

NULINE
REFRIGERATION



MFi SERIES REFRIGERATOR INCUBATOR

Warranty, Installation,
Maintenance & Operational
Manual

CONTENTS

Introduction

<i>Your New Nuline Cabinet</i>	3
<i>Disclaimer</i>	3
<i>Warranty</i>	3
<i>General and Safety Precautions</i>	4

Product Overview

<i>Cabinet Description</i>	6
<i>MF170TN</i>	6
<i>MF170TNG</i>	7
<i>MF140TN</i>	8
<i>MF140TNG</i>	9
<i>Silver Information Label</i>	10
<i>Specifications</i>	11

Installation

<i>Setting Up</i>	12
<i>Handling</i>	12
<i>Unpacking</i>	12
<i>Positioning</i>	13
<i>Refrigeration</i>	15
<i>Electrical Connection</i>	16
<i>Plumbing</i>	17
<i>Shelves</i>	18
<i>Adjustable Shelf Installation</i>	18
<i>Loading Restrictions</i>	18
<i>Locking</i>	19
<i>Temperature Probes</i>	20
<i>Port Entry</i>	21
<i>Installation of External Probes</i>	21

Operation

<i>Initial Start-Up & Operation</i>	23
<i>Dixell Controller</i>	23
<i>Initial Start Up</i>	25
<i>How to Check Min / Max Temperature</i> ...	25
<i>How to Reset Min / Max Temperature</i>	26
<i>Alarm Set Points</i>	26
<i>Temperature Adjustment</i>	26
<i>Start a Manual Defrost</i>	26
<i>Microprocessor Controller</i>	27
<i>Initial Start Up</i>	28
<i>Alarm Set Points</i>	28
<i>Temperature Adjustment</i>	28
<i>Parameter Table</i>	29

Maintenance

<i>Cleaning</i>	30
<i>General Information</i>	30
<i>Corrosion Protection</i>	30
<i>Surface Finish</i>	31
<i>Cleaning Schedule</i>	31
<i>Door Seal</i>	31
<i>Cabinet Interior</i>	32
<i>Glass Door</i>	32
<i>External Surfaces</i>	32
<i>Ventilation Panels / Filter</i>	32
<i>Condenser</i>	32
<i>Troubleshooting</i>	33
<i>Temperature Adjustment</i>	35
<i>Temperature Controller Parameters</i>	35
<i>To Enter the Hidden Menu</i>	35
<i>Parameter Table</i>	36
<i>Inactivity for Extended Period</i>	38
<i>Disposal</i>	39



WARNING

If the cabinet is not working as it should on first use please contact us right away and do not use the cabinet.

INTRODUCTION

Your New Nuline Cabinet

Thank you for choosing a Nuline cabinet please read through the warranty, manual and specifications of your cabinet carefully to become familiar with your new cabinet.

Our cabinets are designed and manufactured to meet the specialized needs of the biomedical industry. With correct care and maintenance in accordance with these instructions, your new cabinet will provide many years of reliable service.

Nuline Refrigeration has been manufacturing refrigerators and freezer cabinets in our Melbourne factory for the Australian market since 1985. Our specialized range of biomedical cabinets that are Australian made and imported from selected global suppliers, are used extensively across hospitals, medical centres, pharmacies, and laboratories.

Carefully read this instruction booklet, as it contains important advice for safe installation, operation, and maintenance. Keep this booklet on hand in a safe place for future reference by other users.

Disclaimer

Nuline refrigeration cabinets are designed for the storage of cooled, chilled or frozen biomedical products, such as vaccines, laboratory samples, and, but not limited to pharmaceutical drugs and medication.

The use of Nuline cabinets for any other application is not warranted unless subject to prior approval by Nuline. The cabinets are designed specifically to store products that are already cooled, chilled or frozen to the required temperature.

The cabinets are not designed to be ordinarily switched off as bacteria growth, mould, odours, rust, or water overflow could occur.

Transportation of the cabinet must be always done with the cabinet upright, do not lay the cabinet on sides, front, or back.

Warranty

Our warranty can be found on our website at www.nuline.au and alternatively you can scan this QR code.



INTRODUCTION

General and Safety Precautions

To prevent personal and material injury when using any electrical cabinets, safety precautions must always be observed.

Our cabinets have been designed for high performance. The cabinet must be used exclusively for the purpose for which it has been designed for.

Read and understand this manual, if in doubt contact Nuline Refrigeration.

- All cabinets **MUST** be installed according to the procedures stated in the installation section of this manual.
- In the case of new personnel, training is to be provided before operating the cabinet.
- **DO NOT** use this cabinet for any other purpose than its intended use.
- **DO NOT** store explosive substances such as aerosol cans with a flammable propellant in or near this cabinet.
- Keep fingers out of “pinch point” areas.
- The cabinet is not waterproof **DO NOT** use jet sprays, hoses or pour water over / on the exterior of the cabinet.
- Only use this cabinet with voltage specified on the rating label.
- **DO NOT** remove any cover panels that may be on the cabinet.
- **DO NOT** use sharp objects to activate controls.
- **DO NOT** use sharp objects to remove ice from the cabinet.
- If any fault is detected, refer to troubleshooting.
- This appliance is **NOT** suitable for storing and cooling blood, blood plasma or similar substances. Any misuse of the appliance may result in damage to or spoilage of stored goods.
- **DO NOT** allow naked flames or ignition sources to enter the appliance.
- **DO NOT** stand on the drawers, shelves or doors or use them to support anything else.

INTRODUCTION

- DO NOT insert metal objects such as a wire into any vents, gaps, or any outlet on the cabinet. This may cause electric shock or injury by accidental contact with moving parts.
- When connecting and disconnecting the appliance, pull on the plug, not on the cable. Pulling on the cable has the potential to damage the cable, this could result in electric shock or fire by short circuit.
- This appliance is not suitable for operations in outdoors or areas where it is exposed to splash water or damp conditions.
- This appliance is not suitable for operation in potentially explosive atmospheres.
- Keep the cabinet and surrounding areas clean, dry, and uncluttered.
- The manufacturer declines any liability for damages to persons and / or things due to an improper / wrong and / or unreasonable use of the machine as well any failure of the refrigeration system.
- Only specifically trained / qualified Technicians (one of our service agents, or a similarly qualified persons) should carry out all repairs, maintenance, and services.
- Disconnect the power cord if there is something wrong with the cabinet.
- Nuline Refrigeration will not be held liable for any potential loss of stock due to failure of the refrigeration system and / or any other failure of the cabinet.

PRODUCT OVERVIEW

Cabinet Description

MFi 70TN



	IMPORTANT
	This unit is only designed to maintain the product at the controlled temperature.
	CAUTION
	This unit includes refrigeration components. DO NOT touch the cold refrigeration components

PRODUCT OVERVIEW

MFi70TNG



IMPORTANT

This unit is only designed to maintain the product at the controlled temperature.



CAUTION

This unit includes refrigeration components. DO NOT touch the cold refrigeration components

PRODUCT OVERVIEW

MF140TN



IMPORTANT

This unit is only designed to maintain the product at the controlled temperature.



CAUTION

This unit includes refrigeration components. DO NOT touch the cold refrigeration components

PRODUCT OVERVIEW

MF140TNG



	IMPORTANT
	This unit is only designed to maintain the product at the controlled temperature.
	CAUTION
	This unit includes refrigeration components. DO NOT touch the cold refrigeration components

PRODUCT OVERVIEW

Silver Information Label

The silver information label is placed on the right interior wall of the cabinet.

NULINE REFRIGERATION

Model	MFi 140 TN
Serial No.	18800

Voltage	220-240	VOLT
Frequency	50	HZ
Power	3.3	AMPS
Light	LED	WATT
Element	400	WATT
Range	2 - 40	C
Capacity	1400	Litres
Refrigerant	R290	.115 KG

PRODUCT OVERVIEW

Specifications

Model	MFi70TN/G	MFi140TN/G
Gross Capacity	700 L	1400 L
External Dimensions in mm (w/d/h including castors)	700 x 850 x 1990	1400 x 850 x 1990
Internal Dimensions in mm (w/d/h)	540 x 620 x 1320	1245 x 620 x 1360
Packed Dimensions in mm (w/d/h including pallet)	750 x 880 x 2070	1450 x 880 x 2070
Gross Weight - kg (packed weight)	134	225
Net Weight - kg	120	201
Voltage	240V	
Temperature Range	2°C to 40°C	
Ambient Temperature Range	10°C to 32°C	
Temperature Fluctuation	±1.5°C	
Refrigerant	R290	
Cooling System / Defrost	Fan Forced / Automatic	
Exterior Cabinet Finish	Stainless Steel	
Inner Liner Material	Stainless Steel	
Door	Solid / Glass	
Door Hinge	RH	LH / RH
Door Handle	Full Length	
Type of Controller	Digital / Microprocessor	
Temperature Display	External	
Data Logger	Optional	
Door Ajar Alarms	Optional	
High and Low Readout	Visual / Audible	
BMS Connectivity		
(BMS Connectivity for Remote Alarms only)	Optional	
(BMS Connectivity for 4-20mA Transmitter)	Optional	
Port Entry	Optional	
Battery Back-up for Controller	Optional	
Power Requirement	10amp GPO	
Castors	Standard	
Adjustable Shelves	5	10
Usable Shelf Area in mm (w/d)	505 x 560	

INSTALLATION

Setting Up



WARNING

Improper installation, adjustments, alternations, service, or maintenance can cause property damage, injury, or death.

Handling

- To prevent injury or damage to the unit, take the proper precautions when moving the cabinet.
 - For larger cabinets moving equipment such as a forklift or pallet trolley should be used (the forks should be completely under the pallet)
- Ensure that the cabinet is always level.

Unpacking

- Before and after unpacking, the cabinet should be checked for damage.
- If there is any damage, please contact the distributor and/ or manufacturer within 24-48 hours of receipt and before connecting to the mains.
- The cabinet is supplied fully assembled.
- Remove all protective plastic film, tapes, ties, and packers before installing and operating.
- Clean off any residual from the interior / exterior of the cabinet using a clean cloth and warm soapy water.



WARNING

Danger of suffocation due to packing material and plastic film.
Do not allow children to play with packaging material.
Take the packaging material to an official collection point.

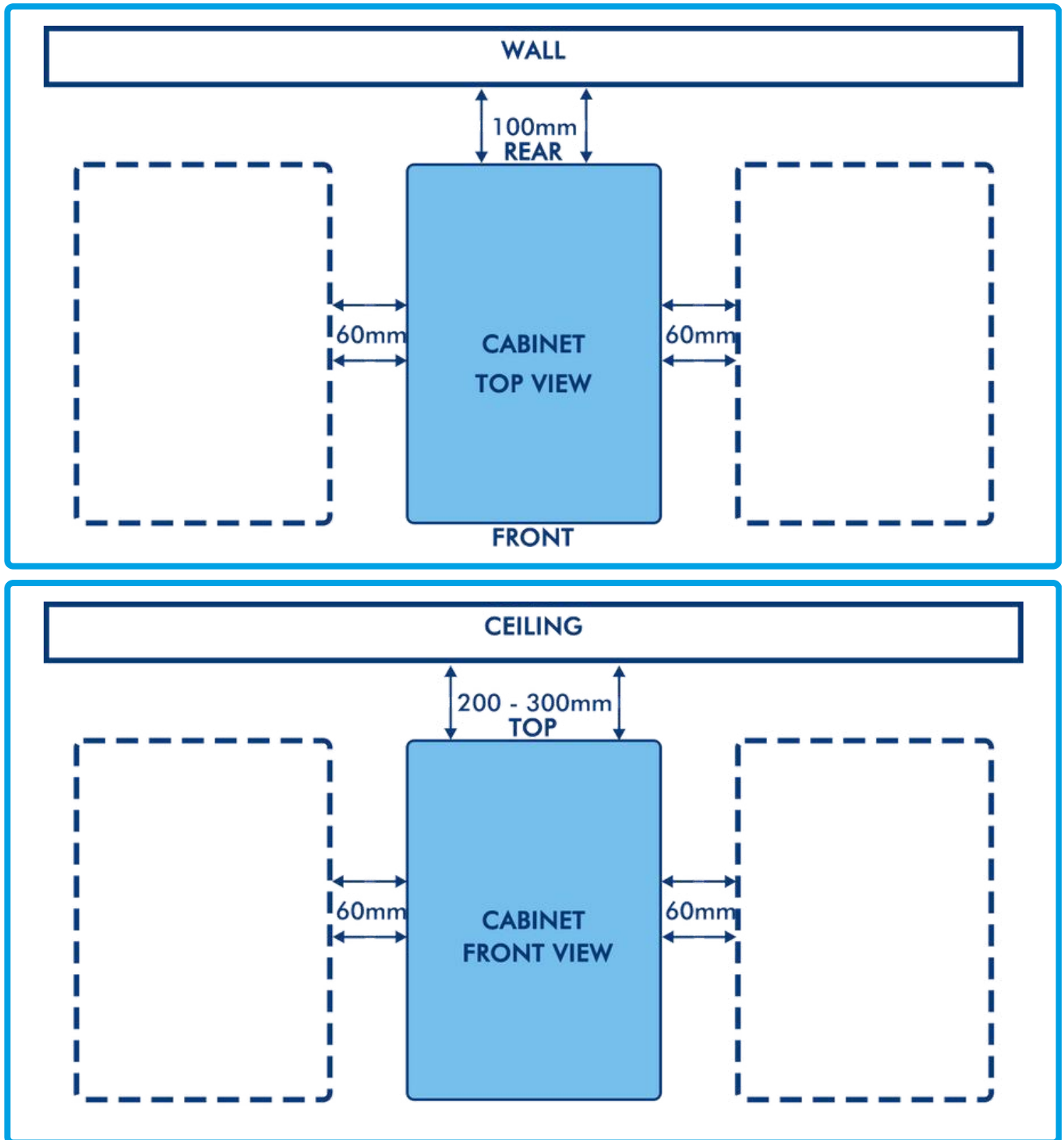
INSTALLATION

Positioning

1. Ensure that the cabinet is on a horizontal and level floor.
 - If your cabinet comes with front levelling feet, you may adjust them to ensure the cabinet is level.
 - If the cabinet is on castors the front two breaks on the castors must be engaged to ensure the cabinet stays in the correct position.
2. Do not position the cabinet in:
 - Wet areas
 - Near heat and / or steam sources
 - Near flammable substances
3. Ensure there is 60mm ventilation space on sides, 100mm on the rear, and 200-300mm on top of refrigerator for proper air flow. See example below.
4. The cabinet should not be installed in any manner that would impede normal service access.
5. Please wait at least 2 hours before switching the cabinet ON as this will allow the refrigeration gas in the refrigeration system of the cabinet to settle due to movement and handling during freight.

INSTALLATION

Large Cabinets



INSTALLATION

Refrigeration



WARNING

System charged with flammable refrigerant.
If there is a suspected refrigerant leak, turn the cabinet off and contact Nuline Refrigeration if under warranty; if no longer warranty contact your preferred qualified services technician.

This cabinet is fully operational once it leaves our factory, no additional refrigeration setup is required.

INSTALLATION

Electrical Connection



WARNING

Some procedures in this manual require the power to the equipment to be turned off and isolated. Turn the power OFF at the power point and unplug the power supply lead by the plug body. If the power point is not readily accessible turn the equipment off at the isolation switch or the circuit breaker in the switchboard. Attach a yellow "CAUTION-DO-NOT OPERATE" tag. This must be performed where relevant unless the procedures specify otherwise.
FAILURE TO DO SO MAY RESULT IN ELECTRIC SHOCK.

Single Phase Units:

Supplied and fitted with an appropriately rated plug and lead, 10A plug.

When connecting and disconnecting the appliance, pull on the plug, not on the cable.

Notes:

If the supply cord is damaged, it must be replaced by the manufacture, its service agent, or similarly qualified persons in order to avoid a hazard. Please contact Nuline for parts and we will advise how to do this in order to avoid any electrical hazard.

The power cable should be dry and isolated from moisture and water.

INSTALLATION

Plumbing

No additional drainage or plumbing is required.

INSTALLATION

Shelves

Adjustable Shelf Installation

1. Fully open the door.
2. Lift up the shelf so that it is fully off the shelf support clips to remove the shelf.
3. Gently pull up to remove the shelf support clips
4. Push the shelf support clips down into the space on the shelving strips at the level that you desire.
5. Ensure that all four shelf support clips are at the same level.
6. Carefully lower the shelf inside the cabinet on top of the shelf support clips
7. Ensure that the shelf is fully inside the cabinet before loading and closing the door

When loading the shelves with product, care should be taken to ensure that the product is loaded evenly to allow for proper air circulation around all products.

Note: Do not use pliers when installing the shelf support clips

Loading Restrictions

- There should NOT be any overhang of products on the shelves.
- Shelves are only designed to hold one layer of product. Overloading can break / damage the shelves and prevent proper air flow.
- Remove some products if the shelves are flexing or bending.
- Shelves should be adjusted to allow air space around all the product to ensure proper air flow and even refrigeration to ensure efficient operation of the cabinet.

INSTALLATION

Locking

This cabinet comes standard with a key door lock. It is recommended not to keep the key in the lock during normal use. This will prevent the bending or breaking of the key inside the lock. If the key is broken inside the lock, the lock will have to be replaced.

Keeping the key removed from the lock will also prevent the lock from accidentally locking when the door is open. Locking when the door is open could prevent the door from closing properly, resulting in the cabinet temperature to rise.

INSTALLATION

Temperature Probes

This cabinet is equipped with a temperature probe inside the unit that monitors the temperature inside the cabinet. This probe also controls the temperature alarms. To monitor the temperature in various areas of the interior of the cabinet, external probes can be installed through the port entry if the cabinet has been built with one. The port entry is an option that needs to be specified when ordering the cabinet so that it can be installed during construction.

INSTALLATION

Port Entry

To monitor the temperature in various areas of the interior of the cabinet, external probes can be installed through the port entry. A port entry is optional on this cabinet, if it is required it should have been requested at the time of ordering the cabinet to ensure that a port entry can be installed during manufacturing.

Installation of External Probes

STEP 1



STEP 2



STEP 3



STEP 4



STEP 5



STEP 6



STEP 7



STEP 8



STEP 9



STEP 10



STEP 11



STEP 12



Never install probes through the door as this will prevent the door from closing properly, thus preventing a correct seal from forming and from preventing the cabinet from maintaining the correct temperature. This will damage the door gasket which will prevent a correct seal from forming.

Nuline Refrigeration will not be held liable for the damage caused by the incorrect installation of external probes out of the door.

INSTALLATION

Remote Alarm Contact

A Remote Alarm Contact is optional on this cabinet, if it is required it should have been requested at the time of ordering the cabinet to ensure that it can be installed during manufacturing.

A voltage free Remote Alarm Contact is used to connect to a Building Management System (BMS).

For installation simply connects the network cable from the BMS into the cabinet. We do not provide the network cable.

Please see below for an example of where the Remote alarm Contact can be found.



OPERATION

Initial Start-Up & Operation



IMPORTANT

This unit is only designed to maintain the product at the controlled 2°C to 40°C temperature.

This unit has been fitted with two controllers.

One Dixell controller to operate the cooling functions.

One Microprocessor controller to operate the heating functions.

Both controllers have been preset.

Dixell Controller



Key Functions:

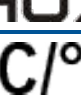
SET	To display target set point; in programming mode it selects a parameter or confirm an operation.
	To start a manual defrost
	To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value.
	To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.
	To switch the instrument off, if onF = oFF
	To switch the light, if oA3 = Lig

OPERATION

Key Combinations:

 + 	To lock & unlock the keyboard
SET + 	To enter in programming mode
SET + 	To return to the room temperature display

LED Indications:

LED	MODE	FUNCTION
	ON	Compressor enabled
	Flashing	Anti-short cycle delay enabled
	ON	Defrost enabled
	Flashing	Drip time in progress
	On	Fans enabled
	Flashing	Fans delay after defrost in progress
	ON	An alarm is occurring
	ON	Continuous cycle is running
	ON	Energy saving enabled
	ON	Light on
AUX	ON	Auxiliary relay on
°C/°F	ON	Measurement unit
°C/°F	Flashing	Programming phase

OPERATION

Initial Start Up

Before switching ON the cabinet, ensure the cabinet is installed correctly.

- Plug the cabinet into your 240-volt outlet and switch ON, the control panel will illuminate and start cooling.
- After 2 hours check the cabinet temperature has reached it's set temperature. The  light will be on during the initial start-up, this is normal.
- Air vents must NOT be covered.

Cabinet Temperature

- Ensure the cabinet is maintaining temperature at its set point.
- Ensure the doors are CLOSED when not loading to maintain temperature.
- Temperature reading should only be done as follows, reset controller at end of day and do not open door again, next morning take your high and low read out before you open door.

How to Check Min / Max Temperature

Min Temperature

- Press and release the  key.
- The "Lo" message will be displayed followed by the minimum temperature recorded.
- By pressing the  key again or by waiting 5s the normal display will be restored

Max Temperature

- Press and release the  key.
- The "Hi" message will be displayed followed by the maximum temperature recorded.
- By pressing the  key again or by waiting 5s the normal display will be restored.

OPERATION

How to Reset Min / Max Temperature

- Hold 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.

Alarm Set Points

Low Alarm 18.5°C
High Alarm 23.5°C
Delay on Alarm is 10 minutes
TCeomoplienrga tTuerme pSert aPtouirnet Sise t2 P1o.5in°C is 20.5°C
Heating Temperature Set Point is 19.5°C

Should the temperature exceed the set points by +2°C,  will flash, the alarm will activate.

If the temperature falls below the set point, the  indicator light turn on.

Temperature Adjustment

Temperature settings should only be carried out by a person with authority to do so.

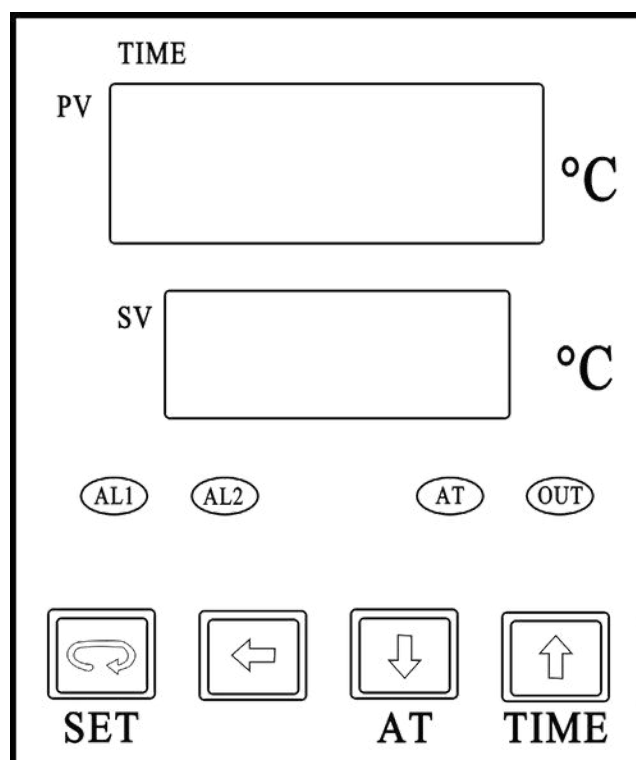
- Push the **SET** button for more than 2 seconds.
- The value of the set point will be displayed and the "°C" or "°F" LED starts blinking.
- Using the  and  to change the numbers within 10 seconds.
- Once you had reached new temperature settings, push **SET** button or wait 10 seconds to lock in the new set point.

Start a Manual Defrost

Push the  button to for more than 2 seconds and a manual defrost will start.

OPERATION

Microprocessor Controller



The top display, PV displays the cabinet temperature.

The bottom display, SV displays the cabinet set temperature.

Key Functions:

	SET functional key; revision of set value; call out of parameter symbols and confirmation of revised parameters
	Shift key; for shifting the set value or observing running fixed time
	Digital minus keys; for adjusting parameters or entry into self-adjustment state
	Digital plus keys; for adjusting parameters or entry into self-adjustment state

LED Indications:

	Flashes when the internal temperature is lower than the set point.
	Flashes when the internal temperature is higher than the set point.
	Flashes when the cabinet is heating.

OPERATION

Initial Start Up

- Before switching ON the cabinet, ensure the cabinet is installed correctly.
- Plug the cabinet into your 240-volt outlet and switch ON, the control panel will illuminate and start heating..
- After 2 hours check the cabinet temperature has reached it's set temperature. The **AL1** and **OUT** light will be on during the initial start-up, this is normal.
- Air vents must NOT be covered.

Cabinet Temperature

- Ensure the cabinet is maintaining temperature at its set point.
- Ensure the doors are CLOSED when not loading to maintain temperature.

Alarm Set Points

Should the temperature exceed the set points by $+2^{\circ}\text{C}$, **AL2** will flash, the alarm will activate and power to the heating element will stop.

If the temperature falls below the set point, the **AL1** indicator light turn on.

Temperature Adjustment

Temperature settings should only be carried out by a person with authority to do so.

- Push the set button
- Using the key pad to change the numbers and the shift key to move to the number to be changed
- Once you had reached new temperature settings, push set button to lock in the new set point.



IMPORTANT

There always needs to be a 2°C difference between cooling and heating controllers

OPERATION

Parameter Table

Parameter	Setting Range	Definition of Parameter	Setting of Leaving Factory
ST	1-9999 min 0-	The setting value of timing	19.5
AL1	100% FS 0±1°C	The setting value of upper difference alarming (AL1)	10
AL2	+20°C 0-1 0-	The indicating setting of the blower fan	-10
SC	100% (°C)	The difference amending for the displaying value	0.0
ATU		Self adjusting commands (0: OFF, 1: ON)	0
P		More Proportion, more P, lower the system plus, more stability, the precision of system is improved, eliminating the static difference	3.0
I	0-4320 sec.	Integral time, the I bigger, the integral smaller, which reducing the "Overshoot"	500
d	0-1200 sec	Differential coefficient time, generally is (1/4~1/5)	100
T	0-60	Cycle time, adopting controlled silicon as the output power, generally 2 is 2~3 second.	2
HL/HL	0.50~1.500	Ensuring the temp display resolution which is unanimous in the range of testing.	1.000
OUT	(10-200)%%	The output power consumption can be adjusted when the heater showed the Proportional Band (P)	100
Lk	0-255	Locking (Lk=188(unlock) the numerical value can change, LK=0(lock) the numerical value can change)	0

MAINTENANCE

Cleaning



WARNING

Never disassemble, repair, or modify the cabinet yourself. Any such work carried out by an unauthorized person may result in fire, or electric shock or injury due to a malfunction.

General Information

- Cleaning is recommended for health and safety purposes and to prolong the life of the cabinet.
- DO NOT use abrasive pads or cleaners on the stainless steel or any other metal parts of the cabinet.
- DO NOT use industrial chemical cleaners, flammable cleaners, caustic-based cleaners or bleaches and bleaching agents, as many will damage the metals and plastics used on this cabinet.
- DO NOT remove any screws and / or panels for cleaning (unless directed)
- This unit is NOT waterproof, DO NOT hose, DO NOT pour water directly onto the unit, DO NOT immerse in water.
- Before performing maintenance or cleaning the unit, disconnect the electrical power supply.

Corrosion Protection

- Stainless steel exhibits good resistance to corrosion however, if not properly maintained stainless steel can rust and / or corrode.
- Any sign of mild rust and / or corrosion should be thoroughly cleaned with warm soapy water and dried as soon as possible.
- NEVER use abrasive pads or cleaners for cleaning
- All metal surfaces should be checked while cleaning for damage, scuffs or scrapes as these can lead to rust and further damage to the cabinet.
- Mild rust and / or corrosion can be treated with a commercial cleaning agent that contains citric / oxalic / nitric / phosphoric acid. DO NOT use cleaning agents with chlorides or other harsh chemicals as this can cause corrosion. After treatment, wash with warm (not hot) soapy water and dry thoroughly.

MAINTENANCE

- Thoroughly wipe the surfaces dry after cleaning. DO NOT let water pool on the unit. Check crevices and folds for pooling.
- When using, ensure all liquids and moisture is cleaned up straight away.
- DO NOT leave items on the stainless steel.

Surface Finish

- To protect the polished surface of the stainless steel, it should be dried using a clean dry soft cloth.
- Some commercial stainless-steel cleaners can leave residue or film on the metal; this may trap fine particles from the air on the surface, thus deeming the surface not safe for medical products.



WARNING

This unit is NOT waterproof, DO NOT hose. DO NOT pour water directly onto the unit. DO NOT immerse in water



CAUTION

This unit includes refrigeration components. DO NOT touch the cold refrigeration components

Cleaning Schedule

Regular cleaning, at least once a month is recommended for the cabinet. This will help to maintain and prolong the efficiency of the cabinet.

Always keep the interior free of ice. A soft cloth or brush can be used to remove loose ice. Never use sharp tools and take care not to damage the door gaskets.

Wipe down all interior and exterior surfaces with a soft, dry cloth or a soft cloth dampened with warm soapy water. Wipe dry with a dry soft cloth to ensure that there's no water remaining on the cabinet. If a thorough cleaning or disinfection is required, please follow the instructions below.

Door Seal

- Using a clean cloth dampened with warm water, wipe down the door seal.

MAINTENANCE

Cabinet Interior

1. Isolate the unit from the power supply.
2. Remove shelves and wash separately, thoroughly wipe dry after cleaning.
3. Using a good quality nylon brush remove any small particles.
4. Clean using a clean cloth dampened with clean warm soapy water until all soil has been removed.
5. Thoroughly wipe dry with a soft cloth after cleaning, do NOT allow to air dry. DO NOT let water to pool, check crevices and folds.

Glass Door

- Clean the glass with a glass cleaner or warm soapy water, and a sponge.
- Using a squeegee, remove all water from the glass.

External Surfaces

- Using a clean cloth dampened with clean warm soapy water unit any grime has been removed.
- Using a clean sanitised cloth, thoroughly wipe the stainless steel and metal parts dry. Do NOT let water to pool on the cabinet. Check crevices and folds.

Ventilation Panels / Filter

- Use a vacuum and / or brush to remove dust and debris from the filter and all ventilation panels.
- Do NOT use water or a hose to remove dust or debris.

Condenser

It is important to periodically clean the condenser, which is located on top of the cabinet. It should be cleaned every 3 months, simply by brushing in a vertical motion with a small brush or vacuum cleaner.

However, this will also depend on how dusty the area is. You may be able to do it every 6 months.

MAINTENANCE

Troubleshooting

Troubleshooting Procedures

- If any faults / issues occur with the unit, follow the below troubleshooting procedures.
- If the troubleshooting procedures do not correct the problem, contact us, Nuline Refrigeration.

Problem	Cause	Solution
The cabinet is not operating	No power supply	Check the power plug is plugged into a working power socket.
The cabinet is not cooling properly; the temperature is too high; it wouldn't reach the set point.	Dirty condenser	Clean the condenser
	Door isn't sealing	Check the gaskets
	Overloaded with products which prevents air flow	Move excess products to another cabinet
	Warm products were placed inside	Remove warm products from cabinet and wait until they've cooled down before placing them inside
	Make sure the cabinet is not in direct sun light or near heat radiation.	Move the cabinet away from the direct sun light and / or heat source
	Frequently opening the doors can cause the temperature to rise	Monitor if the door is being opened too frequently, leave the door closed until the set temperature has been reached
The cabinet is too noisy	The ambient temperature of the room the cabinet is in is too high	The cabinet works best in rooms that are below the max ambient temperature, control the temperature of the room
	The cabinet is not level	Adjust the leveling feet
	The cabinet is touching a wall or object	Move the cabinet away from the wall, ensuring that it has the correct space around it. Move the objects away from the cabinet
Alarm lights flashes, alarm buzzer sounds	The door is not shut properly. The door alarm will sound even when it is slightly ajar	Close the door and make sure that it is properly closed.
	Unstable power supply might cause the alarm to switch on.	Ensure the power supply is stable and allow the cabinet time to recover.

MAINTENANCE

Alarm Signals

Alarm Type	Compressor Running	Display Flash
Cabinet room high temp. alarm	Compressor On Compressor	HI alarm L0
Cabinet room low temp. alarm	Off press C10,C11 to run the	alarm 1H in time
Room temp. sensor short-circuited	comp press C10,C11 to run the	alarm 1L in time
Room temp. sensor open-circuited	comp	alarm 2H in time
Product temp. sensor short-circuited		alarm 2L in time
Product temp. sensor open-circuited		alarm H2 delay
Product temp. sensor high temp Over limit alarm		alarm
Electric supply off alarm		EEL flash and alarm in time
Door open delay alarm		DR flash and delay alarm

Spare Parts

For all spare parts requirements please contact Nuline Refrigeration with the cabinet's model number and serial number.

MAINTENANCE

Temperature Adjustment

Temperature Controller Parameters

The temperature parameters of the cabinet should only be programmed or modified by personnel who know the cabinet, its operation, and the possibilities of the cabinet where applicable.

1. Press the **SET** and  buttons and hold for 3 seconds to enter the parameter settings, the °C LED will start blinking.
2. Using the  or  to display the parameter. Press **SET** to display its value.
3. Using the  or  to modify the value of the parameter.
4. Press **SET** to confirm.
5. To exit, Press the **SET** and  or wait 15 seconds without pressing a key.

To Enter the Hidden Menu

6. Press the **SET** and  buttons and hold for 3 seconds to enter the parameter settings, the °C LED will start blinking.
7. Release the keys, then press the **SET** and  buttons and hold for 7 seconds. The Pr2 label will be displayed immediately followed from the HY parameter. Now you are in the hidden menu.
8. Using the  or  to display the parameter. Press **SET** to display its value.
9. Using the  or  to modify the value of the parameter.
10. Press **SET** to confirm.
11. To exit, Press the **SET** and  or wait 15 seconds without pressing a key.

MAINTENANCE

Parameter Table

Parameter	Name	Range	Default
Set	Set point	LS ÷ US	4.5
HY	Differential	0,1 ÷ 25.5°C	02
LS	Minimum set point	-50°C ÷ SET	-50.0
US	Maximum set point	SET ÷ 110°C	110
Ot	Thermostat probe calibration	-12 ÷ 12°C	0.0
P3P	Third probe presence	n=not present; Y=pres.	n
O3	Third probe calibration	-12 ÷ 12°C	0
P4P	Fourth probe presence	n=not present; Y=pres.	n
O4	Fourth probe calibration	-12 ÷ 12°C	0
OdS	Outputs delay at start up	0 ÷ 255min	0
AC	Anti-short cycle	0 ÷ 50min	1
CCt	delay Continuous cycle	0.0 ÷ 24.0h	0.0
CCs	duration Set point for	-55.0 ÷ 150.0°C	3
Con	continuous cycle Compressor ON	0 ÷ 255min	15
COF	time with faulty probe Compressor OFF	0 ÷ 255min	30
CH	Kind of action	CL=cooling; Ht=heating	cL
CF	Temperature measurement unit	°C ÷ °F	°C
rES	Resolution	in=integer; dE=dec. point	dE
dLy	Display temperature delay	0 ÷ 20.0 min (10 sec)	0
IdF	Interval between defrost cycles	1 ÷ 120 ore	0

Parameter	Name	Range	Default
MdF	(Maximum) length for defrost	0 ÷ 255 min	20
dFd	Displaying during defrost	rt; it; SET; DEF	it
dAd	MAX display delay after defrost	0 ÷ 255 min	
ALc	Temperal. alarms configuration	rE=related to set, Ab=absolute	Ab
ALU	MAXIMUM temperature alarm	Set ÷ 110.0°C	8
ALL	Minimum temperature alarm	-50.0°C. Set	2
AFH	Differential for temperat. alarm recovery	(0.1°C ÷ 25.5°C)	1
ALd	Temperature alarm delay	0 ÷ 255min	10
dAo	Delay of temperature alarm at start up	0 ÷ 23h e 50'	10
AP2	Probe for temperat. alarm of condenser	nP;P1;P2;P3;P4	P4
AL2	Condenser for low temperat. alarm	(-55 ÷ 150°C)	-40
AU2	Condenser for high temperat. alarm	(-55 ÷ 150°C)	110
AH2	Differ. For condenser temp. alar. recovery	[0.1°C ÷ 25.5°C]	5
Ad2	Condenser temperature alarm delay	0 ÷ 254(min), 255=nU	15
dA2	Delay of con. temper. Alarm at start up	0.0 ÷ 23h 50'	1.3

MAINTENANCE

Parameter	Name	Range	Default
bLL	Compr. off for condenser low temperature alarm	n(0) – Y(1)	n
AC2	Compr. off for condenser high temperature alarm	n(0)-Y(1)	n
tbA	Alarm relay disabling	n=no; y=yes	y
oA1s	2nd relay configuration	ALr=alarm; dEF=do not select if; Lig=Light; AUS=AUX; onF=always on; Fan=do not select it; db=do not select it; dF2=do not select it	Lig
AoP	Alarm relay polarity (oA1=ALr)	oP;cL	cL
i1P	Digital input polarity	oP=opening; CL=closing	cL
i1F	Digital input configuration	EAL, bAL, PAL, dor, dEF, Htr, AUS	dor
did	Digital input alarm delay	0÷255min	15
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	y
HES	Differential for Energy Saving	(-30°C÷30°C)	0
Adr	Serial address	0÷247	1

Parameter	Name	Range	Default
PbC	Kind of probe	Ptc; ntc	ntc
onF	on/off key enabling	nu, oFF;ES	nu
dP1	Room probe display	-	-
dP3	Third probe display	-	-
dP4	Fourth probe display	-	-
rSE	Real set point value	Actual set	-
rEL	Software release	-	-
Ptb	Map code	-	-

MAINTENANCE

Inactivity for Extended Period

Please take the following precautions when storing the cabinet for an extended period of time.

1. Clean both the interior and exterior of the cabinet
2. Ensure that the cabinet is completely dry.
3. Disconnect the power cord.
4. To prevent any rot and mould from forming, leave the door slightly ajar to allow air flow.

MAINTENANCE

Disposal

If the cabinet is no longer of use, please dispose in an environmentally correct way.

- Contact a qualified service technician to recover all refrigerant and to remove the compressor or remove the oil from the compressor.
- The distributor / retailer can contact their local metal recycling centre to collect the remaining cabinet, shelves, etc.
- There may be special requirements or conditions. Information on the disposal of refrigeration appliances can be obtained from government authorities, (the local council, Ministry of the Environment, etc.)
- Discarded electric appliances are recyclable and should not be discarded in the domestic waste. Please actively support us in conserving resources and protecting the environment by returning this appliance to the collection centres (if available).
- Dispose of packaging in accordance with applicable legal regulations.