



**Changing**  
*how food is served.*

## OPERATION/MAINTENANCE MANUAL





**DI-EF SERIES**  
**HOT FOOD WELLS**

**CUSTOM FABRICATORS OF FOODSERVICE EQUIPMENT**

1947 Bill Casey Parkway • Jonesboro, GA 30236  
Tel: 770-478-8803 • Fax: 1 (770)-471-3715  
[www.lowtempind.com](http://www.lowtempind.com)

## Table of Contents

INSPECTION.....	3
SAFETY PRECAUTIONS.....	3
INSTALLATION INSTRUCTIONS.....	5
OPERATING INSTRUCTIONS .....	7
Initial Setup/Prep Guidelines: .....	7
Powering On the Unit .....	7
Selecting the Heating Mode.....	8
Powering Off the Unit .....	8
Auto Setting on the Controllers .....	8
CLEANING INSTRUCTIONS.....	9
PREVENTATIVE MAINTENANCE .....	9
TROUBLESHOOTING.....	10
REPLACEMENT PARTS .....	10
INIT INSTRUCTIONS.....	11
WIRING DIAGRAMS.....	12
WARRANTY .....	15

## **INSPECTION**

Upon receipt, the crate should be inspected for visual damage. Any damage should be reported immediately to the carrier.

## **SAFETY PRECAUTIONS**

This manual includes safety and operating instructions for EF series hot food wells. LTI recommends reading all safety precautions and statements to ensure safe operation before installing and operating. Below are the precautions that are explained in more detail. Please read carefully.

### **DANGER**

Danger warns of imminent hazard which will result in serious injury or death.

### **WARNING**

Warning indicates the presence of a potential hazard or unsafe practice that will or can cause severe personal injury or death.

### **CAUTION**

Caution indicate the presence of a hazard or unsafe practice that will or can cause minor or moderate personal injury if the caution is ignored.

### **NOTICE:**

Used to note information that is important but not hazard-related.



## **WARNING**

### **ELECTRIC SHOCK HAZARD**

- Unit must be installed by a qualified electrician. Installation must conform to all local electrical codes. In the absence of local codes, use the latest version of the National Electrical Code.
- Unit should be safely and adequately grounded in accordance to local codes, or in the absence of local codes, the most up to date version of the National Electrical Code ANSI/NFPA70, to protect the user from electrical shock.
- The unit requires a grounded system and a dedicated circuit.
- The unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.
- Control panel must be mounted on a vertical surface/wall and installed in the vertical position. Mounting control panel in the horizontal position may result in collection of liquids and lead to electrical shock.
- Turn OFF power, unplug power cord/turn off power at circuit breaker, and allow unit to cool if needed to before performing any cleaning, adjustments, or maintenance.

### **FIRE HAZARD**

- Risk of fire do not install closer than 1 inch to sides and bottom of unit.
- Do not use flammable cleaning solutions to clean this unit.



## **CAUTION**

### **BURN HAZARD**

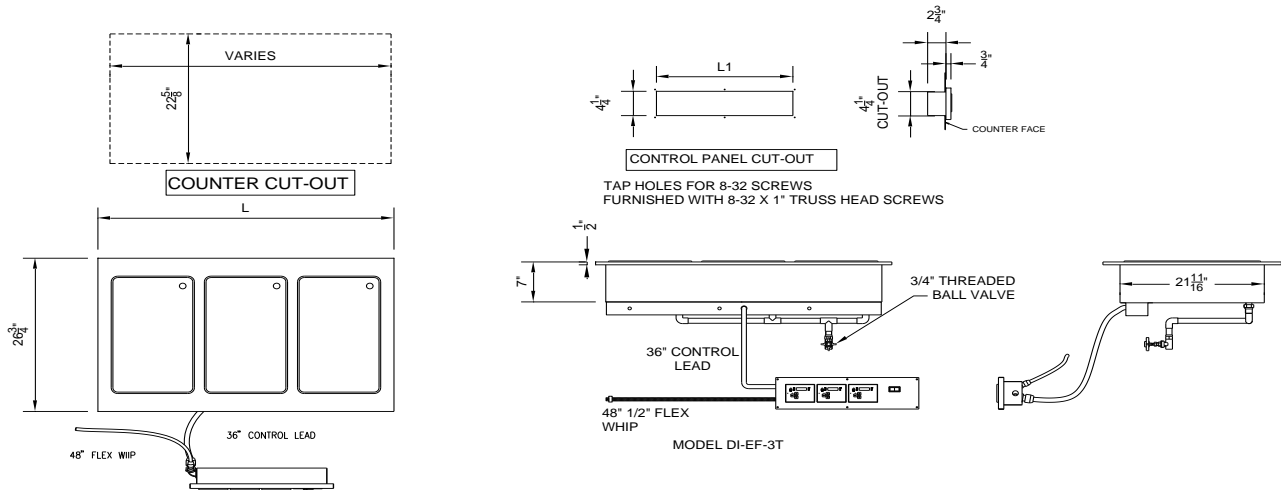
- Exterior surfaces on the unit may become hot. Use caution when touching these areas.
- Drain water may reach temperatures in excess of 200°F (93°C). use appropriate plumbing materials when installing drain lines.

## **NOTICE**

- Units are voltage specific. Refer to specifications label for electrical requirements before installation.
- Use non-abrasive cleaners and cloths only. Abrasive cleaners and cloths could scratch finish of unit, marring its appearance and making it susceptible to soil accumulation.
- Do not use steel wool for cleaning.
- Do not use harsh chemicals such as bleach, cleaners containing bleach, or oven cleaners to clean this unit.

## INSTALLATION INSTRUCTIONS

**LTI: EF Series** hot food units are designed for dispensing food. This unit is designed to help maintain product temperature at a minimum of 140 °F during serving periods. This unit is designed for temporary storage of product. They should not be used as long term storage of bulk product. Refer to figures and tables provided below for standard cut out sizes for the EF Series Drop-In units and controllers.

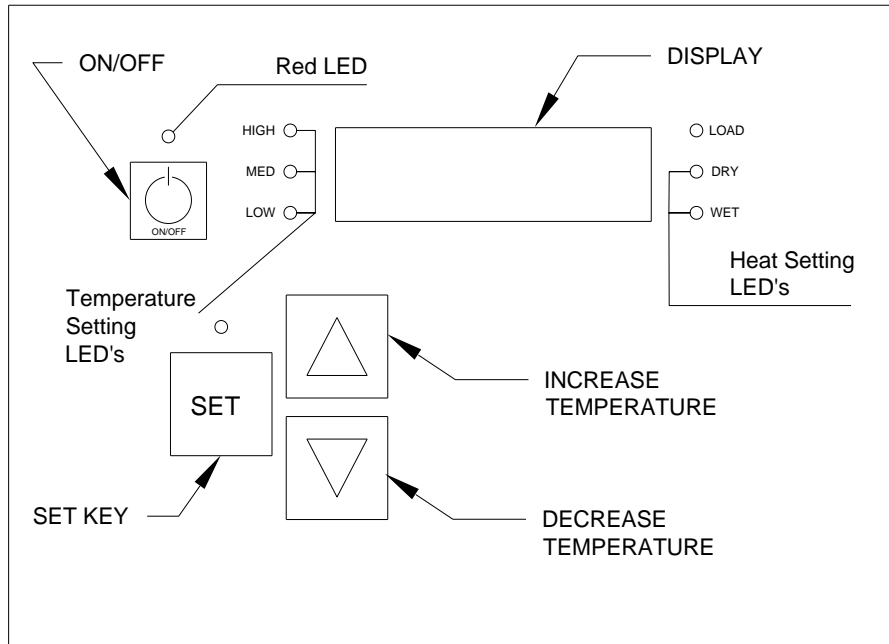


DI-EF OR EFS MODEL DIMENSIONS					
MODEL # EF OR EFS	PANS	L	COUNTER TOP CUT-OUT SIZE	L1 CONTROL PANEL LENGTH	CONTROL PANEL CUT-OUT SIZE
DI-EF / S-1	1	16 1/2"	22 5/8" X 14 1/4"	12"	11" X 4 1/4"
DI-EF / S-2	2	30 1/2"	22 5/8" X 28 1/4"	16 3/4"	15 3/4" X 4 1/4"
DI-EF / S-3	3	44 1/2"	22 5/8" X 42 1/4"	21 1/2"	20 1/2" X 4 1/4"
DI-EF / S-4	4	58 1/2"	22 5/8" X 56 1/4"	26 1/4"	25 1/4" X 4 1/4"
DI-EF / S-5	5	72 1/2"	22 5/8" X 70 1/4"	31"	30" X 4 1/4"

Model No. (#)	Volts	Phase	Amps	Watts
DI-EF Series				
DI-EF-1	120	1	5.5	661
	208-240	1	2.4-2.8	500-665
DI-EF-2	120	1	11	1322
	208-240	1	4.8-5.5	1000-1330
	208-240	3	4.8-5.5	1000-1330
DI-EF-3	120	1	16.5	1983
	208-240	1	7.2-8.3	1500-1983
	208-240	3	4.8-5.5	1500-1983
DI-EF-4	120	1	22	2644
	208-240	1	9.6-11	2000-2644
	208-240	3	7.2-8.3	2000-2644
DI-EF-5	120	1	27.5	3305
	208-240	1	12-13.8	2500-3305
	208-240	3	9.6-11	2500-3305
DI-EF-6	120	1	33	3000-3966
	208-240	1	14.4-16.5	3000-3966
	208-240	3	9.6-11	3000-3966
DI-EFS Series				
DI-EFS-1	120	1	6.3	751
	208-240	1	2.7-3.1	563-751
DI-EFS-2	120	1	12.5	1502
	208-240	1	5.4-6.3	1127-1502
	208-240	3	5.4-6.3	1127-1502
DI-EFS-3	120	1	18.8	2253
	208-240	1	8.1-9.4	1690-2253
	208-240	3	5.4-6.3	1690-2253
DI-EFS-4	120	1	25	3004
	208-240	1	10.8-12.5	2253-3004
	208-240	3	8.1-9.4	2253-3004
DI-EFS-5	120	1	31.3	3755
	208-240	1	13.5-15.6	2816-3755
	208-240	3	10.8-12.5	2816-3755
DI-EFS-6	120	1	37.6	4506
	208-240	1	16.3-18.8	3380-4506
	208-240	3	10.8-12.5	3380-4506

Connect the unit into the proper grounded electrical service. Refer to unit's electrical data tag for correct electrical service requirements. The unit is now ready for operation.

## OPERATING INSTRUCTIONS



### **Initial Setup/Prep Guidelines:**

- Wet Heat
  - Pour one gallon of water or roughly a 1" of water into each well before turning on the unit.
- Dry Heat
  - The use of water for the dry heat setting is not necessary.
- Never pour water into a preheated dry well.
- You must use a pan or lid over the well to reach the proper temperatures.
- Allow the well to preheat for 20 to 30 minutes before using.

### **Powering On the Unit**

- Turn the unit on by switching the Master Switch to the ON position.
- Once on, the red LED light above STANDBY will illuminate on each controller and OFF will appear on each screen.
- Press and hold the STANDBY button for three seconds, h-3 should appear on the screen, this is the normal factory setting for highest Wet setting. The LED should illuminate on WET, HIGH, and LOAD.
- The well will begin heating.

## Selecting the Heating Mode

### Changing Settings:

1. With the unit ON press and HOLD the SET key for 3 seconds.
2. The LED above the SET key will begin to blink.
3. You will have 3 seconds to press the up or down key to select the desired setting.
4. Once the desired setting is selected you may press and hold the Set Key for 3 seconds or wait 3 seconds and the controller will begin running at the desired setting selected.

For settings and temperature ranges see table below.

<b>EF SETTINGS AND TEMPERATURE RANGES</b>			
<u>SETTING</u>	<u>MODE</u>	<u>ELEMENT TEMP</u>	<u>WATER/WELL TEMP OF COVERED WELL</u>
h-1	WET/LOW	240°F	180°F WATER
h-2	WET/MED	265°F	190°F WATER
h-3	WET/HIGH	290°F	210°F WATER
H-4	DRY/LOW	390°F	180°F WELL
H-5	DRY/MED	410°F	200°F WELL
H-6	DRY/HIGH	420°F	250°F WELL

### Powering Off the Unit

- Press and hold the ON/OFF button for three seconds on each well or turn the main power switch to the OFF position.

### Auto Setting on the Controllers

- Auto Restart Feature
  - The controllers can be pre-programmed for your next serving period ahead of time and will remember its settings for easy reuse.
  - Before you turn off the unit, set to the desired set points on the controllers for future use.
  - Next simple turn the power directly OFF from the Master Switch NOT the controllers themselves.
  - When you turn the Master Switch back to the ON position, “AUTO” will be displayed on the screen/screens of the controllers and will restart from the last set point that was selected.



## **CLEANING INSTRUCTIONS**

To maintain the performance and finish of the unit clean the unit daily. Make sure to use cleaning supplies and cleaners designed for cleaning stainless-steel surfaces.

The factory recommends that mild soap and water be used to clean the wells.

Stainless steel:

Use soft cloths, microfiber, sponges, or plastic scouring pads. Avoid using scrapers wire brushes, steel wool or anything that might scratch the surface. Always clean stainless-steel parallel with the “grain”. Use cleaners that contain alkaline, alkaline chlorinated, or non-chloride chemicals.

## **PREVENTATIVE MAINTENANCE**

To ensure that your equipment will continue to operate properly, please follow these simple steps:

1. The food wells should be cleaned thoroughly every day. Food spillage left in the pans such as tomato paste can cause damage to the unit. The acidic base of foods over time can cause pitting of the units.
2. Always wipe the unit down with a damp cloth. Do not spray water directly on the control panel areas or on areas with exposed heating elements.
3. Always drain the units of water at the end of each use and dry wells thoroughly to prevent containments from damaging the well

## TROUBLESHOOTING

<u>COMPLAINT</u>	<u>PROBLEM</u>	<u>SOLUTION</u>
<b>DI HOT FOOD WILL NOT HEAT</b>	PLUG DISCONNECTED	CHECK ALL ELECTRICAL CONNECTIONS
	LINE SWITCH OPEN	CLOSE SWITCH
	BREAKER TRIPPED	RESET BREAKER
	HEATER DEFECTIVE	REPLACE
	LOW VOLTAGE	USING INSTRUMENT CHECK LINE VOLTAGE AND AMPERAGE. VOLTAGE MUST BE WITHIN 10% OF NAME PLATE RATING
<b>CONTROLLER DISPLAYING INIT</b>	TC NOT COMMUNICATING PROPERLY	CHECK CONNECTION POINTS OF THE TC TO THE CONTROLLER
	CONTROLLER NEEDS TO BE POLARIZED	RUN THROUGH POLARIZATION STEPS
	TC DISCONNECTED	CONNECT TC
<b>CONTROLLER FLASHING TC</b>	TC NOT COMMUNICATING PROPERLY	CHECK CONNECTION POINTS OF THE TC TO THE CONTROLLER
	TC POLARITY INCORRECT	TC WIRES NEED TO BE REVERSED
	TC DISCONNECTED	CONNECT TC
<b>CONTROLLER DISPLAYING ER1</b>	TC IS READING 0 VOLTS FOR 5 SECONDS WITH HEATERS ON	CHECK TC CONNECTIONS
	TC DISCONNECTED	CONNECT TC

## REPLACEMENT PARTS

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>STOCK NO.</u>	<u>MFG NO.</u>	<u>MANUFACTURER</u>
1	HOT FOOD UNIT 120/208/240 PAN WITH HEATING ELEMENT	LTMW	-	LTI
1A	HOT FOOD UNIT W/ DRAIN PAN WITH HEATING ELEMENT AND DRAIN 3/4" FPT	LTMWDR	-	LTI
2	HOT FOOD UNIT W/ DRAIN PAN W/ HEATING ELEMENT AND SIDE HEATERS AND DRAIN 3/4" FPT	LTMWDRS	-	LTI
2A	HOT FOOD UNIT W/ DRAIN PAN W/ HEATING ELEMENT AND SIDE HEATERS	LTMWRS	-	LTI
3	HEATER/PLATE ASSEMBLY 72" LEAD	190010	LT0815SA	THERMO
4	EF CONTROLLER SINGLE RELAY	195444	330-HMI-HW-001	330 ELECTRONICS
4A	EF CONTROLLER 2-RELAY	195443	330.2018.1	330 ELECTRONICS

## **INIT INSTRUCTIONS**

### **KEYPAD INSTALLATION PROCEDURES**

**Purpose:** A newly installed keypad will display INIT. This is a factory setting which assures the temperature sensor is properly connected.

**Caution:** The LTI food well is equipped with a high wattage heating element. This procedure asks for HOT WATER to be added as a precaution to protect the heating element from overheating during initialization.

**Caution:** For installations in multiple food well equipment, this procedure presumes the keypad is properly configured and wired for its corresponding food well. For QuickSwitch keypads, see DIP switch settings procedure.

**Note:** The use of HOT WATER in this procedure will help the keypad more quickly recognize the polarity of the temperature sensor connection.

**Step 1:** Add enough HOT WATER to the food well to fully cover the bottom.

**Step 2:** Turn ON power. **Step 3:** Press the UP key five times quickly. For 30 seconds, the display will alternate "PoLr" and temperature while it is trying to detect sensor polarity.

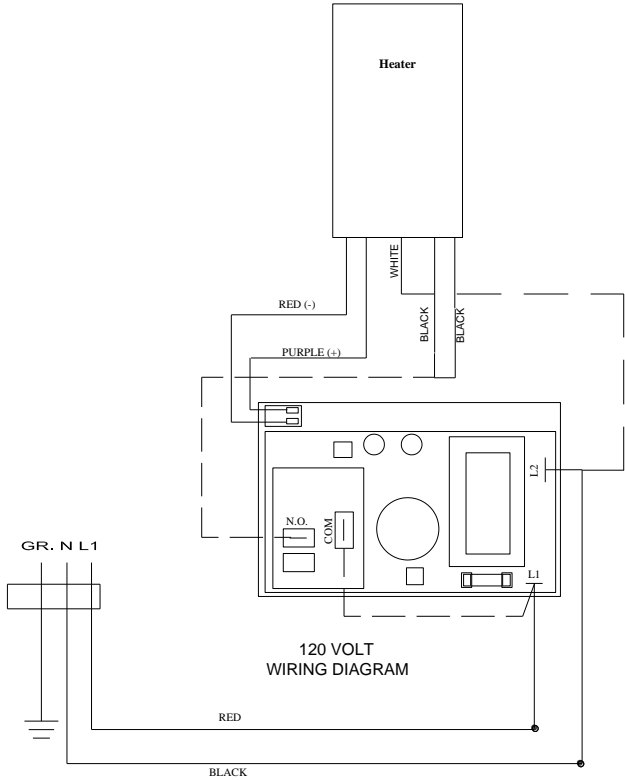
**Step 4:** Verify the correct well is heating.

**Step 5:** After the keypad detects the proper polarity of the temperature sensor connection, "OFF" will be displayed.

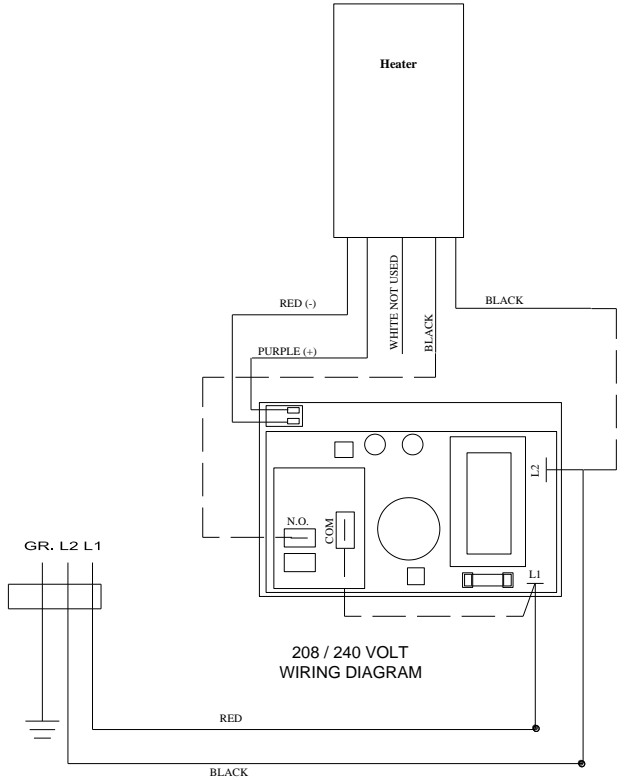
**Step 6:** If the display returns to "INIT" go back to step 3. It may be necessary to do this three or four times.

If you have questions, please contact LTI for help at 888-584-2722 (Terry Taylor or Ben Shackelford)

**WIRING DIAGRAMS**



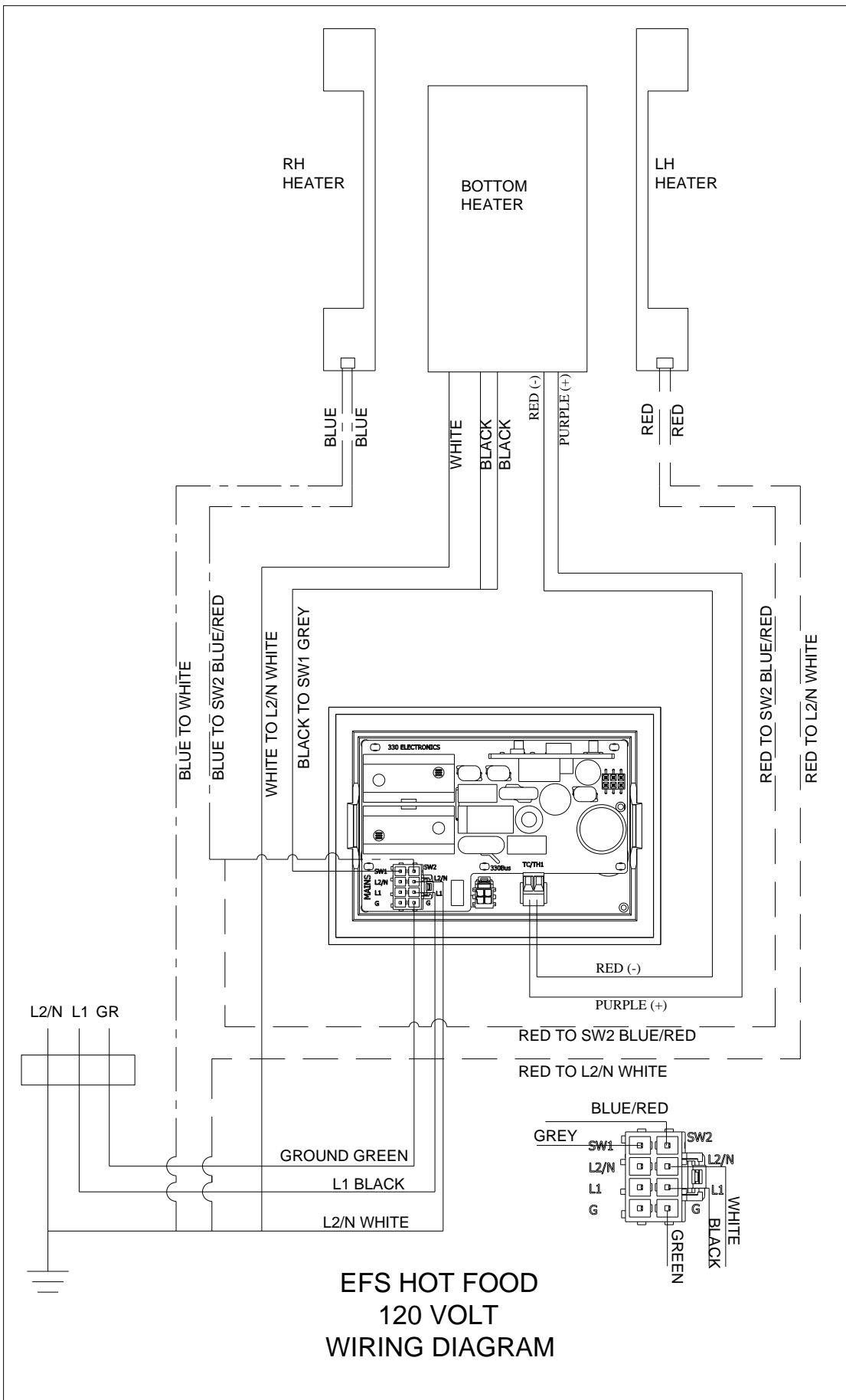
RATED FOR BRANCH CIRCUIT PROTECTION

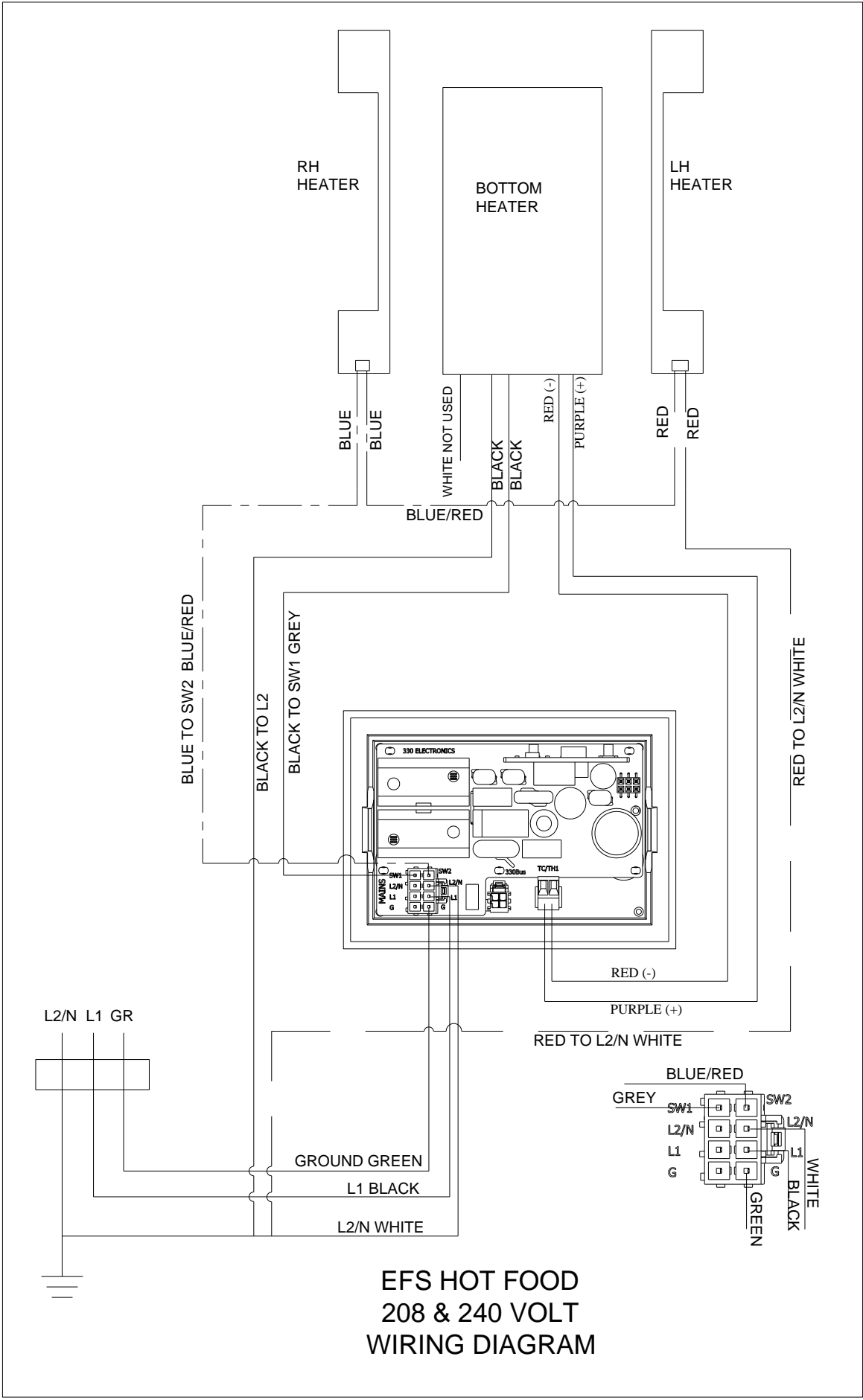


RATED FOR BRANCH CIRCUIT PROTECTION

SPECIFIC PLUG WILL VARY DEPENDING UPON OPTIONS PURCHASED.  
CONSULT FACTORY FOR SPECIFIC PLUG AND POWER REQUIREMENTS

<p>LOW TEMP INDUSTRIES INC. JONESBORO, GEORGIA</p>	<p>WIRING DIAGRAM FOR EF SERIES SINGLE PHASE</p>	<p>WIRING DIARGAM EF-120 VOLT EF- 208/240 VOLT</p>	<p>REV: 08-01-2013</p>	<p>DATE 6-14-12</p>
--	--	--	------------------------	---------------------





## **WARRANTY**

### **LIMITED TWO YEAR WARRANTY**

ALL LOW TEMP EF SERIES HOT FOOD SERVICE EQUIPMENT WELLS AND CONTROLLERS ARE FULLY WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF PURCHASE BY THE ORIGINAL USER AND ONLY TO THE ORIGINAL PURCHASER PROVIDED IT IS INSTALLED AND OPERATED IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED WITH THE UNIT. ALL OTHER ACCESSORIES ARE WARRANTED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF PURCHASE BY ORIGINAL USER. ALSO, IT MUST NOT BE MISUSED, ALTERED OR NEGLECTED AND USED ONLY ON CIRCUITS AND VOLTAGES REQUIRED FOR THAT UNIT.

OUR OBLIGATION UNDER THIS WARRANTY SHALL BE LIMITED TO ONE OF THE FOLLOWING PROCEDURES. SELECTION OF A PROCEDURE SHALL BE AT THE SOLE DISCRETION OF LOW TEMP INDUSTRIES INC.

**LOW TEMP INDUSTRIES, INC. WARRANTY SERVICE DEPARTMENT MUST BE NOTIFIED PRIOR TO ANY SERVICE WORK FOR A WARRANTY AUTHORIZATION NUMBER. ANY REQUESTS FOR WARRANTY CLAIMS WITHOUT A WARRANTY AUTHORIZATION NUMBER WILL NOT BE HONORED.**

- A. REPLACEMENT OF DEFECTIVE PARTS SHIPPED F.O.B. FACTORY, IN EXCHANGE FOR THE RETURNED DEFECTIVE PART, SHIPPED PREPAID FREIGHT.
- B. FREE REPLACEMENT OF DEFECTIVE PART SHIPPED F.O.B. FACTORY.
- C. DEFECTIVE PART SHIPPED PREPAID FREIGHT TO FACTORY, REPAIRED AND RETURNED, SHIPPED: F.O.B. FACTORY.
- D. ALL LABOR COSTS SHALL BE COVERED FOR A PERIOD OF 2 YEARS FROM THE DATE OF PURCHASE.

LOW TEMP INDUSTRIES INC. SHALL NOT BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY FIRE, FLOOD, WINDSTORM, OR ANY OTHER ACT OF GOD; WAR, WHETHER DECLARED OR UNDECLARED NOR SHALL WE BE RESPONSIBLE FOR THE LOSS OF FOOD OR OTHER PRODUCTS DUE TO POWER OR MECHANICAL FAILURE. THIS WARRANTY SHALL NOT COVER ANY DAMAGE CAUSED DURING SHIPMENT WHICH SHOULD BE REPORTED TO THE DELIVERING CARRIER.

**LTI**

**1947 Bill Casey Parkway • Jonesboro, GA 30236**

**Tel: 770-478-8803 • Fax: 1 (770)-471-3715**

**[www.lowtempind.com](http://www.lowtempind.com)**