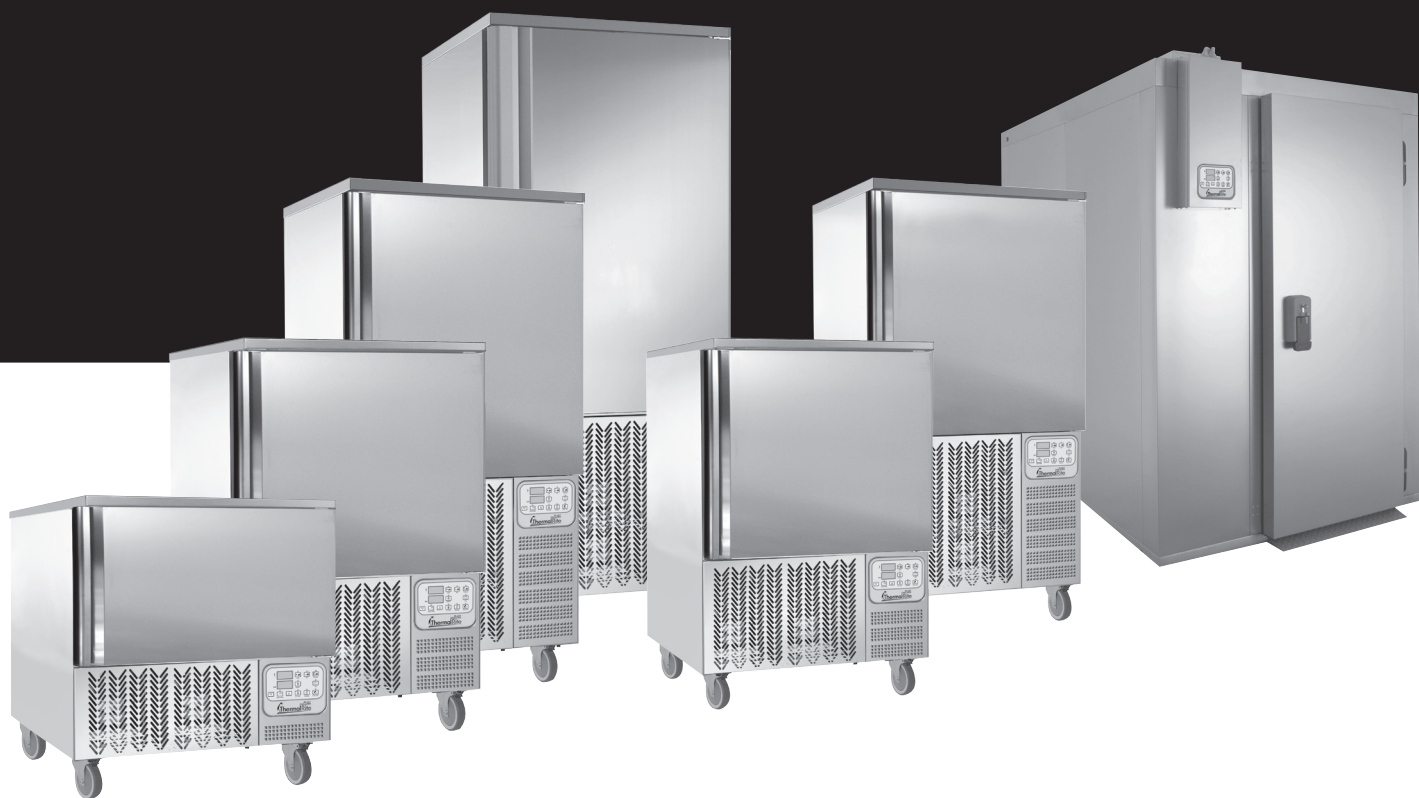


User Manual



ETL Blast Chiller Series



Safety Precautions

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL, MAINTAIN AND REPAIR ELECTRICAL REFRIGERATION EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD STARTUP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

READ THIS MANUAL THOROUGHLY BEFORE OPERATING, INSTALLING, PERFORMING MAINTENANCE ON, OR REPAIRING THE EQUIPMENT.

⚠ WARNING: Failure to follow all the instructions in this manual can cause property damage, injury or death.

⚠ WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death.

⚠ WARNING: Electrical connections should be performed only by a certified professional.

⚠ WARNING: Electrical and grounding connections must comply with the applicable portions of the National Electric Code and/or all local electric codes. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical and grounding connections comply with the applicable portions of the National Electric Code and/or other local electrical codes. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical connection agrees with the specifications on the data plate. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: UL73 grounding instructions: This appliance must be connected to a grounded, metal, permanent wiring system. Or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Appliances equipped with a flexible electric supply cord, are provided with a three-prong grounding plug. It is imperative that this plug be connected into a properly grounded three-prong receptacle. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: If the receptacle is not the proper grounding type, contact an electrician. Do not remove the grounding prong from the plug. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before performing any service that involves electrical connection or disconnection and/or exposure to electrical components, always perform the Electrical LOCKOUT/TAGOUT Procedure. Disconnect all circuits. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before removing any sheet metal panels, always perform the Electrical LOCKOUT/TAGOUT Procedure. Be sure all circuits are disconnected. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Do not operate this equipment without properly placing and securing all covers and access panels. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Do not use or store gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance. Failure to comply can cause property damage, injury or death.

⚠ WARNING: In the event of a power failure, do not attempt to operate this appliance. Failure to comply can cause property damage, injury or death.

General Safety

⚠ WARNING: ThermalRite accepts no responsibility for any situation resulting from work carried out in an unprofessional manner, or from the incorrect interpretation or application of regulations.

General Installation

⚠ WARNING: Incorrect installation or any modifications made to the appliance may damage property or result in injury or death.

Electrical

⚠ WARNING: Electrical connections or any work required on the electrical circuits inside the appliance must be performed by certified technicians in compliance with local, state, and federal regulations.

⚠ WARNING: Make sure all facility electrical connections are in compliance with all local and federal electrical code regulations.

Inspection and Maintenance

⚠ WARNING: Appliance maintenance must be carried out by only by suitably trained personnel.

⚠ WARNING: Before any maintenance work is performed, the appliance must be disconnected from the electrical supply. Apply a lockout tag to the electrical supply connection.

⚠ WARNING: All replacement parts that are not supplied by Arctic Air must be pre-approved before installation.

Repair Work Safety

⚠ WARNING: Repair work must only be performed by ThermalRite or one of its authorized representatives. ThermalRite accepts no responsibility for any situation resulting from work performed by untrained and/or unauthorized technicians.

ELECTRICAL LOCKOUT/TAGOUT PROCEDURE

⚠ WARNING: Before performing any service that involves electrical connection or disconnection and/or exposure to electrical components, always follow the Electrical LOCKOUT/TAGOUT Procedure. Disconnect all circuits. Failure to comply can cause property damage, injury or death.

The Electrical LOCKOUT/TAGOUT Procedure is used to protect personnel working on an electrical appliance. Before performing any maintenance or service that requires exposure to electrical components, follow these steps:

1. In electrical box, place appliance circuit breaker into OFF position.
2. Place a lock or other device on electrical box cover to prevent someone from placing circuit breaker ON.
3. Place a tag on electrical box cover to indicate that appliance has been disconnected for service and power should not be restored until tag is removed by maintenance personnel.
4. Disconnect appliance power cord from electrical outlet.
5. Place a tag on the cord to indicate that unit has been disconnected for service and power should not be restored until tag is removed by maintenance personnel.



Table of Contents

	Page
SECTION 1 INTRODUCTION	9
GENERAL INFORMATION	9
INSTALLATION.....	9
TRANSPORT AND HANDLING	10
UNPACKING	10
GENERAL SAFETY	10
SECTION 2 INSTALLATION	11
DATA PLATE INFORMATION.....	12
POSITIONING	12
AMBIENT AIR TEMPERATURE AND AIR CIRCULATION	13
ELECTRICAL CONNECTIONS	13
REFRIGERATION COMPONENT CONNECTIONS (REMOTE ASSEMBLIES).....	13
INSTALLATION CHECKS	13
SAFETY AND CONTROL SYSTEMS.....	14
UNIT DISPOSAL.....	14
WEEE Notice	14
SECTION 3 OPERATION.....	15
Operating Tip	15
PRE-COOLING	15
LOADING THE UNIT	15
SHUT DOWN PROCEDURE.....	16
SECTION 4 PROGRAMMING AND OPERATING INSTRUCTIONS	17
MODES OF OPERATION.....	17
SWITCHING BETWEEN OPERATING MODES	18
THE DISPLAY	18
DISPLAYING PROBE TEMPERATURES.....	18
ULTRAVIOLET (UV) LIGHT (CABINET STERILIZATION).....	19
HEATING THE NEEDLE PROBE	19
MUTING THE BUZZER	19

	Page
SECTION 5 OPERATIONAL CYCLE	21
GENERAL INFORMATION	21
HARD SET-TEMPERATURE CHILLING AND STORAGE	21
NORMAL (SOFT) TEMPERATURE CHILLING AND STORAGE	22
SET-TEMPERATURE FREEZING AND STORAGE	23
HARD TIMED BLAST CHILLING AND STORAGE	23
NORMAL (SOFT) TIMED CHILLING AND STORAGE	24
TIMED FREEZING AND STORAGE	25
STORING A CUSTOM SEQUENCE	26
RUNNING A STORED CUSTOM SEQUENCE	27
DISPLAYING TEMPERATURES	27
DISPLAYING ELAPSED TIME	27
SECTION 6 SETTINGS.....	29
SETTING THE DATE AND TIME	29
SETTING THE CONFIGURATION PARAMETERS	30
SECTION 7 HACCP	31
SETTING THE DATE AND TIME	31
DISPLAYING HACCP ALARM INFORMATION	32
Deleting the HACCP Alarm List	33
DATA PRINTING.....	33
Connecting to the Print Module	33
Printing Operational Cycle Information	34
Printing HACCP Alarm Information	34
SECTION 8 MAINTENANCE AND CLEANING.....	35
SETTING THE DATE AND TIME	35
GENERAL SAFETY	35
CLEANING THE CABINET	36
ACCESSING THE EVAPORATOR FOR CLEANING	37
SECTION 9 MESSAGES AND ALARMS	39
MESSAGES	39
ALARMS	40
INTERNAL DIAGNOSTICS	41
CONFIGURATION PARAMETERS.....	42

Section 1 Introduction

General Information

Units destined for the USA market have been constructed in compliance with the standard for Safety Commercial Refrigerators and Freezers – ANSI/UL 471, Issued 2006/01/07 Ed. 9, Rev. 2008/10/24; Refrigeration Equipment General Instruction No 1-2 (R2004); CAN/CSA-C22.2 No. 120, Issue 1991/01/01 Ed.3; Commercial Refrigerators and Freezers, NSF/ANSI 17, Issue: 2007/06/01.

This unit has been designed for professional applications only and should only be operated by qualified personnel.

This unit should only be used for the purposes for which it was designed, i.e. for chilling and freezing food products.

This unit should not be used for products requiring constant temperature control and recording, such as:

- Heat-sensitive chemicals,
- Medicines or
- Blood products.

The manufacturer declines all responsibility for any damage caused by incorrect or unreasonable use, such as:

- improper use by untrained persons;
- technical modifications or operations not suited to specific models;
- use of non-original or non-specific spare parts;
- failure to follow the instructions given in this manual.

Installation

The unit must be installed by a specialized technician authorized by the manufacturer and in compliance with the instructions given in this manual. In the event the unit is installed with a remote condenser unit, the installation technician is responsible for checking all connections are in compliance with the unit's installation instructions.

Transport and Handling

When loading or unloading the unit, use a fork lift equipped with forks at least 2/3 the length of the shipping base. Use an overhead lift if the unit is equipped with lifting eye-bolts.

Select lifting equipment suited to the weight and overall dimensions of the packaged unit or components.

Take every precaution to prevent damage, when handling the unit or components keeping in compliance with the information given on the packaging material.

Unpacking

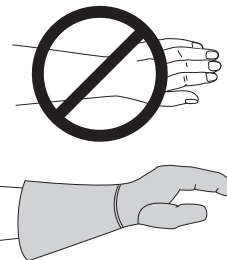
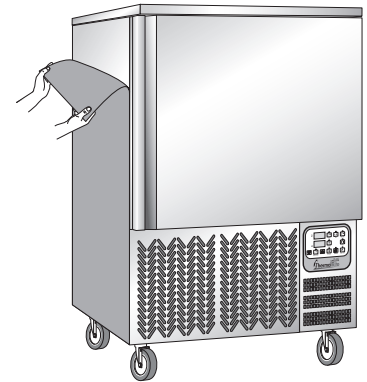
Remove all cardboard, wood or other materials from the wood base. Lift the unit or components by suitable means (e.g. lift truck), remove the wood base, then set the unit or components into position.

Once all packing material has been removed, check that the unit has not been damaged in any way.

Remove the protective plastic film on the stainless steel panels from all internal and external surfaces.

Caution: Wear protective gloves when handling any packing materials and the wood base.

Dispose of all packaging materials appropriately in accordance to local codes.



General Safety

Injuries or accidents caused by failure to comply with the recommendations of this manual are solely the responsibility of the unit operator.

Basic Rules for Safe Operation:

- Do not touch the unit with moist or wet hands or feet
- Never operate the unit while barefoot
- Do not insert screwdrivers, cooking utensils or any other object between the guards and moving parts;
- Before performing cleaning or routine maintenance operations, disconnect the unit from the power supply at the master switch and the main switch (if present);
- Never pull on the power cord to disconnect the unit from the power supply.

Section 2 Installation

⚠ WARNING: Failure to follow all the instructions in this manual can cause property damage, injury or death.

⚠ WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death.

⚠ WARNING: Electrical connections should be performed only by a certified professional.

⚠ WARNING: Electrical and grounding connections must comply with the applicable portions of the National Electric Code and/or all local electric codes. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical and grounding connections comply with the applicable portions of the National Electric Code and/or other local electrical codes. Failure to comply with this procedure can cause property damage, injury or death.

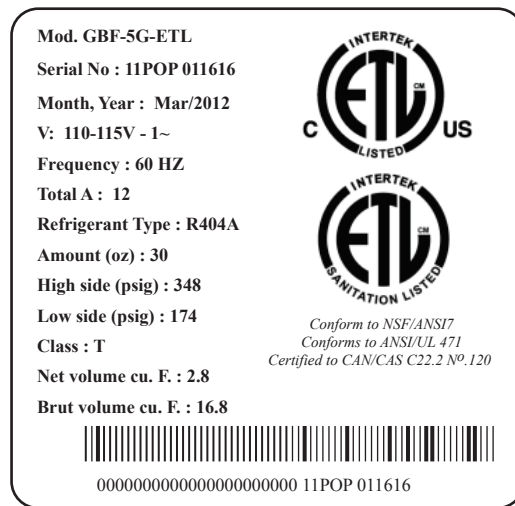
⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical connection agrees with the specifications on the data plate. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: UL73 grounding instructions: This appliance must be connected to a grounded, metal, permanent wiring system. Or, an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Appliances equipped with a flexible electric supply cord, are provided with a three-prong grounding plug. It is imperative that this plug be connected into a properly grounded three-prong receptacle. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: If the receptacle is not the proper grounding type, contact an electrician. Do not remove the grounding prong from the plug. Failure to comply with this procedure can cause property damage, injury or death.

Data Plate Information



CAUTION: Verify the data specified on the unit data plate corresponds with the installation power supply (Voltage, Phase, Current).

The data plate is located on the back panel and/or electrical boards of the unit.

Note: The installation of safety valves or other components in the refrigerant lines, may cause a discharge of refrigerant into the environment.

The setup of the unit and installation of condensers are subject to local and national codes.

Positioning

The unit must be installed and initial field start-up must be completed in compliance with safety regulations, procedures and all local and national codes.

The installation technician bears the responsibility of ensuring the unit is in compliance with all fire safety requirements; seek all necessary advice from the local fire fighting authorities.

Position the unit in place

Adjust the units feet until the appliance is perfectly level. In the case of particularly heavy units, use appropriate lifting methods.

Note: If the unit is not level, correct operation and condensate flow will be adversely affected.

AVOID

- Direct exposure to sunlight.
- Enclosures with high temperatures and poor air circulation.
- Installing the unit near sources of heat.



Ambient Air Temperature and Air Circulation

For air-cooled units, the maximum ambient temperature for proper operation is 90°F (32°C). Proper operation cannot be assured at higher temperatures. The unit may operate safely up to a maximum temperature of 100°F (38°C). Remote condensing units must be installed in a special enclosure or outdoors protected from direct sunlight by a shelter or roof structure (at purchaser's expense).

Sufficient air circulation must be provided at all times.

Electrical Connections

The unit must be installed on a dedicated circuit with a rated thermal-magnetic circuit breaker. The circuit breaker and electric cables (power supply) must be rated for the unit and comply with all local and national codes.

The manufacturer will not be held responsible for damage or injuries due to improper installation.

Incorrect installation will void the Manufacturer's warranty.

Refrigeration Component Connections (Remote Assemblies)

The units power cords have been sized for installation distance up to 16 ft. (5m). For greater distances, refer to local or national codes.

Installation Checks

The following checks **MUST** be made during the initial field start-up:

- Check for refrigerant leaks at all welds and joints made during installation.
- Make sure all refrigerant lines between the appliance and the remote condensing unit are well insulated.
- Check all wire connections.
- Check electrical input.
- Check the standard pressure in the refrigerant system.
- Check the expansion valve during operation.
- Perform at least one blast freezing cycle (at the SET temperature) and one manual defrost cycle.
- Inform the purchaser of the unit's operation and intended use.

Note: If the unit and/or remote condensing unit were not transported in an upright position, or has been overturned during the installation process, allow them to stand, in an upright position, at least 4 hours before starting the unit.

Safety and Control Systems

- Door Micro Switch: Turns off cabinet fan when the door is opened.
- Fuses: Protect the power circuit against overloads and short circuiting.
- Compressor Heat Relay: Interrupts power to the compressor motor and protects against overloads or high temperatures.
- Safety Pressure Switch: Interrupts power to the compressor in the event of high or low pressure conditions. An alarm is sent to the Main control and is displayed as "hP"
- Plug Fuses: Protect against excessive pressure in the refrigerant circuit or operating fault in the safety pressure switch.
- Cabinet Temperature Control: Operated by the electronic board using a temperature sensing probe inside the cabinet.
- Defrost Cycle Temperature Control: Controlled by the electronic board using a temperature sensing probe in the evaporator.

Unit Disposal

Demolish and dispose of the unit in compliance with the local codes and regulations, particularly in regards to refrigerant gas and compressor lubricant oil.

The evacuation of the refrigerant must be done into an approved recovery and reclaim system, in order to satisfy all federal and state regulations regarding the release of refrigerant compounds into the atmosphere. The release of refrigerant compounds into the atmosphere is a source of ozone depletion regulated by federal and state law.



WEEE Notice

The Directive on Waste Electrical and Electronic Equipment (WEEE), went into effect for the European Union on 13th February 2003, which resulted in a major change in the treatment of electrical equipment at end-of-life. The purpose of this Directive is, as a first priority, the prevention of WEEE and to promote the reuse, recycling and other forms of recovery of such waste.



The WEEE logo on this product or its box indicates that this product must not be disposed of or dumped with your other household waste. You are liable to dispose of all your electronic or electrical waste equipment in compliance with all local codes and regulations.

Section 3 Operation

Operating Tip

Before starting the unit, thoroughly clean the interior of the cabinet.

Pre-Cooling

Before using the unit for the first time or after a prolonged period of not being used, pre-cool the cabinet by running it empty on a set temperature cycle. When the set temperature has been reached, the unit is ready for normal use.

For optimum performance, arrange food items so cold air can circulate throughout the cabinet. Open the door as few times as possible during a cycle.

Loading the Unit

Food items should be separated for maximum efficiency and should not be thicker than 3 inches (80 mm).

Do not overload the unit. Refer to the loading capacity of the particular model being used.

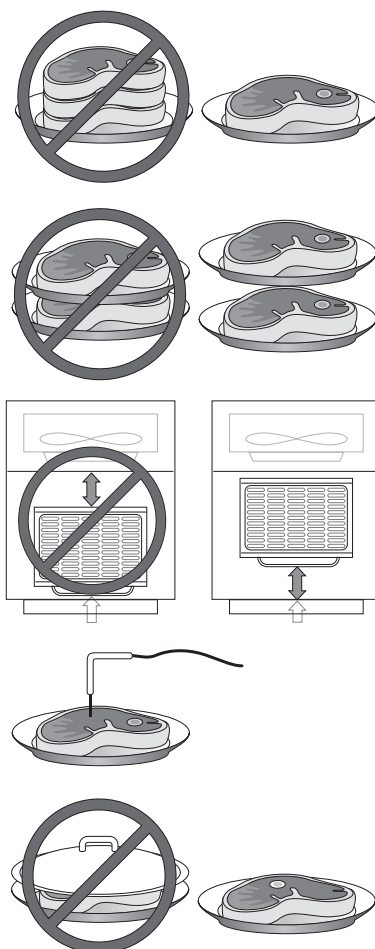
Make sure there is sufficient clearance between trays to optimize air circulation. If the unit is not completely full, distribute trays evenly.

Place trays inside the cabinet as far as they will go and as close to the evaporator as possible.

When using the needle probe, position it at the center of the largest food item. Make sure the tip of the probe does not protrude or contact the tray.

Note: The probe must be cleaned and sanitized between uses to prevent cross contamination of food products.

DO NOT cover trays or containers with insulating covers or plastic film while chilling or freezing. This will increase the time necessary for the operation. Cover trays or food items after they have been chilled or frozen and before being placed in storage.



Shut Down Procedure

In the event of an emergency, shut the unit down by switching off the power at the main cutoff switch, circuit breaker or unplug the unit.

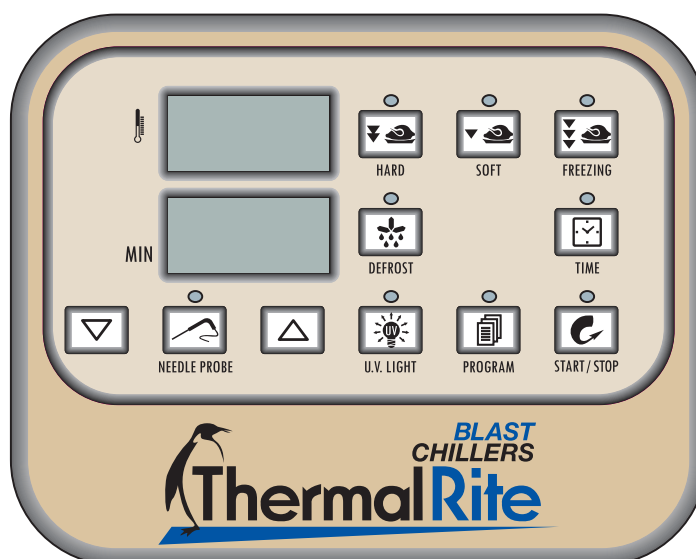
Section 4 Programming and Operating Instructions

Read these instructions carefully prior to installation and use. Follow all precautions for installation and electrical connection.

Keep these instructions with the unit for future reference.

Modes of Operation

The unit has these modes of operation:




- **ON** – The unit is switched on and a cycle is running.
- **STANDBY** – The unit is switched on with no cycle running. A cycle may be selected while in Standby Mode.
- **OFF** - The unit is switched on with no cycle running. A cycle cannot be selected from the Off Mode.


If power is interrupted, while in the ON Mode, the unit will be in the same mode when power is restored. The operational cycle will restart from the point reached when power was interrupted.

If power is interrupted while the unit is in STANDBY or OFF Mode, the unit will be in the same mode when power is restored.

Switching Between Operating Modes

To switch between ON and OFF or OFF and STANDBY Modes, first make sure there are no operational cycles running, **Press and Hold** the **START**  key for 5 seconds.

To start an operational cycle once it has been selected, **Press** the **START**  key.

To stop an operational cycle and put the unit in STANDBY Mode, **Press** the **START**  key.

The Display

In the ON Mode, during an operational cycle, the Upper Display will show:

- The temperature measured by the needle probe if a set-temperature chilling or freezing operation is in progress.
- The temperature of the cabinet if a set-temperature chilling, freezing or a storage operation is in progress.

The Lower Display will show:





- The amount of time for a blast chill or freezing operation.

When the unit is in STANDBY Mode, the Upper Display will show the cabinet temperature and the Lower Display will show: [- - -].

When the unit is in OFF Mode, the Upper Display will show [OFF] and the Lower Display will be blank.

Displaying Probe Temperatures

To display the readings of the temperature sensing probes:

1. Make sure the unit is in OFF Mode.
2. Press the **Needle Probe**  key and **UP ARROW**  key together and Hold for 5 seconds.
3. The Upper Display will show [Pr1] and the Lower Display will show the cabinet temperature.
4. **Press** the **UP**  or **DOWN**  **ARROW** key to scroll through the various probe readings as shown below:.....


Code	Description
Pr1	Cabinet Probe
Pr2	Evaporator Probe
Pr3	Needle Probe
Pr4	Condenser Probe

Note: If there is no condenser probe (Parameter P3=0), Pr4 will not be displayed.


5. To exit, **Press** the **START**  key. To initiate a manual defrost cycle:

Displaying Probe Temperatures (continued)

To initiate a manual defrost cycle:


1. Make sure the unit is in STANDBY Mode.
2. Press the DEFROST  key.
3. The Upper Display will show [dEF].

If the evaporator probe senses a temperature higher than the value set in Parameter P23, the defrost mode will not start.


4. To exit the Defrost cycle, Press the DEFROST  key.

Ultraviolet (UV) Light (Cabinet Sterilization)

To turn on the UV lamp:

1. Make sure the unit is in STANDBY Mode, with no cycles running and the door is closed.
2. Press the U.V. LIGHT  key.
3. The lamp will be turned on for a period of time established by the value in Parameter P46 or until the U.V. LIGHT key is pressed again.
4. Opening the door will also turn off the UV Lamp and end the cycle.

Heating the Needle Probe

1. Make sure the unit is in STANDBY Mode, with no cycles running and the door is closed.
2. Press and Hold the NEEDLE PROBE  key for 5 seconds.
3. The needle probe will heat up until it reaches a temperature set by the value in Parameter P47 or until a time set by the value in P48.
4. If the temperature indicated by the needle probe is higher than the value set in Parameter P47, the cycle will not start and the command will be ignored.

Muting the Buzzer

The buzzer will mute automatically after a period of time, set by the value in Parameter P56, has elapsed.

To mute the buzzer manually, Press the UP ARROW  key.



Section 5 Operational Cycle

General Information

The unit has 6 Operational Cycles:

- Hard Set-Temperature Chilling and Storage
- Normal Set-Temperature Chilling and Storage
- Set-Temperature Freezing and Storage
- Hard Timed Chilling and Storage
- Timed Normal Chilling and Storage
- Timed Freezing and Storage







Set-temperature cycles are preceded by a test to check for correct needle probe insertion. (See Parameters P14 and P15). If the test fails, the cycle will be initiated in a Timed Mode.

Hard Set-Temperature Chilling and Storage

The Hard Set-Temperature Chilling and Storage Cycle is a 3-step procedure.

The operation progresses through these steps when a set-point temperature for each step is reached, as measured by the needle probe.

To select the cycle:

1. Make sure the unit is in STANDBY mode.
2. **Press** the **HARD**  key.
3. The Upper Display will show the set-point temperature.
4. The LED above the HARD key will illuminate.
5. To change the set-point temperature of the first operational step, **Press** the **UP**  or **DOWN**  key.
6. To change the set-point temperature of the second operational step, **Press and Hold** the **HARD**  key for 5 seconds.
7. Use the **UP**  or **DOWN**  key to change the settings.

These settings will remain active until another cycle is selected.

Note: The set-point temperature for these operational steps can also be set by altering the values in Parameters P6 for the first step and P4 for the second step.

Hard Set-Temperature Chilling and Storage (continued)

The Hard Chill process progresses from the first step to the second step when the temperature detected by the needle probe reaches a value set by Parameter P12.

8. To initiate the cycle, **Press** the **START**  key.

The third operational step is Storage. When the temperature, as measured by the needle probe, reaches a value set by Parameter P10, a buzzer will sound as the unit switches to Storage Mode. The buzzer will continue to sound for a time set in Parameter P55, unless manually muted by the operator.




9. To interrupt the cycle, **Press** the **START**  key.

Normal (SOFT) Temperature Chilling and Storage

The Normal Set-Temperature Chilling and Storage Cycle is a 2-step procedure.

The operation progresses through these steps when a set-point temperature for each step is reached, as measured by the needle probe.

To select the cycle:

1. Make sure the unit is in STANDBY Mode.
2. **Press** the **SOFT**  key.
3. The Upper Display will show the set-point temperature.
4. The LED above the SOFT key will illuminate.
5. To change the set-point temperature of the first operational step, **Press** the **UP**  or **DOWN**  key.

These settings will remain active until another cycle is selected.

Note: The set-point temperature for the first operational step can also be set by altering the value in Parameter P4.

6. To initiate the cycle, **Press** the **START** key.

When the temperature, as measured by the needle probe, reaches the set value of Parameter P10, a buzzer will sound as the unit switches to Storage Mode. The buzzer will continue to sound for a time set in Parameter P55, unless manually muted by the operator.




7. To interrupt the cycle, **Press** the **START** key.

Set-Temperature Freezing and Storage

The Set-Temperature Freezing and Storage Cycle is a 2-step procedure.

The operation progresses through these steps when a set-point temperature for each step is reached, as measured by the needle probe.

To select the cycle:

1. Make sure the unit is in STANDBY Mode
2. **Press** the **FREEZING**  key
3. The Upper Display will show the set-point temperature
4. The LED above the FREEZING key will illuminate
5. To change the set-point temperature of the first operational step, **Press** the **UP**  or **DOWN**  key.

These settings will remain active until another cycle is selected.

Note: The set-point temperature for the first operational step can also set by changing the value in Parameter P5.

6. To initiate the cycle, **Press** the **START**  key.

When the temperature, as measured by the needle probe reaches a set value of Parameter P11, a buzzer will sound when the unit switches to Storage Mode. The buzzer will continue to sound for a time set in Parameter P55, unless manually muted by the operator.




7. To interrupt the cycle, **Press** the **START**  key.

Hard Timed Blast Chilling and Storage




The Hard Timed Blast Chilling and Storage Cycle is a 3-step procedure.

The operation progresses through these steps when a time set for each step is reached,

To select the cycle:

1. Make sure the unit is in the STANDBY mode
2. **Press** the **HARD**  key
3. The Upper Display will show the set-point temperature
4. The LED above the HARD key will illuminate
5. To change the set-point temperature of the first operational step, **Press** the **UP**  or **DOWN**  key.

Hard Timed Blast Chilling and Storage (continued)

6. To change the set-point temperature of the second operational step, **Press** and **Hold** the **HARD**  key for 5 seconds
7. **Press** the **UP**  or **DOWN**  key to change the setting.

Note: The set-point temperature for these operational steps can also be set by altering the values in Parameters P6 for the first step and P4 for the second step.

8. Press the **TIME** key
9. The Lower Display will show the set time for the chilling process (Steps 1 & 2).
10. The LED above the TIME key will illuminate.
11. To change the time setting for the chilling process, **Press** the **UP** or **DOWN** key.

These settings will remain active until another cycle is selected.

Note: The duration for the first operational step can also be set by altering the value in Parameter P16. The Hard Chill process switches from the first to the second operational step when a time set by the value in Parameter P18 has elapsed.

12. To initiate the cycle, **Press** the **START**  key.

A Buzzer will sound when time for the chill process has elapsed and the unit switches to Storage Mode. The buzzer will continue to sound for a time set in Parameter P55, unless manually muted by the operator.




13. To interrupt the cycle, **Press** the **START**  key.

Normal (SOFT) Timed Chilling and Storage

The Normal Timed Chilling and Storage Cycle is a 2-step procedure.




The operation progresses through these steps when the time for each step is reached,

To select the cycle:

1. Make sure the unit is in STANDBY mode.
2. **Press** the **SOFT**  key.
3. The Upper Display will show the set-point temperature.
4. The LED above the SOFT key will illuminate.
5. To change the set-point temperature of the first operational step, **Press** the **UP**  or **DOWN**  key.

Normal (SOFT) Timed Chilling and Storage (continued)

Note: The set-point temperature for the first operational step can also set by altering the value in Parameter P4.

6. Press the **TIME**  key
7. The Lower Display will show the set time for the chilling process
8. The LED above the TIME key will illuminate.
9. To change the time setting for the chilling process, Press the **UP**  or **DOWN**  key.

These settings will remain active until another cycle is selected.

Note: The duration for the chilling step can also set by altering the value in Parameter P16.

10. To initiate the cycle, Press the **START**  key.

A Buzzer will sound when time for the chill process has elapsed and the unit switches to Storage Mode. The buzzer will continue to sound for a time set in Parameter P55, unless manually muted by the operator.




11. To interrupt the cycle, Press the **START**  key.

Timed Freezing and Storage


The Normal Freezing and Storage Cycle is a 2-step procedure.

The operation progresses through these steps when the time for each step is reached,



To select the cycle:

1. Make sure the unit is in STANDBY mode.
2. Press the **FREEZING**  key.
3. The Upper Display will show the set-point temperature.
4. The LED above the FREEZING key will illuminate.
5. To change the set-point temperature of the first operational step, Press the **UP**  or **DOWN**  key.

Note: The set-point temperature for the first operational step can also set by altering the value in Parameter P5.

6. Press the **TIME**  key
7. The Lower Display will show the set time for the freezing process.

Timed Freezing and Storage (continued)


8. The LED above the TIME key will illuminate.
9. To change the time setting for the freezing process, Press the UP  or DOWN  key.

These settings will remain active until another cycle is selected.

Note: The duration for the freezing step can also be set by altering the value in Parameter P17.

10. To initiate the cycle, Press the START  key.



A Buzzer will sound when the time for the chill process has elapsed and the unit switches to Storage Mode. The buzzer will continue to sound for a time set in Parameter P55, unless manually muted by the operator.

11. To interrupt the cycle, Press the START  key.

Storing a Custom Sequence






The unit allows storage of up to 99 custom sequences.

To store a sequence:

1. Begin an operational sequence as previously described, **DO NOT press the START key.**
2. Press and Hold the PROGRAM  key for 5 seconds.
3. The Upper Display will show the name of the first unused program slot.
4. Press the UP or DOWN Arrow key to scroll through the programs.
5. Press and Hold the PROGRAM  key for 5 seconds to store the program in the selected slot.
6. The sequence will be saved to that slot and the controller will exit from the procedure.

Note: Any programs previously saved to that slot will be overwritten.

Running a Stored Custom Sequence

1. Make sure the unit is in STANBY Mode.
2. Press the **PROGRAM**  key.
3. The Upper Display will show the label of the first stored program.
4. Press the **UP**  or **DOWN**  Arrow key to scroll through the programs.
5. Press the **START**  key to initiate the selected sequence.
6. Press the **PROGRAM**  key to display the label of the current program.

Displaying Temperatures


To display the cabinet temperature during a set-temperature sequence:

- Press the **current cycle key** and the upper display will show the cabinet temperature for 5 seconds.

For example:



During a Hard Set-Temperature Chilling and Storage sequence,
Press the **HARD**  key for 5 seconds to view the cabinet temperature.


To display the temperature detected by the needle probe during a timed sequence:

- Press the **NEEDLE Probe**  Key and the Upper Display will show the temperature sensed by the needle probe for 5 seconds.

Displaying Elapsed Time


To display the time elapsed since initiating a chilling or freezing sequence:

- Press the **UP**  Arrow and the Lower Display will show the elapsed time until the  Arrow key is pressed.










Note: If the **UP**  Arrow key is pressed during the storage phase of a sequence, the Lower Display will show the duration of the chilling or freezing phase of the sequence.

Section 6 Settings







Setting the Date and Time

1. Make sure the unit is in OFF Mode
2. Press the TIME  key for 5 seconds
3. The Upper Display will show "YY" for year and the Lower Display will show 2 digits corresponding to the last 2 digits of the year











For example: 12 = 2012

4. Press the UP  or DOWN  Arrow key to change the year
5. Press the TIME  key again and the Upper Display will show "NN" for month and the Lower Display will show the digits of the corresponding month in 12-month format.
6. Press the UP  or DOWN  Arrow key to change the month
7. Press the TIME  key again and the Upper Display will show "dd" for day and the Lower Display will show the digits of the corresponding day in 31-day format.
8. Press the UP  or DOWN  Arrow key to change the day
9. Press the TIME  key again and the Upper Display will show "hh" for hour and the Lower Display will show the digits of the corresponding hour in 24-hour format.

For example: 08 = 8:00 AM – 20 = 8:00 PM

10. Press the UP  or DOWN  Arrow key to change the hour
11. Press the TIME  key again and the Upper Display will show "nn" for minutes and the Lower Display will show the digits of the corresponding minutes.
12. Press the UP  or DOWN  Arrow key to change the minutes
13. Press the TIME  key to save the date and time settings and automatically exit the procedure.

Setting the Configuration Parameters

1. Make sure the unit is in OFF Mode.
2. **Press and Hold** the **UP**  and **DOWN**  Arrow keys together for 5 seconds.
3. The Upper Display will show "PA" and the Lower Display will show the corresponding value.
4. To select a Parameter, **Press** the **UP**  or **DOWN**  Arrow key.
5. To modify a Parameter, **Press** the **TIME**  key.
6. The LED above the TIME key will illuminate.
7. **Press** the **UP**  or **DOWN**  Arrow key within 60 seconds to change the setting
8. **Press** the **TIME**  key to save the setting.
9. To exit, **Press and Hold** the **UP**  and **DOWN**  Arrow key together for 5 seconds.

Section 7 HACCP

Setting the Date and Time

The controller is capable of storing up to 10 HACCP alarms. When more alarms occur the oldest alarms will be overwritten.




The controller can furnish the following information:

- Critical value
- Date and time of alarm occurrence
- Alarm duration (from 1 to 999 minutes or “----” if alarm is in progress)

Code	Alarm Type (Critical Value)
Er0	Cabinet Probe Error (Temperature of the cabinet when an alarm condition occurs)
Er1	Evaporator Probe Alarm (Maximum cabinet temperature during an alarm condition)
Er3	Needle Probe Alarm (Maximum cabinet temperature during an alarm condition)
Er4	Condenser Probe Alarm (Maximum cabinet temperature during an alarm condition)
AL	Minimum Cabinet Temperature Alarm (Minimum cabinet temperature during an alarm condition)
AH	Maximum Cabinet Temperature Alarm (Maximum cabinet temperature during an alarm condition)
Ht	Condenser Temperature Alarm (Maximum cabinet temperature during an alarm condition)
d - r	Micro Port Input Alarm (Maximum cabinet temperature during an alarm condition)
HP	High Pressure Input Alarm (Maximum cabinet temperature during an alarm condition)
LP	Low Pressure Input Alarm (Maximum cabinet temperature during an alarm condition)
HA	Compressor Thermal Protection Input Alarm (Maximum cabinet temperature during an alarm condition)
PF	Power Failure Alarm (Cabinet temperature upon restoration of power)

Displaying HACCP Alarm Information


To display the HACCP alarm information:

1. Make sure the unit is on the OFF mode.
2. **Press and Hold** the **PROGRAM**  key for 5 seconds.
3. The Upper Display will show "Prt".
4. **Press** the **UP**  or **DOWN**  key and the Upper Display will show the number of the alarm.

For example: "n03" - the lower the number, the older the alarm.

5. The Lower Display will show the alarm code.

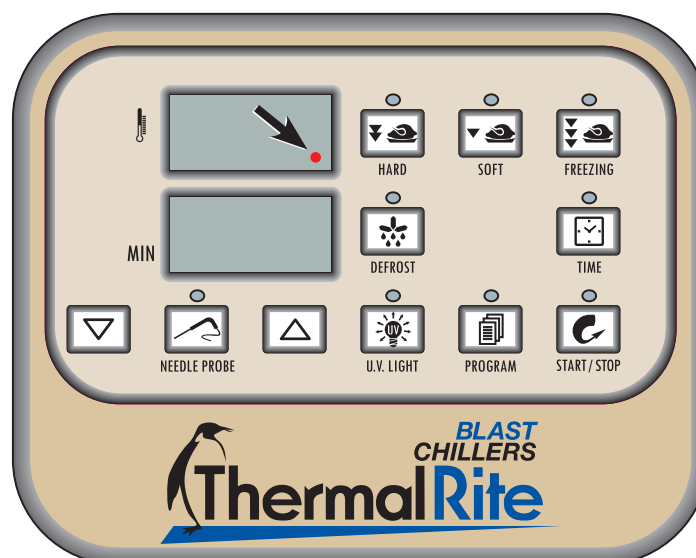
For example: "AH"

6. To display the details **Press** the **TIME**  key repeatedly to show the following information in sequence.




For example:

Info	Description
St Y12	Appears in Upper Display Appears in Lower Display The alarm occurred in 2012 (continued ...)
M03 d26	Appears in Upper Display Appears in Lower Display The alarm occurred on March 26, 2012
h16 d30	Appears in Upper Display Appears in Lower Display The alarm occurred at 4:30 pm
t 8	Appears in Upper Display Appears in Lower Display The critical value is 8 °C/8 °F
dur 75	Appears in Upper Display Appears in Lower Display The alarm condition lasted for 75 minutes
DY1 AH	Appears in Upper Display Appears in Lower Display The alarm code

Displaying HACCP Alarm Information (continued)



The LED, shown above, is the HACCP Alarm Indicator. When this LED is blinking, an alarm has occurred.

- To exit the information sequence, **Press** the **UP**  or **DOWN**  Arrow key and the Upper Display will show the number of another code and the Lower Display will show the corresponding code.
- To exit the procedure, **Press and Hold** the **PROGRAM**  key for 5 seconds.

Deleting the HACCP Alarm List

- Set Parameter P73 to 1

Data Printing

The unit has a serial port for communicating with the PM 100AX9S001 print module.

Connecting to the Print Module

1. Make sure Parameter P71 is set to 1.
2. Make sure the print module baud rate is set to 9600 baud.
3. Make sure the module parity is set to odd.

Data Printing (continued)

Printing Operational Cycle Information

- Operational cycle start date.
- Operational cycle or program type (or one of the codes listed in the table below).

Code	Description
T>>>*	Hard set-temperature chilling and storage
T*	Normal set-temperature chilling and storage
T***	Set-temperature freezing and storage
t>>>*	Hard timed chilling and storage
t*	Timed normal chilling and storage
t***	Timed freezing and storage
P01...99	Program 01 ... 99




- Printing time.
- Cabinet temperature (Pr1).
- Temperature measured by the needle probe (Pr3, only if the operational cycle is a set-temperature cycle).
- Time of switchover to storage mode.
- Time of any operational cycle interruption.

Printing of the temperature occurs at operational cycle start, and at intervals. See Parameter P72.

Printing HACCP Alarm Information

The print module will print the information shown previously in the section on Displaying HACCP Alarm Information (page XXX)

To print the alarm information:

1. Make sure the unit is in OFF mode.
2. Press the **PROGRAM**  key for 5 seconds.
3. The Upper Display will show "Prt".
4. Press the **PROGRAM**  key.
5. The printing procedure will start.
6. To exit, Press the **PROGRAM**  key for 5 seconds.

Section 8 Maintenance and Cleaning

General Safety

⚠ WARNING: Before performing any service that involves electrical connection or disconnection and/or exposure to electrical components, always perform the Electrical LOCKOUT/TAGOUT Procedure. Disconnect all circuits. Failure to comply with this procedure can cause property damage, injury or death.

This information and these instructions are intended for individuals who have been certified and authorized to perform maintenance and cleaning procedures on this unit.

Before performing any cleaning or maintenance procedures on this unit, make sure all electrical power has been disconnected.

Follow these safety rules to ensure all cleaning and maintenance procedures are performed safely:

- Do not touch the unit with moist or wet hands or feet.
- Never operate the unit while barefoot.
- Do not insert tools, utensils or any other object between guards and moving parts.
- Disconnect the power supply and unplug the unit before performing any cleaning or maintenance procedure.
- Never pull on the power supply cable to unplug the unit.
- Never remove any guards or safety devices for the purpose of routine maintenance or cleaning.

The manufacturer shall not be held responsible for accidents caused by the failure to follow the above listed general safety rules.

Before using the unit for the first time, the inside of the cabinet must be thoroughly cleaned. See below procedure Cleaning the Cabinet.

Cleaning the Cabinet

To ensure proper hygiene and food quality, clean the interior of the cabinet frequently.

Clean the cabinet interior weekly with a soft cloth or sponge. Use a mild detergent and clean water. Rinse with a damp cloth or a gentle spray of water.

CAUTION: Do not use abrasive cleansers, solvents or paint thinners. Do not use sharp or abrasive instruments to scrape the interior surfaces.

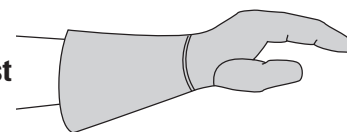
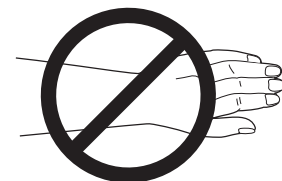
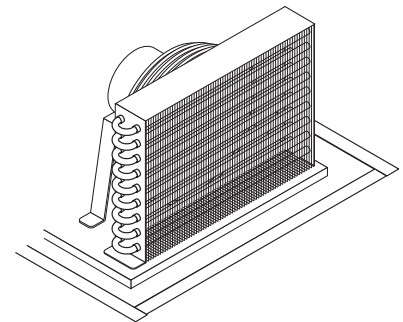
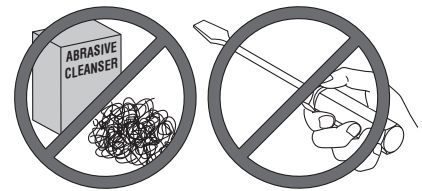
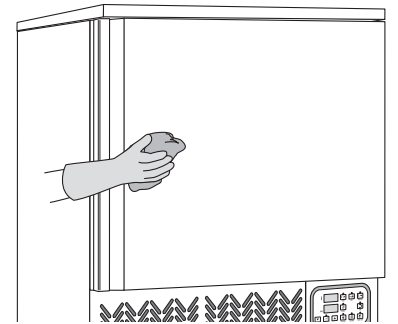
⚠ WARNING: Wear protective gloves when cleaning the unit.

⚠ WARNING: Before performing the following cleaning procedure, always perform the Electrical LOCKOUT/TAGOUT Procedure. Disconnect all circuits. Failure to comply with this procedure can cause property damage, injury or death.

In order to ensure proper air flow, the condenser must be kept clean to allow free circulation of air through the coils. Cleaning should be performed at least once a month. Use a non-metallic brush to remove all dust and debris from the condenser fins and fan blades. Use a vacuum cleaner to remove all dust and debris from the surrounding area. To remove grease deposits, use a non-metallic brush dipped in alcohol.

CAUTION: Never use sharp or abrasive instruments to scrape the appliance surfaces.

⚠ WARNING: The condenser has sharp edges. Wear protective gloves, eye protection and the appropriate dust mask when cleaning the condenser.



Accessing the Evaporator for Cleaning

Depending on the model:

1. Remove the screws located on the fan cover panel (see fig XX) and swing the panel open to the right side.

OR

2. Remove the screws located on the fan cover (see fig XX) and swing the panel down.

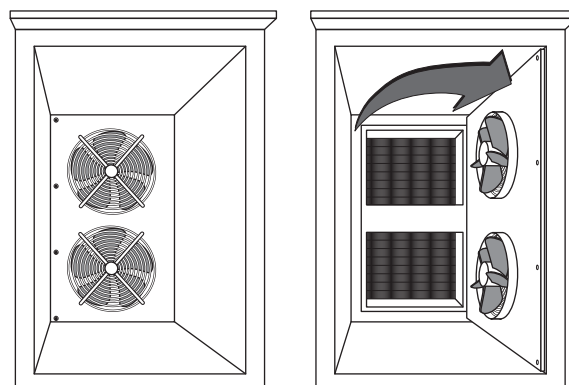
3. Periodically spray the evaporator coil with very low pressure hot water.

4. Dry the evaporator and surrounding area with pressurized air to remove all water.

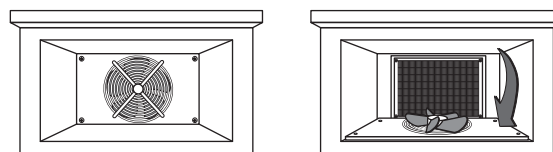
5. Carefully wipe the surrounding area with a clean dry cloth.

6. Reinstall the fan cover panel.

T-14



T-5



CAUTION: Before restarting the unit, make sure all cleaning supplies and tools have been removed from the unit.



Section 9 Messages and Alarms

Messages

Code	Description
L1	<p>"ON" / "STANDBY" LED</p> <ul style="list-style-type: none"> If on, a chilling or freezing operation is in progress. If flashing, a storage operation is in progress.
L2	<p>Needle probe LED if on, the temperature measured by the needle probe is being displayed. If flashing, the result of the test to verify correct needle probe insertion was negative; the cycle will be started in timed mode and the buzzer will emit 5 beeps every 10 seconds.</p>
L3	<p>Timed operation cycle LED</p> <ul style="list-style-type: none"> If on, a timed operation cycle will have been selected (or is in progress).
L7	<p>Hard chill LED if on:</p> <ul style="list-style-type: none"> A hard chill operation will have been selected. The first step of a hard chill operation is in progress. Modification of the hard chill first step operational setpoint is underway. <p>If flashing:</p> <ul style="list-style-type: none"> Modification of the hard chill second step operational setpoint is underway. The second step of a hard chill operation is in progress.
L8	<p>Normal chilling LED</p> <ul style="list-style-type: none"> If on, a normal chill operation has been selected (or is in progress).
L9	<p>Freezing LED</p> <ul style="list-style-type: none"> If on, a freezing operation has been selected (or is in progress).
L10	<p>UV light (cabinet sterilization) LED</p> <ul style="list-style-type: none"> If on, the UV light is on (a cabinet sterilisation operation is in progress).
L11	<p>Defrosting LED</p> <ul style="list-style-type: none"> If on, defrosting is in progress.
L12	<p>Program LED</p> <ul style="list-style-type: none"> If on, program storing, selection or execution is in progress.
L13	<p>HACCP LED</p> <ul style="list-style-type: none"> If on, program storing, selection or execution is in progress.
dEF	<p>If on, defrosting is in progress. If flashing, drip-draining is in progress.</p>

Alarms

Code	Problem	Remedy
AL – Minimum cabinet temperature alarm	<ul style="list-style-type: none"> The alarm output is activated. 	<ul style="list-style-type: none"> Check the cabinet temperature. See Parameters P64 and P66.
AH – Maximum cabinet temperature alarm	<ul style="list-style-type: none"> The alarm output is activated. 	<ul style="list-style-type: none"> Check the cabinet temperature. See Parameters P65 and P67.
Ht – Condenser temperature alarm	<ul style="list-style-type: none"> The operational cycle is interrupted. All operational cycles unable to start. The condenser fan is running. The alarm output is activated. 	<ul style="list-style-type: none"> Check the condenser temperature. See Parameter P62.
d - r – Micro-port input alarm	<ul style="list-style-type: none"> The compressor has shut down. Evaporator fan is off and Parameter P37 is set to 1. Cabinet light is on and Parameter P59 is set to 0. The condenser fan is off. The UV light is off, (i.e. when cabinet sterilization is in progress). 	<ul style="list-style-type: none"> Check the causes of the input activation. See Parameter P38.
PH – High pressure input alarm	<ul style="list-style-type: none"> The operational cycle is interrupted. The loads will be switched off. All operational cycles unable to start. The alarm output is activated 	<ul style="list-style-type: none"> Check the causes of the input activation. See Parameter P40.
LP – Low pressure input alarm	<ul style="list-style-type: none"> The operational cycle is interrupted The loads are off. All operational cycles unable to start. 	<ul style="list-style-type: none"> Check the cause of the input activation. See Parameter P42.
HA – Compressor thermal protection input alarm	<ul style="list-style-type: none"> The operational cycle is interrupted. The loads are off. All operational cycles unable to start. The alarm output is activated. 	<ul style="list-style-type: none"> Check the causes of the input activation. See Parameter P44.
rES – Power failure during an operational cycle	<ul style="list-style-type: none"> The operational cycle will be restored from the point where the power failure occurred. 	<ul style="list-style-type: none"> Check the cause of the input activation.

When the cause that triggered the alarm has been resolved, the device restores normal operation.

Internal Diagnostics

Code	Problem	Remedy
Er0 – Cabinet probe error	<ul style="list-style-type: none"> The operational cycle is interrupted. The loads are off. All operational cycles unable to start. The alarm output is activated. 	<ul style="list-style-type: none"> See Parameter P60. Check probe integrity. Check probe-device connection. Check the cabinet temperature.
Er1 – Evaporator probe error	<ul style="list-style-type: none"> Defrosting will last for the length of time set by Parameter P24. The evaporator fan will be switched off during storage. The alarm output is activated. 	<ul style="list-style-type: none"> See Parameter P60. Check probe integrity. Check probe-device connection. Check the cabinet temperature.
Er3 – Needle probe error	<ul style="list-style-type: none"> A set-temperature chilling or freezing operation was in progress, the operational cycle is interrupted. All operational cycles unable to start. The alarm output will be activated. 	<ul style="list-style-type: none"> See Parameter P60. Check probe integrity. Check probe-device connection. Check the cabinet temperature.
Er4 – Condenser probe error	<ul style="list-style-type: none"> The condenser fan will operate in parallel with the compressor, except when set by Parameter P54. The alarm output is activated. 	<ul style="list-style-type: none"> See Parameter P60. Check probe integrity. Check probe-device connection. Check the cabinet temperature.
Err – User interface-module communication error	<ul style="list-style-type: none"> An operational cycle is in progress, the device will continue to function normally. It will not be possible to start any operational cycles. 	<ul style="list-style-type: none"> Check the user interface-module connection.

When the cause that triggered the alarm has been resolved, the device restores normal operation.

Configuration Parameters

PARAM.	MIN.	MAX.	U.o.M.	DEF.	SENSOR INPUTS
P0	0	1	- - -	1	Unit of temperature measurement (1). 0 = °F 1 = °C
P1	-10	10	°C/°F(2)	0	Cabinet probe offset.
P2	-10	10	°C/°F(2)	0	Evaporator probe offset.
P3	-10	10	°C/°F(2)	0	Needle probe offset.
PARAM.	MIN.	MAX.	U.M.	DEF.	MAIN CONTROLLER
P4	40	99	°C/°F(2)	-2	Operational setpoint during the second hard chill step; also, operational setpoint during normal chilling (with reference to the cabinet probe).
P5	-40	99	°C/°F(2)	-40	Operational setpoint during freezing (with reference to the cabinet probe).
P6	-40	P4	°C/°F (2)	-20	Operational setpoint during the first hard chill step (with reference to the cabinet probe).
P7	-40	99	°C/°F(2)	3	Operational setpoint during post-chill storage (with reference to the cabinet probe).
P8	-40	99	U.M.	-20	Operational setpoint during post-freeze storage (with reference to the cabinet probe).
P9	1	15	°C/°F(2)	2	P4, P5, P6, P7 and P8 differential.
P10	-40	99	°C/°F(2)	3	Set temperature chill end temperature (with reference to the needle probe).
P11	-40	99	°C/°F(2)	-18	Set temperature freeze end temperature (with reference to the needle probe).
P12	-40	P10	°C/°F(2)	15	Temperature which switches the hard chill from the first step to the second (with reference to the needle probe).
P13	-40	99	°C/°F(2)	65	Temperature above which it is not possible to start a set-temperature operational cycle (with reference to the needle probe).
P14	0	99	°C/°F(2)	5	Needle probe and the cabinet temperature for verification of correct needle probe insertion (3). 0 = The test will not be performed.
P15	1	99	S	60	Duration of the second test to check correct needle probe insertion; see also P14 (4).
P16	1	400	MIN	90	Maximum set temperature chill duration; also timed chill duration.
P17	1	400	MIN	270	Maximum set temperature freeze duration; also timed freeze duration.
P18	1	P16	MIN	20	First hard timed chill step duration.
PARAM.	MIN.	MAX.	U.M.	DEF.	COMPRESSOR PROTECTIONS
P19	0	99	min	0	Compressor delay from device power on (from restoration of power).
P20	0	99	min	0	Minimum elapsed time period between two consecutive compressor start-up operations.
P21	0	99	min	0	Minimum compressor shut-down time.

Configuration Parameters (continued)

PARAM.	MIN.	MAX.	U.M.	DEF.	COMPRESSOR PROTECTIONS
P22	0	99	- - -	1(2_GM	Defrost type (5) 0 = Electric (defrost on relay). 1 = Hot gas (defrost compressor and relay on). 2 = Air (evaporator fan on).
P23	-40	99	C/°F(2)	8	Defrost end temperature (with reference to the evaporator probe).
P24	0	99	min/s(6)	10	Maximum defrost duration.
P25	0	99	h/min(6)	6	Defrost interval during storage; see also P26. 0 = Intermittent defrosting will never be activated (only the first will be activated).
P26	0	99	min/s(6)	1	First defrost delay from start of storage; see also P25.
P27	0	1	- - -	1	Defrosting at start of chilling and freezing. 1 = YES
P28	0	99	min/s(6)	2	Drip-drain duration.
P29	0	1	- - -	0	Resetting of compressor protections at start of defrosting (only if P22 = 1). 1 = YES
P30	0	400	S	30	Elapsed time between the defrost request and switching on the compressor (only if P22 = 1 and providing the compressor is off when defrost is requested). See also P31 (7) (8).
P31	0	400	S	0	Elapsed time between the defrost request and activation of the solenoid valve (only if P22 = 1 and on condition the compressor is off when defrosting is requested). See also P30 (7) (8).
PARAM.	MIN.	MAX.	U.M.	DEF.	EVAPORATOR FAN
P32	-40	99	°C/°F(2)	3	Temperature above which the evaporator fan is switched off during storage (with reference to the evaporator probe).
P33	-15	15	°C/°F(2)	1	P32 differential
P34	0	1	- - -	0	Evaporator fan activity during defrosting (only if P22 = 0 or 1). 0 = ON 1 = OFF
P35	0	15	min/s(6)	3	Evaporator fan activity during defrosting (only if P22 = 0 or 1).
P36	-40	99	°C/°F(2)	90	Temperature above which the evaporator fan is switched off (with reference to the cabinet probe).
P37	0	1	- - -	1	Effect caused by activation of microport input on evaporator fan. 0 = No effect 1 = The evaporator fan will be switched off.

Configuration Parameters (continued)

PARAM.	MIN.	MAX.	U.M.	DEF.	DIGITAL INPUTS
P38	0	1	- - -	1	Microport input contact type 0 = NA (Input active with contact closed) 1 = NC (Input active with contact open)
P39	0	200	min	0	Micro port input alarm delay (9).
P40	0	1	- - -	1	high pressure input alarm delay 0 = NA (Input active with contact closed) 1 = NC (Input active with contact open)
P41	0	200	s	120	High pressure input alarm delay.
P42	0	1	- - -	0	Low pressure input contact type. 0 = NA (Input active with contact closed) 1 = NC (Input active with contact open)
P43	0	200	s	0	Low pressure input alarm delay.
P44	0	1	- - -	0	Compressor thermal protection input contact type. 0 = NA (Input active with contact closed) 1 = NC (Input active with contact open) Compressor thermal protection input alarm.
P45	0	200	s	0	Compressor thermal protection input alarm delay.
PARAM.	MIN.	MAX.	U.M.	DEF.	CABINET STERILISATION
P46	0	99	min	5	UV light on duration (Duration of cabinet sterilisation).
PARAM.	MIN.	MAX.	U.M.	DEF.	NEEDLE PROBE HEATING
P47	-40	99	°C/°F(2	45	Needle probe heating end temperature (with reference to the needle probe).
P48	0	99	s	15	Maximum duration of needle probe heating.
PARAM.	MIN.	MAX.	U.M.	DEF.	DOOR ELEMENTS
P49	-20	20	C/°F(2	5	The temperature, below which the door elements are switched on (with reference to the cabinet probe).
P50	-10	10	C/°F(2	2	P49 differential.
PARAM.	MIN.	MAX.	U.M.	DEF.	CONDENSER FAN
P51	0	1	- - -	1	Condenser fan activity in the absence of the condenser probe (P61 = 0). 0 = In parallel with compressor 1 = ON
P52	-45	100	C/°F(2	20	The temperature below which the condenser fan is switched off in the presence of the condenser probe (P61 = 1) and on condition that the compressor is on (with reference to the condenser probe). See also P54.
P53	-10	10	C/°F(2	5	P52 differential
P54	0	300	s	30	Condenser fan switch off delay on switching off the compressor in the presence of the condenser probe (P61 = 1). See also P52.

Configuration Parameters (continued)

PARAM.	MIN.	MAX.	U.M.	DEF.	MISCELLANEOUS
P55	0	99	S	3	Chill and freeze cycle completion buzzer duration.
P56	1	400	S	15	Maximum buzzer duration during an alarm state.
P57	0	999	S	10	Elapsed time between switching on the compressor and down pump valve activation (down pump in power up); also elapsed time between deactivation of the down pump valve and switching off the compressor (down pump in power down).
P58	0	1	---	0	Defrost Parameter units of measurement. 0 = P25 h, P24, P26, P28 and P35 min 1 = P25 min, P24, P26, P28 and P35 s
P59	0		---	0	Reserved
P60	0	1	---	0	Probe type 0 = NTC 1 = PTC
P61	0	1	---	0	Condenser probe enabling. 1 = YES
PARAM.	MIN.	MAX.	U.M.	DEF.	CONDENSER TEMPERATURE ALARMS
P62	0	99	C/°F(2	70	The temperature above which the condenser temperature alarm is activated (with reference to the condenser probe).
P63	0	30	C/°F(2	10	P62 differential
PARAM.	MIN.	MAX.	U.M.	DEF.	CABINET TEMPERATURE ALARMS
P64	-99	0	C/°F(2	0	Temperature below which the minimum temperature alarm is activated during post-chill storage, with relation to P7, i.e. "P7 + P64" (with reference to the cabinet probe). 0 = No alarm
P65	0	998	C/°F(2	0	Temperature above which the maximum temperature alarm is activated during post-chill storage, with relation to P7, i.e. "P7 + P65" (with reference to the cabinet probe). 0 = No alarm
P66	-99	0	C/°F(2	0	Temperature below which the minimum temperature alarm is activated during post-freezing storage, with relation to P8, i.e. "P8 + P66" (with reference to the cabinet probe). 0 = No alarm
P67	0	99	C/°F(2	0	Temperature above which the maximum temperature alarm is activated during post-freezing storage, with relation to P8, i.e. "P8 + P67" (with reference to the cabinet probe). 0 = No alarm

Configuration Parameters (continued)

PARAM.	MIN.	MAX.	U.M.	DEF.	CABINET TEMPERATURE ALARMS
P68	1	15	C/°F(2	2	P64, P65, P66 and P67 differential.
P69	0	255	min	0	Storage operation start-up temperature alarm delay.
P70	0	255	min	0	Temperature alarm delay.
PARAM.	MIN.	MAX.	U.M.	DEF.	DATA PRINTING
P71	0	1	---	0	Enable printing. 1 = YES
P72	0	60	min	5	Print interval.
P73	0	1	---	0	HACCP alarm list deletion. 1 = YES (10)
P74	---	---	---	2	Reserved
P75	---	---	---	2	Reserved
P76	---	---	---	1	Reserved

1. Altering Parameter P0 affects all Parameters where the unit of measurement is degrees Celsius or degrees Fahrenheit.
2. The unit of measurement depends on Parameter P0.
3. The test result is positive, if the difference between temperature measured by the needle probe and cabinet temperature is greater than the value set by Parameter P14, at least 3 times out of 5 (checking every 10 seconds). If the test result is negative, a second test is initiated. See Parameter P15.
4. The result of the second test is positive, if the difference between temperature measured by the needle probe and cabinet temperature increases by at least 1 °C/1 °F with respect to the previous check, at least 6 times out of 8 (checking occurs every P15/8 seconds). If Parameter P15 is set to a value of less than 5 seconds, the second test will not be executed.
5. If Parameter P22 is set to 2, micro port input activation will not be signalled.
6. The unit of measurement depends on Parameter P58.
7. Defrosting will be activated on conclusion of the time which is greatest between those set by Parameters P30 and P31.
8. If defrosting is requested when the compressor is on and time set by Parameter P30 is less than the value set by Parameter P31, the compressor will remain on and the solenoid valve and defrosting will be activated after the time "P31 - P30" has elapsed since the defrost request. Conversely, if defrosting is requested when the compressor is on and time set by Parameter P30 is greater than that set by Parameter P31. When defrosting is requested the compressor will be switched off for the greater of times between those set by Parameters P19, P20 and P21. After which the compressor and defrosting will be activated (the solenoid valve will be activated "P30 - P31" seconds prior to activation of defrosting).
9. Parameter P39 has no effect during UV light switch on (cabinet sterilisation)
10. Altering Parameter P73 is effective for exiting the configuration Parameter setting procedure; as soon as you quit the configuration Parameters setting procedure, Parameter P73 will automatically get Value 0.

