



# **CUSTOM**

# IKEA USA SELF SERVICE CABINETS REFRIGERATED



WIDTH: 1200mm FLAPS or OPEN FRONT, SLIDING REAR DOORS INTEGRAL REFRIGERATION, FREESTANDING



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### **Warnings**

### 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.

Water

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

Caution

Do not store explosive substances, such as aerosol cans with flammable propellant, in this appliance.

Mains Supply Cord

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons, in order to avoid a hazard.

Specialist Disposal Specialist disposal procedures are required for the safe removal of refrigerant gasses and potentially flammable foam materials.

Pentane, Dimethyl Ether, Isobutene, Butane and Propane may be present.

### Hazardous Substances

The cabinet does not contain any of the following, in its construction:

**Asbestos** 

PCBs (Oils containing polychlorinated biphenyl)

Mercury

### **CUSTOM**

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### INTRODUCTION

### Welcome

REFRIGERATED CABINETS - INTRODUCTION

### Future Products Group (FPG)

Welcome to the world of FPG! Our innovative products are designed and engineered to have the best visual merchandising performance.

We are confident that you will be delighted with your inline food service cabinet, and that it will become a valued appliance in your store.

### Guidance and Help

To ensure you receive the utmost benefit from your new 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 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, operation or performance of your
  cabinet, contact your dealer or FPG. Contact details will be found on the
  back cover of this manual. In many cases a phone call could answer your
  question.

### **Warranty**

REFRIGERATED CABINETS - INTRODUCTION

### Warranty Period

Future Products Group Limited warrants, to the original purchaser of an FPG manufactured food service cabinet, that for TWO YEARS (24 months) from the date of purchase, any defect in workmanship or material resulting in the product malfunctioning while under correct use will be rectified.

For refrigerated cabinets with integral or near-remote refrigeration the warranty is extended to THREE YEARS (36 months), for refrigeration condenser units. Conditions apply, see Liability Exceptions.

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



### Warranty cont.

REFRIGERATED CABINETS - INTRODUCTION

### Liability Exceptions

Liability under this warranty does not include:

- Any loss, damage, or expenses directly or indirectly arising from the use of, 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, flood, fire or acts of God.
- Damage, resulting from failure to have the cabinet regularly serviced by a refrigeration engineer:
  - For cabinets with integral or near-remote refrigeration, every three months. NB: You will be required to provide copies of service records in the event of condenser failure.
  - o For cabinets with remote refrigeration, annually.
- 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 LED lighting assemblies or gaskets.
- Maladjustment of the electronic refrigeration controller, by an unqualified person.
- For cabinets with integral or near-remote refrigeration, failure resulting from a lack of routine condenser / 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

FPG will not be held responsible for any servicing costs incurred prior to FPG's acceptance of a warranty claim.

### **CUSTOM**

### **Warning Symbols**

REFRIGERATED CABINETS - INTRODUCTION

#### **Symbols**

The following symbols are used throughout this manual, to indicate important points and potential hazards.



This symbol indicates a point of special importance.



This symbol indicates a potential electrical hazard, which could result in serious injury.



This symbol indicates a hot surface, which could cause burns.



This symbol indicates a potential hazard from rotating fan blades.

### **Product Manuals**

REFRIGERATED CABINETS - INTRODUCTION

**Soft Copy** 

A soft copy of this manual is available online by accessing the following URL.

http://www.fpgworld.com/sites/default/files/ikea/25344%20IKEA%20USA.pdf

**Hard Copy** 

A hard copy of this manual is available from FPG. See SPARE PARTS.



### **OPERATION**

### **Cabinet Layout**

REFRIGERATED CABINETS - OPERATION

### Self Service Cabinets



Cabinets are available for the display of food items or drinks, with either multiple hinged acrylic doors on the front or with an open front.

The cabinets are fitted with three shelves. Items may also be placed on the base trays.

Sliding glass doors are fitted to the rear of the cabinet.

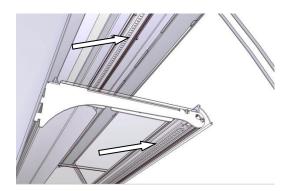
The free-standing cabinets can

be incorporated in joinery, to achieve a counter top appearance. The condenser unit may either be mounted in the cabinet base, or housed remotely.

Condensate may be piped to a drain or removable container, or a boil-off unit may be fitted to integral condenser versions only.



All cabinets are fitted with LED lighting strips in the ceiling of the cabinet and below each shelf.

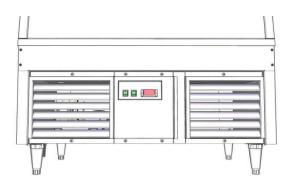


#### Condenser Unit

If mounted below the bench, ventilation louvers must be provided to ensure adequate air flow for efficient operation of the refrigeration condenser. See Installation section.

### **Control Panel**

The cabinet controls are located on the lower back of the cabinet.



### **CUSTOM**

### **Controls**

REFRIGERATED CABINETS - OPERATION

#### **Control Panel**



The control panel is fitted with:

- A mains Power Switch
- A Light switch
- A refrigeration controller

#### **Power Switch**

Use this switch to turn the power on.

Note that the cabinet refrigeration will operate as soon as the power is turned on.



### Lights

Use this switch to turn the lights on.



### Refrigeration Controller

Only to be adjusted by a qualified service technician.



This controller is factory set for optimum performance. It should only be adjusted by a qualified service engineer.

The indicated temperature is the air temperature inside the cabinet. The probe is in the return air flow to the cooling coil.

Other probes are used to control the refrigeration and defrost cycles.



### **Preparation**

REFRIGERATED 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 movement is restricted to 2" (50mm), because of the electric cables to the lights. For greater movement contact the manufacturer or supplier for advice, as electrical modifications may be required.

The front and rear edges of the shelves are profiled to carry ticketing/labels.





### Shelf Adjustment

To move the shelf support brackets, remove all the shelves and then remove the rear sliding doors. Using two people, one on each bracket, slide the bracket upwards and disengage it from the support pillar. Insert the bracket in the new position and push it down firmly. Replace all shelf trays and doors.

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



#### Caution

Make sure the shelf brackets are pushed down as far as they can go. Otherwise, the shelf may collapse, when loaded with product.

### Electrical Power Supply



Ensure that electrical power is connected to the cabinet. Turn on the main electrical power switch, as shown above.

### **Defrost Cycle**

Note that the defrost times are set from when the cabinet is first turned on.

If defrosting is required to occur at a particular time, you must turn on the cabinet two hours before the first defrost required. The cycles will then occur every two hours, provided that the cabinet is not switched off.

### **CUSTOM**

### Preparation cont.

REFRIGERATED CABINETS - OPERATION

#### **Load Cabinet**

Load the cabinet with <u>pre-chilled</u> product, from either the front or rear doors.



The cabinet is designed to maintain the temperature of pre-chilled product at between 36° to 39°F (2° to 4°C). It is not a refrigerator, and consequently, if warm product is introduced, there could be some delay before the operating temperature falls to the normal operating level.

### Loading Restrictions

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

Product should be kept clear of the lightened areas, shown in the picture.



A minimum clearance of 11/2" (40 mm) should be maintained below the shelves and the top of the cabinet.

The air grills at the front and rear of the cabinet must not be covered at all.



Close Rear Doors



It is important to keep the rear doors closed. If doors are not fully closed, the correct air circulation will not be achieved within the cabinet.

### **Turn on Lights**

When ready for service, turn on the cabinet lights.



### **Routines**

REFRIGERATED CABINETS - OPERATION

#### **After Hours**

Ideally, cabinets should not be turned off after hours or at night. Products can either be left in the cabinet or placed in night storage. Shut the cabinet doors and turn off the lights. The cabinet will then operate on minimum load, and stay cold, ready for instant operation when next required.



If the cabinet is turned off, allow it to run for about half an hour before replacing the pre-chilled products.

#### Cleaning

Since the cabinet needs to be switched off during cleaning operations, it is best to clean it at the end of the working day. The cabinet will then have time to recover its normal operating temperature, before replacing the products.

Once the cleaning is finished, turn the cabinet on again, turn off the lights and shut the doors. The cabinet will cool down under minimum load and be ready for the next day's use.

#### **De-frost Cycle**

The cabinet will de-frost automatically twelve times per day.

The temperature of the cooling coil is measured, and the defrost cycle is terminated as soon as the pre-set temperature is reached. This minimises temperature fluctuations and increases the refrigeration efficiency.

A maximum defrost period of 30 minutes is allowed.



The cabinet should NOT be temperature tested within ½ hour of a de-frost programme being completed.

The first defrost cycle will occur two hours after the cabinet is first switched on.





### **TROUBLE SHOOTING**

FAULT	POSSIBLE CAUSE	REMEDY	
	There is no electrical supply to the cabinet.	Supply electricity to the cabinet	
The cabinet does not operate	The electrical power switch on the cabinet is OFF	Turn the electrical power switch ON	
	The electrical power switch on the unit is faulty	Have the switch replaced	
Condensate spillage	ACR unit faulty	Check module	
	One or more rear doors is open	Close the doors and re-test temperature after thirty minutes	
	Ventilation louvers are blocked	Remove blockages	
	Product is blocking air louvers	Place product on shelves	
	Evaporator coil fins are blocked	Remove blockages	
	Trays are obstructing air flow	Re-position the trays on the shelves	
The cabinet temperature is not	Thermostat needs adjustment	Adjust controller	
correct	Ambient temperature above 77°F (25°C)	Adjust store air conditioning	
	Evaporator coil iced up	De-ice coil	
	Condenser radiator blocked	Remove dust and debris	
	Thermostat faulty	Replace controller	
	Temperature probe damaged or dislocated	Replace or relocate the temperature probe	
	Defrost cycle is not suitable	Adjust cycle to match environment	
	Fan not operating	Check and replace the fan	
	The light switch is OFF	Turn the light switch ON	
The cabinet lights are not	An LED power supply has failed	Replace the power supply	
working	An LED strip has failed	Replace the LED strip	
	An internal circuit breaker has tripped/failed	Check the wiring and reset or replace the circuit breaker	
	The door is not in its track	Install the door correctly	
Doors are not sliding smoothly	There is debris in the track	Clean the door tracks	
20013 are not sharing smoothly	A door glider is damaged or missing	Have the glider replaced	
Aluminium parts are corroded	Damage by caustic detergent	Order replacement parts	

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

Personnel.



### **CLEANING**

### **Cautions**

REFRIGERATED 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**

REFRIGERATED CABINETS - CLEANING

#### **Metal Surfaces**

Stainless steel or aluminium surfaces should be cleaned with hot soapy water. DO NOT clean surfaces with abrasive pads or cleaners, as stainless steel and aluminium surfaces will be damaged.

#### **Glass**

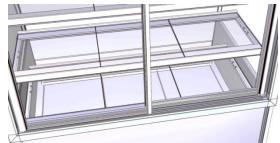
All glass should be cleaned using a good quality glass cleaner and a clean cloth. Strong ammonia solutions can damage tint films.

**DO NOT** use abrasive pads or cleaners, because they will damage the surface of the glass.

### **Sliding Doors**

Sliding glass doors are located by plastic guides at the top and bottom.

The doors can be removed for cleaning by sliding the door to central position, placing hands either side of the door, lifting it up and then swinging it out at the bottom.



When replacing doors, make sure that they are located in the correct slots, top and bottom.



In models A007 and A009 the left door should be in the inner slots, and the right door in the outer slots.

In models A010 and A011 the right door should be in the inner slots, and the left door in the outer slots.

Sliding door tracks should be vacuumed out regularly to keep doors sliding freely.

#### Louvers



To maintain the refrigeration efficiency, and prevent overheating, use a vacuum cleaner to remove dust and fluff from all of the ventilation louvers.

### **CUSTOM**

### Interior

REFRIGERATED CABINETS - CLEANING

#### **Internal Glass**

The internal glass surfaces can normally be cleaned after the shelf trays have been removed.

Only remove the lights, shelf brackets and rails when carrying out longer term maintenance.

## Access to the Cabinet Base Cavity



Remove the doors.

Lift out the deck trays and plastic louvers.

Remove the two screws, securing the fan deck.





Lift up the fan deck, and stand it vertically.

Lift the cover plate off the evaporator coil and disengage it from the chassis.



The whole of the cabinet interior is now accessible for cleaning.

Drain Hole 

—





Front and back air louvers can be lifted out for cleaning.



### Cleaning the Base Cavity

Sweep out, or use a vacuum cleaner, to remove any debris from the cabinet base cavity. Make sure that the condensate drain hole is clean. A Wet-and-Dry vacuum cleaner should be used, since there is likely to be some water in the bottom. Finally, wipe out the bottom with a damp sanitized cloth.



### Interior cont.

REFRIGERATED CABINETS - CLEANING

### **Cooling Fins**

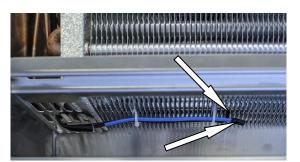
If there is food stuck in the cooling fins, it is best to use a wet and dry vacuum cleaner to suck out the food. DO NOT attempt to hose food parts from fins.

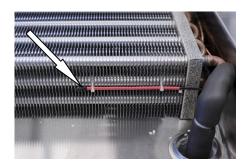


**Caution:** The fins are very sharp. Take extra care when cleaning this area. Do not bend the fins over, as this would restrict the air flow and degrade cabinet performance.



### Temperature Probe







Take care not to damage or move the temperature probes, when cleaning the cooling fins.

The probes are colour coded as follows:

Blue Temperature Control
Black Defrost Control

Green Cabinet Temperature Indication

### Trays, Shelves & Air Grills

Stainless steel trays, glass shelves, grills etc. should be cleaned with hot soapy water. Do not use abrasive pads or cleaners, as these may damage surfaces.

Warning: Dishwasher detergents will damage any anodised aluminium parts.

### **CUSTOM**

### **Routines**

REFRIGERATED CABINETS - CLEANING

#### **Schedules**

To maintain optimum performance, cleaning schedules must be regular and thorough.

#### Warning



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

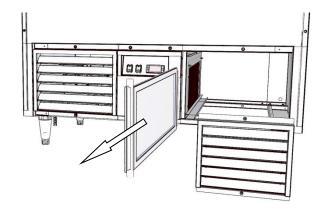
#### **Pre-Filter**



The pre-filter is designed to prevent fouling of the condenser radiator. It is readily removed, and should be cleaned regularly.

Pull the filter out and knock or vacuum off dust and fluff. The filter membrane should also be washed, if showing signs of becoming blocked.

Remove the louver panel to inspect the condenser radiator.



#### Condenser Radiator

For efficient refrigeration performance, the condenser radiator must be kept clean. Failure to do this will lead to a build-up of dust, and restricted airflow will prevent the unit from working properly. The compressor may overheat and the cabinet temperature may rise.



Regular vacuuming will prevent a build-up of dust and fluff, however, three monthly service checks, which include cleaning of the condenser using  $C0_2$  by a refrigeration engineer, are mandatory.

Be very careful not to bend or damage the soft aluminium fins when vacuuming the radiator. If the fins are flattened, airflow will be restricted and overheating will result.

#### Inspection

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

### Fault Correction

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

REFRIGERATED CABINETS - INSTALLATION

Compliance with Local Requirements

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



### **Setting Up**

REFRIGERATED CABINETS - INSTALLATION

### Unpacking

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

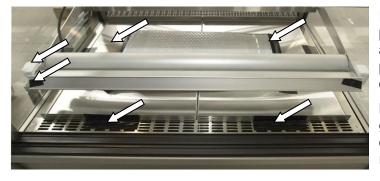
The display cabinet is supplied fully assembled, but the compressor unit and shelf trays are packed separately.

### Site Preparation



Ensure the cabinet location and any bench cut outs are made to the precise measurements shown in the Mechanical Drawings. Position the cabinet in its allocated working position. Use a spirit level to ensure the cabinet is level from side to side and front to back. (If this is not carried out, water may accumulate in the cabinet well, and uneven temperature distribution could also occur).

### Cabinet Preparation



Remove all protective plastic film, tapes, ties and packers, used to prevent movement during transit.

Lift out the deck trays to gain access to the cabinet well. Be sure to replace them as shown.

#### **Shelf Trays**

Remove the glass shelf trays from their packing, and assemble them on the support members.

### **CUSTOM**

### Setting Up cont.

REFRIGERATED CABINETS - INSTALLATION

#### Grounding

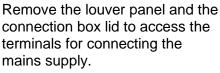
#### WARNING: THIS APPLIANCE MUST BE GROUNDED TO EARTH



The grounding lead, in the mains cable, must always be connected to the chassis.

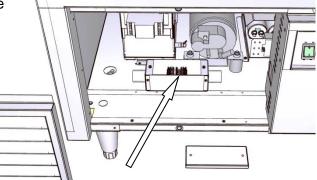
### Power Supply and Earthing

This must only be done by a suitably qualified person



The incoming cable should be wired in conduit.

The incoming earth conductor should be terminated directly to the chassis, using the threaded stud.



Before connecting to the power supply, check that the local supply is correct to that shown on the rating plate, located on the rear of the cabinet.

### Electrical Isolation



An accessible means of isolation must be provided in the electrical supply.

#### Remote Refrigerant Control

On cabinets without integral condenser units, terminals are also provided in the connection box, for remote refrigerant control.

### Location

REFRIGERATED CABINETS - INSTALLATION

#### Ventilation

Adequate ventilation must be provided for the condenser unit.



For open front cabinets, a minimum distance of 5 metres is required from the front of the cabinet to external doors and air-conditioning vents.

### Condensation

If the cabinet has an ACR unit, good ventilation must be provided, to avoid deterioration of joinery, due to humid air.

#### Access

Access to the back of the cabinet is required for servicing, loading, cleaning, repositioning of shelves and operation of the control panel.

A minimum space of 1 metre should be allowed.



### **Condenser Unit**

REFRIGERATED CABINETS - INSTALLATION

#### **TX Valve**

Except for cabinets fitted with integral condensers, the cooling coil is fitted with a TX valve.

This allows the cabinet to operate from either a dedicated condenser unit or a larger; machine room condenser can feed multiple cabinets.



### Refrigerant Connections

Except for cabinets fitted with integral condensers, refrigeration pipes must be brazed between the cabinet stubs and the condenser unit. After the pipes have been fitted, a refrigeration engineer will have to charge the system with R404A refrigerant.

### Refrigerant Control

Connections must be made between the remote refrigeration equipment and the control relay (see circuit diagrams).

Terminals for this are provided in the power supply connection box.

### Condensate Removal

An optional Automatic Condensate Removal, (ACR) unit may be fitted to cabinets with integral condensers only, because the condenser fans are required to extract the humid air from the cabinet.



Cabinets with remote condensers must be piped to a drain, or use a removable condensate container.

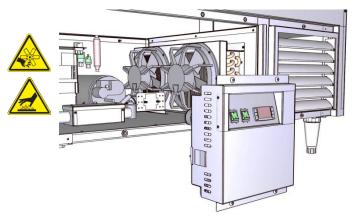
### **CUSTOM**

### **SERVICING**

### **Control Gear**

REFRIGERATED CABINETS - SERVICING

#### Location



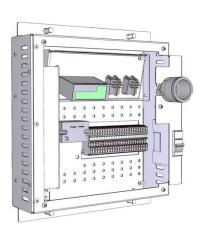
The electrical control gear and mains connecting box is located in the base of the cabinet.

The illustration shows the integral condenser version, with a condensate boil-off unit.

Remote condenser models are fitted with an auto transformer, to enable operation from a115V single phase supply. They have no condensate boil-off unit.

#### Controls Chassis





The controls chassis houses the operating switches, a refrigeration controller and a power supply for the lights.

The lighting and other low power devices are protected by a circuit breaker.

On integral condenser models, there is also a power relay for the compressor.

### **Mains Lead**

REFRIGERATED CABINETS - SERVICING

### Lead Replacement

If damaged, the electricity supply cable must ONLY be replaced by a qualified service person.





### Lighting

REFRIGERATED CABINETS - SERVICING

#### Caution



Do <u>not</u> service lights without isolating the cabinet from the mains supply.

### Test Lighting Components

Before replacing an LED strip, check that the power supply is working.

If there is no dc voltage at the output, the power supply should be replaced.

If there is a dc output, the LED strip must be replaced.

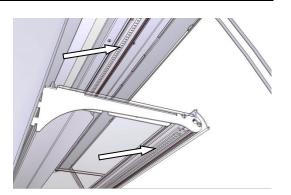
### Access to LED Strips

The LED strips are protected with plastic covers. These clip into grooves in the aluminium extrusion.

Remove the plastic cover to access the LED strip.

The LED strip is secured in place with double sided adhesive tape.

Pull the LED strip off the tape to service.



### LED Strip Replacement

Remove the plastic cover and carefully unsolder the wires from the LED strip.

Note the polarity markings on the cable, and ensure that the replacement strip is connected correctly.



### **CUSTOM**

### Refrigeration

REFRIGERATED CABINETS - SERVICING

#### Caution



DO NOT attempt to service the refrigeration equipment without isolating the cabinet at the supply switch or by unplugging it from the supply.

### Condenser Radiator

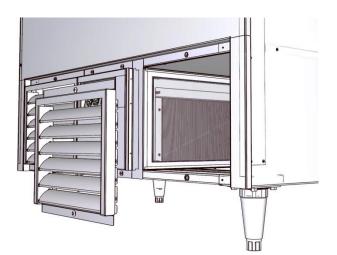
Remove the right louver panel and pre-filter, to access the radiator.

For efficient refrigeration performance, the condenser radiator must be kept clean. Failure to do this will lead to a build-up of dust, and the restricted airflow will prevent the unit from working properly.



Be very careful not to bend or damage the soft aluminium fins when vacuuming the radiator. If the fins are flattened, airflow

will be restricted and overheating will result.





Regular vacuuming of the pre-filter and radiator will prevent a build-up of dust and fluff, but three monthly service checks by a refrigeration engineer, which include cleaning the radiator and compressor with compressed air, are mandatory.

### Ventilation Panels

All ventilation panels should be kept free of dust by regular vacuuming, so that air flow is not restricted.

#### Cabinet Air Circulation Fan

The cabinet air circulation fan is located in the base of the cabinet. Access is gained by removing the deck trays.



Guards are fitted over the fans to prevent accidental contact with the blades.

Two fans are used on the open front drinks cabinets, and one on the food cabinets.



They are adjustable speed fans, and are factory set for correct air circulation.

On the drinks cabinet, they are labelled **F1** (1400rpm) and **F2** (2000rpm).

Spare fans must have the correct part number, as indicated in the Spares list.



### Refrigeration

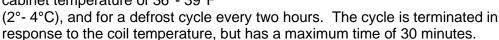
REFRIGERATED CABINETS - SERVICING

### Refrigeration Controller.

The refrigeration controller is mounted on the control panel. It controls the cabinet temperature, and the defrost cycles.

The temperature control (Blue) and defrost control (Black) probes are located below the plastic air grill.

The unit is factory set to maintain a cabinet temperature of 36°- 39°F



(See Controller Settings, in the SPECIFICATIONS section.)

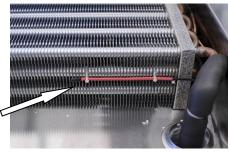




cabinet operating temperature.

The controller is programmed to display the

A temperature probe (Red) is located in the return air flow to the coil, to indicate the temperature inside the cabinet display area.



#### Automatic Condensate Removal

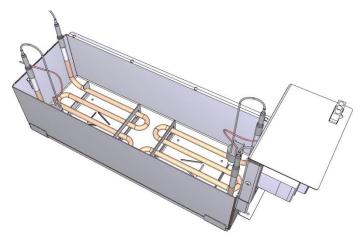
The automatic condensate removal, (ACR) module consists of a water tray, a water level detector and two boil-off elements with over temperature cut-outs.



Allow to cool before touching the elements.

If the element fails, it may be replaced by springing it from the mounting bracket. Cut and splice

the leads and protect with heat-shrink sleeves.





### Refrigeration cont.

REFRIGERATED 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  $75k\Omega$ . 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:** First check the ACR unit has a 230V power supply.

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 and then 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 and then 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 and Therm-O-Disc assembly.

**Note:** The element and Therm-O-Disc are supplied as a complete assembly.



### Refrigeration cont.

REFRIGERATED CABINETS - SERVICING

Temperature Regulator XR40CX



Model XR40CX is a microprocessor based controller.

It has three NTC probe inputs, the first one for temperature control, the second one, located on the evaporator, to control the defrost termination temperature, the third one is located in the return air flow to the

cooling coil, to indicate the cabinet operating temperature.

The set-point temperature will be lower than the air temperature inside the cabinet, because the refrigeration compressor is controlled in response to the temperature of the air exiting the evaporator cooling coil.

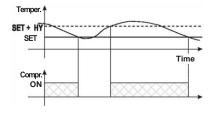
The controller is programmed to display the operating temperature.

The HOT KEY output allows one to programme the controller by means the HOT KEY programming keyboard.

The instrument is fully configurable through special parameters that can be easily programmed through the keyboard.

#### XR40CX Compressor Control

The regulation is performed according to the temperature measured by the thermostat probe with a positive differential from the set point: if the temperature increases and reaches set point plus differential the compressor is started and then turned off when the temperature reaches the set point value again.



In case of a fault in the thermostat probe the start and stop of the compressor are timed through parameters **COn** and **COF**.

#### XR40CX Defrost Control

Parameters are used to control the interval between defrost cycles (IdF), its maximum length (MdF) and two defrost modes: timed or controlled by the evaporator's probe (P2P).

In this cabinet, the start of the defrost cycle is timed, but the cycle will be terminated as soon as the defrost probe reaches the pre-determined temperature.

At the end of defrost dripping time is started, its length is set in the FSt parameter. With FSt =0 the dripping time is disabled

### **CUSTOM**

### Refrigeration cont.

REFRIGERATED CABINETS - SERVICING

### XR40CX Key Functions

KEY	FUNCTION	
SET	To display target set point; in programming mode it selects a parameter or confirm an operation	
*	(DEF) To start a manual defrost	
<b>A</b>	(UP): To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value	
<b>\</b>	(DOWN): To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value	
(h)	To switch the instrument off, if onF = oFF. Not enabled	
△+♥	To lock & unlock the keyboard	
SET+♥	To enter into programming mode	
SET+A	To return to the temperature display mode	

### XR40CX LED Functions

LED	MODE	FUNCTION	
*	ON	Compressor enabled	
*	Flashing	Anti-short cycle delay enabled	
***	ON	Defrost enabled	
**	Flashing	Drip time in progress	
	ON	An alarm is occurring	
<b>(*)</b>	ON	Continuous cycle is running	
	ON	Energy saving enabled	
°C/°F	ON	Measurement unit	
°C/°F	Flashing	Programming phase	



### Refrigeration cont.

REFRIGERATED CABINETS - SERVICING

### XR40CX Min & Max Recorded Temperature

Press and release the **▽** key.

**Lo** will be displayed followed by the minimum temperature recorded.

Press the key again or wait 5s to restore the normal display.

Press and release the A key.

Hi will be displayed followed by the maximum temperature recorded.

Press the A key again or wait 5s to restore the normal display.

### XR40CX Reset Max/Min Temperature Memory

Press the **SET** key for more than 3s, while the max. or min. temperature is displayed. (**rSt** message will be displayed)

To confirm the operation the **rSt** message starts blinking and the normal temperature will be displayed.

### XR40CX Display the Setpoint

To show the set-point value, press and immediately release the **SET** key.

Press and immediately release the **SET** key or wait for 5 seconds to display the probe temperature again.

### XR40CX Change the Set-point

To change the set-point value, press the **SET** key for more than 2 seconds; The value of the set-point will be displayed and the °C or °F LED starts blinking;

To change the set value push the  $\triangle$  or  $\nabla$  arrows within 10s.

To memorise the new set-point value push the **SET** key again or wait 10s.

### XR40CX Start a Manual Defrost

To start a manual defrost, press the (DEF) key for more than 2 seconds.

#### XR40CX Programming Mode

Enter the Programming mode by pressing the SET+ ✓ keys for 3s (the °C or °F LED starts blinking).

- Use the △ or ▽ keys to select the required parameter.
- Press the **SET** key to display its value.
- Use the or keys to change its value.
- Press SET to store the new value and move to the following parameter.

To exit Programming mode, press **SET+** or wait 15s without pressing a key.

NOTE: the set value is stored even when the procedure is exited by waiting for the time-out to expire.

### **CUSTOM**

### Refrigeration cont.

REFRIGERATED CABINETS - SERVICING

### XR40CX The Hidden Menu

The hidden menu includes all the parameters of the instrument.

### TO ENTER THE HIDDEN MENU

- Enter the Programming mode by pressing the SET+
   ✓ keys for 3s, (the °C or °F LED starts blinking).
- Release the keys, then press the SET+ ★ keys again, for more than 7s.
   The Pr2 label will be displayed immediately followed from the Hy parameter.

### NOW YOU ARE IN THE HIDDEN MENU.

- Select the required parameter.
- Press the **SET** key to display its value
- Use △ or ♥ to change its value.
- Press SET to store the new value and move to the following parameter.
- To exit: Press SET+ or wait 15s without pressing a key.

NOTE 1: If no parameter is present in **Pr1**, after 3s the **noP** message is displayed. Keep the keys pushed till the **Pr2** message is displayed.

NOTE 2: The set value is stored even when the procedure is exited by waiting for the time-out period to expire.

TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICEVERSA.

Each parameter present in the HIDDEN MENU can be removed or put into "THE FIRST LEVEL" (user level) by pressing **SET+**♥

In HIDDEN MENU when a parameter is present in the First Level the decimal point is shown.

### XR40CX Locking and Unlocking the Keyboard

To lock the keyboard, press the A + W keys for more than 3 s.

The **POF** message will be displayed, followed by the previous temperature display.

If a key is pressed more than 3s the POF message will be displayed.

To unlock the keyboard, press the △ + ♥ keys for more than 3s, till the Pon message is displayed.



### Refrigeration cont. REFRIGERATED CABINETS - SERVICING

### **FPG Settings**



Note that the following settings are Dixell factory defaults. Refer to the Specification section for the correct FPG settings for your cabinet.

### **Dixell Default** Settings

Label	Name	Range	Default Setting
Set	Set point	LS÷ US	-5.0
Ну	Differential	0,1÷25.5°C/ 1÷ 255°F	2.0
LS	Minimum set point	-50°C÷SET/-58°F÷SET	-50.0
US	Maximum set point	SET÷110°C/ SET ÷ 230°F	110
Ot	Thermostat probe calibration	-12÷12°C /-120÷120°F	0.0
P2P	Evaporator probe presence	n=not present; Y=pres.	Y
OE	Evaporator probe calibration	-12÷12°C /-120÷120°F	0.0
P3P	Third probe presence	n=not present; Y=pres.	n
03	Third probe calibration	-12÷12°C /-120÷120°F	0
P4P	Fourth probe presence	n=not present; Y=pres.	n
04	Fourth probe calibration	-12÷12°C /-120÷120°F	0
OdS	Outputs delay at start up	0÷255 min	0
AC	Anti-short cycle delay	0 ÷ 50 min	1
rtr	P1-P2 percentage for regulation	0 ÷ 100 (100=P1 , 0=P2)	100
CCt	Continuous cycle duration	0.0÷24.0h	0.0
ccs	Set point for continuous cycle	(-55.0÷150,0°C) (-67÷302°F)	-5
COn	Compressor ON time with faulty probe	0 ÷ 255 min	15
COF	Compressor OFF time with faulty probe	0 ÷ 255 min	30
CF	Temperature measurement unit	°C ÷ °F	°C
rES	Resolution	in=integer; dE= dec.point	dE
Lod	Probe displayed	P1;P2	P1
rEd2	X-REP display	P1 - P2 - P3 - P4 - SEt - dtr	P1
dLy	Display temperature delay	0 ÷ 20.0 min (10 sec.)	0
dtr	P1-P2 percentage for display	1 ÷ 99	50
tdF	Defrost type	EL=el. heater; in= hot gas	EL
dFP	Probe selection for defrost termination	nP; P1; P2; P3; P4	P2
dtE	Defrost termination temperature	-50 ÷ 50 °C	8
ldF	Interval between defrost cycles	1 ÷ 120 ore	6
MdF	(Maximum) length for defrost	0 ÷ 255 min	30
dSd	Start defrost delay	0÷99min	0
dFd	Displaying during defrost	rt, it, SEt, DEF	it
dAd	MAX display delay after defrost	0 ÷ 255 min	30
Fdt	Draining time	0÷120 min	0
dPo	First defrost after start-up	n=after ldF; y=immed.	n
dAF	Defrost delay after fast freezing	0 ÷ 23h e 50'	0.0
ALc	Temperature alarms configuration	rE= related to set; Ab = absolute	Ab
ALU	MAXIMUM temperature alarm	Set÷110.0°C; Set÷230°F	110
ALL	Minimum temperature alarm	-50.0°C÷Set/ -58°F÷Set	-50.0



### Refrigeration cont.

REFRIGERATED CABINETS - SERVICING

### Dixell Default Settings cont.

Label	Name	Range	Default Setting	
AFH	Differential for temperat. alarm recovery	(0,1 °C÷25,5°C) (1 °F÷45°F)	1	
ALd	Temperature alarm delay	0 ÷ 255 min	15	
dAO	Delay of temperature alarm at start up	0 ÷ 23h e 50'	1.3	
AP2	Probe for temperat. alarm of condenser	nP; P1; P2; P3; P4	P4	
AL2	Condenser for low temperat. alarm	(-55 ÷ 150°C) (-67÷ 302°F)	-40	
AU2	Condenser for high temperat. alarm	(-55 ÷ 150°C) (-67÷ 302°F)	110	
AH2	Differ. for condenser temp. alar. recovery	[0,1 °C ÷ 25,5°C] [1 °F ÷ 45°F]	5	
Ad2	Condenser temperature alarm delay	0 ÷ 254 (min.) , 255=nU	15	
dA2	Delay of cond. temper. alarm at start up	0.0 ÷ 23h 50'	1,3	
bLL	Compressor OFF for condenser low temperature alarm	n(0) - Y(1)	n	
AC2	Compressor OFF for condenser high temperature alarm	n(0) - Y(1)	n	
i1P	Digital input polarity	oP=opening; CL=closing	cL	
i1F	Digital input configuration	EAL, bAL, PAL, dor; dEF; Htr, AUS	EAL	
did	Digital input alarm delay	0÷255min	5	
Nps	Number of activation of pressure switch	0 ÷15	15	
odc	Compress status when open door	no; Fan; CPr; F_C	no	
rrd	Regulation restart with door open alarm	n – Y	у	
HES	Differential for Energy Saving	(-30°C÷ 30°C) (-54°F÷ 54°F)	0	
Adr	Serial address	0÷247	1	
PbC	Kind of probe	Ptc; ntc	ntc	
onF	on/off key enabling	nu, oFF; ES	nu	
dP1	Room probe display			
dP2	Evaporator probe display			
dP3	Third probe display			
dP4	Fourth probe display			
rSE	Set operating value	actual set		
rEL	Software release			
Ptb	Map code			

### XR40CX Hot Key

To program the controller from a Hot Key:

- Turn OFF the instrument.
- Insert a programmed Hot Key into the 5 PIN socket and then turn the Controller ON.
- The parameter list of the Hot Key is automatically downloaded into the Controller memory, the doL will blink, followed a by a flashing End.
- After 10 seconds the instrument will restart working with the new parameters.
- · Remove the Hot Key.

NOTE the message **Err** is displayed if programming fails. In this case turn the unit off and then on again, if you want to restart the download again, or remove the Hot Key to abort the operation.



### Refrigeration cont.

REFRIGERATED CABINETS - SERVICING

### XR40CX Alarm Signals

Message	Cause	Outputs	
P1	Room probe failure	Compressor output acc. to par. Con and COF	
P2	Evaporator probe failure	Defrost end is timed	
P3	Third probe failure	Outputs unchanged	
P4	Fourth probe failure	Outputs unchanged	
HA	Maximum temperature alarm	Outputs unchanged.	
LA	Minimum temperature alarm	Outputs unchanged.	
HA2	Condenser high temperature	It depends on the Ac2 parameter	
LA2	Condenser low temperature	It depends on the <b>bLL</b> parameter	
dA	Door open	Compressor according to rrd	
EA	External alarm	Output unchanged.	
CA	Serious external alarm (i1 F=bAL)	All outputs OFF.	
CA	Pressure switch alarm (i1 F=PAL)	All outputs OFF	

### XR40CX Alarm Recovery

Probe alarms P1, P2, P3 and P4 start some seconds after the fault in the related probe; they automatically stop some seconds after the probe restarts normal operation. Check connections before replacing the probe.

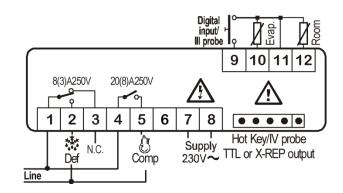
Temperature alarms HA, LA, HA2 and LA2 automatically stop as soon as the temperature returns to normal values.

Alarms EA and CA (with i1 F=bAL) recover as soon as the digital input is disabled. Alarm CA (with i1 F=PAL) recovers only by switching off and on the instrument.

### XR40CX Other Messages

Message	Cause
Pon	Keyboard unlocked.
PoF	Keyboard locked
noP	In programming mode: none parameter is present in Pr1 On the display or in dP2, dP3, dP4: the selected probe is not enabled
noA	No alarm is recorded.

### XR40CX Connections







### **SPECIFICATIONS**

### **Mechanical**

REFRIGERATED CABINETS - SPECIFICATIONS

	CABINET MODEL					
		5D12-A007	5D12-A010		5D12-A009	5D12-A011
Height		69"	(1742mm adju	ıstable -0 +30r	mm)	
Width			47.5" (1	207mm)		
Depth		31" (782mm)	32.5" (820mm)		31" (782mm)	32.5" (820mm)
Dry Weight						
Cabinet Well Material			Stainle	ss steel		
Cabinet Colour	Grey and natural anodised aluminium.					
Top Lighting	Standard					
Shelf Lighting	Standard					
Glass Type	Double glazed					
Front Doors		Flaps	Open		Flaps	Open
Number of Shelves		3 + base	3 + base		3 + base	3 + base
Display Area	≈17 ft² (1.7m²) ≈17 ft² (1.7m²)					
Refrigerant			R4	49A		
Refrigerant charge	See cabinet rating label					
Refrigeration Load	6585 BTU @ 23°F SST 6585 BTU @ 23°F SST (1930 W @ -5°C SST) (1930 W @ -5°C SST)					
Condensate capacity	Piped to drain 9 pints (4.3 l)					
Climatic Class & IP	All cabinets are suitable for class N climates and have an IP 22 rating					



## **Electrical**

REFRIGERATED CABINETS - SPECIFICATIONS

	CABINET MODEL						
		5D12-A007	5D12-A010		5D12-A009	5D12-A011	
Voltage	110-120V 60Hz 1ф			220-240V 60Hz 2ф			
Power		230 W	276 W		1.6 kW	1.7 kW	
Max. Supply Current		2.0 A	2.4 A		7.1 A	7.5 A	
Energy Consumption					0.59 kWh/h	1.37 kWh/h	
Connection	Connection box for 14 gauge (2.1mm) three core cable						
Temperature Range	35.6° - 39.2° F (2° - 4°C)						
Lights	3xLED strips	4xLED strips	4xLED strips	3xLED strips	4xLED strips	4xLED strips	

# **Controller Settings** *REFRIGERATED CABINETS - SPECIFICATIONS*

XR40CX Settings The following table shows the settings for the Dixell XR40CX Controller which are specific for these FPG cabinets.

Parameter	Description	5D12- A009	5D12- A007	5D12- A011	5D12- A010	Unit/Range
Set	Set Point	24	24	28	28	degC
Ну	Differential	8	8	8	8	degC
P4P	Fourth Probe Used	Υ	Υ	Υ	Y	n=no, Y=yes
O4	Fourth probe calibration	0	0	-7	-7	degF
AC	Anti Short Cycle Delay	0	0	0	0	Min
C0n	Comp On Time - Faulty Probe	4	4	4	4	Min
C0F	Comp Off Time - Faulty Probe	6	6	6	6	Min
CF	Temp Unit Celsius/Fahrenheit SET FIRST	F	F	F	F	C, F
Lod	Probe Displayed	P4	P4	P4	P4	P1, P2, P3, P4
dtE	Defrost Terminate Temp	40	40	40	40	degF
IdF	Interval Between Defrosts	2	2	2	2	Hrs
dFd	Display During Defrost	DEF	DEF	DEF	DEF	rt, it, Set, DEF
i1P	Digital Input Polarity	οP	cL	οР	cL	cL, oP
i1F	Digital Input Configuration	bAL	EAL	bAL	EAL	PAL, EAL etc
did	Digital Input Alarm Delay	1	0	1	0	Min
Nps	Num. Pressure switch Activations	1	15	1	15	0 – 15
AP2	Probe for high discharge temp	nΡ	nΡ	nΡ	nP	nP,P1,P2,P3,P4

# PRODUCT MANUAL 25344 REV I OCT 2021



## Compliance

REFRIGERATED CABINETS - SPECIFICATIONS

**Safety Aspects** 

The relevant requirements of the following specifications were considered during the design of this cabinet::

AS/NZS 3100 General Requirements for Electrical Equipment

AS/NZS 3182 Refrigerated Food Commercial Cabinets

AS/NZS 3820 Essential Safety Requirements

UL 471 Commercial Refrigerators and Freezers
ANSI/NSF 7 Commercial Refrigerators and Freezers

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.

# Performance Aspects

The cabinet complies with HACCP requirements, with the following performance:

Cabinet Operating Temperature	Test Conditions	
36°- 39°F (+2° to +4°C)	80°F (27°C) Ambient with 60% RH	

### **Improvements**

REFRIGERATED CABINETS - SPECIFICATIONS

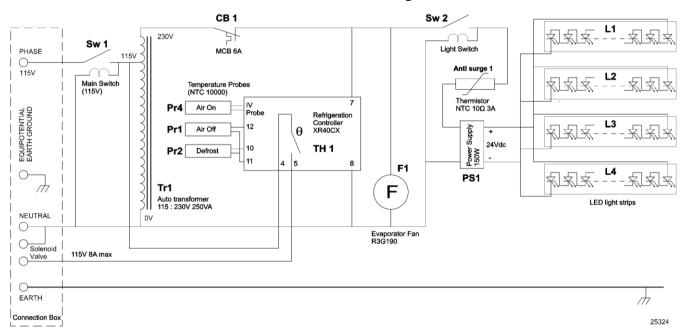
# Ongoing Development

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



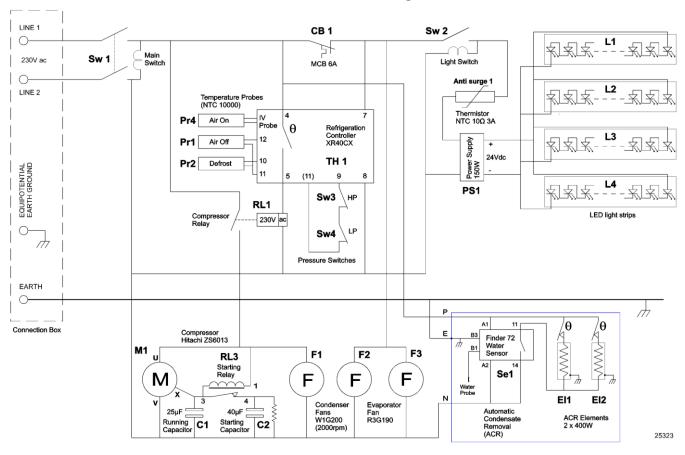
# **ELECTRICAL CIRCUIT DIAGRAMS**

#### Model: IL IKUS 5D12 A007 Self Service 1200mm Refrigerated Food Cabinet



#### Model: IL IKUS 5D12 A009

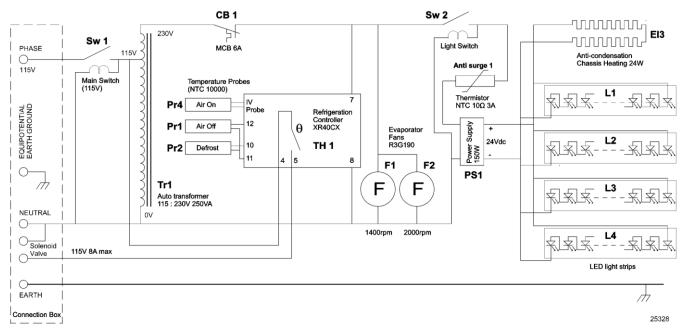
#### **Self Service 1200mm Refrigerated Food Cabinet**



# PRODUCT MANUAL 25344 REV I OCT 2021

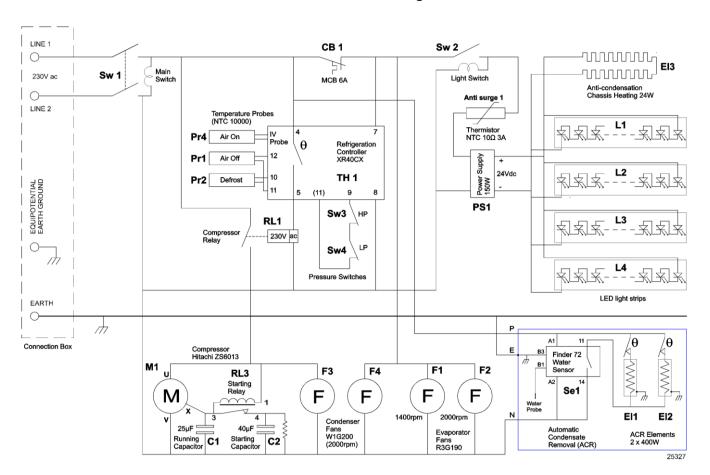
# **CUSTOM**

### Model: IL IKUS 5D12 A010 Self Service 1200mm Refrigerated Custom Drinks Cabinet



#### Model: IL IKUS 5D12 A011

#### Self Service 1200mm Refrigerated Custom Drinks Cabinet





# **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 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
Condenser Fan 200mm 2000rpm	68893
ZS6013S1 Horizontal scroll compressor assembly 230V	17644
ACR Element 400W 230V	18274
Light Diffuser 1120mm Long Clear Polycarb	29405
LED Flexible self-adhesive ribbon, 15W/m 1060mm strip	70986
Evaporator Fan R3G190 (A007/9 factory set 2500rpm)	68264
Evaporator Fan R3G190 (A010/11 factory set 1400rpm)	68892
Evaporator Fan R3G190 (A010/11 factory set 2000rpm)	68893
Switch Rocker DPST 16A 250V Neon Green	17287
Switch Rocker DPST 20A 125V Neon Green	25368
PSU 150W 24Vdc LED power supply	21599
Circuit Breaker 6Amp single pole MCB	10522
Step-up auto transformer 115vac, 50~60Hz	25396
Compressor Relay 30amp 2hp 230 volt	16824
LH Rear Outer Glass Slider Flat DG	25398
RH Rear Inner Glass Slider Flat DG	25399
Drinks Cabinet End Glass Assy LH	76975
Drinks Cabinet End Glass Assy RH	76976
Food Cabinet End Glass Assy	76318
Acrylic Door Assembly	68481
Glass Shelf Tray Upper	25350
Glass Shelf Tray Middle	25351
Drinks Cabinet Glass Shelf Tray Bottom	25896
Food Cabinet Glass Shelf Tray Bottom	25352
Pressure switch HP	17225
Pressure switch LP	17226
Condensate Water Sensor, Finder 72.01.8.240.0000	25309
Din Rail Mounted Connector 2 wire 2.5mm	17737
Din Rail Connector Jumper 2 way	17739
Din Rail Connector Jumper 5 way	17742
Din Rail Connector End Plate	17746
Din Rail Connector End Stop	17747
M20 Flexa Adaptor Straight IP66 RQG1-M20	17000
M20 Flexa Locknut Nylon Black GMK-M20	17008
Product Manual for IKEA USA cabinets	25344
http://www.fpgworld.com/sites/default/files/ikea/25344%20IKE A%20USA.pdf	Soft Copy



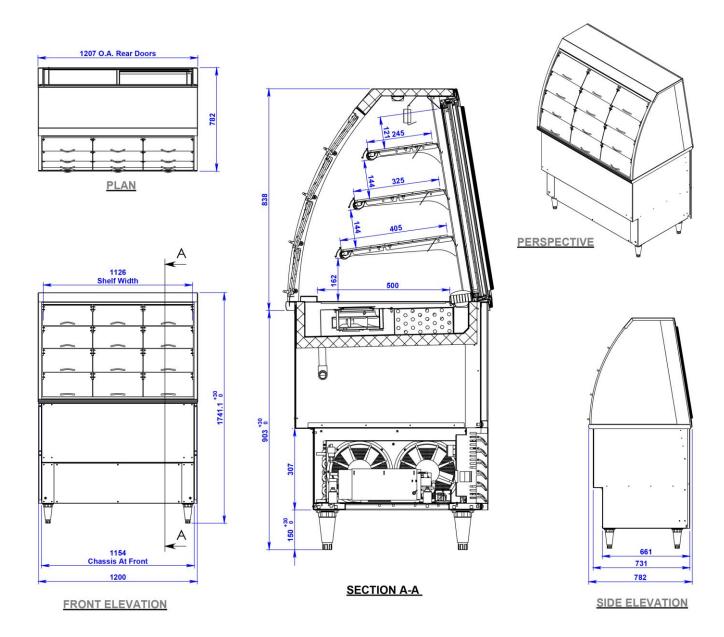


# **MECHANICAL DRAWINGS**

## **Food Cabinet Dimensions**

REFRIGERATED CABINETS - MECHANICAL DRAWINGS

IL IKUS 5D12 A007 As below, without refrigeration condenser etc. but with auto transformer IL IKUS 5D12 A009

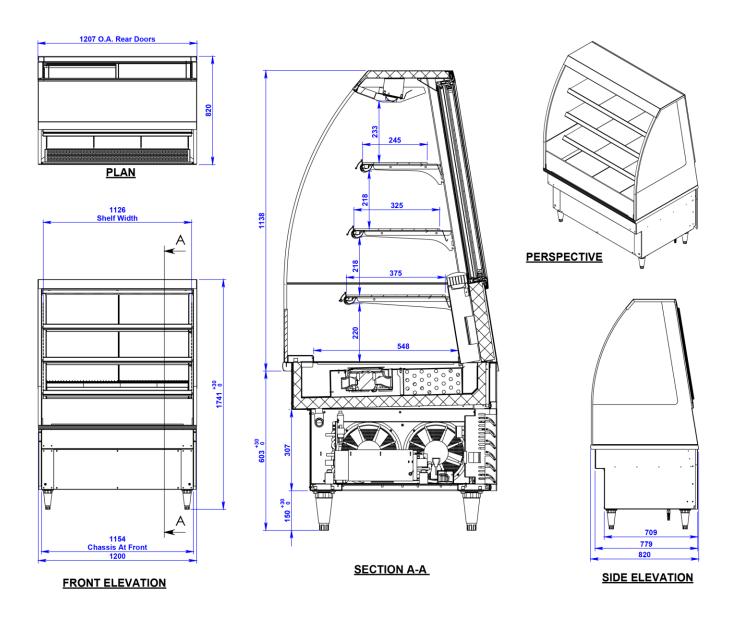




# **Custom Drinks Cabinet Dimensions**

REFRIGERATED CABINETS - MECHANICAL DRAWINGS

IL IKUS 5D12 A010 As below, without refrigeration condenser etc. but with auto transformer IL IKUS 5D12 A011





## **Installation Joinery**

REFRIGERATED CABINETS - MECHANICAL DRAWINGS

#### Ventilation

Adequate ventilation must be provided for the condenser unit.



For open front cabinets, a minimum distance of 5 metres is required from the front of the cabinet to external doors and air-conditioning vents.

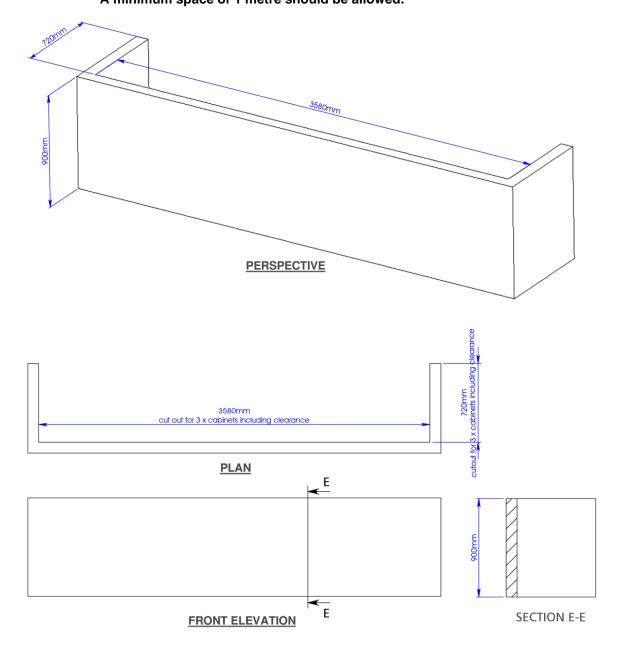
#### Condensation

If the cabinet has an ACR unit, good ventilation must be provided, to avoid deterioration of joinery, due to humid air.

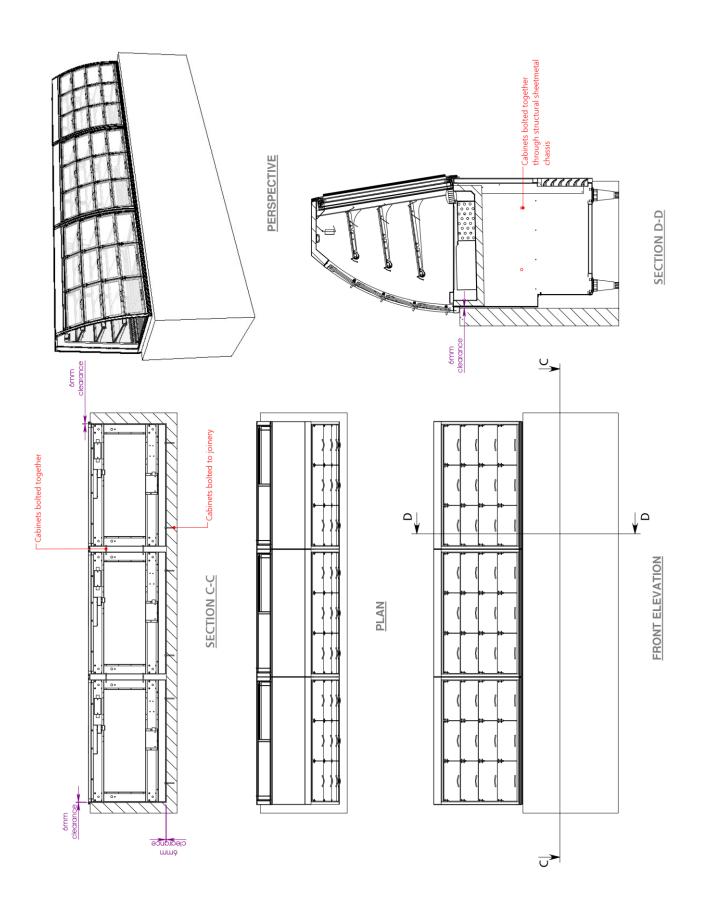
#### **Access**

Access to the back of the cabinet is required for servicing, loading, cleaning, repositioning of shelves and operation of the control panel.

A minimum space of 1 metre should be allowed.







PRODUCT MANUAL 25344 REVIOCT 2021

# **CUSTOM**

IKEA USA SELF SERVICE CABINETS REFRIGERATED





