Helmer SCIENTIFIC

i.C³®

User Guide

For Helmer i.Series® Ultra-Low Freezers

360175-A/A

Document History

Revision	Date	CO	Supersession	Revision Description
A	18 APR 2014*	9275	n/a	Initial release.

* Date submitted or change order review. Actual release date may vary.

Contents

About this User Guide

The i.C³® User Guide provides information about use of the i.C³ as it pertains to Helmer ultra-low freezers. Refer to product operation or service manual for general information. Refer to the service manual for additional information about the equipment on which the i.C³ is installed.

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Safety

The operator or technician performing maintenance or service on Helmer Scientific products must (a) inspect the product for abnormal wear and damage, (b) choose a repair procedure which will not endanger his/her safety, the safety of others, the product, or the safe operation of the product, and (c) fully inspect and test the product to ensure the maintenance or service has been performed properly.

Safety Definitions

The following general safety alerts appear with all safety statements within this manual. Read and abide by the safety statement that accompanies the safety alert symbol.

CAUTION	***The safety statement that follows this safety alert symbol indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.***

NOTICE	***The safety statement that follows this safety alert symbol indicates a situation which, if not avoided, could result in damage to the product or stored inventory.***

Chapter 1: Overview

CAUTION ***To avoid injury, before using this product, refer to chapter 2.3 in the associated operation manual.***

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 updates.

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 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, refer to "Chapter 15: Support and Other Information, i.C³ Icon Reference Guide."

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

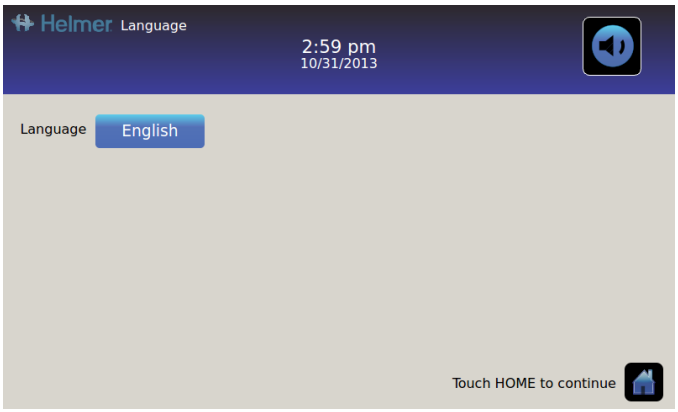
Status indicators alert the user to a change of status.

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

Chapter 2: Language Screen

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.



Touch the **Language** button. *The Language drop-down list is displayed.*

Touch the language to be displayed. *The selected language is displayed in the Language button.*

➤ Refer to “Chapter 6: Display Settings, Language” for details on changing the i.C³ language after power-on.

Touch the **Home** button to continue to the Home screen.

Note: English is the default language.

Note: When the i.C³ is powered on for the first time, the touchscreen calibration screen is displayed. Refer to the product service manual for instructions in calibrating the touchscreen.

Settings Configuration

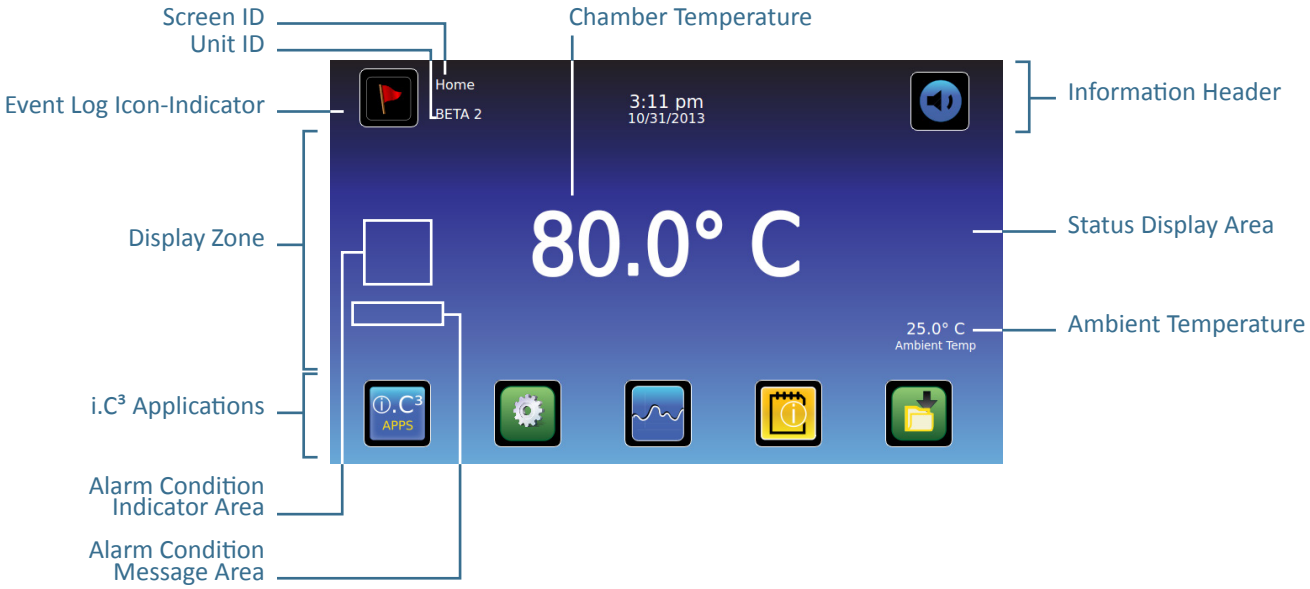
Basic configuration parameters should be set before using the i.C³.

➤ Refer to “Chapter 8: Operational Settings” for details on configuring i.C³ settings.

Chapter 3: Home Screen

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

Home Screen Layout



Home Screen Layout

The i.C³ Home screen is comprised of three information areas. The **information header** is 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 button.

The **display zone** occupies the middle band of the screen and includes information indicators and messages. From left to right, they are: Alarm Conditions indicator and Alarm Conditions message; Chamber Temperature display; Status Display area, and Ambient Temperature.

Application icons are at the bottom of the screen and include five factory-preset application icons. From left to right, they are: i.C³ Applications (APPS), Settings, Temperature Graph, Information Logs, and Download.

Note: After two minutes of no interaction, the screen saver is displayed (if enabled).

Note: Additional applications are available on the i.C³ APPS screen.

Home Screen Buttons and Indicators

Touch the **Event Log** icon to navigate to the Event Log screen for review of alarm event and door open data.

Look for the **New Event** indicator (red asterisk) on the lower right of the Event Log icon.

Touch the **Mute** button to temporarily silence alarm sound; touch repeatedly to increase the Mute timer incrementally.

Chapter 4: i.C³ Applications (APPS)

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

Note: i.C³ Applications screen icons are interchangeable with those found on the Home screen.

➤ Refer to “Chapter 5: Icon Transfer” for details on transferring icons.

Note: Chamber Temperature and Alarm Condition are displayed on the left side of the screen.

Using i.C³ Applications

Navigate to an application screen: Touch the associated application icon.

Information Logs

Access all available data log applications.

Contact Helmer Scientific

View contact information for Helmer Scientific and firmware revision numbers.

Display Settings

Adjust monitor screen brightness.

Temperature Graph

View current and historical chamber temperature data and alarm events.

Downloads

Download information log(s).

Uploads

Upload firmware updates.

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).

Icon Transfer

Reposition application icons on the Home and Applications screens.

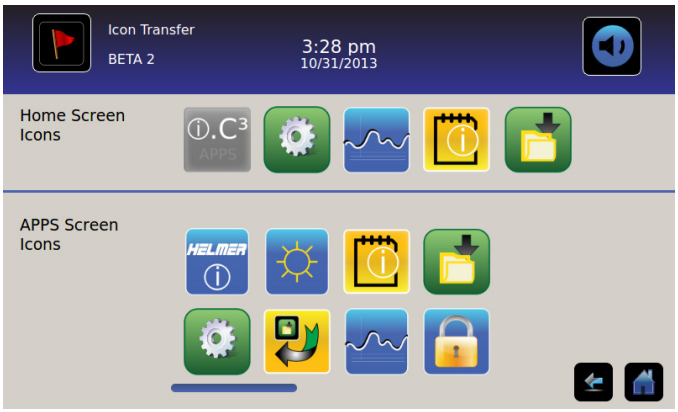
Access Control

Display keypad for freezer access.

Note: The Access Control icon is only visible when the Access Control feature is enabled.

Chapter 5: Icon Transfer

From this screen, icons can be moved between the Home screen and i.C³ Applications screen, or repositioned on the i.C³ APPS screen.



To view additional icons: Touch-scroll to the right or left.

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.

Home Screen Icons

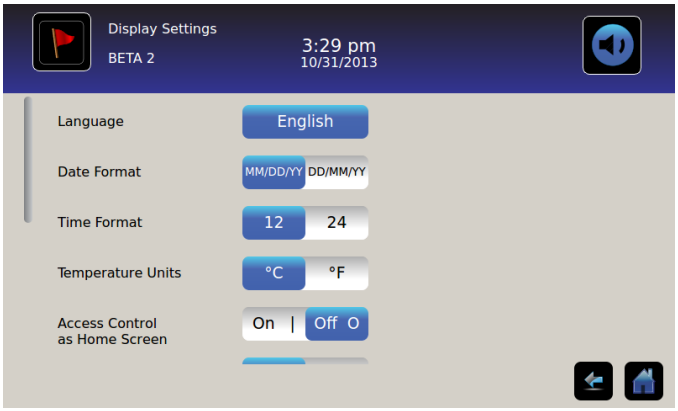
A maximum of five icons can be displayed on the Home screen.

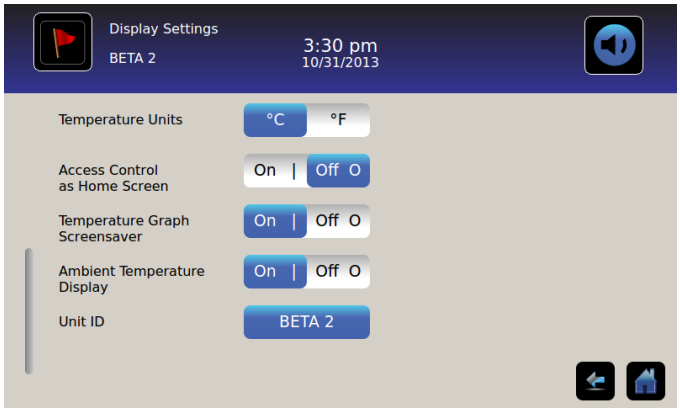
Note: The i.C³ APPS icon appears dimmed because it must remain in the first (left) position on the Home screen and cannot be transferred.

Chapter 6: Display Settings

> > (Administrator password) > Display Settings button

From this screen, individual display settings can be changed or switched on or off.





Language

Select the language: Touch the **Language** button and a drop-down list is displayed. Touch to select the language.

- *Initial factory setting = English*

Date Format

Select the date format: Toggle the **Date Format** button to select MM/DD/YY (month, date,year) or DD/MM/YY (date, month, year).

- *Initial factory setting = MM/DD/YY*

➤ Refer to "Chapter 8: Operational Settings, Date/Time Screen" for details on setting the date.

Time Format

Select the time format: Toggle the **Time Format** button to select 12-hour or 24-hour.

- *Initial factory setting = 12-hour*

➤ Refer to "Chapter 8: Operational Settings, Date/Time Screen" for details on setting the time.

Temperature Units

Select the temperature units: Toggle the **Temperature Unit** button to select Celsius (°C) or Fahrenheit (°F).

- *Initial factory setting = Celsius*

Note: If temperature units are changed, the i.C³ temperature setpoints and alarm settings should be recalibrated.

Note: When changing temperature units, the i.C³ temperature graph can take up to one minute to update.

Access Control as Home Screen

Set Access Control as the Home Screen: Toggle the **Access Control as Home Screen** button.

- *Initial factory setting = On*

➤ Refer to "Chapter 13: Access Control" for details on using Access Control.

Note: When Access Control as the Home Screen is toggled off, the standard Home screen is displayed. The Access Control keypad is accessed by touching the Access Control icon, located on the Home screen.

Note: It is recommended that the Access Control icon be moved to the Home screen if the Access Control Home Screen is disabled. Use the Icon Transfer application.

Temperature Graph Screensaver

Turn the Temperature Graph Screensaver on or off: Toggle the **Temperature Graph Screensaver** button.

- *Initial factory setting = On*

Return to the Home screen: Touch anywhere on the graph.

Note: The Temperature Graph Screensaver button is disabled and shaded if Access Control as Home Screen is set to On.

Note: Inactivity of two minutes duration on any i.C³ screen (with no active alarms) results in automatic display of the Home screen Temperature Graph Screensaver, with the following exceptions:

- If a numeric keypad overlay or alphanumeric keyboard screen is displayed, inactivity will not cause the Home screen Temperature Graph Screensaver to be displayed.
- If the Device Status and History screen, a selection overlay, Sensor Calibration screen, Download screen, Upload screen, or any screen in the technician-level settings screen is displayed, inactivity will not cause the Home screen Temperature Graph Screensaver to be displayed.
- If Access Control is set as the Home screen, the i.C³ will revert to the Access Control home screen after two minutes of inactivity, with the exceptions noted above.

Ambient Temperature Display

Turn the Ambient Temperature Display on or off: Toggle the **Ambient Temperature Display** button.

- *Initial factory setting = On*

Unit ID

Set or change the unit ID: Touch the **Unit ID** button. *The alphanumeric keyboard is displayed.*

- *Initial factory setting = serial number (displayed in button until changed by user)*

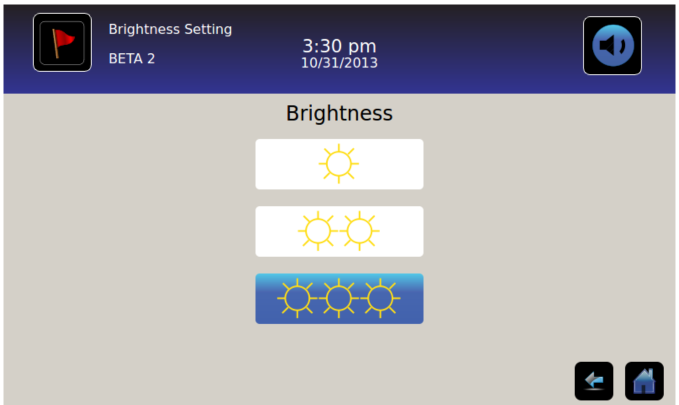
Type a maximum of 10 alphanumeric characters on the keyboard. *As characters are entered, they appear at the top of the screen.*

➤ Refer to "Chapter 14: Alphanumeric Keyboard" for details on using the keyboard.

Touch  to save entry and return to Settings screen. *The new Unit ID is displayed in the button and on all screens.*

Brightness

> 



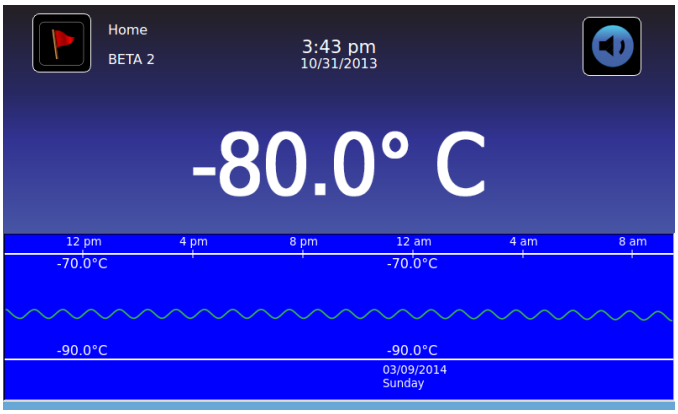
The backlight on the i.C³ monitor has three settings.

Select a different brightness setting: Touch any button.

Home Screen Temperature Graph Screensaver

> > (Administrator password)

The Home screen is equipped with a graph that displays temperature over 24 hours.



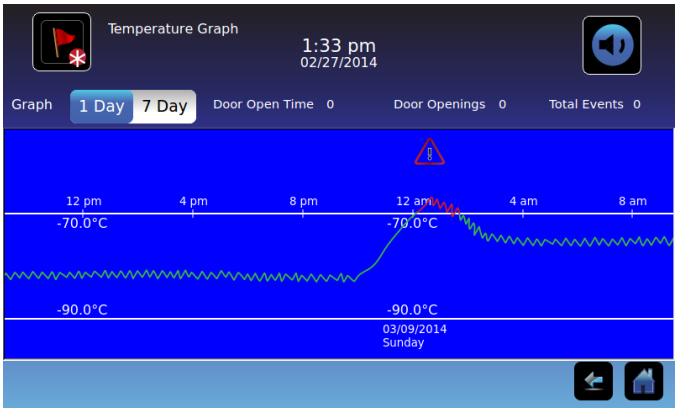
Return to the Home screen: Touch anywhere on the graph.

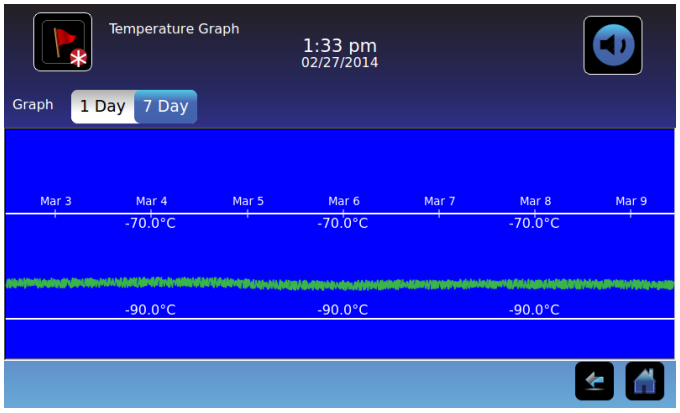
Note: Inactivity of two minutes duration on any i.C³ screen (with no active alarms) results in automatic display of the Home screen Temperature Graph screensaver, with the following exceptions:

- If a numeric keypad overlay or alphanumeric keyboard screen is displayed, inactivity will not cause the Home screen Temperature Graph screensaver to be displayed.
- If the Device Status and History screen, a selection overlay, Sensor Calibration screen, Download screen, Upload screen, or any screen in the technician-level settings screen is displayed, inactivity will not cause the Home screen Temperature Graph screensaver to be displayed.
- If Access Control is set as the Home screen, the i.C³ will revert to the Access Control home screen after two minutes of inactivity, with the exceptions noted above.

Chapter 7: Temperature Graph

The Temperature Graph screen shows current and historical chamber temperature data and temperature events.





Viewing the Temperature Graph

Select the 1-Day or 7-Day time span: Toggle the graph **Time Span** button or touch the graph.

Note: To view all graph features (including Alarm Condition), select the **1-Day** time span.

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

View detailed event data: Touch the **Alarm Condition** icon to navigate to the Event Log screen. Touch the **Event** to view detailed event data.

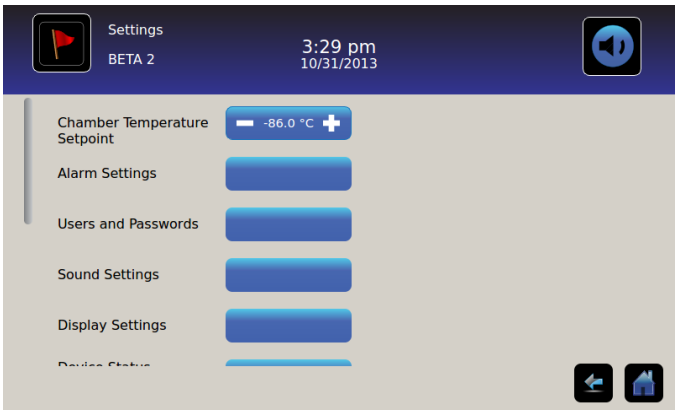
- Upper line represents high alarm limit
- Lower line represents low alarm limit
- Data and events are displayed in four-hour segments (In the 1-Day time span only)
- The graph line appears green when in-range and red when out-of-range
- A black, dashed vertical line appears on the graph where there is a change in the date or time, such as when returning to standard time from daylight savings 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 freezer is powered on.

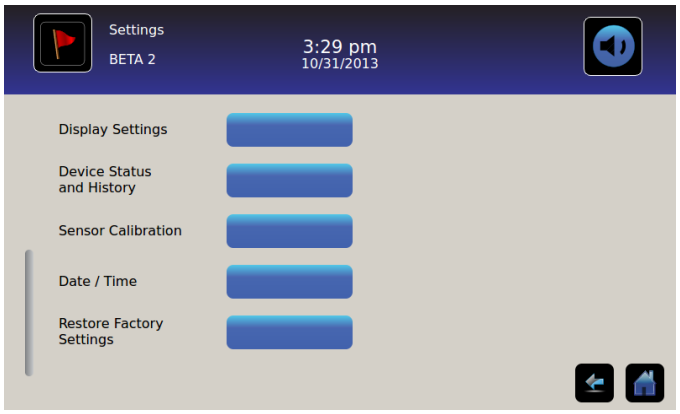
Chapter 8: Operational Settings

> > (Administrator password)

The i.C³ Settings screen is where all i.C³ system settings are configured.

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 Settings Screen

The i.C³ Settings screen is password protected to prevent unauthorized changes, unless password protection is turned Off (using the Users and Passwords button on this screen).

- *Initial factory setting = On*

Note: Helmer recommends that password protection remain On.

Access the Settings screen:

1. **If password protection is turned On:** Touch the **i.C³ Settings** icon to bring up a numeric keypad. Enter the current password. If accessing the i.C³ Settings screen for the first time, use the factory-originated administrator password (1234).

Note: A technician-level password is available from Helmer Technical Service. The technician password allows access to additional device settings that are not available to users with the administrator password. Additional device settings are for service use only and should not be changed unless directed by Helmer Technical Service.

2. **If password protection is turned Off:** Touch the **i.C³ Settings** icon to navigate directly to the i.C³ Settings screen.

Chamber Temperature Setpoint

> > (Administrator password) > Chamber Temperature Setpoint spin box

➤ Refer to "Chapter 10: Temperature Calibration and Control, Chamber Temperature Setpoint" for details on configuring additional temperature setpoints.

Alarm Settings

 >  > (Administrator password) > Alarm Settings button

➤ Refer to “Chapter 9: Alarm Settings” for details on configuring alarm settings.

User and Password Settings

 >  > (Administrator password) > Users and Passwords button

Turn password protection on or off for Settings screens: Toggle the **Password Protection** button.

- *Initial factory setting = On*

Note: Helmer recommends that password protection remain On.

Change the Administrator Password

- *Initial factory setting = 1234*

1. Touch the **Change Password** button. *The numeric keypad is displayed.*
2. Enter a new administrator password (four digits), then touch  . *The numeric keypad remains on the screen.*
3. Re-enter the administrator password, then touch  . *The numeric keypad is closed and the password is saved.* Touch  to cancel changing the administrator password.

Configure Access Control Accounts

➤ Refer to “Chapter 13: Access Control” for details on configuring individual Access Control user accounts.

Sound Settings

 >  > (Administrator password) > Sound Settings button

Enable/disable all sounds *excluding alarms*: Toggle the **Sounds** button.

- *Initial factory setting = On*

Set the alarm volume: Touch the **Alarm Volume** spin box to set volume.

- *Adjustable from 1 to 9*
- *Initial factory setting = 9*

Set the alarm tone: Touch the **Alarm Tone** spin box to select the tone.

- *Adjustable from 1 to 4*
- *Initial factory setting = 3*

Sample alarm tones: Touch the **Try It** button to sample alarm tones.

Display Settings

> > (Administrator password) > Display Settings button

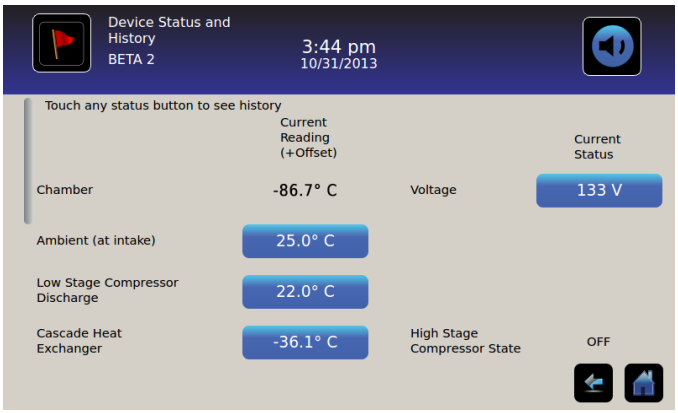
➤ Refer to “Chapter 6: Display Settings” for details on configuring individual display settings.

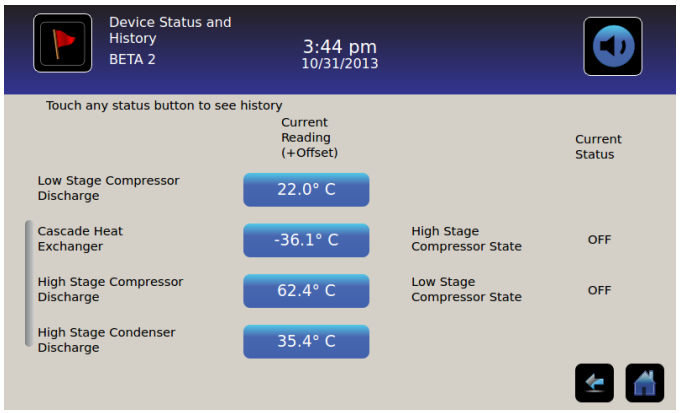
Device Status and History

> > (Administrator password) > Device Status and History button

> > (Technician password) > Device Status and History button

The Device Status and History screen allows users with an administrator-level password or technician-level password to view current and historical sensor readings, and to view the status of the compressor(s).





Temperature and Voltage History Screen Features

Temperature and voltage graphs display temperature for specific sensors or system voltage over the previous 7-day period.

The location where the date is displayed on the graph correlates to 12:00 am data point.

Select the 1-day or 7-day time span: Toggle the graph **Time Span** button or touch the graph.

Note: To view all graph features (including Alarm Condition), select the **1-Day** time span.

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

Note: Temperature and voltage screen examples are shown on the following pages.

- Upper line represents high alarm limit
- Lower line represents low alarm limit
- Data is displayed in four-hour segments
- The graph line appears green when in-range and red when out-of-range
- A black, dashed vertical line appears on the graph where there is a change in the date or time, such as when returning to standard time from daylight savings 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 freezer is powered on.

Note: If the time or date are changed, the stored 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 are changed.

Note: The graph displays 7 days of data. If the date is changed to a date greater than 7 days prior to the previous date setting, the graph will not update until the internal clock reaches the date which is 7 days prior to the previous date setting.

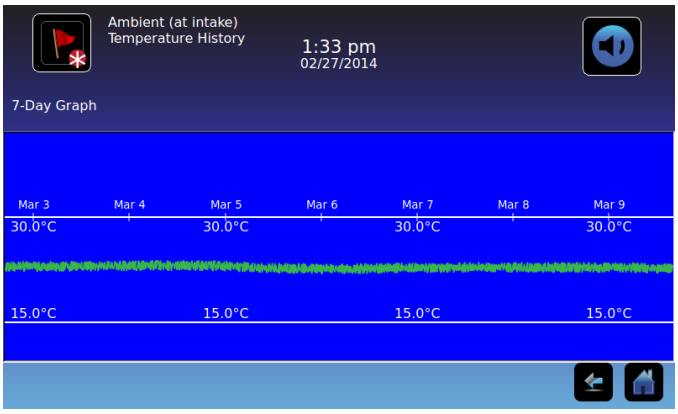
Chamber Temperature History

Chamber displays the current reading from the chamber temperature sensor.

Note: To view the chamber temperature history, **Navigate to the Chamber Temperature History screen:** Touch the **Temperature Graph** button (on the Home screen or the APPS screen). *The Chamber Temperature screen is displayed.*

Ambient (at Intake) Temperature History

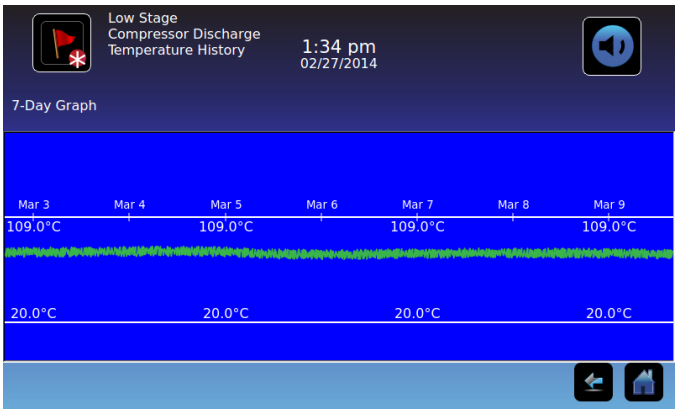
The **Ambient (at Intake)** button displays the current reading of the ambient temperature sensor.



Navigate to the Ambient (at Intake) Temperature History screen: Touch the **Ambient** button. *The Ambient (at Intake) Temperature History screen is displayed.*

Low Stage Compressor Discharge Temperature History

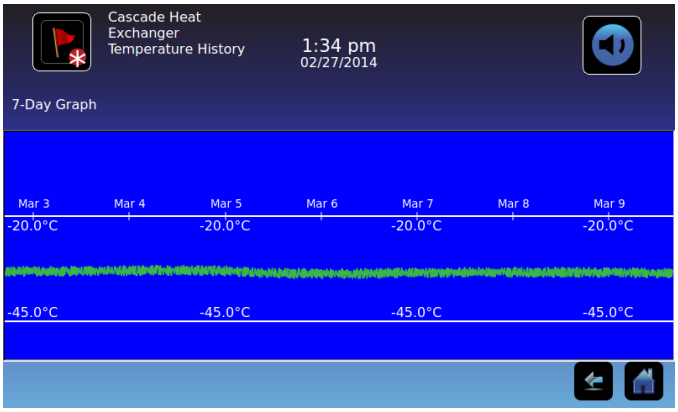
The **Low Stage Compressor Discharge** button displays the current reading of the low stage compressor discharge temperature sensor (including the offset value).



Navigate to the Low Stage Compressor Discharge Temperature History screen: Touch the **Low Stage Compressor Discharge** button. *The Low Stage Compressor Discharge Temperature History screen is displayed.*

Cascade Heat Exchanger Temperature History

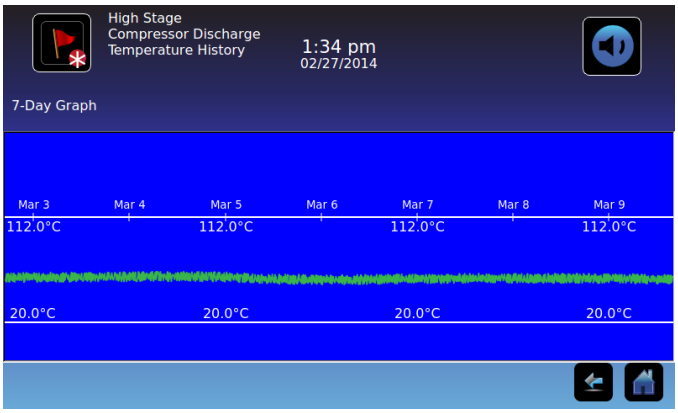
The **Cascade Heat Exchanger** button displays the current reading of the cascade heat exchanger temperature sensor (including the offset value).



Navigate to the Cascade Heat Exchanger Temperature History screen: Touch the **Cascade Heat Exchanger** button. *The Cascade Heat Exchanger Temperature History screen is displayed.*

High Stage Compressor Discharge Temperature History

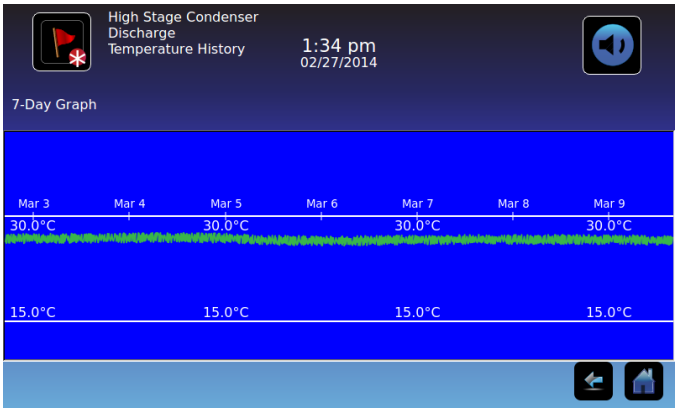
The **High Stage Compressor Discharge** button displays the current reading of the high stage compressor discharge temperature sensor (including the offset value).



Navigate to the High Stage Compressor Discharge Temperature History screen: Touch the **High Stage Compressor Discharge** button.
The High Stage Compressor Discharge Temperature History screen is displayed.

High Stage Condenser Discharge Temperature History

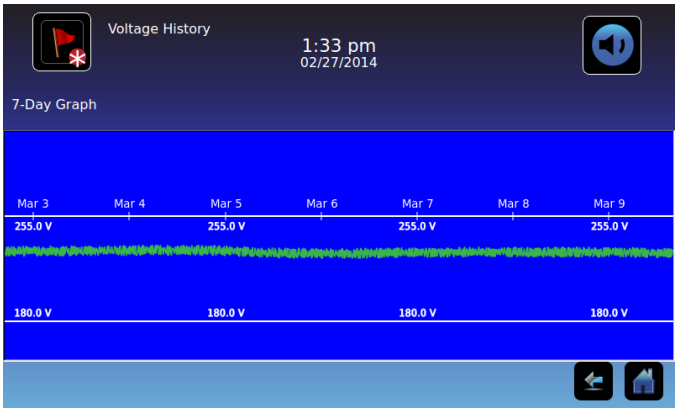
The **High Stage Condenser Discharge** button displays the current reading of the high stage condenser discharge temperature sensor (including the offset value).



Navigate to the High Stage Condenser Discharge Temperature History screen: Touch the **High Stage Condenser Discharge** button.
The High Stage Condenser Discharge Temperature History screen is displayed.

Voltage History

The **Voltage** button displays the electrical power voltage applied to the freezer.



Navigate to the Voltage History screen: Touch the **Voltage** button. *The Voltage History screen is displayed.*

High Stage Compressor State

High Stage Compressor State displays the current state of the high stage compressor, as read by the i.C³ system.

If the i.C³ system has turned the high stage compressor on, the current status is On.

If the i.C³ system has turned the high stage compressor off, the current status is Off.

Low Stage Compressor State

Low Stage Compressor State displays the current state of the low stage compressor, as read by the i.C³ system.

If the i.C³ system has turned the low stage compressor on, the current status is On.

If the i.C³ system has turned the low stage compressor off, the current status is Off.

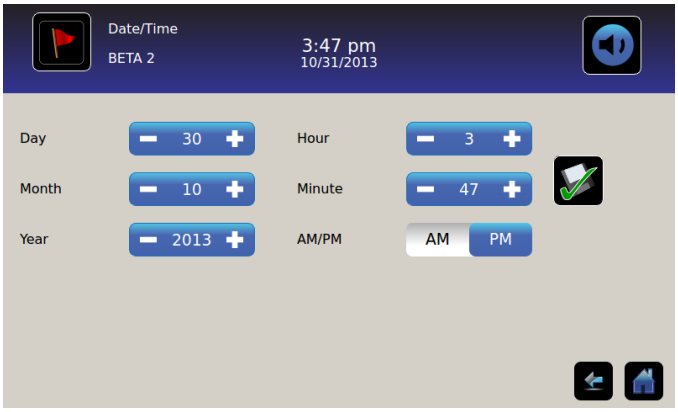
Sensor Calibration

i.C³ APPS > > (Technician password) > Sensor Calibration button

➤ Refer to “Chapter 10: Temperature Calibration and Control, Sensor Calibration” for details calibrating the temperature sensors.

Date/Time Screen

> > (Administrator password) > Date/Time button



Set the Date

Set the day: Touch the **Day** spin box until the correct day is displayed.

Set the month: Touch the **Month** spin box until the correct month is displayed.

Set the year: Touch the **Year** spin box until the correct year is displayed.

➤ Refer to "Chapter 6: Display Settings, Date Format" for instructions in changing the date format.

Set the Time

Set the hour: Touch the **Hour** spin box until the correct hour is displayed (for 12-hour format, select AM or PM).

Set the minute: Touch the **Minute Set** spin box until the correct minute is displayed.

Set the AM/PM format: Toggle the **AM/PM** button to select AM or PM.

Note: The AM/PM button is active if 12-hour time format is selected.

➤ Refer to "Chapter 6: Display Settings, Time Format" for instructions in changing between 12-hour and 24-hour time format.

Save Changes

Touch . *The message "Save?" is displayed.*

Touch . *The date/time change is saved.* Touch to cancel the date/time changes.

Note: An event (Date/Time Change) is entered in the Event Log when the date or time is changed.

Note: If the date or time is changed, a dashed vertical white line will appear on the temperature graph, corresponding to date and time when the change was made.

Restore Factory Settings

> > (Administrator password) > Restore Factory Settings button

Restore all initial factory settings: Touch the **Restore Factory Settings** button. *The message "Restore factory settings?" is displayed.* Touch to restore factory settings. Touch to cancel restoring factory settings.

NOTICE ***After restoring factory settings, verify that the settings are acceptable for the desired operating conditions. Change settings as needed.***

Delay On Startup

> > (Technician password) > Device Control Settings button > Delay on Start-Up spin box

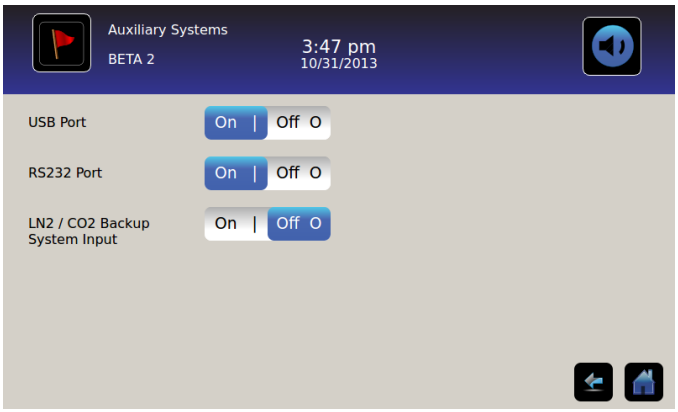
Delays compressor startup in the event of a power interruption.

- *Adjustable from 1 to 59 minutes*
- *Initial factory setting = 2 minutes*

Auxiliary Systems

> > (Technician password) > Auxiliary Systems button

Enable and disable communication between the i.C³ and auxiliary systems.



USB Port

Turn the USB port on or off: Toggle the **USB Port** button.

RS-232 Port

Turn the RS-232 data port on or off: Toggle the **RS-232 Port** button.

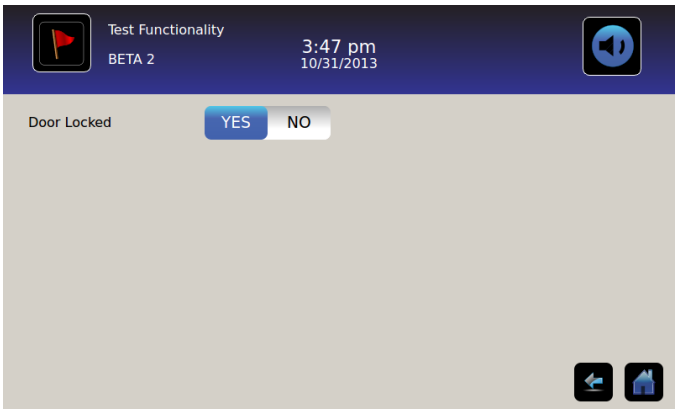
LN_2 / CO_2 Backup System Input

Enable or disable the liquid nitrogen / carbon dioxide backup system input: Toggle the **LN_2 / CO_2 Backup System Input** button.

Test Functionality

 >  > (Technician password) > Test Functionality button

Test the functionality of certain features on the freezer that are controlled or monitored by the i.C³.



Door Locked

Unlock the door for a pre-determined time interval**:** Toggle the **Door Locked** button **NO**.

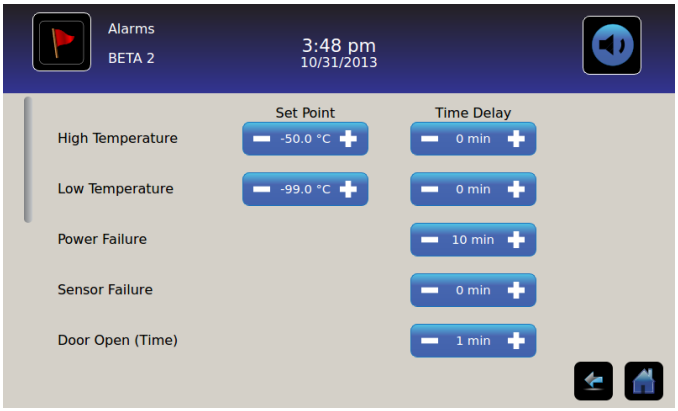
Note: After the pre-determined time interval has elapsed, the setting is automatically reset to **YES** (locked). This feature prolongs the life of the lock.

Chapter 9: Alarm Settings

> > (Administrator password) > Alarm Settings button

Alarm Settings control the conditions and timing of New Event and Alarm Condition indicators that are displayed on the Home screen.

The New Event indicator is displayed in the information header on the Home screen. Alarm condition messages and temperature readings are displayed in the display zone of the Home screen.



Alarm Parameters

Set the parameter for each alarm type using the adjacent spin box or toggle button.

Alarm Temperature Setpoint

The setpoint is the temperature at which the alarm (high or low) is activated.

Increase or decrease each parameter: Touch the plus (+) or minus (−) side of the spin box until the correct value is displayed.

Alarm Time-Delay Duration

Set the duration of the alarm condition before the alarm is activated.

Increase or decrease each parameter: Touch the plus (+) side or minus (−) side of the spin box until the correct value is displayed.

User-Configurable Alarms

High Chamber Temperature

Alarm display (on Home screen) reads: *"High Temperature"*

- *Triggered when chamber temperature is above high alarm setpoint*

Temperature Setpoint:

- *Adjustable from -40.0 °C to -100.0 °C*
- *Initial factory setting = -70.0 °C*

Time delay:

- *Adjustable from 0 to 99 minutes*
- *Initial factory setting = 0 minutes*

Low Chamber Temperature

Alarm display (on Home screen) reads: *"Low Temperature"*

- *Triggered when chamber temperature is below low alarm setpoint*

Temperature Setpoint:

- *Temperature Setpoint adjustable from -40.0 °C to -100.0 °C*
- *Initial factory setting = -90.0 °C*

Time delay:

- *Adjustable from 0 to 99 minutes*
- *Initial factory setting = 0 minutes*

Power Failure

Alarm display (on Home screen) reads: *"Power Failure"*

- *Triggered when electrical power to the freezer has been disrupted; when line voltage exceeds maximum electrical system voltage tolerance; or when line voltage falls below minimum electrical system voltage tolerance*
- *Adjustable from 0 to 99 minutes*
- *Initial factory setting = 1 minute*

Sensor Failure

Alarm display (on Home screen) reads: *"Sensor Failure"*

- *Triggered when i.C³ control and monitoring system has lost communication with a temperature sensor(s)*
- *Adjustable from 0 to 99 minutes*
- *Initial factory setting = 0 minutes*

Door Open (Time)

Alarm display (on Home screen) reads: *"Door Open"*

- *Triggered when door is open beyond specified duration*
- *Adjustable from 0 to 5 minutes*
- *Initial factory setting = 1 minute*

High Ambient Temperature

Alarm display (on Home screen) reads: *"High Ambient"*

- *Triggered when ambient temperature is above high ambient alarm setpoint*

Temperature Setpoint:

- *Temperature Setpoint adjustable from 5.0 °C to 40.0 °C*
- *Initial factory setting = 30.0 °C*

Time delay:

- *Adjustable from 0 to 99 minutes*
- *Initial factory setting = 15 minutes*

Low Ambient Temperature

Alarm display (on Home screen) reads: *"Low Ambient"*

- *Triggered when ambient temperature is below low ambient alarm setpoint*

Temperature Setpoint:

- *Temperature Setpoint adjustable from 5.0 °C to 40.0 °C*
- *Initial factory setting = 15.0 °C*

Time delay:

- *Adjustable from 0 to 99 minutes*
- *Initial factory setting = 15 minutes*

Non-Configurable Alarms

Compressor Temperature

Alarm display (on Home screen) reads: *"Refrig System"*

- *Setting is not adjustable*
- *Triggered when high stage or low stage compressor discharge temperature is too high*

Condenser Temperature

Alarm display (on Home screen) reads: *"Clean Filter"*

- *Setting is not adjustable*
- *Triggered when high stage condenser temperature is too high, relative to ambient temperature*

Clean Filter

Alarm display (on Home screen) reads: *"Clean Filter"*

- *Setting is not adjustable*
- *Triggered when filter cleaning interval is reached*

CO_2 / LN_2 Active

Alarm display (on Home screen) reads: *"CO_2 / LN_2 Active"*

- *Setting is not adjustable*
- *Triggered if CO_2 / LN_2 backup system is activated*

Low Battery

Alarm display (on Home screen) reads: *"Low Battery"*

- *Setting is not adjustable*
- *Triggered after approximately 18 hours of battery use*

Note: The battery must be allowed to charge at least 72 hours after the last Low Battery alarm event in order to provide approximately 18 hours of battery life before the Low Battery alarm is triggered.

No Battery

Alarm display (on Home screen) reads: *"No Battery"*

- *Setting is not adjustable*
- *Triggered if battery is removed or if battery voltage has dropped below a pre-determined level*

Refrigeration System

Alarm display (on Home screen) reads: *"Refrig System"*

➤ Contact Helmer Technical Service. Refer to "Chapter 15: Support and other Information, Contact Helmer" for Technical Service contact information.

- *Triggered if refrigerant pressure is too high; high stage or low stage compressor temperature is too high; or high stage or low stage compressor fails*

Emergency Mode

Alarm display (on Home screen) reads: *"Emergency Mode"*

➤ Contact Helmer Technical Service. Refer to "Chapter 15: Support and other Information, Contact Helmer" for Technical Service contact information.

- *Setting is not adjustable*
- *Triggered if chamber temperature sensor fails*
- *Alarm is only displayed on Home screen*

Note: When the freezer is in Emergency Mode the freezer will continue to operate with the high stage compressor operating at 100% duty cycle and the low stage compressor operating normally, unless one or both of the following conditions are met:

- An over-pressure condition exists in the high stage refrigeration system
- A second Sensor Failure alarm (compressor temperature, condenser temperature, or heat exchanger temperature) is active, beyond the duration specified in the Sensor Failure time delay setting

Note: If one or both of the conditions above are met, the high stage and low stage compressors will be automatically powered off.

Note: Emergency Mode alarm message may be cleared by cycling AC power off then on.

Note: Emergency Mode alarm event is not recorded in the Event Log.

Communication Failure Messages

Alarm display (on Home screen) reads: *"Communication Failure 1"*

- *Setting is not adjustable*
- *Triggered if communication is lost between i.C³ display board and control board*
- *Freezer 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*

➤ Contact Helmer Technical Service. Refer to "Chapter 15: Support and other Information, Contact Helmer" for Technical Service contact information.

Alarm display (on Home screen) reads: *"Communication Failure 2"*

- *Setting is not adjustable*
- *Triggered if communication is lost between i.C³ display board and internal system memory*
- *Freezer will continue to run with previously saved settings*

➤ Contact Helmer Technical Service. Refer to "Chapter 15: Support and other Information, Contact Helmer" for Technical Service contact information.

Alarm display (on Home screen) reads: *"Communication Failure 3"*

- *Setting is not adjustable*
- *Triggered if the database is corrupted*
- *The database is archived and a new database is automatically created*
- *Freezer will continue to run with previously saved settings*

➤ Contact Helmer Technical Service. Refer to "Chapter 15: Support and other Information, Contact Helmer" for Technical Service contact information.

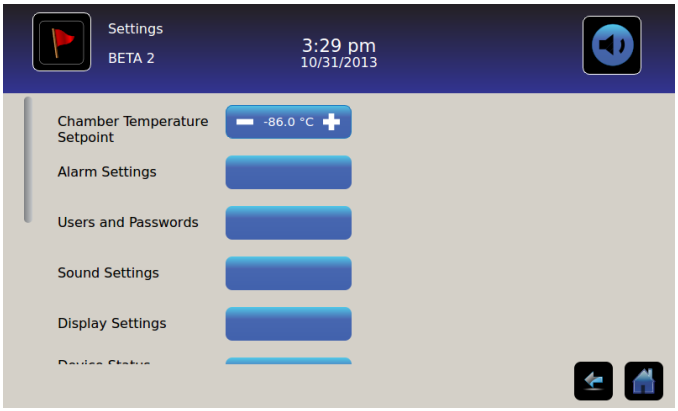
Note: The "Communication Failure 3" alarm indicator appears on the Home screen and the "Comm Fail" event appears in the Event Log until the event has been acknowledged.

➤ Refer to "Chapter 11: Information Logs, Event Log Detail Screen, Acknowledging Events" for details on using Event Acknowledgement.

Chapter 10: Temperature Calibration and Control

Chamber Temperature Setpoint

>  > (Administrator password) > Chamber Temperature Setpoint spin box



Change the chamber temperature setpoint: Touch the **Chamber Temperature Setpoint** spin box to set temperature.

The temperature setpoint is the temperature at which the freezer operates.

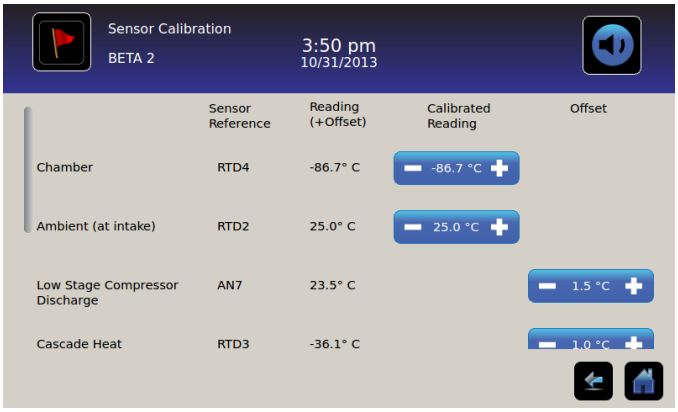
- *Adjustable from -50.0 °C to -99.0 °C*
- *Initial factory setting = -80.0 °C*

Sensor Calibration

> > (Technician password) > Sensor Calibration button

Note: If the Administrator password is entered, the offset spin boxes are grayed-out and cannot be changed. The Chamber and Ambient spin boxes can still be changed.

Calibration adjusts temperature sensor readings so that the value displayed matches the actual temperature, as measured by an independent thermometer.



The spin boxes are used to calibrate the temperature sensor readings and the offset values.

Set calibration parameters: Touch plus (+) or minus (–) on the adjacent spin box until the correct value is displayed.

NOTICE ***Calibrated temperature values and offset values are set at the factory and should not be changed unless directed by Helmer Technical Service.***

Note: The chamber temperature sensor may require periodic calibration. Refer to the operation manual for the preventive maintenance schedule, and the service manual for instructions in calibrating the chamber temperature sensor.

Chamber Calibration

Calibrated temperature for the chamber temperature sensor.

Note: The i.C³ system limits the calibration adjustment to ±10.0 °C of the current chamber temperature sensor reading.

- *Adjustable from -99.0 °C to +50.0 °C*
- *Initial factory setting = varies*

Ambient Calibration

Calibrated temperature for the ambient temperature sensor.

Note: The i.C³ system limits the calibration adjustment to ±10.0 °C of the current ambient temperature sensor reading.

- *Adjustable from 5.0 °C to 40.0 °C*
- *Initial factory setting = varies*

Low Stage Compressor Discharge Offset

Adjusts the displayed low stage compressor discharge temperature, relative to the temperature measured by the low stage compressor discharge sensor.

- *Adjustable from -10.0 °C to +10.0 °C*
- *Initial factory setting = varies*

Cascade Heat Exchanger Offset

Adjusts the displayed cascade heat exchanger temperature, relative to the temperature measured by the cascade heat exchanger sensor.

- *Adjustable from -10.0 °C to +10.0 °C*
- *Initial factory setting = varies*

High Stage Compressor Discharge Offset

Adjusts the displayed high stage compressor discharge temperature, relative to the temperature measured by the high stage compressor discharge sensor.

- *Adjustable from -10.0 °C to +10.0 °C*
- *Initial factory setting = varies*

High Stage Condenser Discharge Offset

Adjusts the displayed high stage condenser discharge temperature, relative to the temperature measured by the high stage condenser discharge sensor.

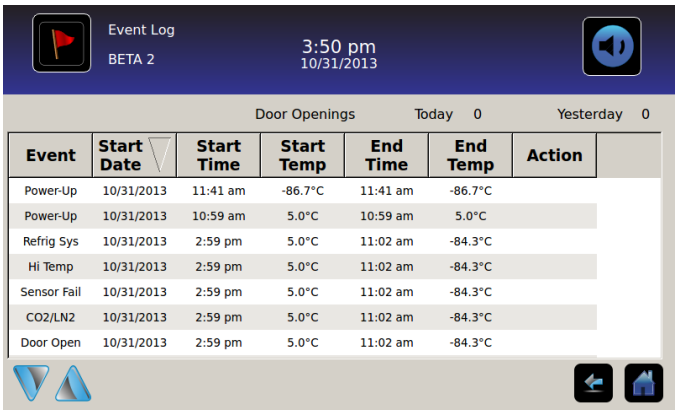
- *Adjustable from -10.0 °C to +10.0 °C*
- *Initial factory setting = varies*

Chapter 11: Information Logs

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 “Chapter 12: Data Transfer, Downloading Temperature and Event Data” for details on downloading event data.



Event	Start Date	Start Time	Start Temp	End Time	End Temp	Action
Power-Up	10/31/2013	11:41 am	-86.7°C	11:41 am	-86.7°C	
Power-Up	10/31/2013	10:59 am	5.0°C	10:59 am	5.0°C	
Refrig Sys	10/31/2013	2:59 pm	5.0°C	11:02 am	-84.3°C	
Hi Temp	10/31/2013	2:59 pm	5.0°C	11:02 am	-84.3°C	
Sensor Fail	10/31/2013	2:59 pm	5.0°C	11:02 am	-84.3°C	
CO2/LN2	10/31/2013	2:59 pm	5.0°C	11:02 am	-84.3°C	
Door Open	10/31/2013	2:59 pm	5.0°C	11:02 am	-84.3°C	

Viewing the Event Log

To scroll through the log: Touch and hold the bidirectional **Arrows**.

To navigate to the Event Detail screen: Touch the **Event**.

Event Log Formatting

- Bold text: Not yet viewed
- Normal text: Viewed
- Gray text: Downloaded

Table Elements

- Event: Type of event that occurred
- Start Date: Date event occurred
- Start Time: Time event condition began
- Start Temp: Temperature at start of alarm event
- End Time: Time event condition ended
- End Temp: Temperature at end of alarm event
- Action: Indicator of corrective action recorded

Note: Data rows in the Event table can be sorted in ascending or descending order by touching column headings.

Event Messages

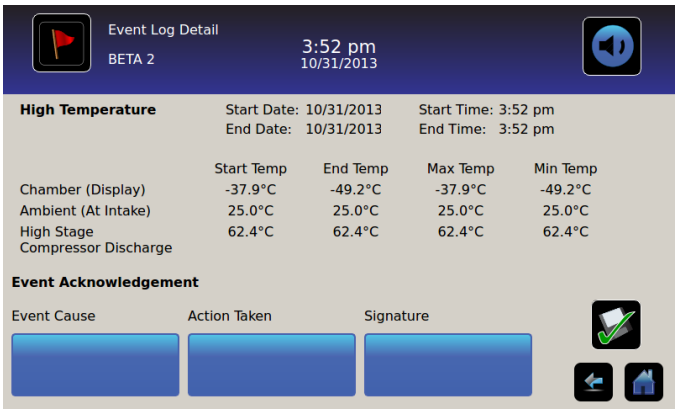
Event names are displayed in the Event column on the Event Log screen.

Note: The event names may be truncated when they appear on the Home screen and Event Log screen. Full-length event names are shown on the Event Log Detail screen.

Event	Displayed As
Clean Filter	*Clean Filter*
CO_2 / LN_2 Backup System Active	*CO_2 / LN_2*
Communication Failure (Board Communication Failure)	*Comm Fail*
Communication Failure (Data Integrity Failure)	*Comm Fail*
Communication Failure (File Reading Failure)	*Comm Fail*
Date/Time Change	*Date/Time*
Door Open	*Door Open*
High Ambient Temperature	*Hi Ambient*
High Chamber Temperature	*Hi Temp*
Low Ambient Temperature	*Lo Ambient*
Low Battery Voltage	*Lo Battery*
Low Chamber Temperature	*Lo Temp*
No Battery	*No Battery*
Power Failure (High Voltage)	*Power Fail*
Power Failure (Low Voltage)	*Power Fail*
Power Failure (No AC)	*Power Fail*
Power-Up	*Power-Up*
Refrigeration System (High Refrigerant Pressure)	*Refrig Sys*
Refrigeration System (High Stage Compressor Temperature)	*Refrig Sys*
Refrigeration System (Low Stage Compressor Temperature)	*Refrig Sys*
Refrigeration System (High Stage Compressor Failure)	*Refrig Sys*
Refrigeration System (Low Stage Compressor Failure)	*Refrig Sys*
Sensor Failure (Ambient Temperature)	*Sensor Fail*
Sensor Failure (Chamber Temperature)	*Sensor Fail*
Sensor Failure (Heat Exchanger Temperature)	*Sensor Fail*
Sensor Failure (High Stage Compressor Temperature)	*Sensor Fail*
Sensor Failure (High Stage Condenser Temperature)	*Sensor Fail*
Sensor Failure (Low Stage Compressor Temperature)	*Sensor Fail*

Event Log Detail Screen

The Event Log Detail screen shows additional details about the freezer at the time of the event or alarm. The cause of an alarm event and the corrective action taken can be acknowledged.



Viewing Event Details

- Type of event
- Start date/time of event
- End date/time of event
- Sensor temperature at the start and end of the event
- Minimum and maximum temperature for each sensor during the event

Acknowledging Events

Use the Event Acknowledgement buttons to select the cause of an alarm event, identify the corrective action taken, and identify the user who entered the acknowledgment information. This information is stored and can be downloaded for record keeping.

Touch the **Event Cause** button. *The Event Cause drop-down list is displayed.*

Touch the cause of the alarm event:

- Door Open
- Inventory
- Dirty Filter
- Other

Note: If Other is touched, the alphanumeric keyboard is displayed. Enter the cause of the alarm condition.

Note: Dirty Filter is the only event cause displayed for the Clean Filter alarm event.

Note: If the i.C³ triggers a “bonk” sound while entering text for the cause of the alarm condition, enter a “space” character to wrap text to the next line and continue entering text. A maximum of three lines of text may be entered.

➤ Refer to “Chapter 14: Alphanumeric Keyboard” for details on using the keyboard.

Touch the **Action Taken** button. *The Action Taken drop-down list is displayed.*

Touch the action taken to correct the alarm event:

- Closed Door
- Removed Contents
- Cleaned Filter
- Completed Test
- Other

Note: If Other is touched, the alphanumeric keyboard is displayed. Enter the action taken to acknowledge the alarm.

Note: Cleaned Filter is the only event acknowledgement displayed for the Clean Filter alarm event.

Note: If the i.C³ triggers a "bonk" sound while entering text for the cause of the alarm condition, enter a "space" character to wrap text to the next line and continue entering text. A maximum of three lines of text may be entered.

➤ Refer to "Chapter 14: Alphanumeric Keyboard" for details on using the keyboard.

Touch the **Signature** button. *The alphanumeric keyboard is displayed.*

➤ Refer to "Chapter 14: Alphanumeric Keyboard" for details on using the keyboard.

Enter the user name or user initials.

Touch the **Save** button. *The message "Save?" is displayed.*

Touch  . *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. The event information is saved and can no longer be edited.*

Touch  to cancel the save operation.

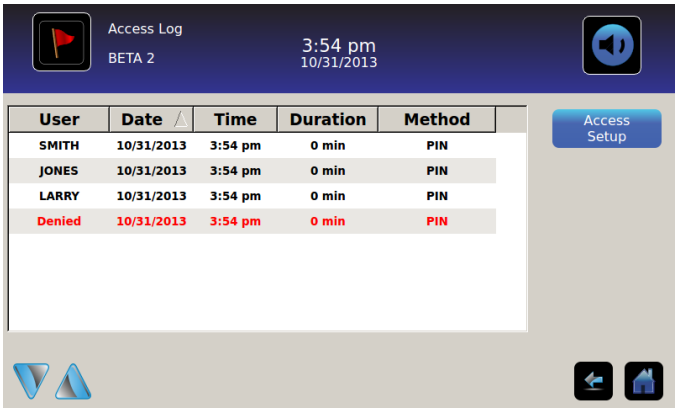
Note: All three fields must be completed for data to be saved. If the Home or Back buttons are touched prior to touching the Save button, no information will be saved.

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.

➤ Refer to “Chapter 13: Access Control” for details on using Access Control.

The Access Log shows information from controlled access chamber entries.



To scroll through the log: Touch and hold the bidirectional arrows.

Access Log Data Elements

- User: Name of user, Denied, or Override
- Date: Date of access
- Time: Time of access
- Duration: Length of time door remained open
- Method: How chamber was accessed (PIN or key access)

Access Log Formatting

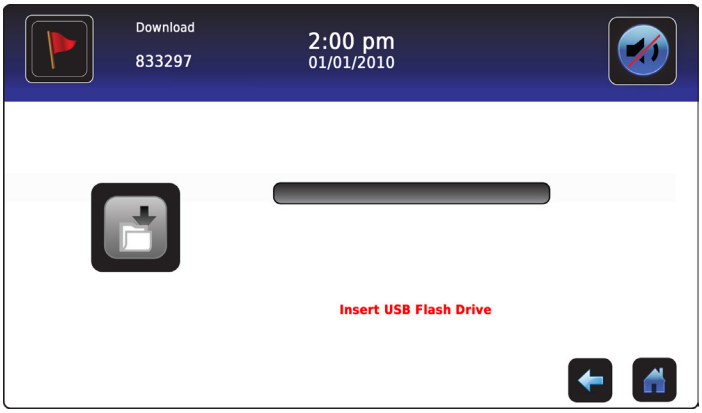
- Bold text: New data since the last time the log was viewed
- Normal text: Viewed
- Gray text: Downloaded
- Red text = Incorrect PIN entered, access denied
- Black text = Key override was used; or normal PIN entry was used, which has been viewed but not downloaded

Chapter 12: Data Transfer

Download Temperature and Event Data

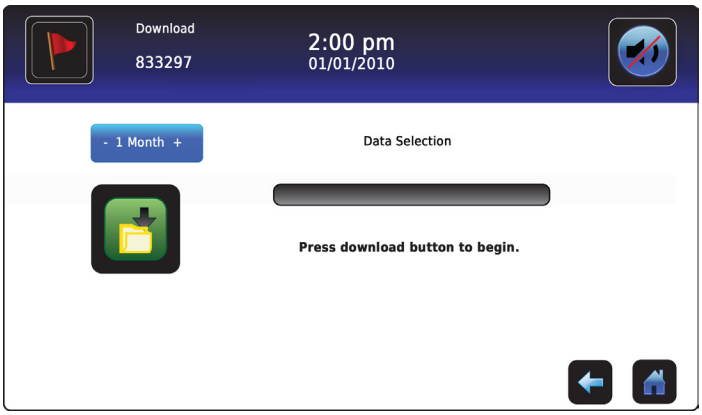
>

Use the Download screen to download information to a USB flash drive.

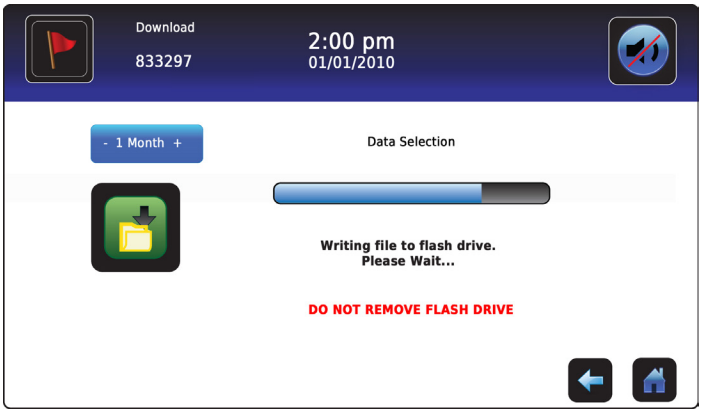


To perform a download:

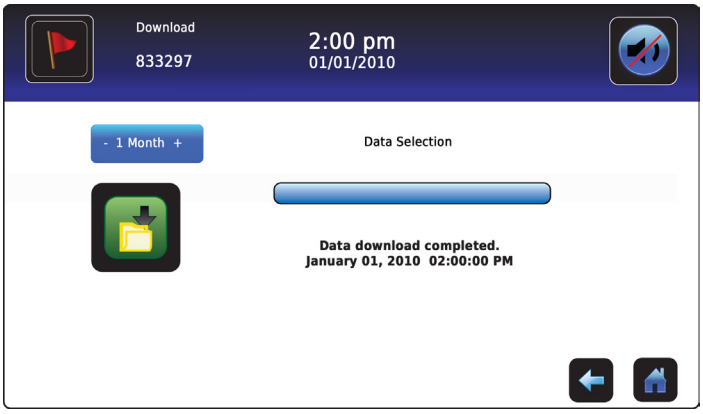
1. Insert a memory device into the USB port located on the right of the i.C³ monitor bezel. When the memory device is detected, the message *"Insert USB Flash Drive"* clears. The Download icon is no longer shaded and the Data Selection spin box is displayed.
2. Touch the **Data Selection** spin box to download data from the current calendar month or current calendar month and previous calendar month.



3. Touch the **Download** icon to begin data transfer. *The download progress bar is displayed.*



4. When finished, the message *"Data Download Completed"* and the date and time are displayed.



- Downloaded data is saved to the memory device in CSV (comma separated values) file format. Multiple files are saved with each file download, including:
- Temperature log data for each temperature sensor (Data is sampled once per minute under normal conditions and every 15 seconds during an alarm event)
- Event log data
- Access log data
- Unit ID and date/time of the download

Note: 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.

5. Remove the memory device from the USB port. The CSV file may be viewed, saved, and manipulated on a PC.

Note: If the memory device is removed before the data download is complete or if the data download is not completed because the memory device is full, the message *"Please check flash drive"* is displayed and the download is not completed.

Note: After the files are transferred, the read/write properties of the downloaded files should be set to *read-only* by the user.

Note: The Download screen can not be closed during a data download unless an error occurs.

Note: A download should require no more than 20 minutes. If the download has not completed in 20 minutes, contact Helmer Technical Service.

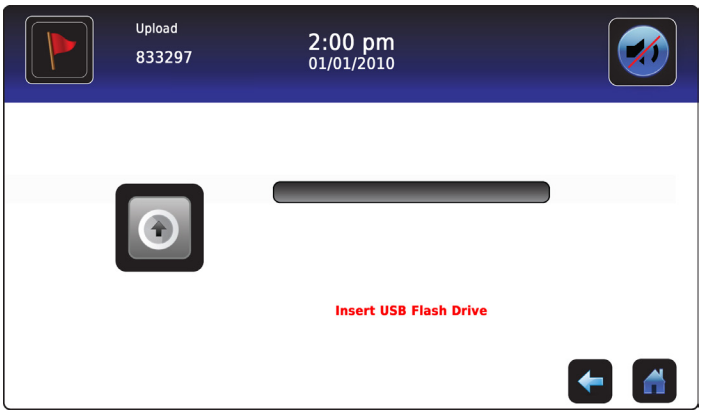
Upload Firmware Updates

Note: 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.

- Refer to "Chapter 4: i.C³ Applications (APPS), Using i.C³ Applications" for details on referencing the firmware revision number.
- Refer to "Chapter 10: Temperature Calibration and Control, Sensor Calibration" for details on calibrating the offset values.

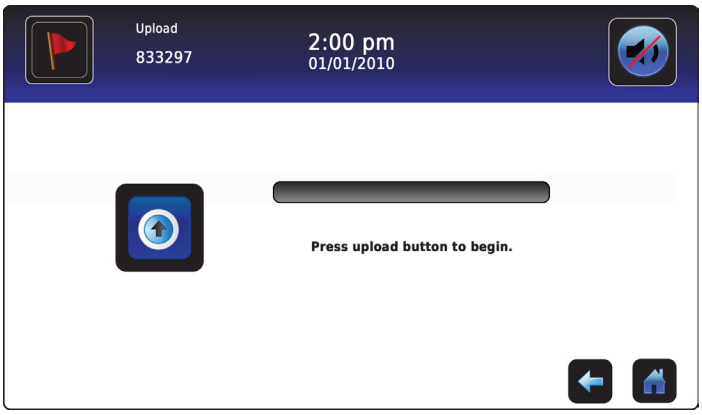
If the Upload icon is touched before a memory device is inserted, the message *"Insert USB Flash Drive"* is displayed until a memory device is inserted.

Use the Upload screen to upload firmware updates.



To perform an upload:

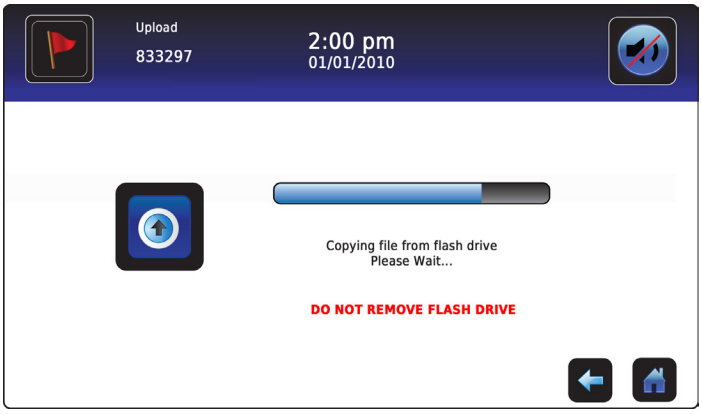
1. Insert a memory device into the USB port located on the right of the i.C³ monitor bezel. When the memory device is detected, the message *"Insert USB Flash Drive"* clears and the Upload button is no longer shaded.



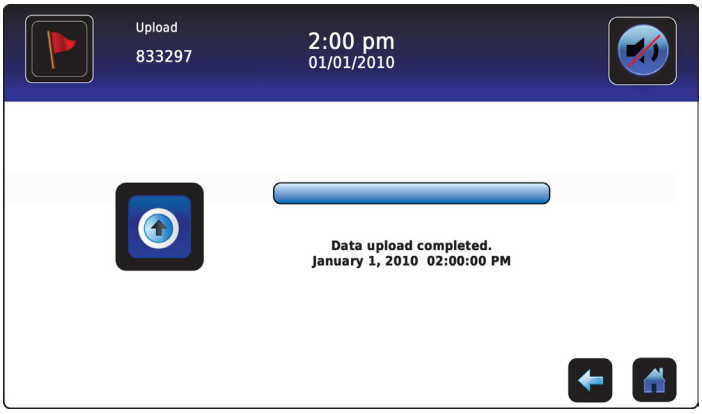
Note: If the Upload icon is touched before a memory device is inserted, the message *"Insert USB Flash Drive"* is displayed until a memory device is inserted.

Note: The Upload screen can not be closed during a data upload unless an error occurs.

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.



4. After the *"Data Upload Completed"* screen is displayed, the screen refreshes to display the *"Wait"* screen. The system automatically powers down and restarts.

WARNING. DO NOT POWER OFF THE UNIT!
The system will reboot automatically...

-

Note: A rotating "dash" character is displayed to indicate that the i.C³ system is still running.

5. Remove the memory device from the USB port. *Updated firmware is loaded to the i.C³ memory.*

6. 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 been updated from the recorded version number, contact Helmer Technical Service.*

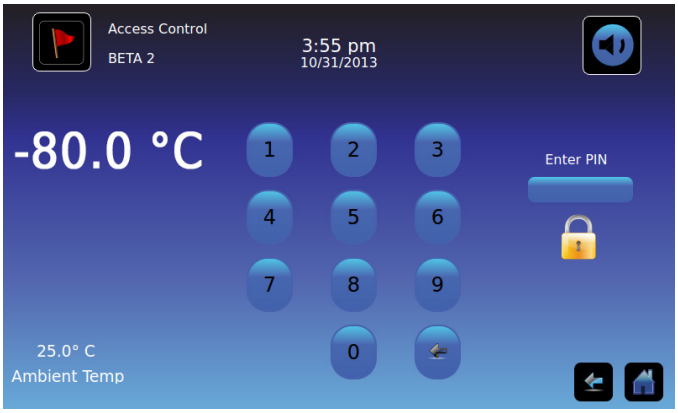
➤ Refer to "Chapter 4: i.C³ Applications (APPS), Using i.C³ Applications" for details on referencing the firmware revision number.

Chapter 13: Access Control

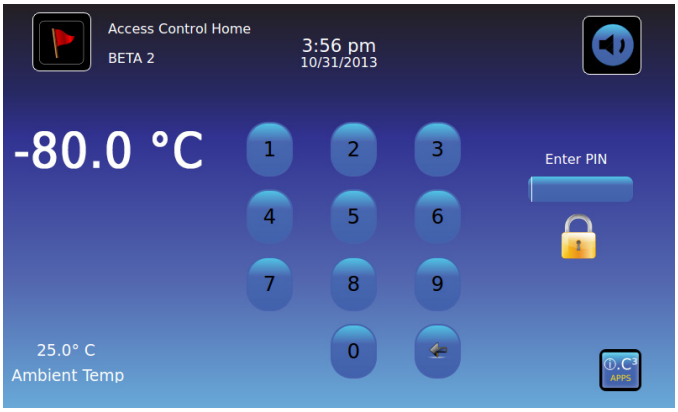
Integrated electronic Access Control limits user access, providing secure storage. When this feature is enabled, a valid personal identification number (PIN) must be entered to open the freezer door.

➤ 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 screen



Access Control as the home screen



➤ Refer to “Chapter 11: Information Logs, Access Log” for details on viewing the Access Log.

Viewing the Access Control Screen

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.

Enter the PIN: Use the keypad. As each number is entered, an asterisk appears.

If an incorrect PIN is entered, the message “Access Denied” is displayed.

Access Control as the Home Screen

The Access Control Home Screen can be substituted for the standard Home screen.

Turn the Access Control Home Screen on or off: Toggle the **Access Control as Home Screen** button on the i.C³ Settings screen.

- *Initial factory setting for the Access Control Home Screen option = Off*

When Access Control Home Screen is turned off:

- The standard Home screen is displayed
- The keypad is accessed by touching the Access Control icon (located on the i.C³ APPS screen and/or the Home screen)

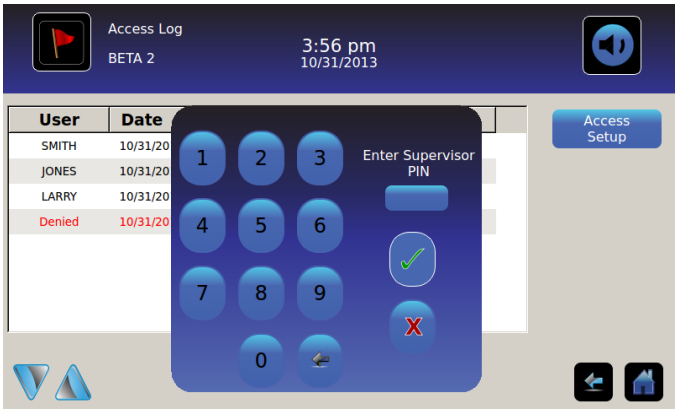
Note: It is recommended that the Access Control icon be moved to the Home screen if the Access Control Home Screen is disabled. Use the Icon Transfer application.

Initial Entry into Access Control Setup

> > (Administrator password) > > Access Setup

Enter the supervisor PIN to set up Access Control.

Note: In the event the owner of the supervisor PIN becomes unavailable, contact Helmer Technical Service to reset the supervisor PIN.



Entry Into Access Control Setup

1. Touch the **Access Log** button on the Settings screen. Touch the **Access Setup** button. *The numeric keypad is displayed.*
2. Enter the factory supervisor PIN then touch the **Enter** button. *The numeric keypad closes and the Access Control Setup screen is displayed.*

- *Initial factory supervisor PIN = 5625*

Note: The supervisor PIN does not allow access to the freezer. At least one user ID must be set up to gain access to the freezer.

Note: The supervisor PIN should be changed to prevent unauthorized user ID setup. The supervisor PIN can not be deleted.

Access Control Setup

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

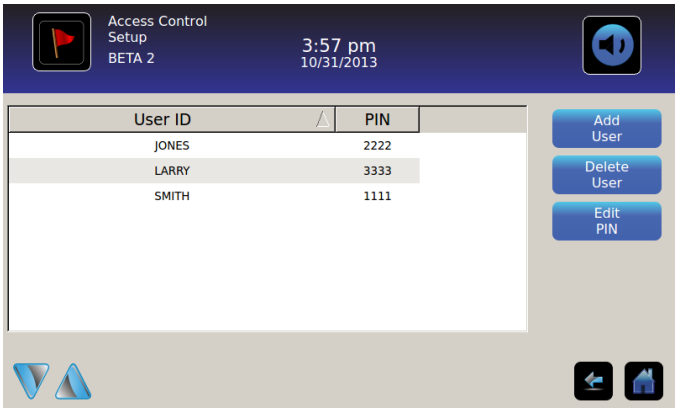


Table Elements

- User ID
- PIN

Note: The i.C³ includes one supervisor profile. The supervisor profile does not allow access to the freezer.

Add a User Profile

1. Touch the **Add User** button. *The alphanumeric keyboard is displayed.*

➤ Refer to "Chapter 14: Alphanumeric Keyboard" for details on using the keyboard.

2. Enter the user ID for the new user profile.
3. Touch to store the user ID. *The alphanumeric keyboard is displayed.*
4. Enter the PIN (four digits) for the new user profile.
5. Touch to store the PIN. *The User ID and PIN for the new user profile is 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 delete the user profile. *The user ID and PIN are deleted from the table.* Touch to cancel deletion of the user profile.

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 PIN (4 digits) for the user profile the touch . *The numeric keypad is closed and the new PIN is displayed in the table.* Touch to cancel editing the PIN. *The numeric keypad is closed without changing the PIN in the table.*

Note: Only the PIN can be edited when editing a user profile; an individual user ID can not be edited. To change a user ID, delete the user ID then create a new user ID and PIN.

Chapter 14: Alphanumeric Keyboard

The i.C³ features an alphanumeric keyboard for data input. The keyboard is automatically displayed when performing operations which require text input, such as creating user profiles for Access Control or acknowledging events. As buttons are touched on the keyboard, the corresponding character is displayed in the text window at the top of the screen.

U.S. Keyboard

The U.S. keyboard consists of five screens:

- Uppercase characters
- Lowercase characters
- Uppercase extended characters
- Lowercase extended characters
- Symbol

Common Buttons

Buttons for text entry, editing, save/cancel functions, and uppercase and lowercase keyboards are included. The extended character keyboard and symbol keyboard are included for U.S. language only.

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

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

Note: 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 the **Symbol** button to navigate to the symbol keyboard.
The symbol keyboard is displayed.

Touch the **Space** button to insert a space after a character.
A space character is inserted.

Touch the **Back** button to delete a character from the text window.
The previous character is deleted.

Note: Touch and hold the Back button to delete multiple characters.

Touch the **Save** button to save the text entry.
The text entry is saved and the keyboard is closed.

Touch the **Cancel** button to cancel the text entry.
The keyboard closes and the text entry is not saved.

Chapter 15: Support and Other Information

Contact Helmer

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Technical Service service@helmerinc.com
Customer Service sales@helmerinc.com

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Toll Free 800.743.5637 (U.S. and Canada)

www.helmerinc.com

Outside U.S. and Canada
Contact a distributor or intlsales@helmerinc.com

Restore Factory Settings

➤ Refer to “Chapter 8: Operational Settings, Restore Factory Settings” for details on restoring factory settings.

Calibrate the i.C³ Screen

If the display board or touchscreen is replaced, the screen must be calibrated.

➤ Refer to the product service manual for touchscreen calibration instructions.

Care of the i.C³ Screen

NOTICE ***The i.C³ screen uses a sensitive touch technology.***

- To avoid damage to the touchscreen, do not apply pressure on the front of the monitor 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.

Operation and Service Manuals

Refer to the CD shipped with the product.

Manuals are also available at http://www.helmerinc.com/support/knowledge-center/index

i.C³ Icon Reference Guide

Note: All i.C³ Application icons are included in this guide. Contact Helmer Technical Service 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
	i.C³ Settings	• Navigate to the i.C³ Settings screen
	i.C³ Applications (APPS)	• Navigate to the i.C³ APPS screen
	Back Arrow	• Navigate to the previous screen
	Alarm Conditions (icon-indicator)	• Indicates alarm event occurred • Navigate to the Event Log
	Download	• Navigate to the Download screen • On the Download screen, start a data transfer
	Upload	• Navigate to the Upload screen • On the Upload screen, start a data transfer
	Mute On/Off (button)	• Touch once to temporarily silence an active alarm • Touch repeatedly to increase the mute timer duration

Image	Name	Function
	Icon Transfer	• Navigate to the Icon Transfer screen
	Display Brightness	• Navigate to the Display Settings screen
	Scroll Arrows	• Indicates additional information is available by scrolling
	Access Control	• Navigate to the Access Control Login screen
	Access Control Log	• Navigate to the Access Control Log
	Contact Helmer	• Navigate to the Helmer Contact Information screen
	Battery Power (indicator)	• Indicates i.C³ is running on battery
	Information Logs	• Navigate to the Information Logs
	Temperature Graph	• Navigate to the Temperature Graph screen

i.C³ Settings Reference Guide

Note: All i.C³ settings are shown in this guide. Contact Helmer for information about settings as they pertain to optional applications.

General Settings

>

Note: General settings apply to refrigerator and freezer models.

Setting	Description	Default Value
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
Alarm Tone	Audible alarm tone	3
Unit ID	Unique identification number for the i.C³ system	i.C³ serial number
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
Minute	Minute value	Set at the factory
Hour	Hour value	Set at the factory
AM/PM	AM or PM value	Set at the factory
Language	Language displayed on the i.C³ screen	English
Temperature Units	Temperature units (°C / °F)	°C
Password Protection	Protect i.C³ Settings from unauthorized changes	On
Temp Graph Screensaver	Display temperature graph on Home screen	On
Brightness	i.C³ display screen brightness	3 (brightest)
Alarm Settings	Access alarm setpoint settings	Refer to Alarm Settings table
Temperature Calibration Settings	Set sensor temperature values to match measured temperature values	Refer to service manual
Temperature Setpoint	Set freezer operation temperature	Refer to service manual
Restore Factory Settings	Change all settings to factory default values	Refer to service manual
Access Control Touchpad	Prevent chamber access without entry of a valid PIN	On
Access Control as Home Page	Display Access Control keypad on the Home screen	Off

Alarm Settings

 >  > Alarm Settings

Setting	Description	Default Value
High Temp (setpoint)	Chamber temperature at which high temperature alarm condition occurs	-70.0 °C
High Temp (time delay)	Time after high chamber temperature alarm condition occurs until alarm sounds	0 minutes
Low Temp (setpoint)	Chamber temperature at which low temperature alarm condition occurs	-90.0 °C
Low Temp (time delay)	Time after low chamber temperature alarm condition occurs until alarm sounds	0 minutes
High Ambient (setpoint)	Ambient temperature at which high temperature alarm condition occurs	30.0 °C
High Ambient (time delay)	Time after high ambient temperature alarm condition occurs until alarm sounds	15 minutes
Low Ambient (setpoint)	Ambient temperature at which low temperature alarm condition occurs	15.0 °C
Low Ambient (time delay)	Time after low ambient temperature alarm condition occurs until alarm sounds	15 minutes
Power Failure	Time after power failure occurs until alarm sounds	1 minute
Sensor Failure	Time after sensor failure occurs until alarm sounds	0 minutes
Door Open (Time)	Time door remains open until alarm sounds	1 minute

Event Log Codes

In the downloaded CSV data file, each event name is identified by an event code number.

Code	Description
-1	Unknown Error Type
1	Clean Filter
2	CO_2 / LN_2 Backup System Active
3	Communication Failure
4	Communication Failure 1: Control Board
5	Communication Failure 2: Database
6	Communication Failure 3: Configuration File
7	Date/Time Change
8	Door Open
9	High Ambient Temperature
10	High Chamber Temperature
11	Low Ambient Temperature
12	Low Battery
13	Low Chamber Temperature
14	No Battery
15	Power Failure
16	Power Failure: High Voltage

Code	Description
17	Power Failure: Low Voltage
18	Power Failure: No AC
19	Power-Up
20	Refrigeration System
21	Refrigeration System: High Refrigerant Pressure
22	Refrigeration System: High Stage Compressor Temperature
23	Refrigeration System: Low Stage Compressor Temperature
24	Sensor Failure
25	Sensor Failure: Ambient Temperature
26	Sensor Failure: Chamber Temperature Control
27	Sensor Failure: Heat Exchanger Temperature
28	Sensor Failure: High Stage Compressor Temperature
29	Sensor Failure: High Stage Condenser Temperature
30	Sensor Failure: Low Stage Compressor Temperature
34	Refrigeration System: Low Stage Compressor Failure
35	Refrigeration System: High Stage Compressor Failure

Note: “Communication Failure 3: Configuration File” is not included in the downloaded CSV data file.

END OF USER GUIDE

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