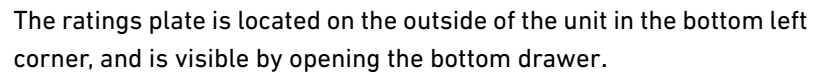


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NORTH AMERICA -power 503

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2. INSTALLATIONS

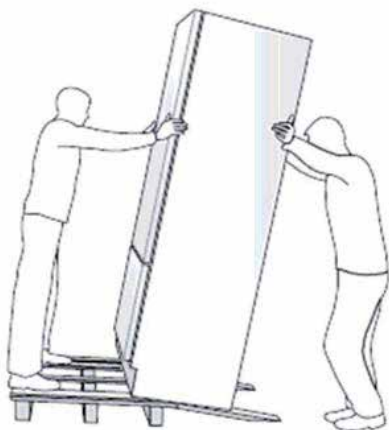
MOVING AND INSTALLING THE APPLIANCE

For more detailed information on how to move and install the appliance, you are referred to the specific installation guide.

Only selected pieces of information which may also be of interest to the Technical Support Service are provided here.

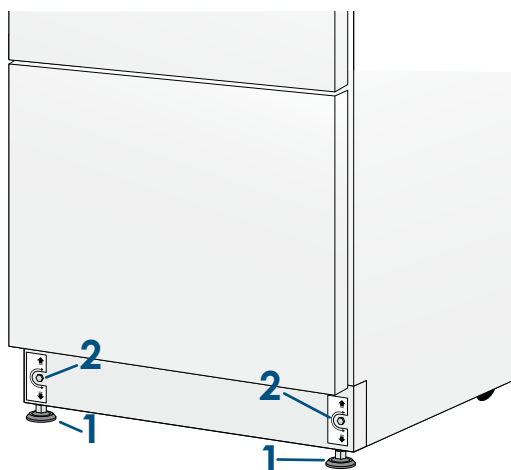
- The appliance is very heavy and should only be moved with the utmost care to prevent any damage to people or things.
- The appliance must always be transported upright. If this is not possible it should be laid flat, resting on its back.

If transported on its back, the unit must be placed upright for a minimum of 24 hours prior to plugging it in and turning it on to allow lubricating oils to return to the compressor(s).



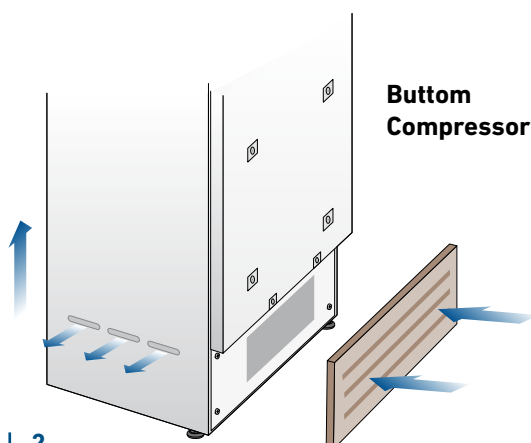
LEVELLING

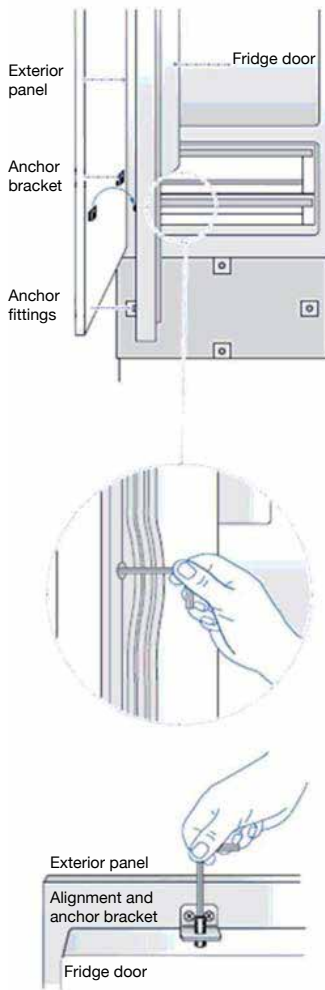
- There are 4 wheels on the bottom: 2 at the front and 2 at the back. The front wheels only touch the ground when the adjustable feet at the front have been screwed in fully.
- The appliance can be leveled by adjusting the two feet (1) at the front using a 17mm wrench; to adjust the height of the 2 wheels at the back use an 8mm socket wrench to rotate the two devices on the base (2).



VENTILATION

- Ventilation for the compressors and the condenser is provided by a system of air forced through a grill at the bottom of the appliance. The grill, which is attached magnetically, can be easily removed to clean the condenser. This grille must never be covered by panel or other devices which would impede its effective function.
- The normal flow of air must not be obstructed by base pieces or panels that are not the size indicated in the installation guide. A ventilation flue that is open on top must be left behind the appliance to allow fresh air to enter and old air to be expelled. Servicers need to inspect the installation first to see that it provides adequate air flow as it could be the cause of performance issues and would void a warranty claim.





PANEL INSTALLATIONS

- The decorative door panels for built-in models are assembled using special brackets that hook onto adjustable clips already mounted on the door, as well as brackets which anchor and adjusting the vertical alignment of the panel.
- To make sure the panel is perfectly vertical, work from the inside of the door: lift the magnetic seal and using a 4mm Allen wrench, adjust the anchor fitting either forward or back until the panel is perfectly aligned. Block them in position using the against screws, which are also below the seal.
- To block the entire assembly in position, tighten the Allen screws on the top and bottom brackets.

ANTI-TIPPING SAFETY ASSEMBLY

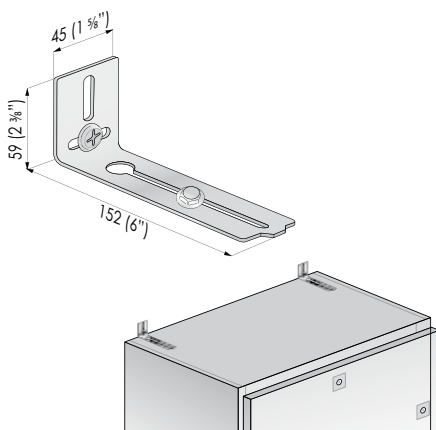


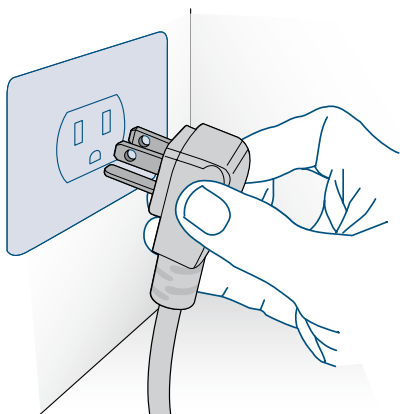
IMPORTANT

To stop the appliance from tipping over on opening the door when all shelves are full, two brackets must be fitted to attach the top of the appliance to the wall.

- These brackets must be attached as illustrated here, after removing the upper panel which, once the brackets have been fitted, must be replaced.

Note: in case this solution is not applicable on integrated models, due to a particular configuration of the wooden furniture, fix directly the appliance to the cabinetry.





Electrical and water connection

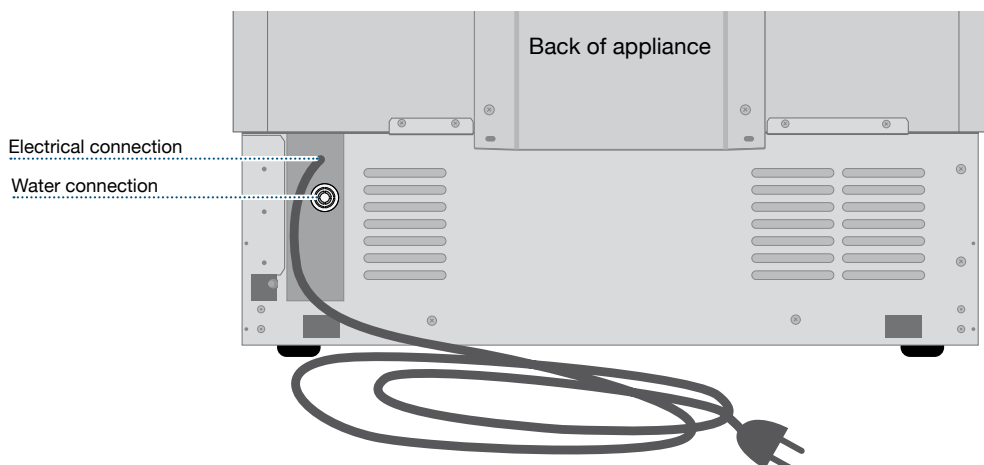
- To attach the appliance to the electricity supply, SJT 16AWG socket with adequate grounding is required that can be easily reached after the appliance has been installed. The electrical supply must be protected by an appropriate circuit breaker.
- Extension cords must not be used
- Do not remove the grounding plug or modify the power cord in any manner as it may void your warranty
- To attach the drinking water supply (appliances fitted with ice-maker), a tube with ¼" in diameter is necessary.
- Well water or water known to have high particulate content must be pre-filtered before being used with the appliance.
- The picture provided below show where the power cable should be attached and the water supply pipe connection (for appliances with an ice-maker) and bottom compressors.

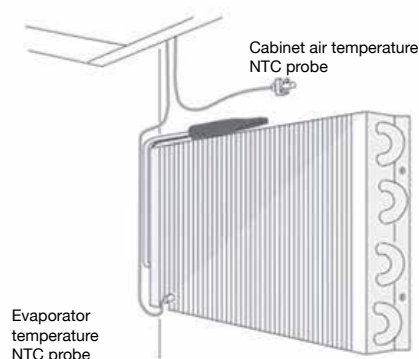
Electrical and hydraulic connection

Top compressors



Bottom compressors





Description of circuit for refrigeration compartment

- On exiting the compressors, the high pressure, high temperature gas goes into the finned, ventilated condenser, where it turns from a gas into a liquid, then goes into the dryer filter then into the evaporator.
- On exiting the capillary tube, the refrigerant expands inside the evaporator generating the refrigerant effect required to chill foods.
- The evaporator is controlled by 2 temperature probes, one in the air above the evaporator to check the temperature in the associated compartment, and one in contact with the evaporator to control the defrost temperature.
- Defrosting takes place every time the compressor stops, and is not forced given that a heating element is not used (Off-cycle defrost).
- A direct current fan powered from the electronic base with a voltage varying from 18 to 24V ensures the perfect distribution of air inside the refrigeration compartment in the following way:

High speed: during chilling (voltage of 24V)

Low speed: during defrost (voltage of 18V)

- The refrigeration / Cool (or wine cooler) sector condenser may operate as part of a completely separate circuit, but physically it is part of the same finned book as the condenser in the freezer sector. A temperature probe in contact with the condenser constantly monitors the temperature in order to manage the fan.
- The fan cooling the condenser starts when a temperature of 97°F is read, and modulate the velocity according to the condenser temperature (the fan stop working when the temperature is lower than 77°F).

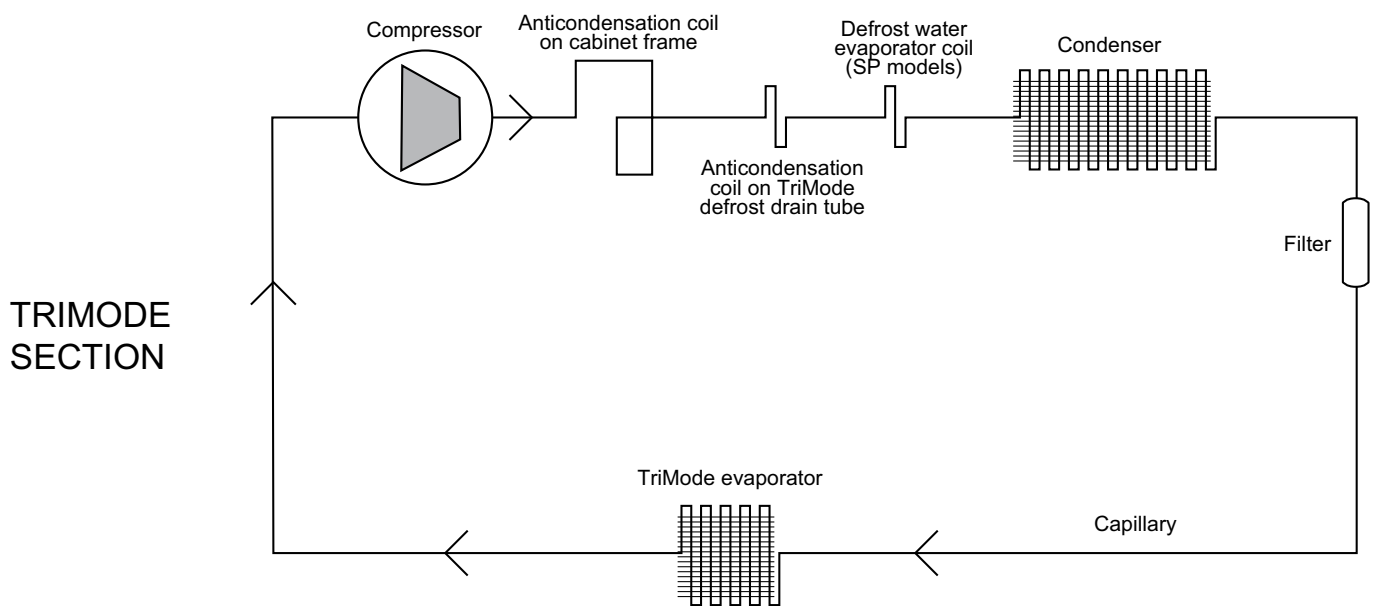
Note on defrosting

- In refrigeration and Fresh compartments, defrosting takes place naturally every time the compressors stops (the fan to circulate air inside stays on at low speed).
The compressor can restart only when the evaporator probe temperature reaches +37°F.
In addition, every 24 hours in time a safety defrost is run and the compressors can restart only when the evaporator probe reaches +45°F.
- The defrost water is carried to two evaporation trays placed on top of the compressors (bottom compressor appliances only).

Freezer part (FreshZone)

The FreshZone compartment comes out of the factory as a freezer but users can easily configure it as a fridge or low temperature compartment or when wines are stored, as a wine cooler.

The FreshZone circuit is completely separate from the refrigeration / wine cooler circuit and is managed by its own compressor.



Description of circuit

- On exiting the compressors, the high pressure, high temperature gas is conveyed to the copper anti-condensation coil that runs along the entire frame of the cabinet.
- From here it goes into the finned and ventilated condenser where it turns from a gas into a liquid, then goes into the dryer filter then into the capillary tube.
- On exiting the capillary tube, the refrigerant expands inside the evaporator generating the refrigerant effect required to chill foods.
- The evaporator is controlled by 2 temperature probes, one in the air beside the evaporator to check the temperature in the compartment, and one in contact with the evaporator to control the defrost temperature.

- Cool air is distributed in the FreshZone compartment by an brush-less 12V DC fan as follows:

Chilling stage: fan switched on 1 minute after the compressor starts and switched off when the compressor stops.

Defrosting stage: fan always off.

Fast freezing stage: fan always switched on (compressors always on for up to 54 hours).

- The FreshZone sector condenser may operate as part of a completely separate circuit, but physically it is part of the same finned block as condenser in the refrigeration circuit (Shared condenser).
- A temperature probe in contact with the condenser constantly monitors the temperature in order to manage the fan. The condenser fan starts when a temperature of 35°C (95°F) is read, and stops when a temperature of 30°C (86°F) is reached.

Defrosting

- In the FreshZone compartment, defrosting is forced by a heating element placed in contact with the evaporator. The fan stays off during this stage.
- The defrost water is carried to two evaporation trays placed on top of the compressors (bottom compressor appliances only).

Minimum and maximum compressor OFF / ON times

Minimum OFF time: 5 minutes for the fridge and 10 minutes for the freezer. To stop the compressor from switching on before the pressure has balanced.

Maximum OFF time: 360 minutes for both the fridge and the freezer. To prevent extended pauses at low ambient temperatures.

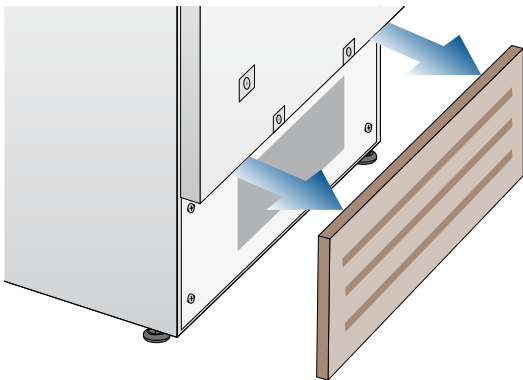
Minimum ON time: 10 minutes for both the fridge and for the freezer.

Maximum ON time: 720 minutes. To prevent extended running times at very high ambient temperatures (except during the "Shopping" function - for freezing).

ACCESSIBILITY

General access to components

The position of all main components inside the appliance is indicated, along with details of how to reach the ones that are more difficult to access. See the data sheets of each individual component provided later in this manual for more detailed information.



- Fridge and Freezer compartment area

Components accessible:

All internal components, shelves, baskets, racks and slide tracks.

How to access:

The fridge shelves can be removed and repositioned at any height.

- Door and inside door area

Components accessible:

Door handle, door hinge, door shelves, magnetic seal.

How to access:

The magnetic seal is inserted under pressure in a special groove in the inside part of the door and can be easily removed. In integrated models, on lifting up the seal all devices to adjust and anchor the decorated outer panel can be accessed (see installation section).

- Base of appliance (Integrated models)

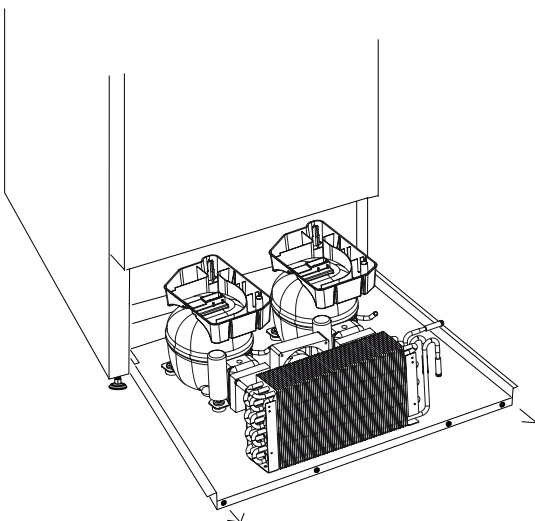
Components accessible:

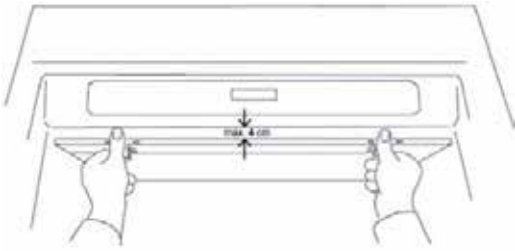
Compressors and relative accessories, condenser, condenser fan, dryer filters, water solenoid valves, gas solenoid valves.

How to access:

All components can be accessed by removing the ventilation grille (secured with magnets), removing the metal plate protecting the installation engineer from coming into contact with electrical parts, and pulling out the base that these are assembled on.

Remove the two lower anchor screws and after disconnecting the electrical connectors, extract the frame by engaging it from the holes in the middle of the base. Lift up the feet at the front first to allow the base to roll out without sticking.





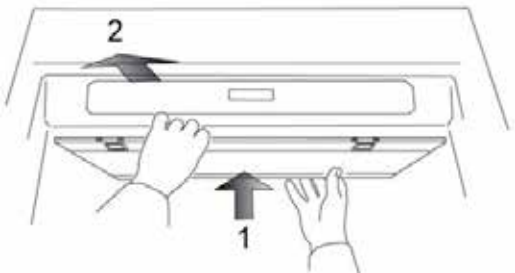
- Fridge / Wine Cooler compartment ceiling

Components accessible:

Water filter
Electronic Controller
Electrical connectors for various components
LED-illuminated component power unit
Air circulation fan
Main user interface

How to access:

Open the glass panel and if is possible, remove it.



The electronic controller is protected by an airtight plastic box. Make sure this seal is intact when replacing it. The fan is secured using noise-absorbing rubber pads. Be careful not to damage them when pulling them out.



- Fridge / Wine Cooler compartment area, hinge side

Components accessible:

Evaporator
NTC probes (air and evaporator)

How to access:

To remove the side safety panel, follow these steps:
Remove the glass panel (fridge) or all wine shelves (wine cooler).
Take off the trim covering the rack on the hinge side and the rack.
Remove the glass panel on the ceiling of the fridge (or steel panel in wine cooler models).
Remove the fan support.
Lift the panel up from the frame side, just enough to free it from its seat and pull it out towards you.
Be extremely careful not to damage the panel or scratch the frame.

- FreshZone compartment area, ceiling

Components accessible:

IceMaker (for models where this has been installed), anti-ice heating element
FreshZone evaporator, NTC probes (air and evaporator), defrost heating element, thermal trip units.

How to access:

Take out the main drawer and the small basket.
Unplug the electrical connector powering the ice maker.
To remove the IceMaker, unscrew the screw anchoring it to the top of the compartment and disengage it from its supporting frame.

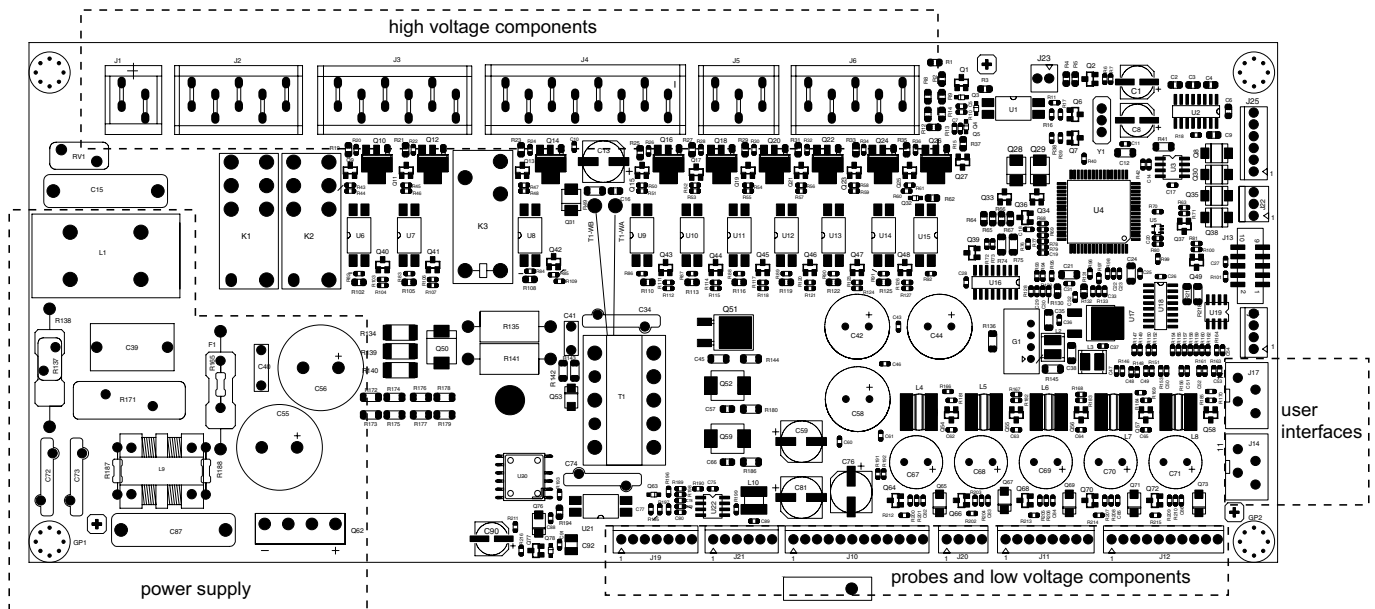
To access the evaporator and other associated components, unscrew the screws securing the safety panel (convoyer).

Characteristics, accessibility and help for main electrical components

Electronic Controller

General Characteristics:

- Electronic thermostat and function programmer which can be adjusted by the user via the two interface panels, one for the fridge (or Wine Cooler for wines) and FreshZone compartment and one for the cool compartment (or reserve for wines).



Technical Characteristics:

- 110-127 V AC input power supply, 5 V DC internal power supply, 8 bit re-programmable processor.
- Reads data received from temperature sensors (NTC) and from other electromechanical, capacitive, illumination, capacity and presence sensors.
- External utilities piloted via relays for high loads or Triac for other loads.

Accessibility

The base is positioned on the ceiling of the refrigeration compartment, inside an airtight box. See general accessibility.

Help

The base has a self-diagnosis system which generates messages on the display to help users find potential solutions to small problems and error codes to help the technical support service.

Furthermore, it is also possible via the menu activate a procedure reserved for the technical support service to control every single component individually.

User interface panel

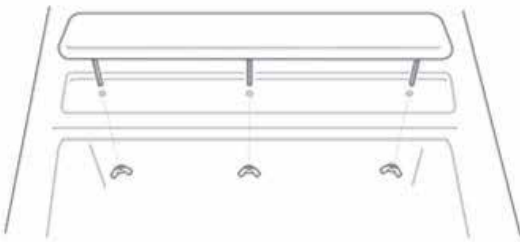
General Characteristics

Electronic base with touch panel and display

- Control of fridge compartment (or wine cooler) and FreshZone compartment.
- Switching appliance on and off, access to function menu, setting temperature in fridge and freezer.
- Show fridge and freezer temperatures, date and time, the selection menu and visual messages.

Accessibility and Help

Located in the top part of the evaporator frame, secured by three milled washers that are accessible from inside the refrigerator compartment on opening the glass ceiling lamp.





Fixed speed fan (12V CC)

General Characteristics

12V brushless fan

Use

Distribution of cold air in FreshZone compartment.

Accessibility and Help

Located behind the FreshZone evaporator compartment.

Fridge, Fresh, Wine Variable speed fan (18-28V DC)

General Characteristics

Variable speed direct current axial fan.

The motor is controlled by an electronic circuit fully contained inside the fan.

Power supply 24V DC, operating range 18 to 28V DC.

Current drawn 54mA, Power absorbed 1.4W.

Use

- Used to circulate air inside the fridge compartment (or wine cooler).
- Powered by electronic controller and starts up in the following ways:
High speed: during chilling (voltage of 24V DC)
Low speed: during defrosting (voltage of 18V DC)

Accessibility and Help

Positioned on the ceiling of respective compartments. The fridge fan can be reached after removing the glass panel or stainless steel ceiling.



Defrost heating element

General Characteristics

115V reinforced heating element, power levels 105, 170 or 230W depending on the appliance.

Use

- FreshZone evaporator defrosting

Accessibility and Help

Fixed by springs on the evaporator fins.

Anti-ice heating element

General Characteristics

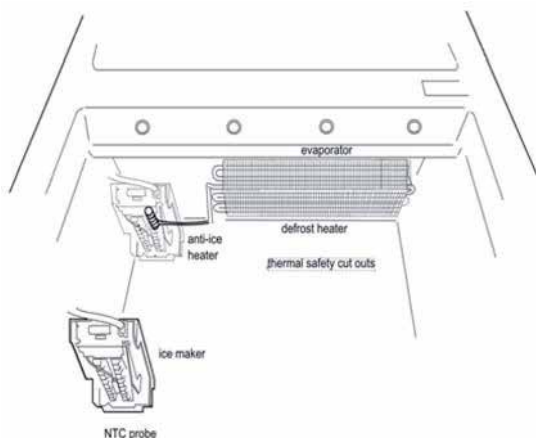
Flexible heating cable clad in silicone rubber and wrapped around an aluminium tube. Supply voltage 115V, power 5W.

Use

- Used to prevent ice from forming on the water feed pipe going into the IceMaker

Accessibility and Help

Can be reached by removing the ice maker.



FreshZone Fixed speed fan (12V DC)

Powered by main Power Board

General Characteristics

12V brushless fan

Use

Distribution of cold air in FreshZone compartment.

Accessibility and Help

Located behind the FreshZone evaporator compartment.

Condenser variable speed fan (8/15V DC)

General Characteristics

8/15V brushless fan

Use

Maintain the right temperature of the condenser in the compressor base plate.

Accessibility and Help

Located behind the condenser unit on the compressor base plate.

NTC

General Characteristics

Negative coefficient temperature probe

°C	°F	Ohm
-30	-22	48.782
-20	-4	26.629
-15	5	19.964
-10	14	15.104
-5	23	11.526
0	32	8.871
+5	41	6.885
+10	50	5.386
+15	59	4.247
+20	68	3.374
+25	77	2.700
+30	86	2.175

-40°C (-40°F) NTC disconnected

Use

- Only one type is used to measure the temperature at different points of the appliance (except in the ice maker which has a unique probe).

Accessibility and Help

The different probes used can be reached from inside the appliance by removing the panels covering the evaporators.

Temperature limiter

General Characteristics

Bimetallic, self-restoring, sealed temperature limiter.

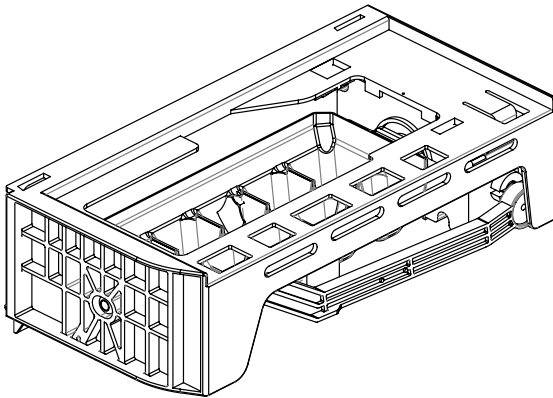
Normally closed, disconnect temperature 104°F / 26,6°F.

Use

- Two limiters are attached to the freezer evaporator return pipe.
- They are installed electrically to be in series with the defrost heating element (one before and one after the heating element), and activate when the temperature rises too high during defrosting.

Accessibility and Help

They are accessible by removing the freezer evaporator safety panel, and are snapped into place on the return pipe.



Ice Maker Sankyo

Part nr S02801300

From november 2012

General Characteristics

Ice cubes are dropped into the bucket when the tray is twisted.

12V DC motor.

5V DC supply to internal control circuit.

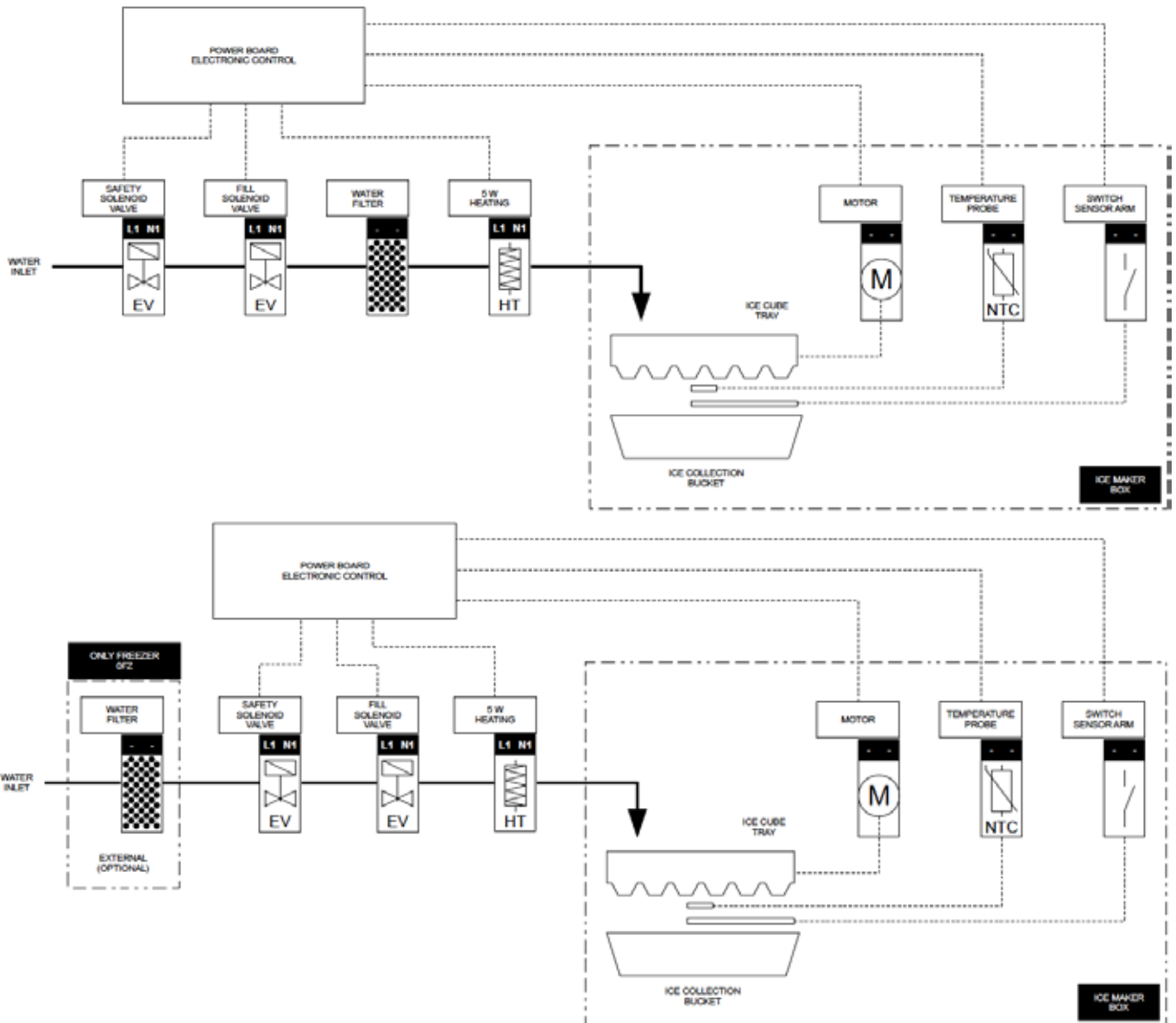
Use

- The ice maker is supplied with water from the domestic mains supply which is first filtered then passes via two solenoid valves connected hydraulically in series and supplied electrically in parallel to ensure a high standard of safety in operation.

Key and description of functions

Component		Controlled by	Action performed
1	Freezer Compressors	NTC probe (freezer air)	Freezer area chilling
		NTC probe (freezer evaporator)	
2	Fridge Compressors	NTC probe (fridge air)	Fridge area chilling
		NTC probe (fridge evaporator)	
3	Condenser fan	NTC probe (condenser)	Condenser chilling
4	Fridge ceiling LED light	Door switch	Light from roof of fridge area
5	LED power supply	Door switch	Powers series of LEDs
6	LEDs	Door switch	Light from inside fridge (sides)
9	Freezer defrost heating element	NTC probe (freezer evaporator) + Time	Intervenes after a maximum of 72 hours after defrosting. The actual time depends on compressor function and how often the door is opened (minimum time between successive defrosts = 20 hours). Defrosting is stopped when the evaporator probe reaches a temperature of +11°C or after a maximum defrost time of 40 minutes. If defrosting is not complete after 40 minutes, a new defrost stage is started after 6 hours.
10	Freezer fan	NTC probe (freezer air) + Time	It is activate 1 minute after the compressors has started.
11	Inside light - freezer	Freezer drawer switch	Switches on the light when the lower freezer basket is not in contact with the electromechanical switch.
12	Freezer LEDs	Freezer drawer switch	Mechanical switch of freezer led
13	Anti-ice heating element (Ice Maker)	Power board	Powered when the Ice Maker is on and the ice maker arm does not detect high ice cubes level into the ice tray.
14	Gas Solenoid Valve (fridge/Fresh)	Activate at +115V to open and at +115V to close (short pulse by power board)	Allows refrigerant gas to flow in the fridge area. Priority is nevertheless given to the Cool area.
16	Fill solenoid (Ice Maker)	Ice Maker NTC probe + Ice Maker sensor arm (115V)	Powered when the NTC probe reads a temperature below -10°C and confirmation is received from the maximum ice level sensor arm.
17	Safety solenoid (Ice Maker)	Ice Maker NTC probe + Ice Maker sensor arm (115V)	Powered parallel with the water fill solenoid valve to assure power even if the latter fails to function.
21	Ice Maker	Ice Maker NTC probe + Ice Maker sensor arm + power board	The water flows when the internal NTC probe detects a temperature below -10°C, content is received from the ice level sensor arm and the drawer is closed. The quantity is controlled by time 6sec/4sec.
25	NTC probe, fridge area	Power board	Reads the temperature in the fridge area and sends consent to compressors to start and stop it.
26	Fridge door switch	Door release	Electromechanical switch positioned behind the top hinge
27	Fridge fan	NTC probe, fridge area	DC brushless, twin-speed fan motor Runs at low speed (18V DC) and continually when the compressors is off. Runs at full speed (28V) when a compressor is running and when the temperature in the evaporator area is equal to or lower than 0°C.
28	NTC probe, fridge evaporator	Fridge evaporator temperature	Powers the fridge compressor when the evaporator temperature rises above +3°C and the fridge area NTC probe (air) activates (+7°C for safety defrost).
30	Freezer drawer switch	Opening of FreshZone drawer	Electromechanical switch located in the back of the freezer compartment and activated by the freezer drawer.
31	NTC probe freezer evaporator	Fridge FreshZone evaporator temperature	Controls the defrost phase in the FreshZone compartment. Defrosting is stopped when the evaporator NTC probe reaches +11°C.
32	NTC freezer air	Freezer area air temperature	Measures the freezer air temperature and gives consent for the compressor to start and stop.
34	Fresh fan (only 1T models)	NTC probe, Fresh area	DC brushless, twin-speed fan motor Runs at low speed (18V DC) and continually when the compressors is off. Runs at full speed (24V) when a compressor is running and when the temperature in the evaporator area is equal to or greater than 0°C.
35	NTC probe, Fresh area (only 1T models)	Power board	Reads the temperature in the Fresh area and sends consent to compressors to start and stop it.
36	NTC probe, Fresh evaporator (only 1T models)	Fresh evaporator temperature	Powers the fridge compressor when the evaporator temperature rises above +3°C and the fridge area NTC probe (air) activates (+7°C for safety defrost).

- A small 5W heating element is located at the water inlet point and is powered on at all times when the ice maker is in operation to prevent the incoming water from freezing.



- The Ice Maker is inside the freezer: when it is switched on, water flows into the shaped tray where it is turned into ice cubes.
- On reaching a temperature of -14°F , a probe at the bottom of the tray sends a consent signal to the Ice Maker motor which rotates and twists the tray to dislodge the ice and cause the ice cubes to fall into the bucket below.

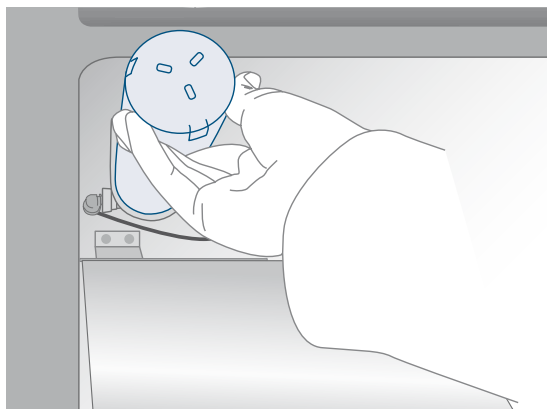
This cycle is repeated until the bucket is full of ice which pushes up the lever of a sensor which cuts off electricity to the ice maker. When the container is emptied, the cycle recommences.

- To make medium-size cubes the solenoid valve must be powered for 4 seconds, which fills approximately 80cc of water.
- To make large-size cubes the solenoid valve must be powered for 7 seconds, which fills approximately 110cc of water.
- An average quantity of $1\text{ kg} = 100$ large cubes is produced in 24 hours.

Accessibility and Help

The ice maker is positioned on the ceiling of the freezer compartment.

If no ice has been made, check if the FreshZone compartment has been set to freezer and that the "Ice Maker" button has been pressed. Check also that the appliance is connected correctly to the mains water supply and that the valve is open: check the solenoid valve is working properly; do a "manual wash" (via menu) to take sure water is getting to the ice maker.



Water filter cartridge

General Characteristics

Active carbon filter able to supply high quality water on the outlet side.

Use

- Used to supply the ice maker

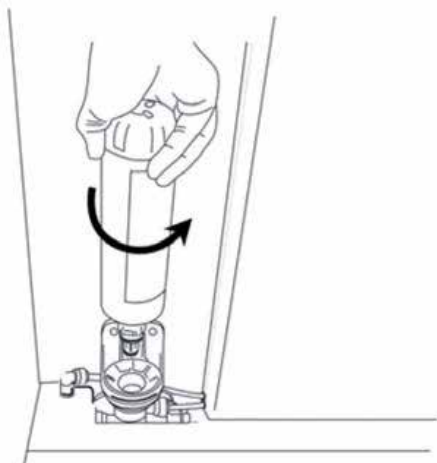
Accessibility and Help

Positioned behind the glass panel on the ceiling of the appliance.

- The filter cartridge should be replaced after filtering 3000 liters of water, or after it has been in use for 12 months.
- The amount of filtered water and the time of use are monitored by an electronic control.

When 0% of the filter capacity remains, the message “Replace filter” appears on the display

Manifold automatically bypasses filter if removed.





Ice maker fill solenoid

General Characteristics

115V AC solenoid valve

Use

- Two solenoid valve (one is a safety one) supply the Ice Maker with drinking water.
- The main solenoid valve that the water pipe is connected to has a particulate screen (removable to check and clean) which stops mechanical impurities which may be present in the water supply.

Accessibility and Help

The solenoid valves are in the base of the appliance and can be reached by removing the lower ventilation front grille.

For top compressors appliances the solenoid valves are fixed on the bottom part of the appliance and can be reached by removing the kick-plate below the FreshZone drawer.



Anti-ice heating element

General Characteristics

5W 115V AC heating cable with internal resistance of 10kOhm, wound around an aluminium tube that is used to clad the ice maker inlet pipe.

Use

- To prevent ice from forming on the water feed pipe going into the ice maker.
- It is controlled by the power board and is always on when the ice maker is on.

Accessibility and Help

Can be reached from freezer compartment on removing the ice maker. Check the resistance with an ohmmeter.

Internal LED lighting (bar)

General Characteristics

3LED bar. Each LED has a nominal operating voltage of 3.3 VDC.

The LEDs are connected in series.

They are powered by a specific constant current power unit.

Use

- Used to illuminate the ceiling of the fridge compartment and the sides of the wine cooler.

Accessibility and Help

In fridges, they are accessible after the protective glass panel on the roof of the appliance has been removed.

Internal LED lighting (dish)

General Characteristics

Nominal operating voltage of 3.3 VDC.

Power draw 1.1 W.

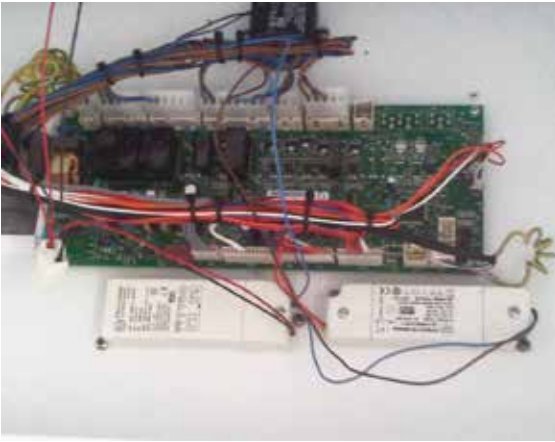
They are powered by a specific constant current power unit.

Use

- The LED lights are connected in series.
- Each device consists of a reflective dish and the LED itself, the terminals of which are connected to a diode that allows current through even when one of the LEDs connected in series is not working.

Accessibility and Help

The LED devices can be pulled out individually and replaced using a flat-tip screwdriver.



Electronic power unit for bar LED (fridge ceiling and sides of wine cooler) and dish LED (fridge side)

General Characteristics

Nominal incoming voltage 95-240 V.

Frequency 50-60 Hz.

Secondary current 350 mA (constant).

Power 16W.

Use

- Constant direct current power unit to supply.
- LED lights inside appliance.

Accessibility and Help

The power unit is located beside the electronic controller on the ceiling of the appliance. It can be accessed by removing the glass and box protecting the electronic controller.

Power unit for dish LED (Freezer)

General Characteristics

Nominal incoming voltage 95-240 V.

Frequency 50-60 Hz.

Secondary current 350 mA (constant).

Power 4W.

Use

- Constant direct current power unit supply.
- Dish LED in freezer.

Accessibility and Help

The power unit is located beside the electronic controller on the ceiling of the appliance. It can be accessed by removing the glass and box protecting the electronic controller.



Door switch

General Characteristics

Electromechanical switch. Contacts normally open, closed when door is closed. It is activated by the top hinge.

Use

- Internal lighting

The open/closed condition is used by the electronic controller to activate or disable the lights (LED power unit) running on 115V.

Accessibility and Help

The door switch is located inside the top hinge box.

It can be reached from the top of the appliance, by first removing the steel plate protecting the hinge.



Drawer switch

General Characteristics

Electromechanical switch contacts normally open, closed when door is closed. It is activated by the freezer basket.

Use

- Lighting inside freezer.

The open/closed condition is used by the electronic controller to activate or disable the lights (LED power unit) running on 115V.

Accessibility and Help

The drawer switch is located on the bottom wall of the freezer compartment and can be reached by removing the drawer.

Magnetic switch After.



Door switch

General Characteristics

Magnetic switch contacts normally open, closed when door is closed. It is activated by the freezer basket. The magnet situated on the rear part of the ice tray in the freezer.

Use

- Lighting inside freezer.

The open/closed condition is used by the electronic controller to activate or disable the lights (LED power unit) running on 230V.

Accessibility and Help

The door switch is located in the upper front part of the compartment. It can be reached from the top of the appliance, by first removing the steel plate protecting the hinge. Is accessible detaching the specific cap



Drawer switch

General Characteristics

Magnetic switch. Contacts normally open, closed when door is closed. It is activated by the top magnet inserted in the door.

Use

- Internal lighting

The open/closed condition is used by the electronic controller to activate or disable the lights (LED power unit) running on 230V.

Accessibility and Help

The drawer switch is located on the bottom wall of the freezer compartment and can be reached on removing the drawer.

SWITCH

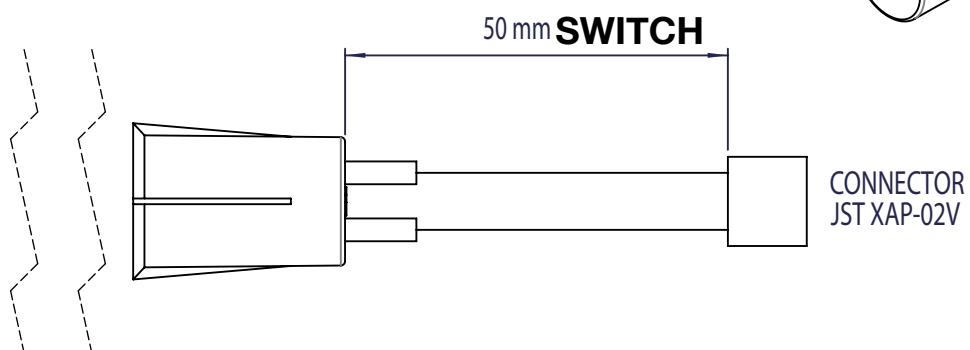
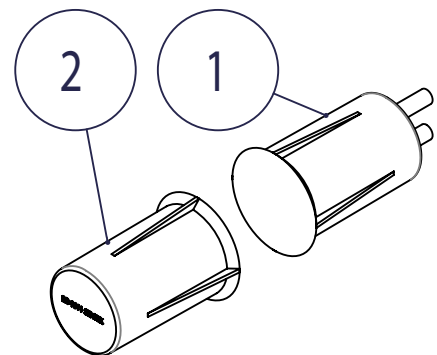


Magnetic switch

Photos of the many components of the switch unhooked from the refrigerator.

1) Switch read

2) Contromagnetic switch read



TROUBLESHOOTING

General

The following facilities are provided to help Service in troubleshooting:

- *List of error codes*

This lists all error codes that may appear on the display in the event of a fault and any potential causes.

In the event of multiple faults, the error codes are cycled on the display.

- *Troubleshooting table*

This table describes a number of potential failures, indicates the potential causes and suggests corrective actions.

- *Main wiring diagram*

This provides a simplified overview of how to connect high voltage utilities and relative control devices to the electronic controller. It should be read in conjunction with the component key. It is useful to gain a general insight into functions.

Provides a detailed picture of electrical cabling and how components are numbered. It is useful for measuring components. It can be read alone, or in conjunction with the component key.

- *Component Key*

Lists components featured in the diagram and provides important indications on how components interact.

- *Characteristics of components and Help*

You are referred to the specific chapter for each individual component for descriptions of functions and help available.

- *Fulgor Access Flow Chart*

This illustrates the various options the electronic controller provides (functions and settings), and indicates how to operate each selection or reset the default settings.

It should be read in conjunction with the quick guide provided in this manual.

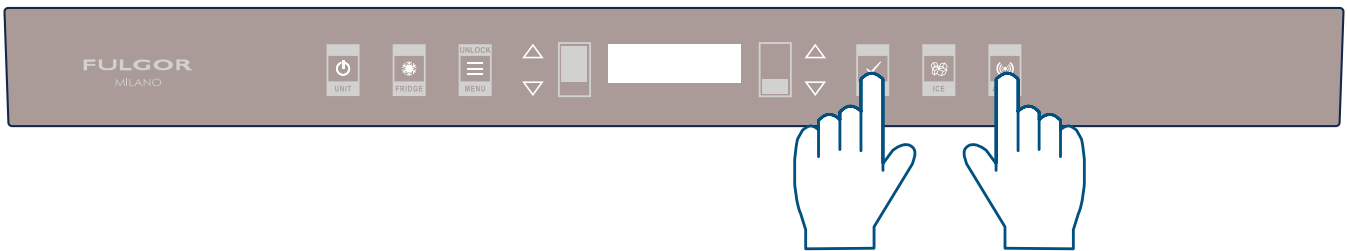
- *Service test procedure*

Step-by-step guide to checking each electrical and electronic component via the specific area in the menu.

SERVICE TEST PROCEDURE

Make sure the keypad is unlocked: press Menu access key and down arrow at the same time to unlock.
(Keypad locks automatically after door closed for 3 minutes.)

Press Enter and Alarm touch button exactly at the same time for 5 secs:



The Access Menu symbol lights up and the display shows: Customize

Press the Enter button to confirm: a feature/mode (e.g. "Ice Maker") appears on the display.

Browse for Service Test mode with the Up/Down arrows and press Enter to visualize Status (ON or OFF).

Set Status to ON and press Enter to confirm choice.

The display shows "Test is starting", followed by the description of the first component being tested. The component is then energized so that its functionality can be checked.

To move on to the next component press Enter until the desired component to be tested appears on the display.

Do note that some components that may not actually be installed or activated in the machine being tested are also shown.

Do also note that, in case of a faulty component no indication appears on the display (no error codes on Service mode), the test is to be performed by visual or aural inspection only.

To this purpose it may be convenient to keep doors open and remove vent grilles to get visual or aural access to the component being tested.

Service Test Procedure

- Make sure the keypad is unlocked: press Fulgor access key and down arrow at the same time to unlock
- Press Enter and Alarm touch button exactly at the same time for 5 secs: the Menu symbol lights up and the display shows: Customize
- Press the Enter touch button to confirm: a feature (e.g. "Ice Maker") appears on the display. Browse for Service Test with the UP / DOWN and Enter to confirm
- Press Enter to start the Service Test procedure and to move from one step to the next one. It is not possible to skip a step nor to return back to a previous step (you need to restart from step 1).
- At the end of the Service Test press Menu button to exit the Customize mode and close the door. The Service Test can be performed also while on Demo Mode

Step	Description on display	What happens	How to check / what to look for
1	Fridge Compr ON	the fridge compressor is energized	- compressor noise - cooling down of evaporator - warming up of condenser
2	FreshZone Compr ON	the FreshZone (freezer) compressor is energized	- compressor noise - cooling down of evaporator - warming up of condenser
3	Fan (of) condenser ON	the condenser cooling fan is energized	- fan noise - Air flow - fan can be seen rotating
4	Fridge Light ON	lights inside fridge are ON	- fridge lights ON
5	Fridge LED ON	No action (not used)	- no action (not used)
6	Glass Door ON	No action (not used)	- no action (not used)
7	FreshZone Heater ON	the FreshZone (freezer) defrost heater is energized	- check power absorbed (between 100 and 300 W) - after 5 to 10 minutes the freezer ceiling cover warms up on the rear right area (a section the heater is in contact with this part to prevent any ice built up)
8	FreshZone fan	the FreshZone (freezer) fan is energized	- fan noise - air flow
9	FreshZone Light ON	lights inside FreshZone (freezer) are ON	- FreshZone (freezer) lights ON
10	FreshZone LED ON	No action (not used)	- no action (not used)
11	Ice Maker Heater ON	heater wrapped around the water inlet spout of the Ice Maker is energized	- if required the warming up of the heating coil can be manually checked by touching the coil with two fingers after removing the ice maker support
12	Fridge EValve	Fridge or Riserva cooling solenoid (switch valve) is activated	- clicking sound every few seconds - on more recent models (with a single two way solenoid) both Fridge/Riserva and Fresh/Cantina are controlled by the same solenoid
13	Fresh EValve	Fresh cooling solenoid (switch valve) is activated (only on models provided with)	- clicking sound every few seconds - on recent models a single two way solenoid is used both for Fridge / Riserva and Fresh / Cantina, the Fresh / Cantina test is performed therefore via step 12
14	Fill Water Valve	main water valve is energized (only on models with Ice Maker)	- light humming sound on and off every few seconds
15	Safety Water Valve	secondary (safety) water valve is energized (models with Ice Maker)	- light humming sound on and off every few seconds
16	Cleaning Valve	No Action (only in very early models)	No Action (used only in very early models)
17	Fresh Heater ON	No action (not used)	- no action (not used)
18	Fresh Air ...°C	display of actual temperature read by Fresh (Cantina) air probe	- read temperature bearing in mind that temperature may have risen due to door being kept open during service test - strange readings may point to a faulty probe
19	Fresh solenoid ...°C	display of actual temperature read by Fresh (Cantina) evaporator probe	- read temperature bearing in mind that temperature may have risen due to door being kept open during service test - strange readings may point to a faulty probe
20	Fresh Fan ON	Fresh (Cantina) fan is energized (only on models provided with)	- fan noise - air flow can be checked by placing a hand on the fan aspiration grille
21	Fridge Fan ON	Fridge (Riserva) fan is energized	- fan noise - air flow can be checked by placing a hand on the ventilation slits on the side of the inner cabinet

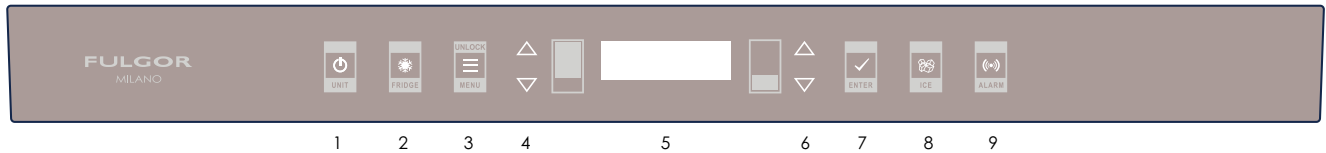
22	Ice Maker Cycle	Ice Maker is energized and a full rotation cycle is performed (only on models provided with Ice Maker)	- the ice maker ice tray turns and twists, then returns to position - the ice level control arm is lowered to check if ice container is empty or full - at the end of the test displays result - a jammed lever is indicated by a "high" reading with an empty ice container
23	Ice Probe ...°C	display of actual temperature read by Ice Maker probe	- read temperature - for activating the ice maker a minimum freezer temperature of -15°C (at freezer air probe) is required - for harvesting the ice a minimal temperature of -7°C (at ice maker probe) is required
24	Switch Glass D	No action (not used)	- no action (not used)
25	Amb probe ...°C	display of actual temperature read by condenser probe	- read temperature bearing in mind that the appliance is off during the test
26	Water Flux ...	electric valves are energized and water will flow into the ice maker	- a humming noise from the water valves can be heard - display will show 0 liters flow since a flowmeter is no longer fitted (a water flow meter was fitted on very early models)
27	Light sensor	No action (not used)	- no action (not used)
28	Handle LED ON	No action (not used)	- no action (not used)
29	Fridge Air ...°C	display of actual temperature read by Fridge (Riserva) air probe	- read temperature bearing in mind that temperature may have risen due to door being kept open during service test - strange readings may point to a faulty probe
30	Fridge EV ...°C	display of actual temperature read by Fridge (Riserva) evaporator probe	- read temperature bearing in mind that temperature may have risen due to door being kept open during service test - strange readings may point to a faulty probe
31	Fridge Door ON / OFF	indicates if door switch is operating	- with open door the display should show off - on appliances having a glass door, by closing the door, the display shows on - on earlier appliances the switch is of the magnetic type, located behind the cabinet frame - on recent appliances the switch is of the mechanical type, located behind the door hinge
32	Ice Box on /off	checks that a magnetic switch is activated when the ice drawer is fully in (only on early models with ice maker)	- displays changes from on to off by opening or closing the ice drawer (off = ice drawer pushed in / on = ice drawer pulled out)
33	FreshZone Door ON / OFF	indicates if FreshZone (freezer) drawer switch is operating	- with open drawer the display should show off - with closed drawer the display shows on - on earlier appliances the switch is of the magnetic type, located at the center of the cabinet frame separating fridge / cellar from the FreshZone/ freezer - on recent appliances the switch is of the mechanical type, located on the rear of the freezer, behind the freezer drawer
34	FreshZone EV ...°C	display of actual temperature read by FreshZone (freezer) evaporator probe	- read temperature - strange readings may point to a faulty probe
35	FreshZone Air ...°C	display of actual temperature read by FreshZone (freezer) air probe	- read temperature - strange readings may point to a faulty probe
36	Buzzer ON	activates the buzzer	- beeping 3 times

Troubleshooting

Fault	Possible causes	Checks and corrective actions	Error Code
The appliance doesn't start (displays off)	No Power	Check power supply.	
	Faulty PCB	Check the PCB following the separate procedure described.	
Compressors doesn't start (no noise).	No power	Check power supply.	
	Thermal cut-out open	Check continuity. If it is open, replace the Switch + PTC assembly.	
	Faulty PCB	Check the PCB following the separate procedure described.	
	Temperature not regulated properly		
Compressors doesn't start (hums) - thermal cut out activated	Low supply voltage	Measure incoming voltage.	
	Running capacitor faulty		
	PTC faulty	Measure resistance in ohms: if it is infinite, replace the component.	
	Compressor faulty (jammed internally)	Connect the compressor to a direct power supply and measure the current absorbed - if it is greater than ...A, the compressor is blocked.	
Compressor starts but starter winding not disengaged	Low supply voltage	Check the voltage at full capacity.	
	Running condenser faulty	Disconnect the cable connectors and place the tips of an ohmmeter on the terminals, then invert the position. After shooting back and forwards, the arm should settle on (infinite).	
	PTC faulty	Measure the resistance in ohms: if it is significantly different from 15-20 Ohm, replace the component.	
	Compressor faulty (winding interrupted)	Measure the resistance of the starter winding in ohm. It should be between 15 and 40 Ohm, depending on the compressor.	
Compressor starts but the thermal cut activates	Low supply voltage	Check the voltage at full capacity.	
	Thermal cut-out faulty	Try replacing it with another functional one.	
	Running capacitor faulty	Disconnect the cable connectors and place the tips of an ohmmeter on the terminals, then invert the position. After shooting backward and forwards, the arm should settle on infinite.	
	Compressor faulty (winding short circuited)	Measure the resistance of the starter winding in ohm. It should be between 15 and Ohm, depending on the compressor.	
The appliance stays on for long periods or continuously	Low refrigerant (gas escape)	Check the temperature of the return pipe with your hand. Check if the evaporators are frosting fully. If there are any leaks, find and repair them then refill the circuit.	
	Large quantities of food	Suggest to the user.	
	Condenser dirty	Clean with brush and vacuum cleaner.	
	Condenser fan faulty	Check winding resistance (approx. ...ohm). Check if the fan has become dislodged.	
	NTC condenser probe faulty	Measure the resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
	Refrigerant circuit restricted	A restriction in the circuit could significantly lower suction pressure (almost to vacuum level) and cause higher than normal high pressure.	
	Ambient temperature very high	Check ambient conditions and advise the user accordingly.	
	Door does not close properly	Place a strip of paper between the cabinet and the door, close the door and try to pull the paper out to check the seal on all sides of the door.	
Noise when in operation	Anchor or fixing devices may have become loose	Check and tighten all fittings or devices which could have become loose.	
	Pipes vibrating	Check pipes and reposition as necessary.	
	Refrigerant circuit noisy	Some noise (gurgling, noise caused by valves shutting) is normal.	
	Noisy fans	Check if they are secured properly, check play in bearings, clean the fan.	
	Low level of refrigerant	Check performance.	

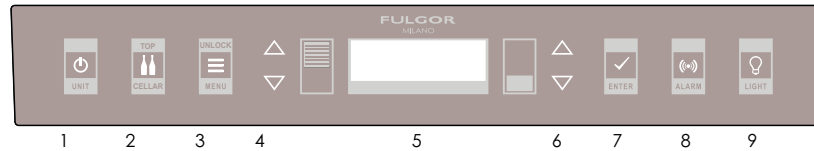
Temperature too high in fridge (not cool enough)	Large quantities of food	Suggest to the user.	
	High ambient temperature	Suggest to the user.	
	Condenser dirty	Clean the condenser with a vacuum cleaner.	
	Internal fan faulty	Check function and replace if necessary.	
	Gas solenoid faulty	Measure the resistance of the winding, which should be about ... ohm. If necessary, connect the valve to a power supply (...V) to check if it is jammed???	
	NTC probe faulty	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
	Condenser fan faulty	Check function and replace if necessary.	
	Internal air nozzles obstructed	Check if they are obstructed by food placed incorrectly.	
	Door does not close properly	Place a strip of paper between the cabinet and the door, close the door and try to pull the paper out to check the seal on all sides of the door.	
Temperature too high in the Cool compartment (not cool enough)	Large quantities of food	Suggest to the user.	
	High ambient temperature	Suggest to the user.	
	Condenser dirty	Clean the condenser with a vacuum cleaner.	
	Internal fan faulty	Check function and replace if necessary.	
	Gas solenoid faulty	Measure the resistance of the winding, which should be about 4100 ohm. If necessary, connect the valve to a power supply (...V) to check if it is jammed???	
	NTC probe faulty (air)	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
	Condenser fan faulty	Check function and replace if necessary.	
	Internal air nozzles obstructed	Check if they are obstructed by food placed incorrectly.	
	Door does not close properly	Place a strip of paper between the cabinet and the door, close the door and try to pull the paper out to check the seal on all sides of the door.	
Temperature too high in the freezer	Large quantities of food	Suggest to the user.	
	High ambient temperature	Suggest to the user.	
	Condenser dirty	Clean the condenser with a vacuum cleaner.	
	Internal fan faulty	Check function and replace if necessary.	
	NTC probe faulty (air)	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
	Condenser fan faulty	Check function and replace if necessary.	
	Internal air nozzles obstructed	Check if they are obstructed by food placed incorrectly.	
	Drawer (door) does not close properly	Place a strip of paper between the cabinet and the drawer, close the door and try to pull the paper out to check the seal on all sides of the door.	
Temperature too low in fridge (too cold)	Incorrect temperature adjustment	Suggest to the user.	
	NTC probe faulty (air or evaporator)	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
Temperature too low in the Cool compartment	Incorrect temperature adjustment	Suggest to the user.	
	NTC probe faulty (air or evaporator)	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
Temperature too low in freezer (too cold)	Incorrect temperature adjustment	Suggest to the user.	
	NTC probe faulty (air or evaporator)	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
No defrost in fridge or Cool compartment	NTC probe faulty (evaporator)	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
No defrost in freezer	Defrost heating element not working	Measure the resistance in ohms: if greater than ... ohm, replace component.	
	NTC probe faulty (evaporator)	Measure resistance in ohms: it should be between 300 and 90.000 Ohm, depending on the temperature.	
Ice forming in Cool compartment	Food is damp - circulation of air	It is normal for a light film of ice to form on the bottom of the Cool drawer when it contains uncovered vegetables, especially in particular conditions of ambient humidity.	
	Defrost water removal blocked	Check water is flowing properly.	
Ice forming in freezer	Defrost heating element not working	Measure resistance in ohms: if open, replace the component.	
	Drawer (door) does not close properly	Place a strip of paper between the cabinet and the drawer, close the door and try to pull the paper out to check the seal on all sides of the door.	
Ice Maker not working	No water	Check water supply is available.	
	Mechanical fault	Check for a mechanical block.	
	Electrical fault	Follow the specific control procedure.	
	Water blocked (water filters needs changing)	To test, bypass the water filter as shown in the user manual, then advise the user to replace the filter.	

MAIN USER INTERFACE (REFRIGERATOR / FRESHZONE SECTION)



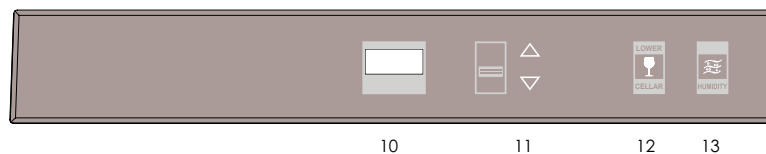
- 1 - switch on/off (whole unit)
- 2 - switch on/off (fridge only)
- 3 - access to set-up menu
- 4 - adjust fridge temperature and navigate set-up menu
- 5 - display (fridge / FreshZone, temperatures, date, time, set-up menu, visual messages, error codes)
- 6 - adjust freezer temperature and navigate set-up menu
- 7 - confirm menu set-up choices
- 8 - activate / deactivate ice maker
- 9 - indicates problem / anomaly (press to stop acoustic signal)

MAIN USER INTERFACE (WINE CELLAR / FRESHZONE SECTION)



- 1 - switch on/off (whole unit)
- 2 - switch on/off (wine cellar only)
- 3 - access to set-up menu
- 4 - adjust fridge temperature and navigate set-up menu
- 5 - display (wine cellar / FreshZone, temperatures, date, time, set-up menu, visual messages, error codes)
- 6 - adjust freezer temperature and navigate set-up menu
- 7 - confirm menu set-up choices
- 8 - indicates problem / anomaly (press to stop acoustic signal)
- 9 - switch on/off internal light

SECONDARY USER INTERFACE (CANTINA SECTION)



- 10 - indicates Cantina compartment (mid zone) temperature
- 11 - adjust Cantina compartment temperature
- 12 - switch on/off Cantina compartment
- 13 - adjust of humidity in the Cantina compartments

Starting Up

When the unit is switched on a 3 min. self test phase is performed prior to actual start up.

User Interface Unlocking

After 3 mins. from the door closure all touch keys are locked. To unlock press at the same time key 3 and 4 (Down).

Default factory settings

Fridge +5°C (+41°F) ; Crisper compartment +0°C (+30°F);
FreshZone -18°C (-0°F).

To return to the original settings: enter set-up menu (3) > select Settings > select Default Settings > enter (7) to confirm.

The FreshZone compartment is factory set in the freezer mode but can be set up by the customer as fridge or Fresh compartment.

Clearing Sound Alarms

To clear a sound Alarm: press Alarm. The alarm light will continue to light up intermittently, though.

A Soft Reset Is needed to clear the error message.

Soft Reset

Can be done by returning to the Default Factory Settings: clears the alarm message from memory. After a soft reset readjust again the settings according to the customer requirements (if needed) and reactivate the ice maker by pressing the specific button on the main user interface.

Hard Reset

Can be done by switching off the appliance at the mains.

To be used when the communication between user interface and main electronic board has, for some reasons, failed and controls do not respond. Any existing alarm is not cleared in this way: if this is needed a Soft Reset (Default Factory Settings) should be performed.

Temperatures on the display

Temperatures on the display may not correspond exactly to actual temperatures inside the cabinet. The temperature on the display gradually adapts to the actual temperature changes (software controlled).

Light switches test

Use top switch (inside upper hinge) to test upper light and the switch inside FreshZone section to test lower light on FreshZone section.

To extend the period of use of the water filter (to clear a “replace filter” message)

Enter Menu > Functions > Water filter > Status filter > Bypass > Bypass ON

The water filter can then be used for a longer time and no further reminders are given. The message Bypass On will however flash continuously on the display.

To use the appliance without a water filter

Press Enter and Alarm touch button exactly at the same time for 5 secs
Enter “Customize” > Water filter > Status > OFF

To replace the filter

Can be done while appliance operates. No need to close off water mains. Open top glass panel and unscrew (1/4 turn) the filter cartridge. Replace cartridge. Reset filter from Menu > Functions > Water Filter > Status Filter > Reset Filter

Compressors (from November 2014)

Type of Appliance	Cooling Section	Compressor type	Voltege/Freq.	Kcal - HP	Running Capacitor	Refrigerant Type
599	Fridge/Cellar	VEMY 3H	115 - 127 V 60 Hz	1/10 HP	-	R134a
	FreshZone	VEMY 3H	115 - 127 V 60 Hz	1/10 HP	-	R134a
749	Fridge/Cellar	VEMY 3H	115 - 127 V 60 Hz	1/10 HP	-	R134a
	FreshZone	VEMY 5H	115 - 127 V 60 Hz	1/10 HP	-	R134a
899	Fridge/Cellar	VEMY 3H	115 - 127 V 60 Hz	1/10 HP	-	R134a
	FreshZone	VEMY 5H	115 - 127 V 60 Hz	1/10 HP	-	R134a

Part nr S03100502
Up to may 2015



Electronic Control PCB

Powered at 110/127 VAC – 60 Hz

Reads signals from the different NTC probes and other detectors in the appliance, compares them with the default setting values (set up at the factory, can be changed via the Main and Secondary User Interfaces by the user) and controls the operation of compressors, fans and other functional components of the appliance.

Main user interface

Connected to main board via a 4 wire shielded cable: +5 v cc | Ground | Rx | Tx (Serial Communication)

Part nr S03100503
From may 2015



Two lines display: Temperatures at the top and time/hour + messages at the bottom touch pads > internal processor handling all menu settings (languages, temperatures, messages, errors, ...)

Once set up it could be disconnected, Control PCB operates autonomously

Secondary User interface

Connected to main board via a 4 wire shielded cable: +5 v cc | Ground | Rx | Tx (Serial Communication)

1 – line display: Temperature of Crisper touch pads > internal processor handling of temperature regulation

Once set up can be disconnected, Control PCB operates autonomously

How long settings are kept

Appliance is switched off via unit button:

All Settings are kept indefinitely (written in Eprom) except settings Shopping, vacation, sabbath, bottle cooler, superice. Time and Hour settings are also kept indefinitely.

Appliance is switched off at mains (unplugged) or Power cuts

All Settings are kept indefinitely (written in Eprom) except settings Shopping, vacation, sabbath, bottle cooler, superice. Time and Hour settings are kept only for approx 20 mins (power is provided by two capacitors on main board)

Software updates

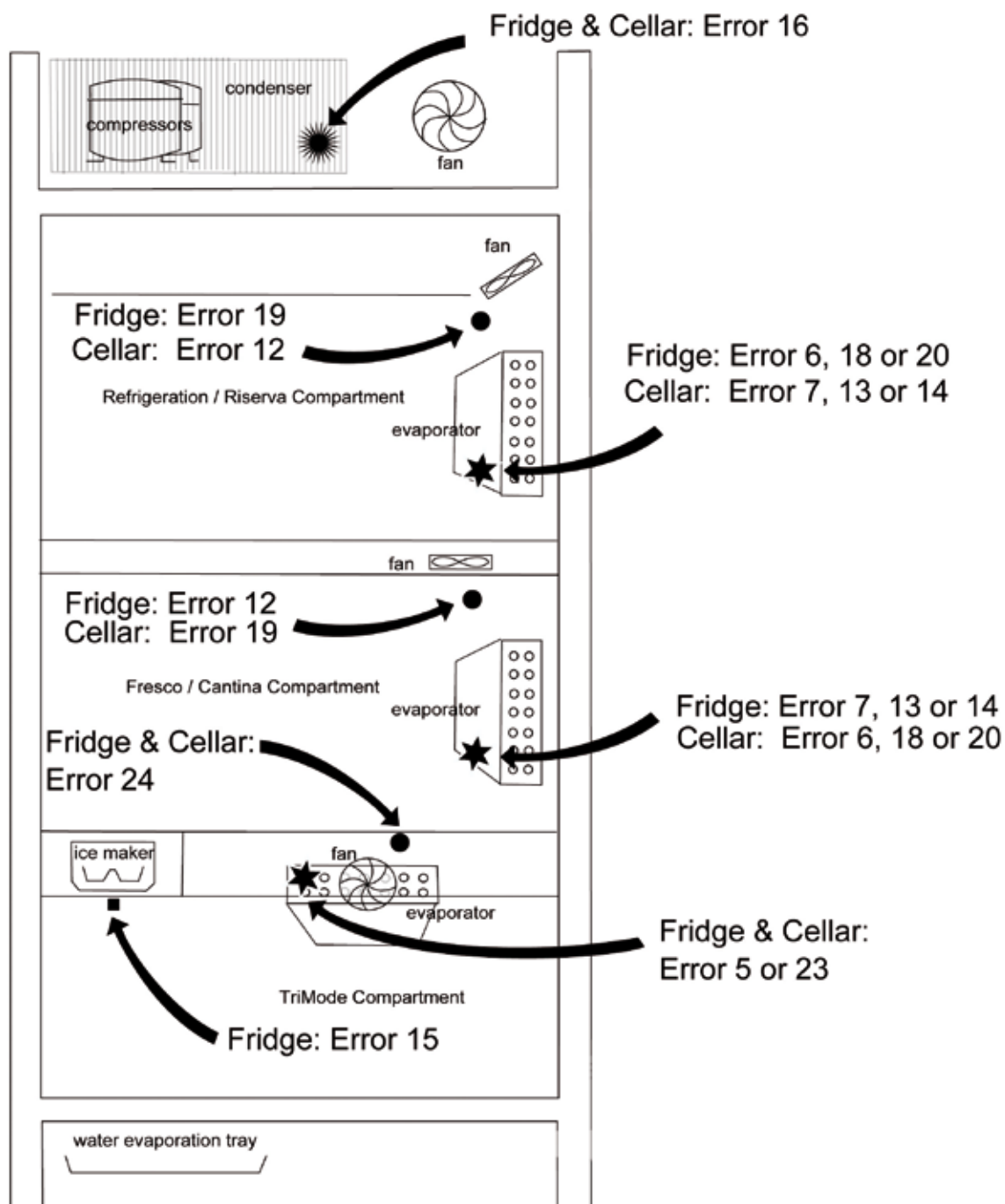
Software updates are carried out via a special RS232 or USB interface connected to a laptop.

The board and the interfaces need to be fully accessible, the update is best done in a workshop but could be done also at the customer's premises.

Malfunction	Message on Display	Sound Alarm	By pressing the Alarm button ...
Extended power cut	Power failure	Yes	Highest temperature reached on freezer is shown
Main door open (3 minutes)	Fridge door open	Yes	Sound alarm is deactivated
FreshZone door open (3 minutes)	Freezer door open	Yes	Sound alarm is deactivated
No incoming water (3 minutes)	Water circuit problem	No	10 consecutive attempts
Filter Replacement message	Change filter Cartridge	No	Alarm button flashing and a text appear on main display
Water circuit problem	Water circuit damage. Call service	No	Alarm button flashing and a text appear on main display
Bottle cooling time ended	Bottle cooler function OFF	Yes	Alarm button flashing and a text appear on main display
Refrigerator / Cantina too warm	Fridge too warm	No	Alarm button flashing and a text appear on main display
Refrigerator / Cantina too cold	Fridge too cold	No	Alarm button flashing and a text appear on main display
Fresh / Riserva too warm	Fresh too warm	No	Alarm button flashing and a text appear on main display
Fresh / Riserva too cold	Fresh too cold	No	Alarm button flashing and a text appear on main display
FreshZone too warm	Freezer too warm	No	Alarm button flashing and a text appear on main display
FreshZone too cold	Freezer too cold	No	Alarm button flashing and a text appear on main display
Service required	Error Code... Call Service...	No	Alarm button flashing and a text appear on main display

Display Message	Code	Area Involved	Conditions triggering Error Code
1 TOP NO COOLNG	001	Fridge/Cellar compressor	Temperature of -10°C at fridge evaporator probe not reached within 48 hrs
2 TM NO COOLING	002	FreshZone compressor	Temperature of -10°C at FreshZone evaporator probe not reached within 48 hrs
3 CONDNSR HOT	003	Condenser	Difference in temperature one minute after the compressors started $> 40^{\circ}\text{C}$
4 TM DFR NOT O	004	FreshZone defrost heater	During defrost: heater is energized for more than 25 mins; NTC probe (evaporator) reads temp lower than 0°C (alarm is activated after 3 times this condition repeats itself)
5 TM AIR CIRCUL	005	FreshZone fan	Difference higher than 30°C between temp read by FreshZone NTC probe (air) and temp read by FreshZone NTC probe (evaporator) when FreshZone door is closed for more than 2 hours and unit is not defrosting (evaporator is cold but air is not circulated)
6 TOP EV.PERFOR	006	Fridge gas solenoid	Temperature of at least 5°C not read by fridge evaporator NTC probe within 24 hrs when compressor and solenoid are energized
7 MID EV.PERFOR	007	Fresh gas solenoid	Temperature of at least 5°C not read by Fresh evaporator NTC probe within 24 hrs when compressor and solenoid are energized
8 NO WATER IN	008	Water fill electric valve Water fill circuit	Temperature of at least 1°C not read by Ice maker NTC probe within 10 mins after electric valve is energized Water may have not filled circuit completely: after 10 times
12 MID NTC AIR	012	Fresh NTC (air) probe	NTC probe resistance not within 90.000 and 287 Ohm
13 MID NTC EVAP	013	Fresh NTC (evap) probe	NTC probe resistance not within 90.000 and 287 Ohm
14 MID AIR CIRC	014	Fresh fan	Difference between temps read by Fresh air NTC probe and Fresh evaporator NTC probe higher than 30°C (40°C on cellars). Door must be closed for more than 2 hrs.
15 ICE NTC	015	Ice maker NTC probe (Ambient probe on Cellars)	NTC probe resistance not within 116.000 and 1.700 Ohm on Ice Maker NTC probe resistance not within 90.000 and 287 Ohm on wine cellars
16 CONDSR NTC	016	Condenser NTC probe	NTC probe resistance not within 90.000 and 287 Ohm (wine cellar only)
18 TOP AIR CIRC	018	Fridge fan	Difference between temps read by fridge air NTC probe and fridge evaporator NTC probe higher than 40°C (door closed for more than 2 hrs)
19 TOP NTC AIR	019	Fridge NTC (air) probe	NTC probe resistance not within 90.000 and 287 Ohm
20 TOP NTC EVAP	020	Fridge NTC (evap.) probe	NTC probe resistance not within 90.000 and 287 Ohm
21 TOP MAGN SW	021	Fridge magnetic switch	Door switch in open condition for more than 1 hour while temp inside fridge and Fresh remains at constant level
22 TM MAGN SW	022	FreshZone magnetic switch	Door switch in open condition for more than 1 hour while temp inside FreshZone remains at constant level
23 TM NTC EVAP	023	FreshZone NTC (evap.) probe	NTC probe resistance not within 90.000 and 287 Ohm
24 NTC AIR	024	FreshZone NTC (air) probe	NTC probe resistance not within 90.000 and 287 Ohm
25 NO PCB COMM	025	Secondary User	Lack at communication between main and secondary User control

ERROR CODES POINTING TO FAULTY TEMPERATURE PROBES



- = air probe
 - ★ = evaporator probe
 - ☀ = condenser probe
 - ⊙ = ambient probe - only on models up to 2009
 - = ice maker probe - this probe is unique, the complete ice maker needs to be replaced
- } all these probes are interchangeable

IMPORTANT: ALWAYS PERFORM A SERVICE TEST TO CONFIRM THAT THE PROBE IS ACTUALLY FAULTY
(ENTER + ALARM FOR 5 SECS, THEN > CUSTOMIZE > SERVICE TEST > ENTER > ENTER ...)
FAULTY PROBE GIVES UNUSUAL READINGS (E.G. -40°C)

NOTE: PICTURE SHOWS A RH HINGED FREESTANDING MODEL (COMPRESSORS AT THE TOP)
BUILT IN MODELS HAVE COMPRESSORS AT THE BOTTOM.
LH HINGED MODELS HAVE THE 2 TOP EVAPORATORS ON THE LEFT
42IE FRESKO / CANTINA COMPARTMENT IS MISSING ON SOME MODELS

ERROR CODES POINTING TO OTHER ISSUES

Fridge & Cellar: Error 03

Temperature of condenser has risen too high

Check that:

- condenser is free of dust /fluff
- ventilation openings for condenser are adequate
- air flow separator is fitted on built in models (where necessary) to prevent in / out air cross exchange
- fan is operating
- error may appear only at start up or during heavy work conditions and then disappear

Fridge & Cellar: Error 01

Temperature not reached

within a certain time

Insufficient cooling:

Check that:

- compressor works
- cooling refrigerant is available
- no temp SW issue - try hard reset

Fridge & Cellar: Error 02

Temperature not reached

within a certain time

Insufficient cooling:

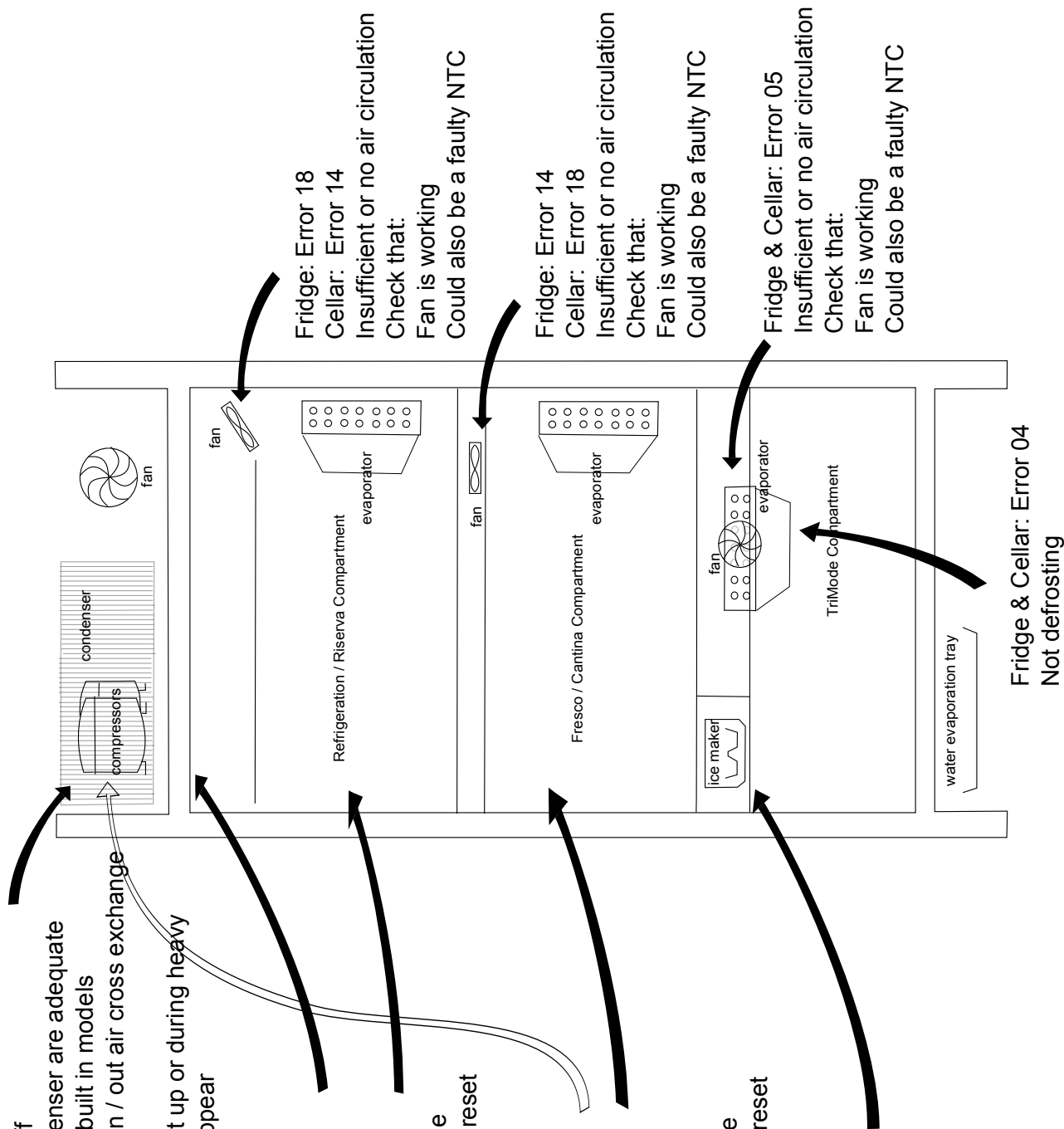
Check that:

- compressor works
- cooling refrigerant is available
- no temp SW issue - try hard reset

Fridge: Error 08

Water not flowing through

Ice Maker circuit



DEMO MODE

Press Enter and Alarm touch buttons at exactly the same time for 5 secs

The Menu Access symbol lights up and the display shows: Customize

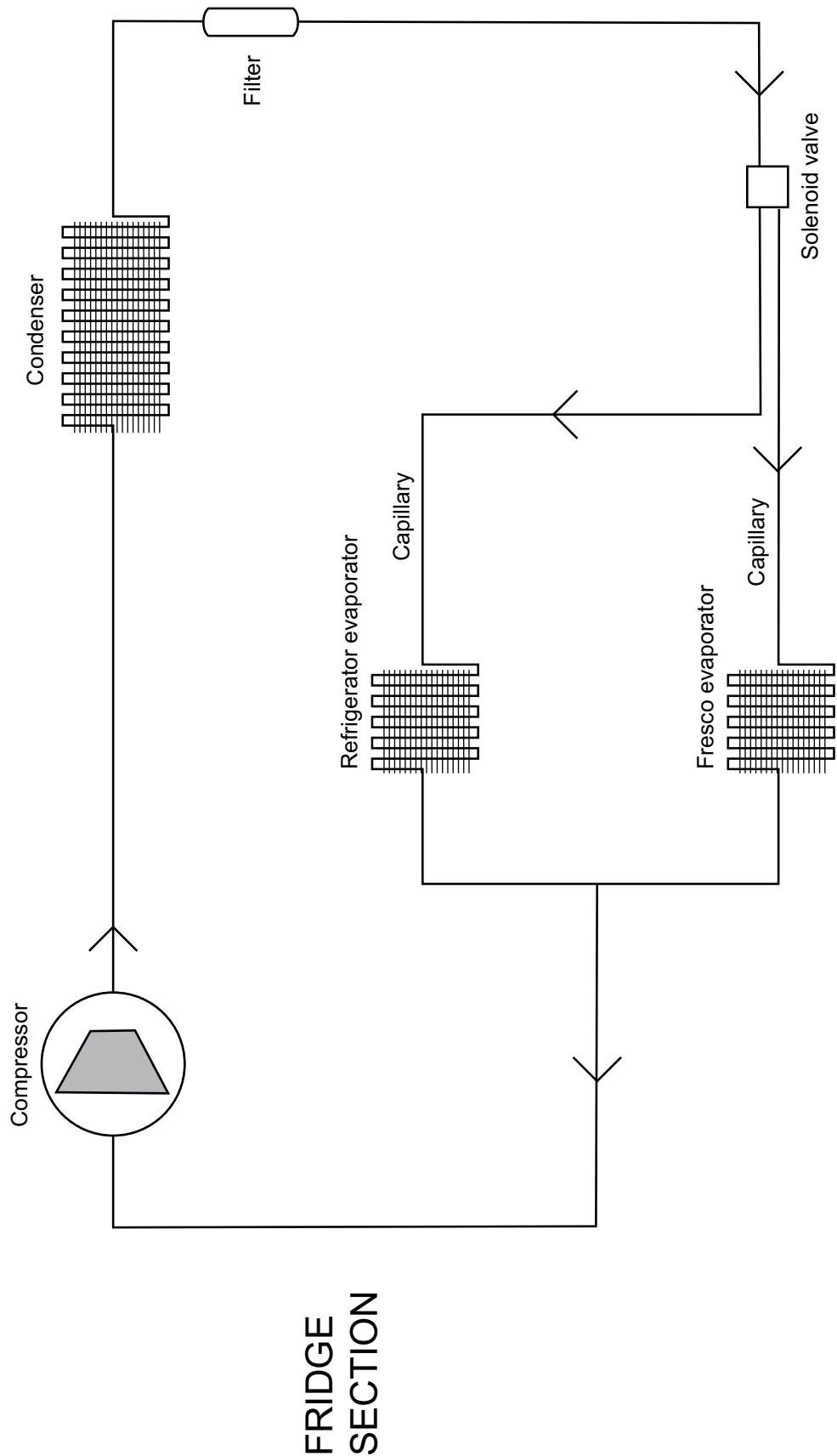
Press the Enter touch button to confirm Customization mode

Browse for Demo Mode with the UP / DOWN arrows

Set status to ON or OFF as required and press Enter to confirm choice

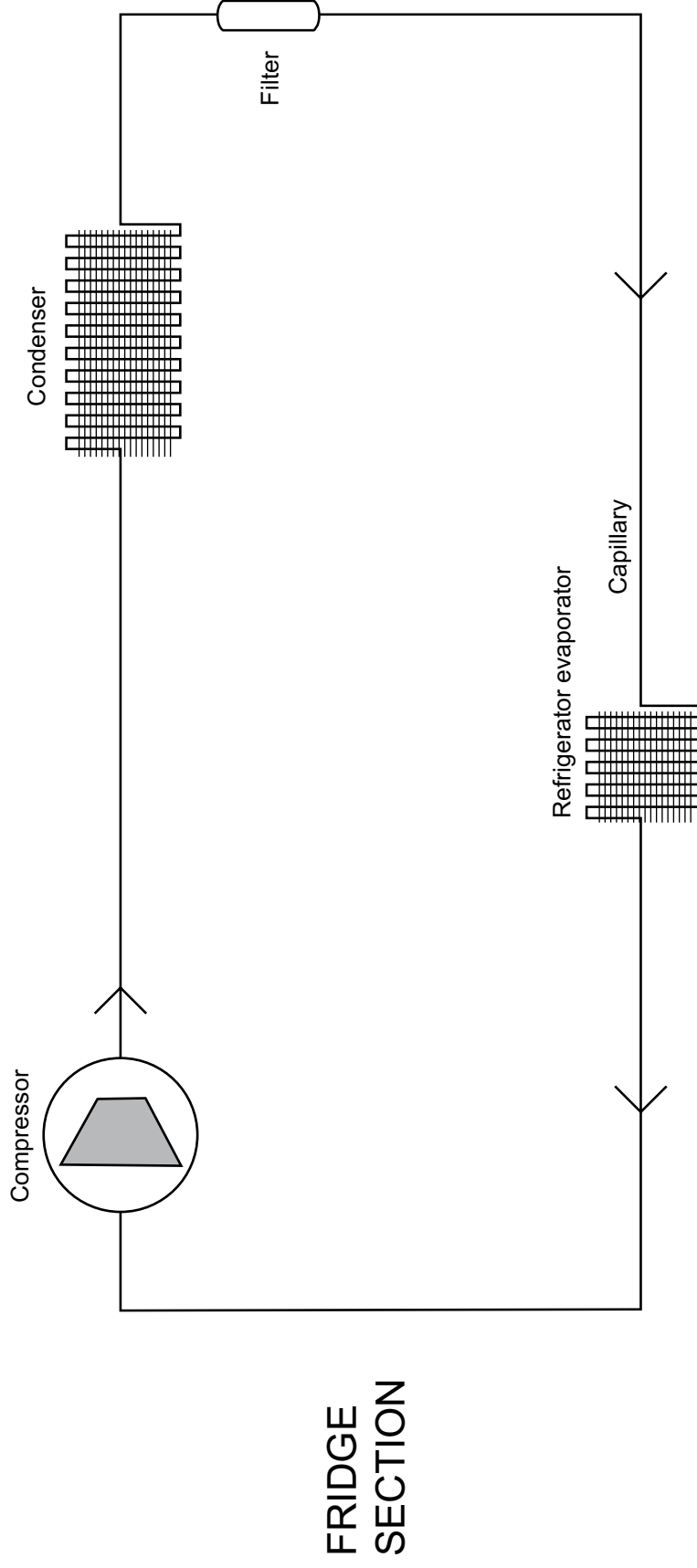
In Demo Mode the internal lights and the user interfaces are functional and can be browsed via the access menu. The cooling unit, however, is not operating and the temperatures shown on the display are static, being those initially set up via the access menu.

COOLING CIRCUIT PRINCIPLE - 1T MODELS

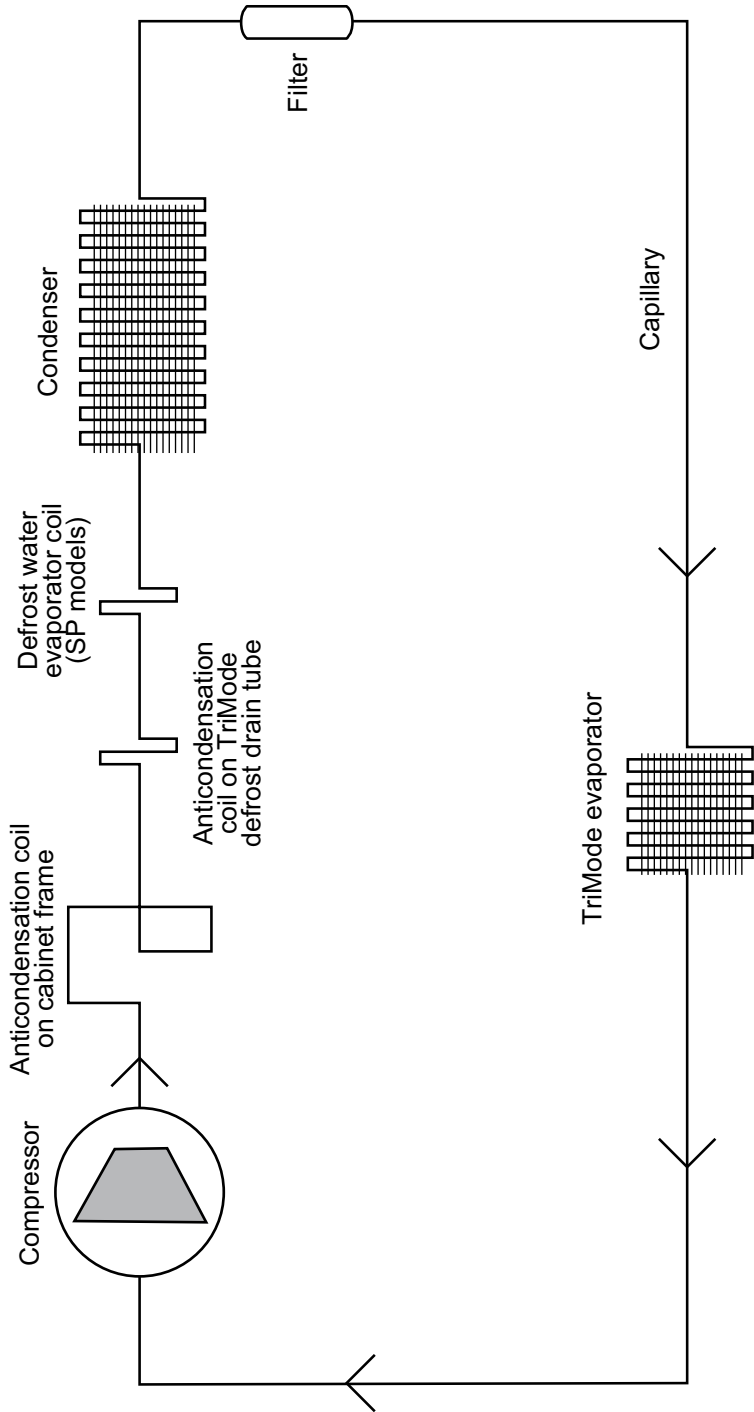


FRIDGE
SECTION

COOLING CIRCUIT PRINCIPLE - 0T/0H MODELS



TRIMODE
SECTION



R134a Fill charge

General considerations:

- Refrigeration section: varies from min 3,5 oz to max 6,35 oz.
- FreshZone section: varies from min 3,5 oz to max 6,35 oz.
- M models (compressors at the top – longer tubings) require approximately +10% higher gas charge than I – X – K – G models (compressors at the bottom . shorter tubings)

Charge varies according to:

- Size of unit (size of compressor and size of evaporator)
- Type of evaporator: aluminium tubing evaporators require approx 20% higher charge than copper tubing evaporator (newer evaporators are aluminium)

Tropical climates:

To adapt to higher temperatures the standard charge is reduced of approx -20% Always refer to the rating plate of each model for correct fill charges.

R134a pressures

- Refrigerator

Low pressure: +0.2 - 0,3 bars (2,9 - 4,35 psi)
(evap. temp = -15°C/-20°C) (5°F / -4°F)

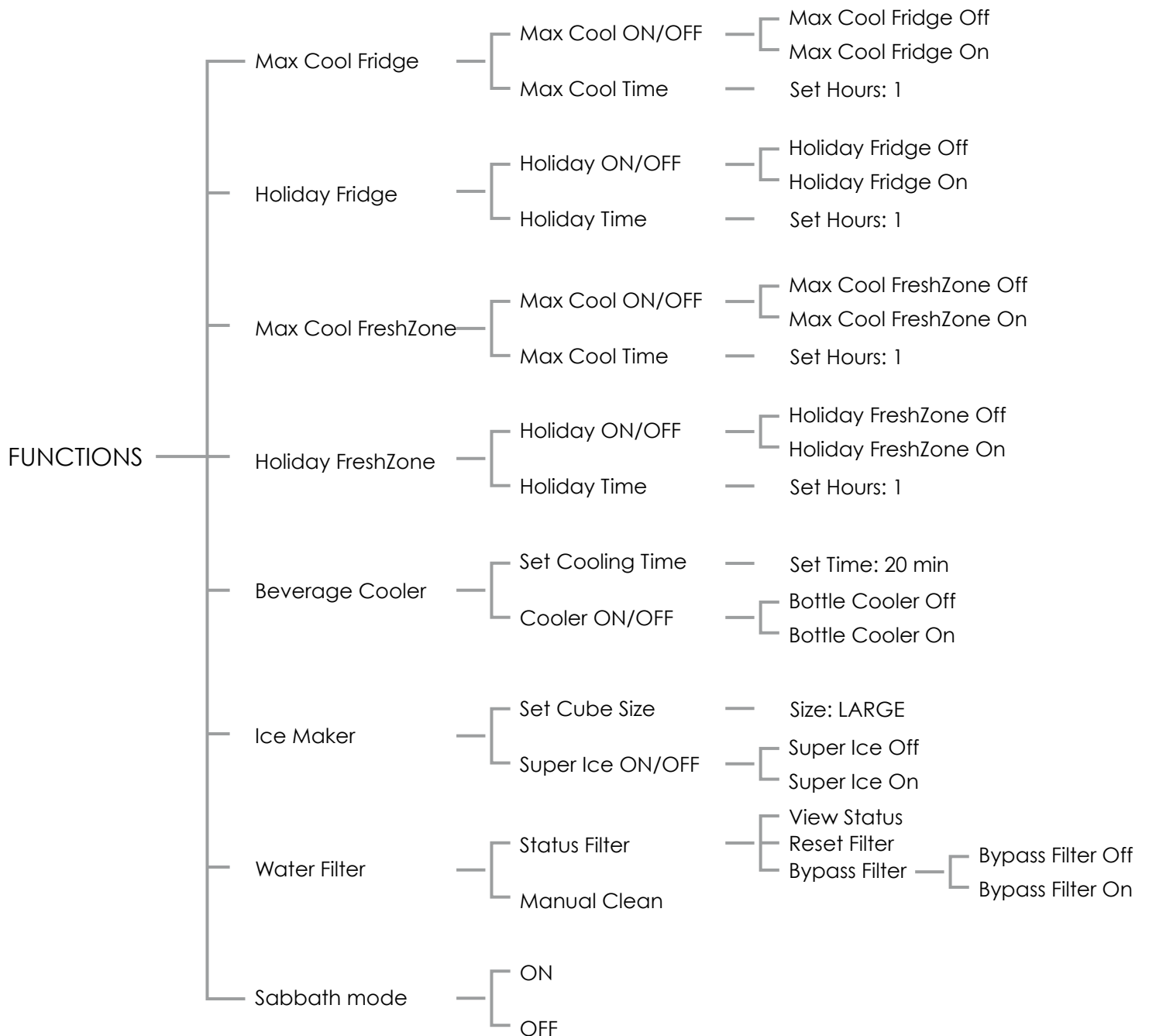
High pressure: 8 bars (116 psi)
(cond. temp = +35°C) (95°F / 104°F)

- FreshZone

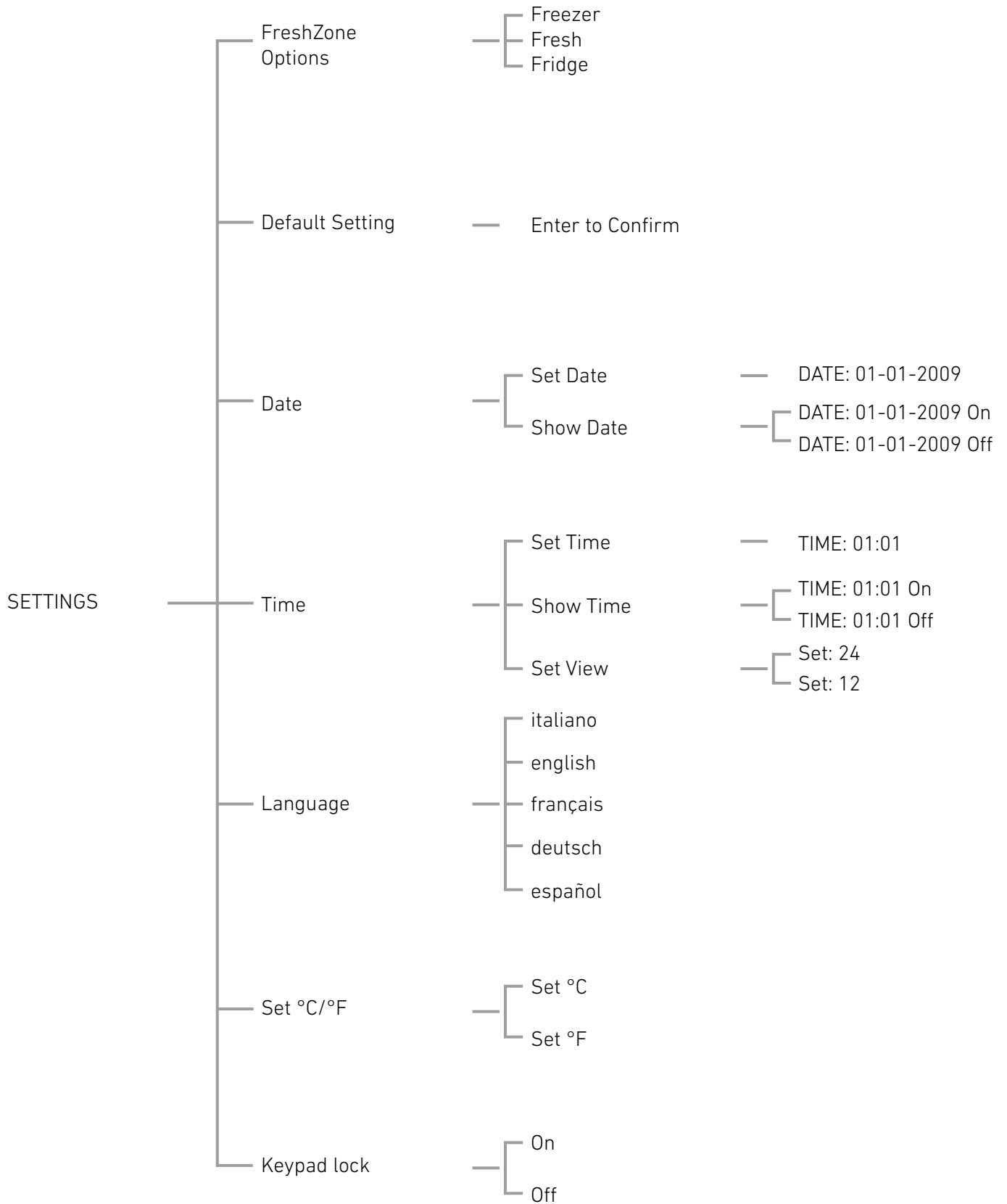
Low pressure: 0 - 0.2 bars (0-2,9 psi)
(evap. temp = -25°C/-30°C) (-13°F / -22 °F)

High pressure: 9 bars (130,5 psi)
(cond. temp = +35°C / +40°C) (95°F / 104°F)

Functions



Settings

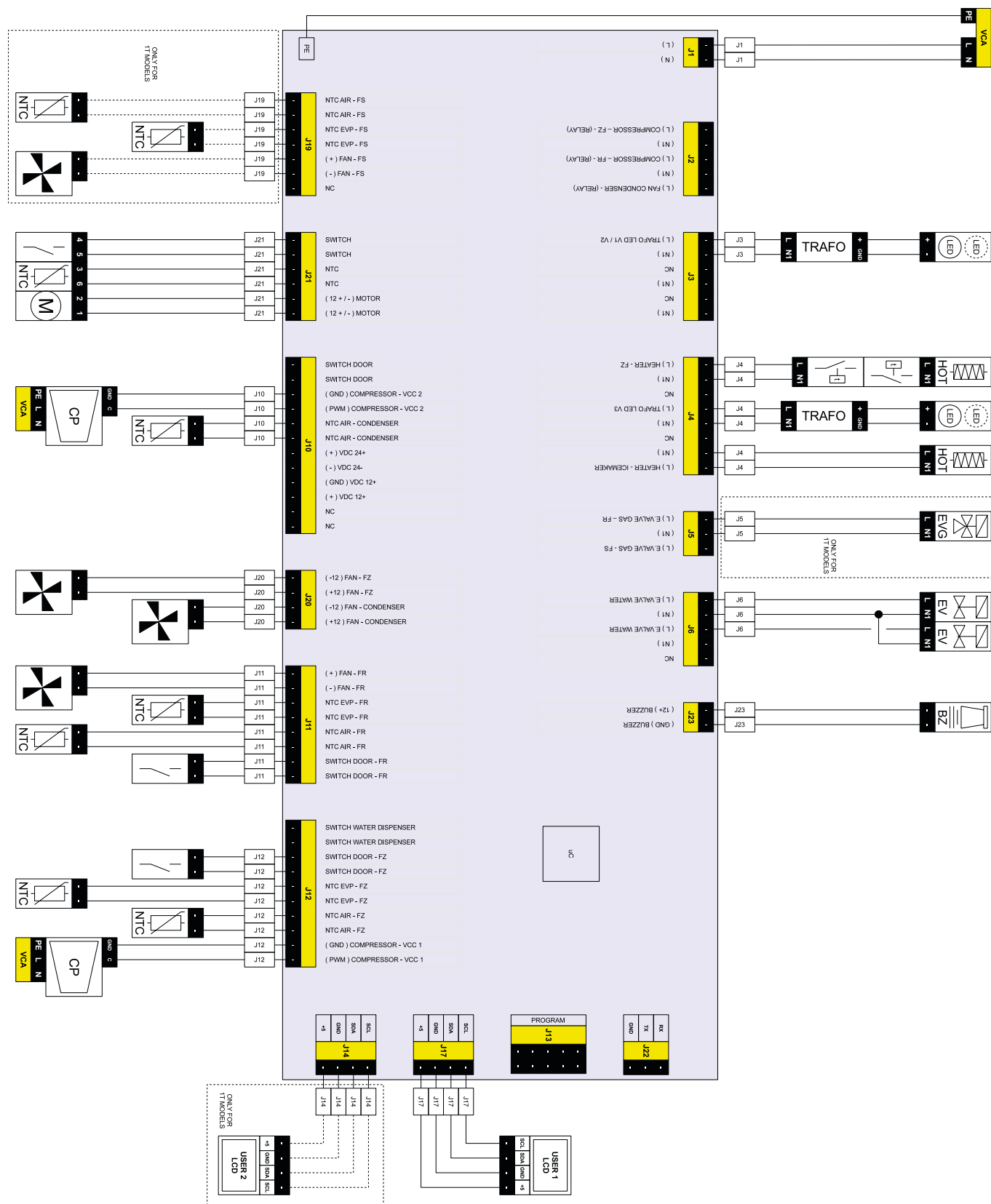


	Component	Controlled by	Action Performed
1	Freezer Compressor	NTC probe (freezer air)	Provides cooling in freezer
		NTC probe (freezer evaporator)	
3	Condenser Fan		Cools condenser
5	Fridge Led Lighting Strips	Door Electromeccanical Switch	Light up fridge from ceiling
6	Fridge Led Power Supply	Door Electromeccanical Switch	Powers Leds chain
11	Temperature limiter	FreshZone Defrost Heater	Cuts in if evaporator coil temperature gets too high
12	Freezer Defrost Heater	Time NTC probe (freezer evaporator)	Defrost cuts out +11°C is reached at evaporator probe or after a max defrost time of 40 mins. If after 40 mins the defrost is not completely performed a new defrost phase is forced in after 6 hrs.
13	FreshZone Fan	NTC probe (freezer air) + Time	Cutting in after 5 min after cutting in of compressor. Circulates air in compartment, help defrost.
14	FreshZone Led power supply	Freezer electromechanical Switch	Switches light on when freezer drawer is open
15	FreshZone Led spots	Freezer electromechanical Switch	Light up FreshZone compartment
16	Anti-Ice heater, Ice Maker	Ice Maker ice level arm	On when Ice Maker is On till ice level is reached
17	Solenoid (Gas) Refrigerator	Actuated by +115V to open and +115V to close (burst signal). Signal repeated every 30 mins to ensure actuation.	Lets refrigerant flow into refrigerator. Priority is given to "Fresh" compartment.
19	Water Fill Valve (Ice Maker)	Ice Maker NTC probe + ice level sensor arm	On when ice maker NTC probe reads temperature below -7°C and ice level sensor arm gives consent.
20	Water Safety Valve (Ice Maker)	Ice Maker NTC probe + ice level sensor arm	Fed in parallel to Water Service Valve to ensure water supply also when fill valve fail.
23	NTC, Fresh Compartment	Fresh compartment air temperature	Senses Fresh compartment temperature
24	NTC, Fresh Evaporator	Fresh evaporator temperature	Senses Fresh evaporator temperature
25	Fresh Compartment Fan	NTC, Fresh compartment	Controlled by Fresh compartment NTC
26	Ice Maker	NTC, ice maker probe + ice level sensor arm	Water fills when internal NTC probe reads temperature below -7°C, ice level sensor arm gives consent and drawer is closed.
28	NTC, Condenser	Refrigerator condenser	Monitors condenser temperature and controls condenser fan
31	Refrigerator Fan	NTC, refrigerator air	Twin speed DC fan. Always on: low speed (15V) when compressor is off, full speed (24V) when compressor is on and evaporator temperature is = or < than 0°C
32	NTC, Refrigerator Evaporator	Refrigerator evaporator temperature	Actuates refrigerator compressor when evaporator temperature is higher than +4°C and the NTC of the refrigerator compartment cuts in
33	NTC, Refrigerator Compartment	Refrigerator air temperature	Reads cabinet air temperature on refrigerator compartment and gives consent to compressor start/stop
34	Refrigerator Door Reed Switch	Door opening	Electromeccanical switch located on top hing actuated by hinge arm
36	FreshZone Drawer Switch	FreshZone Drawer opening	Electromeccanical switch located on the rear of the freezer and activated by freezer drawer.
37	NTC, FreshZone Evaporator	FreshZone evaporator temperature	Controls freezer's defrost phase. Defrost stops when NTC, Freezer Evaporator reaches +11°C

38	NTC, FreshZone Air	FreshZone air temperature	Reads cabinet air temperature on freezer compartment and gives consent to compressor start/stop
39	Main User Interface	User	To switch on/off unit, display data, adjust temperature, set up menu
40	Secondary User Interface	User	To switch on/off Fresh compartment, display and adjust temperature
41	Signal to fridge inverter box	Power board	Provide cooling in fridge
42	Signal to freezer inverter box	Power board	Provide cooling in freezer

WIRING DIAGRAM REFRIGERATOR POWER 503 STD_VCC

From may 2015



WIRING DIAGRAM REFRIGERATOR WINE_VCC+VCC

From may 2015

