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White-Rodgers Commercial Rooftop Controls

WHITE-RODGERS
by COPELAND

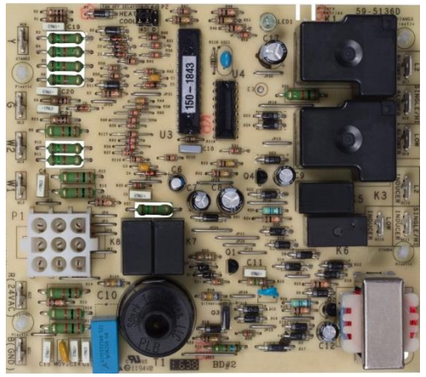
Business and Product Overview

White-Rodgers Commercial Rooftop Controls

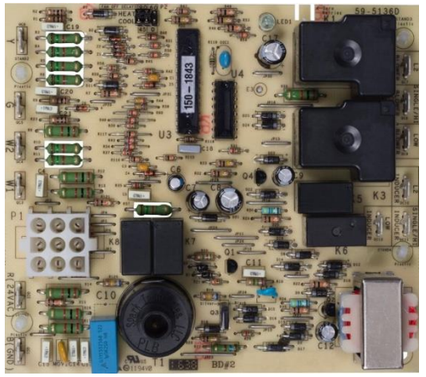
As the direct OEM supplier of electromechanical ignition modules for Trane Rooftop Units (RTUs), White-Rodgers is uniquely suited to supply the replacement market, with three unique models and one accessory.

Features

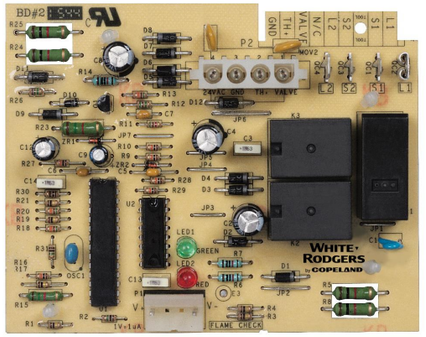
- Easy to Install
- Full Color Boxes
- Complete Cross Reference on Box
- Instruction Sheet
- Fault Code Label, Accessory Parts to Meet or Exceed OEM Offering



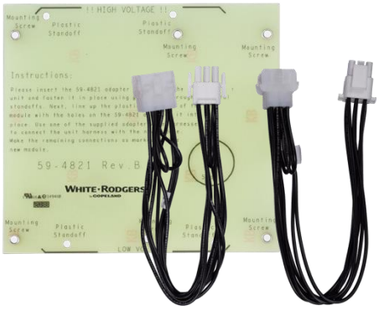
50N02A-820 (80s Blower Delay)
Direct Spark Ignition



50N02B-820 (45s Blower Delay)
Direct Spark Ignition



50E70-820
Hot Surface Ignition



F50N02-820
Accessory Adaptor Board and Harnesses for Spark Controls

Trane RTU Market Data

- Trane has a large installed base of RTUs.
  - Electromechanical control boards from 1990 – Present
  - Communicating control boards from 2002 - Present
- White-Rodgers has long been the OEM Supplier for Trane ignition modules
  - Started with Fenwal, Texas Instruments
  - Moved to majority W-R, one UTEC SKU
- ICM and Honeywell do not offer these key parts, giving White-Rodgers near exclusivity in the category

Applications

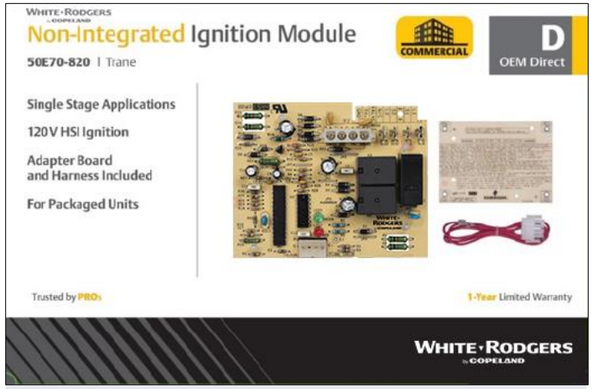
50N02A-820

Impack™ *
1.5-5 TON YCY, YCC, YCZ, DCY, DCZ
Spark Ignition

50N02B-820

Precedent™
3-10 TON YSC, YHC
Spark Ignition

50E70-820



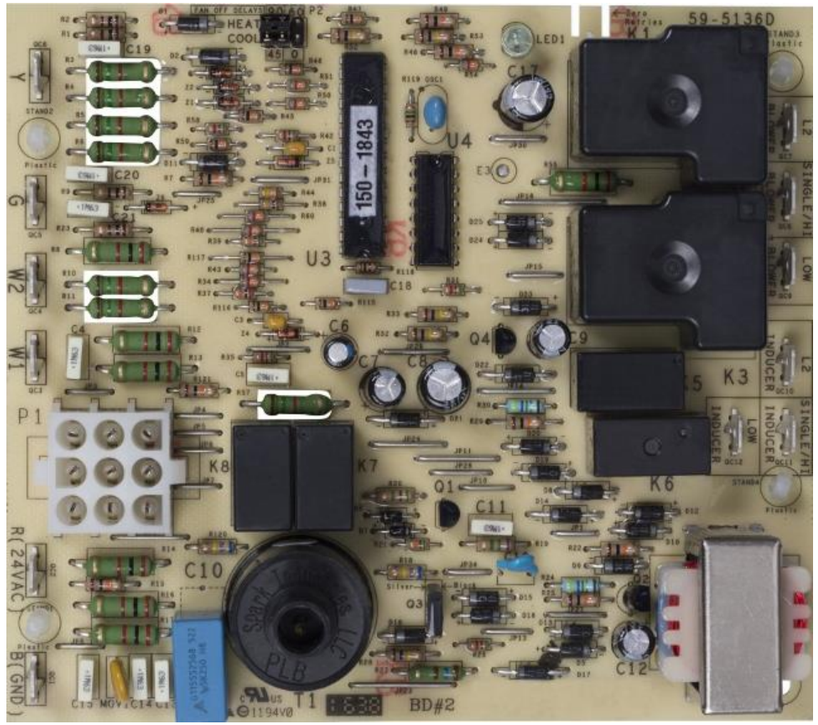
Voyager™
12.5-25 TON YCD
Hot Surface Ignition

F50N02-820
Furnace Adapter Board

50N02A-820 & 50N02B-820 Spark Ignition Controls

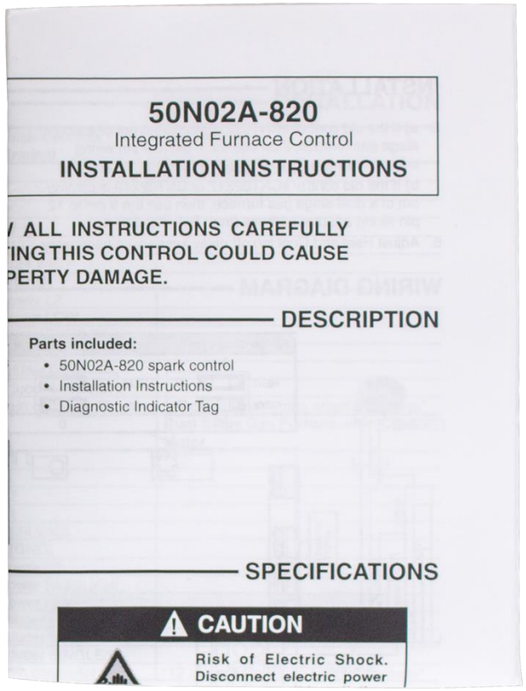
Product Features and Benefits

- Plug and play replacement of the OEM.
- Built for Impack and Precedent Product Lines
- No wire splicing or modifications necessary
- “N02A” version has black silkscreen
  - 80s Blower Delay
- “N02B” version has red silkscreen
  - 45s Blower Delay



50N02A-820 / 50N02B-820 What's in the box?

- 50N02A-820 / 50N02B-820 spark control
- Installation Instructions
- Diagnostic Indicator Tag



50N02A-820
Integrated Furnace Control
INSTALLATION INSTRUCTIONS

/ ALL INSTRUCTIONS CAREFULLY
'ING THIS CONTROL COULD CAUSE
PERTY DAMAGE.

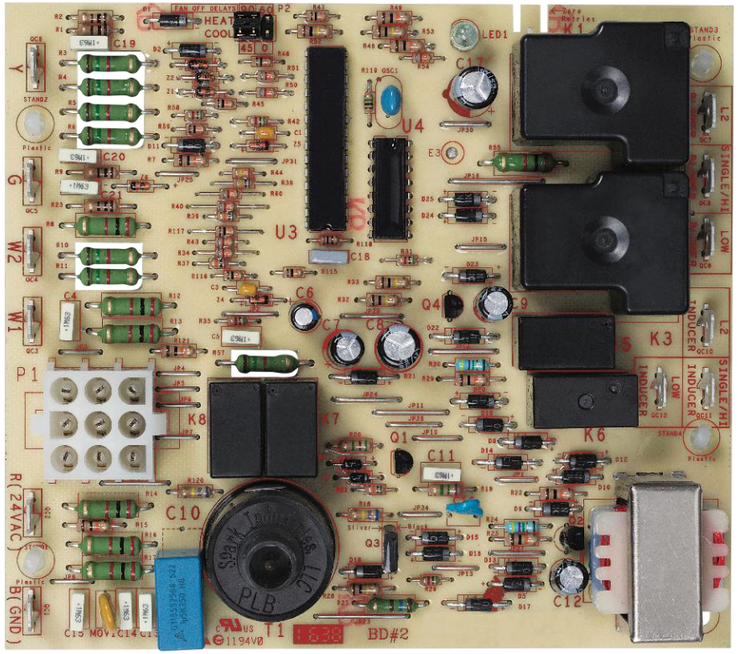
DESCRIPTION

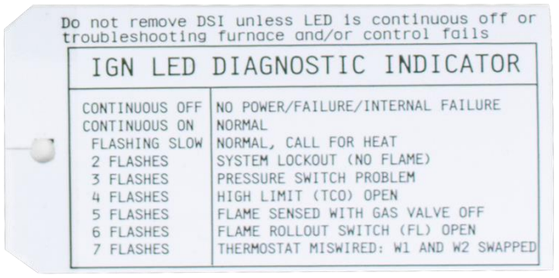
Parts included:
- 50N02A-820 spark control
- Installation Instructions
- Diagnostic Indicator Tag

SPECIFICATIONS

⚠ CAUTION

Risk of Electric Shock.
Disconnect electric power





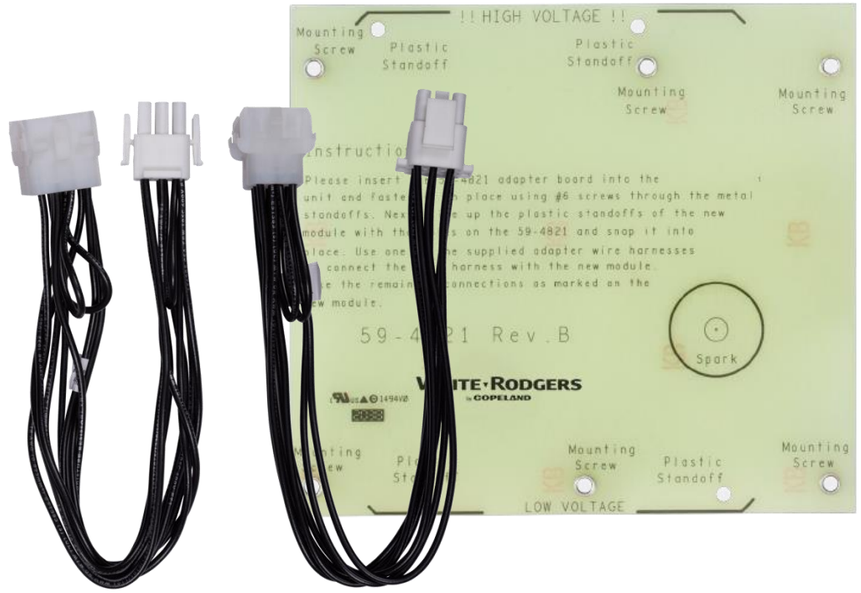
Do not remove DSI unless LED is continuous off or troubleshooting furnace and/or control fails

IGN LED DIAGNOSTIC INDICATOR	
CONTINUOUS OFF	NO POWER/FAILURE/INTERNAL FAILURE
CONTINUOUS ON	NORMAL
FLASHING SLOW	NORMAL, CALL FOR HEAT
2 FLASHES	SYSTEM LOCKOUT (NO FLAME)
3 FLASHES	PRESSURE SWITCH PROBLEM
4 FLASHES	HIGH LIMIT (TCO) OPEN
5 FLASHES	FLAME SENSED WITH GAS VALVE OFF
6 FLASHES	FLAME ROLLOUT SWITCH (FL) OPEN
7 FLASHES	THERMOSTAT MISWIRED: W1 AND W2 SWAPPED

F50N02-820 Spark Ignition Adapter Board

Product Features and Benefits

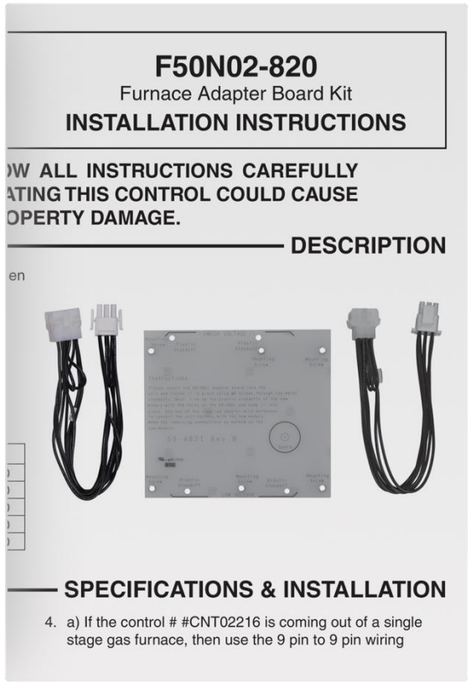
- Replaces Trane's Service KIT06839
- Initial production used a Texas Instruments Spark Module with mounting screws
- The adapter mounts to the existing screw holes and converts to plastic stand-off mounting
- Newer and already converted units will not need the adapter
- Wiring harnesses adapt old system wiring to new control board pinouts
- Broad availability to purchase



Original TI Control

F50N02-820 What's in the box?

- 0059-4821 Adapter Panel
- 9 Pin to 9 Pin Wiring Adapter Harness
- 12 Pin to 9 Pin Wiring Adapter Harness
- Diagnostic Indicator Tag
- Installation Instruction Sheet



F50N02-820
Furnace Adapter Board Kit
INSTALLATION INSTRUCTIONS

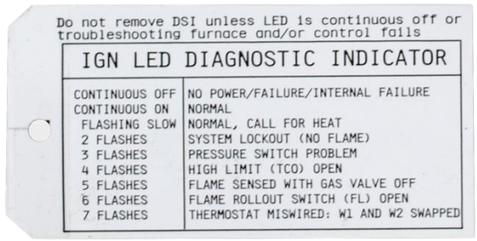
ɔW ALL INSTRUCTIONS CAREFULLY
ATING THIS CONTROL COULD CAUSE
OPERTY DAMAGE.

DESCRIPTION

en

SPECIFICATIONS & INSTALLATION

4. a) If the control # #CNT02216 is coming out of a single stage gas furnace, then use the 9 pin to 9 pin wiring



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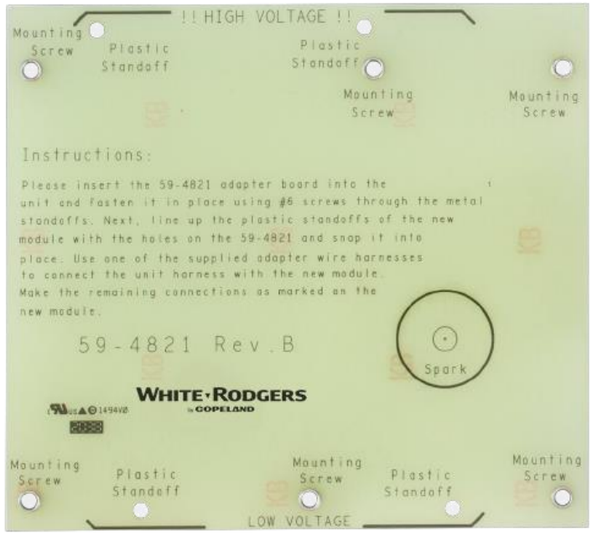
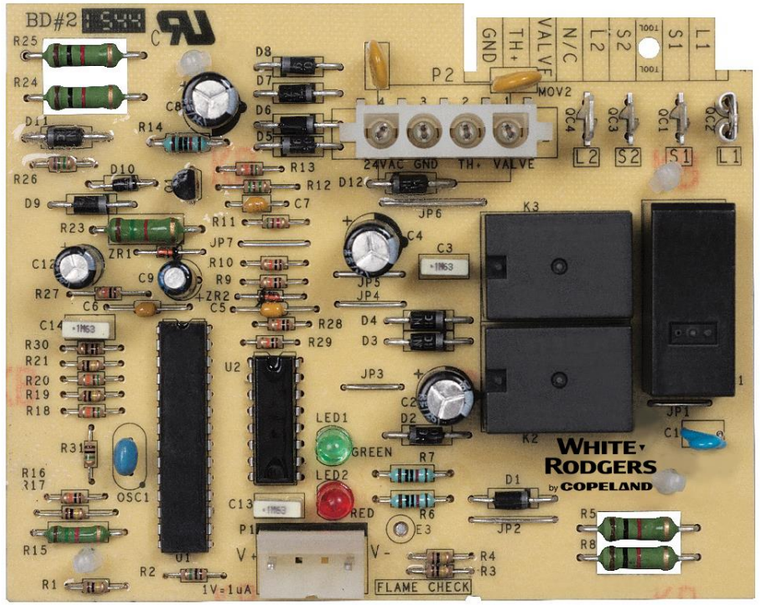


50E70-820 Hot Surface Ignition Module

Product Features and Benefits

- Replaces Trane’s Service KIT17852 For Voyager™
- Initial production used a Fenwal HSI Module with mounting screws before converting to a Texas Instruments standoff mount control
- The included adapter mounts to the existing screw holes and converts to plastic stand-off mounting
- Wiring adapter connects control to 24VAC transformer when needed
- Newer units will not need an adapter.
- Sequence and timing are the same as the existing board

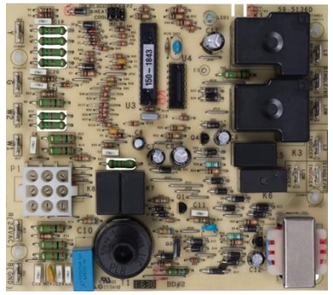


Original Fenwal Control

50E70-820 What's in the box?

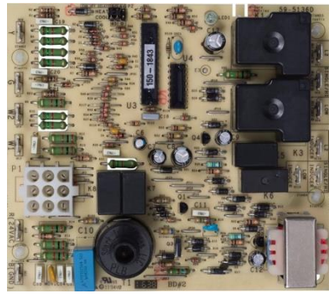
- 50E70-820 Integrated Furnace Control
- 24 VAC Wiring Harness (0155-0263)
- 59-4819 (3AD-2) Adapter Board
- 3 – Plastic tie wraps
- Installation Instructions
- Fault code label

Commercial Rooftop Controls Cross Reference



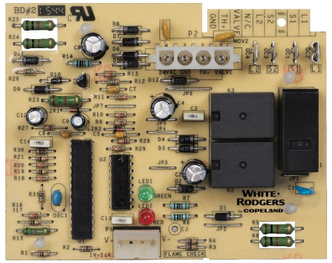
50N02A-820

Trane	White-Rodgers
CNT03456	50N02A-820
CNT03457	50N02-495-02
X13650874-01	50N02-495-0
X13650873-01	
CNT01634 w/ F50N02-820	
CNT01669 w/ F50N02-820	
CNT02216 w/ F50N02-820	
CNT02217 w/ F50N02-820	



50N02A-820

Trane	White-Rodgers
CNT05135	50N02B-820
CNT03458	
D674713P01	
X13650875-01	
CNT02219 w/ F50N02-820	
CNT04912	



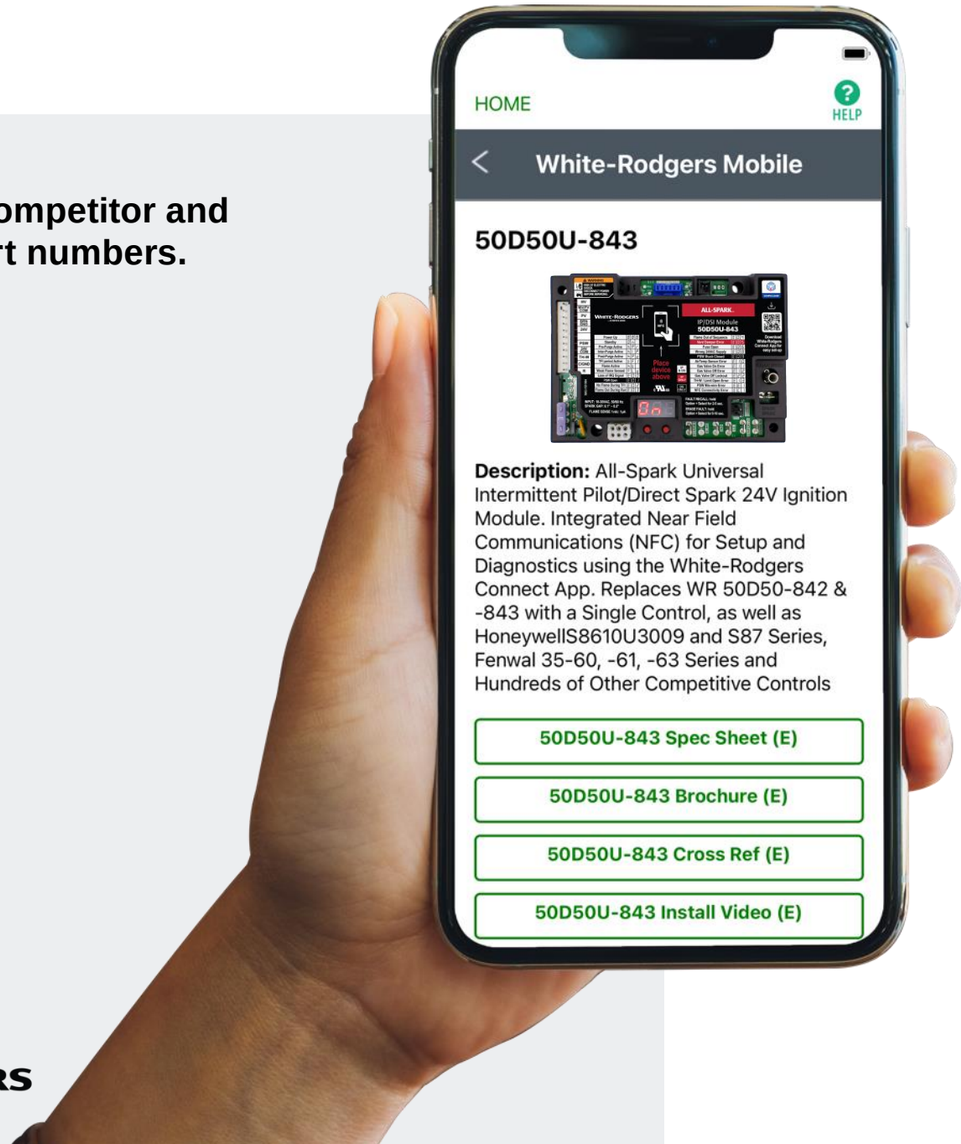
50N02A-820

Trane	White-Rodgers
3HS-1	21D70-495-01
3HS-2 Rev A	21D70-495-02
3HS-2 Rev D	50E70-820
KIT03308	
KIT05137	
KIT08282	
KIT17852	
3SV-2	
X13130449-0	
X13130453-01	
X13130454-01	
X13130454-02	

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

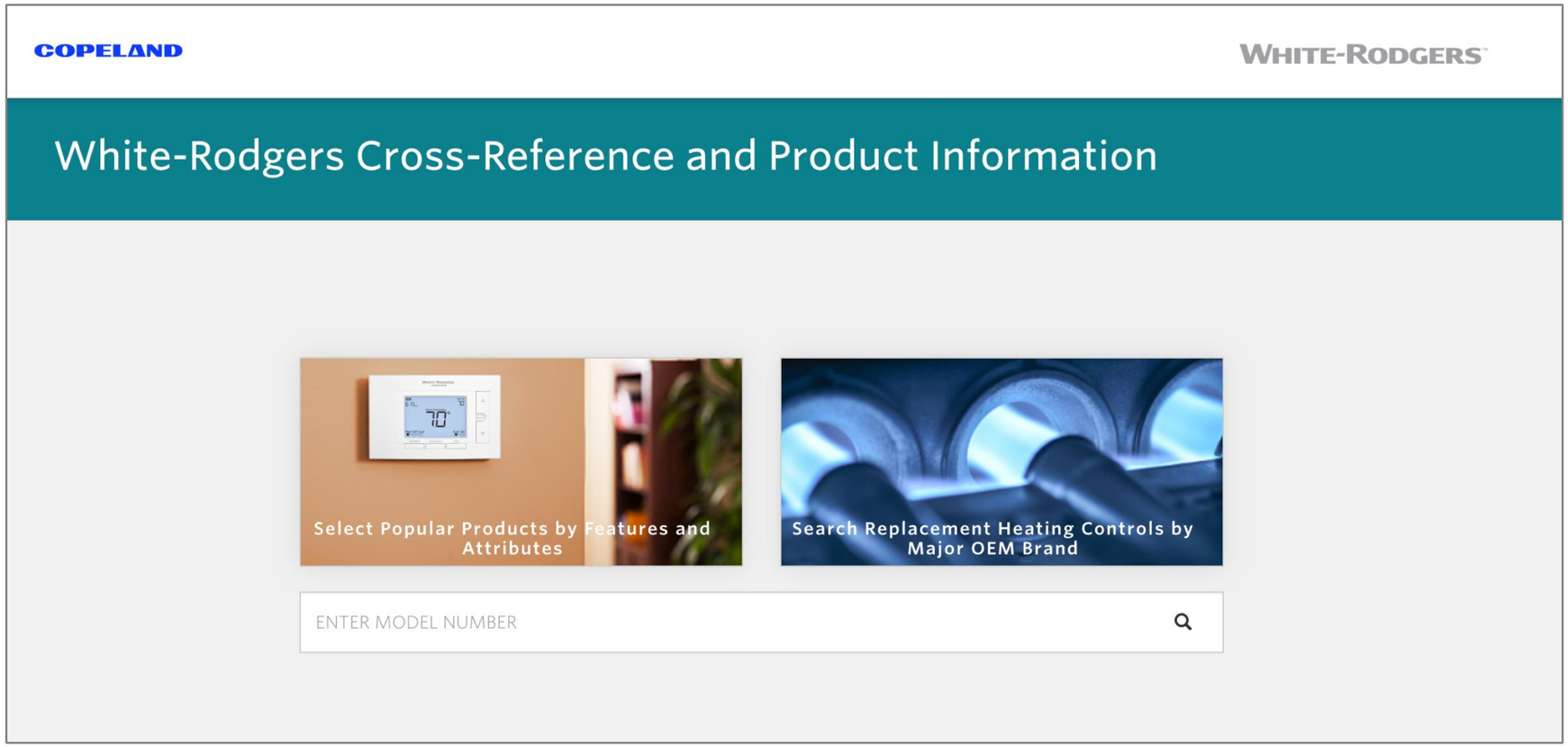
Access the online version HERE

WHITE-RODGERS by COPELAND

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



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

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by COPELAND

Technical Overview

White-Rodgers Commercial Rooftop Controls

As the direct OEM supplier of electromechanical ignition modules for Trane Rooftop Units (RTUs), White-Rodgers is uniquely suited to supply the replacement market, with three unique models and one accessory.

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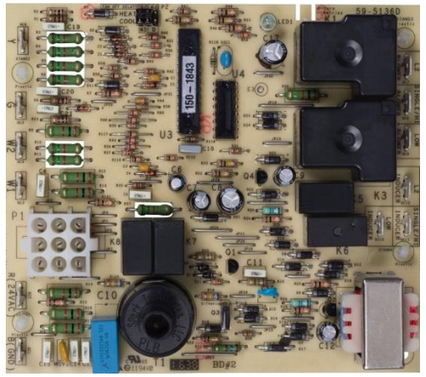
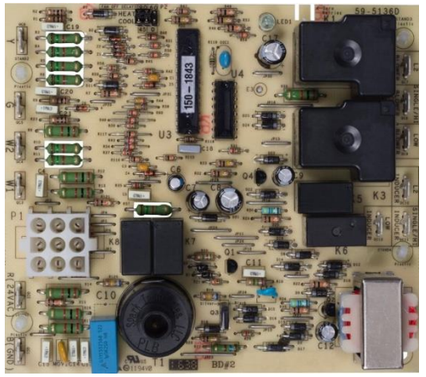
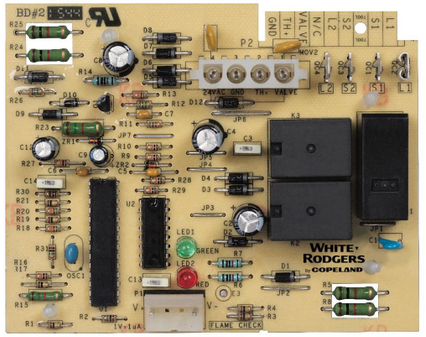


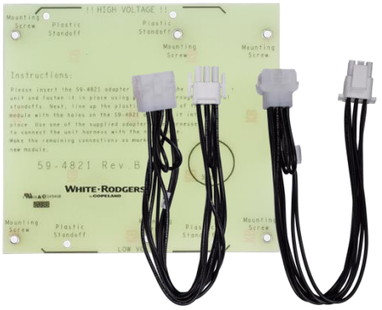
50N02A-820 (80s Blower Delay)
Direct Spark Ignition



50N02B-820 (45s Blower Delay)
Direct Spark Ignition



50E70-820
Hot Surface Ignition

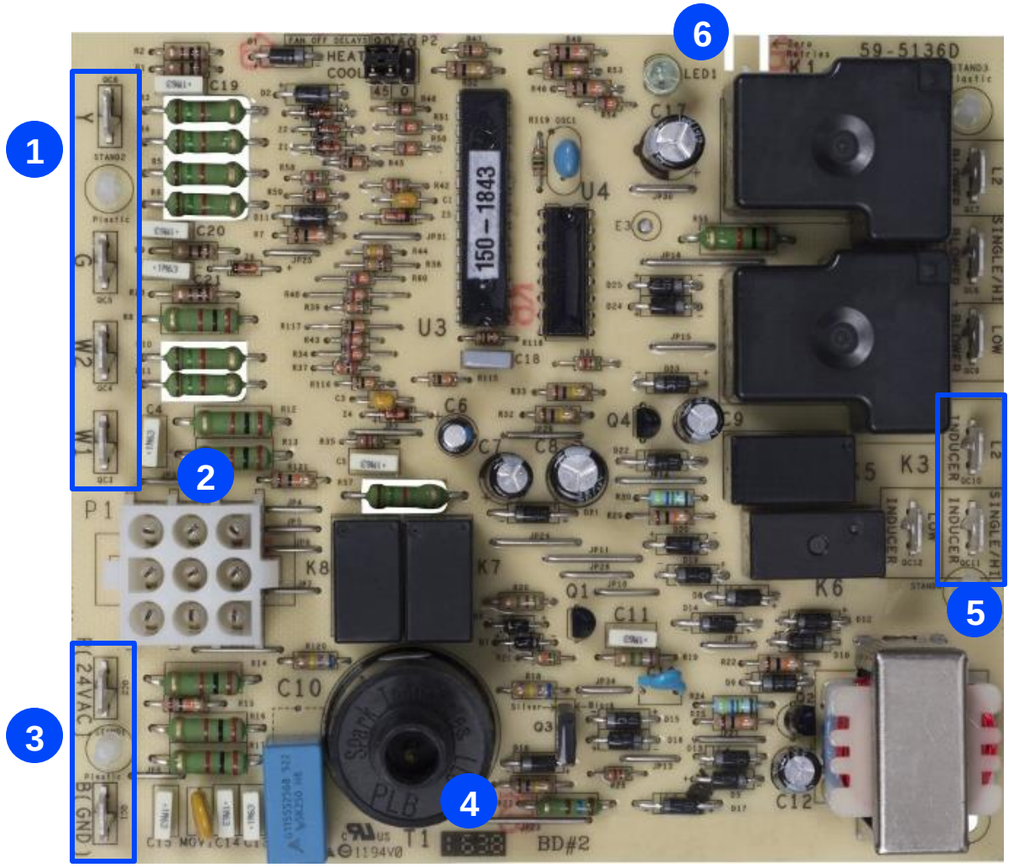


F50N02-820
Accessory Adaptor Board and Harnesses for Spark Controls

50N02A-820 & 50N02B-820 Spark Ignition Modules

Board Components

1. Thermostat inputs
2. Safeties & gas components
3. 24VAC input
4. Spark Output
5. Hi/Low inducer outputs
6. LED



TECH TIP: Remember 50N02B-820 has a 45s Cool Off Delay while a 50N02A-820 is 80s

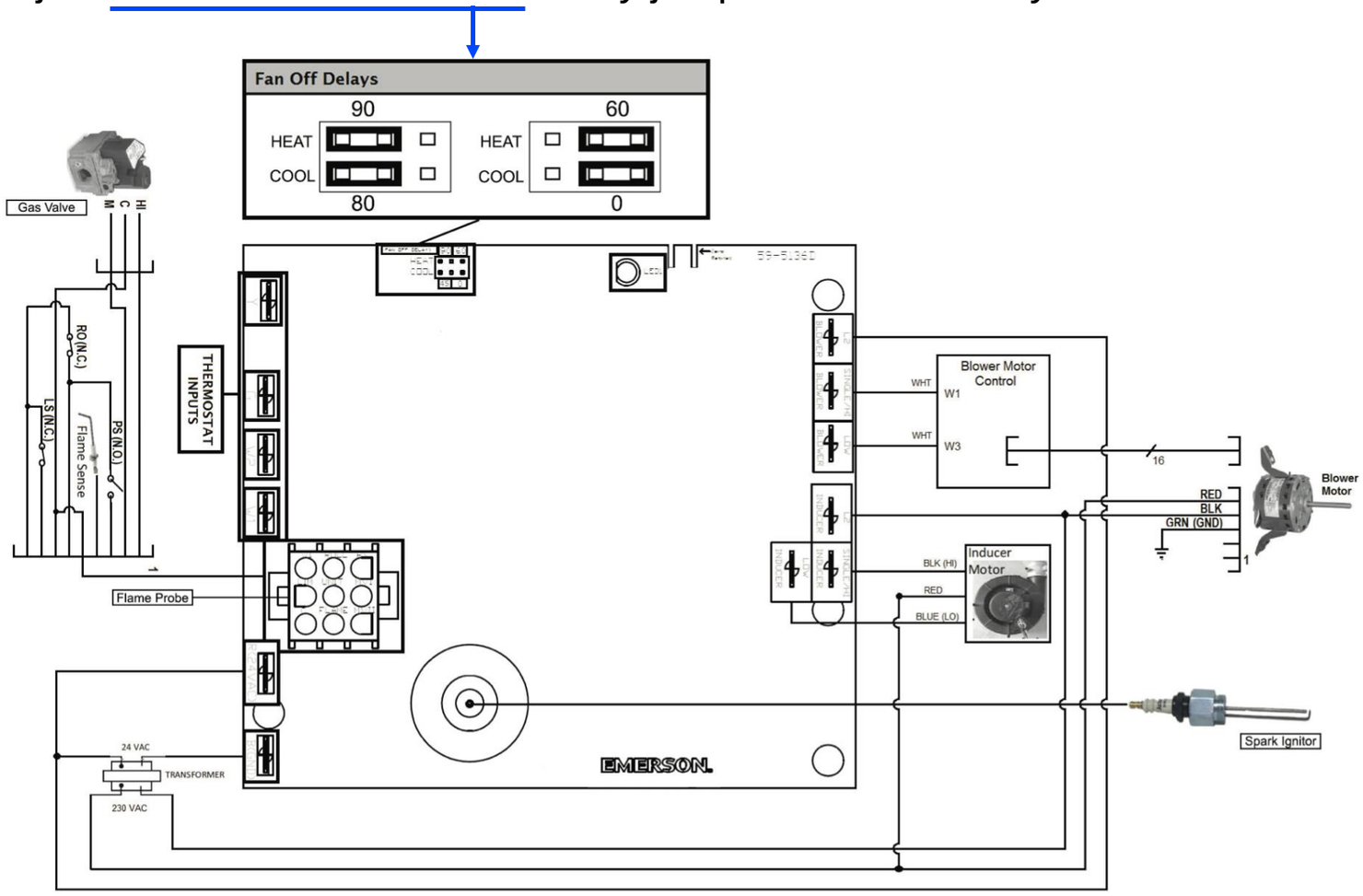
50N02A-820 & 50N02B-820 LED Diagnostic Codes

The green LED will indicate a status code as shown in the table below:

GREEN LED FLASH	CODE STATUS / ERROR CONDITION
Steady OFF	No Power / Failure / Internal Failure
Steady ON	Normal, no call for heat
Slow Flash Rate	Normal, call for heat
2 Flashes	System Lockout: Failed to detect or sustain flame
3 Flashes	Pressure switch problem detected
4 Flashes	High Limit switch protection device open
5 Flashes	Flame sensed and gas valve not energized or flame sensed and no "W" signal
6 Flashes	Flame Rollout Switch open
7 Flashes	Thermostat mis wired; W1 and W2 swapped

50N02A-820 & 50N02B-820 Adjustable Fan Delay

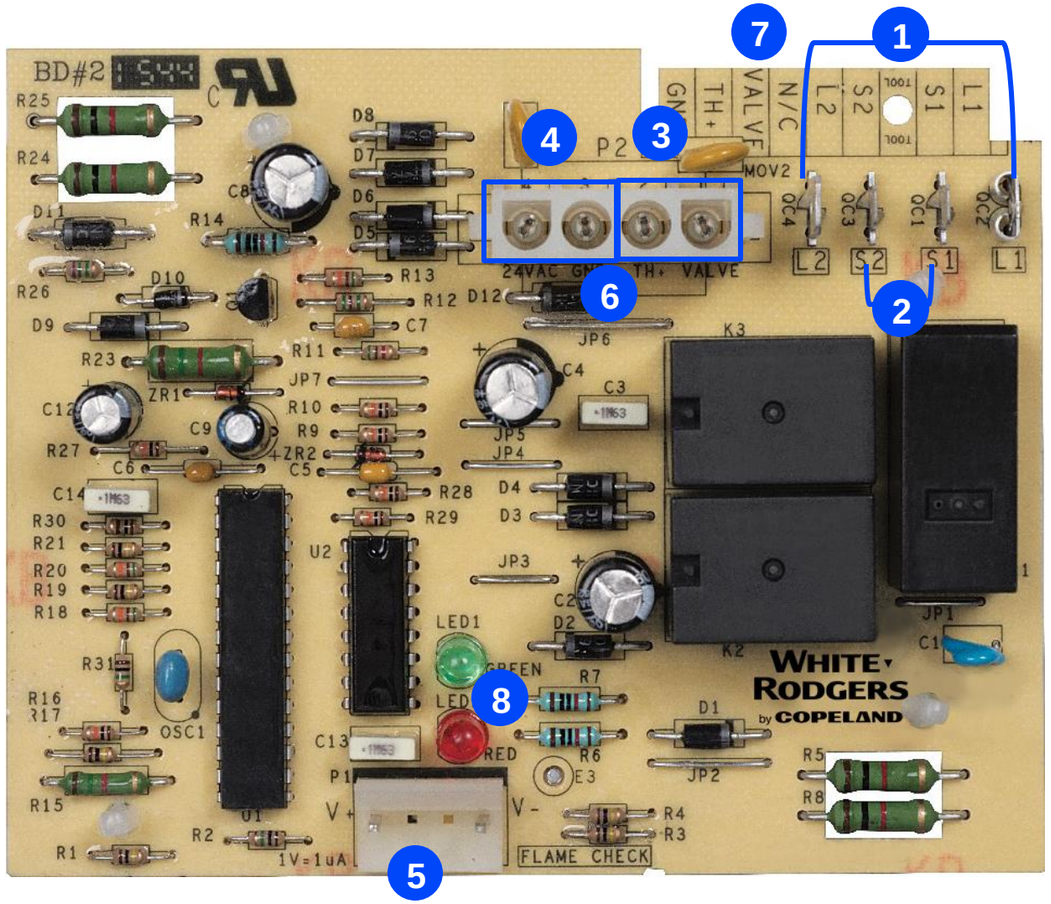
- Adjust Heat and Cool Fan Off Delay jumpers as necessary.



50E70-820 Hot Surface Ignition Module

Board Components

1. High voltage inputs
2. HSI output
3. Gas valve output
4. 24VAC input
5. Flame sense test pins
6. 4-pin plug
7. Edge card connector
8. LED



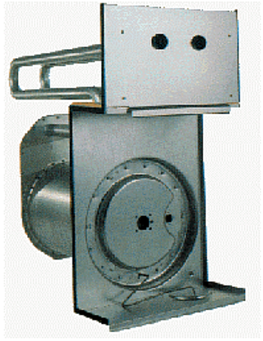
TECH TIP: Remember 50N02B-820 has a 45s Cool Off Delay while a 50N02A-820 is 80s

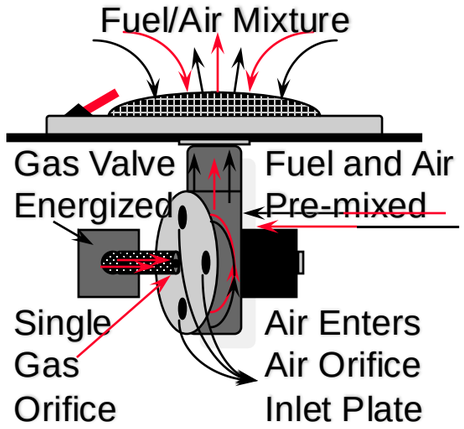
50E70-820 Hot Surface Ignition Module Voyager™ Product Line

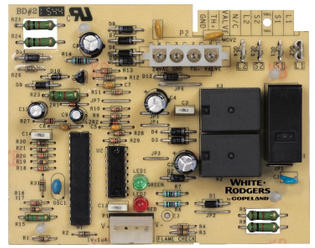
1. Trane Voyager RTU
2. Burner Assembly
3. Ignition Module

Heating Details

- Premix “Power” Burner, Not Forced or Induced Draft
- Negative Pressure Gas Valve
- Drum & Tube Heat Exchanger
- 120VAC Hot Surface Ignitor







50E70-820

50E70-820 LED Diagnostic Codes

The green LED will indicate a status code as shown in the table below:

GREEN LED	RED LED	CODE STATUS / ERROR CONDITION
OFF	OFF	Powered with no call for heat
Flashing*	OFF	Call for heat – no fault detected
OFF	Flashing*	No flame signal on try for ignition or flame signal established and lost prior to a lockout condition
ON	Flashing*	Gas valve mis wired or flame signal present at a call for heat
OFF	Flashing*	Internal fault – anytime

NOTE:
- Flashing at 50% duty cycle.
- At the start of each retry for ignition, the Red LED will flash for 5 seconds along with a flashing Green LED.

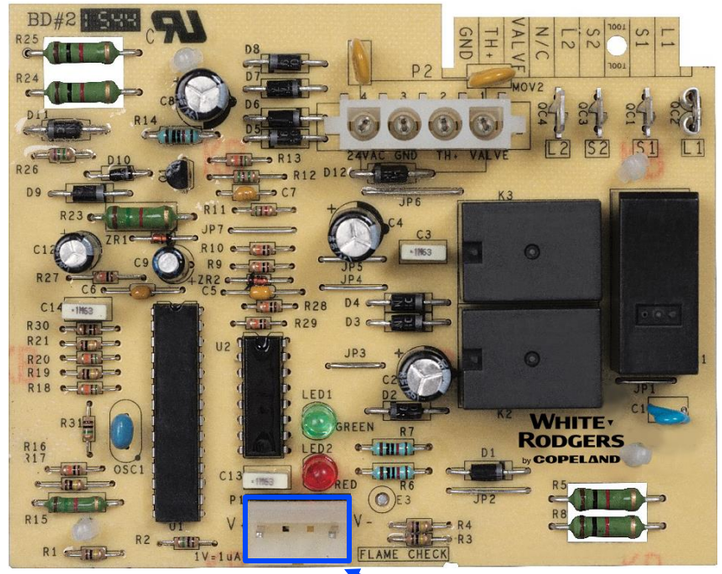
Testing Flame Current

Understanding Test Pins

- 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 pin.
- Convert vDc to MicroAmps using a 1:1 ratio.
- A good flame sense reading will be between 1.0 – 5.0 µA.



Flame current test pads

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by COPELAND

Installation Overview

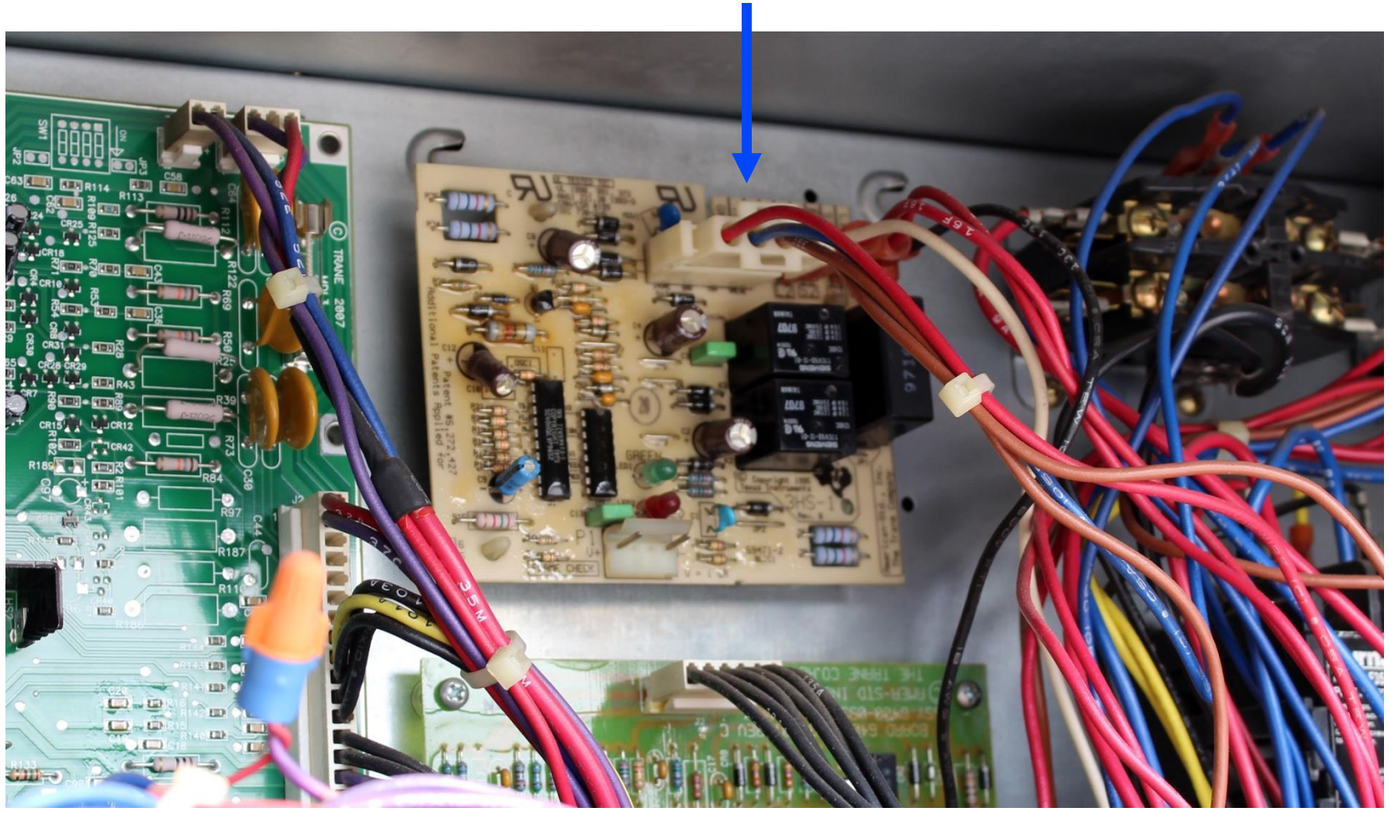
Disconnect Power and Gas

1. For this installation, 50E70–820 will be used. All wiring should be installed according to local and national electrical codes and ordinances.

NOTE: If the control being replaced is a Sensata Technologies 3HS-1 or 3HS-2, remove old control and skip to step 6.

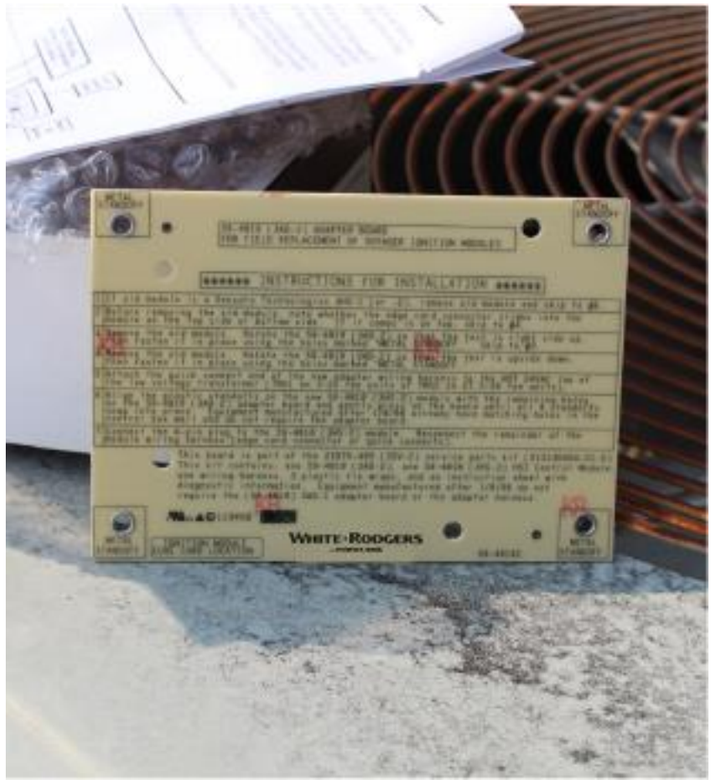
Note Location of Edge Card

2 Before removing the old control, note whether the edge card connector slides into the control on the top side or bottom side. If it comes in on the top, skip to step 4.



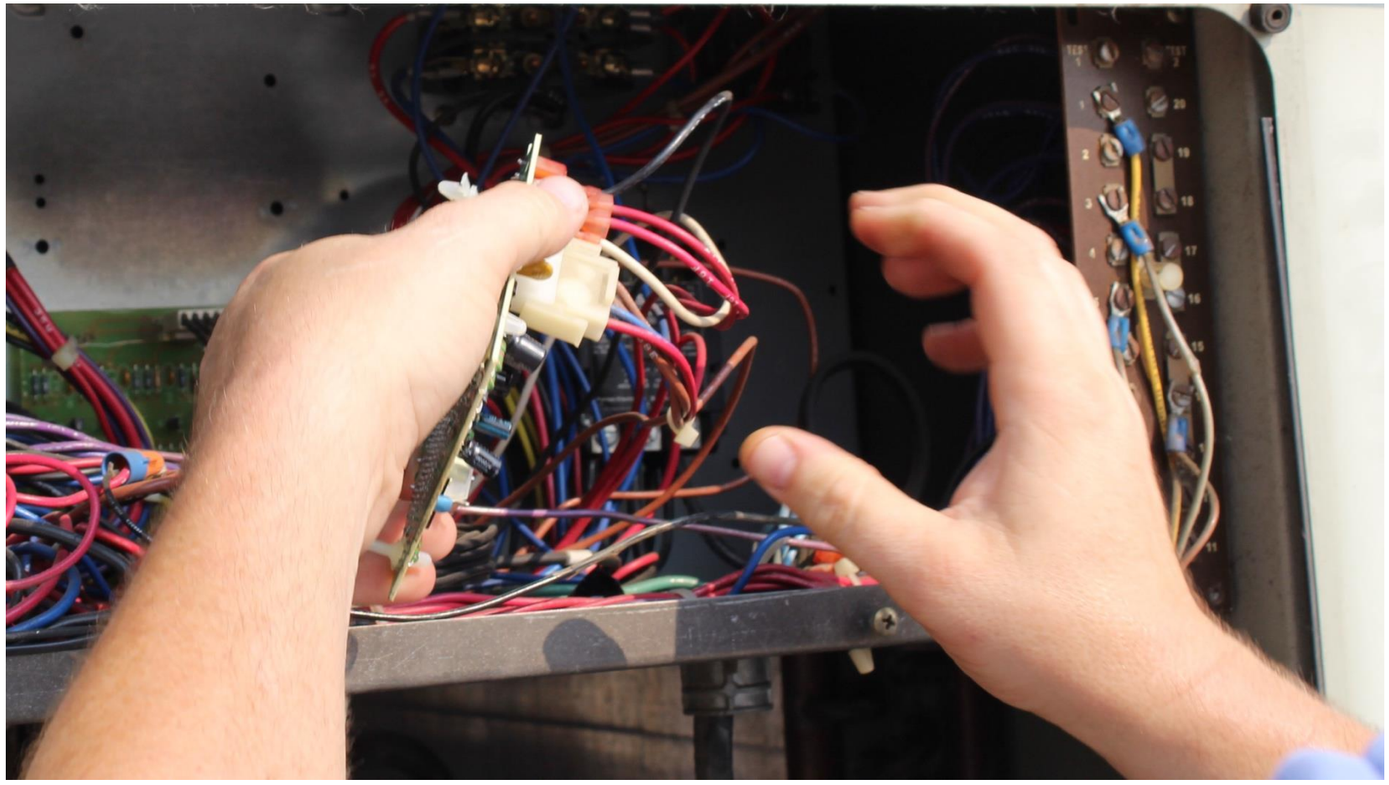
Adaptor Board

3 Remove the old control. Position the 59-4819 (3AD-2) Adapter Board so that the text is right side up, then fasten it in place using the holes marked "METAL STANDOFF".



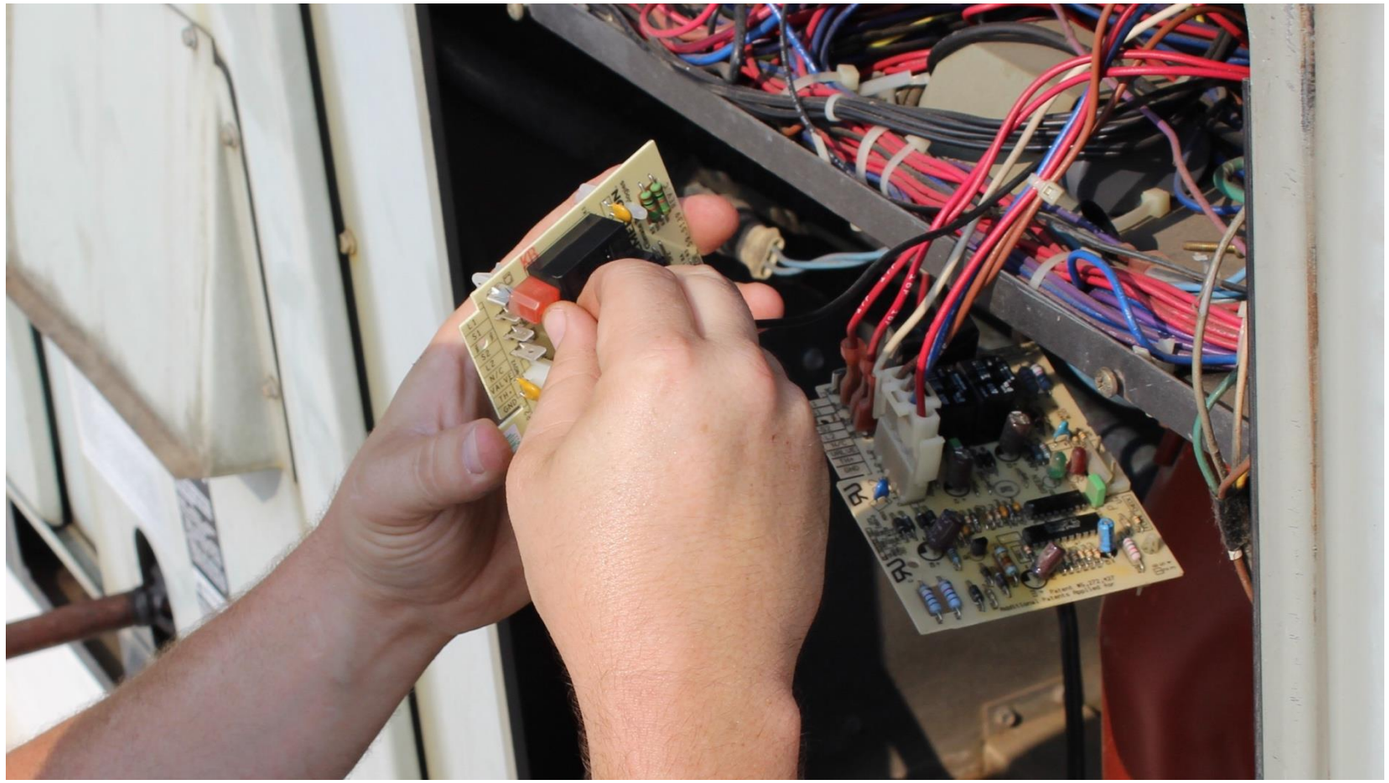
Connect 24 VAC Wiring Harness

4 Attach the quick connect end of the 24 VAC Wiring Harness (0115-0263) to the HOT 24 VAC tap of the low voltage transformer.



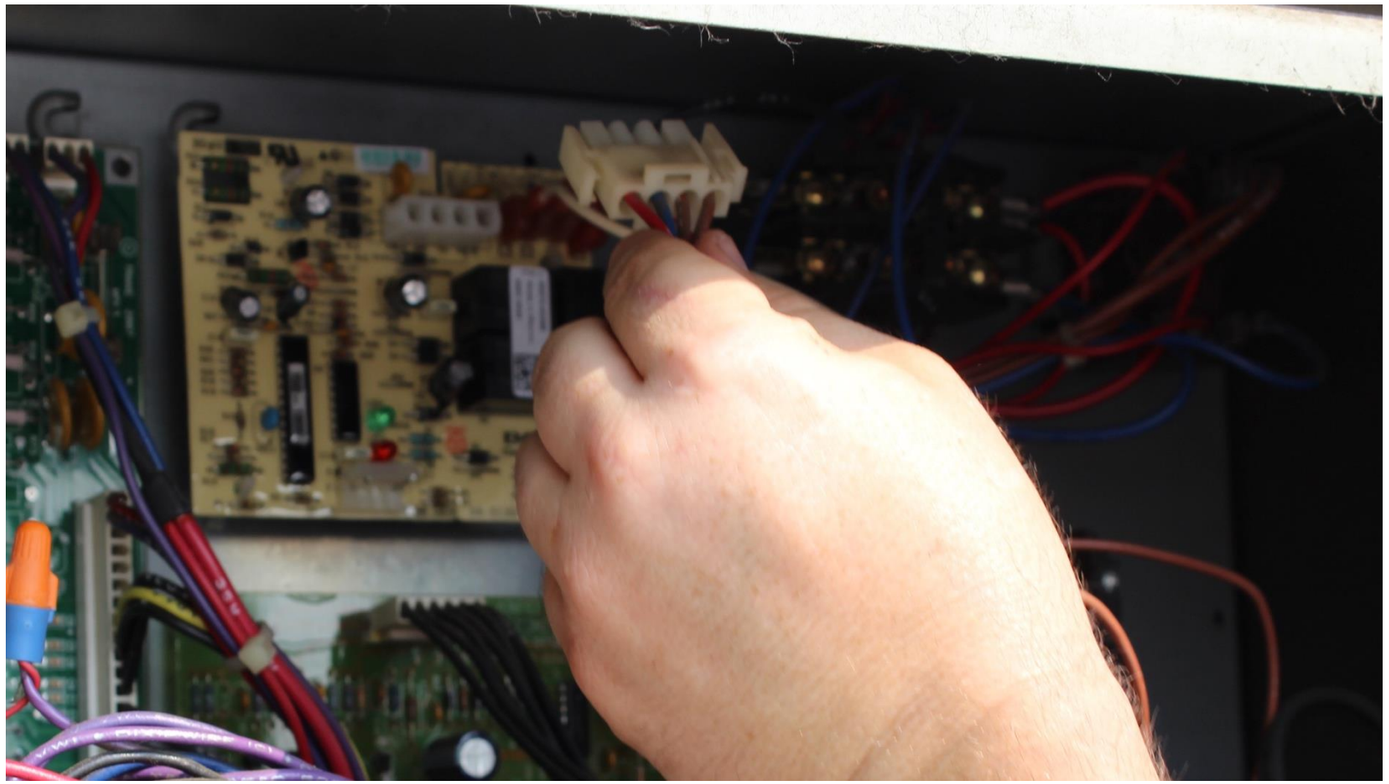
Standoffs

5 Align the plastic standoffs on the 50E70-820 control with the remaining holes on the 59-4819 (3AD-2) adapter board and gently press on the control until all 4 standoffs snap into place.



Finish Connecting 24 VAC Harness

6 Connect the 4-pin plug of the 24 VAC Wiring Harness (0115-0263) to the 50E70-820 control. Reconnect the remainder of the wiring (edge card connector or quick connects).



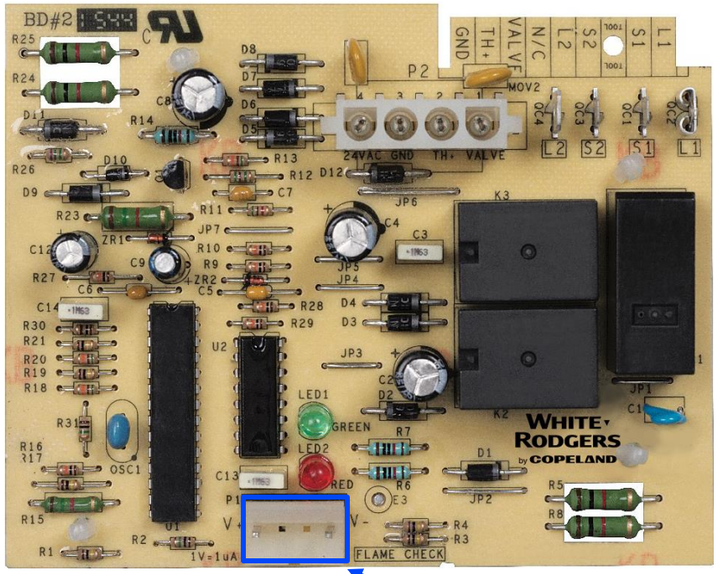
NOTE: Equipment manufactured after 1/8/1996 do not require the 59-4819 (3AD-2) adapter board or 24 VAC wiring harness (0115-0263)

Reconnect and verify

7 Reconnect the power and gas to the furnace and use test pins to verify a good flame sense reading.

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 pin.
- Convert vDc to MicroAmps using a 1:1 ratio.
- A good flame sense reading will be between 1.0 – 5.0 µA.



Flame current test pads

50E70-820 LED Diagnostic Codes

The green LED will indicate a status code as shown in the table below:

GREEN LED	RED LED	CODE STATUS / ERROR CONDITION
OFF	OFF	Powered with no call for heat
Flashing*	OFF	Call for heat – no fault detected
OFF	Flashing*	No flame signal on try for ignition or flame signal established and lost prior to a lockout condition
ON	Flashing*	Gas valve mis wired or flame signal present at a call for heat
OFF	Flashing*	Internal fault – anytime

NOTE:
- Flashing at 50% duty cycle.
- At the start of each retry for ignition, the Red LED will flash for 5 seconds along with a flashing Green LED.

COPELAND

Thank you.