# Refrigerator Instructions for Use

## i.Series® · Horizon Series™
## Upright - Undercounter

### Blood Bank

**i.Series**

iBR105-GX, iBR113-GX, iBR120-GX, iBR125-GX, iBR245-GX, iBR256-GX

**Horizon Series**

HBR105-GX, HBR113-GX, HBR120-GX, HBR125-GX, HBR245-GX, HBR256-GX

### Laboratory

**i.Series**

iLR105-GX, iLR113-GX, iLR120-GX, iLR125-GX, iLR245-GX, iLR256-GX

**Horizon Series**

HLR105-GX, HLR113-GX, HLR120-GX, HLR125-GX, HLR245-GX, HLR256-GX

### Pharmacy

**i.Series**

iPR105-GX, iPR113-GX, iPR120-GX, iPR125-GX, iPR245-GX, iPR256-GX

**Horizon Series**

HPR105-GX, HPR113-GX, HPR120-GX, HPR125-GX, HPR245-GX, HPR256-GX

360414/B

## Document History

| Revision | Date | CO | Supersession | Revision Description |
|---|---|---|---|---|
| A | 18 SEP 2019* | 14979 | n/a | Initial release. |
| B | 19 MAY 2020 | 15365 | B supersedes A | • Updated Location Requirements to include reference to Product Specifications.<br>• Updated Chart Recorder section to include reference to Temperature Chart Recorder manual.<br>• Updated Notified Body information in the Compliance section. |

* Date submitted for Change Order review. Actual release date may vary.

### Document Updates

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Part No. 360414/Rev B

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# 1 About this Manual

## 1.1 Intended Audience

This manual provides information on how to use i.Series® and Horizon Series™ upright laboratory and undercounter, blood bank, and pharmacy refrigerators. It is intended for use by end users of the refrigerator and authorized service technicians.

## 1.2 Model Reference

Models are indicated by a distinguishing model number that corresponds to the series, type, number of doors, and capacity of the refrigerator. For example, “iLR113-GX” refers to an i.Series Laboratory Refrigerator with 1 door and a capacity of 13 cu ft.

## 1.3 Intended Use

**Note**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Helmer refrigerators are intended for the storage of blood products and other medical and scientific products.

## 1.4 Safety Precautions and Symbols

*Symbols found in this document*

The following symbols are used in this manual to emphasize certain details for the user:

**Task** Indicates procedures which need to be followed.

**Note** Provides useful information regarding a procedure or operating technique when using Helmer Scientific products.

**NOTICE** Advises the user against initiating an action or creating a situation which could result in damage to equipment; personal injury is unlikely.

### *Symbols found on the units*

The following symbols may be found on the refrigerator or refrigerator packaging:

Caution: Risk of damage to equipment or danger to operator

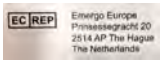
Caution: Hot surface

Caution: Shock / electrical hazard

Warning: Crushing of hands / fingers

Danger: Risk of Fire or Explosion. Flammable refrigerant used

Refer to documentation




EU Authorized Representative

*These symbols also appear with appropriate information provided within this document.*

## 1.5 Avoiding Injury

- Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer.
- Do not damage the refrigerant circuit.

Review safety instructions before installing, using, or maintaining the equipment.

- Before moving unit, ensure door is closed and casters are unlocked and free of debris.
- Before moving unit, disconnect the AC power cord and secure the cord.
- Never physically restrict any moving component.
- Avoid removing electrical service panels and access panels unless so instructed.
- Keep hands away from pinch points when closing the door.
- Avoid sharp edges when working inside the electrical compartment and refrigeration compartment.
- Ensure products are stored at recommended temperatures determined by standards, literature, or good laboratory practices.
- Proceed with caution when adding and removing product from the refrigerator.
- Do not open multiple, loaded drawers at the same time.
- Use manufacturer supplied power cord only.
- Avoid risk of ignition by using only manufacturer supplied components and authorized personnel when servicing the unit.
- Using the equipment in a manner not specified by the manufacturer may impair the protection provided by the equipment.
- Ensure product is stored safely, in accordance with all applicable organizational, regulatory and legal requirements.
- The refrigerator is not considered to be a storage cabinet for flammable or hazardous materials.
- Use caution when moving undercounter units in a stacked configuration.
- **REQUIRED:** Decontaminate parts prior to sending for service or repair. Contact Helmer or your distributor for decontamination instructions and a Return Authorization Number.

## 1.6 General Recommendations

### General Use

Allow refrigerator to come to room temperature before switching power on.

During initial startup, high temperature alarm may sound while refrigerator reaches operating temperature.

Do not remove the cover from the condensate evaporator tray on upright units.

### Initial Loading

Allow chamber temperature to stabilize at the setpoint before storing product.

### Product Loading Guidelines

When loading your refrigerator, take care to observe the following guidelines:

- Never load refrigerators beyond capacity.
- Always store items within shelves, drawers or baskets.
- Temperature uniformity is maintained by air circulation, which could be impeded if unit is overfilled, particularly at the top or against the doors or walls. Ensure a 2” (50 mm) clearance is provided below the fan.

**Note**

Products stacked against walls or doors may obstruct air flow and affect performance of unit.

# 2. Installation

## 2.1 Location

Keep all ventilation openings in the enclosure or, in the structure of building-in, clear of obstruction.

- Has a grounded outlet meeting the electrical requirements listed on the product specification label.
- Is clear of direct sunlight, high temperature sources, and heating and air conditioning vents.
- Upright units require minimum 8” (203 mm) above, and minimum 3” (76 mm) behind.
- Undercounter units require minimum 3” behind the unit for clearance and feature access.
- Meets specified limits for ambient temperature and relative humidity as stated in the Product Specifications section of this manual.

## 2.2 Placement and Leveling

The evaporation tray located on the back of the upright refrigerator may be hot. Do not use the tray as a handle.

**NOTICE**

- To prevent tipping, ensure the casters (if installed) are unlocked and doors are closed before moving the unit.
- To avoid damaging refrigerant tubing or risking refrigerant leak, use caution when moving or operating the unit.

*Undercounter units only*

- Do not sit, lean, push or place heavy objects on top surface of undercounter units.
- Do not lean on or push down on an open door or extended drawers.

1. Ensure door is secured and casters (if installed) are unlocked.
2. Roll refrigerator into place and lock casters.
3. Ensure refrigerator is level.

**Note**

Helmer recommends the use of leveling feet and wall and floor brackets (PN 400472-2) for stabilization on undercounter units. Contact Helmer Technical Service for parts and instruction.

## 2.3 Stacked Undercounter Units

**NOTICE**

- For stacked configuration, both units must have leveling feet installed.
- Back brace bars and front stabilizing brackets must be installed (Blue - PN 400821-1; Stainless Steel - PN 400821-2).
- When stacking units, place the heavier unit on the bottom.
- Do not open multiple loaded drawers at the same time.
- Do not lean on or push down on an open door or extended drawers.

Contact Helmer or your distributor for more information regarding the stacking kit and methods to secure both units to the wall and/or floor.

## 2.4 AC Power Cord

Use manufacturer supplied power cord only.

**Install power cord**

If packaged with modular cord, insert plug securely into the refrigerator power receptacle prior to connecting to grounded outlet.

## 2.5 Temperature Probes

A solid ballast or probe bottle and container of glycerin have been provided with this unit. The glycerin is used to create a solution which, when placed in the probe bottle, simulates the product stored in the refrigerator. The product simulation solution temperature reflects the product's temperature during normal operation.

**Notes**

- Temperature probes are fragile; handle with care.
- Number and location of probes varies by model.
- Remote probes may also be introduced through the existing port on top or rear of the unit (if included).
- Solid ballast (if installed) should be placed in the bracket in a horizontal position.
- Failure to fill probe bottles or keep probe bottles (if installed) filled to the appropriate level may cause the chamber temperature to display higher or lower than the actual temperature.

**Primary Monitor Probe**

The primary monitor probe is located at the top left side of the refrigerator.

*Primary monitor probe*

**Secondary Monitor Probe *(i.Series models 20 cu ft and larger only)***

The secondary monitor probe is located in the lower left side of the refrigerator.

*Secondary monitor probe*

### Fill Temperature Probe Bottle *(if installed)*

**Note**

Use approximately 4 oz. (120 mL) of product simulation solution (10:1 ratio of water to glycerin).
Glycerin packet included in refrigerator box.

1. Remove probe(s) from bottle and remove bottle from bracket.
2. Remove cap and fill with approximately 4 oz. (120 mL) of product simulation solution.
3. Secure cap on bottle and place in bracket.
4. Replace probe(s), immersing at least 2” (50 mm) in solution.

### Install Additional Probe Through Top or Rear Port

1. Peel back putty to expose port.
2. Insert probe through port into chamber.
3. Insert probe into bottle.
4. Replace putty, ensuring a tight seal.

## 2.6 Chart Recorder *(if included)*

The chart recorder has a back-up battery system enabling a period of continuous operation if power is lost. Battery life varies by manufacturer as well as voltage level remaining. If full battery power is available, back-up power for the temperature chart recorder is available for up to 14 hours.

**Notes**

- If chart recorder is operated on battery power, the battery should be replaced to ensure the back-up source has proper charge.
- For complete information, refer to the Temperature Chart Recorder Operation and Service Manual.

**Prior to use:**

Place chart recorder probe in bottle or ballast with primary monitor probe.

**Set up and Operation**

Access the chart recorder by pressing and releasing the door (i.Series except 113 models) or pulling door open (Horizon Series, 113 models and undercounter models).

**Install battery.**

Connect the leads to the battery to provide back-up power to the chart recorder.

**Install / Replace Chart Paper**

**Note**

For accurate temperature reading, ensure the current time is aligned with the time line groove when the chart knob is fully tightened.

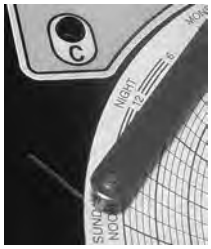



*Chart recorder stylus and time line groove*

1. Press and hold C button. When stylus begins to move left, release button. The LED flashes.
2. When stylus stops moving, remove chart knob then move knob up and away.
3. Place chart paper on chart recorder.
4. Gently lift stylus and rotate paper so current time line corresponds to time line groove.
5. Hold chart paper in place while making sure the chart knob is fully tightened. *(Failure to fully tighten the knob can result in paper slipping and losing time.)*
6. Press and hold C button. When stylus begins to move right, release button.
7. Confirm stylus is marking on paper and stops at the correct temperature.
8. Calibrate chart recorder to match primary temperature if needed and close recorder door.

**Power Supply**

The temperature chart recorder uses AC power when the system is operating. If AC power fails, the recorder continues to record temperature with back-up power provided by the nine-volt battery.

- The LED indicator glows green continually when main power is functioning and the battery is charged.
- The LED indicator glows red continually when main power is functioning and the battery is either not installed or needs to be changed.
- The LED indicator flashes red to indicate that the recorder is receiving power only from the back-up battery.
- The LED indicator flashes during chart paper change mode.

# 3 i.Series® Operation

## 3.1 Initial Power-Up

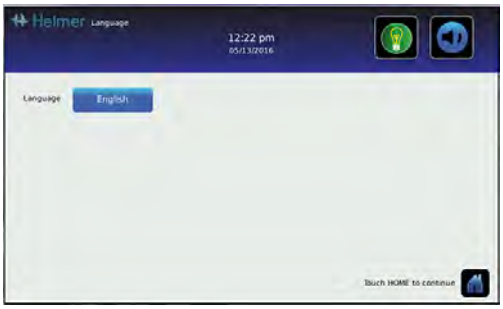
1. Plug the power cord into a grounded outlet that meets the electrical requirements on the product specification label.
2. Turn the AC power switch ON.
3. Turn the back-up battery switch ON.

**Notes**

- For models equipped with optional Access Control, the back-up battery is turned ON with a key switch.
- The Start screen is displayed when the i.C³ is powered on. The i.C³ will take approximately 2-5 minutes to boot up.

*Start screen*

The language screen is displayed when the i.C³ is powered on. Use the Language screen to select the i.C³ display language.




*Language screen*

If an alarm sounds, temporarily mute the alarm by touching the Mute button.

*Home screen - alarm muted*

*Mute icon*

**Note**

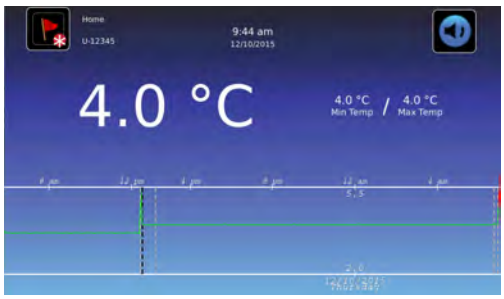
Active alarms are displayed on the Home screen. If an alarm condition other than High Temperature occurs, refer to the service manual for troubleshooting.

## 3.2 Operation

**Notes**

- Refer to the i.C³ User Guide for complete information regarding the i.C³ User Interface.
- The i.C³ Home screen displays temperature and alarm information, and provides icons to gain access to other functions of the i.C³.
- After two minutes of inactivity, the screensaver will be displayed. To return to the Home screen, touch the screensaver.

*Home screen*



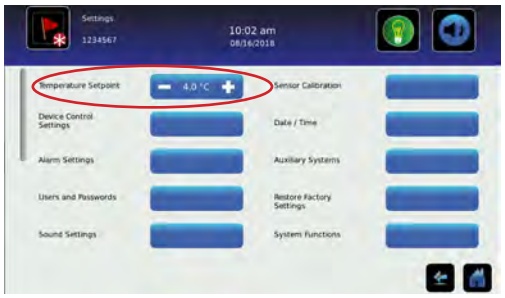

*Home screensaver*

## 3.3 Change Temperature Setpoint

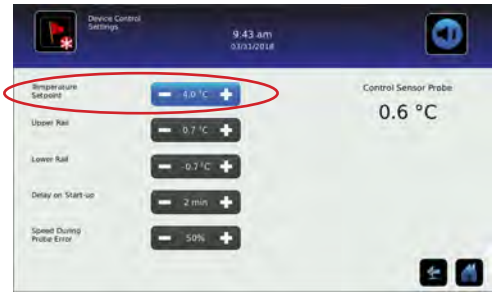
**Note**

The Temperature Setpoint toggle button can be accessed from either the initial Settings screen or the Device Control Settings screen.

> > Enter the Settings password. Select Temperature Setpoints. Touch minus (-) or plus (+) on spin box to change value.




*Settings screen*



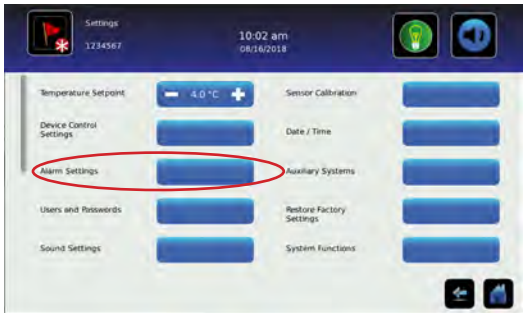

*Device Control Settings screen*

**Notes**

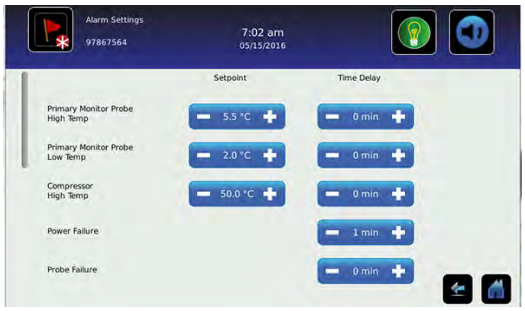
- Default Settings password is 1234.
- Default setpoint is 4.0 °C for iLR and iBR models, or 5.0 °C for iPR models.

## 3.4 Set Alarm Parameters

> > Enter the Settings password. Scroll down to select Alarm Settings. Touch minus (-) or plus (+) on the spin box to set each alarm parameter.




*Settings screen*



*Alarms screens*

Alarm settings control the circumstances and timing of alarm condition indicators displayed on the i.C³ Home screen.

## 3.5 Active Alarms

*Home screen with active alarm*

**Table 1. i.Series Active Alarms**

| Alarm | Description |
|---|---|
| Communication Failure 1 | Communication lost between i.C³ display board and control board |
| Communication Failure 2 | Configuration file is corrupt or i.C³ is unable to access the configuration file |
| Communication Failure 3 | Corrupt database |
| Compressor Probe Failure | Probe not functioning properly |
| Compressor High Temperature | Compressor temperature reading is above high temperature alarm setpoint |
| Control Probe Failure | Probe not functioning properly |
| Drive Space Low | SD card is approaching capacity |
| Drive Space Full | SD card is full |
| Door Open | Door is open beyond user-specified duration |
| Inverter Communication Failure | Communication is lost between the i.C³ control board and the VCC inverter |
| Low Battery | Back-up battery voltage is low |
| No Battery | Back-up battery voltage is deficient |
| Power Failure | Power to the unit has been disrupted |
| Primary Monitor Probe Failure | Probe not functioning properly |
| Primary Probe High Temperature | Primary monitor probe reading is above high temperature alarm setpoint |
| Primary Probe Low Temperature | Primary monitor probe reading is below low temperature alarm setpoint |
| Secondary Monitor Probe Failure (if installed) | Probe not functioning properly |
| Secondary Probe High Temperature (if installed) | Secondary monitor probe reading is above high temperature alarm setpoint |
| Secondary Probe Low Temperature (if installed) | Secondary monitor probe reading is below low temperature alarm setpoint |

## 3.6 Mute Active Alarms

Audible alarms may be temporarily muted by touching the Mute icon. The delay duration can be set and changed by selecting Sound Settings from the Settings screen. The duration may be set to any value from 1 - 60 minutes. The delay time remaining will be displayed in the bottom right corner of the icon. If the alarm is still active after the mute delay has ended, the audible alarm will sound.

*Unmuted*

*Muted*

> > Enter the Settings password. Scroll down to select Sound Settings. Touch minus (-) or plus (+) on spin box to set the mute duration.

## 3.7 Light Operation *(if installed)*

Press Light Icon to turn LED lights ON or OFF.
Auto ON/OFF feature can be configured in Settings.

*Light ON/OFF*

**Table 2. Application Icons**

| Icon | Description | Icon | Description | Icon | Description | Icon | Description |
|---|---|---|---|---|---|---|---|
| | Home | | Temperature Graph | | CSV Download | | Save |
| | Event Log | | Alarm Test | | PDF Download | | Cancel |
| | Mute | | Information Logs | | Upload | | Back Arrow |
| | Reset | | Contact Information/ Contact Helmer | | Access Control | | Scroll |
| | Zoom Information | | Display Brightness | | Access Log | | Temperature Graph Forward/Back |
| | i.C³ Applications | | Light On/Off | | Alarm Conditions | | Battery Power |
| | Settings | | Icon Transfer | | Cancel Test | | |

i.Series

# 4 Min/Max Temperature Monitoring

The Min/Max temperature display provides the highest and lowest Primary Monitor probe temperature reading since the last system reset (power-on event) or manually-initiated reset. Touch the Reset icon to the right of the display to manually reset.

**Notes**

- The Min/Max temperature display can be turned on or off through Display Settings.
- Once the time reaches the maximum display of 999 hours and 60 minutes, the message will display “>999:60”, but minimum and maximum temperatures will continue to be tracked.

# 5 i.Series® Access Control (Optional)

Allows user-specific secure access to the refrigerator.

**Notes**

- During a power failure, the optional Access Control lock will remain locked until battery power is depleted or until the back-up battery key switch is switched OFF.
- Switching the back-up battery key switch OFF will disable the monitoring system during a power failure.
- During a power failure, switch the battery back-up switch OFF and use the mechanical door key to provide secure storage for refrigerator contents.
- Refer to i.C³ User Guide for complete information regarding Access Control.

## 5.1 Setup

Configure and manage user-specific accounts to allow controlled access to the refrigerator.

> > Access Setup

*Access Control Setup password screen*

*Access Control Setup screen*

Enter the supervisor PIN to set up Access Control and follow the on-screen prompts to set up users.

**Notes**

- Initial factory supervisor PIN = 5625
- The supervisor PIN cannot be deleted, and should be changed to prevent unauthorized user ID setup. The supervisor PIN does not allow access to the unit. At least one user ID must be set up to gain access to the unit.

## 5.2 Open Refrigerator with Access Control

*Access Control keypad*

Enter a valid PIN using the keypad.

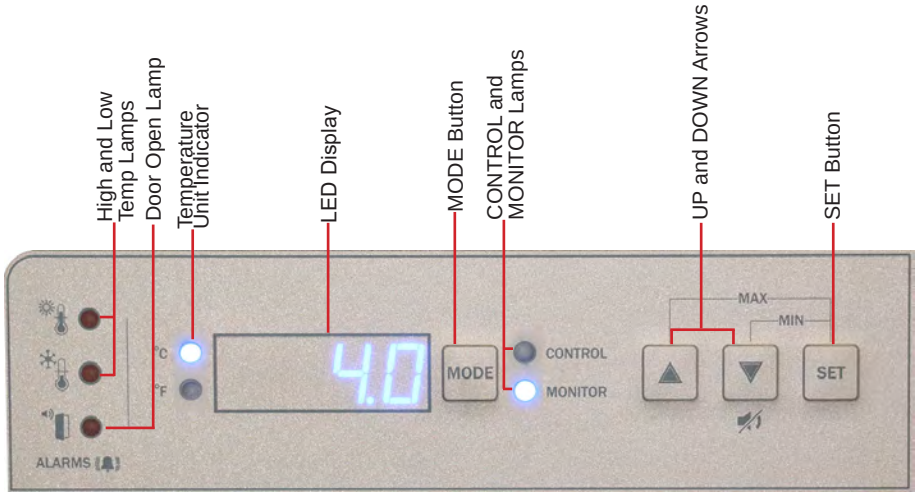
# 6 Horizon Series™ Operation

## 6.1 Initial Power-Up

1. Plug the power cord into a grounded outlet that meets the electrical requirements on the product specification label.
2. Switch the AC ON/OFF switch **ON**.
3. Install 9 V back-up battery provided (undercounter battery located in literature box; upright battery located on top of unit).
4. Switch the Alarm ON/OFF key switch to **ON**.
5. Press **Down Arrow** (Mute) if high temperature alarm sounds.

**Notes**

- For models equipped with optional Access Control, switch the back-up battery key switch **ON.**
- During a power failure, the back-up battery continues to provide power to the optional Access Control lock (if equipped). If the back-up battery is not functioning, the optional Access Control lock will not secure the door.
- If an alarm condition other than High Temperature occurs, refer to the service manual for troubleshooting.




*Horizon Series™ temperature monitor and control interface*

## 6.2 Display Minimum and Maximum Monitor Temperature Recordings

**Note**

This feature only applies to the Primary Monitor probe.

The minimum and maximum recording feature allows the user to view a minimum temperature occurrence and a maximum temperature occurrence within a given period of time. The timer provides a time reference in which those temperatures occurred.

**View minimum temperature recording**

1. Press and hold the **Down Arrow** button for 1 second and listen for a single beep.
2. The display will alternate between **LO** and a valid temperature value five (5) times followed by a single beep to indicate exit back to the temperature display.

**View maximum temperature recording**

1. Press and hold the **Up Arrow** button for 1 second and listen for a single beep.
2. The display will alternate between **HI** and a valid temperature value five (5) times followed by a single beep to indicate exit back to the temperature display.

### View recorded temperature timer

**Notes**

- The timer denotes the period of time that has elapsed. It does not display the time at which a minimum or maximum temperature occurred.
- The maximum period of time the timer can record is 99:59 (99 hours and 59 minutes).

1. Press and hold either the **Up** or **Down Arrow** button for 1 second. ▲ or ▼
2. While the display is flashing the **HI** or **LO** value, press and hold the **SET** button for 1 second.
3. The display will alternate five (5) times between **CLr** and a value representing the number of hours and minutes that have elapsed since the last recording (example: 12:47 would represent 12 hours and 47 minutes). A single beep will follow to indicate exit back to temperature display.

### Clear minimum and maximum temperature recordings

1. Press and hold either the **Up** or **Down Arrow** button for 1 second. ▲ or ▼
2. While the display is flashing the **HI** or **LO** value, press and hold the **SET** button for 1 second and listen for a single beep.
3. While the display is flashing the elapsed time since last reset, press and hold the **SET** button for 2 seconds. **CLr** will be displayed followed by a series of 3 beeps to indicate exit back to the temperature display.

**Notes**

The minimum and maximum temperature and timer will reset when:

- the unit is powered off and battery back-up is not engaged, or
- after 99 hours and 59 minutes have elapsed.

## 6.3 Change Temperature Setpoint

**Note**

Default setpoint is 4.0 °C for HBR and HLR models; 5.0 °C for HPR models.

1. Press and release **SEL** to change to Control mode. The CONTROL lamp will illuminate.
2. Press and hold **SET** to display the current setpoint temperature.
3. Hold **SET** and press the **Up** or **Down Arrow** as necessary to set the desired setpoint value.
4. Release all buttons; the setpoint is changed.
5. Press and release **SEL** to return to Monitor mode. The MONITOR lamp will illuminate.

## 6.4 Set Parameter Values

1. Press and hold the **Up** and **Down Arrows** simultaneously for 3 seconds to enter program mode.
2. The LED Display will show .C or .F to indicate Celsius or Fahrenheit.
3. Press and release **SEL** button to scroll through the parameters.
4. Once the desired parameter is selected, press and hold the **SET** button while pressing the **Up** or **Down Arrow** to select the desired value.
5. Release **SET** button. The new setting is saved.
6. Press and hold the **Up** and **Down Arrows** simultaneously for 3 seconds to exit program mode.

**Note**

Contact Helmer Technical Service to set Rail Limit values.

**Table 3. Parameter Values**

| Parameter | Visual Indicator | Range | Default |
|---|---|---|---|
| Celsius or Fahrenheit | None | ˚C, ˚F | ˚C |
| High Temperature | MONITOR Lamp & HIGH Lamp | -40.0 to 25.0 (˚C) -40 to 77 (˚F) | 5.5 °C *(HBR and HLR models)* |
| | | | 6.5 °C *(HPR models)* |
| Low Temperature | MONITOR Lamp & LOW Lamp | -40.0 to 25.0 (˚C) -40 to 77 (˚F) | 1.5 °C *(HBR models)* |
| | | | 2.0 °C *(HLR and HPR models)* |
| Monitor Offset | MONITOR Lamp | -10.0 to 10.0 (˚C) -18 to 18 (˚F) | Varies |
| Control Offset | CONTROL Lamp | -10.0 to 10.0 (˚C) -18 to 18 (˚F) | Varies |
| Upper Rail Limit | CONTROL Lamp & HIGH Lamp | 0.1 to 10.0 (˚C); 1 to 18 (˚F) | 0.7 °C |
| Lower Rail Limit | CONTROL Lamp & LOW Lamp | 0.1 to 10.0 (˚C); 1 to 18 (˚F) | -0.7 °C |

## 6.5 Set Temperature Units

**Note**

If temperature units are changed, the temperature setpoints, offsets and alarm settings must be recalibrated.

1. Press and hold the **Up** and **Down Arrows** simultaneously for 3 seconds to enter program mode.
2. The LED Display will show ˚C or ˚F to indicate Celsius or Fahrenheit.
3. Press and hold the **SET** button while pressing the **Up** or **Down Arrow** to select the desired temperature unit.
4. Release **SET** button. The new setting is saved.
5. Press and hold the **Up** and **Down Arrows** simultaneously for 3 seconds to exit program mode.

## 6.6 Set Alarm Setpoints (Parameters)

1. Press and hold the **Up** and **Down Arrows** simultaneously for 3 seconds to enter program mode.
2. The LED Display will show .C or .F to indicate Celsius or Fahrenheit.
3. Press **MODE** until HIGH TEMP or LOW TEMP and MONITOR lamps flash.
4. Hold **SET**, then press **Up** or **Down Arrow** to change the setpoint.
5. Release **SET** button. The new setting is saved.
6. Press and hold **Up** and **Down Arrows** simultaneously for 3 seconds to exit program mode.

## 6.7 Temperature Calibration Offsets

Temperature calibration offsets indicate an acceptable margin of error between the actual temperature value and the desired temperature value.

### *Monitor Offset*

- Value is factory-set to match a calibrated reference thermometer.
- Refer to the service manual for instructions regarding changing the Monitor Offset.

### *Control Sensor Offset and Hysteresis*

The control sensor affects the reading of the control probe temperature and therefore the actual temperature of the refrigerator. This should not be adjusted from the original setting unless directed by Helmer Technical Service.

The Upper and Lower Rail Limits help control the refrigeration based on the control probe temperature reading and the set point. These limit values should not be changed from the default setting unless directed by Helmer Technical Service.

**NOTICE**

Control Sensor Offset and Rail Limits are factory-preset and should not be changed. Contact Helmer Technical Service for instructions regarding changing these values.

## 6.8 Active Alarms

The controller displays temperature and alarm information.

**Table 4. Horizon Series Active Alarms**

| Alarm | Visual Indicator | Description |
|---|---|---|
| High Temperature | HIGH TEMP lamp flashes | Chamber temperature reading is above high temperature alarm setpoint |
| Low Temperature | LOW TEMP lamp flashes | Chamber temperature reading is below low temperature alarm setpoint |
| Display/Control Board Communication Error | Er04 | Display board fails to communicate with the control board |
| Control Board to Compressor Inverter Error | Er05 | Communication loss from control board to compressor inverter |
| Power Failure | ”PoFF” appears on display | Power to unit has been disrupted |
| Primary Monitor Probe Failure *(RTD1)* | Er01 | Probe not functioning properly |
| Control Probe Failure *(RTD2)* | Er02 | Probe not functioning properly |
| No Battery | Er06 | Battery voltage is low |
| Configuration Error | Er07 | Indicates that an EEPROM reading was corrupted or dip switch settings on the control board have changed since last power-up |
| Door Open < 3 min. | DOOR ALARM lamp lights | Door is open (less than three minutes) |
| Door Open > 3 min. | DOOR ALARM lamp flashes | Door has been open 3 minutes or longer* |

**Audible alarm will sound after door is open for 3 minutes.*

## 6.9 Mute and Disable Audible Alarms

**Note**

Muting audible alarms does not disable alarm lamps or signals sent through the remote alarm interface.

- Press **Down Arrow** (Mute) to mute audible alarms.
- To disable all audible alarms, insert the key in the Alarm Disable switch and turn.

## 6.10 Light Operation

The light switch is located on the monitoring and control panel and controls the LED light within the chamber.

# 7 Horizon Series™ Access Control (Optional)

Allows user-specific secure access to the refrigerator.

**Notes**

- During a power failure, the optional Access Control lock will remain locked until battery power is depleted or until the back-up battery key switch is switched OFF.
- During a power failure, switch the battery back-up switch OFF and use the mechanical door key to provide secure storage for refrigerator contents.
- Refer to Horizon Series Access Control manual for complete information.

## 7.1 Setup

The Access Control keypad was programmed at the factory with a master code (0000). The master code is used to program the keypad and enter user codes.

**Note**

The master code should be changed to prevent unauthorized user code setup.

Enter unique user codes for up to 100 users. Each user code is stored with a specific record location number. Keep a log of the location numbers and user codes with users' names.

**Add User Code**

1. Enter the master code followed by the * (asterisk) key
2. Press **1** to initiate user code programming function
3. Enter the location number (00 - 99)
4. Enter the user code (4 - 8 digit number) followed by the # (pound) key
5. Press * (asterisk) to save changes and return to normal operation

**Delete User Code**

1. Enter the master code followed by the * (asterisk) key
2. Press **1** to initiate delete user code programming function
3. Enter the location number (00 - 99) followed by the # (pound) key
4. Press ***** (asterisk) to save changes and return to normal operation

**Open Refrigerator with Access Control**

1. Enter the user code
2. Press # (pound) key

# 8 Product Specifications

## 8.1 Operating Standards

These units are designed to operate under the following environmental conditions:

- Indoor use only
- Altitude (maximum): 2000 m (120,125, 245, and 256 models); 3000 m (105 and 113 models)
- Ambient temperature range: 15 °C to 32 °C (59°F to 90°F)
- Relative humidity (maximum for ambient temperature): 80% for temperatures up to 31 °C; 76% at 32 °C
- Temperature control range: 2 °C to 10 °C (35°F to 50°F)
- Overvoltage Category II
- Pollution Degree 2
- RF Emissions: Group 1 - Class A
- EMC Environment: Basic
- Sound level is less than 70 dB(A)

**Table 5. Electrical Specifications (Laboratory, Blood Bank, and Pharmacy)**

| Model | Input Voltage & Frequency | Voltage Tolerance | Circuit Breakers | Current Draw | Power Source | Remote Alarm Capacity |
|---|---|---|---|---|---|---|
| 105 | 115V 60 Hz | ±10% | 4A quantity 2 | 1.4A | Grounded outlet, meeting national electric code (NEC) in the U.S. and local electrical requirements in all locations. | 115V or 230V: 1A at 33V (AC) RMS or 30V (DC) |
| | 220-240V 50/60 Hz | | | 0.85A | | |
| 113 | 115V 60 Hz | | 4A quantity 2 | 2.3A | | |
| | 220-240V 50/60 Hz | | | 1.12A | | |
| 120 | 115V 60 Hz | | 7A quantity 2 | 2.8A | | |
| | 220-240V 50/60 Hz | | | 1.55A | | |
| 125 | 115V 60 Hz | | 7A quantity 2 | 2.8A | | |
| | 220-240V 50/60 Hz | | | 1.55A | | |
| 245 | 115V 60 Hz | | 7A quantity 2 | 4.3A | | |
| | 220-240V 50/60 Hz | | | 2.5A | | |
| 256 | 115V 60 Hz | | 7A quantity 2 | 4.3A | | |
| | 220-240V 50/60 Hz | | | 2.5A | | |

** Amperage values are subject to change. Refer to the product specification label on your unit for current values.*

**Notes**

- The interface on the remote alarm monitoring system is intended for connection to the end user's central alarm system(s) that uses normally-open or normally-closed dry contacts.
- If an external power supply exceeding 33V (RMS) or 30V (DC) is connected to the remote alarm monitoring system's circuit, the remote alarm will not function properly or may be damaged.

**Table 6. Refrigerator Specifications**

| Model | Voltage Code | Amps | Cu. Ft/ Liters | Cabinet | Door | Dimensions W x H x D in. (mm) Exterior* | Net Wt. lbs (kg) |
|---|---|---|---|---|---|---|---|
| iLR105-GX | 115V 60 Hz | 1.4 | 5.3 (150) | Undercounter | Single hinged solid | 24.3 x 31.9 x 28.1 (616 x 809 x 714) | 174 (79) |
| | 220-240V 50/60 Hz | 0.85 | | | | | |
| iBR105-GX | 115V 60 Hz | 1.4 | 5.3 (150) | Undercounter | Single hinged solid | 24.3 x 31.9 x 28.1 (616 x 809 x 714) | 186 (85) |
| | 220-240V 50/60 Hz | 0.85 | | | | | |
| iPR105-GX | 115V 60 Hz | 1.4 | 5.3 (150) | Undercounter | Single hinged solid | 24.3 x 31.9 x 28.1 (616 x 809 x 714) | 182 (83) |
| | 220-240V 50/60 Hz | 0.85 | | | | | |
| HLR105-GX | 115V 60 Hz | 1.4 | 5.3 (150) | Undercounter | Single hinged solid | 24.3 x 31.9 x 27.8 (616 x 809 x 705) | 174 (79) |
| | 220-240V 50/60 Hz | 0.85 | | | | | |
| HBR105-GX | 115V 60 Hz | 1.4 | 5.3 (150) | Undercounter | Single hinged solid | 24.3 x 31.9 x 27.8 (616 x 809 x 705) | 184 (84) |
| | 220-240V 50/60 Hz | 0.85 | | | | | |
| HPR105-GX | 115V 60 Hz | 1.4 | 5.3 (150) | Undercounter | Single hinged solid | 24.3 x 31.9 x 27.8 (616p x 809 x 705) | 182 (83) |
| | 220-240V 50/60 Hz | 0.85 | | | | | |
| iLR113-GX | 115V 60 Hz | 2.3 | 13 (377) | Slimline | Single hinged glass | 24.6 x 70.5 x 30.8 (625 x 1790 x 780) | 306 (139) |
| | 220-240V 50/60 Hz | 1.12 | | | | | |
| iBR113-GX | 115V 60 Hz | 2.3 | 13 (377) | Slimline | Single hinged glass | 24.6 x 70.5 x 30.8 (625 x 1790 x 780) | 342 (156) |
| | 220-240V 50/60 Hz | 1.12 | | | | | |
| iPR113-GX | 115V 60 Hz | 2.3 | 13 (377) | Slimline | Single hinged glass | 24.6 x 70.5 x 30.8 (625 x 1790 x 780) | 338 (154) |
| | 220-240V 50/60 Hz | 1.12 | | | | | |
| HLR113-GX | 115V 60 Hz | 2.3 | 13 (377) | Slimline | Single hinged glass | 24.6 x 70.5 x 30.8 (625 x 1790 x 780) | 306 (139) |
| | 220-240V 50/60 Hz | 1.12 | | | | | |
| HBR113-GX | 115V 60 Hz | 2.3 | 13 (377) | Slimline | Single hinged glass | 24.6 x 70.5 x 30.8 (625 x 1790 x 780) | 337 (153) |
| | 220-240V 50/60 Hz | 1.12 | | | | | |
| HPR113-GX | 115V 60 Hz | 2.3 | 13 (377) | Slimline | Single hinged glass | 24.6 x 70.5 x 30.8 (625 x 1790 x 780) | 338 (154) |
| | 220-240V 50/60 Hz | 1.12 | | | | | |
| iLR120-GX | 115V 60 Hz | 2.8 | 20 (572) | Upright | Single hinged glass | 29.5 x 79.6 x 31.7 (748 x 2021 x 803) | 445 (202) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| iBR120-GX | 115V 60 Hz | 2.8 | 20 (572) | Upright | Single hinged glass | 29.5 x 79.6 x 31.7 (748 x 2021 x 803) | 507 (230) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| iPR120-GX | 115V 60 Hz | 2.8 | 20 (572) | Upright | Single hinged glass | 29.5 x 79.6 x 31.7 (748 x 2021 x 803) | 438 (199) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| HLR120-GX | 115V 60 Hz | 2.8 | 20 (572) | Upright | Single hinged glass | 29.5 x 78.3 x 31.7 (748 x 1989 x 803) | 442 (201) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| HBR120-GX | 115V 60 Hz | 2.8 | 20 (572) | Upright | Single hinged glass | 29.5 x 78.3 x 31.7 (748 x 1989 x 803) | 504 (229) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| HPR120-GX | 115V 60 Hz | 2.8 | 20 (572) | Upright | Single hinged glass | 29.5 x 78.3 x 31.7 (748 x 1989 x 803) | 487 (221) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| iLR125-GX | 115V 60 Hz | 2.8 | 25 (714) | Upright | Single hinged glass | 29.5 x 79.6 x 37.7 (748 x 2021 x 956) | 456 (207) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| iBR125-GX | 115V 60 Hz | 2.8 | 25 (714) | Upright | Single hinged glass | 29.5 x 79.6 x 37.7 (748 x 2021 x 956) | 535 (243) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| iPR125-GX | 115V 60 Hz | 2.8 | 25 (714) | Upright | Single hinged glass | 29.5 x 79.6 x 37.7 (748 x 2021 x 956) | 517 (235) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| HLR125-GX | 115V 60 Hz | 2.8 | 25 (714) | Upright | Single hinged glass | 29.5 x 78.3 x 37.7 (748 x 1989 x 956) | 453 (206) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| HBR125-GX | 115V 60 Hz | 2.8 | 25 (714) | Upright | Single hinged glass | 29.5 x 78.3 x 37.7 (748 x 1989 x 956) | 532 (242) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |

| Model | Voltage Code | Amps | Cu. Ft/ Liters | Cabinet | Door | Dimensions W x H x D in. (mm) Exterior* | Net Wt. lbs (kg) |
|---|---|---|---|---|---|---|---|
| HPR125-GX | 115V 60 Hz | 2.8 | 25 (714) | Upright | Single hinged glass | 29.5 x 78.3 x 37.7 (748 x 1989 x 956) | 514 (234) |
| | 220-240V 50/60 Hz | 1.55 | | | | | |
| iLR245-GX | 115V 60 Hz | 4.3 | 45 (1271) | Upright | Double hinged glass | 59.0 x 79.6 x 31.7 (1499 x 2021 x 803) | 667 (303) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| iBR245-GX | 115V 60 Hz | 4.3 | 45 (1271) | Upright | Double hinged glass | 59.0 x 79.6 x 31.7 (1499 x 2021 x 803) | 809 (367) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| iPR245-GX | 115V 60 Hz | 4.3 | 45 (1271) | Upright | Double hinged glass | 59.0 x 79.6 x 31.7 (1499 x 2021 x 803) | 775 (352) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| HLR245-GX | 115V 60 Hz | 4.3 | 45 (1271) | Upright | Double hinged glass | 59.0 x 78.3 x 31.7 (1499 x 1989 x 803) | 667 (303) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| HBR245-GX | 115V 60 Hz | 4.3 | 45 (1271) | Upright | Double hinged glass | 59.0 x 78.3 x 31.7 (1499 x 1989 x 803) | 808 (367) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| HPR245-GX | 115V 60 Hz | 4.3 | 45 (1271) | Upright | Double hinged glass | 59.0 x 78.3 x 31.7 (1499 x 1989 x 803) | 774 (352) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| iLR256-GX | 115V 60 Hz | 4.3 | 56 (1586) | Upright | Double hinged glass | 59.0 x 79.6 x 37.7 (1499 x 2021 x 956) | 703 (319) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| iBR256-GX | 115V 60 Hz | 4.3 | 56 (1586) | Upright | Double hinged glass | 59.0 x 79.6 x 37.7 (1499 x 2021 x 956) | 863 (392) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| iPR256-GX | 115V 60 Hz | 4.3 | 56 (1586) | Upright | Double hinged glass | 59.0 x 79.6 x 37.7 (1499 x 2021 x 956) | 827 (376) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| HLR256-GX | 115V 60 Hz | 4.3 | 56 (1586) | Upright | Double hinged glass | 59.0 x 78.3 x 37.7 (1499 x 1989 x 956) | 693 (315) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| HBR256-GX | 115V 60 Hz | 4.3 | 56 (1586) | Upright | Double hinged glass | 59.0 x 78.3 x 37.7 (1499 x 1989 x 956) | 853 (387) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |
| HPR256-GX | 115V 60 Hz | 4.3 | 56 (1586) | Upright | Double hinged glass | 59.0 x 78.3 x 37.7 (1499 x 1989 x 956) | 817 (371) |
| | 220-240V 50/60 Hz | 2.5 | | | | | |

** 105 models - Exterior dimensions include handle and leveling feet at lowest level.*

*** 113, 120, 125, 245, 256 models - Exterior dimensions include casters, door handle and electrical box.*

**Table 7. Storage Component Specifications**

| Storage Component | Net weight lbs (kg) *105 models* | Net weight lbs (kg) *113 models* | Net weight lbs (kg) *120/245 models* | Net weight lbs (kg) *125/256 models* |
|---|---|---|---|---|
| **Shelf** | 6 (3) | 6 (3) | 7 (3.2) | 8 (3.6) |
| **Ventilated Drawer** | 10 (5) | 8.2 (3.7) | 11 (5) | 13.5 (6.1) |
| **Liquid-tight Stainless Drawer** *(i.Series)* | 12 (6) | 12.1 (5.5) | 14.2 (6.5) | 17.2 (7.8) |
| **Liquid-tight Stainless Drawer** *(Horizon Series)* | 11 (5) | 11.8 (5.4) | 13.7 (6.2) | 16.6 (7.5) |
| **Stainless Drawer with Locking Lid** | 15 (7) | 13.6 (6.2) | 15.5 (7) | 19 (8.6) |

### Notes

- Amperage values listed represent the highest current draw presented among available factory configurations for each model Units without heated glass doors will have lower current draw.
- Maximum height added with leveling feet or casters installed is 2” (51 mm).
- Maximum load per shelf or drawer - 100 lbs (46kg).
- Net weight may vary depending on storage configuration. Weight listed in the table reflects standard configuration for each model.

# 9 Compliance

## 9.1 Safety Compliance

CE 2797 This device complies with the requirements of directive 93/42/EEC concerning Medical Devices, as amended by 2007/47/EC.

This product is certified to applicable UL and CSA standards by a NRTL.

This product is IECEE CB Scheme certified and complies with national differences for safety certification beyond IEC 61010-1-12 3rd edition.

## 9.2 Environmental Compliance

RoHS COMPLIANT This device complies with the 2011/65/EU Directive for the Restriction of Hazardous Substances (RoHS).

This device falls under the scope of Directive 2102/19/EU Waste Electrical and Electronic Equipment (WEEE) .

When disposing of this product in countries affected by this directive:

- Do not dispose of this product as unsorted municipal waste.
- Collect this product separately.
- Use the collection and return systems available locally.

For more information on the return, recovery, or recycling of this product, contact your local distributor.

## 9.3 EMC Compliance

Helmer Scientific Refrigerators meet the applicable requirements of IEC61326 and EN55011 and are intended for use in the electromagnetic environment specified in 8.1 Operating Standards. The customer or the user of these devices should assure they are used in such environment.

FC This device complies with FCC Radiated and Conducted Emissions Approval to CFR47, Part 15; Class A levels

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