SCIENTIFIC
LABORATORY
SUPPLIES

Lab Pro Eco Drying Cabinets

models:

SLS5028 (885L)   SLS5026 (426L)

SLS5024 (227L)   SLS5022 (113L)

OPERATING INSTRUCTIONS

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Contents

1.0 GENERAL DESCRIPTION

SLS Lab Pro Eco Drying Cabinets are designed with energy efficiency in mind, utilising thermal insulation and a user programmable digital control, for drying laboratory glassware, surgical instruments or media.

1.1 FEATURES

- Energy saving thermal insulation to 5 sides
- Low power consumption
- Easy accessible control system
- Digital temperature controller
- Digital 7-day 24 hour timer
- Economical to run / lower running costs
- Dual circulating fans and easy roll mounting wheels (SLS5028)
- Single circulating fan and easy roll mounting wheels (SLS5026)
- Corrosion free stainless-steel internal chamber
- Anti-microbial powder coat paint to external surfaces
- Temperature range 30°C to 80°C
- Double glazed glass doors

1.2 THERMALLY INSULATED CONSTRUCTION

Double skinned construction and thermal insulation retains heat in the chamber for longer and helps minimize heat loss into the room, which ultimately saves energy and money.

1.3 TEMPERATURE CONTROLLER

A digital temperature controller accurately controls the chamber temperature and shows live readings on a tri-colour display. Precise temperature control minimises energy wastage and saves money.

1.4 TIMER

The drying cabinet can **dry constantly**, or it can **dry on a timed basis**.

An illuminated digital timer allows convenient programming of heating cycle times. It switches the heating elements off outside of the programmed drying times, which ultimately saves energy and money.

1.5   BOOST BUTTON (Boost)

Allows the drying cabinet to dry for 1 hour (or 2 hours) then turns the heating elements off to save energy and money.

• **One press of the boost button** will provide **1 hour of boost**, after which the heating elements will turn OFF.

• **Two presses of the boost button** will provide **2 hours of boost**, after which the heating elements will turn OFF.

• **A third press of the boost button** will **cancel any boost period** and return you to normal operating mode. (i.e. timed or constantly on).

1.6   ADVANCE BUTTON (Adv/Ovr)

If the drying cabinet has reached the end of its programmed drying cycle, the next drying cycle can be started in advance by pressing the Adv/Ovr button.

1.7   Power LED (red)

Illuminates red when power is being supplied to the timer.

- Red LED ON = power is being supplied to the timer and the backup battery is charging.

- Red LED OFF = power is not being supplied to the timer and the backup battery is not charging.

1.8   Output LED (green)

Shows when the heating elements are physically on and providing heat in the chamber.

- Green LED ON = chamber elements ON

- Green LED OFF = chamber elements OFF

2.0 INSTALLATION AND PRECAUTIONS ⚠️

SLS Lab Pro Eco Drying Cabinets can become hot during use. When choosing a suitable location for installing the drying cabinet, make sure it is away from combustible materials / soft furnishings / flammable liquids, and any other item(s) that may be sensitive to heat.

2.1 LOCKABLE CASTORS

(Models SLS5028 and SLS5026 only)

When the drying cabinet is in its final position of use, apply the brakes on the castors by pressing the brake lever down with your foot.

2.2 CONNECTING THE POWER

The power cable has a UK style 3 pin moulded plug at one end, and an IEC type push-fit connector at the other. Push the IEC cable connector into the IEC socket on the rear of the drying cabinet.

Make sure it is fully inserted into the IEC socket ⚠️

UK power cable   *IEC socket*

The power cable can be easily replaced if it becomes damaged.

2.3 Connect the mains plug to a 240V AC 50Hz 13A single-phase electrical supply.

The wiring inside the power cable and plug is colour coded as follows: -

- **BROWN** = **LIVE**
- **BLUE** = **NEUTRAL**
- **GREEN / YELLOW** = **EARTH**

2.4 Turn the drying cabinet on with the power switch on the front control panel.

2.5 The plug is fitted with the correctly rated British Standard certified fuse.

Two more fuses (on the back of the drying cabinet) provide additional protection to the circuits and control system.

Always replace a blown fuse with another fuse of the same rating

2.6 WARNING - BEFORE P.A.T. TESTING

The heating elements in SLS Lab Pro Eco Drying Cabinets may absorb moisture from the air after leaving the factory, particularly after being stored in an un-heated warehouse, or when delivered in cold or damp conditions. The equipment cannot be assumed to meet all the insulation safety requirements of IEC 1010-2-010, 1992 unless it has acclimatised to room temperature has been thoroughly dried out. Drying out requires the drying cabinet to be run at full power for a period of at least 4 hours. If the drying cabinet still gives a low P.A.T. test reading *after drying out*, please contact SLS for further advice.

2.7 RISK OF FIRE / EXPLOSION

- SLS Lab Pro Eco Drying Cabinets are not spark free.
- They are not suitable for use in explosive atmospheres.
- They are not suitable for drying items that have been washed in solvent or any other type of flammable liquid / chemical.
- Do not place combustible items, aerosols or any other items inside the chamber that could give off explosive vapours or fumes.

2.8 SHELVES

Always use the shelves provided with the SLS Lab Pro Eco Drying Cabinets for drying your items on. Place your items evenly on top of the shelves and allow space around your items for airflow. This will help the drying process.

- **Always use the shelves for drying items on**

- **Do not place items directly on the chamber floor**

- **Do not overload the shelves**

2.9   MOISTURE VENT

(Models SLS5028 and SLS5026 only)

A moisture vent is provided **on top of the drying cabinet** to allow excess moisture to escape from the chamber. This is particularly useful if there is a lot of moisture content or condensation inside the chamber.

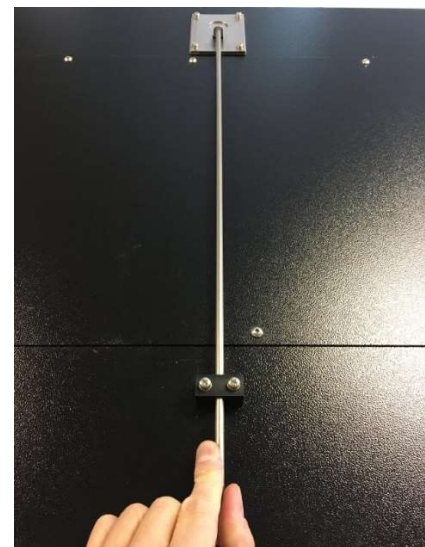It allows the chamber to breathe and can help the drying process.

2.10   CONTROLLING THE MOISTURE VENT

Moisture vent (viewed from above)
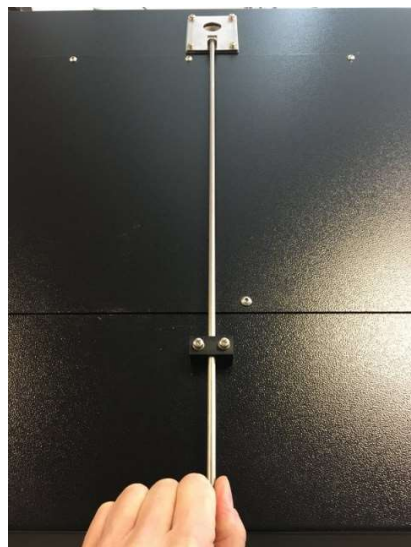
Pull to open

Push to close

3.0 CONTROL PANEL (OVERVIEW)

SLS Lab Pro Eco Drying Cabinet control panel

3.1 ON/OFF BUTTON

Switches the drying cabinet On / Off.

If you require the drying cabinet to be turned off completely (i.e. for maintenance / repairs / cleaning), the power cable <u>MUST</u> be disconnected from the mains electrical supply.

3.2 TEMPERATURE CONTROLLER

The temperature controller allows simple changes to the chamber temperature with just a couple of button presses.

3.3 TIMER

A digital timer allows convenient programming of heating cycle times. It switches the heating elements off (outside of the programmed drying times) which prevents unnecessary heating and ultimately saves energy and money.

The drying cabinet can operate in several different modes:
- **Constantly on** (dries constantly)
- **Timed** (programme it to dry at specific times)
- **Boost** (for 1 hour or 2 hours then turn the heating off)

4.0   TEMPERATURE CONTROLLER


SLS Lab Pro Eco Drying Cabinets are fitted with an electronic temperature controller which accurately regulates the chamber temperature while showing live readings on a three colour 7-segment digital display.

4.1   CONTROLLER BASICS

The controller is easy to use, allows simple changes to the chamber temperature, and shows clear information about the drying cabinet status.
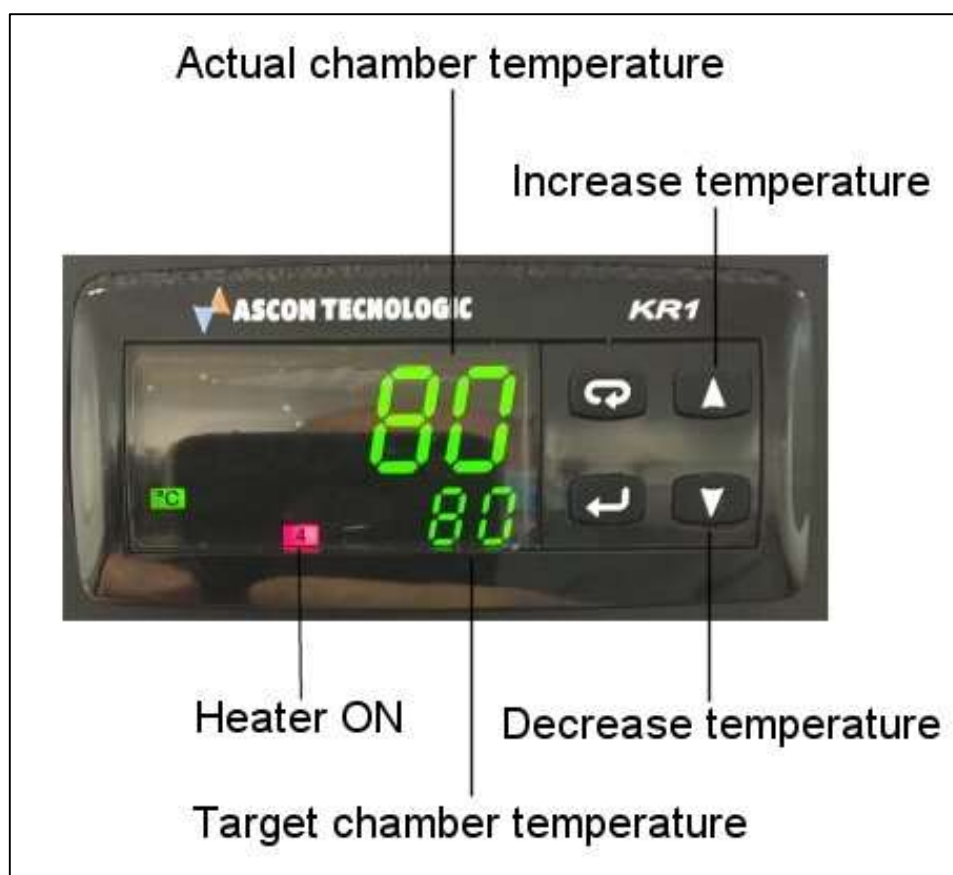
4.2   The **Target chamber temperature** (SP or Set Point) is constantly shown on the lower line of the digital display in SMALL GREEN DIGITS

4.3   The **Actual chamber temperature** is constantly shown on the upper line of the digital display in **LARGE DIGITS**. The upper line of the display is multi-coloured and can display the following three colours:

RED DIGITS   =   **chamber is hotter than set point**

ORANGE DIGITS   =   **chamber is below set point**

GREEN DIGITS   =   **chamber has reached set point**

4.4   Examples shown below:

Example 1

Chamber is hotter than set point
(heater is off)

Example 2

Chamber is below set point
(heater is on)

Example 3

Chamber has reached set point
(heater is pulsing on and off to maintain set point)

4.5   The display shows clear status information from a distance (i.e. across the laboratory) for instant verification of target temperature and actual temperature.

4.6   CHANGING THE CHAMBER TEMPERATURE

To change the chamber temperature, proceed as follows:

- Press the **down arrow once** and release the button.
  (flashing **SP** will be displayed)

   ~ THEN ~

- (To **increase** the chamber temperature) press the **up arrow**
  repeatedly until the desired Set Point (SP) is shown in green digits.

   ~ OR ~

- (To **decrease** the chamber temperature) press the **down arrow**
 repeatedly until the desired Set Point (SP) is shown in green digits.

- Once the desired Set Point is shown, **the display will blink once** to
  confirm the new Set Point has been **successfully stored**.

- The controller will show the target temperature on the lower line of
  the digital display in SMALL GREEN DIGITS then it will start to regulate
  the chamber temperature automatically.

4.7   Adding heat to the chamber is a quick process.

4.8   Decreasing the chamber temperature takes longer. The drying cabinet must lose heat naturally through its thermal insulation.


4.9   The drying cabinet can operate in several different modes:

- **Constantly on** (i.e. runs constantly at one fixed temperature)
- **Timed** (programmed to come on and off at specific times)
- **Boost** (for 1 hour <u>or</u> 2 hours, then turn the heater off to save energy)

4.10   Please see **Section 5.0** for detailed timer programming instructions.

5.0 DIGITAL TIMER
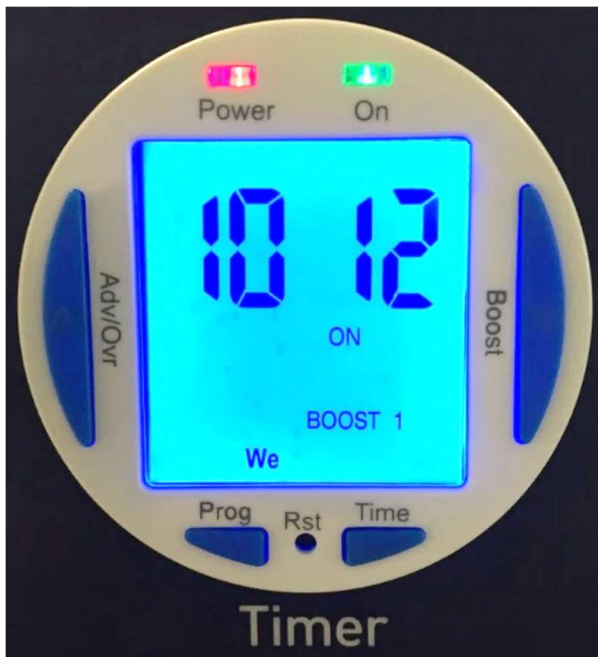
5.1 A backlit digital timer allows convenient programming of heating cycle times. It switches the heating elements off outside of the programmed drying times, which ultimately saves energy and money.

5.2 The drying cabinet can operate constantly on, or it can operate on a timed basis. Those times are fully programmable.

TIMER (OVERVIEW)
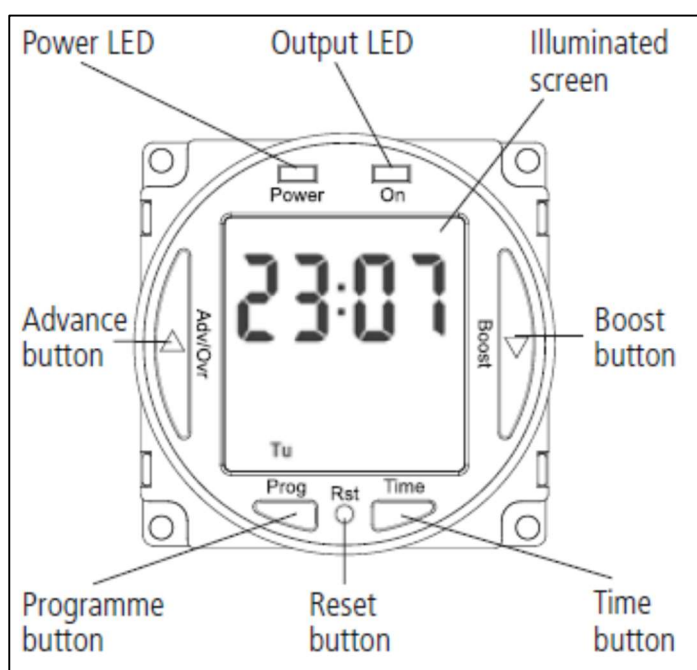
5.3   TIMER BATTERY BACK UP

• The digital time clock has a factory fitted rechargeable battery built in which gives clock operation and programme memory back up during loss of mains supply.

• Before programming for the first time, switch the SLS Lab Pro Eco Drying Cabinet on for at least 15 minutes prior to pressing the Rst button and programming the unit.

• If the display is not visible or is very faint, charge for 4 hours prior to pressing Rst and programming.

• The digital timer has approximately 720 hours battery reserve (30 days).

5.4   RESETTING THE TIMER

The timer must be reset before programming for the first time, or after subsequent discharge for more than 5 days, and following a 4-hour period of charging.

• Press the Rst button once using a pointed object e.g. a pencil or a paper clip.

• The display will show all characters/digits and then will clear to show the following;

ASCO = Automatic Summer/ Winter Change Over

• Use the Adv/Ovr button to change between ON and OFF for the automatic summertime adjustment and proceed to section 5.7

5.5   SETTING THE CURRENT DATE / TIME

• Press and hold the Time button for 3 seconds, the word Hold will show on the screen.

• After 3 seconds release the Time button and the screen will show the year;

20:1 0 *Year*

• Use the Adv/Ovr to increase (or the Boost buttons to decrease) the value and set to the correct year.

• Press the Time button once to save the year, and the screen with show the month;

01 *Month*

• Use the Adv/Ovr or boost button to set the correct month.

• Press the Time button once to save the month, and the screen will show the day;

01 *Day*

• Press the Time button once to save the day, and the screen will show the time – hour first;

12:00 *Time*

Note: The hour is in 24-hour format.

• Use the Adv/Ovr or boost button to adjust to the correct hour.
• Press the Time button once to save the hour, and the minutes can be adjusted.
• Use the Adv/Ovr or boost button to adjust to the correct minutes.
• Press the Time button once to exit the Time/date entry mode.
• The display should now show the correct time/day of the week, for example;

5.6   MODIFYING THE DATE AND TIME OF DAY

Normally the only change required will be to the time of day minutes, in which case;

• Press and hold the Time button for 3 seconds, the word Hold will show on the screen.

• After 3 seconds release the Time button and the screen will show the year;

• Press the Time button repeatedly until the minutes are shown.
• Use Adv/Ovr or Boost to change the minutes to the correct value.
• Press the Time button once to return to operating mode.

Note: Other changes can be made the same way, but the Time button must be pressed to return to operating mode after any changes.

There is no automatic exit from Time/date entry mode.

5.7   PROGRAMMING ON / OFF TIMES

The timer has 4 independent On/Off periods available for programming each day. There is a choice of programming options, including 7 days the same (24 hours), 5 + 2 days (where the weekdays are the same, and the two weekend days are the same), and 7 individual days.

• Press and hold the Prg button for 3 seconds, the word Hold will show on the screen.
• After 3 seconds release the Prg button and the MODE screen will be displayed;

Use the Adv/Ovr or Boost to change the day grouping mode. This will step through the following options;

- 24 hour – Mo Tu We Th Fr Sa Su

- 5 day – Mo Tu We Th Fr (followed automatically in programming by 2 day – Sa Su)

- Individual day – Mo (followed automatically in programming by each of the other days of the week)

• Once the desired day grouping is selected, press Prg button once to set and move onto programming the ON/OFF times.

• The display will show Prog 1, with dashes for the hours and minutes; (Note: the example shown is for 5 day + 2 day programming)
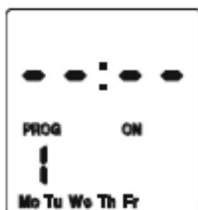
• Use Adv/Ovr or Boost button to set the hour for the first ON period.
• Press the Prg button once to set and move you to the minutes.

• Use Adv/Ovr or Boost button to set the minutes for the first ON period.

• Press the Prg button once to set and move you to the Programme 1 OFF time.

• Use Adv/Ovr or Boost button to set the hour for the first OFF period.

• Press the Prg button once to set and move you to the minutes.

• Use Adv/Ovr or Boost button to set the minutes for the first OFF period.

• Press the Prg button to scroll through Programme 2 ON, Programme 2 OFF, Programme 3 ON, Programme 3 OFF, Programme 4 ON and programme 4 OFF, adding in times as required.

Note: If further times are not required, just leave the dashes in place and scroll past the rest of the programs using the Prg button.

• After Programme 4 has been entered, then next day grouping will follow e.g. In this example the day grouping will change to 2 day – Sa Su Programme 1 ON.

• Programme the ON/OFF times as before.

• After the last OFF time for programme 4 has been set, press the Prg button once to exit the programme mode.

Note: At any stage in programming, if the Prg button is pressed and held for 3 seconds, the timer will return to normal operating mode.

• The display will now show the correct time and day as per this example;

• At this stage the output ON/OFF indicator (as in the above image) may not reflect the current programme status accurately.

• If the time switch should be OFF now, leave as it is.

Note: The time switch will automatically turn ON at your desired ON time and will resume the next programme as normal.

• If the time switch should be ON now, press the Adv button once and set it too ON ADVANCE;

Note: The time switch will now automatically turn OFF at your desired OFF time and will resume the next programme as normal.

• In the same way as for individual programmes, days or groups of days can be omitted either by leaving dashes in all the locations for ON/OFF times for that day or group of days. Alternatively, leaving the programme entry mode before filling in all the ON/OFF times will leave the remaining times blank.

Note: The only way to re-enter a blank time (or dashes) is to reset the unit.

PROGRAMMING ACROSS MIDNIGHT
• Enter the required programme 1 ON time.
• Set the programme 1 OFF time to 00:00 (i.e. midnight).
• Set the programme 2 ON time to 00:00 as well.
• Enter the required programme 2 OFF time for the next day.

MODIFYING OR ADDING PROGRAMMES
• Press and hold the Prg button for 3 seconds, the word Hold will show on the screen.
• After 3 seconds release the Prg button and the MODE screen will be displayed.

Note: This will automatically display the mode in which it was last programmed. For instance, if it was programmed in 5 + 2, then it will show Mo Tu We Th Fr.

• Either – Accept this by pressing the Prg button once and review the programmed times for this mode by pressing Prg to move through the times.
• Or – Press the Adv/Over or Boost button to change the mode, and then press the Prg button to review the times.

Note: If you wish to change the mode at this stage, doing so will result in programmes being lost and they will need to be re-entered.

• Review times and adjust as necessary as described at the start of section 5.7.

5.8   ADVANCE / OVERRIDE BUTTON

In normal operating mode the Adv/Ovr button advances the programme to the next time change.

• If the output is currently OFF, it will change the output to ON ADVANCE, until the next programmed OFF time.
• If the output is currently ON, it will change the output to OFF ADVANCE, until the next programmed ON time.
• A second push of the Adv/Ovr button selects a permanent ON mode, ON OVERRIDE, where the output is ON irrespective of the programming.
• A third push of the Adv/Ovr button selects a permanent OFF mode, OFF OVERRIDE, where the output is OFF irrespective of the programming.
• A fourth push of the Adv/Ovr button returns the unit to normal operating mode, where the output will conform to the programming.

5.9   BOOST BUTTON

• One press of the boost button will provide 1 hour of boost, after which the heating will turn OFF.
• Two presses of the boost button will provide 2 hours of boost, after which the heating will turn OFF.
• A third press of the boost button will cancel any boost period and return you to normal operating mode.

6.0   OVER TEMPERATURE DEVICE

An independent over temperature safety cut out is fitted at the rear of the drying cabinet. **It protects the drying cabinet from overheating.**
*It does not protect your products inside the chamber.*

6.1   The over temperature device is factory set to 100°C. In the unlikely event of the temperature controller failing on full power, the over temperature device will disconnect the heaters.

6.2   Once triggered, the over temperature device must be manually reset after the drying cabinet has cooled down.
<u>Heating will not be possible until a reset has been performed</u>.

6.3   **RESETTING THE OVER TEMPERATURE DEVICE**
Reset the over temperature device by pressing the red button next to the cut out (at the rear of the drying cabinet).

Push the red button to RESET
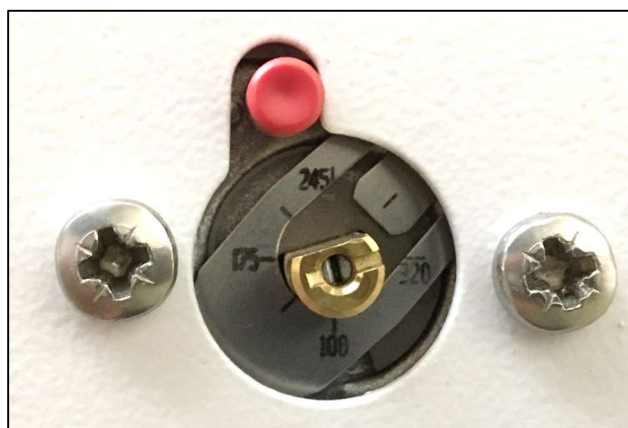
Over Temperature Device (viewed from the rear)

6.4   **ADJUSTING THE OVER TEMPERATURE DEVICE**

This has been factory set at 100°C. We do not recommend adjusting the over temperature device, but should you need to, use a small flat blade screwdriver in the slot of the gold spindle.

- Turning clockwise increases the cut-out temperature.
- Turning anti-clockwise decreases the cut-out temperature.
- The cut-out temperature are marked around the spindle.

7.0 MAINTENANCE, CLEANING, AND ENVIRONMENTAL

SLS Lab Pro Eco Drying Cabinets are made from steel and are painted in textured polyester powder-coat paint, for a durable easy-to-clean finish. The paint also has anti-microbial properties to help with contamination control.

Electrical hazard. Do not spill water or cleaning fluids over the inner or outer surfaces.

Disconnect from the electrical supply before cleaning / maintenance.

Keep all ventilation grilles clear and unobstructed.

7.1 CLEANING EXTERIOR SURFACES

Disconnect from the electrical supply before cleaning / maintenance.

It is recommended that the exterior of the drying cabinet is regularly wiped clean. Use a soft non-abrasive cloth dampened with a warm soapy water solution.

Make sure the exterior is thoroughly dry after cleaning.

7.2 INNER SURFACES

It is advisable to clean the chamber regularly. Never use any of the following:

- Chlorine based detergents or bleaches
- Acidic cleaning agents
- Sodium azide
- Iodine
- Ferric chloride
- Alcohol or solvent based cleaners

Clean all inner surfaces of the chamber and the wire shelves.

Clean the inner surfaces of the glass door(s).

7.3   In the event of spillage of hazardous materials or chemicals, use the appropriate decontamination method as prescribed by the Health and Safety Executive or your local Safety Officer.

7.4   SLS Lab Pro Eco Drying Cabinets must not be disposed of as general household waste in Europe. They must only be disposed of by licensed waste recycling companies.

7.5   Where you see either symbol on any of our electrical products, batteries or packaging, it indicates that the relevant electrical product or battery should not be disposed of as general household waste in Europe. To ensure the correct waste treatment of the product and battery, please dispose of them in accordance with any applicable local laws or requirements for disposal of electrical equipment/ batteries. In so doing, you will help to conserve natural resources and improve standards of environmental protection in treatment and disposal of electrical waste.

This symbol may be used on batteries in combination with additional chemical symbols. The chemical symbols for mercury (Hg) or lead (Pb) will appear if the battery contains more than 0.0005% mercury or more than 0.004% lead.

Contact SLS for further information regarding WEEE regulations.

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