

---

---

# SERVICE DATA SHEET

**318204828 (1209) Rev. B**

Appliance with Electronic Oven Control

---

---

## NOTICE

This service data sheet is intended for use by persons having electrical and mechanical training and a level of knowledge of these subjects generally considered acceptable in the appliance repair trade. **The manufacturer cannot be responsible, nor assume any liability, for injury or damage of any kind arising from the use of this data sheet.**

## SAFE SERVICING PRACTICES

To avoid the possibility of personal injury and/or property damage, it is important that safe servicing practices be observed. The following are some, but not all, examples of safe practices.

1. Do not attempt a product repair if you have any doubts as to your ability to complete it in a safe and satisfactory manner.
2. Before servicing or moving an appliance, remove power cord from electric outlet, trip circuit breaker to Off, or remove fuse.
3. Never interfere with the proper installation of any safety device.
4. USE ONLY REPLACEMENT PARTS SPECIFIED FOR THIS APPLIANCE. SUBSTITUTIONS MAY DEFEAT COMPLIANCE WITH SAFETY STANDARDS SET FOR HOME APPLIANCES.
5. GROUNDING: The standard color coding for safety ground wires is GREEN OR GREEN WITH YELLOW STRIPES. Ground leads are not to be used as current carrying conductors. IT IS EXTREMELY IMPORTANT THAT THE SERVICE TECHNICIAN REESTABLISH ALL SAFETY GROUNDS PRIOR TO COMPLETION OF SERVICE. FAILURE TO DO SO WILL CREATE A POTENTIAL HAZARD.
6. Prior to returning the product to service, ensure that:
  - All electric connections are correct and secure.
  - All electrical leads are properly dressed and secured away from sharp edges, high-temperature components, and moving parts.
  - All uninsulated electrical terminals, connectors, heaters, etc. are adequately spaced away from all metal parts and panels.
  - All safety grounds (both internal and external) are correctly and securely reassembled.
  - All panels are properly and securely reassembled.

## IMPORTANT NOTES

1. This unit includes an EOC - Relay Board and an EOC - Display Board.
2. The included board is not field repairable.
3. The oven temperature can be calibrated, see Use and Care Manual.
4. The ■ pin on board connectors indicates pin number 1.

## DATA SHEET ABBREVIATIONS AND TERMINOLOGY

EOC : Electronic Oven Control

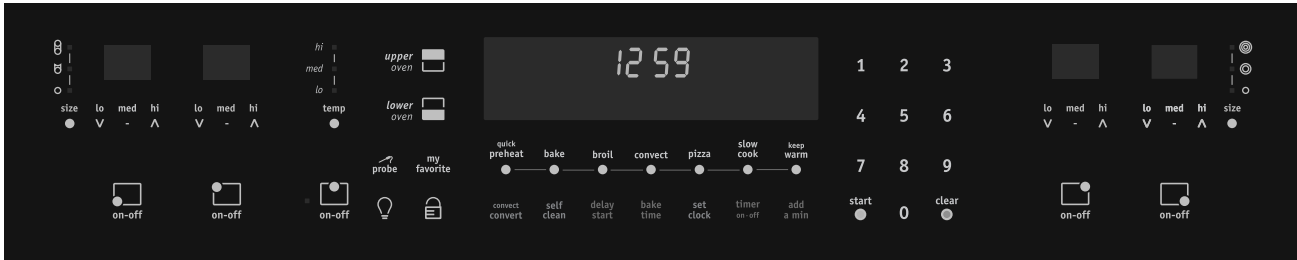
LED : Light-Emitting Diode

MDL : Motor Door Latch

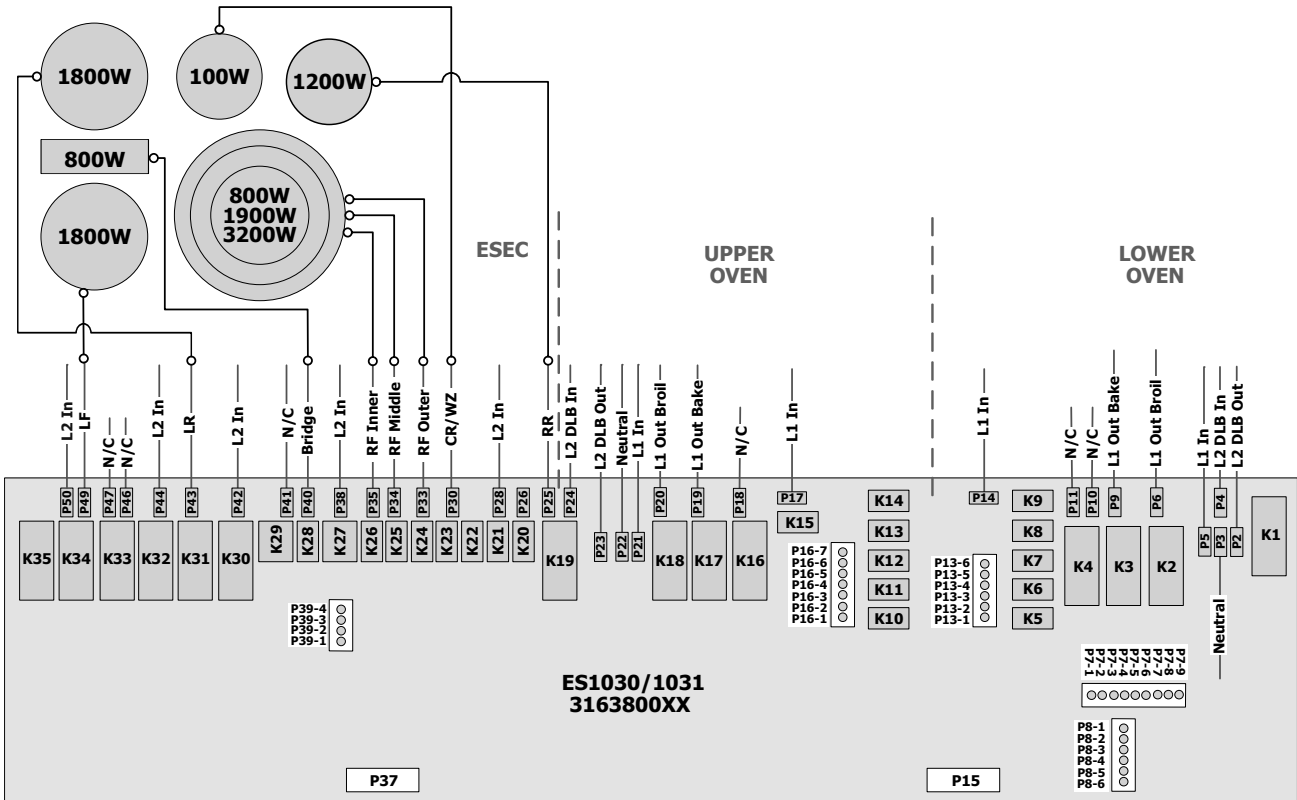
DLB : Double Line Break

RTD : Resistance Temperature Detector / Oven Probe

# ILLUSTRATION OF OVEN CONTROLS



# ELECTRONIC CONTROL BOARD



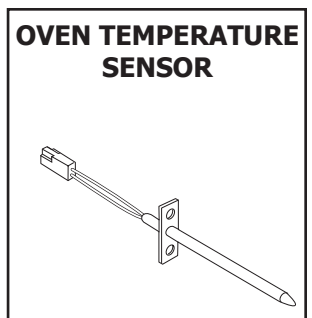
## ELECTRONIC CONTROL BOARD (CONTINUED)

### Electronic control board Legend:

- P2-** Double line break (I2 out), lower oven;  
**P3-** Neutral;  
**P4-** L2 in, lower oven;  
**P5-** L1, lower oven;  
**P6-** Broil, lower oven;  
**P7-** Relay control output (MDL, door, RTD);  
**P8-** Hot surface elements;  
**P9-** Bake, lower oven;  
**P13-** Relay control output lower oven (Light, MDL);  
**P15-** Keyboard connection;  
**P16-** Relay control output, upper oven (Light, MDL);  
**P19-** Bake, upper oven;  
**P20-** Broil, upper oven;  
**P21-** L1, upper oven;  
**P22-** Neutral;  
**P23-** DLB (L2 out), upper oven;  
**P24-** L2 in, upper oven;  
**P25-** Right rear element;  
**P28-** L2 in;  
**P30-** Center rear element;  
**P33-** Right front 3 element;  
**P34-** Right front 2 element;  
**P35-** Right front 1 element;  
**P37-** Keyboard connection;  
**P38-** L2 in  
**P39-** Temperature probe input;  
**P40-** Left rear 2 element;  
**P42-** L2 in  
**P43-** Left rear 1 element;  
**P44-** L2 in;  
**P49-** Left front element;  
**K1-** DLB, lower oven;  
**K2-** Broil, lower oven;  
**K3-** Bake, lower oven;  
**K5-** MDL, lower oven;  
**K6-** Conv. fan, lower oven;  
**K7-** Oven light, lower oven;  
**K8-** Conv. element, lower oven;  
**K10-** MDL, upper oven;  
**K11-** Conv. fan, upper oven;  
**K12-** Oven light, upper oven;  
**K13-** Conv. element, upper oven;  
**K17-** Bake, upper oven;  
**K18-** Broil, upper oven;  
**K19-** DLB, upper oven;  
**K20-** Right rear element;  
**K23-** Center element;  
**K24-** Right front 3 element;  
**K25-** Right front 2 element;  
**K26-** Right front 1 element;  
**K28-** Left rear 2 element;  
**K31-** Left rear 1 element;  
**K34-** Left front element.

RTD SCALE		
Temp. °F	Temp. °C	Resistance (ohms)
32 ± 1.9	0.0 ± 1.1	1000 ± 4.0
75 ± 2.5	23.9 ± 1.4	1091 ± 5.3
250 ± 4.4	121.1 ± 2.4	1453 ± 8.9
350 ± 5.4	176.7 ± 3.0	1654 ± 10.8
450 ± 6.9	232.2 ± 3.8	1852 ± 13.5
550 ± 8.2	287.8 ± 4.6	2047 ± 15.8
650 ± 9.6	343.3 ± 5.3	2237 ± 18.5
900 ± 13.6	482.2 ± 7.6	2697 ± 24.4

ELECTRICAL RATING	
Upper Oven Broil Element Wattage	3400W / 2554W
Upper Oven Bake Element Wattage	2500W / 1879W
Lower Oven Broil Element Wattage	3400W / 2554W
Lower Oven Bake Element Wattage	2500W / 1879W
KW Rating 240/208V	See serial plate



**UPPER OVEN CIRCUIT ANALYSIS MATRIX**

	On Relay Board							On Display Board
	ELEMENTS		Conv. Fan	Conv. Element	Oven Light P16-3	Door Motor P7-6	DLB L2 out P23	Door Switch P7-5 / P7-4
	Bake P19	Broil P20						
Bake	X	X	X*	X*			X	
Broil		X					X	
Conv. Bake	X	X	X	X				
Conv. Roast	X	X	X	X				
Conv. Broil		X	X					
Clean	X	X					X	
Locking / Unlocking						X		
Light					X			
Door Open					X			
Door Closed							X	

**LOWER OVEN CIRCUIT ANALYSIS MATRIX**

	On Relay Board							On Display Board
	ELEMENTS		Conv. Fan	Conv. Element	Oven Light P13-3	Door Motor P7-3	DLB L2 out P2	Door Switch P7-7 / P7-4
	Bake P9	Broil P6						
Bake	X	X	X*	X*			X	
Broil		X					X	
Conv. Bake	X	X	X	X				
Conv. Roast	X	X	X	X				
Conv. Broil		X	X					
Clean	X	X					X	
Locking / Unlocking						X		
Light					X			
Door Open					X			
Door Closed							X	

Relay will operate in this condition only      \* Only active in Preheat

## ELECTRONIC OVEN CONTROL (EOC) FAULT CODE DESCRIPTIONS

**Note:** Generally speaking "F1x" implies a control failure, "F3x" an oven probe problem, and "F9x" a latch motor problem.

Code	Condition / Cause	Suggested Corrective Action
F10	Control has sensed a potential runaway oven condition. Control may have shorted relay, RTD sensor probe may have a gone bad.	- Check RTD sensor probe and replace if necessary. If oven is overheating, disconnect power. If oven continues to overheat when power is reapplied, replace the EOC-Display Board.
F11	Shorted Key: a key has been detected as pressed (for a long period) will be considered a shorted key alarm and will terminate all oven activity.	- Press CANCEL key. - If fault returns, replace the keyboard (membrane). - If the problem persists, replace the EOC- Display Board.
F13	Control's internal checksum may have become corrupted.	- Press CANCEL key. - Disconnect power, wait 10 seconds and reapply power. If fault returns upon power-up, replace EOC-Display Board.
F14	Misconnected keyboard cable.	- Disconnect power. Verify the flat cable connection between the keyboard membrane and the EOC- Display Board on J2. - If the problem persists, replace the EOC- Display Board. - If the connection is good but the problem persists, replace the keyboard (membrane switch).
F15	Controller self check failed.	- Replace the EOC- Display Board.
F30	Open RTD sensor probe/ wiring problem. Note: EOC may initially display an "F10", thinking a runaway condition exists.	- Check wiring in probe circuit for possible open condition. - Check RTD resistance at room temperature (compare to probe resistance chart). If resistance does not match the chart, replace the RTD sensor probe.
F31	Shorted RTD sensor probe / wiring problem.	- Let the oven cool down and restart the function - If the problem persists, replace the EOC- Display Board.
F42	ESEC configuration error	The ESEC relays or parameters has been configured in error. If the problem persists, replace the EOC-Display board.
F60	Electronics high temperature.	The EOC-Display board ambient temperature has recorded a high temperature for a extended period of time. Press CANCEL key, and wait for the unit to cool down for about 2 hours. If CANCEL key does not eliminate the problem, turn OFF power and wait for 30 seconds, then turn ON power. If problem persists, replace the EOC-Display board.
F62 F64	Missing zero-cross signal.	- The 60Hz synchronization signal (zero-cross) is sent by the EOC-Relay Board to the EOC-Display Board. Verify first the connection between the EOC-Relay Board on connector J2 pin 5 and the EOC-Display Board on connector P2 pin 5 (check for continuity). - If wiring is good, replace the EOC-Relay Board. - If problem persists, replace the EOC- Display Board.
F65	Membrane key failure.	The EOC-Display board has detected a failure of one or more keyboard electronic parts. Press CANCEL key. Verify the flat membrane cable connection between the keyboard membrane and the EOC-Display board. If the problem persists, replace the EOC-Display board. If the problem persists, Replace the keyboard membrane switch.

## ELECTRONIC OVEN CONTROL (EOC) FAULT CODE DESCRIPTIONS

<b>F66</b>	DC Power supply failure.	The EOC-Display board has detected that one or more of the DC supply voltages are outside of its normal range. Press CANCEL key. If CANCEL key does not eliminate the problem, turn OFF power for 30 seconds, then turn ON power. If the problem persists, replace the EOC-Display board.
<b>F68</b>	Power line failure.	Press CANCEL key. If CANCEL key does not eliminate the problem, turn OFF power for 30 seconds, then turn ON power. Check electrical wiring of unit or the house. This error can be produced if either phase inputs or the neutral input is not connected, or connected to the same supply phase, or power phase inputs is reversed. If all above steps fail to correct the situation, replace the EOC-Display board.
<b>F90</b> <b>F91</b> <b>F95</b>	Door motor mechanism failure. The controller does not see the motor rotating.	<ul style="list-style-type: none"> <li>- Press CANCEL key.</li> <li>- If CANCEL key does not eliminate problem, turn off power for 30 seconds, then turn on power.</li> <li>- Check wiring of Lock Motor, Lock Switch and Door Switch circuits.</li> <li>- Unplug the lock motor from the board and apply power (L1) directly to the Lock Motor. If the motor does not rotate, replace Lock Motor Assembly.</li> <li>- Check Lock Switch for proper operation (do they open and close, check with ohmmeter). The Lock Motor may be powered as in above step to open and close Lock Switch. If the Lock Switch is defective, replace Motor Lock Assembly.</li> <li>- If all above steps fail to correct situation, replace the EOC-Display Board or the EOC- Relay Board in the event of a motor that does not rotate.</li> </ul>

# NOTES

# OVEN BLOCK DIAGRAM

Frigidaire Gallery 2012 Double Free-Standing Range Block Diagram and Interconnections  
Use this as a complement to the wiring diagram to trouble-shoot an oven

## ES103x Relay and Power Board

