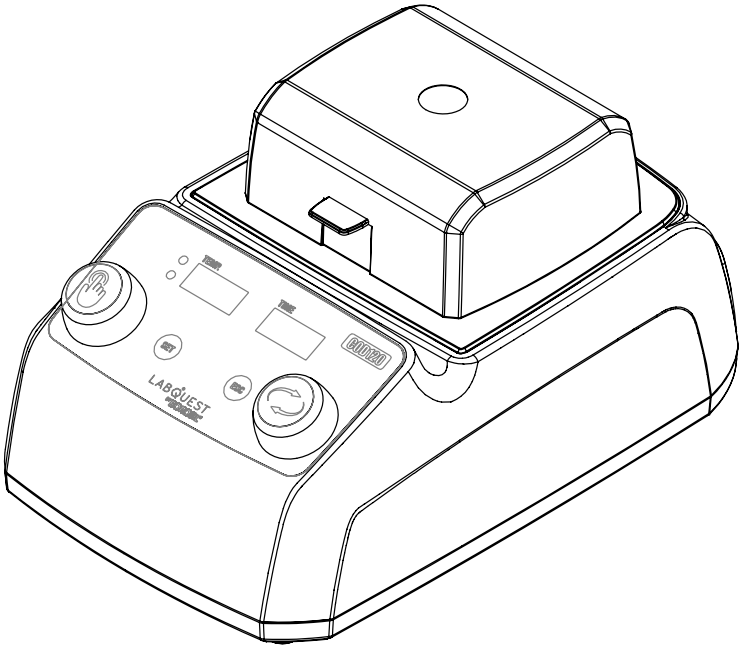
LABQUEST BY BOROSIL®

CLOSED REFLUX COD DIGESTER

OPERATING MANUAL
COD120P



DEALER :

THANK YOU NOTE

We Borosil, one of India's most customer oriented brands truly appreciate your business and express our gratitude for the trust you have placed on us.

We hope your choice serves you well in your scientific endeavors and aspire to have the pleasure of doing business with you for years to come.

INTRODUCTION

The manual provides important information regarding the safety information of the CLOSED REFLUX COD DIGESTER. Closed Reflux Cod Digester have the block temperature of 180^{0}C with the timer of 999mins. The body of the unit is made up of PBT 30% glass filled which will have minimum chemical reaction if the chemical spillage takes place and also has low body thermal conductivity which prevents any accidental heat burns.

Read this manual thoroughly before attempting to operate the Closed Reflux Cod Digester. All persons operating this piece of equipment should review the Safety Precautions section of this manual.

TABLE OF CONTENTS

PACKING LIST

Sr. No	Description	Quantity
1	COD120P Unit	01 No.
2	Power Cable	01 No.
3	Vials	12 Nos.

PRODUCT SPECIFICATION

PARAMETERS	COD120P
Reflux Type	Sealing
Block Capacity	12 Position
Vials Capacity	16 mm X 100 mm Vials
Temperature Control	Yes
Time Control	Yes
External Probe	NA
Temperature Control	PID Control
Block Temperature Range	Ambient to 180^{0}C
Temperature Accuracy	Slow Heating: ± 1 °C Fast Heating: ± 2 °C"
Process Timer	0-999 min and infinite time
Display	7 Segment
Block Material	Aluminium
Interchangeable Block	No
Cover for Dry Block	UV Protection
Unit External Dimensions	285x190x156mm
Power Input	230V, 50Hz
Fuse Rating	1A
Power Consumptions	200W

CAUTION

- Always use proper protective equipment. (Clothing, gloves, etc.)
- Always follow good hygiene practices.
- Each individual is responsible for his / her own safety.
- Always wear shatter proof eye protection.

SAFETY AND WARNING

- When the **'AUTO RESUME'** feature is Enabled, the unit may start heating or opertaing on power supply.
- Ensure mains are switched off or unplugged when the product is not in use.

Important operating and maintenance instructions. Read the accompanying text carefully.

Potential Electrical Hazards

- Only qualified persons should perform procedures associated with this Symbol.
- Equipment being maintained or serviced must be turned off to prevent possible injury.
- Inadequate earthing at the installation facility can lead to hazardous electrical shocks.
- The manufacturer is not liable for any injury or death resulting from electrical hazards due to faulty earthing in the lab.

Potential Heat Hazards

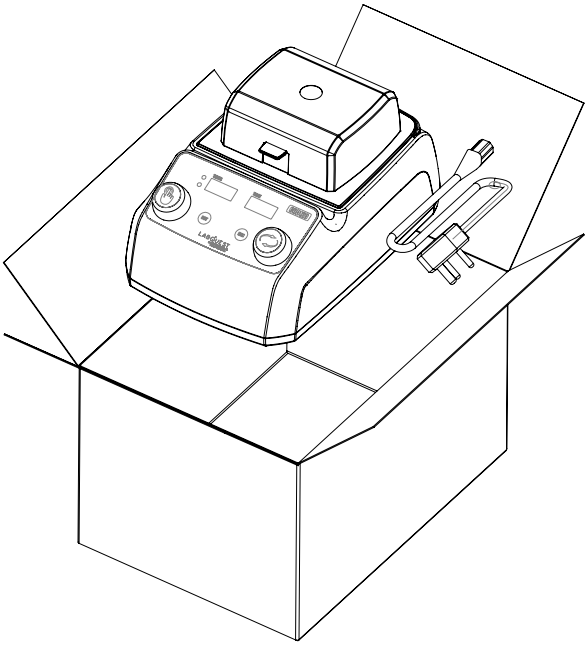
- Only qualified persons should perform procedures associated with this Symbol.
- Do not touch the top of the aluminium block in case of COD120P directly when the unit is in hot condition.

SAFETY PRECAUTIONS

The following precautions should be taken when operating or working near the COD120P:

- Do not use the product if there is any electrical or mechanical damage.
- Always wear shatterproof eye protection.
- Repair should be performed only by qualified individuals.
- Do not use accessories which are not recommended by the manufacturer as it may affect the performance.
- Do not use the unit in hazardous atmosphere or with hazardous material for which the unit is not designed.
- Always use the unit on a level & stable surface for best performance and maximum safety.
- The instrument is designed to be used in the laboratory environment.
- Clean the unit with a damp cloth using a mild detergent only. Do not use chemical cleaning agents.
- If liquid is spilled on the unit, first disconnect the unit from the external (main) power supply and then clean the unit with damp cloth.

UNBOXING



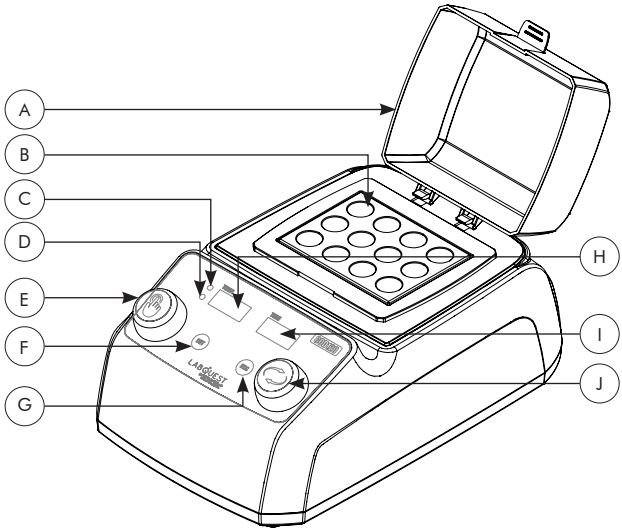
1. Place the carton box in the proper direction.
2. Check the exterior carton for any damages.
3. Unbox the carton box from the top. If there is any physical damage found on the product report to the dealer / delivery agent.
4. Remove the accessories and the unit from the box safely.
5. Compare the in box items with the packaging list and the unboxing image. If any of these items are missing, contact Labquest's Customer Service Department immediately.

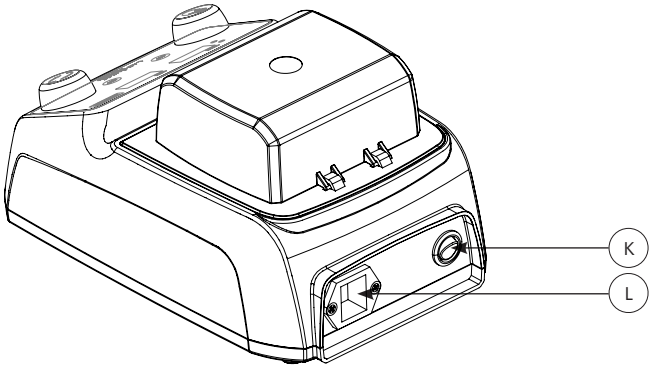
Refer page no. 8 to know what is present in the carton box with respect to the product.

(Read Manual before installation on the lab bench.)

PRODUCT IDENTIFICATION

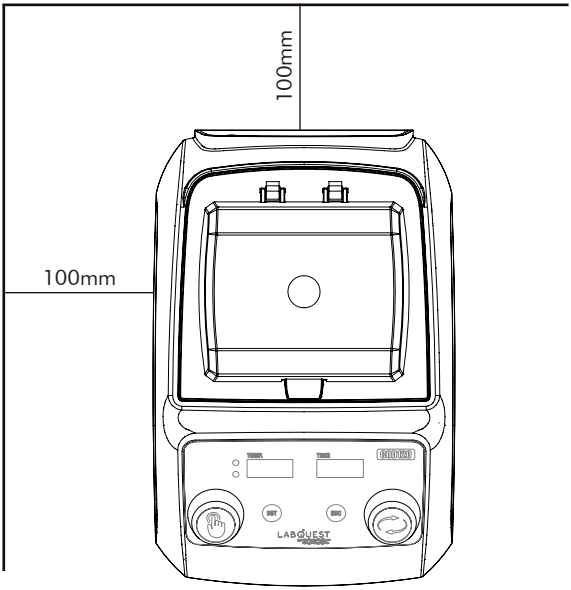
A. TRANSPARENT CAP
B. ALUMINIUM BLOCK 12 POSITION
C. SET INDICATOR (GREEN LED)
D. PROCESS INDICATOR (RED LED)
E. TEMPERATURE KNOB
F. SET KEY
G. ESC/BACK KEY
H. TEMPERATURE DISPLAY
I. TIME DISPLAY
J. TIMER KNOB
K. POWER SWITCH
L. POWER SOCKET



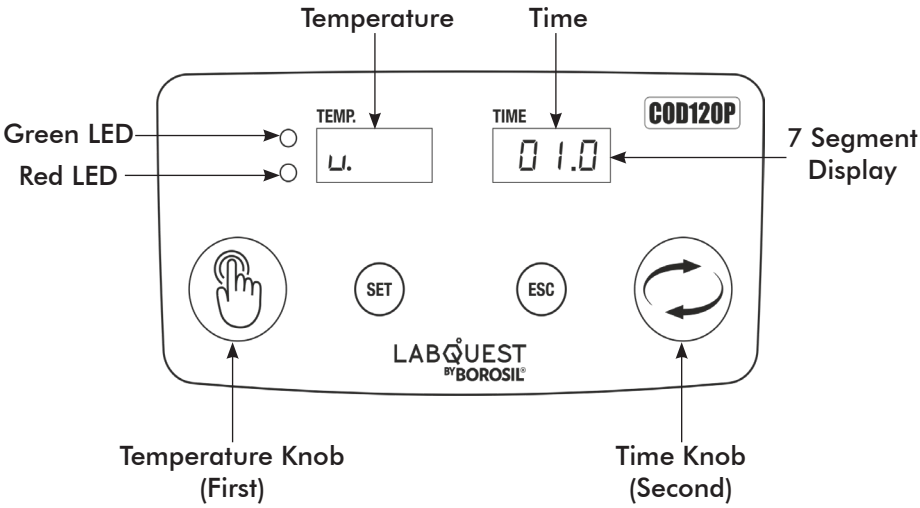


PRODUCT INSTALLATION

- Locate the unit on a level, stable surface near a grounded electrical outlet.
- The surface should be clean and free of dust and also ensure that there are no flammable substances present near the unit .
- Allow sufficient clearance on all sides of the unit for proper ventilation.
- With the power switch in the OFF position, plug the power cord into grounded receptacle.
- Make sure that a minimum 100 mm gap is maintained between the unit wall and also with other instruments present in the lab as shown in the figure below.
- Please ensure there is a fuse in the fuse holder.
- Connect the male end of the power cable to the wall socket.
- The unit is ready to operate for first usage.



DESCRIPTION FOR KNOB AND LED



1. TEMPERATURE Knob

- Clockwise Rotation
  - » To increment the set Temperature value.
- Anti Clockwise Rotation
  - » To decrement the set Temperature value.
- Single Press : To select the particular parameters value.
- Long Press: To reset the set parameters, to exit the process and to jump into the settings.

2. TIME Knob

- Clockwise Rotation
  - » To increment the set TIME value.
- Anti Clockwise Rotation
  - » To decrement the set TIME value.

3. Red LED

- This indicates the current Temperature value and current TIME value.

4. Green LED

- This indicates the set Temperature value and set TIME value.

5. SET Key

- Single press during the process will display the set parameters.
  - » Set Temperature value on the Temperature display.
  - » Set time on the TIME display.

6. ESC Key

- If the key is pressed once, the Temperature display will show 'stop' and the TIME display will show 'pros' for 5 seconds.
- If the key is pressed again within this duration, the process will stop. If not, the process will resume.

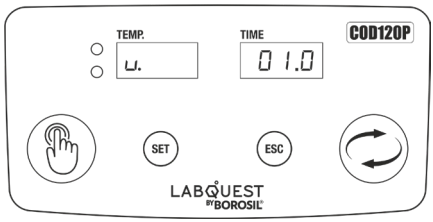
GENERAL OPERATING INSTRUCTIONS

- All operating controls are located on the front panel and back panel of the unit.
- The power switch, power socket are located on the back panel.
- Press the power switch, display will Turn **ON** showing the current Temperature of the unit.
- Single press the Temperature knob to enter the **parameter-set** mode.
- Rotate the Temperature knob **clockwise** or **counterclockwise** to vary the set Temperature.
- During this time, the Temperature display will blink and show the set Temperature.
- Rotate the TIME knob **clockwise** or **counterclockwise** to set or vary the TIME value.
- During this time, the time display will show set TIME.
- Single press the Temperature knob to confirm and fix the set Temperature and TIME, and also to start the process.
- The Green LED will remain ON while adjusting the Temperature and TIME.
- Single press the '**ESC**' key or long press the Temperature knob to return to the home screen.
- Temperature regulation will be **0-180^{0}C** and time regulation will be from **1-999mins**.
- If one rotates the Temperature knob during the process is ON then the Temperature increases or decreases based on the rotation of the Temperature knob.
- Single press of the '**SET**' key during the process will display the set parameters.
- Once the parameter in the unit is set and the process has started then the unit will show the Temperature and time along with the respective display screens.
- If one wants to terminate the process in between then long press the Temperature knob or press the '**ESC**' key until a beep sound occurs stating that the process is terminated.
- Once the time is completed the unit will give a buzzer sound indicating the process is completed.

OPERATIONS

Version Display

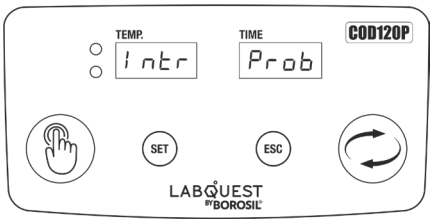
- When the power supply is turned ON, the unit will display the current software version for 2 seconds.
- During this time, both LED's will remain OFF.



Temperature Probe Status

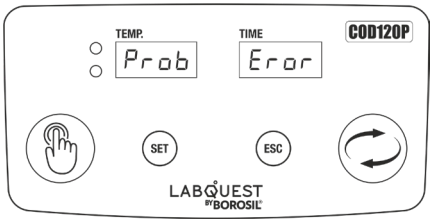
After the version display, the unit will check the probe status:

- If the **internal probe** is connected, the 1st display will show "**Intr**", and the 2nd display will show "**prob**" for 2-3 seconds with a buzzer beep.
- Both LED's will remain OFF.



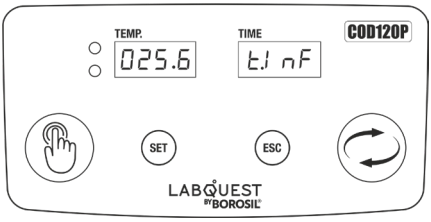
Probe Error

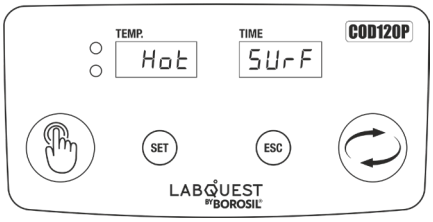
- If the internal probe is not connected or faulty, the 1st display will show "**Prob**" & 2nd display will show "**Eror**" with the display blinking and a buzzer sound.
- Both LED's will remain OFF.



1. HOME SCREEN

- After displaying the probe status, the unit will show the current temperature on the 1st display and the 't.InF' on the 2nd display.
- If the internal probe temperature is greater than 50°C, then '**Hot SurF**' message will appear frequently to prevent direct contact with the block.
- Both LED's will remain OFF.





2. SET PARAMETER WHEN PREHEAT IS DISABLED:

- Single press the 1st knob to enter the parameter-set mode.
- The Green LED will remain ON while setting the temperature and time.

Set Temperature Value:

In Standard Heat Mode:

1. Rotate the 1st knob clockwise or counterclockwise to vary the set temperature value.
2. During this time, the 1st display will blink and show the set temperature value.

In Preset Heat Mode:

1. Rotate the 1st knob clockwise or counterclockwise to select preset temperature value (100^{0}C, 120^{0}C or 150^{0}C).
2. During this time, the 1st display will blink and show the set temperature value.

Set Time:

In Standard Heat Mode:

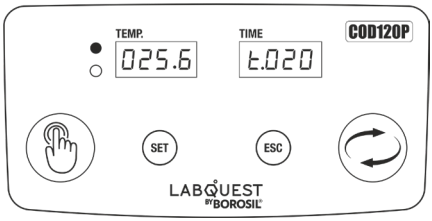
1. Rotate the 2nd knob clockwise or counterclockwise to vary and set the time.
2. During this time, the 2nd display will show the set time.

- If "**Time**" in setting menu is set to **Pros** or **Soac** then user can set time from (**t.000 to t.999**) or infinite (**t.inf**) while setting time parameter.

In Preset Heat Mode:

1. Rotate the 2nd knob clockwise or counterclockwise to select preset time value (30mins, 60mins, 90mins, or 120mins).
2. During this time, the 2nd display will show the set time.

- Single press the '**ESC**' key or long press the 1st knob to return to the home screen.
- Single press the 1st knob to confirm and start the process.



When PreHeat is Disabled

Set Parameter When PreHeat is Enabled:

- Single press the 1st knob to enter the parameter-set mode.
- The Green LED will remain ON while setting the temperature and time.

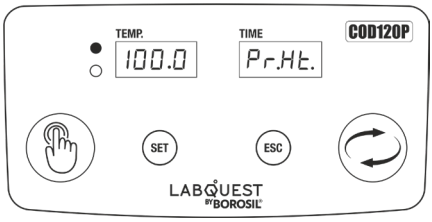
Set Temperature Value:

1. Rotate the 1st knob clockwise or counterclockwise to select preset temperature value (100^{0}C, 120^{0}C or 150^{0}C).
2. During this time, the 1st display will blink and show the set temperature value.

Set Time:

1. Rotate the 2nd knob clockwise or counterclockwise to select preset time value (30mins, 60mins, 90mins, or 120mins).
2. During this time, the 2nd display will will show set time.

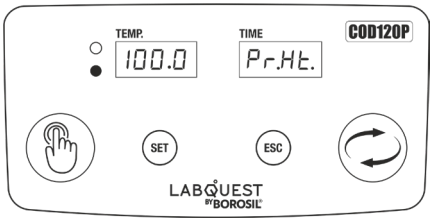
- Single press the '**ESC**' key or long press the 1st knob to return to the home screen.
- Single press the 1st knob to confirm and start the preheating.

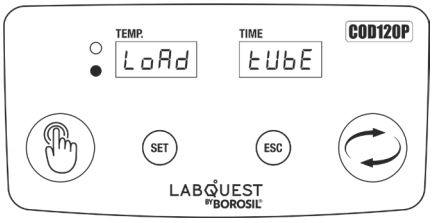


When PreHeat is Enabled

When PreHeat is Enabled:

- The RED LED will remain ON.
- The unit will display set temperature on the 1st display and "Pr.Ht." will blink on the 2nd display till it reaches the set temperature.
- When the unit reaches set temperature the display will blink with a message ("LoAd" on 1st display and "tubE" on 2nd display).
- The message will keep blinking till the user acknowledges by pressing the **1st knob or set key**.
- Once the user acknowledges, the process starts.

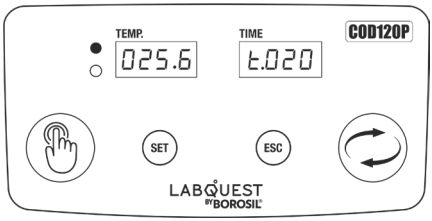




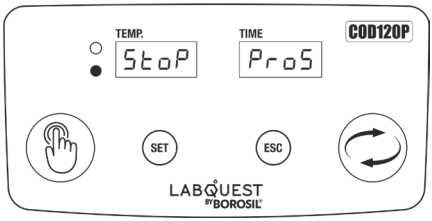
3. PROCESS

In Process:

- The RED LED will remain ON throughout the process.
- Set Temperature Adjustment in Process:
  1. Rotate the 1st knob to change the set temperature during the process.
  2. Single press the knob to confirm the set temperature.
- A single press of the SET key during the process will display the set parameters:
  1. Set temperature on the 1st display.
  2. 't.InF' (for 't.InF') or Set time (for 'Pros'/'Soac' modes) on the 2nd display.
  3. The GREEN LED will remain ON while displaying set parameters.



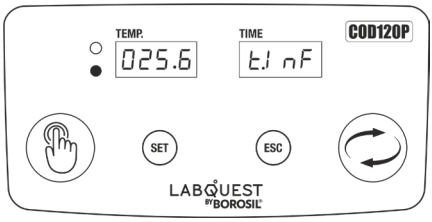
- When the process starts or stops, the buzzer will beep for 2 to 3 seconds as an alert.
- Stopping the Process:
  1. If the ESC key is pressed once, the 1st display will show '**Stop**' and the 2nd display will show '**Pros**' for 5 seconds.
  2. If the ESC key is pressed again within this duration, the process will stop. If not, the process will resume.
  3. If user long press the first knob then Process will get stop.

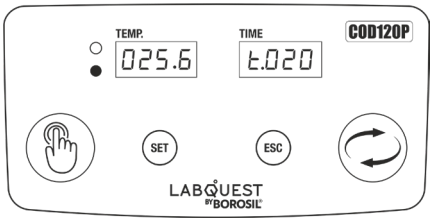


- Time Mode - 'Pros':
  1. If set time is Infinite (t.InF): A count-up timer will start automatically.
  2. If a defined time is set, a countdown timer will start as soon as process starts.

- Time Mode - 'Soac':
  1. If set time is Infinite (t.InF): A count-up timer will start automatically.
  2. If a defined time is set, the **countdown timer** will begin once the **actual temperature** reaches the **setpoint**.

- If no action is taken, the time defaults to 't.InF'.

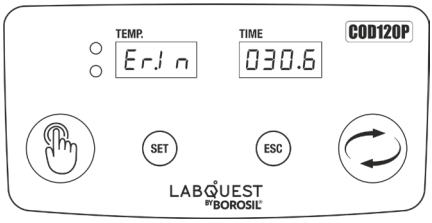




SETTINGS

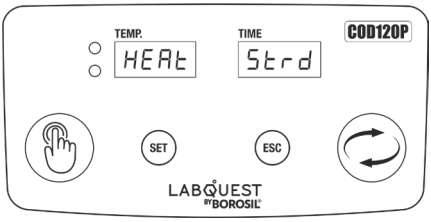
1. SINGLE POINT CALIBRATION

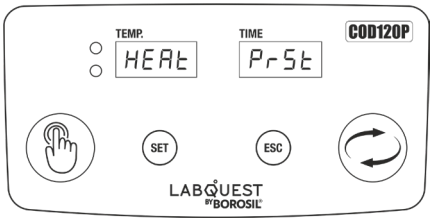
- Long press the 1st knob for 7 seconds on the Home Page to enter the Setting Menu.
- Rotate the 1st knob to select the Calibration Mode.
- The unit will display:
  1. 'Er.In' on the 1st display.
  2. The current temperature will be displayed on the 2nd display.
- Press the 1st knob once to enter the Calibration Mode.
- Rotate the 1st knob to set the master temperature.
- Press the 1st knob again to save the settings and exit.
- Both the LED's will remain off.
- Long press the 1st knob to return to the Home Page.



2. HEAT MODE

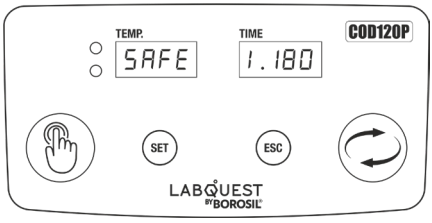
- Rotate the 1st knob to select the Heat mode.
- The unit will show '**HEAt**' on the 1st display and '**Strd/Prst**' on the 2nd display.
- Press the 1st knob once to enter Heat mode.
- Rotate the 1st knob to choose between '**Strd**' or 'Prst'.
- Press the 1st knob again to save the selection and exit.
- Long press the 1st knob to return to the home page.





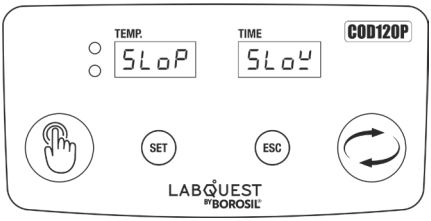
3. SAFE TEMPERATURE

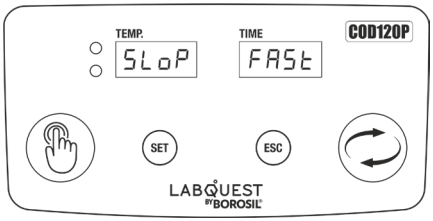
- Rotate the 1st knob to select the Safe temperature mode.
- The unit will show '**SAFE**' on the 1st display and 'I.180' on the 2nd display.
- Press the 1st knob once to enter **SAFE** mode.
- Rotate the 1st knob to vary the safe temperature value.
- Press the 1st knob again to save the safe value and exit.
- Long press the 1st knob to return to the Home Page.



4. SLOPE MODE

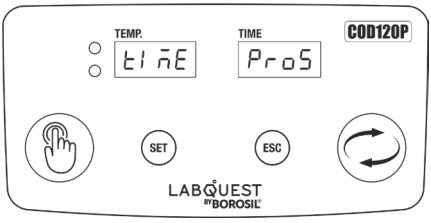
- Rotate the 1st knob to select the SLOP mode.
- The unit will show '**SLOP**' on the 1st display and '**Slow/FASt**' on the 2nd display.
- Press the 1st knob once to enter **SLOP** mode.
- Rotate the 1st knob to choose between '**Slow**' or '**FASt**'.
- Press the 1st knob again to save the selection and exit.
- Long press the 1st knob to return to the Home Page.

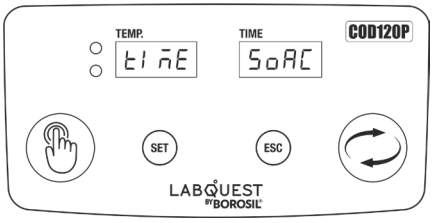




5. TIME MODE

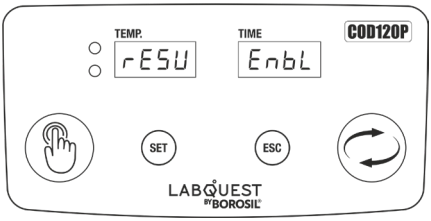
- Rotate the 1st knob to select the Time mode.
- The unit will show '**timE**' on the 1st display and '**ProS/SoAC**' on the 2nd display.
- Press the 1st knob once to enter time mode.
- Rotate the 1st knob to choose between '**ProS**' or '**SoAC**'.
- Press the 1st knob again to save the selection and exit.
- Long press the 1st knob to return to the Home Page.

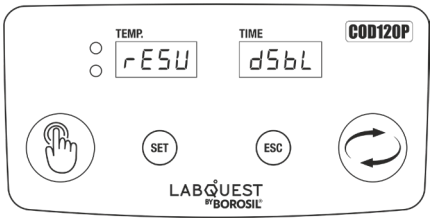




6. AUTO RESTART

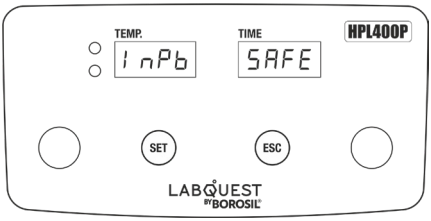
- Rotate the 1st knob to select the Auto restart mode.
- The unit will show '**rESu**' on the 1st display and '**Enbl/dSbl**' on the 2nd display.
- Press the 1st knob once to enter **rESu** mode.
- Rotate the 1st knob to choose between '**Enbl**' or '**dSbl**'.
- Press the 1st knob again to save the selection and exit.
- Long press the 1st knob to return to the Home Page.

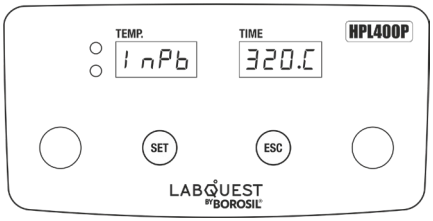




7. INTERNAL PROBE SAFETY TEMPERATURE

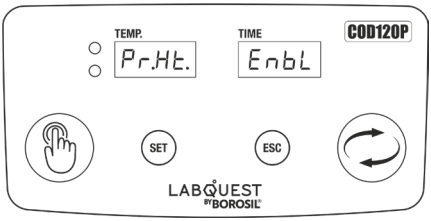
- Rotate the 1st knob to select the Internal probe safety mode.
- The unit will show '**InPb**' on the 1st display and '**SAFE**' on the 2nd display.
- Press the 1st knob once to enter '**InPb SAFE**' mode.
- Rotate the 1st knob to vary the safe value.
- Press the 1st knob again to save the value and exit.
- Long press the 1st knob to return to the Home Page.

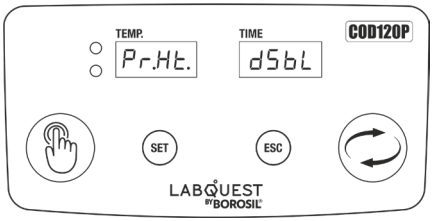




8. PREHEAT

- Rotate the 1st knob to select the PreHeat mode.
- The unit will show '**Pr.Ht.**' on the 1st display and '**Enbl/dSbl**' on the 2nd display.
- Press the 1st knob once to enter '**Pr.Ht.**' mode.
- Rotate the 1st knob to choose between '**Enbl**' or '**dSbl**'.
- Press the 1st knob again to save the selection and exit.
- Long press the 1st knob to return to the Home Page.





SAFETY ALERT

- Overheating Protection During Process:

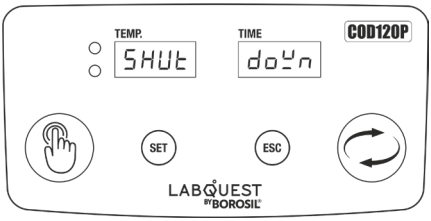
If the internal probe temperature exceeds **240°C** during the process due to triac failure, the unit will:

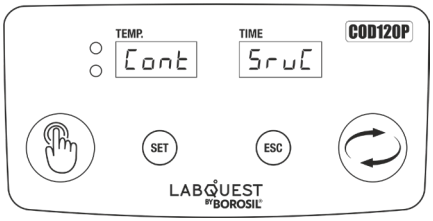
1. Display an alert message: '**shut down**' and '**Cont SrvC**'.
2. Cut off the power supply via the relay to prevent overheating.

- Gradual Temperature Rise Detection:

If the internal probe temperature gradually increases due to triac failure on the home page (out of the process), the unit will:

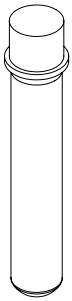
1. Display an alert message: '**shut down**' and '**Cont SrvC**'.
2. Cut off the power supply via the relay to prevent overheating.





ACCESSORIES

VIALS USED



TROUBLESHOOTING

Sr.No.	PROBLEM	SOLUTION
1.	The unit is not turning ON	• Check the supply in AC mains. • Make sure power cable is inserted to the socket properly. • Check whether the main switch is ON or OFF. • Check if the illuminated switch present in the unit is OFF or ON. • Check if the unit is running and the switch is not illuminating, then the switch needs to be replaced.
2.	If the fuse is blown	• Switch OFF the unit and remove power cable from AC mains. • Pull out the fuse holder located at the bottom of the power socket. • Remove the glass tube fuse. • Check if the fuse is blown. • If the fuse is blown, replace it with a glass tube fuse that is given in the product specification table.

WARRANTY REGISTRATION

Please handover this registration form to the distributor from where you have purchased this product. The warranty is valid only when this warranty registration form is received by us within 30 days from the date of purchase.

Product: COD120P

Product Sr. No.: _____

Date of Invoice : _____

Invoice No.: _____

Customer name & address

Name : _____

_____

Address: _____

_____

_____

_____

Telephone: _____

E-mail: _____

Customer sign & seal

Dealer name & address

Name : _____

_____

Address: _____

_____

_____

_____

Telephone: _____

E-mail: _____

Dealer sign & seal

BOROSIL® Scientific

STATEMENT OF WARRANTY

Borosil confirms that this product has been manufactured in accordance with our technical specifications and quality requirements.

- Borosil warrants the product from manufacturing and workmanship defects for a period of 12 months from the date of invoice.
- Warranty void if apparatus is not operated as prescribed in this operating manual.
- To be covered under warranty.
  - Units have to be connected to standard 230V, 50Hz, 5A wall sockets with proper earthing for COD120P.
  - The units should never be run with wet or dripping glassware.
  - Warranty does not cover replacement of heating element more than once.
  - Warranty does not cover rust and physical damage to metal parts due to corrosive environment in the lab.

Terms:

- In the event of malfunction due to defect, the buyer will have to follow the Borosil's service process.
- Certain units can not be serviced / rectified at the buyer's place and the units may have to be brought to Borosil's service center as advised by Borosil's representatives.
- In no event shall Borosil be liable for consequential or incidental damages.

INVOICE DATE	BUYER	AFFIX SERIAL NUMBER
INVOICE#		

Dealer name & address	Dealer sign & seal

BOROSIL SCIENTIFIC LIMITED
Corporate Office : 1101, Crescenzo G-Block, Opp. MCA Club, Bandra Kurla Complex, Bandra (E), Mumbai-400051, India.

LABQUEST BY BOROSIL®

: MANUFACTURED BY :

Borosil Scientific Limited

Plot No.7, Sr. No. 234, 235 & 245,
Indialand Global Industrial Park,
Hinjewadi Phase 1, Pune - 411057
Write to us on above address.

: MARKETED BY :

Borosil Scientific Limited

1101, G-Block, Parinee Crescenzo,
BKC, Bandra East, Mumbai - 51
Maharashtra, India

: CUSTOMER CARE CONTACT :

Phone : 1800 22 4551 | Email : lab.support@borosil.com

Website : www.borosilscientific.com