SPARK SUCCESS.

All-Spark

Spark Ignition Control Platform
for Original Equipment Manufacturers

50D50U-843

WHITE·RODGERS
by **COPELAND**

ALL YOU NEED TO
SPARK SUCCESS.

All-Spark is a spark ignition control platform designed for both intermittent pilot and direct spark ignition systems that utilizes a mobile app for simple configuration and diagnostics.

All Spark features:

- Intermittent pilot or direct spark safety control
- 7-segment interface with robust diagnostics & system status displays
- Fully customizable features, hardware & firmware
- Flexible mounting options
- Integrated thermostat functionality (patent pending)
- Turnkey connectivity capabilities with White-Rodgers Connect app

Target Applications

The All-Spark platform covers a wide variety of applications. Customize your control with features that fit your specific price point and application.

Gas Furnaces	Water Heaters	Boilers	Infrared Heaters	Gas-Fired Appliances

REPLACE STANDARD SPARK PLATFORMS

The 50D50U-843 universal 24V non-integrated intermittent pilot and direct spark ignition module is the first SKU to be launched on the All-Spark platform.

Both the firmware and hardware can be customized from this base model to meet your design requirements.

Future plans for the platform include a blower functionality feature as well as models for hot surface ignition and pool heaters.

✓ **Customizable Firmware**

✓ **Customizable Hardware**

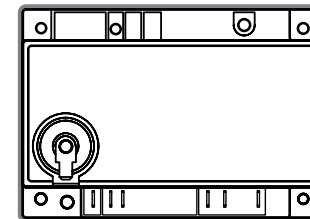| Specifications	
Input Voltage	**18-30 VAC**
Input Current Max	**800 mA**
Line Frequency	**50/60 Hz**
Inducer Relay at 120V	**3.0/6.0 FLA/LRA**
Inducer Relay at 240V	**1.5/3.0 FLA/LRA**
Main Gas Valve Relay Max Rating *(Direct Spark System Only)*	**4.0 Amp**
Main Gas Valve Relay Max Rating *(Intermittent Pitlo System)*	**2.0 Amp**
Pilot Gas Valve Relay Max Rating	**2.0 Amp**
Alarm Relay	**1.0 Amp**
Flame Current to Indicate Flame Loss	**< 0.50 µA DC**
Spark Rate	**20 Hz**
Spark Gap	**0.1-0.2 inches**

Intermittent pilot
(IP — Proven Pilot)

Resideo/Honeywell S8610U
Robertshaw 780
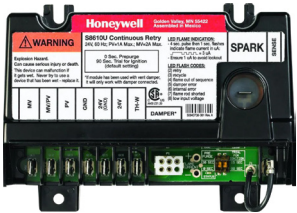UTEC 1003
Fenwal 35-63
ICM 290A
Johnson G60/65/67/77
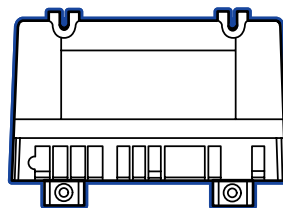
Direct spark
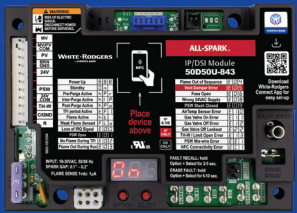(DSI)

Resideo/Honeywell S87
BASO C107U
UTEC 1016
Fenwal 35-60/61

COMPETITIVE COMPARISON

	Honeywell	All-Spark	Fenwal
Status Codes	3	9	0
Fault Recall/Clearing	No	Yes	No
Fault Codes	7	16	4
LED Display	Single Bulb	7-Segment LED Display	Single Bulb
Dipswitches	Yes	Not needed	Non-configurable

All-Spark

✔ Multiple codes and fault recalls
✔ Codes can be cleared
✔ 7-segment LED display & push-button setup
✔ Eliminates need for dipswitches

Competition

✘ Few codes and no fault recall
✘ No fault-clearing functionality
✘ Single LED bulb with dipswitches
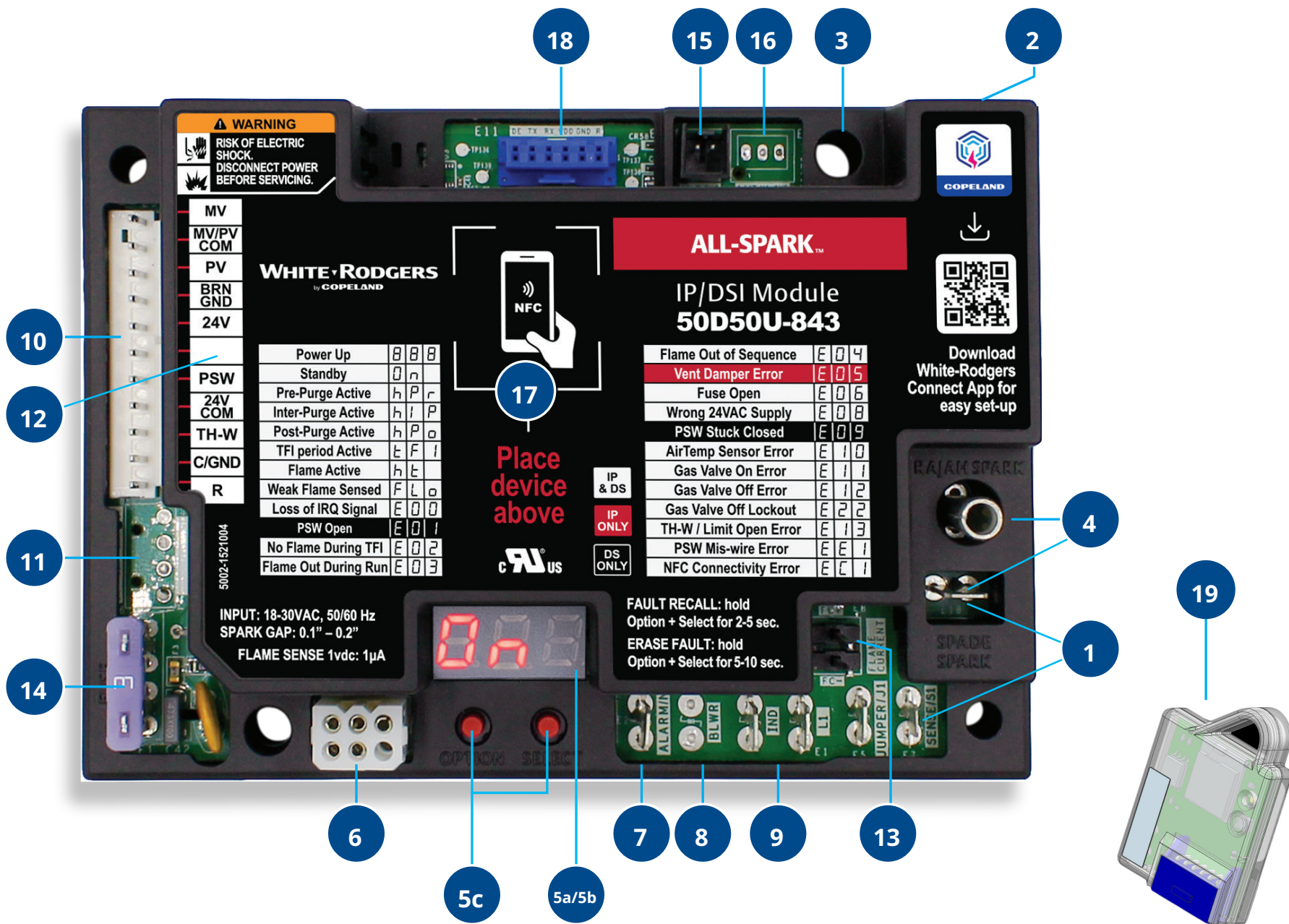✘ Limited setup and difficult to read

CUSTOMIZABLE FIRMWARE

Exclusive All-Spark features:

- Fixed or field-selectable settings & timings
- Configure via either 7-segment display or the White-Rodgers Connect app
- More options than competitors

Intermittent Pilot (IP)

Parameters	Options	# of Options
Tries for Ignition	C* (continuous), 1, 2, 3	4
Trial for Ignition (TFI) Timing - (sec.)	90*, 4, 15, 30, 60	5
Pre-purge (sec.)	0*, 15, 30, 45	4
Inter-purge (sec.)	0*, 15, 30, 45	4
Flame Sense Type	LL*, rE	2
Auto Restart Time (min.)	5*, 60	2
Reset to Default	No*, Ys	2

Direct Spark (DSI)

Parameters	Options	# of Options
Tries for Ignition	1*, 2, 3	3
Trial for Ignition Timing - (sec.)	4*, 7, 10, 11, 15, 21	6
Pre-purge - (sec.)	30*, 45, 0, 15	4
Inter-purge - (sec.)	30*, 45, 90, 0, 15	5
Post-purge - (sec.)	0*, 5, 15, 30	4
Flame Sense Type	LL*, rE	2
Auto Restart Time (min.)	5*, 60	2
Inducer/Pressure Switch Option tEnable	OF*, On	2
Reset to Default	No*, Ys	2

WARNING
RISK OF ELECTRIC SHOCK. DISCONNECT POWER BEFORE SERVICING.

MV
MV/PV COM
PV
BRN GND
24V
PSW
24V COM
TH-W
C/GND
R

WHITE·RODGERS by **COPELAND**

ALL-SPARK™

IP/DSI Module
50D50U-843

Download White-Rodgers Connect App for easy set-up

NFC

Place device above

IP & DS
IP ONLY
DS ONLY

c(UL)us

Power Up	8 8 8
Standby	O n
Pre-Purge Active	h P r
Inter-Purge Active	h I P
Post-Purge Active	h P o
TFI period Active	t F I
Flame Active	h t
Weak Flame Sensed	F L o
Loss of IRQ Signal	E 0 0
PSW Open	E 0 1
No Flame During TFI	E 0 2
Flame Out During Run	E 0 3

Flame Out of Sequence	E 0 4
Vent Damper Error	E 0 5
Fuse Open	E 0 6
Wrong 24VAC Supply	E 0 8
PSW Stuck Closed	E 0 9
AirTemp Sensor Error	E 1 0
Gas Valve On Error	E 1 1
Gas Valve Off Error	E 1 2
Gas Valve Off Lockout	E 2 2
TH-W / Limit Open Error	E 1 3
PSW Mis-wire Error	E E 1
NFC Connectivity Error	E C 1

5002-1521004

INPUT: 18-30VAC, 50/60 Hz
SPARK GAP: 0.1" – 0.2"
FLAME SENSE 1vdc: 1µA

FAULT RECALL: hold Option + Select for 2-5 sec.
ERASE FAULT: hold Option + Select for 5-10 sec.

OPTION   SELECT

ALARM   BLWR   IND   L1   JUMPER/J1   SENSE/S1

RAJAH SPARK

SPADE SPARK

COPELAND

FUTURE CONCEPT

CUSTOMIZABLE HARDWARE

	Feature	Base Model	Options
1	Flame sense type	Local	Remote
2	Mounting style	Metal standoff	Plastic tray with or without cover and label
3	Mounting holes match competition	Included	–
4	Spark output	1/4" Spade	Rajah (spark plug)
5a	Display	2-digit 7-segmen	3-digit 7-segment
5b	Display location	Top side	Back side
5c	Display buttons	1 Push button	2 Push buttons
6	Vent damper (6-POS plug)	–	Optional feature
7	24V alarm output pilot relay	–	Optional feature
8	24V blower output pilot relay	–	Optional feature
9	24V blower output pilot relay	–	Optional feature
10	Pressure/Rollout switch	–	Optional feature
11	Limit & pressure switch I/O	–	4-position connector
12	Spare 24V input (TBD use)	–	Optional feature, user defines
13	Flame current test pins	Included	–
14	Fuse (automotive)	3.0 Amp	5.0 Amp
15	Temp. sensor input #1 (air)	–	Optional feature for integrated thermostat
16	Temp. sensor input #2	–	Optional feature
17	NFC	–	Connector on PCB, remote and antenna on PCB
18	Expansion port (BLE, Wi-Fi)	–	Optional feature (card not included)
19	Bluetooth card (future concept)	–	Optional feature
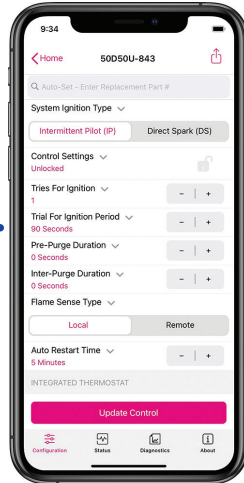
THE WHITE-RODGERS CONNECT APP

Configuration
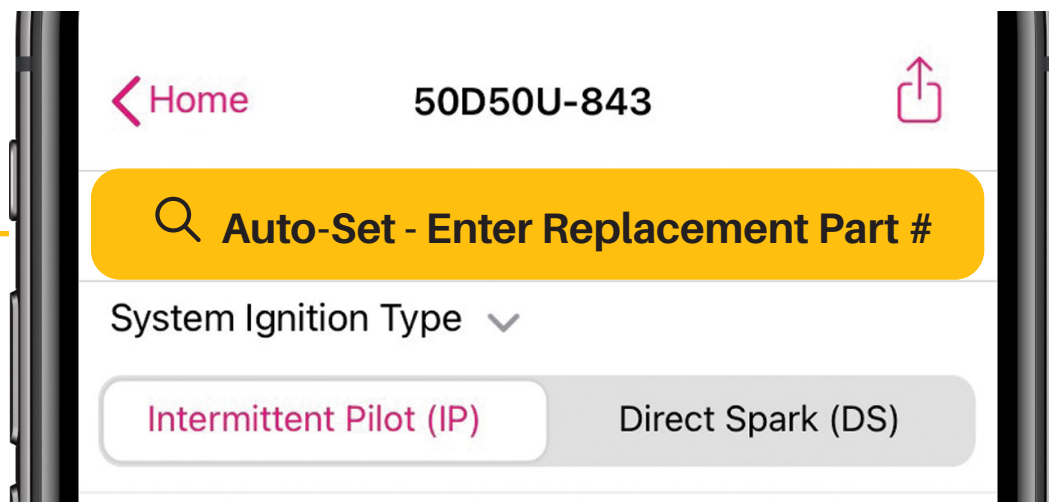

Diagnostics

Status

About

- **Configuration:** Quick and simple configuration from anywhere, even prior to install, with no Wi-Fi needed
- **Diagnostics:** Diagnose fault codes and troubleshoot confidently
- **Status:** View system status with the tap of a finger
- **About:** Access installation resources and product literature via quick links

App demo video
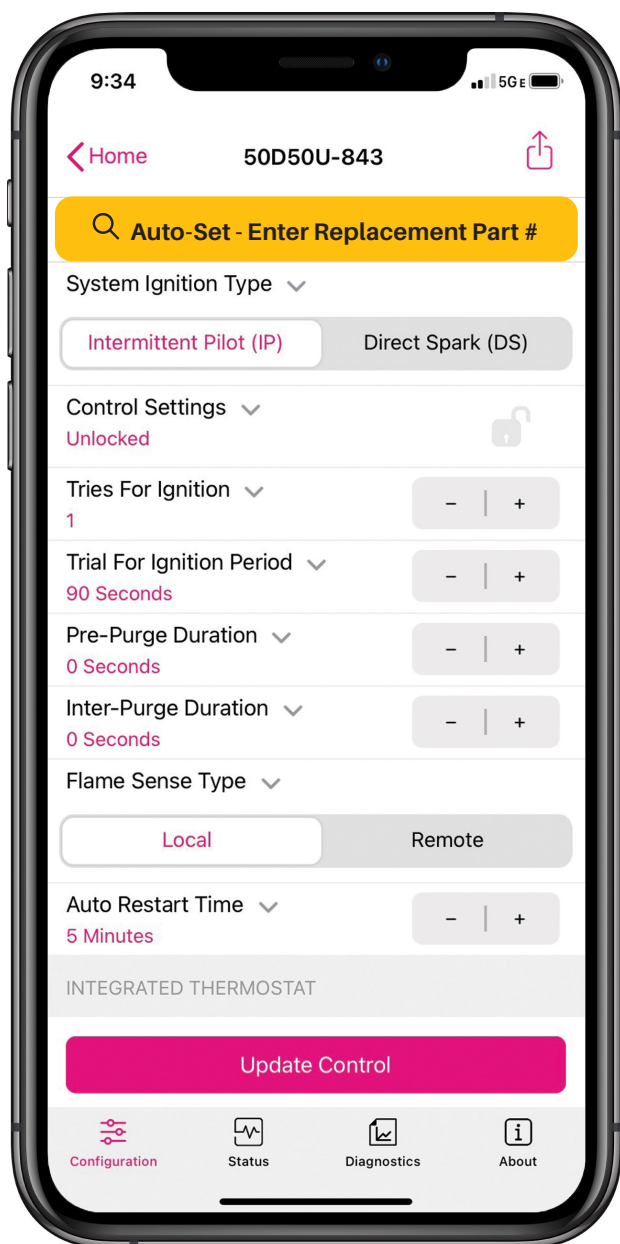
NOTE: AUTO-SET FIELD IS NOT YELLOW IN THE APP.

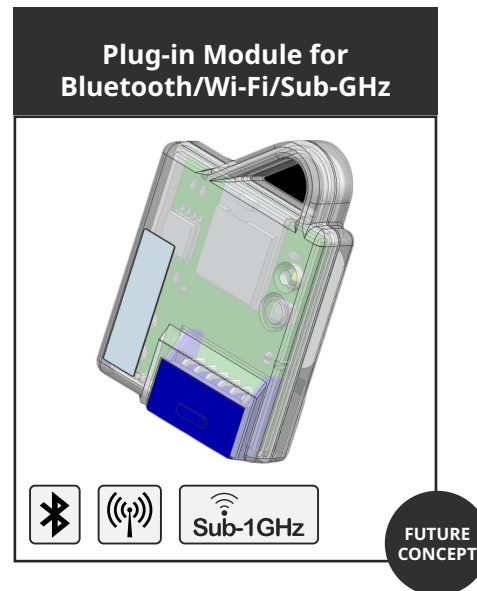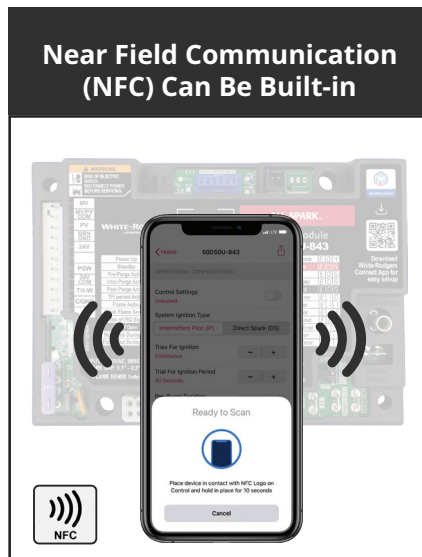# White-Rodgers Connect Auto-Set Feature

Introducing the White-Rodgers Connect auto-set feature.

The White-Rodgers Connect app simplifies configuration and diagnostics for the All-Spark ignition module. The auto-set feature in the White-Rodgers Connect app takes all the guesswork out of configuration. Simply type the replacement part number into the configuration tab of the White-Rodgers Connect app to automatically configure the All-Spark ignition module to the original default settings for the replacement part number. This can be completed without power to the control and before installation.

For more information, visit Copeland.com/WRconnect

THE WHITE-RODGERS CONNECT APP

We have leveraged our experience with Sensi Smart Thermostats to create a revolutionary app, White-Rodgers Connect, that simplifies configuration and diagnostics. Let us free up your resources by using one of our turnkey connectivity options.

Near Field Communication (NFC) Can Be Built-in

Plug-in Module for Bluetooth/Wi-Fi/Sub-GHz

FUTURE CONCEPT

✔ Easy, accurate configuration
✔ Error codes & troubleshooting tips
✔ Product information
✔ Works without Wi-Fi
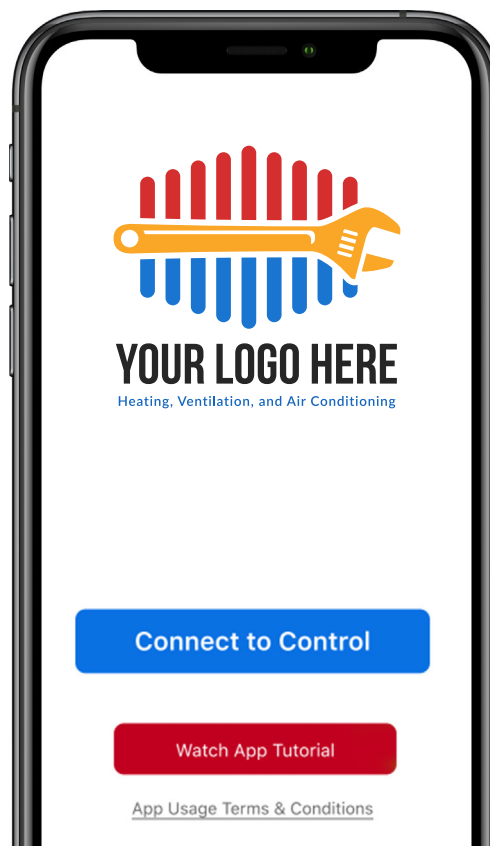✔ Share data for remote analysis

COMPLETE APP
CUSTOMIZATION

Use default app

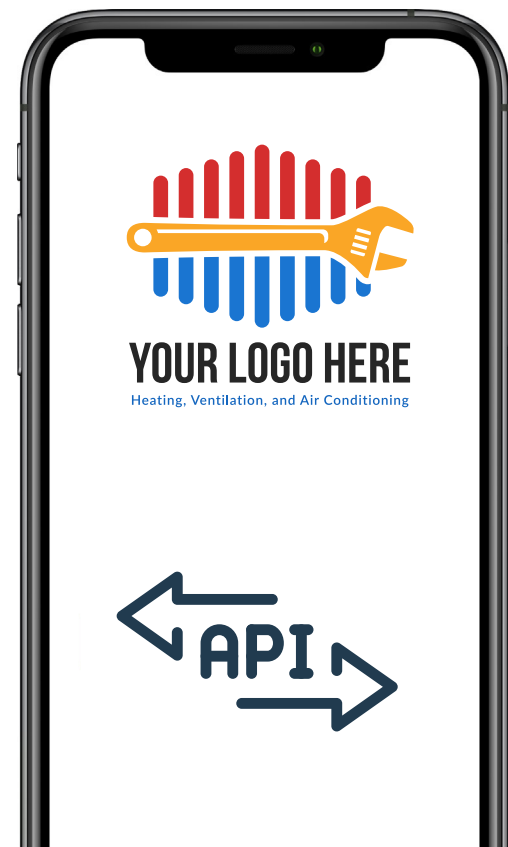WR Connect is free to download with no additional charges.

Apply your brand

Use your own company logo, color scheme, buttons and fonts.

Create your own

White-Rodgers can provide local support for third-party app.

White-Rodgers connect

Connect to Control

Need Help?

End User License Agreement

YOUR LOGO HERE
Heating, Ventilation, and Air Conditioning

Connect to Control

Watch App Tutorial

App Usage Terms & Conditions

YOUR LOGO HERE
Heating, Ventilation, and Air Conditioning

API

13

LED DISPLAY AND ROBUST DIAGNOSTICS

7-Segment display

The 7-segment display provides an alternative option to the mobile app for advanced on-board configuration and diagnostics.

- ✔ Customizable diagnostic & status codes
- ✔ Fault recall and clearing
- ✔ LED display and push-button setup
- ✔ Eliminates need for dipswitches
- ✔ No more blinking LED lights

EXTENSIVE
MOUNTING OPTIONS
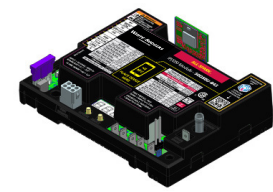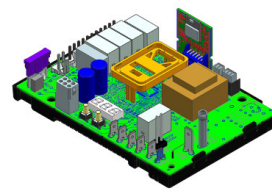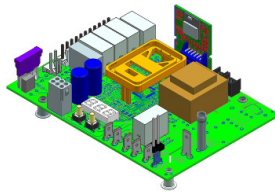
Feature	PCB with eyelets	Mounted in tray	Tray, cover, label
Fastener	4 x 1" #8 screws	4 x 1" #8 screws	4 x 1" #8 screws
Custom Label	—	—	—
PCB Insulation/Protection	Minimal	Minimal	Minimal
Meets Competitor Footprint	Yes	Yes	Yes
Cost	$	$ $	$ $ $

Easily accessible user interface

The 7-segment LED display and NFC antenna can be placed on the back side of the board to create a user interface that is accessible from outside of any heating unit.

Diagrams for example only. Not to scale.

ALL-SPARK
PCB

NFC

NFC

UNIT
HEATER
EXAMPLE
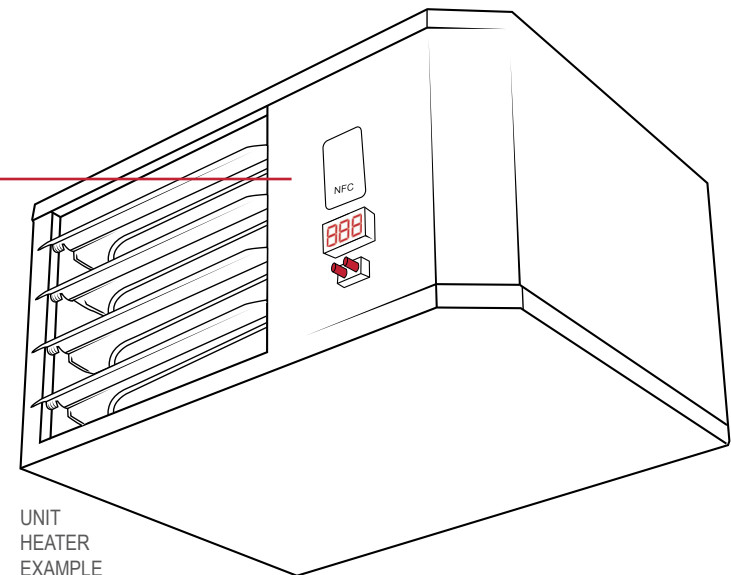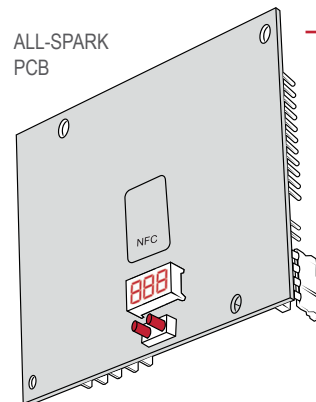
INTEGRATED THERMOSTAT FUNCTIONALITY

Utilize a temperature sensor with the All-Spark ignition module to create and manage a call for heat (patent pending).

• Control temperature from a mobile device with NFC

• Select display in Fahrenheit or Celsius

• 40–80° F set-point temperature range

• Allows "offset" to compensate for location: -9° to +9° F — Example: heater located near ceiling with elevated temperature

• Select heating cycle rate for best operation: slow, medium, or fast

• All functionality can also be controlled through 7-segment + buttons

• **FUTURE CONCEPT:** Add BLE card option for added range

Reduces applied costs, speeds installation time and enables new capabilities.
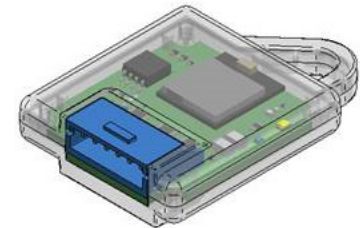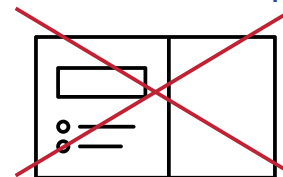

Future/Expansion Port Enabled:

• Room temperature sensor(s)
• Occupancy sensor(s) for energy savings
• Mesh networking – control multiple units with one interface
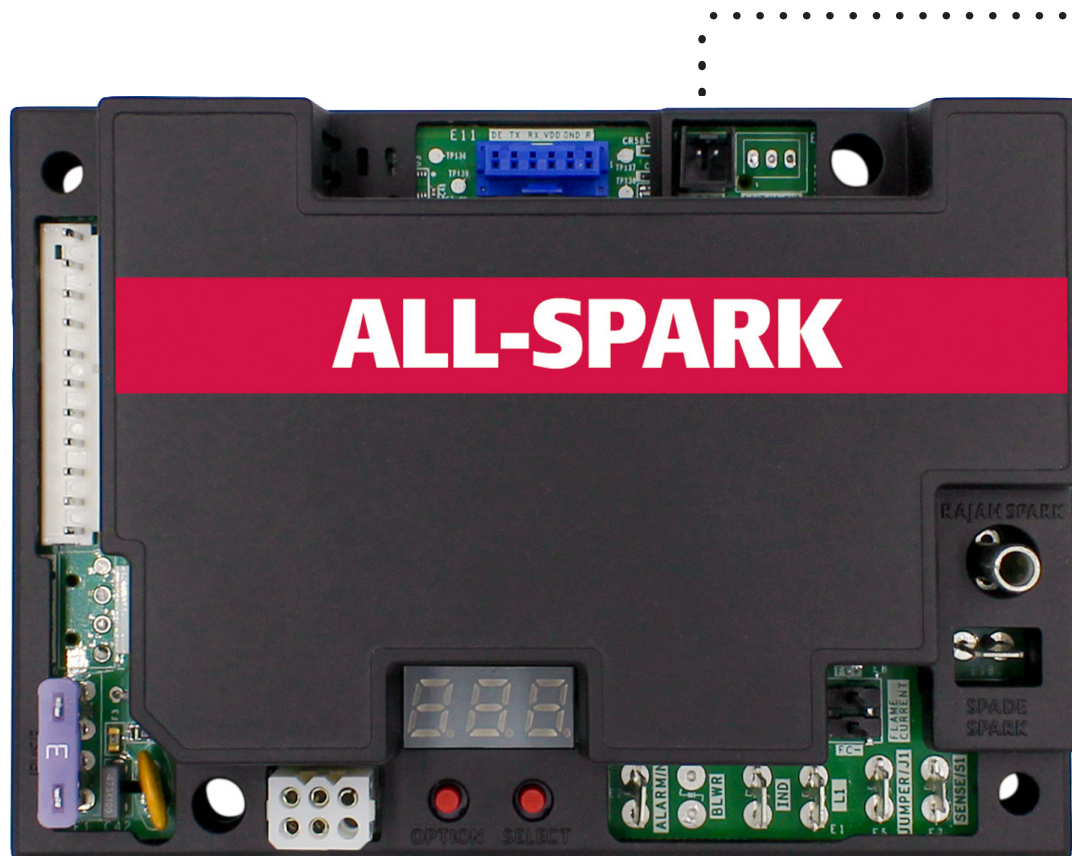
Use
Temperature Sensor F67-8535

Thermostat not required

THE MODERN SPARK IGNITION PLATFORM

Features:

✔ Intermittent pilot or direct spark safety control
✔ Seven–segment interface with robust diagnostics & system status displays
✔ Fully customizable features, hardware & firmware
✔ Flexible mounting options
✔ Turnkey connectivity capabilities with the **White-Rodgers Connect App**
  - Near Field Communication can be built-in
  - Bluetooth/Wi-Fi/Sub-GHz plug-in expansion

Target applications

• Gas Furnaces

• Water Heaters

• Boilers

• Infrared Heaters

• Other Gas-Fired Appliances

Contact your local sales representative for more information.

READY TO SPARK YOUR SUCCESS?

Simplify everything from routine service to complete replacements with the White-Rodgers All-Spark ignition module from Copeland—configurable for both 24V intermittent pilot and direct spark ignition systems.

Improve performance, productivity and customer satisfaction.

Stock All-Spark and **spark your success** today.

LEARN

Visit Copeland.com/AllSparkpro

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