



## Dry Block Temperature Calibrator

Temperature Range: -30 °C to +100°C @25°C

# ED-27X Instrument Manual



## TABLE OF CONTENTS

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1. Preface.....	1
2. Technical Specification.....	2
3. Operating Principle.....	3
4. Safety Measures.....	5
5. Warranty Certificate.....	6
6. Calibration Report.....	9

## **PREFACE**

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Congratulation on purchase of “Tunix” make Dry block temperature Calibrator Model : ED-27X. This instruments is one of the best available in its class.

We have taken enough care in designing and manufacturing to give you trouble free performance for longer period. Before starting the instrument, we suggest you to go through the instruction manual.

## **STANDARED ACCESSORIES**

Please check for following Standard accessories/Observation

- 1) Product is not physically damaged.
- 2) Operating manual With Warranty certificate
- 3) 1 Insert & 1 Insert Pull out tool.
- 4) Power Chord.
- 5) Carrying Bag.

## TECHNICAL SPECIFICATION

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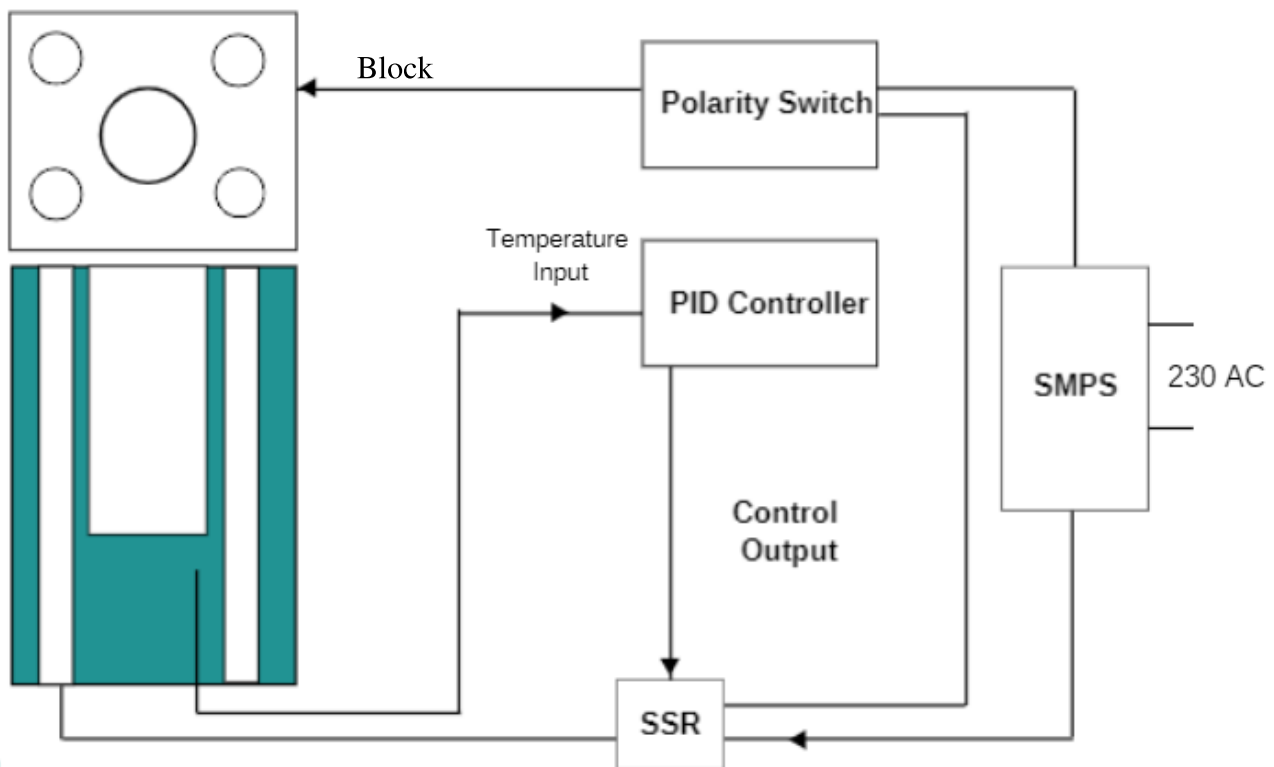
- Temperature Range: -35 °C to +100 °C @ 25 °C ambient temperature
- Resolution: 0.1.
- Control accuracy:  $\pm 0.05$  °C Below Ambient temperature.
- Control accuracy:  $\pm 0.1$  °C Above Ambient temperature.
- Thermal stability:
  - $\pm 0.01$  °C @ 100 °C (calculated after stabilization time of 10 minutes).
  - $\pm 0.01$  °C @ - 30°C (calculated after stabilization time of 10 minutes).
- Thermal Nonuniformity (Radial):
  - $\pm 0.15$  °C @ 100 °C (calculated after stabilization time of 10 minutes).
  - $\pm 0.10$  °C @ -30°C (calculated after stabilization time of 10 minutes).
- Stabilization Time/settling time: 10 minutes after set point is achieved.
- Time to reach -30 °C (15 Minutes) from 25 °C ambient temperature .
- Time to reach 100 °C (5 Minutes) from 25 °C ambient temperature.
- Power supply: 100-240 VAC @50-60 Hz.
- Current : 0.7 A.
- Power Consumption: single phase :170 Watt maximum
- Sound: 30 dB
- Enclosure Metal(SS)
- Weight: 13 Kg

## OPERATING PRINCIPLE

For temperature calibration you require a stable known temperature source. The certainty of the calibration depends on

- 1) Stability of the source temperature.
- 2) Uniformity to which the stable temperature is known.

Designed diagram of ED-27X is given below.



As Shown in above diagram, Aluminum block is heated & cooled by Thermoelectric coolers in such a way that a cavity in block has radial as well as axial homogeneous temperature. This temperature is sensed by highly accurate and stable sensor and block temperature is controlled by a PID controller.

## OPERATING PRINCIPLE

### IMPORTANT INSTRUCTION FOR OPTIMUM PERFORMANCE

- 1) Use 1 Amp glass fuse as supplied with instrument.
  - 2) 3 Pin Plug used should have 5 amp capacity.
  - 3) Cooling fan on the bottom are on .This is required to cool the electronics.
- Ensure the air passage is not blocked

## PID CONTROLLER



## SAFETY MEASURES

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- A 1 Amp Glass fuse is used in the supply line to prevent any problem due to failure of Thermoelectric module. In case of fuse being fused to frequently kindly consult factory.
- In the event of SSR failure temperature gets run away above set value. If it cross the set point by more than 110°C. Switch off the power immediately and consult factory.
- Do not temper wiring as it may be safety hazard.

## TROUBLE SHOOTING

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- 1) Calibrator is not reaching set value.
  - Check mains for full voltage.
  - Check resistance of heater by opening the side cover as per wiring diagram. It should be 75 ohm. If not found in range consult our factory.
  
- 2) Calibrator temperature is running over.
  - Check terminal 1 & 2 of SSR for getting short for ever. If it is short replace it/ Consult factory.
  - Check for correct polarity in your mains plug. Phase should go thru SSR as per design. If phase is not routed thru SSR It may not control the temperature.
  
- 3) Calibrator is not getting on.
  - Check mains.
  - Check fuse.
  - Check tightness of all terminals on controller & main terminal strip.
  
- 4) Calibrator temperature not getting stable.
  - Check fan at the bottom cover it should be running.
  - Need turning off/On controller.



## WARRENTY CERTIFICATE

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This is certify that, Dry Block Temperature Calibrator having Sr. No.-----  
Date----- is properly Tested for workmanship. We Certify our Calibrator for  
satisfactory performance for the period of one year from the date of supply against any  
manufacturing defect.

Signature

## CALIBRATION CERTIFICATE

Certificate No. ....

Date .....

Model No. ....

Serial No. ....

### Standard reading

Standard reading on precision Digital Read Out	Reading on temperature Controller after stabilization of 10 min	Instability

Signature

## CHECK-LIST

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- Is Instrument is working properly .....(Yes/No)
- Is power chord is available? .....(Yes/No)
- Is Insert is available? .....(Yes/No)
- Is Insert puller is available? .....(Yes/No)
- Is Carry bag is available? .....(Yes/No)
- has all factory setting parameters of Instruments locked? .....(Yes/No)

Signature  
Date