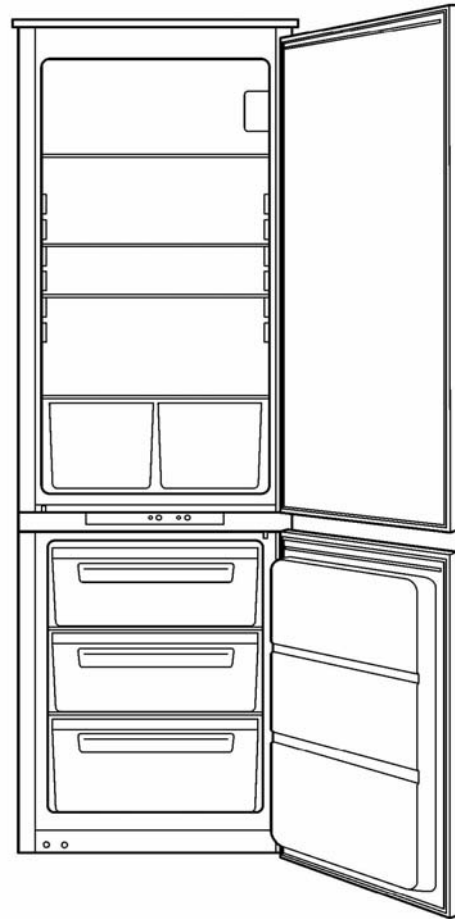




cd001190

Refrigerator IKE 325-0-2T

Service Manual: H8-74-08

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Contents

1. Safety	4
2. The appliance at a glance	5
2.1 General classification	5
2.2 Features	5
3. Air flow	6
4. Cooling circuit	7
5. Electric system	8
6. function chart.....	9
7. operating mode.....	10
7.1 Normal.....	10
7.2 Normal when first switched on in when the power is cut off.....	11
7.3 Defrosting	11
7.4 Flow diagram for controlling the defrosting procedure	13
7.5 SUPER function	14
7.6 Temperature probe faults	14
8. Accessing individual components	16
8.1 Freezer	16
8.2 Control panel	17
8.3 Control panel components	19
8.3.1 New electronic circuit board for the IKE 325-0-2T	20
8.4 Electronic power and display electronic component	22
9. Finding faults	24
10. Technical features	26

1. Safety



Danger!

***Repairs may only be carried out by a qualified electrician!
Improper repairs can be extremely dangerous for the user.***

It is essential that you observe the following instructions in order to prevent electric shocks:

- The casing and the frame may be live in the event of faults!
- Touching live components inside the appliance may cause dangerous currents to flow through your body!
- Disconnect the appliance from the mains prior to carrying out any repair work!
- When inspecting live parts, a residual current circuit breaker must always be used!
- The earthed conductor resistance must not exceed the resistance specified in the standard! It is vital for ensuring the safety of persons and the functioning of the appliance.
- On completion of repairs, an inspection must be carried out in accordance with VDE 0701 [Association of German Electrical Engineers] or in accordance with the corresponding regulations for your country!



Attention!

Make sure you observe the following instructions:

- The appliances must be disconnected from the mains prior to all repairs. If inspections must be carried out on live appliances, make sure you use a residual current operated device.



Sharp edges: Use protective gloves.



Components may be electrostatic!
Observe handling precautions!

2. The appliance at a glance

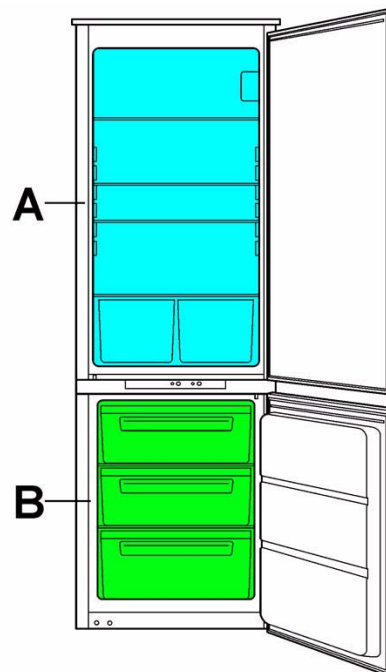
2.1 General classification

The appliance has the following cooling zones:

- A** Freezer
- B** Cooler

The evaporator circuit comprises:

- A battery-driven evaporator (freezer);
- A tube evaporator (cooler)



2.2 Features

A probe is used to determine the temperature in the refrigerator:

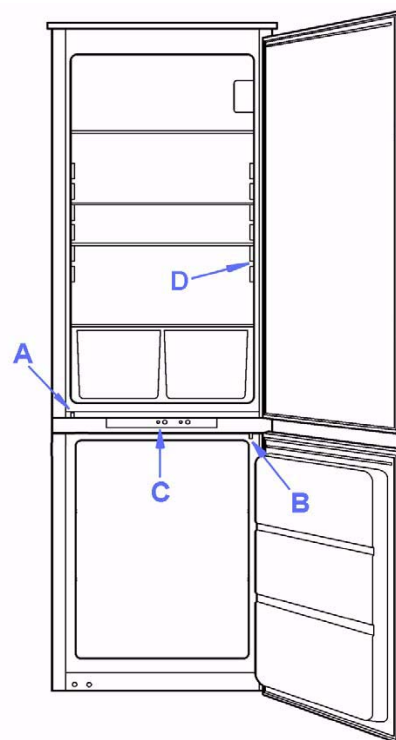
- refrigerator temperature probe (located in the cooler)

The electronic system, which determines the opening of the cooler door and the freezer door, determines when the battery-operated evaporator is defrosted.

- Cooler door key: located in the upper left section of the control panel.
- Freezer door key: located in the lower right section of the control panel.

- A** Cooler door key
- B** Freezer door key
- C** Control panel
- D** Cooler temperature probe

The probe D cable is foamed into the interior of the casing so it cannot be replaced.

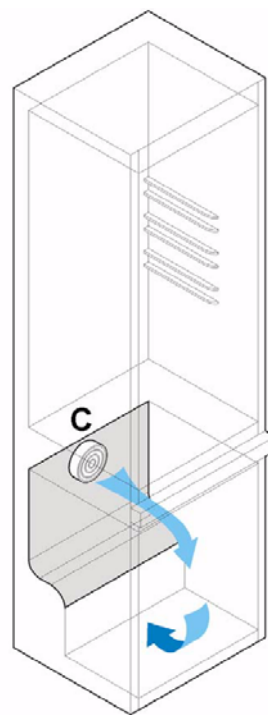


3. Air flow

Unlike in the NO FROST refrigerator, the cooler and freezer of the PARTIALLY NO FROST appliance are structurally separated

The battery-operated evaporator only cools the freezer and the tube evaporator only the cooler.

The cold generated by the battery-driven evaporator located in the freezer is distributed by the fan mounted behind the cover **C**.

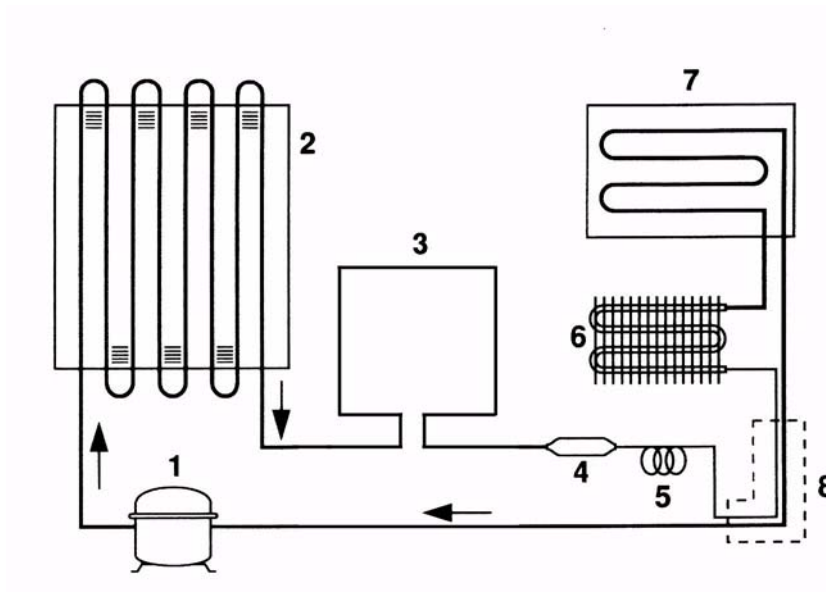


Attention!

If the door of the freezer or cooler is opened, the fan will come to a standstill.

Press the freezer door key to simulate that the door is closed.

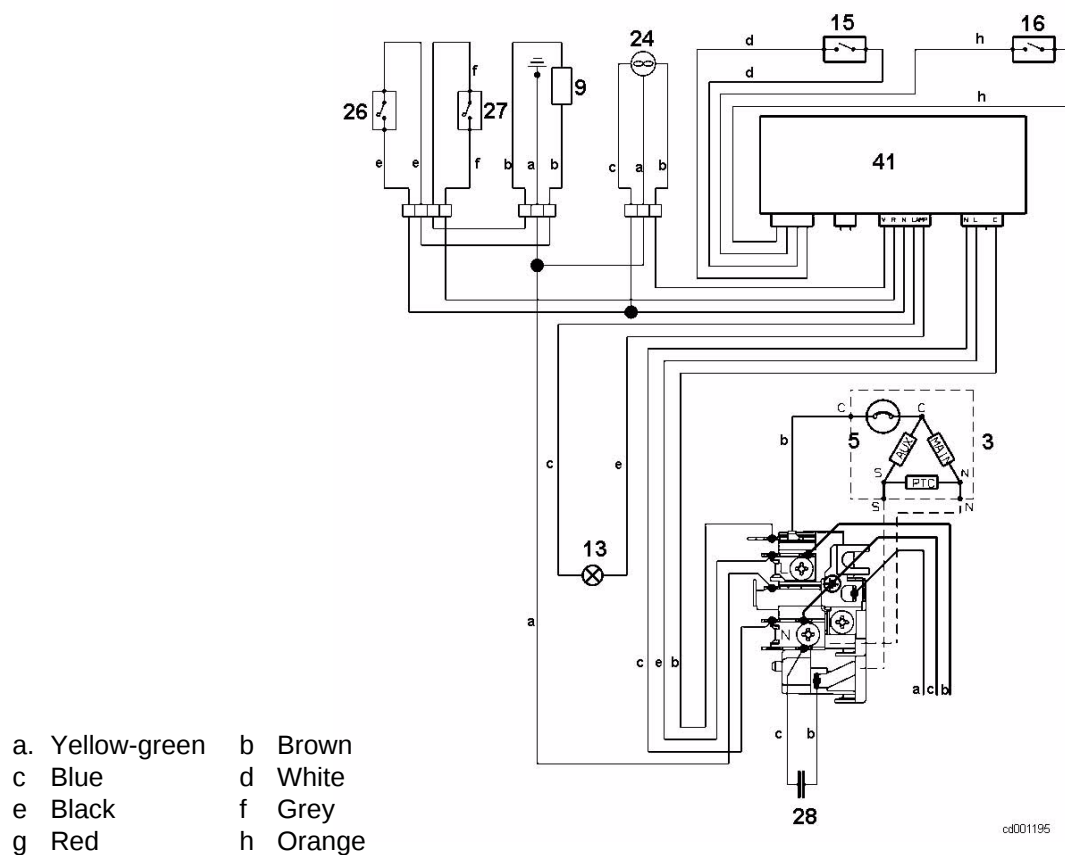
4. Cooling circuit



- | | | | |
|---|--------------------------|---|---|
| 1 | Compressor | 2 | Capacitor |
| 3 | Anti-condensation coil | 4 | Drainage filter |
| 5 | Capillary | 6 | Battery-operated finned-type evaporator (freezer) |
| 7 | Tube evaporator (cooler) | 8 | Heat exchanger |

5. Electric system

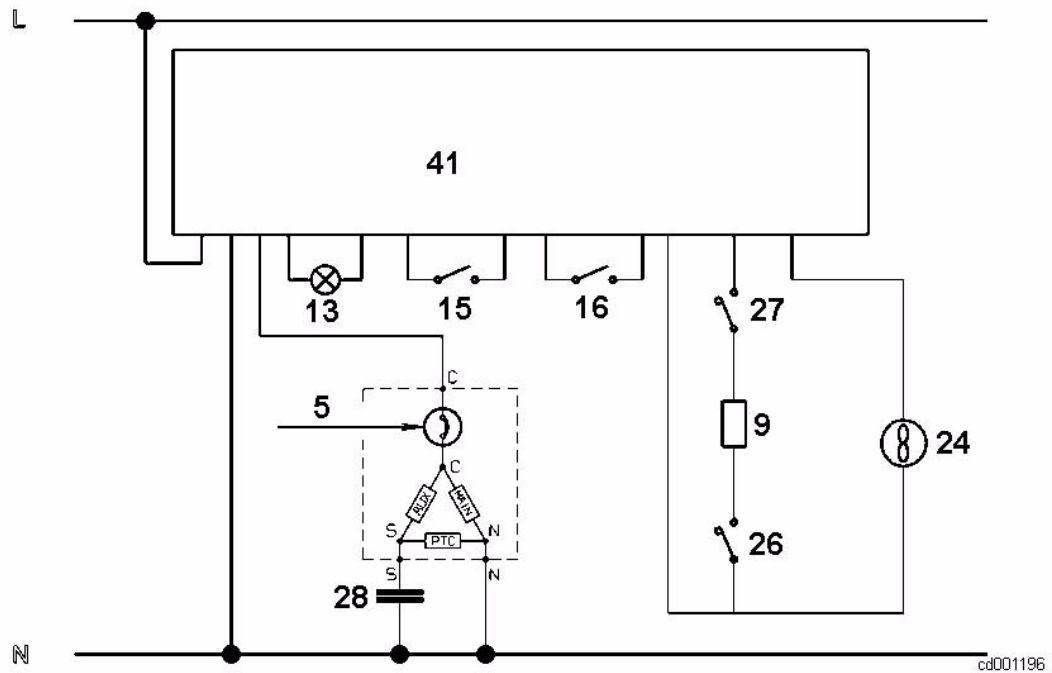
(observe the circuit diagrams for each model!)



3	Compressor	5	Motor circuit switch
9	Defrost resistor	13	Lamp
15	Cooler door switch	16	Freezer door switch
24	Fan	26	Thermal cut-off switch (+40°C)
27	Defrost termination thermal switch (+10°C)	28	Operating capacitor (only for models for which this has been provided)
41	Electronic		

6. Function chart

(observe the circuit diagram for each model!)



- | | |
|-----------------|-----------|
| a. Yellow-green | b. Brown |
| c. Blue | d. White |
| e. Black | f. Grey |
| g. Red | h. Orange |

- | | |
|---|---|
| 3 Compressor | 5 Motor circuit switch |
| 9 Defrost resistor | 13 Lamp |
| 15 Cooler door switch | 16 Freezer door switch |
| 24 Fan | 26 Thermal cut-off switch (+40°C) |
| 27 Defrost termination thermal switch (+10°C) | 28 Operating capacitor (only for models for which this has been provided) |
| 41 Electronic | |

7. Operating mode

7.1 Normal



Please note!

The electronic system is powered with 220-240V 50Hz even when the rotary handle of the thermostat is set at zero (OFF). This is why the appliance mains plug must be pulled out before handling the electronic system.

When the rotary handle of the electronic thermostat is in the OFF position:

- The compressor will have been switched off
- The LEDs will all be switched off
- The electronic system will nevertheless be powered (220-240V 50Hz !)

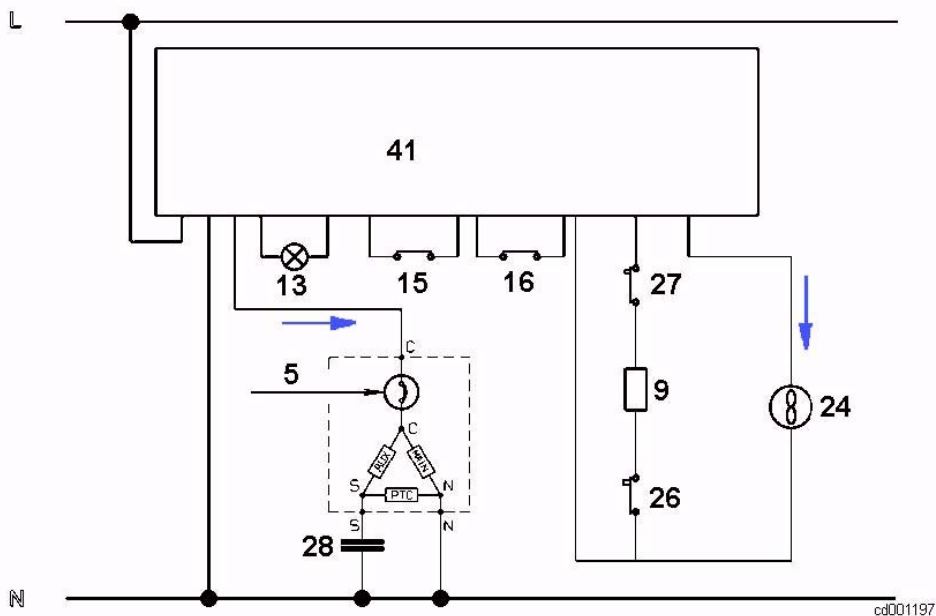
When the rotary handle of the thermostat is turned clockwise, the green ON LED will light up.

Thanks to air circulation, the moisture present in the freezer evaporates on the evaporator battery of the NO FROST refrigerators. This prevents ice from building up on the food.

During normal operating times, the electronic system powers the electric circuit of the compressor (3) and fan (24). The fan is switched on and off with a delay of 2 minutes after the compressor.

The operating time equivalent to the time span between the defrost phases operated in sequence is approx. 14 hours when the doors are opened normally (this time may be up to 71 hours when a door is never opened!).

The arrows on the figure show the flow of the current.



7.2 Normal when first switched on in when the power is cut off

If the appliance power supply is disrupted when the appliance is first switched on or when there is a power cut, one of the following circumstances will occur:

1. When, upon resumption of the power supply, the temperature inside the appliance is equal to or higher than the thermostat cut-in temperature, the electronic system will switch on the compressor and the fan until the temperature that has been set is reached and it will activate the defrosting procedure after 5 hours (after the compressor has been switched off).
2. When, upon resumption of the power supply, the temperature inside the appliance is lower than the thermostat cut-in temperature, the compressor will operate in the thermostatic operating status and the electronic system will activate the defrosting procedure after 5 hours (after the compressor has been switched off).

The electronic system will always activate the defrosting procedure after 5 hours, unless the appliance has been switched on for the first time or unless a power failure has occurred.



Important!

When the thermostat rotary handle is turned anti-clockwise to the zero position (OFF), the metres will all be reset. The compressor will operate in the thermostatic operating status when the thermostat rotary handle has been turned clockwise into the ON position.

7.3 Defrosting

The moisture inside the appliance will all be deposited on the evaporator, which is the coldest part of the refrigerator. This is why the ice present on the battery needs to be defrosted at regular intervals, at least every 14 hours, when the door is opened normally (if the door is never opened, defrosting will only need to be carried out after 71 hours).

Defrosting is commenced when the compressor is switched off or, when the compressor is in operation, after 2.5 hours at the most.

The electronic system cuts off the electric circuit which feeds the compressor (3) and the fan (24) and once the appliance has been determined to be in the stand-by mode, it powers the electric circuit of the defrost resistor (9) for at least 20 minutes. If the defrost resistor is cut off or if its connectors have been disconnected, the ON and SUPER LEDs will blink and defrosting will take one hour.



Important!

If the defrost resistor is interrupted or if its connectors have been switched off, the ON and SUPER LEDs will blink and defrosting will take one hour.

The heat generated by the defrost resistor will not have any effect on the temperature in the freezer or on the temperature of food, since all the thermal energy is used for defrosting the ice present on the evaporator.

The electronic system will determine the existence of the defrost signal every minute after 20 minutes in order to ascertain the switching off of the defrost termination switch (27).

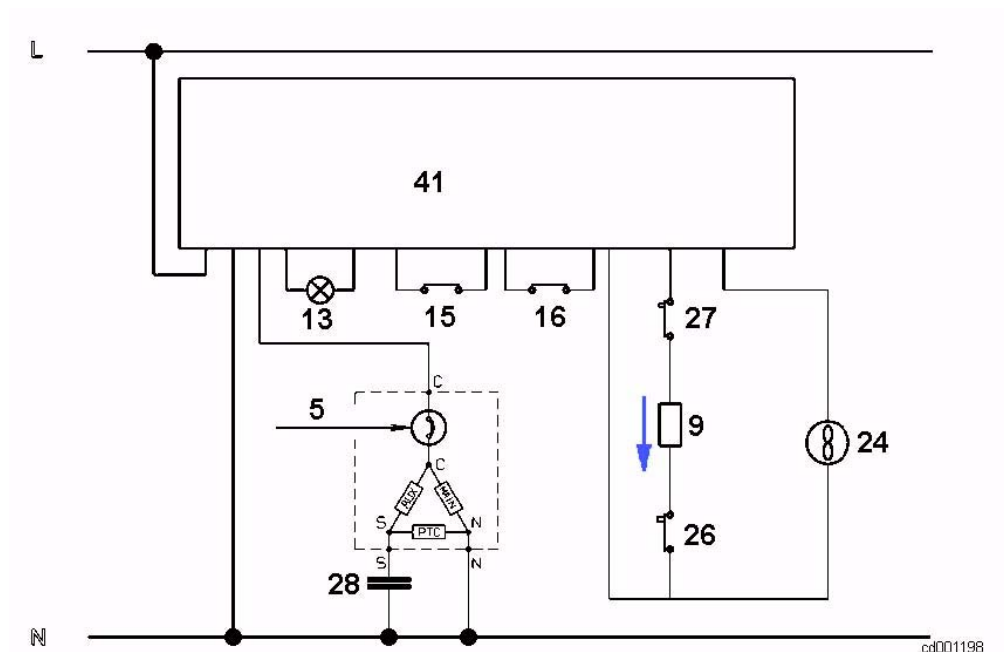
When the defrost termination switch is switched off the electronic system will switch the compressor (3) on again after a delay of 5 minutes.

The fan (24) will also be switched on again following a further delay of 2 minutes, when the air has already become cold.

If for any reason whatsoever the defrost termination switch (27) is not activated, so that the battery temperature rises to $+40^{\circ}\text{C}$, the defrost resistor (9) will be switched off by the thermal cut-off switch (26).

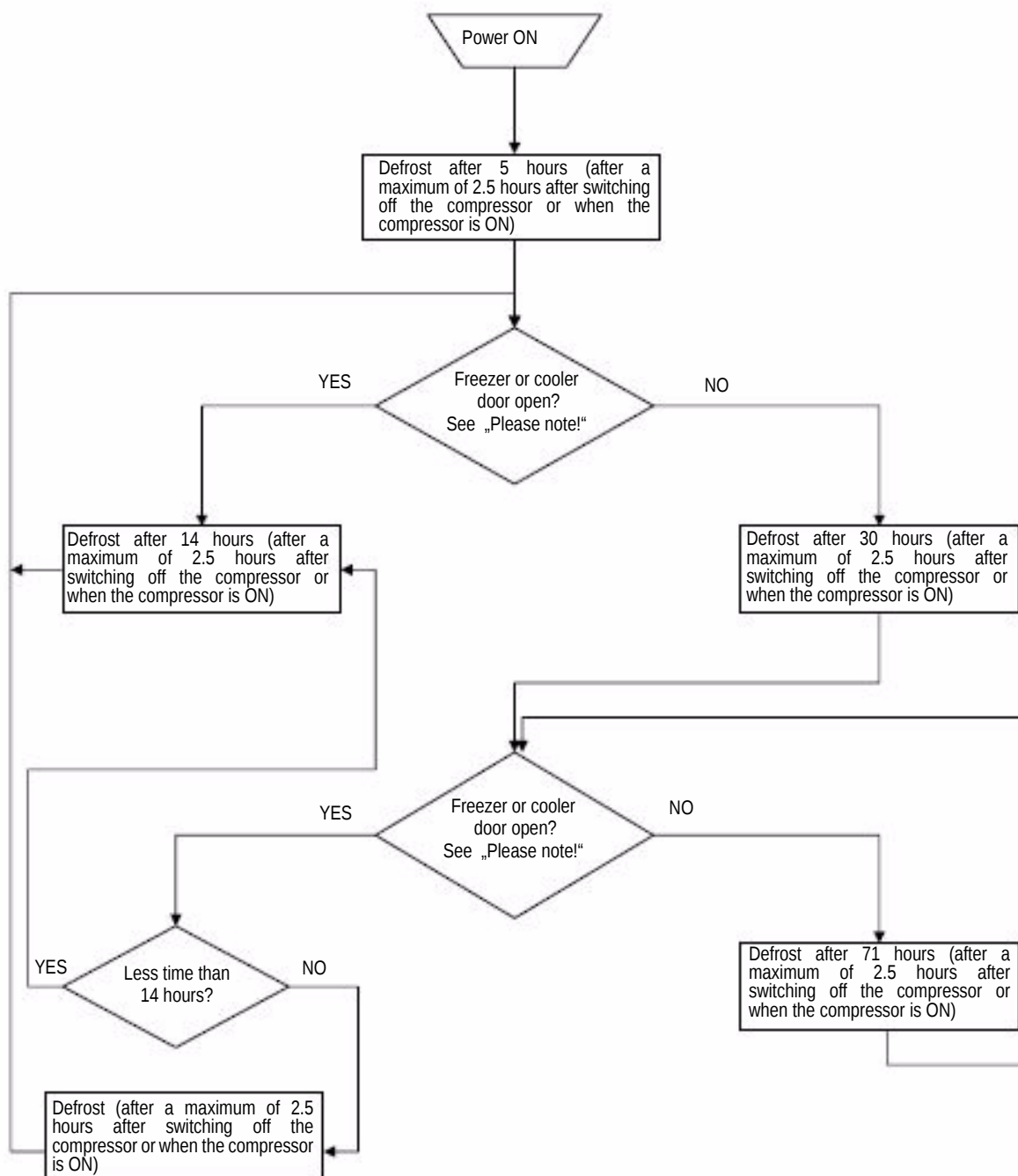
If the thermal switch has not switched the defrost resistor off one hour after commencement of defrosting, the electronic system will always deactivate the defrost resistor and will allow normal operation to continue.

The arrows on the figure show the flow of the current.



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7.4 Flow diagram for controlling the defrosting procedure



Please note!

Opening the door of the freezer or cooler means that one of the two doors is open for altogether more than one minute. The time is reset every time defrosting takes place.

7.5 SUPER function

The SUPER function is activated when the SUPER impulse key is pressed, so:

- In continuous operation (as if the thermostat button has been set at the maximum position) and then switches off automatically.

If the key is pressed again, the SUPER function will be deactivated:

- The yellow LED allocated to the SUPER function switches off
- The compressor operates in the thermostatic operation mode

Defrosting processes may nevertheless be carried out when the SUPER function is in operation.

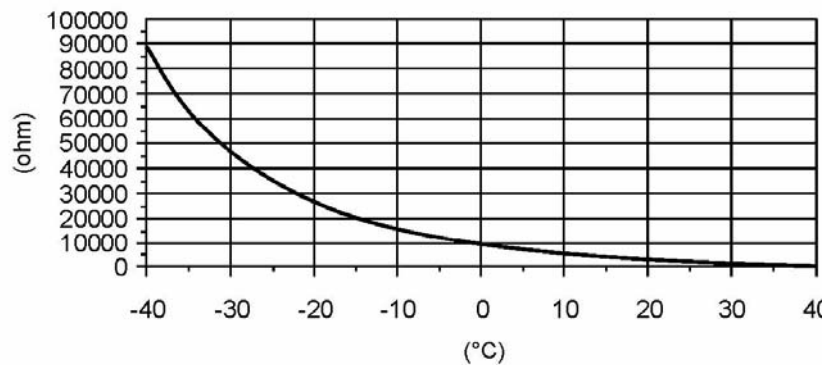
7.6 Temperature probe faults

If the NTC temperature probe develops a fault during normal operation (the signal emitted by the probe is not within the limits):

- The appliance will carry out a pre-determined program run during which the compressor will alternately be powered for 30 minutes and switched off for 45 minutes.
- Defrosting will be activated approx. every 14 hours.

When the probe functions properly again, the two operating conditions defined above will be discontinued.

T(°C)	$\Delta T(\pm^\circ\text{C})$	Rn (Ω)
10	± 0.6	5337
9	± 0.6	5600
8	± 0.5	5877
7	± 0.5	6171
6	± 0.5	6481
5	± 0.5	6809
4	± 0.5	7156
3	± 0.5	7523
2	± 0.4	7911
1	± 0.4	8322
0	± 0.4	8758
-1	± 0.4	9218
-2	± 0.4	9705
-3	± 0.4	10222
-4	± 0.5	10770
-5	± 0.5	11352
-6	± 0.5	11969
-7	± 0.5	12624
-8	± 0.5	13320
-9	± 0.5	14059
-10	± 0.5	14845
-11	± 0.5	15678
-12	± 0.6	16564
-13	± 0.6	17506
-14	± 0.6	18509
-15	± 0.6	19577
-16	± 0.6	20715
-17	± 0.6	21928
-18	± 0.6	23221
-19	± 0.6	24600
-20	± 0.6	26072
-21	± 0.7	27637
-22	± 0.7	29307
-23	± 0.7	31092
-24	± 0.7	32999
-25	± 0.7	35039
-26	± 0.7	37221
-27	± 0.7	39556
-28	± 0.7	42056
-29	± 0.8	44735
-30	± 0.8	47606
-31	± 0.8	50668
-32	± 0.8	53952
-33	± 0.8	57475
-34	± 0.8	61258
-35	± 0.8	65320
-36	± 0.8	69686
-37	± 0.8	74381
-38	± 0.8	79431
-39	± 0.9	84867
-40	± 0.9	90721



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8. Accessing individual components

8.1 Freezer

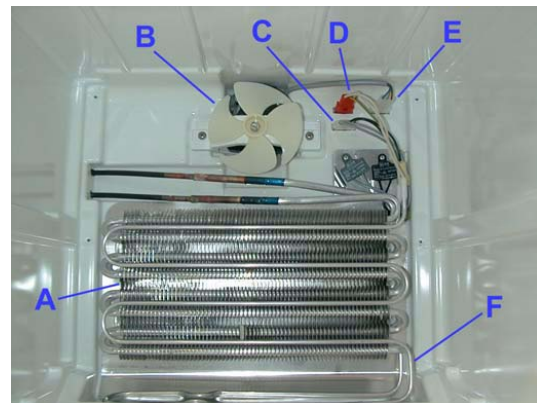
Proceed as follows in order to access **the battery-operated evaporator and the fan**:

1. Remove the trays from the freezer.
2. Remove the fastening screws on the evaporator cover and remove the insulation panel.



Freezer components

- A) Battery-driven evaporator
- B) Fan
- C) Thermal switch +10 / +40 °C connector
- D) Defrost resistor connector
- E) Fan connector
- F) Defrost resistor



Attention!

Should the fan need to be replaced, make sure that it is **NOT** in operation.



Please note!

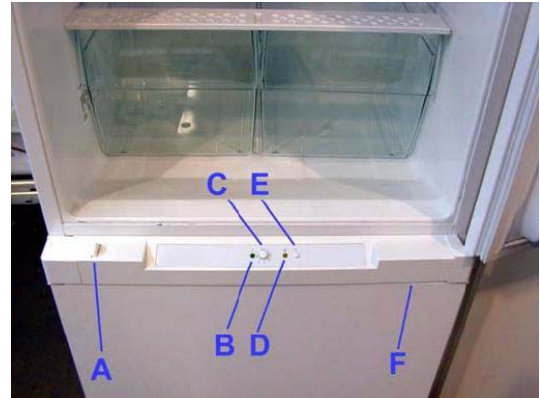
The thermal switches (+10 / +40°) are connected to one another, so they are not available as individual spare parts.

8.2 Control panel

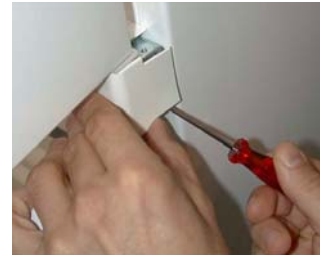
In order to access the control panel and its components (**electronic power / display system, cooler / freezer door switch and electrical connectors**), proceed as follows:

Control panel components

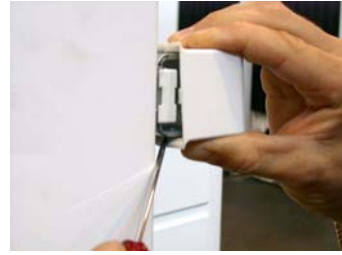
- A) Battery-driven evaporator
- B) Fan
- C) Thermal +10 / +40 °C switch connector
- D) Defrost resistor connector
- E) Fan connector
- F) Defrost resistor



1. Remove the hinge covering on the side of the hinged bearings with a screwdriver, as shown on the illustration.
2. Remove the hinge covering on the side of the hinged bearings with a screwdriver, as shown on the illustration.
3. Remove the hinge covering on the side of the hinged bearings with a screwdriver, as shown on the illustration.
4. Remove the hinge covering on the opposite side of the hinged bearings with a screwdriver, as shown on the illustration.



5. Remove the hinge covering on the opposite side of the hinged bearings with a screwdriver, as shown on the illustration.



6. Remove the fastening screws from the control panel.



7. Remove the fastening screws from the middle cross bar.



8. Pay attention to the cabling when remounting the control panel, since the cables may interfere with the electronic system connectors.



9. Lay the cables as shown on the photo:



10. Place the control panel on the middle cross bar; hold the cables on the side when doing so.



11. Place the control panel on the middle cross bar; hold the cables on the side when doing so.

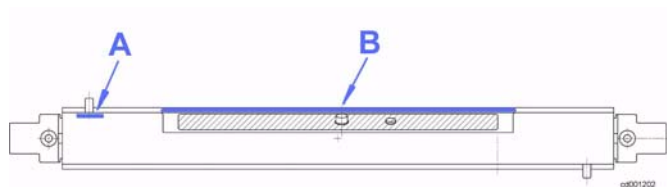


Attention!

Self-adhesive seals (A and B) and a polystyrene dowel have been provided to prevent liquid from getting into the control panel.

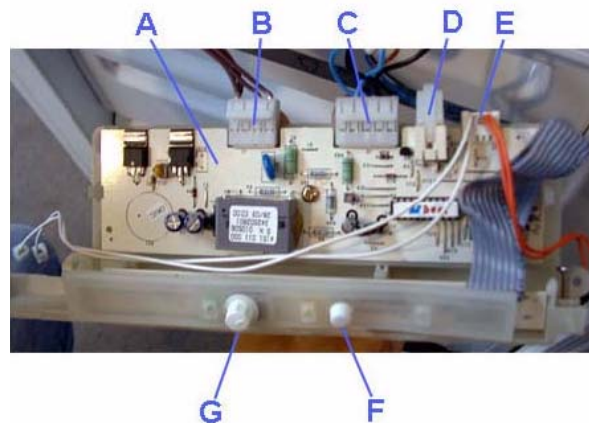
Should it be necessary to replace the control panel components, it is absolutely essential to reinstall the seals and the dowel.

Seal A may only be installed on the cooler door key.



8.3 Control panel components

- A) Electronic system
- B) Connector J1 to power the electronic system and the compressor control
- C) Connector J2 to power the components (fan, defrost resistor and lamp)
- D) Temperature probe J3/J6 connectors
- E) Connector J7 for the cooler and freezer door switches
- F) SUPER key
- G) Rotary handle of the electronic thermostat



Attention!

The electronic system has a protective device to prevent the compressor from being switched on sooner than 5 minutes after the previous switch-off.

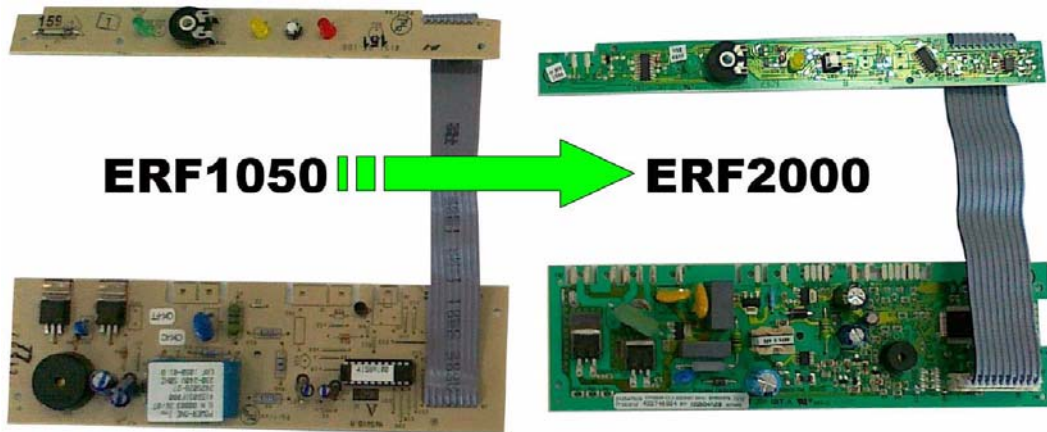
8.3.1 New electronic circuit board for the IKE 325-0-2T

Since the electronic system **spare-part no. 438227** (ERF1050) can no longer be supplied for cooler IKE325-0-2T (PNC no. 925771742-00), the conversion kit (ERF2000), **spare-part no. 439604** must be installed.



Attention!

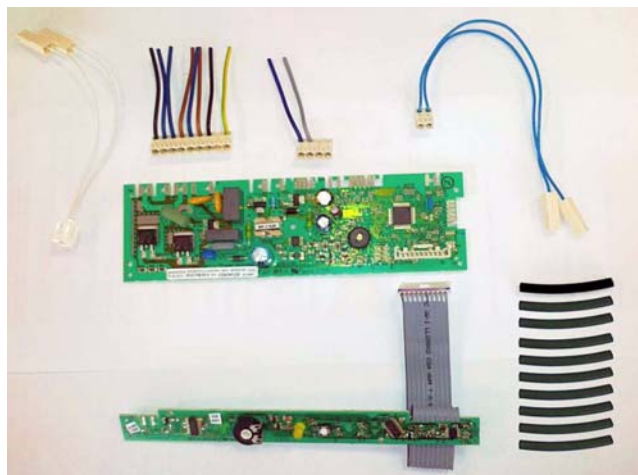
The plug must be pulled out before work commences!



The cabling must also be changed with the help of the two plugs included in the assembly set.

Assembly set components:

- ERF2000 circuit board
- MINIKNOB display circuit board
- 4 cables and connectors
- 10 shrinkable tubes
- Instructions

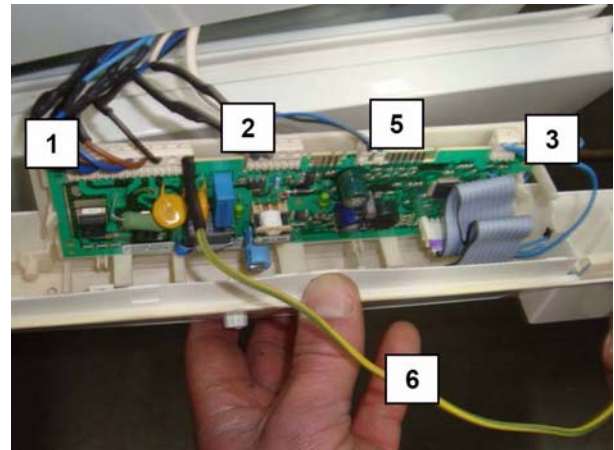
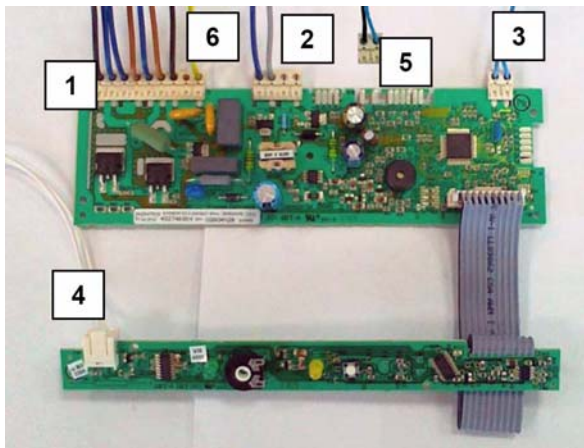


Proceed as follow to replace the predecessor model ERF1050 with the ERF2000 circuit board.

1. Replace the original connectors J1 (1) and J2 (2) with the two connectors in the assembly set (J1, J2 & J2A).
 - a) Cut through the cables 2 cm away from the original connector.
 - b) Connect the cables to the new connector. Take account of the colours.

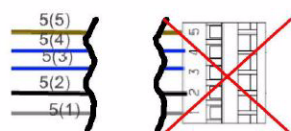
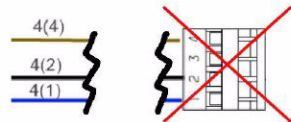
The cables must be soldered on and individually insulated with the shrinkable tubes provided.
2. Connect the new connectors J1 (1) and J2 & J2A (2) to the circuit board.
3. Remove the original door switch connectors (3 +4) from the control circuit board.

4. Connect the blue cable (upright freezer to the main circuit board) and the white cable (refrigerator to the display circuit board).

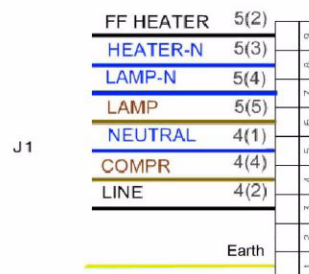


- 1 J1
- 2 J2&J2A
- 3 Upright freezer door switch
- 4 Refrigerator door switch
- 5 NTC
- 6 Earthed conductor

ERF1050

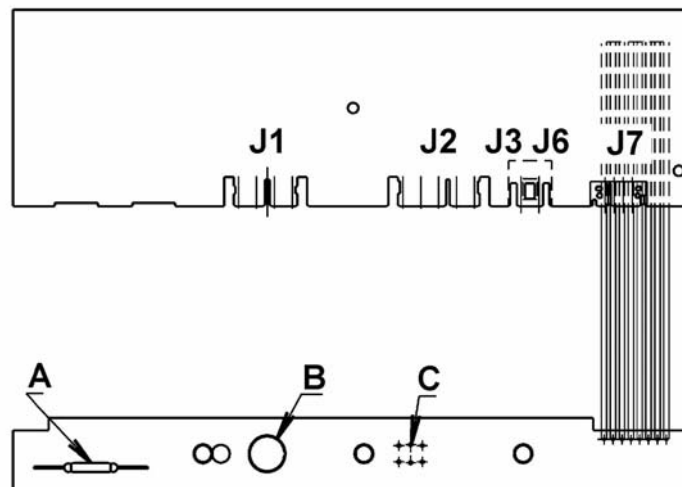


ERF2000



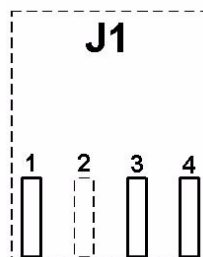
8.4 Electronic power and display electronic component

Power electronic system



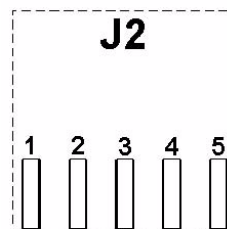
Additional components:
A Reed element

1. Compressor
2. Free
3. Cable
4. Neutral wire



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1. Lamp
2. Neutral wire
3. Neutral wire
4. Defrost resistor
5. Fan



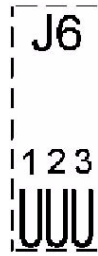
cd001053

1. NTC
2. NTC



cd000997

1. NTC
2. Free
3. NTC



cd000998

1. Freezer door switch
2. Freezer door switch
3. Cooler door switch
4. Cooler door switch



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Use the following chart to find out how the electronic components function (refer to the spare-parts list of the model in question for the spare-part code):

Type of electronic component	Type of thermal cut-off device	Buzzer	Green LED	Yellow LED	Red LED	Reed element	SUPER key
ERF1050-01.F	B	NO	YES	YES	NO	NO	YES

Type of thermal cut-off device	Min. pos.		Int. pos.		Max. pos.	
	on	off	on	off	on	off
	[°C]	[°C]	[°C]	[°C]	[°C]	[°C]
B100	+11.5	+8	+8	+5	+4.5	+3

9. Finding faults



Attention!

ALWAYS remove the mains plug before carrying out any repairs on the appliance!

Layer of ice on the battery too thick

When the rubber valve stays open, the humidified air outside the freezer gets inside and too much ice is deposited on the battery. The valve stays open when foreign bodies are present or when it loses its elastic properties. In the first case the foreign body will need to be removed and in the latter case the rubber valve will need to be replaced.

Appliance does not defrost

The following may cause the defrost phase to fail:

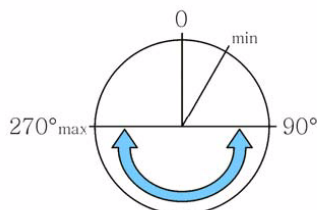
Sequence no.	Possible causes	Check	Solution
1	The defrost resistor has been interrupted	Pull out the mains plug of the appliance, remove the defrost resistor connector and use the tester to check for the correct resistance value on the connector terminals	Replace the resistor if the resistance value complies with the technical data
2	One or both thermal cut-off device switches are open	Allow frost to build up on the battery, then pull out the mains plug of the appliance, remove the defrost resistor connectors and use the tester to check for the correct resistance value on the connector terminals	Replace the thermal switch of the unit if the resistance value is not 0 (zero ohm)

Procedure for manual defrosting

A manual defrosting process has been planned for carrying out a function test and for customer service. Defrosting is to be carried out when the inside is cold (this is to prevent the thermal cut-off device of the defrost resistor from possibly opening).

In order to begin the manual process ensure that:

- The electronic system is set at 5 with the thermostat rotary handle (or definitely at a setting between 90° and 270°;



cd001071

- The cooler door switch is pressed (door closed).

Then proceed as follows:

1. Turn the thermostat rotary handle to the OFF position.
2. Press the cooler door switch four times (allow at least one second to pass between each opening and closing).
3. Turn the thermostat rotary handle to the ON position (or definitely to a setting between 90° and 270°;

the electronic system will now control the disconnecter and all the LEDs will blink for 5 seconds. The manual defrost phase will then begin if there are no faults; if it does not, the LEDs will continue to blink.



Please note!

From the moment the thermostat rotary handle is set at the OFF position (1. operating sequence), 15 seconds are available to set the correct sequence of the other two operating sequences (sequences 2-3).

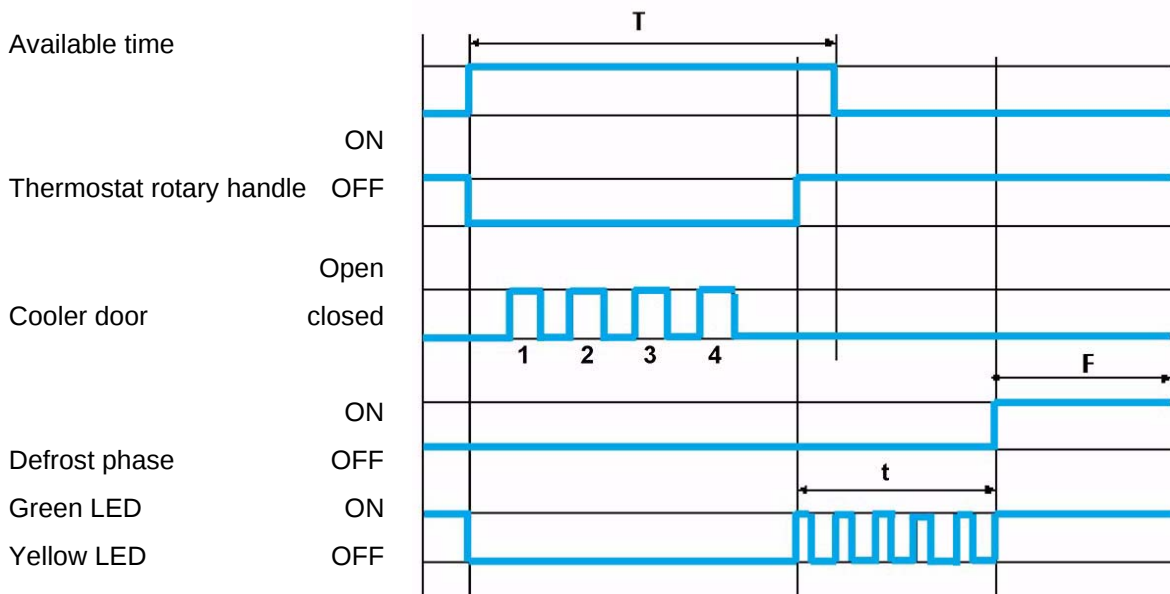
In the event of a fault or if the sequences are not carried out correctly, the standard operating mode must be restored before the manual defrosting procedure is carried out. This is done by cutting off the power supply of the appliance (pull out the the appliance mains plug).

The manual defrost phase comprises:

- Defrost resistor ON
- Green ON/OFF LED lights up
- Compressor and fan OFF

In this case the electronic system will carry out the defrosting phase according to the standard operating mode and will then continue with normal operation.

Available time



Legend:

T = 15 seconds

t = 5 seconds (for checking the thermal cut-off device)

F = standard operating mode

10. Technical features

Fan

Type	Voltage	Power	Speed
	[V – Hz]	[W]	[rev/min]
F64-10..	220 - 50	3.1	2000

Electronic power and display electronic component

Software version	Electronic version
B100	ERF1050-01.F

Defrost resistor

Voltage	Resistance	Power
[V]	[Ohm]	[W]
240	510	113

Thermal switch

Type of thermal cut-off device	Cut-in temperature	
	Open	Close
Defrost	+ 10 °C	- 1 °C
Safety	+ 40 °C	+ 30 °C