

## Ignition (DSI) control board

### Sensor-based

Inducer motors, air cleaner (if equipped), humidifier (if equipped), spark ignitor and the gas valve

Timing, trial for ignition, system switches, flame sensing

### Heat safety feature

Compatible with LP or Natural Gas

Diagnosis for status and fault codes to aid in troubleshooting

Part number: Rheem 62-24140-04

## SPECIFICATIONS

- **Control voltage:** 24 VAC (18-30 VAC), 60 Hz
- **Line voltage:** 115 VAC, 60 Hz
- **Power consumption:** 0.3A plus gas valve current at 24 VAC
- **Operating temperature:** -40°C (-40°F) to 75°C (176°F)

### Timing

- **Pre-purge:** 30 seconds
- **Trial for ignition:** 7 seconds
- **Retries:** Two groups of two, 30 seconds delay within the group and 3 minutes delay between groups
- **Lockout:** 1 hour
- **Post-purge:** 90, 120, 160 and 180 seconds

### Inputs

- **Power:** 24 VAC and COM
- **Thermostat interface:** R, W, Y and G
- **System switches:** Vent Pressure and Limit switches (Main and Over-temperature switches in series)
- **Flame Sensing**
- **Heat blower OFF delay:** SW1 toggle switch

### Outputs

- **Spark:** SE
- **Gas Valve:** GV
- **Inducer draft motor**
- **Blower motor:** F
- **Electric Air Cleaner**
- **Humidifier relay**
- **Heat/Cool relay:**

### LED indicators

- **Power, green LED**
- **Status, green LED**
- **Flame status, yellow LED**

## Safety Considerations

Personnel should install or service heating equipment. When working with heating equipment, read and understand all precautions in the documentation, on labels, and on tags for the equipment. Failure to follow all safety guidelines may result in damage to equipment, personal injury or death.

## Introduction

This ignition control replaces the following Rheem model: 62-24140-04. The **ICM292** provides D diagnostics to assist in troubleshooting. Fault code information can be found in the manual. Please keep this application guide with the furnace installation manual for future reference.

## Electrostatic Discharge (ESD) Precautions

### CAUTION!

When installing and servicing the furnace to avoid and control electrostatic discharge, take the following precautions: Do not touch electronic components. These precautions must be followed to prevent electrostatic discharge from hand tools and personnel. Following the precautions will protect the control from ESD by discharging static electricity buildup to ground.

Before working on the furnace, do not touch the control or the wiring prior to discharging your body to ground.

If you touch your hand and tools to a clean, metal (unpainted) furnace surface near the control, you will discharge your body to ground.

After touching the chassis, your body will recharge with static electricity as you move around, and you must re-ground yourself.

Do not touch ungrounded items.

When working on a new control, re-ground yourself; this will protect the control. Store used and new controls in anti-static containers before touching ungrounded objects.

ESD damage can also be prevented by using an ESD service kit.

## Remove Existing Control

### CAUTION!

Before disconnecting the control, label all wires. Failure to do so may result in wiring errors that can cause dangerous operation.

Turn the control to OFF position or set it to the lowest possible setting.

Disconnect the power supply to furnace.

Disconnect the gas supply to furnace.

Caution: Failure to turn off gas and electric supplies can result in explosion, fire, death, or personal injury.

Remove the inducer blower and control access doors.

Remove thermostat wires and humidifier wires (if equipped with a humidifier).

Remove the bludge, blower, electronic air cleaner wires (if equipped), and transformer wires.

Remove the screws and any other fasteners, and the old circuit board.

Remove the control box to check for water stains.

Check for any sources of water leakage are found. Be sure to check humidifiers, evaporator pan, and other systems in the area of the control.

## Install New Control

When handling circuit board, hold it by the edges.

Secure the board with retaining screws.

Connect the high voltage, low voltage, and accessory wires.

## Sequence of Operation

A W call from the thermostat will engage the Inducer Draft motor. The Vent Pressure switch will close. The Ignition sequence begins, gas valve and spark are engaged, providing that system pressure is sufficient. (Main and Over-temperature switches in series) are closed. The Blower motor will start at a speed 20 seconds after flame is established and sensed. On W call satisfaction, the gas valve turns off after 10 seconds and Blower motor turns off according to Heat Blower Off Delay.

A G call from the thermostat will engage Blower motor without delay at FAN speed. The gas valve will turn off without delay when G call is removed.

A Y call from the thermostat will engage Blower motor without delay at COOL speed. The gas valve will turn off 45 seconds after Y call is satisfied.

## Troubleshooting Tips

### Flame not established

1. If flame is not established during the 7 second initial sequence then the control will attempt a trial for ignition in 30 seconds.
2. There will be two more attempts to ignite after 3 minute delay, 30 seconds apart. If flame is not established, respective fault code is triggered and ignition trials are stopped.
3. The gas valve is energized only during the ignition sequence of 7 seconds.
4. Blower motor is off until 20 seconds after flame is established.

### Flame out

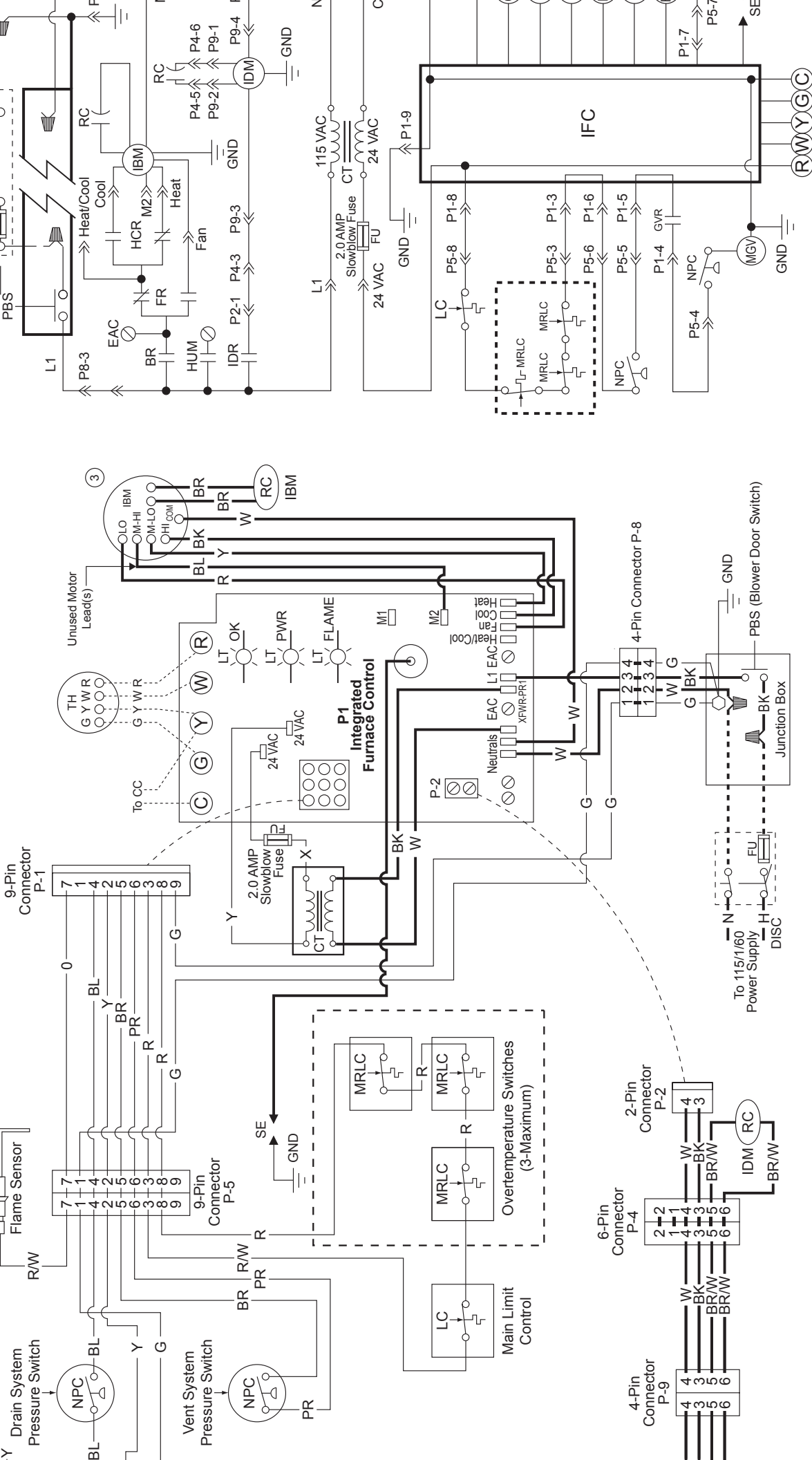
1. Flame out is considered when flame is lost during heating.
2. When W signal is present and flame is not sensed, then gas valve will disengage and spark will stop for ignition.
3. If flame is not established on the immediate sequence (2 above) then the control will attempt additional trials for ignition.
4. Inducer and Blower motors will continue running during flame out scenario.

### Flame out of sequence

1. Flame out of sequence represents a scenario when flame is sensed while W signal is present.
2. Inducer and Blower motors will be engaged (if not already running) and keep running until the fault condition is present.
3. There is 1 hour lockout before a W call can be executed or on power reset.

## LED Fault Codes

LEDS	Flashes	Fault condition
GREEN	ON	Normal operation
	1 Flash	Ignition failure (4 trials)
	2 Flashes	Pressure switch stuck open
	3 Flashes	Limit switches open
	4 Flashes	Pressure switch stuck closed
	5 Flashes	Twin fault
	6 Flashes	Brownout voltage
YELLOW	7 Flashes	Hot and neutral reversed or no ground
	Continuous	Gas valve relay short
	Rapid Blink	Flame out of sequence
	Slow Blink	Low flame or no flame
	ON	Flame present



**Wire Color Codes:**

BK	Black	O	Orange
BR	Brown	PR	Purple
BL	Blue	R	Red
G	Green	W	White
GY	Gray	Y	Yellow

**Electrical Wiring Diagram**

- Upflow Blower Induced Draft
- Gas Fired Forced Air Furnace
- Single Stage Heat

**Wiring Information:**

LINE VOLTAGE

- Factory standard
- Factory Option
- Field Installed

LOW VOLTAGE

- Factory standard
- Factory Option
- Field Installed

REPLACEMENT WIRE

- Must be the same size and type of

**Notes:**

- If factory wiring of heating and cooling speeds is not desirable, refer to specifications section for appropriate speeds.
- Connect unused motor leads to M1 and/or M2.
- Models with 3 speed motors;
  - Blue lead is for medium speed

IDR	Indoor Draft Relay
IFC	Integrated Furnace Control
IR	Ignition Relay
LC	Limit Control
MGV	Main Gas Valve
MRLC	Main Reset Limit Control
MV	Main Valve
NPC	Negative Pressure Control
PBS	Push Button Switch
PL	Plug