

Single-Stage Universal Integrated Furnace Control 50M56X-843 for ECMx and PSC Blowers

Introduction

Code	Q	C	F
Auto configuration in process	F	0	1
Pressure switch open	F	0	4
Flame detected when no flame should be present	F	0	6
Open fuse	F	0	7
Rollout switch open	F	0	9
Pressure switch stuck closed	F	1	1
Gas valve on error	F	1	2
Gas valve off error	F	1	4
Ignitor open failure	F	1	5
Grounding error	F	1	6
Reversed line polarity	F	1	8
High limit switch open	F	2	1
Lockout (see manual for E21-E25)	F	2	2
PS stuck closed	F	2	3
PS open	F	2	4
Auto configuration error	F	2	5
NFC connectivity error	F	2	6
Standby	F	2	7
Gas heating (W) (see manual for H1 & H2)	F	2	8
Continuous (G)	F	2	9
Cooling (Y) (see manual for CL & CL1)	F	2	0

PLACE DEVICE HERE

Download
**White-Rodgers
Connect App** for
easy set-up



White-Rodgers
Single-Stage IFC
50M56X-843

WARNING
RISK OF
ELECTRIC
SHOCK
DISCONNECT
PWR BEFORE
SERVICING

Product and Business Overview

White-Rodgers Universal Replacement Controls Just Got Better

The White-Rodgers 50M56X-843 Single-Stage PSC & ECMx Control

Replaces over 550 single-stage controls, making it the most universal single-stage integrated furnace control available. It combines the 50M56U-843 and the 50X57-843 into one control for both PSC & ECMx blower motors!

This new control now has the major OEM connectors on the board, eliminating the need for a harness. The single microprocessor oversees all furnace functions including burner *and* blower operations.

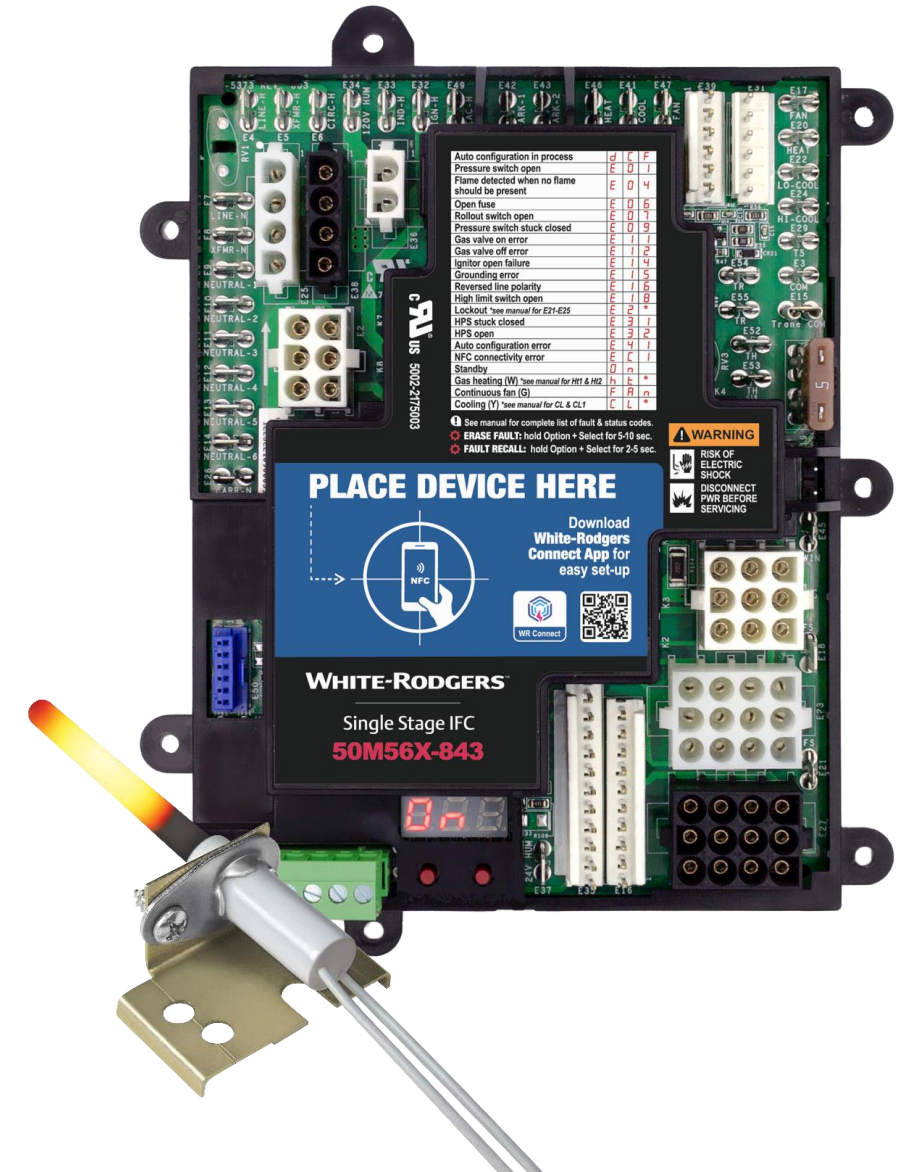
An included 21D64-2 HotRod 120v Universal Ignitor allows for the control to be used to upgrade an existing 80v ignition control.

Easy configuration and diagnostics with the White-Rodgers Connect app or the digital led display with option and select buttons.



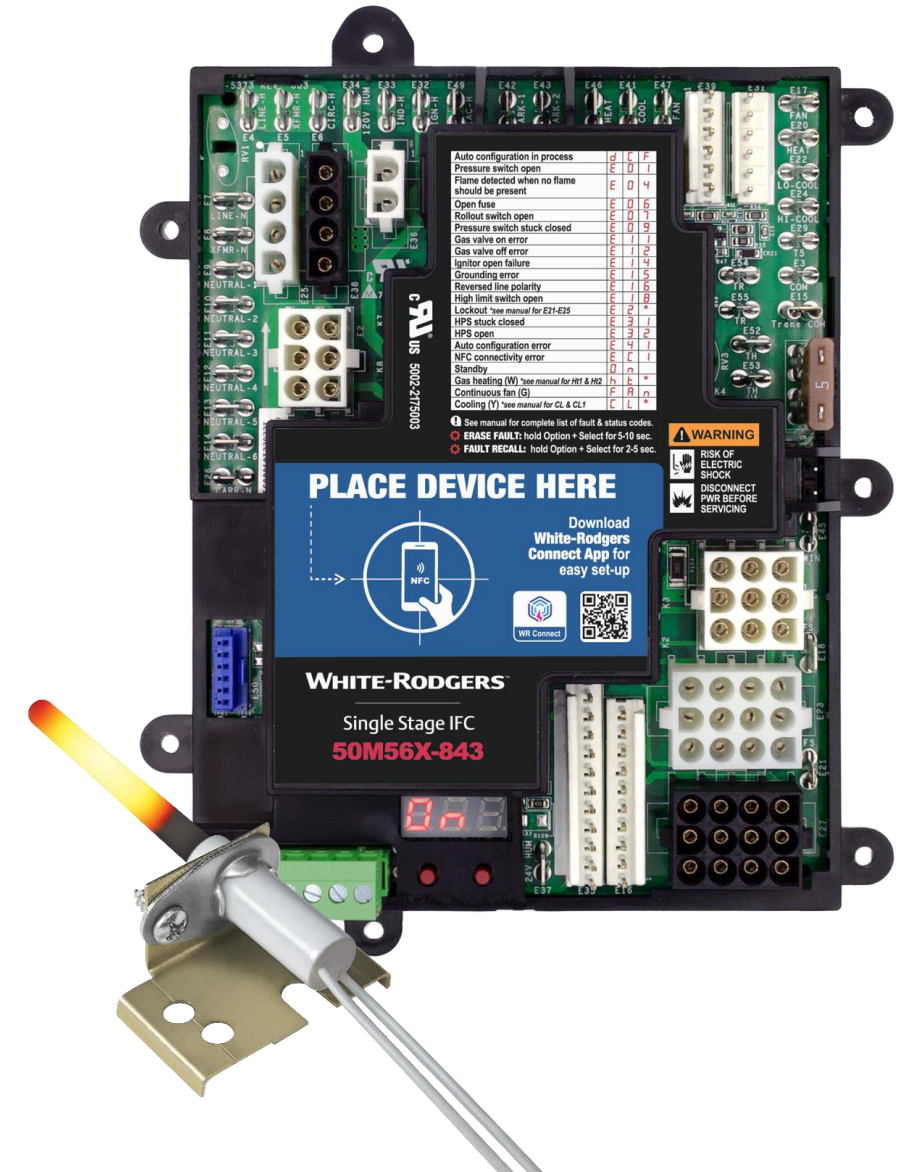
The 50M56X-843 Streamlines Inventory

- Replaces over 550 part numbers
- Configurable for both PSC & ECMx blower motors
- 21D64-2 120v HotRod Ignitor included – required for replacing 80v applications
- Twinning capable
- 120v humidifier, 24v humidifier and 120v electronic air cleaner connections
- Second-Stage cooling & dehumidification options



The 50M56X-843 Simplifies Installation & Diagnostics

- NFC technology allows for easy configuration with the White-Rodgers Connect app
- Digital display provides an alternate method to configure and diagnose control
- Multiple connectors allow for direct plug-in of OEM harnesses
- Control auto-detects harnesses plugged in
- Detachable thermostat bus connector for easy wiring
- Multiple control mounting options match OEM's, including tabs to slide in trays with slots
- Fault code label on control
- Live real-time flame current readout



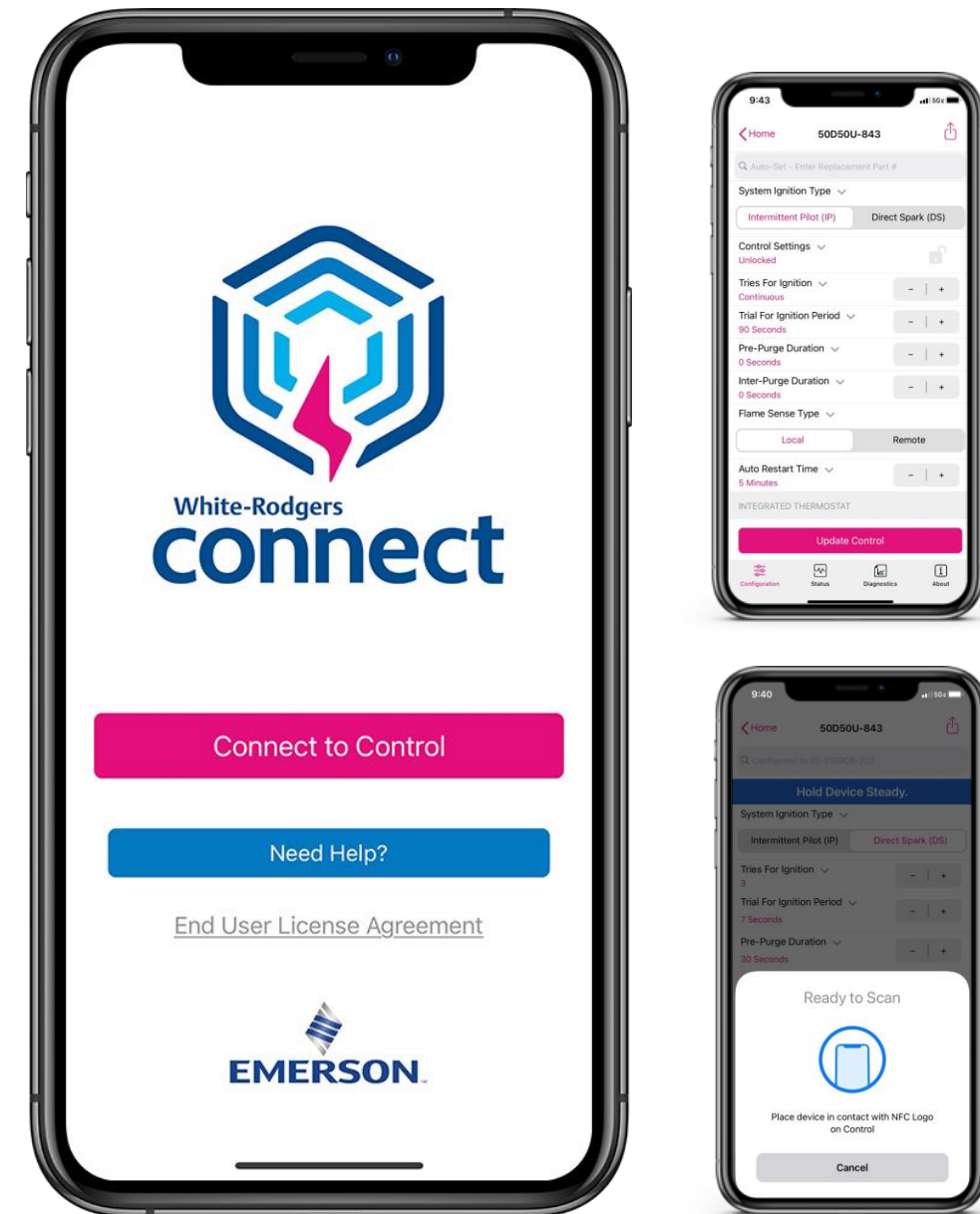
Quick Configuration & Diagnostics with the White-Rodgers Connect App



- App provides simple configuration without power prior to installation
- No login or username required
- Configure with preloaded OEM settings or customize module configurations
- Diagnose fault codes and troubleshoot confidently
- View status and details about the module

Near-field Communication (NFC) creates an interface between the control and your mobile device with the White-Rodgers Connect app. Just place your mobile device on the control to enable a connection.

Once downloaded, the White-Rodgers Connect app does not require cellular/Wi-Fi service to use.



Onboard Major OEM Connectors

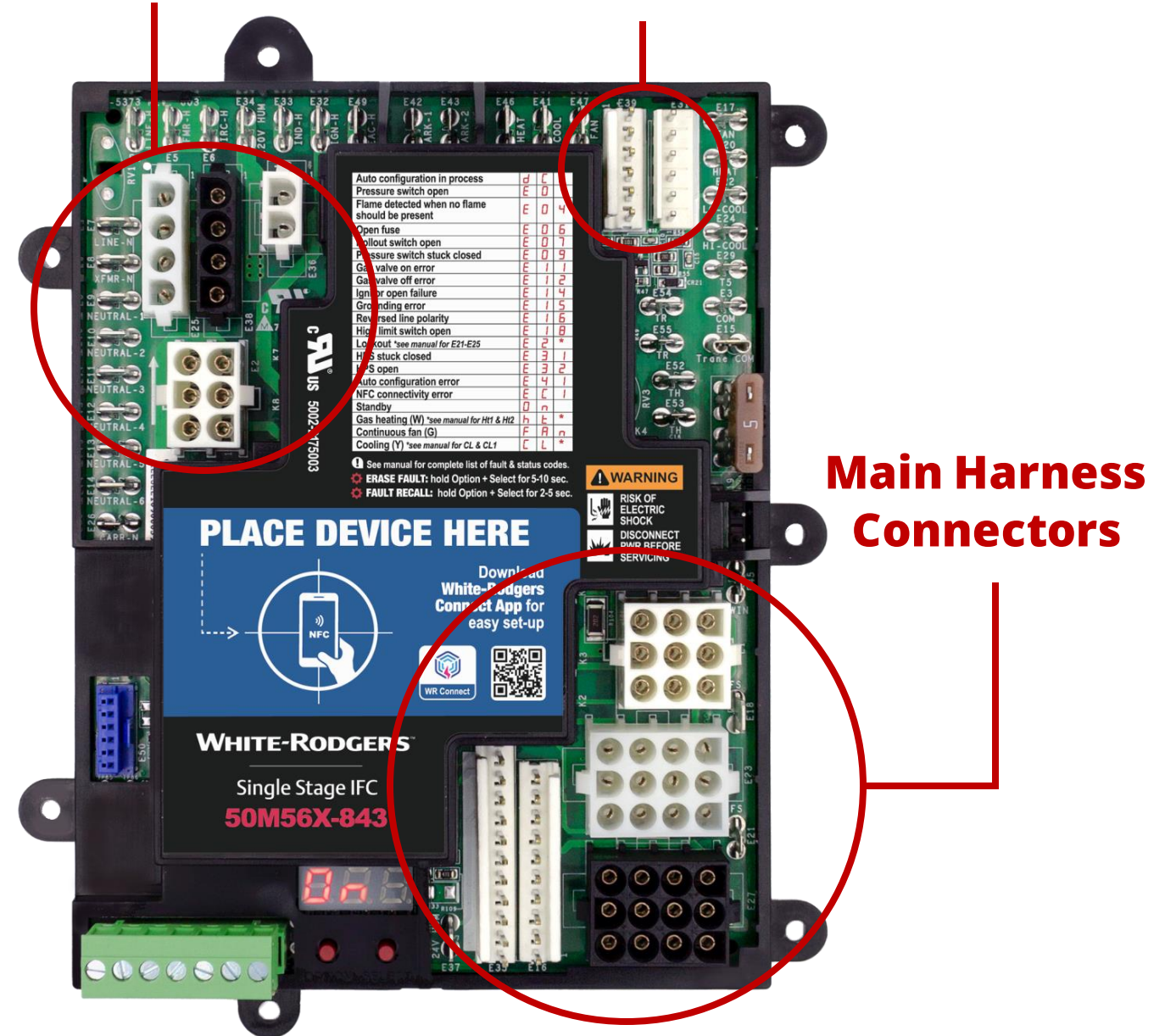
- The 50M56X-843 has five main harness connectors, with both In-line and Molex plugs on the same control
- Four inducer/ignitor Molex connectors on-board
- Two ECMx connectors for Trane & Goodman direct plug-ins
- Direct OEM plug-in allows for a quick installation with multiple OEM brand controls, simplifying the process and eliminating the need for harness adapters



During initial start-ups, the control will perform an auto-configuration sequence that takes approximately 30 seconds

Inducer/Ignitor Connectors

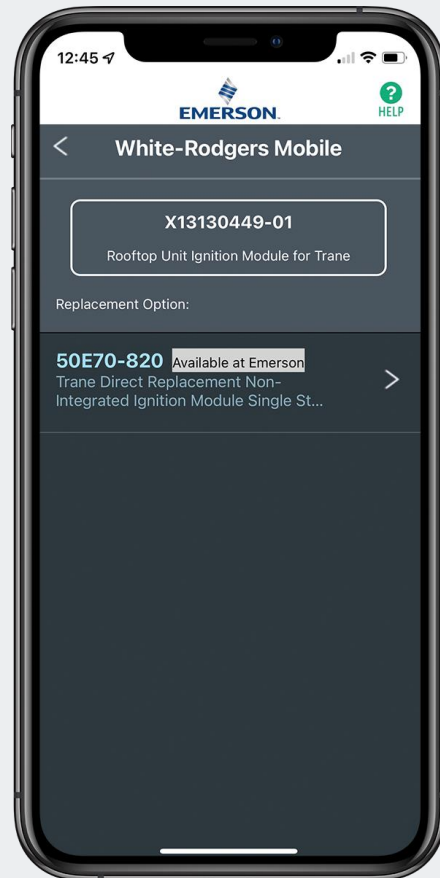
ECMx Connectors



Access Cross Reference and Product Information with the White-Rodgers Mobile App

Always Up-to-Date and Easy to Use:

- Search by OEM
- Competitive
- White-Rodgers model number



Your Resource For:

- Product information and spec sheets
- **NEW FEATURE:** Product availability with “Available at Emerson” tag
- Complete Cross Reference
- OEM compatibility
- Installation information and videos
- Wiring diagrams

Download:

1. Go to your app store
 2. Type in **WR Mobile**
 3. Install the app
- OR
1. Open your camera
 2. Hold it over the QR code
 3. Tap “Open” on the pop-down
 4. Install the app

NEW FEATURE

WRMobile and the desktop app offer up-to-the-minute inventory insights for our customers. The results will include suggested replacements & the tag “**Available at Emerson.**”



Scan this QR code to download the app



WR Mobile App

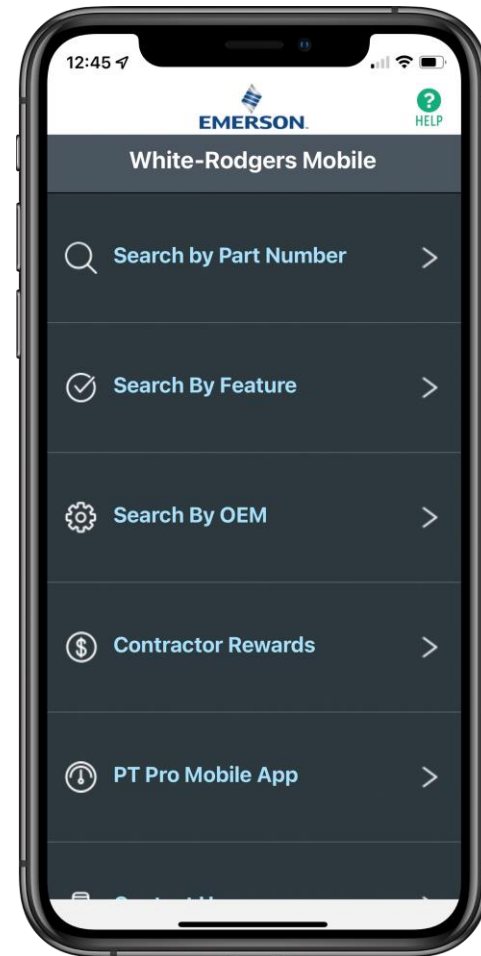


Easy to use!

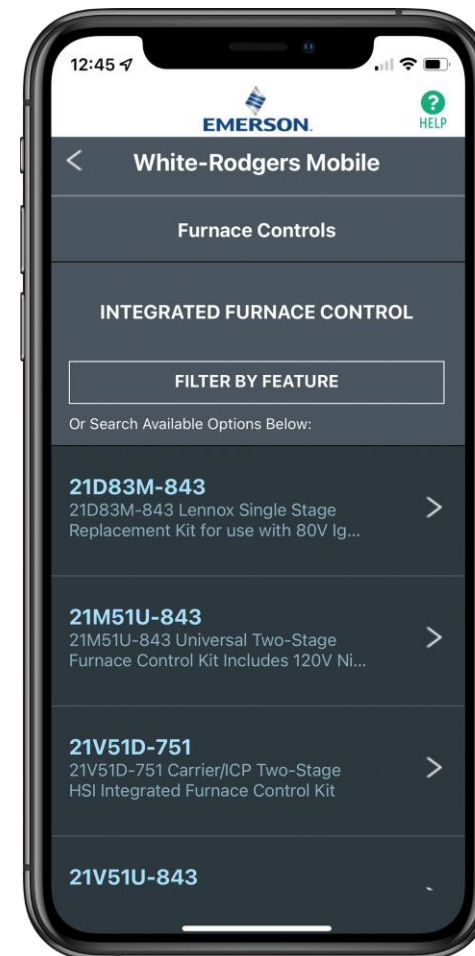
Search by OEM,
competitive or
White-Rodgers
Model Number

Access the desktop
version at
<https://wrcrossref.com>

Search



Scrollable Product List



WR Replacement

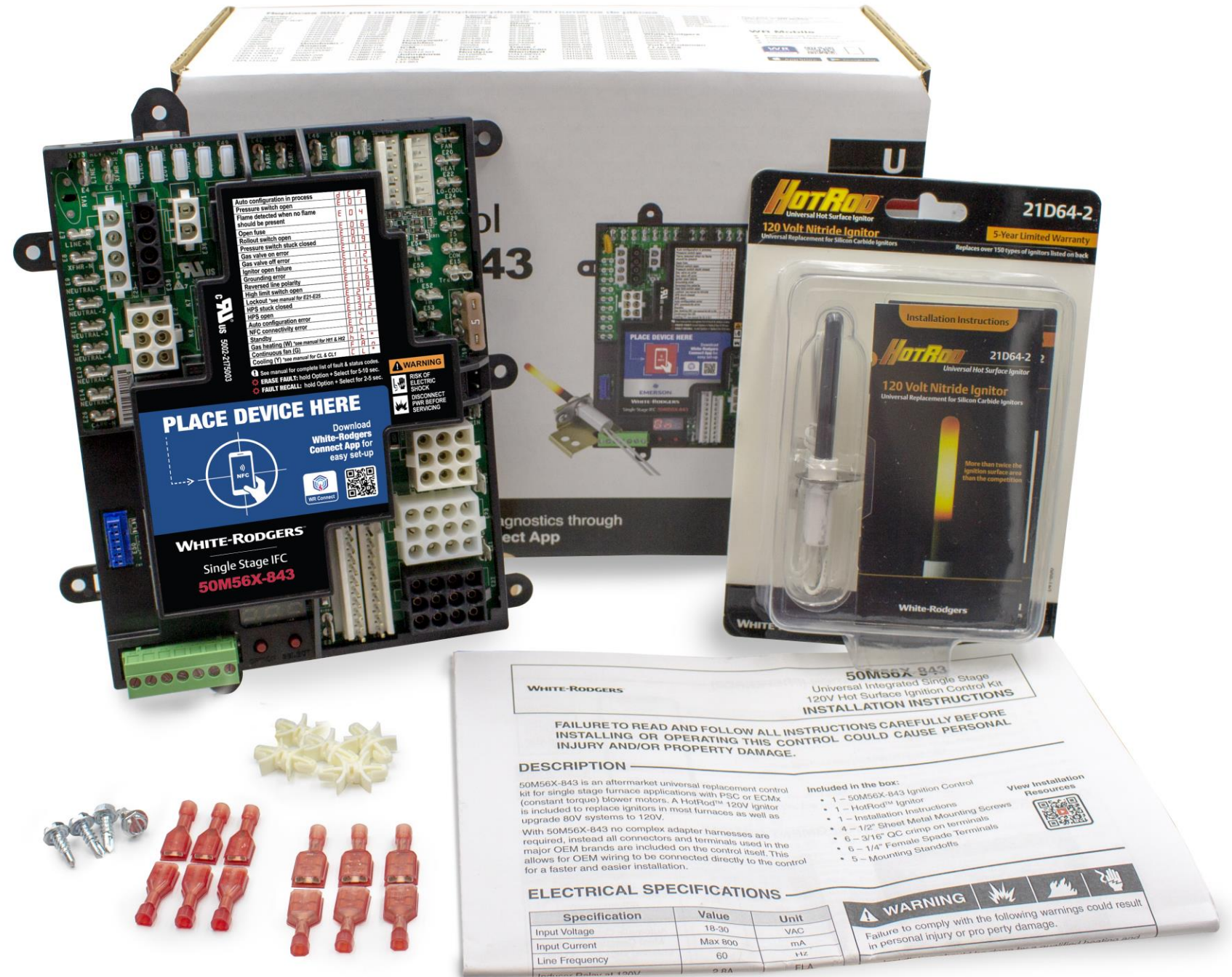


Technical

What's in the Box

List of Contents:

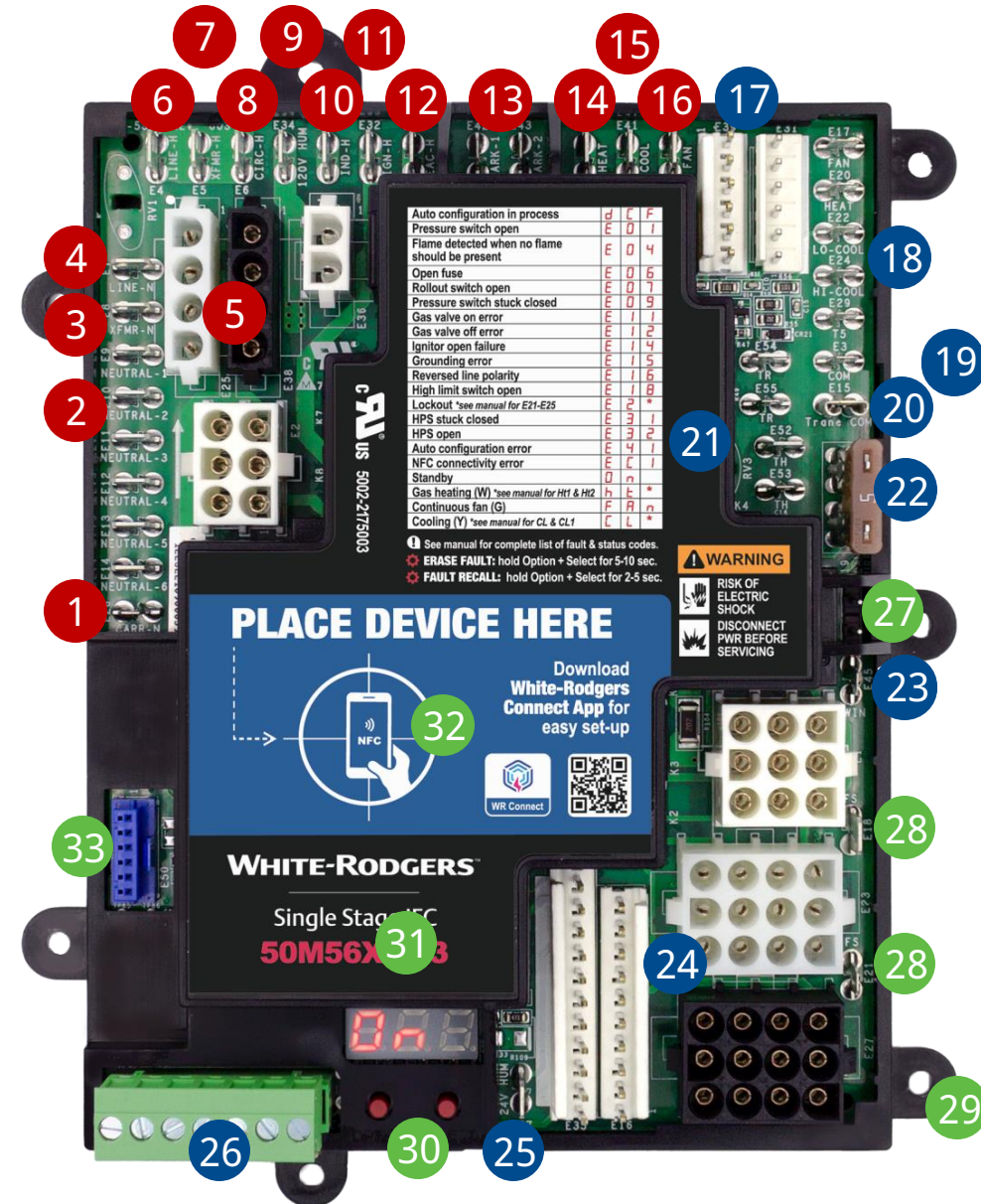
- 50M56X-843 Control
- 21D64-2 HotRod Ignitor
- 4 ½" Self-Tapping Screws
- 5 Mounting Standoffs
- 6 3/16" Female Spade Terminals
- 6 1/4" Female Spade Terminals
- Installation Instruction Sheet
- 1-Year Warranty**



White-Rodgers 50M56X-843 Components

120v Components:

1. 3/16 Blower Neutral Spade
2. 6 Line Neutral Spades
3. Transformer Neutral Spade
4. Line Input Neutral Spade
5. 4 120v Inducer/Ignitor Molex Harness Plug-ins
6. Line 120v Input Spade
7. 120v Transformer Spade
8. 120v ECMx Blower Spade
9. 120v Humidifier Spade
10. 120v Inducer Spade
11. 120v Ignitor Spade
12. 120v EAC Spade
13. 2 Blower Park Spades
14. PSC Blower Heat Spade
15. PSC Blower Cool Spade
16. PSC Blower Fan Only Spade



24v Components:

17. 2 24v ECMx Inline Harness Plug-ins
18. 24v ECMx Blower Speed Spades
19. 24v ECMx Blower Common Spade
20. 24v ECMx Blower Trane Common Spade
21. Both 3/16" & 1/4" 24v Transformer Input Spades
22. 5a Low-Voltage Fuse
23. Twinning Spade
24. 5 24v Inline/Molex Main Harness Connectors
25. 24v Humidifier Spade
26. 24v Removable Thermostat Bus

Other Components:

27. Flame Sense Test Pins
28. 1x 3/16" Spade & 1x 1/4" Spade
29. Mounting Holes
30. Ignition & Blower DIP Switches
31. Option & Select Buttons
32. Digital LED Readout
33. Future Accessory Connector

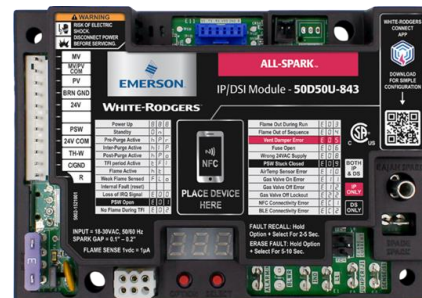
White-Rodgers Controls with NFC

Burner Area Modules

- Configuration only controls burner area settings

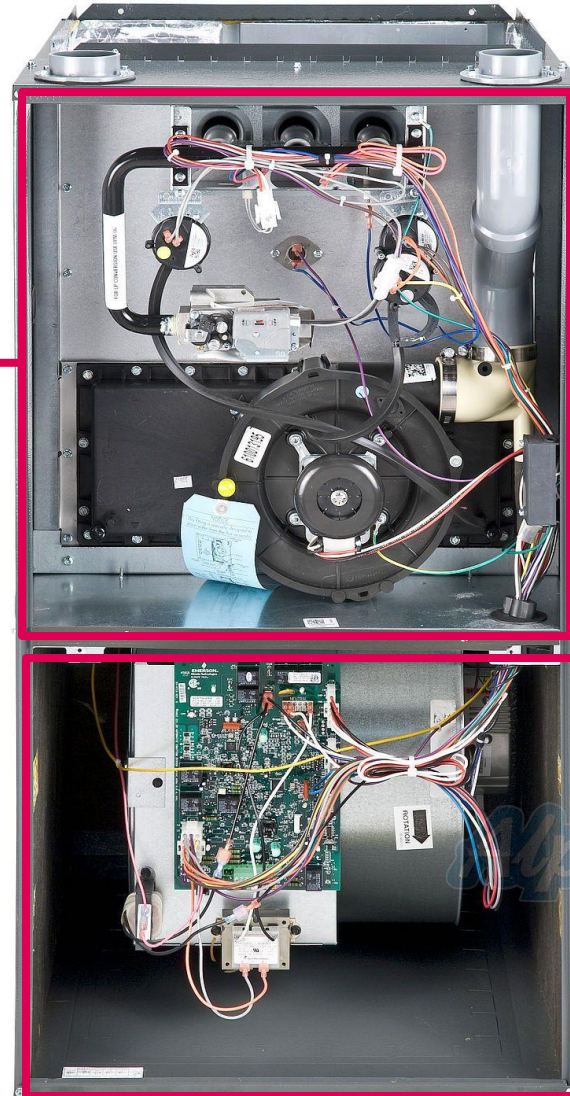
The White-Rodgers 50D50U-843 24v Spark Ignition Module was designed to control the burner area only. The universal control settings that are adjustable deal with the burner section of a furnace only:

- Trial for ignition sequence
- Inducer purge timings
- Flame sense type



Single-Stage Universal IFC 50M56X-843 for PSC and ECMx Blowers

Burner Area



Blower Area

Integrated Furnace Controls

- Configuration primarily controls blower area settings

The White-Rodgers 50M56X-843 Integrated Furnace Control was designed to control the blower area settings:

- Blower motor type
- Blower time delay settings
- Inducer purge timings



Two Ways to Configure and Diagnose

The Upgraded Design Now Has On-board Programming That Allows for Configuration

Use the White-Rodgers Connect App and Do All the Programming From Your Smartphone



Single-Stage Universal IFC 50M56X-843 for PSC and ECMx Blowers

The White-Rodgers Connect app offers the fastest, easiest configuration setup ever!

Quick Configuration & Diagnostics with the White-Rodgers Connect App

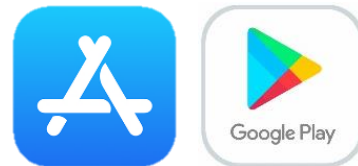


Easy Configuration

- App provides simple configuration without power prior to installation
- Configure with preloaded OEM settings or customize module configurations
- Diagnose fault codes and troubleshoot confidently
- View status and details about the module

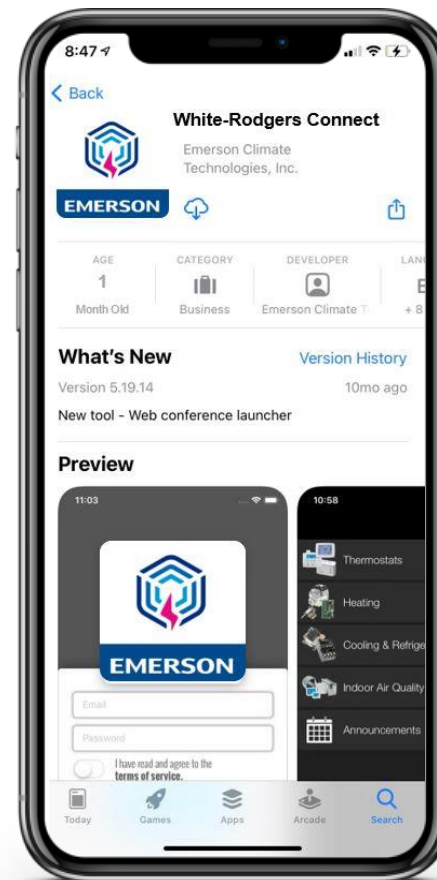
Download

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

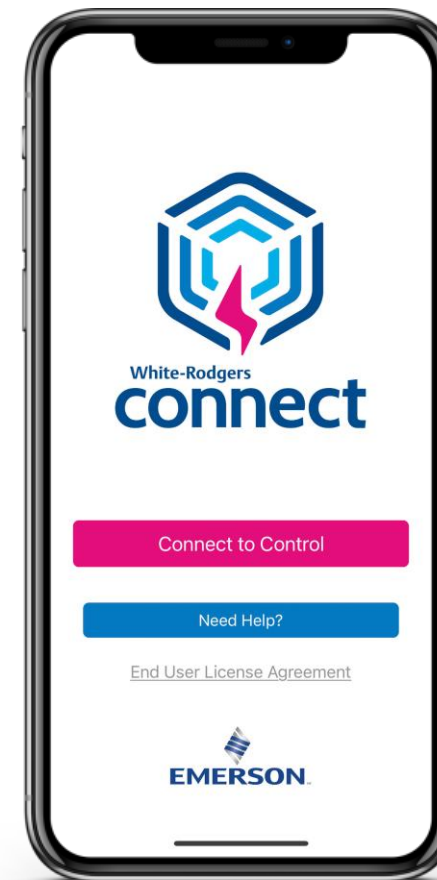


White-Rodgers Connect app for HVAC replacement control configuration & diagnostics is an industry first!

No Username Or Log-in Required



Download



Connect

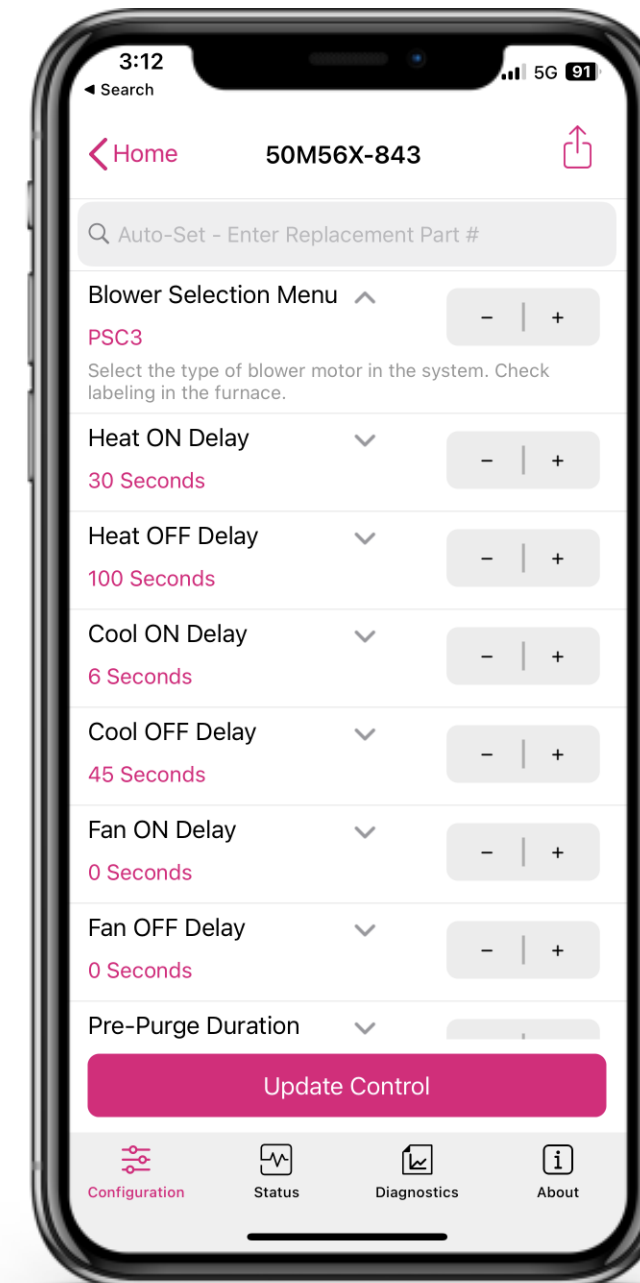


Scan

White-Rodgers Connect App Simplifies Configuration and Diagnostics



- Type the replacement part number into the Configuration tab of the White-Rodgers Connect app to automatically configure the 50M56X-843 universal control to the original default settings for the replacement part number.
- This can be completed without power to the control and before installation.

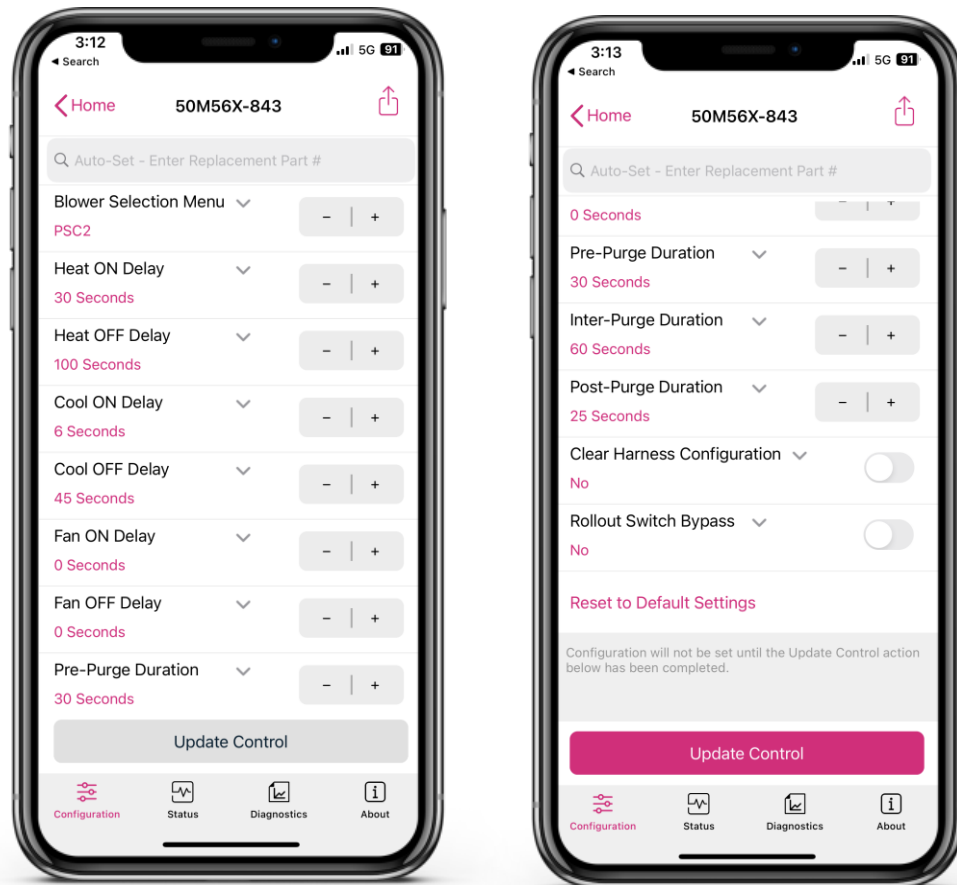


Enter replacement part number to automatically configure the All-Spark.

Fully Customizable Configuration Programming in App

Both ignition and blower options are shown in the 50M56X-843 Configuration Settings

Quick Configuration Setup!

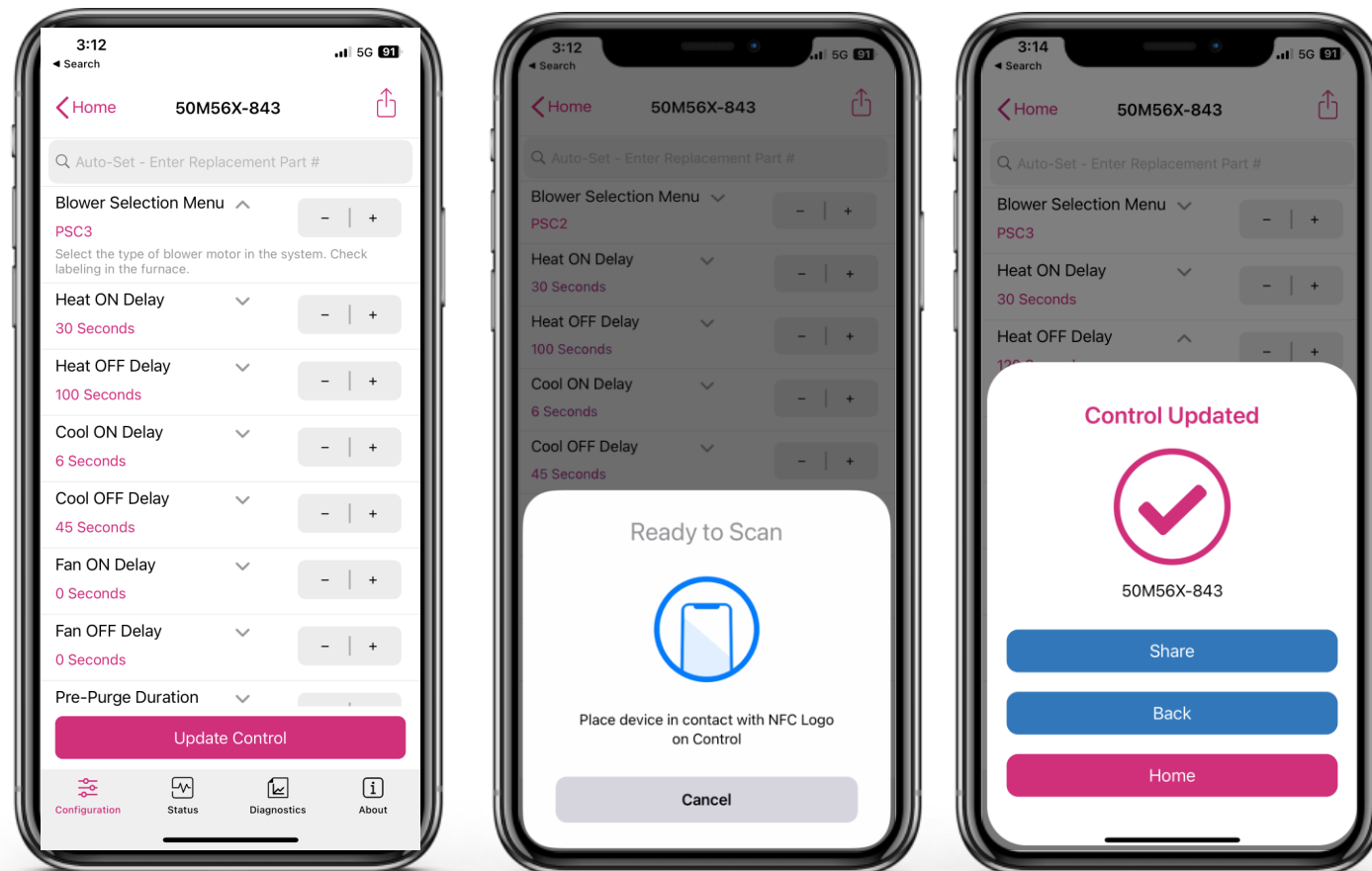


Configuration

- Blower Type
 - Select between PSC & ECMx blowers with multiple speed options
- Blower Timings
 - Adjust blower heat on & off time
 - Adjust blower cool on & off time
 - Adjust blower fan on & off time
- Inducer Purge Timings
 - Comes set at default for most cross-reference SKU's. Available for timing adjustments if needed.

Update Configuration Settings from the App

White-Rodgers Connect



Tap

Update

Share

Easy to Update

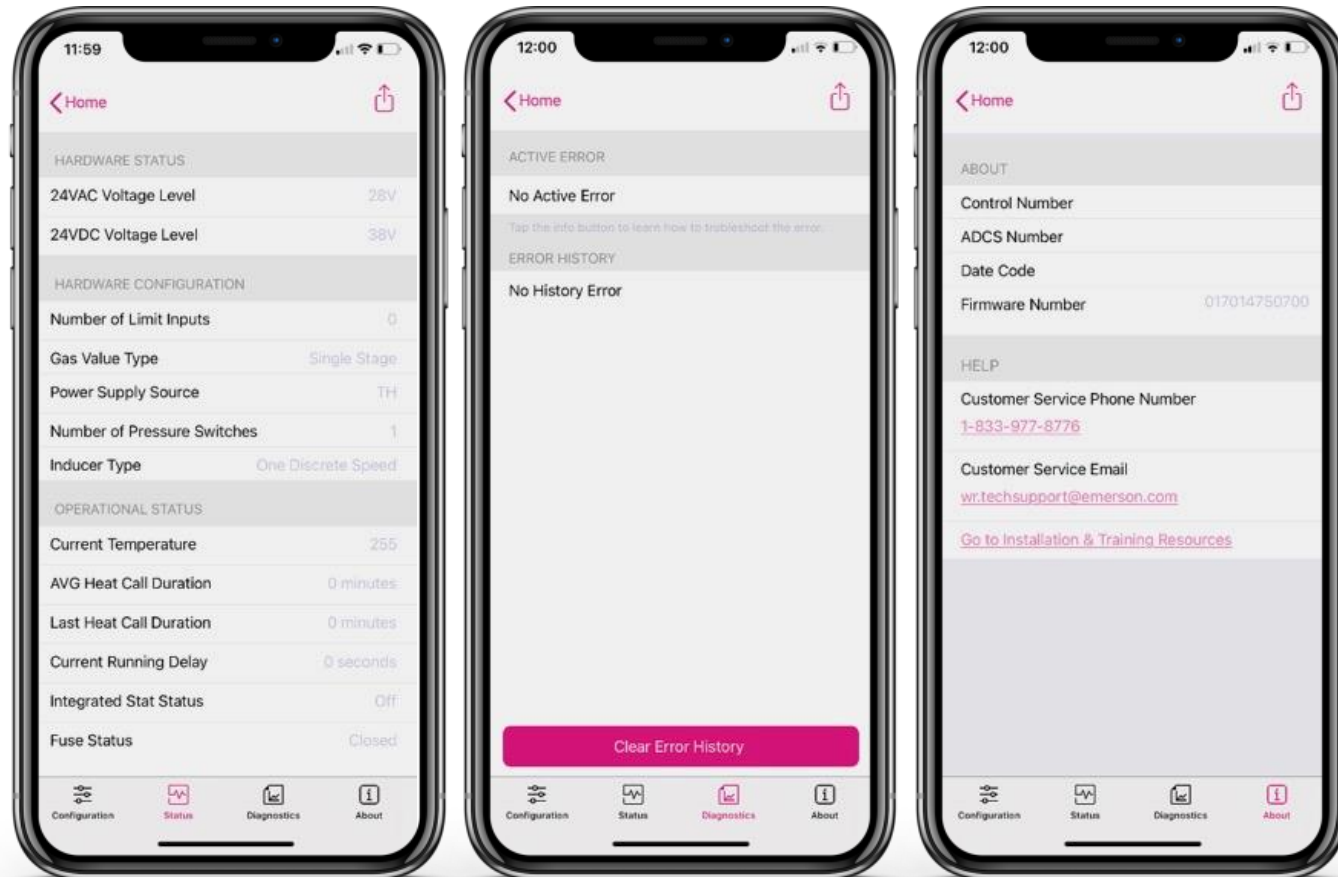
1. After making configuration changes, tap “Update Control” and hold your smartphone over the module again
2. Once the new configuration is uploaded, a confirmation will display
3. The settings for the control have been updated. You can then share a .txt file via an email or by texting. This .txt file can be printed or stored electronically in a customer's records at the installation company's office.

It takes 5± seconds to update when holding your phone steady over the module.

Additional App Features



The app displays all the information shown on the 7-segment display and more!



Status

Diagnostics

About

Status

See what is going on with voltage, configuration and operation

Diagnostics

- Look up current active errors as well as the last five errors that have occurred in the last 14 days
- View troubleshooting tips

About

- Get module-specific information, including the date code and the operating firmware

Only White-Rodgers gives you all this info on your smartphone!

Understanding NFC App Configuration



The control can be powered up to read or update the control, but does not have to be.

If you know the configuration settings ahead of time they can be uploaded into the 50M56X-843 before leaving the shop.



No phone service or data connection is required when communicating.

To read, hold the mobile device on the NFC icon for a few seconds until a confirmation check mark appears.



Making changes in the app does not require the mobile device being kept on the control.

Once the control is read, the device can be moved away and easily held to make configuration changes or read control information.

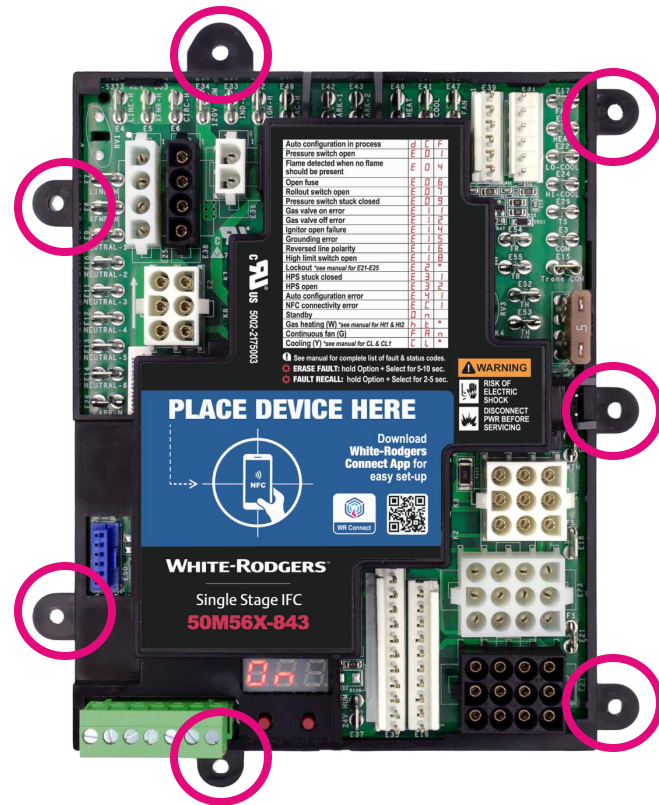


After making changes in the White-Rodgers Connect app, users then must tap the "Update Control" button and hold the device on the NFC icon for up to ± 5 seconds while the data packets upload.

Three Easy-to-Install Mounting Options

Seven Mounting Tabs

4 ½" self-tapping screws are supplied for multiple mounting options.



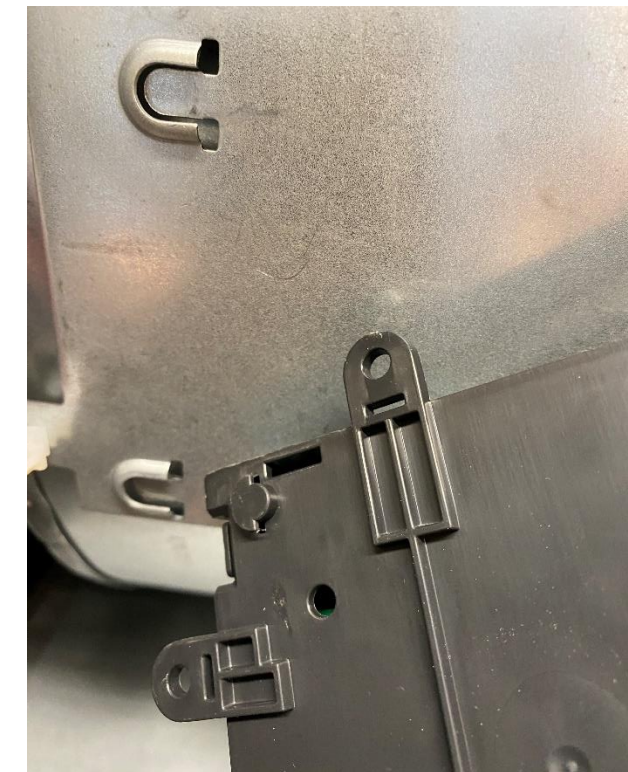
Five Standoff Holes

White-Rodgers' molded tray base provides space between the board and the unit mounting plate. Five standoffs are included for snap-in mounting.



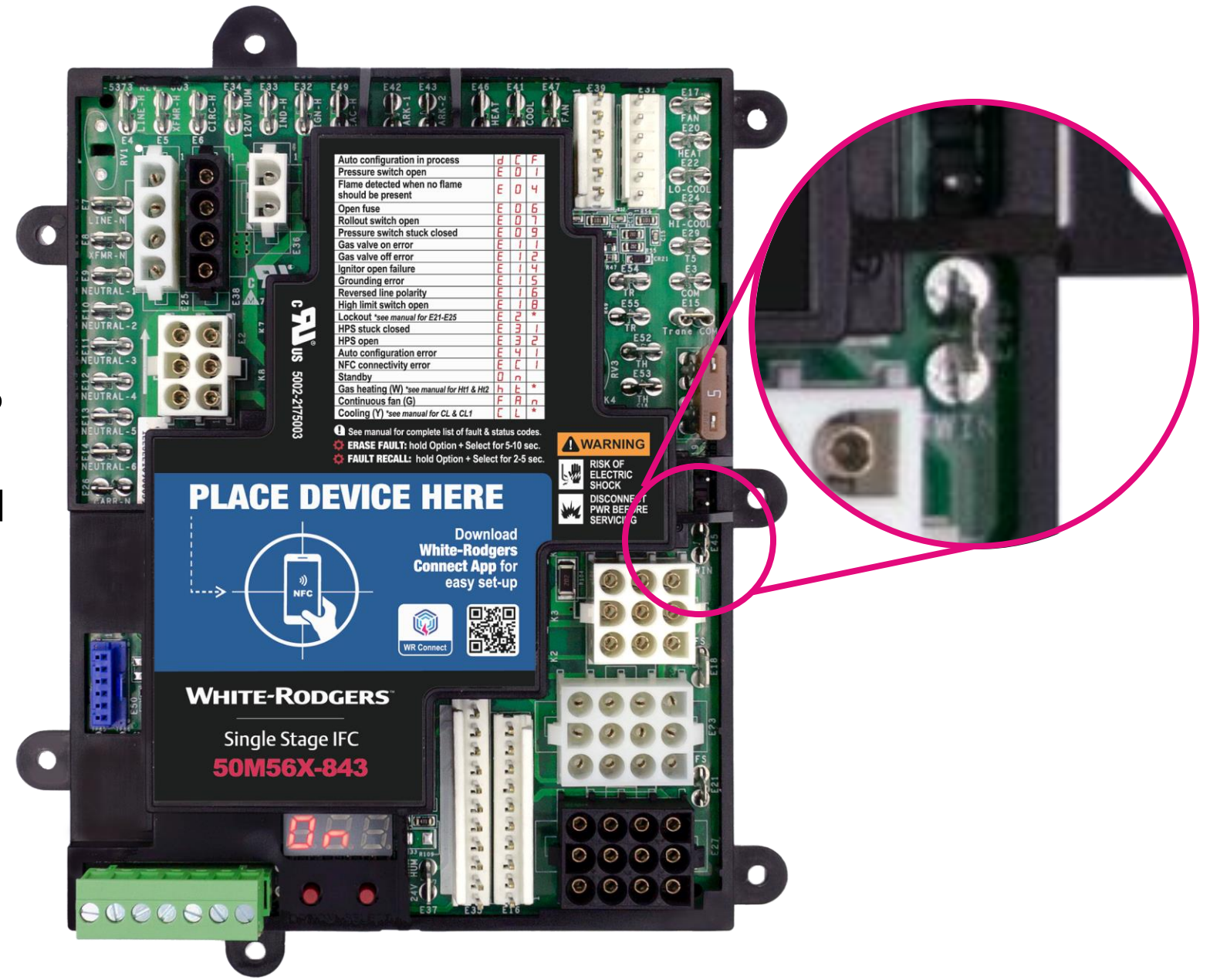
Two-slot Slide-in Tabs

Utilize existing slots by using slide-in tabs molded into the tray.



Twinning Feature

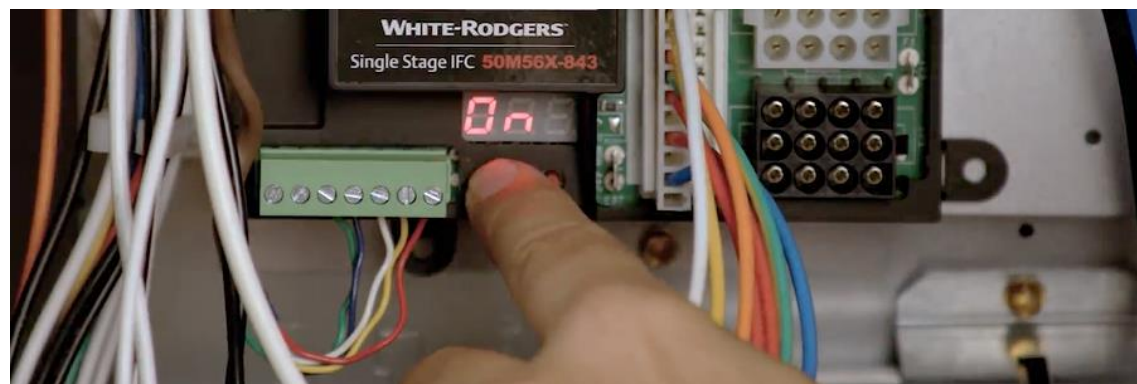
- Two 50M56X-843 controls can be connected to operate simultaneously.
- Twinning requires a connection of the **twin** terminal on both boards using an 18ga wire.
- The board with the thermostat connection will fully function, including the LED indicator and DIP switch settings. The twinned board will operate simultaneously as determined by the wired board unless "W" or "Y" are powered to it.



Easy On-board Setup Configuration

Configure Using the Option & Select Buttons

- After the system is powered on, the display will read ON when in standby mode. To enter setup, press the "Option" button.
- Refer to the installation instructions on page 2 for details on how to navigate the "Option" and "Select" buttons.



Match blower timer settings to the old control being replaced.

INSTALLATION

Table 1: Configuration Menu Options

				*Factory Default Setting
No.	Option Menu Item	Option Display	Selections Menu	Description / Notes
1	Active Fault Menu	Err	"Exx"	Cycles through up to 4 active errors. XX=2 digit Fault Code ex. E01
2	Firmware Version	Cr	"rXX"	Displays Firmware Version Number
3	Display Selected Harness Configuration	dSH	"Hxx"	Displays Harness / Connector (Auto) Configuration ex. H23
4	Reset to Factory	rSt	no*, yES	Resets configurations to factory defaults
5	Clear Harness Configuration	CHC	no*, yES	Clears Harness / Connector auto configuration data from memory
6	Blower Motor Type Selection	bLr	PS2*, PS3, EC2, EC3, EC4, EC5, EC9	Select according to OEM motor type either: PSC-2 & 3 speed, or ECMx 2, 3, 4, 5 or 9 speed
7	Pre-purge	PrE	15, 30*	Duration (Seconds)
8	Inter-purge	Int	15, 30, 45, 60*	Duration (Seconds)
9	Post purge	PSr	5, 10, 15, 25*, 30, 90	Duration (Seconds)
10	Constant Fan Speed ECMx	FSd	Fxx (xx: Blower Speed Number) Default – F01	Fan Speed Setting for ECMx Blower Connectors (6-Pins)
11	1st Stage Cool Speed ECMx	CS1	Fxx (xx: Blower Speed Number) Default – F04	Low Cool Setting for ECMx Blower Connectors (6-Pins)
12	2nd Stage Cool Speed ECMx	CS2	Fxx (xx: Blower Speed Number) Default – F05	High Cool Speed Setting for ECMx Blower Connectors (6-Pins)
13	Heat Speed ECMx	HSd	Fxx (xx: Blower Speed Number) Default – F01	Heat Speed Setting for ECMx Blower Connectors (6-Pins)
14	Fan On Delay	Fnd	0*, 2, 5	Duration (Seconds)
15	Fan Off Delay	FFd	0*, 2, 60, 90, 120, 180	Duration (Seconds)
16	Cool On Delay	Cnd	0, 2, 3, 5, 6*	Duration (Seconds)
17	Cool Off Delay	CFd	0, 2, 3, 5, 45*, 60, 80, 90	Duration (Seconds)
18	Heat On Delay	Hnd	15, 20, 22, 25, 30*, 40, 45, 60, 66	Duration (Seconds)
19	Heat Off Delay	HFd	60, 90, 100*, 120, 135, 140, 150, 160, 180, 225	Duration (Seconds)
20	Automatic Heat Staging (Hybrid Only)	AHS	OFF, 05, Aut*	Staging Time for Goodman Hybrid System – See Application Notes pg. 5
21	Rollout Input Bypass	rOb	no*, yES	Bypass Rollout Input – See Applications Notes pg. 6
22	Self-Test Mode	StE	no*, yES	Initiates Self-Test Mode

Action	Module Status	Button Press
Enter Configuration Menu	In Standby Mode	OPTION
Advance 1 Option Menu Item	In Configuration Menu	OPTION
Enter Selections Menu Level	At Options Menu Level	SELECT
Advance 1 Selection Item	At Selections Menu Level	OPTION
Confirm Selection	On Chosen Selection	SELECT
Exit Configuration Menu	On No. 22 in Configuration Menu	OPTION

Universal Applications

80V Ignitor Controls

80V ignition systems that must be upgraded to 120V by replacing the OEM ignitor with the included HotRod™ ignitor. See the installation instructions on page 5 or verify with WR Mobile for cross-reference numbers that apply.



Blower Type Selection

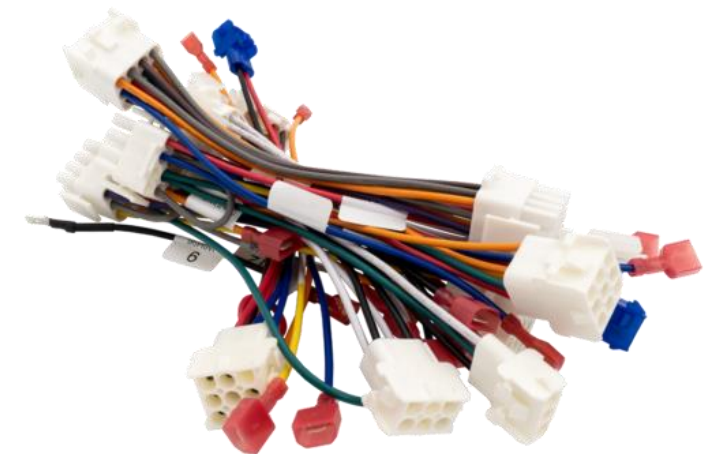
With the 50M56X-843 able to replace both PSC & ECMx blowers, configuration must be set to the type of motor as well as the quantity of speeds.

The Configuration Menu setting #6 (bLr) must be set to match the equipment's blower.

bLr	PS2*, PS3, EC2, EC3, EC4, EC5, EC9
Select according to OEM motor type either: PSC-2 & 3 speed, or ECMx 2, 3, 4, 5 or 9 speed	

Replacing Existing Universal Controls

When replacing a failed Resideo/Honeywell H9200U1000, ICM ICM2812-KIT & ICM-2812, or White-Rodgers 50M56U-843 & 50X57-843, identify and remove any wiring adapter harness between OEM furnace wiring and the failed universal control prior to installing a 50M56X-843.



Special Case Applications

Goodman Hybrid 2-Stage

A unique system known as the “Goodman Hybrid” system is a furnace with a two-stage gas valve paired with a single-speed inducer motor and a single stage blower.

50M56X-843 is able to operate these unique applications with the following cross-reference controls:

Goodman Controls

PCB00109	PCBBF109
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PCBBF109S	PCBBF122
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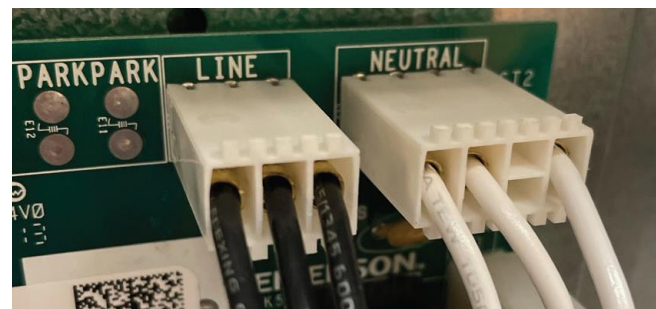
PCBBF122S	PCBBF132
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PCBF132S	
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OEM Wiring Connectors

Some OEM furnaces, for example Trane and American Standard have a plastic connector housing that groups together line and neutral spade terminals.

When found, remove the block and install the supplied quick-connect spade terminals.



Roll-Out Configuration

Certain Trane, American Standard, and York (including York P3UR/PCLU) furnaces do not have an individually monitored rollout switch in their main harness wiring configuration.

No shunt or jumper is now required.

The Configuration Menu setting #21 (rOb) to (yES) will digitally bypass the rollout input.



Flame Sensor Kit

If the 1994 or earlier Rheem/Ruud control being replaced has two green lights (no amber light) and a date code of 3294 or earlier, a Flame Sensor Kit, RHEEM part number 62-24044-71, required (not available through White-Rodgers).



Get Flame Current Reading Without Meter

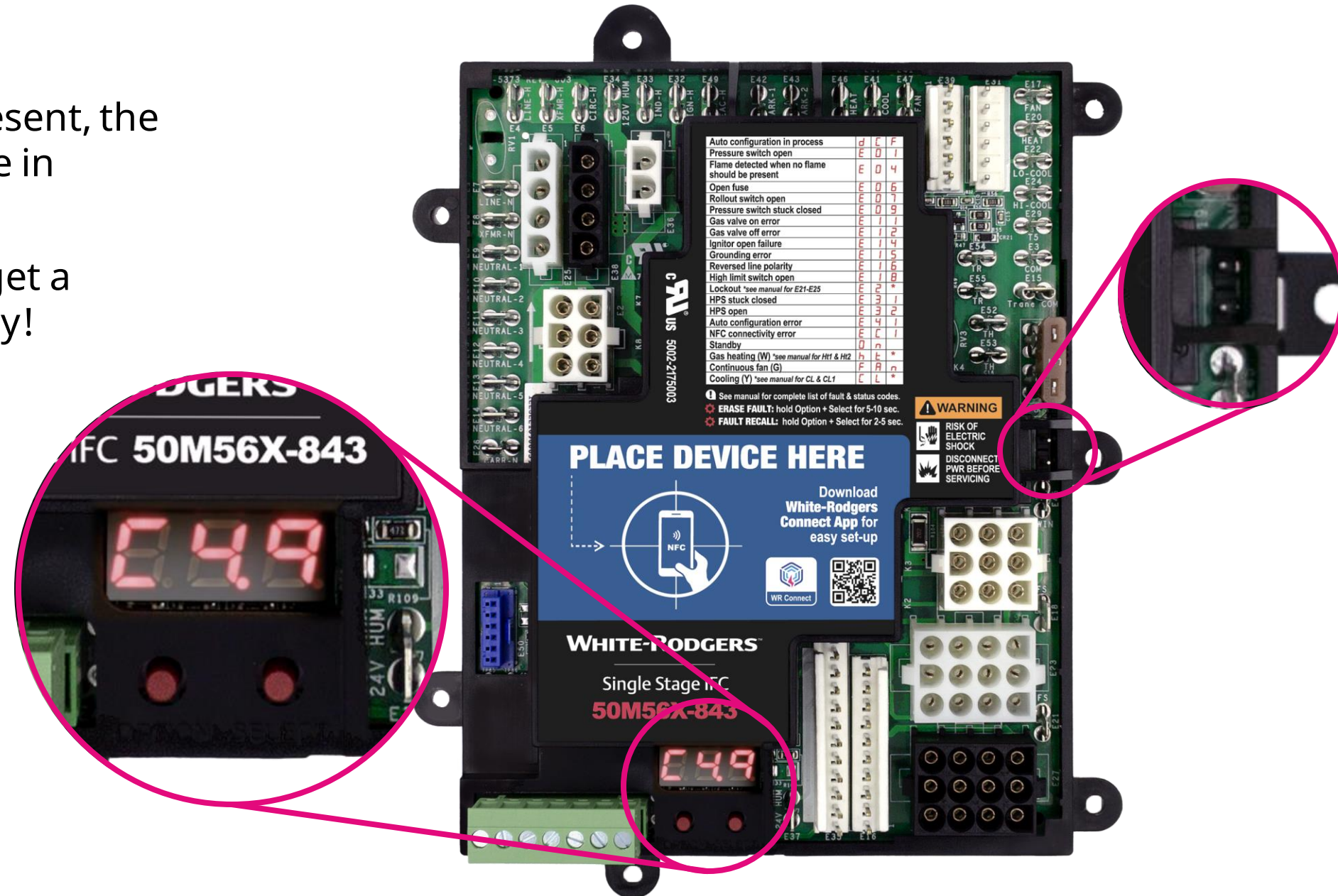
NEW On-Board Read-out

During a call for heat when a flame is present, the digital display will display the flame sense in Microamps.

No more needing to pull out a meter to get a Microamp reading—just look at the display!

Standard Test Pins Also Available

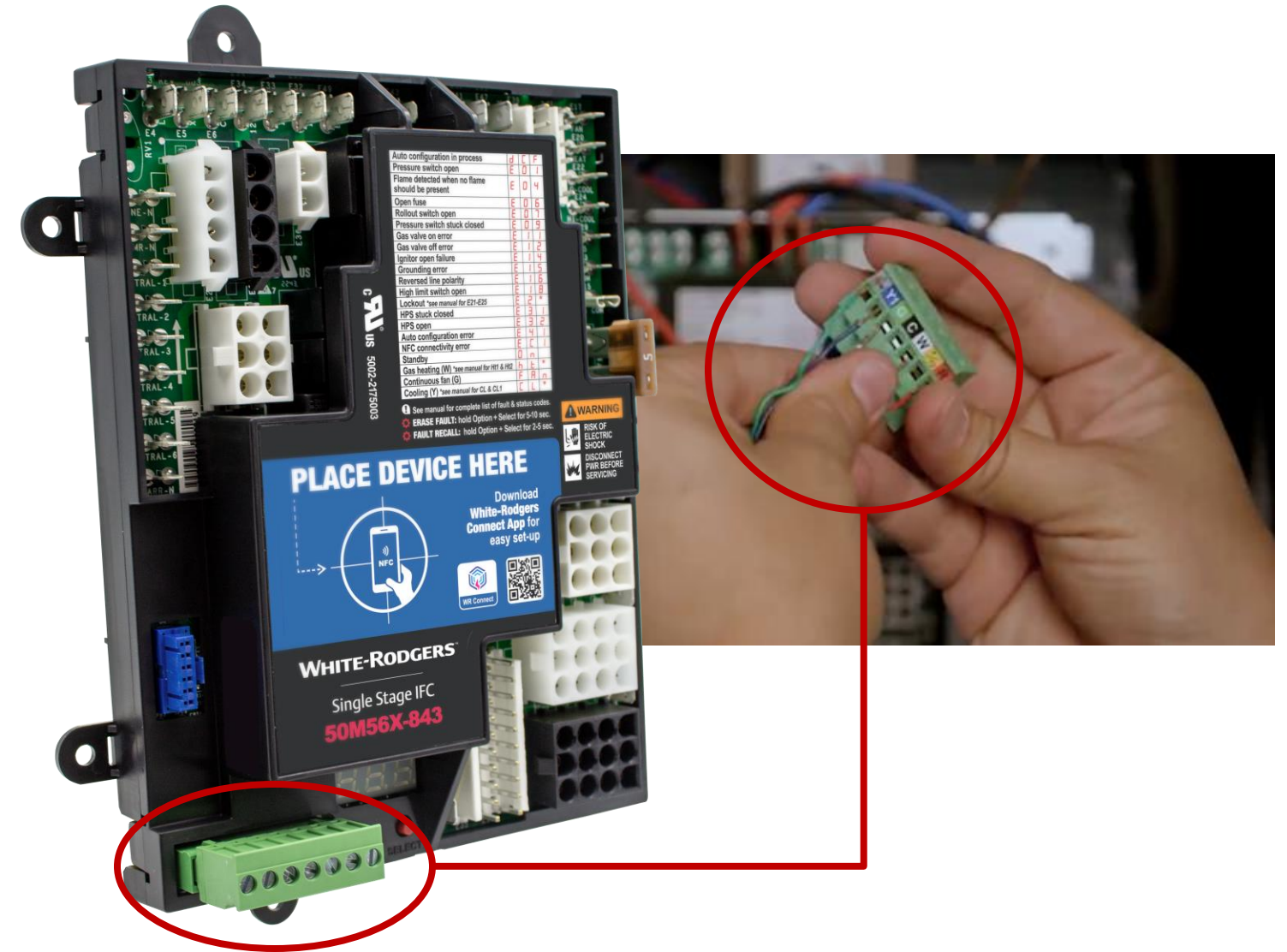
Two pins can be found on the right edge of the control board.



Thermostat Wiring Made Easy

Lift-off Thermostat Connector Block, Including Dehumidification

- Connect thermostat wiring away from the board
- No more getting into the furnace to get the wiring connected—just connect it out front, verify wires are secure in the block, then plug in!
- When the dehumidification terminal on the block is used, the control will slow the blower down during cooling for increased humidity removal.

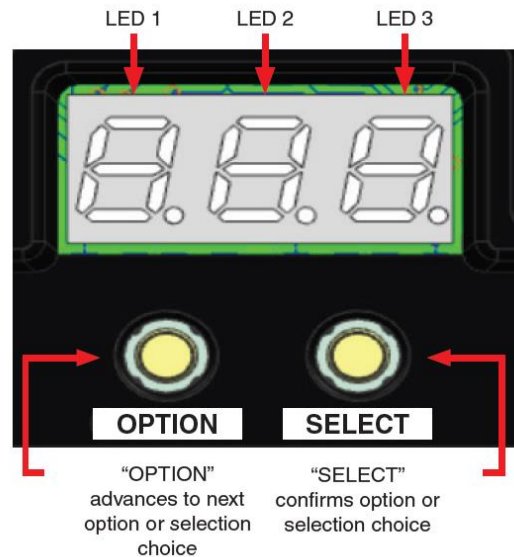


Onboard Status & Fault Codes for Troubleshooting

1. Easy-to-see digital display shows fault/error conditions
2. Troubleshooting is simplified with a fault code/status label on the control cover

The Option & Select Buttons Allow For:

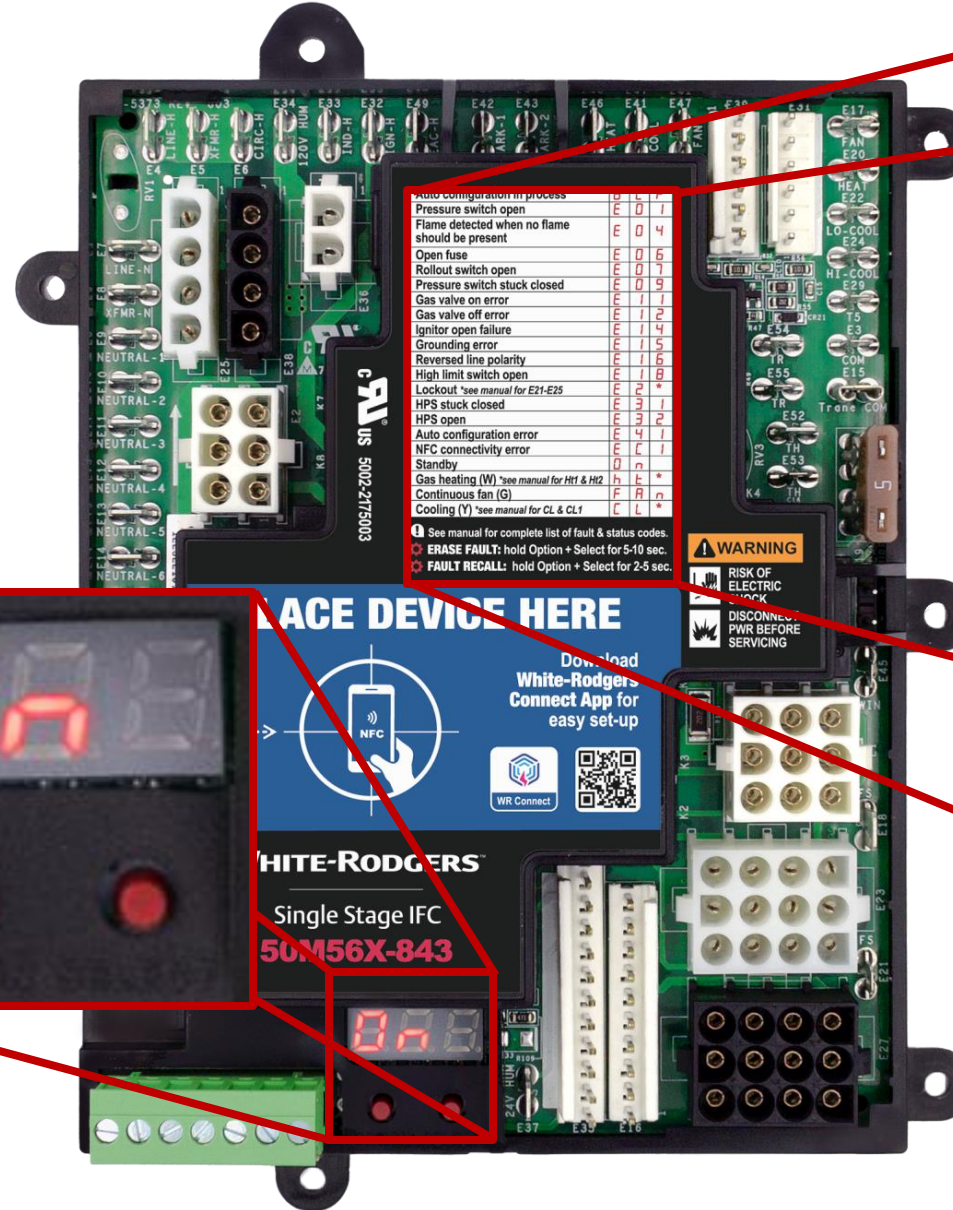
- Menu configuration
- Recall of the last five faults
- Fault code erasure



1



2



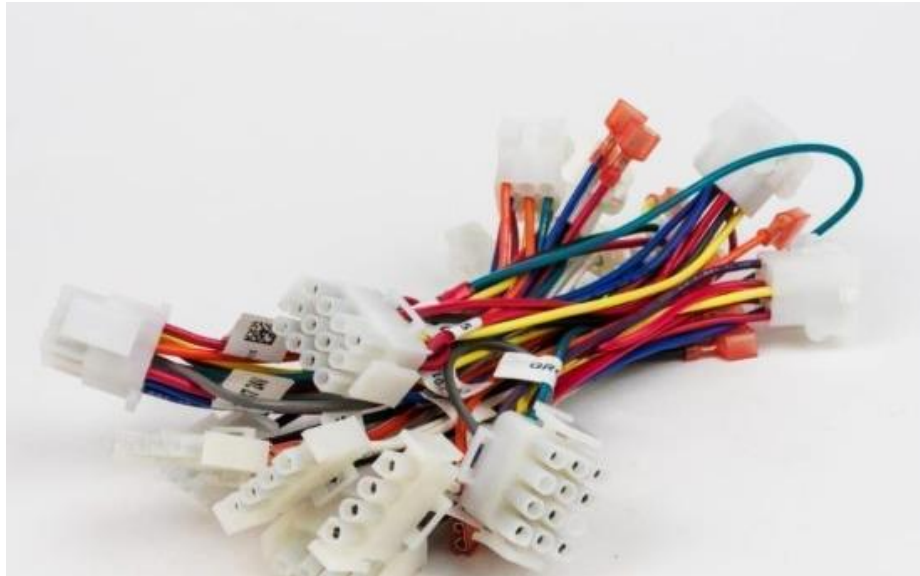
Auto configuration in process	d	C	F
Pressure switch open	E	0	1
Flame detected when no flame should be present	E	0	4
Open fuse	E	0	6
Rollout switch open	E	0	7
Pressure switch stuck closed	E	0	9
Gas valve on error	E	1	1
Gas valve off error	E	1	2
Ignitor open failure	E	1	4
Grounding error	E	1	5
Reversed line polarity	E	1	6
High limit switch open	E	1	8
Lockout *see manual for E21-E25	E	2	*
HPS stuck closed	E	3	1
HPS open	E	3	2
Auto configuration error	E	4	1
NFC connectivity error	E	C	1
Standby	0	n	
Gas heating (W) *see manual for Ht1 & Ht2	h	t	*
Continuous fan (G)	F	A	n
Cooling (Y) *see manual for CL & CL1	C	L	*

Universal Integrated Furnace Controls Competitive Comparison

White-Rodgers Has More Features

Feature	Resideo / Honeywell S9200u1000	Icm Icm2812-kit	White-rodgers 50m56x-843
Stages / Blower Types	1 - PSC Only	1 - PSC Only	1 - PSC & Ecmx
Mobile App, NFC, BLE*	No	No	Yes – WR Connect
Harnesses	8	11	None – OEM Harness Detected
Cross-references	200+	150+	550+
Ignitor Voltage Serviced	120V Only	120V Only	80v & 120v
Includes Universal Ignitor	No	No	Yes
Configuration Options	Limited - 4 Dipswitches	Limited - 2 Dipswitches	Unlimited App Or Push Buttons
LED Displays	Tri-color LED Light	Red LED Light	Digital LED Display
Rollout Accessory	Difficult Wire Jumper	Difficult Wire Jumper	Not Required
Flame Current Test	No	No	Digital Readout Or Test Pins
Full Cover W/ Fault Code Label	No - Tray Only	Yes	Yes
Fault Recall & Clearing	Jump R & D Terminals	Push Button	WR App / Push Buttons
Status & Diagnostics	Count LED Flashes	Count LED Flashes	Read On Display Or App
Humidifier Output	120V Only	120V Only	24V Or 120V
2 nd Stage Cooling & Dehumidification	No	No	Yes

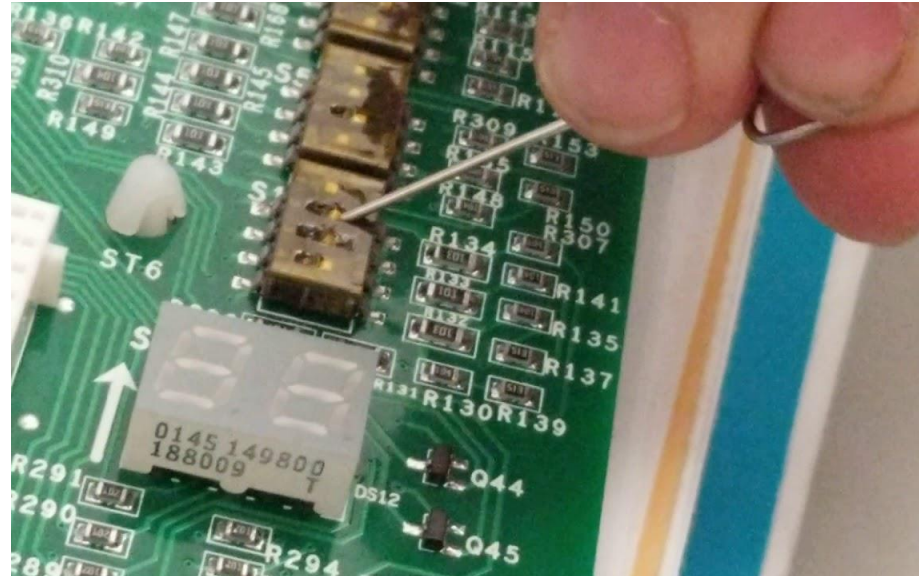
50M56X-843 Benefit Summary



Auto Harness Detection

Say goodbye to a bundle of harnesses!

With harness auto detection, no adapter harnesses are needed to connect a furnace to the 50M56X-843!



Fast Configuration

No more manually going through manual DIP switches.

Using the WR Connect app or the on-board three-digit, seven-segment digital display, all settings can be quickly accessed.



NFC Setup & Diagnostics

Near-field communication controls can quickly and easily be configured in the palm of your hand and directly uploaded into the control.

Diagnostics can be seen at a glance!

Install

Disconnect Power and Gas

1

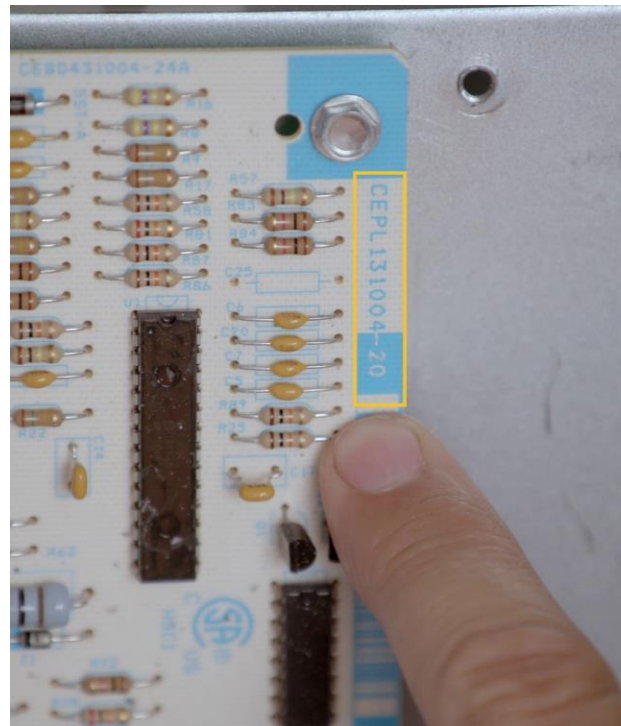
First, ensure power and gas are disconnected prior to servicing the unit.



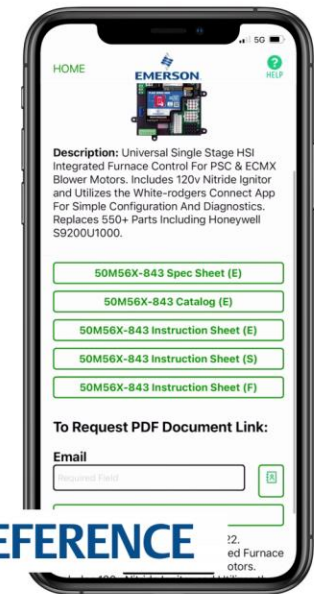
Check the Part Number on the Existing Control

2

Check the part number on the existing control and verify it is one of the more than 550 modules that can be replaced with the 50M56X-843.



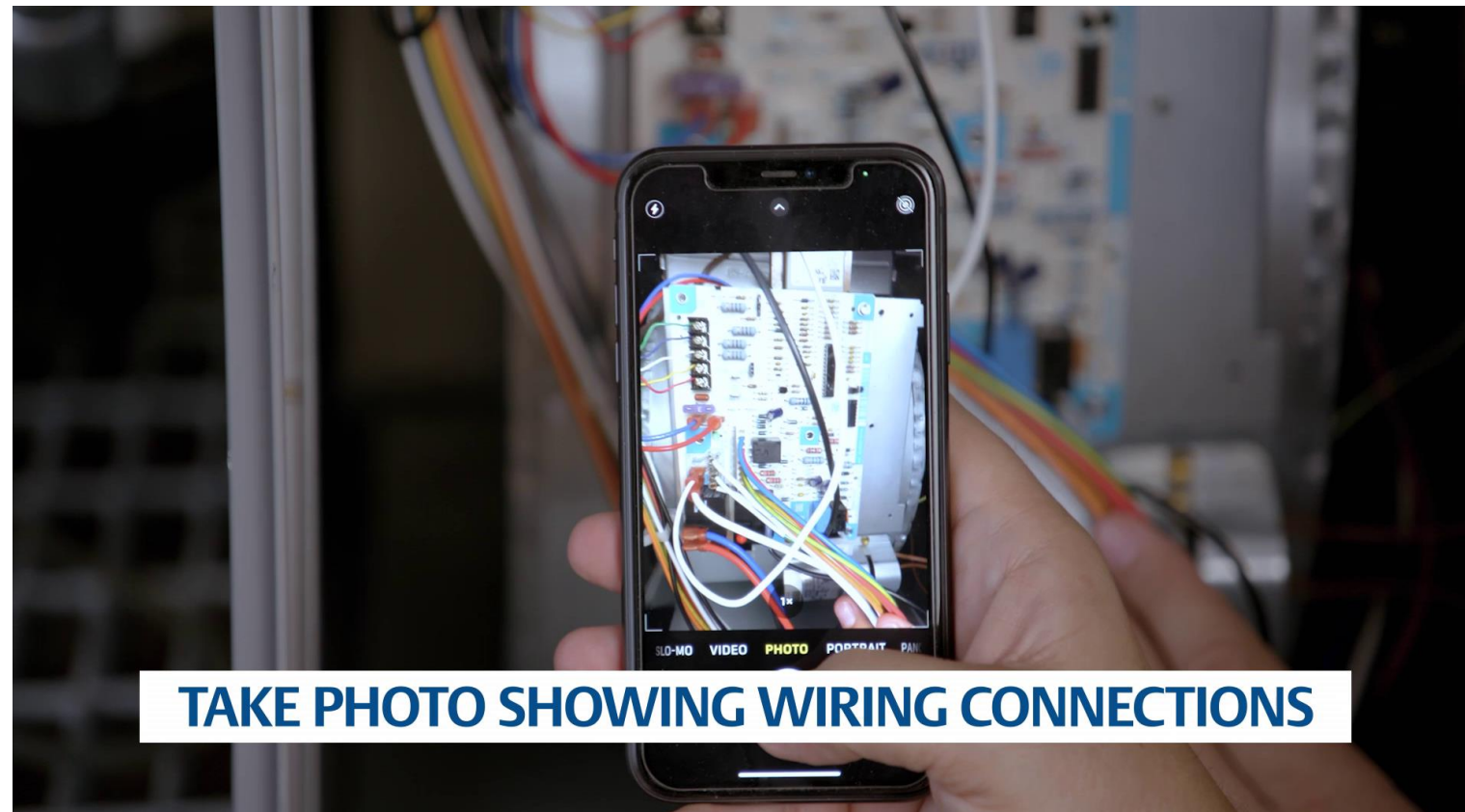
TWO WAYS TO CROSS REFERENCE



Take a Picture of Wiring

3

Take a picture of the existing module for reference before removing any wires.

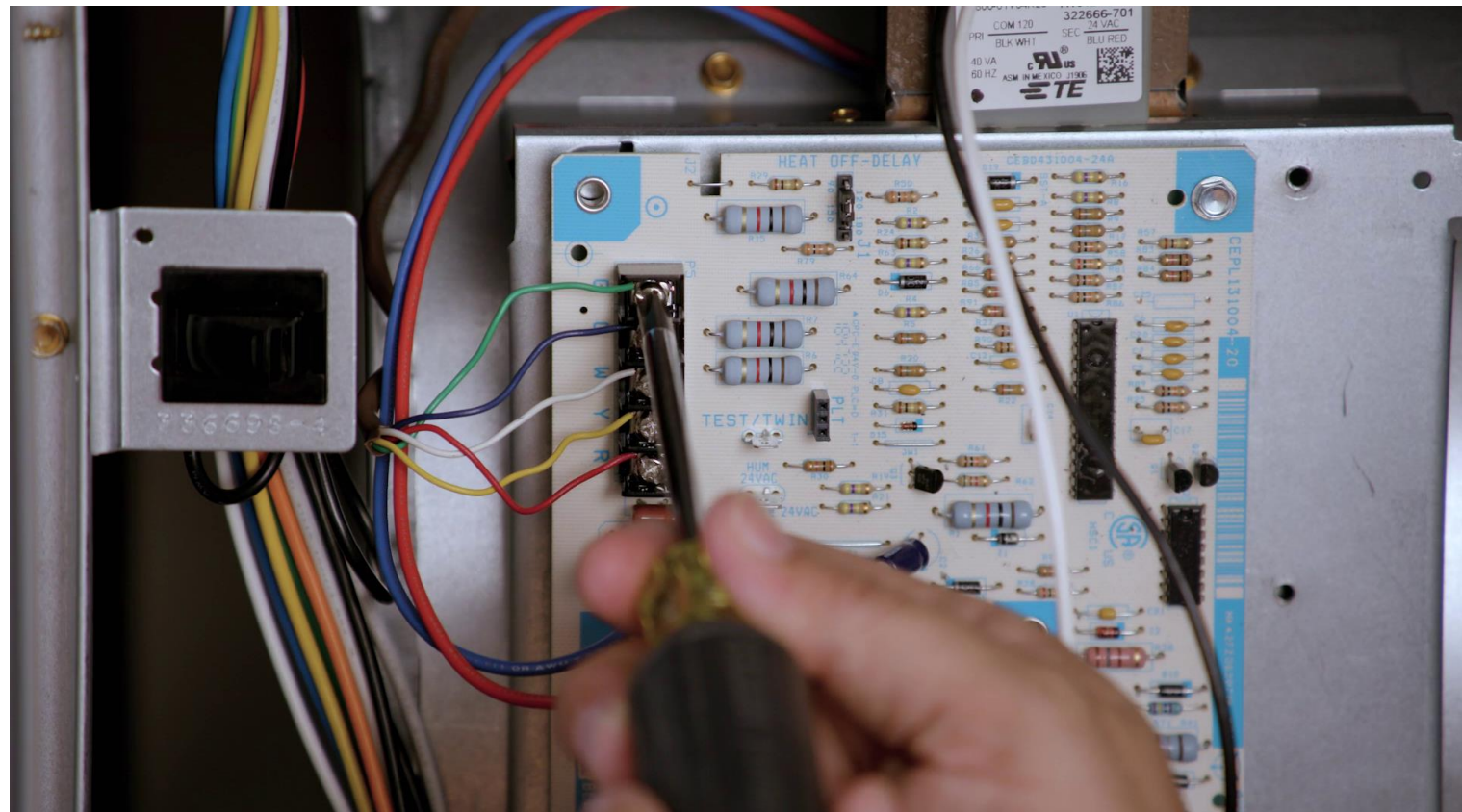


TAKE PHOTO SHOWING WIRING CONNECTIONS

Disconnect the Thermostat Wiring

4

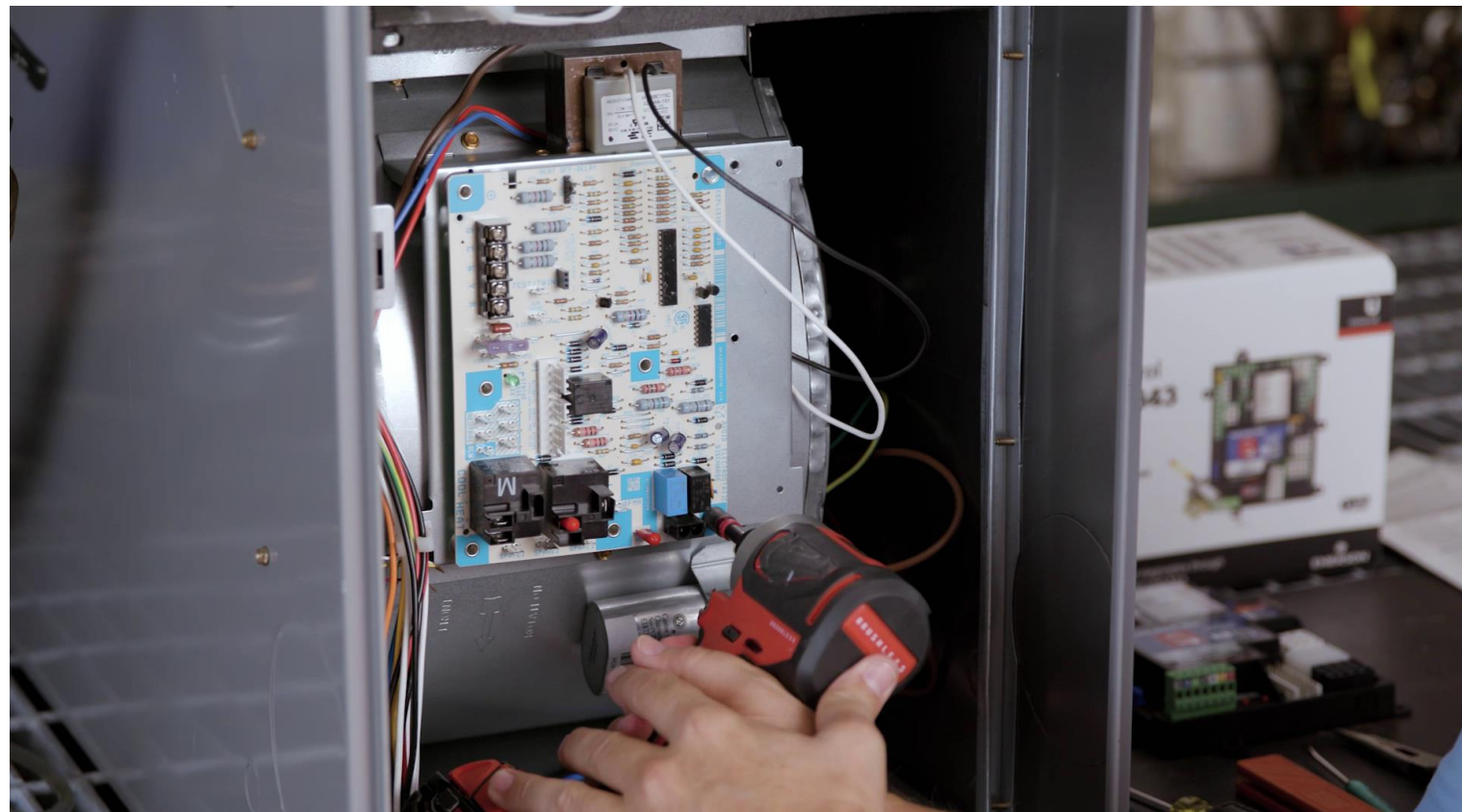
Disconnect the thermostat wiring. Take note of what color wires are going to each terminal. Continue removing the rest of the wires in groups.



Remove the Board

5

Remove the board by unscrewing any screws and disconnecting any standoffs holding the board in place.



Configure the Board

6

On-board configuration can be done after the board has been installed and powered up.

Mobile app configuration is the preferred method, and can be done prior to installing the control.

ON BOARD CONFIGURATION (7-SEGMENT OPTION)

Condition	LED Display	Description
Module Power Up	888	During power up, LEDs remain steady
Auto Configuration	dcF	Automatic Configuration Must Complete before entering standby ~30 sec
Standby	On	Control ready to configure or respond to calls

*"OPTION" advances to next option or selection choice
 *"SELECT" confirms option or selection choice

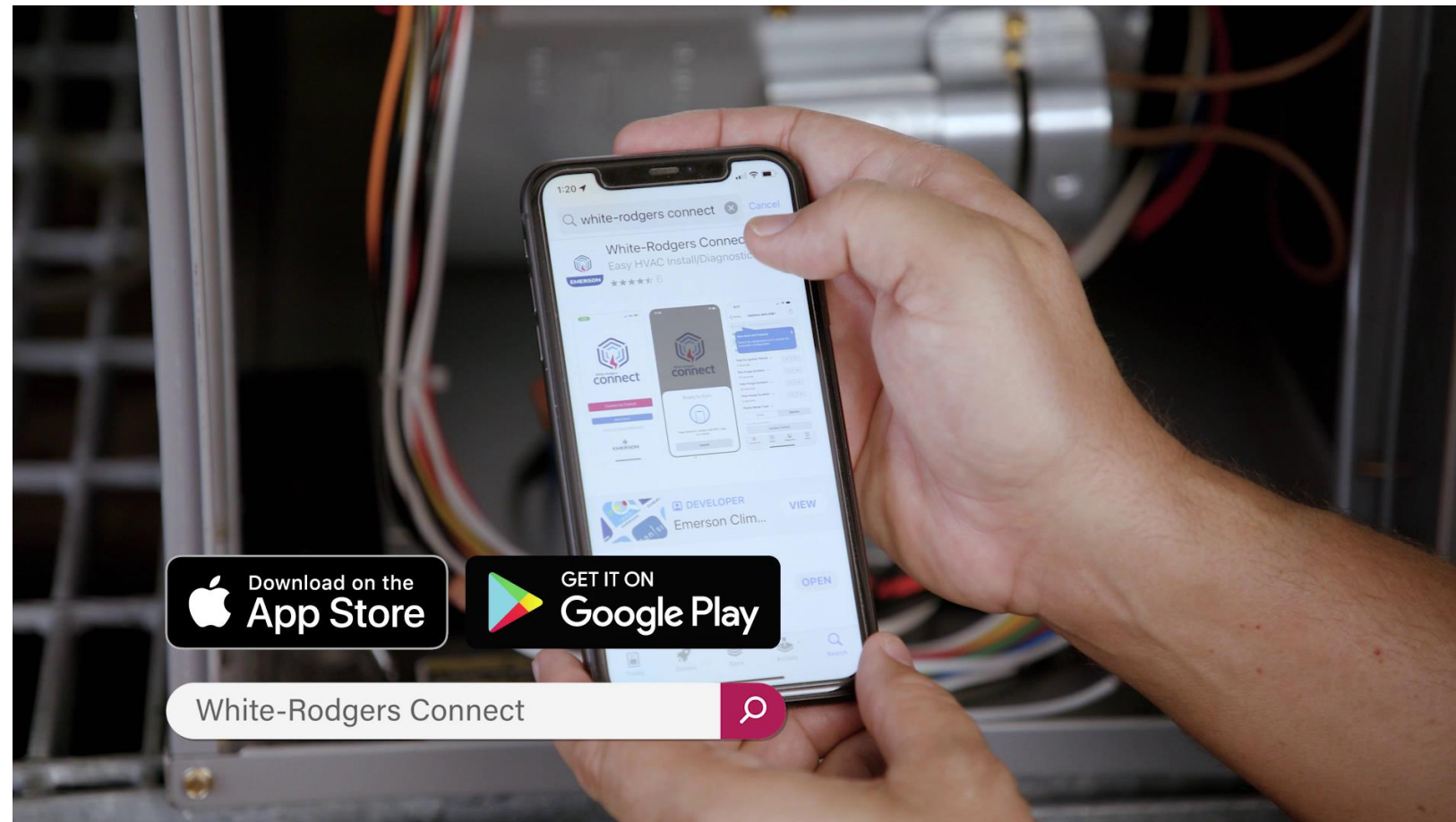
Action	Module Status	Button Press
Enter Configuration Menu	In Standby Mode	OPTION
Advance 1 Option Menu Item	In Configuration Menu	OPTION
Enter Selections Menu Level	At Options Menu Level	SELECT
Advance 1 Selection Item	At Selections Menu Level	OPTION
Confirm Selection	On Chosen Selection	SELECT
Exit Configuration Menu	On No. 22 in Configuration Menu	OPTION



Mobile App Configuration – Download the App

6

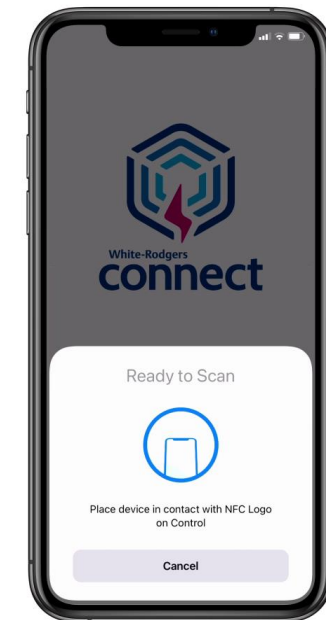
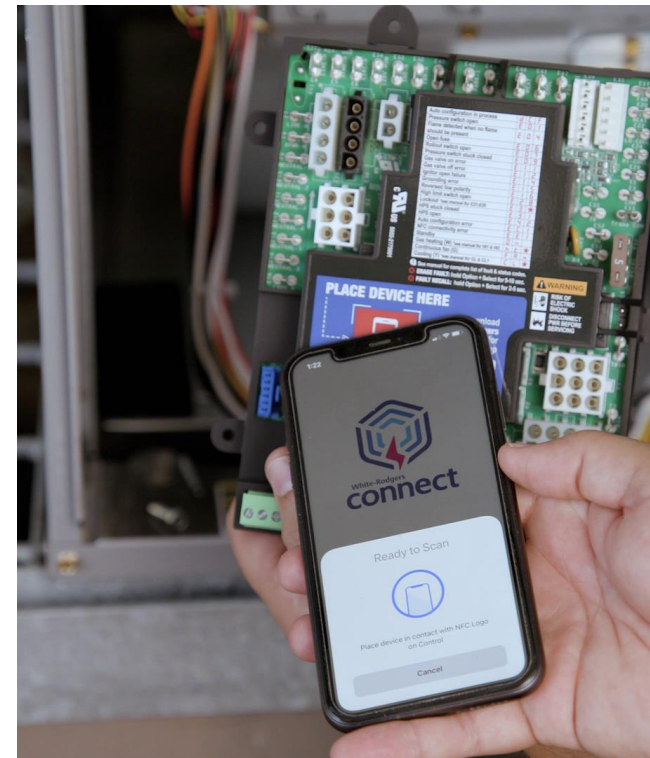
Use the QR code on the product label to download the White-Rodgers Connect app.



Mobile App Configuration – Connect to Control

7

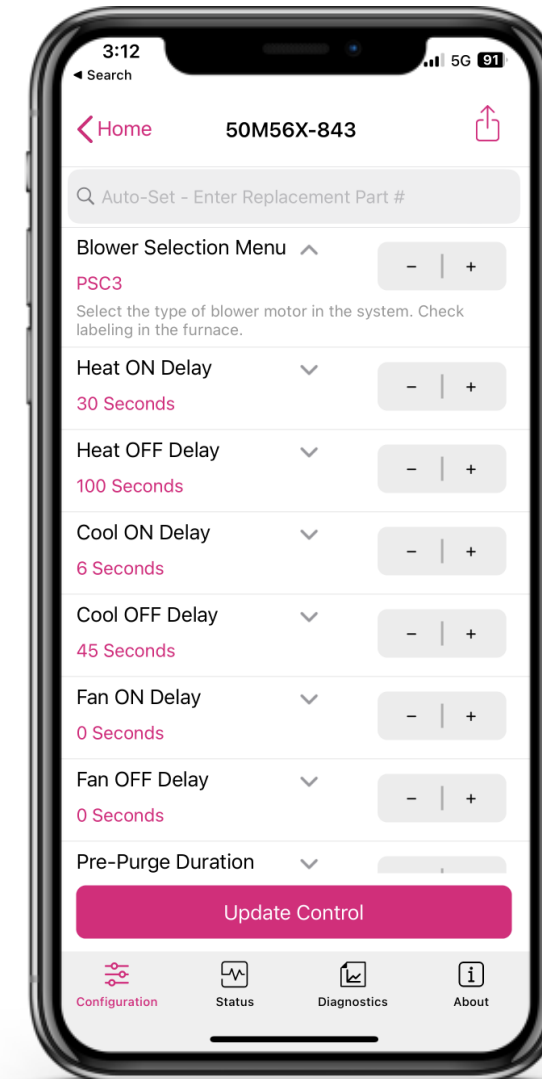
1. Open the app and tap on “Connect to Control”.
2. Place the mobile device in contact with the NFC logo on the control.
3. A check mark will appear showing the connection was successful.
4. The app will then display the 50M56X-843’s configuration screen.



Mobile App Configuration – Adjust Settings

8

- Auto-set: enter replacement part number to configure to preloaded OEM settings
- Settings can be adjusted to match the existing control
- Additional configuration options may pertain to your specific application
- Reference the instruction manual for a complete list of configuration options



INSTALLATION

Table 1: Configuration Menu Options

Option Menu Item	Option Display	Selections Menu	*Factory Default Setting
Active Fault Menu	E _{rr}	"Exx"	Cycles through up to 4 active errors. XX=2 digit Fault Code ex. E01
Firmware Version	F _r	"rXX"	Displays Firmware Version Number
Display Selected Harness Configuration	dSH	"Hxx"	Displays Harness / Connector (Auto) Configuration ex. H23
Reset to Factory	rSt	no*, yES	Resets configurations to factory defaults
Clear Harness Configuration	ChC	no*, yES	Clears Harness / Connector auto configuration data from memory
Blower Motor Type Selection	bl _r	P52*, P53, EC2, EC3, EC4, EC5, EC9	Select according to OEM motor type either: PSC-2 & 3 speed, or ECMx 2, 3, 4, 5 or 9 speed
Pre-purge	PrE	15, 30*	Duration (Seconds)
Inter-purge	I _{nt}	15, 30, 45, 60*	Duration (Seconds)
Post-purge	PS _e	5, 10, 15, 25*, 30, 90	Duration (Seconds)
Constant Fan Speed ECMx	F5 _d	Fxx (xx: Blower Speed Number) Default – F01	Fan Speed Setting for ECMx Blower Connectors (6-Pins)
1st Stage Cool Speed ECMx	C5 ₁	Fxx (xx: Blower Speed Number) Default – F04	Low Cool Setting for ECMx Blower Connectors (6-Pins)
2nd Stage Cool Speed ECMx	C5 ₂	Fxx (xx: Blower Speed Number) Default – F05	High Cool Speed Setting for ECMx Blower Connectors (6-Pins)
Heat Speed ECMx	H5 _d	Fxx (xx: Blower Speed Number) Default – F01	Heat Speed Setting for ECMx Blower Connectors (6-Pins)
Fan On Delay	F _{nd}	0*, 2, 5	Duration (Seconds)
Fan Off Delay	FF _d	0*, 2, 60, 80, 120, 180	Duration (Seconds)
Cool On Delay	C _{nd}	0, 2, 3, 5, 6*	Duration (Seconds)
Cool Off Delay	CF _d	0, 2, 3, 5, 45*, 60, 80, 90	Duration (Seconds)
Heat On Delay	H _{nd}	15, 20, 22, 25, 30*, 40, 45, 60, 66	Duration (Seconds)
Heat Off Delay	HF _d	60, 90, 100*, 120, 135, 140, 150, 160, 180, 225	Duration (Seconds)
Automatic Heat Staging (Hybrid Only)	RhS	OFF, 05, AU*	Staging Time for Goodman Hybrid System – See Application Notes pg. 5
Rollout Input Bypass	rOb	no*, yES	Bypass Rollout Input – See Applications Notes pg. 6
Self-Test Mode	S _{tE}	no*, yES	Initiates Self-Test Mode

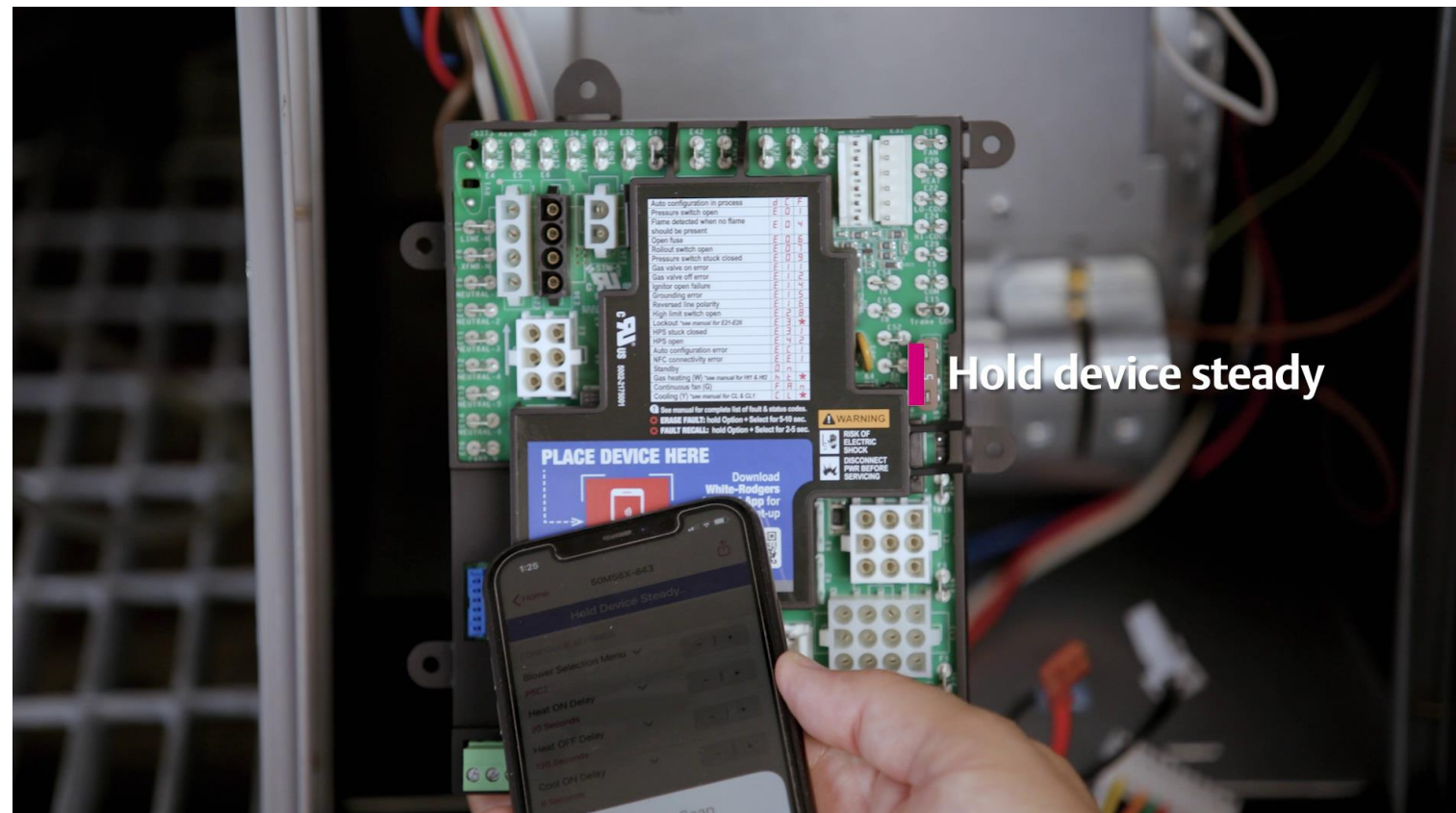
*Table 1 shows every configuration option available on 50M56X-843. However, not all OEMs use the same configuration options. Once the automatic configuration process is complete, some settings not relevant to the detected OEM application no longer appear in the control's menu or WR Connect app.

Note the settings on the OEM control being replaced in the space in the margins of this manual or by circling the responding setting value in the selections menu column in Table 1.

Mobile App Configuration – Upload to Control

9

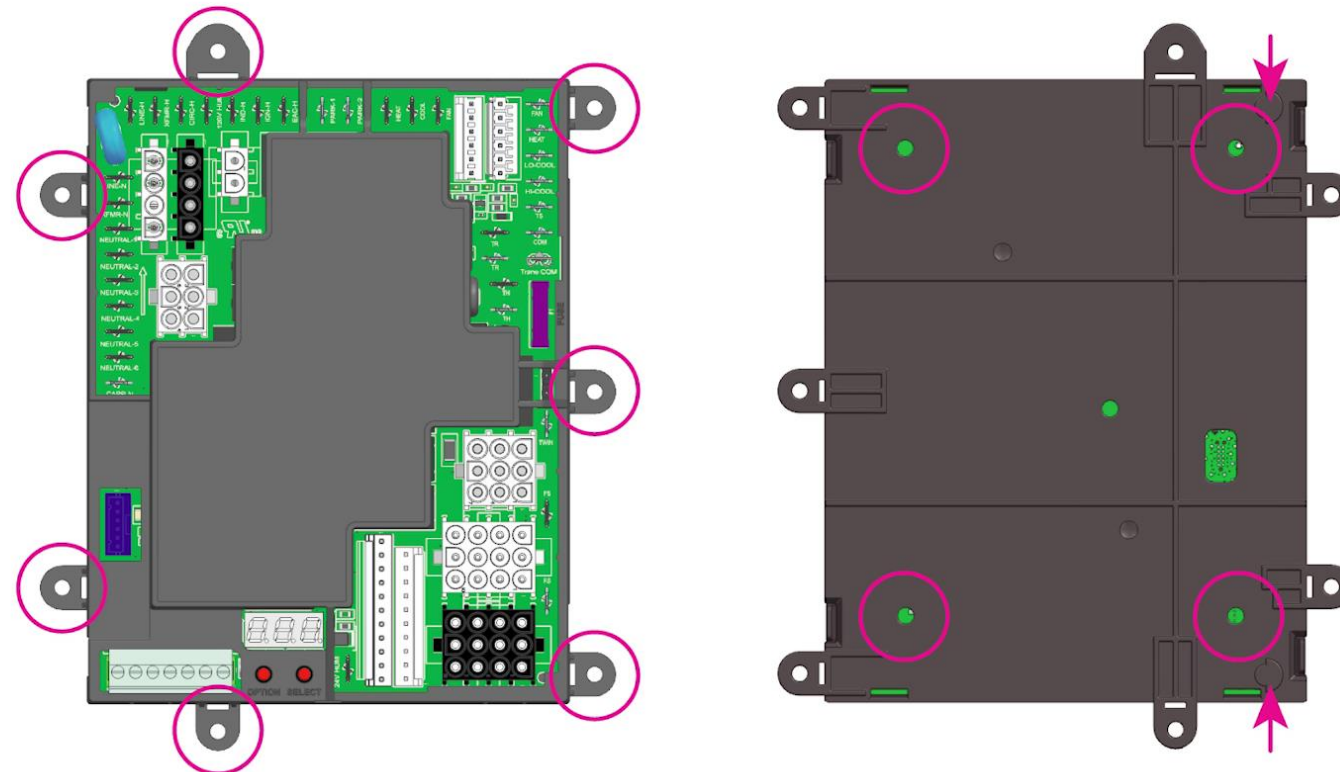
- Select “Update Control”
- Hold the mobile device near the NFC logo
- A check mark will display showing the update was successful



Mounting Options

10

The control has seven mounting tabs, five standoff holes and two slide-ins.



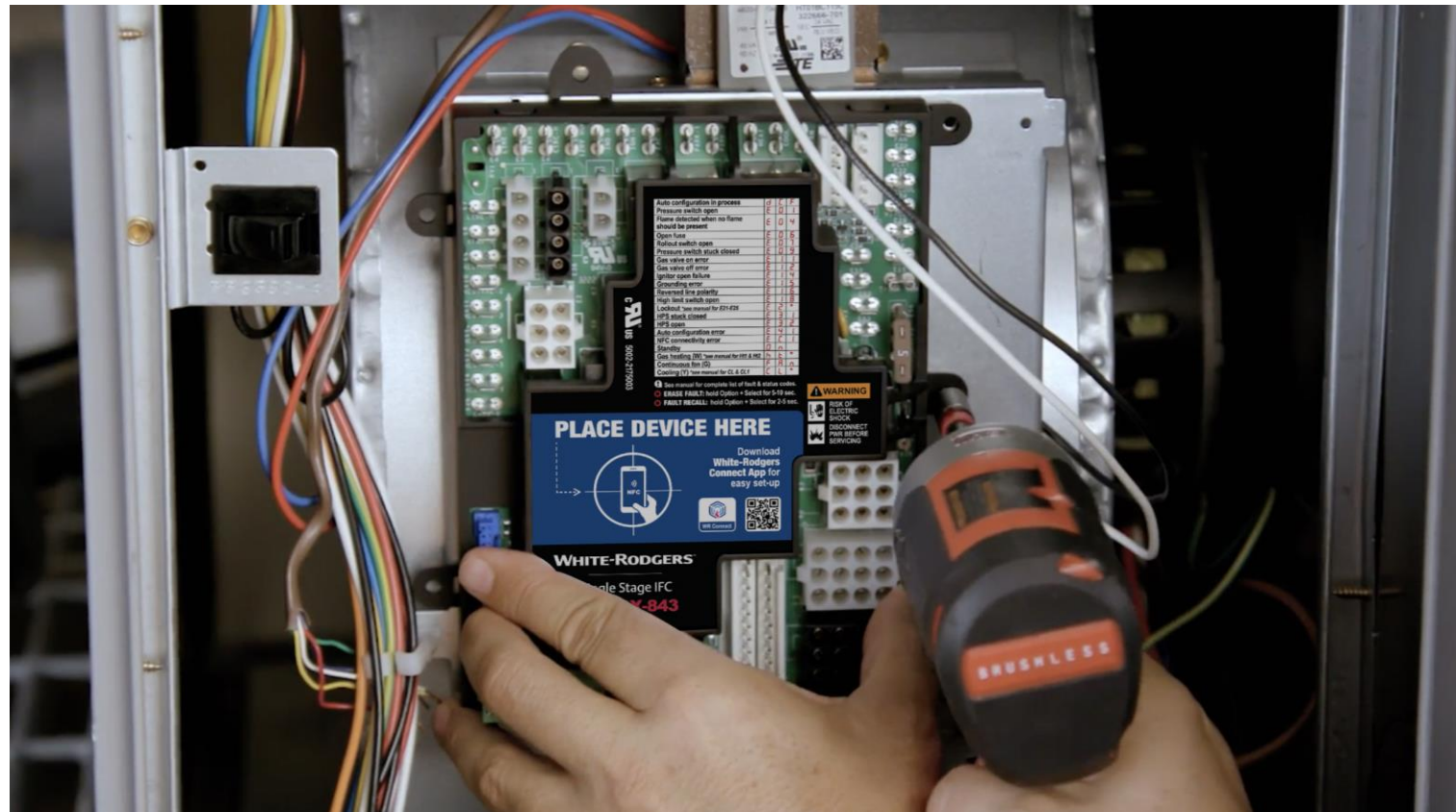
MOUNTING OPTIONS

Mount the Control

11

Use the mounting that matches the existing control, if possible.

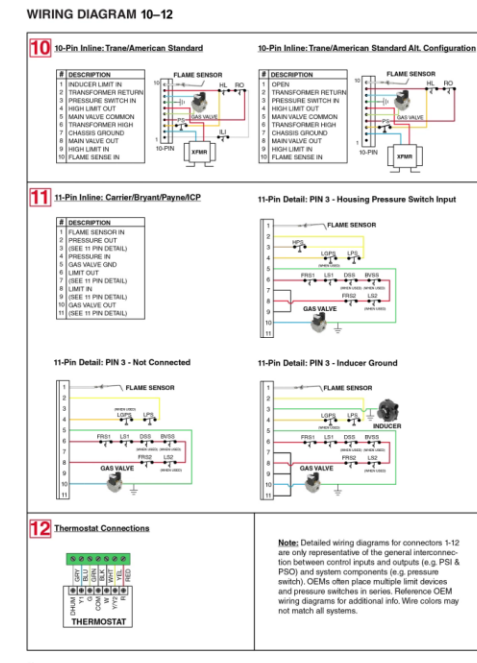
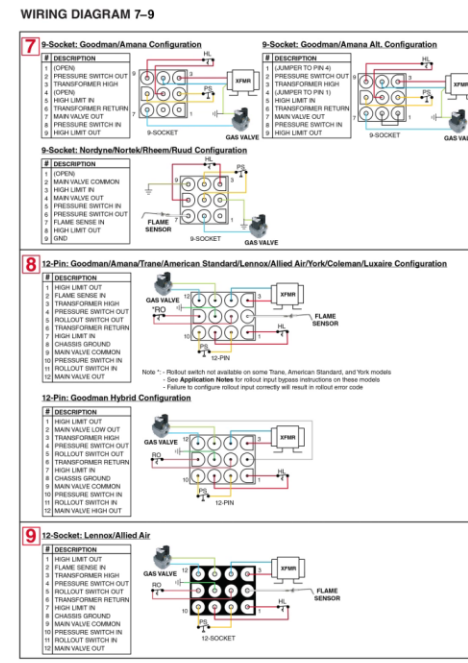
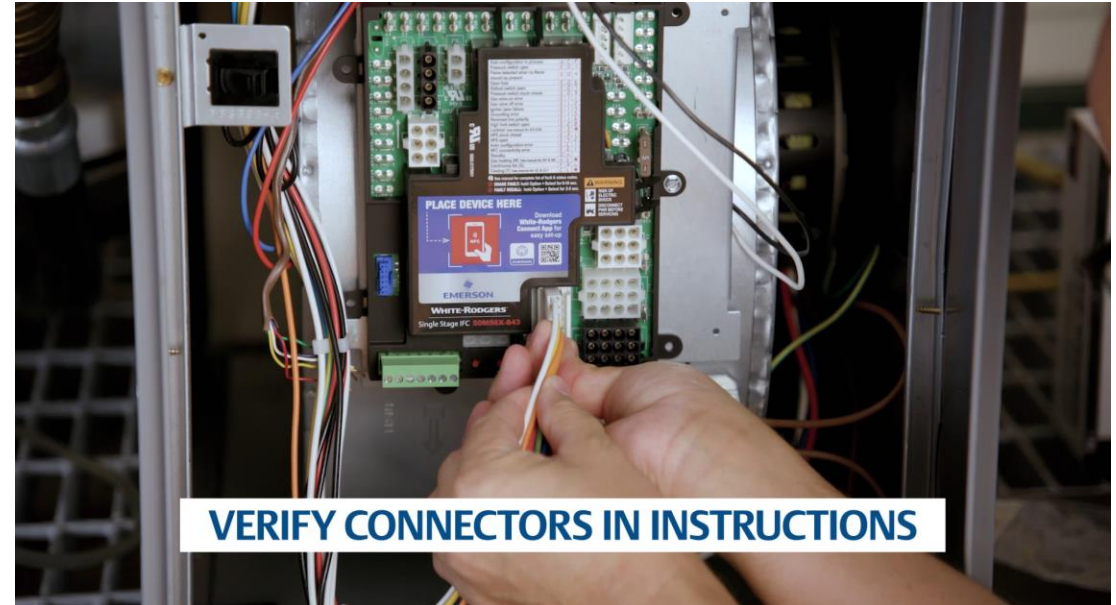
Make sure you don't damage any components, such as wire harnesses or blower wheels, when drilling or installing screws.



Wiring the New Board

12

- Identify the main connector on the OEM wiring harness
- Attach it to the matching connector on the new control. Attach the 11-pin connector.
- Use the wiring diagrams in the installation instructions for proper OEM connector and wire identification

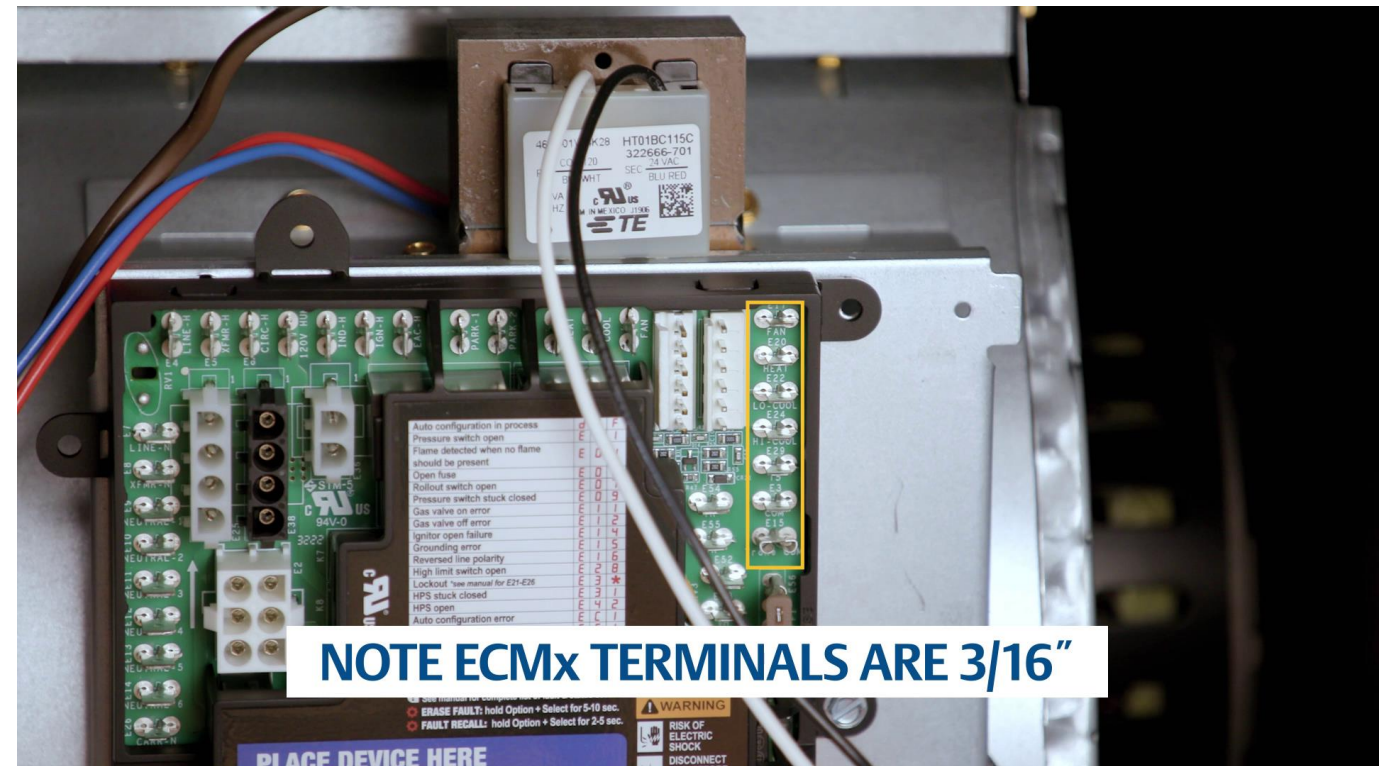
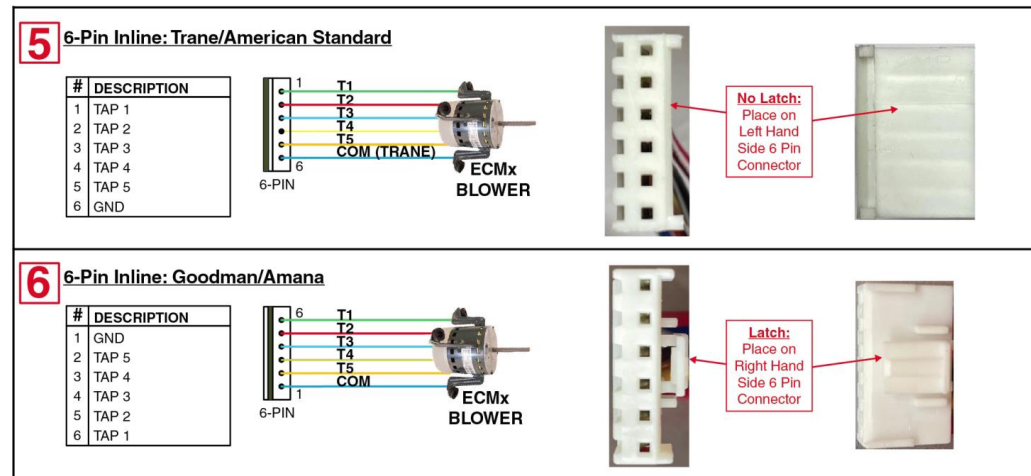


Wiring the New Board

13

For six-pin ECMx applications, identify the correct connector on the control and plug in the ECMx motor harness.

For ECMx spade terminal applications, plug the motor wires on the matching terminals.



Wiring the New Board-Special Case Application

14

For OEM wiring using a plastic connector to group together 112V power and neutral terminals, cut the wires near the housing and install the supplied quarter-inch quick-connect spade connectors.



Wiring the New Board – Special Case Application

15

The three 120V line wires can be connected to the Line H, transformer H and C I R C, in any order.

Connect the three neutral wires to the Line N, Transformer N and Neutral 1 terminals.

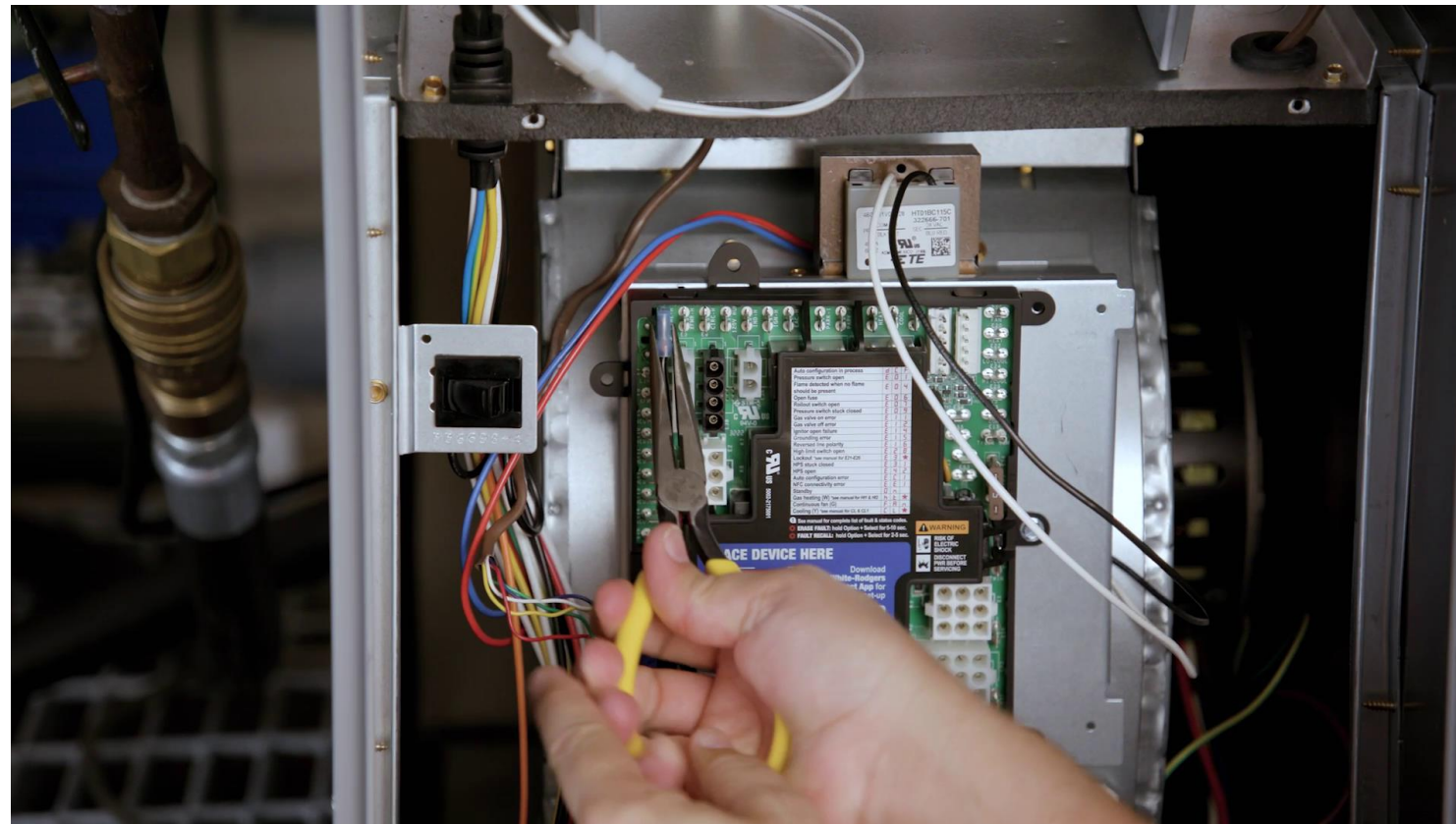


Wiring the New Board – Most Applications

16

Connect the individual wires to the new control board.

Connect the line-in 120V power and transformer wires. Then connect the 120V neutral and transformer neutral wires.

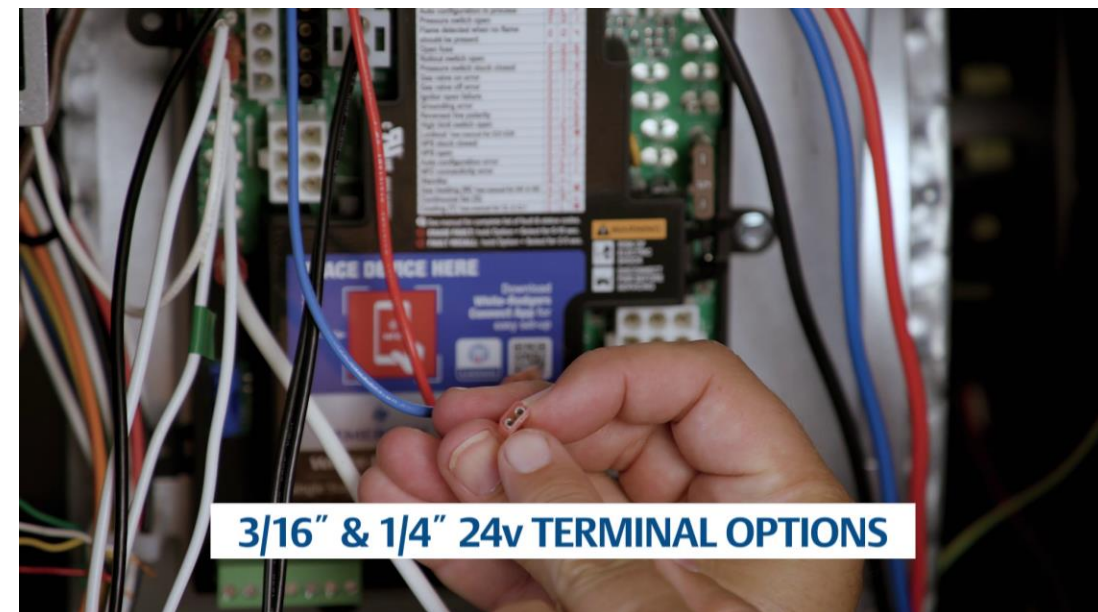
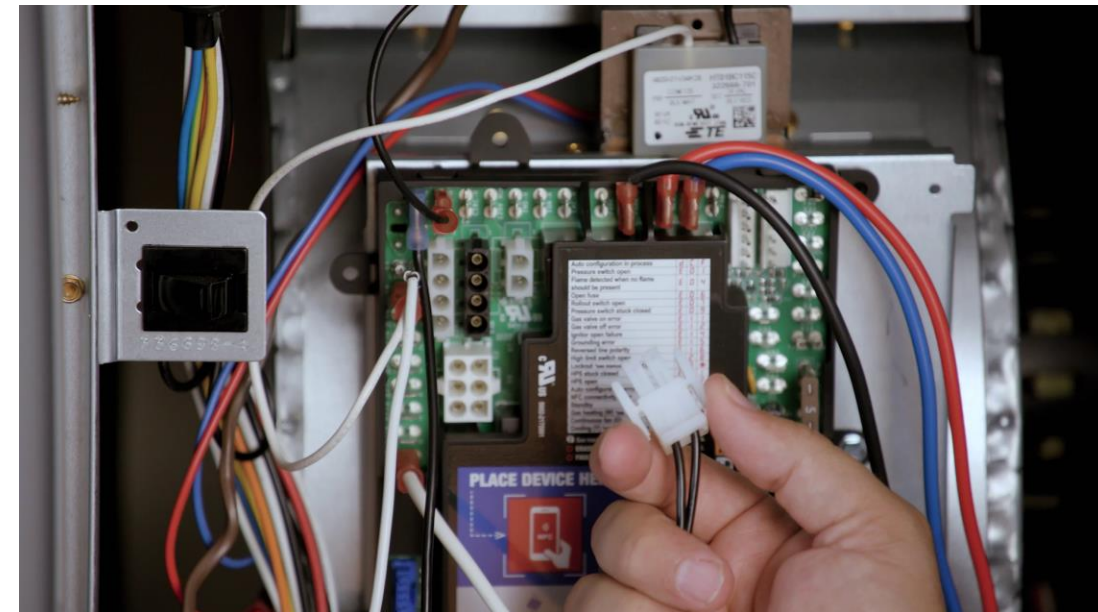


Wiring the New Board – Most Applications

17

Plug in the two wire Molex plug for the inducer and ignitor. Connect the PSC blower wires: heat, cool, park and neutral.

Identify the correct spade size for the 24V hot and common wires and attach the transformer low-voltage wires to the correct terminals.

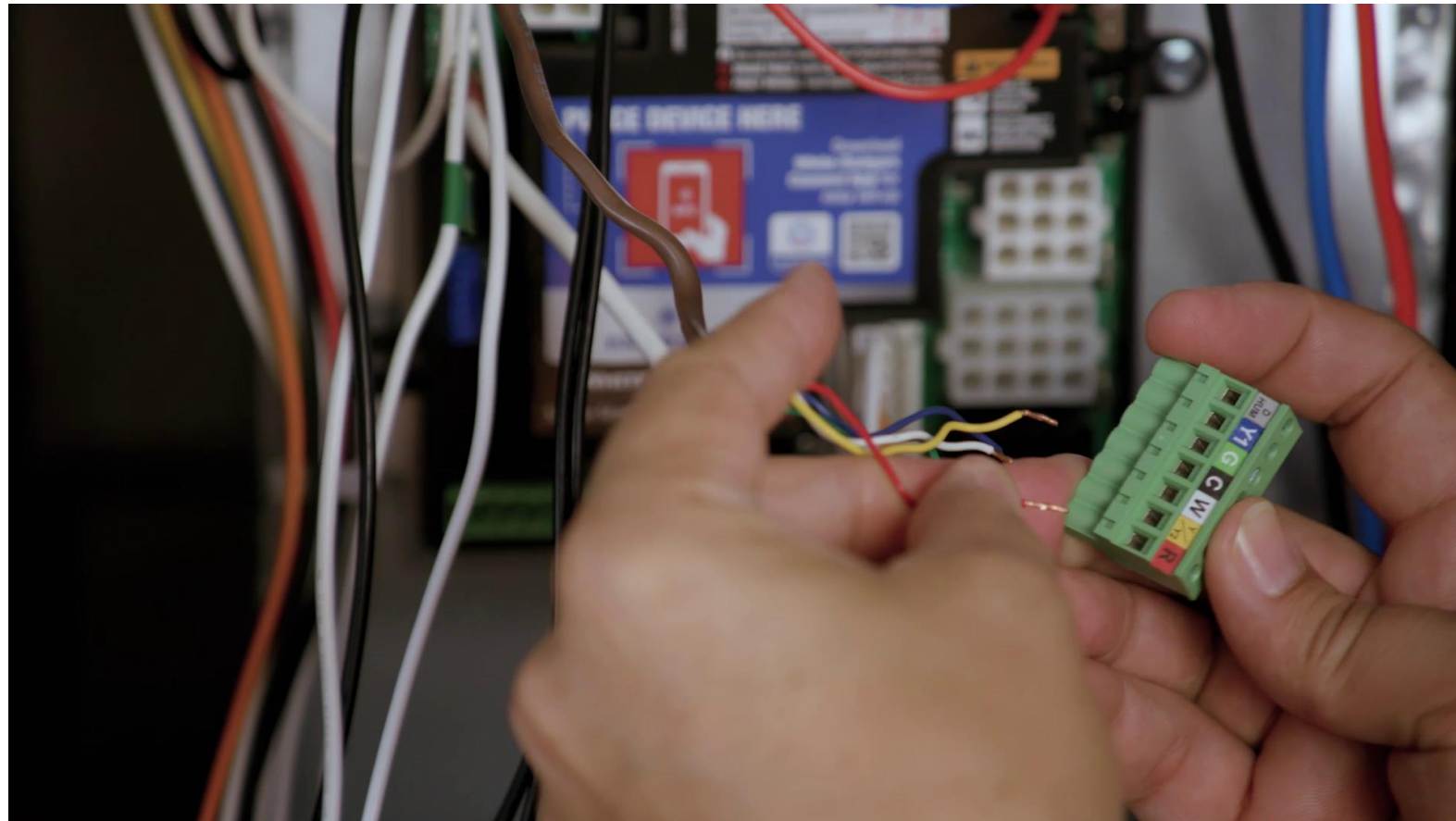


Wiring the New Board – Most Applications

18

Remove the thermostat bus block from the control and install the thermostat wires according to the terminals they were removed from.

Then plug the block back into the control.

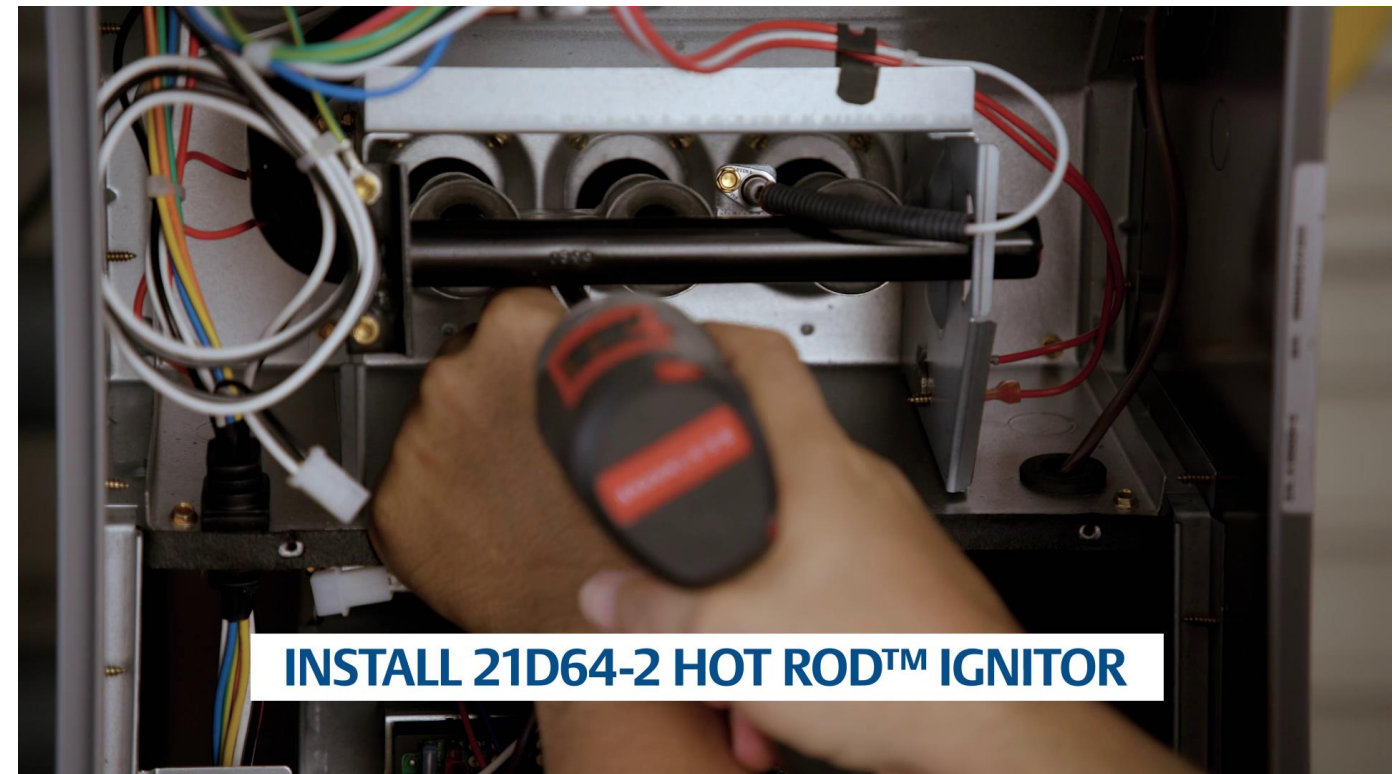


Check the Ignitor

19

If the control being replaced operated an 80V ignitor, the existing ignitor must be replaced with the included Hot Rod ignitor.

For all other applications, inspect the existing 120V ignitor to determine if it must be replaced.



Ready to Test – Reconnect Power and Gas

20

Reconnect the electric power and gas to the unit

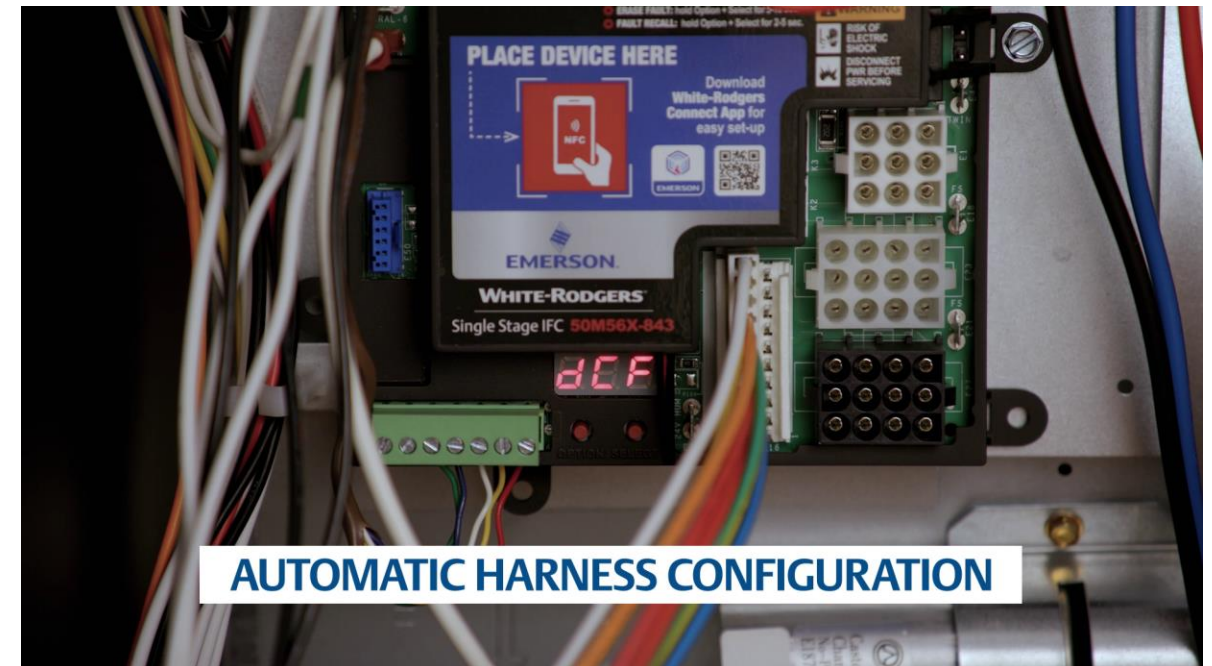
Make sure the door switch is engaged



Automatic Harness Configuration

21

- The 50M56X-843 automatically configures the control to match the harnesses that have been attached
- The process takes up to 30 seconds at first power-up
- After two consecutive matching power-ups, the control will write the configuration in memory
- See the installation instructions if the control needs to be reset for a different application



Self-Test Mode

22

“Self-test” mode allows the control to test most furnace components without requiring a call for heat.

To enter the self-test mode, go into the configuration settings and choose “YES” on option number 22.

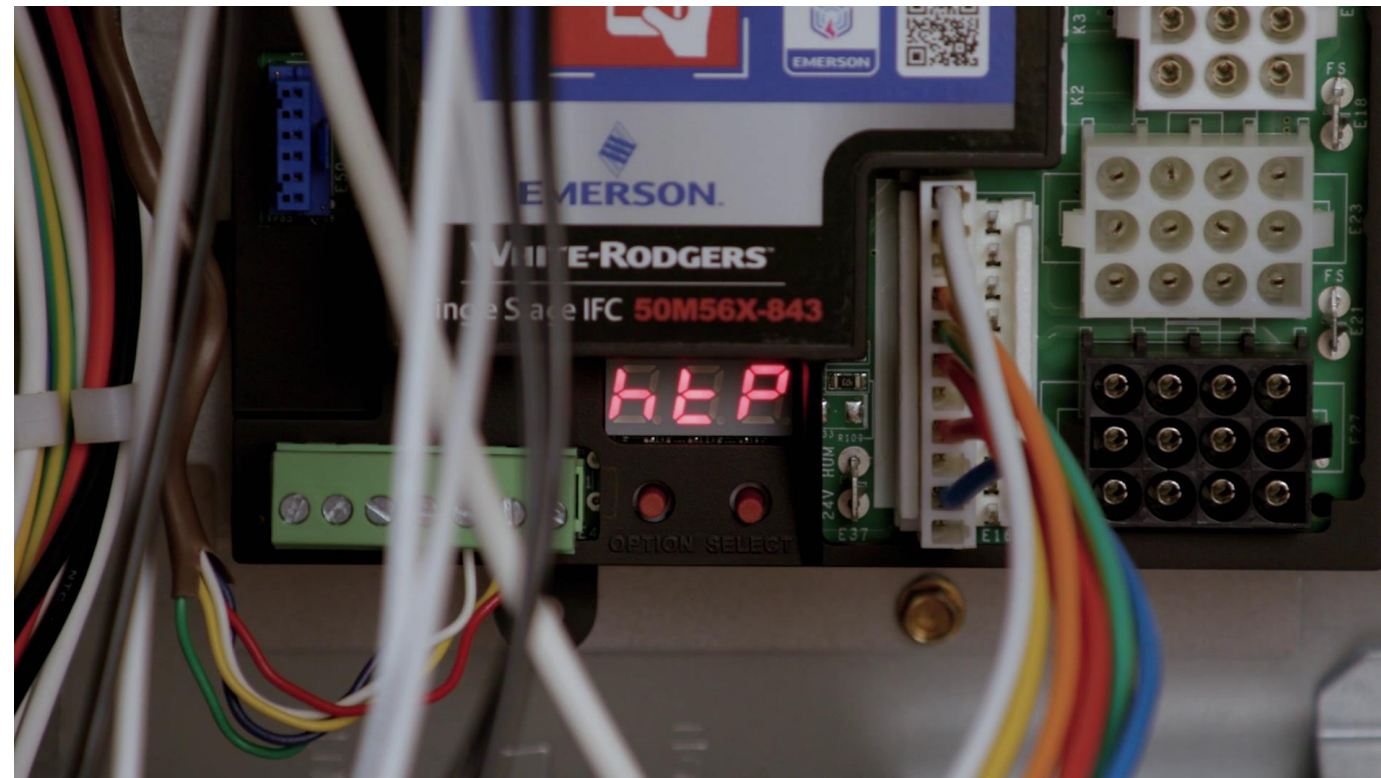


Self-Testing

23

The system first tests the inducer, then tests the igniter to make sure that it is wired and connected correctly.

During an active call for heat, cool or constant fan, the LED display will alternate between up to three status indicators.



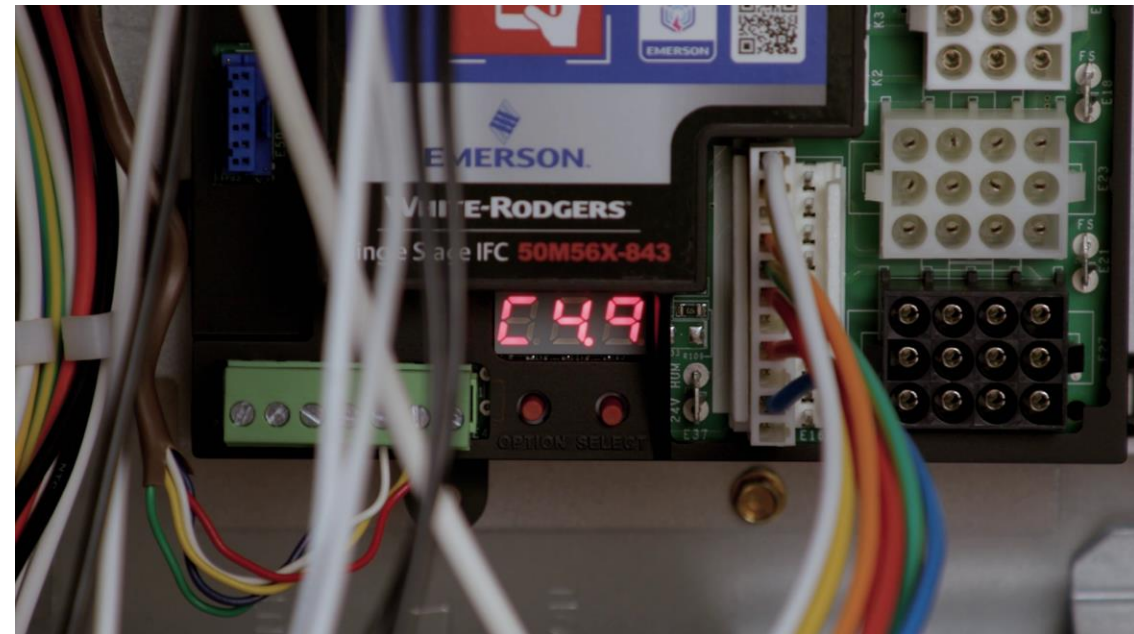
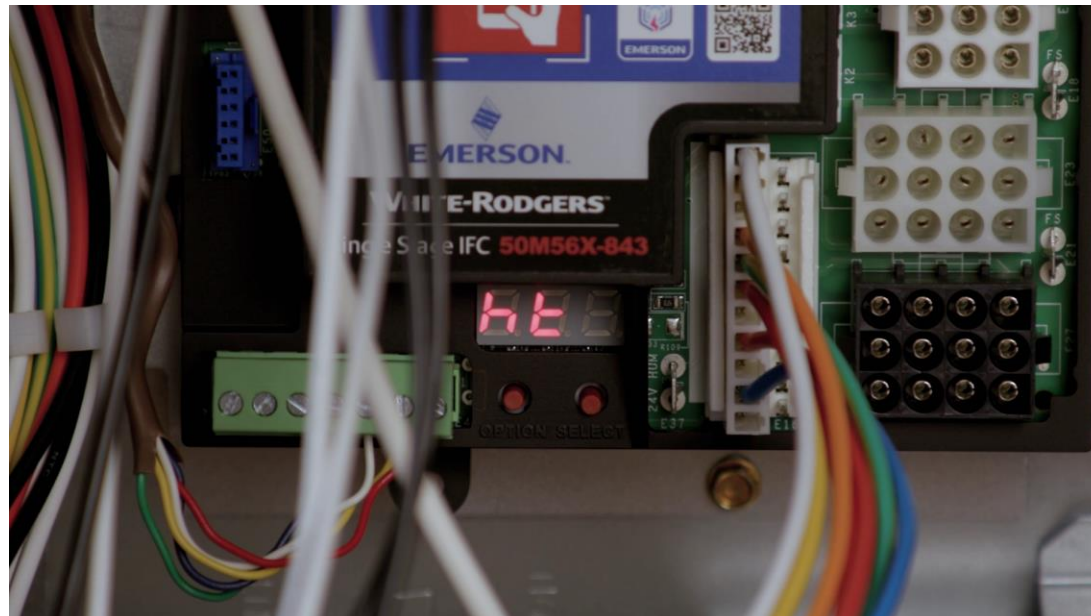
Make a Call for Heat

24

When you make a call for heat the control will show "Heat" mode.

The inducer will start and the control will show that is in the heat mode and is doing a pre-purge with the inducer.

The furnace will go through a 30-second pre-purge first. Then after that we will start our trial for ignition.

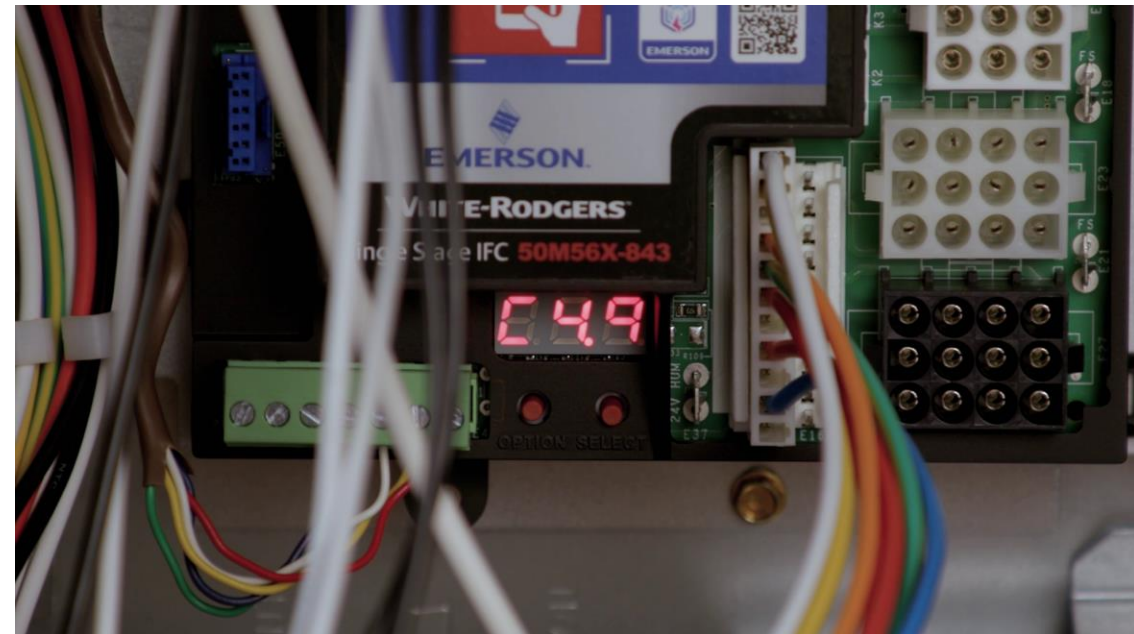
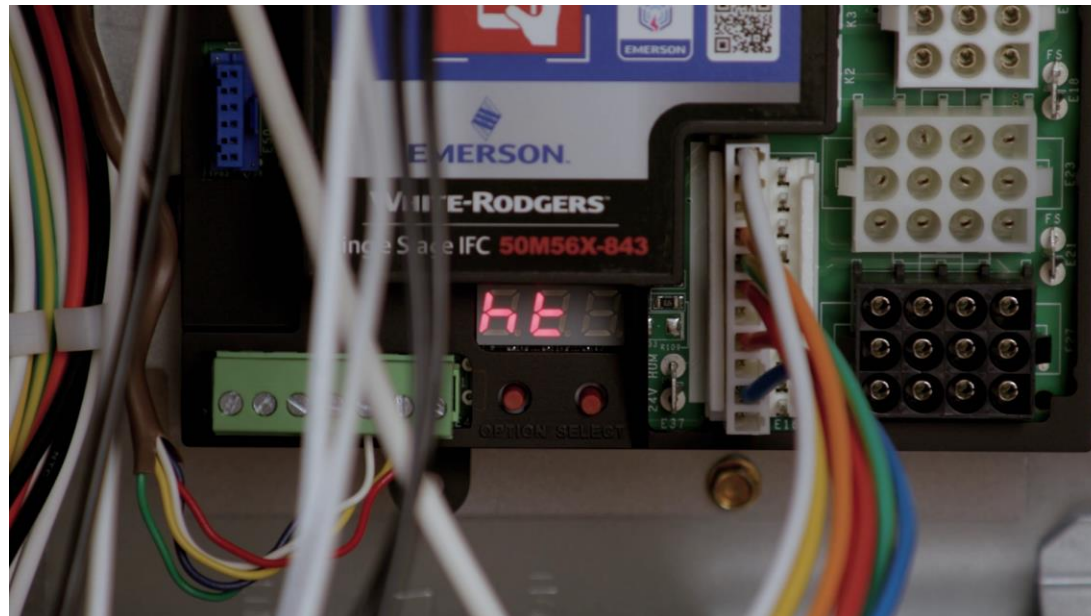


Verify Proper Ignition

25

The trial for ignition will show ignition on the LED. When lit, a signal is sent through the flame sense probe to indicate that ignition has occurred.

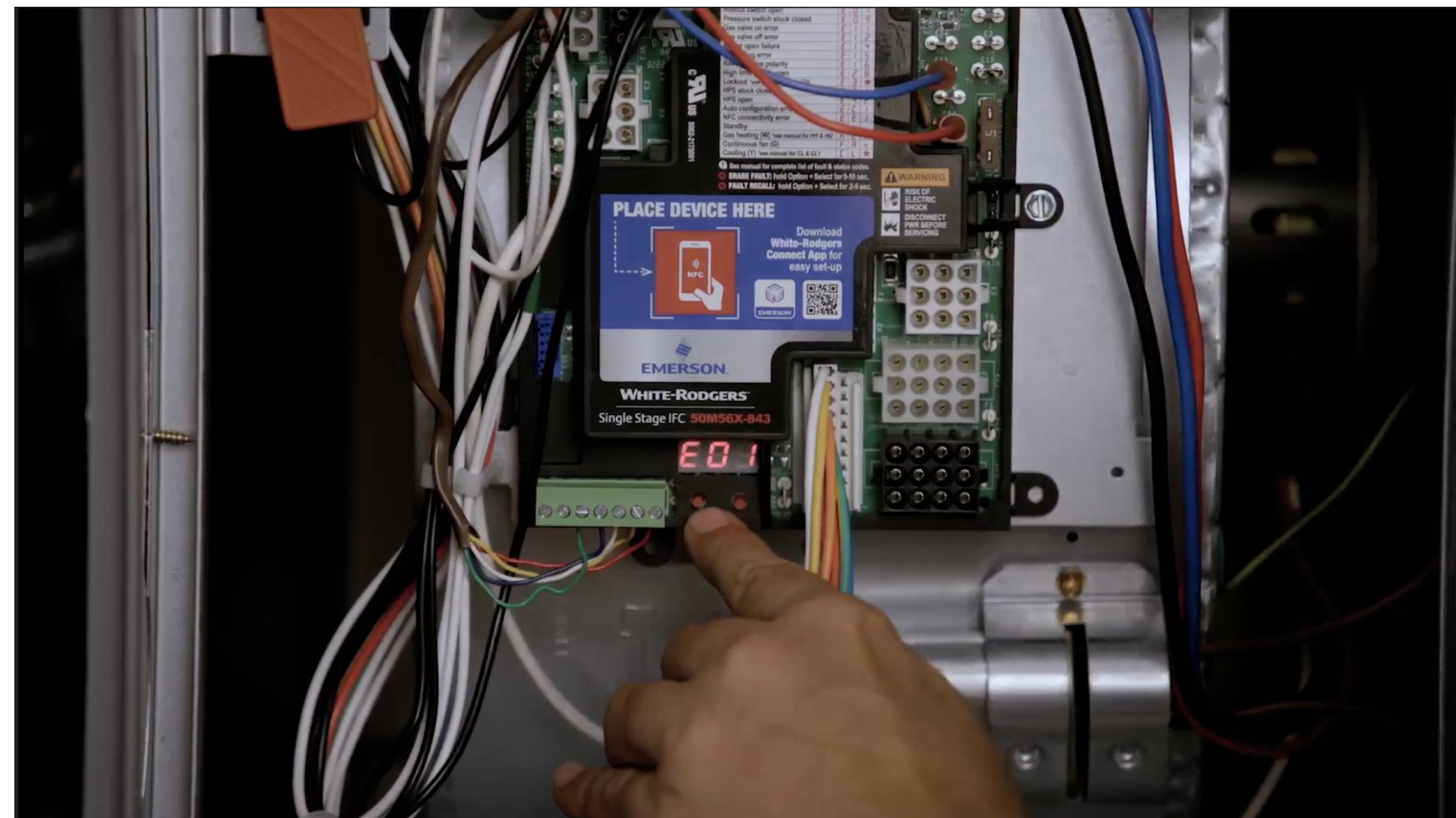
In heat mode, the display will rotate through several different display readings, including heat and then C and a number, indicating that the flame probe is sensing those Microamps in the circuit.



Active Error

26

If incurred, the active error will show on the display. The error can be referenced on the label so you know exactly what to look for when an error occurs from the control display.

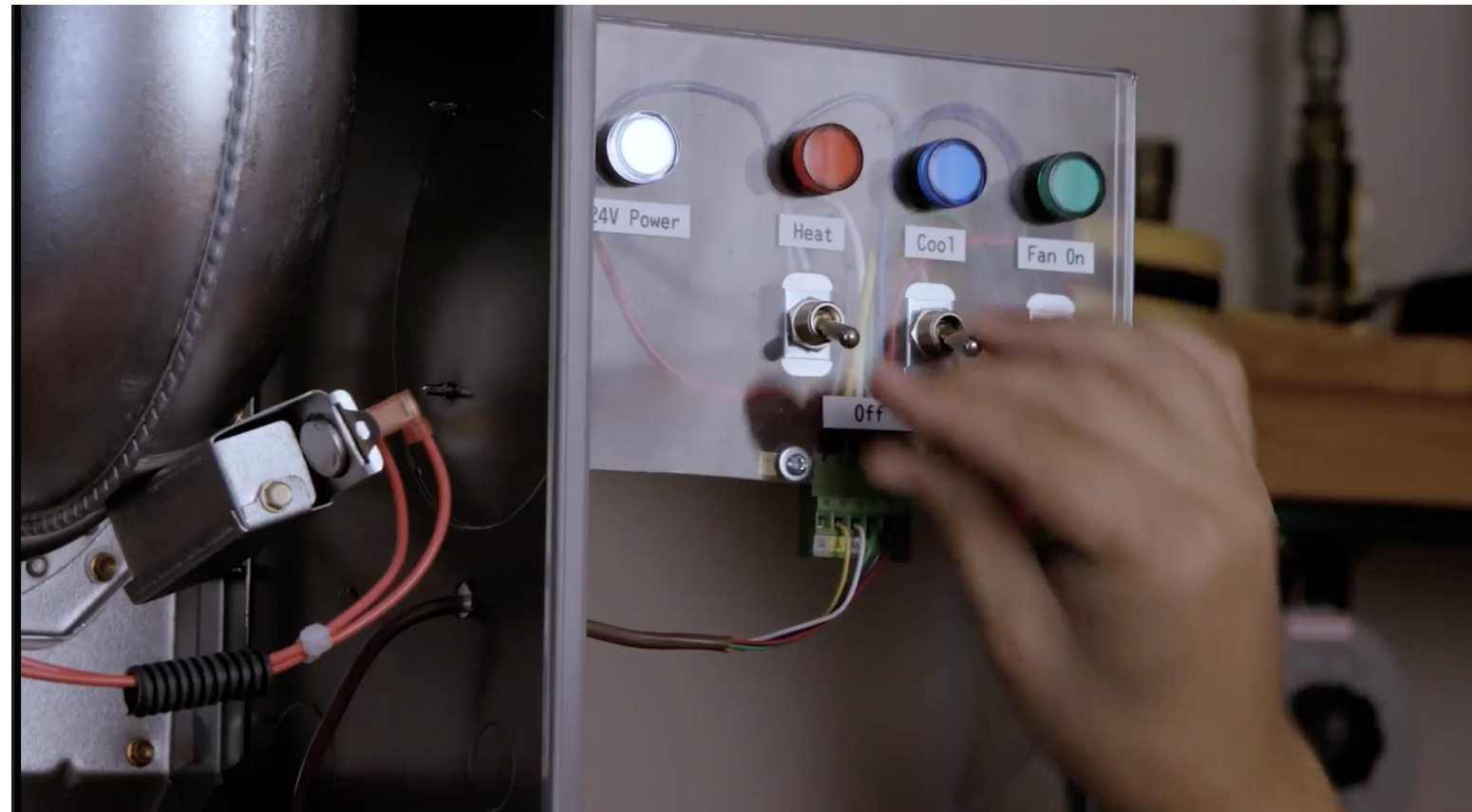


Finalize Tests

27

Finalize any tests you would like to complete.

Terminate the call for heat.



Fault Code Errors: On Furnace Control

28

Fault code errors can be recalled through the White-Rodgers Connect mobile app or onboard the equipment.

Press "Option" and "Select" buttons for two to five seconds to find a fault that has been stored. The unit will show any errors that have occurred.

To clear any fault codes, press and hold the, "Option" and "Select" button together for five to ten seconds until the display will read, "clear faults."

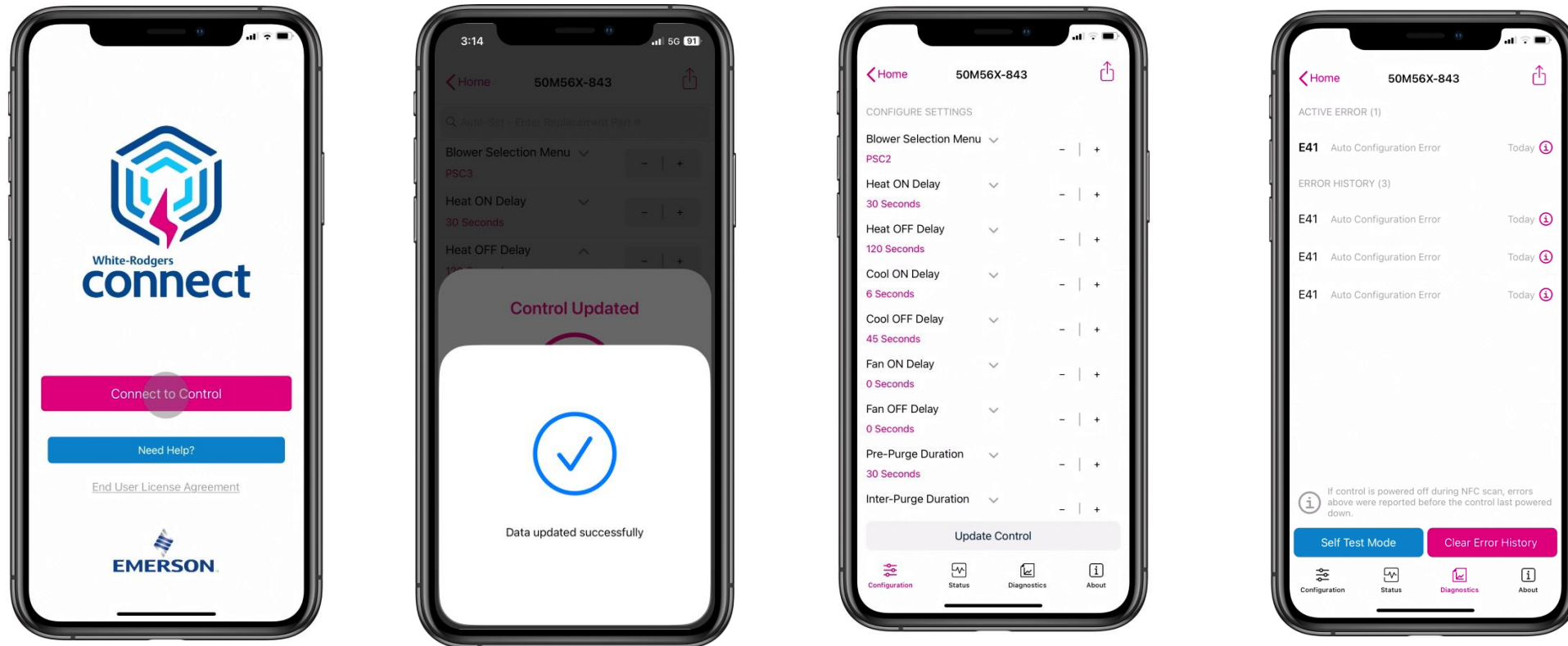
The history will be cleared out of the control. If a fault occurs, it naturally clears after 14 days.

Fault Code Errors: WR Connect

29

Open the app and select the “Connect to Control” button. Place the mobile device near the NFC logo on the module and wait until a check mark appears showing the connection was successful.

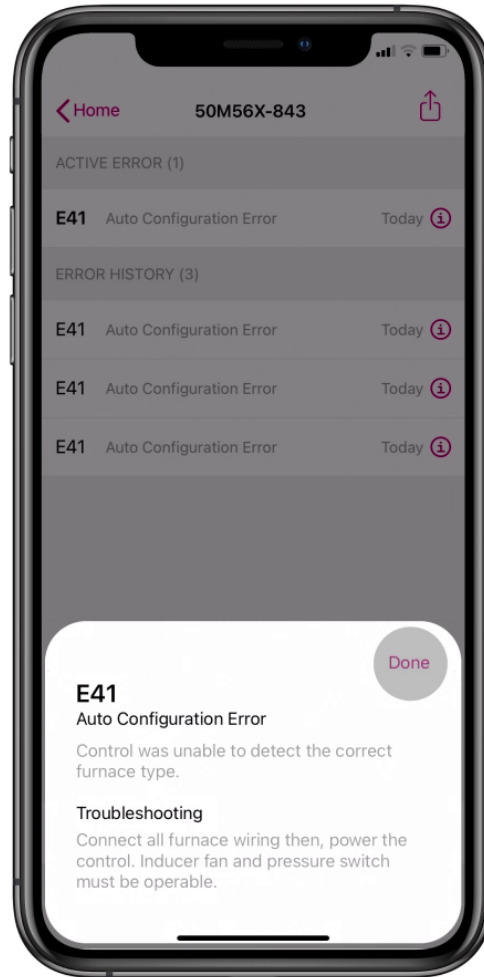
The app will then display the module’s settings configuration page. To see any errors, select the Diagnostics tab. Errors will be listed with the most current at the top.



Fault Code Errors

30

For detailed information and troubleshooting tips, select the arrow by the fault.



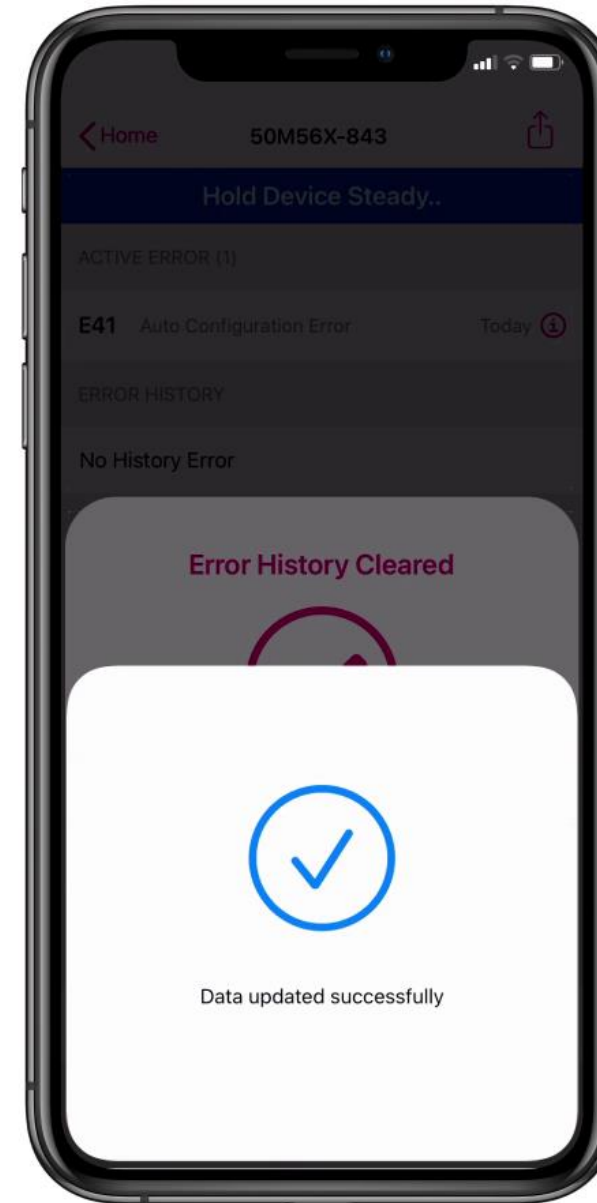
Fault Code Errors

31

To clear errors in the app, tap the "Clear Error History" button.

Place the device in contact with the NFC logo on the module and wait for the check mark to appear.

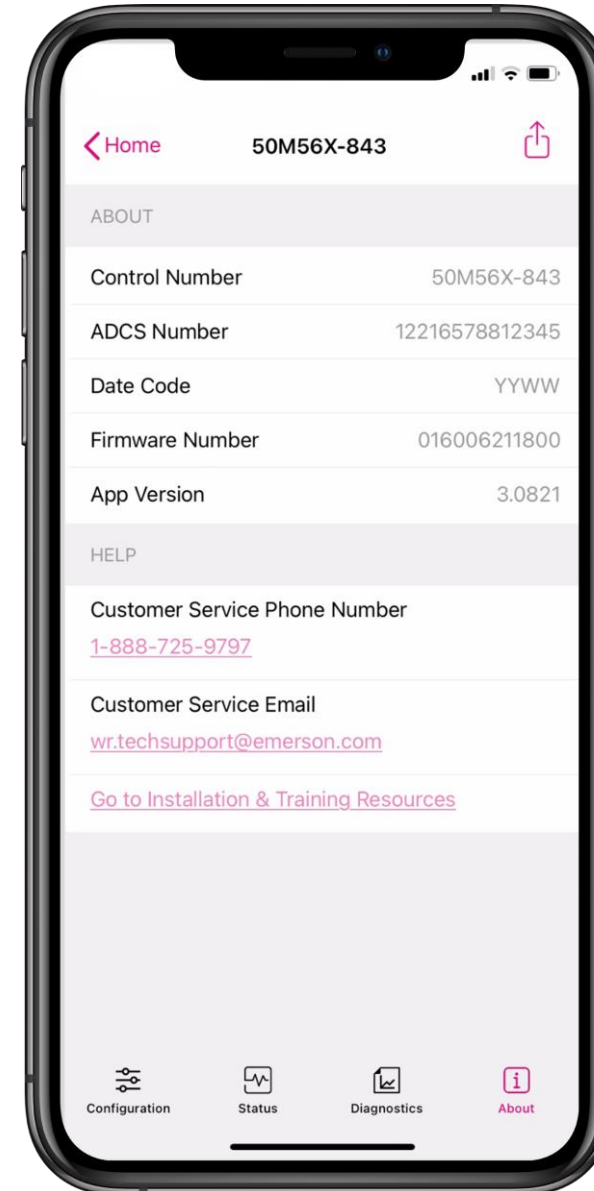
This action can be performed whether the module is powered on or powered off.



Details of This Control

32

Click the About tab to get details about the control and customer service information.



Thank you

