

# HUSSMANN®



P/N 3048544\_B

June 2018



## RTN400

CONTROLLER  
RETROFIT

REPLACEMENT FOR  
SAFENET III CONTROLLERS

MD10  
MD14

### **⚠ WARNING**

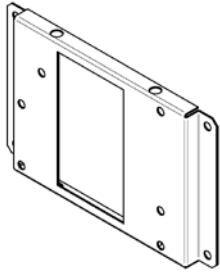
— LOCK OUT / TAG OUT —

*To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and controllers.*

INSTRUCTION-RETROFIT RTN MDUL

# RETROFIT PARTS CONTROL RTN400

## CONTROL ASSY MDUL RTN P/N 3048542



3025276-SUPPORT CONTROLLER



3023553-CABLE CONTROLLER



3060964-PRE-PRGM-CONT RTN400 MD



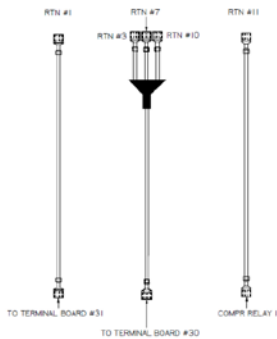
3023552-CONTROL DISPLAY KDE



3023554-SENSOR NTC GREEN



3031571-SENSOR NTC ORANGE



3043415-HARNES ELEC BOX  
CONTROLLER

PARAMETERS RTN	
RTN #1	RTN #7
RTN #10	RTN #11
RTN #12	RTN #13
RTN #14	RTN #15
RTN #16	RTN #17
RTN #18	RTN #19
RTN #20	RTN #21
RTN #22	RTN #23
RTN #24	RTN #25
RTN #26	RTN #27
RTN #28	RTN #29
RTN #30	RTN #31
RTN #32	RTN #33
RTN #34	RTN #35
RTN #36	RTN #37
RTN #38	RTN #39
RTN #40	RTN #41
RTN #42	RTN #43
RTN #44	RTN #45
RTN #46	RTN #47
RTN #48	RTN #49
RTN #50	RTN #51
RTN #52	RTN #53
RTN #54	RTN #55
RTN #56	RTN #57
RTN #58	RTN #59
RTN #60	RTN #61
RTN #62	RTN #63
RTN #64	RTN #65
RTN #66	RTN #67
RTN #68	RTN #69
RTN #70	RTN #71
RTN #72	RTN #73
RTN #74	RTN #75
RTN #76	RTN #77
RTN #78	RTN #79
RTN #80	RTN #81
RTN #82	RTN #83
RTN #84	RTN #85
RTN #86	RTN #87
RTN #88	RTN #89
RTN #90	RTN #91
RTN #92	RTN #93
RTN #94	RTN #95
RTN #96	RTN #97
RTN #98	RTN #99
RTN #100	RTN #101
RTN #102	RTN #103
RTN #104	RTN #105
RTN #106	RTN #107
RTN #108	RTN #109
RTN #110	RTN #111
RTN #112	RTN #113
RTN #114	RTN #115
RTN #116	RTN #117
RTN #118	RTN #119
RTN #120	RTN #121
RTN #122	RTN #123
RTN #124	RTN #125
RTN #126	RTN #127
RTN #128	RTN #129
RTN #130	RTN #131
RTN #132	RTN #133
RTN #134	RTN #135
RTN #136	RTN #137
RTN #138	RTN #139
RTN #140	RTN #141
RTN #142	RTN #143
RTN #144	RTN #145
RTN #146	RTN #147
RTN #148	RTN #149
RTN #150	RTN #151
RTN #152	RTN #153
RTN #154	RTN #155
RTN #156	RTN #157
RTN #158	RTN #159
RTN #160	RTN #161
RTN #162	RTN #163
RTN #164	RTN #165
RTN #166	RTN #167
RTN #168	RTN #169
RTN #170	RTN #171
RTN #172	RTN #173
RTN #174	RTN #175
RTN #176	RTN #177
RTN #178	RTN #179
RTN #180	RTN #181
RTN #182	RTN #183
RTN #184	RTN #185
RTN #186	RTN #187
RTN #188	RTN #189
RTN #190	RTN #191
RTN #192	RTN #193
RTN #194	RTN #195
RTN #196	RTN #197
RTN #198	RTN #199
RTN #200	RTN #201
RTN #202	RTN #203
RTN #204	RTN #205
RTN #206	RTN #207
RTN #208	RTN #209
RTN #210	RTN #211
RTN #212	RTN #213
RTN #214	RTN #215
RTN #216	RTN #217
RTN #218	RTN #219
RTN #220	RTN #221
RTN #222	RTN #223
RTN #224	RTN #225
RTN #226	RTN #227
RTN #228	RTN #229
RTN #230	RTN #231
RTN #232	RTN #233
RTN #234	RTN #235
RTN #236	RTN #237
RTN #238	RTN #239
RTN #240	RTN #241
RTN #242	RTN #243
RTN #244	RTN #245
RTN #246	RTN #247
RTN #248	RTN #249
RTN #250	RTN #251
RTN #252	RTN #253
RTN #254	RTN #255
RTN #256	RTN #257
RTN #258	RTN #259
RTN #260	RTN #261
RTN #262	RTN #263
RTN #264	RTN #265
RTN #266	RTN #267
RTN #268	RTN #269
RTN #270	RTN #271
RTN #272	RTN #273
RTN #274	RTN #275
RTN #276	RTN #277
RTN #278	RTN #279
RTN #280	RTN #281
RTN #282	RTN #283
RTN #284	RTN #285
RTN #286	RTN #287
RTN #288	RTN #289
RTN #290	RTN #291
RTN #292	RTN #293
RTN #294	RTN #295
RTN #296	RTN #297
RTN #298	RTN #299
RTN #300	RTN #301
RTN #302	RTN #303
RTN #304	RTN #305
RTN #306	RTN #307
RTN #308	RTN #309
RTN #310	RTN #311
RTN #312	RTN #313
RTN #314	RTN #315
RTN #316	RTN #317
RTN #318	RTN #319
RTN #320	RTN #321
RTN #322	RTN #323
RTN #324	RTN #325
RTN #326	RTN #327
RTN #328	RTN #329
RTN #330	RTN #331
RTN #332	RTN #333
RTN #334	RTN #335
RTN #336	RTN #337
RTN #338	RTN #339
RTN #340	RTN #341
RTN #342	RTN #343
RTN #344	RTN #345
RTN #346	RTN #347
RTN #348	RTN #349
RTN #350	RTN #351
RTN #352	RTN #353
RTN #354	RTN #355
RTN #356	RTN #357
RTN #358	RTN #359
RTN #360	RTN #361
RTN #362	RTN #363
RTN #364	RTN #365
RTN #366	RTN #367
RTN #368	RTN #369
RTN #370	RTN #371
RTN #372	RTN #373
RTN #374	RTN #375
RTN #376	RTN #377
RTN #378	RTN #379
RTN #380	RTN #381
RTN #382	RTN #383
RTN #384	RTN #385
RTN #386	RTN #387
RTN #388	RTN #389
RTN #390	RTN #391
RTN #392	RTN #393
RTN #394	RTN #395
RTN #396	RTN #397
RTN #398	RTN #399
RTN #400	RTN #401

3048543-LABEL-PRMTR RTN MDUL



3025272-PLASTIC SPACER



1900677-HEX HEAD 5/16"  
SCREW

### INSTALLATION TOOL LIST

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

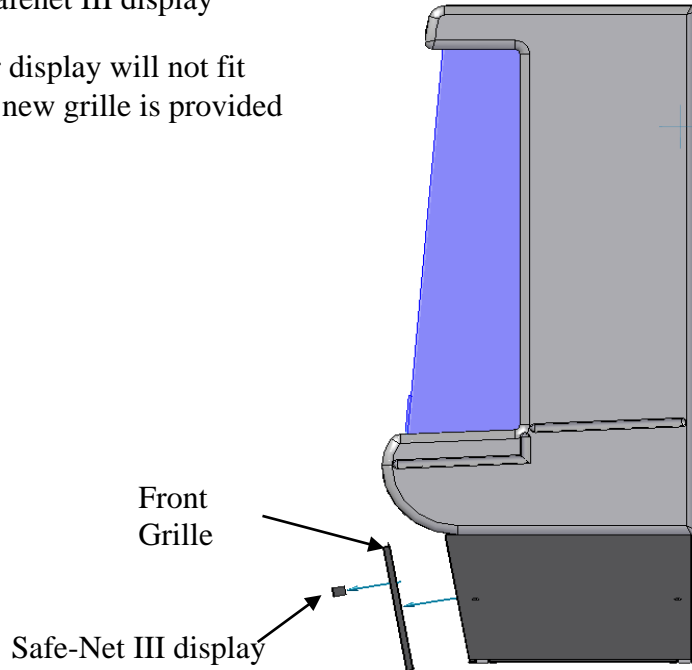
# REPLACING CONTROLLER

The RTN400 is pre-programmed for this application. However, we recommend verifying the program by confirming the correct setpoint. The setpoint verification procedure is on pages 8 & 9.

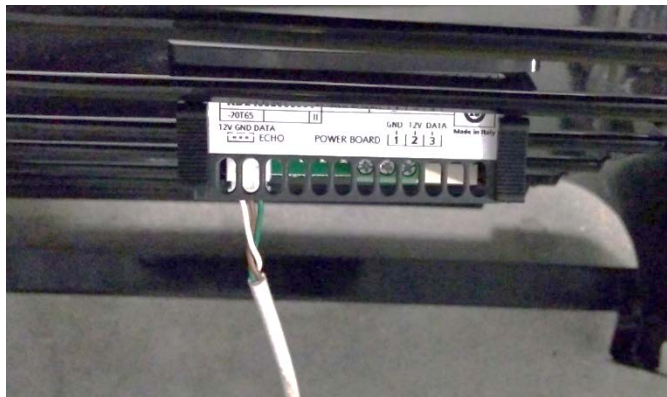
## 1. Disconnect all power from the case !!!

## 2. Remove front grille and Safenet III display

*Note:* The RTN400 controller display will not fit in the existing grille. A new grille is provided with the retrofit kit.

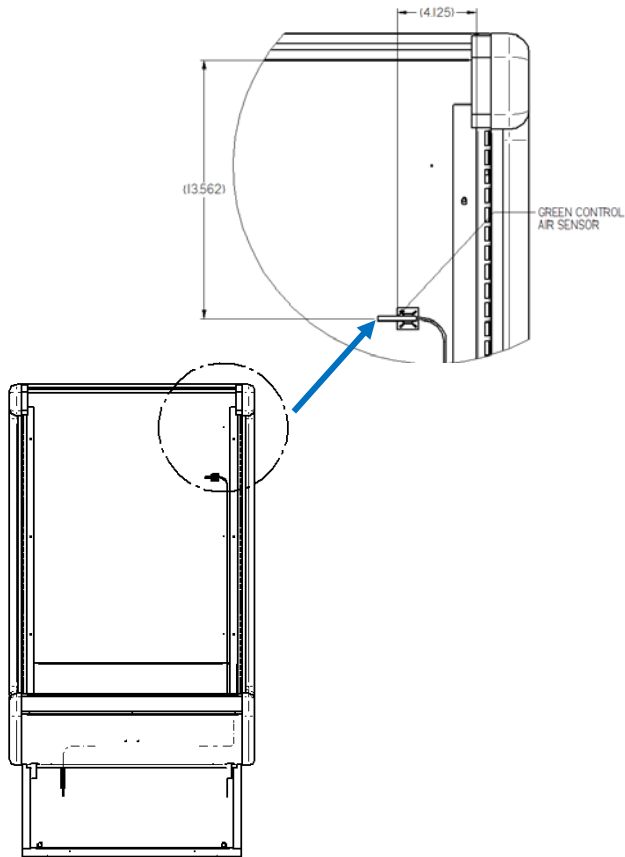


## 3. Insert the controller display into the new grille. Connect cable controller to control display.

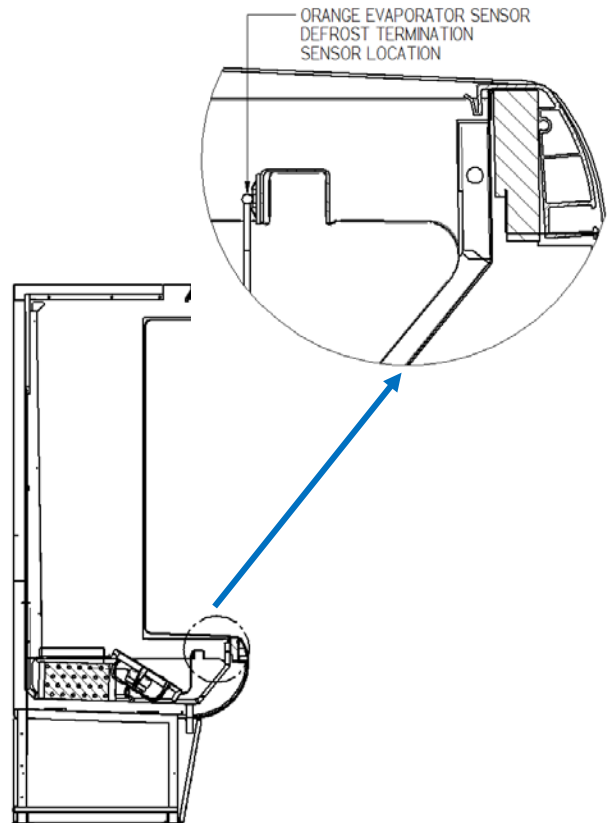


### 3. Replace sensors.

#### 3.1. Replace black Safe-Net air sensor with green RTN sensor.



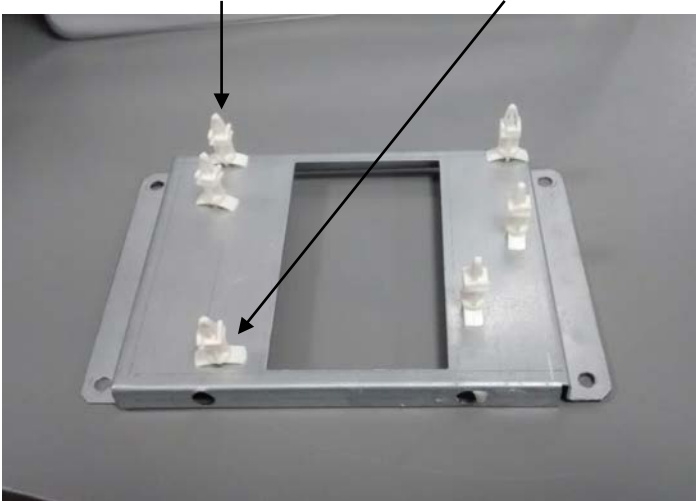
#### 3.2 Replace yellow Safe-Net defrost termination sensor with orange RTN sensor.



**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 !!**

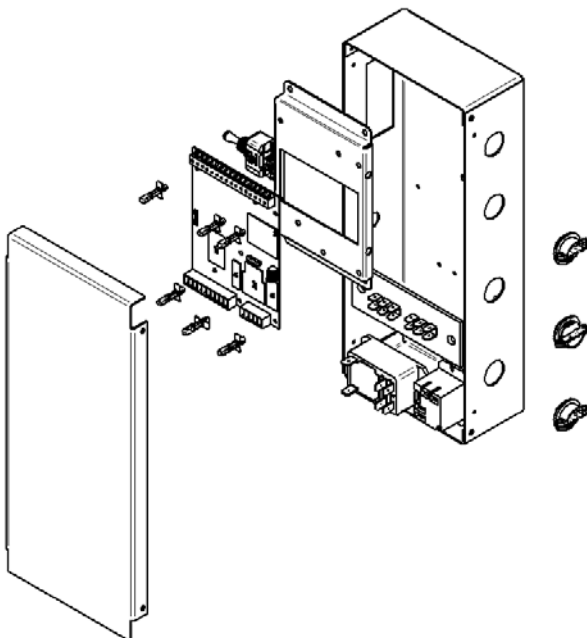
4. Install Plastic Spacers (6pcs.) onto support controller.



5. Secure Control RTN400 to plastic spacers



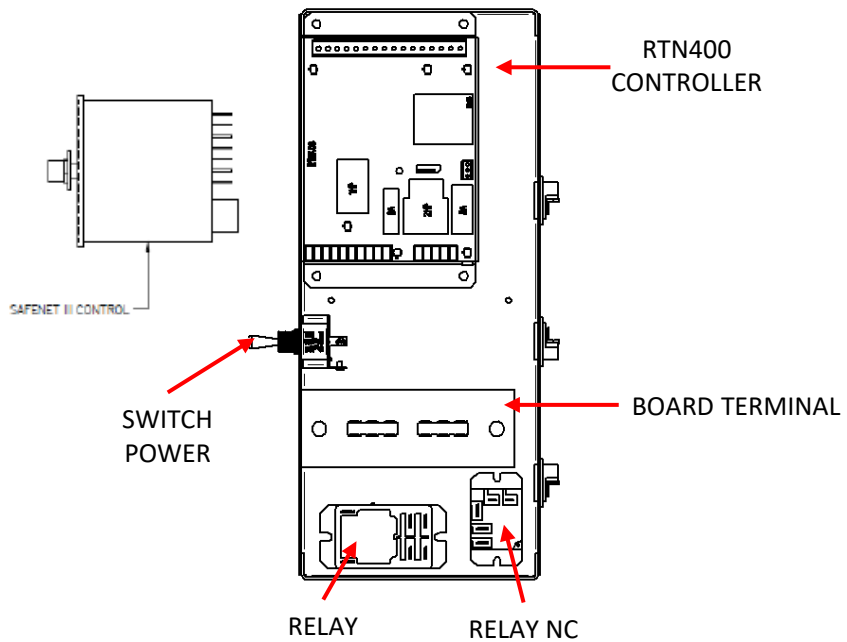
6. Use the Hex Head 5/16" screw to secure the assembly inside the control box



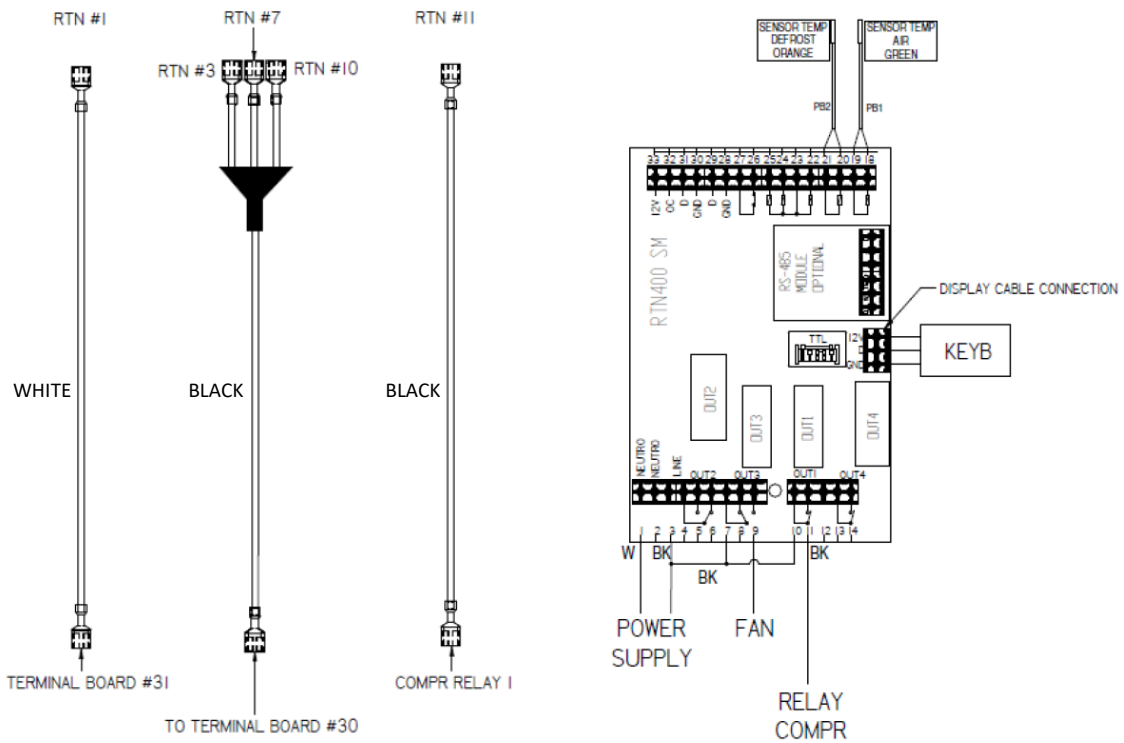
**\*Optional Procedure:** Instead of mounting the completed assembly, consider mounting the base (with spacers only) first. The board can then be snapped onto the spacers. This will prevent any damage to the board being hit with a drill during the mounting procedure.

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

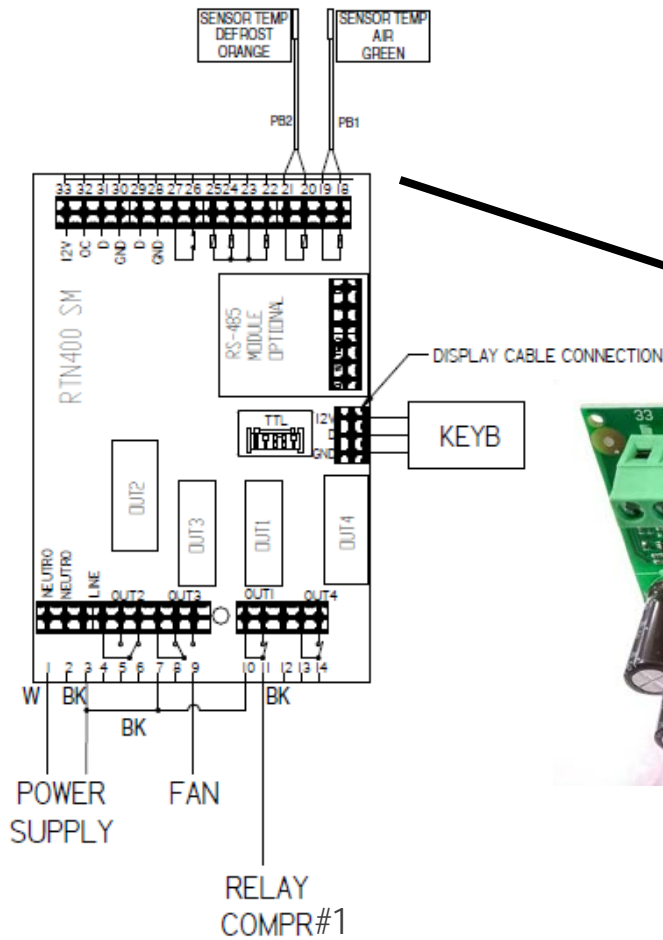
Note: Make sure to remove the controller's harness wires from the terminal board.



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



9. Connect sensor wires to controller as shown below. Connect cable controller to controller RTN400.



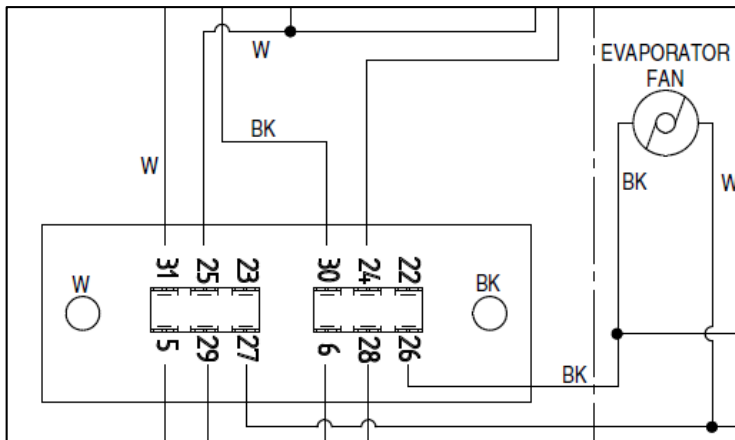
Sensor connections

Orange: #21 Black wire & #20 White wire  
 Green: #19 Black wire & #18 White wire



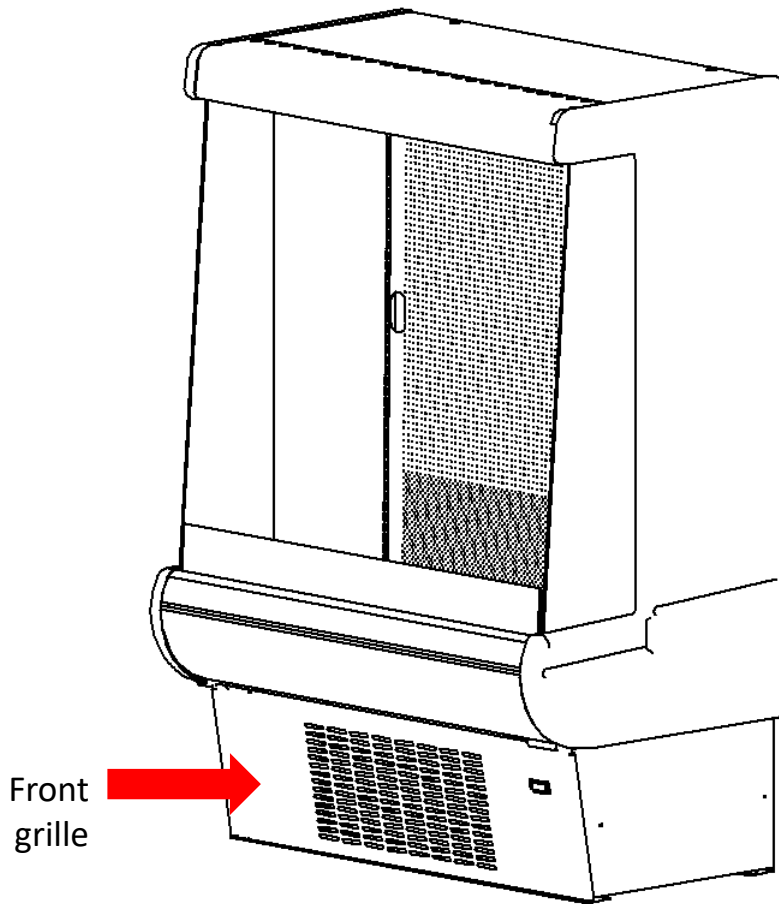
10. Verify black wire to terminal board #26 is connected to evaporator fan motor.

11. Disconnect this wire from terminal board #26 and connect again to RTN400 controller #9.



**\*Previous connection with Safe-Net control**

12. Close control box and reinstall the front grille.





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 MD10 & MD14, the preprogrammed setpoint is 30°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 **▲** and **▼** keys within 15 seconds. Press **set** to confirm the modification.

2)

It is possible to disable the keypad on this device.

The keypad can be locked by programming the “LOC” parameter appropriately.

With the keypad locked, you can still access the “Machine Status” menu by pressing **set** to display the Setpoint, but you cannot edit it. To disable the keypad lock, repeat the locking procedure.

## 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:

3048543-LABEL-PRMTR RTN MDUL / MD10 & MD14

## 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		<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	°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	°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 MD10

**ELECTRIC SPECS**

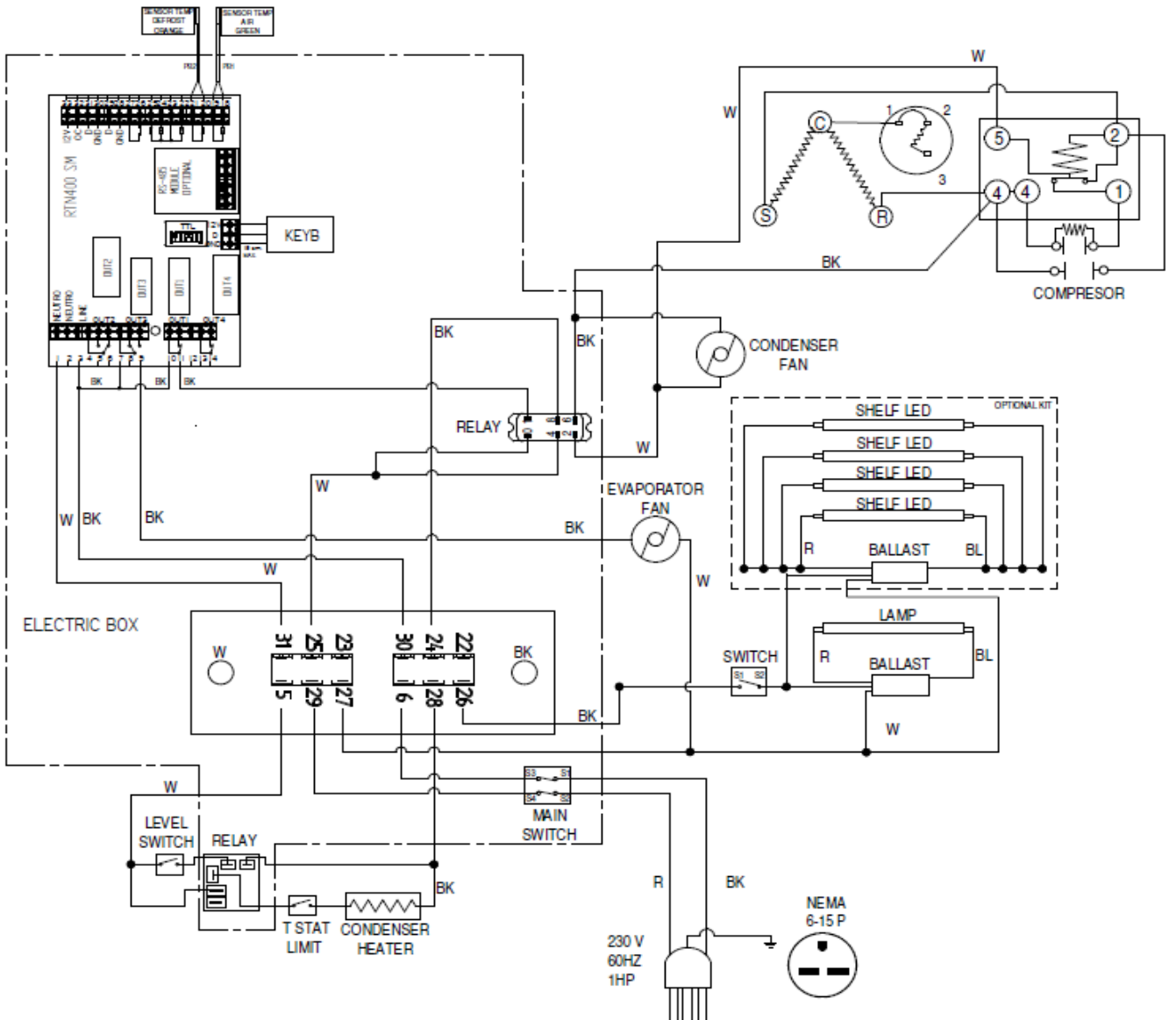
MODEL MD10UL  
 VOLTAGE 208-230 V  
 FREQUENCY 60 HZ  
 COMPRESSOR NJ6226Z EMBRACO

**WARNING**

UNPLUG THE EQUIPMENT BEFORE TO MAKE ANY REPARATION TO AVOID ANY DAMAGE

**ADVERTENCIA:**

DESCONECTAR EL EQUIPO ANTES DE HACER CUALQUIER REPARACIÓN, PARA EVITAR ALGUN DAÑO.



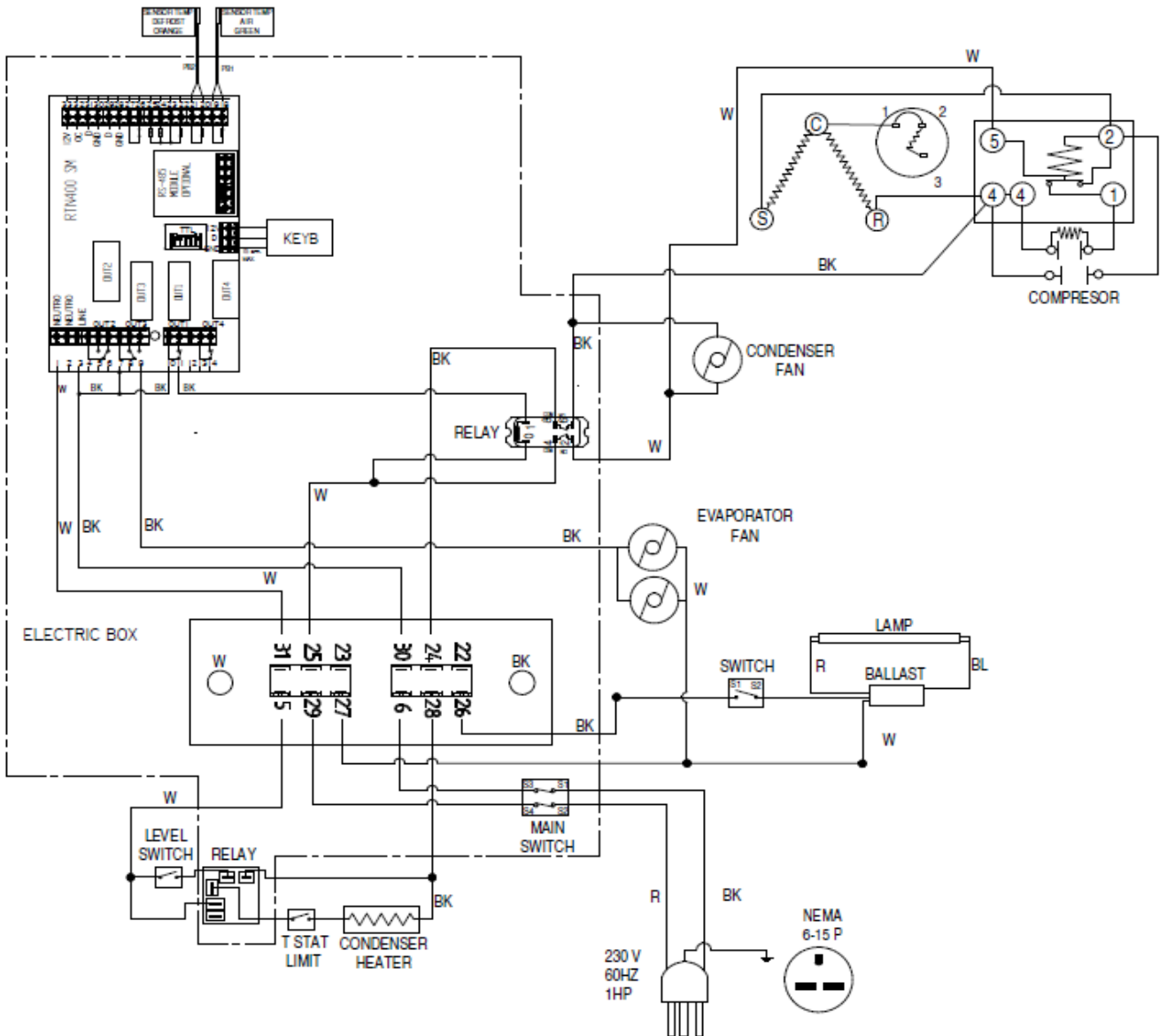
0521458\_G

# Wiring Diagram MD14

**ELECTRIC SPECS**  
**MODEL** MD14UL  
**VOLTAGE** 208-230 V  
**FRECUENCY** 60 HZ  
**COMPRESSOR** NJ6226Z EMBRACO

**WARNING**  
 UNPLUG THE EQUIPMENT BEFORE TO MAKE ANY REPARATION TO AVOID ANY DAMAGE

**ADVERTENCIA:**  
 DESCONECTAR EL EQUIPO ANTES DE HACER CUALQUIER REPARACIÓN, PARA EVITAR ALGUN DAÑO.



0521459\_G