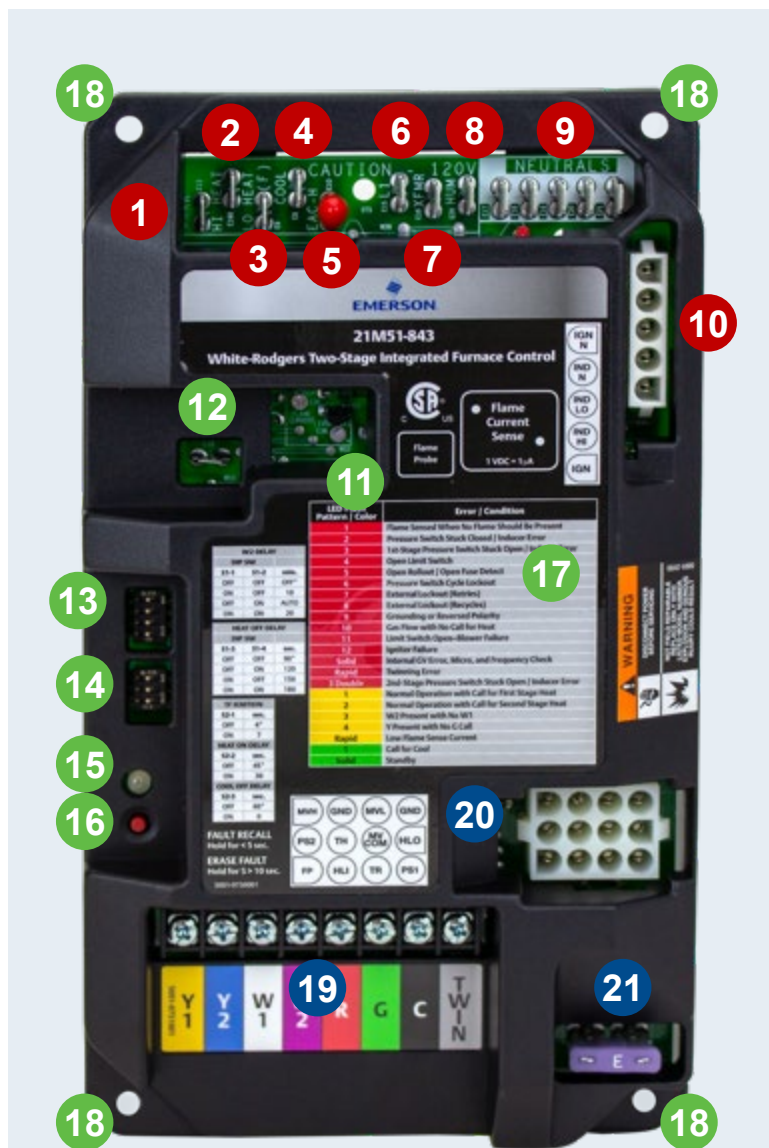
Technical Overview



White-Rodgers 21M51U-843 Components

120v Components:

1. Blower Speed Park Spade
2. PSC Blower Hi-Heat Spade
3. PSC Blower Lo-Heat Spade
4. PSC Blower Cool Spade
5. 120v EAC Spade
6. Line 120v Input Spade
7. 120v Transformer Spade
8. 120v Humidifier Spade
9. 5 Line Neutral Spades
10. 5-pin Inducer/Ignitor Molex Plug



Universal 2-Stage IFCs

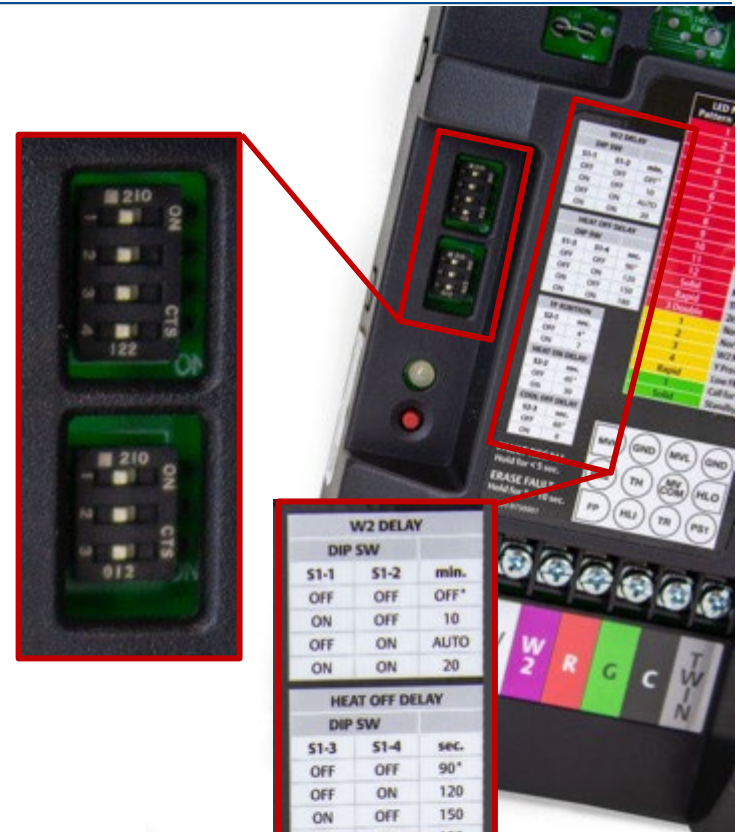
Other Components:

11. Flame Sense Test Pads
12. Flame Sense 3/16" Spade
13. Heat Delay Dipswitches
14. Ignition & Blower Dipswitches
15. Status / Fault LED
16. Fault Recall Button
17. Fault Code Label
18. Mounting Holes
19. 24v Thermostat Bus
20. 12-pin Molex Connector
21. 3a Low Voltage Fuse

Adjustable Dipswitch Functions

Stage (W2) Delay (mins.)		Heat Off Delay (sec.)			
SW1		SW1			
Off*	10	90*	150		
Auto	20	120	180		
Trial for Ignition (sec.)		Heat On Delay (sec.)		Cool Off Delay (sec.)	
SW2		SW2		SW2	
4*	7	45*	30	60*	0

*default



W2 DELAY		
DIP SW		min.
S1-1	S1-2	min.
OFF	OFF	OFF*
ON	OFF	10
OFF	ON	AUTO
ON	ON	20
HEAT OFF DELAY		
DIP SW		sec.
S1-3	S1-4	sec.
OFF	OFF	90*
OFF	ON	120
ON	OFF	150
ON	ON	180
TF IGNITION		
S2-1	sec.	
OFF	4*	
ON	7	
HEAT ON DELAY		
S2-2	sec.	
OFF	45*	
ON	30	
COOL OFF DELAY		
S2-3	sec.	
OFF	60*	
ON	0	

Note: Power must be cycled after dipswitch settings are made.

TECH TIP: White-Rodgers identifies the dipswitch settings with a label on the control and in the instruction sheet.

Easy-to-Install Mounting

- The 21M51U-843 has 4 corner mounting holes designed to give multiple installation options.



Up to 4x 1" screws can be used.

- White-Rodgers raised molded base provides space between board and unit mounting plate.



Key OEM Features Matched by White-Rodgers

Lennox

- Lennox applications use a separate flame sense wire which connects to the 3/16" flame sense spade.



- All other systems utilize flame sense through the 12-pin molex plug.

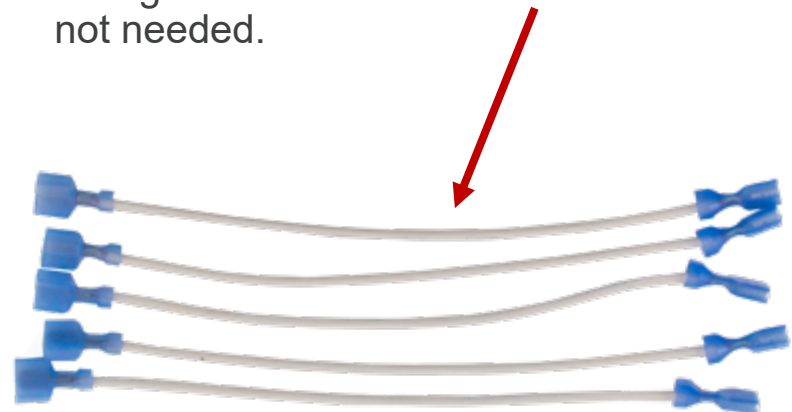
Trane

- The replacement of the hot surface ignitor on Trane systems requires a special mounting bracket which is included in the 21M51U-843 box.



Amana / York

- When replacing Amana 50A51-225 or 50A51-235 and York 50A51-243 controls a line voltage wire labeled "Circ Input" should be taped & tied off. It is a duplicate line voltage wire that is not needed.



All Brands

- In some applications the blower motor wires may not be long enough to reach the new control. 5x 1/4" spade wire extensions are included in the 21M51U-843 box.

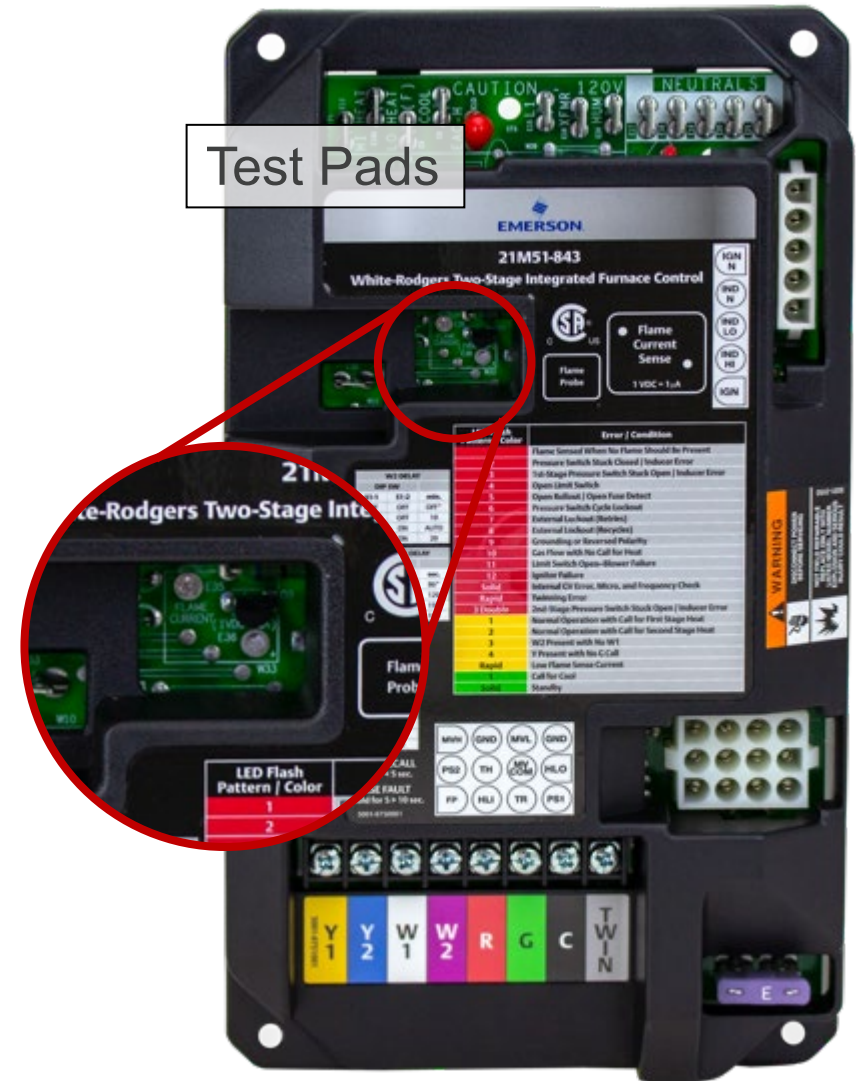
Utilizing the Flame Current Test Pads

Understanding Test Pads

White-Rodgers allows you to read flame current with a simple DCv meter by testing directly on the board without breaking the circuit to the probe.

To Test:

- The furnace must have a call for heat and the burners producing flame
- Set a multimeter to vDC and place a meter probe on each pad
- Convert vDC to MicroAmps using a 1:1 ratio
- A good flame sense reading will be between 1.0 – 5.0 μ A



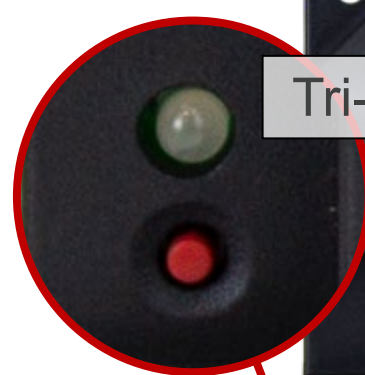
Twinning Feature

- Two 21M51U-843 controls can be connected to operate simultaneously.
- Twinning requires a connection of the **Twin** terminal on both boards using an 18ga wire.
- The board with the thermostat connection will fully function, including the LED indicator and dipswitch settings. The twinned board will operate simultaneously as determined by the wired board unless “W” or “Y” are powered to it.
- The twinned unit can be set for 2-stage Heat to come on by utilizing the “W” & W2” terminals or a single stage thermostat with the dipswitches staged.



Status & Fault Codes for Troubleshooting

- Easy to see tri-color LED indicator shows fault/error conditions
- The Fault Button allows for:
 - Recall of the last 5 faults
 - Fault Code deletion
- Troubleshooting is simplified with a Fault Code / Status Label on the control cover



Tri-Color LED

LED Flash Pattern / Color	Error / Condition
1	Flame Sensed When No Flame Should Be Present
2	Pressure Switch Stuck Closed / Inducer Error
3	1st-Stage Pressure Switch Stuck Open / Inducer Error
4	Open Limit Switch
5	Open Rollout / Open Fuse Detect
6	Pressure Switch Cycle Lockout
7	External Lockout (Retries)
8	External Lockout (Recycles)
9	Grounding or Reversed Polarity
10	Gas Flow with No Call for Heat
11	Limit Switch Open-Blower Failure
12	Ignitor Failure
Solid	Internal CV Error, Micro, and Frequency Check
Rapid	Tumbling Error
2 Double	2nd-Stage Pressure Switch Stuck Open / Inducer Error
1	Normal Operation with Call for First Stage Heat
2	Normal Operation with Call for Second Stage Heat
3	W2 Present with No W1
4	Y Present with No C Call
Rapid	Low Flame Sense Current
1	Call for Cool
Solid	Standby

LED Flash Pattern / Color	Error / Condition
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Rapid	Tumbling Error
2 Double	2nd-Stage Pressure Switch Stuck Open / Inducer Error
1	Normal Operation with Call for First Stage Heat
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3	W2 Present with No W1
4	Y Present with No C Call
Rapid	Low Flame Sense Current
1	Call for Cool
Solid	Standby



2-Stage Universal IFC 21V51U-843 for PSC Blowers

Technical Overview



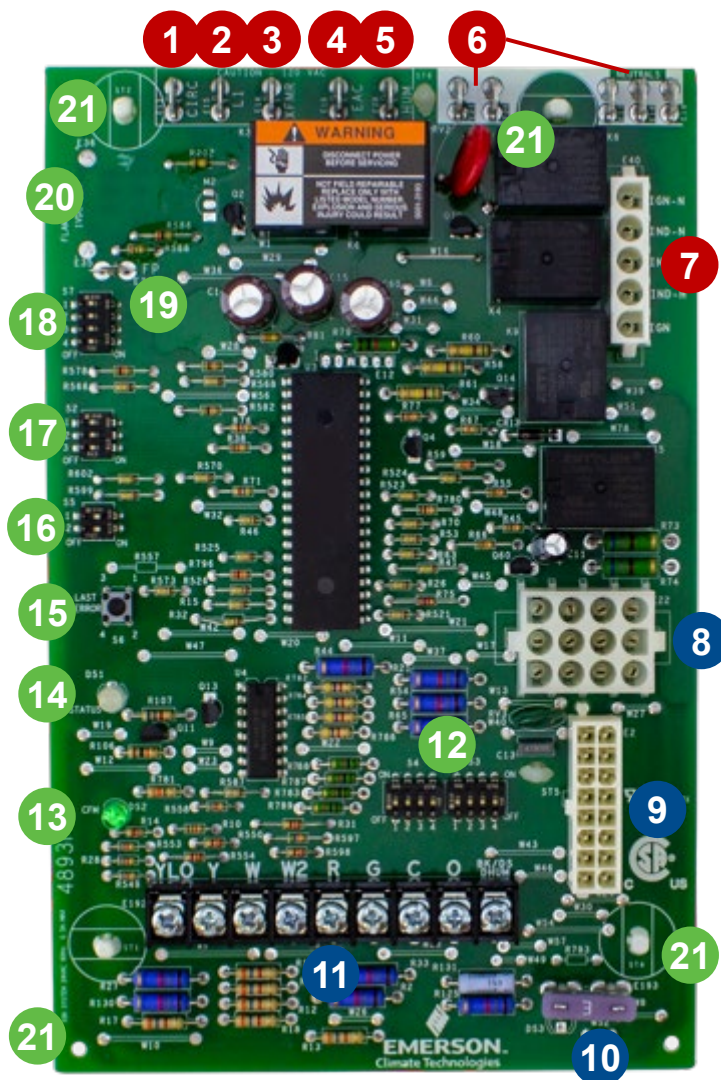
White-Rodgers 21V51U-843 Components

120v Components:

1. 120v Circ Blower Input Spade
2. Line 120v Input Spade
3. 120v Transformer Spade
4. 120v EAC Spade
5. 120v Humidifier Spade
6. 5 Line Neutral Spades
7. 5-pin Inducer/Ignitor Molex Plug

24v Components:

8. 12-pin Molex Connector
9. 16-pin ECM Connector
10. 3a Low Voltage Fuse
11. 24v Thermostat Bus



Other Components:

12. ECM Dipswitches
13. Blower CFM LED
14. Status / Fault LED
15. Last Error / Fault Button
16. Heat-Pump & Dehumidification Dipswitches
17. Furnace Manufacturer Dipswitches
18. Thermostat & Heat Fan Off Delay Dipswitches
19. Flame Sense 3/16" Spade
20. Flame Sense Test Pads
21. 4 Mounting posts

ECM Set-up & Operation

The settings for the ECM Blower Motor 16-pin are determined by dipswitches S2, S3 and S4. S2 sets the manufacturer and S3 & S4 sets motor configuration.

S2 Settings

FURNACE MANUFACTURER

DIP Switch Selection for OEM Applications

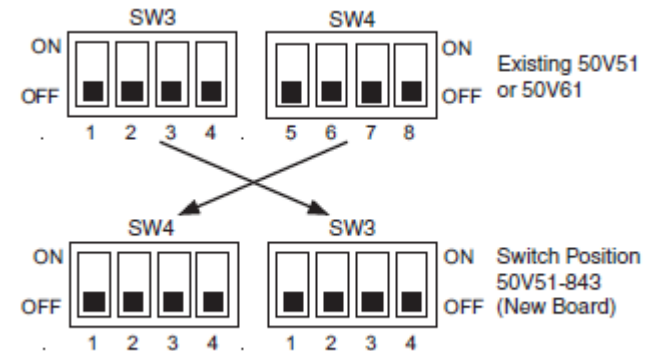
S2		OEM	
1	2		
OFF	OFF	Trane	1
OFF	ON	Thermo Pride/ Goodman	2
ON	OFF	Lennox	3
ON	ON	York	

IMPORTANT: Switch selection must match furnace manufacturer for proper motor operation.

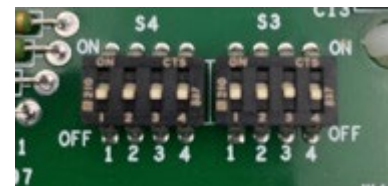
Set DIP switches S2-1 and S2-2 to match the equipment using the table above. NOTE: DIP switch S2-3 is not used.

S3 & S4 Settings

- In some applications the dipswitch locations are reversed



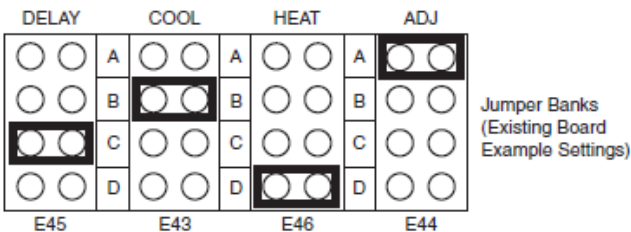
- Verify dipswitches are set to match the replaced control board



ECM Set-up & Operation Cont.

S3 & S4 Settings Cont.

- For York applications, match the 4 shunt / jumpers configuration



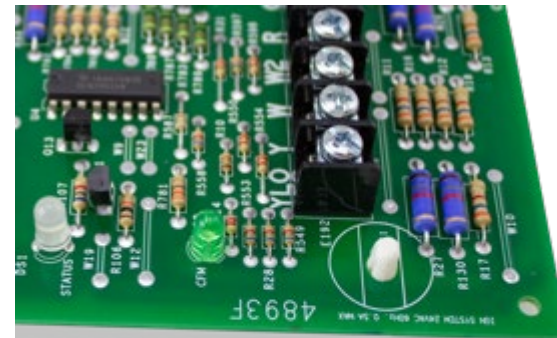
Jumper Banks
(Existing Board
Example Settings)

Motor Configuration Settings

		A No Signal	B Positive Half Wave	C Negative Half Wave	D Full Wave
Delay	S4-1	OFF	ON	OFF	ON
	S4-2	OFF	OFF	ON	ON
Cool	S3-1	OFF	ON	OFF	ON
	S3-2	OFF	OFF	ON	ON
Heat	S4-3	OFF	ON	OFF	ON
	S4-4	OFF	ON	ON	ON
Adjust	S3-3	OFF	ON	OFF	ON
	S3-4	OFF	OFF	ON	ON

Green LED

- The 21V51U-843 comes with a green LED to indicate the Blower Motor CFM airflow




- The flash code will match the furnace manufacturer detail when the blower is in operation

Additional Dipswitch Functions

S7 Settings

- Thermostat Type & Heat Blower Off Delay:
- S7-1 & S7-2 Configure if a single or 2-stage thermostat is used
- S7-3 & S7-4 Configure the Blower off Delay at the end of a Heat cycle

DIP Switches

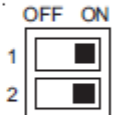
	Switch Settings		Options	
	S7-1	S7-2	Time	
Thermostat Type and W2 Delay S7-1, S7-2	Off	Off	Off*	
	On	Off	10 Minutes	
	Off	On	Auto	
	On	On	20 Minutes	
Heat Fan Off Delay S7-3, S7-4	Off	Off	90 Secs*	
	Off	On	120 Secs	
	On	Off	150 Secs	
	On	On	180 Secs	

*Factory Settings

S5 Settings

- Heat-Pump & De-Humidification:
- Adjust S5-1 to Configure if a Heat-Pump is connected to the system
- Adjust S5-2 is there is a De-humidification terminal connected to the thermostat

DIP Switches

	Switch Settings	Options	
	S5-1		
Heat Pump S5-1	Off	Installed	
	On	Not Installed*	
De-humidifier S5-2	Off	Installed	
	On	Not Installed*	

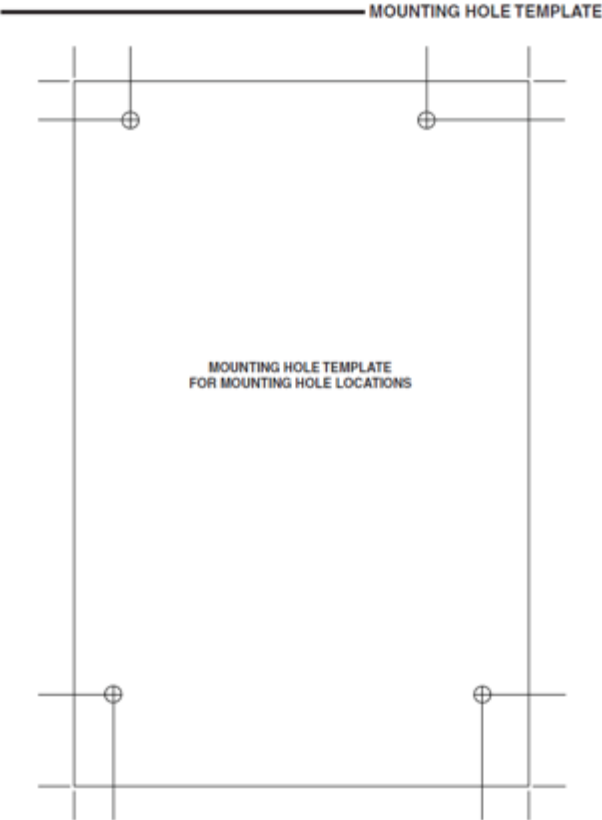
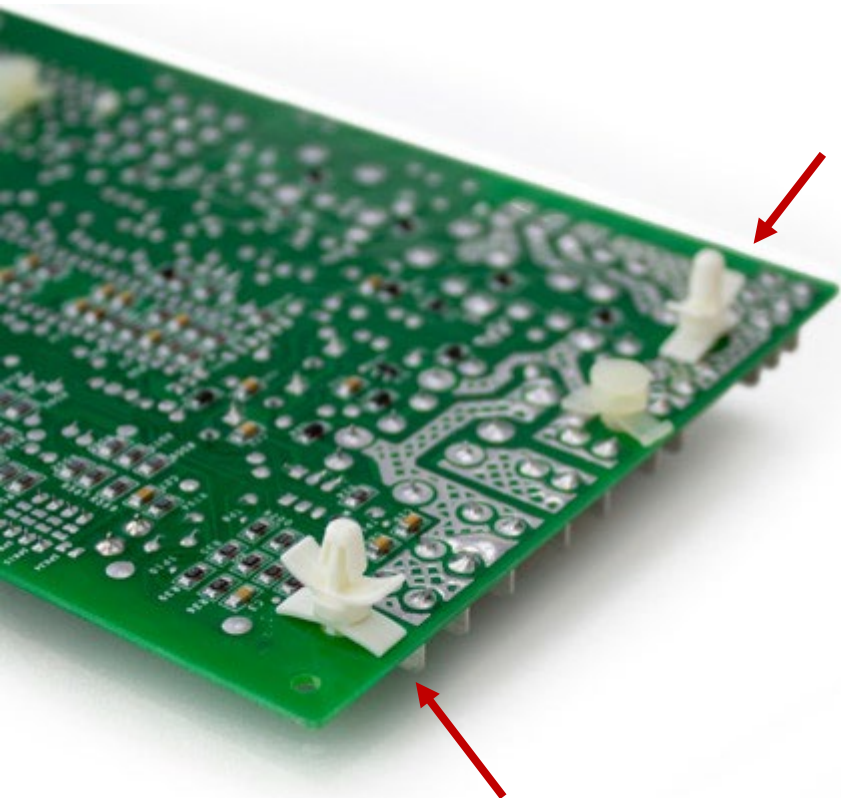
*Factory Settings

Note: Power must be cycled after dipswitch settings are made.

Raised Tab Mounting

The 21V51U-843 has 4 raised board supports designed to hold the board off the mounting surface.

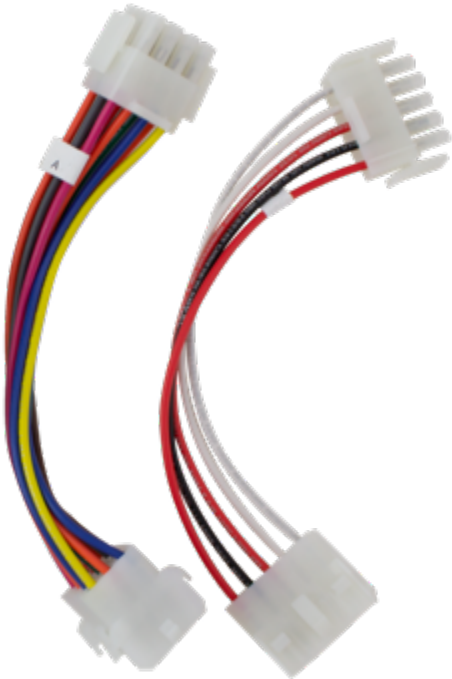
Installation instructions include a template for hole spacing.



Key OEM Features Matched by White-Rodgers

Goodman

- For Goodman 50V51-289 applications, 2 adapter harnesses are included in the box.



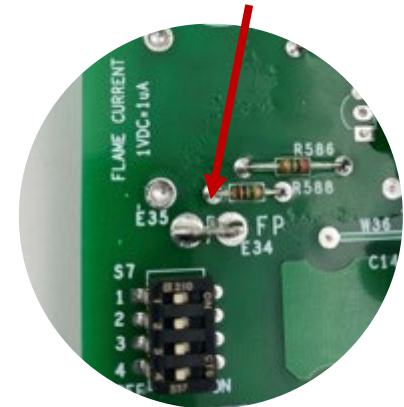
Trane

- The replacement of the hot surface ignitor on Trane systems require a special mounting bracket which is included in the 21M51U-843 box.



Lennox

- Lennox applications use a separate flame sense wire which connects to the 3/16" flame sense spade.



- All other systems utilize flame sense through the 12-pin molex plug.

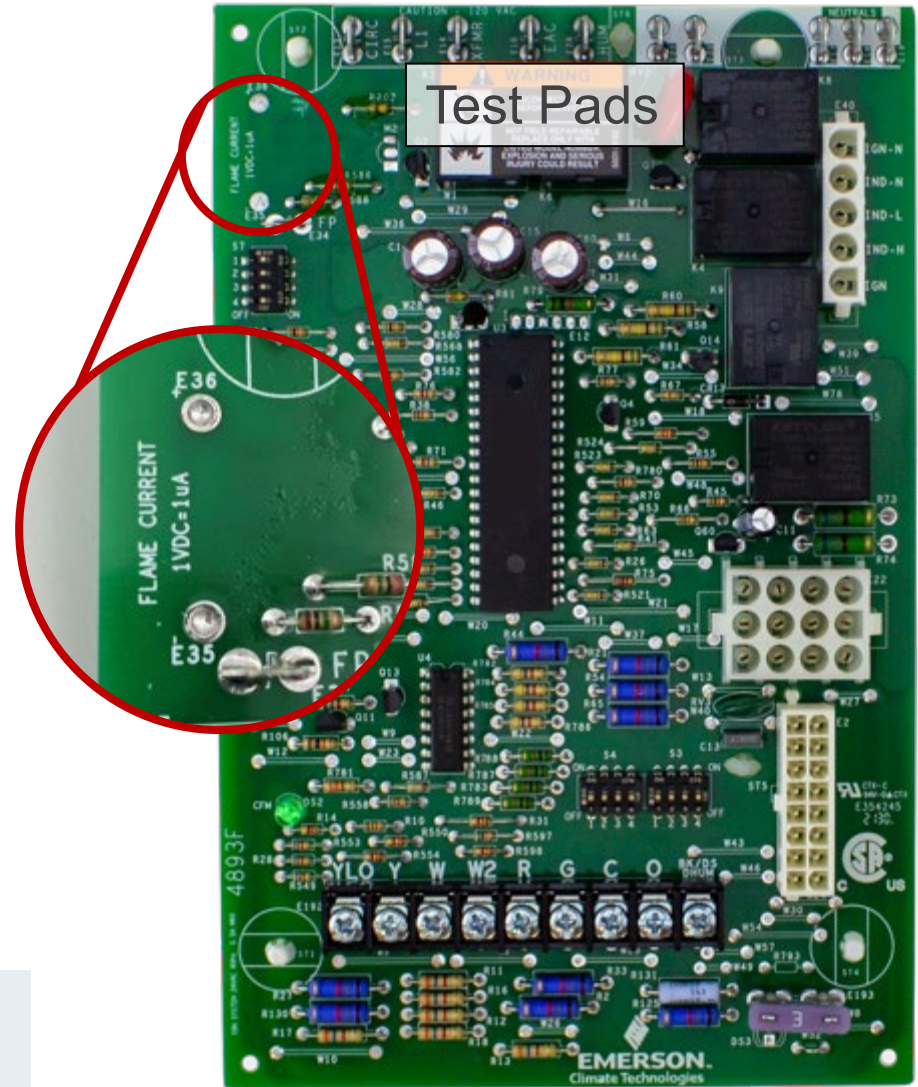
Utilizing the Flame Current Test Pads


Understanding Test Pads

2 pins extend from the control board to the surface of the black cover.

To Test:

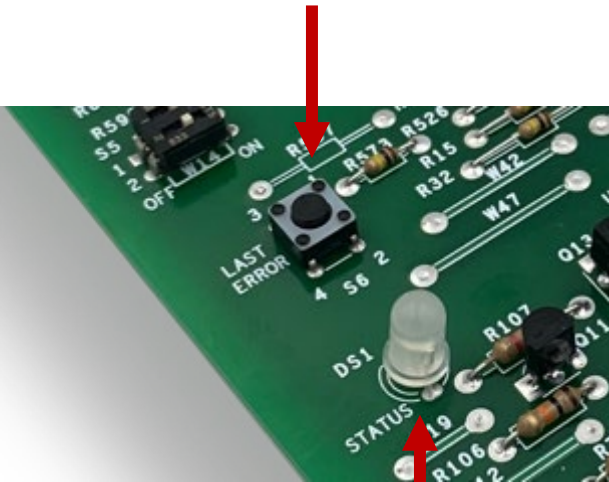
- The furnace must have a call for heat and the burners producing flame.
- Set a multimeter to vDC and place a meter probe on each pad.
- Convert vDc to MicroAmps using a 1:1 ratio.
- A good flame sense reading will be between 1.0 – 5.0 μA .



 **TECH TIP:** White-Rodgers allows you to read flame current with a simple DCv meter without breaking the circuit to the probe!

Status & Fault Codes for Troubleshooting

- The Last Error / Fault Button allows for:
 - Recall of the last 5 faults
 - Fault Code deletion



- Easy to see Tri-Color LED indicator shows Status & Fault / Error conditions

- Troubleshooting is simplified with an included adhesive Fault Code Label that can be placed on the equipment.

Diagnostic Flash Codes			Blower Heat OFF Delay		
1. Red Flash=Flame sensed when no flame should be present	S7-3	S7-4	Time		
2. Red Flash=Pressure Switch Stuck Closed/Inducer Error	OFF	OFF	90		
3. Red Flash=1st-stage Pressure Switch Stuck Open/Inducer Error	OFF	ON	120		
4. Red Flash=Open limit switch	ON	OFF	150*		
5. Red Flash=Open rollout switch/Open Fuse detect	ON	ON	180		
6. Red Flash=Pressure switch cycle lockout	*Factory Setting				
7. Red Flash=External lockout (retries)					
8. Red Flash=External lockout (recycles)					
9. Red Flash=Grounding or Reversed polarity					
10. Red Flash=Gas flow with no call for heat					
11. Red Flash=Limit switch open - blower failure					
12. Red Flash=Ignitor relay failure					
Solid Red=Internal GV Error, Micro, and Frequency Check					
3 double Red Flash=2nd-stage Pressure Switch Stuck Open/ Inducer Error					
1. Amber Flash=Normal Operation with call for first stage heat					
2. Amber Flash=Normal Operation with call for second stage heat					
3. Amber Flash=W2 present with no W					
4. Amber Flash=Y present with no G call					
Rapid Amber Flash=Low flame sense current					
1 Green Flash=Standby/ cool call					
5001-2614	B1809927				

- The Label also includes Dipswitch S7 blower Heat Off Settings

Install

21M51U-843 & 21V51U-843

2-Stage Gas Operation

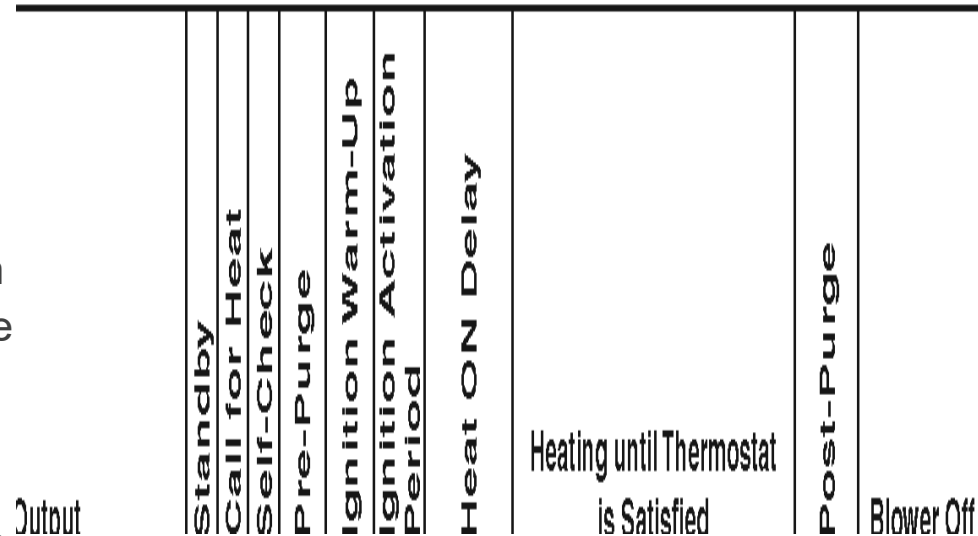
2-Stage furnaces operate with 2 levels of heating:

- A Low fire @ 60%-70% full capacity
- A High fire @ 100% full capacity

Stages can be controlled by several methods:

- A single stage thermostat and IFC dipswitch settings
 - W2 (2nd stage) can be set to come on
 - For a predetermined amount of time
 - Automatically based on operation algorithms
- A 2-stage thermostat
 - W2 (2nd stage) is connected to W2 on the thermostat

ODE



TECH TIP: Properly sized & set-up 2-stage furnaces operate quieter 60-80% of the time by burning on low fire.



21M51U-843 What's in the Box?

- 21M51U-843 2-Stage PSC Universal Furnace Control
- 21D64-2 HotRod Ignitor
- Trane Ignitor Mounting bracket with 3x 1/2" Screws
- 5 Motor Lead Extensions
- Installation Sheet
- Cross Reference Application Data Sheet (Shading indicates 80V application where ignitor must be changed to 120V)



21V51U-843 What's in the Box?

- 21V51U-843 ECM Universal Furnace Control
- 21D64-2 HotRod Ignitor
- Trane Ignitor Mounting bracket with 3x 1/2" Screws
- 2 Adapter Interconnect Harnesses
- Installation Sheet
- Cross Reference Application Data Sheet (Shading indicates 80V application where ignitor must be changed to 120V)
- Fault Code Adhesive Label



Diagnostic Flash Codes	Monitor Oper OFF		
Display	ST-1	ST-4	Time
1. Red Flash-Flame Switch Open	OFF	OFF	10"
2. Red Flash-Pressure Switch Open	OFF	OFF	10"
3. Red Flash-Open Gas Valve	OFF	OFF	10"
4. Red Flash-Open Gas Valve	OFF	OFF	10"
5. Red Flash-Open Gas Valve	OFF	OFF	10"
6. Red Flash-Open Gas Valve	OFF	OFF	10"
7. Red Flash-Open Gas Valve	OFF	OFF	10"
8. Red Flash-Open Gas Valve	OFF	OFF	10"
9. Red Flash-Open Gas Valve	OFF	OFF	10"
10. Red Flash-Open Gas Valve	OFF	OFF	10"
11. Red Flash-Open Gas Valve	OFF	OFF	10"
12. Red Flash-Open Gas Valve	OFF	OFF	10"
13. Red Flash-Open Gas Valve	OFF	OFF	10"
14. Red Flash-Open Gas Valve	OFF	OFF	10"
15. Red Flash-Open Gas Valve	OFF	OFF	10"
16. Red Flash-Open Gas Valve	OFF	OFF	10"
17. Red Flash-Open Gas Valve	OFF	OFF	10"
18. Red Flash-Open Gas Valve	OFF	OFF	10"
19. Red Flash-Open Gas Valve	OFF	OFF	10"
20. Red Flash-Open Gas Valve	OFF	OFF	10"
21. Red Flash-Open Gas Valve	OFF	OFF	10"
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25. Red Flash-Open Gas Valve	OFF	OFF	10"
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27. Red Flash-Open Gas Valve	OFF	OFF	10"
28. Red Flash-Open Gas Valve	OFF	OFF	10"
29. Red Flash-Open Gas Valve	OFF	OFF	10"
30. Red Flash-Open Gas Valve	OFF	OFF	10"
31. Red Flash-Open Gas Valve	OFF	OFF	10"
32. Red Flash-Open Gas Valve	OFF	OFF	10"
33. Red Flash-Open Gas Valve	OFF	OFF	10"
34. Red Flash-Open Gas Valve	OFF	OFF	10"
35. Red Flash-Open Gas Valve	OFF	OFF	10"
36. Red Flash-Open Gas Valve	OFF	OFF	10"
37. Red Flash-Open Gas Valve	OFF	OFF	10"
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49. Red Flash-Open Gas Valve	OFF	OFF	10"
50. Red Flash-Open Gas Valve	OFF	OFF	10"
51. Red Flash-Open Gas Valve	OFF	OFF	10"
52. Red Flash-Open Gas Valve	OFF	OFF	10"
53. Red Flash-Open Gas Valve	OFF	OFF	10"
54. Red Flash-Open Gas Valve	OFF	OFF	10"
55. Red Flash-Open Gas Valve	OFF	OFF	10"
56. Red Flash-Open Gas Valve	OFF	OFF	10"
57. Red Flash-Open Gas Valve	OFF	OFF	10"
58. Red Flash-Open Gas Valve	OFF	OFF	10"
59. Red Flash-Open Gas Valve	OFF	OFF	10"
60. Red Flash-Open Gas Valve	OFF	OFF	10"
61. Red Flash-Open Gas Valve	OFF	OFF	10"
62. Red Flash-Open Gas Valve	OFF	OFF	10"
63. Red Flash-Open Gas Valve	OFF	OFF	10"
64. Red Flash-Open Gas Valve	OFF	OFF	10"
65. Red Flash-Open Gas Valve	OFF	OFF	10"
66. Red Flash-Open Gas Valve	OFF	OFF	10"
67. Red Flash-Open Gas Valve	OFF	OFF	10"
68. Red Flash-Open Gas Valve	OFF	OFF	10"
69. Red Flash-Open Gas Valve	OFF	OFF	10"
70. Red Flash-Open Gas Valve	OFF	OFF	10"
71. Red Flash-Open Gas Valve	OFF	OFF	10"
72. Red Flash-Open Gas Valve	OFF	OFF	10"
73. Red Flash-Open Gas Valve	OFF	OFF	10"
74. Red Flash-Open Gas Valve	OFF	OFF	10"
75. Red Flash-Open Gas Valve	OFF	OFF	10"
76. Red Flash-Open Gas Valve	OFF	OFF	10"
77. Red Flash-Open Gas Valve	OFF	OFF	10"
78. Red Flash-Open Gas Valve	OFF	OFF	10"
79. Red Flash-Open Gas Valve	OFF	OFF	10"
80. Red Flash-Open Gas Valve	OFF	OFF	10"
81. Red Flash-Open Gas Valve	OFF	OFF	10"
82. Red Flash-Open Gas Valve	OFF	OFF	10"
83. Red Flash-Open Gas Valve	OFF	OFF	10"
84. Red Flash-Open Gas Valve	OFF	OFF	10"
85. Red Flash-Open Gas Valve	OFF	OFF	10"
86. Red Flash-Open Gas Valve	OFF	OFF	10"
87. Red Flash-Open Gas Valve	OFF	OFF	10"
88. Red Flash-Open Gas Valve	OFF	OFF	10"
89. Red Flash-Open Gas Valve	OFF	OFF	10"
90. Red Flash-Open Gas Valve	OFF	OFF	10"
91. Red Flash-Open Gas Valve	OFF	OFF	10"
92. Red Flash-Open Gas Valve	OFF	OFF	10"
93. Red Flash-Open Gas Valve	OFF	OFF	10"
94. Red Flash-Open Gas Valve	OFF	OFF	10"
95. Red Flash-Open Gas Valve	OFF	OFF	10"
96. Red Flash-Open Gas Valve	OFF	OFF	10"
97. Red Flash-Open Gas Valve	OFF	OFF	10"
98. Red Flash-Open Gas Valve	OFF	OFF	10"
99. Red Flash-Open Gas Valve	OFF	OFF	10"
100. Red Flash-Open Gas Valve	OFF	OFF	10"

21V51U-843 Cross Reference	
Module Model Number	Furnace Model
Módulo de Modelo del Módulo	Modelo de Calentador
18M9001	
150870-01	
150870-03	
18W90	
46M9001	660DFV (X), 660UH or 661MPV
6W227	
74752	
50V81-120	N/A
50V81-121	N/A
20300002	N/A
30300004	N/A
20300002	Same as 50V81-289
50V81-289	N/A
AMV811550KA	
AMV811550KA	
ADV807030KA	
ADV806050KA	
AMV804530KA	
AMV807040KA	
AMV807040KA	

Disconnect Power and Gas

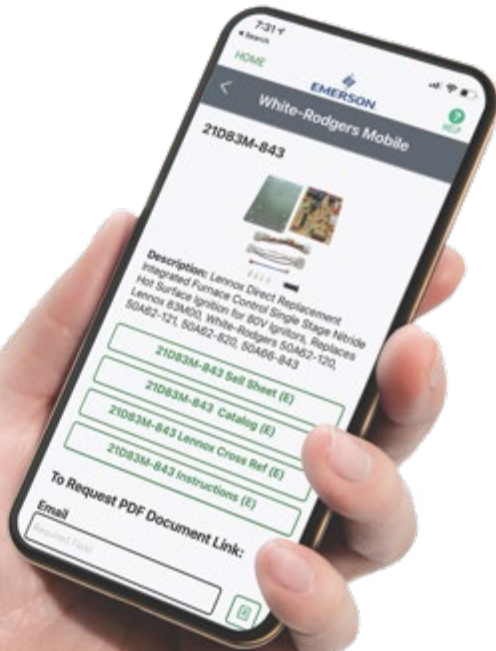
- 1 Turn off the power and gas to the furnace and remove the access panels. For this installation we will be using 21V51U-843.



Check Cross Reference

2



Check the old part number against the 21V51U-843 box cross reference or WR Mobile.



White-Rodgers®
Integrated Furnace Control
21V51U-843

U
Universal

Two-Stage Applications
Variable Speed Blower Motor
120V HSI Ignition
Includes HotRod™ Universal Ignitor Kit

21D64-2 included

Now Also Replaces
Trane KIT15815

Trusted by **PROs**

1-Year Limited Warranty

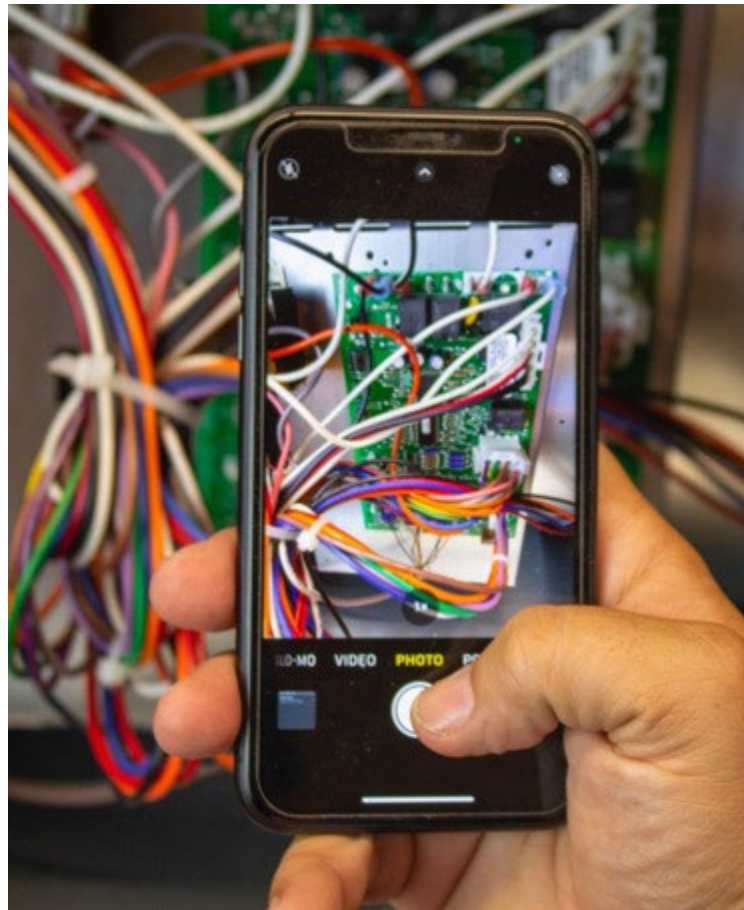
EMERSON
Climate Technologies

Cross Reference Replacement / Tableau de renvoi des remplacements

<p>Goodman Mfg. 20300002 20300004 20300006 203000065 50V51-288 50V51-289 50V51-290 50V61-288 50V61-289 81809925 81809927 818099275 PCB00106 PCB001065</p>	<p>PC8BF106 PC8BF1065 PC8BF1075 PC8BF1245</p> <p>Lennox Industries 18M9901 49M5901 50V61-120 63W27 50V61-289 Y4152 100870-03 100870-01</p> <p>Thermo Pride 50V61-143</p>	<p>Trane American Standard 50V51-507 50V61-480 50V61-486 50V61-507 CNT03078 CNT04018 CNT04352 CNT05120 D156245P01 D341420P02 D341420P01 KIT15815 X13650840010</p>	<p>White-Rodgers 21V51U-843</p> <p>York International 50V51-243 642768 449572 51-03102955000 51-33102955000 51-03102977000 51-33102977000</p>
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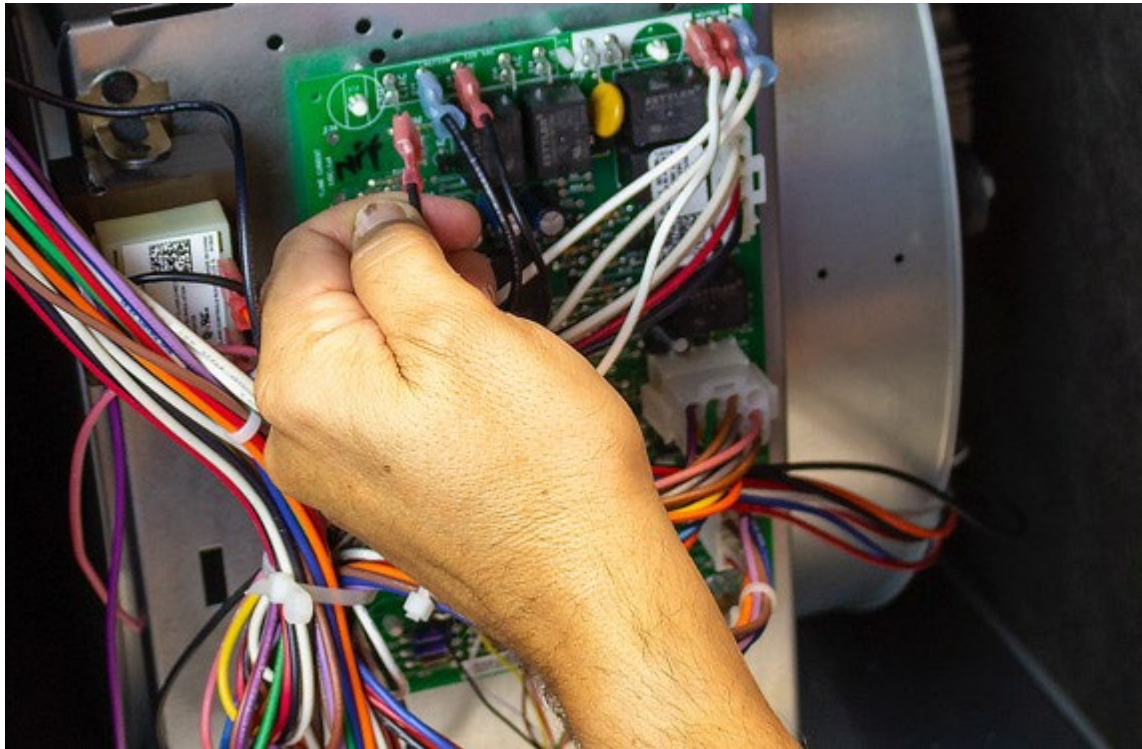
Take a Picture of Wiring

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



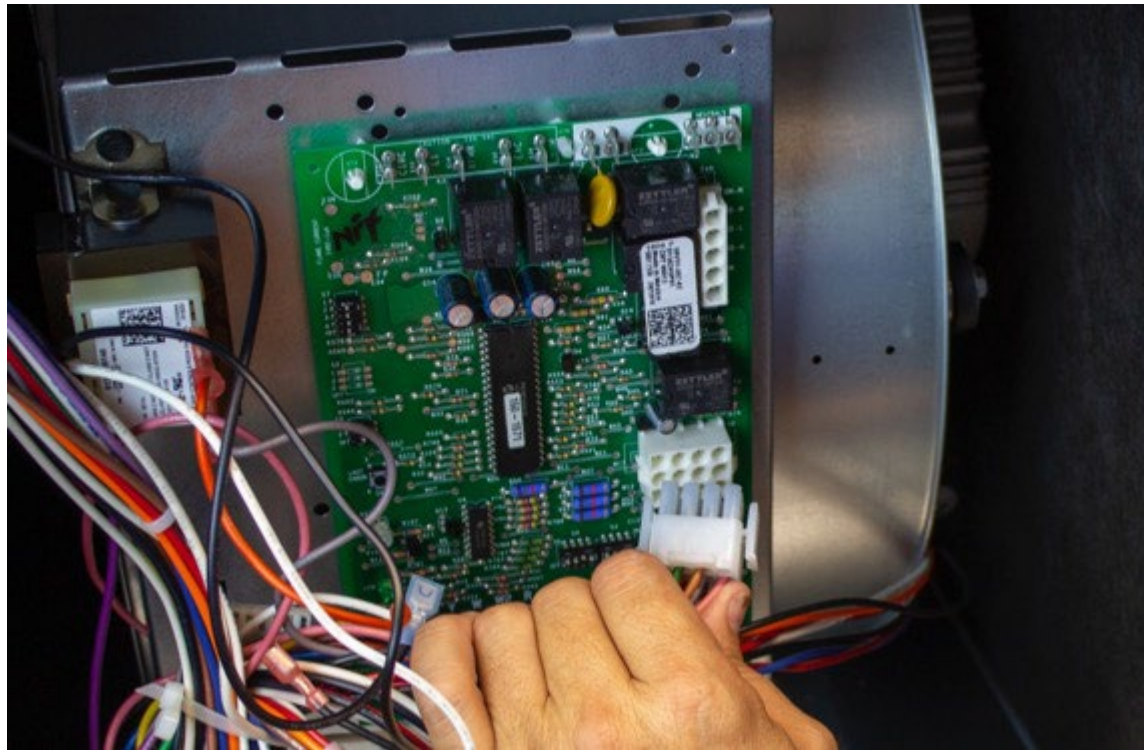
Disconnect Wiring

- 4 Disconnect the 120v wiring to the circulator fan, the power supply coming in and power to the transformer as well as each neutral wire.



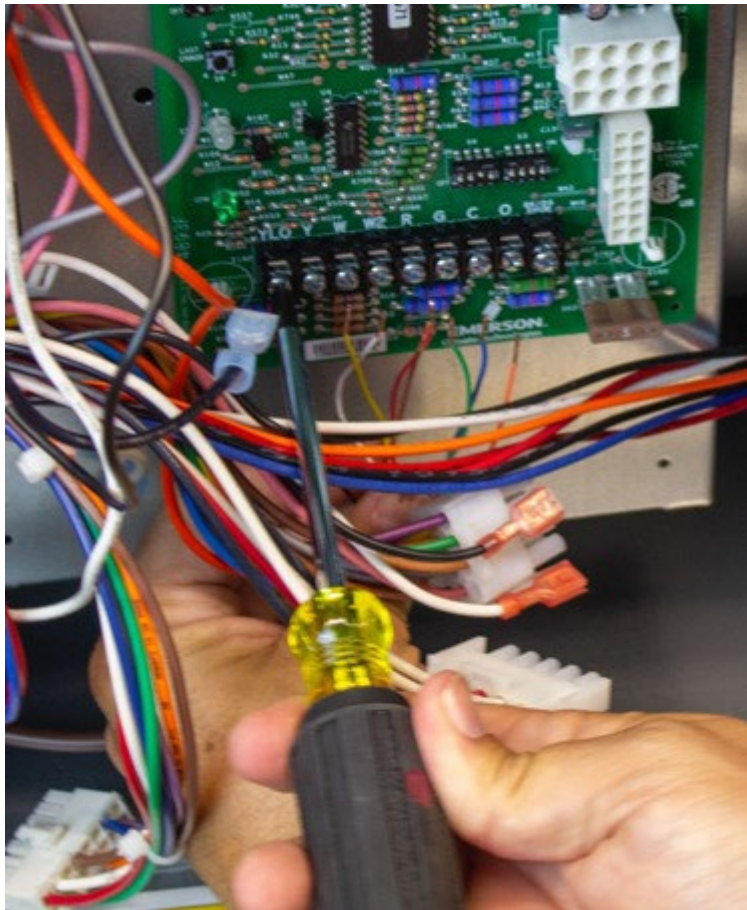
Disconnect Wiring

- 5 Disconnect the inducer/ignitor 5-pin molex plug, 12-pin molex connector and the 16-pin ECM connector.



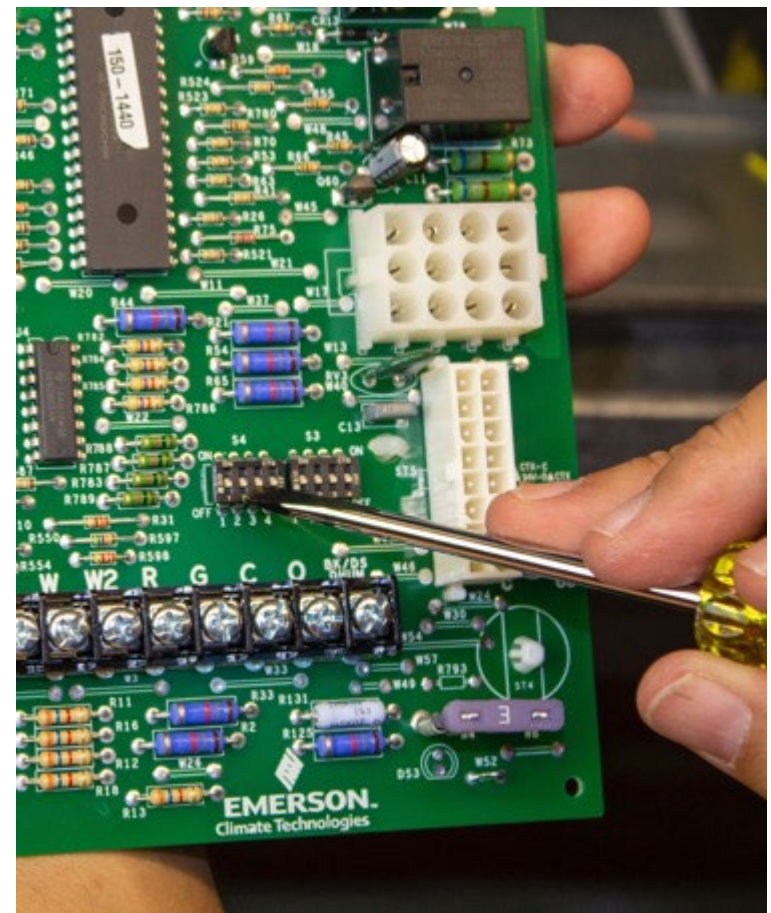
Disconnect Wiring

- 6 Disconnect the thermostat wires and remove the board.



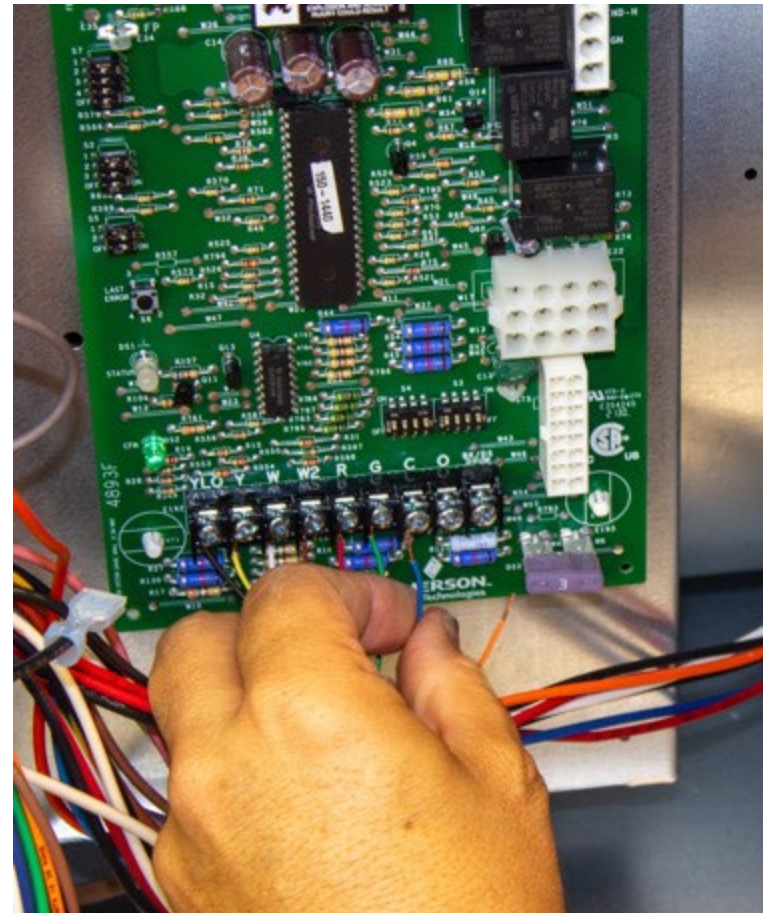
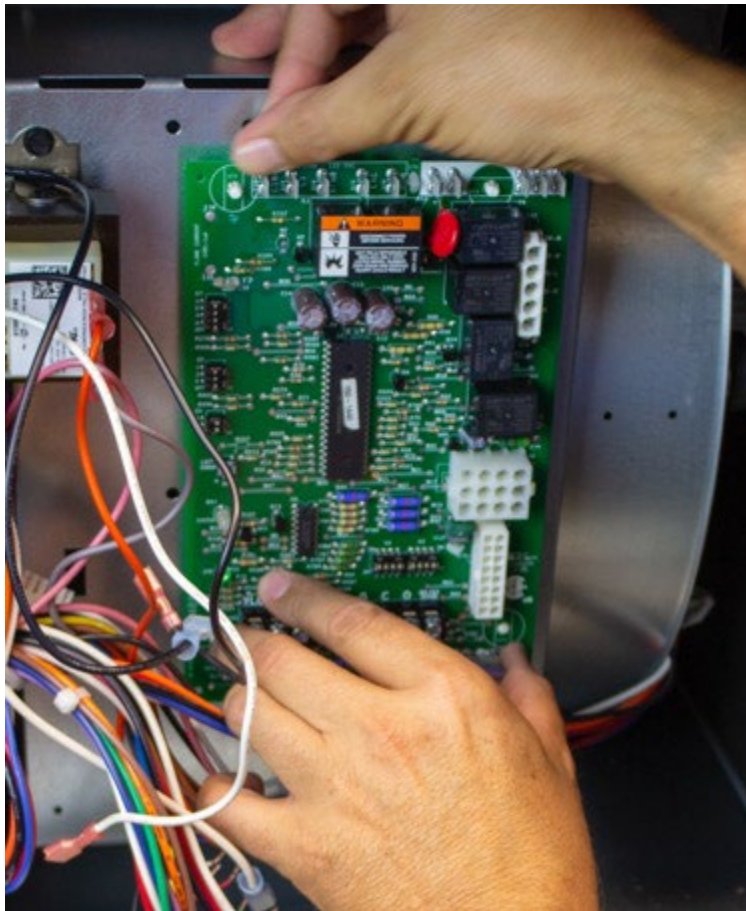
Adjust dipswitches

7 Adjust the dipswitches to match the furnace manufacture settings.



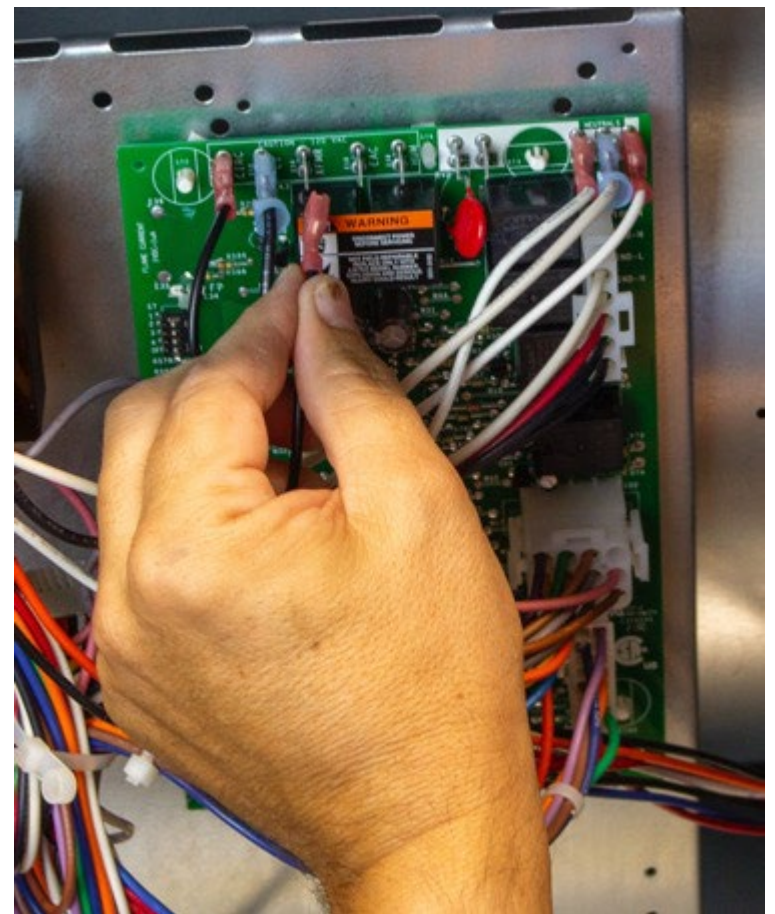
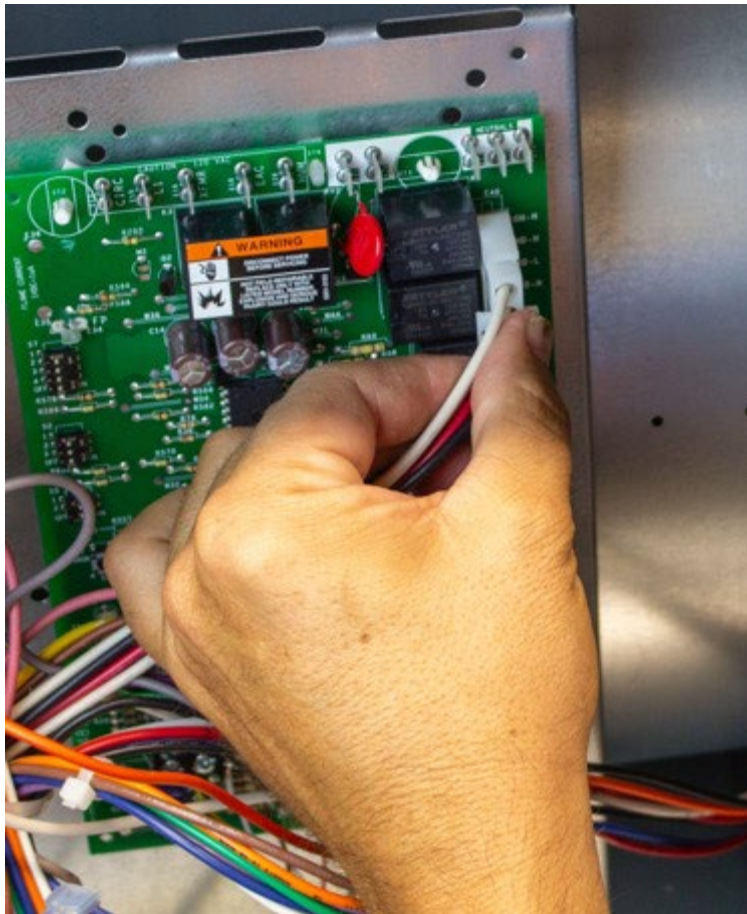
Install new board

- 8 Install the board and reconnect thermostat wires.



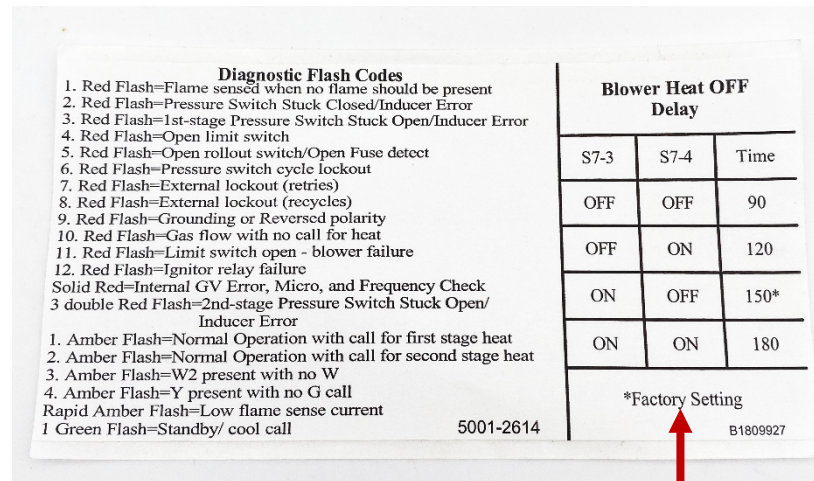
Reconnect Wiring

- 9 Reconnect molex plugs and 120v wiring.



Apply Label

10 Apply fault code adhesive label to furnace panel.



The label includes Dipswitch S7 blower Heat Off Settings

Connect Power and Gas

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



Thank you!