



# EIE INSTRUMENTS PVT. LTD.

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# Organization's ISO 9001:2015 Certificate

QUALITY MANAGEMENT SYSTEM

## Certificate of Registration



*This is to Certify That The Quality Management System of*

### EIE INSTRUMENTS PVT. LTD.

13th FLOOR, 1301/A, BVR EK, OPP INDER RESIDENCY HOTEL, NR. WESTEND HOTEL, ELLISBRIDGE, AHMEDABAD - 380006, GUJARAT, INDIA.

*has been assessed and found to conform to the requirements of*

## ISO 9001:2015

*for the following scope :*

MANUFACTURER & SUPPLIER OF LABORATORY TESTING INSTRUMENTS.

<b>Certificate No</b>	23DQLL85	
Initial Registration Date	: 14/10/2023	Issuance Date : 14/10/2023
Date of Expiry*	: 13/10/2026	
1st Surve. Due	: 14/09/2024	2nd Surve. Due : 14/09/2025

  
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**ROHS Certification Pvt. Ltd.**




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 <b>EIE INSTRUMENTS PVT. LTD.</b>	<b>Operation &amp; Maintenance Instruction Manual</b>	
	<b>Equipment Name:</b> Doubled Walled Water Bath	<b>Equipment Serial No.:</b>
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# Forward

Dear valued customer,

We are thankful of you for your keen interest in our company products. We hope you enjoy using them and find them to be helpful and reliable. We greatly appreciate your business and the opportunity you have provided us to assist you. You have joined a selected group of customers who have switched to the technologically superior and quality enhanced laboratory testing products.

Time has changed, so does the technology. Your purchase lists you on the cutting edge of the 21<sup>st</sup> century technology. To help you get the most out of your EIE Instruments Pvt. Ltd. products, we have created this instruction manual that is an excellent way of expressing and maintaining your trust in EIE's - superior quality testing products. Our continued efforts and commitment are to provide you with the best and efficient services after sales, prompt attention and the highest level of customer satisfaction. If for any reasons, you have questions or comments, we are delighted to hear from you. We welcome your feedback for further improvement in our product(s). We would be happy to help you in any way we can. You can contact us on **+91-9909903582** or send us an email at **service@eieinstruments.com/kunal@eieinstruments.com**. You can expect us to respond to your call or email within 24-48 working hours.

Once again, we would like to thank you for your trust and kind patronage. We look forward to serve you better in the future.

Yours sincerely,

EIE Instruments Private Limited

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## 1 Introduction of Double Walled Water Bath

- Heating and cooling have always been necessary in the lab. Reliable cooling and heating are used everywhere. A water bath is a device used in the laboratories to incubate samples in water maintained at a constant temperature. Temperature may be controlled digitally or by a dial and once set, the water bath cycles on and off to ensure constancy of the temperature.
- EIE - Water Baths are used in research laboratories, Industrial quality control laboratories, Hospitals, Medical colleges, Microbiological laboratories, Clinical Research centers, Cosmetic Industries, Healthcare Industries and other similar places, where the testing and experimental research works are required to be carried out at constant temperature. EIE – Double walled water bath is manufactured in two different kinds of model as per the customer requirement. The model takes similar exterior look, but it differs in a way the temperature is controlled inside the water bath chamber. Depending on a way temperature is being controlled inside the chamber, different control accessories are incorporated within the unit. The temperature is controlled in two different ways. Using thermostat and using micro-processor based PID temperature controller.
- The EIE - 402 (A) Double walled Water bath is used for performing laboratory Water temperature tests on various product samples according to the ASTM test methods and related test specifications.
- This manual provides important information regarding safety, technical reference, installation requirements, operating condition specifications, user facility resource requirements, and operating instructions for the Instrument. This manual should also be used in conjunction with applicable published laboratory procedures.

## 2 Getting Started

The instructions for preparing the equipment assume that the user is aware of the contents of this document, which lists the warranty conditions and important precautions.

### 2.1 Packing list

- Double walled water bath
- Perforated bottom platform
- PT-100 RTD probes with Digital Temperature Controller (RTD probe and controller are pre-installed at the factory)

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### 3 Delivery and Uncrating of apparatus

- 1) Inspect equipment and shipping crate immediately upon receipt. If any damage is apparent, immediately discuss it with the delivery person and contact the transportation company immediately. Make notes of any damages on the bill of landing.
- 2) Retain all shipping material for later inspection.
- 3) Check packing slip carefully and ensure all materials have been received as indicated in the packing slip.
- 4) Instrument is supplied in enclosed wooden case. Unpack the wooden case, locate and count the number of accessories and main working unit. Remove packing strip from surroundings of the instrument and all its accessories. Please inspect and note whether any part of the instrument is damaged or any accessory is missing according to packing slip? If it is so, then immediately make note of it and report to the manufacturer.
- 5) Due to the vibration incurred during shipping and handling, it is possible that mechanical connection could become loose. Inspect all connection to ensure that they are secure.
- 6) After visual inspection, if everything is found to be okay, transit the instrument to suitable safe place where it is intended to install. **CAUTION: Heavy weight, protect yourself first. Handle with care.**
- 7) Recycle the packing material and wooden box. Do not throw it away for environment protection.

#### 3.1 How to Make Instrument Ready for Use?

- a) Place the equipment on a plain, even and sturdy surface leaving 5-6" space away from the wall.
- b) Do not install unit in a corrosive environment. A corrosive environment may lead to poor performance and deterioration of unit.
- c) Do not place the equipment in a draft, sunlight or near a place of equipment, which emits heat as well as electromagnetic conduction emission.
- d) Check the electrical specifications label located on the equipment. Make sure the power specifications must confirm to your local standard.
- e) Provide Single phase / 230V / 50Hz stabilized power source with proper earthing.
- f) Clean the inner chamber of bath thoroughly.
- g) Plug the power cord into a properly grounded outlet.

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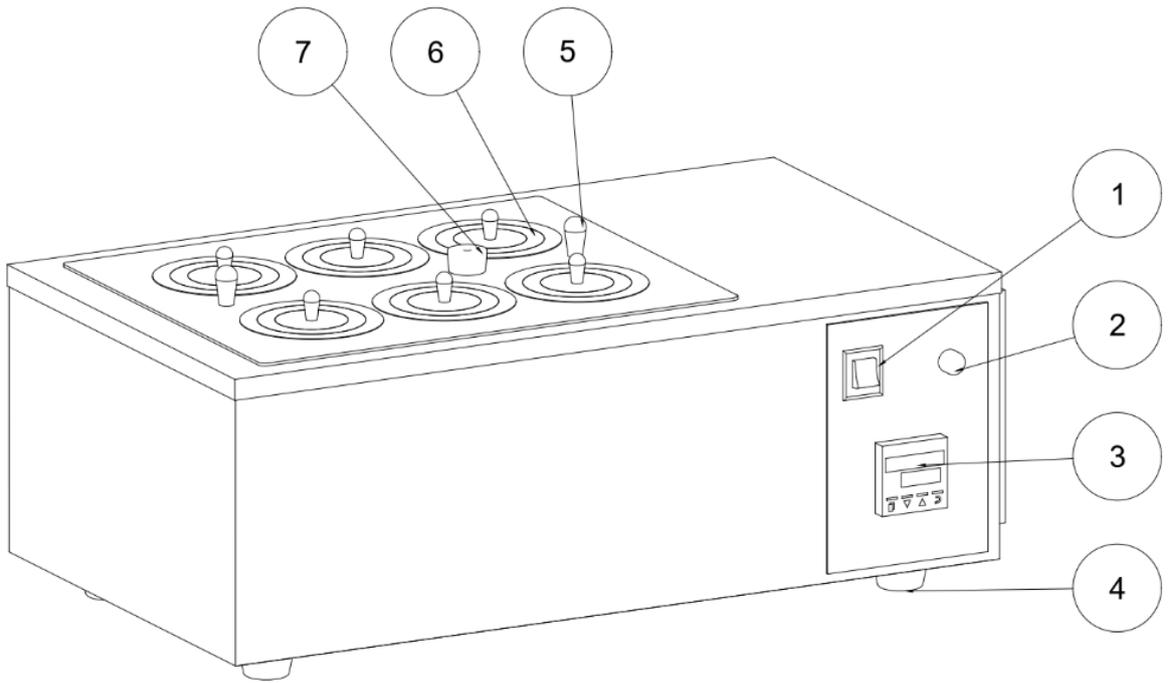
#### 4 Brief Construction Details

- 1) Double walled water bath is a compact and self-contained unit.
- 2) It consists of double walled construction.
- 3) The double wall layer is supplied with separate holes to place samples and concentric rings of stainless steel, exterior body wherein they do not have direct physical contact with each other.
- 4) Inner chamber is made up of stainless steel tank of heavy gauge with due care in order to eliminate the sharp edges.
- 5) All external cases of chamber are constructed out of mild steel often with strong seamless welding and covered with a thick layer of finished & attractive powder coating paint.
- 6) The gap between the double walled layers is filled with thick insulation to prevent the direct heat loss & moisture losses to ensure the maximum efficiency.
- 7) All electrical controls are mounted on a drawer chassis in the side part of the case of the bath.
- 8) Temperature inside the bath is controlled by digital Microprocessor based PID Controller.
- 9) Designed for easy cleaning and simple maintenance.

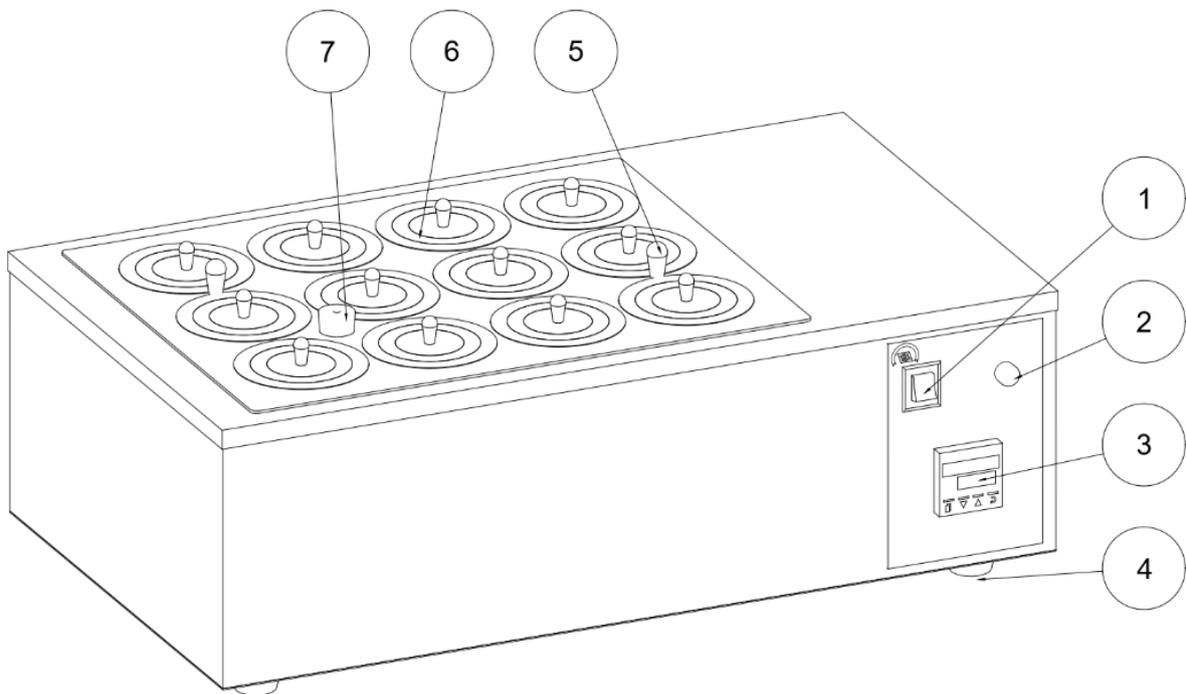
#### 5 Component Diagram of Double Walled Water Bath

Item Number	Component Description
1	Rocker Switch
2	Indicator Lamp
3	Digital Temperature Controller
4	Leg
5	Backlit Knob
6	Covers & Rings
7	Silicon Cork

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**Figure 1: Component Diagram of Water Bath with 6 holes**



**Figure 2: Component Diagram of Water Bath with 12 holes**

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## 6 Electric Circuit Diagram

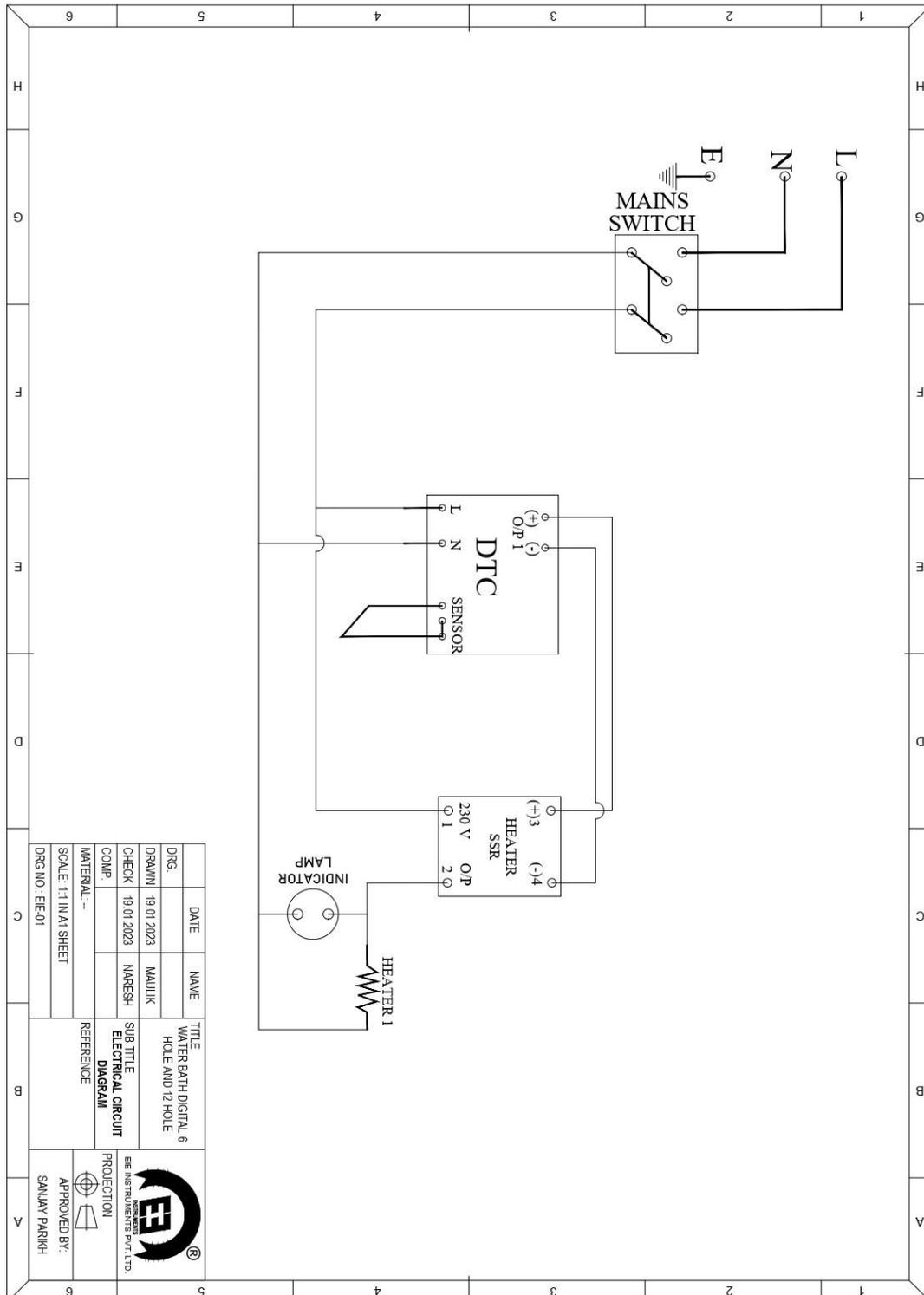


Figure 3: Electrical Circuit Diagram

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## 7 Control Panel and its Accessories

The following are the switches for various functions provided on the Control panel.

**Mains Switch cum indicator:** In this advanced model, mains switch serves the purpose of switching and indicating both. An operator can switch on / switch off the entire unit from mains switch mounted on front panel. Also, the switch incorporates a lamp inside which indicates that the mains supply is on and the unit is currently in the operating mode.

**Digital temperature controller:** Water bath incorporates the PID temperature controller to monitor and maintain the set-point temperature value. A proportional–integral–derivative controller (PID controller) is a generic control loop feedback mechanism (controller) which calculates an "error" value as the difference between a measured temperature value and a desired set-point value. The controller attempts to minimize this error by adjusting the process control inputs.

**Heater switch:** This switch controls turning ON/OFF the Permanent heaters installed within the chamber. These heaters are mostly responsible to take care of set point temperature.

## 8 Technical Specification

Parameters		Technical Specifications	
Temperature Range	+5 °C above ambient to 100 °C		
Display Resolution	0.1 °C		
Temperature Controller	Microprocessor based PID Controller		
Control Accuracy	± 0.5 °C		
Cabinet Material	Exterior	CRC with Powder Coated/S.S. (as per requirement)	
	No. of Holes	6 or 12 holes (as per customer requirement)	
Insulation	Mineral wool insulation		
Power Source	230 V, 50 Hz, Single Phase		
Accessories	PT - 100 Sensor		
	Digital temperature controller		
Heater	Water (Immersion) Heater		
Heater	1000 watts for 6 holes and 1500 watts for 12 holes water bath		

## 9 In thermostatically controlled model, panel on the front side consists of following accessories. (Optional)

- **Mains indicator:** Indicates that the mains supply is on and the unit is currently in the operating mode.

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- **Thermostat:** Thermostat is a kind of switch which controls the operating temperature of the unit at desired temperature level pre – set by the user. The dial of a thermostat is arbitrarily marked with different temperature points. The dial is marked in the temperature-range between 50 °C to 110 °C. The knob of the thermostat should be rotated in clockwise direction to set the temperature value at desired set-point.
- **Lamp of a heater:** The lamp lights up as soon as the operator enters the set-point value and it remains ON (from ambient temperature) till the previously entered set-point temperature value is reached. After the set-point is reached, it is switched off and switched on continuously giving indication of monitoring and maintaining the correct set-point value.

### 10 Standard Operating Procedure (WITH DIGITAL CONTROLLER)

- 1) Clean the container properly with clean, dry and smooth cloth before starting your operation.
- 2) Remove the chamber cover and Fill the container with distilled water/ R.O. Water.
- 3) Heater must be immersed in the water completely otherwise it may burn. Water level must be always “1” inch above the water heater. This leads your unit for long lasting.
- 4) Place the working samples flasks inside the concentric circles and put the cover lid back on it.
- 5) Plug in the main supply cord to the power source to properly grounded outlet.

**Note:** Before running a test, make sure the unit is levelled. Otherwise, the results will be affected.

- 6) Now switch on the mains switch on the control panel. This will turn on the digital temperature controller on the control panel. The digits in red on the upper side will indicate the chamber temperature while the digits in green/white in the bottom line will indicate the set point temperature.
- 7) Set the desired operation temperature using the (Up) and (Down) keys on the controller. (Refer to the attached tiny book let for more information about digital temperature controller) Controller will now automatically start tuning the set point temperature.
- 8) As the internal water temperature reaches near the required temperature the permanent heater starts getting on and off repeatedly of its own with the help of sensor, so that it may not cross the preset temperature range.

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## 11 Standard Operating Procedure (WITH THERMOSTAT)

- Connect the three pin plug to mains socket board only after ensuring all the safety instructions.
- Press the mains switch on mains socket board to switch the power on; the corresponding indicator lamp will be illuminated at the same time.
- Pre-set your desired temperature by rotating thermostat in clock-wise direction.
- Remember to keep your samples inside the Oven chamber before setting the set-point value. Ensure that the required temperature is maintained throughout the heating application.
- The lamp lights up as soon as the operator enters the set-point value and it remains ON (from ambient temperature) till the previously entered set-point temperature value is reached.
- Switch off the mains after completion of your operation.

## 12 Directions to Clean

- 1) Disconnect the main cord from the power supply prior to clean.
- 2) Drain out the water from the container properly, wipe internal chamber with soft dry cloth and for external cover use moist cloth.
- 3) While cleaning take care that the heater must not be disturbed.
- 4) Wear hand gloves while cleaning of equipment.
- 5) Never use benzene or paint thinner or any other chemicals for cleaning.

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### 13 Precautions

- 1) Always disconnect from power supply prior to maintenance & servicing.
- 2) Keep correct level of bath media to avoid damage to heaters (At least above the heater level).
- 3) Never leave the bath connected to main supply after day's use.
- 4) Preferable use de-mineralized distilled water as a bath media, for long life of heaters.
- 5) While cleaning the inner chamber, take care that the **Immersion heater**, and **sensors** do not get damaged.
- 6) Clean the working chamber and keep the water level well above the perforated platform provided with the bath.
- 7) Always connect the chamber to 230 volts, 50 Hz, Single phase, AC supply via voltage stabilizer of specified ratings.
- 8) To avoid electrical shock, this equipment must always use a properly grounded electrical outlet or correct voltage and current handling.
- 9) Maintain a safe distance of at least 1 – 2 feet away from the wall while installing the unit.
- 10) Keep the instrument tidy, clean and dry with mint cream. Before initiating the fresh day, use preferably clean soft cloth. Brush up the unit body as to maintain its finishing.
- 11) Disassembly of this equipment is strictly limited to the qualified persons and licensed engineers.
- 12) In case of any difficulty, please do not try repairs without consulting us, especially when the instrument is under warrantee period.

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## 14 Troubleshooting

Causes	Reason	Solution
Water heater is not working (Water is not getting heated in the container)	<ul style="list-style-type: none"> <li>a) Terminals end of water heater may have lost the circuit connection.</li> <li>b) An operator may have not switched on permanent heater switch.</li> <li>c) Permanent heater switch may not be working.</li> <li>d) Sensor may not be functioning properly.</li> <li>e) S.S.R not working</li> </ul>	<ul style="list-style-type: none"> <li>a) Open right side chamber of the unit, find out the end terminals and fix it properly.</li> <li>b) Turn on the permanent heater switch.</li> <li>c) Replace the switch completely.</li> <li>d) Check the Sensor. It should indicate between 110 – 115 ohms, check it with the help of multi-meter. If found faulty replace it.</li> <li>e) Check Input voltage of SSR, it should be 3 to 12-volt DC and output voltage should be 230 volts AC. <ul style="list-style-type: none"> <li>▪ If input is 3 -12 – volt not available, DTC may be faulty.</li> <li>▪ If 230 volts AC not available SSR may be faulty, Replace the SSR.</li> </ul> </li> </ul>
Unit is completely dead, not a single part is working	<ul style="list-style-type: none"> <li>a) 1 ampere fuse may be shorted.</li> <li>b) Required operating power may not be supplied.</li> <li>c) Main cord wire may be damaged.</li> <li>d) Main switch cum indicator or control panel is not working.</li> </ul>	<ul style="list-style-type: none"> <li>a) Replace the fuse.</li> <li>b) Supply at least 220v of power to the unit.</li> <li>c) Replace the main cord wire completely.</li> <li>d) Replace the main switch cum indicator.</li> </ul>

# Warranty Certificate

Your EIE product is guaranteed to be free from defects in materials and workmanship for one (1) year under normal use from the date of purchase. This warranty does not apply to any product damaged by accident, misuse, mishandling, abuse, negligence, transit, improper line voltage, drop, fire, flood or if the products were altered or repaired by anyone other than the qualified service personnel. The liability of EIE Instruments is limited to repair or replacement and under no circumstances shall EIE be liable for any collateral consequential damages or loss. This guarantee specifically excludes the expendables and consumables. All warranty claims must be directed to your corresponding purchase organization that is responsible for the sale of this equipment. The users are responsible for shipping expense. The warranty cards which are not signed and stamped by the actual user will be treated as void. The warranty card should accompany the defective products sent for repair, without which no claims would be entertained. Please detach the below warranty card from following cut-line.

.....

Attributes	Details
Name of the company	
Address	
Telephone number	
Mobile number	
Email address	
Date of purchase	
Product model	
Serial Number	
Bill or cash memo number	

This card should be detached, filled in properly and posted within 15 days from the date of purchase otherwise the warranty becomes invalid.

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Any Note or Queries

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#### Calibration Laboratory

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