



visair+

CHILLED CABINETS



Open Fronted Cabinet



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INTRODUCTION

Welcome

VISAIR+ CABINETS - INTRODUCTION

Future Products Group (FPG)

Welcome to the world of FPG! Our products are designed and engineered to give you the optimal performance that you deserve with innovative visual merchandising appeal.

We are confident that you will be delighted with your state of the art Inline Visair food service cabinet, and that it will become a valued appliance in your store.

Guidance and Help

Any new appliance can seem very complex and confusing at first glance. To ensure you receive the utmost benefit from your new Inline Visair cabinet, there are two things you can do.

- Before operating the cabinet, please read the instruction book carefully and follow its recommendations. The time taken will be well spent. These instructions both general and technical tell you how to operate and look after your Inline Visair food service cabinet so that you can receive the full benefits that this cabinet has to offer.
 - These instructions cannot, however, cover all eventualities. If you are unsure of any aspect of the installation, instructions or performance of your cabinet, contact your dealer promptly or contact us via email to support@fpgworld.com.
-

Warranty

VISAIR+ CABINETS - INTRODUCTION

Warranty Period

Future Products Group Limited warrants, to the original purchaser of an FPG manufactured food service cabinet that for ONE YEAR (12 months), from the date of purchase, any defect in workmanship or material resulting in the product malfunctioning while under correct use will be rectified.

Liability under this warranty is limited to replacing or repairing a part, without charge.

Continued on next page

Warranty cont.

VISAIR+ CABINETS - INTRODUCTION

Liability Exceptions

Liability under this warranty does not include:

- Any loss, or damage or expenses directly or indirectly arising from use or inability to use the product or from any other cause.
 - Any part of the cabinet which has been subject to misuse, neglect, alteration, incorrect installation, accident, or damage caused by transportation, use of abrasive or caustic chemicals, flooding, fire or acts of God.
 - Damage, resulting from failure to have the cabinet regularly serviced every three months by a refrigeration engineer. NB: You will be required to provide copies of service records in the event of compressor failure.
 - Any damage or malfunction resulting from the use of non-FPG supplied spare parts.
-

Specific Exclusions

The following are specifically excluded from warranty:

- Breakage of glass or plastic components or the replacement of fluorescent tubes or gaskets.
 - Maladjustment of the electronic refrigeration controller, by an unqualified person.
 - Failure resulting from a lack of routine compressor / radiator cleaning.
 - Failure to re-assemble the cabinet correctly after cleaning.
 - Fair wear and tear.
-

Assessment

The liability under this warranty is dependent on an assessment by FPG, to determine the defect in workmanship or materials.

Time Limit

FPG does not guarantee that any service to be performed under this warranty will be carried out within any particular time limit.

Caution

No warranty claim will be accepted unless authorised by FPG prior to commencement of service.

OPERATION

Cabinet Layout

VISAIR+ CABINETS - OPERATION

Visair Cube

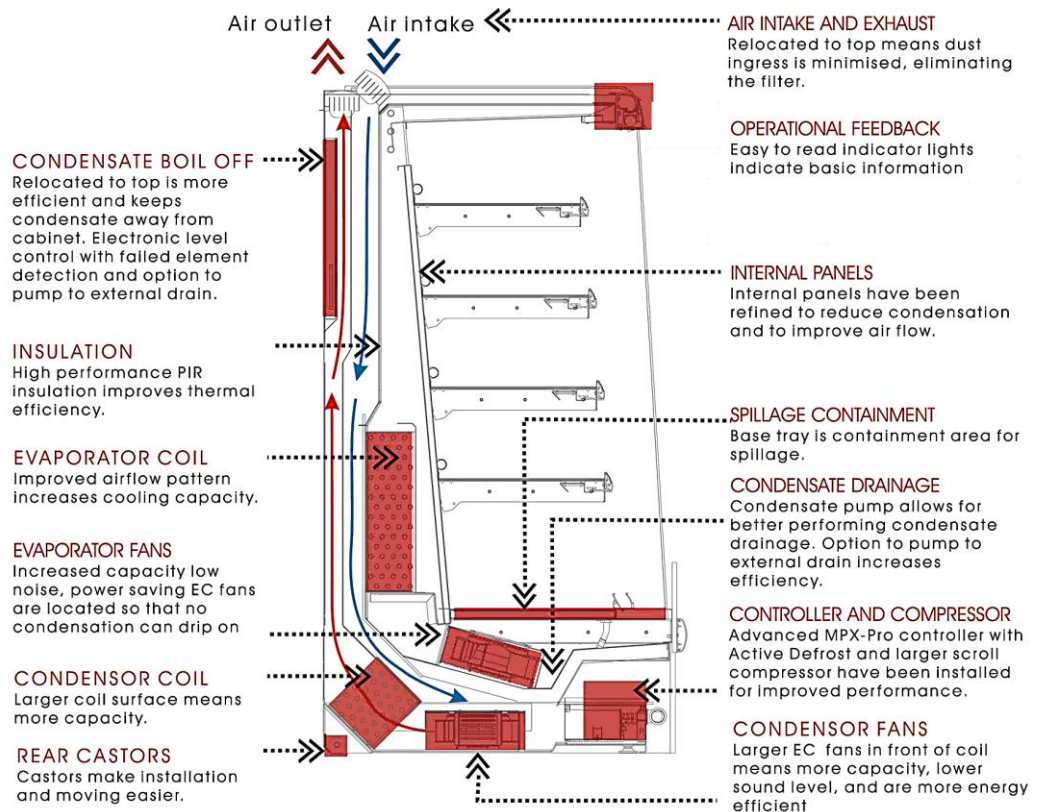
This is a stand-alone, open fronted cabinet, with glass side panels and a top fluorescent light.

Various shelf configurations are available to accommodate different package sizes.

Cabinets are fully self-contained, with an integral refrigeration unit. They are fitted with a condensate disposal pump, which can either discharge into a drain or a rear mounted condensate boil-off unit.

The controls and refrigeration equipment are mounted in the base of the cabinet.

Cooling air for the refrigeration system is drawn in from the top of the cabinet, where the air is cleaner than at floor level.



Controls & Indicators

VISAIR+ CABINETS - OPERATION

Power Switch and Indicator Lamps

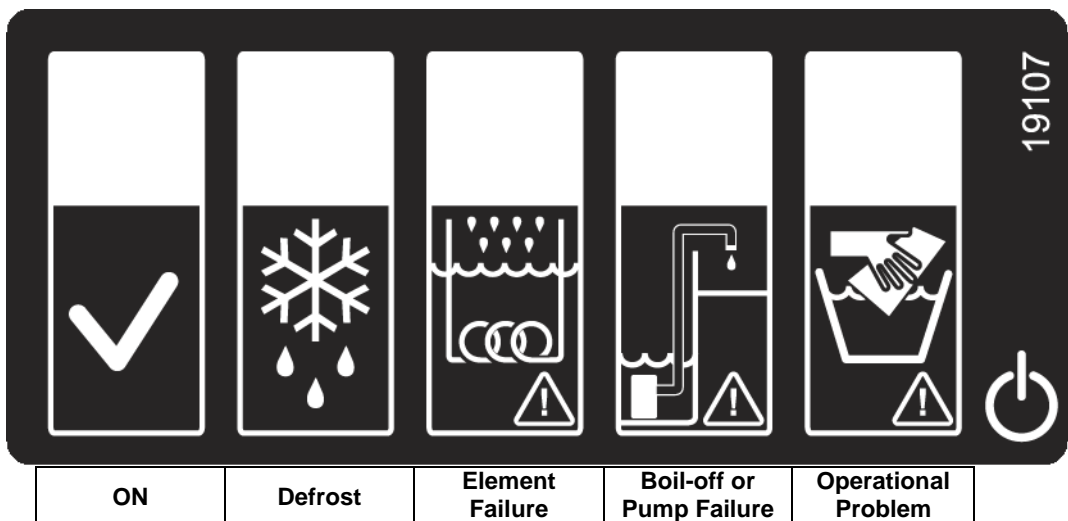


The main power switch is mounted in the top of the front base panel, on the right hand side.

This is the only operator control, and it switches the lighting and refrigeration on and off.

Indicator lamps show the operational state of the cabinet.

Status Indicators



Refrigeration Controller



The refrigeration controller is mounted on the right hand side of the equipment chassis in the base of the cabinet.

The front panel must be unscrewed to access the controller.

The controller is pre-set for correct cabinet functioning, and must only be adjusted by a qualified service person.

Spillage Tray



The spillage containment tray in the bottom of the display area is fitted with a drain plug.

Be sure to have the plug in place during normal cabinet use, to prevent spillages running into the cabinet well.

To drain spillages, pull the base drawer forward, and place a receptacle under the drain before removing the plug.



Preparation

VISAIR+ CABINETS - OPERATION

Shelf Location and Ticketing

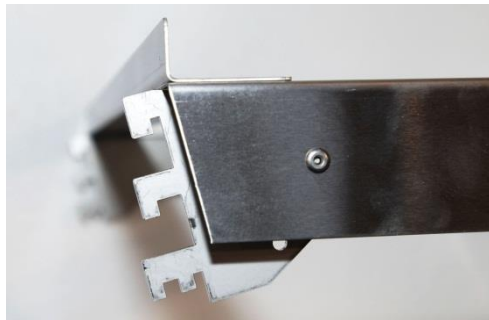
All shelves are adjustable in height and can easily be moved up or down, to match product size. The front edges of the shelves are profiled to carry ticketing/labels.

Shelf Adjustment

To alter the shelf position, slide the brackets upwards and disengage them from the support pillar.

Insert the brackets in the new position and push them down firmly.

The brackets can be inserted in two positions, allowing the shelves to be either horizontal or sloping downwards.



Make sure shelf brackets are pushed down as far as they can go. Failure to do this may result in shelf collapse, when loaded with product.

Shelf Loading Position

Each shelf is fitted with runners, enabling it to be pulled forward for easy loading.

Using two hands, depress the two locking bars located under the front edge of the shelf, to release it.

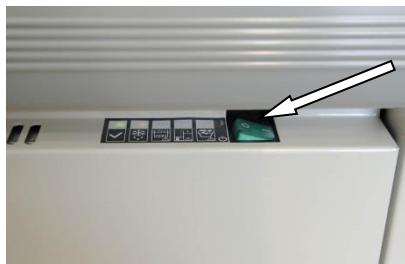
When returning the shelf to its normal position, push it in firmly, until both locking bars latch into position.



Preparation cont.

VISAIR+ CABINETS - OPERATION

Switch Power On



Turn on the power switch, the compressor will run, and the cabinet temperature will begin to fall.

The temperature controller is pre-set to maintain the cabinet temperature at 2° - 4°C. It should not need adjustment.

Load Cabinet

After the cabinet has run for a 30 minute initial cool-down period, load it with pre-chilled product.

The cabinet is designed to maintain the temperature of pre-chilled product at between 2° and 4°C.

If warm product is introduced, there could be a delay before the temperature falls to the normal operating level.

Air Baffle Plates



If low profile products are displayed on any shelf, fit an air baffle plate to block the upper back panel air slots behind that shelf.

This will maintain correct cool air flow among the products.

The plate should be fitted in the location slots immediately below the shelf brackets.

Loading Restrictions

It is important to leave adequate free space for the refrigerated air to circulate within the cabinet.

The air grills at the front of the cabinet must not be covered or restricted.

Defrost Cycle

Defrosting of the evaporator coil is fully automatic. Measurements of air and coil temperatures control the commencement and duration of the defrost cycles.

This active defrost system improves the energy efficiency of the cabinet, and minimises temperature fluctuations.



Routines

VISAIR+ CABINETS - OPERATION

After Hours Ideally, cabinets should not be turned off after hours or at night.
If the cabinet is turned off, transfer the products to a cool store. When the cabinet is turned on again, allow it to run for 30 minutes before returning the chilled products.

Cleaning It is recommended that cabinets be cleaned at the end of the working day, since they need to be shut down for this. See Cleaning section.

De-frost Cycle Defrosting of the evaporator coil is fully automatic. Measurements of air and coil temperatures control the commencement and duration of the defrost cycles.

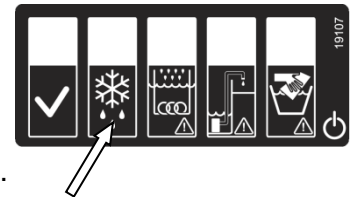
This active defrost system improves the energy efficiency of the cabinet, and minimises temperature fluctuations.

If you suspect that the defrost system is not working properly, have it checked by a qualified service person.

Operators must not attempt to adjust the refrigeration controller.

Temperature Checks Cabinet temperatures should be routinely checked, to confirm satisfactory operation.

All cabinets are fitted with thermometers, to give an indication of air temperature, but a temperature probe should be used to check package temperatures.



To avoid misleading temperature measurements, do not take a reading if the *DEFROST* indicator light is ON.

TROUBLE SHOOTING

FAULT	POSSIBLE CAUSE	REMEDY
Cabinet does not operate/start	The mains isolating switch on the wall, circuit breaker or fuses are off at the power board	Turn isolating switch circuit breaker or fuses on
	The power switch on the cabinet is OFF	Turn the power switch ON
	The internal MCB has tripped off or failed	<i>Have wiring checked and reset or replace breaker</i>
	The power switch is faulty	<i>Have the switch replaced</i>
	Boil-off system has failed	See detailed instructions below
Refrigerated Cabinet does not reach temperature	Ventilation grills are blocked	Vacuum or remove blockage
	Product blocking air grill	Place product on shelves
	Thermostat needs adjustment	<i>Adjust refrigeration controller</i>
	Ambient temperature > 25°C	Adjust store air conditioning
	Evaporator coil iced up	<i>De-ice coil, check active defrost parameters, replace controller if found faulty</i>
	Condenser radiator blocked	<i>Remove dust and debris</i>
	Refrigeration controller faulty	<i>Replace controller</i>
	Temperature probe damaged	<i>Replace temperature probe</i>
	Fans not operating	<i>Have fans checked/replaced</i>
	HP pressure switch triggered	Manually reset switch
	LP pressure switch triggered (Clear the alarm indication, by turning off the power to reset the controller)	Allow switch to auto reset. <i>If it doesn't reset, check for leaks</i>
Condensate Overflows	Condensate pump failed	<i>Have the pump replaced</i>
	Pump filter blocked	<i>Clean the filter</i>
	Pump water level switch faulty	<i>Check/replace unit</i>
	Boil-off control module failed	<i>Check/replace control module</i>
Cabinet lights not working	Fluorescent tube failed	Replace fluorescent tube
	There is a cabinet fault alarm	<i>See additional information below</i>
	The internal MCB has tripped off or failed	<i>Have wiring checked and reset or replace breaker</i>
Aluminium parts corroded	Caustic detergent damage	Order replacement parts

Service Personnel Only

The table entries in ***italics*** indicate actions to be taken only by qualified Service Personnel.

TROUBLE SHOOTING continued

Boil-off /Pump Failure LED illuminated

If the cabinet shuts down and the Boil-off/Pump fail LED fault light is lit, then either the condensate pump has failed or the boil-off element thermal cut-out will have tripped.

Thermal Cut-out Tripped

Check if the probe in the boil-off tank is dirty and needs cleaning (a dirty probe can complete a circuit to earth causing the unit to think water is still present and keep the element powered up) clean if required.

Check if the probe in the boil-off tank is bent or incorrectly positioned and touching the side of the tank - (this will complete a circuit to earth causing the unit to think water is still present and keep the element powered up) repair as required.

Check if the control unit is faulty and continues to give an out-put to the element relay when no water is present. Disconnect the probe wire from terminal "S+" on the control unit. If it continues to output 230V on terminal "L1" after 10 seconds, replace the control unit.

Water present, but no heating

If the boil-off element does not come on even though water is present and touching the bottom of the sensor probe, check the following:

- Check for 230V across the element, if there is 230V across the element and the element does not heat replace the element.
- If the thermal cut-out has 230V supply, try resetting the thermal cut-out. If the thermal cut-out won't reset replace it.
- If 230V is not present at the thermal cut-out, check if the element relay has 230V supply to its contacts. If no power is present at the switched terminals, check the cabinet power supply. If 230V power is present on the switched terminals, check if the relay coil has 230V power across the coil terminals. If there is 230V across the element relay coil terminals, replace the relay.
- If 230V power is not present across the element relay coil terminals, check for a 230V out-put from the control unit terminal "L1". If 230V power is not present, check for a 230V power supply into the control unit on terminal "L".
- If 230V power is present on the control unit terminal "L", check the unit by shorting out the sensor terminals "S+" & "S-". If after shorting sensor terminals "S+" & "S-" the unit does not provide a 230V output on terminal "L1", replace the control unit. If the control unit does provide a 230V output on terminal L1 then the sensor wiring and sensor need to be checked.
- Check the sensor wiring for continuity and repair or replace if open circuit. Check the probe in the boil-off tank for dirt build-up over its surface (this can act as an insulator), clean as required.

TROUBLE SHOOTING continued

Lights not working	<p>When a cabinet alarm condition is present, the cabinet lights will go out to alert staff of the alarm condition.</p> <p>To determine the cause of the alarm condition, check the Carel controller display and the LED status indicator lamps.</p>
Carel Controller Display Alarm Codes	<p>Alarm code “IA” indicates the fault is due to the refrigeration high-pressure switch or low-pressure switch, tripping open circuit.</p> <p>Alarm code “dA” indicates the fault is due to the drain pan condensate pump float switch, reaching its high water level limit.</p>
LED status indicator lamps	<p>“Boil-off/Pump failure” indicator lamp lit. This indicates that the fault is due to the drain pan condensate pump float switch, reaching its high water level limit.</p> <p>“Operational problem” indicator lamp lit. This indicates that the fault is due to the refrigeration high-pressure switch or low-pressure switch, tripping open circuit.</p>
Fault remedies	<p>For “IA” and “Operational problem” lamp fault indication, carry out the following:</p> <ul style="list-style-type: none">• Check for obstruction to the condenser airflow in and out of the cabinet and rectify as required.• Check and clean the condenser coil if required.• Check the refrigeration system operating gas pressures and rectify any faults as required. <p>For “dA” and “Boil-off/pump failure” lamp fault indication, carry out the following:</p> <ul style="list-style-type: none">• Check the condensate pump pick up filter is not blocked, clean as required.• Check the operation of the condensate water pump and repair/replace as required.• Check the operation of the boil-off element, thermal cutout and element controller. Repair, reset or replace as required.• If no fault can be found with the above, drain the excess condensate water from the system by disconnecting the blue plastic pipe from the boil-off and place the end in a suitable container. Turn cabinet power on and the pump will pump the water out of the cabinet into the container. Turn the cabinet off and re-connect the blue pipe to the boil-off. Turn the cabinet back on and check for correct operation. Most likely the excess water was caused by an iced up evaporator coil. Check for likely causes of an iced up evaporator coil.



CLEANING

Cautions

VISAIR+ CABINETS - CLEANING

Power **ALWAYS TURN THE POWER SUPPLY OFF BEFORE CLEANING.**

Water THIS UNIT IS NOT WATERPROOF. DO NOT USE A WATER JET SPRAY TO CLEAN THE INTERIOR OR EXTERIOR OF THIS CABINET.

Exterior

VISAIR+ CABINETS - CLEANING

Louvers Use a vacuum cleaner to remove dust and fluff from the ventilation louvers on the top of the cabinet.

This will maintain the refrigeration efficiency, and prevent overheating.

Painted and Metal Surfaces Painted, galvanised steel or aluminium surfaces should be cleaned with hot soapy water then dried off with paper towel or dry cloth. DO NOT clean surfaces with abrasive pads or cleaners as paint, galvanised steel and aluminium surfaces will be damaged.

Glass All glass should be cleaned using a good quality glass cleaner and a clean cloth.
DO NOT clean glass with abrasive pads or cleaners as the glass will be damaged.

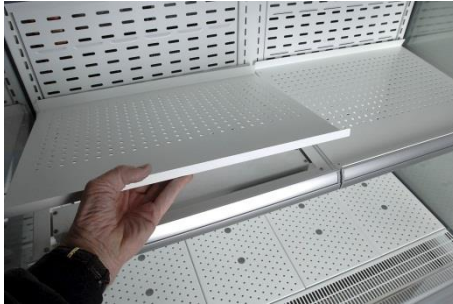
Interior

VISAIR+ CABINETS - CLEANING

Side Glass

The inside surfaces of the side panels are most easily cleaned after the products and shelves have been removed.

Shelf Trays



The shelf trays are easily lifted off for cleaning.

The complete shelf module can also be removed by lifting it vertically, to disengage the support brackets from the back panel.



Spillage Tray



If there is liquid in the spillage tray, pull the base drawer forward, and place a receptacle under the drain, before removing the plug.



If spillages contaminate the well, pump and boil-off unit, objectionable smells will result.

Base Trays and Air Baffles



Base trays are easily removed, using the two finger holes.

To remove air baffle plates, simply slide upwards and pull forwards, to disengage from the slots in the shelf pillars.



Back Plates



Once the shelves and brackets have been removed, and the base drawer slightly opened, the back plates can be removed.

Lift the plate vertically, to disengage it from the bottom location slot, pull it forward, then lower it to disengage it from the top location slot. It can now be removed for cleaning.

Continued on next page

Interior cont.

VISAIR+ CABINETS - CLEANING

Cleaning the Base Cavity



The cabinet base is mounted on runners, and can be pulled forwards to access the base cavity.

Sweep out, or use a vacuum cleaner, to remove any debris.

A Wet-and-Dry vacuum cleaner should be used, since there is likely to be some water in the bottom.

Fan Deck



The fan deck is not fixed, and can be lifted up, unplugged and removed for cleaning.



Condensate Pump Intake Filter



Lift the lid off the condensate pump intake filter and remove any debris.

The pump control switch is operated by a magnet, mounted on a float. Be sure to fit the float with the magnet against the lid,



when it is replaced.

Condensate Capacity Warning

The condensate pump and boil off heater is only designed to handle cooling-coil defrosting water that drains from the well during normal operation. The boil off container has a capacity of two litres.

When cleaning, DO NOT fill the well with liquid, or attempt to hose it out. The condensate pump only operates when the main switch is on, so the well will not empty until the power is switched on again.

Cleaning Materials

Steel trays, shelves, grills etc. should be cleaned with hot soapy water then dried off with paper towel or dry cloth.

DO NOT use abrasive pads or cleaners as these may damage surfaces.

Warning: Dishwasher detergent may damage anodised aluminium parts.

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Interior cont.

VISAIR+ CABINETS - CLEANING

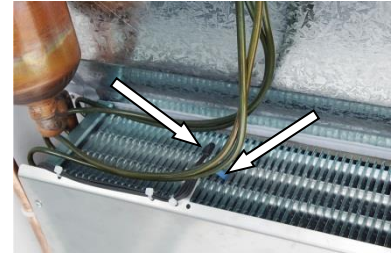
Cooling Coil and Probes



With the back plates removed, the cooling coil is exposed. No cleaning is normally required, but if there is any debris visible, carefully remove it with a vacuum cleaner.

Be very careful not to bend or distort the fins of the cooling coil, as this would reduce the airflow.

Also be careful not to move or disturb the location of the two temperature probes.



Mandatory Cleaning Routines

VISAIR+ CABINETS - CLEANING

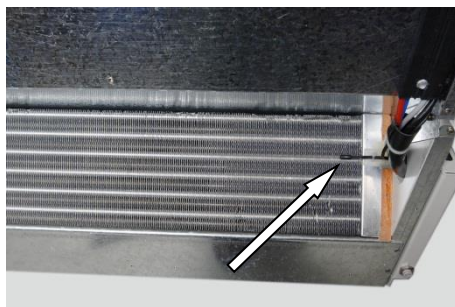
Warning

It is mandatory to have the radiator fins cleaned periodically, by a refrigeration engineer. (see Servicing section).

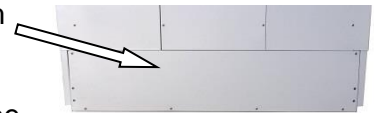
Failure to carry out routine cleaning/servicing schedules will void the warranty on the refrigeration equipment.

To maintain optimum performance, cleaning must be regular and thorough. It is recommended that a schedule of cleaning operations should be drawn up.

Condenser Radiator

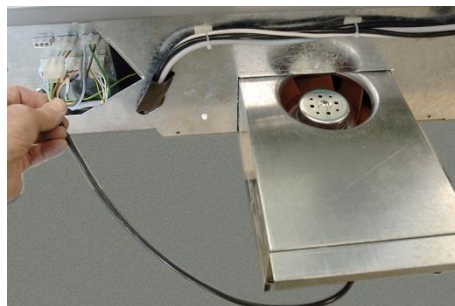


For efficient refrigeration performance, the condenser radiator must be clean. To access the radiator, the bottom panel must be removed from the back of the cabinet, so this would normally be done by a service person, rather than the operator.



Be careful not to disturb the location of the air temperature sensing probe.

Condenser Fans and Air Duct



The bottom side panels must be removed to access the two condenser fans, so this would also normally be done by a service person.

The fan units pull out from either side of the cabinet, and can be unplugged and taken away for easy cleaning.

Vacuum away any dust and fluff in the duct.

Inspection and Rectification

As part of the cleaning routine, the controls, mechanical parts and electrical wiring should be inspected for damage, deterioration or need of adjustment.

If any small faults are found, have them attended to promptly by a competent serviceman. Don't wait until they cause a complete breakdown.

INSTALLATION

Regulations

VISAIR+ CABINETS - INSTALLATION

Compliance with Local Requirements

It is very important that your food cabinet is installed correctly and is operating properly before use. Installation must comply with local electrical, health & safety and hygiene requirements.

Setting Up

VISAIR+ CABINETS - INSTALLATION

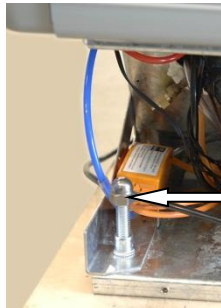
Unpacking

Unpack and check unit for damage and report any damage to the carrier and supplier. Report any deficiencies to your supplier.

Cabinet Preparation

Remove all tapes, ties and packers, used to prevent movement during transit. Pull the base drawer open to check for packing materials in the well.

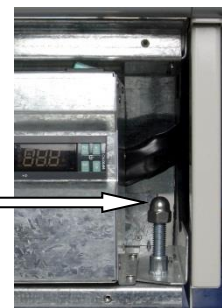
Positioning the Cabinet



Position the cabinet in its allocated working position.

There are casters on either side at the back, so it can be easily manoeuvred by lifting the front.

Using a spirit level, adjust each front foot to ensure the cabinet is level from front to back and side to side. If the floor is not level, place packing under one of the castors.



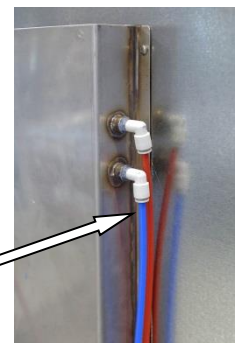
Condensate Disposal



Condensate water can be disposed of by pumping it either to a drain or to the integral boil off unit.

The cabinet is delivered with the pump feeding the boil off unit.

To pump the condensate to a drain, the blue pipe must be disconnected and spliced to the pipe leading to the drain.



Continued on next page

Setting Up cont.

VISAIR+ CABINETS - INSTALLATION

Power Supply and Earthing



Each cabinet is fitted with a three-pin IEC connector and a three metre mains lead.

If the cabinet is to be hard wired, this must only be done by a suitably qualified person.

Before connecting to the power supply, check that the local supply is correct to that shown on the cabinet label.

WARNING - EACH CABINET MUST BE EARTHED/GROUNDED

Isolation

If the cabinet is not connected to an outlet socket, but is hard wired to the mains supply, a means of isolation must be provided.

If a plug and socket are used, they should still be accessible after the cabinet is installed.

Location

VISAIR+ CABINETS - INSTALLATION

Ventilation

The vents located on the top of the cabinet must never be obstructed. If obstructed the cabinet may overheat and cause an electrical malfunction.

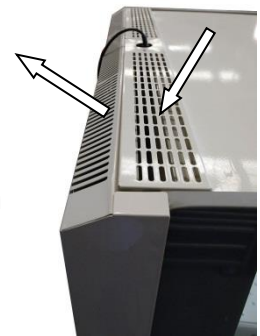
Before use, operate the cabinet for 1-2 hours to remove any fumes or odours, which may be present.

Draughts

The door-less cabinet features an “air curtain” to retain the cold air within the cabinet. A “curtain” of cold air falls from a linear vent, across the top of the open cabinet front, to be re-circulated through the evaporator cooling coils.

The cabinet should not be sited where strong draughts will deflect the “air curtain”. If this happens, excess condensation will form on the products, and cooling will be less effective.

Draughts across the top of the cabinet can cause re-circulation of warm exhaust air back into the inlet grill. This will reduce the operating efficiency of the refrigeration system.

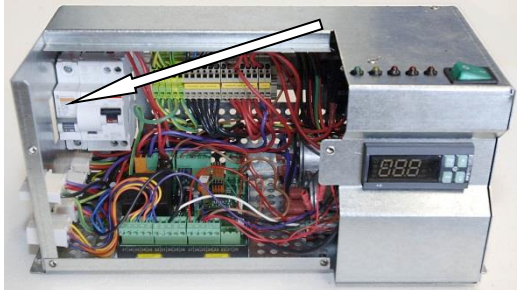


SERVICING

Electrical Protection

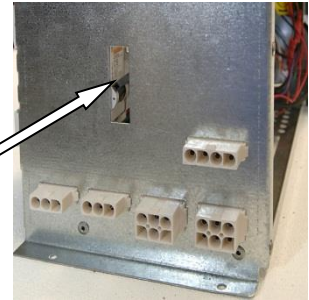
VISAIR+ CABINETS - SERVICING

Circuit Breaker



The lighting circuit is protected by a circuit breaker, located on the control gear chassis.

The circuit breaker is accessible through a hole in the side of the chassis.



If the breaker cannot be reset, call an electrician to check the circuits.

Lighting

VISAIR+ CABINETS - SERVICING

Caution

DO NOT service the lights, without isolating the cabinet at the main switch or unplugging it from the electricity supply.

Fluorescent Tubes



Remove the plastic diffuser from the metal extrusion to access the fluorescent tube.

Rotate the tube by 90°, to release it.

After changing the tube, replace the plastic diffuser. Locate one edge of the diffuser strip in the extrusion groove, and curve it into the other groove.

Test

Turn the power on and test lighting operation.

If normal operation cannot be restored, by replacing the tube, call an electrician.

Refrigeration Equipment

VISAIR+ CABINETS - SERVICING

Caution

DO NOT attempt to service the refrigeration equipment without isolating the cabinet from the mains supply.

Equipment Chassis



The compressor, control gear chassis and condensate pump are mounted in the base of the cabinet. Unscrew the front panel to gain access.

To the right of the cavity, an enclosed sub-chassis houses the refrigeration controller, lighting

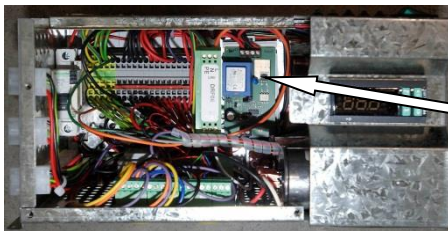


ballast, MCB, compressor starting capacitor and relay, and compressor running capacitor.

The control panel of the **MPXPRO** is mounted on the front of the chassis, and the main switch and indicator LEDs are mounted on the top.

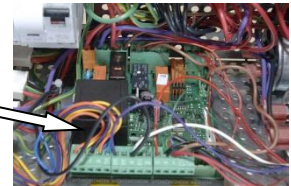
A circuit diagram and Product Manual are located on the back of the front panel.

Control Gear



Unscrew the front panel to access the control gear.

This assembly is part of the water sensing circuit. This is the **MPXPRO** controller circuit.



Ventilation Fan



The fan, mounted on the front panel, draws fresh air in through the grill on the top of the panel. The air cools the compressor, eliminates condensation, and exits from the right hand side of the grill.

The fan runs at all times, and it is important that the grill is kept clear of dust and fluff.

Unplug the fan to remove the front panel.

Continued on next page

Refrigeration Equipment cont.

VISAIR+ CABINETS - SERVICING

Evaporator Fan Replacement

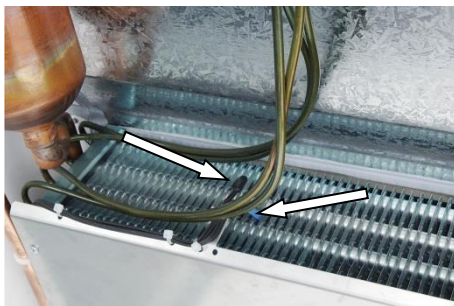


The fan deck is not fixed in place, and can be unplugged to replace a faulty fan.

The fan speed is electronically programmed, so the correct spare must be used.



Evaporator Coil and Accumulator

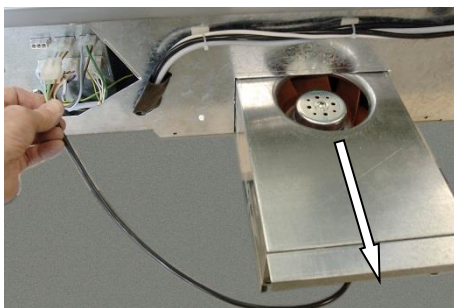


The evaporator coil and accumulator are accessed by removing the inside back panels of the cabinet, see Cleaning.

Take care not to disturb the location of the two probes. One is in the air flow, the other in the coil fins.



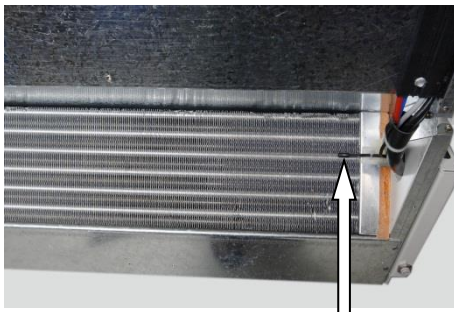
Condenser Fan Replacement



To access the condenser fans, remove the side panels from the base of the cabinet.

Each fan is located on a pull-out chassis, one on each side of the cabinet. They can be withdrawn and unplugged for servicing.

Condenser Radiator



The condenser radiator runs across the bottom of the cabinet, at the back. It is accessed by removing the rear panels.

It is vital that the radiator is kept clean. If air flow is restricted, refrigeration efficiency will be poor.

The radiator fins must be regularly cleaned, using compressed air.

Be careful not to disturb the location of the probe, which measures the temperature of the air leaving the radiator.

Continued on next page

Refrigeration Equipment cont.

VISAIR+ CABINETS - SERVICING

Air Ducts and Grills

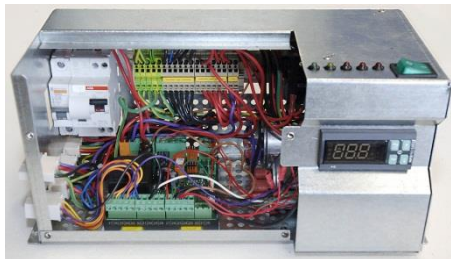
All air ducts and grills must be regularly vacuumed, to keep them free of dust and fluff.

This is best done with the condenser fans withdrawn, and after cleaning the radiator with compressed air.

Grills are located on the top of the cabinet and along the top edge of the front bottom panel.



Temperature Regulator



The Carel **MPXPRO** regulator consists of two parts. A circuit board, mounted inside the control gear chassis, and an indicator/control panel on the front of the chassis.

The regulator controls the cabinet temperature, the defrost cycles and monitors cabinet operation.

The unit is factory set as per the table in the Specification section.

Two temperature probes are used to control the defrost cycles, one in contact with and the other adjacent to the evaporator coils.

A third probe monitors the temperature of the air leaving the condenser radiator.

MPXPRO Controller Adjustment

Caution:

This controller should only be adjusted by a qualified service technician.



The indicated temperature will be lower than the air temperature inside the cabinet, because the refrigeration compressors are controlled in response to the exit air temperature from the evaporator cooling coils.

A second probe is inserted in the fins of the evaporator coil. This provides temperature information to control the defrost functions.

Incorrect adjustment or accidental movement of the probes can cause the fins to ice up, resulting in reduced airflow and poor performance.

Continued on next page

Refrigeration Equipment cont.

VISAIR+ CABINETS - SERVICING

Condensate Pump

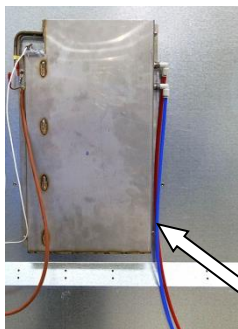


The pump is activated by a float switch in the inlet filter module, and also provides a monitor signal to the **MPXPRO** controller.

If the pump is not working, make sure that the float switch is assembled with the magnet towards the under side of the lid.



Automatic Condensate Removal, (ACR) Unit



The ACR unit is located at the back of the cabinet, behind the back panels.

The main tank has an immersion heating element, and a coupled side tank houses a water sensing probe.

Power is switched to the element when water is sensed by an electronic sensor.

In the event that the element remains on with no water present in the boil-off tank, a manual reset thermal cut out mounted on the side of the tank will trip open circuit at 120°C. It can be reset when the temperature falls below 84°C.

If the thermal cut-out is not reset and the cabinet continues to operate normally, the boil-off will overflow allowing the condensate water to return to the bun. The bun will then overflow with water and activate the condensate pump high water level sensor. This will then shut down the cabinet, activate an alarm and bring on the Boil-off/Pump fail indicator light.

Continued on next page

Refrigeration cont.

VISAIR+ CABINETS - SERVICING

ACR Fault Finding Guide

First check if the condensate water level probe in the ACR tank is dirty and needs cleaning (a dirty probe may either fail to detect water, or give a false indication of water) clean if required.

Check the Finder Level Control unit sensitivity range adjustment is set to 75k Ω . If the sensitivity is set too low, the Finder Level Control unit may not detect the condensate water and won't switch on the ACR element. If the sensitivity is set too high, the Finder Level Control unit may get a false indication of the condensate water and switch on the ACR element without water present.

Fault: ACR element is on continuously when no condensate water is present.

Test: Check if the Finder Level Control unit is faulty by disconnecting the probe wire from terminal B1 on the Finder Level Control unit. With the cabinet power turned on and after waiting 10 seconds, check for 230V across terminals 11 and 14. If 230v is not present across terminals 11 & 14, replace the Finder Level Control unit.

Fault: ACR element does not heat even though condensate water is present and touching the water level probe.

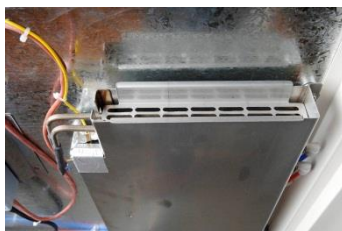
Test: Check if the Finder Level Control unit has a 230V power supply.

Next, check the manual re-set Thermal Cut-out, located on the lower right hand side of the ACR heater tank, at the rear of the cabinet. If the Thermal Cut-out won't re-set and remains open circuit, replace the Thermal Cut-out.

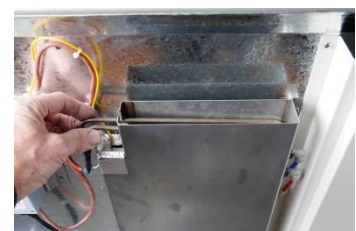
Next, check the Finder Level Control unit water sensing circuit, by short-circuiting the level sensor terminals B1 & B3. Turn the cabinet power on and wait 10 seconds, check if the ACR element heats. If the element heats, check for an open circuit in the water sensing probe circuit and clean the probe.

If the element does not heat, turn the cabinet power off and take the element wire out of terminal 11 and wire into terminal 14 on the Finder Level Control unit. Turn the cabinet power on and wait 10 seconds, check if the ACR element heats. If the element heats, replace the Finder Level Control Unit. If the element does not heat replace the element.

Condensate Element Replacement



To replace the element, remove the safety cover, and squeeze the sides of the element together to disengage it from the mounting bracket.



Cut the feed cables at the heat-shrink covered connection and remove the old element. Insert and connect a new element, fitting new heat-shrink sleeves over the connections.

Replace the safety cover, making sure that it is properly located.

Continued on next page

Refrigeration cont.

VISAIR+ CABINETS - SERVICING

MPXPRO Functions & Indications

Icon	Function	Description	Icon meaning / function status		
			On	Off	Flashing
	Compressor	Compressor output status	Active	Not active	Activation delayed by protection times
	Fan	Fan output status	Active	Not active	Activation disabled externally or by procedure in progress
	Defrost	Defrost output status	Active	Not active	Activation disabled externally or by procedure in progress
	Aux	Auxiliary output status	Active	Not active	
	Alarm	Alarm status during normal operation or from digital input	Pre-activation of a delayed external digital alarm	No active alarm	Active alarms
	Clock	RTC option	Control in night-time operation, at start-up comes on to indicate the option is present	Control in daytime operation	Clock alarm
	Light	Local or network light output status	Active	Not active	
	Service	General service signals	On the master indicates the update of the parameters to the slave	No malfunction	Malfunction (System error). Contact service.
	HACCP	HACCP alarm signal	Function enabled	Function not enabled	HACCP alarm active, signal on the display HA / HF
	Cont. cycle	Continuous cycle function status	On	Off	Request in progress



Display & Control



Display only

Category	Function	Keypad controls		
		Buttons	Duration	
Set point	Temperature set point.	Set ▲ <i>def</i> ▼ <i>aux</i> OR		
Access to the parameters	Type F parameters (frequent)	Set Prg <i>mute</i>	5 s	
	Type C parameters (configuration)	Prg & Set <i>mute</i> & <i>def</i> ▼ ▲ <i>aux</i> OR	5 s	
Exit parameters	Type C parameters (configuration)	Set Prg <i>mute</i>	5 s	
Defrost	Local defrost	def ▼		
	Multiplexed defrost From master only	Set & <i>def</i> ▼	5 s	
Auxiliary	Continuous cycle	▲ <i>aux</i> & ▼	5 s	
	AUX output	▲ <i>aux</i>		
Network functions, master only	Copy parameters from master to slave	Prg & Set <i>mute</i> & <i>def</i> ▼ ▲ <i>aux</i> &	5 s	
	Display network unit status from master	Prg & Set & ▼ <i>mute</i> at start-up		
Default	Reset default parameters	Prg <i>mute</i>		
	Alarms	Alarm log	Prg & Set <i>mute</i> & <i>def</i> ▼ ▲ <i>aux</i> &	5 s
		Manual alarm reset	Set	
	Mute buzzer and disable alarm relay **	Prg <i>mute</i> & ▲ <i>aux</i>		
HACCP	HACCP menu	Prg & <i>def</i> ▼ <i>mute</i> &		

Parameter categories

Parameter category	Prefix	Display	Icon
Probe	/	'Pro'	
Control	r	'Ctl'	
Compressor	c	'CMP'	
Defrost	d	'dEF'	
Alarms	A	'ALM'	
Fans	F	'FA'	
Expansion valve	E	'Eud'	
Configuration	H	'CnF'	AUX
Log	HS	'HS'	
HACCP	H	'HcP'	HACCP

FPG Settings

Note that "default" settings shown in the following tables are **Carel** defaults.

Refer to the Controller Settings table in the Specifications section for the correct settings for your FPG refrigerated cabinet.

Continued on next page



Refrigeration cont.

VISAIR+ CABINETS - SERVICING

MPXPRO Parameters

Key to the table:

Code: code of the parameter as shown on the display;

Parameter: name of the parameter and any possible values;

Min, max or Def: Minimum, maximum or default value;

Type: C (configuration), F (frequent) or N (supervisor/program key/commissioning);

UOM: unit of measure;

	Code	Parameter	UOM	Type	Def.	Min	Max
Temperature probe management parameters (/Pro)							
	/2	Analogue probe measurement stability	-	C	4	1	15
	/4	Virtual probe composition: 0: outlet probe Sm; 100: intake probe Sr	-	C	0	0	100
	/5	Select °C or °F 0: display in °C	flag	C	0	0	1
	/6	Disable decimal point 0: decimal point enabled	flag	C	0	0	1
	/t	Enable display alarms on the secondary terminal 0: display on second term. disabled	flag	C	0	0	1
	/t1	Select display on the main terminal 0: not present; 1 to 11: S1 to S11; 12: Control probe (Sreg); 13: Virtual probe (Sv); 14: Set point;	-	C	12	0	14
	/t2	Select display on the secondary terminal (See /t1) Select type of probe, Group 1 (S1, S2, S3) 0: Standard NTC with Range -50T90 °C	-	C	0	0	14
	/P1	1: Standard PTC Range -50T150 °C 2: Standard PT1000 Range -50T150 °C 3: NTC K243 Standard Range -50T90 °C	-	C	0	0	3
	/P2	Select type of probe, Group 2 (S4, S5) (See /P1)	-	C	0	0	3
	/P3	Select type of probe, Group 3 (S6) 0 to 3: (See /P1); 4: 0 to 5 V ratiometric probe	-	C	0	0	4
/Pro	/P4	Select type of probe, Group 4 (S7) 0 to 3: (See /P1); 4: 0 to 5 V ratiometric probe; 5: 0 to 10 V input; 6: 4 to 20 mA input	-	C	0	0	6
	/P5	Select type of probe, Group 5 serial probes (S8 to S11) 0: temperature probes	-	C	0	0	15
	/FA	Assign outlet temperature probe (Sm) 0: Function disabled; 1 to 11: S1 to S11	-	C	1	0	11
	/Fb	Assign defrost temperature probe (Sd) (See /Fa)	-	C	2	0	11
	/Fc	Assign intake temperature probe (Sr) (See /Fa)	-	C	3	0	11
Temperature control parameters (Ctl)							
	St	Unit set point	°C/°F	F	50.0	r1	r2
	St2	Intake probe set point with "Double thermostat"	°C/°F	F	50.0	r1	r2
	rd	Temperature set point differential	°C/°F	C	2.0	0.1	20.0
	rd2	Control differential with "Double thermostat" 0:0: function deactivated	°C/°F	C	0.0	0.0	20.0
	r1	Minimum set point	°C/°F	C	-50.0	-50.0	r2
	r2	Maximum set point	°C/°F	C	50.0	r1	50
	r3	Enable end defrost signal by timeout 0: signals disabled	flag	C	0	0	1
	r4	Automatic night-time set point variation	°C/°F	C	0.0	-50.0	50.0
	r5	Select maximum and minimum temperature monitoring probe. 0: disabled; 6: superheated gas probe; 1: control probe (Sreg); 7: saturated evaporation probe; 2: virtual probe (Sv); 8: auxiliary defrost probe; 3: outlet probe (Sm); 9: auxiliary probe; 4: defrost probe (Sd); 10: auxiliary probe 2. 5: intake probe (Sr);	-	C	0	0	10
	rt	Duration of current maximum and minimum temperature monitoring session.	hours	C	-	0	999
	rH	Maximum temperature acquired in the session	°C/°F	C	-	-	-
	rL	Minimum temperature acquired in the session	°C/°F	C	-	-	-
	r6	Enable night-time control on intake probe (Sr) 0: control on virtual probe (Sv) at NIGHT 1: control on intake probe (Sr) at NIGHT	flag	C	0	0	1
	ro	Control offset in the event of probe error	°C/°F	C	0.0	0.0	20.0
	r7	Enable solenoid output on Master as LAN solenoid only 0: compressor output for local valve; 1: compressor output for network valve	flag	C	0	0	1
Compressor management parameters (CMP)							
	c0	Enable compressor and fan delay on power-up	min	C	0	0	240
	c1	Minimum time between successive starts	min	C	0	0	15
	c2	Minimum off time	min	C	0	0	15
	c3	Minimum on time	min	C	0	0	15
	c4	ON time for operation in duty setting (Toff = 15 minutes fixed) 0: compressor/valve always OFF; 100: compressor/valve always ON	min	C	0	0	100
	cc	Duration of continuous cycle operation	hours	C	1	0	15
	c6	Low temperature alarm bypass time after continuous cycle	min	C	60	0	240

Continued on next page

Refrigeration cont.

VISAIR+ CABINETS - SERVICING

MPXPRO Parameters continued

	Code	Parameter	UOM	Type	Def.	Min	Max
	Defrost management parameters (DEF)						
	d0	Select type of defrost 0: heater defrost by temperature; 1: hot gas defrost by temperature; 2: heater defrost by time; 3: hot gas defrost by time; 4: heater defrost by temperature and time	-	C	0	0	4
	d2	Enable end defrost synchronised by Master 0: end defrost not synchronised; 1: end defrost synchronised	flag	C	1	0	1
	d1	Maximum interval between consecutive defrosts	hours	C	8	0	240
	dt1	End defrost temperature (read by Sd)	°C/°F	C	8.0	-50.0	50.0
	dt2	End defrost temperature (read by Sd2)	°C/°F	C	8.0	-50.0	50.0
	dP1	Maximum defrost duration	min	C	45	1	240
	dP2	Maximum defrost duration on second evaporator	min	C	45	1	240
	d4	Enable defrost on start-up 0: defrost on start-up disabled	flag	C	0	0	1
	d5	Defrost delay on start-up if enabled	min	C	0	0	240
	d6	Select display on terminal during the defrost 0: temperature alternating with 'dEF' on both displays 1: both displays off 2 'dEF' fixed on both displays	-	C	1	0	2
dEF	dd	Dripping time after defrosting (fans off)	min	C	2	0	15
❄️	d7	Enable "Skip defrost" 0: "Skip defrost" disabled	flag	C	0	0	1
	d8	High temperature alarm bypass time after defrost and door open	min	C	30	0	240
	d9	Disable defrost priority over solenoid times 0: protection times respected	flag	C	1	0	1
	d/1	Defrost probe	°C/°F	F	-	-	-
	d/2	Second evaporator defrost probe	°C/°F	F	-	-	-
	dC	Time base for defrost 0: 'd1' expressed in hours, 'dP1', 'dP2' and 'ddP' in minutes 1: 'd1' expressed in minutes, 'dP1', 'dP2' and 'ddP' in seconds	flag	C	0	0	1
	d10	"Running time" defrost time 0: function disabled	min	C	0	0	240
	d11	Temperature threshold for "running time" defrost	°C/°F	C	-30.0	-50.0	50.0
	dS1	Compressor off time for "sequential stop" defrost 0: function disabled	min	C	0	0	45
	dS2	Compressor on time for "sequential stop" defrost	min	C	120	0	240
	ddt	Additional end defrost temperature delta for "power defrost" mode	°C/°F	C	0.0	-20.0	20.0
	ddP	Additional maximum end defrost time delta for "power defrost" mode	min	C	0	0	60
	dn	Nominal duration of the defrost for "skip defrost"	%	C	75	0	100
	Alarm management parameters (ALM)						
	AA	Assign high and low temperature alarm probe 1: Control; 2: Virtual; 3: Outlet; 4: Intake; 5: Sup. gas; 6: Defrost; 7: Saturated evap.; 8: Auxiliary defrost; 9: Auxiliary 10: Auxiliary 2.	-	C	1	1	10
	A0	Reset high and low temperature alarm differential	°C/°F	C	2.0	0.1	20.0
	A1	Select alarm thresholds relating to the absolute set point 0: 'AL', 'AH', 'AL2' and 'AH2' are considered relative thresholds to the set point 1: 'AL', 'AH', 'AL2' and 'AH2' are considered absolute thresholds	flag	C	0	0	1
	AL	Low temp. alarm threshold (outlet probe Sm in "Double thermostat")	°C/°F	C	4.0	-50.0	50.0
	AH	High temperature alarm threshold (outlet probe Sm in "Double thermostat")	°C/°F	C	10.0	-50.0	50.0
	AL2	Low temperature alarm threshold on intake probe Sr ("Double thermostat" only)	°C/°F	C	0.0	-50.0	50.0
	AH2	High temperature alarm threshold on intake probe Sr ("Double thermostat" only)	°C/°F	C	0.0	-50.0	50.0
	Ad	Delay time for high and low temperature alarms	min	C	120	0	240
ALM	A4	Configure function of digital input DI1 on S4 0: input not active 1: immediate external alarm 2: delayed external alarm/ display only 3: enable defrost 4: start defrost 5: door switch with comp. and fans OFF 6: remote on/off 7: curtain switch	-	C	0	0	7
⚠️	A5	Configure function of digital input DI2 on S5 (see 'A4')	-	C	0	0	7
	A6	Configure solenoid control during external alarm (immediate or delayed) 0: compressor/valve always OFF; 100: compressor/valve always ON	min	C	0	0	100
	A7	Delay time for delayed external alarm	min	C	0	0	240
	A8	Configure function of virtual digital input (see 'A4')	-	C	0	0	7
	A9	Select digital input propagated from Master to Slave 0: digital inputs not propagated; 1: DI1 propagated; 2: DI2 propagated; 3: DI3 propagated; 4: DI4 propagated; 5: DI5 propagated.	-	C	0	0	5
	A10	Configure function of digital input DI3 on S6 (see A4)	-	C	0	0	7
	A11	Configure function of digital input DI4 on S7 (see A4)	-	C	0	0	7
	A12	Configure function of digital input DI5 (see A4)	-	C	0	0	7
	Ar	Enable send alarms from Slave to Master 1: alarm signals enabled	flag	C	1	0	1

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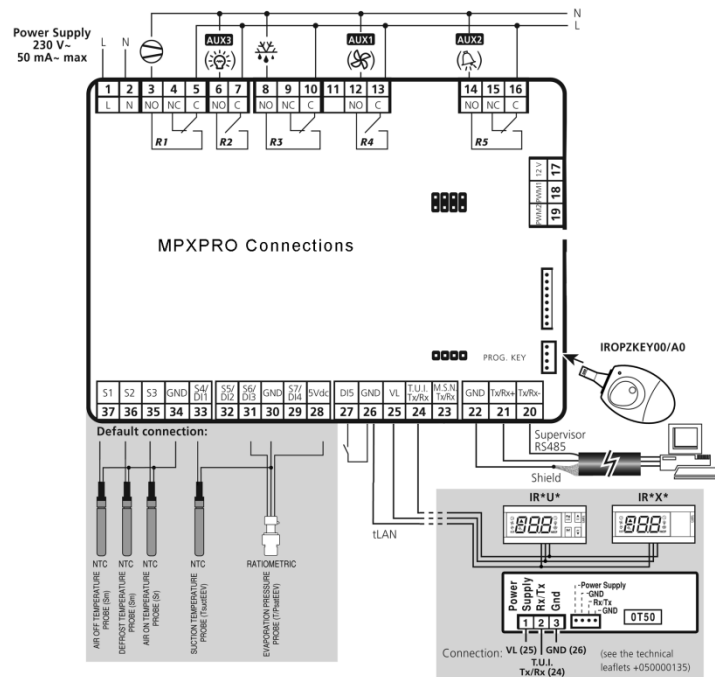
Refrigeration cont.

VISAIR+ CABINETS - SERVICING

MPXPRO Parameters continued

	Code	Parameter	UOM.	Type	Def.	Min	Max
General configuration parameters (CnF)							
	In	Select type of unit, MASTER or SLAVE 1: Master	-	C	1	0	1
	Sn	Number of slaves in the local network	-	C	0	0	4
	H0	Serial address	-	C	199	0	199
	H1	Configure function of AUX1 output 0: No function ass. with the output; 1: Alarm output de-energised; 2: Alarm output normally energised; 3: Auxiliary output; 4: Auxiliary output salvaged to MASTER on slaves; 5: Light output; 6: Light slaved to MAST. on Slaves; 7: Auxiliary evaporator def. output; 8: Evap. fan output	-	C	8	0	8
CNF	H2	Disable keypad and remote control functions 1: keypad and remote control enabled	-	C	1	0	5
AUX	H4	Remote control enabling code 00: programming from the remote control without code	flag	C	0	0	1
	H5	Disable terminal buzzer (if present) 0: buzzer enabled	-	C	2	0	8
	H6	Configure function of AUX2 output (see 'H1')	-	C	0	0	15
	H7	Configure terminal keypad lock	-	C	5	0	8
	H8	Select output switched with time bands (Light and Aux) 0: NIGHT/DAY time band linked to LIGHT. 1: NIGHT/DAY time band linked to AUX.	flag	C	0	0	1
	H9	Select function associated with terminal AUX button (Light or AUX) 0: AUX button associated with light output function 1: AUX button associated with AUX auxiliary output function.	-	C	0	0	1

MPXPRO Connections



Mains Lead

VISAIR+ CABINETS - SERVICING

Lead Replacement

If damaged, the mains lead must ONLY be replaced by a qualified service person.

SPECIFICATIONS

Mechanical

VISAIR+ CABINETS - SPECIFICATIONS

	CABINET MODEL				
	IN-M11C-B003	IN-M11C-B004	IN-M11C-B007		
Height mm	1479	1479			
Width mm	1096	1096			
Depth mm	830	830			
Dry Weight kg	272	272			
Cabinet Well Material	Powder-coated steel	Powder-coated steel			
Number of Shelf Modules	8	4			
Display Area m ²	1.5 (shelves) + 0.4 (base)	0.8 (shelves) + 0.4 (base)			
Refrigerant	R404A	R404A			
Refrigerant Charge	Refer to cabinet Serial No./Rating label				
Condensate capacity	1.7 litres	1.7 litres			
Climatic Class & IP Rating	All cabinets are suitable for class N climates and have an IP 22 rating				

Electrical

VISAIR+ CABINETS - SPECIFICATIONS

	CABINET MODEL				
	IN-M11C-B003	IN-M11C-B004	IN-M11C-B007		
Voltage	230-240 V 50 Hz 1 ϕ				
Power	1.7 kW	1.7 kW			
Energy Consumption	1.2 kWh/h	1.2 kWh/h			
Current	8.6A	8.6A			
Connection	Three core cable	Three core cable			
Temperature Range, °C	2 - 4°	2 - 4°			
Fluorescent Lamps	1 x 30W (Colour 84)	1 x 30W (Colour 84)			



Controller Settings

VISAIR+ CABINETS - SPECIFICATIONS

Changes from Carel Defaults

The following table specifies the controller settings which differ from the Carel default values.

Parameters not listed in this table should remain at the default values specified in the **MPXPRO Parameters** listed in the **Servicing** section.

Carel MPX PRO Settings

	Parameter No	CABINET MODEL		
		IN – M11C		
Regulation Set Point	St	-7		
Regulation Differential	rd	6		
Assign intake probe (Sr)	/Fc	0		
Assign aux probe 1 (Saux1)	/FG	3		
Select display main terminal	/t1	1		
Max int. between defrosts	dl	2		
Defrost end temp	dt1	3		
Max defrost duration	dP1	45		
Display during defrost	d6	0		
Dripping time after defrost	dd	0		
Defrost time "Running time"	d10	10		
Defrost temp threshold	d11	-10		
Config. func. dig. Input DI1	A4	1		
Config. func. dig. Input DI2	A5	2		
Delay time delayed ext alarm	A7	3		
Serial address	H0	5		
Configure AUX 3	H7	2		

Compliance

VISAIR+ CABINETS - SPECIFICATIONS

Safety Aspects These cabinets have been designed to comply with the relevant requirements of the following specifications:

- AS/NZS 3100 General Requirements for Electrical Equipment
- AS/NZS 3182 Refrigerated Food Commercial Cabinets
- AS/NZS 3820 Essential Safety Requirements
- AS/NZS 4417 Marking of Electrical Products



IEC 60335 Household and Similar Electrical Appliances – Safety
 Part 1: General Requirements
 Part 2-24: Particular Requirements for Refrigerating Appliances / Ice Cream Appliances and Ice Makers
 EN 55014 Electromagnetic Compatibility Requirements for Household Appliances, Electric Tools and Similar Apparatus
 Part 1: Emissions
 Part 2: Immunity - Product Family Standard
 EN 61000 Electromagnetic compatibility (EMC)
 Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16A per phase)
 Part 3: Limits - Section 3: Limitations of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16A per phase and not subject to conditional connection

Operational Safety

This appliance is not intended for use by young children or infirm persons, unless they have been adequately supervised by a responsible person, to ensure that they can use the appliance safely.

Young children should be supervised, to ensure that they do not play with the appliance.

Refrigerated Section Performance Aspects

The cabinet is HACCP compliant, with the following performance:

Cabinet Operating Temperature	Average Internal Humidity	Test Conditions
+2° to +4°C	N/A	25°C Ambient with 60% RH

Improvements

VISAIR+ CABINETS - SPECIFICATIONS

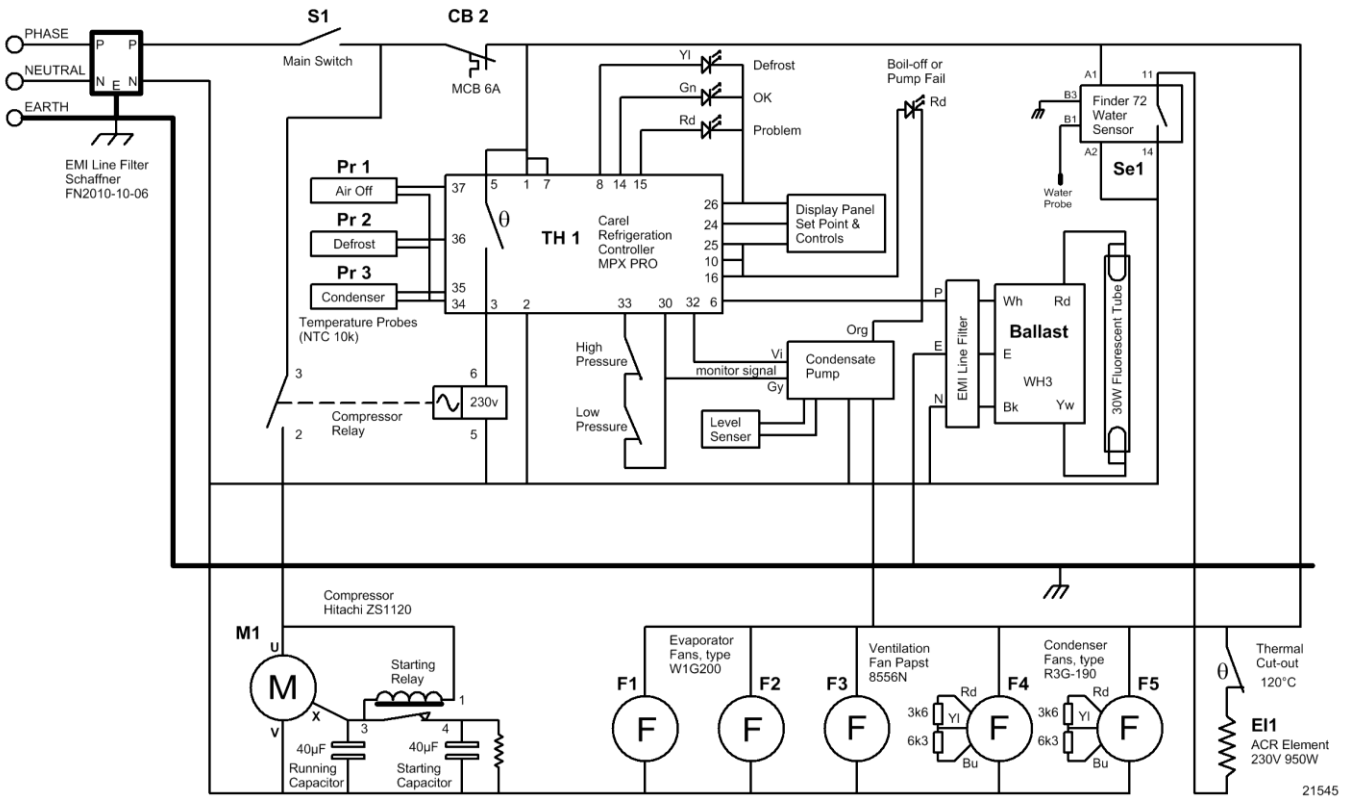
Ongoing Development

FPG reserves the right to change specifications and construction, as part of ongoing product improvement.

ELECTRICAL CIRCUIT DIAGRAMS

Model: IN - M11C - B003/B004

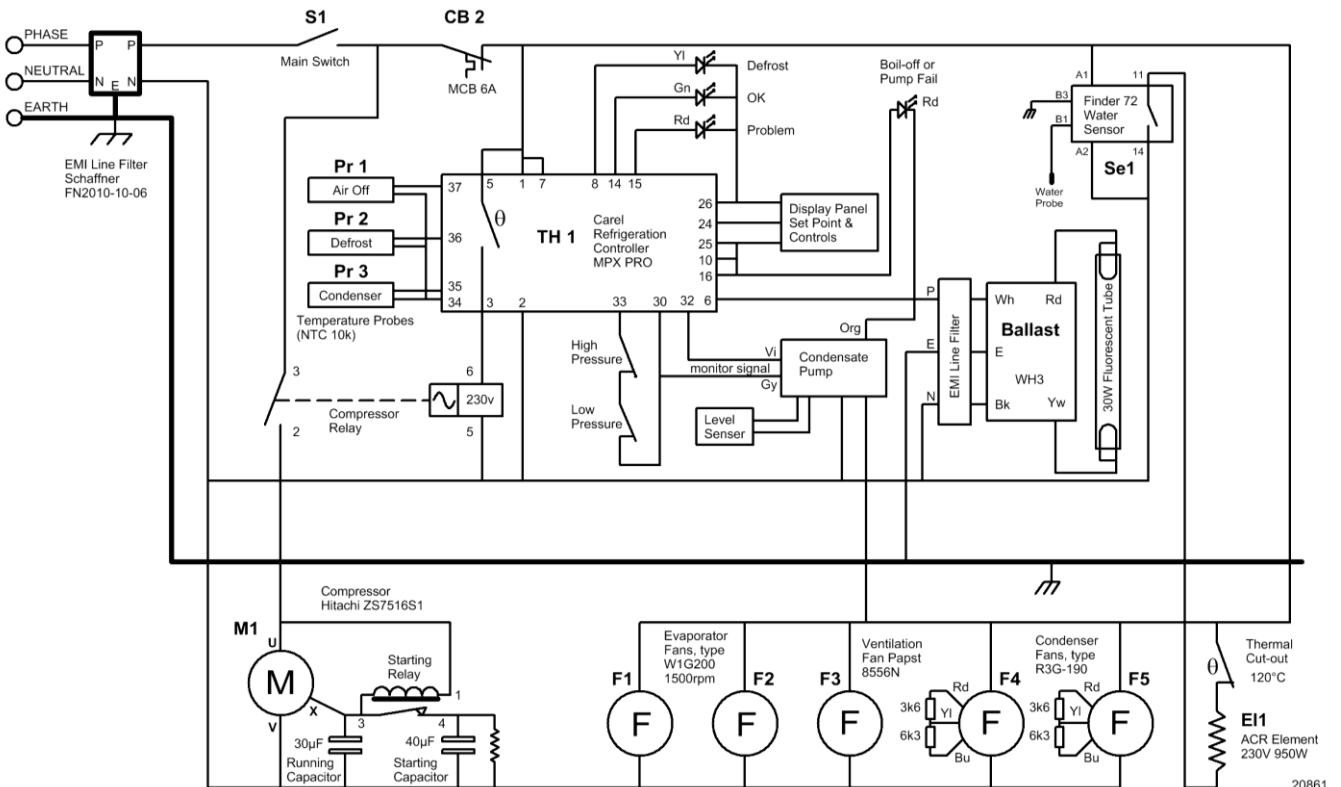
Inline Visair Cabinets



21545

Model: IN - M11C - B007

Inline Visair Liquor Cabinets



20861

SPARE PARTS

Cabinet Serial Number

When ordering spare parts, it is important to quote the Serial Number printed on the label fixed to the control panel.

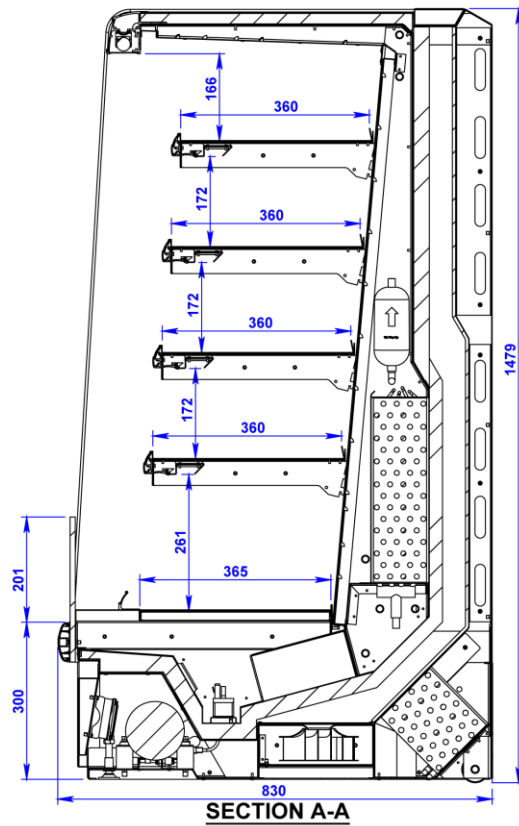
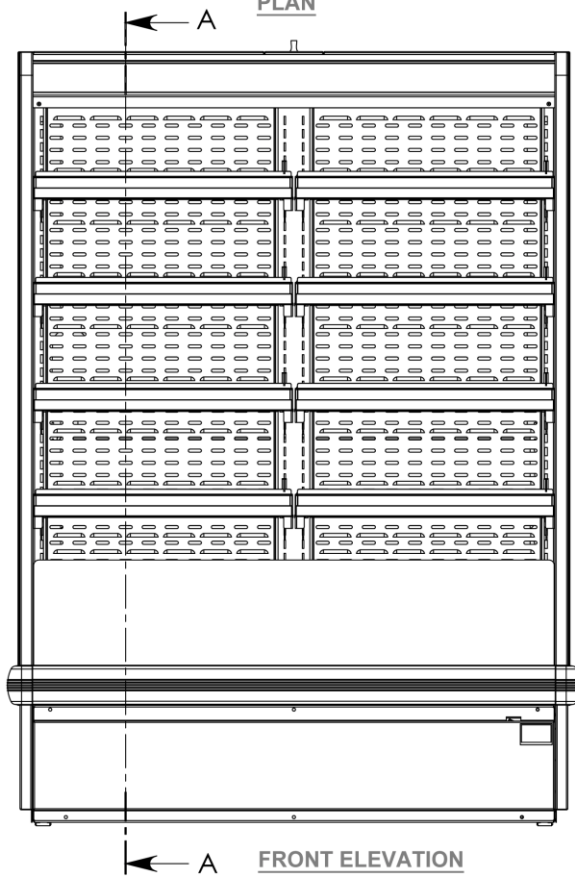
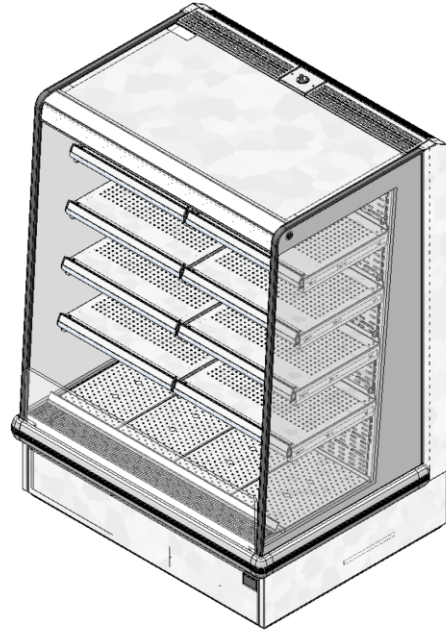
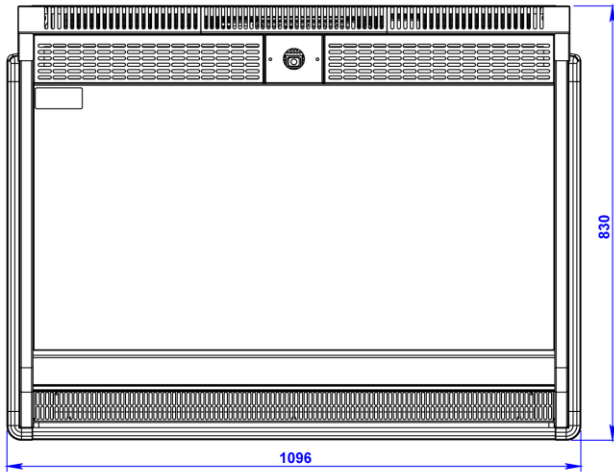
This serial number will enable FPG to trace details of the build specification of your particular cabinet, and hence ensure that spare parts are fully compatible.

To satisfy warranty conditions, and ensure optimum performance, use only FPG supplied spare parts.

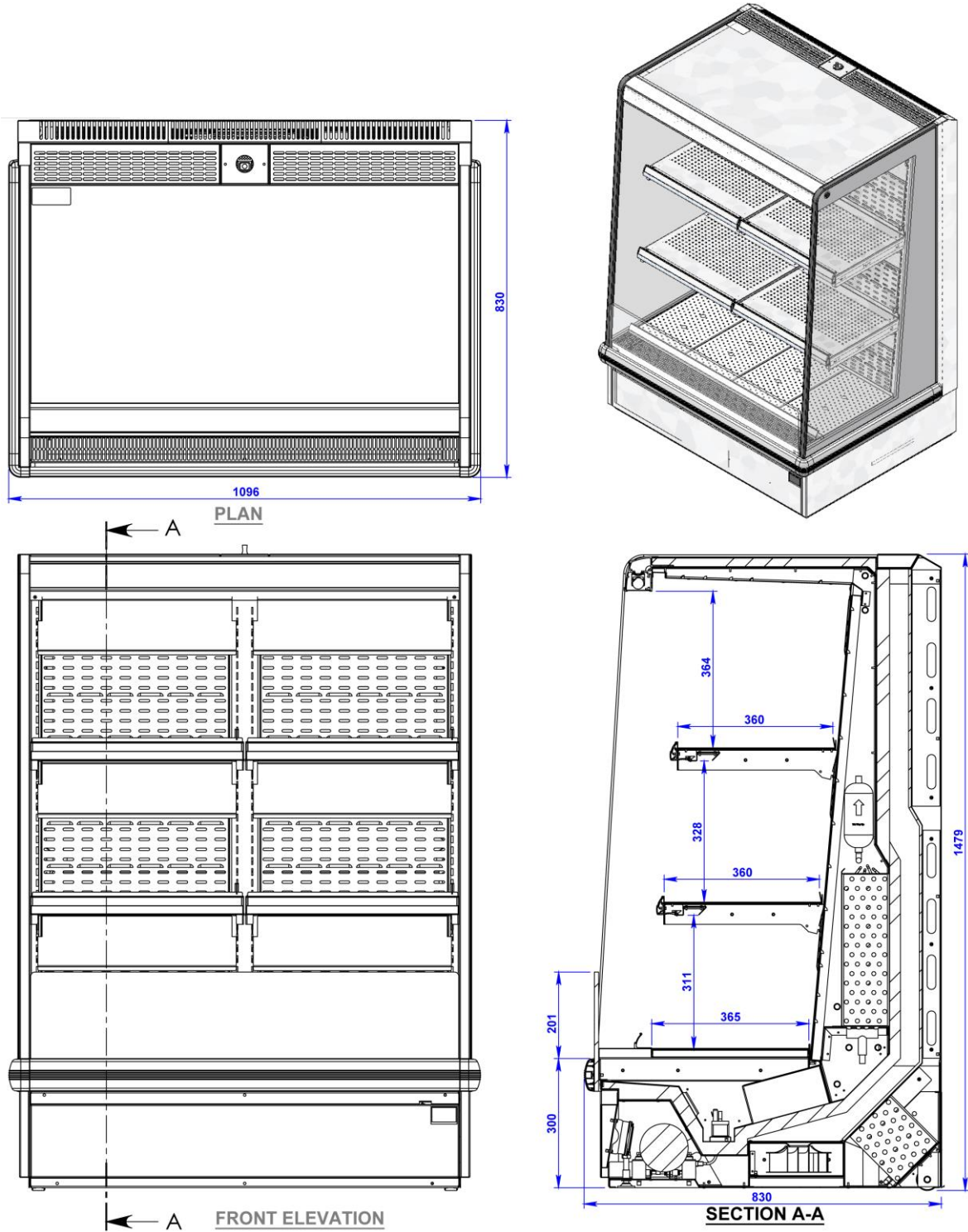
Part Description	FPG Part No.
Adjustable feet	16773
Illuminated main switch	17287
Mains line filter	21370
Lighting filter, DIN rail mounted	21371
WH3 Electronic ballast	13793
343 MAU lamp holders	11163
30 watt fluorescent lamp	11146
Carel MPX PRO Refrigeration Control display panel	17666
Carel MPX PRO Refrigeration Control circuit board unit	17623
NTC temperature probe	17990
Pressure switch HP manual reset	17225
Pressure switch LP auto reset	17226
Fan W1G200 evaporator fan	63243
Fan R3G190 condenser fan	64569
MCB 6A	10522
950 watt high density boil of element	20863
Aspen Mini Lime Submersible Pump	19390
Condensate Water Sensor, Finder 72.01.8.240.0000	25309
Thermal cut-out	22199
Compressor control relay	16824
Compressor start relay	18096
30µF 400V motor run capacitor	18380
40µF 400V motor run capacitor	18094
40µF 400V motor start capacitor	18095
Deck tray runner	17937
Shelf runner	17936
Cartguard 3 rigid plastic top stock grey	16775
Cartguard 3 rigid plastic end cap stock grey	16777
Cartguard 3 rigid plastic corner stock grey	16778
Visair cabinet toughened side glass	18484
ZS1120 Horizontal scroll compressor	16646
ZS7516F1 Horizontal scroll compressor	16645
Product Manual for Inline Visair+ Cabinets	20862

MECHANICAL DRAWINGS

Inline Visair IN - M11C - B003



Inline Visair IN - M11C - B004 / B007



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