

# HUSSMANN®



P/N 3052784\_A

April 2018



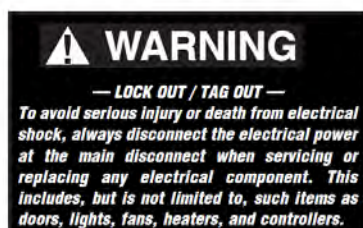
## RTN400

### CONTROLLER RETROFIT

REPLACEMENT FOR SAFENET III  
CONTROLLERS

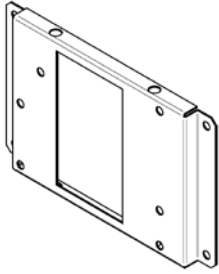
SHM300

SHM400



## INSTRUCTION-RETROFIT RTN SHM

# PARTS REQUIRED FOR RETROFIT



3025276-Support Controller



3023553-Cable Controller



3023537-Control RTN400



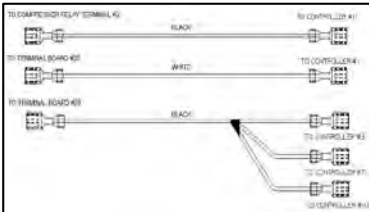
3023552-Control Display KDE



3023554-Sensor NTC Green



3031571-Sensor NTC Orange



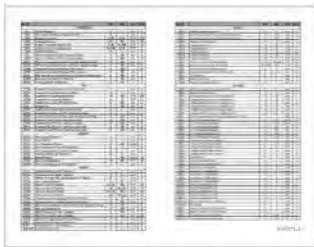
3043415-Harness Electrical Box



3025272-Plastic Spacer



1900677-Hex Head  
5/16" Screw



3047274-RTN Parameters Sheet

## INSTALLATION TOOL LIST

- Phillips-head screw driver
- Hex-head 5/16" screw driver
- Wire cutters
- Silicone sealant
- Cable ties

The RTN400 is pre-programmed for this application. However, we recommend verifying the program by confirming the correct set-point. The setpoint verification procedure is on pages 7 & 8.

1. **Disconnect all power to the case !!!**
2. Remove front grille and Safenet III display.



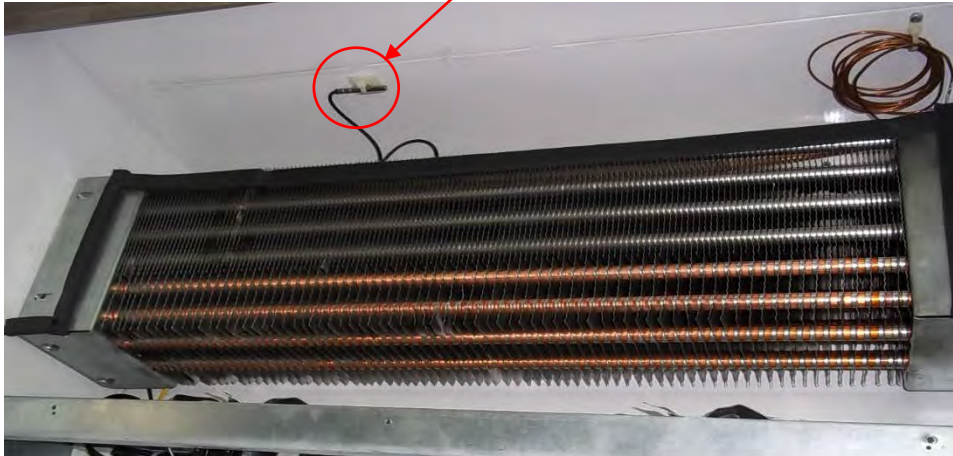
Note: The Controller Display RTN400 will not fit in the existing grille.  
A new grille is provided with the retrofit kit.

3. Insert the Controller Display into the new grille. Connect Cable Controller to Control Display.

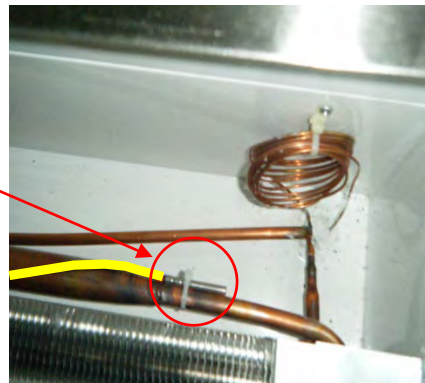


4. Replace Black Safenet air sensor with Green RTN sensor.
5. Replace Yellow Safenet defrost sensor with Orange RTN sensor.

Air Sensor  
Old Sensor-Black  
**New Sensor-Green**



Defrost Sensor  
Old Sensor-Yellow  
**New Sensor-Orange**

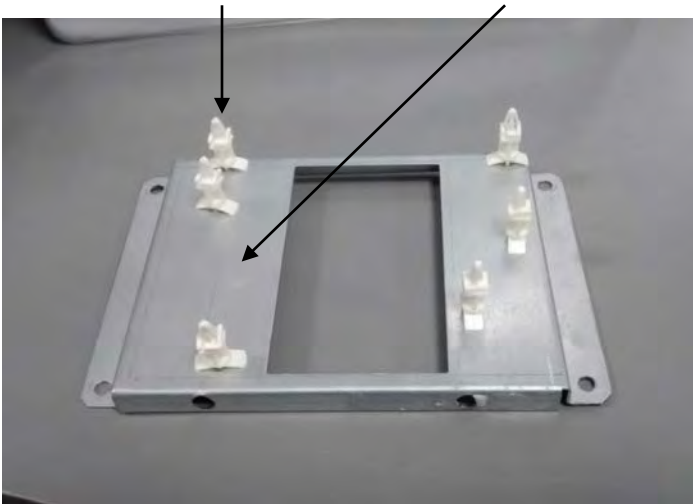


Note: The existing sensors are NOT compatible with the RTN400 and must be replaced with the sensors provided in the retrofit kit.

**DO NOT SPLICE SENSOR WIRES !!**



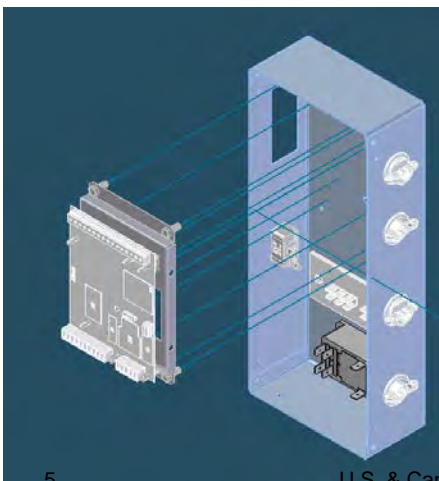
6. Install Plastic Spacers onto Support Controller.



7. Secure Control RTN400 to Plastic Spacers

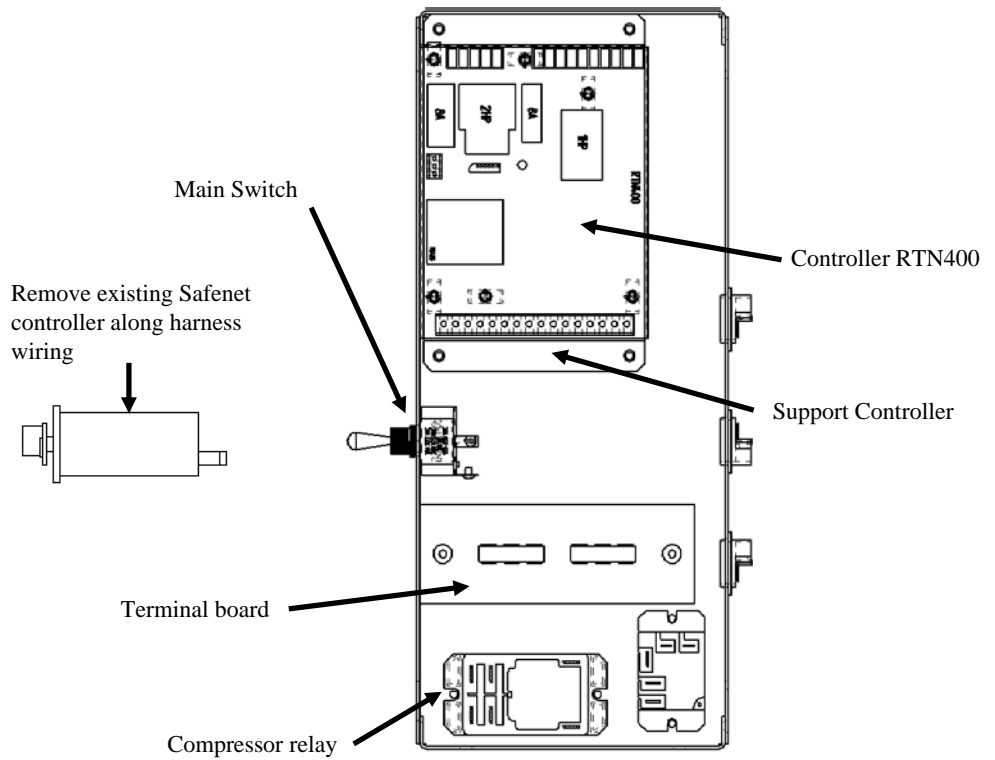


8. Use the Hex Head 5/16" Screw to secure the assembly inside the control box

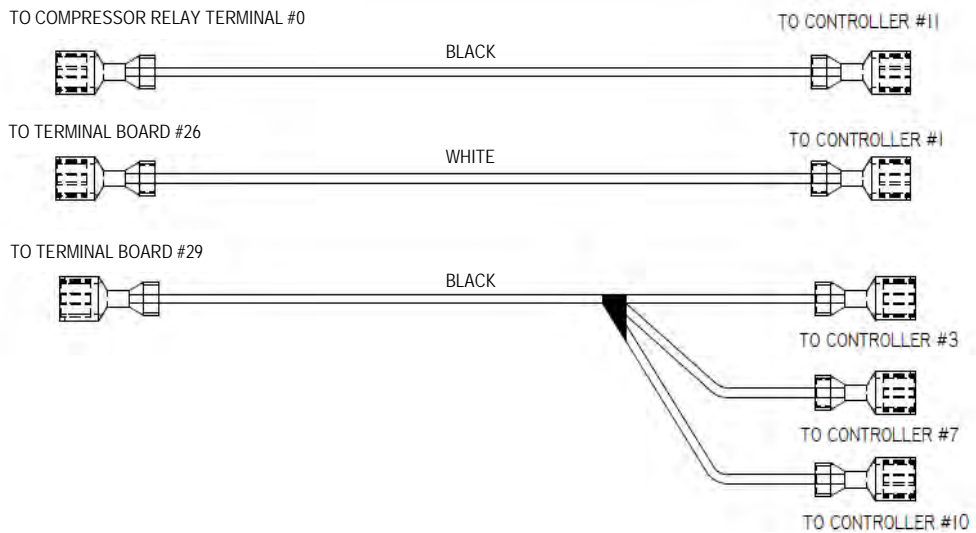


9. Remove Safenet III controller and harness wiring from control box

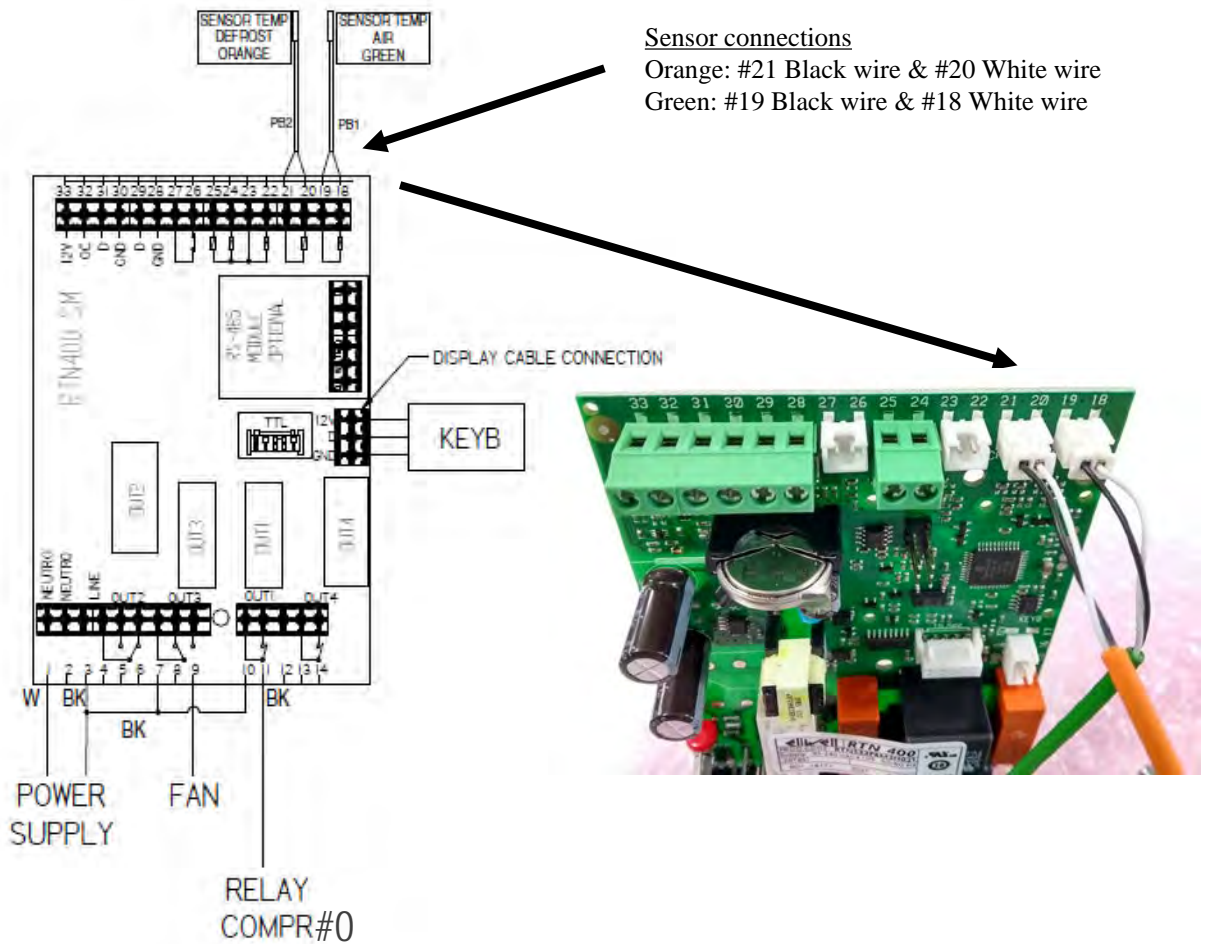
Note: Make sure to remove the controller's harness wires from the terminal board.



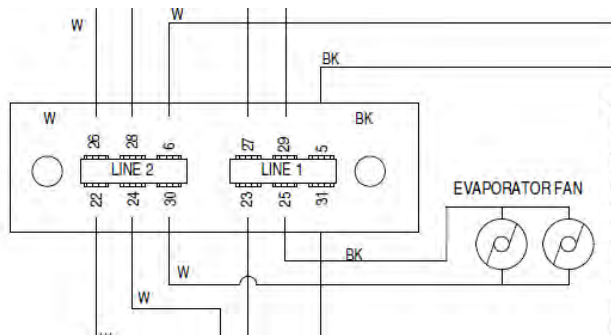
10. Install wires to controller and terminal board as shown below:



11. Connect Sensors wires to controller as shown below. Connect Cable Controller to controller RTN400.



12. Verify Black wire to Terminal Board #25 is connected to evap fan motor.
13. Disconnect this wire from Terminal Board #25 and connect again to RTN400 controller #9.



The new controller is preprogrammed and should not require adjustments. You are now ready to start the unit and verify the set-points.

- Apply power to the unit (Fans should start immediately and compressor should start in a few seconds).
- Confirm the setpoint by following “Step 1”. For SHM300/400, the preprogrammed setpoint is 18.5°F.
- Go to “Step 2” and verify the sensor probes are reading correctly.
- Proceed to page 9 to complete the start-up process.

## 1) SETPOINT: SETTING AND EDIT LOCK

To display the Setpoint value, press the **set** key to enter the “Machine Status” menu, then press the **set** key again when the “SET” label is displayed.

The Setpoint value appears on the display. To change the Setpoint value, press the **UP** and **DOWN** keys within 15 seconds. Press **set** to confirm the modification.



## 2) DISPLAY PROBES VALUE

To display the value read by probes connected to the device, press the **set** key and enter the “Machine Status” menu, then press the key again when one of the probe-related labels “Pb1...Pb5” press the **set** key again. The value measured by the associated probe will appear on the display.

**NOTE:** The displayed value is read-only and cannot be modified.

### KDEPLUS BUTTONS

The KDEPlus keyboard has 4 keys, as shown in the illustration:



To see Parameters info please refer to document:

P/N 3047274 – SHM300/400



## KDEPLUS BUTTONS

The **KDEPlus** keyboard has 4 keys, as shown in the illustration:






Each key has a different function depending on whether it is:

- Pressed and released
- Pressed for at least 5 seconds
- Pressed and held at start-up
- Pressed in combination with another key.

### KEYS








The following table summarizes the function of each key:

No	Key	Action		
		Pressed and released	Press for at least 5 secs	Start-up
1		<ul style="list-style-type: none"> <li>• Scrolls through menu items</li> <li>• Decreases values</li> </ul>	Activates the <b>Manual Defrost function</b> (from outside menus).	—
2		<ul style="list-style-type: none"> <li>• Scrolls through menu items</li> <li>• Decreases values</li> </ul>	Function can be configured by the user (from outside menus). (see parameter H32)	—
3		<ul style="list-style-type: none"> <li>• Returns to the previous menu level</li> <li>• Confirms parameter value</li> </ul>	Activates the Stand-by function (from outside menus).	—
4	<b>set</b>	<ul style="list-style-type: none"> <li>• Displays any alarms (if active)</li> <li>• Opens Machine Status menu</li> <li>• Confirms commands</li> </ul>	Opens the Programming Menu (User and Installer parameters)	When pressed during start-up it enables the user to select the application to be loaded.

## RTN-400 LED Indicator Lights

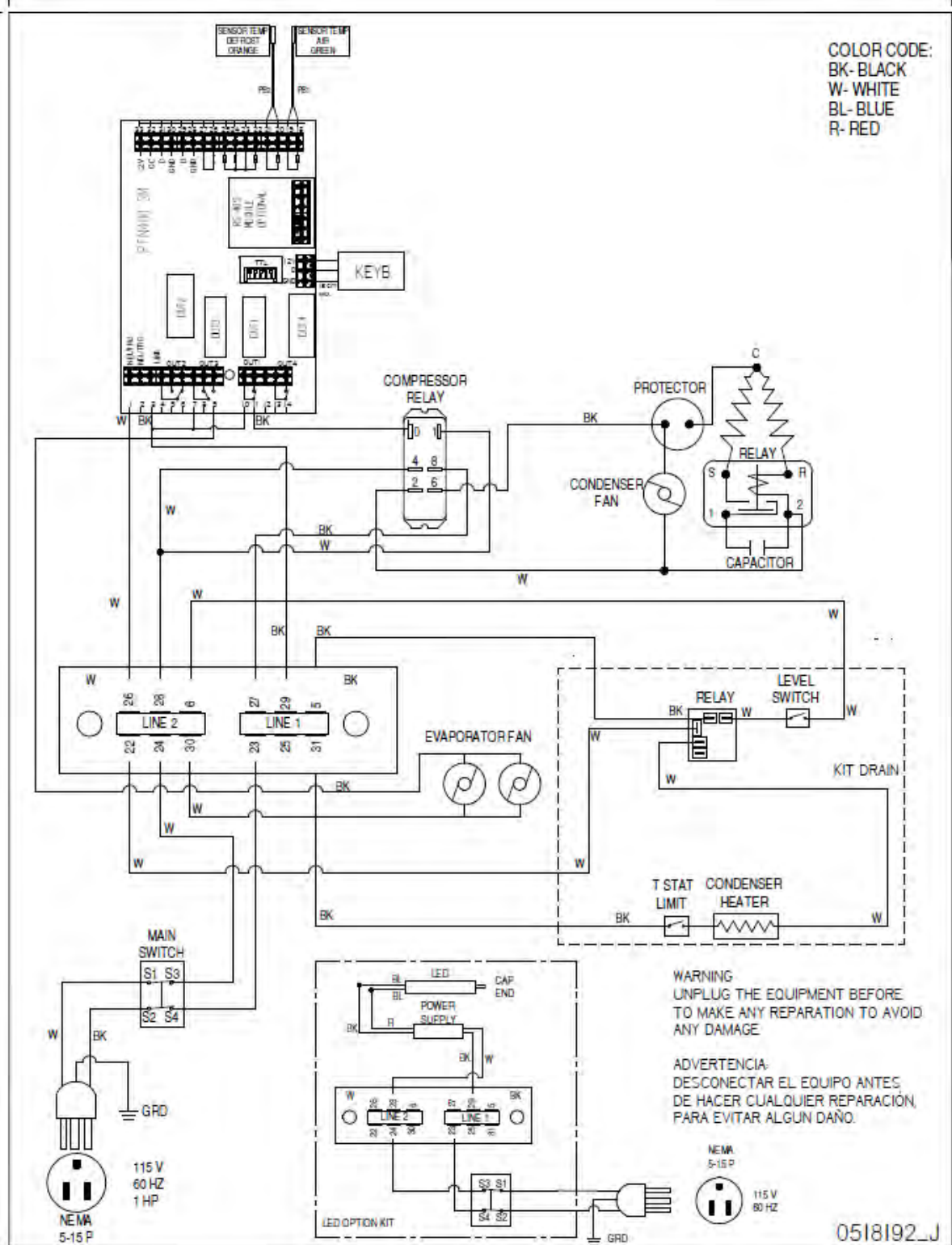


Meaning of LEDs:

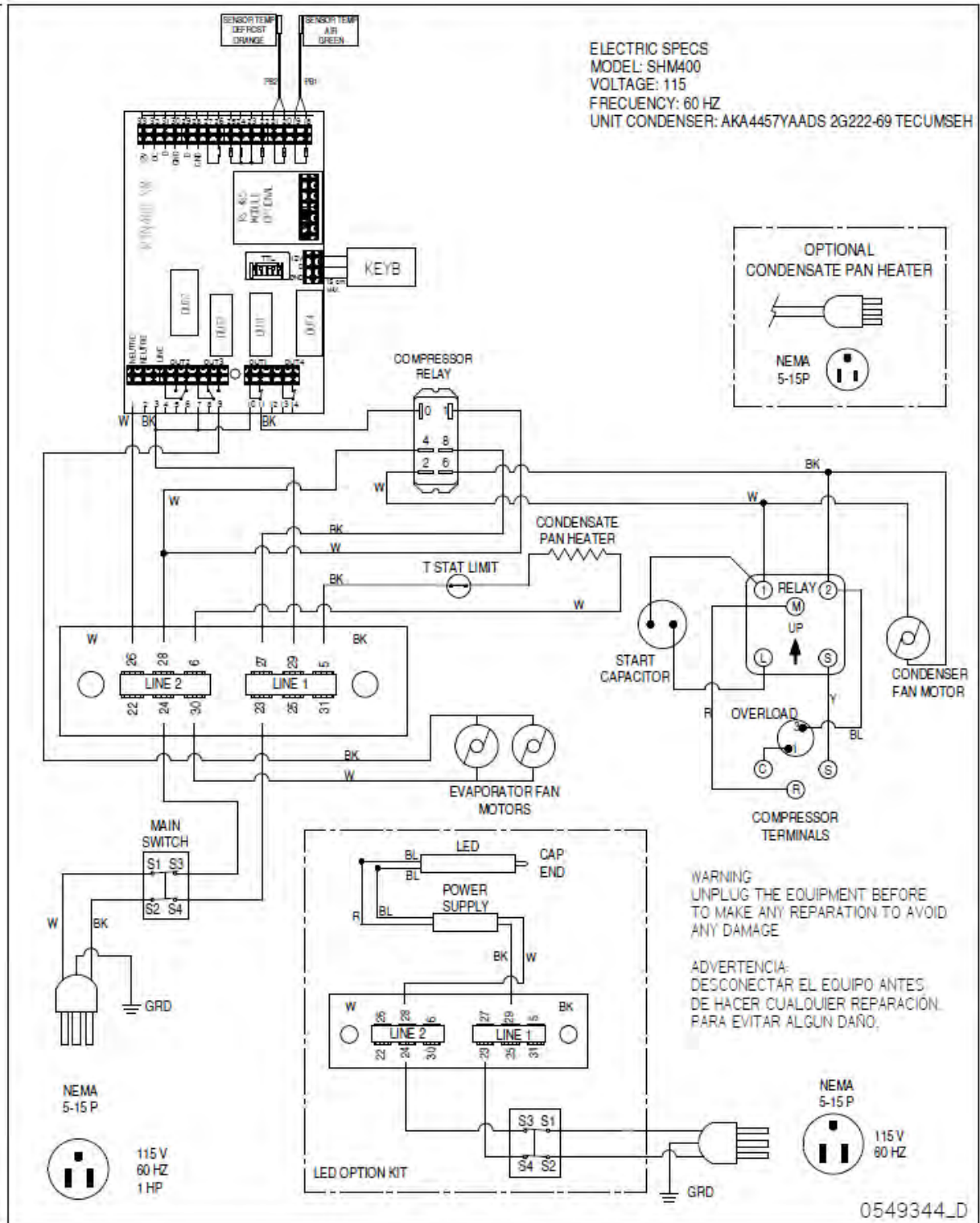
No	Icon	LED	Operation	Meaning
1		Compressor	Permanently on	compressor on
			Blinking	Delay, protection or start-up blocked
			OFF	otherwise
2		Defrost	Permanently on	Defrost active
			Blinking	Activated manually or from Digital Input
			OFF	otherwise
3		Fans	Permanently on	Fans active
			OFF	otherwise
4		Reduced SET / Economy	Permanently on	Energy Saving active
			Blinking	Reduced setpoint active
			OFF	otherwise
5		Alarm	Permanently on	alarm active
			Blinking	Alarm acknowledged
			OFF	otherwise
6		°F readout	Permanently on	°F setting (dro = 1)
			OFF	otherwise
7	AUX	AUX	Permanently on	Aux output active and/or light on
			Blinking	Deep cooling on
			OFF	otherwise
8		°C readout	Permanently on	°C setting (dro = 0)
			OFF	otherwise

**N.B.:** When the instrument is powered on it performs a lamp test, during which time the display and LEDs will flash for several seconds to check that they all function correctly.

# Wiring Diagram SHM300



# Wiring Diagram SHM400







# **HUSSmann®**

**To obtain warranty information  
or other support, contact your  
Hussmann representative.  
Please include the model and  
serial number of the product.**

*Hussmann Corporation, Corporate Headquarters: Bridgeton, Missouri, U.S.A. 63044-2483 01 October 2012*



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