Compartmental Access Refrigerator iBX020-GX
Instructions for Use

360437/B

Document History

Revision	Date	CO	Supersession	Revision Description
A	20 DEC 2023	26861	n/a	Initial release.
B	20 FEB 2025	28681	B supersedes A	Updated registered trademark symbol on Haemobank.

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

Document Updates

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Disclaimer

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

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

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

Helmer Scientific
14400 Bergen Boulevard
Noblesville, IN 46060 USA
www.helmerinc.com

Part No. 360437/B

Contents

1 About this Manual

1.1 Intended Audience

This manual is intended for use by end users of the iBX020-GX Compartmental Access Refrigerator. For information on how to use the BloodTrack Courier® software which runs on the BloodTrack® Kiosk and provides blood product management to the HaemoBank®, please refer to the BloodTrack Courier® User Guide.

1.2 Model References

The Compartmental Access Refrigerator becomes a HaemoBank® after the refrigerator is attached to a kiosk running the BloodTrack Courier® software. References are used throughout this manual to denote the individual components of the HaemoBank®.
The iBX020-GX component is referenced as Compartmental Access Refrigerator.

1.3 Intended Use

Note

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

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

1.4 Safety Symbols and Precautions

The operator or user 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.

Symbols found in this document

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

Task Indicates procedures which need to be followed.

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

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

Symbols found on the units.

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


Caution: Risk of damage to equipment or danger to operator


Danger: Risk of Fire or Explosion. Flammable refrigerant used


Caution: Hot surface


Warning: Crushing of hands / fingers


Caution: Shock/electrical hazard


Refer to documentation

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

1.5 Avoiding Injury

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

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

- Before moving unit, ensure door is closed and casters are unlocked and free of debris.
- Before moving unit, disconnect the AC power cord and secure the cord.
- Never physically restrict any moving component.
- Avoid removing electrical service panels and access panels unless so instructed.
- Keep hands away from pinch points when closing the door.
- Avoid sharp edges when working inside the electrical compartment and refrigeration compartment.
- Avoid staring into the tray illumination LEDs for extended periods of time as eye injury may occur.
- Ensure biological materials are stored at recommended temperatures determined by standards, literature, or good laboratory practices.
- Proceed with caution when adding and removing samples from the refrigerator.
- Use only manufacturer supplied power cord.
- Avoid risk of ignition by using only manufacturer supplied components and authorized personnel when servicing the unit.
- Using the equipment in a manner not specified by Helmer Scientific may impair the protection provided by the equipment.
- Ensure biological materials are stored safely, in accordance with all applicable organizational, regulatory, and legal requirements.
- The refrigerator is not considered to be a storage cabinet for flammable or hazardous materials.
- Use caution when moving a stacked configuration.
- **REQUIRED:** Decontaminate parts prior to sending for service or repair. Contact Haemonetics® Corporation BloodTrack® Customer Support (877.996.7877) or your distributor for decontamination instructions and a Return Authorization Number.

1.6 General Recommendations

General Use

Allow refrigerator to come to room temperature before powering on.

During initial pull-down, high temperature alarm may activate while refrigerator reaches operating temperature.

Initial Loading

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

2 Installation

2.1 Location

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

NOTICE

- The Compartmental Access Refrigerator must not be placed in ATEX[1] classified zones as per Directive 99/92/EC (‘ATEX 137’) and Directive 94/9/EC (‘ATEX 95’)
- The Compartmental Access Refrigerator should not be placed in Group 2 medical rooms (ref CEI 64-8 Standard, part 7).
- The Compartmental Access Refrigerator is classified as IP20 and is not fit for operation outdoors or in environments that are not protected against atmospheric agents.

- Has a grounded outlet meeting the electrical requirements stated on the product specification label.
- Meets the limits specified for ambient temperature and relative humidity as stated in the Product Specifications section of this manual.
- Is clear of direct sunlight, high temperature sources, heating vents, and air conditioning vents.
- For counter top installation, must have a minimum 30” (763 mm) depth and ability to safely support a minimum 550 pounds (249 kg). Must use Wall Mount Kit.
- For undercounter installation, must have a clearance of (w x h) 30.25” x 34.25” (768 x 870 mm).

2.2 Placement and Leveling

NOTICE

- Operating this unit on a GFI/GFCI outlet is not recommended.
- To prevent tipping, ensure the casters are unlocked and the door is closed before moving the refrigerator.
- Use of leveling feet or casters is required.
- Do not sit, lean, push or place heavy objects on top surface.
- Do not lean on or push down on an open door.

1. Remove the refrigerator from the shipping carton.
2. Remove and discard the interior packing material.
3. Remove the door bracket. (Refer to instruction attached to the unit)
4. Remove the accessory package from above the refrigerator.
5. Remove all materials from the accessory package and file them in a secure location.
6. Ensure doors are secured and casters are unlocked.
7. Position refrigerator into place and lock casters.
8. Ensure refrigerator is level.
9. Ensure trays are locked in place within the compartments.

2.3 Stacked Units

NOTICE

- For stacked configuration, both units must have leveling feet installed.
- Back brace bars and front stabilizing brackets must be installed.
- When stacking units, place the heavier unit on the bottom.

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

2.4 Install AC Power Cord

Notes

- This unit has a “universal voltage” capability accommodating a range of 100V - 240V (AC) at 50/60Hz.
- Use only manufacturer supplied power cord.

Insert auto-locking plug into refrigerator power receptacle prior to connecting to grounded outlet.

2.5 Temperature Probes

NOTICE

- Temperature probes are fragile; handle with care.
- Grill must be removed to gain access to the probe and probe bottle.
- For accurate product temperature reading, the primary probe must be immersed at least 2” in a product simulation solution of water and glycerin.

One probe bottle along with a container of glycerin have been provided with this unit. The glycerin is used to create a solution which simulates the product stored in the refrigerator. The product simulation solution temperature reflects the product’s temperature during normal operation.

Fill Temperature Probe Bottle

Note

For each probe bottle, use approximately 4 oz. (120 mL) of product simulation solution (10:1 ratio of water to glycerin). Packet included in refrigerator box.

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

Primary probe, probe bottle, and bottle holder.

3 i.C³ Operation

3.1 Initial Power-Up

Notes

- The i.C³ monitoring and control system will take approximately 2-5 minutes to boot.
- The backup battery system provides electrical power to the i.C³ monitoring system, Access Control door lock and compartmental access communication boards. It may also be referred to as the i.C³ monitoring / Access Control backup battery.
- When the refrigerator is first powered on, the Calibration screen will be displayed. The Calibration screen is not displayed on subsequent power-on events.

Power-up the refrigerator:

1. Press and release the access panel door in the lower front-right corner of the unit to open and reveal the AC power and backup battery ON/OFF switches.
2. Switch the AC power switch and i.C³ monitoring/Access Control backup battery switch to **ON** *(Figure 1)*.
3. The i.C³ will take approximately three (3) minutes to boot up. The Start screen *(Figure 2)* is displayed when the i.C³ is powered on followed by the Language screen.
4. Temporarily mute the alarm by touching the **Mute** icon.

Figure 1

Figure 2

5. On the Language screen *(Figure 3)*, touch the **Language** button to select the preferred language from the drop-down menu. If English is the preferred language, touch the **Home** button to display the Home screen *(Figure 4)*.

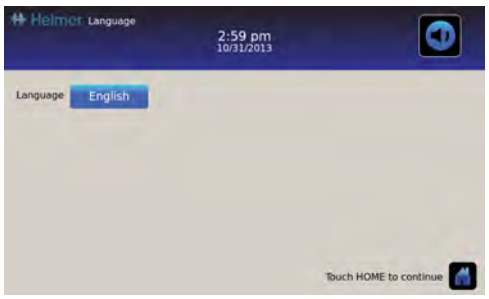


Figure 3

Figure 4

Note

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

3.2 Operation

Note

- Please refer to the i.C³® User Guide for Compartmental Access Refrigerators for information regarding network communications for BloodTrack®.
- Refer to i.C³® User Guide for Compartmental Access Refrigerators for complete information on the User Interface.
- The i.C³ Home screen *(Figure 1)* displays temperature and alarm information, and provides icons for reaching other functions of the i.C³.
- After two minutes of inactivity, the screensaver *(Figure 2)* will be displayed. To return to the Home screen, touch the screensaver.

Figure 1

Figure 2

Active Alarms

Figure 3: Home screen with no alarms.

Figure 4: Home screen with active alarm.

Alarm	Description
Communication Failure 1	Communication lost between i.C³ display board and control board
Communication Failure 2	Configuration file is corrupt or i.C³ is unable to access the configuration file
Communication Failure 3	Corrupt database
Compressor High Temperature	Compressor temperature reading is above high temperature alarm setpoint
Door Open	Door is open beyond user-specified duration
Low Battery	Back-up battery voltage is low
No Battery	Back-up battery voltage is deficient
Power Failure	Power to the unit has been disrupted
Primary Monitor Probe Failure	Probe not functioning properly
Primary Probe High Temperature	Primary monitor probe reading is above high temperature alarm setpoint
Primary Probe Low Temperature	Primary monitor probe reading is below low temperature alarm setpoint

3.3 Mute Active Alarms

Audible alarms may be muted by touching the **Mute** button to set delay.


3.4 Change Temperature Setpoint

 >  > Enter the Settings password. Touch plus (**+**) or minus (**–**) on spin box to change value.

Notes

- Default Settings password is 1234.
- Default setpoint is 4.0 °C.

3.5 Set Alarm Parameters

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

Control the conditions and timing of alarm condition indicators displayed on the i.C³ Home screen.

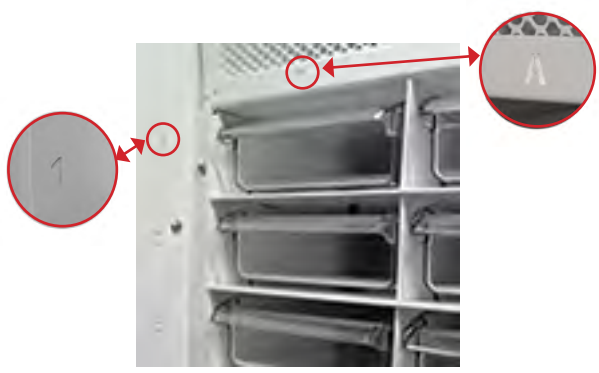
i.C³® Icon Reference Guide

Icon	Description	Icon	Description	Icon	Description
	Home		Alarm Test		Access Control
	Event Log		Alarm Conditions		Display Brightness
	Mute		Uploads		Icon Transfer
	Temperature Graph		Downloads		Back Arrow
	i.C³ Applications		Information Logs		Scroll
	Settings		Contact Information		Battery Power

4 Operation of Compartment Assembly Components

4.1 Compartment Locations

Compartment locations are labeled on the matrix (A-D) from left to right across the top and (1-5) from top to bottom.



4.2 Tray Operation

- Trays remain locked at all times unless unlocked by the BloodTrack® system.
- Trays will be illuminated and unlocked when specified via the BloodTrack® kiosk.
- Under normal operation, trays will lock upon full insertion.
- A rubber bumper will impede the tray from full extension and removal.
- Trays have been designed to contain leaks.

Note

Refer to the Service & Maintenance Manual for instructions on tray removal for cleaning or replacement.

4.3 Refrigerator Light

The refrigerator light is controlled by the BloodTrack® kiosk and cannot be turned on or off via the i.C³ User Interface.

5 Operation During a Power Failure

The Compartmental Access Refrigerator is equipped with an extended monitoring operation backup battery system. This system provides electrical power to the i.C³ temperature monitoring system, alarm system, Access Control magnetic door lock, and compartmental access communication boards. Individual trays cannot be unlocked while the refrigerator is running on backup battery system power, unless the procedures in **Section 5.2** are performed.

NOTICE

- In the event of a power failure, the backup battery system does not provide refrigeration of the chamber or stored product.
- In order to maintain product integrity, follow facility standard operating procedures for instructions on accessing blood products during a power failure, or for instructions on moving blood products to a refrigerator operating on an emergency power source.
- If an emergency power source is not available, the temperature of stored blood products must be checked (according to facility standard operating procedures) to ensure stored blood products have not warmed to an unacceptable temperature during a power failure.
- It is strongly recommended that the Compartmental Access Refrigerator be connected to the emergency power system.

If a main electrical power failure is anticipated to last no longer than 24 hours, the backup battery system will provide temperature monitoring and alarm functions, and will allow secure access to the refrigerator for five (5) minutes. However, it will not allow access to the individual trays or provide power to the refrigeration system.

If a power failure is anticipated to last beyond 20 minutes, and the facility has an emergency power source, refer to **Section 5.1** for instructions on operating the refrigerator after the emergency power source has come online.

NOTICE

During a power failure:

- The backup battery system does not provide continued refrigeration of the chamber. The chamber temperature may rise above the established limits necessary to maintain integrity of stored product.
- The backup battery system will provide power to the Access Control lock for five (5) minutes, and the alarm system, and communication boards for approximately 24 hours (the Low Battery alarm will sound when backup battery power for the refrigerator is nearly depleted).
- The backup battery system provides power to the i.C³ monitoring system, refrigerator communication components, and Access Control magnetic lock until battery power is depleted.

During an extended power failure:

- Move the refrigerator main electrical power supply to the facility's emergency power system (refer to **Section 5.1**).

Notes

- The backup battery system will provide backup power for approximately 24 hours only if the backup battery has been allowed to charge for at least 72 hours since the last interruption.
- During a power failure, the backup battery provides power to the monitoring system and the power failure alarm. If the backup battery is not functioning, the power failure alarm will not be activated.
- If the backup battery does not provide power to the monitoring system during the power failure alarm test, replace the battery.

5.1 Operating the Refrigerator on an Emergency Power System

Once the emergency power system is online, the Compartmental Access Refrigerator will resume normal operation.

NOTICE

- If AC power has failed and the emergency AC power system is started, the refrigerator will restart using emergency AC power.
- Do not switch the i.C³ monitoring / Access Control backup battery off if operating on the emergency AC power system.
- When AC power is restored and the emergency power system is shut down, the refrigerator will restart using primary AC power.

5.2 Access the Refrigerator and Trays During a Power Failure

The Compartmental Access Refrigerator may be accessed in two ways during an AC power failure. While the refrigerator is operating on backup battery power, the door may be unlocked using the i.C³ monitoring / Access Control system. After 5 minutes on battery backup, the system will automatically disengage the integrated magnetic lock allowing access to the refrigerator. The individual trays remain locked.

NOTICE

If blood products are manually removed from the refrigerator during a power failure, it is the responsibility of the user to follow the facility's standard operating procedures for safe transfusion practices. For further guidance, consult your facility's policies and procedures for ensuring blood availability in an emergency.

Note

If the i.C³ monitoring system/Access Control backup battery system ON/OFF switch is switched OFF, the contents of the refrigerator will no longer be monitored.

1. Open exterior door.
2. Using the compartment assembly key, unlock the Bypass Release handle *(Figure 1: shown in unlocked position)*.

Figure 1

Figure 2

3. Rotate the Bypass Release handle counterclockwise to a vertical position to release the locking mechanism for all trays.
4. Pull out only the tray(s) containing the blood bag(s) *(Figure 2)* to be removed.
5. Remove the blood bag(s) from the tray.
6. Slide the tray into the compartment location until it stops.
7. Rotate the Bypass Release handle clockwise to a horizontal position to secure the locking mechanism.
8. Using the compartment assembly key, relock the Bypass Release handle.
9. Close the refrigerator door.
10. Switch the i.C³ monitoring / Access Control backup battery ON/OFF switch **OFF** and the AC power ON/OFF switch **ON**. (This will ensure the refrigeration system will restart once AC power is restored.)
11. Once AC power has been restored, switch the i.C³ monitoring/Access Control backup battery ON/OFF switch **ON**.

6 Product Specifications

6.1 Operating Standards

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

- Indoor use only
- Altitude (maximum): 2000m
- Ambient temperature range: 15 °C to 32 °C (59 °F to 90 °F)
- Relative humidity (maximum for ambient temperature): 80% for temperatures up to 31 °C, decreasing linearly to 50% at 40°C
- Temperature control range: 2°C to 10°C (36°F to 50°F)
- Overvoltage category: II
- Pollution degree: 2
- RF Emissions: Group 1 - Class A
- EMC Environment: Basic
- Sound level is less than or equal to 70 dB(A)

Electrical Specifications

	iBX020-GX
Input Voltage and Frequency	100-240V (50/60 Hz)
Voltage Tolerance	±10%
Circuit Breakers	7A (quantity 2)
Current Draw	2.3 A (100-240V, 50/60 Hz)
Nominal Power	0.55 kW
Power Source	Grounded outlet, meeting national electric code (NEC) in the U.S. and local electrical requirements in all locations
Remote Alarm Capacity	0.5 A at 30V (RMS); 1.0 A at 60V (DC)

Refrigerator Specifications

	iBX020-GX
Voltage Code	100-240V (50/60 Hz)
Amps	2.3A
Cabinet	Undercounter
Door	Single hinged glass
Exterior Dimensions W x H x D in (mm) (includes handle and hinges)	29.49” x 34.37” x 31.53” (750 x 874 x 801)
Interior Dimensions W x H x D in (mm)	24.88” x 18.27” x 25.96” (632 x 464 x 659)
Weight	334 lbs (151 kg)
Refrigerant	R290
Initial Charge	3.4 oz. (98 g +/- 1 g)
Default Set Point	4 °C (39 °F)
Temperature Control Range	2 °C to 10 °C (36 °F to 50 °F)
Insulation	Sustainable, US EPA and SNAP approved foam
Wall Thickness	2” (51 mm)
Door Thickness	1.25” (32 mm)
External Material	Galvannealed steel with bacteria-resistant powder-coated finish
Internal Material	Galvannealed steel with bacteria-resistant powder-coated finish
Trays	20 trays
Tray Capacity	1 blood bag per tray
External Rear Port	1 standard
Interface	i.C³ combined monitoring and control interface, 7” color LCD touchscreen
Alarms	High, low, air and compressor temperature; door open; AC power failure; low battery; no battery; communication failure
Remote Alarm Interface	Dry contacts (standard)
Backup Battery	12V, 26 Ah rechargeable sealed lead acid battery

NOTICE

- The interface on the remote alarm monitoring system is intended for connection to the end user’s central alarm system(s) that uses normally-open or normally-closed dry contacts.
- If an external power supply exceeding 30V (RMS) or 60V (DC) is connected to the remote alarm monitoring system’s circuit, the remote alarm will not function properly; may be damaged; or may result in injury to the user.

Notes

- In the event of a power failure, the power failure alarm condition is transmitted through the remote alarm contacts.
- It is strongly recommended the Compartmental Access Refrigerator be connected to the emergency power system.

7 Compliance

7.1 Safety Compliance

CE 2797

This device complies with the requirements of directive 93/42/EEC concerning Medical Devices, .

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

This product is IECEE CB Scheme certified and complies with national differences for safety certification IEC 61010-1:2010, IEC 61010-1:2010/AMD1 2016 and IEC61010-2-011.

7.2 Environmental Compliance

This device complies with the 2011/65/EU Directive, as amended by Directive 2015/863, for the Restriction of Hazardous Substances (RoHS).

This device falls under the scope of Directive 2012/19/EU Waste Electrical and Electronic Equipment (WEEE) .

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

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

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

7.3 EMC Compliance

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

- EN IEC 61000-3-2:2019+A1:2021
- EN 61000-3-3:2013+A2:2021

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

7.4 Manufacturer of Record

Helmer Scientific is the manufacturer as defined in 93/42/MDD of the iBX020-GX and for which the CE mark applies.

Haemonetics Corporation is the manufacturer as defined in 93/42/MDD of the BloodTrack Courier® software and maintains sole responsibility for placing the HaemoBank® in its final configuration on the market.

Helmer Scientific
14400 Bergen Boulevard, Noblesville, IN 46060 USA