

## Freezer Operation Manual

i.Series® and Horizon Series™ - Undercounter

### Laboratory

#### i.Series

iLF104-ADA

iLF105

#### Horizon Series

HLF104-ADA

HLF105

### Plasma Storage

#### i.Series

iPF104-ADA

iPF105

#### Horizon Series

HPF104-ADA

HPF105



## Document History

Revision	Date	CO	Supersession	Revision Description
A	30 NOV 2016	12335	n/a	Initial release (all units with serial numbers 2036500 and greater).
B	26 FEB 2018	13354	B supersedes A	Updated Mute Active Alarms text to provide more detail Updated Horizon Access Control content for clarity. Updated Emergo Address
C	5 JAN 2020	15180	C supersedes B	Updated symbols and regulatory information Remove duplication of PM schedule as it appears in UCF Service Manual.

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

## Document Updates

The document is furnished for information use only, is subject to change without notice and should not be construed as a commitment by Helmer Scientific. Helmer Scientific assumes no responsibility or liability for any errors or inaccuracies that may appear in the informational content contained in this material. For the purpose of clarity, Helmer Scientific considers only the most recent revision of this document to be valid.

## Notices and Disclaimers

### Confidential / Proprietary Notices

Use of any portion(s) of this document to copy, translate, disassemble or decompile, or create or attempt to create by reverse engineering or otherwise replicate the information from Helmer Scientific products is expressly prohibited.

### Copyright and Trademark

Copyright © 2020 Helmer, Inc. Helmer®, i.Series®, i.C<sup>3</sup>®, Horizon Series™, and Rel.i™ are registered trademarks or trademarks of Helmer, Inc. in the United States of America. All other trademarks and registered trademarks are the property of their respective owners. Helmer, Inc., doing business as (DBA) Helmer Scientific and Helmer.

### Disclaimer

This manual is intended as a guide to provide the operator with necessary instructions on the proper use and maintenance of certain Helmer Scientific products.

Any failure to follow the instructions as described could result in impaired product function, injury to the operator or others, or void applicable product warranties. Helmer Scientific accepts no responsibility for liability resulting from improper use or maintenance of its products.

The screenshots and component images appearing in this guide are provided for illustrative purposes only, and may vary slightly from the actual software screens and/or product components.

## Contents

<b>1</b>	<b>About this Manual</b>	<b>3</b>
1.1	Safety Precautions and Symbols	3
1.2	General Recommendations	4
<b>2</b>	<b>Installation</b>	<b>5</b>
2.1	Location	5
2.2	Placement and Leveling	5
2.3	Stacked Undercounter Units	5
2.4	AC Power Cord	5
2.5	Temperature Probes	5
2.6	Chart Recorder (if included)	6
<b>3</b>	<b>i.Series® Operation</b>	<b>8</b>
3.1	Initial Start Up	8
3.2	Operation	9
3.3	Change Temperature Setpoint	10
3.4	Set Alarm Parameters	10
3.5	Active Alarms	11
3.6	Mute and Disable Active Alarms	12
<b>4</b>	<b>Min/Max Temperature Monitoring</b>	<b>13</b>
<b>5</b>	<b>i.Series® Access Control (Optional)</b>	<b>14</b>
5.1	Setup	14
5.2	Open Freezer with Access Control	14
<b>6</b>	<b>Horizon Series™ Operation</b>	<b>15</b>
6.1	Initial Power Up	15
6.2	Display Minimum and Maximum Monitor Temperature Recordings	15
6.3	Set Parameter Values	16
6.4	Set Temperature Units	17
6.5	Temperature Calibration Offsets	17
6.6	Set Alarm Setpoints (Parameters)	17
6.7	Active Alarms	18
6.8	Mute and Disable Audible Alarms	18
<b>7</b>	<b>Horizon Series™ Access Control (Optional)</b>	<b>19</b>
7.1	Setup	19
<b>8</b>	<b>Product Specifications</b>	<b>20</b>
8.1	Operating Standards	20
<b>9</b>	<b>Compliance</b>	<b>22</b>
9.1	Safety Compliance	22
9.2	Environmental Compliance	22
	<b>Appendix A</b>	<b>23</b>
	i.Series Parts	23
	<b>Appendix B</b>	<b>24</b>
	Horizon Series Parts	24

## 1 About this Manual

This manual provides information on how to use i.Series® and Horizon Series™ undercounter laboratory and plasma storage freezers. It is intended for use by end users of the freezer and authorized service technicians.

Models are indicated by a distinguishing model number that corresponds to the series, type, number of doors, and capacity of the refrigerator. For example, “iLF105” refers to an i.Series Laboratory Freezer with 1 door and a capacity of 5 cu ft, while “HLF104” refers to a Horizon Series Laboratory Freezer with 1 door and a capacity of 4 cu ft.

Generic references are used throughout this manual to group models that contain similar features. For example, “105 models” refers to all models of that size (iPF105, HPF105, iLF105, HLF105). This manual covers all undercounter freezers, which may be identified singly, by their size, or by their respective “Series.”

### 1.1 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; person injury is unlikely.

#### *Symbols found on the units*

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



Caution: Shock/electrical hazard



Refer to documentation



Caution: Risk of damage to equipment or danger to operator

### *Avoiding Injury*

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

- ◆ Before moving unit, ensure door is closed and casters (if installed) 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 biological materials are stored at recommended temperatures determined by standards, literature, or good laboratory practices.
- ◆ Proceed with caution when adding and removing samples from the freezer.
- ◆ Do not open multiple, loaded drawers or baskets at the same time.
- ◆ Use manufacturer supplied power cord only.
- ◆ Using the equipment in a manner not specified by Helmer Scientific may impair the protection provided by the equipment.
- ◆ The freezer is not considered to be a storage cabinet for flammable or hazardous materials.
- ◆ Ensure biological materials are stored safely, in accordance with all applicable organizational, regulatory, and legal requirements.
- ◆ **REQUIRED:** Decontaminate parts prior to sending for service or repair. Contact Helmer or your distributor for . decontamination instructions and a Return Authorization Number.

## 1.2 General Recommendations

### **Intended Use**

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

### **General Use**

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

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

### **Initial Loading**

Allow the freezer to reach room temperature before powering on. Allow chamber temperature to stabilize at the setpoint before storing product.

#### **Note**

Do not overload top drawer, basket, or shelf such that airflow from the unit cooler is obstructed.

### **Product Loading Guidelines**

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

- ◆ Never load freezers 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 back. Ensure proper clearance is provided below the fan.

#### **Note**

Products stacked against back wall may obstruct air flow and affect performance of unit.

## 2 Installation

### 2.1 Location

- ◆ Has a grounded outlet meeting the electrical requirements listed on the product specification label.
- ◆ Is clear of direct sunlight, high temperature sources, heating vents, and air conditioning vents.
- ◆ Has a minimum of 3" (76 mm) of space behind the freezer for clearance and feature access.
- ◆ Meets the limits specified for ambient temperature (15 °C to 32 °C) and relative humidity.

### 2.2 Placement and Leveling

#### NOTICE

- To prevent tipping, ensure the casters (if installed) are unlocked and the door is closed before moving the freezer.
- Do not sit, lean, push or place heavy objects on top surface.

1. Move freezer into place. Lock casters if installed.
2. Ensure freezer is level.

#### Note

Helmer recommends the use of leveling feet and wall and floor brackets (PN 400472-2) for stabilization. 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 or baskets at the same time.

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.

#### Note

Do not connect unit to a GFCI (Ground Fault Circuit Interrupter) protected outlet as nuisance tripping may occur.



#### Install power cord

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

### 2.5 Temperature Probes

A probe bottle along with a container of propylene glycol have been provided with this unit. The propylene glycol is mixed with water to create a solution which simulates the product stored in the freezer. The product simulation solution temperature reflects the product's temperature during normal operation.

#### Note

Temperature probes are fragile; handle with care.

#### NOTICE

Failure to fill probe bottles or keep probe bottles filled to the appropriate level may not allow the chamber temperature to

stabilize at the freezer setpoint or the chamber temperature to display higher or lower than the actual temperature.

### Primary Monitor Probe

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



Primary monitor probe

### Fill Temperature Probe Bottle

#### Note

Use approximately 4 oz. (120 mL) of product simulation solution (1:1 ratio of water to propylene glycol). Propylene glycol is included in freezer box.

1. Remove all probes 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 probes, immersing at least 2" (50 mm) in solution.

## 2.6 Chart Recorder (if included)

#### Note

For complete information, refer to the Temperature Chart Recorder Operation and Service Manual provided with this unit.



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.

#### Note

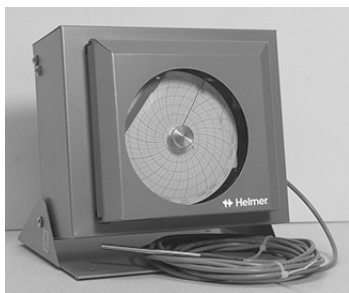
If chart recorder is operated on battery power, the battery should be replaced to ensure the back-up source has proper charge.

### Prior to use:

Place the chart recorder probe in bottle with primary monitor probe.

## Set up and Operation

Access the chart recorder by pulling the door open.



### 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 from chart paper.
3. Place new 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. Confirm the temperature range is set to the correct value.
7. Press and hold C button. When the stylus begins to move right, release the button.
8. Confirm the stylus is marking the temperature correctly.

## 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 batteries is either not installed or needs to be replaced.
- ♦ The LED indicator flashes red to indicated 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 Start Up

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

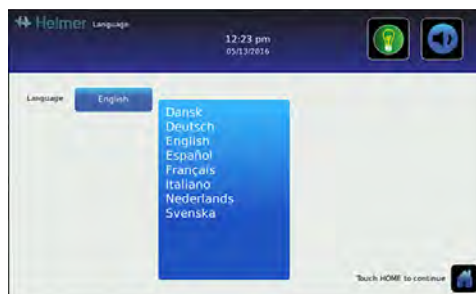
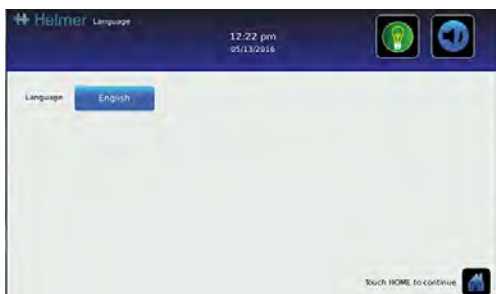
##### Notes

- 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.C<sup>3</sup> is powered on. The i.C<sup>3</sup> will take approximately 2-5 minutes to boot up.



Start screen

The language screen is displayed when the i.C<sup>3</sup> is powered on. Use the Language screen to select the i.C<sup>3</sup> display language.



Language screens

##### Note

English is the default language.

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



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 (touch to return to Home screen)

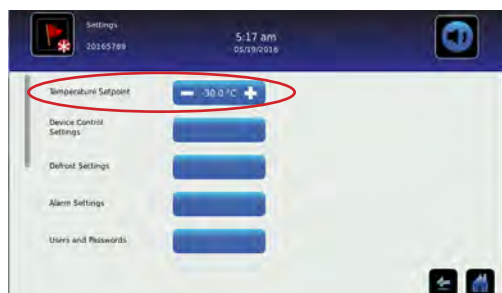
### 3.3 Change Temperature Setpoint

#### 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 the spin box to change the value.



Settings screen



Device Control Settings screen

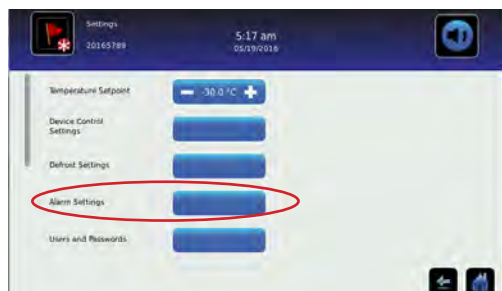
#### Notes

- Default Settings password is 1234.
- Default setpoint is -30.0 °C.

### 3.4 Set Alarm Parameters



> Enter the Settings password. Scroll down to select Alarm Settings. Touch minus (-) or plus (+) on 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 with active alarm.

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

Alarm	Description
Primary Monitor Probe High Temp	Primary monitor probe reading is above high temperature alarm setpoint
Primary Monitor Probe Low Temp	Primary monitor probe temperature reading is below low temperature alarm setpoint
Primary Monitor Probe Failure	Primary monitor probe not functioning properly
Control Probe Failure	Control probe not functioning properly
Evap Defrost Probe Failure	Evaporator defrost probe not functioning properly
Compressor High Temperature	Compressor temperature reading is above high temperature alarm setpoint
Compressor Probe Failure	Compressor probe not functioning properly
Power Failure	Power to unit has been disrupted
Door Open	Door is open beyond user-specified duration
Low Battery	Rechargeable battery voltage is low
No Battery	Battery is not connected
Communication Failure Messages 1, 2, 3	1 Communication lost between i.C <sup>3</sup> display board and control board 2 Communication lost between i.C <sup>3</sup> display board and internal system memory 3 Corrupt database

### 3.6 Mute and Disable Active Alarms



Unmuted



Muted

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.



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

**Table 2. Application Icons**

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

## 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 freezer.

### 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, switching the back-up battery key switch OFF will disable the monitoring system.
- During a power failure, switch the battery back-up switch OFF and use the mechanical door key to provide secure storage for freezer contents.
- Refer to the i.C<sup>3</sup> User Guide for complete information regarding Access Control.

### 5.1 Setup

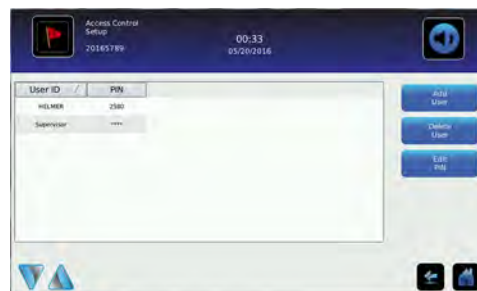
Configure and manage user-specific accounts to allow controlled access to the freezer.



> 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 can not 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 Freezer with Access Control



Access Control keypad

Enter a valid PIN using the keypad.

## 6 Horizon Series™ Operation

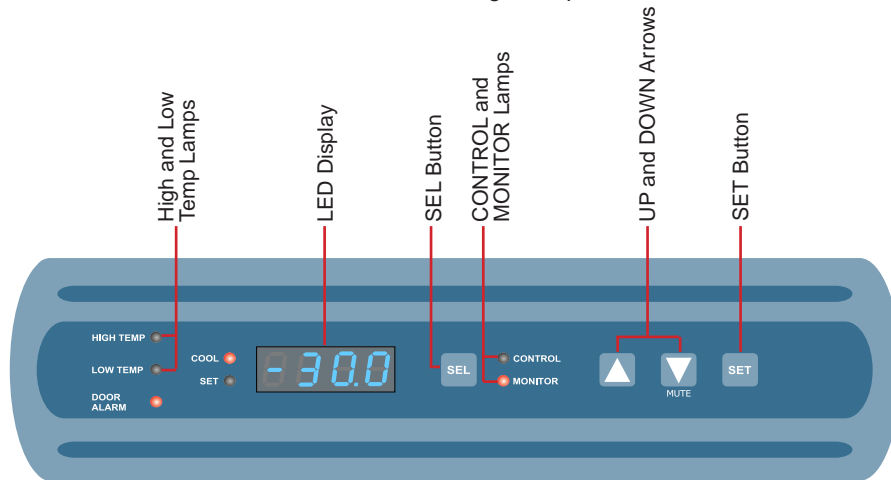
### 6.1 Initial Power Up

1. Plug the power cord into a grounded outlet that meets the electrical requirements on the product specification label.
2. Switch AC ON/OFF switch ON.
3. Remove the 9 V battery from the literature box and install it.
4. Press **Down Arrow** (Mute) if high temperature alarm sounds.



#### Notes

- For models equipped with the 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

#### Notes

- This feature is standard on Horizon Series™ models with serial numbers of 2015494 or higher. Some exceptions may exist. For confirmation on your unit, please contact Helmer Technical Service.
- Units that do not include the minimum and maximum recording feature will not display .C or .F when entering the program mode.
- 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.
  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.
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.

### Change Freezer Temperature Setpoint

#### Note

Default setpoint is -30.0 °C

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.

## 6.3 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 Hysteresis 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 40.0 (°C); -40 to 104 (°F)	-20.0°C
Low Temperature	MONITOR Lamp & LOW Lamp	-40.0 to 40.0 (°C); -40 to 104 (°F)	-40.0°C
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
Hysteresis	COOL Lamp	0.5 to 2.5 (°C); 1 to 5 (°F)	2.0°C

## 6.4 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.

## 6.5 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 in 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 freezer. This should not be adjusted from the original setting unless directed by Helmer Technical Service.

Hysteresis helps control the refrigeration based on the control probe temperature reading and the set point and should not be changed from the default setting.

### NOTICE

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

## 5.6 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 **SEL** 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 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
Power Failure	"PoFF" appears on display	Power to unit has been disrupted
Probe Failure	"Prob" appears on display	Probe not functioning properly
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.

## 6.8 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.

## 7 Horizon Series™ Access Control (Optional)

Allows user-specific secure access to the freezer.

### 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 freezer 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. The master code also releases the door lock.

### 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.

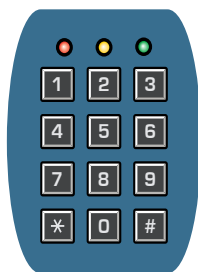
#### Add User Code

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 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 Freezer with Access Control



1. Enter the user code
2. Press #

## 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
- ◆ Ambient temperature range: 15 °C to 32 °C
- ◆ Relative humidity (maximum for ambient temperature): 80% for temperatures up to 31 °C, decreasing linearly to 50% at 40 °C
- ◆ Temperature control range: -15 °C to -30 °C
- ◆ Sound level is less than 70 dB(A)
- ◆ EMC Environment: Basic

**Table 5. Electrical Specifications (Laboratory and Plasma Storage)**

	104	105
<b>Input Voltage and Frequency</b>	115 V, 60 Hz	115 V, 60 Hz; 230 V, 50 Hz; 230 V, 60 Hz
<b>Voltage Tolerance</b>	±10%	
<b>Circuit Breakers</b>	6.0 A (230 V only, quantity 2)	
<b>Current Draw</b>	5.75 A (115 V, 60 Hz)	5.75 A (115 V, 60 Hz) 2.9 A (230 V, 50 Hz) 3.1 A (230 V, 60 Hz)
<b>Power Source</b>	Grounded outlet, meeting national electric code (NEC) in the U.S. and local electrical requirements in all locations.	
<b>Remote Alarm Capacity</b>	0.5 A at 125 V (AC) 1 A at 250 V (DC)	i.Series: 0.5 A at 30 V (RMS) 1.0 A at 24 V (DC) Horizon Series: 0.25 A at 30 V (RMS) 0.25 A at 60 V (DC)

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



- 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 30 V (RMS) or 60 V (DC) is connected to the remote alarm monitoring system's circuit, the remote alarm will not function properly; may be damaged; or may result in injury to the user.

#### Notes

- Add 0.375" (10 mm) to width for optional access control.
- The maximum height added with leveling feet or casters installed is 2" (51 mm).
- Maximum load per shelf - 100 lbs (46 kg).

**Table 6. Laboratory Freezer Specifications**

Model	Voltage Code	Amps	Cu. Ft/ Liters	Cabinet	Door	Shelves	Dimensions W x H x D in. (mm) Exterior	Net Wt. lbs (kg)
iLF104-ADA	115V, 60 Hz	5.75	4 (113)	Undercounter	Single hinged solid	2	24 x 31.5 x 26.75 (610 x 813 x 680)	211 (96)
HLF104-ADA	115V, 60 Hz	5.75	4 (113)	Undercounter	Single hinged solid	2	24 x 31.5 x 26.75 (610 x 813 x 680)	205 (93)
iLF105	115V 60 Hz	5.75	5 (142)	Undercounter	Single hinged solid	2	24 x 33.5 x 28.5 (610 x 851 x 724)	215 (98)
	230V 50 Hz	2.9						
	230V 60 Hz	3.1						
HLF105	115V 60 Hz	5.75	5 (142)	Undercounter	Single hinged solid	2	24 x 33.5 x 28.5 (610 x 851 x 724)	209 (95)
	230V 50 Hz	2.9						
	230V 60 Hz	3.1						

**Table 7. Plasma Storage Refrigerator Specifications**

Model	Voltage Code	Amps	Cu. Ft/ Liters	Cabinet	Door	Drawers	Dimensions W x H x D in. (mm) Exterior	Net Wt. lbs (kg)
<b>iPF104-ADA</b>	115V, 60 Hz	5.75	4 (113)	Undercounter	Single hinged solid	2	24 x 31.5 x 28.5 (610 x 801 x 724)	217 (99)
<b>HPF104-ADA</b>	115V, 60 Hz	5.75	4 (113)	Undercounter	Single hinged solid	2	24 x 31.5 x 28.5 (610 x 801 x 724)	211 (96)
<b>iPF105</b>	115V 60 Hz	5.75	5 (142)	Undercounter	Single hinged solid	2	24 x 33.5 x 28.5 (610 x 851 x 724)	221 (101)
	230V 50 Hz	2.9						
	230V 60 Hz	3.1						
<b>HPF105</b>	115V 60 Hz	5.75	5 (142)	Undercounter	Single hinged solid	2	24 x 33.5 x 28.5 (610 x 851 x 724)	215 (98)
	230V 50 Hz	2.9						
	230V 60 Hz	3.1						

## 9 Compliance

### 9.1 Safety Compliance



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.

### 9.2 Environmental Compliance



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



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

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.



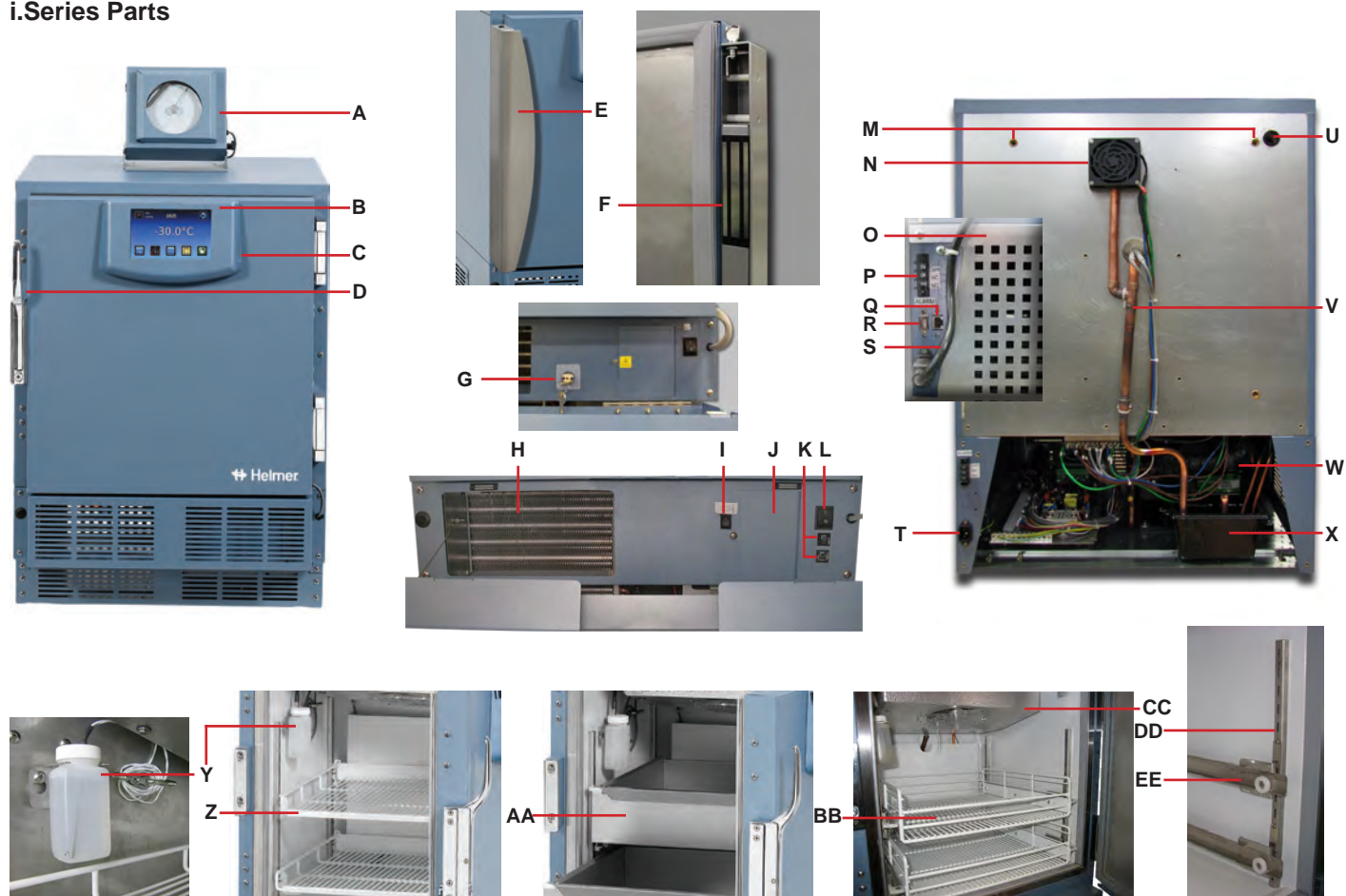
Helmer Scientific  
14400 Bergen Blvd.  
Noblesville, Indiana 46060 USA



Emergo Europe  
Prinsessegracht 20  
2514 AP The Hague  
The Netherlands

## Appendix A

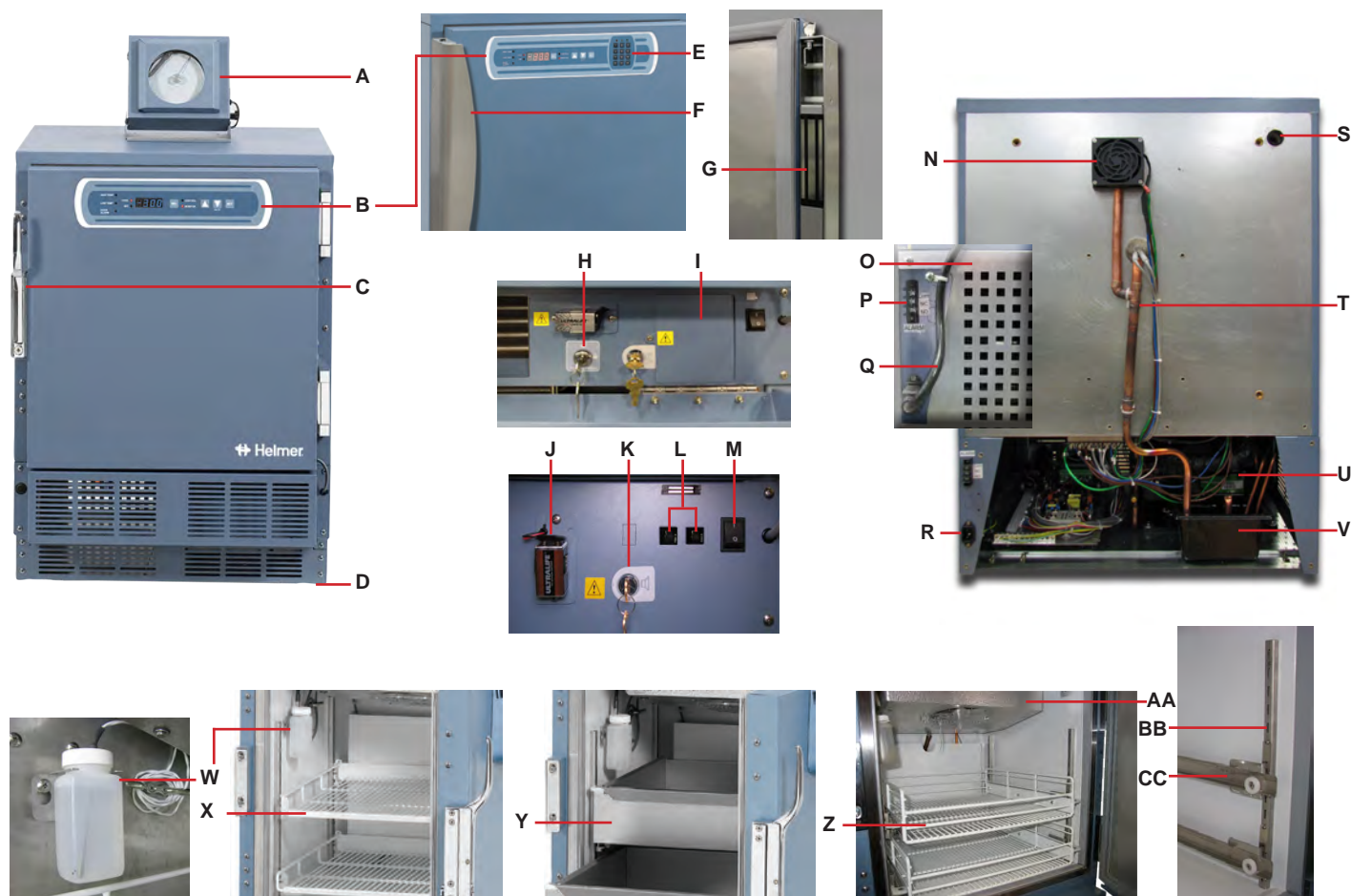
### i.Series Parts



Letter	Description	Letter	Description
A	Chart recorder (standard on plasma storage models, optional on laboratory models)	P	Remote alarm interface
B	i.C <sup>3</sup> control	Q	RJ-45 Ethernet port
C	USB port	R	USB port
D	Door handle with lock	Not Shown	RS-232 Comm port (optional)
Not Shown	Leveling feet (casters are optional)	S	Power cord
E	Door handle (includes manual keyed lock)	T	AC output power cord receptacle
F	Magnetic lock assembly (includes magnet and handle)	U	Access port
G	Back-up battery key switch (optional Access Control)	V	Drain Line
H	Condenser grill	W	Compressor
I	Monitoring system back-up battery switch	X	Condensate evaporator
J	Monitoring system back-up battery (located behind access panel)	Y	Probe bottle
K	Circuit breakers (230 V models only)	Z	Shelf (laboratory models)
L	Main power switch	AA	Drawer (plasma storage models)
M	Inserts for stacking bracket	BB	Rollout basket (optional)
N	External drain fan	CC	Unit cooler with fan guard
O	Rear panel	DD	Standard
		EE	Slide

## Appendix B

### Horizon Series Parts



Letter	Description	Letter	Description
A	Chart recorder (standard on plasma storage models, optional on laboratory models)	P	Remote alarm interface
B	Temperature monitor and control display	Q	Power cord
C	Door handle with lock	R	AC output power cord receptacle
D	Leveling feet (casters are optional)	S	Access Port
E	Keypad	T	Drain Line
F	Door handle (includes manual keyed lock)	U	Compressor
G	Magnetic lock assembly (includes magnet and handle)	V	Condensate evaporator
H	Back-up battery key switch (optional Access Control)	W	Probe bottle
I	Back-up battery (optional Access Control / located behind access panel)	X	Shelf (laboratory models)
J	Monitoring system back-up battery	Y	Drawer (plasma storage models)
K	Alarm disable key switch	Z	Rollout basket (optional)
L	Circuit breakers (230 V models only)	AA	Unit cooler with fan guard
M	Main power switch	BB	Standard
N	External drain fan	CC	Slide
O	Rear panel		

**END OF MANUAL**

## **Helmer Scientific**

14400 Bergen Boulevard, Noblesville, IN 46060 USA