i.C³® User Guide

For Helmer i.Series® Incubators

Countertop

PC100-Pro, PC900-Pro, PC1200-Pro

360406/A

Document History

Revision	Date	CO	Supersession	Revision Description
A	27 JUN 2019	14808	n/a	Initial release.

* Date submitted or 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.

Support Information

Operation and Service Manuals provide additional product information. Product manuals are available at www.helmerinc.com.

Notices and Disclaimers

The i.C³® User Guide provides information about use of the i.C³. Refer to the product operation or service manual for general information. Refer to the product service manual for additional information about the equipment on which the i.C³ is installed.

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, the information from Helmer Scientific products is expressly prohibited.

Copyright and Trademark

Copyright © 2019 Helmer, Inc. Helmer®, i.Series®, and i.C³®, are registered trademarks of Helmer, Inc. in the United States of America.
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.

Helmer Scientific
14400 Bergen Boulevard
Noblesville, IN 46060 USA

www.helmerinc.com

Part No. 360406/ Rev A

Contents

1 Overview 4
Features 4
Using the Touchscreen 5
Care of the i.C³ Screen 5

2 Initial Setup 6
Language Configuration 6
Settings Configuration 6

3 Home Screen Basics 7
Home Screen Layout 7
Home Screen Icons and Indicators 7

4 i.C³ Applications (APPS) 8
Using i.C³ Applications 8

5 Temperature Alarm Test 10

6 Min/Max Temperature Monitoring 11

7 Temperature Graph 12
Event Data 13
Viewable with the 1-Day Time Span 13

8 AgiTrak *(if installed)* *15*
Agitator Status 16
Agitator Count Log 17
Agitator Diagnostics 17

9 Information Logs 18
Event Log 18
Event Log Detail Screen 19
Access Control Log *(if installed)* *20*

10 Data Transfer 22
CSV Download 22
Downloading Temperature Graphs and Alarm Event Data to PDF 24
Uploading Firmware Updates 25

11 Customizing the i.C³ Screen 27
Brightness Settings 27
Home Page Screensaver 27

12 i.C³ Settings 28
Password Protection of the i.C³ Settings Screen 28
Temperature Setpoint 29
Alarm Settings 29
Users and Passwords 30
Sound Settings 31
Display Settings 32
Device Status 33
Sensor Calibration 34
Date/Time 34
Auxiliary Systems 35
Restore Factory Settings 35
System Functions 36

13 Access Control *(if installed)* *37*
Access Control Setup 37
Access Control Screen 38
Access Control as the Home Screen 39

14 Icon Transfer 40

Appendix A - Icon Reference Guide 41
Common Buttons 41
Application Icons 42

Appendix B - i.C³ Reference Guide 43
General Settings 43
Alarm Settings 45
Event Log Codes 46

1 Overview

⚠ Cautions

- To avoid injury, before using the i.C³ User Information Center, read all instructions in the associated product operation manual.
- To avoid damage to the i.C³ unit, read all instructions provided in this user guide.

Features

The i.C³® consists of an intuitive user interface and icon-driven touchscreen. The touchscreen is contained within the instrument bezel, as are additional features.

Touchscreen

The interface to the i.C³ system.

USB Port

Connect a flash memory device to download temperature data or upload firmware.

Ethernet/RJ45 Connection *(Not shown)*

Allows the system to provide and receive data or commands to and from external devices.

Audio Speaker

Provides an audible signal when alarm conditions are met. Also provides audible signal when screen icons and buttons are touched.

Using the Touchscreen

The touchscreen and touch techniques make the i.C³ easy to use. Icons, status indicators, and navigation buttons let the user see and respond to i.C³ system conditions and events.

Note

Anything that touches the screen is understood as a command. Do not let anything touch the screen unintentionally.

Touch Techniques

Touch-select	Touch once to select an item.
Touch-drag	To move an item, touch-hold to select the item and drag it to a new location. Use a deliberate touch-drag motion (without lifting)
Touch-scroll	To scroll, slide finger slowly across the screen (horizontal or vertical). Stop before lifting. For more control while scrolling, keep your finger in contact with the screen.

Icons, Indicators, and Buttons

For a complete list of all icons and indicators, see the *Icon Reference Guide* at the end of this user guide.

Application icons serve as navigation buttons to the associated application screen.

Status indicators alert the user to a change of status.

Navigation buttons return the display the previous screen or the Home screen.

Care of the i.C³ Screen

CAUTION

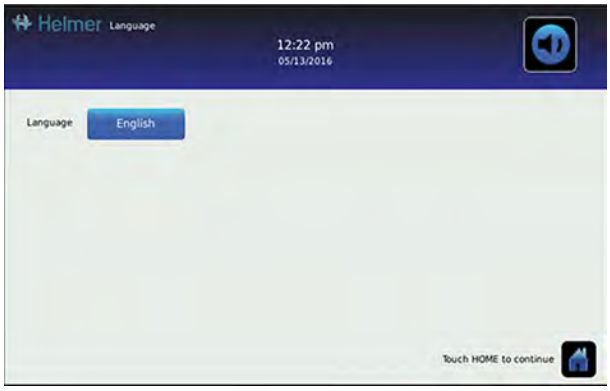
The iC³ screen uses a sensitive touch technology.

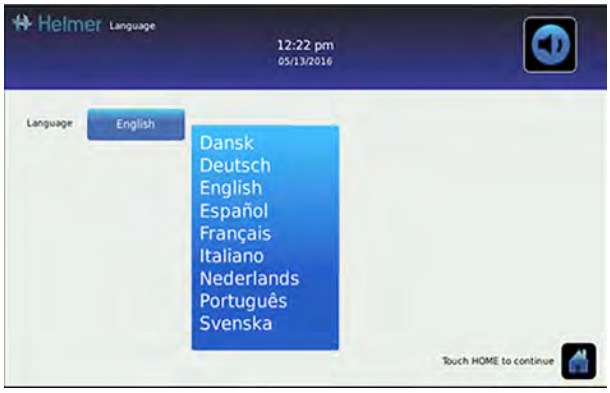
- To avoid damage to the touchscreen, do not apply pressure on the front of the display bezel or around the screen borders.
- To preserve optimal touch sensitivity, keep the screen clean of foreign objects. Avoid excessive dust accumulation on the screen.
- Do not expose the i.C³ screen to liquids or a harsh environment that contains excessive dust, heat or humidity.
- Clean the i.C³ screen with a clean, dry cotton cloth.

2 Initial Setup

Language Configuration

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





Choose language

1. Touch the **Language** button. The language drop-down list is displayed.
2. Scroll to touch the language to be displayed. The selected language is displayed in the **Language** button.
3. Touch to confirm language selection, or to cancel.
4. Touch the **Home** icon to continue to the Home screen.

Note

English is the default language. Available languages may vary from those shown above.

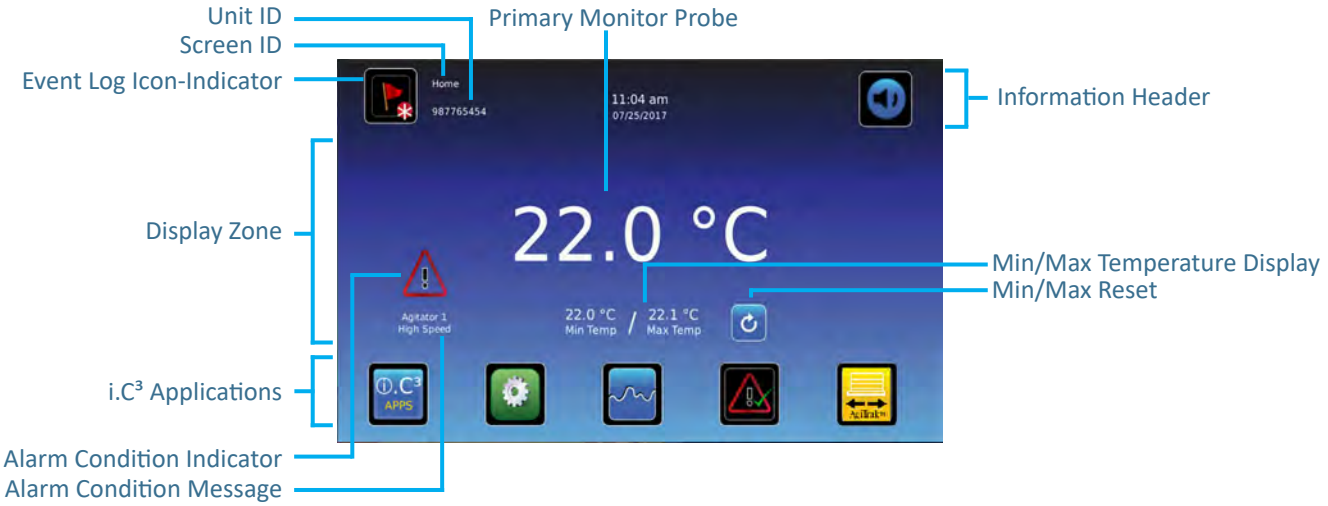
Settings Configuration

Basic configuration parameters have been set for the i.C³ at the factory. If factory default settings need to be adjusted, refer to *i.C³ Settings*.

3 Home Screen Basics

Note

To temporarily silence active alarms, touch the **Mute** icon in the top right corner of the screen.



Home Screen Layout

The i.C³ Home screen is comprised of three information areas:

Information header - The dark blue horizontal band across the top of the Home screen. This header is displayed on all i.C³ screens. From left to right it includes: the Event Log icon, Screen ID, Unit ID, Date/Time, Battery indicator, and Mute icon.

Display zone - The middle band of the screen which includes information indicators and messages. From left to right, they are: Status display; Alarm Conditions indicator and Alarm Conditions message; Primary Monitor Probe display; Min/Max Temperature Display (if enabled).

Notes

- **Primary Monitor Probe** refers to the monitoring probe located on the right side of the chamber.
- **Min/Max** temperature display shows the highest and lowest Primary Monitor probe temperature occurrence within a given period of time.

Application icons - Icons located at the bottom of the screen which include five factory-preset application icons. From left to right they are: i.C³ Applications (APPS), Settings, Temperature Graph, Automatic Alarm Test, and AgiTrak. These icons can be changed or rearranged through the Icon Transfer feature. For more information refer to *Icon Transfer*.

Notes

- After two minutes of no interaction, the Temperature Graph screensaver is displayed (if enabled).
- Additional applications are available on the i.C³ APPS screen.

Home Screen Icons and Indicators

Touch the **Event Log** icon to navigate to the Event Log screen.

Look for the **New Event** indicator (red asterisk).

Touch the **Reset** icon to reset the Min/Max display. Time since last reset will be displayed.

Touch the **Mute** icon to temporarily silence alarm sound.

4 i.C³ Applications (APPS)

All i.C³ Applications can be reached from the i.C³ APPS screen.

Notes

- i.C³ Applications screen icons are interchangeable with those found on the Home screen.
- Primary Monitor probe reading and alarm conditions are displayed on the left side of the screen.

Using i.C³ Applications

To navigate to an application screen, touch the associated application icon.

Contact Information

View product support information including the firmware revision numbers.

i.C³ Settings

All i.C³ system settings are configured and other preferences selected from the i.C³ Settings screen.

Note

The i.C³ Settings screen is password protected, unless password protection is turned Off (from the i.C³ Settings screen). If accessing the i.C³ for the first time, use the factory-originated password (1234).

Brightness Settings

Adjust monitor screen brightness.

Icon Transfer

Reposition application icons on the Home and Applications screens.

Information Logs

Access all available data log applications.

Temperature Graph

View current and historical probe temperature data and alarm events.

CSV Downloads

Download information log(s).

PDF Downloads

Download historical information as a PDF.

Uploads

Upload firmware updates.

Alarm Test

Initiate automatic alarm tests for the high and low temperature alarms.

AgiTrak

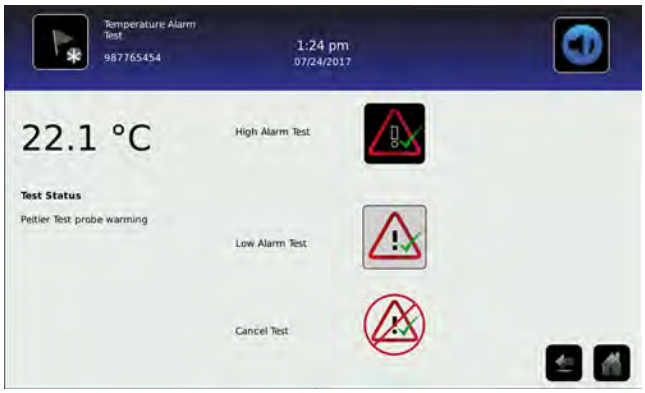
Control agitator speed and view current agitator status.

Access Control *(if installed)*

Display keypad for incubator access.

5 Temperature Alarm Test

Initiate an automatic alarm test for the high and low temperature alarms. The unit uses a built-in Peltier device to heat or cool the probe without affecting chamber temperature. The process normally takes less than five minutes.



Notes

- Touch the Cancel Test icon at any time to abort the alarm test.
- If the temperature alarm test takes longer than ten minutes, the i.C³ will automatically cancel the test.

Initiate alarm test

1. Touch the **High Alarm Test** or **Low Alarm Test** icon to begin the alarm test. The icon for the selected test begins to flash.
   - Temperature changes are displayed in the Temperature Display on the left side of the screen.
   - As the temperature moves into alarm conditions, the temperature reading turns red.
   - The message "Peltier Test Probe Cooling (or Warming)" is displayed in the Alarm Condition area.
   - When completed, the test result is displayed in the Test Status section of the display.

Cancel alarm test

1. Touch the Cancel Test icon to end the alarm test. *"Test Stopped"* is displayed in the Test Status section of the display.

At the time of an alarm test, the Alarm Test icon is displayed on the Temperature Graph to show the change in temperature was test-induced. Event data for the alarm test is recorded and highlighted in blue in the Event Log.

6 Min/Max Temperature Monitoring

The Min/Max temperature display shows the highest and lowest Primary Monitor probe temperature occurrence since the last system reset (power-on event) or manually-initiated reset.

Notes

- The Min/Max temperature display can be turned on or off. Refer to *Display Settings* for more information.
- 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.

Reset Min/Max temperature

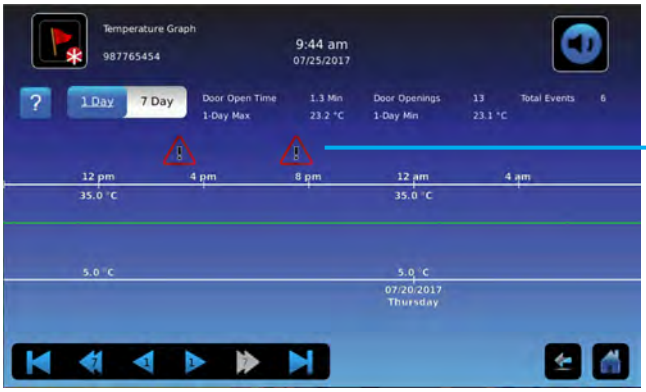
1. Touch the **Reset** icon. The message "Reset min/max temperature memory?" is displayed along with the time (in hours and minutes) since the last reset.
2. Touch to confirm. The timer is reset to 000.00 and the minimum and maximum recorded temperature is cleared. Or, Touch to cancel.

7 Temperature Graph

The Temperature Graph screen shows current and historical primary monitor probe temperature data and temperature events.

Note

Up to 62 days of temperature data can be viewed on the graph.



Viewing the Temperature Graph

1. Toggle the graph **Time Span** button to select a 1-day or 7-day time span.

Note

To view all graph features (including Alarm Condition and Alarm Test indicators), select the 1-day time span.

Date, day and time information for the selected time span is displayed on the graph line.

- Upper line represents high alarm limit
- Lower line represents low alarm limit
- Temperature graph line turns green when unit is within alarm limits and red when outside alarm limits
- Graph is displayed in strip chart form. A black, dashed vertical line appears on the graph where there is a change in the date or time. A white, dashed vertical line appears on the graph where there is a change in the high alarm limit or low alarm limit. A gray, dashed vertical line appears on the graph where the unit is powered on.

Notes

- If the time or date are changed, the stored temperature data will not be reformatted with the new time configuration. Logged events may be duplicated in the downloaded event database if the time or date is changed.
- The temperature graph displays 62 days of data.
- If the high alarm limit or low alarm limit are changed, a dashed vertical black line will appear on the temperature graph, corresponding to date and time when the change was made.

Event Data

Door Open Time	Total time (in minutes) that the unit door was left open during the selected time span.
Door Openings	Total number of times the unit door was opened during the selected time span.
Total Events	Total number of logged events that occurred during the selected time span.

Viewable with the 1-Day Time Span

Graph Display of Alarm Condition

Alarm condition events are shown on the graph by a small Alarm Condition icon when an alarm has been activated. Data and events are shown in 4-hour segments.

View detailed event data

1. Touch the Alarm Condition icon to navigate to the Event Log screen.
2. Touch the Event to view detailed event data.

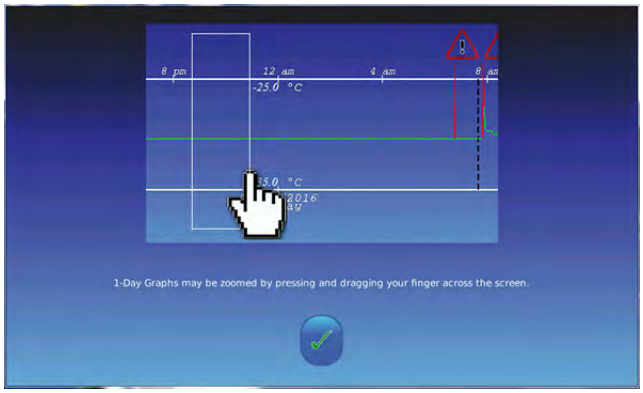
Graph Display of Alarm Test

Alarm tests are shown on the graph by a small Alarm Test icon.

View alarm test data

1. Touch the Alarm Test icon to navigate to the Event Log screen.
2. Touch the Event to view detailed event data.

Graph Display Zoom Feature



The zoom feature may be used to allow a more detailed view of a particular segment of the temperature graph.

Using zoom feature

1. Touch to draw a box around the desired area on the temperature graph. The selected area will appear in the display.
2. Touch the to return to the expanded view.

One Touch Quick Information Feature

The one touch quick information feature allows the user to view specific temperature information at any point on the graph.

Using one touch

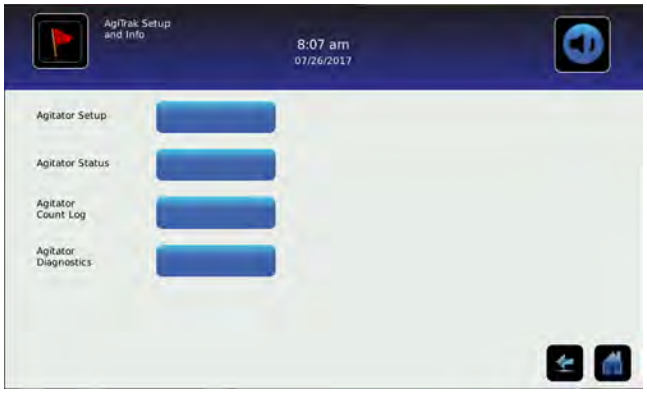
1. Touch the desired point on the graph. A dialog box will appear providing selected date, time and temperature data.

Note

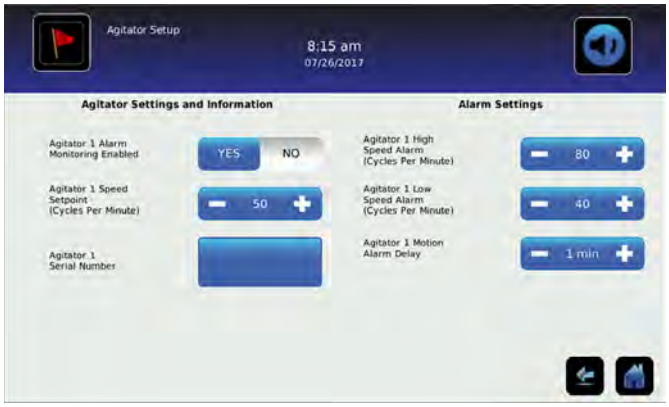
The one touch feature should be used for reference only. The temperature displayed may vary from actual by 0.1 - 0.2 °C.

8 AgiTrak

AgiTrak provides monitoring for an installed agitator. The AgiTrak Setup and Info screen allows the user to setup and control of an installed agitator. Select the appropriate button to setup an agitator, or view the agitator status or count log.



Agitator Setup



The Agitator Setup screen allows the user to enable or disable an agitator and control the agitator's speed. Associated alarm settings can be reviewed and changed.

Enable and Setup an Agitator

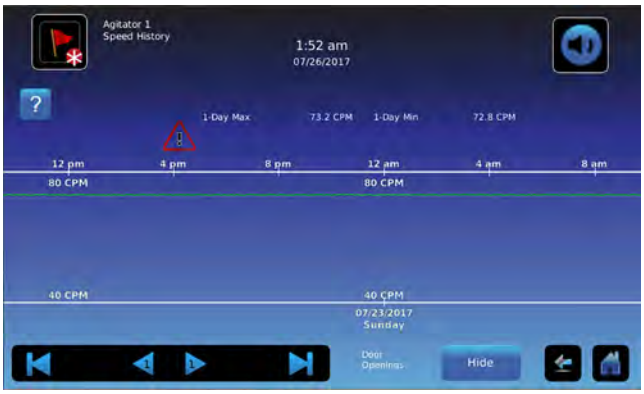
1. Slide the Agitator Monitoring Enabled switch to YES to enable the selected agitator.
2. Touch the minus (-) or plus (+) on the **Agitator Speed Setpoint** spin box to select desired agitator speed.
3. Select the Agitator Serial Number button. A numeric keyboard will appear.
4. Enter the access code 3773, and touch the ☑ to confirm. A numeric keyboard will appear.
5. Enter the Agitator serial number, and touch the ☑ to save. A serial number confirmation message will appear.
6. Touch the ☑ to save or the ☒ to cancel
7. Touch the minus (-) or plus (+) on the **Agitator High Speed Alarm** spin box to select desired speed at which the alarm will activate.
8. Touch the minus (-) or plus (+) on the **Agitator Low Speed Alarm** spin box to select desired speed at which the alarm will activate.
9. Touch the minus (-) or plus (+) on the **Agitator Motion Alarm Delay** spin box to select desired amount of time before the alarm activates.

Agitator Status

The Agitator Status screen provides real time information regarding the agitator speed and cycle count.

View Agitator Speed History Graph

Touch the button showing the current agitator speed. The Agitator Speed History graph will appear.



Reset Cycle Count

1. Touch the to reset the cycle count. The *"Are you sure you want to reset the count for Agitator X?"* message appears.
2. Touch the to confirm or the to cancel.

Information Found in Agitator Status

- Serial number
- Speed (cycles per minute within the last 60 minutes)
- Maximum speed (within the last 60 minutes)
- Minimum speed (within the last 60 minutes)
- Door openings (represented by a yellow vertical line when the show/hide button is set to show)

Agitator Count Log

The Agitator Count Log provides cycle count history for the installed agitator. Touch and hold the bidirectional arrows to scroll through the log.

Information Found in the Agitator Count Log

- Reset Date
- Reset Time
- Serial Number
- Count at Reset

Agitator Diagnostics

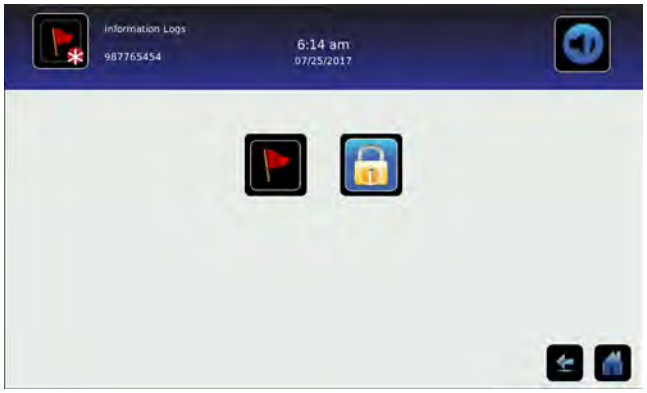
The Agitator Diagnostics screen provides information regarding the operational status of the installed agitator.

Notes

- Use the current Administrator level password, or if accessing the i.C³ for the first time, use the factory-originated password (1234).
- Information shown on this screen is independent from any incubator status.

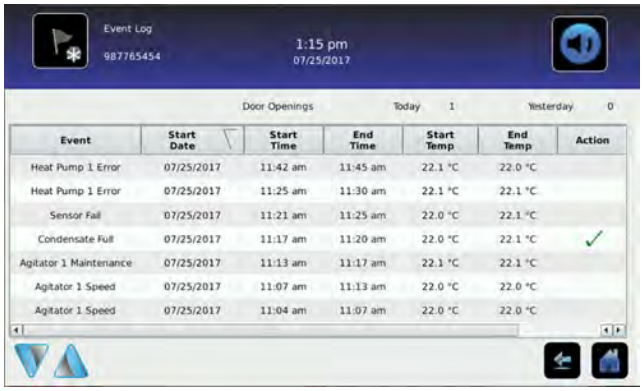
9 Information Logs

All available data logs are accessed from the Information Logs screen.



Event Log

The Event Log shows information from alarm events. A maximum of 100 (most recent) events can be viewed on the Event Log screen. Refer to *Data Transfer, Downloading Temperature and Event Data* for more information.



Viewing the event log

1. Touch and hold the bidirectional arrows to scroll through the log.
2. Touch the desired Event to navigate to the Event Detail screen.

Information Found in the Event Log

- Type of event that occurred
- Date event occurred
- Time event condition began
- Temperature at start of alarm event
- Time event condition ended
- Temperature at end of alarm event
- Indicator of corrective action recorded

Event Log Formatting

Bold text Not yet viewed

Normal text Viewed

Dimmed text Downloaded

Data row shaded blue High or low alarm (triggered from an alarm test)

Event Log Detail Screen

The Event Log Detail provides additional temperature information for the primary probe and the control probe for an alarm event. The cause of an alarm event and the corrective action taken can be acknowledged.

Event Acknowledgement

Use the Event Acknowledgement buttons to select the cause of an alarm event and the corrective action taken.

Acknowledge an event

Note

If **Other** is selected for the event cause or action taken, the alphanumeric keyboard is displayed. Enter the cause or action taken in the space provided.

1. Touch the **Event Cause** button. The Event Cause drop-down list is displayed.
2. Select and touch the cause of the alarm event *(Door Open; Inventory; Alarm Test; Other)*.
3. Touch the **Action Taken** button. The Action Taken drop-down list is displayed.
4. Touch the action taken to correct the alarm event *(Closed Door; Removed Contents; Completed Test; Other)*.
5. Touch the **Signature** button to display the alphanumeric keyboard and enter the user name or user initials.
6. Touch the **Save** icon. The message "Save?" is displayed.
7. Touch the to save the event information. A green check mark is displayed in the event row on the Event Log screen. The date and time of the event acknowledgement is automatically added to the Signature button and the event information can no longer be edited, or touch the to cancel the Save operation.

Note

All three fields must be completed for data to be saved. If the Home or Back icons are touched prior to touching the Save icon, no information will be saved.

Information Found in the Event Detail Log

- Type of alarm
- Start date/time of alarm
- End date/time of alarm
- Primary monitor probe start/end, maximum/minimum temperatures
- Heat Pump, maximum/minimum temperatures

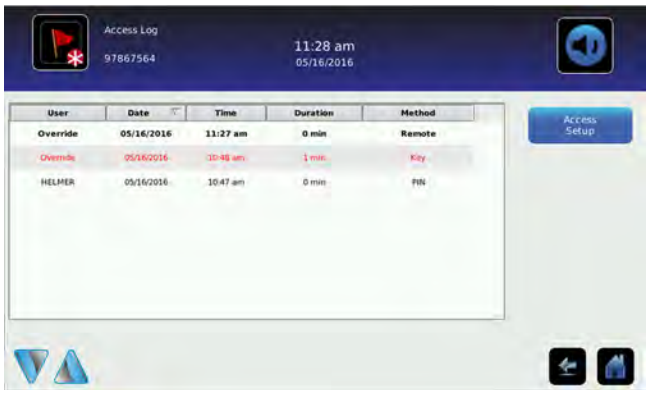
Access Log

The Access Log screen contains a record of each user-authenticated access event. A maximum of 100 (most recent) events can be viewed on the Access Log screen. The Access Log shows information from controlled access chamber entries.

Refer to *Access Control* for more information.

Note

The Access Log, with the Access Control screen and Access Control Setup screen, are activated when the Access Control option is activated and enabled (Access Control is a factory-activated option).



Viewing the access control log

Touch and hold the bidirectional arrows to scroll through the log.

Information Found in the Access Control Log

- User (Name of user, Denied, or Override)
- Date of access
- Time of access
- Length of time door remained open
- Method of access (PIN, Key or Remote)

Access Log Formatting

Bold text New data since the last time the log was viewed

Normal text Viewed

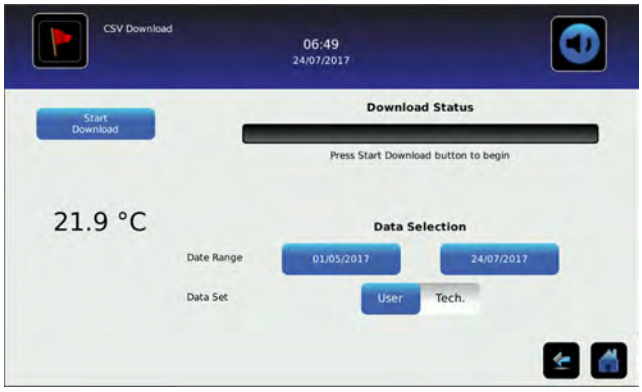
Dimmed text Downloaded

Red text Incorrect PIN entered, access denied, or key override was used

10 Data Transfer

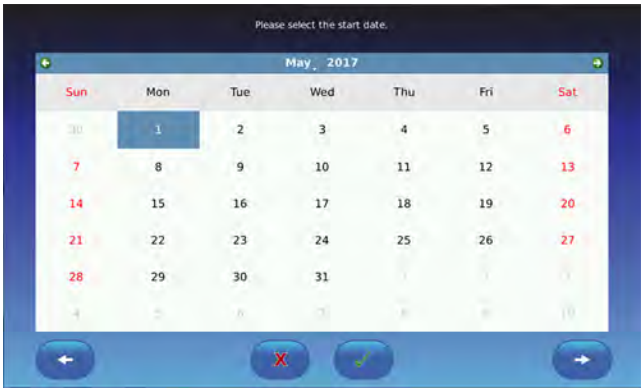
CSV Download

Use the Download screen to download information.



Download Data

1. Insert a memory device into the USB port located on the right of the i.C³ monitor bezel. When the memory device is detected, the message *"Insert USB Flash Drive"* clears and the **Data Selection** spin buttons are no longer shaded.
2. Touch the **Date Range** buttons to select the desired beginning (left) and ending (right) dates. The Data Report Calendar screen is displayed.

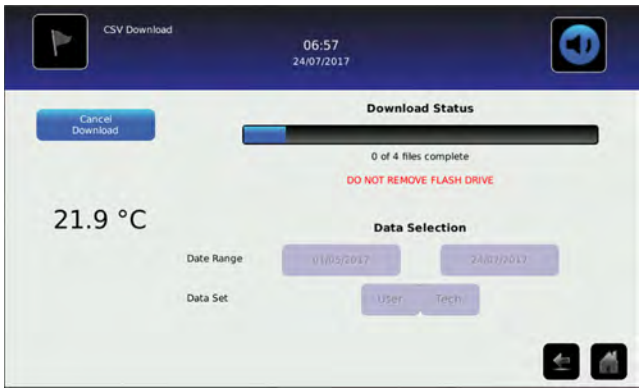


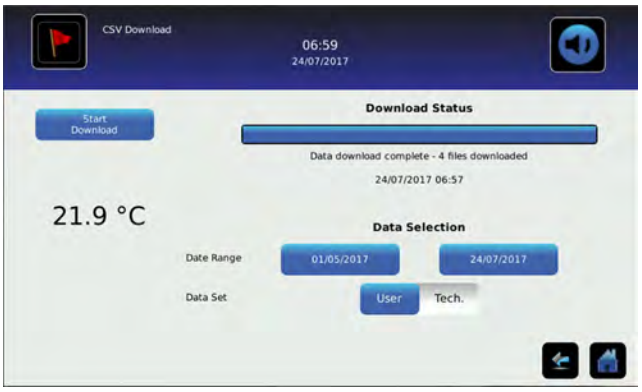
3. Touch the desired date on the calendar then touch the to confirm, or the to cancel.
4. Select **User** to download a single log or data set, or **Tech** for all log files.

5. Touch the **Start Download** button to begin the download. The Download Status bar becomes active showing the progress of the download. When finished, the message *"Data download complete"* along with the number of files downloaded. A date and time stamp will appear below the completion message.

Note

If the Download icon is touched before a memory device is inserted, the message *"Insert USB Flash Drive"* is displayed until a memory device is inserted.





6. Remove the memory device from the USB port. The CSV file may be viewed, saved, and manipulated on a PC. If the memory device is removed before the data download is complete, or if the memory device is full, the message *"Flash drive has been removed"* will appear below the progress bar. If the memory device is full, the message *"Flash drive is full"* will appear below the progress bar.

Notes

- The data is best viewed with an application used to create spreadsheets or databases. If Microsoft® Excel™ is used to view data, version 2009 or newer is required.
- If the USB is disabled in the Auxiliary Setting screen, the message *"USB port is currently disabled"* is displayed. Refer to *i.C³ Settings*, *Auxiliary Systems* for information regarding enabling the USB port.
- The Download screen can not be closed during a data download unless an error occurs.
- Up to 3 months of data may be downloaded at a time.
- If an invalid date range has been entered, the message *"The date range must not exceed 3 months. Please select beginning and end dates that encompass 3 months or less"* will appear
- A User download should be completed in less than twenty minutes. If the download has not completed in twenty minutes, contact Helmer Technical Service.
- The i.C³ features two Disk Space status alarms to proactively alert you when the available storage space is low (about 3 month's of data can be stored), and full (no new data can be stored). If either of these appear, contact Helmer Technical Service.

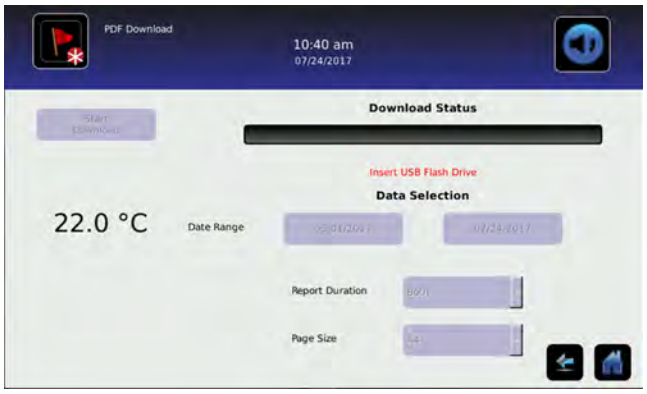
Downloaded data is saved to the memory device in CSV (comma separated values) file format. When set to User, the following four files can be saved each time.

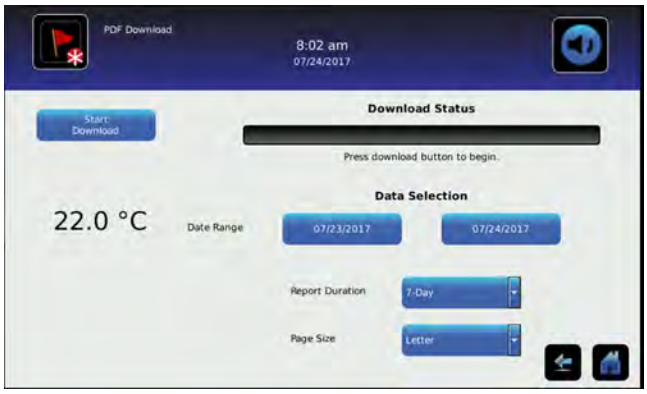
- Primary Monitor Probe temperature data (Data is sampled once per minute)
- Event log data
- Access log data (if Access Control is activated)

Setting the toggle to Tech allows download of additional diagnostic files. After the files are transferred, the read/write properties of the downloaded files should be set to read-only by the user.

Downloading Temperature Graphs and Alarm Event Data to PDF

Use the PDF Download screen to download information to PDF (Portable Document Format).





1. Insert a memory device into the USB port located on the right of the i.C³ monitor bezel. When the memory device is detected, the message *"Insert USB Flash Drive"* clears. The **Start Download** and **Data Selection** buttons are no longer shaded.
2. Touch the **Date Range** buttons to select the desired beginning (left) and ending (right) dates. The Data Report Calendar screen is displayed for each date.
3. Touch the desired date on the calendar, then touch the ☑ to confirm, or the ☒ to cancel.

4. Select the desired Report Duration.
   - 1-day duration selects all applicable one-day graphs and Alarm Event Data reports for the product and date range.
   - 7-day duration selects all applicable seven-day graphs and Alarm Event Data reports for the date range.
   - All duration selects all the applicable one-day and seven-day graphs and Alarm Event Data reports for the date range.
5. Touch the **Start Download** button to begin the download. The Download Status bar becomes active showing the progress of the download. When finished, the message *"Data download complete"* along with the number of files downloaded. A date and time stamp will appear below the completion message.
6. Remove the memory device from the USB port. The PDF file may be saved or printed from a PC. If the memory device is removed before the download is complete, the message *"Flash drive has been removed"* will appear below the progress bar. If the memory device is full, the message *"Flash drive is full"* will appear below the progress bar.

Notes

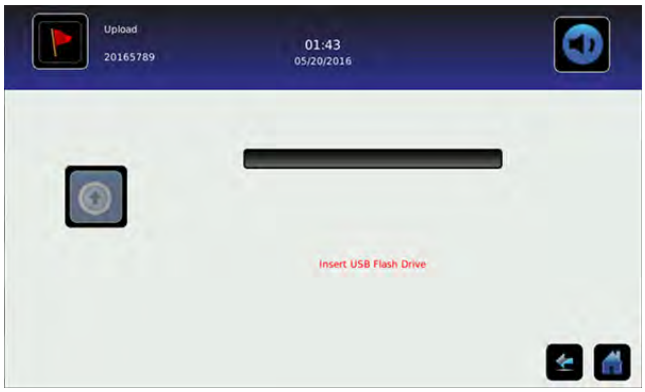
- If the PDF Download icon is touched before a memory device is inserted, the message "Insert USB Flash Drive" is displayed until a memory device is inserted.
- The paper setting selected is stored with the report being run and cannot be changed when rerunning the same report at a later date. Changing the paper setting will affect the current report being run as well as subsequent reports.
- PDF reports are stored for about 3 months, at which time the oldest reports are purged to free up storage space. Helmer recommends performing PDF downloads every two months.

Uploading Firmware Updates

Use the Upload screen to upload firmware updates. If the Upload icon is touched before a memory device is inserted, the message *"Insert USB Flash Drive"* is displayed until a memory device is inserted.

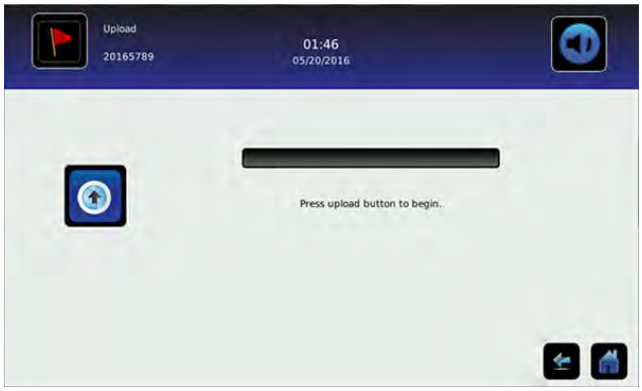
Notes

- Record the display processor and control processor firmware version number before uploading a firmware update. These numbers will be referenced after the update to ensure the update was successful.
- Record the Control Sensor Offset temperature value. These values will be referenced if the firmware update causes a change to the offset values.
- The Upload screen can not be closed during a data upload unless an error occurs.
- If the USB is disabled in the Auxiliary Setting screen, the message "USB port is currently disabled" is displayed. Refer to *i.C³ Settings*, *Auxiliary Systems* for information regarding enabling the USB port.

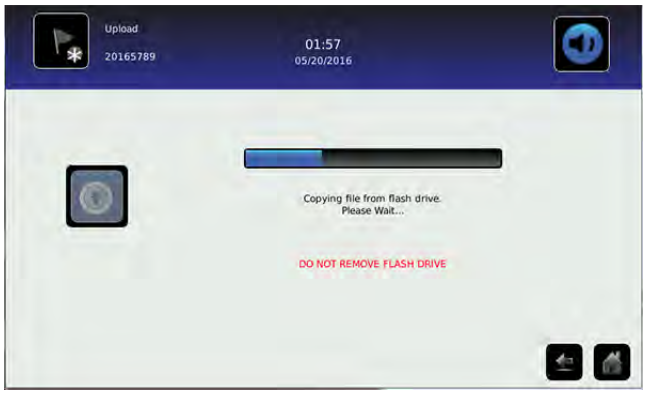


Upload firmware

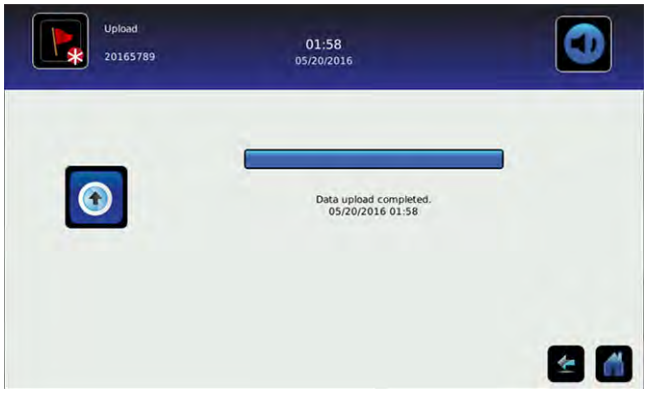
1. Insert a memory device into the USB port located on the right of the i.C³ monitor bezel. When the memory device is detected, the message *"Insert USB Flash Drive"* clears and the Upload icon is no longer shaded.



2. Touch the Upload icon to begin data transfer. The upload progress bar is displayed.



3. When finished, the *"Data Upload Completed"* message and the date and time are displayed. The screen then refreshes to display the *"Wait"* screen, and the system automatically powers down and restarts.

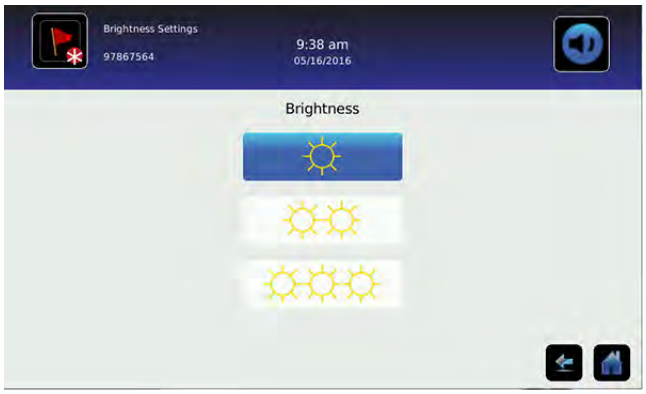


4. Remove the memory device from the USB port. Updated firmware is loaded to the i.C³ memory.
5. After the i.C³ system restarts, verify the display processor (DP) and/or control processor (CP) firmware version number have been updated. If either firmware version number has not been updated from the recorded version number, contact Helmer Technical Service. For more details regarding referencing the firmware revision number, refer to *i.C³ Applications (APPS)*, *Using i.C³ Applications*
6. Verify the Control Sensor Offset temperature value has not changed. If the temperature offset value has been changed from the recorded value, calibrate the offset value. For details on calibrating the offset values, refer to i.C3 Settings, Sensor Calibration.

11 Customizing the i.C³ Screen

Brightness Settings

The backlight on the i.C³ monitor has three brightness settings. Touch any button to select a different brightness setting.



Home Page Screensaver

The Home screen is equipped with a screensaver that displays a 24-hour temperature graph. The screensaver is automatically displayed after two minutes of inactivity on the Home screen. Touch anywhere on the screensaver to return to the Home screen.

Notes

- Inactivity of two minutes duration on most i.C³ screens results in automatic return to the Home screen.
- The screensaver can be disabled on the Settings screen so the Home screen is viewable at all times.

12 i.C³ Settings

Configure i.C³ system settings and other preferences via i.C³ Settings.

Note

The i.C³ system requires up to 30 seconds to save configuration changes. Do not turn the power off until 30 seconds have elapsed.

Password Protection of the i.C³ Settings Screen

Password protection is set to **ON** at the factory and can be turned **OFF** through the settings menu. A password protects i.C³ settings from unauthorized changes.

Note

Helmer recommends password protection remain ON.

Accessing Settings

If password protection is turned ON, touch the i.C³ Settings icon to bring up a numeric keypad and enter the current password. If accessing the i.C³ for the first time, use the factory-originated password (1234).

If password protection is turned OFF, touch the i.C³ Settings icon to navigate directly to the i.C³ Settings screen.

Temperature Setpoint

The Temperature Setpoint specifies the desired temperature for product stored inside the unit.

Change temperature setpoint

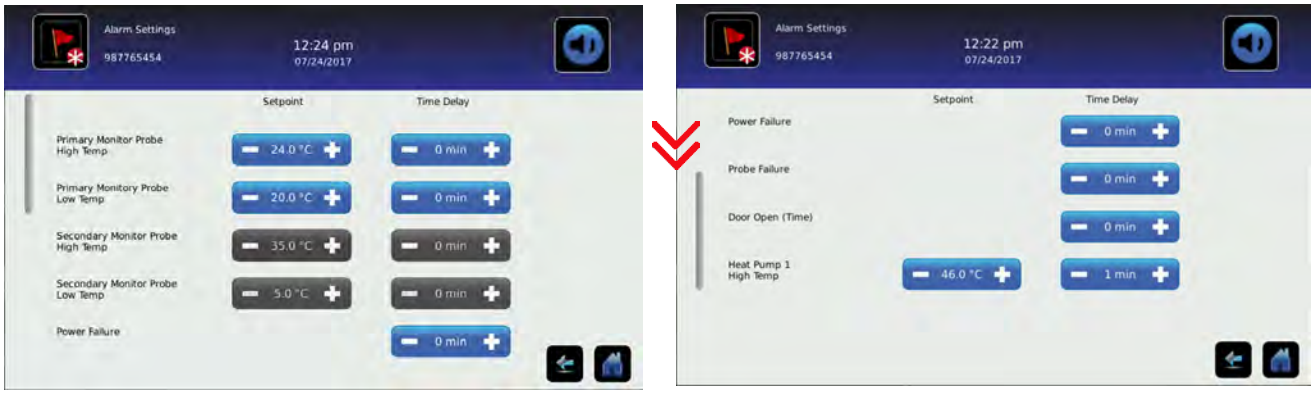
Touch the minus (-) or plus (+) on the spin box to adjust the temperature setpoint.

Alarm Settings

Parameters for activating an alarm may be set through Alarm Settings.

Set alarm parameters

1. Touch the **Alarm Settings** button.



2. Touch the minus (-) or plus (+) on the corresponding **Setpoint** spin box to change an alarm setpoint.
3. Touch the minus (-) or plus (+) on the corresponding **Time Delay** spin box to change the time delay duration.

Users and Passwords

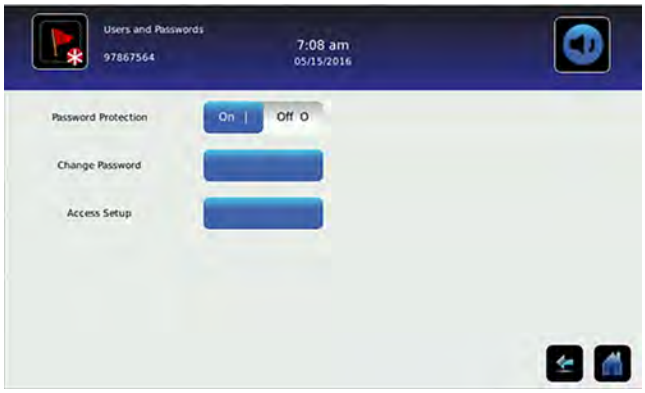
Set up user access and passwords, or turn password protection **On** or **Off** through Users and Passwords.

Enable/disable password protection

1. Touch the **Users and Password** button.
2. Toggle the **Password Protection** button to turn password protection On or Off.

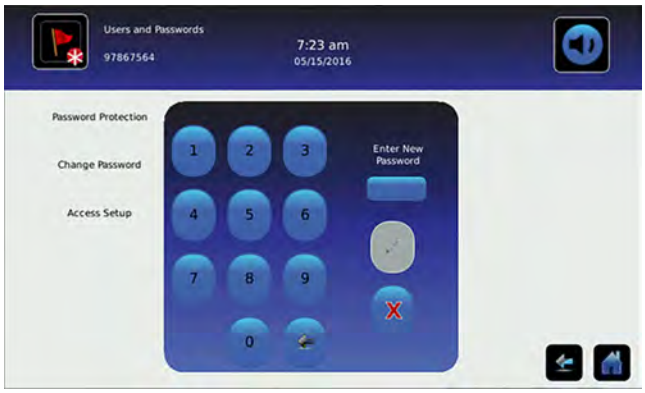
Note

Helmer recommends that password protection remain **On**.



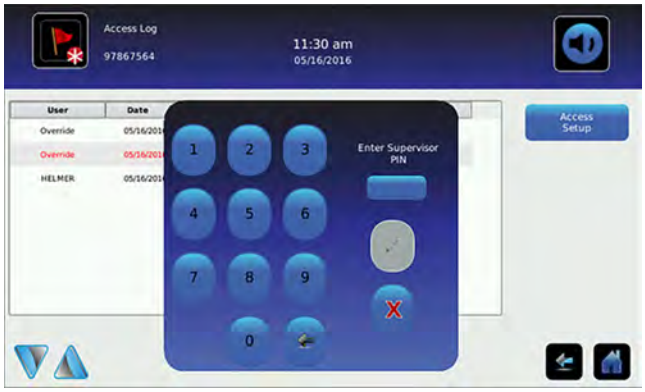
Change password

1. Touch the **Users and Password** button.
2. Touch the **Change Password** button, a numeric keypad is displayed.
3. Enter a new 4-digit password and touch ☑.
4. Re-enter the 4-digit password to confirm.
5. Touch ☑ to save of ☒ to cancel.



Establishing user access *(if installed)*

1. Touch the **Users and Password** button.
2. Touch the **Access Setup** button, the Access Setup numeric keypad appears.
3. Refer to *Access Control* for instructions regarding Access Control setup and operation.



Sound Settings

Turn sounds on or off, control volume and select an alarm tone through Sounds Settings.

Enable/disable sounds

1. Touch the **Sounds Settings** button.
2. Toggle the **Sounds** button **On** or **Off** to select desired setting.

Set alarm volume

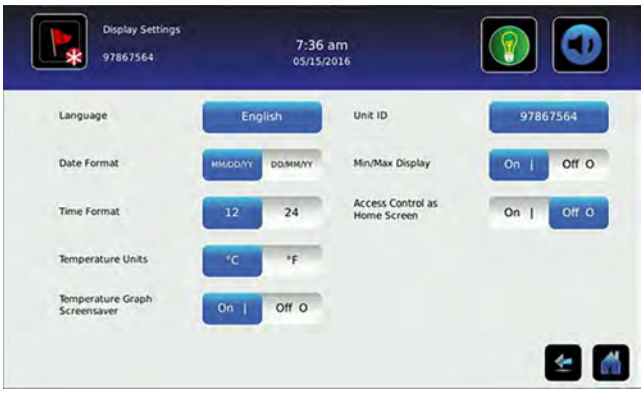
1. Touch the **Sounds Settings** button.
2. Touch the minus (-) or plus (+) on the **Alarm Volume** spin box to select desired volume.

Select alarm tone

1. Touch the **Sounds Settings** button.
2. Touch the plus minus (-) or plus (+) on the **Alarm Tone** spin box to select desired tone.
3. Touch the **Try It** button to hear the selected tone.

Display Settings

Control how information appears on the i.C³ display through Display Settings.



Change language

1. Touch the **Language** button. The language drop-down list is displayed.
2. Touch the language to be displayed. The selected language is displayed in the Language button.
3. Touch ☑ to confirm language selection, or ☒ to cancel.
4. Touch the **Home** icon to continue to the Home screen.

Select date format

1. Touch the **Display Settings** button.
2. Toggle the **Date Format** button to select the desired format.

Select time format

1. Touch the **Display Settings** button.
2. Toggle the **Time Format** button to select the desired format.

Select temperature units

1. Touch the **Display Settings** button.
2. Toggle the **Temperature Units** button to select the desired format.

Enable/disable Temperature Graph Screensaver

1. Touch the **Display Settings** button.
2. Toggle the **Temperature Graph Screensaver** button **On** or **Off** to select desired setting.

Change unit ID

1. Touch the **Display Settings** button.
2. Touch the **Unit ID** button. An alphanumeric keyboard appears.
3. Enter desired ID (maximum 10 characters).
4. Touch ☑ to save, or ☒ to cancel.

Enable/disable Min/Max display

1. Touch the **Display Settings** button.
2. Toggle the **Min/Max Display** button **On** or **Off** to select desired setting.

Enable/disable Access Control as home screen *(if installed)*

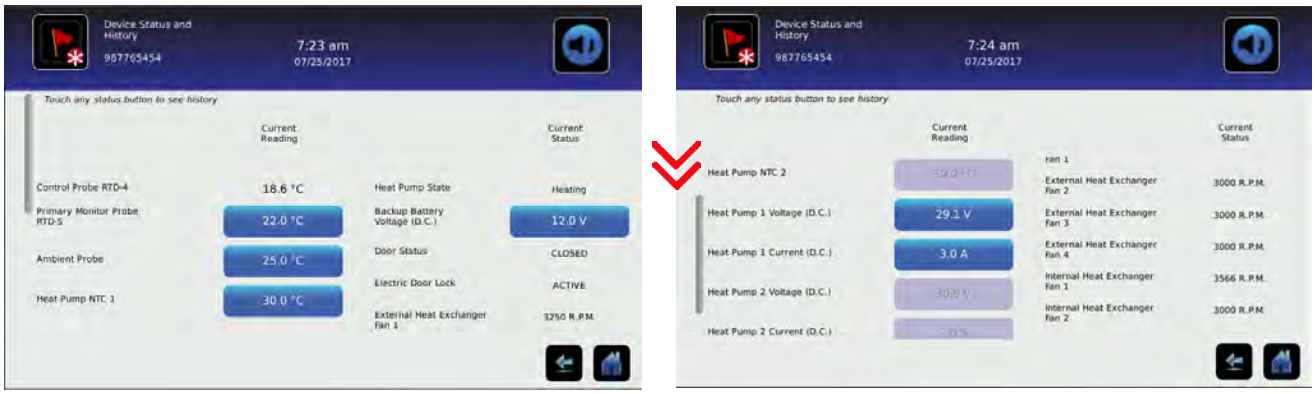
Note

If **Off** is selected, the standard Home screen is displayed and keypad access is obtained by touching the Access Control icon.

1. Touch the **Display Settings** button.
2. Toggle the **Access Control as Home Screen** button **On** or **Off** to select desired setting.

Device Status

Current sensor readings and device status are displayed on the Device Status screen.



Sensor Calibration

Calibration adjusts temperature setpoints so the value displayed matches the actual chamber temperature, as measured by an independent thermometer. View temperature probe readings and adjust offsets through Sensor Calibration.

Sensor Reference

Indicates probe location on the control board.

Current Reading (+ Offset)

View the real-time temperature reading which includes offset calculation.

Offset

The spin boxes are used to calibrate the temperature probe readings using the offset values. Touch the minus (-) or plus (+) on the adjacent spin box until the correct value is displayed.

Adjust temperature setpoint

1. Touch the **Sensor Calibration** button.
2. Touch the minus (-) or plus (+) on the corresponding probe spin box to adjust the offset.

Note

Primary probe temperature offset may require periodic calibration. Refer to the product service manual for instructions regarding calibrating a chamber temperature probe.

Date/Time

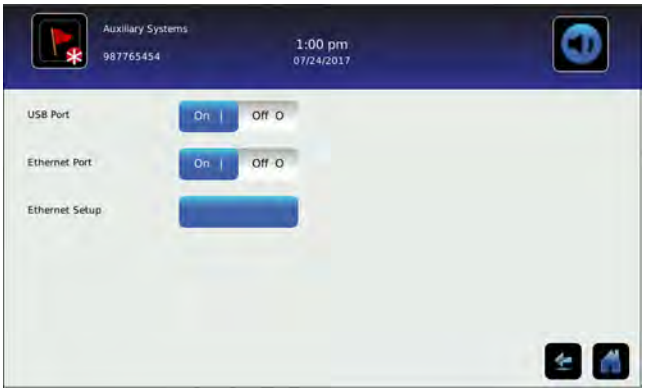
Date and time values can be changed through the Date/Time screen.

Change/set date and time

1. Touch the **Date/Time** button.
2. Touch the minus (-) or plus (+) on the corresponding **Date** or **Time** spin box to select the appropriate value.
3. Toggle the **AM/PM** button to select AM or PM.
4. Touch ☑ to save.

Auxiliary Systems

The Auxiliary Systems screen provides a way to turn the USB port or Ethernet port on or off, as well as set up an Ethernet connection.



Enable/disable USB or Ethernet

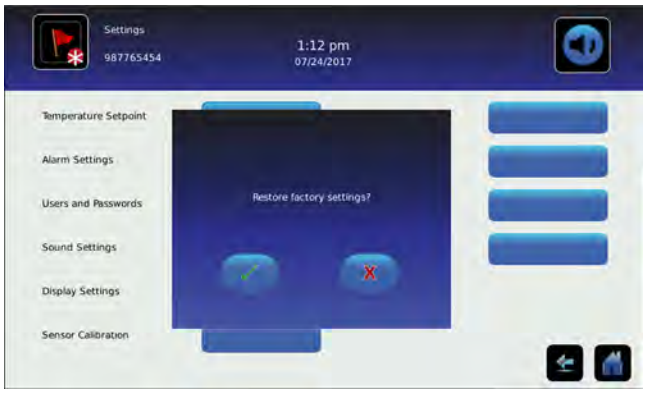
1. Touch the **Auxiliary Systems** button.
2. Toggle the corresponding port button **On** or **Off** to select desired status.

Note

Contact Helmer Technical Service for Ethernet API information to utilize this interface.

Restore Factory Settings

Settings will be restored to their factory default through Restore Factory Settings.



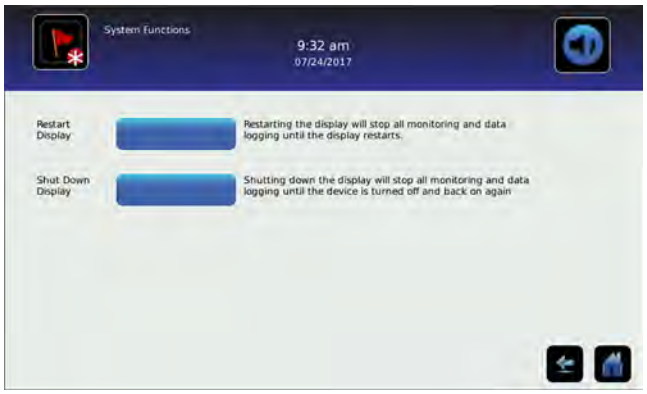
Restore factory Settings

1. Touch the **Restore Factory Settings** button. The Restore Factory Settings confirmation box appears.
2. Touch to confirm, or to cancel.

Note

- Restoring factory settings will result in the loss of any changes made to Alarm Settings, Temperature Setpoints, or Time Delay settings.
- The Language setting and Unit ID will not be overridden when restoring factory settings.

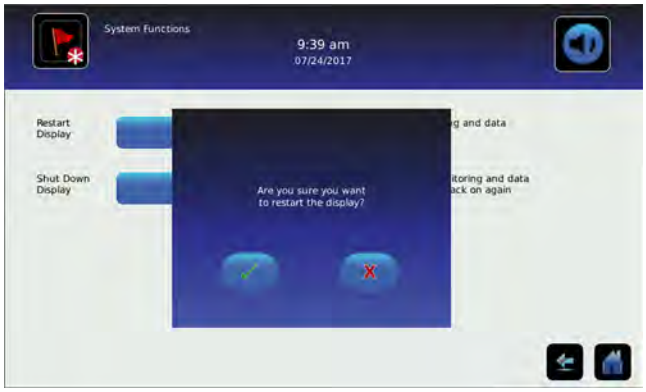
System Functions



Reboot or shut down the i.C³ system through System Functions.

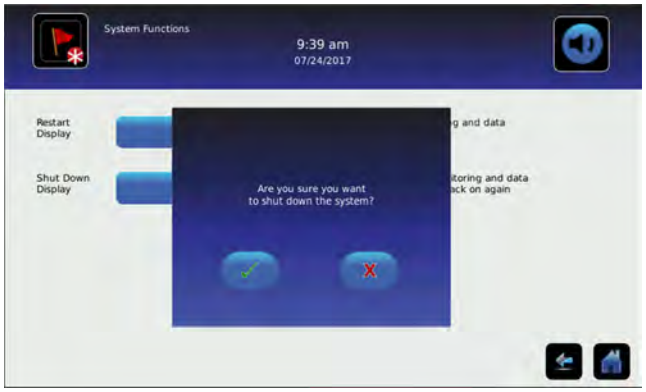
Reboot i.C³ system

1. Touch the **System Functions** button.
2. Touch the **Reboot** button. The confirmation box appears.
3. Touch ☑ to confirm, or ☒ to cancel.



Shut down i.C³ system

1. Touch the **System Functions** button.
2. Touch the **Shut down** button. The confirmation box appears.
3. Touch ☑ to confirm, or ☒ to cancel.



Notes

- The i.C³ system should be shut down prior to shutting down the entire unit.
- If only the i.C³ system is shut down, the unit will continue to run based on the last settings. No temperature data other than Min/Max will be recorded.

13 Access Control *(if installed)*

Integrated Electronic Access Control limits user access, providing secure storage. A valid personal identification number (PIN) must be entered to open the unit.

Notes

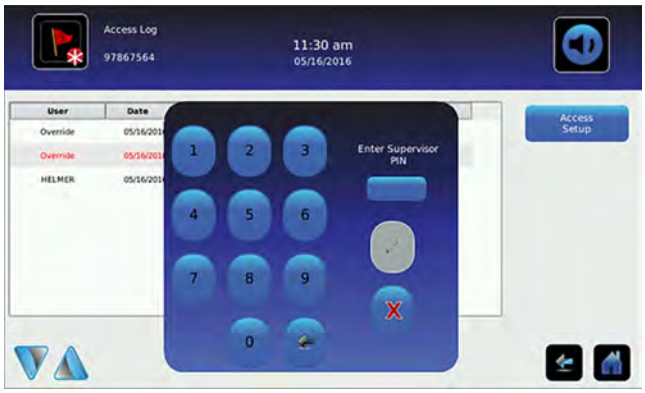
- There is a lock override key on Helmer equipment. The key disconnects power to the magnetic lock, allowing users to access the contents of the cabinet. A keyed mechanical lock is provided on the door to allow secure access if the magnetic lock is overridden.
- In the event of an AC power failure, the magnetic lock override key should be switched to override position and the mechanical key lock should be used to provide secure access until AC power is restored.
- Refer to the product operation manual for detailed instructions on using the Access Control lock under normal conditions and during an AC power failure.

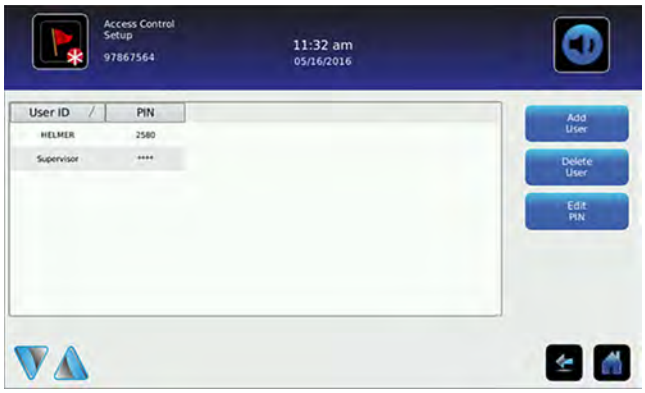
Access Control Setup

The Access Control Setup screen allows management of multiple user profiles. Up to 100 user profiles can be created.

Notes

- Access Control must be set up prior to use.
- The Supervisor PIN must be used to set up user profiles.
- 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.
- The Supervisor PIN should be changed to prevent unauthorized user ID setup. The Supervisor PIN can not be deleted.
- In the event the Supervisor PIN is unavailable, contact Helmer Technical Service to reset the Supervisor PIN.





Note

The **Access Setup** button can be found on the *Users and Passwords* screen or the *Access Log* screen.

Entry into Access Control Setup

1. Touch the **Access Setup** button. A numeric keypad is displayed.
2. Enter the supervisor PIN *(if entering for the first time, use the factory supervisor PIN = 5625)*.
3. Touch to confirm. The keypad closes and the Access Control Setup screen is displayed.

Add a user profile

1. Touch the **Add User** button. An alphanumeric keyboard is displayed.
2. Enter the User ID for the new user profile.
3. Touch the to store the user ID. The alphanumeric keyboard is displayed.
4. Enter a 4-digit PIN for the new user profile.
5. Touch the to store the user PIN. The User ID and PIN for the new user profile are displayed in the table.

Delete a user profile

1. Touch the data row of the user profile to be deleted. The data row is highlighted in blue.
2. Touch the **Delete User** button. The message *"Delete User?"* is displayed.
3. Touch to confirm, or to cancel.

Edit a user profile

1. Touch the data row of the user profile to be edited. The data row is highlighted in blue.
2. Touch the **Edit PIN** button. The numeric keypad is displayed.
3. Enter a new 4-digit PIN.
4. Touch to confirm. The numeric keypad closes and the new PIN is displayed in the table, or touch to cancel.

Access Control Screen

i.C³ APPS >

Temperature and Alarm Conditions are displayed on the left side of the keypad. When the screen is first displayed, the Closed Padlock indicator is displayed. "Enter PIN" is displayed above the locked indicator.

Using Access Control to unlock the door

1. Enter unique 4-digit PIN.
2. If a valid PIN is entered, the Padlock indicator appears open and the door is unlocked.

Access Control as the Home Screen

If the Access Control option is activated, the Access Control Home Screen can be substituted for the standard Home Screen.

Notes

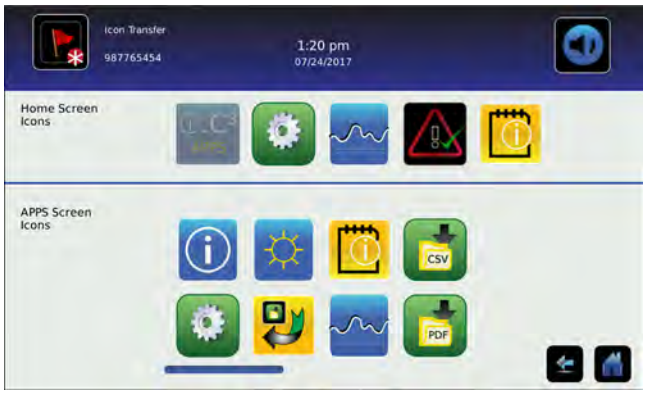
- It is recommended the Access Control icon be moved to the Home screen if the Access Control Home screen is disabled. Refer to *Icon Transfer* for more information.
- If the Access Control Home Screen is disabled, the keypad is accessed by touching the Access Control icon.

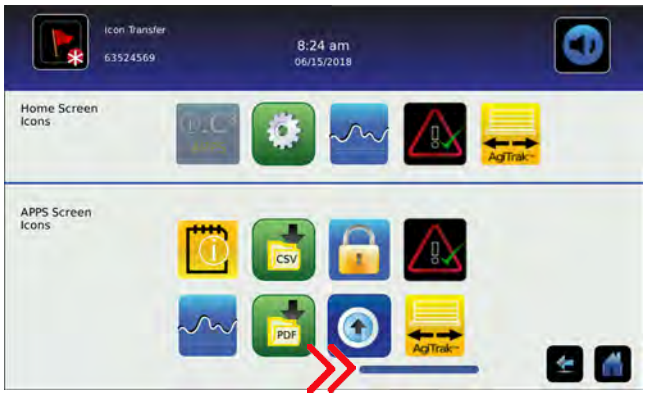
Enable/disable Access Control Home Screen

1. Touch the **i.C³ Apps** icon.
2. Touch the **Settings** icon.
3. Touch the **Display Settings** button.
4. Toggle the **Access Control as Home Screen** button **On** or **Off** to select desired setting.

14 Icon Transfer

The Icon Transfer allows icons to be moved between the Home screen and the i.C³ Applications screen, or repositioned on the i.C³ APPS screen. A maximum of five icons can be displayed on the Home screen.





Reposition icons

Drag icons with a touch-drag motion of the finger. Drag the selected icon directly over the icon that is currently located in the targeted position.

Note

The i.C³ APPS icon appears dimmed because it must remain in the first position (top left) on the Home screen and cannot be transferred.

Appendix A - Icon Reference Guide

Common Buttons

Buttons are included to adjust settings or navigate to a different "app". Alphanumeric keyboard buttons for text entry, editing, save/cancel functions, and uppercase and lowercase keyboards are included for all languages. The extended character keyboard and symbol keyboard are included for U.S./international languages only.

Notes:

- When the Extended Character button is touched, the uppercase extended character keyboard is displayed by default. To display the lowercase extended character keyboard, touch the Lowercase button.
- Touch and hold the Back button to delete multiple characters.

i.C³ Apps Buttons

Toggle box

Spin box

Navigation or Setting button

Alphanumeric Keyboard Buttons

Toggle the **Uppercase/Lowercase** button to navigate between the lowercase and uppercase character keyboard.

Touch the **Extended Character** button to navigate to the extended character keyboard.

Touch the **Symbol** button to navigate to the symbol keyboard.

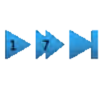
Touch the **Space** button to insert a space after a character

Touch the **Back** button to delete a character from the text window.

Application Icons

All i.C³ Apps icons are included in this guide. Contact Helmer, Inc. for information about optional applications.

Image	Name	Function
	Home	• Navigate to the Home screen
	Event Log (icon-indicator)	• Navigate to the Event Log • Red asterisk indicates new event
	Mute On/Off (button)	• Touch once to temporarily silence an active alarm
	Reset	• Touch to reset Min/Max temperature display • Touch to reset temperature graph view
	Zoom Information	• Touch to view instructions for using the temperature graph zoom feature
	i.C³ Applications (APPS)	• Navigate to the i.C³ APPS screen
	i.C³ Settings	• Navigate to the i.C³ Settings screen
	Temperature Graph	• Navigate to the Temperature Graph screen
	Alarm Test	• Navigate to the Alarm Tests screen • Initiate an Alarm Test
	AgiTrak	• Control Agitator speed and alarms • Navigate to Agitator Count Log • Navigate to Agitator Diagnostics
	Information Logs	• Navigate to the Information Logs
	Contact Information/ Contact Helmer	• Navigate to the Helmer Contact Information screen
	Display Brightness	• Navigate to the Display Settings screen
	Icon Transfer	• Navigate to the Icon Transfer screen

Image	Name	Function
	CSV Download	• Navigate to the Download screen • On the Download screen, start a data transfer
	PDF Download	• Navigate to the PDF Download screen • On the Download screen, start a data transfer
	Upload	• Navigate to the Upload screen • On the Upload screen, start a data transfer
	Access Control	• Optional feature • Navigate to the Access Control Login screen
	Access Log	• Optional feature • Navigate to the Access Control Log
	Alarm Conditions (icon-indicator)	• Indicates alarm event occurred • Navigate to the Event Log
	Cancel Test	• Touch to cancel Alarm Test
	Save	• Touch to save entry or change
	Cancel	• Touch to cancel entry or change
	Back Arrow	• Navigate to the previous screen
	Scroll Arrows	• Indicates additional information is available by scrolling
	Temperature Graph Forward/ Back Arrows	• Navigate forward or backward to view temperature graph data
	Zoom Out	• Touch to zoom out on Temperature Graph
	Battery Power (indicator)	• Indicates i.C³ is running on battery

Appendix B - i.C³ Reference Guide

General Settings

Notes

- All i.C³ settings are shown in this guide. Contact Helmer, Inc. for information about settings as they pertain to optional applications.
- General settings apply to refrigerator and freezer models.

Setting	Description	Default Value	Range
Temperature Setpoints	Set unit operation temperature	22°C	20 °C - 35 °C
Alarm Settings	Access alarm setpoint settings	Refer to Alarm Settings table	
Password Protection	Protect i.C³ Settings from unauthorized changes	On	
Change Password	Change password used to access i.C³ Settings	1234	
Sounds	Turn sound on or off (does not include alarms)	On	
Alarm Volume	Audible alarm volume	9	1 - 9
Alarm Tone	Audible alarm tone	3	1 - 4
Language	Language displayed on the i.C³ screen	English	
Date Format	Date display format	MM/DD/YYYY	
Day	Calendar day	Set at the factory	
Month	Calendar month	Set at the factory	
Year	Calendar year	Set at the factory	
Time Format	Time display format	12-hour	12-hour or 24-hour
Minute	Minute value	Set at the factory	
Hour	Hour value	Set at the factory	
AM/PM	AM or PM	Set at the factory	
Temperature Units	Temperature units in °C or °F	°C	°C or °F
Temperature Graph Screensaver	Display temperature graph as Home screen	On	
Alternate Screensaver *(optional)*	Display alternate screensaver as Home screen	Off	
Unit ID	Unique identification number for the i.C³ system	Unit serial number	Max 10 characters
Min/Max	Minimum and Maximum Primary Monitor Probe readings	Off	
Access Control as Home Page	Display Access Control keypad on the Home screen	On (if installed)	
Brightness	i.C³ display screen brightness	3 (brightest)	1 - 3
Sensor Calibration	Set probe temperature values to match measured temperature values	Refer to product Service Manual	
Primary Monitor Probe Offset	Offset value used to adjust temperature reading of the primary monitor temperature probe.	0°C	-10 °C - +10 °C -18 °F - +18 °F
Control Probe Offset	Offset value used to adjust temperature reading of the control probe	0°C	-10 °C - +10 °C -18 °F - +18 °F
Ambient Probe Offset	Offset value used to adjust temperature reading of the ambient probe.	0°C	
USB Port	Turn USB port on or off	On	
Ethernet Port	Turn Ethernet Port on or off	Off	
Restore Factory Settings	Change all settings to factory default values	Refer to product Service Manual	

Setting	Description	Default Value	Range
Agitator Selection *(if enabled)*	Select agitator location within incubator	1	1 - 3
Agitator 1 Speed Setpoint *(if enabled)*	Set agitator speed (cycles per minute - CPM)	72	40 - 80

Alarm Settings

> > Alarm Settings

Setting	Description	Default Value	Range
Primary Monitor Probe High Temp (setpoint)	High temperature at which alarm condition occurs	24 °C	-100 - +50 °C -148 - +122 °F
Primary Monitor Probe High Temp (time delay)	Time after high temperature alarm condition occurs until alarm sounds	0 minutes	0 - 20
Primary Monitor Probe Low Temp (setpoint)	Low temperature at which alarm condition occurs	20 °C	-100 - +50 °C -148 - +122 °F
Primary Monitor Probe Low Temp (time delay)	Time after low temperature alarm condition occurs until alarm sounds	0 minutes	0 - 20
Heat Pump 1 High Temp (setpoint)	High temperature at which alarm condition occurs	50 °C	
Heat Pump 1 High Temp (time delay)	Time after high temperature alarm condition occurs until alarm sounds	1 minute	0 - 99
Power Failure	Time after power failure occurs until alarm sounds	1 minute	0 - 99
Probe Failure	Time after probe failure occurs until alarm sounds	0 minutes	0 - 99
Door Open	Time door remains open until alarm sounds	1 minute	0 - 99
Agitator 1 Hi Speed Alarm	High speed at which alarm condition occurs	75	21 - 90
Agitator 1 Low Speed Alarm	Low speed at which alarm condition occurs	65	20 - 89
Agitator 1 Motion Alarm Delay	Time after speed alarm condition occurs until alarm sounds	1 minute	0 - 99

Event Log Codes

Event Code	Description
4	Communication Failure 1
5	Communication Failure 2
6	Communication Failure 3
7	Control Probe Failure
8	Primary Monitor Probe Failure
11	Door Open
12	Power Failure
13	Date/Time Change
14	High Temperature Alarm Test
15	Low Temperature Alarm Test
18	No Battery
19	Low Battery
20	Power-Up
23	Agitator 1 Communication Failure
26	Agitator 1 High Speed

Event Code	Description
29	Agitator 1 Low Speed
32	Agitator 1 Maintenance Required
35	Condensate Tray Full
36	Drive Space Low
37	Drive Space Full
38	Heat Pump 1 Connection Error
41	Heat Pump 1 Failure
43	Heat Pump 1 High Temp
47	MPB Communication Failure
48	Primary Monitor Probe High Temperature
49	Primary Monitor Probe Low Temperature
56	External Fan 1 Failure
57	External Fan 2 Failure
60	Internal Fan 1 Failure

1. Communication Failure 1
   - Triggered if communication is lost between i.C³ display board and control board
   - Unit will continue to run with previously saved settings
   - Screen will not display temperature changes or alarm conditions
   - i.C³ system will continue to reset until connection is re-established
   - No data is logged until the alarm is cleared
2. Communication Failure 2
   - Triggered if communication is lost between i.C³ display board and internal system memory
   - Unit will continue to run with previously saved settings
3. Communication Failure 3
   - Triggered if the database is corrupted
   - The database is archived and a new database is automatically created
   - Unit will continue to run with previously saved settings

Note

The "Communication Failure 3" alarm indicator appears on the Home screen until the event has been acknowledged.

Helmer Scientific
14400 Bergen Boulevard, Noblesville, IN 46060 USA
PH +1.317.773.9073 FX +1.317.773.9082

Copyright © 2019 Helmer, Inc.

360406/A