LABORATORY OR PHARMACY UPRIGHT REFRIGERATOR

OWNER'S GUIDE

Disclaimer

This manual is intended as a resource to provide the operator with instructions on the proper use and maintenance of particular Horizon Scientific, Inc. products.

Failure to adhere to the instructions as herein could result in improper product operation, injury, and potentially void product warranties Horizon Scientific, Inc. accepts no liability or responsibility for results stemming from improper use or maintenance of its products.

The content within this guide is provided for illustrative purposes only and may vary from the actual hardware or software photos, screen shots or illustrations.

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1. GENERAL

1.1 INTENDED AUDIENCE

This manual is intended for authorized service technicians and end users. The information herein pertains only to the specifically indicated products.

1.2 APPLICATION

This manual applies to Laboratory and Pharmacy upright refrigerators, which may be provided with or without advanced equipment, such as a touchscreen display interfaces. Optional equipment will be noted in the appropriate section of this manual.

This manual does NOT apply to the following:

- NSF refrigerators
- Chromatography refrigerators
- Freezers

1.3 SAFETY AND NOTICES

Symbols found in this manual

 This is a general warning, caution, hazard, or important consideration symbol.

 This is an electrical hazard caution / warning symbol.

 This is a hot surface hazard caution / warning symbol.

 This is a flammable hazard caution / warning symbol.

 This is a pinch or potential injury hazard caution / warning symbol.

Warnings, cautions, and important considerations

 **WARNING:** This product can expose you to chemicals including chromium which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

 **WARNING:** Electric Shock Hazard. Do Not Remove top electrical cover. Contact a qualified service representative.

 **WARNING:** Do not remove electrical system components access unless instructed to do so.

 **WARNING:** Do not modify the refrigeration circuit, electrical wiring or components, unless work is performed by a certified technician.

 **WARNING:** Do not damage the refrigeration circuit.

 **WARNING:** Only use manufacturing supplied power cord, never use an extension cord.

 **WARNING:** The controller automatically switches power to components. Always unplug before making repairs.

 **WARNING:** Do not use electrical appliances inside the storage compartments of this appliance, unless they are of the type recommended by the manufacturer.

 **WARNING:** Do not overload shelves with heavy products or concentrated loads, this increases the likelihood of items falling and causing injury.

 **WARNING:** Do not store any unsealed chemical material in this cabinet. Corrosive fumes from chemical material can linger inside of the chamber and cause serious damage to the refrigeration coils. Storing unsealed chemical material in this equipment will void the factory product warranty.

 **WARNING:** Do not store explosive substances such as aerosol cans with flammable propellant in this cabinet. Do not store flammable substances such as gasoline in this cabinet. This equipment is not rated for flammable material storage.

 **WARNING:** Do not operate this equipment in the presence of explosive fumes. This equipment is not rated as a hazardous locations storage cabinet.

 **WARNING:** Keep ventilation openings clear of obstruction. This includes ventilation inside the appliance enclosure or in the built-in structure.

 **CAUTION:** Before moving the unit, make sure the door is closed, casters (if installed) are unlocked and free of obstructions, and disconnect the power cord (make sure cord is secured).

 **CAUTION:** Do not touch hot surfaces associated with the condenser system.

 **CAUTION:** Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.

 **CAUTION:** Avoid any sharp edges or points when working on or in the unit.

 **CAUTION:** Keep fingers out of pinch point areas; clearances between the doors and between the doors and cabinet are necessarily small; be careful closing doors.

 **IMPORTANT:** Only use manufacturer supplied or approved components and authorized personnel, when servicing the unit.

 **IMPORTANT:** This unit must be properly installed and located in accordance with the Installation Instructions before it is used.

 **IMPORTANT:** This unit must be decontaminated prior to sending for repair or service. Contact Horizon Scientific or your distributor for decontamination instructions.

Specific to hydrocarbon refrigerants:

Refrigerant class per ANSI/ASHRAE 34

- **DANGER:** Risk of fire or explosion, flammable refrigerant used. Do not use mechanical devices to defrost the unit. Do not puncture refrigerant tubing.
- **DANGER**: Risk of fire or explosion, flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.
- **CAUTION:** Risk of fire or explosion, flammable refrigerant used. Consult instruction manual/ repair manual/ owner's guide before attempting to service this product. All safety precautions must be followed.
- **CAUTION:** Risk of fire or explosion, flammable refrigerant used. Dispose of properly in accordance with federal or local regulations.
- **CAUTION:** Risk of fire or explosion, flammable refrigerant used. Do not puncture refrigerant tubing; follow handling instructions carefully.

1.4 RECEIVING AND SHIPPING DAMAGE HANDLING

Each unit is carefully inspected to meet our high quality standards before it ships to you. Unfortunately, shipping damage can happen during transportation to you. There are two general types of shipping damage. The first is visible damage. This type of damage includes visible loss, damage, shortage or any external evidence of loss or damage that is visible at the time of delivery. This type of damage must be noted in detail on your delivery receipt. Make sure the driver signs and dates the delivery receipt, acknowledging the damages. We also recommend taking many pictures to demonstrate and document the damaged area(s). This must happen at the time of delivery. Keep a copy for your records and send another to the carrier's damage claims department along with a formal request for an inspection report. Follow up with a phone call. Their contact information can be found on the carrier's web site.

The second type of shipping damage is concealed damage. This type of damage will probably not be apparent at time of delivery and may not be discovered until unpacking and inspecting the unit. Remember, time is of the essence. You should unpack and inspect the unit as soon as possible. Each day that passes reduces the likelihood that the carrier will pay the claim. As soon as the concealed damage is discovered, stop unpacking and retain all packing materials. Take many pictures to demonstrate and document the concealed damage area(s). Contact the carrier by phone to report the claim. Note the date and time and person you spoke with. Get a claim number. Follow up with a written letter referencing the claim number and including a formal request for an inspection. Again, consult the carrier's website for specific claim instructions and follow them precisely.

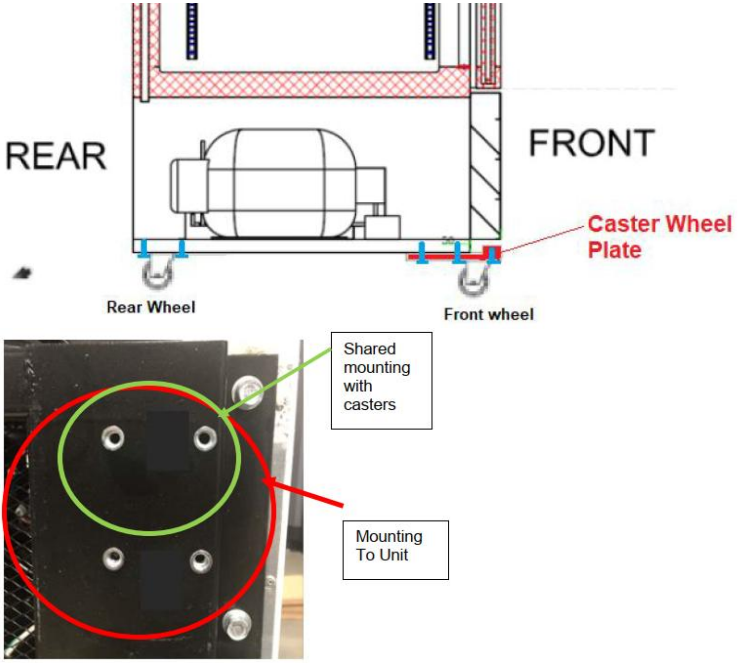
AS STATED ABOVE, THE CARRIER IS YOUR SOLE SOURCE FOR SATISFACTION OF A DAMAGE CLAIM. UNDER NO CIRCUMSTANCES SHOULD THE MERCHANDISE BE RETURNED TO THE MANUFACTURER. NO RETURNS WILL BE ACCEPTED WITHOUT PRIOR AUTHORIZATION.

2. INSTALLATION

2.1 UNPACKING

- Remove outer stretch wrap and cardboard packaging for unobstructed access under the unit.
- Unbolt the cabinet from the pallet using a 13mm wrench or socket to remove the 2 bolts in opposite corners of the unit.
- Carefully rotate the unit so it is 45° to the pallet, with a corner of the pallet centered at the front of the unit. Pull the unit forward to expose the front caster mounting locations.
- Install casters using casters, bolts, and brackets (if provided) as follows:
    - Locate locking casters at the front of the unit, non-locking casters at the rear.
    - If caster brackets are provided, install the caster bracket at the front of the unit to provide optimum stability.
        - Attach the front caster to the bracket using the bolts provided: Insert bolts through the front two holes of the caster and into the front two holes of the bracket.
        - Attach the bracket and caster to the unit: Insert center bolts through both caster and bracket into the unit and insert rear bolts through the bracket only into the unit.
    - Rear casters are attached directly to the 4 threaded holes on the bottom of the unit
    - Start the first few threads by hand, then completely tighten each bolt using a 13mm wrench or socket.
    - After the front casters are properly secured, pull unit forward keeping the rear of the unit supported by the pallet, until the rear casters can be installed. Then carefully remove the unit

from the pallet.



- For glass swing door units, remove the foam-covered metal door bracket secured to the bottom of the door with 2 screws. Failure to remove this door bracket may cause temperature issues by preventing the door from closing properly and may damage the unit during door use.

- Remove foam/cardboard shipping supports from the inside of the chamber prior to powering on unit.

2.2 GENERAL RECOMMENDATIONS

- After unpackaging, allow the unit to come to room temperature before starting.
- On startup, the high temperature alarm may sound until the unit is able to cool the interior to operating range.
- Allow for the set point to be reached and for the interior temperature to stabilize before storing products.
- Only store items on the shelves. Products on the floor, against walls, or against the door(s) may obstruct air flow and impair the performance of the unit.
- Weight of product on each shelf should not exceed 50lbs, evenly distributed. Do not overload the unit.

2.3 LOCATION AND CLEARANCE

Ambient conditions:
The refrigerator is meant to be installed indoors, and operates best in climate-controlled, +18°C to +26°C (+65°F to +78°F), <70% RH, to ensure efficiency and strong thermal performance. Some ambient state excursions are acceptable, but performance may be impacted if used in other environmental conditions. Please refer to the Product Specifications section of this manual for guidance.

While the refrigerator will operate in a wide range of conditions, the following considerations may help to reduce the chance of an undesirable condition. Units placed near room doors, HVAC registers, or widows will be subject to more ambient temperature variation. Direct sunlight or other powered equipment in the room will raise localized temperatures differently than what is registered by an HVAC thermostat. Air currents in a room from building ventilation, windows, or doorways will impact the quality and amount of air exchange between the refrigerated chamber and the ambient during door openings.

Clearance Space:
This model requires a minimum of two (2) inches of clearance space behind and on both sides of the unit. This will allow good airflow and access to the unit for periodic maintenance, or service. For swing door cabinets, ensure there is enough clearance to allow the door to open more than 90 degrees without obstruction.

The cabinet must be located within reach of an outlet that has an appropriate power supply as listed above with a protective earth ground. The outlet should be easily accessible when installation is complete as this is the only method for powering off the equipment.

2.4 LEVELING

Leveling

Ensure that the placement chosen for installation has a level floor. The unit must be level side to side and front to back. If the unit is not level, corrections can be made using hard and durable shim stock (hard plastic or corrosion resistant metal sheets) under the casters. Ensure that the caster locks are engaged.

 **IMPORTANT:** If the unit is not level, door closure may be negatively impacted.

2.5 DOOR ALIGNMENT

For swing door cabinets, verify that each door is level and opens and closes easily. Verify that the door gasket seals along all surfaces of the cabinet. Improper sealing will affect the ability to maintain temperature over time and may lead to excessive condensation in refrigerator units.

If swing door adjustment is needed, a qualified person may properly align the door as follows:

Adjusting top hinge:

1. Remove canopy to access top hinge bracket
2. Open door at least 90 degrees to access top hinge screws
3. Loosen 3 Phillips head screws without completely removing from bracket
4. Move bracket left or right until door is square and level at the top.
5. If necessary, shims could be added below bracket to change sealing or door swing results.

6. Tighten 3 Phillips head screws while holding bracket in desired position.
7. Reinstall canopy

Adjusting bottom hinge:

1. Remove lower grill to access bottom hinge bracket
2. Remove Phillips head screw
3. Loosen 3 socket head screws without completely removing from bracket
4. Move bracket left or right until door is square and level at the top.
5. If necessary, shims could be added below bracket to change sealing or door swing results.
6. Tighten 3 socket head screws while holding bracket in desired position.
7. Reinstall Phillips head screw
8. Reattach lower grill

2.6 SHELVES

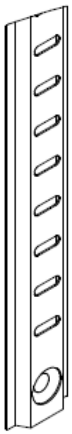
The refrigerator chamber comes equipped with adjustable wire shelves. Pilasters are factory installed and allow user to select spacing between each shelf.

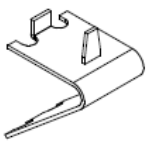
IMPORTANT: For shelves to remain level and strong; it is critical that the shelf clips are properly installed and locked securely into position.

CAUTION: The shelf clip(s) present pinch points when assembling and disassembling.

WARNING: Do not use pliers or any crimping tools when installing shelf clips. Altering shelf clips in any way can lead to shelving instability.

Shelf Installation and Repositioning





1. Locate shelf clips delivered in a plastic bag with the unit.
2. Start at the bottom in terms of shelf installation and work your way up.
3. Properly insert the shelf clips in the desired height (Remember all shelf clips will need to be installed at the same height to keep the shelf level.)
4. Always lay the back of each shelf down on the rear clips before the front.
5. The Bottom tab of the shelf clip will fit tightly. You may need to squeeze or twist the bottom of the shelf clip to install.
6. After installation, the shelf clip will fit snug into the shelf standard.

The shelf clip should not be loose or able to wiggle out of the shelf standard.

7. When placing the shelves on the shelf clips ensure the shelf is pushed back as far as it can go to ensure proper temperatures across the entire shelf.

2.7 ELECTRICAL COMPONENTS

Remote Alarms Contact Terminal Block

A remote alarm contact terminal block is provided to allow for connection to a building monitoring system. The terminal block is located at the back of the cabinet near the bottom of the unit.

There will be 3 wires: Normally Open (NO), Common (C), and Normally Closed (NC). Connecting to NC and C will provide a signal to the monitor during normal operation, then interrupt when an alarm condition exists (including when power is lost). Connecting to NO and C will have no signal to the monitor during normal operation, then provide signal when an alarm exists.

For models with touchscreen display, a 4-20mA connection for remote temperature monitoring, a separate wiring connection for the 4-20mA will be located above the canopy.

12V Circuit Fuse

A fuse is provided at the side of the canopy for the 12V circuit powering the controller. The fuse is intended to protect the control equipment and should not require any intervention. If the refrigerator is powered on but the controls are not active, check that the fuse is installed and intact.

2.8 ELECTRICAL INSTALLATION

Check the proposed external power outlet/supply to be used to ensure that the voltage, phase, and current carrying capacity of the circuit from the electrical panel correspond to the requirements of the cabinet.

 The supply circuit to this cabinet must conform to NEC (National

Electrical Code). Consult the cabinet Serial-Data plate for voltage, cycle, phase, and amperage requirements before making connection.

 Supply voltage should not vary more than 10% from the serial plate ratings.

 DO NOT connect this equipment to a GFI (Ground Fault Interrupt) circuit.

 **Do not use an extension cord or any multi-outlet strip or plug**. Using such devices can lead to insufficient power and component failure, such as the compressor or starting components.

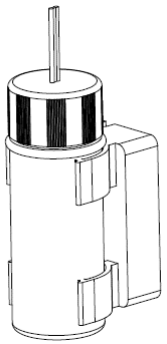
 If the power cord is damaged, it should be replaced immediately by an authorized service technician.

 Be sure your unit is properly grounded. Use the 3-prong plug provided into a 3-prong grounded outlet. Unless the above grounding method is followed, you are not protected against severe or lethal shock in the event of a short circuit of an electrical component or wiring of the unit.

2.9 TEMPERATURE PROBES

A primary temperature monitoring probe is imbedded in a bottle containing a glass bead thermal media. The thermal media is designed to simulate the temperature of stored product during normal operation. The bottle ships clipped to the side wall of the equipment. It is recommended to place this bottle in the center of the center shelf to more accurately represent temperatures where product is stored.

Verify that the metal temperature probe is fully inserted into the bottle and that the cap is completely closed to avoid spilling any thermal media. Failure to maintain a full probe bottle may cause the display to report temperatures that do not represent the stored product temperature accurately.



Bottle Probe

2.10 EXTERNAL PROBE ACCESS PORT

This unit is equipped with a ¾" (19 mm) port that can be used for external monitoring devices. This port is located on the back of the unit. Remove the external and internal plugs in the port for routing. Seal the probe port hole around wiring with duct seal or moldable putty to prevent air from getting into the chamber. Do not route wires through the door gasket, which compromises the integrity of the door seal.

2.11 BATTERY BACKUP (IF EQUIPPED)

The controller may include a battery backup feature that allows the controller and display (if equipped) to maintain temperature monitoring and alarms even if the main power is lost. The battery backup does not require any activation on setup, and will automatically disconnect the battery power as battery voltage drops to maintain component longevity.

NOTE: The unit cannot cool without main power, but the controller will continue to display and alarm until the battery backup is discharged.

2.12 EMERGENCY BACKUP PLAN

Before using this refrigerator, establish an emergency backup plan in case of power outage or other possible unseen issue:

2. How will equipment be monitored?
    a. Onboard audible and visual alarms notify personnel in the vicinity. Alarm setpoints should be verified prior to storing products in the refrigerator.
    b. Alarm conditions may be monitored remotely by connecting the remote alarm contacts to a building monitor or remote dialer. Test at startup and at regular intervals to verify operation.
    c. Remote temperature monitoring is recommended. Touchscreen displays include a 4-20mA output that can be used for remote temperature monitoring. Otherwise, 3rd party temperature monitoring probes should be installed via the probe access port.
3. What is the contingency to keep product cold?
    a. External power backups or power generators must be sized appropriately for refrigerator equipment. Compressor motors draw maximum power momentarily when the cooling cycle starts.
    b. Extra cold storage equipment or temporary storage method (i.e. coolers and ice packs) if the refrigerator

has unexpected issues.

IF YOU PLAN TO STORE IRREPLACEABLE AND/OR HIGH VALUE PRODUCTS IN THIS UNIT TAKE THE PROPER PRECAUTIONS NOW.

The manufacturer's sole obligation under this warranty is limited to either repair or replacement of parts, subject to the additional limitations below. This warranty neither assumes, nor authorizes any person to assume obligations other than those expressly covered by this warranty.

NO CONSEQUENTIAL DAMAGES. The manufacturer is not responsible for economic loss, profit loss, or special indirect or consequential damages, including without limitation, losses, or damages arising from contents spoilage claims whether or not on account of refrigeration or mechanical failure.

2.13 INITIAL POWER UP AND OPERATION

Once all elements of the installation and any on-site IQ (Installation Qualification) have been completed, your unit is ready for startup. Simply plug in the unit into a grounded outlet that meets the electrical requirements, and the unit will automatically start the cooling operation. For units with touchscreen display, long-press the power button above the touchscreen until the display powers on.

The main controller is factory set to an optimal refrigerator temperature. The controller (or touchscreen display, if equipped) may display a high temperature alarm while the equipment is cooling to the operational temperature range. Alarms can be muted to silence the audible alarm and will automatically clear once operating temperature is reached.

3. CONTROLLER / DISPLAY

3.1 OVERVIEW

This equipment comes equipped with a digital microprocessor temperature controller for managing the cooling functions. During normal operation, the compressor will turn on and off to maintain the cold temperature in the storage chamber. The temperature controller utilizes a dedicated NTC temperature probe that reacts quickly to changes in chamber temperature to manage cooling.

The system utilizes a bottle probe, described in section 2 of this manual, to simulate the actual temperature experienced by product. If a touchscreen display is not installed, the LCD of the temperature controller in section 3.2 reflects the temperature of this bottle probe. If a touchscreen display is installed per section 3.3, that display will indicate the bottle probe temperature and the temperature controller will be hidden.

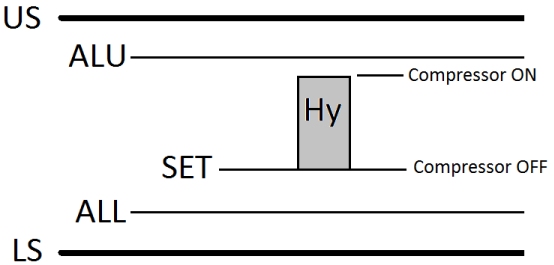
The touchscreen display, if equipped, provides an improved interface to manage cooling settings and monitor temperatures and alarms. The touchscreen also provides extra features such as data logging, alarm history, and enhanced customization.

3.2 OPERATING THE CONTROLLER

Please Note: The digital temperature controller has been factory set and tested to allow your unit to operate at its desired temperature cycle.
Adjusting the settings on the controller will alter factory settings. WE STRONGLY RECOMMEND YOU CONTACT THE MANUFACTURER'S TECHNICAL SUPPORT DEPARTMENT BEFORE MAKING ANY ADJUSTMENTS TO THIS CONTROLLER.
CALL (800) 648 4041, OPTION 5 FOR TECHNICAL SERVICE.

For the temperature controller, the point where the compressor turns off is called "SET POINT". The point where the compressor turns on is calculated by adding the value of "SET POINT" and "Hy" and/or "Hy1" (temp differential).

For example, if you wish to maintain the operation temperature between 4°C and 6°C, "SET" = 4°C, and "Hy" = 2°C.



View the set point
Press and release [SET] button. The display will show the current set point value.

Change the set point (compressor turn-off point)
Press and hold [SET] until °C or °F icon blinking. Press [UP] or [DOWN] to change the setting value. Then, press [SET] once to confirm the new setting.

Change the temperature display between °C and °F
Press and hold [LIGHT] until the display flashes (Lt or nt). Note: settings changed in one temperature scale do not copy to the other. Please check all setpoints and settings after switching scale.

Other parameters available

CODE	DESCRIPTION
Hy (Hy1)	Temp differential between compressor start and off point
Ot	Air (control) probe calibration
ALU	High temp alarm point
ALL	Low temp alarm point
o4	Bottle (display) probe calibration

View or Change the other parameters

Press and hold both [SET] and [DOWN] at the same time until “Hy” or “Hy1” appears on the display.

Press [UP] or [DOWN] to scroll through parameters. Press [SET] to enter the current setting. Press [UP] or [DOWN] to change value. Press [SET] once to confirm the new setting. The display will show the next setting.

At any setting, press and hold both [SET] and [UP] to exit out the setting mode, or simply leave the display alone for 10 seconds.

ALARMS

For models with no advanced display installed, the following alarms will be indicated by the controller during abnormal conditions.

CODE	MEANING	DESCRIPTION
HA	High Temperature alarm	Bottle probe temperature is above the ALU setting for alarm delay duration (default 0 minutes)
LA	Low Temperature alarm	Bottle probe temperature is below the ALL setting for alarm delay duration (default 0 minutes)
P1 (P#)	Probe Failure alarm	Probe is faulty or disconnected. Number corresponds to the affected probe.
DA*	Door Ajar alarm *(if equipped)	Door is open for the door alarm delay duration (default 60 seconds)
CA*	Power Loss alarm *(if equipped)	Loss of main power to the unit – cooling is disabled

3.3 TOUCHSCREEN DISPLAY (if equipped)

INTRODUCTION

The touch screen display allows users to manage all cooling, monitoring, and alarm functions for the refrigerator. In addition, the system logs the temperature readout every 5 minutes (adjustable) for on-screen display, with data download available via USB.

Detailed touchscreen instructions are provided in a separate manual.

3.4 CALIBRATION, VERIFICATION, AND VALIDATION

The display temperatures should be verified on start-up and at least every 3 years thereafter to assure that the unit is performing to the requirements. Comparative measurements can be accomplished by utilizing a calibrated Temperature Monitoring Device.

Place the calibrated Temperature Monitoring Device in a medium that simulates the product being stored (per site verification / validation standards) at the appropriate process temperatures. Allow the medium and thermometer temperature to equalize before comparing the displayed product temperatures and thermometer reading. The displayed Product Temperature should read within ±1°C of the calibrated device. If the displayed Product Temperature is out of range enter an appropriate offset per the controller or display specific instructions above.

3.5 ALARM FUNCTIONALITY

During normal operation, if an alarm occurs, a visual indicator on the display will show and an audible indicator will sound. Additionally, the remote alarm contact will change state.

For alarms that activate on the temperature controller, the audible alarm can be muted by pressing any button. The visual indicator and remote alarm contact will remain active until the alarm condition is resolved.

On an advanced display, silence the audible alarm by pressing the mute button once. The audible alarm will remain muted for the period of time set for the RING BACK. If the alarm is still active after the RING BACK time has expired the audible will sound again.

4. PRODUCT SPECIFICATIONS

4.1 OPERATING STANDARDS

These models are designed to operate under the following conditions:

- Indoor use only
- Maximum altitude: 6562 ft. (2000 m)
- Optimal ambient conditions: 18°C to +26°C (+65°F to +78°F), <70% RH
- Short duration ambient conditions: 15°C to 32°C (59°F to 90°), <80% RH

Electrical Specifications:

Model	Input Voltage & Frequency	Rated Amperage	Power Source	Remote Alarm Maximum Capacity
Refrigerator	115V 60 Hz	See serial tag (varies by model)	Grounded outlet, meeting national electric code (NEC) in the U.S. and all local electrical requirements	230V 0.5A

5. MAINTENANCE

 **Observe all Warning Labels. Disconnect power to eliminate injury from electrical shock when servicing equipment or cleaning.**

 Important: It is critical that cleaning recommendations are followed to ensure optimal performance and longevity of the unit.

5.1 INSPECTION AND SERVICING

Periodic inspections (Every 6 months or as required):

- Check the door gasket for proper seal
- Check that ventilation openings inside and outside are not blocked
- Check that proper ventilation is still maintained around the unit

Battery testing and replacement

The controller backup battery (if provided) is a 12V rechargeable lead acid. Batteries should be tested at least once per year to ensure at least 12VDC is available at full charge. Since battery life naturally degrades over time, it is recommended to replace the battery at least every 5 years, and more frequently if power outages occur regularly.

To replace the battery, follow the procedure below.

1. Disconnect the main power cord from the wall.
2. Remove the fuse from the side of the top canopy.
3. Remove the top canopy to access the electronics compartment
4. Locate the battery held in place with a metal bracket.
5. Disconnect the wiring from the 2 battery terminals, noting the polarity (black = negative, red = positive).
6. Loosen the screws holding the metal bracket.

7. Remove the battery and replace with a new battery in the same location and orientation.
8. Reverse the procedure above, remembering to re-install the fuse.

Cleaning

- Never use abrasive cleaners or instruments (steel pads, wire brushes, etc.) on the equipment.
- Warm soapy water is best for cleaning
- If cleaning solution is required, rinse all surfaces the cleaning solution touches with clean water and dry thoroughly.
- Gaskets should be cleaned only with warm soapy water. Cleaning products could damage gaskets or cause them to embrittle over time. Never use tools which could cut or tear the gasket.
- Inspections should be performed quarterly, and the condenser cleaned as necessary to maintain good thermal transfer properties. A soft bristle can be used to loosen these particles that are attached to the fins so that they may be removed with a vacuum cleaner. Care must be taken not to damage the condenser. It is recommended that the condenser be cleaned at least once every 6 months.
- Drain lines and pans should be checked for water accumulation and cleaned as required.
- All moving parts have been permanently lubricated and will generally require no maintenance.

 Important: Failure to keep the condenser coil clean and clear of obstructions could result in poor performance and possibly damage to the compressor.

5.2 SERVICE AND ANALYSIS GUIDE

MALFUNCTION		POSSIBLE CAUSE		SOLUTION
Equipment will not turn on	1.	Power cord unplugged	1.	Plug in power cord
	2.	Building overload tripped	2.	Reset building circuit breaker
	3.	Wall Switch or GFCI outlet	3.	See section 2.8 Electrical Installation
	4.	Controller Fuse	4.	Replace 5A glass fuse
Compressor will not start	1.	No power to equipment	1.	See "Equipment will not turn on" above
	2.	Control not calling for cooling	2.	Verify temperature is above setpoint
	3.	Compressor overload tripped	3.	See below
	4.	Defective start components	4.	Check/replace start components
Compressor trips on overload protection or short cycles	1.	Low voltage to unit	1.	Determine reason and correct
	2.	Excessive head pressure, components too hot	2.	Verify ambient temperatures, check condenser airflow
	3.	Excess refrigerant charge	3.	Evacuate and recharge refrigerant
	4.	Improper wiring	4.	Check for loose/disconnected wiring
	5.	Defective overload	5.	Check/replace compressor
Refrigerated space too warm	1.	Control setting too high	1.	Lower the set point
	2.	Evaporator fan not running	2.	Check door switch position, evaporator fan wiring.
	3.	Dirty condenser	3.	Clean condenser
	4.	Evaporator coil iced	4.	Adjust setpoint/off-cycle
	5.	Improper cabinet seal	5.	Check door gasket, probe ports, wiring/tubing penetrations all sealed
	6.	Overloaded storage blocks cabinet airflow	6.	Move product away from fan, back walls, floor
	7.	Refrigerant Leak	7.	Locate and fix leak, evacuate and recharge refrigerant
Product freezes	1.	Set point is too low	1.	Raise the set point
	2.	Control points stuck	2.	Replace the controller
Objectionable noise	1.	Fan blade hitting fan shroud	1.	Align fan and shroud or replace components
	2.	Tubing rattle	2.	Locate and reform

	3.	Vibrating fan blade	3.	Replace fan blade
	4.	Evaporator or condenser fan	4.	Check/tighten motor mounting
	5.	Worn fan motor bearings	5.	Replace fan motor
Moisture on inside or door	1.	High room humidity (especially in the summer)	1.	Manage indoor humidity or check HVAC
	2.	Location near doorway or under A/C vent	2.	Relocate unit or redirect room air
	3.	Extended/frequent door openings	3.	Minimize time door is open
	4.	Gaps in door gasket	4.	Eliminate wires through door gap, adjust door, replace gasket if needed
	5.	Improper cabinet seal	5.	Check probe ports, wiring/tubing penetrations all sealed, drain is trapped
Water inside unit	1.	Drain line not connected	1.	Connect to evaporator drain
	2.	Drain line blocked	2.	Remove blockage (manually defrost if ice)
Water under unit	1.	Drain/pan in wrong position	1.	Position drain line over drain pan
	2.	Cabinet is not level	2.	Level unit

6. WARRANTY

Horizon Scientific, Inc. warrants to the original purchaser every new Horizon Scientific, Inc. refrigerated unit, the cabinet, and all parts thereof, to be free from defects in material or workmanship, when such unit is installed, used, and maintained in accordance with provided instructions. The warranty period starts two weeks from the date of shipment from Horizon Scientific, Inc. This two-week period allows ample shipping time so that the warranty will go into effect at approximately the same time your equipment is delivered. Unless subject to prior written agreement with Horizon Scientific, Inc., this warranty does not allow for any warranty start deferment greater than two weeks from date of shipment due to a delayed installation and/or start-up. By purchasing any product from Horizon Scientific, Inc., you, and any entity for which you are purchasing acknowledge and agree to every provision contained herein, and all other Notices and Terms provided to Purchaser by Horizon Scientific, Inc., which are hereby incorporated.

6.1 FACTORY WARRANTY

Under this warranty, Horizon Scientific, Inc., through its authorized service organizations, will repair, or at its option, replace any part found to contain a manufacturing defect in material or workmanship without charge to the owner for parts and service labor. Replacement or repaired parts will be warranted for only the unexpired portion of the original warranty. Horizon Scientific, Inc. will not assume any shipping or cartage costs for parts under warranty. These costs shall be paid by the customer.

6.2 COMPRESSOR WARRANTY

In addition to the standard warranty, Horizon Scientific, Inc. warrants its hermetically and semi-hermetically sealed compressors to be free from defects in both material and workmanship under normal use and service in addition to the standard warranty period. Compressors determined by Horizon Scientific, Inc. to have been defective within this extended time period will, at Horizon Scientific, Inc.'s option, be either repaired or replaced with a compressor or compressor parts of similar design and capacity.

The compressor warranty applies only to hermetically and semi-hermetically sealed parts of the compressor and does not apply to any other parts or components, including, but not limited to, cabinet, paint finish, temperature control, refrigerant, metering device, driers, motor starting equipment, fan assembly or any other electrical components. Horizon Scientific, Inc.'s sole obligation under this warranty is limited to either repair or replacement of parts, subject to the additional limitations below.

This warranty neither assumes nor authorizes any person to assume obligations other than expressly covered by this warranty.

6.3 ADDITIONAL WARRANTY INFORMATION

NO CONSEQUENTIAL DAMAGES. Horizon Scientific, Inc. is not responsible for economic loss; profit loss; or special, indirect, or consequential damages, including without limitation, losses or damages arising from contents spoilage claims whether because of refrigeration failure, electrical failure, power failure, or compressor failure. HORIZON SCIENTIFIC, INC.'S MAXIMUM CUMULATIVE LIABILITY RELATIVE TO ALL CLAIMS AND LIABILITIES, INCLUDING OBLIGATIONS UNDER ANY INDEMNITY, WHETHER OR NOT INSURED, SHALL NOT EXCEED THE COST OF THE PRODUCT(S) GIVING RISE TO THE CLAIM OR LIABILITY.

WARRANTY IS NOT TRANSFERABLE. This warranty is not assignable and applies only in favor of the original purchaser/user to whom delivered. Any such assignment or transfer shall void the warranties herein made and shall void all warranties, express or implied, including any warranty of merchantability of fitness for a purpose.

NO IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. There are no other warranties, express, implied, or statutory, except the standard warranty and the additional compressor warranty as described above. These warranties are exclusive and in lieu of all other warranties, including implied warranty and merchantability of fitness for a purpose. There are no warranties which extend beyond the description on the face hereof, whether based on contract, warranty, tort (including negligence), strict liability, indemnity, or any other legal theory, and whether arising out of warranties, representations, instructions, installations, or non-conformities from any cause. Purchaser further acknowledges that the purchase price of the Product reflects these warranty terms and remedies.

ALTERATION, NEGLECT, ABUSE, MISUSE, ACCIDENT, DAMAGE DURING TRANSIT OR INSTALLATION, FIRE, FLOOD OR OTHER EXTERNAL CAUSES.

Horizon Scientific, Inc. is not responsible for the repair or replacement of any parts that Horizon Scientific, Inc. determines have been subjected after the date of manufacture to alteration, neglect, abuse, misuse, accident, damage during transit or installation, fire, flood, or other external causes. It does not apply to defects resulting from failure to properly install, operate or maintain the product in accordance with the printed instructions provided, or damage caused by the storage of any corrosive material that comes in contact with the interior or exterior portions of the cabinet, or the use of spark producing equipment or containers (such as galvanized or carbonized

steel containers) that come in contact with any interior portion of the cabinet.

OUTSIDE U.S./CANADA. This warranty does not apply to, and Horizon Scientific, Inc. is not responsible for, any warranty claims made on products sold or used outside the United States and Canada.

CHOICE OF LAW/VENUE. The laws of the State of South Carolina shall govern the validity, interpretation, and enforcement of this warranty, regardless of conflicts of law principles. Purchaser agrees that proper venue for any action to enforce the terms of this warranty shall be the Dorchester County District Courts, South Carolina. Purchaser submits the jurisdiction of such courts over the Purchaser and the subject matter of any such action. Any action for breach of these warranty provisions must be commenced within one (1) year after that cause of action has accrued.

6.4 WARRANTY CLAIMS

To obtain prompt warranty service, simply contact the manufacturer at 800-648-4041. Horizon Scientific, Inc.'s shipping records showing date of shipment shall be conclusive in establishing the warranty period. All claims should include model number of the unit, the serial number of the cabinet, proof of purchase, date of installation, and all pertinent information supporting the existence of the alleged defect. Any repairs must be authorized by Horizon for the warranty to be honored.

COMPLIANCE

7.1 SAFETY

Safety testing: Equipment is marked with the ETL logo to indicate safety testing by Intertek confirms compliance to UL 471 standards for commercial refrigerators and freezers. Canadian ETL listing confirms compliance to CSA C22.2 #120.

7.2 ENVIRONMENTAL

EPA: The refrigerant and foaming agents used in this product EPA SNAP compliant hydrocarbon.

CONTACT US

Technical Support: 1-800-648-4041 x5
Customer Support: 1-800-648-4041 x3
technicalservice@horizonscientific.com