Helmer
S C I E N T I F I C

i.C³ ® User Guide

for Compartmental Access Refrigerators

Document History

Revision	Date	CO	Supersession	Revision Description
A	26 JAN 2015	10292	n/a	Initial release.
B	9 FEB 2015	10363	A	Revised product labeling per regulatory requirements.
C	30 OCT 2015	11273	B	Updated screen shots for settings, event log, contacts and versions to correspond with changes made to labeling and or functionality of the software.

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

Contents

Chapter 1: About this User Guide

The i.C³® User Guide provides information about use of the i.C³ as it pertains to Compartmental Access refrigerators. Refer to product operation or maintenance & service manual for general information. Refer to the maintenance & service manual for additional information about the equipment on which the i.C³ is installed. Refer to the BloodTrack Courier® software user guide for information regarding the usage of the software and the BloodTrack Kiosk®.

Model References

The Compartmental Access System becomes a HaemoBank™ after the BloodTrack Courier® software is installed. References are used within this manual which denote the union of these two entities.

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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 2: i.C³ Overview

⚠️ *To avoid injury, before using this product, refer to Section I, Part 2 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. Confirm that the flash memory device is virus/malware free prior to insertion.

Audio Speaker

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

Touchscreen ——

USB Port

Audio Speaker
(bottom of bezel)

BloodTrack® Interface

Refer to Appendix C, Network Communications Reference Guide.

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.
Touch-hold	To accelerate, touch-hold to select the item. Continue to hold the item for accelerated scrolling.

Icons, Indicators, and Buttons

➤ For a complete list of all icons and indicators, refer to "Appendix A, Icon Reference Guide" at the end of this user manual.

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

Status indicators alert the user to a change of status.

Navigation icons return the display to the previous screen ⬅ or the Home screen 🏠.
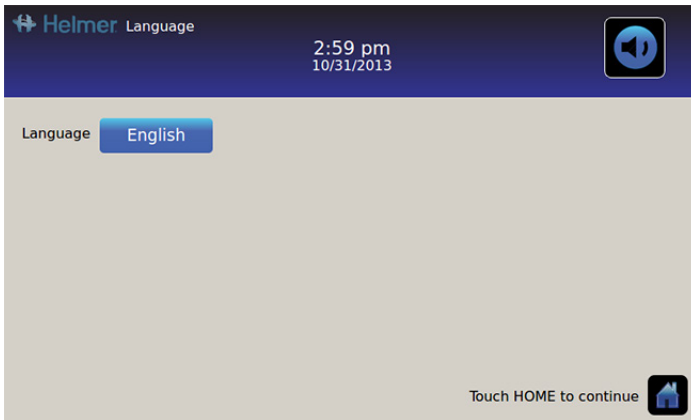
Initial Startup

Start Screen

The Start screen is displayed when the i.C³ is powered on. The i.C³ will take approximately three (3) minutes to power up.

Language Configuration

The Language screen is displayed after the i.C³ has 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 5: Settings, Display Settings" for details on changing the i.C³ language after power-on.

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

Note: English is the default language.

Chapter 3: Home Screen

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

Note: After two (2) minutes of no interaction, the screensaver is displayed (if enabled). Refer to "Chapter 5: Settings" for details on enabling or disabling the screensaver.

Home Screen Layout
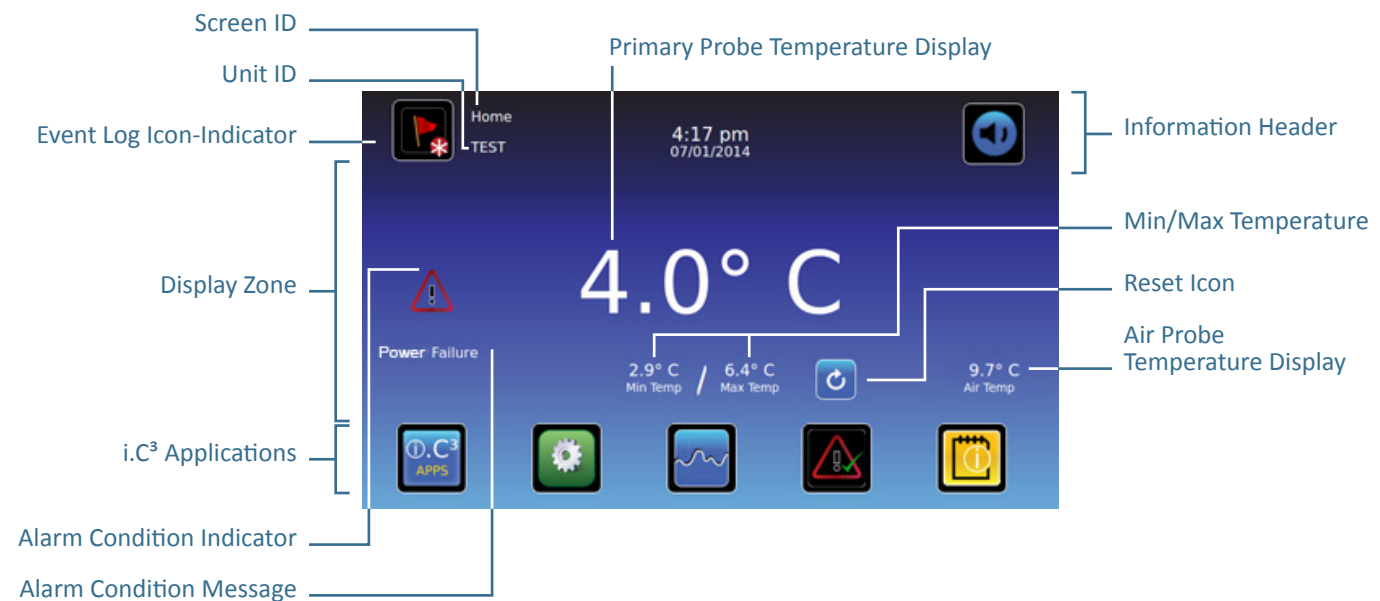
Information Header

Dark blue horizontal band across the top of the Home screen. Displayed on all i.C³ screens.

From left to right, the Information Header includes:

- Event Log icon
- Screen ID
- Unit ID
- Date/Time
- Battery indicator (only displayed during A/C power loss)
- Mute icon

Display Zone

Occupies the middle band on the screen. Includes information indicators and messages.

From left to right, the Display Zone includes:

- Alarm Condition indicator
- Alarm Condition message
- Primary Probe Temperature display
- Minimum/Maximum Temperature display (since last reset)
- Reset icon
- Air Probe Temperature display

Application Icons

Located at the bottom of the screen. Includes five (5) factory-preset application icons.

From left to right, the Application Icons are:

- i.C³ Applications (APPS)
- Settings
- Temperature Graph
- Automatic Alarm Test
- Information Logs

Note: 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 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** icon to temporarily silence alarm sound; touch repeatedly to increase the Mute timer incrementally.

Touch the **Reset** icon to reset the minimum and maximum temperature displayed, and the time since the last reset.

Reset Min/Max Temperature

The Min/Max Temperature displays the minimum and maximum temperature since the last system reset (power-on event) or manually-initiated reset.

To reset the Min/Max Temperature, touch the **Reset** icon. *The message "Reset min/max temperature memory?" is displayed, with the time (in hours and minutes) since the last reset.*

Touch ✅. *The timer is reset to 000:00 (hours and minutes); the minimum and maximum recorded temperature is cleared; and the message window is closed. The event information is saved and can no longer be edited.*

Touch ❌ to cancel the reset operation.

Note: 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.*
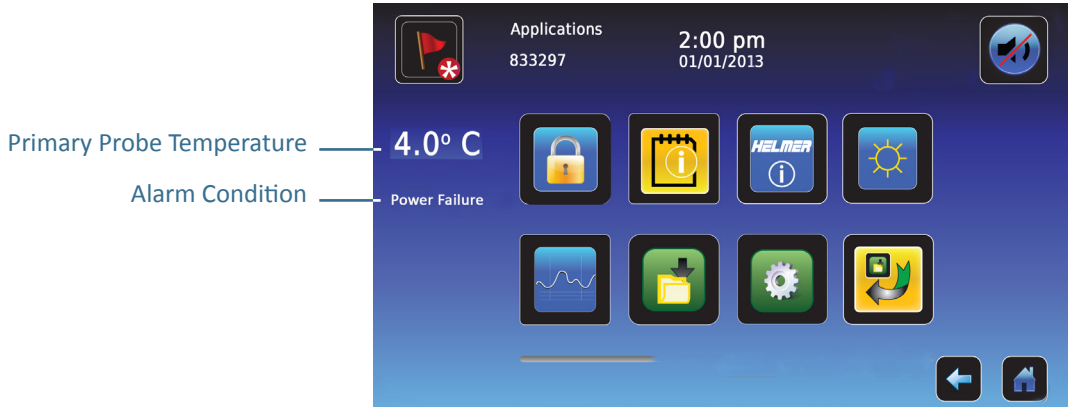
Chapter 4: i.C³ Applications (APPS)

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

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

➤ Refer to "Chapter 11: Icon Transfer" for details on transferring icons.

Primary Probe Temperature

Alarm Condition

Using i.C³ Applications

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

Contacts

View contact information for Helmer Scientific, Haemonetics Software Solutions, and firmware revision numbers.

Brightness

Adjust monitor screen brightness between three (3) display settings.

Information Logs

Access all available data log applications.

Downloads

Download information logs.

i.C³ Settings

Displays Settings screen.

Icon Transfer

Specify and reposition application icons displayed on the Home screen.

Temperature Graph

View current and historical probe temperature data and alarm events.

Access Control

Display keypad for refrigerator door access.

Alarm Test

Initiate automatic alarm tests for high and low temperature alarms.

Uploads

Upload firmware updates.

Chapter 5: Settings

 ,   >

The Settings screen is used to configure and select all i.C³ system 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.

➤ Refer to "Appendix B: Settings Reference Guide" for initial factory settings (default value) and adjustment range.

Access the Settings Screen

A password protects i.C³ settings from unauthorized changes. The Settings screen is password protected, unless password protection is turned off.

• *Initial factory setting = On*

Note: Helmer recommends that password protection remain On.

Password Protection of the Settings Screen

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

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

Temperature Setpoint
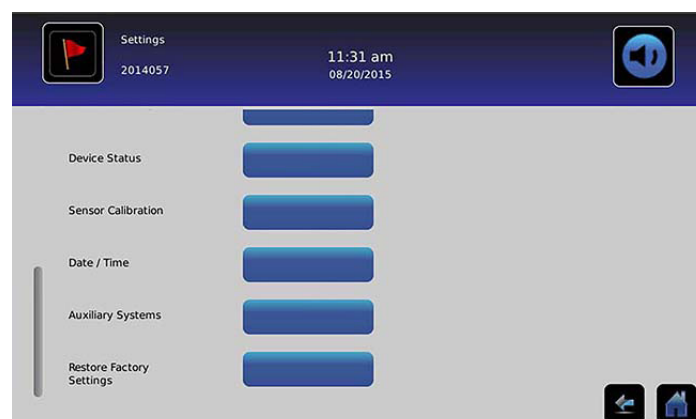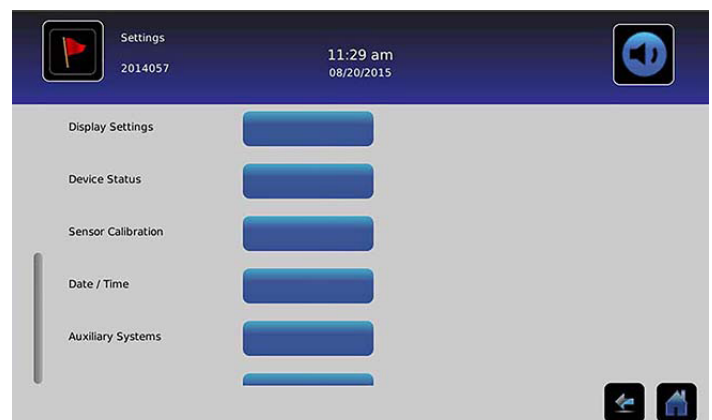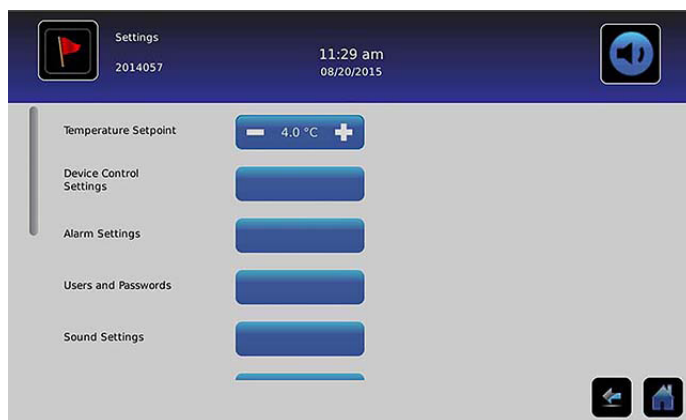
[i.C³ APPS] > [⚙] > Temperature Setpoint

The temperature setpoint is the desired setpoint of the refrigerator for stored product.

To set control parameters, touch (+ or −) on the adjacent spin box until the correct value is displayed.
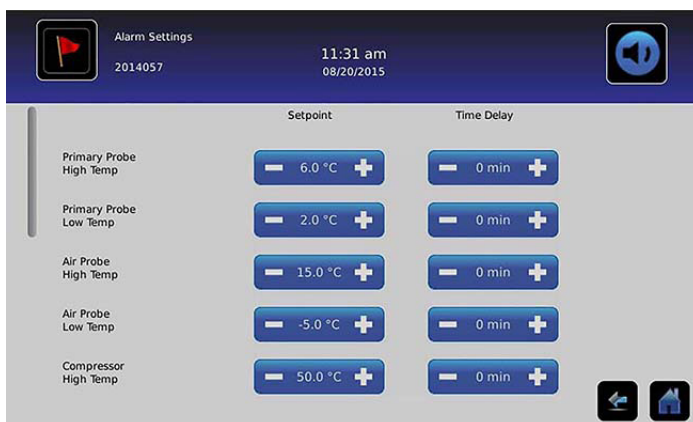
Alarm Settings

[i.C³ APPS] > [⚙] > Alarm Settings

Alarm Settings control the conditions and timing for alarm activation and communication.

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.

Note: Alarm settings may be set with the i.C³. Alarm settings in the BloodTrack Courier software will override alarm settings manually entered in the i.C³.

The setpoint is the temperature at which the temperature alarm is activated.

The time delay is the duration of the alarm condition before the alarm is activated.

User-Configurable Alarms

➤ Refer to "Appendix B: Alarm Settings" for initial factory settings (default value) and adjustment range.

Primary Probe (High Temperature)

Alarm display reads: *"Primary Probe High Temperature"*

• *Triggered when primary probe temperature is above high alarm setpoint*

Primary Probe (Low Temperature)

Alarm display reads: *"Primary Probe Low Temperature"*

• *Triggered when primary probe temperature is below low alarm setpoint*

Air Probe (High Temperature)

Alarm display reads: *"Air Probe High Temperature"*

• *Triggered when air probe temperature is above high alarm setpoint*

Air Probe (Low Temperature)

Alarm display reads: *"Air Probe Low Temperature"*

• *Triggered when air probe temperature is below low alarm setpoint*

Compressor High Temperature

Alarm display reads: *"Compressor High Temperature"*

• *Triggered when compressor probe temperature is above high alarm setpoint*

Power Failure

Alarm display reads: *"Power Failure"*

• *Triggered when electrical power to the refrigerator has been disrupted; when line voltage exceeds maximum electrical system voltage tolerance; or when line voltage falls below minimum electrical system voltage tolerance.*

Probe Failure

Alarm display reads one (or more) of the following:

• *"Compressor Probe Failure"*
• *"Air Probe Failure"*
• *"Control Probe Failure"*
• *"Primary Probe Failure"*
• *Triggered when i.C3 control and monitoring system has lost communication with a temperature sensor(s).*

Door Open (Time)

Alarm display reads: *"Door Open"*

• *Triggered when door is open beyond specified duration.*

Non-Configurable Alarms

Communication Failure Messages

Alarm display reads: *"Communication Failure 1"*

• *Setting is not adjustable*
• *Triggered if communication is lost between i.C³ display board and control board*
• *Refrigerator 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 Haemonetics Customer Care Center. Refer to "Chapter 12: Contacts" for Haemonetics Customer Care Center contact information.

Alarm display reads: *"Communication Failure 2"*

- *Setting is not adjustable*
- *Triggered if configuration data is corrupt or if the i.C³ is unable to access the configuration file*
- *Refrigerator will continue to run with previously saved settings*
- ➤ Contact Haemonetics® Corporation BloodTrack® Customer Support. Refer to "Chapter 12: Contacts" for Haemonetics® Corporation BloodTrack® Customer Support contact information.

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

- *Setting is not adjustable*
- *Triggered if the database is corrupt or if the i.C³ is unable to access the database*
- *The database is archived and a new database is automatically created*
- *Refrigerator will continue to run with previously saved settings*
- ➤ Contact Haemonetics® Corporation BloodTrack® Customer Support. Refer to "Chapter 12: Contacts" for Haemonetics® Corporation BloodTrack® Customer Support 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.

Audible Alarm Failure

Audible alarm failure is indicated by a mute icon with an X in a red circle. If an audible alarm failure occurs, no alarms will be heard. However, visual and remote alarms will continue to operate normally. If this condition occurs, please contact Haemonetics® Corporation BloodTrack® Customer Support.

Users and Passwords

 > > Users and Passwords
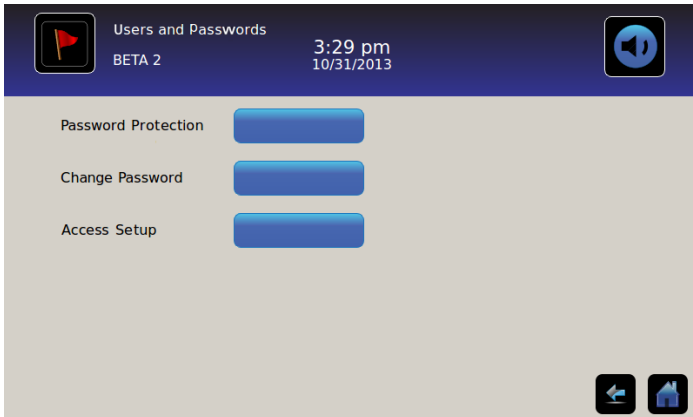
Password Protection

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

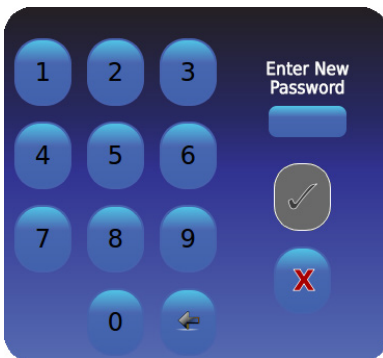- *Initial factory setting = On*

Note: Helmer recommends that password protection remain On.

Change Administrator Password

The Administrator Password is used to access the settings screen when password protection is enabled.

Touch the **Change Password** button. *The Change Password numeric keypad is displayed.*

- *Initial factory setting = 1234*

Enter a new 4-digit password. Touch . *"Enter Again"* is displayed.

If an invalid password or password already in use is entered, the message "Invalid Password. Please Re-enter." is displayed.

When prompted, re-enter the password. Touch . The password is changed and the Change Password numeric keypad is closed.
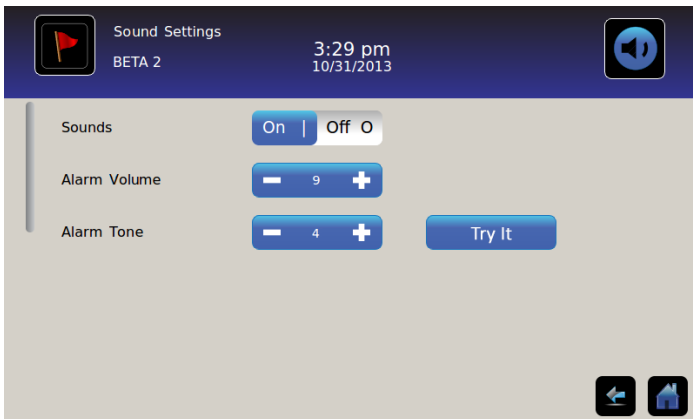
If the passwords do not match, the message "Entries did not match. Please try again." is displayed.

To cancel the Change Password operation, touch .

Configure Access Control Accounts (Access Setup)

➤ Refer to "Chapter 8: Access Control" for details on configuring individual Access control user accounts.

Sound Settings

 > > Sound Settings

Sounds (On/Off)

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

Alarm Volume

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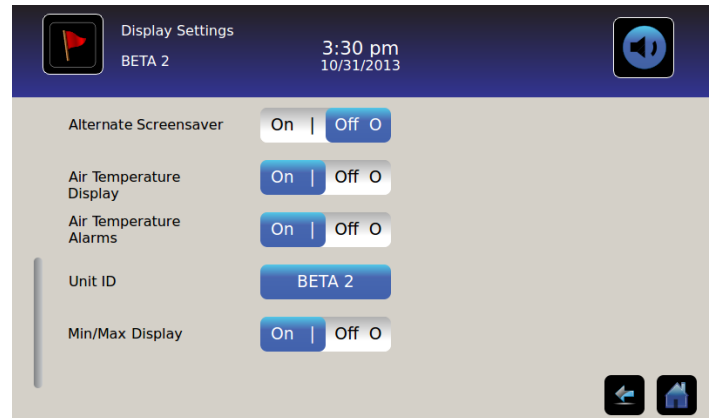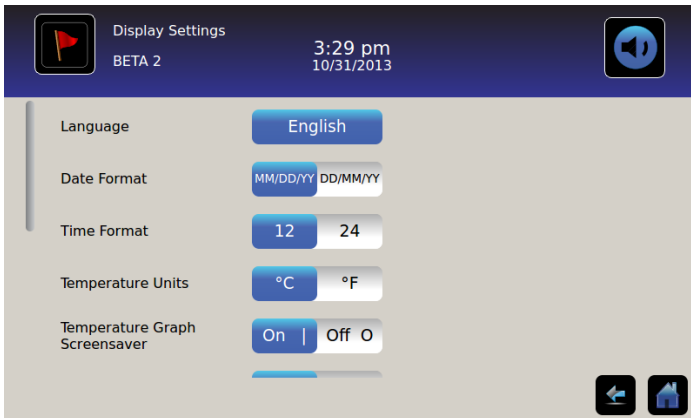
Alarm Tone

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

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

Display Settings

 > > Display Settings

From this screen, individual display settings can be changed or switched on or off. Refer to "Appendix B: Settings Reference Guide" for a list of all Default Values.

Language

Change language: Touch the **Language** button and a drop-down list is displayed. Touch to select a new language. *The selected language is displayed in the button.*

• *Initial factory setting = English*

Date Format

Set the date format: Toggle the **Date Format** button (select MM/DD/YY or DD/MM/YY).

Time Format

Set the time format: Toggle the **Time Format** button (select 12-hour or 24-hour).

Temperature Units

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

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

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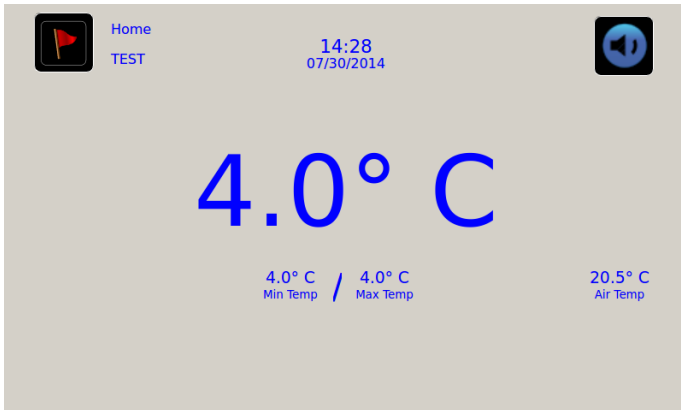
Screensavers

The Home screen is equipped with a screensaver. The screensaver is automatically displayed after two (2) minutes of inactivity on the Home screen.

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

Note: Inactivity of two (2) minutes duration on any i.C³ screen results in automatic return to the Home screen.
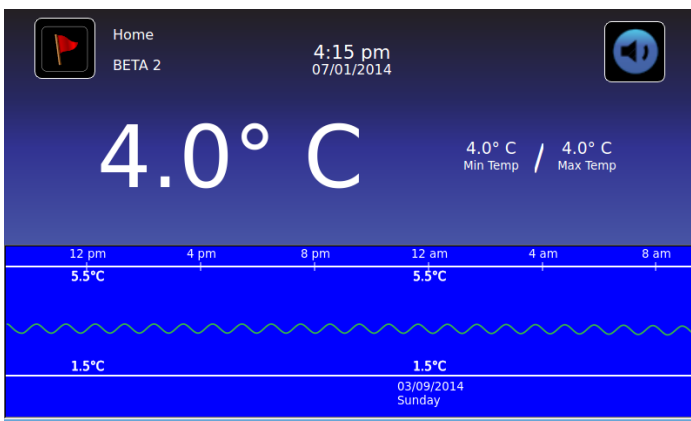
HaemoBank™ Screensaver

The HaemoBank™ screensaver can be turned on or off.

Turn the HaemoBank™ screensaver on or off: Toggle the **Alternate Screensaver** button.

Note: If the Temperature Graph Screensaver setting is set to off, the Alternate Screensaver button is inactive.

- *Initial factory setting = On*

Temperature Graph Screensaver

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

- *Initial factory setting = Off*

Air Probe Temperature Display

The temperature display for the air probe on the Home screen can be turned on or off.

Turn the air probe temperature display on or off: Toggle the **ON/OFF** button to select on or off.

Air Probe Temperature Alarms

The temperature alarm for the air probe can be turned on or off.

Turn the air probe temperature alarm on or off: Toggle the **ON/OFF** button to select on or off.

Note: If the Air Probe Temperature Display setting is set to off, the Air Probe Temperature Alarms button is inactive.

Unit ID

The Unit ID is a unique identifier for the equipment.

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

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 13: 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.*

Min/Max Temperature Display

The minimum and maximum temperature display on the Home screen and temperature graph screensaver can be turned on or off.

Turn the min/max temperature display on or off: Toggle the **Min/Max Display** button.

Device Status

 > > Device Status

Device Status is divided into two sections. The upper section records the current status of the refrigerator components while the lower section allows viewing of the status of the compartmental access system. The **Refresh** button, when selected, will update the temperature readings of the IRACS boards and BA_BBB as well as the voltage reading of the BA_BBB.

Refrigerator Components:

Probes: Displays the actual temperature with the offset factored into the reading.

Condensing unit: On/off status of refrigerator condensing unit.

- On = Condensing unit is running
- Off = Condensing unit is not running

Cooling unit fan: On/off status of cooling unit fan.

- On = Cooling unit fan is running
- Off = Cooling unit fan is not running

Door Lock: Active/inactive status of refrigerator door lock.

- Active = Refrigerator door lock is engaged
- Inactive = Refrigerator door lock is disengaged

Mains Voltage: Calculated voltage level that represents the AC voltage supplied to the refrigerator.

Battery Voltage: Calculated voltage level that represents the DC voltage being read from the systems backup battery.

Compartmental Access System Components:

IRACS: Each IRACS (Independent Row Access Control and Sensor) board's temperature is individually displayed.

BA_BBB: Compartmental Access control circuit board (pcb).

- Temperature = displays the temperature of the BA_BBB Control board.
- Voltage = Calculated voltage level that represents the DC voltage being read from the BA_BBB Control board.

Sensor Calibration

 > > Sensor Calibration

Sensor Calibration allows temperature offsets to be viewed. The offset value is calibrated at the factory so the current temperature reading (plus offset) matches the actual temperature, as measured by an independent thermometer.
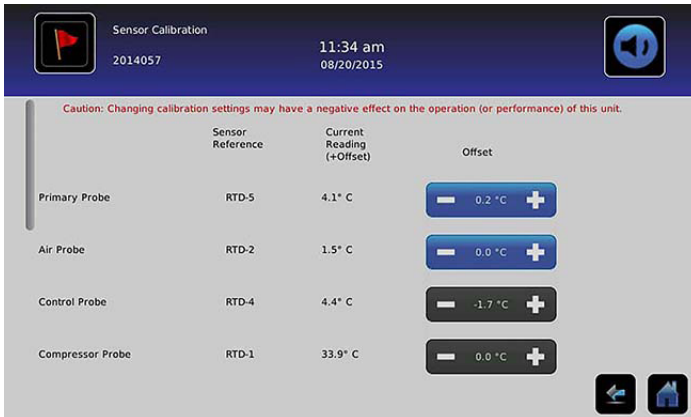
NOTICE   Offset values are set at the factory. Offset values should not be changed unless directed by Haemonetics Customer Care.

Date/Time

 > > Date/Time

Note: The date and time may be set with the i.C³, however the i.C³ queries the BloodTrack Courier software once every hour to obtain the current time and date. The time and date obtained from the BloodTrack Courier software will override date or time settings manually entered in the i.C³.

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.

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.

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 black line will appear on the temperature graph, corresponding to date and time when the change was made.

Auxiliary Systems

ⓘ.C³ APPS > ⚙ > Auxiliary Systems

Auxiliary Systems provide a way for communication ports to be turned on or off.
USB Port:

- **Turn the USB Port on or off:** Toggle the **ON/OFF** button to select on or off.

RS232 Port *(The RS232 Port is optional and only visible when enabled at the factory.)***:**

- **Turn the RS232 Port on or off:** Toggle the **ON/OFF** button to select on or off.

Restore Factory Settings

ⓘ.C³ APPS > ⚙ > Restore Factory Settings

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.

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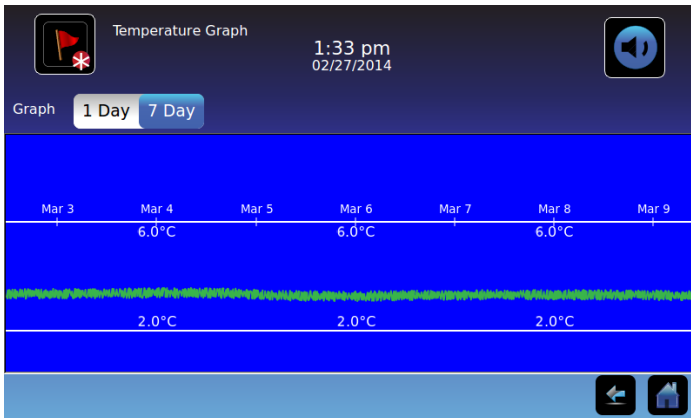
Brightness

 >
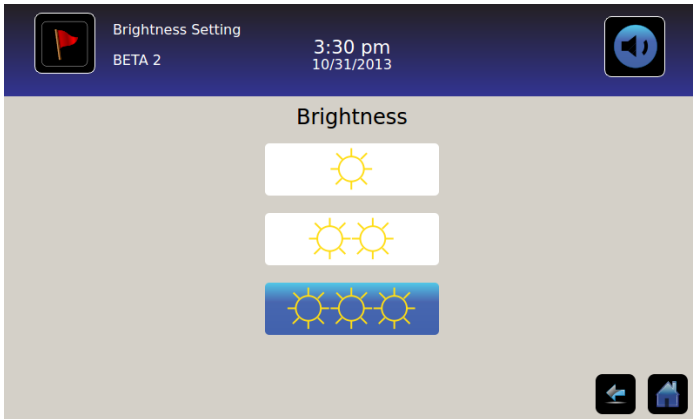
The backlight on the i.C³ monitor has three (3) settings.

Select a different brightness setting: Touch any button.

Chapter 6: Temperature Graph

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

Viewing the Temperature Graph

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

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

Note: The default graph view is the 7-Day time span.

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, solid white, represents primary probe high temperature alarm limit
- Lower line, solid white, represents primary probe low temperature alarm limit
- 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 refrigerator is powered on/off.

Viewable with the 1-Day Time Span

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.

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 displayed in 4-hour segments.

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

Date

The date and day are displayed below the 12:00 am data point on the temperature graph.

Chapter 7: Temperature Alarm Test

Initiate an automatic alarm test for the primary probe 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 takes less than five (5) minutes.
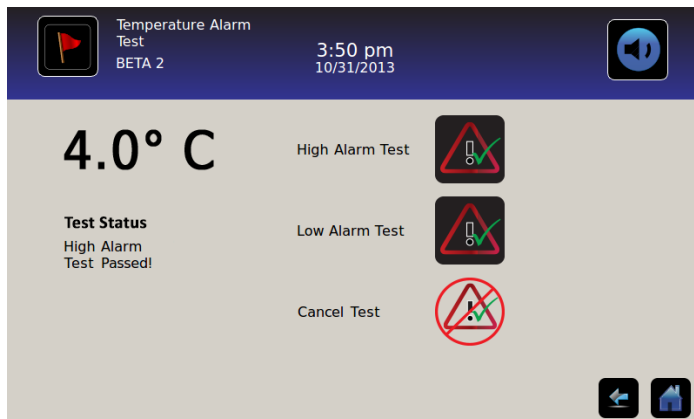
Note: Touch the **Cancel Test** icon at any time to abort the alarm test.

Begin a Test

Touch the **High Alarm Test** or **Low Alarm Test** icon to begin the alarm test. *The icon for the selected test begins to flash.*

During a Test

- Temperature is displayed in the Temperature Display on the left side of the screen.
- As the temperature moves into alarm conditions, the temperature reading turns red.

High Alarm Test

- If the High Alarm Test icon is touched, the message *"Peltier Test Probe Warming"* is displayed in the Test Status area. The High Alarm Test icon will pulsate and the Low Alarm Test icon will be inactive.
- If the Temperature Display exceeds the primary probe high temperature alarm setpoint within 10 minutes (± 20 seconds), the message *"High Alarm Test Passed!"* is displayed in the Test Status area.
- If the Temperature Display does not exceed the primary probe high alarm temperature setpoint within 10 minutes (± 20 seconds), the message *"High Alarm test failed because it took too long and shut off for safety"* is displayed in the Test Status area.
- When the test is complete (or if the test has failed), the High Alarm Test icon and Low Alarm Test icon return to their normal state.

Low Alarm Test

- If the Low Alarm Test icon is touched, the message *"Peltier Test Probe Cooling"* is displayed in the Test Status area. The Low Alarm Test icon will pulsate and the High Alarm Test icon will be inactive.
- If the Temperature Display exceeds the primary probe low temperature alarm setpoint within 10 minutes (± 20 seconds), the message *"Low Alarm Test Passed!"* is displayed in the Test Status area.
- If the Temperature Display does not exceed the primary probe low alarm temperature setpoint within 10 minutes (± 20 seconds), the message *"Low Alarm test failed because it took too long and shut off for safety"* is displayed in the Test Status area.
- When the test is complete (or if the test has failed), the High Alarm Test icon and Low Alarm Test icon return to their normal state.

After a Test

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

Cancel a Test

Touch the **Cancel Test** icon to end the alarm test. *"Test Stopped"* is displayed in the Test Status area.

- The High Alarm Test icon and Low Alarm Test icon return to their normal state.

Chapter 8: Access Control

Integrated electronic Access Control limits user access, providing secure storage. A valid personal identification number (PIN) associated with a user profile must be entered through the i.C³ Access Control screen to unlock the door and gain access to the refrigerator.

Note: There is a battery switch on Helmer equipment. The switch disconnects power to the magnetic lock, compartmental access electronics, and temperature monitoring system allowing users to gain emergency access to the contents of the cabinet during an AC power failure.

➤ 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
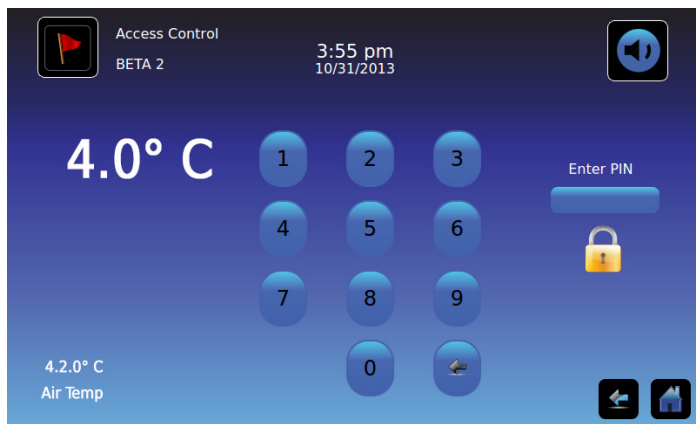
Using Access Control

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.

When the four-digit PIN is entered correctly, the icon will change to an unlocked position, an audible click will be heard, and the refrigerator door will open.

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

Access Log

A record of each user-authenticated access event is recorded in the Access Log.

➤ Refer to "Chapter 9: Information Logs, Access Log" for details on viewing the access log.

Enter Access Control Setup

 > > > Access Setup

 > > Users and Passwords

Access Control Setup can be reached by two paths. The supervisor PIN is required to set up Access Control.

Note: In the event the owner of the supervisor PIN becomes unavailable, contact Haemonetics® Corporation BloodTrack® Customer Support to reset the supervisor PIN.
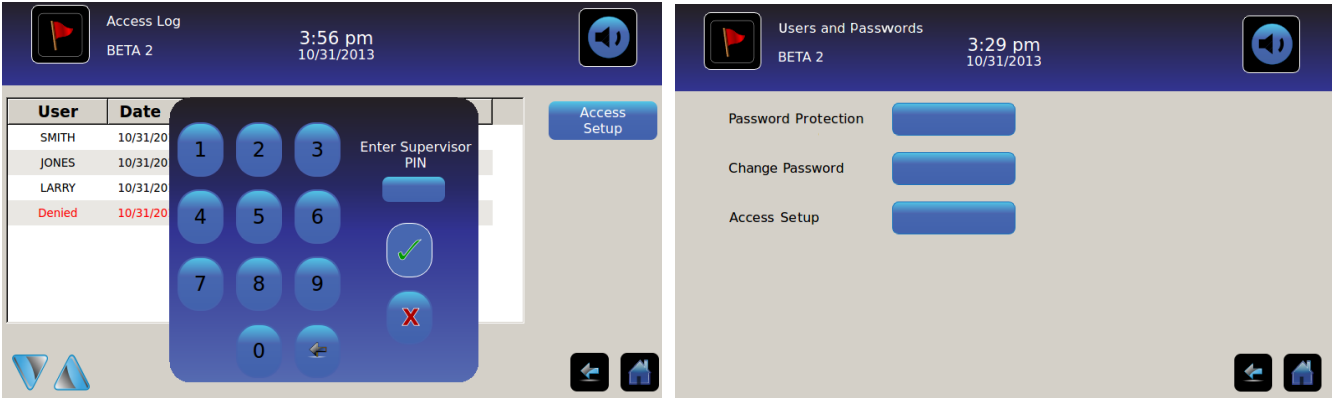
Enter Access Control Setup

1. Touch the **Access Log** button on the Information Log screen, followed by the Access Setup button; or Touch the **Access Setup** button on the Users and Passwords screen. *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 refrigerator. At least one user ID must be set up to gain access to the refrigerator.

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.
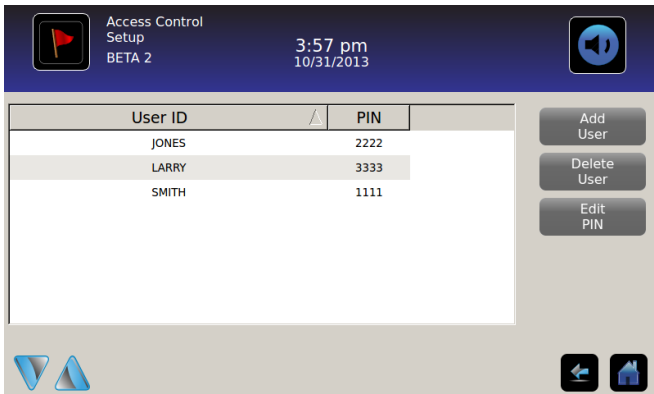
Table Elements

- User ID
- PIN

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

Add a User Profile

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

➤ Refer to "Chapter 12: 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 9: Information Logs

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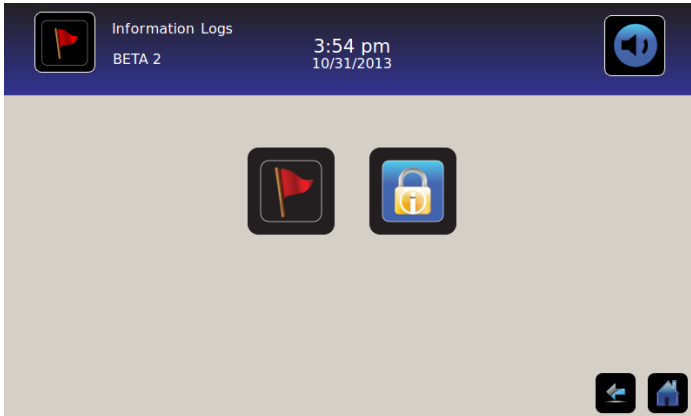
Event Log

The Event Log displays a summary of information from alarm events. A maximum of 100 (most recent) events can be viewed on the Event Log screen.

➤ Refer to "Chapter 10: Data Transfer, Download Temperature, Access, 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	5.0°C	11:41 am	5.0°C	✔
Power-Up	10/31/2013	10:59 am	5.0°C	10:59 am	5.0°C	✔
Sensor Fail	10/31/2013	2:59 pm	5.0°C	11:02 am	5.0°C	
Hi Temp	10/31/2013	2:59 pm	5.0°C	11:02 am	5.0°C	
Door Open	10/31/2013	2:59 pm	5.0°C	11:02 am	5.0°C	

Viewing the Event Log

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

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

Event Log Formatting

- Bold text: Not yet viewed
- Normal text: Viewed
- Dimmed text: Downloaded
- Data row shaded blue: High or low alarm test
- Green check mark: Event acknowledged on Event Detail screen

Table Elements

- Event: Type of event that occurred
- Start Date: Date event began
- 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 messages 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
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*
Primary Probe High Temperature	*Hi Temp*
Primary Probe Low Temperature	*Low Temp*
Air Probe High Temperature	*Air Hi Temp*
Air Probe Low Temperature	*Air Low Temp*
Low Battery Voltage	*Low Battery*
No Battery	*No Battery*
Power Failure	*Power Fail*
Power On	*Power-Up*
Compressor High Temperature	*Comp Temp*
Sensor Failure (Primary Probe)	*Sensor Fail*
Sensor Failure (Air Probe)	*Sensor Fail*
Sensor Failure (Control Probe)	*Sensor Fail*
Sensor Failure (Compressor Probe)	*Sensor Fail*

Event Log Detail

 > >

The Event Log Detail shows primary probe, air probe, and compressor probe temperature information from alarm events. The cause of an alarm event and the corrective action taken can be acknowledged.

View Event Details

- Type of event
- Start date/time of event
- End date/time of event
- Primary probe start/end, maximum/minimum temperatures
- Air probe start/end, maximum/minimum temperatures
- Compressor probe start/end, maximum/minimum temperatures

Note: If the Air Temperature Display setting is set to Off (on the Display Settings screen), the air probe temperature reading will not be displayed on the Event Log Detail screen.

Note: If a probe has failed, a code will be displayed in place of the temperature reading for the failed probe.

Failed Probe	Code
Primary Probe	908
Air Probe	902
Condensing Unit Probe	901

Event Types

- *"Communication Failure: Board Comm Error"*
- *"Communication Failure: Data Integrity Error"*
- *"Communication Failure: File Reading Error"*
- *"Date/Time Change"*
- *"Door Open"*
- *"High Air Probe Temperature"*
- *"High Primary Probe Temperature"*
- *"Low Air Probe Temperature"*
- *"Low Primary Probe Temperature"*
- *"Low Battery"*
- *"No Battery"*
- *"Power Failure: No AC"*
- *"Power-Up"*
- *"Compressor Over Temp"*
- *"Sensor Failure: Primary Probe"*
- *"Sensor Failure: Air Probe"*
- *"Sensor Failure: Control Probe"*
- *"Sensor Failure: Compressor Probe"*

Acknowledging Events

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

To acknowledge an event:

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

2. Touch the cause of the alarm event. Available causes are:

   - Inventory
   - Alarm Test
   - Other

Note: If Other is touched, the alphanumeric keyboard is displayed. Enter the cause of the alarm condition (40 characters maximum).

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

4. Touch the action taken to correct the alarm event. Available actions are:

   - Removed Contents
   - Completed Test
   - Other

Note: If Removed Contents or Completed Test is touched, the pop-up menu closes and the selection is displayed in the button.

Note: If Other is touched, the alphanumeric keyboard is displayed. Enter the action taken (40 characters maximum).

5. Touch the **Signature** button. *The alphanumeric keypad is displayed.*

6. Enter the user name or user initials.

7. Touch the **Save** icon. *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. *The alphanumeric keypad is closed.*

Note: All three (3) 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.

➤ Refer to "Chapter 13: Alphanumeric Keyboard" for details on using the keyboard.
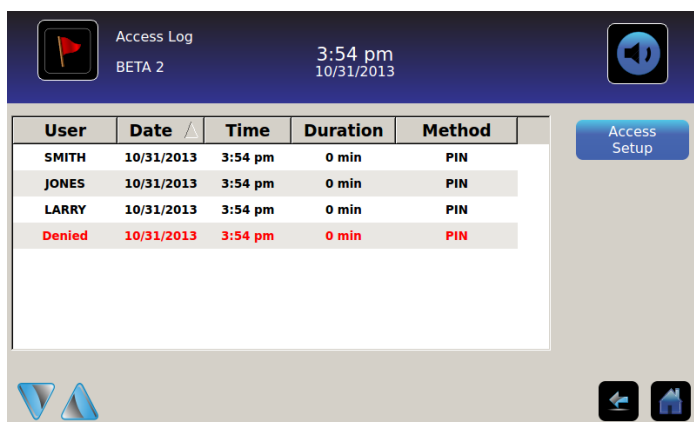
Access Log

 >

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 8: 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 BA_Override
- Date: Date of access
- Time: Time of access
- Duration: Length of time door remained open
- Method: How unit was accessed (PIN or Remote)

Note: The User name *"BA_Override"* indicates that refrigerator was accessed using the BloodTrack Courier Kiosk.

Note: If the refrigerator was accessed using the BloodTrack Courier Kiosk, the entry method is recorded as *"Remote"*.

Access Log Formatting

- Bold text: New data since the last time the log was viewed
- Normal text: Viewed
- Dimmed text: Downloaded
- Red text: Access denied
- Black text: BA_Override

Access Control Setup Screen

➤ **Refer to Chapter 8 Access Control setup for information on setting up user profiles.**

Chapter 10: Data Transfer

## Download Temperature, Access Logs, and Event Data

 >

Use the Download screen to download information to a removable storage device (USB flash drive). Confirm that the flash memory device is virus/malware free prior to insertion.
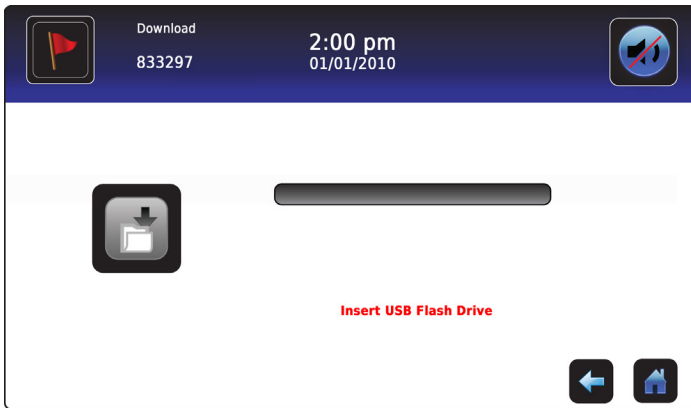
To download information:

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.
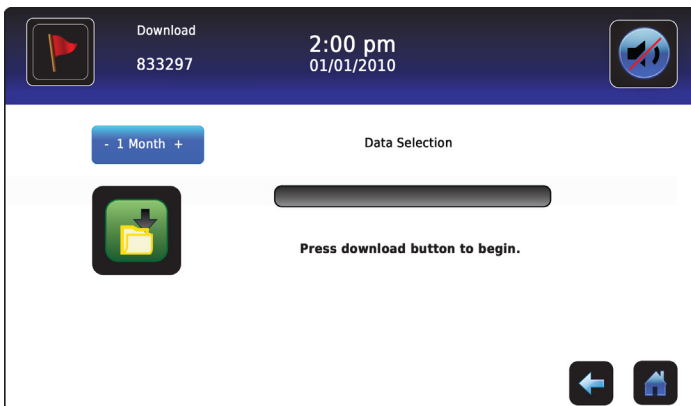
3. Touch the **Download** icon to begin data transfer. The i.C³ initializes the memory device, and the Download icon is shaded.
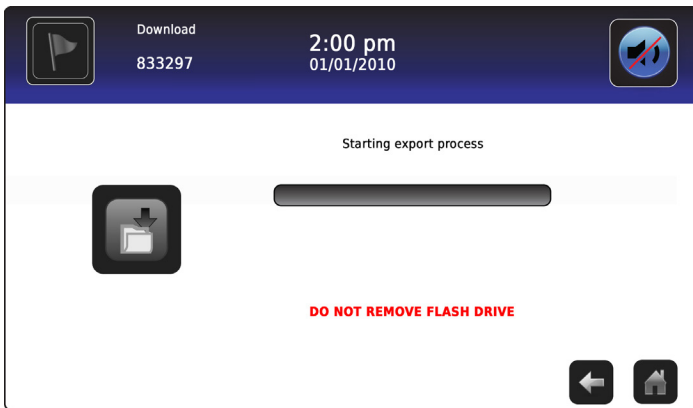
4. After the memory device is initialized, the download progress bar is displayed.
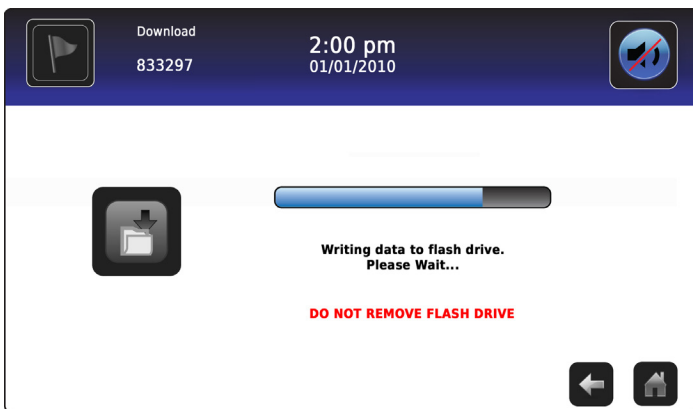
5. When finished, the message *"Data Download Completed"* and the date and time are displayed.
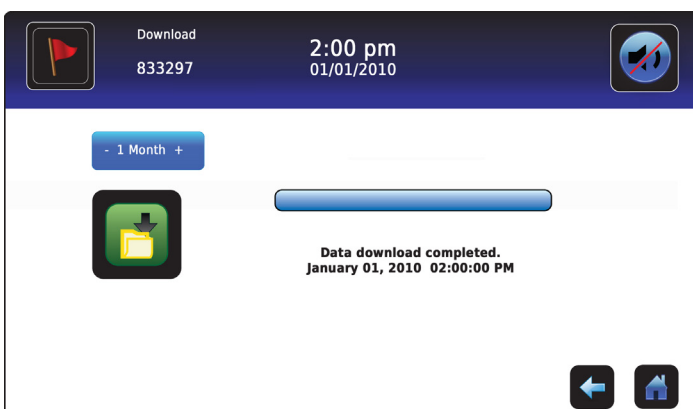

6. Remove the memory device from the USB port.

Note: 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. If the memory device is removed before the data download is complete, the message *"Insert USB flash drive"* is displayed. 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 Haemonetics® Corporation BloodTrack® Customer Service.

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)
* Event log data
* Access log data
* Unit ID and date/time of the download

The CSV file may be viewed, saved, and manipulated on a PC.

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 preferred.

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

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 12: Contacts, System Information" for details on referencing the firmware revision number.

➤ Refer to "Chapter 5: Settings, Sensor Calibration" for details on calibrating the offset values.

Use the Upload screen to upload firmware updates.
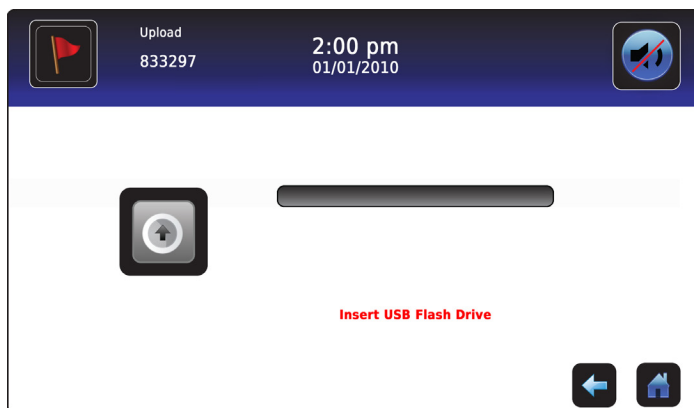
To upload new information:

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 Upload icon is no longer shaded; and the message *"Press upload button to begin"* is displayed.
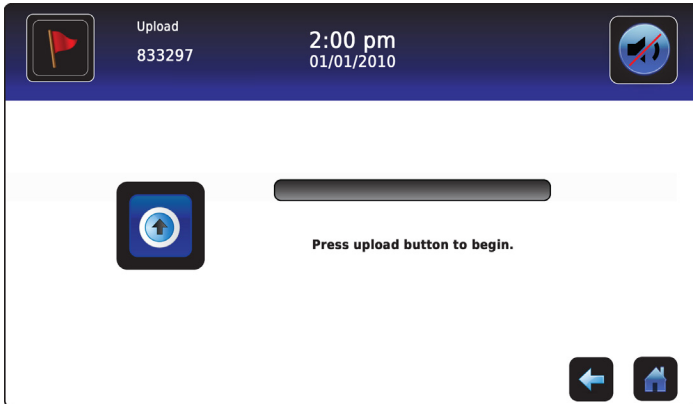

Note: If the Upload icon is touched before a memory device is inserted, the message *"Insert USB Flash Drive"* is displayed until a memory device is inserted.

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 and the message *"Copying file from flash drive. Please wait..."* is displayed.
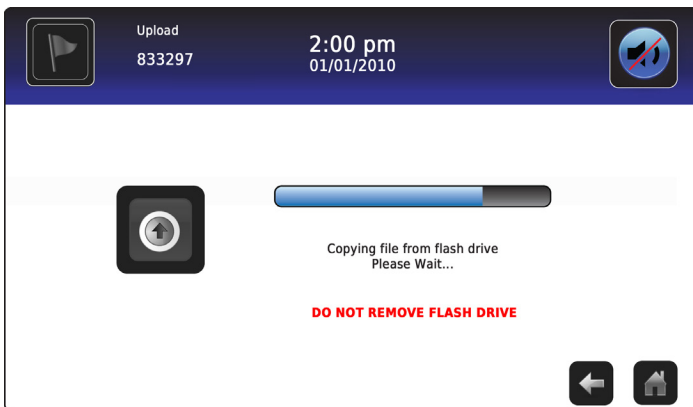
3. When finished, the *"Data Upload Completed"* message and the date and time are displayed.
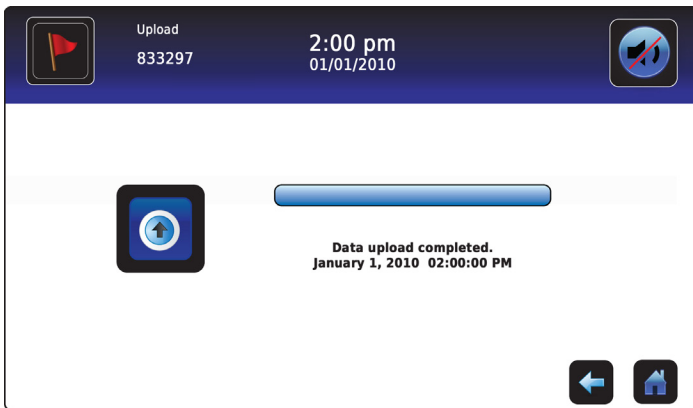
4. After the *"Data Upload Completed"* screen is displayed, the screen refreshes to display the *"Wait"* screen. The system automatically powers down and restarts.

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

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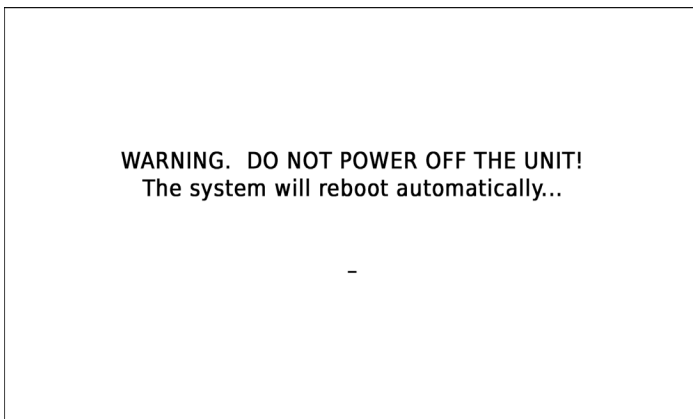
Note: A rotating "dash" character is displayed to indicate that the i.C³ system is still running.

5. **Remove the memory device from the USB port after the i.C³ system has rebooted.** *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 neither firmware version number has been updated from the recorded version number, contact Haemonetics® Corporation BloodTrack® Customer Support.*

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

Chapter 11: Icon Transfer

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From this screen, icons can be specified and repositioned to appear on the Home screen.
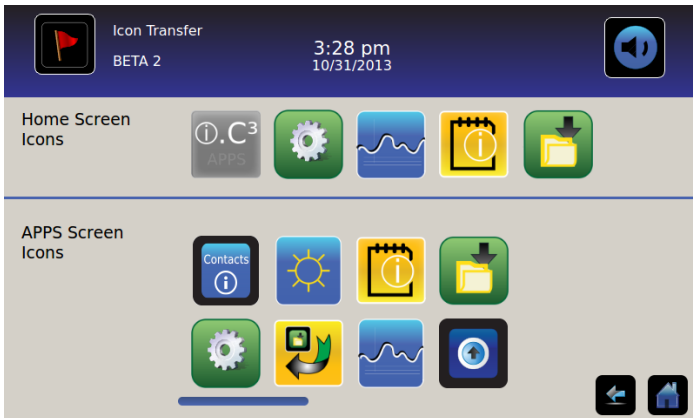
To view additional icons: Touch-scroll to the right or left.

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 (5) icons can be displayed on the Home screen.

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

Chapter 12: Contacts

Contact Information

View contact information for Helmer Scientific, and refrigerator model number and serial number.

U.S. and Canada
Technical Service   service@helmerinc.com
Customer Service   sales@helmerinc.com

HELMER SCIENTIFIC
14400 Bergen Boulevard
Noblesville, IN 46060 USA

PH +1.317.773.9073
FX +1.317.773.9082
Toll Free 800.743.5637 (U.S. and Canada)

www.helmerinc.com

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

Haemonetics® Corporation Contact Information

To contact Haemonetics® Corporation:

BloodTrack® Customer Support
877.996.7877

System Information

To navigate to the Versions screen: Touch the **More Info** icon.

Note: Software configuration, software revision numbers, and the i.C³ IP address and MAC address can be viewed on the Versions screen as well as additional Compartmental Access System information.

Chapter 13: 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 keys are touched on the keyboard, the corresponding character is displayed in the text window at the top of the screen.

The U.S./international keyboard is used to enter text in the following languages: English, Czech, Danish, Dutch, Finnish, French, German, Italian, Portuguese, Romanian, Spanish, Swedish, and Norwegian. Unique keyboards are used for Greek and Russian languages.
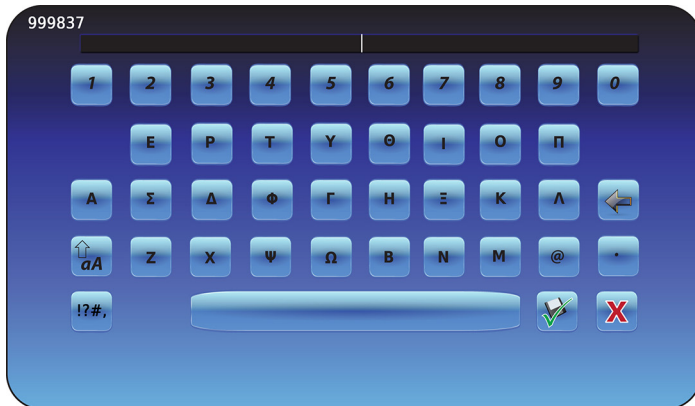
U.S./International Keyboard
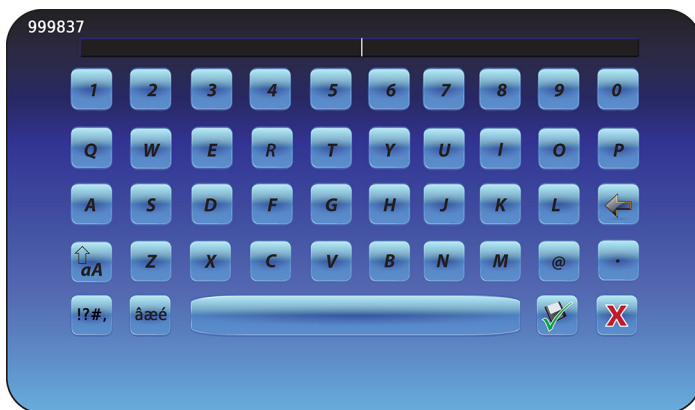
The keyboard consists of five (5) screens:

- Uppercase characters
- Lowercase characters
- Uppercase extended characters
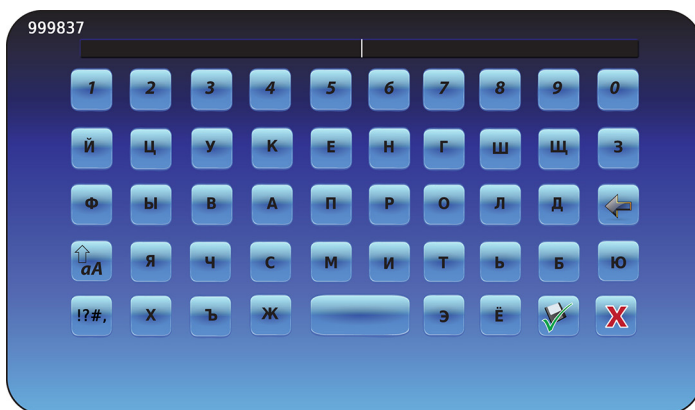- Lowercase extended characters
- Symbols

Greek Keyboard

The Greek keyboard consists of three (3) screens:

- Uppercase characters
- Lowercase characters
- Symbols

Russian Keyboard

The Russian keyboard consists of three (3) screens:

- Uppercase characters
- Lowercase characters
- Symbols

Common Buttons

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.

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

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

Note: When the Extended Character icon is touched, the uppercase extended character keyboard is displayed by default. To display the lowercase extended character keyboard, touch the Lowercase icon.
Note: The uppercase and lowercase extended character keyboards are not available in Greek or Russian languages.

Touch the **Symbol** icon to navigate to the symbol keyboard.
The symbol keyboard is displayed.

Note: The symbol keyboard is not available in Greek or Russian languages.

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

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

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

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

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

Chapter 14: Care and Support

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.

Restore Factory Settings

➤ Refer to "Chapter 5: 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 instructions included with the calibration file.

Operation and Maintenance & Service Manuals

Refer to the CD shipped with the product or contact Haemonetics® Corporation BloodTrack® Customer Support.

Appendix A

i.C³ Icon Reference Guide

Note: All Application icons are included in this guide.

Image	Name	Function
	Home	• Navigate to the Home screen
	Event Log (icon-indicator)	• Navigate to the Event Log • Red asterisk indicates new event
	Settings	• Navigate to the 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
	Alarm Test	• Navigate to the Alarm Test screen • Initiate an Alarm Test
	Cancel Alarm Test	• Cancel an Alarm Test
	Downloads	• Navigate to the Download screen • On the Download screen, start a data transfer
	Uploads	• Navigate to the Upload screen • On the Upload screen, start a data transfer

Image	Name	Function
	Mute On/Off	• Touch once to temporarily silence an active alarm • Touch repeatedly to increase the mute timer duration
	Temperature Graph	• Navigate to the Temperature Graph screen
	Information Logs	• Navigate to the Information Logs
	Icon Transfer	• Navigate to the Icon Transfer screen
	Brightness	• Navigate to the Brightness screen
	Scroll Arrows	• Indicates additional information is available by scrolling
	Access Log	• Navigate to the Access Control Log
	Contacts	• Navigate to the Contacts screen
	Battery Power (indicator)	• Indicates i.C³ is running on battery

Appendix B

i.C³ Settings Reference Guide

General Settings

 >

Setting	Description	Default Value
Temperature Setpoint	Desired temperature of the refrigerator for stored product	4.0 °C
Password	Change password used to access i.C³ Settings	1234
Password Protection	Protect i.C³ Settings from unauthorized changes	On
Sounds	Turn sound on or off (does not include alarms)	On
Alarm Volume	Audible alarm volume	9 (1 to 9)
Alarm Tone	Audible alarm tone	2 (1 to 4)
Unit ID	Unique identification number for the i.C³ system	No default value
Date Format	Date display format	MM/DD/YY
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
Temperature Graph Screensaver	Display temperature graph on Home screen	Off
Alternate Screensaver	Display the alternate screensaver on Home screen	On
Min/Max Temperature Display	Display min/max temperature on Home screen and temp graph screensaver	On
Air Temperature Display	Display air probe temperature on Home screen	On
Air Temperature Alarm	Set whether air probe will trigger an alarm	On
Brightness	i.C³ display screen brightness	3 (brightest)
Alarm Settings	Access alarm setpoint settings	Refer to Alarm Settings table
Temperature Calibration Settings	Set probe temperature values to match measured temperature values	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

Alarm Settings

[i.C³ APPS icon] > [gear icon] > Alarm Settings

Setting	Description	Range	Default Value
Primary Probe High Temperature (setpoint)	High temperature at which alarm condition occurs	**1.0°C to 20.0°C**	5.5 °C
Primary Probe High Temperature (time delay)	Time after high temperature alarm condition occurs until alarm sounds	**0 to 99**	0 minutes
Primary Probe Low Temperature (setpoint)	Low temperature at which alarm condition occurs	**-7.0° C to +12.0°C**	2.0 °C
Primary Probe Low Temperature (time delay)	Time after low temperature alarm condition occurs until alarm sounds	**0 to 99**	0 minutes
Air Probe High Temperature (setpoint)	High temperature at which alarm condition occurs	**-5.0°C to +30.0°C**	11.0 °C
Air Probe High Temperature (time delay)	Time after high temperature alarm condition occurs until alarm sounds	**0 to 99**	3 minutes
Air Probe Low Temperature (setpoint)	Low temperature at which alarm condition occurs	**-20.0°C to +20.0°C**	-5.0 °C
Air Probe Low Temperature (time delay)	Time after low temperature alarm condition occurs until alarm sounds	**0 to 99**	3 minutes
Compressor Temperature (setpoint)	High temperature at which alarm condition occurs	**0.0°C to 75.0°C**	50 °C
Compressor Temperature (time delay)	Time after high temperature alarm condition occurs until alarm sounds	**0 to 99**	5 minutes
Power Failure	Time after power failure occurs until alarm sounds	**0 to 99**	1 minute
Probe Failure	Time after probe failure occurs until alarm sounds	**0 to 99**	0 minutes
Door Open (Time)	Time door remains open until alarm sounds	**0 to 99**	1 minute

Event Log Codes

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

Event Code	Description
1	Compressor Probe Failure
2	Air Probe Failure
3	Evaporator Defrost Probe Failure
4	Communication Failure 1
5	Communication Failure 2
6	Communication Failure 3
7	Control Probe Failure
8	Primary Probe Failure
9	Primary Probe High Temperature
10	Primary Probe Low Temperature
11	Door Open

Event Code	Description
12	Power Failure
13	Date / Time Change
14	High Alarm Test
15	Low Alarm Test
17	Compressor Temperature
18	No Battery
18	Low Battery
20	Power-Up
21	Air Probe High Temperature
22	Air Probe Low Temperature

Appendix C

Network Communications Reference Guide

BloodTrack® Interfaces

The i.C^3 user interface is in 1 of 3 states at all times. Please refer to the table below for BloodTrack® access levels for each i.C^3 state.

i.C^3 Communication State	i.C^3 Screens	BloodTrack® to i.C^3 Network Access Level
Receiving commands/Receiving status requests	Home screen Haemonetics screensaver Temperature graph screensaver APPS screen Access Control screen Download screen	Tier 1; Tier 2; Tier 3
Receiving status requests only	All other operating screens	Tier 3
Will not receive commands or status requests	Initial startup Firmware updates	No access

Tier 1 - i.C^3 accepts requests to activate Ethernet communication which can impose date and time changes on the i.C3, as the BloodTrack® system keeps the master date and time.

Tier 2 - i.C3 accepts requests to change parameters. These include:

- Product temperature setpoint
- Product high alarm setpoint
- Product low alarm setpoint
- Air high alarm setpoint
- Air low alarm setpoint

Tier 3 - i.C^3 accepts requests for status information only (Example: current refrigerator temperature). No changes can be made.

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