

# GGv ..10/60

Freezer ventilated with automatic defrosting

[Home](#)[Functions](#)[Design](#)[Control](#)[Replacement  
of parts](#)[Special features](#)[Hidden functions](#)[1 / 47](#)

# LIEBHERR

# Functions

# Operating and control elements



- 1 : Temperature setting buttons
- 2 : Temperature display
- 3 : Button lock activated
- 4 : Defrosting phase active
- 5 : On/Off button
- 6 : Alarm button

# Functions at a glance

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<b>Temperature control:</b>	Electronic control system
<b>Adjustable temperature range:</b>	-14 C to -28 C
<b>Temperature display:</b>	Actual value, digital
<b>Temperature alarm:</b>	Visual and audible
<b>Door alarm:</b>	Audible
<b>Fan:</b>	Present
<b>Defrosting:</b>	Automatic
<b>Interior light:</b>	No
<b>Service menu:</b>	Present
<b>Compressor:</b>	Standard
<b>Solenoid valve circuit:</b>	Present (for hot gas defrosting system)

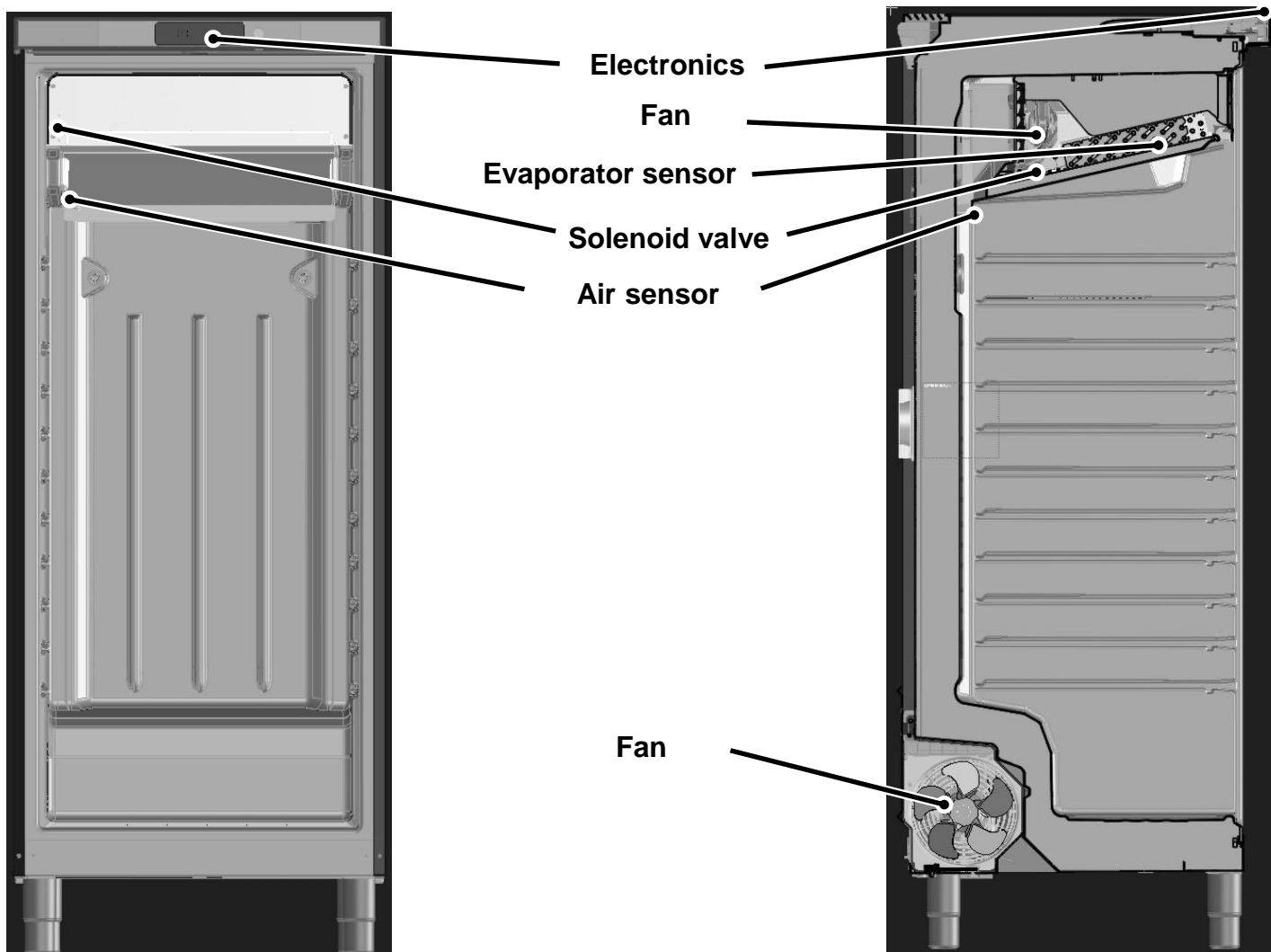
A large blue rectangle with a thin black border, centered on the page.

**Design**

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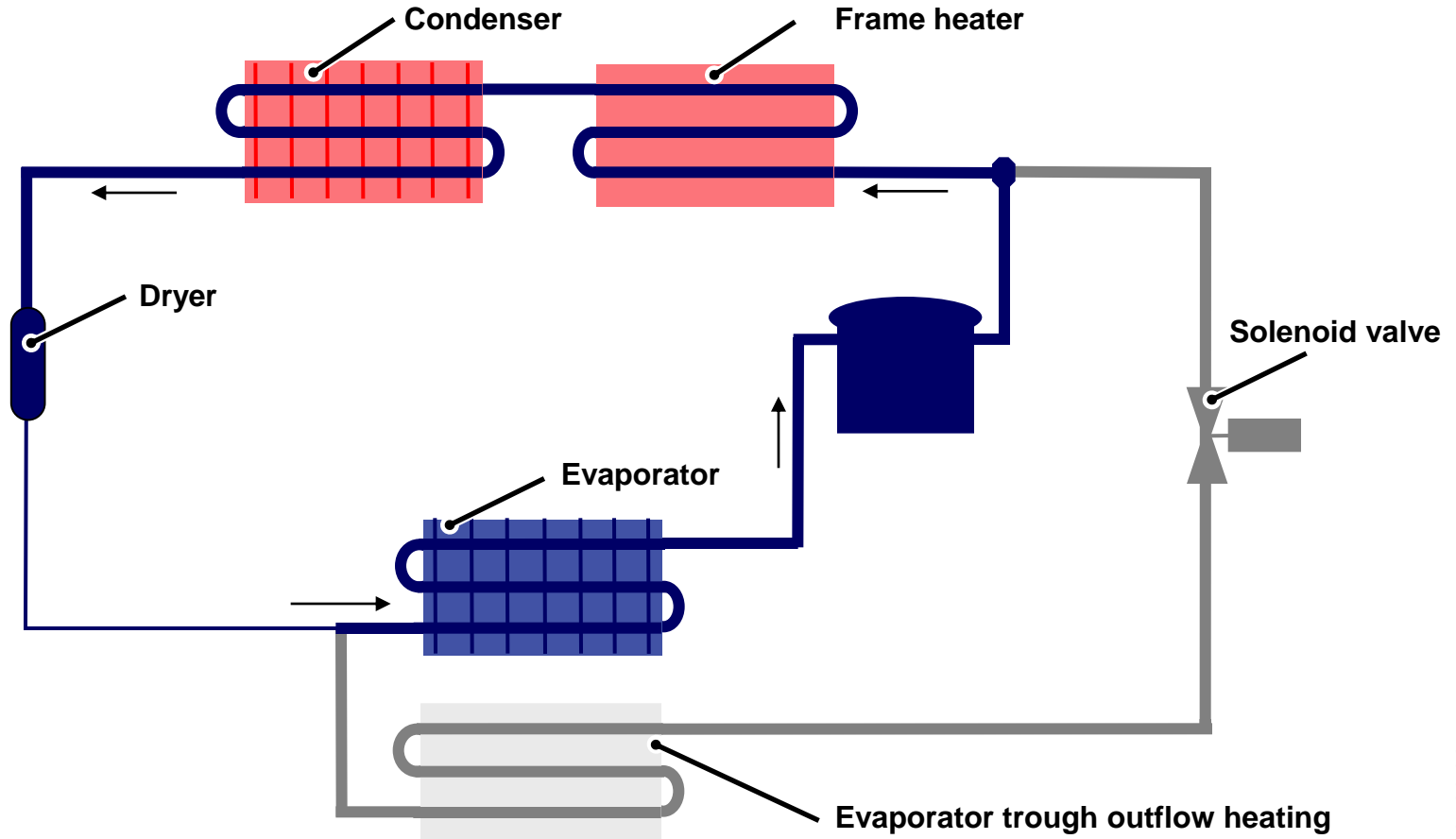
**LIEBHERR**

# Schematic diagram



# Schematic diagram: Refrigeration system

## Refrigeration (Compressor on - solenoid valve closed)



A large blue rectangle with a thin black border, centered on the page.

**Control**



# Air sensor



## Position:

On the underside of the evaporator module.

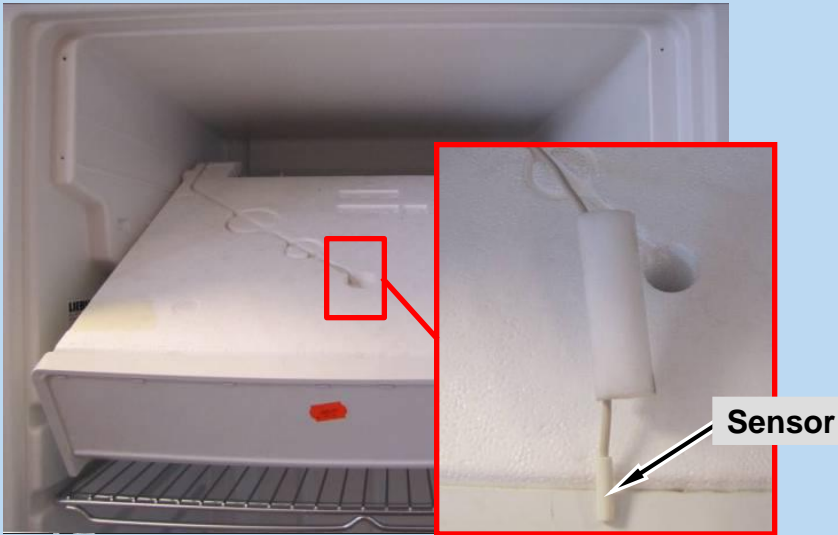
## Depending on this sensor

- the compressor switches ON/OFF
- the display value is generated

# Evaporator sensor

## Position:

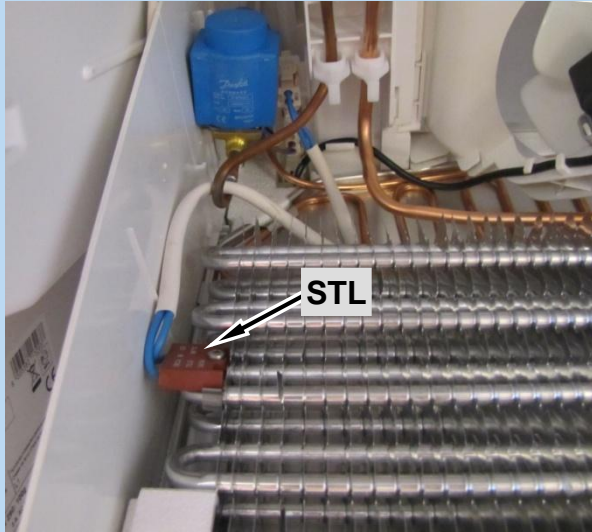
In the lamellar evaporator



## Depending on this sensor

- the heating phase of the defrosting stops
- the evaporator fan switches on

# Safety temperature limiter (STL)



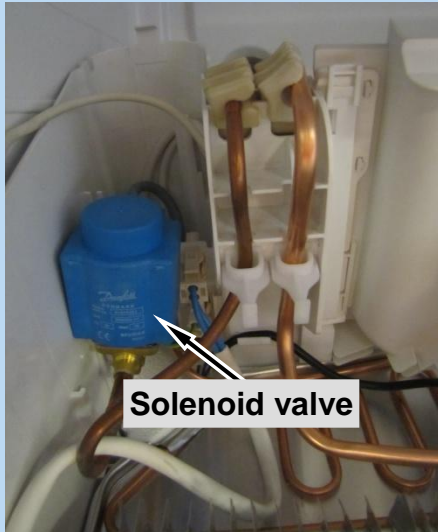
## Position:

On the left next to the lamellar evaporator

## The STL

- is triggered when the evaporator heats up excessively

# Solenoid valve



## Position:

On the left next to the lamellar evaporator

## The solenoid valve

- Channels the hot gas directly into the evaporator and the outflow heating

# Defrosting

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## Activation:

- The defrosting phase is automatically initiated from 3 to a maximum of 9 of accumulated compressor running time (depending on the number and duration of door openings).
- The defrosting phase can also be initiated manually via the customer-menu.

## Function:

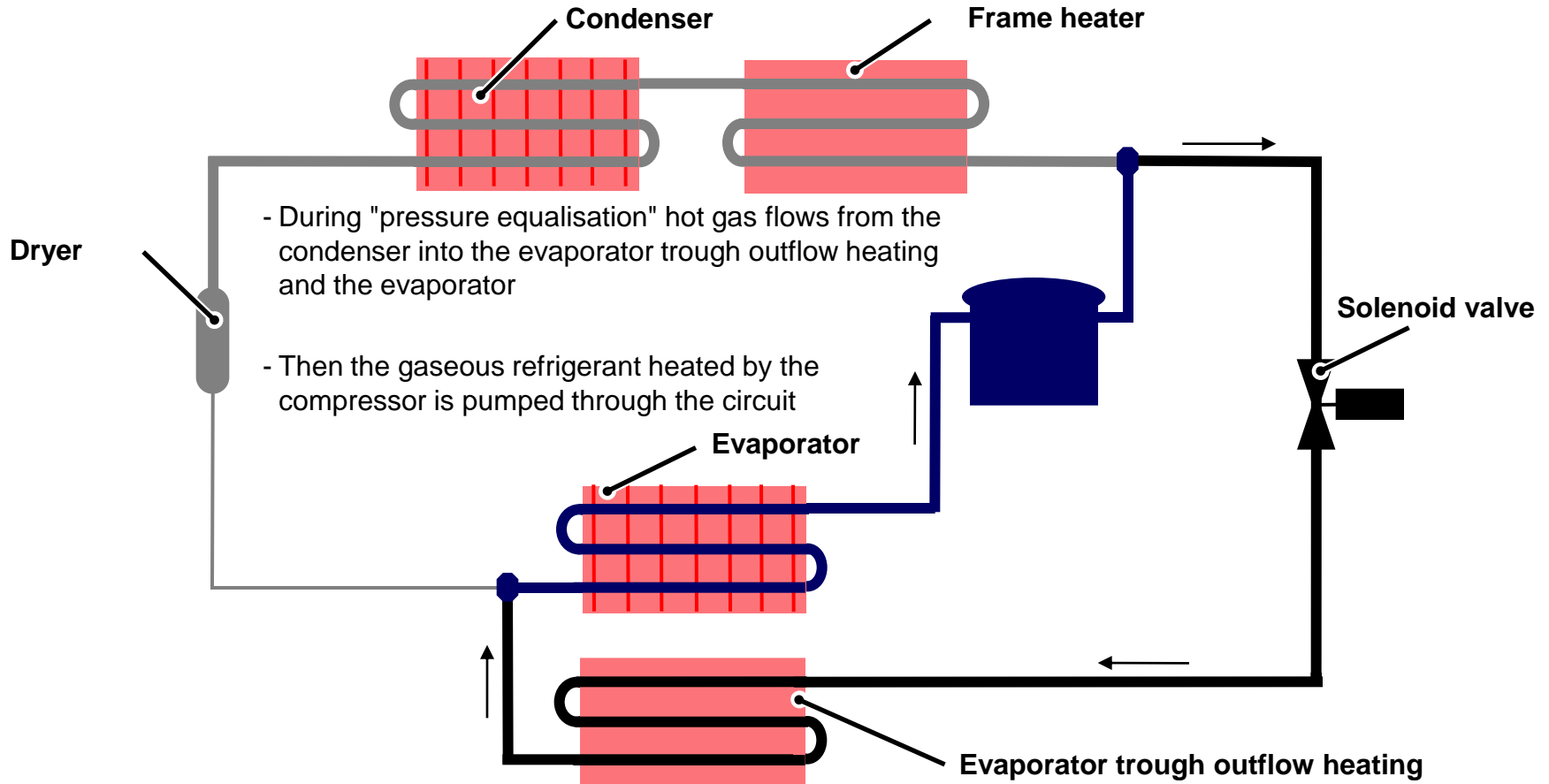
- Hot gas defrosting (see next slide)

## End:

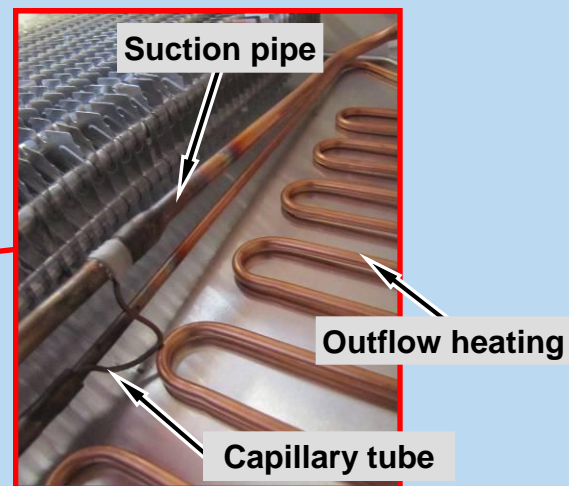
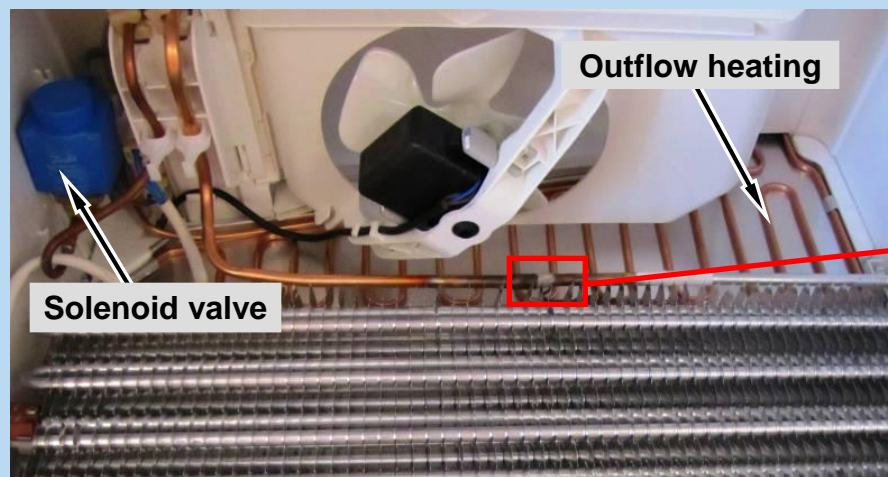
- The defrosting phase is ended thermally as a rule (+10 C).  
Defrosting will if required be terminated after 120 minutes.
- The compressor will start up after a drip-off time of 10 minutes.
- The evaporator fan will start up, when the evaporator temperature is as cold as the interior temperature.

# Schematic diagram: Hot gas defrosting

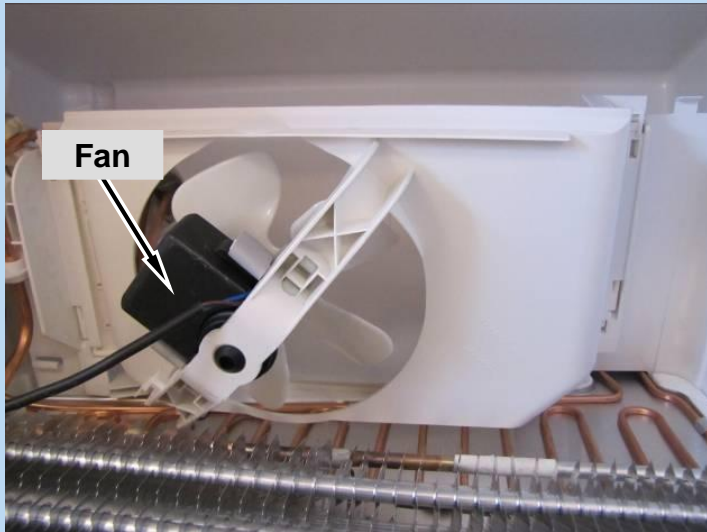
(Compressor on - solenoid valve open)



# Hot gas heating



# Fan



## Position:

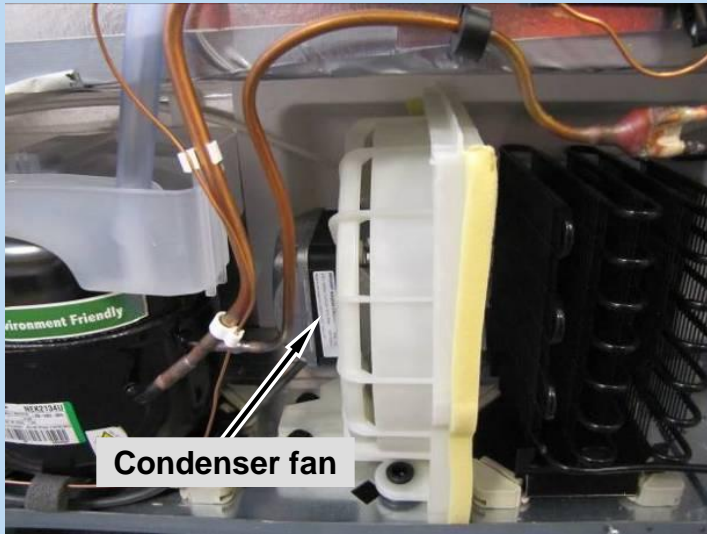
In the module, behind the evaporator

## The fan runs

- when the door is closed
  - the compressor is running
- and



# Condenser fan



## Position:

Between the compressor and the auxiliary condenser

## The fan runs

- in parallel with the compressor

# Replacement of parts

# Electronics

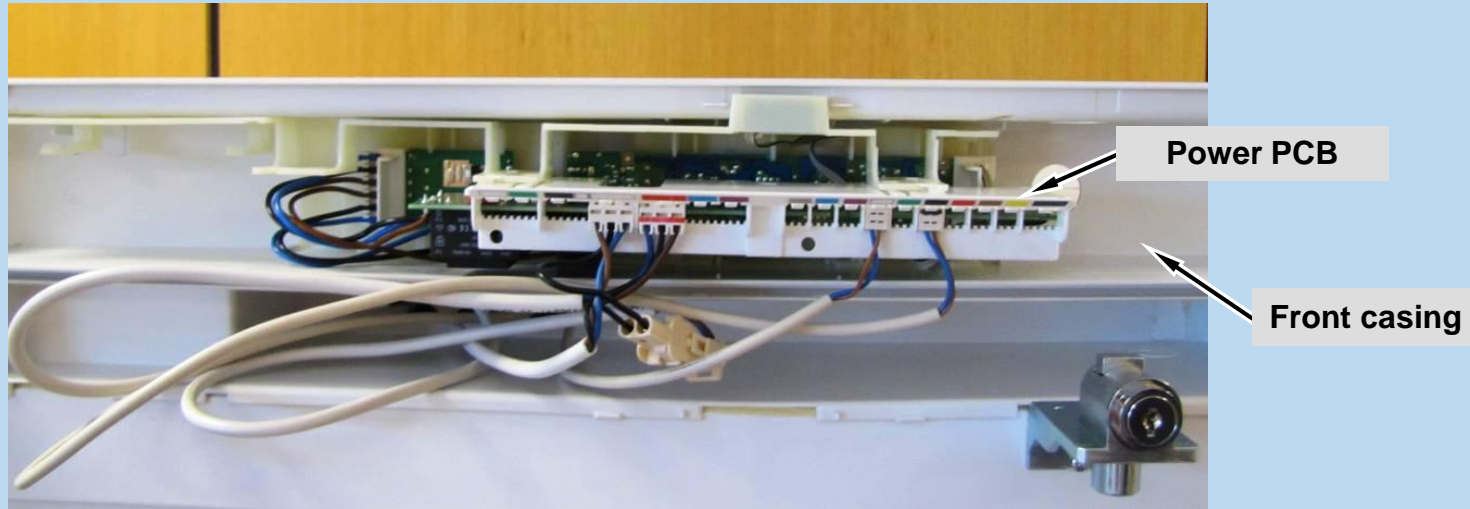


## Covers

- Unclip covers on the underside of the front casing and remove the screws fastening the front casing.

Note: Cover on the door side is easier to remove if the door is detached!

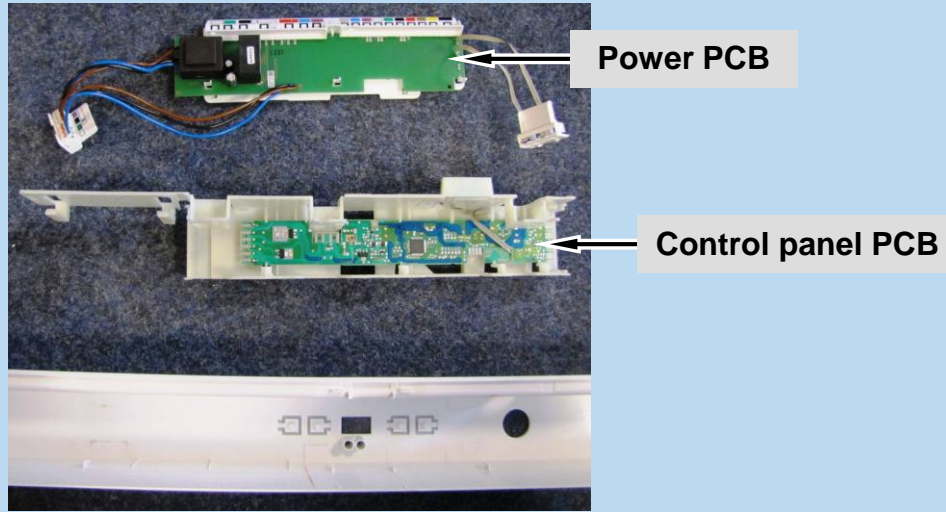
# Electronics



## Front casing

- Fold up front casing
- Pull connector out from power PCB.

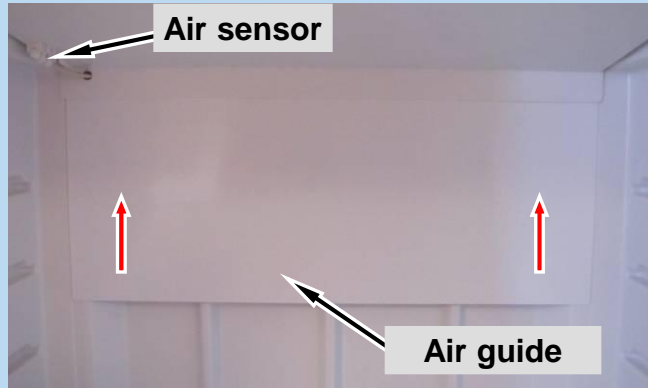
# Electronics



## PCBs

- Unclip PCBs from front casing.

# Remove evaporator module



## Air guide

- Undo bayonet screws and remove from air guide plate.

# Remove evaporator module



## Fastening screws

- Remove stoppers and screws.
- Unclip front panel.

# Remove evaporator module

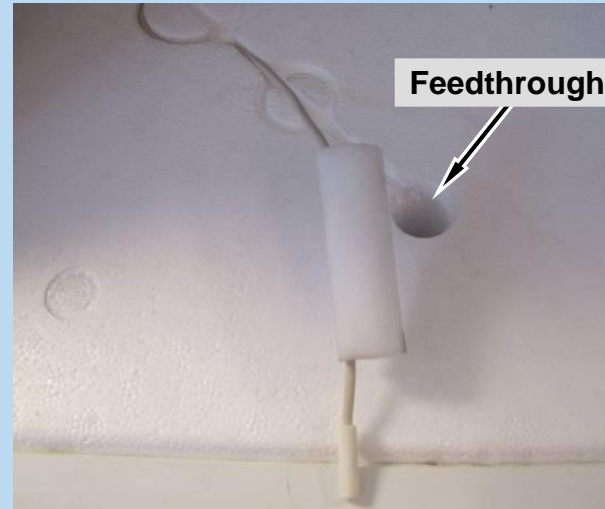
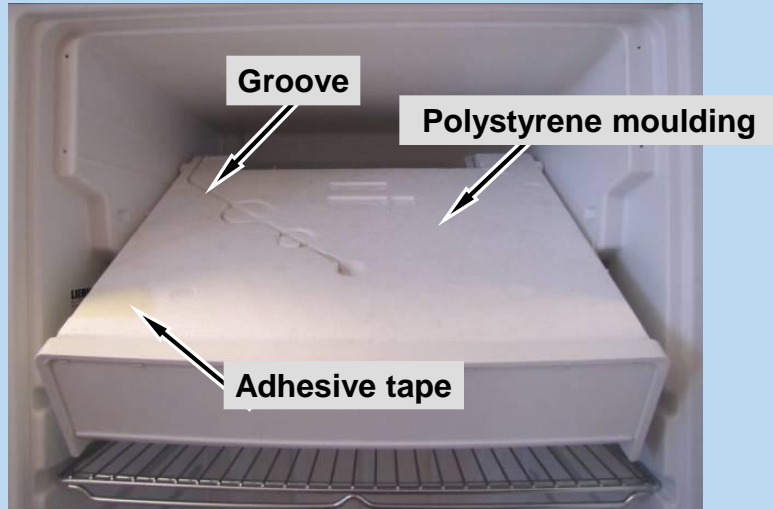


## Locking parts

- Unhook locating lug for each locking part (e.g. press downwards with screwdriver).
- Pull locking part inward to remove.



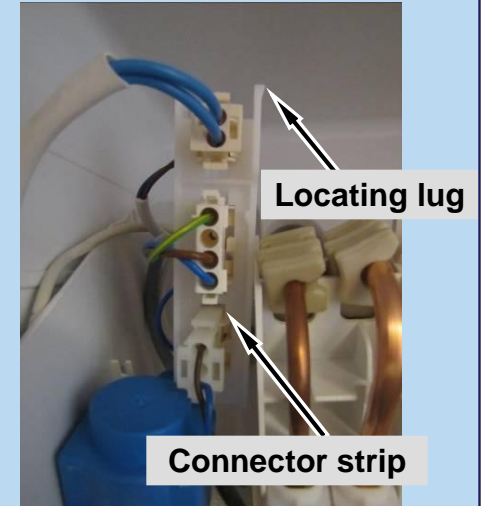
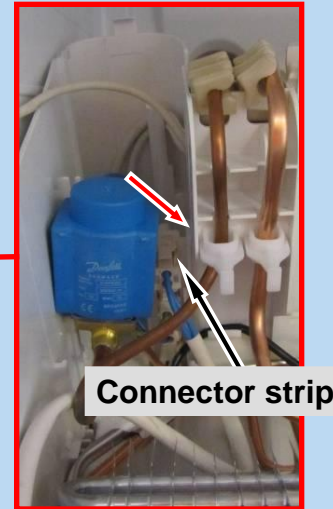
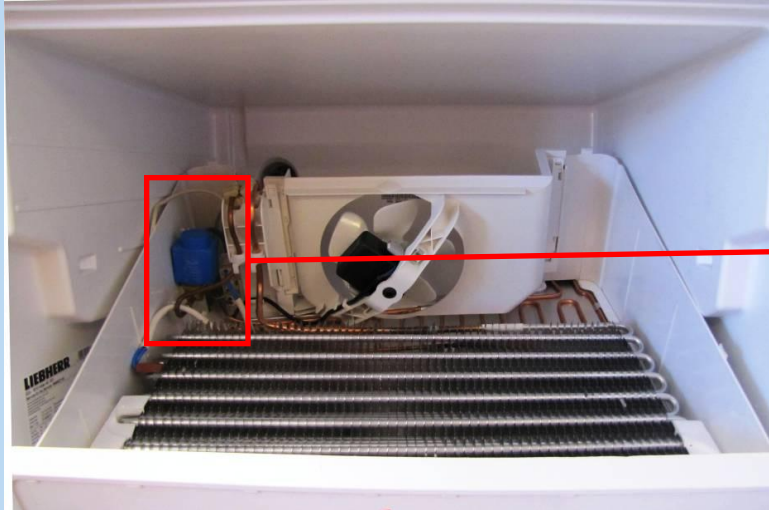
# Remove evaporator module



## Module

- Pull module forwards, fold downwards and place on grid.
- Remove adhesive strips and pull sensors out of the feedthrough.
- First lift polystyrene part at the front and then draw it off.

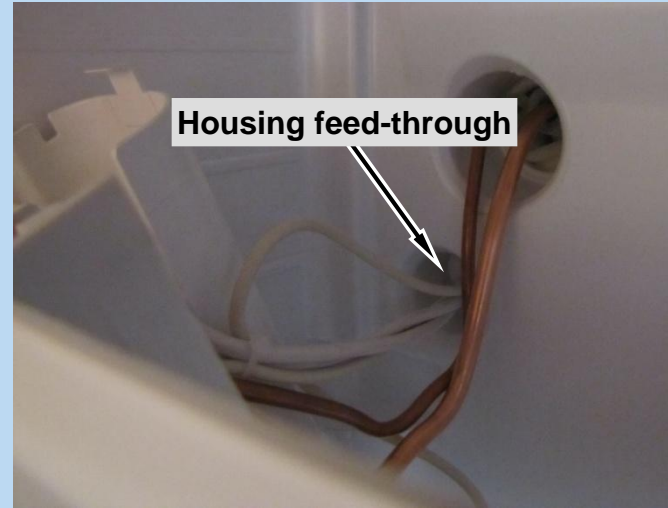
# Remove evaporator module



## Connector strip

- Unhook locating lug and push connector strip upwards.

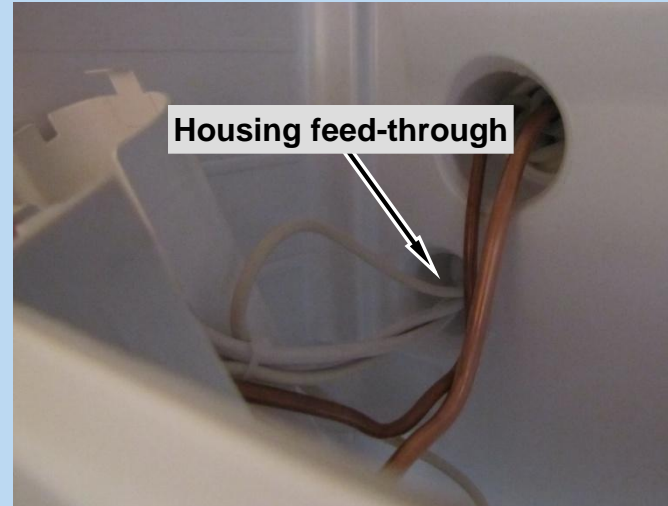
# Air sensor



## Air sensor

- Clip sensor out of the holder and thread it through the opening.
- Pull sensor out through the rear wall and replace with universal sensor.

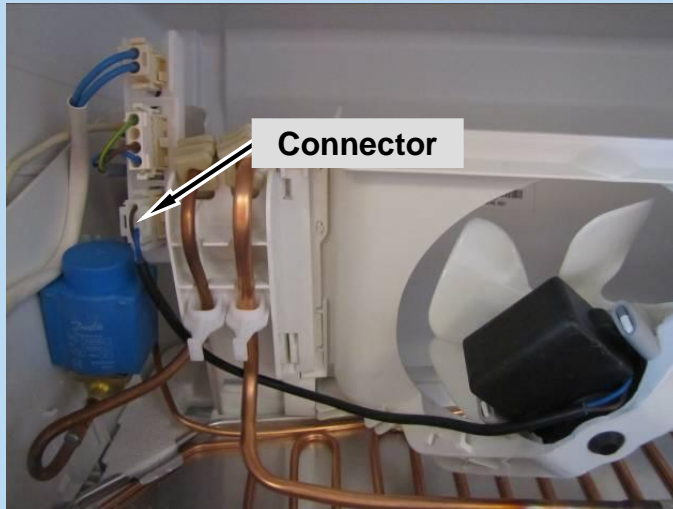
# Evaporator sensor



## Evaporator sensor

- Pull sensor out through the rear wall and replace with universal sensor.

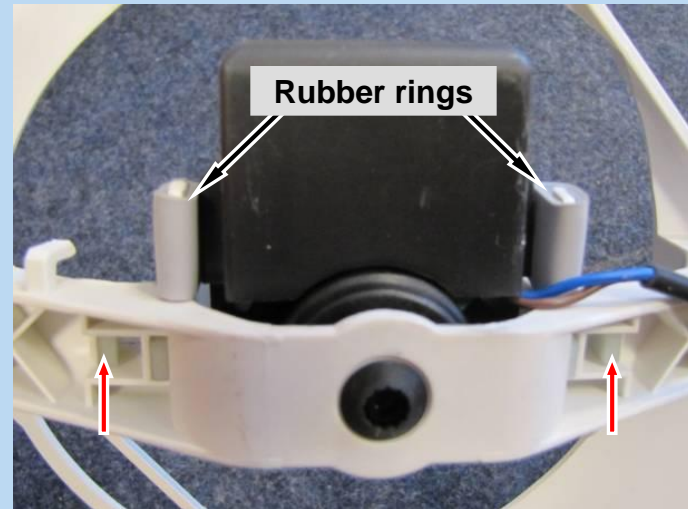
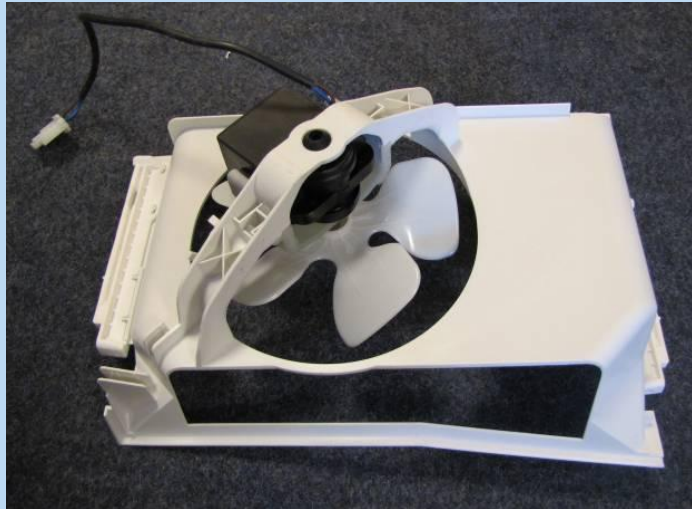
# Interior fan



## Connector

- Disconnect fan from connector strip and pull out through the feed-through.
- Unhook fan and mount and remove towards the rear.

# Interior fan

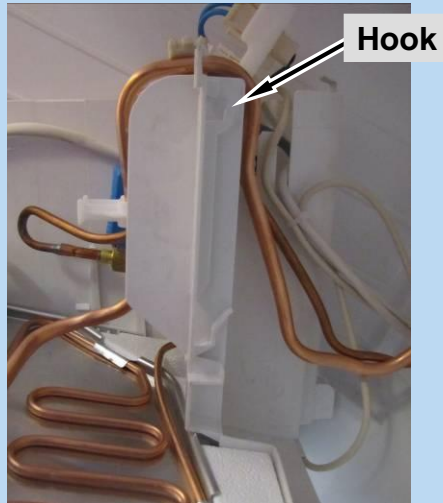


## Fan mount

- Remove blades.
- Pull off rubber rings and unclip the fan holder part of the fan.



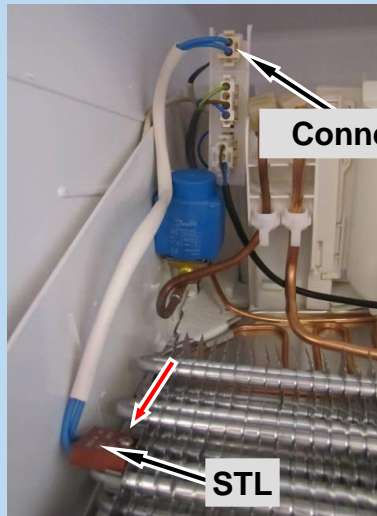
# Interior fan



## Recess for fan mount

- Place the rear of the mount into the recess and hook the mount in.

# Safety temperature limiter (STL)



Connector

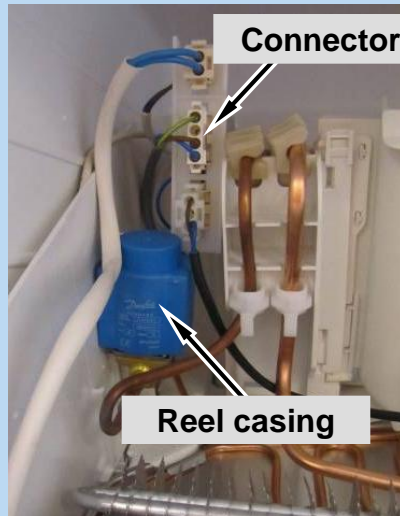
STL

## STL

- Disconnect STL
- Remove fastening screws and then take out STL .



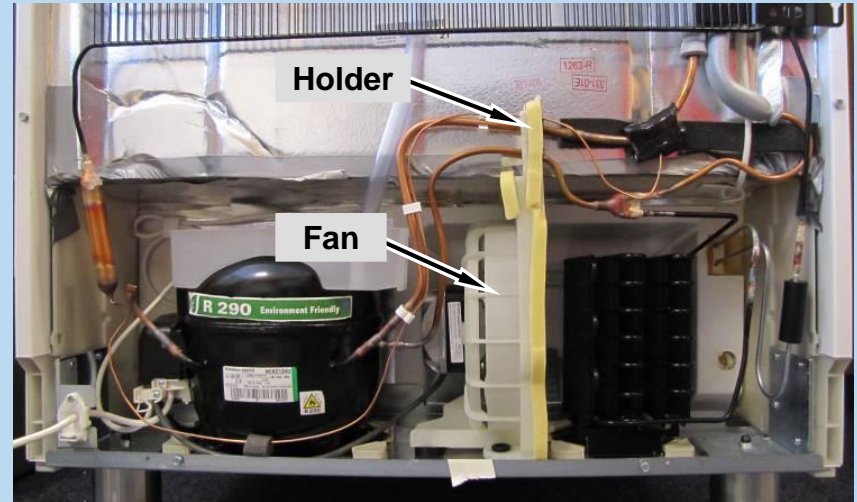
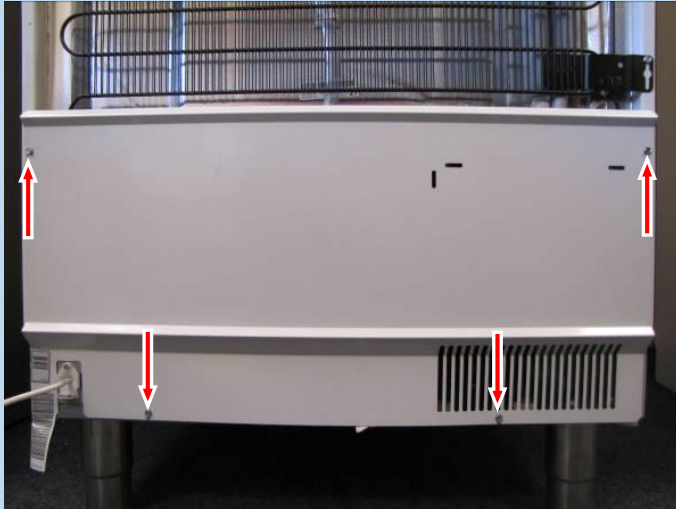
# Solenoid valve



## Solenoid valve

- Disconnect connector.
- Lift out the reel casing.

# Condenser fan



## Cover

- Undo fastening screws and remove cover.
- Pull out holder.

# Condenser fan



## Fan

- Draw out locking pins.
- Remove fan and mount.

# Special features

# Closing mechanism



The underside slides along the hinge pin on an inclined surface. At an opening angle of less than 30°, the door slides downwards and shuts automatically.

# Pressure compensating valve



There is a pressure compensating valve integrated into the defrost water drain.

# Hidden functions

# Customer menu



**Start:** Press "Alarm" for 3 seconds.

**Selection:** Select the function wanted using "Up" or "Down" and activate the selected function with "Alarm".

**Functions:**

- **c** Child lock
- **H** Manual start of defrosting
- **h** Brightness



# Manual start of defrosting

Step	Display	Operation	Display following operation	Testing option / Info
1	Actual value	Hold down "Alarm" for 3 seconds	"c" flashes	Customer menu activation
2	"c" flashes	Press "Up" once	"H" flashes	Activate defrosting
3	"H" flashes	Press "Alarm"	„A" flashes + defrost symbol	Defrosting activated (stops automatically)

# Service menu



**Start:** Press ON/OFF and "Alarm" simultaneously for 3 seconds.

**Selection:** Select the function wanted using "Up" or "Down" and activate the selected function with "Alarm".

<b>Functions:</b>	- d	Demo mode
	- L	Panel test and Service mode
	- E	Sensor test

# Demo mode

Step	Display	Operation	Display following operation	Testing option / Info
<b>Activating demo mode</b>				
1a	Actual value	Press "Alarm" and "ON/OFF" simultaneously for 3 seconds	"d1" flashes	Service menu activation
2a	<b>"d1" flashes</b>	Press "Alarm"	Set value	<b>Demo mode ON</b>
<b>Deactivating demo mode</b> (demo mode can be deactivated only using the service menu, not by OFF/ON.)				
1B	Set value	Press "Alarm" and "ON/OFF" simultaneously for 3 seconds	"d0" flashes	Service menu activation
2b	<b>"d0" flashes</b>	Press "Alarm"	Current actual value	<b>Demo mode OFF</b>
<b>Operation is switched to the mode wanted, demo mode or normal, as soon as "Alarm" has been actuated.</b>				

# Service mode

Step	Display	Operation	Display following operation	Testing option / Info
<b>Service menu start</b>				
1	OFF	Press "Alarm" and "ON/OFF" simultaneously for 3 seconds	"d1" flashes	Service menu activation
<b>Customer service mode -- Check display LED, buttons, door contact</b>				
1	"d1" flashes	Press "Up" once	"L" flashes	Service mode selected
2	"L" flashes	Press "Alarm"	"rd" flashes	Service mode activated
3	"rd" flashes	Door open and closed	All LEDs and the display (88) light up	Door contact, LEDs
4	All LEDs and the display (88) light up *	Press all the buttons	2 seconds audible alarm "L0" lights up	Buttons

# Service mode

Step	Display	Operation	Display following operation	Testing option / Info
<b>Service mode</b> <b>-- testing electric loads--</b>				
5 -> 8	"L0" lights up		"L0" lights up	All OFF
6	"L0" lights up	Press "Up"	"L1" lights up	<b>Compressor + condensor fan ON</b>
7	"L1" lights up	Press "Up"	"L3" lights up	<b>Compressor fan ON</b>
5 <- 8	"L3" lights up	Press "Up"	"L4" lights up	<b>Solenoid valve</b>
Return to step 5 by pressing the "Up" button again.				
End		Press "On/Off"		

# Sensor mode

Step	Display	Operation	Display following operation	Testing option / Info
<b>Service menu start</b>				
1	OFF	Hold down "Alarm" and simultaneously press "ON/OFF"	"d1" flashes	Service menu activation
2	"d1" flashes	Press "Up" twice	"E" flashes	Sensor selection
3	"E" flashes	Press "Up"	E3 in alternation with the respective temperature	<b>Air sensor</b>
4	E3 in alternation with the respective temperature	Press "Up"	E4 in alternation with the respective temperature	<b>Evaporator sensor</b>
5	E4 in alternation with the respective temperature	Press "Up"	E8 in alternation with the respective door condition (1= open, 2 = closed)	<b>Reed contact</b>
Return to step 5 by pressing the "Up" button again.				
End		Press „ON/OFF"		

# Error code

Error code	Defective component	Emergency mode
"F3" flashes	Air sensor	Continuous operation
"F4" flashes	Evaporator sensor	Continuous operation
"Ad" flashes	Maximum defrost duration exceeded	Regular operation
"HE" flashes	Excess evaporator temperature	Fans and Compressor get switched off