

User Manual
TN1500
Embedding Center



Read Prior to Operation!
Always keep this manual near the unit!

WP46818
06.02.15

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1 | General Summary

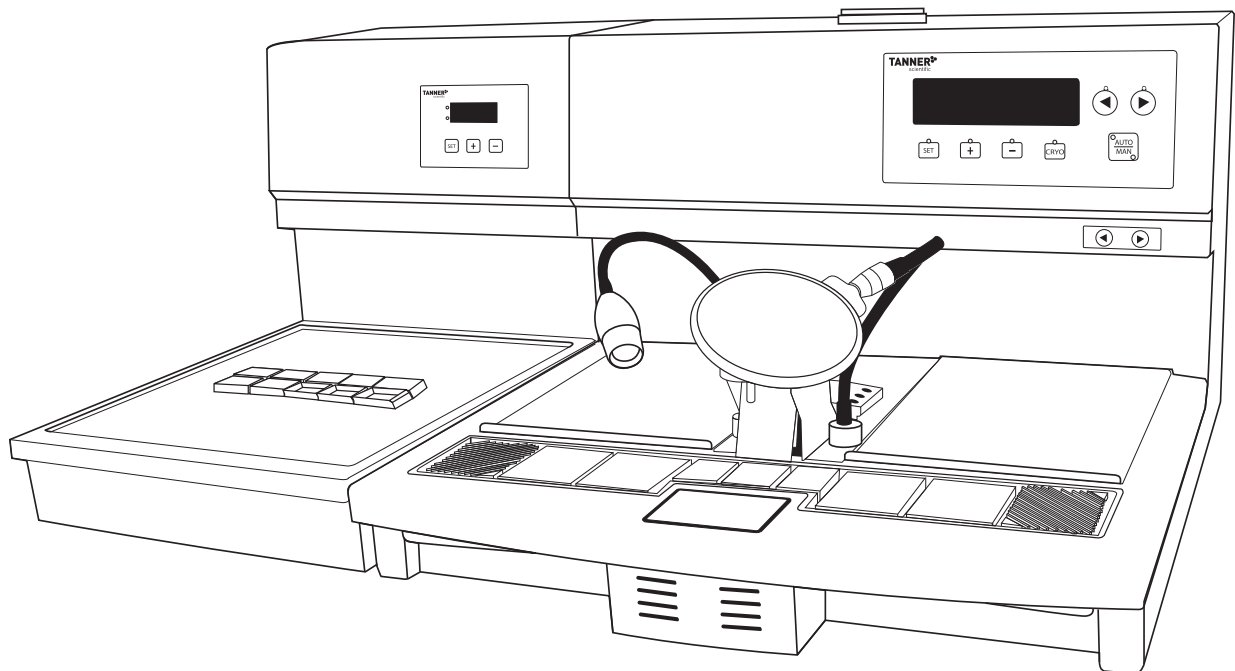
This instrument was a collaborative effort developed using input from over 100 Histologists in the United States.

Tanner Scientific® TN-1500 Tissue Embedding Center and Cooling Plate are intended to embed and cool pathological tissue.

Features:

- Pre-set On/Off timer for every day of the week.
- Histo-trimmers on both ends of the hot plate are convenient for both left and right hand users.
- Adjustable magnifier for easy viewing.
- Two modes of operation: automatic and manual.
- Temperature control functions located on 5 parts.
- Multiple over-heat protection devices.
- Keys with light indicator.
- Low voltage and adjustable LED illumination system w/adjustable flow tube.
- Two module configurable options (left to right or right to left).

Tanner Scientific® TN1500-Embedding Center



2 | Installation

Transportation

- **Only transport the instrument vertically!**
Any other position can cause damage.

Unpacking

- Examine the package before opening. If damaged, do **NOT** open and immediately contact Tanner Scientific®, and the transportation carrier.
- Unpack the carton removing all components and user manual.
- Remove the unit from the carton using the two black securing straps.
- When lifting the instrument, be sure to hold both sides by its base plate.

Placement

- Place the instrument on an even and steady surface to avert vibration.
- Do **NOT** operate the instrument under a fan or directly below an A/C duct.
- Do **NOT** operate the instrument around any electromagnetic interference.
- Do **NOT** place the instrument near any explosive or flammable materials.
- Do **NOT** place the instrument in an area where it would be exposed to direct sunlight.
- The back of the instrument **MUST** be placed at least 15cm away from the wall. **If the instrument is placed closer than 15cm from the wall**, it can cause substantial damage to the instrument and can invalidate the warranty.

Power Supply

- An independent grounding power socket should be used for the machine.
- Only use the power supply line supplied with the instrument to connect with the socket.
- Make sure the grounding line of the 3-line power is securely connected before starting the machine in compliance with the GB9706.1 standards.

3 | Technical Parameters

Power Supply: 110V, 60Hz

Fuses: 15 AMP x 2

Power Consumption: 1000VA

Operating Temperature Range: 15

Cooling System: DC 12/24 V Compressor

Refrigerant: R134A

Dimensions (LxDxH): 26.5" x 22.75" x 16.5"

Weight: 77lbs

Paraffin Reservoir: 6L

Thermal Chambers: Approx. 1.5L

Cold Plate: Approx. 80 Cassettes

Working Environment

- Operate in an ambient temperature range of 5°-40°C.
- Humidity should be less than 80%.
- Atmospheric Pressure: 860 hpa - 1060 hpa.
- All heated components include overheat protection.

Temperature Control

Functional Unit	Temperature Range	Heated Separately	Separate Temperature Control	Warm-Up Time Prior to Operation
Paraffin Reservoir	0°C to 85°C	+	+	2 hrs
Paraffin Dispenser	0°C to 85°C	+	+	15-20 min
Thermal Chambers	0°C to 85°C	+	+	15-20 min
Hot Plate	0°C to 85°C	+	+	15-20 min
Cold Plate	0°C to -10°C	+	+	30 min
Forceps Holders	0°C to 85°C	-	-	15-20 min

4 | Safety Precautions

- This instrument should only be operated by qualified personnel.
- Read the user manual in full before use of this instrument.
- Turn off and disconnect the instrument from its power supply before changing or cleaning any of its parts.
- Be aware there is a risk of burning when operating. The paraffin reservoir, mold warmer, cassette bath, work area and forceps holders are all hot.
- Make sure the power supply complies with the specified requirements before use. Only connect to a grounded socket.
- The unit must not be exposed to direct sunlight or set up near an air condition vent.
- The back of the instrument must be placed at least 15cm from the wall.

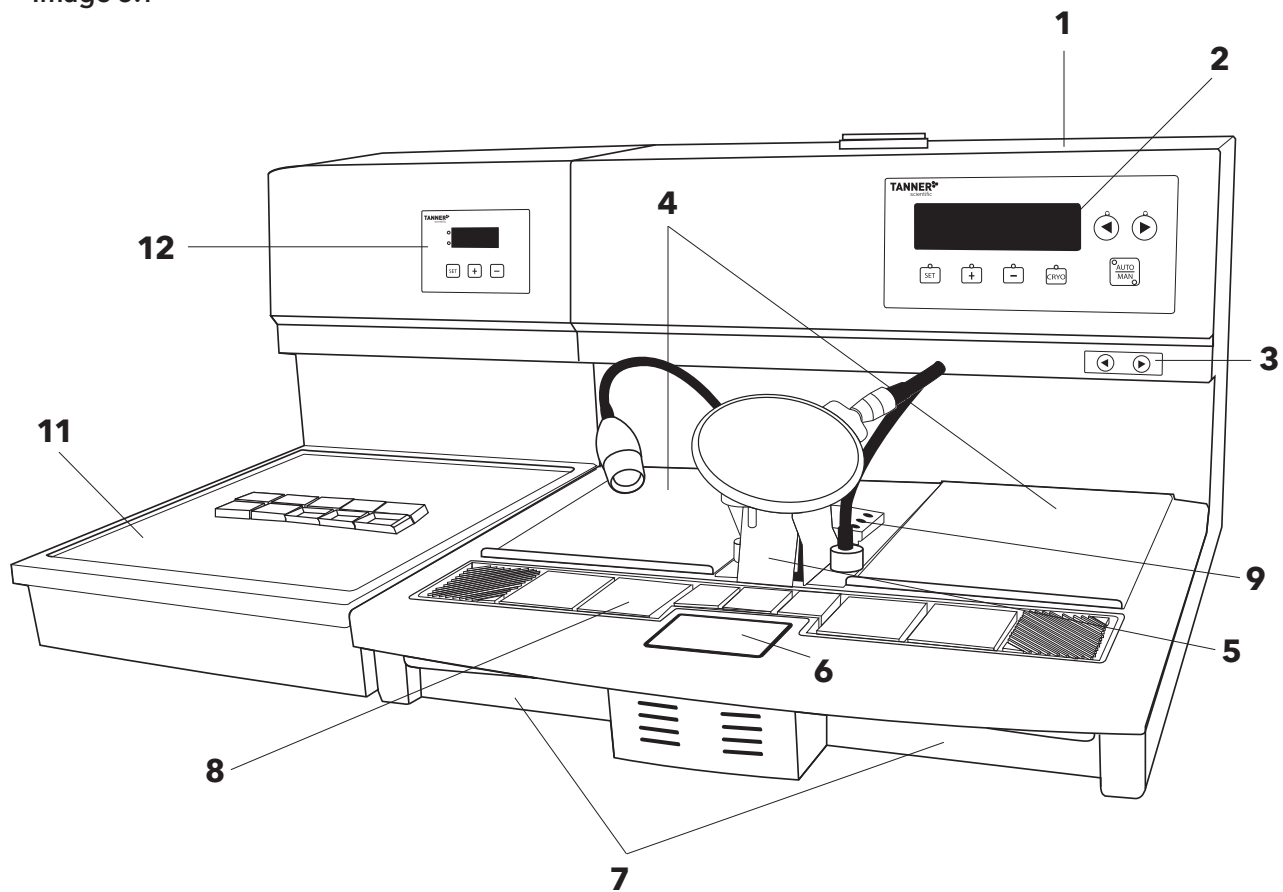
Attention:

- Use heating elements only as needed.
- Turn to sleep mode or away when not in use.

5 | Equipment Overview

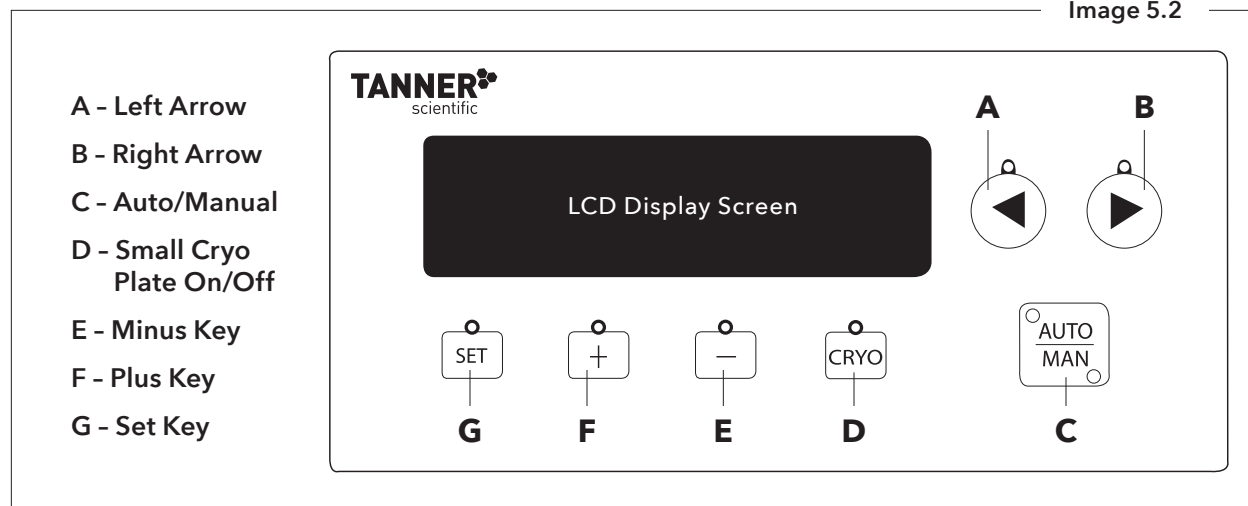
Tanner Scientific® TN1500-Embedding Center

Image 5.1



- 1 - Paraffin Tank
- 2 - Main Control Panel
- 3 - LED Light Control
- 4 - Thermal Chamber
- 5 - Paraffin Dispenser
- 6 - Small Cryo Plate

- 7 - Paraffin Waste Trays
- 8 - Hot Plate
- 9 - Forceps Holder
- 10 - Rear Panels (*On Back of Instrument*)
- 11 - Cooling Plate
- 12 - Cooling Plate Control Panel



- A - Left Arrow
- B - Right Arrow
- C - Auto/Manual
- D - Small Cryo Plate On/Off
- E - Minus Key
- F - Plus Key
- G - Set Key

1 - Paraffin Tank

- Holds up to 6 liters of paraffin.
- Temperature can be adjusted in a range from 0° to 85°C.
- The reservoir has overheat protection in the event of a temperature control failure.

2 - Main Control Panel

- To light up screen, press any key (**except CRYO**).
- The screen will enter into protection and power save mode after 15 minutes of no contact.

3 - LED Light Control

- Press ► key, the LED light will become brighter.
- Press ◀ key, the LED light will become darker.

4 - Thermal Chambers

- Used to keep the "blocks" warm.
- Has programmable temperature control.
- Removable transfer trays.

5 - Paraffin Dispenser

- Has programmable temperature control.
- Flow control is adjustable.

6 - Small Cryo Plate

- Located directly in front of the embedding area to ensure consistent, low temperatures during the filling of the molds.
- Set temperature allows cryo plate to cool to maximum ability.

7 - Paraffin Waste Trays

- Two removable trays are located under the heated work areas to collect the excess paraffin drained from the surface.
- Empty and clean both trays daily.

8 - Hot Plate

- Features a paraffin trimmer on both the left and right side.
- Has programmable temperature control.

9 - Forceps Holder

- Maintains independent temperature.

10 - Rear Panels

Image 5.3

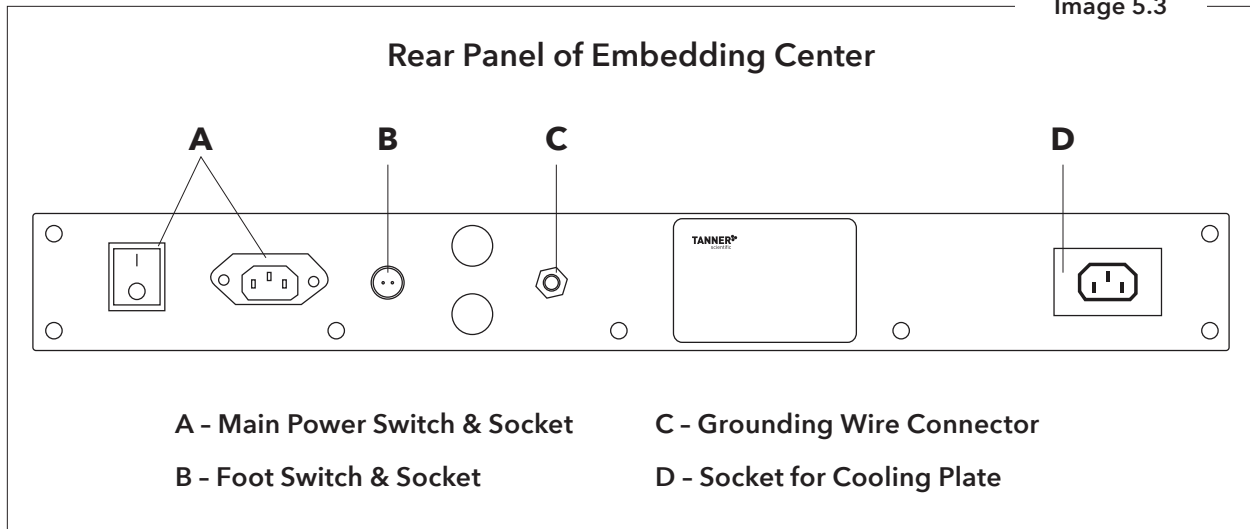
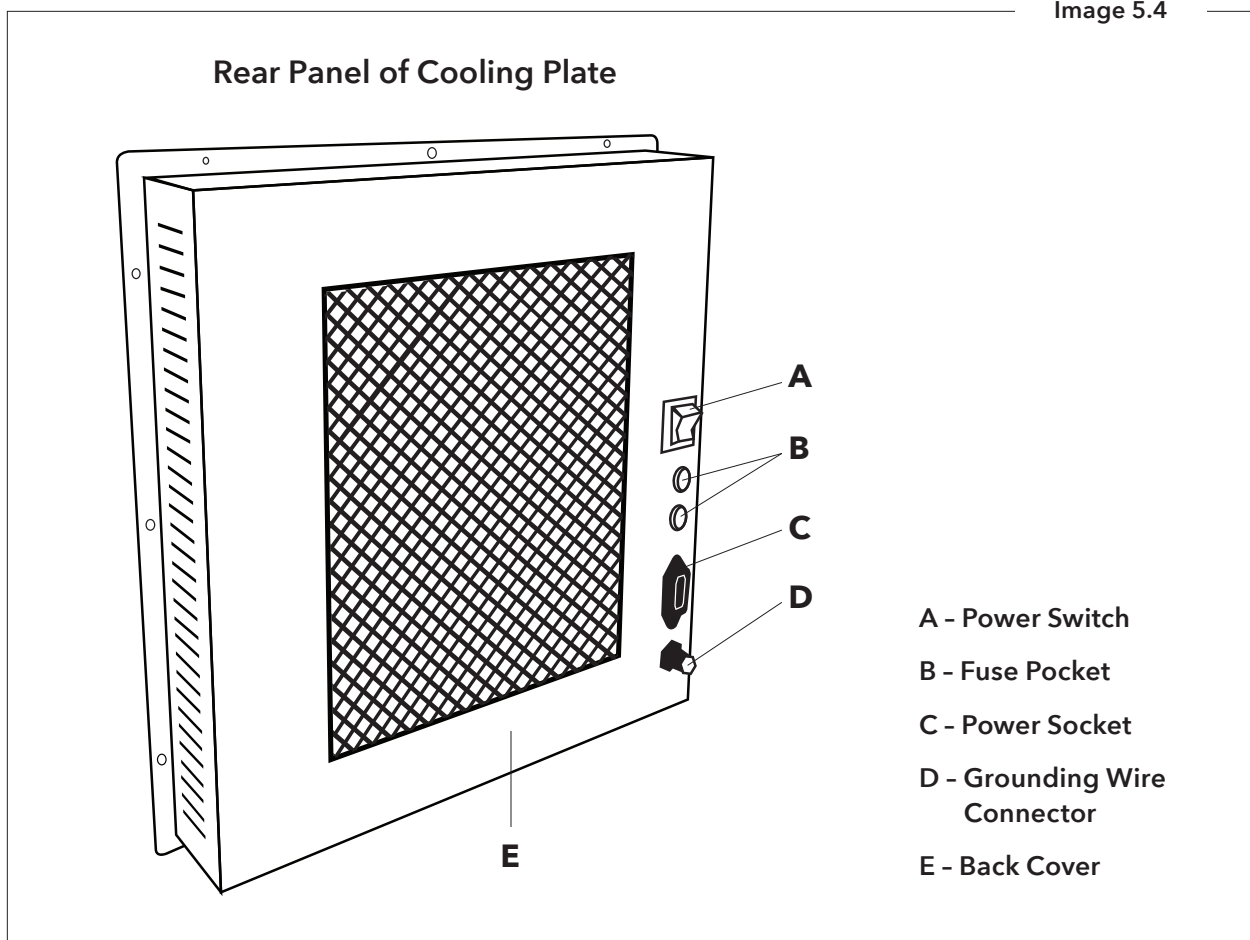


Image 5.4



* Panel components may change depending on date of manufacture.

Cooling Plate & Cooling Plate Control Panel

Image 5.5

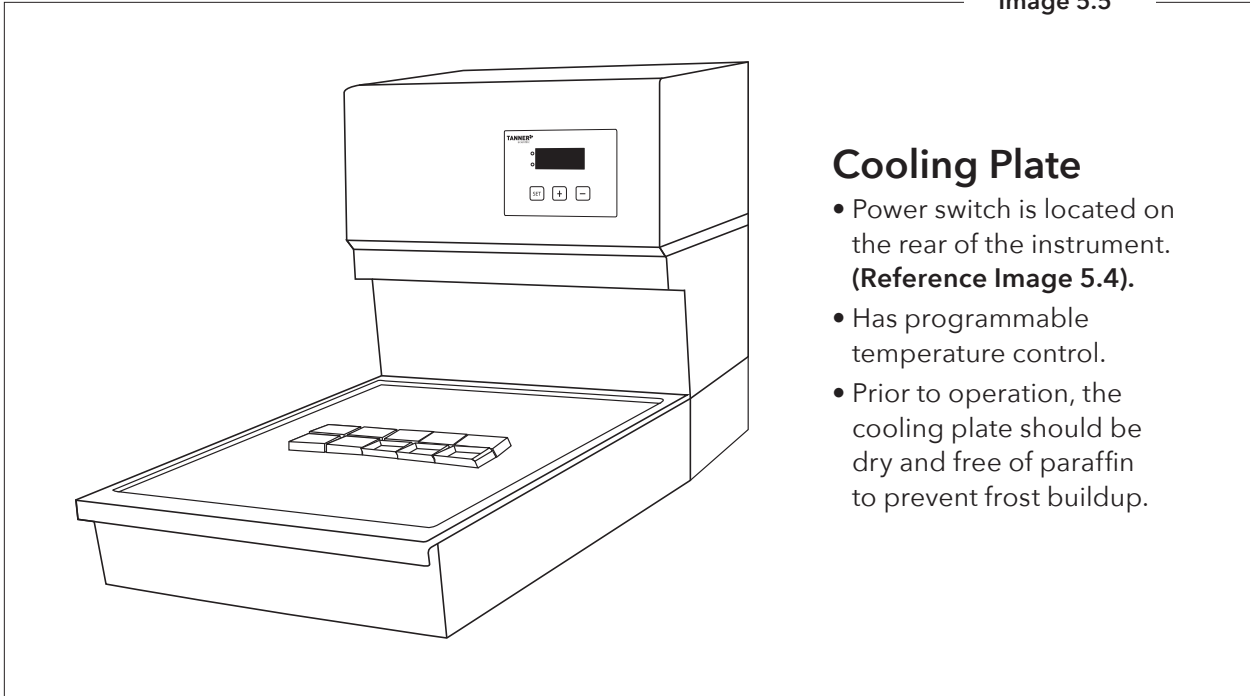
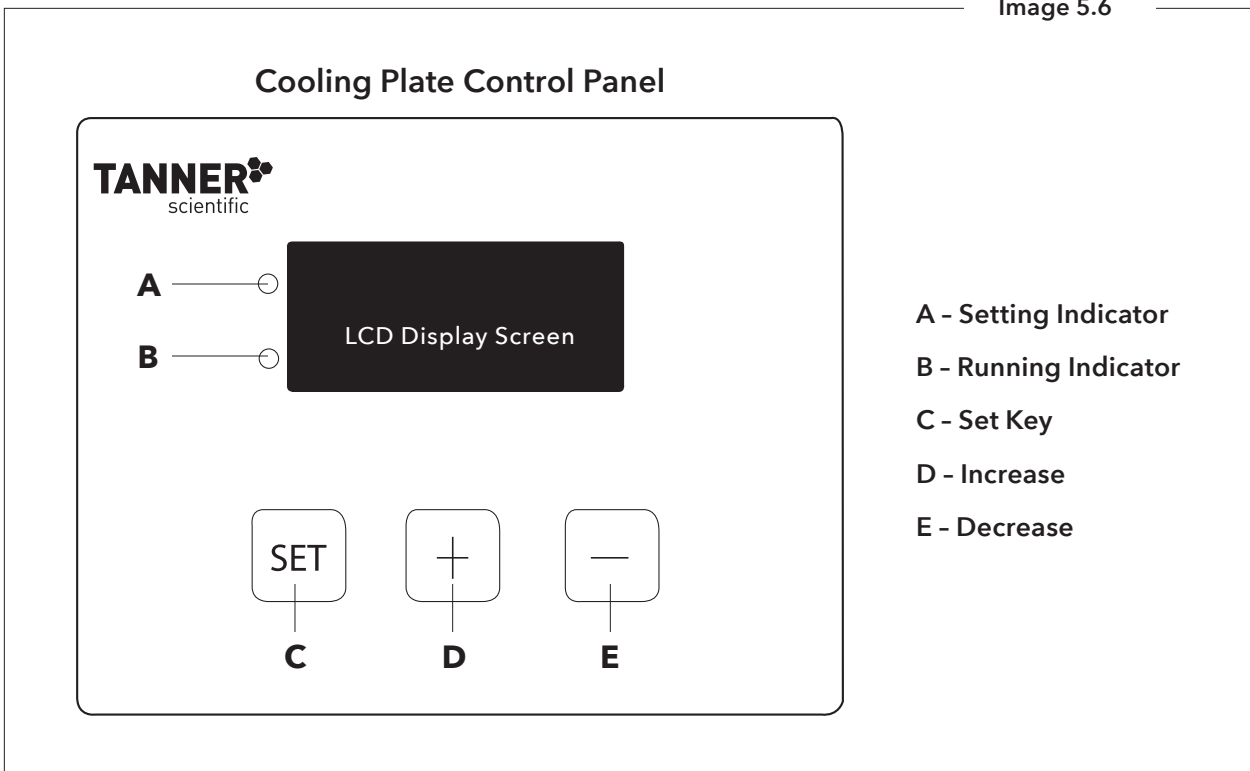


Image 5.6



6 | Operation



Please ensure that all preparatory steps have been completed and safety precautions have been reviewed prior to use.

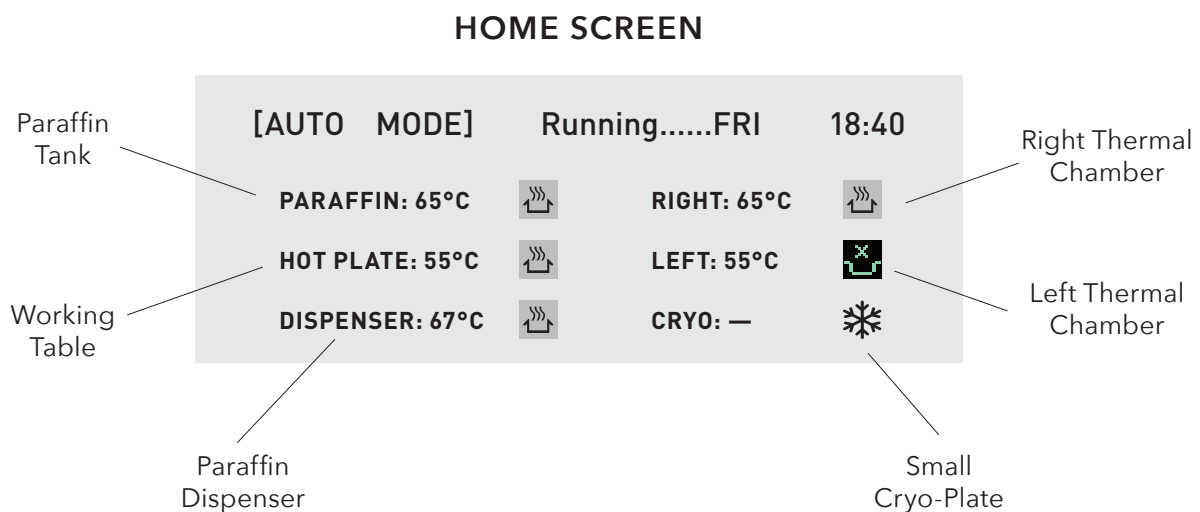
Getting Started

Plugging In

- Before you connect the instrument to the main electrical source, please check that the power switch is in the **(O) OFF** position.
- Only use the power supply line provided with the instrument.
- Electrical socket must be a grounded socket.
- Connect power plug into the instrument before plugging into the electrical socket.

Starting Up the Machine

- Turn on the main switch of the instrument. **Reference Image 5.3 on page 8** for power switch location.
- LCD display screen on the main control panel will show the following picture:



6.1 | Main Control Panel Setup Mode

- 1) Reference **Image 5.2 on page 7** for the main control panel.
- 2) Place instrument into manual mode by pressing the **AUTO/MAN** key.
Light will illuminate under **MAN**.
- 3) Press **SET** key to enter into set up mode.
- 4) The main control screen will show the following picture:

SETUP SCREEN

[SETUP MODE] SELECT (1—3)

1) TEMPERATURE

2) TIMER

3) CLOCK

- All settings, temperature and time parameters will be automatically recorded on the computer chip. When restarting the embedding center and pressing the **AUTO/MAN** key, it will run according to the pre-set parameters.

6.2 | Temperature Setting

- 1) Select **1) TEMPERATURE** using the ◀ ▶ keys.
- 2) Press **SET** key to enter into temperature setting status.
- 3) Choose the working zone.
- 4) Use **(+)** or **(-)** to increase or decrease the temperature figures.
- 5) Once you have selected your desired temperature ranges, press the **AUTO/MAN** key to return back to the home screen.



Suggested Pre-Setting Temperatures for these 6 Working Zones:

- | | |
|-----------------------------|--------------------------------|
| 1) Paraffin Tank: 65°C | 2) Right Thermal Chamber: 65°C |
| 3) Hot Plate: 55°C | 4) Left Thermal Chamber: 55°C |
| 5) Paraffin Dispenser: 67°C | 6) Small Cryo Plate: – |

NOTE: Paraffin dispenser should always be 2-3°C higher than paraffin tank.

 means section is heating.

 means heating has stopped.

NOTE: When the instrument reaches the desired set temperature, the heating symbol will change from  to . If the actual temperature is lower than the setting temperature, the symbol will automatically change as temperature adjusts. The unit is working only when these symbols are present and lit.

6.3 | Timer Setting

- 1) Select **2) TIMER** using the ◀ ▶ keys.
- 2) Press **SET** key to enter into time setting mode.
- 3) Use ◀ ▶ to select time and day. Press ▶ to choose time setting for Thursday-Sunday or ◀ to choose time setting for Monday-Wednesday.
- 4) Press (+) or (–) to increase or decrease the time figure.
- 5) Press **AUTO/MAN** key to return back to the home screen.

Example:

To turn on at 7:30 and turn off at 16:30 on Tuesday, follow these steps:

- 1) Turn on the power and press **AUTO/MAN** key.
- 2) Press **SET** key; choose **2) TIMER**.
- 3) Press ▶ to choose Tuesday and press (+) or (–) to set **7:30 [ON] 16:30 [OFF]**.

NOTE: If on and off times are both 00:00, that means the instrument will not turn on that day.

NOTE: If the instrument is turned on according to a pre-set starting time, it will automatically start to work at that time in automatic mode.

6.4 | Clock Setting

- 1) Select **3) CLOCK** using the ◀ ▶ keys.
- 2) Press **SET** key to enter into current time setting mode.
- 3) Use ◀ ▶ to choose minute, hour, or week.
- 4) Use (+) or (-) to increase or decrease time figures.
- 5) Press the **AUTO/MAN** key to return back to the home screen.

[SET CLOCK]	SELECT (1—3)
1) MINUTE: 05	
2) HOUR: 09	
3) WEEK: FRI	

6.5 | Running Manual Mode

- 1) To manually run the instrument, press **AUTO/MAN** key on the main control panel to enter into the manual interface.
- 2) Press ▶ to enter into running mode. Heating icons will appear, meaning all areas are warming up.
- 3) Press ◀ to return back to waiting mode.

[AUTO MODE]	Running.....FRI	18:40
PARAFFIN: 65°C	■	RIGHT: 65°C ■
HOT PLATE: 55°C	■	LEFT: 55°C ■
DISPENSER: 67°C	■	CRYO: — ■

[MAN MODE]	Off Work	FRI	18:40
PARAFFIN: 65°C	■	RIGHT: 65°C	■
HOT PLATE: 55°C	■	LEFT: 55°C	■
DISPENSER: 67°C	■	CRYO: —	■

6.6 | Cooling Plate Operation

- 1) **Reference Image 5.6 on page 9.**
- 2) Connect the cooling plate to power source. Turn on the power switch located on the rear of the machine. Green light will illuminate.
- 3) Press **SET** key; the compressor will stop running.
- 4) Press **(+)** or **(-)** to adjust the temperature.
- 5) Press the **SET** key to enter running mode.

*** Turn on 20 minutes prior to use to allow for temperature to be achieved.**

- There are two indicator lights beside the screen. If the indicator light underneath is on, this means the compressor is working. If the indicator light on top is on, this means the compressor has stopped working.
- If the actual temperature is lower than setting temperature, the compressor will automatically stop running. When the actual temperature is higher than setting temperature, the compressor will restart.
- For convenience, the preset temperature range is -5° to -10°C.

7 | Cleaning & Maintenance

Cleaning

- Equipment should be cleaned daily.
- Before performing all maintenance or cleaning of the equipment, **turn off the power switch and unplug the instrument!**
- Only household grade cleaners should be used for cleaning the instrument.
- Acetone and benzene will damage paint on the surface of the instrument.
- Wipe area using a soft cloth dampened in alcohol (70-75% isopropyl or ethyl solution)
- Do **NOT** wipe dry. Allow area to air dry to maximize disinfection.

Changing the Fuse

- Only replace with the same model. **(Refer to the Technical Parameters).** Failure to comply could invalidate the warranty.

8 | Warranty & Service

Tanner Scientific® warrants this product for a period of one year from the date of purchase, provided that the customer complies with the rules of this manual. Extended warranties are available. Contact Tanner Scientific® at 888.708.5233 for more information. Tanner Scientific® will not be responsible for the damage and other problems caused by abuse and misuse of the instrument.

Service Information

If you require any service or parts during the warranty period, please contact **Tanner Scientific® at 888.708.5233** or the sales agent who sold you the unit. Prior to calling, please have the instrument model and serial number ready.

Amendment

Tanner Scientific® reserves the right to change the technical parameters of any model for improving the function of our instruments.

Quality Guarantee

- Tanner Scientific® will ensure that every instrument sold has been strictly examined to ensure it meets our stringent quality and technical standards.
- Service terms are only provided for those who regularly use the instrument and operate the instrument according to its instructions.

Disposal of Unwanted Instruments

Discarding the instrument and its parts should be done according to current laws and regulations.

9 | Troubleshooting

EMBEDDING CENTER		
PROBLEMS	CAUSES	ELIMINATION
+ No response when powered on.	+ Power line not connected. + Switch isn't turned on. + Fuse isn't connected well or may be burned out.	+ Connect power line, turn on again. + Press the switch indicator light on. + Check if fuse is good or not, change with another.
+ Light is not on.	+ Possible burnt fuse.	+ Check fuse or have technician check.
+ No heating.	+ Possible burnt fuse. + Heating element defective. + Sensor not detecting.	+ Contact technical support. + Check fuse or have technician check.
+ No flow of paraffin liquid.	+ Wax block is not melted enough. + Magnetic valve is blocked or switch is stuck with paraffin.	+ Not enough time for melting, continue heating. + Check switch. + Use hair dryer to melt wax around switch if necessary. + Contact technical support.
+ No flow of paraffin liquid or leak.	+ Faulty magnetic valve.	+ Contact technical support.
+ Sound is good as magnetic valve starts up but no flow.	+ Paraffin low. + Other things in magnetic valve.	+ Clean the paraffin screen. + Not enough time for melting, continue heating. + Contact technical support.
+ Light is twinkling when turned on.	+ Unstable power.	+ Check the power.
+ Starts to heat up when turned on, but turns off under work mode.	+ SSR is broken.	+ Contact technical support.

COOLING PLATE		
PROBLEMS	CAUSES	ELIMINATION
+ Will not cool down.	+ Bad wire connection. + Controller or compressor may be broken.	+ Check the wires. + Contact technical support.
+ Will cool down but temperature cannot reach setting temperature.	+ Fan does not work or airflow is blocked. + Not enough refrigerating fluid.	+ Contact technical support.



Information

The information, notes, and figures that appear in this user manual represent the present state of knowledge as we comprehend it. Tanner Scientific® reserves the right to modify any specifications as well as manufacturing procedures without prior notice. This makes it possible to continuously improve the technology and manufacturing technique used in our products.

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Statements, drawings, illustrations and other information regarding contents or technical details of the present user manual are not to be considered as warranted characteristics of our products. These are determined only by the contract provisions agreed between us and our customers.

Refer to the name plate on the back of the unit for the serial number and manufacturing date of this instrument.

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