

Platelet Incubator Operation Manual

i.Series® and Horizon Series™

Countertop

i.Series

PC100i, PC900i, PC1200i
PC100h, PC900h, PC1200h

Floor

i.Series

PC2200i, PC3200i, PC4200i
PC2200h, PC3200h, PC4200h



Document History

Revision	Date	CO	Supersession	Revision Description
L	28 JUN 2013	8414	Supersedes A, B, C, D, E, F, G, H, I, J, K	Revised layout for ease of navigation and locating information.
M	23 DEC 2013	8965	M supersedes L	Added 100 V information. Added caution note for remote alarm interface. Revised section I for consistency with existing manuals.
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Document Updates

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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.

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1 About this Manual

This manual covers all platelet incubators, which may be identified singly, by their size, or by their respective “Series” and provides information on how to use the device. It is intended for use by end users of the platelet incubator and authorized service technicians.

Generic references are used throughout this manual to group models that contain similar features. For example, “PC100 models” refers to all models of that size (PC100i, PC100h).

1.1 Safety Precautions and Symbols

Symbols found in this document

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



Task Indicates procedures which need to be followed.



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



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



CAUTION Advises the user against initiating an action or creating a situation which could result in damage to equipment or impair the quality of the products or cause minor injury.



WARNING Advises the user against initiating an action or creating a situation which could result in damage to equipment and serious personal injury to a patient or the user.



Authorized representative in the European Community

Symbols found on the units

The following symbols may be found on the incubator or incu packaging:



CE Mark (European units only)



Caution: Unlock all casters



Caution: Risk of damage to equipment or danger to operator



Earth / ground terminal



Caution: Hot surface



Protective earth / ground terminal



Caution: Shock / electrical hazard



Product falls under the scope of the WEEE (Waste Electrical and Electronic Equipment) directive.

Avoiding Injury

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

- ◆ Before moving unit, remove contents from the drawers (if applicable).
- ◆ Do not open multiple drawers at the same time (if applicable).
- ◆ Before moving unit, ensure door(s) are closed and casters (if applicable) are unlocked and free of debris.
- ◆ Before moving unit, disconnect the AC power cord and secure the cord.
- ◆ When moving unit, use assistance from a second person.
- ◆ 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 or when agitation motion is enabled (if applicable).
- ◆ Avoid sharp edges when working inside the electrical compartment.
- ◆ Ensure biological materials are stored at recommended temperatures determined by standards, literature, or good laboratory practices.
- ◆ Proceed with caution when adding and removing samples from the platelet incubator.
- ◆ Use supplied power cord only.
- ◆ 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 platelet incubator is not considered to be a storage cabinet for flammable or hazardous materials.

 **NOTICE**

Decontaminate parts prior to sending for service or repair. Contact Helmer Scientific or your distributor for decontamination instructions and a Return Authorization Number.

1.2 General Recommendations

Intended Use

Helmer platelet incubators are intended to provide the controlled temperature environment required for the storage of platelet products.

The devices are intended to be operated by personnel who have procedures in place for meeting FDA, AABB, EU or any other applicable regulations for the processing and storage of platelet products.

General Use

Allow platelet incubator to come to room temperature before switching power on.

During initial startup, motion alarm may sound if the motion is disabled, and low temperature alarm may sound while platelet incubator reaches operating temperature.

Initial Loading

After platelet incubator reaches room temperature, allow chamber temperature to stabilize at the setpoint before storing product.

Load the PC4200 Built-In Agitator

 **Note**

For instructions on loading all other platelet agitator models, refer to the platelet agitator operation manual.

 **CAUTION**

When opening drawer, grasp handle (not label holder). Open one drawer at a time.

Model	Capacity	
	Random Bags	Apheresis Bags
PC4200	396	132

Lay the platelet bags flat. Avoid stacking bags. Maintain enough space around each bag for air circulation. For thicker bags, remove drawers. Place the tubing under or around the bag.

2 Installation

2.1 Location Requirements

- ◆ Has a sturdy, level surface.
- ◆ Has a grounded outlet meeting national electric code (NEC) and local electrical requirements.
- ◆ Is clear of direct sunlight, high temperature sources, and heating and air conditioning vents.
- ◆ Countertop models: Minimum 4" (102 mm) above and behind.
- ◆ Floor models: Minimum 4" (102 mm) on left and right sides.
- ◆ Meets limits specified for ambient temperature and relative humidity.

2.2 Placement and Leveling

NOTICE

To prevent tipping, ensure the casters are unlocked (floor models).

1. Ensure all casters are unlocked (floor models).
2. Place platelet incubator on study surface or roll platelet incubator into place and lock casters (floor models).
3. Ensure platelet incubator is level.

2.3 Chart Recorder

Note

For complete information, refer to the Temperature Chart Recorder Operation and Service Manual.

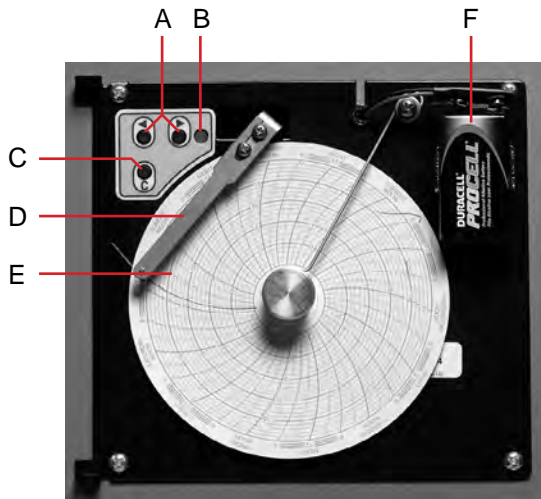


Chart recorder with paper and battery installed.

Table 1. Chart Recorder

Label	Description	Function
A	Left and Right Arrow buttons	Adjust settings and stylus position
B	LED	Indicates status of chart recorder in operating mode, or selected temperature range in paper change mode
C	Chart change button	Adjust position of stylus when changing chart paper, or run a test pattern
D	Stylus	Mark temperature line on paper
E	Reset button	Restart chart recorder
F	Backup battery	Provides power during AC power failure. Connect prior to use.

 **Install / Replace Chart Paper** **Note**

For accurate temperature reading, ensure the current time is aligned with the time line groove when the chart knob is fully tightened.



Chart recorder stylus and time line groove

1. Press and hold C button. When stylus begins to move left, release button. The LED flashes.
2. When stylus stops moving, remove chart knob then move knob up and away.
3. Place chart paper on chart recorder.
4. Gently lift stylus and rotate paper so current time line corresponds to time line groove.
5. Hold chart paper in place while making sure the chart knob is fully tightened. *(Failure to fully tighten the knob can result in paper slipping and losing time.)*
6. Press and hold C button. When stylus begins to move right, release button.
7. Confirm stylus is marking on paper and stops at the correct temperature.
8. Calibrate chart recorder to match primary temperature if needed and close recorder door.

3 i.Series® Operation

3.1 Initial Start Up

1. Plug the power cord into a grounded outlet that meets the electrical requirements on the product specification label.
2. Switch the AC ON/OFF switch **ON**.
3. Connect the backup batteries for the monitoring system and alarms.
4. Connect the backup battery for the temperature chart recorder.
5. Install the alarm check tube (PC100i). Position the tube below the probe tip.
6. Once powered on, System Options is displayed.
7. Select the display language by pressing the **INC** or **DEC** buttons, then press the **HOME** button.
8. Press the **MUTE** button if the Low Temperature alarm sounds.

Notes

- When the door switch is bypassed, the incubator and door open alarm continue to operate as if the door is closed.
- The door switch controls power to the built-in agitator on PC4200i platelet incubator, and controls power to the internal outlets on all other models.
- The door switch may be bypassed by opening the door and pulling the switch cylinder.

3.2 Configure a Platelet Agitator for Use in an i.Series Incubator (Optional)

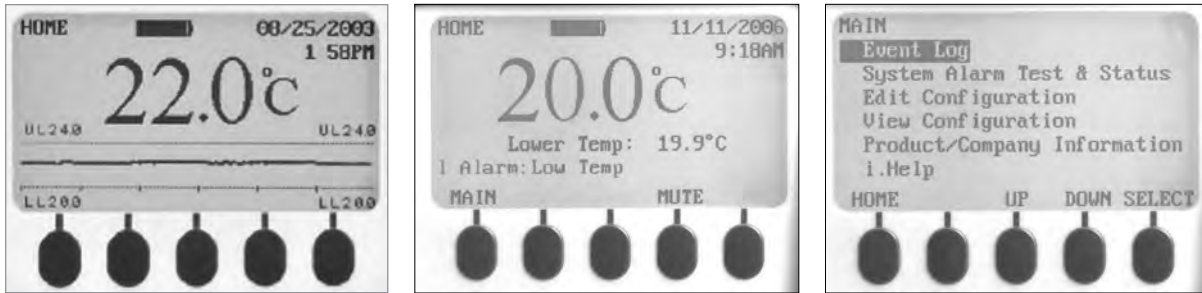
Helmer i.Series platelet agitators may be installed in a stand-alone configuration, or in Helmer i.Series platelet incubators. Motion data is transmitted from the platelet agitator, through the data cable, to the platelet incubator. The platelet incubator interprets the motion data and generates its own motion alarm, based on its own alarm delay period. If the motion alarm is not disabled on the platelet agitator, the motion alarms on both devices will sound.

Notes

- Disable the platelet agitator motion alarm when installing the platelet agitator in a Helmer i.Series platelet incubator.
- Refer to the platelet agitator service manual for information regarding the installation of a platelet agitator in a platelet incubator.

3.3 Main Screen Functions

All screens on the monitoring system are accessible from the Main screen. Press the **UP** or **DOWN** buttons to highlight a menu option, then press the **SELECT** button to display the selected option.



Left: Temperature graph screen (displayed by default). Center: Home screen. Right: Main screen.

Option	Function
Event Log	View historical information: alarms and operational events
System alarm test and status	<ul style="list-style-type: none"> • Start or stop automatic alarm test • View number of days left before TCR paper change • View door status (open or closed) • View condenser temperature
Edit configuration settings	<ul style="list-style-type: none"> • Access the Configuration screen (with password) and edit: • Text language • Date and time and/or format • Temperature units • Volume and pattern of audible alarms • Enable or disable chart paper timer • Enable or disable temperature graph display • Change alarm-related setpoints and timers • Calibrate temperature probe monitor reading • Change some settings to factory default values • Change password • Configure AgiTrak system to monitor agitation
View configuration	<ul style="list-style-type: none"> • Date and time formats • Alarm-related setpoints and timers • Volume and pattern for audible alarms • Setting for the chart paper timer • Setting for the temperature graph display • Settings for agitator alarms
Product/company information	<ul style="list-style-type: none"> • Software versions for the control and display components of the monitoring system • Helmer contact information
i.Help	<ul style="list-style-type: none"> • View real-time agitation speed and cycle counts • View historical agitation event logs and details • Reset agitator cycle counters

Note

Refer to the platelet incubator service manual for a complete list of i.Center® monitoring system functions, settings, and screens.

3.4 Users and Passwords

The default password is **1234**. Passwords must be four digits, ranging from 1 to 5.

Change System Password

1. On the Home screen, press the **MAIN** button.
2. Press the **DOWN** button to select Edit Configuration. Press the **SELECT** button.
3. Enter the password when prompted.
4. Press the **DOWN** button to select Change Password. Press the **SELECT** button.
5. Enter the new password, then re-enter the new password when prompted. If password entries match, the “update” message is displayed. If password entries do not match, the “incorrect match” message is displayed. Repeat the procedure to change the password.

3.5 Chamber Setpoint



Temperature monitor/controller display and buttons.

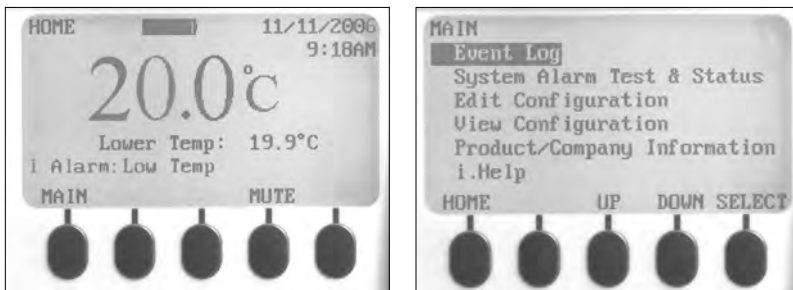
Notes

- Default setpoint is 22.0 °C
- Displayed chamber temperature may be different than setpoint.
- Refer to the service manual for program parameters and default parameter values.

Change Chamber Setpoint

1. On the temperature controller, press and hold *. The temperature controller displays the current setpoint.
2. While holding * press **Up Arrow** or **Down Arrow** to change the temperature setpoint. Setpoint changes in 0.1 °C increments.
3. Release all buttons; the temperature setpoint is changed.

3.6 Temperature Monitor Setpoints



Left: Home screen. Right: Main screen.

Information displayed on the Home screen:

- ◆ Current readings from temperature probe(s)
- ◆ Remaining battery charge
- ◆ Current date and time
- ◆ Active alarm status

Features accessible from the Homescreen:

- ◆ Access the Main screen to view and change settings
- ◆ View active alarms
- ◆ Mute audible alarms
- ◆ View a graph of the chamber temperature (past 24 hours of operation)
- ◆ Adjust the screen contrast (center button)

Features accessible from the Main screen:

- ◆ View Event Log data
- ◆ Start or stop system alarm tests and view incubator status
- ◆ View and edit configuration settings
- ◆ View product and company information
- ◆ Access the i.Help system

3.7 Temperature Alarm Setpoints**Change Alarm Setpoints**

1. Press the **MAIN** button.
2. Press the **DOWN** button to highlight Edit Configuration. Press the **SELECT** button.
3. Enter the password when prompted.
4. Press the **DOWN** button to highlight Alarm Setpoints. Press the **SELECT** button.
5. Press the **DOWN** button to highlight the desired temperature alarm setting.
6. Press the **INC** or **DEC** buttons to set the temperature alarm setpoint.
7. Press the **BACK** button to return to the Edit Configuration screen, or press the **HOME** button to exit. The new settings are saved.

3.8 Active Alarms

The Home screen identifies active alarms. If multiple alarms are active, the display will indicate the number of alarms and will cycle through multiple alarms.



Home screen with one active alarm (Low Temp), highlighted.

By default, audible alarms are set to ON. Alarms that are activated while existing alarms are muted are audible. The mute timer may be reset with each new active alarm. Muting an alarm does not clear the visual alarm. If an alarm is still active when the mute timer expires, the active alarm is sent through the remote alarm interface.

Note

Muting an alarm clears the signal sent through the remote alarm interface.

Mute an active alarm

1. On the Home screen, press the **MUTE** button once to mute the alarm for five minutes.
2. Press the **MUTE** button multiple times to extend the mute timer (up to 60 minutes).

4 Horizon Series™ Operation

4.1 Initial Start Up

1. Plug the power cord into a grounded outlet that meets the electrical requirements on the product specification label.
2. Switch the AC ON/OFF switch **ON**.
3. Connect the backup battery for the Power Failure alarm.
4. Connect the backup battery for the Motion alarm (PC4200h only).
5. Connect the backup battery for the temperature chart recorder.
6. Install the alarm check tube (PC100h). Position the tube below the probe tip.
7. Press the **MUTE** button if the Low Temperature alarm sounds.

Notes

- When the door switch is bypassed, the incubator will continue to operate as if the door is closed.
- The door switch controls power to the built-in agitator on PC4200h, and controls power to the internal outlets on all other models.
- The door switch may be bypassed by opening the door and pulling the switch cylinder.

4.2 Configure a Platelet Agitator for Use in a Horizon Series Incubator (Optional)

Helmer Horizon Series platelet agitators may be installed in a stand-alone configuration, or in Helmer Horizon Series platelet incubators. Refer to the platelet agitator service manual for information regarding the installation of a platelet agitator in a platelet incubator.

4.3 Chamber Setpoint



Temperature monitor/controller display and buttons.

Notes

- Default setpoint is 22.0 °C
 - Displayed chamber temperature may be different than setpoint.
 - Refer to the service manual for program parameters and default parameter values.
1. On the temperature controller, press and hold *****. The temperature controller displays the current setpoint.
 2. While holding ***** press **Up Arrow** or **Down Arrow** to change the temperature setpoint. Setpoint changes in 0.1 °C increments.
 3. Release all buttons; the temperature setpoint is changed.

4.4 Temperature Monitor Setpoints



Temperature monitor/controller display and buttons.

Features accessible on the monitoring and control system:

- ◆ View current chamber temperature and active alarms
- ◆ View and change monitor temperature offset
- ◆ View and change temperature alarm setpoints
- ◆ View and change alarm delay settings

4.5 Alarm Setpoints

Notes

- Default High Alarm setpoint is 24.0 °C.
- Alarm activates if the chamber temperature is greater than the alarm setpoint
- Refer to the service manual for program parameters and default parameter values.

Change High Alarm setpoint:

1. On the temperature monitor/controller, press and hold **Up Arrow** and **Down Arrow**. “tunE” and “oFF” will flash on the display. The temperature monitor/controller is now in **Level 1** program mode.
2. Press **Up Arrow** or **Down Arrow** as necessary to select the “AL.HI” parameter.
3. Hold ***** and press **Up Arrow** or **Down Arrow** to change the parameter.
4. Release all buttons; the parameter value is changed.
5. Exit program mode by holding **Up Arrow** and **Down Arrow** until current chamber temperature setpoint is displayed.

Notes

- Default Low Alarm setpoint is 20.0 °C.
- Alarm activates if the chamber temperature is less than the alarm setpoint
- Refer to the service manual for program parameters and default parameter values.

Change Low Alarm setpoint

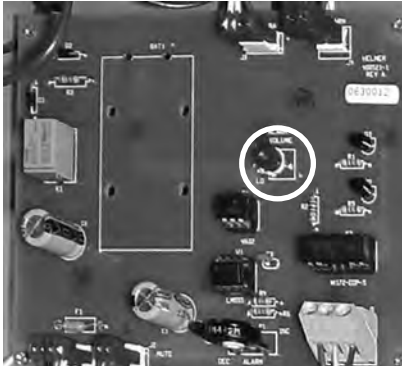
1. On the temperature monitor/controller, press and hold **Up Arrow** and **Down Arrow**. “tunE” and “oFF” will flash on the display. The temperature monitor/controller is now in **Level 1** program mode.
2. Press **Up Arrow** or **Down Arrow** as necessary to select the “AL.LO” parameter.
3. Hold ***** and press **Up Arrow** or **Down Arrow** to change the parameter.
4. Release all buttons; the parameter value is changed.
5. Repeat steps **2** through **4** to view or change additional parameter values.
6. Exit program mode by holding **Up Arrow** and **Down Arrow** until current chamber temperature setpoint is displayed.

4.6 Alarm Volume Settings

Notes

- Before changing the temperature alarm volume, protect items in the platelet incubator from extended exposure to adverse temperature.
- Allow platelet incubator temperature to stabilize at the setpoint after extended power down.

The temperature and power alarm volume control is located on top of the platelet incubator, under the access panel.



Volume control for temperature and power failure alarms (circled).

The default alarm volume setting is set at the halfway point (medium). To change the alarm volume, use a small flat-head screwdriver.

Change alarm volume

1. Switch the AC ON/OFF switch **OFF**. Disconnect the platelet incubator from AC power. The Power Failure alarm will sound.
2. On the top of the platelet incubator, remove the access panel.
3. Increase or decrease alarm volume by turning the volume control to the appropriate position. Rotate the control to the left (counterclockwise) to lower the alarm volume. Rotate the control to the right (clockwise) to raise the alarm volume.
4. Reinstall the access panel on the platelet incubator.
5. Reconnect the platelet incubator to AC power. Switch the AC ON/OFF switch **ON**.

Motion Alarm Volume (PC4200h)

The alarm volume control for the motion alarm is located on the rear of the incubator.



Alarm volume control (circled).

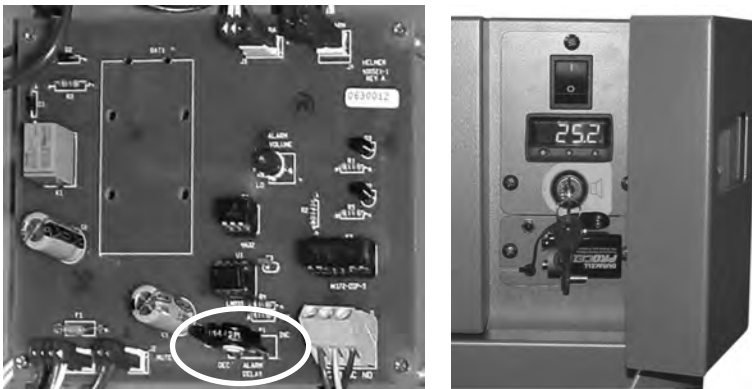
The motion alarm has three settings (low, medium, high). Default setting is medium (switch is in the middle position). Slide the motion alarm switch to the appropriate position for the desired volume level.

4.7 Alarm Delay Settings

Notes

- Before changing the temperature alarm delay, protect items in the platelet incubator from extended exposure to adverse temperature.
- Allow platelet incubator temperature to stabilize at the setpoint after extended power down.

The default temperature alarm delay setting is set at the halfway point (approximately 4 to 5 minutes). To change the alarm delay, use a small flat-head screwdriver.



Left: Alarm delay control for temperature alarms (circled).

Right: Backup battery for the power failure alarm and alarm key switch (PC100h shown).

Notes

- The temperature alarm delay period affects high temperature and low temperature alarms.
- If the alarm delay is set to 0, the Mute button will have no effect on temperature alarms.
- Maximum alarm delay is 8 minutes.

Change temperature alarm delay

1. Switch the AC ON/OFF switch **OFF**. Disconnect the platelet incubator from AC power.
2. On the top of the platelet incubator, remove the access panel.
3. Increase or decrease alarm delay by turning the delay control to the appropriate position. Rotate control to the left (counterclockwise) to decrease the alarm delay setting. Rotate control to the right (clockwise) to increase the alarm delay setting.
4. Reinstall the access panel on the platelet incubator.
5. Reconnect the platelet incubator to AC power. Switch the AC ON/OFF switch **ON**.

Motion Alarm Delay (PC4200h)

The duration of time between when agitation stops and when the alarm sounds is the alarm delay.



Alarm delay control (circled).

The default motion alarm delay is set at the halfway point (approximately 4 to 5 minutes). To change the motion alarm delay, use a small flat-head screwdriver. Rotate the control to the left (counterclockwise) to shorten the motion alarm delay. Rotate the control to the right (clockwise) to extend the motion alarm delay.

Notes

- Do not set the alarm delay to 0 minutes.
- Maximum alarm delay is 8 minutes.

4.8 Mute Audible Alarms

If the chamber temperature reaches the high temperature alarm setpoint or low temperature alarm setpoint, the temperature monitor/controller display alternates between “-AL-” and the temperature value. In addition, the red lamp at lower-right of the display flashes. The duration of the mute timer is equal to the preset alarm delay period.



Temperature monitor/controller in alarm condition (red lamp circled).

Notes

- Refer to chapter 4.8 (Alarm Delay Settings) for information on setting the temperature alarm delay.
- Muting an alarm does not disable visual alarm messages or the alarm signal sent through the remote alarm interface.

Mute and active alarm

1. Open the control door.
2. Press the **MUTE** button. The audible alarm is muted for the preset alarm delay period. If the alarm is still active after the delay period has elapsed, the audible alarm resumes.

4.9 Enable or Disable Audible Alarms with the Alarm Key Switch

Note

Disabling alarms with the alarm key switch does not disable visual alarms or the alarm signal sent through the remote alarm interface.



Alarm key switch (PC4200h).



Alarm key switch (all other Horizon Series models).

Enable audible alarms

- ◆ Turn the Alarm ON/OFF key switch **ON**
- ◆ Turn the Alarm ON/OFF key switch to position **1** (PC4200h)

Disable audible alarms

- ◆ Turn the Alarm ON/OFF key switch **OFF**
- ◆ Turn the Alarm ON/OFF key switch to position **3** (PC4200h)

Disable the audible motion alarm (PC4200h)

- ◆ Turn the Alarm ON/OFF key switch to position **2**

5 Specifications

5.1 Operating Standards

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

- ◆ Indoor use only
- ◆ Altitude (maximum): 2000 m
- ◆ Ambient temperature range: 15 °C to 35 °C
- ◆ Relative humidity (maximum for ambient temperature): 80% for temperatures up to 31 °C, decreasing linearly to 50% at 40 °C
- ◆ Temperature control range: 20 °C to 35 °C
- ◆ Overvoltage category: II
- ◆ Pollution degree: 2
- ◆ Mains supply voltage: ±10% of nominal voltage

Electrical Specifications

	PC100	PC900	PC1200	PC2200	PC3200	PC4200
Input Voltage and Frequency	100 V, 50/60 Hz / 115 V, 50/60 Hz / 230 V, 50/60 Hz			115 V, 50/60 Hz / 230 V, 50/60 Hz		
Voltage Tolerance	±10%					
Circuit Breakers	12.0 A (100 V, 115 V) 6.0 A (230 V, quantity 2)			15.0 A, 2 A (115 V)		20.0 A, 5.0 A (115 V)
Fuses	n/a			10.0 A (230 V, quantity 2)		10.0 A (230 V, quantity 2)
Power Consumption ⁽¹⁾	8.0 A (100 V, 115 V) 5.0 A (230 V)	8.0 A (100 V) 9.0 A (115 V) 4.5 A (230 V)	8.0 A (100 V) 9.0 A (115 V) 4.5 A (230 V)	11.5 A (115 V) 7.0 A (230 V)	12.0 A (115 V) 7.0 A (230 V)	14.5 A (115 V) 8.3 A (230 V)
Power Source ⁽²⁾	Varies (refer to product specification label)					
Agitation Speed ⁽³⁾ (cycles/minute)	n/a					60 (115 V) 60 (230 V, 50 Hz) 72 (230 V, 60 Hz)
Remote Alarm Capacity	i.Series: 0.5 A at 30 V (RMS); 1.0 A at 24 V (DC) Horizon Series: 0.25 A at 30 V (RMS); 0.25 A at 60 V (DC)					
Internal Outlet Maximum Current Draw ⁽⁴⁾	0.5 A					n/a

Incubator Specifications

	PC100	PC900	PC1200	PC2200	PC3200	PC4200
Height	25.00" (635 mm)	30.25" (768 mm)	30.25" (768 mm)	60.00" (1524 mm)	75.50" (1918 mm)	75.50" (1918 mm)
Width	21.25" (540 mm)	26.50" (673 mm)	40.75" (1035 mm)	40.25" (1022 mm)	40.25" (1022 mm)	40.25" (1022 mm)
Depth	23.50" (597 mm)	27.75" (705 mm)	27.75" (705 mm)	30.25" (768 mm)	30.25" (768 mm)	30.25" (768 mm)
Weight	105 lbs (48 kg)	159 lbs (72 kg)	208 lbs (94 kg)	367 lbs (166 kg)	435 lbs (197 kg)	667 lbs (302 kg)

- (1) Power consumption is measured in full-load Amperes.
- (2) Product specification label is located on the back of the platelet incubator.
- (3) Agitation speed is ±10% of nominal speed.
- (4) PC4200 platelet incubators do not include an internal outlet(s).

6 Compliance

6.1 Regulatory Compliance

This device complies with the requirements of directive 93/42/EEC concerning Medical Devices, as amended by 2007/47/EC.

Sound level is less than 70 dB(A).



0086



Emergo Europe
Prinsessegracht 20
2514 AP The Hague
The Netherlands

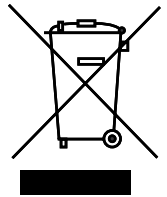
6.2 WEEE Compliance

The WEEE (waste electrical and electronic equipment) symbol (right) indicates compliance with European Union Directive WEEE 2002/96/EC and applicable provisions. The directive sets requirements for the labeling and disposal of certain products in affected countries.

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 Maintenance Schedule

Maintenance tasks should be completed according to the following schedule. Refer to the service manual for more detail on the various tasks.

 **Note**

These are recommended minimum requirements. Regulations for your organization or physical conditions at your organization may require maintenance items to be performed more frequently, or only by designated service personnel.

Task	Frequency		
	Quarterly	Annually	As Needed
Test the high and low temperature alarms.	✓		
Test the power failure alarm (as required by your organization's protocols).	✓		
Test the door open alarm.	✓ (i.Series)		
Test the no battery alarm.	✓ (i.Series)		
Test the motion alarm (i.Series platelet incubators with platelet agitators installed, and PC4200 platelet incubator).	✓		
Check the temperature calibration for the i.Series temperature monitor and change it if necessary.	✓		
Check the temperature calibration for the temperature controller and change it if necessary.	✓		
Check the backup battery for the motion alarm system after an extended power failure and change it if necessary, or change the battery if it has been in service for one year (PC4200).		✓	
(Models with chart recorders) Check the backup battery for the chart recorder after an extended power failure and change it if necessary, or change the battery if it has been in service for one year. Refer to the Temperature Chart Recorder Operation and Service Manual.			✓
Clean the condenser grill.	✓		
Clean the exterior and interior.			✓
Clean the door gaskets.			✓
(PC4200) Check agitation wheels, wheel bearings, and drive rod assembly for wear. Clean and lubricate moving parts.		✓	
Replace moving parts if worn or when prompted by the agitation maintenance reminder (i.Series).			✓

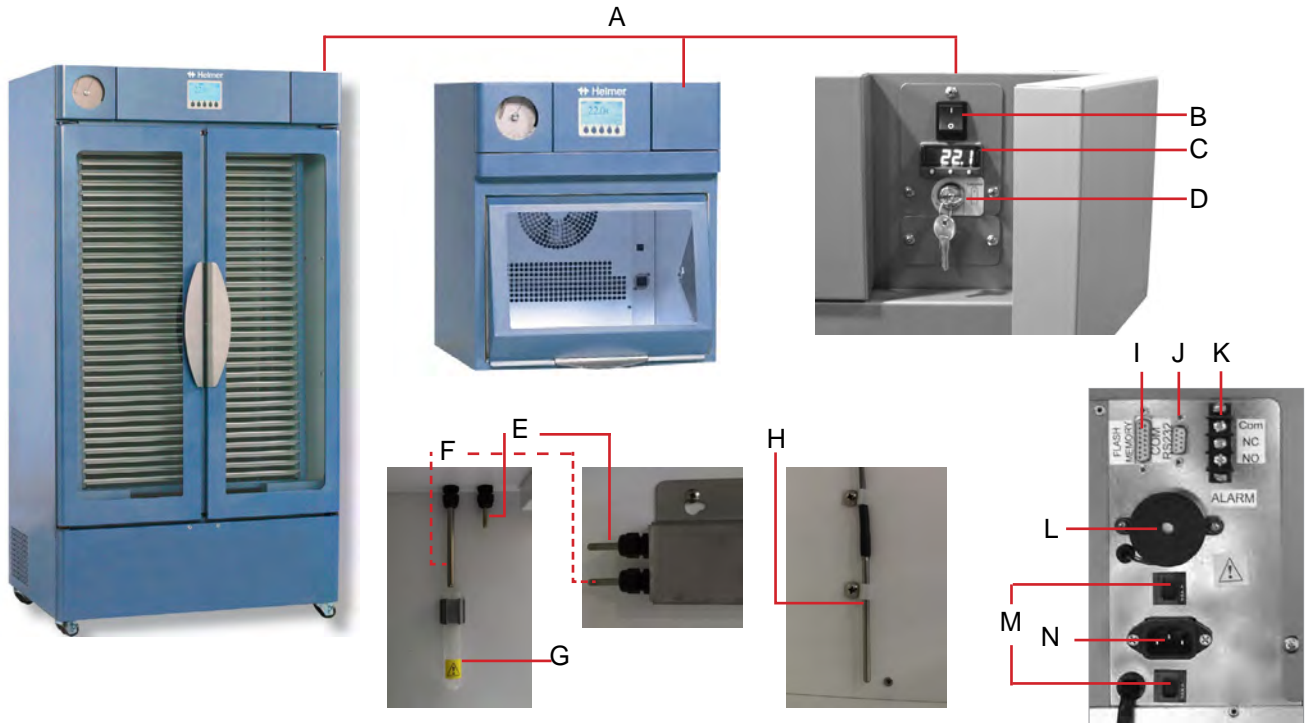
 **Notes**

- i.Series: 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.
- If batteries have been in service for one year, replace batteries.

 **CAUTION**

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

Appendix A: i.Series Components

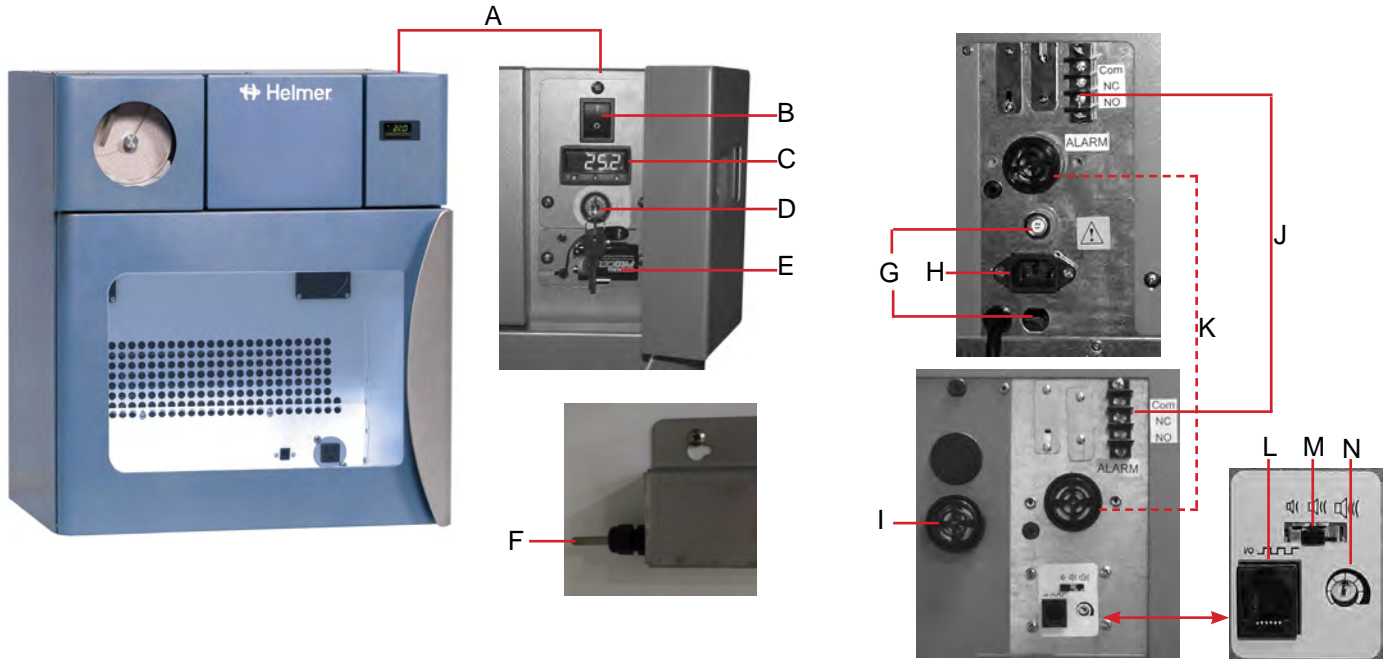


Label	Description
A	Control door
B	Power Switch
C	Temperature Controller
D	Backup battery key switch
E	Control and chart recorder probe
F	Temperature monitor probe
G	Alarm check tube (PC100)

Label	Description
H	Lower probe (PC2200, PC3200, and PC4200)
I	Flash port
J	RS-232 COM port (optional)
K	Remote alarm interface
L	Alarm buzzer
M	Circuit breakers
N	Power Connector

3.

Appendix B: Horizon Components



Label	Description
A	Control door
B	Power switch
C	Temperature controller
D	Alarm disable key switch
E	Alarm backup battery
F	Control and chart recorder probe
G	Circuit breakers

Label	Description
H	Power connector
I	Motion alarm buzzer (PC4200)
J	Remote alarm interface
K	Alarm buzzer
L	Data port (PC4200)
M	Alarm volume control (PC4200)
N	Alarm delay control (PC4200)

END OF MANUAL

