Platelet Incubator Instructions for Use Manual

Pro Line Floor Model Incubator with i.Center® Plus

Floor Model

PC2200-Pro
PC3200-Pro
PC4200-Pro

360432/A

Document History

Revision	Date	CO	Supersession	Revision Description
A	28 JUN 2023*	26448	N/A	Initial Release

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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.

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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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Part No. 360432/ Rev A

Contents

1 About this Manual

1.1 Intended Audience

This manual provides information on how to use the Floor Model Pro Line platelet incubator. It is intended for use by end users of the platelet incubator and authorized service technicians.

1.2 Model Reference

This manual covers all Floor Model Pro Line platelet incubators which may be identified by size or model number.

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.

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.

1.4 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.

Symbols found on the units

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

Caution: Risk of damage to equipment or danger to operator

Warning: Crushing of hands / fingers

Caution: Shock / electrical hazard

Refer to documentation

Warning: Flammable material

Earth / ground terminal

Caution: Hot surface

1.5 Avoiding Injury

Do not damage the refrigerant circuit.

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

- Before moving unit, remove contents from the drawers (if applicable).
- Before moving unit, remove the installed agitator(s) (if applicable).
- Before moving unit, ensure doors are closed and casters 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.
- Do not open multiple drawers at the same time (if applicable).
- Never physically restrict any moving component.
- Avoid removing electrical service panels and access panels unless so instructed.
- Do not store or place objects or liquid containers on top of the incubator.
- 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 product from the platelet incubator.
- Use manufacturer supplied power cord only.
- 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.
- The platelet incubator is not considered to be a storage cabinet for flammable or hazardous materials.
- **REQUIRED:** Decontaminate parts prior to sending for service or repair. Contact Helmer Scientific or your distributor for decontamination instructions and a Return Authorization Number.

1.6 General Recommendations

General Use

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

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

Initial Loading

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

2 Installation

2.1 Location Requirements

Note

Hot ambient temperatures with high humidity may cause condensation on the outside of the unit.

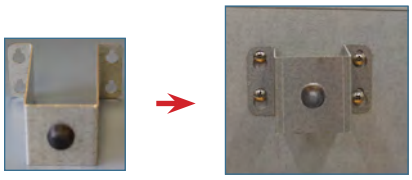
- Has a sturdy, level surface.
- Has a grounded outlet meeting national electric code (NEC) and local electrical requirements.
- Is clear of direct sunlight, high temperature sources, and heating and air conditioning vents.
- Meets limits specified for ambient temperature (15 °C to 35 °C) and relative humidity.
- Minimum 4” (102 mm) above for ambient temperatures of 15 °C to 28 °C and 24" (610 mm) for ambient temperatures of 28 °C to 35 °C.
- Minimum 4” (102 mm) to the left and right for ambient temperatures of 15 °C to 35 °C
- Minimum 4" (102mm) behind for ambient temperatures of 15 °C to 28 °C and 12" (305 mm) for ambient temperatures of 28 °C to 35 °C.

2.2 Placement and Leveling

- The use of accessories other than those specified for the product by Helmer is not recommended. They may result in increased emissions or decreased immunity of the device.
- Refer to the Electromagnetic Compliance section for additional information.
- Restraining brackets are recommended when unit is placed on a slick surface.
- Anchoring kits are available.

Note

- Ensure the AC power is turned off on the incubator prior to connecting an agitator (PC2200-Pro and PC3200-Pro models only).
- Rear stand-off brackets are provided with the platelet incubator and should be installed prior to placing the incubator in its location.



1. Align keyhole openings in stand-off bracket with screws on back of incubator and slide down to engage.
2. Tighten screws using a #2 Phillips screwdriver to secure.
3. Ensure all casters are unlocked.
4. Roll platelet incubator into place and lock casters.
5. Ensure platelet incubator is level.

2.3 Chart Recorder

Note

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

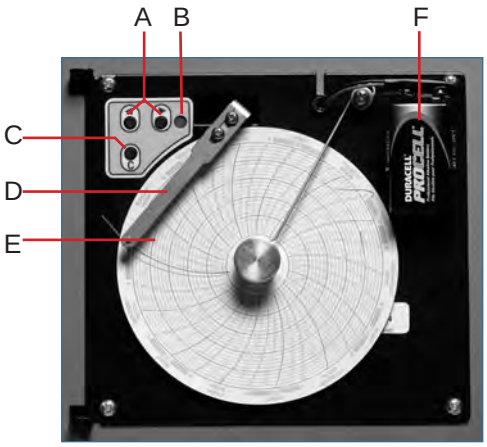


Chart recorder with paper and battery installed.

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.

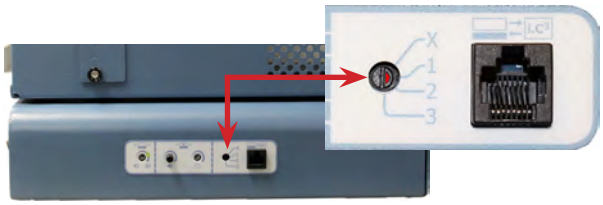
Chart recorder stylus and time line groove

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.

2.4 Install Pro Line Platelet Agitator (PC2200-Pro or PC3200-Pro - Optional)

A Pro Line platelet agitator may be installed in a Pro Line platelet incubator. Connect the data cable and DC power cable supplied with the incubator prior to placing the agitator inside the incubator.

The communication switch on the agitator must be set correctly to ensure proper communication with the i.Center Plus on the Pro Line incubator. Each agitator communication switch must be set to a unique position that corresponds with its position in the incubator; either 1 or 2 when installed in a PC2200-Pro, or 1, 2 or 3 when installed in a PC3200-Pro incubator.



Agitator communication switch

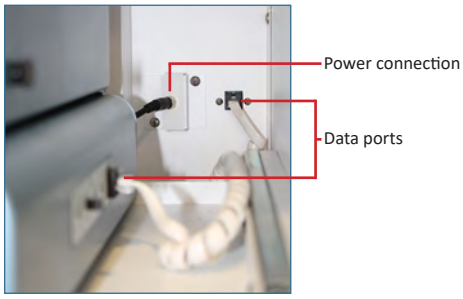
Notes

- Use only DC power cord supplied with incubator when configuring agitator within incubator.
- Ensure elbowed end of DC power cord is attached to agitator.
- Ensure AC power and backup battery power are turned OFF prior to connecting a Pro Line agitator to a Pro Line incubator.
- To avoid injury from heavy lifting, Helmer recommends using two people when installing agitators.
- Pro Line agitators should be installed one at a time ensuring shelf is fully inserted prior to loading an additional unit.
- Only a Helmer Pro Line platelet agitator may be used with a Pro Line platelet incubator.
- Ensure data cable is carefully positioned to the right of the agitator to prevent damage caused by agitation motion.
- The communication switch is fragile, do not use excessive force when changing the setting.
- **PC3200-Pro only**: when using fewer than three PF96-Pro agitators, ensure agitators are installed in the lower positions to optimize temperature uniformity.

Select the communication switch position and connect the data cable and DC power cable supplied with the incubator prior to placing the agitator inside the incubator.

DC Power Cable

Communication Cable



Power Connection and Data Ports

Connect Pro Line Platelet Agitator

1. Select position 1, 2 or 3 on the Pro Line platelet agitator communication switch using a small flathead screwdriver. (Each agitator installed **must** have its own unique position. DO NOT DUPLICATE)
2. Attach the DC power cable to the rear of the platelet agitator, ensuring the elbowed end is attached to the agitator and the rotating lock is finger tight.
3. Insert the communication cable in the data port on the platelet agitator.
4. On the platelet incubator, carefully slide the shelf out and place the agitator allowing ample space on both sides for agitation motion. Ensure the shelf is fully inserted once the platelet agitator is in place.
5. Attach the DC power cable to the platelet incubator ensuring the rotating lock is finger tight.
6. Insert the communication cable in the data port on the rear wall of the platelet incubator.

2.5 Load the Platelet Agitator

NOTICE

- When opening drawer, grasp handle. Open one drawer at a time.
- **PC4200-Pro only:** When used in extreme ambient conditions (35 °C and 45% relative humidity), ±1 °C uniformity is maintained throughout the incubator except at the bottom drawer position, where uniformity is within ±2 °C

Model	Capacity	
	Random Bags	Apheresis Bags
PF96-Pro *(installed in PC2200-Pro or PC3200-Pro)*	96 (12 per drawer/shelf)	32 (4 per drawer/shelf)
PC4200-Pro	384 (12 per drawer)	128 (4 per drawer)

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.

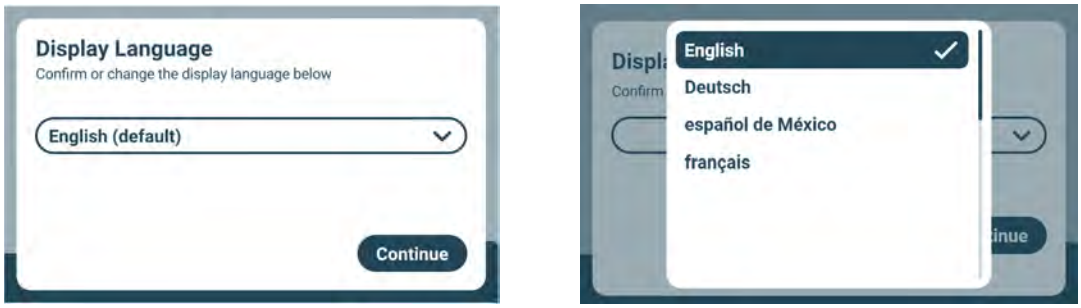
Note

Protective shelf guards and dividers may be added to enhance containment.

3 Pro Line Platelet Incubator Operation

3.1 Initial Start Up

1. Plug the power cord into a grounded outlet meeting the electrical requirements on the product specification label.
2. Turn the AC power switch ON.
3. Turn the backup battery switch ON.
4. The Language screen is displayed.
5. Use the Language drop down menu to select the i.Center Plus display language.



Language screens

Notes

- English is the default language.
- Language options may vary.

If an alarm sounds, temporarily mute the alarm by touching the Mute icon.

Home screen

Mute icon

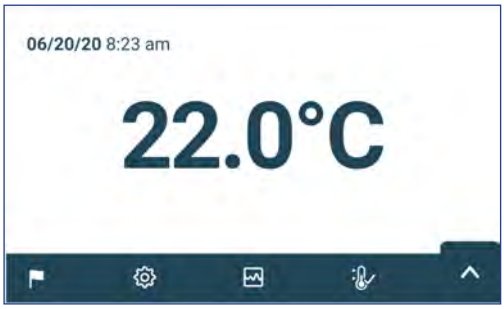
Note

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

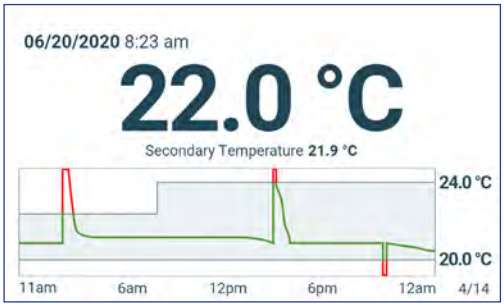
3.2 Operation

Notes

- Refer to the i.Center Plus User Guide for complete information regarding the i.Center Plus User Interface.
- The i.Center Plus Home screen displays temperature and alarm information, and provides icons to gain access to other functions of the i.Center Plus.
- If enabled, the screensaver will be displayed after two minutes of inactivity. To return to the Home screen, touch the screensaver.



Home screen



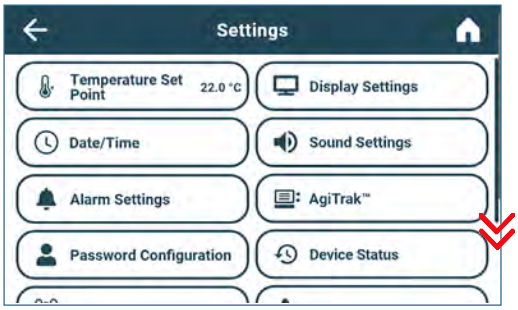
Home screensaver (if enabled)
(touch to return to Home screen)

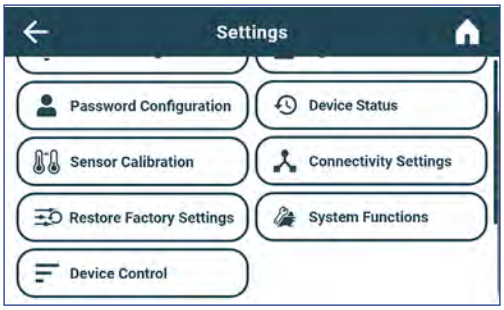
3.3 Device Settings

Touching the Settings icon on the App tray at the bottom of the screen, or selecting Settings from the Applications menu opens the Settings screen. The Settings screen provides access to multiple functions for which the user may view or change settings. Access to this screen may be restricted to users with administrator passwords. Once accessed, the user may scroll up or down to select the desired function.

Notes

Default Settings password is 1234



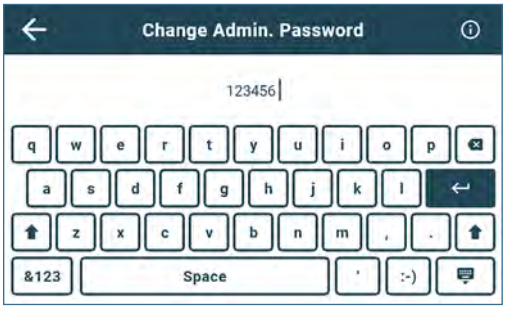


3.4 Users and Passwords

The Password Configuration screen provides a way for the administrator-level user to limit access to certain screens. The administrator-level password can be changed by selecting Password Configuration.

Settings > Enter settings password. Select Password Configuration

Users and Passwords screen



Change Password keypad

Change Password

1. Select Password Configuration.
2. Enter a unique code and select the return button. A confirmation screen appears.
3. Re-enter the unique code to confirm and select the return button. The Success screen appears.
4. Select the Done button to return to the Password Configuration screen.
5. Select the Home icon to return to the Home screen.

3.5 Change Temperature Set Point

Settings > Enter the Settings password. Select Temperature Set Point. Touch the Actions arrow. Touch the minus (-) or plus (+) on spin box to change the value and select Save.

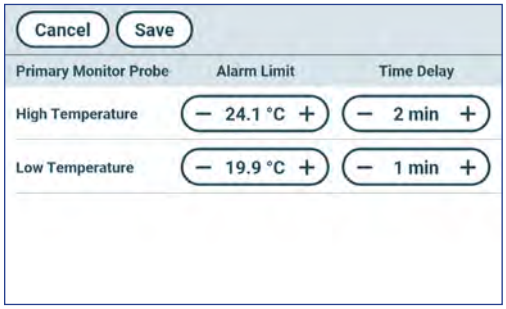
Notes

Default Settings password is 1234
Default set point is 22.0°C

3.6 Set Alarm Parameters

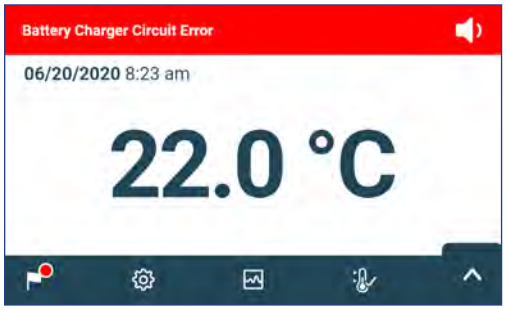
Alarm settings control the circumstances and timing of alarm condition indicators displayed on the i.Center Plus Home screen.

Settings > Enter Settings password. Select Alarm Settings. Touch the Actions arrow adjacent to the desired alarm. Touch minus (-) or plus (+) on spin box to set each alarm parameter and select Save.



3.7 Active Alarms

Active alarms are displayed in a banner at the top of the screen. Refer to Appendix A for a list of potential active alarms.



Home screen with active alarm

3.8 Mute and Disable Active Alarms

Audible alarms may be temporarily muted by touching the Mute icon in the alarm banner at the top of the screen. The delay duration can be set and changed by selecting Sound Settings from the Settings screen. The duration may be set to any value from 1 - 60 minutes. The delay time remaining will be displayed to the left of the Mute icon. If the alarm is still active after the mute delay has ended, the audible alarm will sound.

Unmuted

Mute

3.9 Set Agitator Monitoring and Controls

Configure a Pro Line Platelet Agitator for Use in a Pro Line Incubator (PC2200-Pro or PC3200-Pro - Optional)

When a Pro Line platelet agitator is installed, motion data is transmitted between the platelet agitator and platelet incubator through the data cable. The platelet incubator interprets the motion data and provides information regarding the status and state of the agitator. The incubator generates its own motion alarm, based on its own alarm delay period. If enabled, the motion alarm on the platelet agitator will sound only if motion has stopped and communication to the incubator has been lost.

Notes

- Only Helmer Pro Line platelet agitator may be used with Pro Line platelet incubator.
- Refer to the Pro Line platelet agitator service manual for more information regarding the installation of a platelet agitator in a Pro Line platelet incubator.
- Helmer recommends the agitator alarm remain enabled when configured inside an incubator.
- With the alarm enabled, the agitator alarm will time out and sound if power to the incubator is turned off for a duration greater than the motion delay.
- In the event of a communication failure with the incubator, the agitator alarm will only sound if the agitator alarm switch is turned ON.

AgiTrak Setup

AgiTrak can be accessed through the Settings or Applications menus. Select the AgiTrak button to open the setup screen. Enter the desired settings to allow monitoring and control of the device.

PC2200-Pro/PC3200-Pro

PC4200-Pro

Notes

- Default Settings password is 1234.
- The position number in AgiTrak corresponds to the position switch setting on the agitator. *(PC2200-Pro and PC3200-Pro units only).*
- Speed settings can be adjusted through AgiTrak for installed Pro Line agitators. This setting overrides the setting on the individual agitator speed control. *(PC2200-Pro and PC3200-Pro units only).*
- **PC4200-Pro only:** Agitation can be turned on or off through AgiTrak. Agitation speed is adjustable through hardware setting.

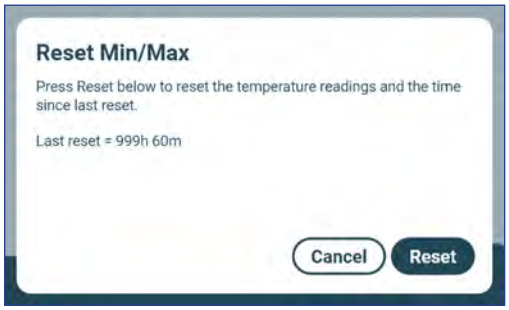
Setup Agitator(s)

1. From the Home screen, select the Settings icon and enter the Settings password, or select the tray up arrow in the lower right corner. The Settings menu or Applications menu will appear.
2. Select the AgiTrak button. The AgiTrak setup screen appears.
3. Select the tab at the top of the screen that corresponds with the agitator position *(PC2200-Pro and PC3200-Pro units only)*.
4. Enter agitator information for each agitator installed.
5. Select the Back arrow to return to the previous screen or the Home icon to return to the Home screen.

4 Additional Features

4.1 Min/Max Temperature Monitoring (if enabled)

The Min/Max temperature display can be enabled through Display Settings. This feature provides the highest and lowest Primary Monitor probe temperature reading since the last system reset (power-on event) or manually-initiated reset. Touch the Reset button to the right of the temperature display to manually reset.

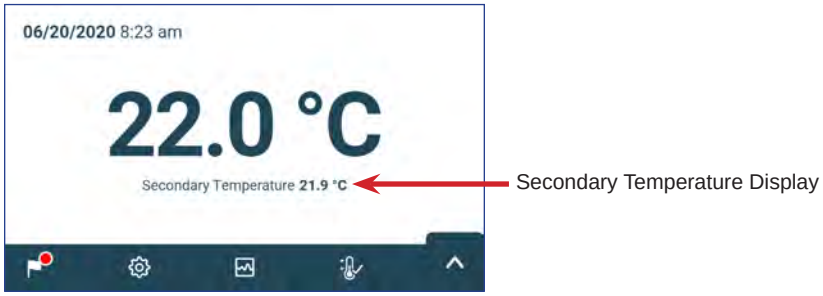


Notes

- The Min/Max temperature display can be turned on or off through Display Settings.
- 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.

4.2 Secondary Monitor Probe (PC3200-Pro and PC4200-Pro - optional)

The optional, factory-installed Secondary Monitor probe provides additional temperature monitoring within the Pro Line Incubator to support the needs of the facility. Temperature monitor probes are precalibrated and designed to be replaceable. The Secondary Temperature display can be turned on for viewing and monitoring through Display Settings screen on the i.Center Plus. The Alarm Settings screen provides options for activating the high and low temperature alarm features.



Activate Secondary Temperature display

1. From the Home screen, select the Settings icon and enter the Settings password, or select the tray up arrow in the lower right corner. The Settings menu or Applications menu will appear.
2. Select Display Settings and scroll down to Secondary Monitor Probe Temperature Display.
3. Slide button to the right to turn Secondary Monitor Probe Temperature Display on

5 Product 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 45% at 35°C
- Temperature control range: 20°C to 24°C
- Overvoltage category: II
- Pollution degree: 2
- Sound level is less than 70 dB(A) under normal operation
- RF Emissions: Group 1 - Class A
- EMC Environment: Basic

Notes

- Power Draw and Power Consumption specifications include internally operating Pro Line agitator supplied from the Pro Line incubator through a 24 V (DC) umbilical cable (DC power cord) - PC2200-Pro and PC3200-Pro only.
- Power Draw measured in Watts.

Table 4. Electrical Specifications

	PC2200-Pro		PC3200-Pro		PC4200-Pro	
Input Voltage and Frequency	100-115V 50/60Hz	220-240V 50/60Hz	100-115V 50/60Hz	220-240V 50/60Hz	100-115V 50/60Hz	220-240V 50/60Hz
Voltage Tolerance	±10%					
Circuit Breakers *(system)*	7.0A quantity 2					
Circuit Protection *(agitation)*	2.0A quantity 2*		2.0A quantity 3*		5.0A (2-pole) quantity 1	
Agitator Power Draw *(if installed)*	16 W at 24 V (DC)		16 W at 24 V (DC)		Integrated	
Typical Incubator Power Consumption *(with maximum number of agitators installed)*	139 Watts**		157 Watts**		201 Watts**	
Current Draw	3.1A	2.4A	3.1A	2.4A	3.1A	2.4A
Power Source	Varies (refer to product specification label)					
Remote Alarm Capacity	1A at 30V (AC) RMS or 30V (DC)					
Internal Outlet Maximum Current Draw	1.5A AT 24V (DC) (x2)		1.5A AT 24V (DC) (x3)		N/A	
Touch Current *(with Pro Line Agitator installed)*	≤ 0.5mA		≤ 0.5mA		≤ 3.5mA	

** = 2.0A fuse:*
*** = 22°C in 20°C ambient static operation*

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 30 V (RMS) or 30 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.

Table 5. Incubator Specifications

	PC2200-Pro	PC3200-Pro	PC4200-Pro	
	100-115V / 220-240V	**100-115V / 220-240V**	**100-115V**	**220-240V**
Width	40.1" (1018 mm)	40.1" (1018 mm)	40.1" (1018 mm)	
Height	60.1" (1526 mm)	75.6" (1920 mm)	75.6" (1920 mm)	
Depth	33.4" (847 mm)	33.4" (847 mm)	33.4" (847 mm)	
Weight	406 lbs (184 kg)	485 lbs (220 kg)	740 lbs (336 kg)	743 lbs (337 kg)
Agitation Speed	40-80 cpm *(PF96-Pro installed)*	40-80 cpm *(PF96-Pro installed)*	62-75 cpm	

6 Compliance

6.1 Safety Compliance

CE 2797

This device complies with the requirements of directive (EU) 2017/745 concerning Medical Devices.

This product is certified to applicable UL 61010-1 and CSA 61010-1 standards by a NRTL.

This product is IECEE CB Scheme certified and complies with national differences for safety certification to IEC 61010-1.

EC REP

EU Authorized Representative which provides regulatory representation with the local authorities

6.2 Environmental Compliance

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

This device falls under the scope of Directive 2102/19/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.

6.3 Electromagnetic Compliance

Helmer Scientific Incubators meet the applicable requirements of IEC61326 and EN55011 and are intended for use in the electromagnetic environment specified in 5.1 Operating Standards. The customer or the user of these devices should assure they are used in such environment.

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

Electromagnetic Emissions

Emissions Test	Compliance	Electromagnetic Environment - Guidance
RF emissions CISPR 11	Group 1	The product uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The product is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage Fluctuations/Flicker Emissions IEC 61000-3-3	Complies	

- The product should not be used adjacent to other equipment. If adjacent use is necessary, the product should be observed to verify normal operation in the configuration in which it will be used.
- The use of accessories other than those specified for the product by Helmer is not recommended. They may result in increased emissions or decreased immunity of the device.

Electromagnetic Immunity

Immunity Test	Compliance Level	Electromagnetic Environment - Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	±2 kV ±1 kV for I/O lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode for AC ±2 kV common mode for AC ±1 kV common mode async for I/O lines	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips and interruptions IEC 61000-4-11	100% drop, 0.5 cycle, 6 times each (@ 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°) 100% drop, 250 cycles, 6 times (@ 0°) 30% dip, 25 cycles, 6 times (@ 0°)	Mains power quality should be that of a typical commercial or hospital environment. If the user of the product requires continued operation during power mains interruptions, it is recommended that the product be powered from an uninterruptible power source.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Conducted RF IEC 61000-4-6	3 V_{rms} to 6 V_{rms} 150 kHz to 80MHz	Portable and mobile RF communications equipment should be used no closer to any part of the product, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter Recommended separation distance: $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ for 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ for 800 MHz to 5.7 GHz where P is the maximum output power rating of the transmitter in Watt (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[a], should be less than the compliance level[b] in each frequency range.  Interference may occur in the vicinity of equipment marked with this symbol.
Radiated RF IEC 61000-4-3	3 V/m to 28 V/m at frequencies up to 5.785 GHz	

[a]Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered, if the measured field strength in the location in which the product is used exceeds the applicable RF compliance level above, the product should be observed. If abnormal operation is observed, additional measures may be necessary such as reorienting or relocating the product.

[b]Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Notes

- At 80MHz and 800MHz, the higher frequency range applies
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, people and animals.

Recommended Separation Distances

This product is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the product can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the product – according to the maximum output power and frequency of the communications equipment – as recommended in the following table.

Rated maximum output power of transmitter in watts (W)	Separation distance according to the frequency of transmitter in meters (m)		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 kHz to 800 MHz $d = 1.2\sqrt{P}$	800 kHz to 5.7 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Notes

- At 80MHz and 800MHz, the higher frequency range applies
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, people and animals.

Appendix A: i.Center® Plus Active Alarms

Alarm	Description
Primary Monitor Probe High Temp	Primary monitor probe reading is above high temperature alarm setpoint
Primary Monitor Probe Low Temp	Primary monitor probe reading is below low temperature alarm setpoint
Primary Monitor Probe Failure	Primary monitor probe is not functioning properly
Secondary Monitor Probe High Temp (if applicable)	Secondary monitor probe reading is above high temperature alarm setpoint
Secondary Monitor Probe Low Temp (if applicable)	Secondary monitor probe reading is below low temperature alarm setpoint
Secondary Monitor Probe Failure (if applicable)	Secondary monitor probe is not functioning properly
Probe Calibration Warning	Probe is not calibrated for current location; Unexpected replaceable probe installed.
Control Probe Failure	Control probe is not functioning properly
*Agitator Communication Failure (1, 2 or 3 if applicable)	Agitator not installed; communication cable not installed; Agitator On/Off switch turned OFF
*Agitator High Speed (1, 2 or 3 if applicable)	Agitator speed (CPM) is above high speed alarm setpoint
*Agitator Low Speed (1, 2 or 3 if applicable)	Agitator speed (CPM) is below low speed alarm setpoint
*Agitator Maintenance Required (1, 2 or 3 if applicable)	Check and replace trolley support wheels
Drive Space Low	SD card is near capacity
Drive Space Full	SD card is full, no history being recorded
Drive Space Failure	SD card is not functioning properly, no history being recorded
Power Failure	Power to unit has been disrupted
Door Open (time)	Door is open beyond user-specified duration
Low Battery	Rechargeable battery voltage is low
No Battery	Battery is not connected
Battery Charger Circuit Error	Battery charger is faulty
Configuration File Error	Communication lost between i.Center Plus display board and internal system memory
Database Integrity Error	Corrupt database
Inverter Communication Failure	Communication is lost with inverter
Control Board Communication Failure	Communication lost with i.Center Plus display board and control board
Control Board Memory Error	Communication lost with i.Center Plus display board and internal system memory
Emergency Mode	Primary Monitor Probe and Control Probe failure

** When displayed, the Agitator Alarm messages will refer to the specific agitator location within the incubator (position 1, 2 or 3) in PC2200-Pro and PC3200-Pro units.*

Appendix B: i.Center® Plus Icons

Icon	Description	Icon	Description	Icon	Description
	Home		Date/Time Change		Mute
	Event Log		Door Open		Power Failure
	Temperature Graph		Previous Screen		High Temp Alarm
	Alarm Test		Agitation Disabled		Low Temp Alarm
	Settings		Temperature Graph Back		Door Open Alarm
	Min/Max Reset		Temperature Graph Forward		Alarm Conditions
	Display Power Up		Temperature Graph Zoom In		Agitator Speed High/Low Alarm
	Information				

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