Service Manual
MSFR19010 EN

(December 2019)

Related models:

RBF 78720
RBF 78630
RBF 74620

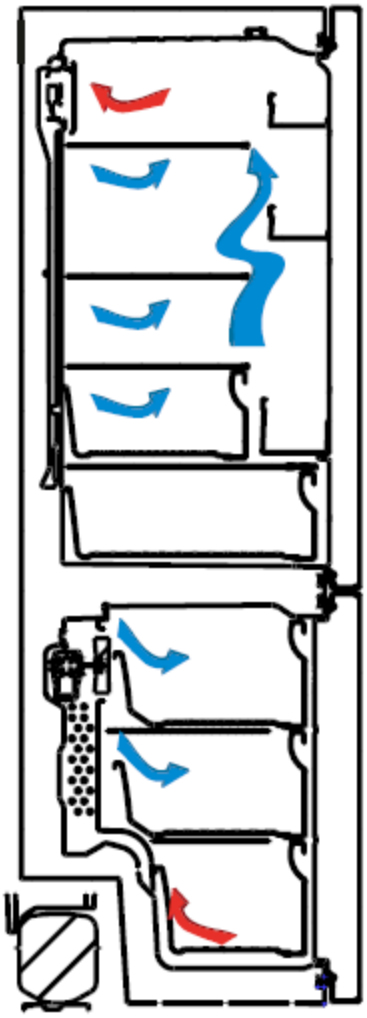
Contenido

1. Introduction

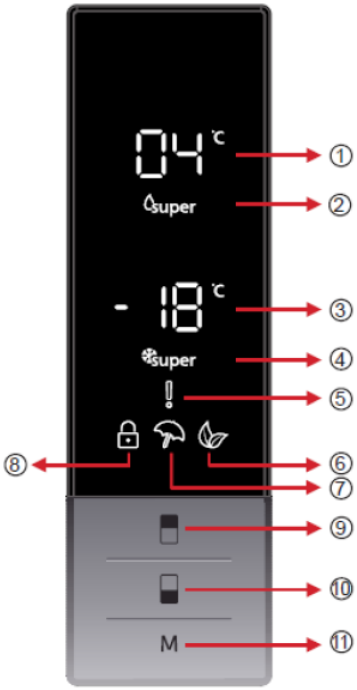
This manual explains the general operation of the RBF range refrigerators, how to enter the service mode and the meaning of the different error messages that could be displayed.

2. General description

All the models in the RBF range are electronic no-frost refrigerators. The temperature in each compartment can be adjusted independently, and there's no air flowing from one to the other.



3. Control panel



1. Refrigerator setting
2. Quick cooling mode indicator
3. Freezer setting
4. Quick freezing mode indicator
5. Alarm indicator
6. ECO mode indicator
7. Holiday mode indicator
8. Child lock indicator
9. Refrigerator Tª sensor
10. Freezer Tª sensor
11. "Mode" sensor

In order to set the temperature of a compartment, first, the sensor of that compartment must be pressed to select it, and then, press it repeatedly until the desired temperature is shown in the display. After a few seconds, the value is set in memory.

4. General operation

The range of values that can be set for each compartment are:

- Refrigerator: 2ºC a 8ºC
- Freezer: -16ºC a - 24ºC

The compressor will be on until both compartments reach the target temperature. For example, if the target temperature in the refrigerator is reached, but the temperature in the freezer isn't, the compressor goes on working and a heater element in the refrigerator is turned on to prevent too low temperatures.

Operating modes

Super cooling mode: when selected, target temperature in refrigerator is set to 2ºC.

Super freezing mode: when selected, target temperature in refrigerator is set to -24ºC.

Holyday mode: when selected, the freezer is set to -18ºC and the refrigerator to +16ºC.

ECO mode: when selected, the control board will decide the internal parameters in order to reduce consumption. The display will show “E”.

Drink cooling mode: when selected, it will be requiered to choose how long this mode should be active. After that time, this mode will be turn off automatically..

Demo: in order to turn on the “DEMO” mode, within the first 60 seconds after plugging the refrigerator, press simultaneously for 5 seconds the sensors “M” and “Freezer Set”. Every 10 seconds “dE” – “On” will be displayed. This mode won’t be cancelled after a black out. To cancel it, follow the same steps as to activate it.

First start

When the refrigerator is plugged to the power supply, if the defrost sensor is measuring a temperature higher than -5ºC, the next steps are executed:

- The compressor and fan turn on for 5 seconds.
- The defrost element turns on for 5 seconds.
- The heater element in the refrigerator turns on for 5 seconds.
- Refrigerator’s fan turns on for 5 seconds.

After this sequence ends, the refrigerator stops for 5 minutes, and then will start to work normally.

After a black out, settings are kept in memory, so they won’t be restored to factory settings.

Freezer defrosting

Depending on the use of the refrigerator (quantity of food and liquids, door openings, …), the defrosting cycle is turned on after a minimum of 8 hours, and a maximum of 55 hours. The defrost cycle ends when the defrost sensor reaches 8ºC. If it takes longer that 37 minutes, the target temperature will be set to 15ºC.

Refrigerator defrosting

The defrosting cycle in the refrigerator turns on at the same time that the defrost cycle in the freezer, unless the sensor does not detect +5ºC three times in 9 hours, having at least 5 hours of compressor working time. The defrosting cycle ends when the sensor measures +7ºC.

5. Service test

To enter de Service test, these steps must be followed:

- Press and keep pressed the Freezer Set sensor while open and close the refrigerator's door 3 times. After 3 seconds, the Service test is launched.
- If a component fails, an error message will be displayed in this moment. Otherwise, nothing is displayed.
- While in Service test mode, there is a "beep" every 5 seconds.
- The Child lock LED will blink.
- The different functions can be accessed pressing the sensor "M", according to the table below.

Funciones modo servicio	
TOUCHING M (MODE) BUTTON ONCE	***Starting mode:*** - Eco icon blinks. - The number of components which is controlled is shown at freezer segments of display. - Eco icon goes off when the starting test finishes and then display returns to initial service mode..
TOUCHING M (MODE) BUTTON TWICE	***Manual Defrost:*** -Holiday icon blinks. -Defrost might be finished manually or automatically. -Defrost might be finished manually by using the cooling set button. Holiday icon goes off and display returns to initial service mode. -Automatic defrost operates according to the standard defrost time. -Holiday icon goes off when he when the manual defrost ends and display returns to initial service mode.
TOUCHING M (MODE) BUTTON 3 TIMES	***Motor Damper control mode (only models with damper):*** -Fast Cooling icon blinks. -There is no function due to not having damper component in the product. -SC icons goes off and display returns to initial service mode.
TOUCHING M (MODE) BUTTON 4 TIMES	***Current temperature values indicator:*** -Fast freezing icon blinks. -Pressing the Freezer set sensor, current values will be displayed: 1 – Refrigerator's sensor. 2 – Freezer's sensor. 3 – Defrosting sensor. 4 – Ambient sensor (not available in these models) 5 – Refrigerator's defrosting sensor -Touching cooler set icon, function will be finished manually. -Fast freezeng icon goes off and display returns to initial service mode.
TOUCHING M (MODE) BUTTON 5 TIME	***Door switch control:*** -No icons at display. -Cooler set segment gives information about cooler door. -Mode just could be deactivated by cooler set button.

6. Error messages

The table below shows the different error messages that can be displayed and their meaning:

Mesg. In display	Mesg in service mode	Description
SR	*FE01*	Failure in freezer sensor (1) (*)
SR	*FE02*	Failure in refrigerator sensor (2) (*)
SR	*FE03*	Failure in defrosting sensor (3) (*)
SR	*FE04*	Failure in refrigerator's defrosting sensor (5) (*)
SR	*FF12*	Failure in (1) y (2) (*)
SR	*FF13*	Failure in (1) y (3) (*)
SR	*FF15*	Failure in (1) y (5) (*)
SR	*FF23*	Failure in (2) y (3) (*)
SR	*FF25*	Failure in (2) y (5) (*)
SR	*FF35*	Failure in (3) y (5) (*)
SR	*FH02*	Failure in (1), (3) y (5) (*)
SR	*FH04*	Failure in (1), (2) y (3) (*)
SR	*FH05*	Failure in (1), (2) y (5) (*)
SR	*FH06*	Failure in (2), (3) y (5) (*)
SR	*FU00*	Failure in all the sensors (*)
SR	*FO05*	Failure in compressor, (3) Temperature is above -10ºC after 10 minutes working.
SR	*FO06*	Failure in defrosting cycle. (3) Temperature does not reach 0ºC
Muestra "-" en ambos displays	–	Low voltage. Voltage is under < 170 V.
Parpadea display congelador y alarma	*CO01*	(1) does not drop below -10ºC (**)
Parpadea display conservador y alarma	*CO02*	(2) is above 10ºC and Holiday mode is not active. (**)
Parpadea display conservador y alarma	*CO03*	Temperature too low in refrigerator. (2) drops below -5ºC(**)
Parpadean ambos displays y alarma	*CO04*	(2) is above 15ºC y (1) above -10ºC(**)

(*) If a failure in a sensor is displayed, follow the steps below:

- Check the wiring and conections between the sensor and de control board.

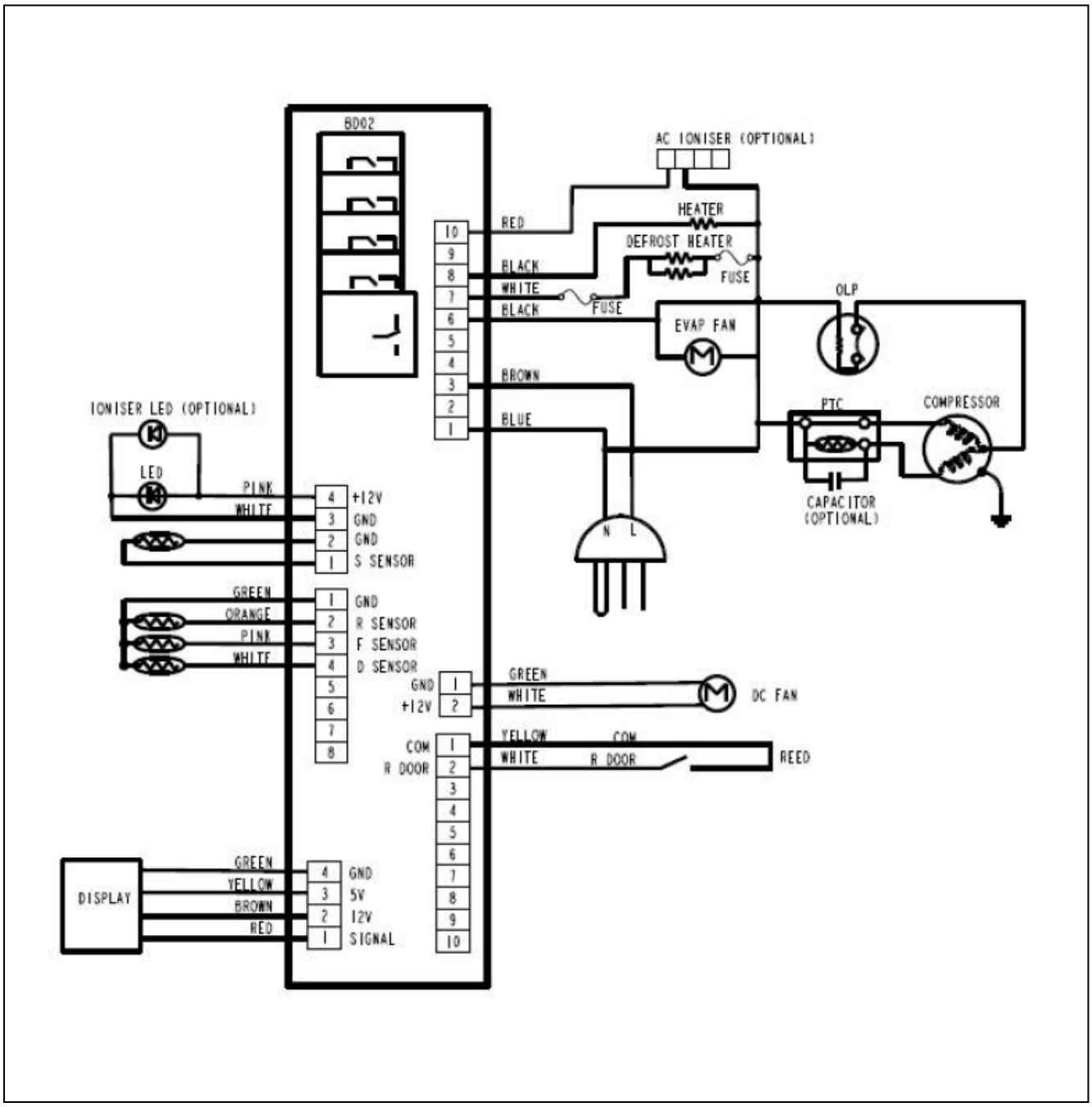
- Check the ohmic value of the sensor, and compare it with the table in section 8. If the sensor is “open” (value ≈ ∞) or “short-circuited” (value ≈ 0Ω), it must be replaced.

- If the previous steps are correct, the control board must be replaced.

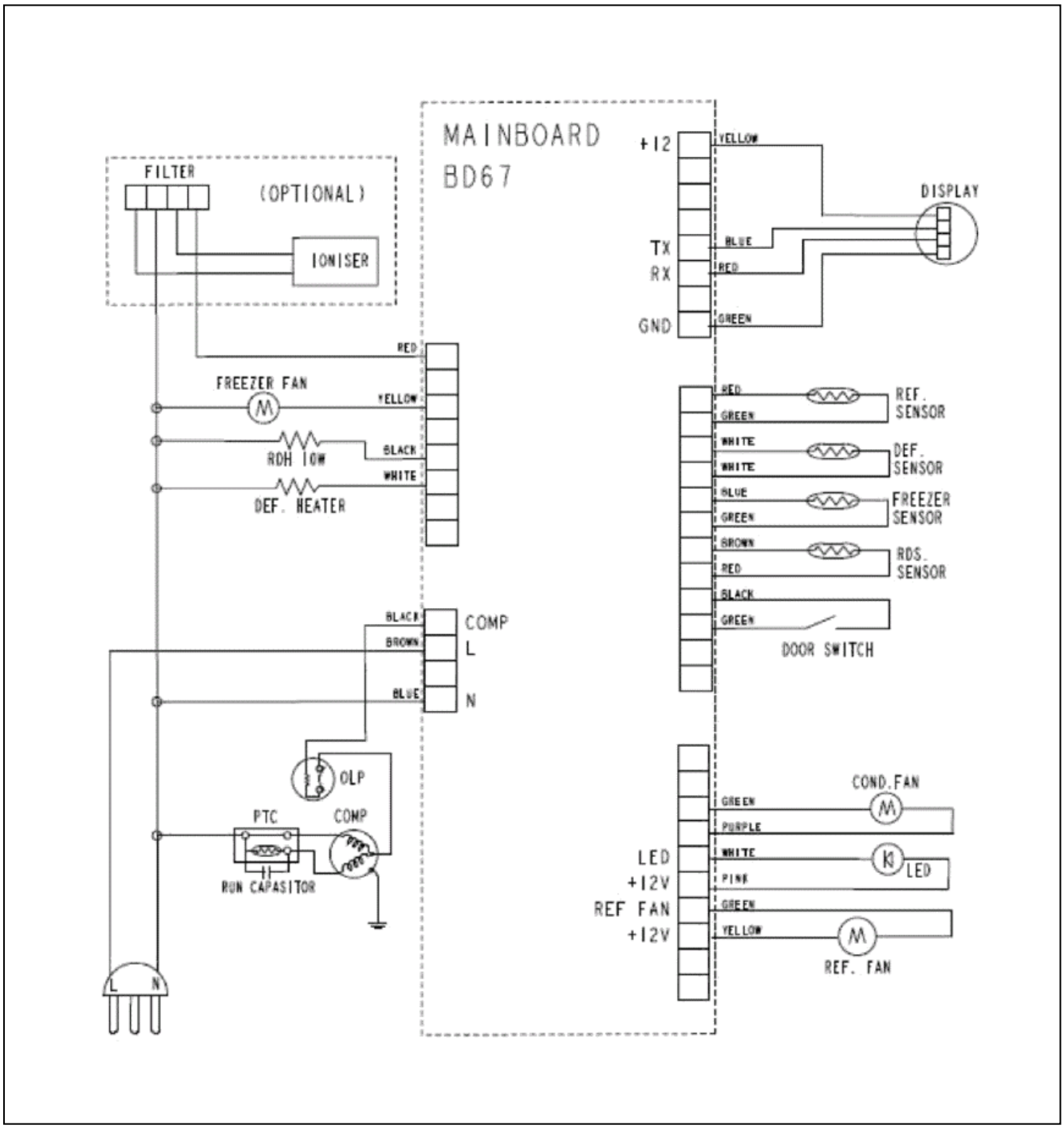
(**) In order to avoid fake alarms, error messages won’t be displayed under the following conditions:

- Within 6 hours after plugging the appliance to the power supply.
- Within the defrost cycle.
- Within 2 hours after a defrost cycle.
- Within 2 hours after a door opening.

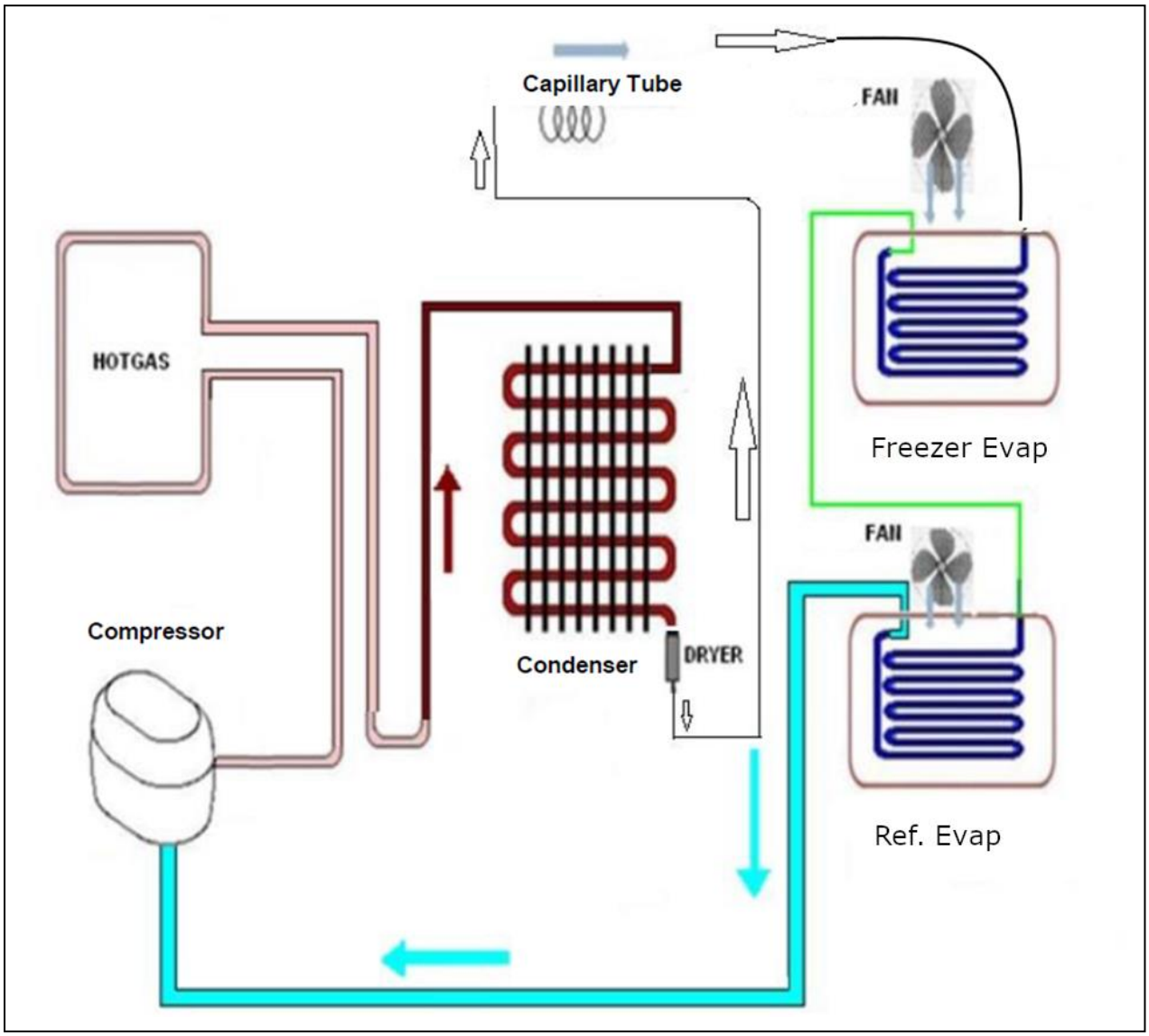
7. Wiring diagram RBF 78630/74620



8. Wiring diagram RBF 78720



9. Refrigerant circuit



10. Components

Temperature sensors

All temperature sensor have the same measuring range:

Congelador y conservador			
T(ºC)	***R(KΩ)***	***T(ºC)***	***R(KΩ)***
45 °C	1kΩ	-1 °C	6.2kΩ
35 °C	1.5kΩ	-3 °C	6.8kΩ
30 °C	1.8kΩ	-5 °C	7.5kΩ
25 °C	2.2kΩ	-7 °C	8.2kΩ
19 °C	2.7kΩ	-12 °C	10kΩ
14 °C	3.3kΩ	-15 °C	12kΩ
10 °C	3.9kΩ	-20 °C	15kΩ
5.5 °C	4.7kΩ	-24 °C	18kΩ
1.5 °C	5.6kΩ	-31.5 °C	27kΩ
0 °C	6kΩ	-35.5 °C	33kΩ

Desescarche			
Tª(ºC)	***R (KΩ)***	***Tª(ºC)***	***R (KΩ)***
45 °C	2.15kΩ	-1 °C	17.1kΩ
35 °C	3.26kΩ	-3 °C	19kΩ
30 °C	4.02kΩ	-5 °C	21.1kΩ
25 °C	5kΩ	-7 °C	23.5kΩ
19 °C	6.53kΩ	-12 °C	30.8kΩ
14 °C	8.23kΩ	-15 °C	36.5kΩ
10 °C	9.95kΩ	-20 °C	48.6kΩ
5.5 °C	12.3kΩ	-24 °C	61.5kΩ
1.5 °C	15kΩ	-31.5 °C	98kΩ
0 °C	16.3kΩ	-35.5 °C	12.6kΩ

Important: To check the temperature sensors:

- They must be disconected from the control board.
- Real temperature must be measured in order to compare it with the sensor measurement.

Fans

- Refrigerator fan

	Supply voltage: 12 VDC

- Freezer fan

	Supply voltage: 230 VAC

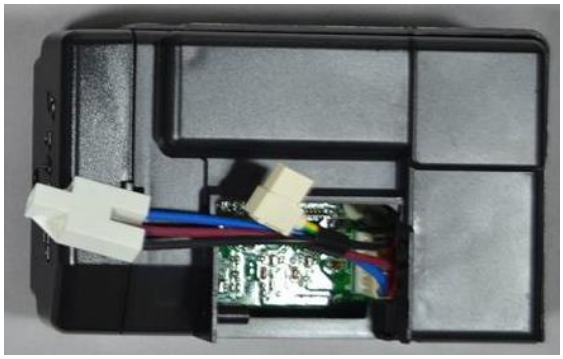
- Condensator fan (only RFB 78720)

	Supply voltage: 12 VDC

Compressor

Supply voltage: 230 VAC – 50 Hz.

*Model RBF 78630 has an inverter compressor, powered by an specific power board.



Defrosting element

	RBF 78630/74620 Supply voltage: 230 VAC Power: 124 W RBF 78720 Supply voltage: 230 VAC Power: 160 W

Thermal fuse

The thermal fuse breaks if the temperature reaches over 77ºC.