

# Service Manual

## Cooling/ Freezing

### ERF 2002

Service Manual H8-74-12\_EN  
29.01.2019



Read the technical manual carefully to insure safe and proper performance of the work and store it for later use.

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Küppersbusch

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## **Service Manual:**

### **H8-74-12**

Technical information applies to the following electronics

441521	electronics
441906	electronics
442014	electronics
441992	electronics
442025	electronics
442496	electronics
442494	electronics
442700	electronics
442900	electronics
442948	electronics
443085	electronics
441521	electronics

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# 1 Basics

## 1.1 Purpose of this manual

The purpose of this manual is to provide service personnel (who already have the basic knowledge necessary for repairing refrigerators and freezers) with information on appliances equipped with the EFR 2002 electronic control system.

Inappropriate repairs may cause harm to the users.



### CAUTION

- Before starting work on an appliance, check that the earth in the lodging is working properly by using an appropriate tool and follow the instructions described/illustrated in this manual.
- When the work is finished check that the appliance's safety conditions have been reinstated, as though it were straight off the assembly line.
- In the event of replacing electrical parts, carefully check that the earthing and all connections have been re-connected professionally.
- To handle/replace the circuit board, use the kit ESD to avoid electrostatic discharge damaging the electronic circuit board.

## 1.2 Suitable protection




All the work to be performed inside the appliance requires specific skills and knowledge and may only be carried out by qualified and authorised service engineers.

Some of the components and mechanical part could cause injuries, so wear suitable protection and proceed with caution.

Symbol	Signification
	Protective gloves protect the hands from infections as well as from slight bruises and cuts.
	Safety glasses protect the eyes from objects such as splinters.
	Safety shoes offer good slip resistance, especially in wet conditions as well as a high penetration resistance (eg with nails) and protect the feet from falling objects (eg during transport).
	Protective clothing protect the hands from infections as well as from slight bruises and cuts.

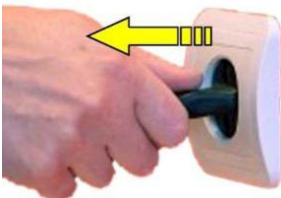
## 1.3 Danger symbols

Warnings of damage to persons are marked according to DIN EN 82079-1.

Warning symbols and signal word	Meaning
 <b>DANGER</b>	Note indicating an imminent threat which may result in death or very serious injury.
 <b>WARNING</b>	Note indicating an imminent threat which may result in death or very serious injury.
 <b>CAUTION</b>	Note indicating a dangerous situation which may result in minor injury or damage to the appliance.

Warnings of damage to property are marked with the signal word **ATTENTION**.

## 1.4 Safety switch

Safety switch	Signification
	This appliance is not fitted with a switch that completely disconnects the power supply, so before you access internal components, take the plug out of the socket to disconnect the power supply.
	When replacing components, please refer to the code shown in the list of spare parts relating to the appliance.
	If you need to lay down the appliance to carry out work, lay it on its back side.

## 1.5 Electrical Safety



### WARNING

#### WARNING of electrical energy Risk of fatal injury!

- All parts of this appliance capable of conducting electrical current are grounded.
- If grounding wires, screws, straps, clips, nuts or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.
- If grounding wires, screws, straps, brackets, nuts, or washers required for grounding have been removed for service, they must be returned to their old location and properly fixed.
- Disconnect the appliance from the mains prior to carrying out any repair work!
- If electrical power is required for diagnostic or test purposes, disconnect the appliance from the power supply immediately after performing the necessary checks.
- When testing under voltage, be sure to use a residual current circuit breaker. The earth connection must not exceed the standardized values. This is extremely important for the safety of the people and functionality of the appliance.
- The housing and the frame may be submitted to voltage in the case of a fault.
- Do not touch any part inside the appliance; the electronic module could be subject to high voltage.
- After the repair, VDE 0701 tests must be carried out, or following the specific standards of the country.

## 1.6 Spare parts

There are more and more copies of high-quality spare parts and additional components on the market. With the naked eye plagiarisms are often indistinguishable from the original.

For counterfeit products, the problem lurks in detail: Parts are not hardened, corrosion protection is missing or gasket and lubricant do not fulfill their purpose. Instead of a high quality tempered steel, the manufacturer of the copies may have used only one (inferior) standard steel for economic reasons.

The installation of unauthorized parts affects the safety and excludes a warranty.

When replacing use only original parts.

## 1.7 Environmental Protection

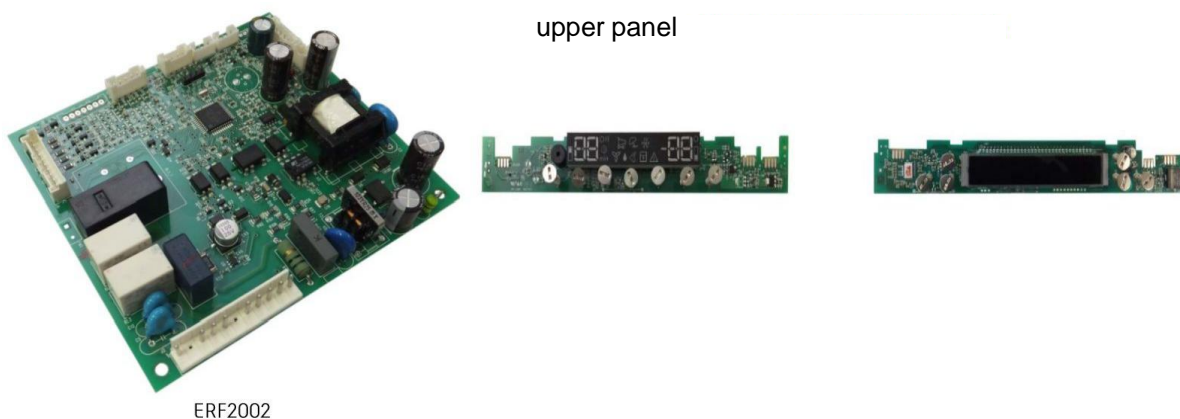
Electrical appliances and batteries must not be disposed of with household waste. Observe regional waste disposal regulations for the protection of the environment. Your dealer is obliged to take back used electrical appliances and batteries.



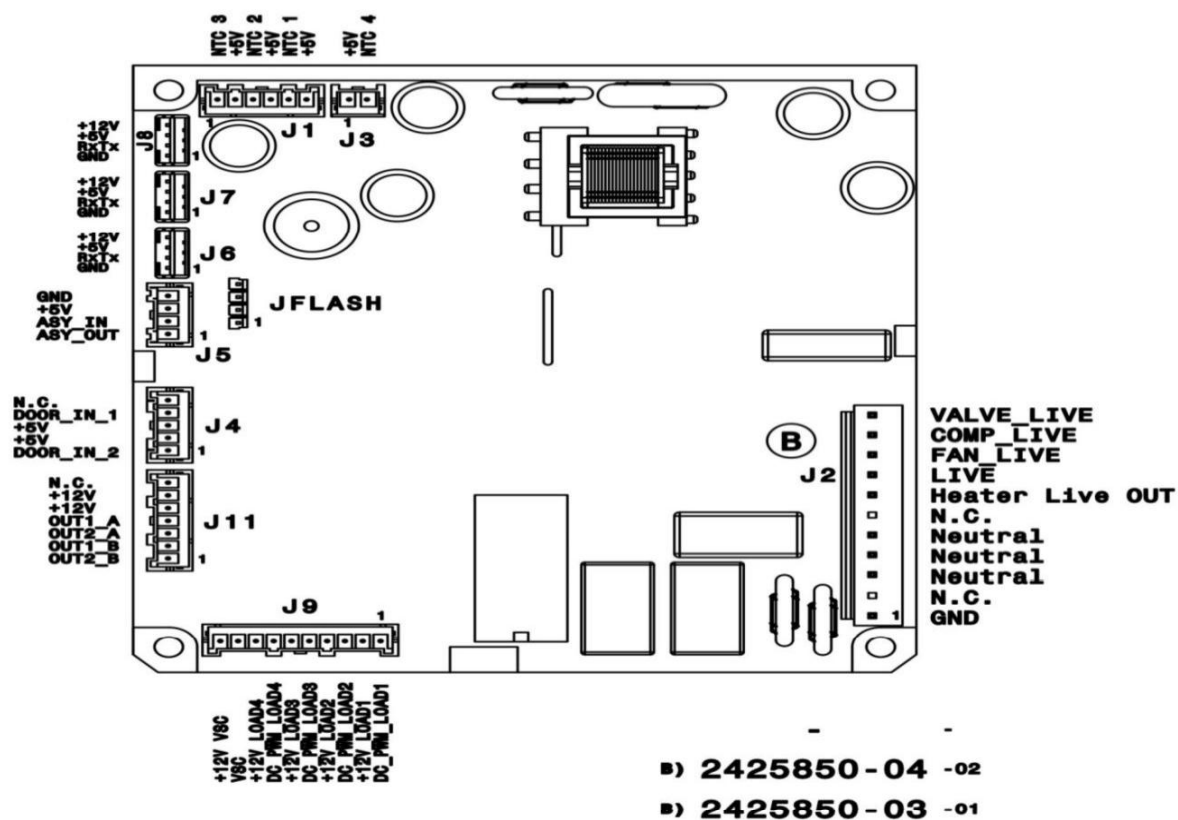
# 2 General characteristics

The main electronic ERF2992 can be connected to different types of user interfaces.

The main electronic communicates through a serial interface when the insulation is not needed via six wires and through a standard protocol based on MACS with insulated user interface via three wires.



### 3 Connectors




## 4 Service mode and Demo mode

### 4.1 Service mode INSPIRATION range

- Plug the appliance into the mains.  
If the appliance is in operation, unplug it from the mains, wait 10 seconds before plugging it back.



- Wait 5 seconds and then hold pressed down .



- After 5 seconds all symbols will appear, which means that the appliance has gone into the auto-diagnosis mode. If this does not happen it probably means that the time frames have not been respected. Repeat the process from point 1.



- To select a load or a sensor press repeatedly , until the corresponding number is shown (eg. 1 = motor).



- To turn on the load press any key except the one you pressed previously (eg. freezer compartment).
- When the load is turned on an umbrella icon will appear on the display.



- To turn the load off, press FREEZER COMPARTMENT key again. The umbrella icon disappears which means that the load has been turned off.



Proceed as described above to turn the loads on and off. On these platforms it is impossible to



pass from one function to another by going backwards. If you need to go backwards to a previously activated test you must complete the sequence until you return to the required combination.  
It is possible if you wish, to turn on several elements simultaneously.

## 4.2 Demo mode - Inspiration range

The demo mode can be activated on single appliances and combi appliances only when the air temperature is warmer than 10°C in the compartment or the temperature probes are disconnected.

### Demo mode activation

- Turn the appliance on and press 9 times the ON/OFF key. The buzzer sounds for **approx. 3 seconds and DEMO** appears on the display.



### Demo mode deactivation

- Press and hold down the MODE key for approx. 10 seconds. The buzzer sounds and **DEMO** disappears.



### ATTENTION!

In case of power failure, or when the appliance is switched off, the Demo mode remains active.

## 4.3 Service mode NEW COLLECTION range

- Plug the appliance into the mains.  
If the appliance is in operation, unplug it from the mains, wait 10 seconds before plugging it back.



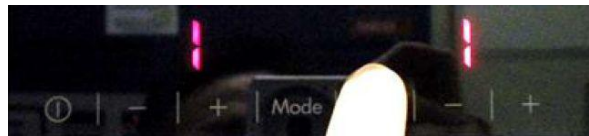
- Wait 5 seconds and then press and hold down **OK**.



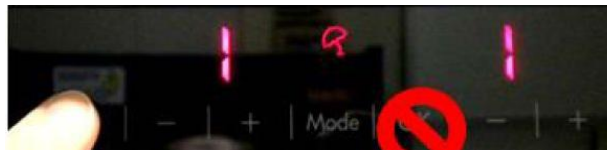
- After 5 seconds all symbols will appear, which means that the appliance has gone into the auto-diagnosis mode. If this does not happen it probably means that the time frames have not been respected. Repeat the process from point 1.



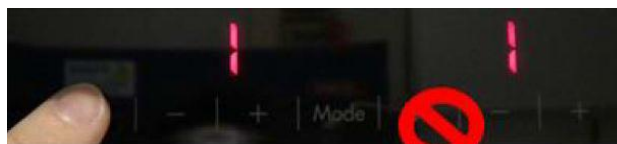
- To select a load or a sensor press repeatedly **OK**, until the corresponding number is shown (eg. 1 = motor).



- To turn on the load press any key except the one you pressed previously (eg. freezer compartment).
- When the load is turned on an umbrella icon will appear on the display.



- To turn the load off, press FREEZER COMPARTMENT key again. The umbrella icon disappears which means that the load has been turned off.
- Unplug the appliance to exit the service mode.



Proceed as described above to turn the loads on and off. On these platforms it is impossible to pass from one function to another by going backwards. If you need to go backwards to a previously activated test you must complete the sequence until you return to the required combination. It is possible if you wish, to turn on several elements simultaneously.

## Demo mode - NEW COLLECTION range

The demo mode can be activated on single appliances and combi appliances only when the air temperature is warmer than 10°C in the compartment or the temperature probes are disconnected.



### Demo mode activation

- Turn the appliance on and press 9 times the **OK** key. The buzzer sounds for **approx. 3 seconds** and **De Mo** appears on the display.



### ATTENTION!

In case of power failure, or when the appliance is switched off, the Demo mode remains active.

- Press any key. **De Mo** disappears. The temperature or the functions can be changed or activated on the user interface.
- If there is no input within 20 minutes **De Mo** reappears on the display.
- After a power failure the buzzer sounds for approx. 10 seconds.

### Demo mode deactivation

- Press and hold the **OK** key for approx. **10 seconds**. **De Mo** disappears on the display.

## 4.4 Procedure for exiting the Service mode

- Unplug the appliance to exit the Service mode procedure. The numbers are always in sequence so it is not possible to go back. If for example you want to go from number 4 back to number 1 (motor), repeat the procedure from point 1.

The following tables also list consumers which may not be present on your appliance.

### Numbers linked to loads

No.	Load
0	Freezer compressor
1	Refrigerator compressor
2	Battery resistance Check if it is working only if the appliance is colder than 5°C.
4	Evaporator fan (220 V)
5	Refrigerator compartment fan (220 V)
6	Evaporator solenoid valve
7	0° C compartment fan (220 V)
8	Water tap
9	Freezer light
10	Warm shaft motor
11	Ice knob
12	Condenser fan (220 V)
36	Ice conveyer
37	Refrigerator compartment VCC compressor
38	Freezer compartment VCC compressor
42	Balancing resistance
44	Damper regulator
46	Condenser solenoid valve
50	Ice tray torsion
52	Sparkling water solenoid valve
53	Extra water solenoid valve
54	Room temperature water solenoid valve

### Numbers linked to the sensors

By turning on or off of the sensor an umbrella icon appears or disappears on the display.

No.	Sensor
23	Refrigerator door
24	Freezer door
25	0° C compartment door
27	Ice generator
28	Spatula

No.	Sensor
40	Rapid drinks cooler
49	Dispenser compartment light
51	Tank level sensor
58	Ice box sensor

#### Probe check

No.	Probe
29	Refrigerator compartment air probe
30	Freezer compartment air probe
31	Refrigerator compartment evaporator probe
32	0° C compartment air probe
33	Power board room temperature
34	User interface room temperature
39	Freezer compartment evaporator probe
45	Ice box temperature probe
60	0° C compartment evaporator probe

If the probe is working properly the number appears without other symbols; if it does not work the error code **ER** and the probe number flash alternately.