

# USER MANUAL



## “Eins-Sci” Autoclave Sterilizer

### E-SA-300VL

Please read user manual carefully before using and keep by its standards.



## **FULLY AUTOMATIC AUTOCLAVE STERILIZER FOR LABORATORY & LIQUID STERILIZATION**

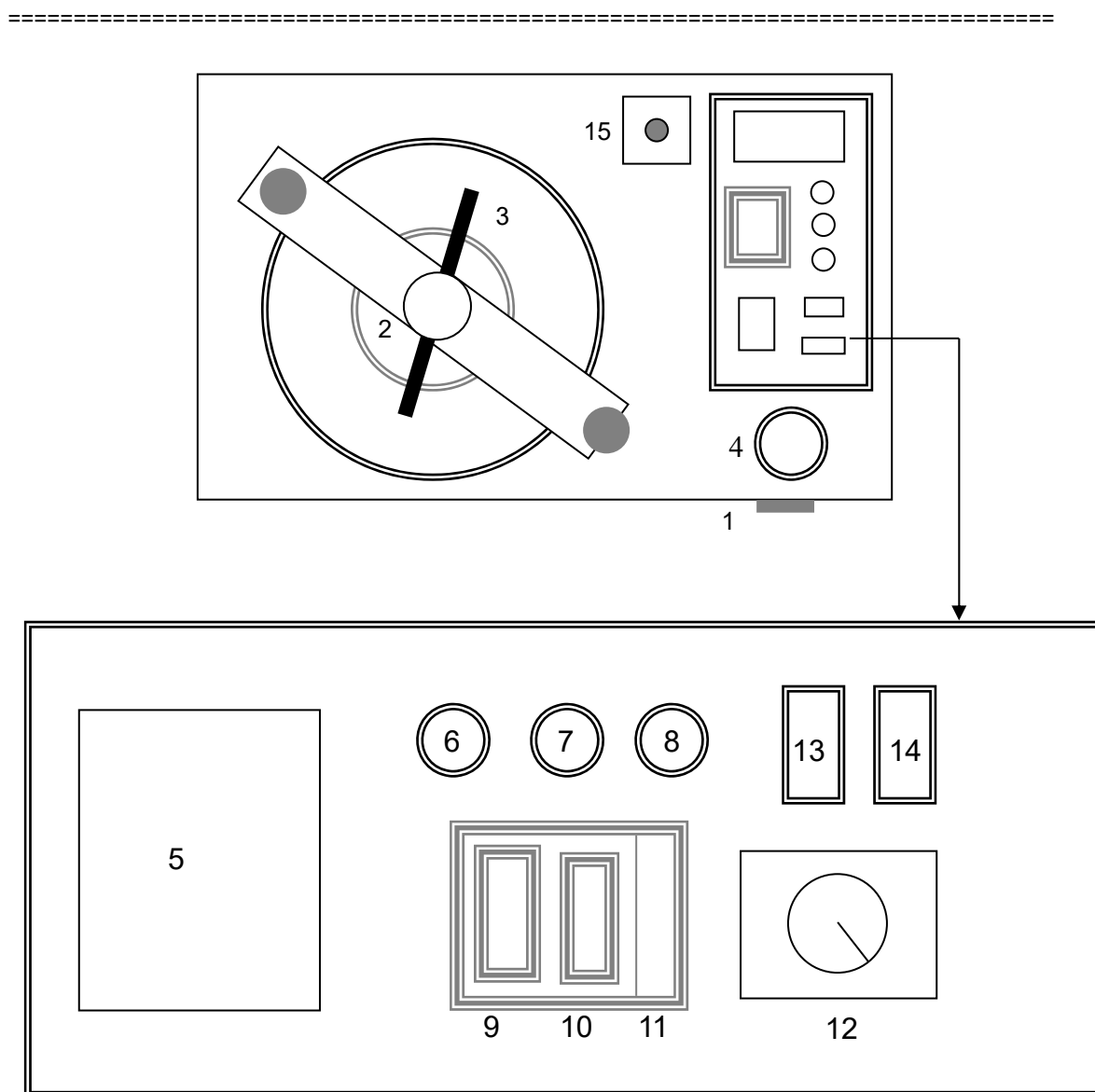
**Please read this user manual carefully prior to using your new autoclave. Following the simple instructions contained in this user manual will help to ensure ease of use, trouble-free operation, and a longer lifespan for your Autoclave.**

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## CHAPTER 1. LOCATION OF CONTROLS

- |  |   |
|--|---|
| 1) PRESSURE EXHAUST NEEDLE VALVE<br>FOR LIQUID PROGRAM | 9) ACTUAL CHAMBER TEMPERATURE<br>DISPLAY      |
| 2) DOOR CLOSED SCREW RING                              | 10) STERILIZATION TEMPERATURE<br>DISPLAY      |
| 3) DOOR HANDLE   | 11) STERILIZATION TEMPERATURE<br>FUNCTION KEY |
| 4) PRESSURE / TEMPERATURE GAUGE                        | 12) STERILIZATION TIMER                       |
| 5) ABS COVER OF CONTROL BOX                            | 13) START SWITCH                              |
| 6) POWER INDICATOR                                     | 14) POWER SWITCH                              |
| 7) HEATING, STERILIZATION INDICATOR                    | 15) ADJUSTABLE EXHAUST CONTROL                |
| 8) COMPLETE INDICATOR                                  |   |



**CHAPTER 2. SPECIFICATIONS**

<b>MODEL NO</b>	<b>E-SA-300VL</b>
CHAMBER SIZE (mm)	Ø300 × 710 (D) (mm)    Stainless Steel #304
CHAMBER CAPACITY (L)	50 Liter
OVERALL SIZE (mm)	450 (D) × 600 (W) × 1090(H) (mm)
POWER CONSUMPTION	230VAC / 2300W / 10A
CONTROL SYSTEM	Digital temperature control system. Liquid sterilization function. Pressure release, adjustable needle valve. Chamber water exhausted by manual exhaust valve.
WORKING PRESSURE AND TEMPERATURE	UNWRAPPED / WRAPPED / LIQUIDS: 105°C to 136°C
DESIGN TEMPERATURE	140°C
SAFETY DEVICE	Over heat (low water) cut-off switch Safety valve and release valve Emergency exhaust valve Door safety holder Pressure protection switch Temperature control system
WORKING ENVIRONMENT	Indoor use only; Altitude less than 1,000 m; Ambient temperature between 5°C and 40°C; Humidity: 80% RH@31°C non-condensing to 50% RH@40°C; Voltage fluctuations up to ±10 %; Transient overvoltage category II; Pollution degree 2
TRANSPORTATION CONDITIONS	-10°C to 70°C, 10%RH to 90%RH
STORAGE CONDITIONS	-10°C to 50°C, 10%RH to 70%RH
SAFETY APPROVAL	CE-EMC, LVD approved CE-MDD approved Chamber designed by ASME / U.S.A. standard
LIFE TIME	7 YEARS
STANDARD ACCESSORIES	Stainless Steel #304 Basket x 2. Stainless Steel #304 heater covers x1. 2000 ml bottle x1 Clip x1 Exhaust hose x 2 Size basket: Ø250 ×251(D) (mm)
OPTIONAL ACCESSORIES	Stainless Steel #304 Basket

## CHAPTER 3. PREPARATION & INSTALLATION

### CHECKLIST BEFORE USING AUTOCLAVE

1. Place the autoclave on a flat floor, ensuring at least 10 cm clearance between the wall or other pieces of equipment and the sides of the unit.
2. Check that the electrical power source is 220V to 240V.
3. Take out the power cord, and connect the wire to **1 Ø, 20 Amps. Circuit Breaker.**



**WARNING:** THE NO-FUSE-BREAKER IS NECESSARY FOR SECURITY  
BECAUSE THERE IS NO FUSE INSERT IN THE E-SA-300VL.

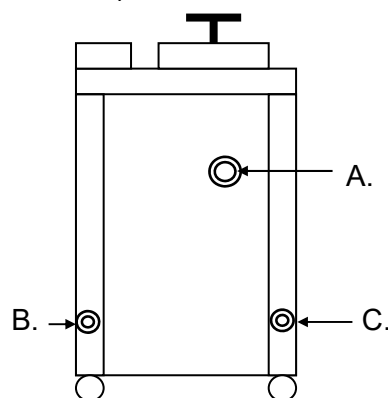
4. Pouring about 3000 ml of water (DISTILLED WATER ONLY) into the chamber.  
(One and half of the bottle if supplied)

5. Install the exhaust hose: One end should be fixed on the pipe connector "B." And the other end must be attached to a drain exhaust pipe or a discard bottle.

A. Steam exhaust from safety valve.

B. Pressure / water exhaust outlet.

C. Power cord.



**REAR VIEW**



**CAUTION:** Waste water should be brought into the public sewer in accordance with the local rules or requirements.

6. Switch on the power switch, and the power light will illuminate, indicating that the autoclave is now in standby mode.
7. Please do not forget to check **#15 AND #1 exhaust valve** (in chapter 1) must be closed, before starting the function.

## CHAPTER 4. OPERATION

**Before continuing, be sure to read Chapter 3 first.**

1. Open the door and make sure there is water in the chamber. Then put the sterilization instruments inside basket/s. (All the instruments must be put in the basket for sterilization. If you don't use basket, the instruments will burn).



**CAUTION:** Use sterilization indicator test strips to check if sterilization has been successful.

2. Place the baskets into the chamber as following figure 4-1:

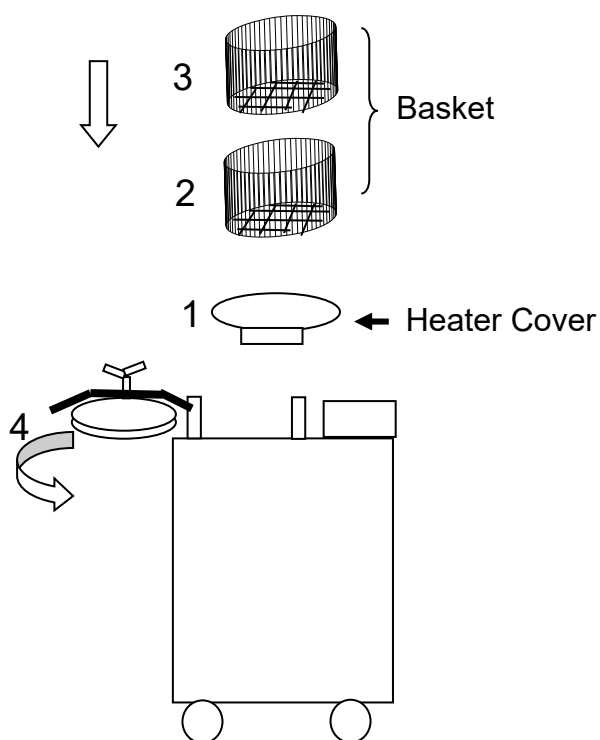
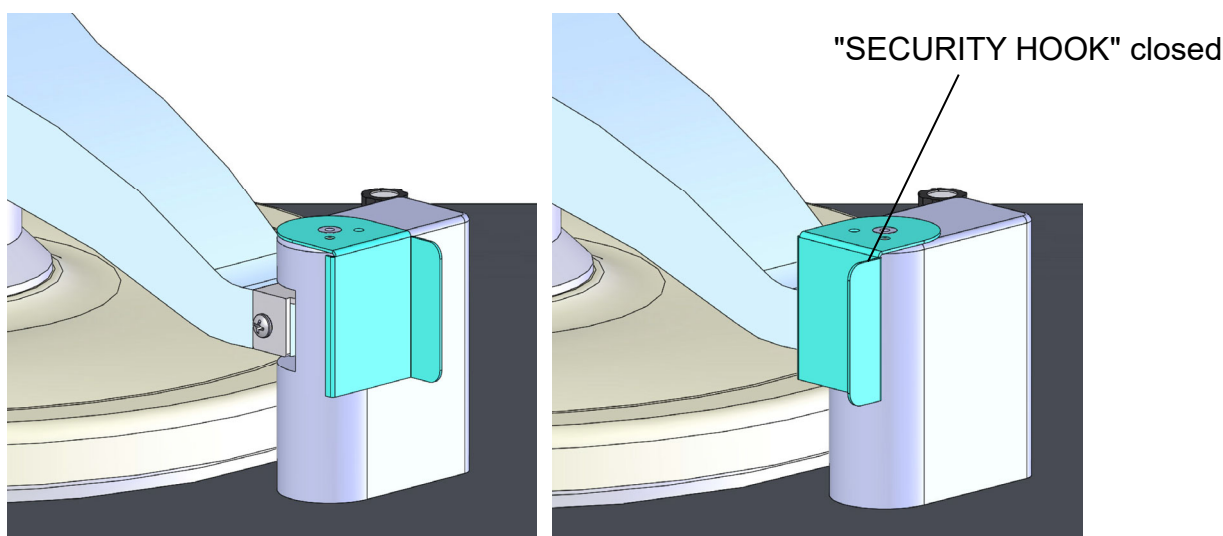


Figure 4-1

3. Make sure that the SECURITY HOOK is in an open state and then close the door until positioned in the DOOR STOPPER. Turn the Security Hook clockwise until a click sound is heard.



**CAUTION:** Door handle must be tightened.



**⚠ CAUTION:** Make sure the water exhaust valve and pressure release are turned off.

4. Switch on the power switch, wait about 5 seconds until the temperature digital display is in standby condition, and set up the sterilization temperature. See "CHAPTER 4-2 TEMPERATURE CONTROL" for operating the temperature control.
5. Set the sterilization time. The sterilization time parameter refers to CHAPTER 6 APPENDIX A.
6. Switch "START SWITCH" on to start the sterilization program. After the chamber temperature has reached the set temperature, the sterilization timer LED will start to "flash" which means the sterilization timer has started.
7. The autoclave buzzer will sound at the end of the program. Before you take out the sterilization items:
  - Turn the pressure release needle valve open, program switch to the liquid sterilization program to release pressure to zero (0). or
  - Turn "ADJUSTABLE EXHAUST SWITCH" to exhaust water of the chamber.

**⚠ CAUTION:** When the pressure gauge is reading ZERO (0), make sure "PRESSURE EXHAUST NEEDLE VALVE", "ADJUSTABLE SWITCH FOR EXHAUST", and "START SWITCH" all turn off.

**⚠ CAUTION:** If using the sterilizer continuously, it is suggested to have a 20 min. interval between each sterilization cycle to allow it to cool down.

**⚠ CAUTION:** Make sure the "START SWITCH" is off position when the end of

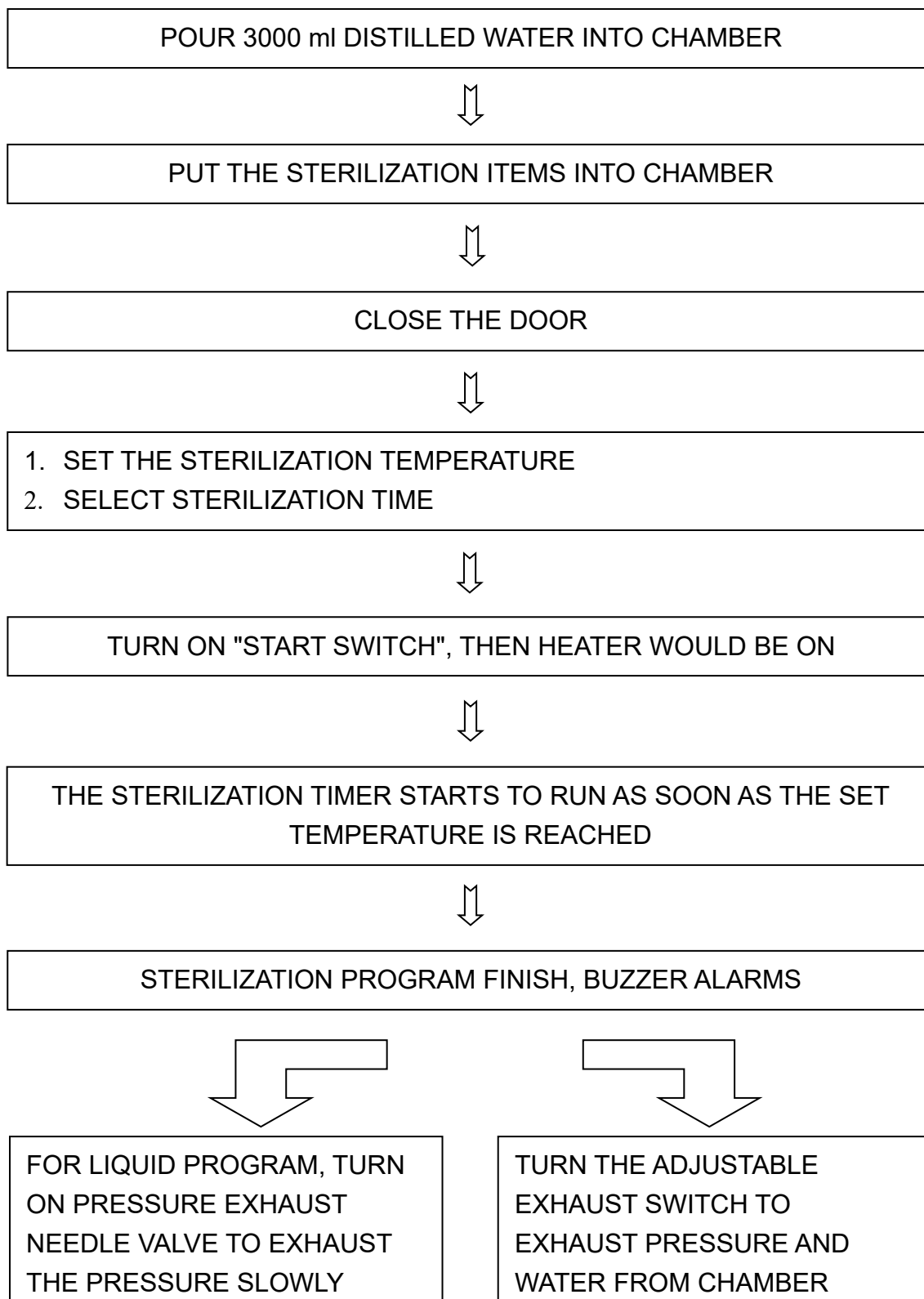
the program.



**CAUTION:** Before continuing to the next sterilization program, turn off "POWER SWITCH" and turn it on again to reset the system.






## CHAPTER 4-1. BASIC STEPS OF STERILIZATION

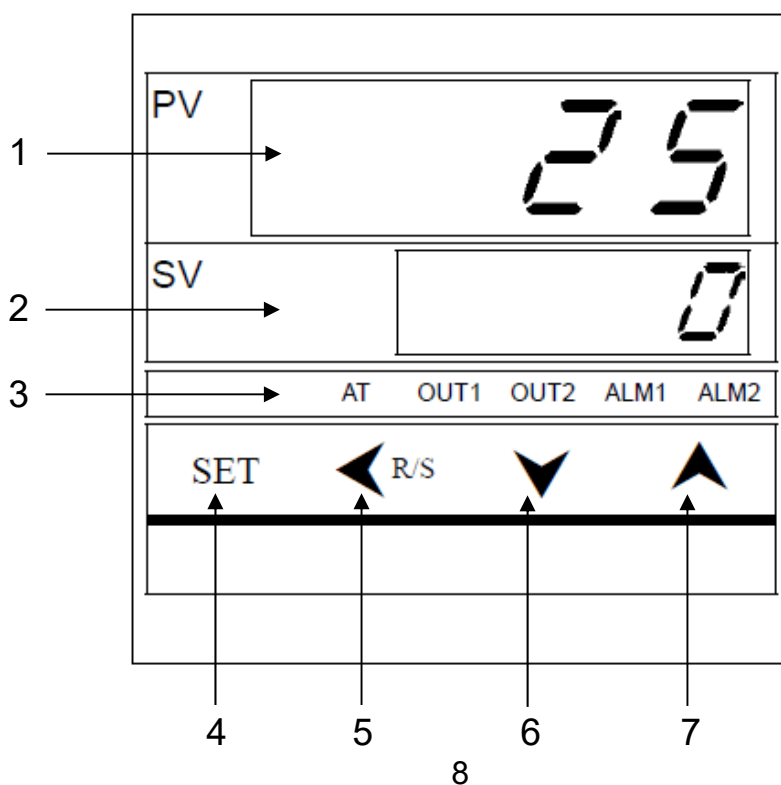


## CHAPTER 4-2. TEMPERATURE CONTROL

※ CB-100 temperature controller descriptions :

1. PV: Actual chamber temperature display for chamber (green colour)
2. SV: Temperature display for sterilization temperature setting (Orange colour)
3. Indication Lamps:
  - “AT”: Auto-tuning Lamp (green): Flashes during auto-tuning execution.
  - “OUT1”: Control Output Lamp (green): Light is on means control output is in operation.
  - “ALM 1”: Light is on means the detect temperature reaches the set temperature.
4. **SET** key: Used for parameter modification and set sterilization temperature.
5.  KEY: 1). Shift digits, when settings are changed.  
 2). Modify the internal data of the temperature controller with the SET button.
6.  Down-key: Decrease the parameters.
7.  Up-key: Increase the parameters.

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## How to operate the CB-100 temperature controller.

Turn on the machine, and wait 5 second for machine to be in standby mode.




### ※ Set the sterilization temperature.


1. Press **SET** key
2. Please press ▼ or ▲ to set sterilization temperature 121°C or 134°C
3. Press **SET** key again
4. Temperature setting is complete.




**NOTE:** *Do not change the following parameter, changing the parameter would cause damage to the machine. The different series machine has a different parameter, please follow the steps below to set the parameter.*

1. Press and hold  key for about 3 seconds. The display will show PV ... AL1




2. Press  key again. The display is now PV ... ATU  
SP ... 0




3. Press  key again. The display is now PV ... STU  
SP ... 0




4. Press  key again. The display is PV ... P  
SP ... 1.2




5. Press  key again. The display is PV ... I  
SP ... 25




6. Press  key again. The display is PV ... D  
SP ... 6




7. Press  key again. The display is PV ... Ar  
SP ... 100




8. Press  key again. The display is PV ... T  
SP ... 2



9. Press  key again. The display is PV ... PT  
SP ... 0



10. Press  key again. The display is PV ... LCK  
SP ... 1000


0011 To lock the data

Press and hold the **SET** key for about 3 seconds.


The machine will return to the normal operation mode.

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Simultaneously Press “**SET**” Key and “**<R/S>**” Key for about 3 seconds, then enter the next level

11. Press  key. The display is PV ... Cod  
SP ... 0000




12. Press  key. The display is PV ... SL 1  
SP ... 1100




13. Press  key. The display is PV ... SL 2  
SP ... 0000




14. Press  key. The display is PV ... SL 3  
SP ... 0000




15. Press  key. The display is PV ... SL 4  
SP ... 0001




16. Press  key. The display is PV ... SL 5  
SP ... 0000




17. Press  key. The display is PV ... SL 6  
SP ... 0001




18. Press  key. The display is PV ... SL 7  
SP ... 0000




19. Press  key. The display is PV ... SL 8  
SP ... 0000




20. Press  key. The display is PV ... SL 9  
SP ... 0000




21. Press  key. The display is PV ... SL10  
SP ... 1000




22. Press  key. The display is PV ... SL11  
SP ... 0000




23. Press  key. The display is PV ... Cod  
SP ... 0001




24. Press  key. The display is PV ... SLH  
SP ... 136




25. Press  key. The display is PV ... SLL  
SP ... 0




26. Press  key. The display is PV ... oH  
SP ... 2.0




27. Press  key. The display is PV ... AH1  
SP ... 2.0




28. Press  key. The display is PV ... dF  
SP ... 1




29. Press  key. The display is PV ... STTn  
SP ... 100



30. Press  key. The display is PV ... STPK  
SP ... 67



31. Press  key. The display is PV ... STIK  
SP ... 16



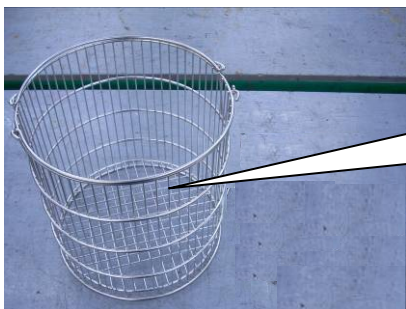
32. Simultaneously Press **SET** key and **<R/S** key  
for about 3 second. The machine will return to  
operation mode.... Complete setting.

**CAUTION:**

1. Turn on the power switch, wait about 5 seconds until the temperature digital display is in standby condition, and set up the sterilization temperature.
2. Press the “SET” bottom over 3 seconds, the display would transfer to other modes. Press the “SET” bottom over 3 seconds again, the display would back to the operation mode.

## **CHAPTER 4-3. CONCERNING THE STERILIZATION ITEMS**

### **STEP 1**



**Open door of the autoclave. Take out the baskets from the chamber.**

### **STEP 2**



**Put the sterilization items into baskets, and the sterilization items do not over the basket.**

### **STEP 3**









**Put baskets into the chamber. Do not forget to put the sterilization indicators into chamber. Now close the door and tighten it.**



## CHAPTER 5. WARNING

1. ALWAYS check the pressure gauge is reading ZERO (0) before opening the door. DO NOT attempt to open the door if the pressure is not zero (0).
2. Use only distilled water. Regular tap water contains minerals, especially chlorides, which have corrosive effects on stainless steel. Failure to use distilled water will invalidate the warranty.
3. DO NOT forget to pour water into the chamber before sterilization. If not, the temperature protection switch would cut the power and sound the overheat buzzer.
4. Pay attention to the high temperature on the door cover during operation.
5. Make sure the door is tight when closing the door.
6. Ensure the heater element inside the chamber is covered with water prior to commencement of the sterilization cycle.
7. Use only a dedicated power supply with 20A Circuit Breaker.
8. The silicon rubber gasket on the inside of the door at the top of the chamber should be kept clean and replaced annually.
9. The filter / sieve over the drain hole inside the chamber should be cleaned at least once a week.
10. Use of chemical indicator strips or biological indicator ampoules that sterilization has been successful. These results may also be kept as a record of sterilization.
11. Pouring 3000 ml of water with the bottle we provided into the chamber each time before the sterilization program started.

12.  Caution! Hot Surface.
  
13.  Grounding terminal
  
14. "○" Off, disconnection from the mains.
  
15. | On, connection to the mains
  
16.  Consult instruction manual for use
  
17.  Disposal of Electrical & Electronic Equipment (WEEE):  
This product should be handed over to an applicable collection point for the recycling of electrical and electronic equipment.  
For more detailed information about the recycling of this product, please contact your local city office, household waste disposal service or the retail store where you purchased this product.
  
18.  2008-01 Date of manufacture  
It is a 6-digit number. The first 4 digits represent the year and the last 2 digits represent the month.
  
19.  Manufacture
  
20. 

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 Authorized Representative at europe.

## CHAPTER 6. APPENDIX - A

### SETTING UP THE STERILIZATION TIME:

Temperature at 121°C / 250°F    Approx. 1.2 bar(kgf/cm<sup>2</sup>)

WRAPPED	Select <b>30 Min.</b> sterilization time
UNWRAPPED	Select <b>22 Min.</b> sterilization time
LIQUID	Select <b>40 Min.</b> sterilization time

Temperature at 134°C / 274°F    Approx. 2.1bar(kgf/cm<sup>2</sup>)

WRAPPED	Select <b>15 Min.</b> sterilization time
UNWRAPPED	Select <b>4 Min.</b> sterilization time

SPECIAL SELECTION RANGE:

**TEMPERATURE SELECTION RANGE : 105°C ~ 136°C**

**STERILIZATION TIME SELECTION RANG : 0 ~ 60 MINUTES**

- **FOR REFERENCE : 1 kgf/cm<sup>2</sup> = 0.98 bar = 14.2 psi.**
- Sterilization instruments must be made with metal without plating, autoclavable material.

## CHAPTER 6. APPENDIX - B

### RE-PACKING INSTRUCTIONS: TO PACK AUTOCLAVE INTO CARTON (PLEASE REFER CHAPTER 1. LOCATION.)

1. Turn off the POWER and unplug the power cord.
2. Drain all water from the autoclave. Make sure the inside of the chamber is completely dry.
3. Place all accessories into the chamber. Close the door firmly.
4. Cover the autoclave with the plastic bag.
5. Place the bottom of the Wooden-case / Pallet onto the floor.
6. Move and place the autoclave on the pallet, ensuring that the four castors are fixed.
7. Place the cardboard sides over the autoclaves.
8. Insert all foam padding on the corners and top of the autoclave.
9. Put on the top cover of the cardboard box.
10. Strap box and autoclave to the bottom wooden pallet
11. Write down the shipping mark, product name and model number.

**IMPORTANT :** We strongly recommend that all packing materials including the carton should be kept properly for reuse in case the unit needs to be transported again.

## CHAPTER 7. TROUBLE SHOOTING

### **POWER LAMP DOES NOT COME ON:**

1. Power supply is not properly connected.  
Solution: Check if the power supply is connected and switched on.
2. Circuit breaker tripped.  
Solution: Press it back and try again or Replace the Circuit-Breaker.
3. Bulb or switch broken.  
Solution: Replace the bulb or the switch.

### **POWER LAMP ON AND ALARM BUZZER SOUND:**

1. **Insufficient Water:**  
Pour the water into the chamber. (Using the bottle we provided and pour 3000 ml of water) and check if the exhaust valve is closed completely, or the valve might be broken.
2. **Forgot to pour water into the chamber:**  
Pour distilled water into the chamber, and try again.  
**NOTE:** When you set the sterilization time over 40 minutes, make sure to pour 3000 ml of water.

### **PRESSURE NOT INCREASE:**

1. Steam solenoid valve dirty.  
Solution: Replace and clean the solenoid valve.
2. Element faulty.  
Solution: Replace the element.
3. Temperature protection switch is broken.  
Solution: Replace the switch.
4. Pressure gauge is broken.  
Solution: Replace the gauge.
5. Needle valve of exhaust is in the open state.  
Solution: Close needle valves.

### **THE STERILIZATION INDICATOR COLOUR UNCHANGED:**

1. The temperature is not reaching required temperature.

Solution: Please follow the above mention to check through it.

2. The steam trap is faulty.

Solution: Replace the steam trap.

**THE INDICATION LAMPS IS NOT TURNING ON:**

1. The indicator lamps are not light up but the sterilization program is successfully finished.

Solution: Replace the bulbs.

**NOTE:** ANY PROBLEMS, CHECK THE POWER CONNECTION FIRST.

## CHAPTER 8. MAINTENANCE INSTRUCTIONS

### DAILY:

- WIPE THE INSIDE OF THE CHAMBER, DOOR AND THE GASKET WITH A DAMP, LINT-FREE CLOTH.
- ENSURE THE BASKET/S IS CLEANED AFTER EVERY CYCLE FINISHED

### WEEKLY:

- CLEAN THE RACK AND TRAYS.
- CLEAN THE WATER FILTER AT THE BOTTOM OF THE CHAMBER, OTHER WATER FILTER AT REAR SIDE IF PRESENT.

### MONTHLY:

- RELEASE THE CASTERS BRAKE AND MOVE OUT THE AUTOCLAVE TO CLEAN THE FLOOR UNDER THE AUTOCLAVE
- CHECK THE ELECTRICITY POWER CORD, BREAKER AND PLUG SURFACE IS IN GOOD CONDITION. IF NOT, CALL THE ENGINEER.
- SWITCH ON THE POWER SWITCH, AND CHECK THE FAN ON REAR SIDE IS WORKING. IF NOT, CALL THE ENGINEER.
- CLEAN THE CHAMBER AND PIPING SYSTEM WITH “**CHAM-MATE**”.

### YEARLY: (CHECK BY ENGINEER)

- CHECK THE WELDING LINE OF THE CHAMBER.
- CHECK THE DOOR LOCK SCREW, DOOR HOLDER SCREW AND HOLDER BODY.
- CHECK THE ELECTRIC WIRE SYSTEM, BREAKER, AND CONNECTORS.
- CHECK THE TUBING SYSTEM.
- CLEAN THE SOLENOID VALVE.
- CHECK THE SAFETY VALVES, PRESSURE SWITCH, AND LEAKAGE TEST.
- CHECK THE INDICATION LAMPS, AND ALL CYCLE FUNCTION.
- CHECK THE TEMPERATURE PROTECTION SWITCH.
- CHECK THE DOOR GASKET. (SUGGESTION: REPLACE IT PER YEAR.)

## **WARRANTY**

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"Eins-Sci" product has one (1) year warranty from the date of purchase that covers any defects in materials and quality under regular use.

This warranty does not apply to any product damaged by accident, misuse, abuse, neglect, improper line voltage, drop, fire, flood or alteration/ repair by non-qualified service personnel.

The liability of Eins-Sci c.c. is limited to repair or replacement, and under no circumstances shall "Eins-Sci" be liable for any collateral consequential damages or loss. This guarantee excludes explicitly the expendables and consumables.

All warranty claims must be directed to the distributors or agents that Eins-Sci c.c. authorized. Whom is responsible for the sales of this equipment. The customers are responsible for shipping expense.

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User's Name: \_\_\_\_\_

Address: \_\_\_\_\_

Country: \_\_\_\_\_ Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_ Model No.: \_\_\_\_\_

Series No.: \_\_\_\_\_

Distributor: \_\_\_\_\_


Manufacturer: Sturdy Industrial Co.,Ltd. (ISO 13485 Certificated Firms)









<b>Name</b>	Eins-Sci Autoclave Sterilizer		
<b>Model</b>	E-SA-300VL		
<b>Manufacturer</b> 	Sturdy Industrial Co. Ltd.		
<b>Address</b>	168, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City, 24872, Taiwan		
<b>EC Representative</b> <table border="1" data-bbox="276 1637 368 1671"> <tr> <td>EC</td> <td>REP</td> </tr> </table>	EC	REP	APEX MEDICAL S.L. Elcano 9, 6 <sup>a</sup> planta 48008 Bilbao. Vizcaya SPAIN
EC	REP		

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