USER MANUAL

Dry Bath Incubator
Model : DB2500

Version: INIT – 01/07/2016

English

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Thank you

Thank you for purchasing a Ratek Select product.

This User Manual will assist you in the correct installation and operation of the Dry Bath Incubator, as well as explain the safety requirements for its use.

Important: Please read the contents of this User Manual before unpacking and operating the product.

Unpacking and Checking

Once you have read these instructions in full and understand the installation and safety requirements including those for unpacking the carton, please carefully open the packing and slowly remove the product. Carefully inspect the condition of the product to ensure it has not been damaged in transit. Any damage should be reported immediately to the responsible carrier. If the product is damaged in any way, re-pack the product into the supplied packaging and notify the responsible carrier immediately.

Important: Do not operate the equipment if it has been damaged in any way. Any failures resulting through the use of a damaged product will not be covered by the product warranty.

Carton Contents

Ensure that you have received all items outlined below before proceeding. If you have not received all components in the supplied carton, please re-pack the carton and notify a Ratek Select Service representative immediately. Contact details are provided in the section of this User Manual titled “Ratek Select Service Contact Information”.

- **DB2500 Ratek Select Dry Bath Incubator**
- **User Manual**
- **Power lead**
- **Block accessory (if purchased separately)**

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Intended Use

This Dry Bath Incubator is intended for the purpose of heating or cooling laboratory test tubes and suitable containers via an attached block accessory. The operator may load a suitable article into the block accessory for the purpose of controlled temperature application.

The Dry Bath Incubator is **not** intended for use with any articles other than those outlined in this User Manual. The Dry Bath Incubator is **not** intended to provide direct contact between the heating block and an unprotected medical, food, biological or medico-techno item. In all cases the item should be enclosed in a suitable vessel as described below to protect it from coming into contact with the Dry Bath Incubator.

Suitable Articles For Use With This Dry Bath Incubator

- Plastic or glass laboratory test tubes, bottles, vials and syringes that are rated to withstand the intended temperature.
- *An example of a suitable article would be a sealed plastic laboratory centrifuge tube filled with blood.*

Unsuitable Articles For Use With This Dry Bath Incubator

- Any item where the contents of the container is not sufficiently held which may result in its contents coming into direct contact with the Dry Bath Incubator.
- Any item that is not rated to withstand the intended temperature.
- *An example of an unsuitable article would be an exposed piece of animal or plant matter.*

Suitable Environments For The Dry Bath Incubator

The Dry Bath Incubator is intended for use in a clean laboratory environment only where adequate ventilation, a good power supply and provisions for routine cleaning are available. The Dry Bath Incubator should not be used outdoors or in dirty, dusty, steamy, humid or windy environments. The acceptable operating conditions are outlined further in this User Manual.

***Important:** The Dry Bath Incubator relies on airflow to control temperature using it's peltier heating system. The unit must be kept in a clean dust free environment to avoid dust build-up inside the machine which will affect it's ability to control temperature. Ensure all surfaces around the unit are kept clean and dust is not allowed to accumulate. If performance is affected by dust build up, contact your Ratek Select Service representative to arrange for cleaning and service to restore performance. Contact details are provided in the section of this User Manual titled "Ratek Select Service Contact Information".

***Important:** Be aware that the higher the humidity in the environment, the more condensation that will result when using the block below ambient temperatures. For this reason a dry air-conditioned laboratory is recommended.

General Operation

- The Dry Bath Incubator is fitted with a suitable block accessory and loaded with suitable containers.
- The Dry Bath Incubator is plugged into an appropriate power source. It is powered by an alternating current power supply with protective earth and with the appropriate receptacle, rated voltage and frequency for the country of its intended use. Further details on power requirements are outlined in this User Manual.
- The Dry Bath Incubator is operated via a combination of front and rear panel buttons and switches consisting of a power switch and temperature control buttons. These controls allow the operator to set a required block temperature via the LCD display on the front of the unit.
- The Dry Bath Incubator should be operated strictly in accordance with the Operating Instructions outlined further in this User Manual.

Operator Responsibility – Safety Considerations

When operated in strict accordance with this User Manual, plus routine cleaning and maintenance being carried out, the product shall provide safe operation for the operator. The operator should be aware of the following before installing and operating the product :

Conditions of Operation

***Note:** The term "operator" referred to in this User Manual is the primary person who has been tasked to install, maintain and train in the usage of this equipment. Other personnel shall be referred to as "Users".

- The operator shall be aware that the protection provided by the equipment may be impaired if the equipment is used with accessories not provided or recommended by the manufacturer, is modified in any way or is used in a manner not specified by the manufacturer.
- The operator is responsible for ensuring all users of the product are qualified to do so, and are well versed in common safety concepts. The product should only be operated by an adult who has read and understood this User Manual provided in the appropriate language in its entirety.
- Any user must be informed by the responsible operator of any potential hazards that may arise through the use of this equipment in the course of their work, including any local environmental hazards not related directly to the Dry Bath Incubator. They should also be able to demonstrate that they understand any preventative safety measures in operation prior to operating the equipment.
- The operator shall agree to accept responsibility for the use of the equipment in accordance with this User Manual, and be fully aware that the equipment is designed for commercial use.
- It is assumed that the user and operator have had experience in a commercial environment, and had appropriate training in how to perform their work safely in accordance with any local operational health and safety regulations. The operator and all users should be well versed in local emergency procedures as per the workplace safety regulations in effect.
- Avoid any direct impact with any surface of the equipment
- **Important:** Do not use any sharp or pointed metal objects anywhere near the equipment, in particular the control panel.
- Avoid using the equipment near any other vibrating equipment or source of excessive vibration.
- Ensure the equipment is cleaned and maintained in accordance with this User Manual.
- Ensure that all original safety warning labels are in an adequate, legible condition and are firmly affixed to the equipment before using the product.
- Plug the equipment directly into a wall power outlet. Do not plug the equipment into a multi-socket adapter of any kind.
- The equipment is intended for operation in a controlled electromagnetic environment. Avoid the use of transmitting devices (e.g. cellular or mobile telephones) near the equipment whilst operating. A minimum distance of 2 Metres from the product is recommended for any transmitting device.
- **Important:** The equipment must only be installed and operated in **well ventilated areas**. The unit is not intended for use in explosive atmospheres, in confined spaces or inside any other piece of laboratory equipment such as humidity cabinets or incubators.
- The allowed operating environment must be between 5° Celsius and 30° Celsius ambient air temperature. Be aware that the ambient air temperature will limit the minimum controllable block temperature.
- The maximum allowed relative humidity of the operating environment is 70%.
- The equipment should not be stored in direct sunlight, near chemicals, or other contaminants.
- If any of these safety recommendations cannot be achieved or the equipment has been damaged in any way, the equipment should not be installed or operated.
- **Important :** If you have any concerns or questions relating to operator or user safety, please contact the appropriate Ratek Select Customer Service department before installing and operating the unit. Contact details are provided in this User Manual.

Safety Labels And Markings

The equipment is provided with safety caution labels. An explanation of each caution label is provided below. It is the responsibility of the operator and user to fully understand the meaning of these warning labels prior to operating the equipment.

Very Important: Particular care should be taken when working near the heating block fitted to the Dry Bath Incubator if the working temperature is above 50° C to avoid possible burns or scalds from the heating block. The maximum attainable temperature under normal operation is 100° C. The operator or user must also take extreme care when the dry bath is working at temperatures above 50° C as steam may be present if containers are not sealed and this and can cause scalding.

Caution Labels	Definition
 **Colours:** Black on a yellow background	The Dry Bath Incubator is powered by an alternating current power supply sufficient to cause harm if contact with the electrical supply is made. Under no circumstances should any part of the equipment be opened, un-screwed, loosened or disassembled whilst power is applied to the unit. Only authorized service agents are permitted to remove covers. This label is fitted by the manufacturer and must not be removed under any circumstances.
 **Colours:** Black on a yellow background	Follow the instructions in this user manual to ensure safe operation of the equipment, including suitable articles for use with the equipment, positioning of the equipment and environmental considerations. This label is fitted by the manufacturer and must not be removed under any circumstances.
 **Colours:** Black on a yellow background	The Dry Bath Incubator is designed for heating containers to temperatures that can cause burns or scalding. Use extreme caution when working near hot surfaces or steam to avoid injury. Under no circumstances should the heating block be touched whilst in operation above 50° C. This label is fitted by the manufacturer and must not be removed under any circumstances.

Preparation

You must take the time to familiarize yourself completely with the following operating procedures before installing or operating the Dry Bath Incubator in order to achieve the best performance and maximum attainable user safety.

Identification of Controls & Functions

The figure below indicates all key controls and components of the Dry Bath Incubator with their corresponding numerical element labeled.

Figure 1

Numerical Element & Description of Component

1	Block accessory (sold separately)
2	Heating Element (concealed below block)
3	On/Off mains power switch (setting O = Off, setting | = On)
4	Current segment, current temperature and time remaining
5	Program button
6	Set segment, set temperature and set time
7	Segment select buttons
8	Temperature control buttons
9	Timer control buttons
10	Start/Stop button

Safety Warnings

Throughout this User Manual, specific warnings will be supplied which relate to the current operation being referred to. These warnings are supplied in addition to the main warning labels affixed to the product and the key points outlined in the section of this User Manual titled 'Operator Responsibility – Safety Considerations'.

A graphical symbol as pictured below will be used next to each warning with accompanying text, the danger level for each is described below :

CAUTION
Indicates a possibly dangerous situation which may result in serious injury or threat to life as a result of scalding or burns if the situation is not avoided.

CAUTION
Indicates a possibly highly dangerous situation which may result in serious injury or threat to life as a result of electric shock if the situation is not avoided.

CAUTION
Indicates a possibly harmful situation which may result in injury or damage to product or property if the situation is not avoided.

Safety Recommendations

The following safety recommendations must be followed to prevent damage or injury. In addition to these safety recommendations, it is assumed that the user and operator have had experience in a commercial environment, and had appropriate training in how to perform their work safely in accordance with any local operational health and safety regulations. The operator and all users should be well versed in local emergency procedures as per the workplace safety regulations in effect.

CAUTION
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

CAUTION
The equipment must only be used with a protective earth power socket. The earth contact provides protection to the user and the equipment. If you do not have a protective earth power socket, or you are unsure as to whether you have a protective earth power socket, **do not** connect the equipment. In such cases you should consult your workplace administrator or electrical maintenance staff to determine if a protective earth power socket is available.

A surge protected power outlet is strongly recommended as it provides some protection for the equipment in areas of poor electrical quality as well as providing some protection against lightning strikes. The equipment should be operated on a good, reliable supply of power at all times.

Note: The Dry Bath Incubator should not be operated on the same electrical circuit as other high voltage household appliances such as fridges, clothes dryers, washing machines or other continuous operation high voltage devices. These types of devices can create power fluctuations that are undesirable for electrically sensitive equipment. Consult your workplace administrator or electrical maintenance staff if you are unsure.

- **ALWAYS** wear protective eyewear when working with hot liquids.
- **ALWAYS** place the Dry Bath Incubator on a strong, even, dry, flat waterproof surface which is made of inflammable material. Placing the Dry Bath Incubator on an unstable could cause damage.
- **ALWAYS** turn off the mains power switch when the unit is not in operation and turn off the mains power supply at the outlet.

- **ALWAYS** turn off the mains power switch and unplug the equipment from the mains power supply outlet before changing the block accessory or moving the equipment.
- **ALWAYS** be careful of water condensation around the Dry Bath Incubator and ensure at all times that the condensation cannot come in contact with the Dry Bath Incubator control panel or mains power lead. Ensure benches are kept dry at all times. Use a lid on the block accessory to minimize condensation.
- **ALWAYS** operate the Dry Bath Incubator in a well ventilated area with adequate clearance around the Dry Bath Incubator as indicated.
- **ALWAYS** be careful of steam and avoid making contact.
- **NEVER** operate the Dry Bath Incubator without a suitable block accessory fitted.
- **NEVER** change the block accessory while it is hot. Always allow the block to cool to ambient room temperature before changing it.
- **NEVER** operate the equipment if you believe it is damaged in any way.
- **NEVER** operate the Dry Bath Incubator if the mains power supply cable is damaged in any way
- **NEVER** use any sharp or metal objects near the Dry Bath Incubator control panel.
- **NEVER** lift the Dry Bath Incubator if you have an existing injury that impairs your ability to lift.

Preparation & Installation

The Dry Bath Incubator should be installed and operated in strict accordance with the following instructions.

CAUTION
The Dry Bath Incubator is not for use in explosive atmospheres as there is a risk of fire, explosion, burns or scalding present under these conditions.

CAUTION
Be careful when lifting and observe your local operational health and safety requirements for lifting before unpacking the carton.

Unpacking and Installing

- Carefully remove all packaging material from the Dry Bath Incubator, as well as the supplied User Manual and any other supplied accessories.

- Carefully inspect the Dry Bath Incubator, mains power lead and all packaging for any signs of damage. If any signs of damage are present, **do not** install or operate the equipment. Contact the supplier of your equipment if you have a received a damaged product.

- Ensure the bench to be used is empty, clean and dry and has a suitable area to accommodate the Dry Bath Incubator.

- Ensure that there is a minimum unobstructed distance of 300 millimetres between the left, right and rear panels of the Dry Bath Incubator and any other object or wall to allow sufficient airflow for operation.

- Ensure that there is a minimum unobstructed distance of 1 metre above the top of the block accessory to allow for adequate ventilation and for steam to dissipate.

- Ensure that there is a suitable mains power supply outlet within reach of the supplied mains power lead without placing any strain whatsoever on the lead, socket or plug. The Dry Bath Incubator should not be plugged into any double-adapter, power board, or power point splitter of any kind but instead directly into a correctly earthed wall mounted power socket.

- Ensure that there is a minimum unobstructed distance of 1 metre in front of the Dry Bath Incubator to allow adequate room for the user to maintain a safe operating distance of 300 millimetres.

CAUTION
The Dry Bath Incubator is designed for the purpose of heating plastic or glass laboratory test tubes, vials, bottles and syringes at a temperature selected by the operator.

The contents of these containers is the sole responsibility of the user or operator, and the use of corrosive, flammable, combustible, hazardous, environmentally unsafe or otherwise dangerous materials within the immersed container is done so at the risk and liability of the user or operator.

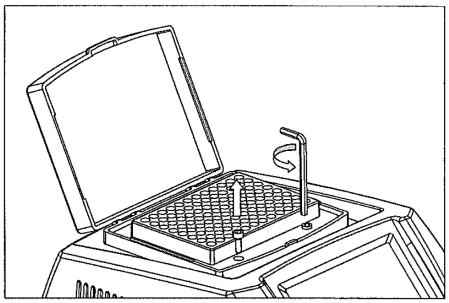
ALWAYS be 100% sure of the contents of your containers, the expected behavior once heated and the applicable safety measures that should be employed when handling such substances.

ALWAYS ensure your containers are firmly sealed and there is no chance of the sample leaking into the Dry Bath Incubator.

Fitting or Changing a Block Accessory

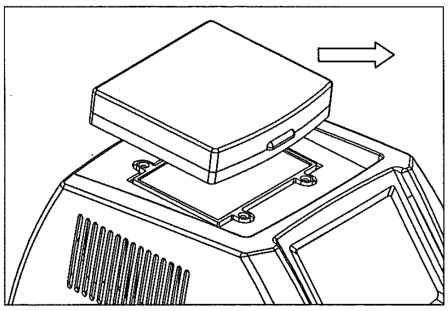
CAUTION
Do not over-tighten screws as this may cause damage to the Dry Bath Incubator. Ensure all 4 screws are fastened evenly to ensure uniform contact with the heating element.

Remove existing block (if fitted)
- Carefully loosen the 4 screws holding the block down by turning anti-clockwise using the supplied hex key, or use a phillips screwdriver for a custom made block.



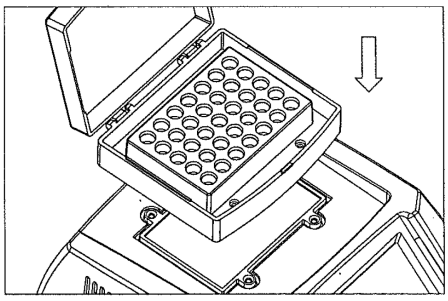
- Carefully lift the block accessory up off of the heating element being careful not to damage the contact plate underneath the block. This plate must remain flat and smooth to ensure proper contact is made with the heating element.

- Store the block accessory in a safe, clean and dry location



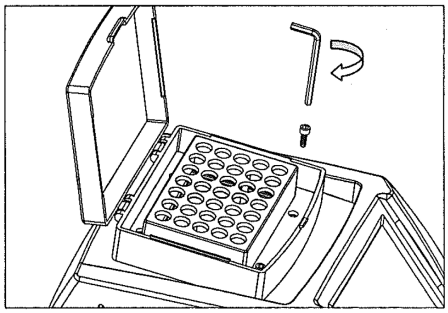
Fit new block
- Gently lower the new block accessory onto the heating element, the contact plate should sit neatly inside the confines of the recess surrounding the element plate. Do not apply any pressure.

- Ensure the 4 screw holes line up with the block accessory



- Replace the 4 screws that hold the block down and finger tighten each screw until all are evenly seated, this ensures the block accessory sits flat and makes proper contact with the heating element.

- Carefully tighten the 4 screws by turning clockwise using the supplied hex key, or use a phillips screwdriver for a custom made block. Screws should be done up in opposing corners to maintain an even pressure. Do not over-tighten as this may result in damage to the heating element.



Connecting Power

CAUTION
The equipment must only be used with a protective earth power socket. The earth contact provides protection to the user and the equipment. If you do not have a protective earth power socket, or you are unsure as to whether you have a protective earth power socket, **do not** connect the equipment. In such cases you should consult your workplace administrator or electrical maintenance staff to determine if a protective earth power socket is available.

The mains power supply must be rated to match the power requirement as identified on the product identification label on the rear panel. This is normally expressed in the format of Voltage Range and Frequency. **A surge protected power outlet is strongly recommended as it provides some protection for the equipment in areas of poor electrical quality as well as providing some protection against lightning strikes. The equipment should be operated on a good, reliable supply of power at all times.**

Note: The Dry Bath Incubator should not be operated on the same electrical circuit as other high voltage household appliances such as fridges, clothes dryers, washing machines or other continuous operation high voltage devices. These types of devices can create power fluctuations that are undesirable for electrically sensitive equipment. Consult your workplace administrator or electrical maintenance staff if you are unsure.

IMPORTANT : Use of an incorrect power supply will void the product warranty. If you are unsure about the rating of your power supply, consult your workplace administrator or electrical maintenance staff to determine if your power supply is suitable for use with this product before connecting the power lead.

CAUTION
Regularly check the mains power lead condition over the life of the product, and do not operate the equipment if you suspect there is damage to any part of the equipment or the mains power lead.

Do not operate the equipment if you suspect the power lead has been stretched, over-extended or damaged in any way.

- Insert the female IEC plug end of the mains power supply lead firmly into the power socket on the rear of the Dry Bath Incubator.

- Insert the plug end of the mains power supply lead firmly into a properly rated, protective earthed wall mounted power supply outlet.

- If there are double-adapters or oversized DC power packs causing obstruction of the mains power lead plug, these should first be removed.

Switching On The Dry Bath Incubator

- Before switching on the Dry Bath Incubator, determine the temperature you wish to operate the block at.

- If you wish to heat your containers from ambient temperature, you should load the block prior to switching on the unit.

- If you wish to add your containers to a warm block, this should be done with extreme care once the temperature of the block accessory has stabilized.

- Once you are ready, switch the Mains Power Switch to the position marked with a vertical line. The a beep will be heard and the main LCD display will light up.

- The Dry Bath Incubator will return to the last operating mode is was being used in prior to being powered off.

Operating Instructions

Operating Modes

The DB2500 features 2 main operating modes allowing the user to either set and maintain a single temperature, or to run more advanced temperature sequencing programs.

The DB2500 features a storage of 5 configurable preset temperatures labeled S1 thru to S5, these are highlighted in the "SEGMENT" vertical column on the LCD display. These can be used individually as a Static Temperature, or chained together as a Program Sequence.

- To operate and maintain a single temperature, refer to the section of this User Manual titled "Operating a Static Temperature".

- To enter and run a program with more than one set point over a time period, refer to the section of this User Manual titled "Operating a Program Sequence".

- The segment, temperature and time (configurable in HH:MM) alongside the "CUR" row indicate the current block temperature and remaining time if running.

- The segment, temperature and time (configurable in HH:MM) alongside the "SET" row indicate the segment number, set temperature and set time for the highlighted segment number. In this way, the set/desired temperature and the current/actual temperature are always displayed alongside one another.

CAUTION
If the temperature of the block is critical to your application, ensure the Dry Bath Incubator is left for at least 10 minutes to stabilize after the temperature has reached the set-point before you insert your containers and samples into the block. Verify the block temperature using a thermometer. Temperature stability is affected by block size, ambient temperature and the use of a lid. All of these factors should be considered to achieve best results.

CAUTION
Temperatures above 50 degrees are sufficient to cause steam and are also capable of causing burns or scalding. Exercise extreme care working around the hot block.

Operating a Static Temperature

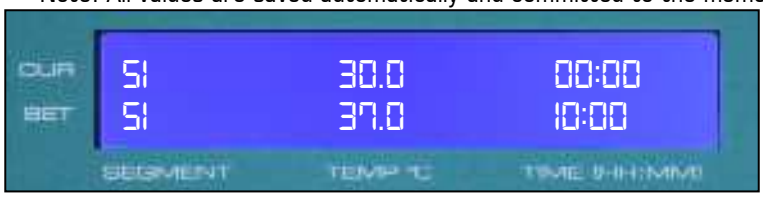
- Using the Segment Select Buttons (element 7 in Figure 1), select the appropriate segment number you wish to use, by default this is S1. You may select from S1 thru S5. The currently stored temperatures for each segment will be shown alongside the "SET" row.

- Using the Temperature Control Buttons (element 8 in Figure 1), adjust the desired temperature for the selected segment. Holding the Temperature Control Buttons will accelerate the rate of change.

- Using the Timer Control Buttons (element 9 in Figure 1), adjust the desired time period you wish to run the temperature for. Holding the Timer Control Buttons will accelerate the rate of change.
  ***Note: For indefinite operation without the timer, simply leave the time set to "00:00"**

- You may alter the segment number and adjust temperatures accordingly for S1 thru S5 should you wish to use these as pre-programmed static temperatures.

- *Note: All values are saved automatically and committed to the memory of the Dry Bath Incubator



- Press the Start/Stop Button (element 10 in Figure 1) to begin heating or cooling. A beep will be heard.

- The current temperature indicated along the top row will begin to change in line with the block temperature. If a timer was configured, this will begin to count down. Once the timer has reached "00:00", the heating or cooling will stop automatically and the block will return to ambient temperature.

- **To stop the heating or cooling at any time, hold the Start/Stop button for 2 seconds until a beep is heard.**

Operating a Program Sequence

The DB2500 has the ability to store up to 5 segments labelled S1 thru S5, each storing a set temperature and time period. These segments can be chained together to perform an automated sequence of temperature changes over time. The user may choose to operate from segment S1 as a starting point, thru to the final segment which may be selected from S2 thru S5. Each segment consists of a target temperature and a time for which the Dry Bath Incubator should hold that temperature.

- Using the Segment Select Buttons (element 7 in Figure 1), select the appropriate segment number you wish to alter, by default this is S1. You may select from S1 thru S5. The currently stored temperatures and times for each segment will be shown alongside the "SET" row.

- Using the Temperature Control Buttons (element 8 in Figure 1), adjust the desired temperature for the selected segment. Holding the Temperature Control Buttons will accelerate the rate of change.

- Using the Timer Control Buttons (element 9 in Figure 1), adjust the time that you wish the Dry Bath Incubator to hold the selected temperature. Holding the Timer Control Buttons will accelerate the rate of change. This time begins once the block temperature has achieved the last set temperature. *Note: The timer is counting when the ":" in the time display begins flashing and only starts once the new temperature is achieved.

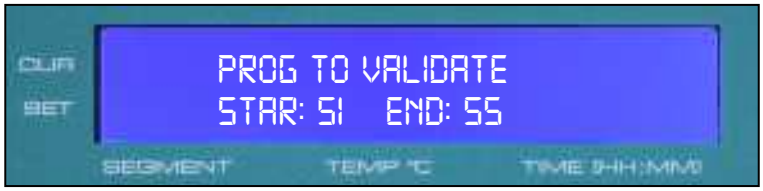
  ***Note: Setting a program segment timer to "00:00" will mean the segment runs indefinitely. If you wish the program to skip to the next segment, a valid time must be entered into the timer for the current segment.**

- You may alter the segment number and adjust temperatures and times accordingly for S1 thru S5 until all desired program segments have been entered.

*Note: All values are saved automatically and committed to the memory of the Dry Bath Incubator

To Run a Program

- Press the Program Button (element 5 in Figure 1) to enter the segment select screen.



- Using the Segment Select Buttons (element 7 in Figure 1), select the appropriate END segment number you wish to use, by default this is S5. You may select from S1 thru S5. The program will run using the temperatures and times stored in segments S1 thru to the segment number you select. In the example below, segment number 4 (S4) was selected.

- Press the Program Button (element 5 in Figure 1) to exit the segment select screen. The segment numbers on the "SET" row will now read "S1-Sx" where x is the number of the last segment you selected.
- Press the Start/Stop Button (element 10 in Figure 1) to begin running the program sequence using the selected segment numbers. A beep will be heard.
- The current temperature indicated along the top row will begin to change in line with the block temperature.
- The segment number on the "CUR" row will automatically step through the selected segments, and the configured temperatures and time periods will automatically update on the "SET" row until the program is completed.
- At the end of the program sequence, 5 beeps will be heard.

To stop the program at any time, hold the Start/Stop button for 2 seconds until a beep is heard.

Switching Off The Dry Bath Incubator

- Ensuring your hands are dry, switch the On/Off mains power switch (element 3 in Figure 1) to the position marked with a circle. The main LCD display will go dark.

CAUTION
Although the heating/cooling system may now be inactive, the residual heat in the heating block may be sufficient to cause serious burns or scalding.

Storing & Relocating

The Dry Bath Incubator should be stored out of direct sunlight at an ambient temperature below 30° Celsius in a clean and dry location which meets the environmental conditions required as detailed in the technical specifications of this User Manual.

- Turn off the power as indicated above.
- Unplug the equipment from the mains power supply outlet.
- Ensure all parts of the Dry Bath Incubator are clean and dry to avoid the potential for corrosion.
- Ensure the Dry Bath Incubator is stored in a clean and dry location away from potential damage by accidental knocks and bumps.

Routine Cleaning And Maintenance

To maintain the Dry Bath Incubator in good, safe working order and ensure maximum product lifespan, regular cleaning and general maintenance is required. The Dry Bath Incubator should be cleaned at least once every month for a unit being used on a daily basis, for infrequently used Dry Bath Incubators a cleaning frequency of once every 3 months is recommended. On each occasion, the general maintenance routine should be employed following cleaning.

Cleaning

CAUTION
If the Dry Bath Incubator has been operated recently the heating element may be hot enough to create a hazard sufficient to burn or scald if contact is made. Ensure the Dry Bath Incubator element is cold before cleaning.

Allow the Dry Bath Incubator to cool for at least 10 minutes after it has last been operated prior to starting the cleaning procedure.

CAUTION
Do not use abrasive cleaners or solvents on the Dry Bath Incubator as these may break down certain components of it's construction, reducing it's life and potentially creating a hazardous situation. Use only a mild household detergent or laboratory sterilization agent when cleaning the Dry Bath Incubator.

CAUTION
If the Dry Bath Incubator has been used with any dangerous, chemical or biological substances it should be decontaminated prior to cleaning. Decontaminate the Dry Bath Incubator using a decontamination procedure appropriate to the contaminant, however in all cases ensure the following :

- No decontamination or cleaning agents are used which could cause a hazardous situation to arise as a result of a reaction with parts of the Dry Bath Incubator or with any materials contained in it. For example, substances that may compromise the integrity or function of electrical insulation, electrical components or water seals.

CAUTION
When cleaning the unit, only use a damp sponge. **Do not use a sodden wet sponge.** Do not make any part of the control panel, any exposed control or receptacle or any part of the Dry Bath Incubator excessively wet. If these receptacles and controls remain wet once electrical power is restored they can create a hazardous situation sufficient to cause serious injury or risk to life due to electrical shock. Always ensure the unit and in particular all controls and switches are completely dry before restoring electrical power.

- Turn off the Mains Power Switch
- Unplug the equipment from the mains power supply outlet.
- Blow any dust build-up out of the machine using compressed air or use a vacuum with a brushed nozzle.
- Using a mild detergent and damp sponge, gently clean around all surfaces.
- Once the Dry Bath Incubator is clean, use a soft dry cloth to dry all surfaces of the Dry Bath Incubator paying particular attention to any controls or switches.
- Once cleaning has been completed, it may be re-installed and operated in accordance with this User Manual.

Maintenance

- Turn off the Mains Power Switch
- Unplug the equipment from the mains power supply outlet.
- Under good light, carefully inspect the mains power lead and check for any signs of wear, over-extension or damage. If you believe the lead to be damaged in any way, contact your supplier to arrange for service.
- Carefully check to ensure all safety warning labels are affixed and in a good readable condition. Refer to the section in this User Manual titled "Safety Labels & Markings" for a table of factory-fitted warning labels. If any labels are missing, illegible or otherwise not functional, contact your supplier to obtain new replacement labels before operating the equipment.
- Ensure all controls and switches are fitted firmly and are in good condition. If any are found to be loose or in poor condition, have an authorized service technician repair the unit before operating it.

CAUTION
If any controls or switches are found to be loose or in poor condition, do not operate the equipment. Loose or damaged electrical controls and connections create a hazardous situation sufficient to cause serious injury or risk to life. Refer the equipment to an authorized service technician for repair.

Temperature Calibration

The Dry Bath Incubator may be recalibrated by the user as required using the simple 3 point temperature calibration procedure below. This may be required if block accessories have been changed and the heat profile of the block is sufficiently different from the original block accessory used for calibration. During the process, the block will be calibrated at 5°, 40° and 100° set points. Allow 2 hours to complete the process.

- Ensure the block accessory is securely fitted, and is clean and dry.
- Where possible, the Dry Bath Incubator should be calibrated in it's typical location of usage in order to achieve the best possible calibration which factors in the environmental conditions during normal use.

IMPORTANT: The reference thermometer used should be designed to achieve accurate readings within the immersion depth of the selected block accessory. For example, if the block accessory has a 30mm deep thermometer hole, the thermometer used must work with an immersion depth of less than or equal to 30mm. A typical glass thermometer requires a greater level of immersion and will not be accurate. A 3mm x 30mm immersion probe attached to a digital thermometer is suggested to ensure accurate calibration.

- Fill the desired reference hole in the block accessory with clean water.
- Place the reference thermometer in the desired reference hole.
- Turn on the Mains Power Switch.
- If the Dry Bath Incubator begins heating/cooling from a previous operation, hold the Start/Stop button for 2 seconds until a beep is heard to set the machine back to normal operation.
- Press BOTH the segment UP and segment DOWN buttons simultaneously (element 7 in Figure 1) to enter calibration mode, the LCD display will update as below.

- IMPORTANT: Allow at least 30 minutes for the block accessory temperature to stabilise after reaching the calibration temperature before making any adjustments.

- The P: value represents the target calibration temperature. The ADJTEMP value represents the actual value as measured on the reference thermometer and this may be adjusted by the user.
- Use the Temperature Control Buttons (element 8 in Figure 1) to adjust the ADJTEMP value until it matches the reading on the reference thermometer.
- Press the Start/Stop Button (element 10 in Figure 1) to commit the change and skip to the next temperature, a beep will be heard. The P: value will increase to 40°, allow the block temperature to stabilize for 30 minutes once again.
- Repeat the adjustment as above at the 40° set point.
- Press the Start/Stop Button to commit the change and skip to the next temperature, a beep will be heard. The P: value will increase to 100°, allow the block temperature to stabilize for 30 minutes once again.
- Before taking a measurement, ensure the reference hole still contains sufficient water and the temperature has stabilized.
- Repeat the adjustment as above at the 100° set point.
- Press the Start/Stop Button to commit the change and end the calibration procedure.
- The Dry Bath Incubator will return to normal operation automatically.

***Note:** To cancel the calibration procedure at any time, press BOTH the segment UP and segment DOWN buttons simultaneously (element 7 in Figure 1). Calibration changes will be disregarded.

Technical Specifications

Element Type	Peltier
Temperature Stability	+/- 0.1° C
Temperature Accuracy	+/- 0.5° C
Display Resolution	0.1°C
Temperature Control Range	-10°C to +100°C
Mains Power Connection	240V / 50 Hz
Replaceable Fuse Type	F4AL250VP (4A 250V), M205 miniature glass type.
Total Operating Wattage	250 Watts
Overall Dimensions	W220 x D300 x H180mm (excluding block)
Nett Weight	5 kg
Environmental Conditions	Suitable for use according to IEC 61010-1 standard as follows : - Indoor use - Altitude up to 2,000 Metres - Temperature 5° C to 30° C (Ambient temperature will limit the achievable temperatures) - Maximum relative humidity 70 % for temperatures up to 31° C decreasing linearly to 50 % relative humidity at 30° Celsius - MAINS supply voltage fluctuations up to ±10 % of the nominal voltage Over-voltage Category – II Pollution Degree – 2

Disposal

At end of life, this equipment should be disposed of in an environmentally friendly way. This equipment cannot be disposed of with other general waste, but instead taken to your local or regional waste collection facility for recycling and/or suitable treatment procedure.

For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or your nearest commercial recycling centre.

EMC Conformity

EN 61326-1:2013 - Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements. This forms the basis of compliance to the requirements of the ACMA regulatory arrangements for applying the RCM label.

Ratek Select Service Contact Information

Ratek Select are here to assist you in getting the most from your Dry Bath Incubator. Our friendly staff can you assist you at any stage of the product lifecycle.

If you have any concerns or questions regarding the operation of your Dry Bath Incubator, please contact us.

Contact Us

Ratek Instruments Pty. Ltd. trading as
Ratek Select
60 Wadhurst Dve
Boronia
Victoria 3155
Australia
Telephone : 613 9887 2161
Fax : 613 9887 2163
Email: sales@ratekselect.com
Web: www.ratekselect.com

Troubleshooting

The Dry Bath Incubator provides a simple-to-operate user interface when used in conjunction with this User Manual.

If at any stage you experience abnormal operation (anything other than that described in this Operating Manual) this may indicate a fault condition. Fault conditions must be referred to an authorized service technician immediately and the equipment should be unplugged from the mains power supply socket.

Make a written note of any abnormal operation and contact Ratek Select using the contact details provided in the section of this User Manual titled “Ratek Select Service Contact Information” if you believe your equipment is exhibiting a fault condition.

Warranty Conditions

This Ratek Select product is covered by a 12 month parts and labour return-to-base warranty effective from the date of purchase.

The warranty is offered by Ratek Instruments Pty. Ltd. located at 60 Wadhurst Drive, Boronia, Victoria, Australia 3155, phone number +613 9887 2161.

- This warranty covers the repair or replacement of any parts or components found to be defective, subject to the service options listed below.
- The warranty is a return-to-base warranty, meaning the product must be returned to Ratek Select or an authorised Ratek Select agent for service at the discretion of Ratek Select.
- This warranty excludes any defect resulting from misuse, neglect, accidental damage, improper voltage, operation of the product outside the acceptable operating conditions as indicated in these operating instructions or any alteration which affects the performance of the equipment.
- It does not extend to any costs associated with delivery of the product to or from Ratek Select or an authorised Ratek Select agent, damage, or loss incurred during transport.

- This warranty is in addition to any Statutory regulations and provisions implied by the Trade Practices Act and any relevant State or Federal Government obligations, applicable only when purchased within Australia.
- The product may be replaced within the warranty period at the discretion of Ratek Select, however repair will be the normal course of action.
- For a period of 12 months from date of purchase, replacement parts will be supplied at no charge and the original components returned to the repairer. These replacement parts may be installed by an approved service agent with prior written agreement from Ratek Select.
- For a period of 12 months from date of purchase, service labour and repairs will be carried out at no charge by an approved repairer or Ratek Select Instruments at the discretion of Ratek Select.
- The limit of liability shall extend to the repair of the product only, all other compensation claims are excluded from this guarantee.
- The warranty does not extend to claims of suitability where the product does not deliver the intended function or fails to operate.
- No claims of suitability are made in relation to the product by Ratek Select. Any claim of suitability lies with the operator.
- The product is used at the risk of the operator. Any loss or damage caused to any item used with the product including but not limited to biological samples, tubes, racks, accessories, flasks, containers or the contents of such containers caused by the malfunction of the product or the failure of the product to function is not covered by this warranty.
- Proof of purchase is required for all warranty repairs.

DOA Product

Any claim under this warranty must be made within 7 days of the date of purchase of the product. To make a claim under the Warranty, you must present the product, together with proof of purchase or issue, to the store where you purchased the product from. If the product is defective and does meet the Warranty, you will be provided with a replacement product, or where that is not possible, a refund. Ratek Select will pay your reasonable, direct expenses of claiming under this Warranty. You may submit details and proof of your expense claim to Ratek Select for consideration.

This Warranty is provided in addition to other rights and remedies you have under law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Return & Repair Procedures

The product is engineered from quality components designed to give long trouble-free operation. In the event that a technical problem has occurred that requires servicing by a Ratek Select Service agent, please follow these steps before returning the unit :

- Contact the supplier from where the equipment was purchased. If this is not possible, please contact Ratek Select either via email to service@ratekselect.com or phone +613 9887 2161 during business hours AEST. You may be referred to a local repair agent for service.
- Clean the unit thoroughly in accordance with this Operating Manual. If necessary, decontaminate the unit to ensure safety for the service technicians.
- Pack the unit into it's original packaging with the supplied mains power lead and use all original protective inserts. If the original packaging is not available, the unit must be packed with extreme care to ensure a safe journey. "Fragile" and "This Way Up" labels should be applied to the carton in a prominent location. No liability for a unit damaged in transit will be accepted. Use only reputable carrier services.
- Provide a full and complete fault description and your return contact details in the package and return the product as advised by the service representative.