

# Universal Two-Stage HSI Integrated 3-Speed (PSC) Circulator Furnace Control Kit

## 21M51U-843

### Replaces:

White-Rodgers 50M51-242  
and All 50M61-XXX's  
Two-Stage HSI Systems  
with 80V or 120V Ignitor

### INCLUDED

HotRod™ Universal  
Ignitor Kit – 21D64-2

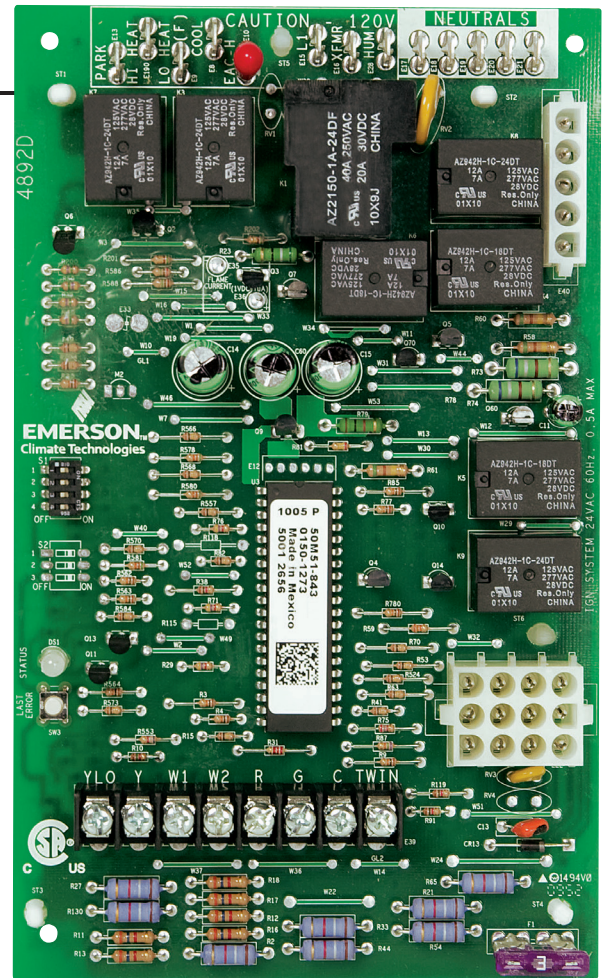


## Replace the Original with the Original.

21M51U-843 simplifies stocking,  
installation and ensures peak  
system performance.

Easy-Install Kit includes everything you need  
for quick and accurate replacement:

- Ignition Control Module – 50M51-843
- HotRod™ Universal Ignitor Kit – 21D64-2
- Installation Instructions and OEM Cross-Reference



Universal Integrated Furnace Module 50M51-843



White-Rodgers™

**EMERSON**  
Climate Technologies

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## Replaces:

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Two-Stage HSI Systems with 80V or 120V Ignitor

# 21M51U-843

## Features

- 120 VAC Ignitor Output
- 120 VAC Two-Speed Inducer Output
- 120 VAC Humidifier Output
- 120 VAC Electronic Air Cleaner Output
- 120 VAC 3-Speed PSC Circulator Output
- 2-Stage Gas Valve Output
- Fuse Protection – 3 Amp
- Furnace Status LED – Tri-Color (Green, Red and Amber)
- Heat Fan OFF Delay (Dipswitch Selectable)
- Fan ON Delay for Cooling
- Auto Second Stage Delay (Dipswitch Selectable Mode)
- Historical Fault Retrieval by Pushbutton
- YLO, Y, W1, W2, R, G, C, TWIN Terminals
- Pressure Switch Inputs and Monitoring
- Flash Microprocessor with Non-Volatile Memory
- Flame Current Measurement Points

## Specifications

### Electrical Ratings [ @ 77°F (25°C) ]

Input Voltage: 24 VAC, 60 Hz (Class II transformer required)  
Nom. Input Current @ 24 VAC: 530 mA + MV

### Relay Load Ratings

Gas Valve Relays: 1.5 amps @ 24 VAC, 60 Hz  
Inducer Relays: 2.2 FLA – 3.5 LRA @ 120 VAC  
Circulator Relays: 14.5 FLA – 25.0 LRA @ 120 VAC  
Humidifier Load: 1.0 amp max. @ 120 VAC  
Electronic Air Cleaner Load: 1.0 amp max. @ 120 VAC  
Ignitor Relay: 4.0 amps max. @ 132 VAC, 60 Hz

### Flame Current Requirements

Minimum current to insure flame detection: 0.3 µA DC\*  
Maximum current for non-detection: 0.1 µA DC\*  
Maximum allowable leakage resistance: 100 M ohms  
\*Measured with a DC microammeter in the flame probe lead

### Operating Temperature Range

-40° to 175°F (-40° to 80°C)

### Humidity Range

5% to 93% relative humidity (non-condensing)

### Timing Specifications (@ 60 Hz)

Flame Failure Response Time: 2.0 sec. max.

Gases Approved: Natural, Manufactured, Mixed, Liquefied  
Petroleum and LP Gas/Air Mixtures are all approved for use.

## Dimensions

5.25" W x 8" H x 1.25" D

## For Additional Information

Visit [www.white-roddgers.com](http://www.white-roddgers.com)

## Timing Specifications

(All times are in seconds unless noted otherwise)

21M51U-843	
Pre-purge	15
Ignitor warm-up	17
Trial for ignition period	4
Ignition activation period	3
Retries	2 times
Valve sequence period	12
Interpurge	60
Post-purge	15
Lockout time	300
Heat delay to fan ON	45
Heat delay to fan OFF*	90/120/150/180
Cool delay to fan ON	5
Cool delay to fan OFF	60
Auto reset	60 minutes
Electronic air cleaner	Yes
Humidifier	Yes
Twin	Yes

\* These times will vary depending on option switch position. See OPERATION section for further information.

## 21M51U-843 Cross Reference Application Data:

Module Model #	Furnace Model	Ignitor	Furnace OEM
18M3401	G60DF(X) or G60UH(X)	21D64-2*	Lennox
20300001	N/A		Goodman
20300003	N/A		
46M9901	G61MP		Lennox
50M51-242	FC9T	Use existing or 21D64-2	Coleman
50M51-242	FL9T		Evcon
50M51-242	PT9A		Luxaire
50M51-242	PT9B		York
50M51-242	PT9C		
50M51-242	PT9D		
50M51-242	GM9T		
50M51-242	FC8T		
50M51-242	FL8T		
50M51-242	LC8T		
50M51-242	LL8T		
50M51-242	PT8A		

Module Model #	Furnace Model	Ignitor	Furnace OEM
50M61-120	G60DF(X) G60UH(X) or G61MP	21D64-2*	Lennox
50M61-288	N/A		Amana
50M61-289	N/A		Goodman
50M61-495	XL80		American Standard
50M61-843	N/A		Trane
83L9301	N/A		White-Rodgers
CNT03077	XL80		Standard
X13650839010	XL80		Lennox
			Trane

Note: The installer may have to modify existing ignitor hole to accommodate the new 21D64-2, with ceramic diameter (0.394").

### \*21D64-2 Ignitor Note:

In these applications, the existing 80V ignitor must be replaced by the 120V 21D64-2 ignitor.