

HistoPro[®] 650 CS
Tissue Embedding Center Cold Unit
Operator's Manual

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1 Important Information

1.1 Intended Use:

The HistoPro[®]650 Tissue Embedding Center (The Embedding Center) is a modular system to be used for embedding processed tissue in paraffin to prepare the tissue blocks for sectioning.

There are two modules in HistoPro[®] 650 Embedding System.

1. HistoPro[®] 650 H (The Hot Module) is the Hot Module of the system that contains the paraffin tank, two warming trays that can be used either as a mold oven or a cassette bath, two forceps holders, heated work surface and a peltier cooled cold spot. The tissue embedding is performed on this module.
2. HistoPro[®] 650 CS (the Cold Module) is the Cold Module of the system that contains the cold plate. Tissue embedded in hot, liquid paraffin are placed on the Cold Module to allow the paraffin to cool and solidify for removing paraffin embedded tissues from the mold.

Each unit is a standalone unit with its own display and rotary switch knob for programming and set up. Each unit can be operated independent of the other.

This manual covers the operation of the HistoPro[®] 650 CS only.

The Cold Unit may be operated only according to the instructions contained in this manual. Any other use of the Cold Unit is considered improper!

1.2 Qualification of Personnel

- ◆ • HistoPro[®] 650 CS may be operated by trained laboratory personnel only.
- ◆ • All laboratory personnel designated to operate HistoPro[®] 650 CS must read this Operating Manual carefully and must be familiar with all technical features of the Embedding Process and this Cold Module before attempting to operate it.

1.3 Warranty Information

RUSHABH Instruments' (RI) HistoPro[®] 650 CS is warranted against defects in materials and workmanship, under its prescribed use and operating conditions, for a period of twelve months from the date of shipment. RI will repair or replace products that prove to be defective within the warranty period without charge **when shipped prepaid** to the RI office.

If the product is not registered by filling out and sending the warranty card to RUSHABH Instruments, it will be warranted for a period of twelve months from its manufacturing date.

Warranty Exceptions

- ◆ Consumables – bulbs, fuses, tubing, reagent containers, slide carriers, and other items of an expendable nature are not covered under this agreement.
- ◆ Failure or the damage caused by User's failure to provide ample electrical power at constant voltage, consistent with the specifications of the product is not covered under this agreement.

- ◆ Scratches, dents, and similar surface finish damage during normal use of the system are not covered under this agreement.
- ◆ Failure or the damage caused by any use other than the intended use specified in this Manual, Misuse, and unauthorized repairs or alterations are not covered under this agreement.
- ◆ Acts of nature such as lightning strikes and floods are not covered under this agreement and should be covered under owner's separate insurance policy.

All RI products are sold on the condition that they be used and disposed of only within the scope of currently recognized, critical standards related to human health, local regulations and the physical environment.

EXCEPT FOR THE WARRANTY ABOVE, RI MAKES NO OTHER WARRANTY OF ANY KIND WITH REGARD TO ITS PRODUCTS WHETHER EXPRESS, ARISING BY OPERATION OF LAW, OR IMPLIED BY COURSE OF DEALING, USAGE OF TRADE, OR OTHERWISE, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.







RI SHALL NOT IN ANY CIRCUMSTANCE BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

RI'S LIMITS ITS LIABILITY UNDER THIS WARRANTY TO THE PURCHASE PRICE PAID BY ITS CUSTOMER.

Contact our Technical Service Department for more information regarding your warranty.

Technical Service Department
RUSHABH Instruments, LLC.
25 Richard Road
Ivyland, PA 18974
Phone: (215) 491-0081

1.4 Definition of Various Symbols

	Attention: This Symbol on the system and in the manual showing the warning triangle indicate that the correct operating instructions (as defined in this manual) must be followed when operating or replacing the item marked. Failure to adhere to these instructions may result in an accident, personal injury, damage to the system or accessory equipment.
	Caution: Electric Shock Hazard. Disconnect Line Cord before Servicing. Refer Servicing to Qualified Service Personnel. To avoid the risk of injury from electric shock, do not open this enclosure.
	Alternating current symbol.
	Protective Conductor Terminal Symbol. For the safety of the operator, ensure that the earth ground is always connected at this terminal.
	Power Supply ON indication. Push the Power ON/OFF switch in the direction marked with this symbol to turn the unit power on.
	Power Supply OFF indication. Push the Power ON/OFF switch in the direction marked with this symbol to turn the unit power off.

1.5 Other Notes:

- **WARNING: Please read this manual carefully before using the HistoPro® 650 CS.**
- **The manufacturer reserves the right to alter the HistoPro® 650 CS specifications without notice.**
- **In order to improve the product performance and to increase the ease of use, several software and hardware functions may have been enhanced after this manual was printed. If you find any discrepancy with actual operation of the system and the description given in the manual, please contact our Technical Service Department.**

Cleaning: Apply aqueous solutions to a clean cloth for cleaning of all working and non-working surfaces. **DO NOT SPRAY OR POUR ANY LIQUIDS INCLUDING ANY CLEANING AGENT ON ANY PART OF THE UNIT.** Sterilization of HistoPro® 650 CS or its individual components is not required.

Spillage: In the event of spillage of any fluid or paraffin, the system must be disconnected from the mains supply immediately and not reconnected or used until examined and tested by an Authorized Service Engineer. Failure to do this may result in a fire hazard.

Servicing: HistoPro® 650 CS contains no user serviceable components. Contact our Technical Service Department or an Authorized Service Engineer for all service requirements.

2 Cold Module Components and Specifications

The HistoPro[®] 650 CS Cold Module is designed for stand-alone use for cooling embedded tissue blocks

2.1 Overview of Functional Areas of the Cold Module

(Refer to Figure 1 on page and Figure 2 on page)

The HistoPro[®] 650 CS Cold Module has the following functional areas.

1. **Cold Plate:** The Cold Plate allows for a large open space to cool the embedded tissue blocks. The temperature of the Cold Plate is user programmable between -10°C and $+10^{\circ}\text{C}$ in increments of 1°C .
2. **LCD Display, Control Knob:** A blue and white LCD (2a) and a Rotating Knob (2b) are used to set up the system parameters and to display the system status using proprietary Turn And Push (TAP) operator interface. The details of the system set up using TAP are provided in Section **Error! Reference source not found.** of this manual. Using the TAP operator interface, brightness and contrast on the display can be adjusted to a comfortable level.
3. **Front Panel Switch:** A front power switch is in the front of the unit to conveniently turn the unit on and off.
4. **Rear Panel:** The following items are located on the rear panel of HistoPro[®] 150 CS
 - a. Power Entry Module consisting of power cord inlet, power switch and fuse holder
 - b. Compressor Power Circuit Breaker
 - c. Fan Grill

Front of Unit

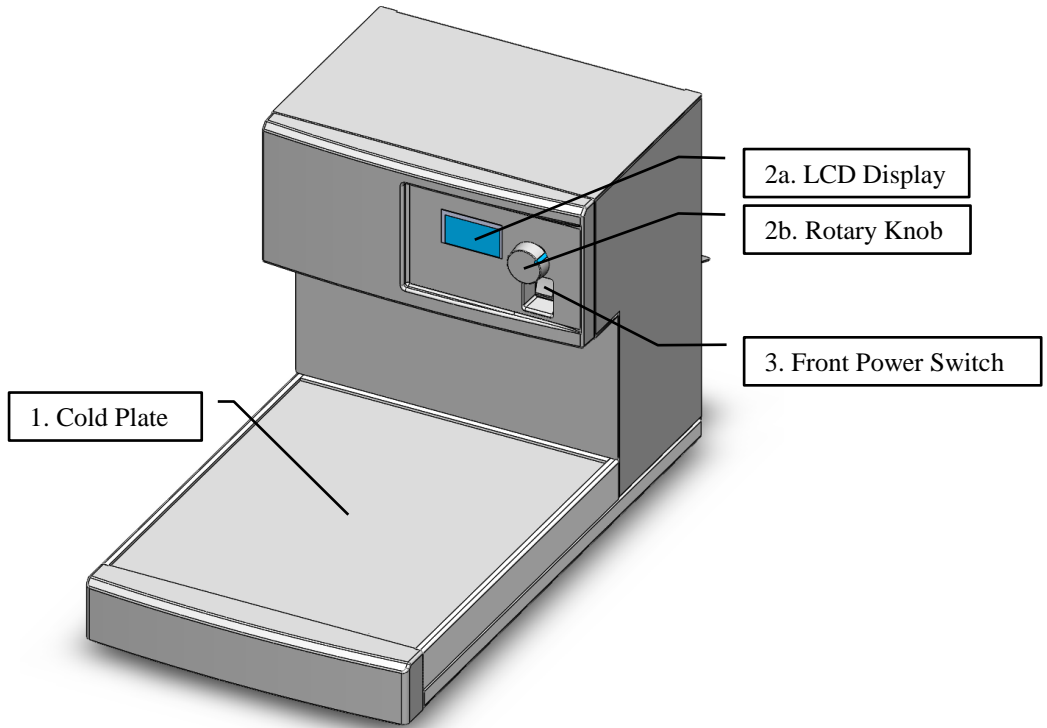


Figure 1

Back of Unit

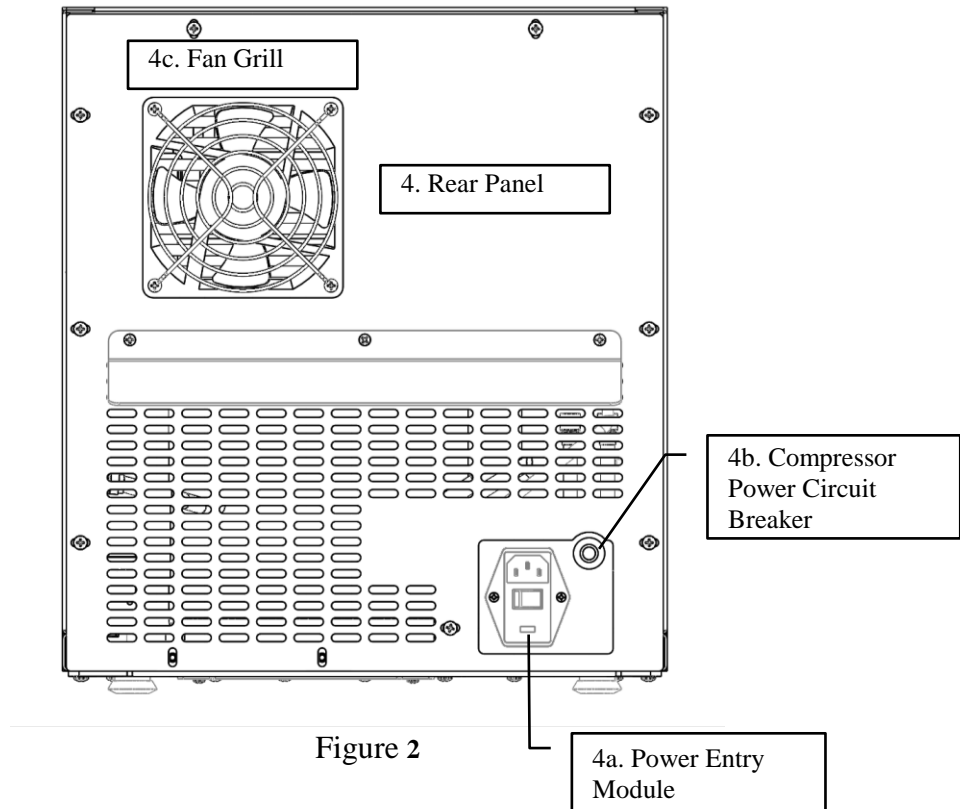


Figure 2

2.2 Technical Specifications

2.2.1 Electrical Characteristics

Power Input:

Voltage	AC, 115 volts or 230 volts (Factory set for either 115 volt or 230 volts operation, not user changeable), 60 or 50 Hz respectively
Current	8 Amps max for 120 volts input, 5 Amps max (RMS) for 230 volts input
Power	200 watts max

Fuse Rating:

110 Volt Unit	8 Amp x 250 volts Slo-Blo
220 Volt Unit	5 Amp x 250 volts Slo-Blo

Display:

Power	5 volts DC
Current	max 0.5 amp
Resolution	8 lines x 20 characters per line
Type	LCD with LED back light

Navigation:

Rotary encoder with a shaft mounted push switch

2.2.2 Physical Characteristics

Dimensions

Width	14" (36 cm)
Depth	25" (64 cm)
Height	16" (41 cm)

Weight:

Actual Weight	45 lbs (21 kg)
Shipping Weight	50 lbs (23 kg)

Capacity

Cold Plate Area	14" (35 cm) w x 16" (41 cm) d
Temperature Range	-10° C to 10° C

2.2.3 Environmental Conditions:

All HistoPro[®] 650 CS products are laboratory instruments and should be used in Medical / Histo-Pathology laboratory with the following conditions.

Ambient Temperature	15 to 35° C.
Relative Humidity	20-85% non-condensing.

Ambient Pressure	28"-32" (70-80 mm) of Hg
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2.2.4 Storage/Transportation Conditions:

Temperature	10° to 40° C
Humidity	15% to 80% non-condensing
Pressure	28" to 32" (70 to 80 mm) of Hg

2.2.5 Installation Category:

In reference to Installation category as defined in UL 61010-1 standard, HistoPro® 650 CS products are categorized as Category II systems.

2.2.6 Pollution Degree:

In reference to Pollution Degree as defined in UL 61010-1 standard, HistoPro® 650 CS products are categorized as Pollution Degree 2 systems.

3 Safeguards and Inspection

(Before doing anything, read this)

3.1 Safeguards

Please read all the instructions and retain for future reference. Follow all warnings and instructions marked on the instrument.

1. **Read Instructions**
All the safety and operating instructions should be read before the instrument is operated.
2. **Retain Instructions**
The safety and operating instructions should be retained for future reference.
3. **Read Warnings**
All warnings on the instrument and in the operating manual must be followed.
4. **Follow Instructions**
All operating and use instructions must be followed.
5. **Attachments**
Do not use any attachments not recommended by the product manufacturer as they may cause hazards, damage the instrument and void the warranty.
6. **Accessories**
Do not use any accessories not recommended by the product manufacturer as they may damage the instrument and void the warranty.
7. **Power Sources**
This product should be operated from the type of power source indicated on the marking label and the instructions.
8. **Grounding**
This product is equipped with a grounded three-wire plug. The system must be connected to a grounded outlet for the safety of the operator.
9. **Power-Cord Protection**
Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, receptacles, and the point where they exit the instrument.
10. **Placement**
Locate the Cold Module in a well-ventilated area and at least 4" away from the wall. Ensure that the Power Inlet and Power Off Switch are easily accessible at all times while the Cold Module power is tuned on.
11. **Overloading**
Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
12. **Servicing**
Do not attempt to service this instrument yourself as opening or removing covers may expose you to dangerous voltage or other' hazards. Refer all servicing to qualified service personnel.
13. **Replacement Parts**
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer. Unauthorized substitutions may result in fire, electric shock or other hazards.

3.2 Safety Instructions



Make sure to comply with safety instructions and warnings in this chapter. Make sure to read these instructions, even if you are already familiar with the operation and use of other HistoPro® products.

- This instruction manual includes important information related to the operating safety and maintenance of the system and it is an important part of the product.
- This system has been built in accordance with the following safety regulations on electrical measuring, control, regulating and laboratory devices.
 - IEC 61010 – 1, 2nd Edition
- In order to ensure safe operation, the operator **MUST** observe the instructions and warnings contained in this Operator Manual.
- If additional instructions are required for accident prevention and environmental protection based on the location of the system operation (e.g. local regulations, laws and lab procedures and practices) this manual must be supplemented by appropriate instructions to ensure the compliance with these additional requirements.



Attention! The protective devices on both system and accessories may neither be removed nor modified. Only authorized and qualified service personnel may repair the system and access the system's internal components.

3.3 Additional Safety Instructions to Handle the Specimens and Chemicals

For safe operation of the system, for the safety of the operator and other personnel in the vicinity of the system and for the laboratory safety the following safety measures must be implemented.

- Keep the Cold Module away from the open flames.
- Do not smoke near the Cold Module.
- Do not eat, drink or smoke near the Cold Module.



- Follow general laboratory safety procedures and practices for handling samples to process from Biohazard handling perspective.



- Before shipping the Cold Module for any purpose, always decontaminate following general laboratory safety procedures and practices for handling samples to process from Biohazard handling perspective.




- Follow general laboratory safety procedures and practices for handling and disposal of the flammable reagents used in used for cleaning the system.
- For safe operation, for the safety of the operator and other personnel in the vicinity of the unit and for the laboratory safety, protective gloves should be worn by the operator since the operator could come in contact with potentially infectious substances.
- Comply with your local and national regulations for the disposal of waste.

3.4 Warnings


The safety devices installed in this system by the manufacturer only constitute the basis for accident prevention. Primarily responsible for accident-free operation is above all the institution which owns the system and, in addition, the designated personnel who operates, services or repairs the system.

To ensure trouble-free operation of the system, make sure to comply with the following instructions and warnings.


Warning – Transport and Installation

	<ul style="list-style-type: none">• Attention! The system may only be transported in an upright position.• Two people are needed to lift/carry the system.• Install the system on an even laboratory bench which must be absolutely level and can support 90 lbs (42 Kg) weight.• Do not expose the system to direct sunlight (windows).• The system MUST be connected to an earthed mains power outlet socket. The system must not be connected to an extension cord without protective earth conductor.• The system must be set up in a well-ventilated area, free from any ignition sources.• Do not operate the system in rooms with explosion hazard.• If there is a significant difference in temperature between the warehousing and the installation site of the system and if at the same time there is a high air humidity level, condensation water may form. In this case, a waiting period of at least four hours must be observed before the system is switched on. Failure to adhere to this waiting period may result in damage to the system.• Ensure that the system is installed on a vibration-free bench top.• Ensure that there are no significant variations in the room temperature.
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Warnings – Operating the system

	<ul style="list-style-type: none">• Attention! The HistoPro[®] 650 CS may only be operated by trained laboratory personnel, according to its designated use and as per the present instruction manual.• In case of emergency, switch off mains and unplug the power cord.• While working with specimens, appropriate protective gear (lab coat, gloves, safety goggles) must be worn. When handling specimens, safety gloves are to be worn at all times to avoid injury.
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Warnings – Cleaning and maintenance

	<ul style="list-style-type: none">• Attention! Prior to each maintenance and/or cleaning, switch the system off and disconnect mains power. Do not clean the system with solvents containing acetone or xylene. No liquid may be spilled into the internal components of the system – neither during operation nor during cleaning.
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	<ul style="list-style-type: none"> • When working with cleaning detergents, comply with all safety instruction by the manufacturer of the product and the laboratory management policy. • Spilled solvents have to be wiped away immediately! In case of long-term exposure, the enclosure surfaces are only conditionally resistant to solvents! • To clean the enclosure use mild household detergents; -see safety instruction above for non-appropriate ingredients!
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3.5 Inspection

- The HistoPro[®] 650 CS is carefully quality controlled prior to shipping. The highest quality packaging materials have been used to ensure that the equipment is well protected during shipping. Please follow these inspection instructions carefully.
- Carefully inspect the outer carton for any visible damage. If any damage is noticed, contact the shipping carrier and file a damage report before unpacking the Cold Module. *Failure to report visible damage may forfeit any claims for internal damages.*
- Inspect the system for any visible damage. If any shipping damage is visible, retain all packing material intact with the Cold Module and file a claim with the final carrier. *Discarding any packaging materials prior to the carrier’s inspection may void any shipper liability.*
- Retain all the packaging material for the duration of the warranty period.

3.6 Components Checklist

Each HistoPro[®] 650 CS comes with the following components. If an item is missing, please contact RUSHABH Instruments Customer Service immediately at (215) 491-0081.

Item	Quantity
HistoPro [®] 650 CS Unit	1
Power cord	1
Operator’s Manual with Warranty Registration Card	1
Rear Panel Bracket	1

4 Installation Procedures

1. Follow the instructions provided as “SAFEGUARDS” and “INSPECTION” procedures.
2. Cut through the packing tape to open the box
3. Remove the Accessories, packaging material and operating manual.
4. Remove the instrument from the carton and place on a firm laboratory bench Allow a 3” (7.5 cm) clearance between the wall and rear of the system. *When lifting unit, do not put hand under front bezel. Instead, keep both hands behind the front bezel of the unit.*
5. Connect the power cord to the instrument and plug the power cord into the electrical outlet.
6. The system already has the appropriate software necessary to run it installed.
7. The Cold Module is now set up for correct use in accordance with the instructions specified

in this Operating Manual.

4.1 Setup

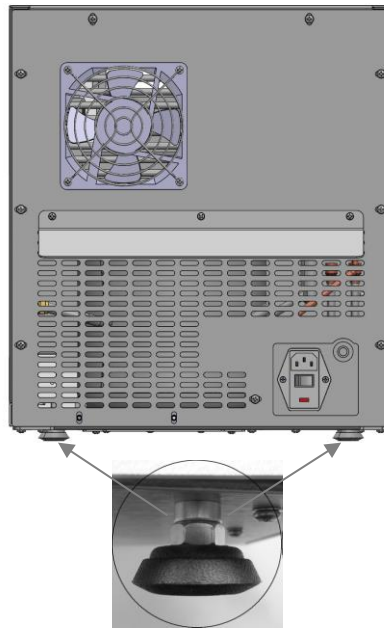
4.1.1 Horizontal Alignment

For safe and accurate work, it is important that all Cold Module feet are in uniform contact with the installation surface.

The Cold Module is horizontally aligned at the factory. If a completely level or horizontal surface is not available at the installation site, the Embedding Center Cold Module must be realigned.

For this purpose, the Cold Module feet are height adjustable.

- For alignment, loosen the locknuts using a size 7/16" open-end wrench
- Adjust the Cold Module feet until the Cold Module is in a stable position at the installation location according to requirement.
- Retighten the locknuts.



4.1.2 Switching on the Cold Module

The Cold Module **MUST** be connected to a grounded power socket.



Only the power cord provided may be used, which is intended for the local power supply (socket). The protective effect must not be eliminated by an extension cable without a protective grounding conductor.

The AC socket used for power supply must be close to the Cold Module and easily accessible.

- Let the unit sit on the bench for at least one hour before turning it ON after it has been moved from one place to another or from shipping carton to the bench..
- Before plugging the Cold Module into the A/C mains, make sure that the main switch on the rear of the Cold Module is in the OFF (“O”) position.
- Plug the power cable into the A/C mains power supply socket and connect it to the power socket on the wall. If applicable, switch on the switch for the power socket.
- Then switch on the main switch on the Cold Module.



- Before plugging the Cold Module into the mains, make sure that the main switch on the rear of the Cold Module is in the OFF (“O”) position.
- Plug the power cable into mains power supply socket and connect it to the power socket on the wall. If applicable, switch on the switch for the power socket.
- Then, switch the main switch on the Cold Module, (ON = “I”).

5 Operating the HistoPro®650 CS

5.1 General Usage

5.1.1 Set-Up Procedure

1. Press the power switch at rear of the instrument to the "on" position
 2. Press the power switch in the front of the instrument to the "on" position.
 3. Adjust the brightness of the display by using Contrast Adjust Menu in Stand By mode.
- Set the system in Active mode using TAP interface. (Refer to page 16 for instructions on using TAP interface.)

5.1.2 Operating Procedure

1. Set the desired operating temperature
2. Allow the cold plate to reach set temperature before continuing to operate the system
3. Transfer the embedded tissue mold from HistoPro® 650 H Hot module to the cold plate of the HistoPro® 650 CS Cold Module.
4. When the embedding molds have reached the desired temperature, remove them from the cold plate for sectioning.

5.1.3 Shutdown Procedure

1. If the system is to automatically turn on in the morning, set the system in the Standby mode by using TAP. (Refer to page 16 for instructions on using TAP interface.) In the event the system will not be in use for an extended period of time, push the power switch at the rear of the instrument to the "off " position.

5.2 Changing Default Settings

The HistoPro® 650 CS Cold Module provides a very User-Friendly Turn And Push (TAP) Operator Interface to set-up and run the system. To select different functions, first turn the Rotary Control Knob (the Knob) to move the cursor (*) to the desired selection. Then push the Knob to make the selection. The display prompts the user about what options are available and how to select one of those options at all times. Several examples at the end of this section will clarify these concepts.

5.3 Operating modes

The system provides 3 operating modes: standby mode, active mode, and waiting mode.

Standby Mode: In the “Standby” mode, the system is ready to be turned ON. The cooling system (compressor and the temperature regulation valve) is turned OFF. Various set-up functions may be performed from Standby Mode. The following options are available in the Standby Mode.

- Adjust the Display Contrast.
- Turn the System ON (enter Active Mode)
- View Temperatures
- Change the Setpoint for the Cold Plate
- View and Change the System Configuration

(If the system was set up to turn on automatically the next day, the system will automatically enter “Waiting” mode at midnight.)

Waiting Mode: In the “Waiting” mode, the system waits for the appropriate time to turn ON various functions based on the desired Start Time. The Start Time is the time when the system is ready for use. It takes about 30 minutes to cool the cold plate. Based on the performance data, the system will turn on the compressor 60 minutes prior to the programmed Start Time.

Active Mode: In the “Active” mode, the system controls the temperatures of the work surface. The following options are available in Active Mode.

- Turn the System OFF (enter Standby Mode)
- View Temperatures
- Change the Setpoint of the Cold Plate
- Set the Time of Day and the Automatic Start Time
- View and Change the System Configuration

5.4 Display Examples

In the following paragraphs, several examples of displayed information in various modes as well as examples of some set-ups will be displayed. The actual display on the system may vary, reflecting the actual information at the time of set-ups, as well as the software version of the system.

Standby Mode Display:

STANDBY :	17:05
CONTRAST	
* TURN SYSTEM ON	
TIMES	
TEMPERATURES	
CONFIGURATION	
PUSH OR ROTATE KNOB	

When the Knob is turned clockwise (or to the right), with every click, the cursor (“*”) moves down to the next selection; if the Knob is turned counter clockwise (or to the left), the cursor will move up to the next selection. In either case, the cursor wraps around.

Once the cursor is next to the desired selection, just push the Knob to select the options. For example, the Knob is pushed when the cursor is next to “TURN SYSTEM ON” selection, the system will go into Active Mode.

Active Mode Display:

ACTIVE :	17:05
* TURN SYSTEM OFF	
TIMES	
TEMPERATURES	
CONFIGURATION	
PUSH OR ROTATE KNOB	

For extended life of the cooling system, HistoPro® 650 CS uses a proprietary soft start algorithm while turning on the compressor. Also during shutdown process, it automatically defrosts the cold plate of any ice buildup. The actions taken by the system are communicated to the operator as shown in the following paragraphs.

During the transition from Stand By mode to the Active mode, just prior to turning on the compressor, the following information is displayed.

PLEASE WAIT .

**COMPRESSOR WILL
TURN ON SHORTLY .**

TIME REMAINING: 240

During the transition from Active mode to the Stand By mode, just prior to turning off the compressor, the following information is displayed.

DEFROSTING :

**COMPRESSOR WILL
TURN OFF SHORTLY .**

TIME REMAINING: 240

At the end of the defrost cycle, the condensation can be easily wiped off or pushed in the condensation collection tray behind the front bezel.

5.4.1 Display Contrast Adjust

To adjust the contrast of the display, while the system is in the Standby mode, select, “CONTRAST” using the TAP method. Rotate the knob to adjust the contrast.

CONTRAST ADJUST :

**ROTATE TO ADJUST .
PUSH TO ACCEPT .**

5.4.2 Time Menus

To set the time of day or the automatic start time, select “TIMES” from either the Active or the Standby mode display using the TAP method. After selecting the “TIMES” selection using the TAP method, the following TIME menu will be displayed.

```
TIME:                17:05

OPTIONS:
* SET CLOCK
  SET START TIME
  EXIT

PUSH OR ROTATE KNOB
```

5.4.3 Setting Time of Day and day of week

The “SET CLOCK” menu is used to set the current time of day and day of the week. When this option is selected using the TAP method, the following display is presented.

```
SET CLOCK           17:05

* ADJUST HOURS
  ADJUST MINUTES
  ADJUST DAY
  EXIT

PUSH OR ROTATE KNOB
```

To change the hours of the time, select “ADJUST HOURS” from the menu using the TAP method. The following SET CLOCK menu is displayed.

Rotate the Knob to the right (or clockwise) to increase the time in one-hour increments, or to the left (or counter clockwise) to decrease the time in one-hour increments. When the desired hours are displayed, push the Knob to accept this as the hours for the time. *Note that this system runs on a twenty four hour clock when setting the hours of the time of day.* After setting the hours, the following information will be displayed. Note that the cursor is displayed next to the next logical choice, “ADJUST MINUTES”.

```
SET CLOCK:         17:05

  ADJUST HOURS
* ADJUST MINUTES
  ADJUST DAY
  EXIT

PUSH OR ROTATE KNOB
```

Set the minutes of the time following the same procedure as used to adjust hours. To set the current day of the week, select the “ADJUST DAY” option using the TAP method from the SET CLOCK menu. **In order to turn the system ON automatically at preset “Start Time” on selected days of the week, it is necessary that the day of the week be set properly.** The following information is displayed when the “ADJUST DAY” option is selected.

<p>SET CLOCK: 17:05</p> <p>ADJUST DAY: MONDAY</p> <p> ROTATE TO ADJUST. PUSH TO ACCEPT.</p> <p>PUSH OR ROTATE KNOB</p>

Set the day of the week using the TAP method. After pushing the Knob, the SET CLOCK menu will be displayed. Select “EXIT” to exit the SET CLOCK menu and return to the main menu in Standby or Active mode, that is, the Standby mode display or the Active mode display.

5.5 Temperature Menus

The next several paragraphs show various selections of Temperature Menus. Using Temperature Menus, the temperature of the cold plate may be viewed, and the set point of the cold plate may be adjusted. To do any of these tasks, select “TEMPERATURES” from the Standby mode display or the Active mode display. After choosing the “TEMPERATURES” selection using the TAP method, the following TEMPERATURE menu will be displayed

<p>TEMPERATURES :</p> <p>OPTIONS</p> <p>* VIEW TEMPERATURES</p> <p> ADJUST SETPOINTS</p> <p> EXIT</p> <p>PUSH OR ROTATE KNOB</p>
--

The default settings and allowable ranges for different variables are listed in the following table.

<u>Zone</u>	<u>Default Temperature</u>	<u>Adjustment Range</u>
Cold Plate	-10° C	-10° C – 10° C

5.5.1 Viewing Temperatures

To view the current temperatures of the system, select “VIEW TEMPERATURES” using the TAP method from the TEMPERATURE menu. The following menu will be presented.

```
VIEW TEMPS
VIEW TEMP

      COLD PLATE -02.4

PUSH TO EXIT
```

To exit this menu, simply push the Knob using the TAP method.

5.5.2 Setting Temperatures

To adjust the set temperatures, select “ADJUST SETPOINTS” from the TEMPERATURES menu using the TAP method. The following SETPOINTS menu will be presented after doing this.

```
SETPOINT:

* COLD PLATE -05

EXIT
```

Push the Knob to select Adjust Cold Plate Set Point selection. The following information will be displayed.

```
ADJUST SETPOINT:

      COLD PLATE -05

TURN KNOB TO ADJUST
PUSH TO SET AND EXIT
```

Rotate the Knob to increase or decrease the temperature set point. Rotate it to the right to increase the temperature in 1° C increments and to the left to decrease the temperature set point in 1° C increments. When the desired set temperature is displayed, push the Knob to set this value as the new temperature setpoint for this zone. The new temperature setpoint will be displayed on the screen. Once the desired setpoints have been set, exit the SETPOINTS menu by selecting EXIT from this menu using the TAP method. Then exit to the Standby mode display or the Active mode display by selecting “EXIT” from the TEMPERATURES menu using the TAP method.

5.6 Configuration Menu

The Configuration Menu is used to set the days of the week on which the system should automatically turn on. Information necessary for the calibration of temperature sensors and helpful information for troubleshooting the system is accessible from this menu also. To perform any of these procedures, select CONFIGURATION from the Standby mode display or the Active mode display using the TAP method. The following CONFIGURATION menu will be displayed.

```
CONFIG:

* AUTOSTART
  STATUS
  CAL SENSORS
  EXIT

PUSH OR ROTATE KNOB
```

5.6.1 Setting automatic start

To change the configuration of the system regarding its autostart times, select “AUTOSTART” from the CONFIGURATION menu using the TAP method. The following menu will then be presented.

```
AUTOSTART:

* N SUN      Y THU
  Y MON      Y FRI
  Y TUE      N SAT
  Y WED      EXIT

PUSH OR ROTATE KNOB
```

If the system is scheduled to automatically turn on, a “Y” will be displayed to the left of the day of the week. An “N” will be displayed to the left of the day of the week it is not scheduled to automatically turn on. To change any of the settings regarding autostart, rotate the Knob to move the asterisk up and down. When the asterisk is beside the day of the week that needs to change, push the Knob to change the settings from “Y” to “N” or from “N” to “Y.” When all necessary adjustments are made, exit this menu and return to the CONFIGURATION menu by selecting EXIT using the TAP method. To return to the Standby mode menu or the Active mode menu, select “EXIT” again from the CONFIGURATION menu using the TAP method.

5.6.2 Viewing System Status

WARNING: The settings under this CONFIGURATION menu should not be altered by anyone other than personnel of the RUSHABH Instruments Technical Service Department.

The status screen shows what happens in the system. This information is useful to troubleshoot possible problems in the system. To access this screen, select “STATUS” from the CONFIGURATION menu using the TAP method. The following screen will be displayed.

SOFTWARE VER: 3.00			
SP	TEMP	CAL	DC
-05	-03.8	00.0	008
COMPRESSOR: ON			
VALVE: OFF			
PUSH TO EXIT			

The following table displays the abbreviations showed on this screen and what they stand for.

Term	Abbreviation
SP	Set Point
TEMP	Current T emperature
CAL	S ensor C alibration Offset
DC	Valve D uty Cycle

Push the Knob to exit the screen and return to the CONFIGURATION menu. To return to the Standby mode menu or the Active mode menu, select “EXIT” again from the CONFIGURATION menu using the TAP method.

5.6.3 Calibrating Sensors

This selection allows the manufacturing technician to set calibration off set for calibration sensors at the time of manufacturing. To access this, select “CAL SENSORS” from the CONFIGURATION menu. The calibration values for the proper operation of the system should not be changed. Please contact our Technical Service Department for assistance for this selection.

6 Maintenance Instructions

6.1 General Information

DO practice good housekeeping and maintain the instrument in a clean condition

DO wipe off spilled solvents immediately.

DO switch off the power supply and unplug the power cord when the instrument is not in use

DO dispose of spent reagents in accordance with the laboratory guidelines in force in your country!

DO ensure that replacement fuses are of the correct specification

DO NOT use excessive amounts of solvent for cleaning

DO NOT use metal scraper to scrape off any residue on different surfaces

DO NOT use the instrument for purposes other than its designed function

DO NOT allow liquid to come into contact with the electrical connections or get inside the instrument

6.2 Cleaning Procedures

Please use the following instructions and cleaning procedures carefully to clean the HistoPro® 650 CS Cold Module.

- Disconnect line cord from instrument when cleaning. The instrument should always be disconnected from the main power supply when cleaning, particularly if flammable solvents are used.
- Use only minimal quantities of solvent on an absorbent cloth. Use mild ammonia or alcohol solution to wipe the painted as well as stainless steel surfaces. If there is any paraffin build up use xylene substitute to clean the surfaces. Do not use excessive amount of cleaning solutions since it may damage the electronics of the system or the painted surfaces.

6.2.1 Additional Cleaning Procedures

- At least once a month (or more frequently, depending on the environment the system is used in), clean any dust build up around the metal grill on the rear panel. **Excessive blockage of the back panel slots due to the accumulation of dust will reduce the efficiency and the life of the compressor.**
- Occasionally switch off the instrument. Using an absorbent cloth moistened with a xylene substitute, clean the surfaces of the casing. Do not use excessive amounts of solvent.

6.3 Routine Maintenance

- No routine maintenance is necessary for the Cold Module.
- In the event of a spillage of the liquids inside the unit, allow the qualified service technician to inspect and clean the Cold Module to ensure safe operation and long operational life of the Cold Module.

7 Troubleshooting

7.1 Fault Detection and Correction List

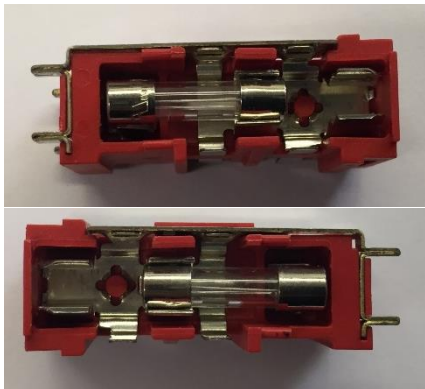
No	Symptom:	Probable Causes:	Suggested Actions:
1	<ul style="list-style-type: none">Unit does not power up	<ul style="list-style-type: none">The Power cord is not plugged into wall outlet properly.Power cord is not plugged into the Cold Module properly.Fuse is blown. The power supply in the Cold Module is defective.	<ul style="list-style-type: none">Check the power cord connections at both ends. Replace the power cord if necessary.Replace the fuse with the fuse of the same rating. Investigate why the fuse blown in the first place and remedy the situation before powering the unit again.Contact authorized service personnel for repairs.
2	<ul style="list-style-type: none">Display appears to be blue, however, cannot see any text on the display.	<ul style="list-style-type: none">Contrast adjustment may be necessaryDefective Control PCB.	<ul style="list-style-type: none">Adjust the contrast using procedure described in paragraph 5.4.1.Contact authorized service personnel for repairs.
3	<ul style="list-style-type: none">Keypad does not respond to rotary knob	<ul style="list-style-type: none">Defective rotary knob or a defective Control PCB.	<ul style="list-style-type: none">Contact authorized service personnel for repairs.

7.2 Power Failure

- Check whether there is a general power failure (no power)
- Check whether the power cord is inserted correctly into the power socket and whether the power socket is switched on, if applicable.
- Check whether the power cable is plugged into the socket on the Cold Module properly.
- Check whether the power switch is switched on correctly.
- Some Cold Module malfunctions/failures are caused by defective fuses. Check whether one or both secondary fuse(s) is/are defective.



Before replacing a fuse, always switch the Cold Module off and unplug from power supply. Defective fuses may be replaced only with the replacement fuses supplied together with the Cold Module.



To replace a fuse, proceed as follows:

- With a screwdriver, carefully push out the Hood of the fuse cover at rear of Cold Module and open it downwards.
- With the screwdriver, pop out the red fuse holder assembly – it contains two fuses on the left and right side.
- Check that the thin wire in the glass capillary of a fuse is intact. If not the fuse must be replaced. Replace any fuses that are not intact



Before plugging the power cable back in and switching on the Cold Module, you must have identified and corrected the cause of the defective fuse.

- Insert the red fuse holder assembly with the two fuses into the power entry module, close the fuse cover securely, and start up the Cold Module again.

8 Ordering Supplies, Optional Accessories and Parts

Item Description	Part No.
Operator's Manual	15253
Service Manual	15254

9 Service Information:

If you are in need of technical customer service or spare parts, please contact our Technical Service Department at 215-491-0081 or the dealer where you purchased the unit.

Please provide the following information:

- Model name and serial number of the Cold Module.
- Location of the Cold Module and name of the person to contact.
- Reason for the service call.
- Delivery date.

10 Decommissioning and Disposal:

The unit or parts of the unit must be disposed of according to existing local applicable regulations.