eATC-S Automated Thermal Cycler

ULTRASSAY BIOTECH CO., LTD.

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1. Design concept...

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eATC-S Automated thermal cycler

- **Design concept :** **Focus on solving automated users' concerns about the reliability and maintainability of PCR instruments.**
- **Product spec :** 96/384 optional blocks, apply to full skirt plate and short tube only.
- **Unique function :** Users can quickly change the PCR module independently, free of temperature calibration, leakage prevention.
- **Exclusive technology :** Rapid insertion and removal technology, free of calibration module technology; Leak-proof sealing bracket technology; liquid cooling technology.
- **Market posioning :** Used for supporting automatic workstations.

2. Product appearance...

Cooling unit

Host
(thermal cycler unit)

Power socket
Port to the host
PC interface
Liquid-cooled hose(to the host)
Screen
Power switch
Emergency button

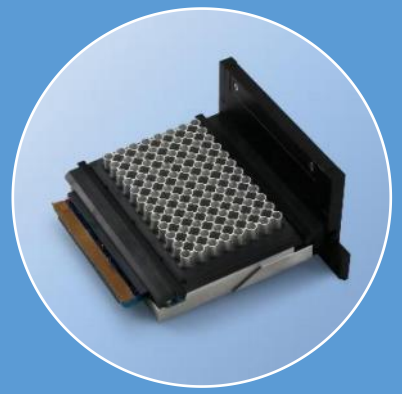
Backside

Vent hole
Port to cooling unit
Liquid-cooled hose(to cooling unit)
Air outlet

Host
(Hit lid is open)

Electric hot lid
Replaceable PCR modules
Indicator light
Accessory (Anti-evaporation sealing bracket)

3. Exclusive technology...



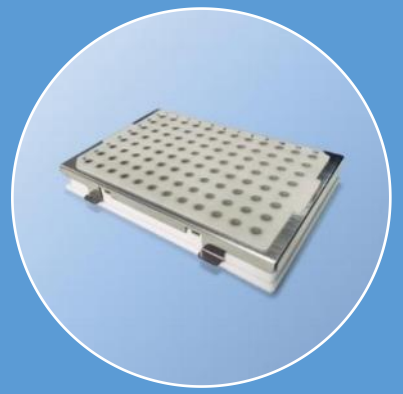
Rapid insertion and removal technology

- This technology allows customers to replace the PCR module themselves under the guidance of the manufacturer.

Free of calibration

Free of calibration module technology

- This technology solves the problem of temperature calibration after the replacement of thermal module, and makes it possible for users to maintain independently.



Anti-evaporation sealing bracket technology

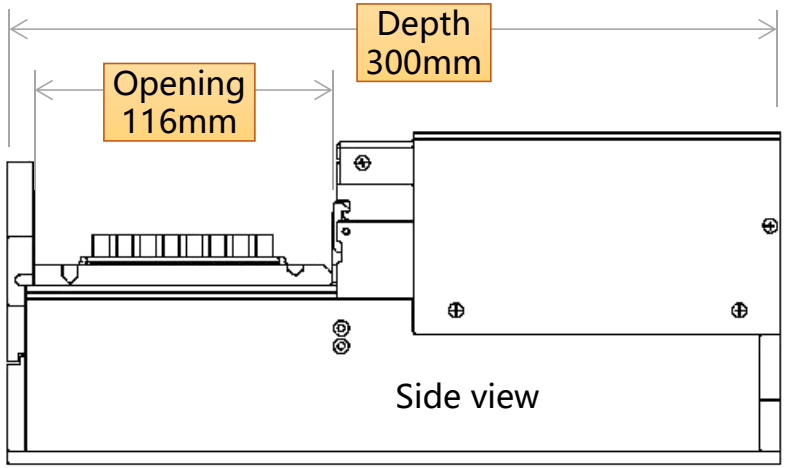
- The technology solves the leakage problem when the robot arm grabs the gasket after the amplification is completed, and effectively prevents the cross contamination of the amplification products.

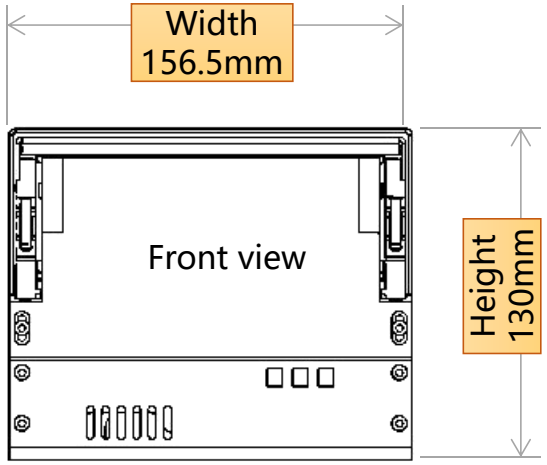
Liquid cooling technology

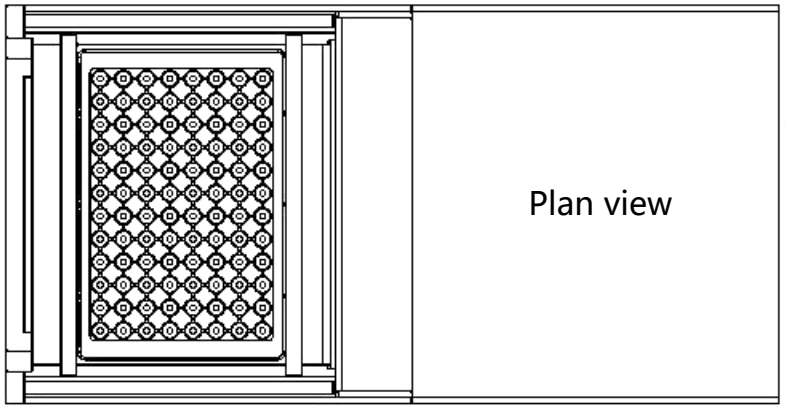
Liquid cooling remote heat dissipation technology

- It guides the heat of the thermal cycle process to the outside of the workstation for heat dissipation, effectively preventing the heat accumulation in the workstation and the pollution risk caused by air flow disturbance.
- It makes PCR hosts to be tightly arranged in workstations without worrying about air cooling blocking the vents.

4. Installation dimension...

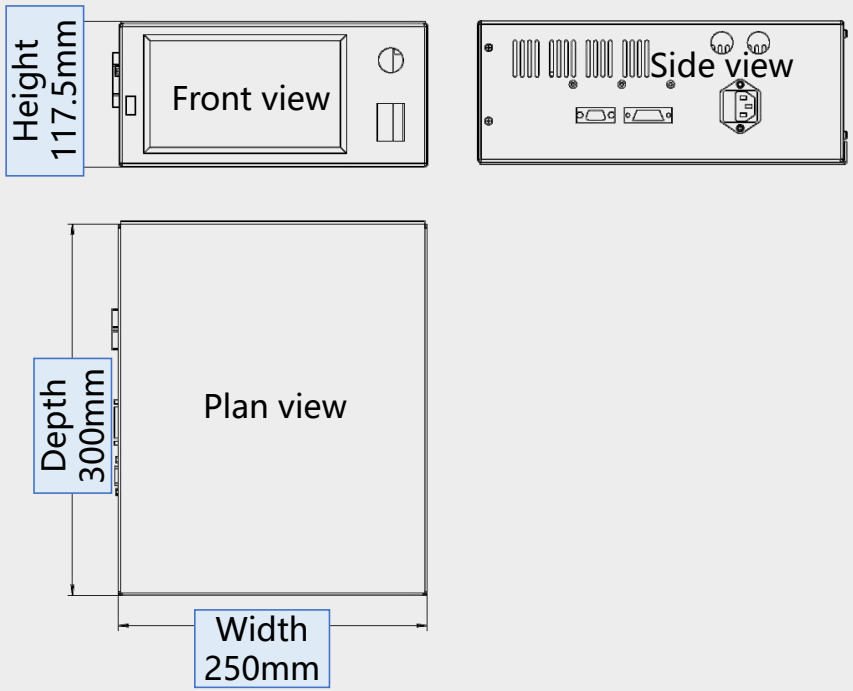






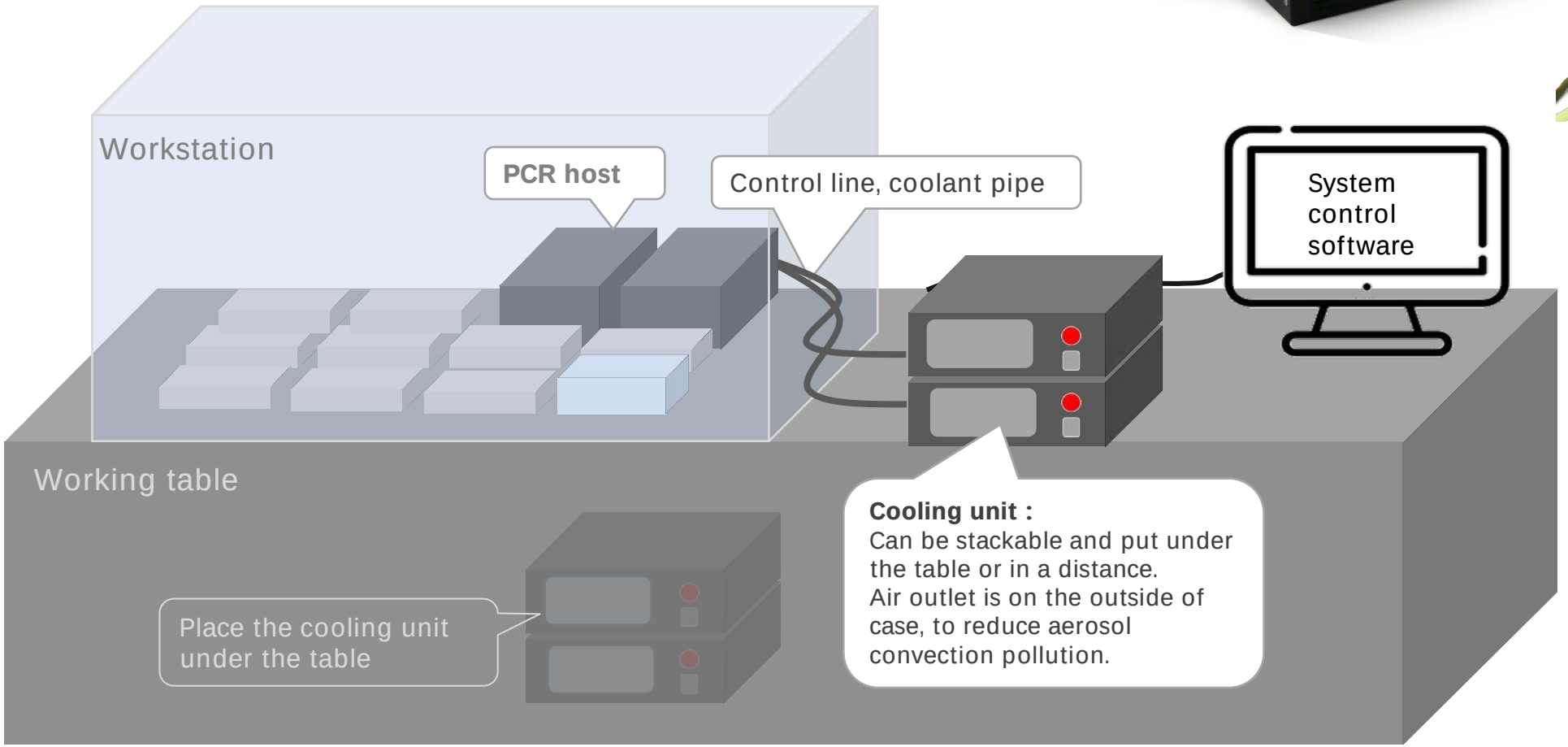
Dimension of host
(Thermal cycler unit)

Dimension of cooling unit



5. System connection...

Connection diagram



6. Communication protocol and host interface...

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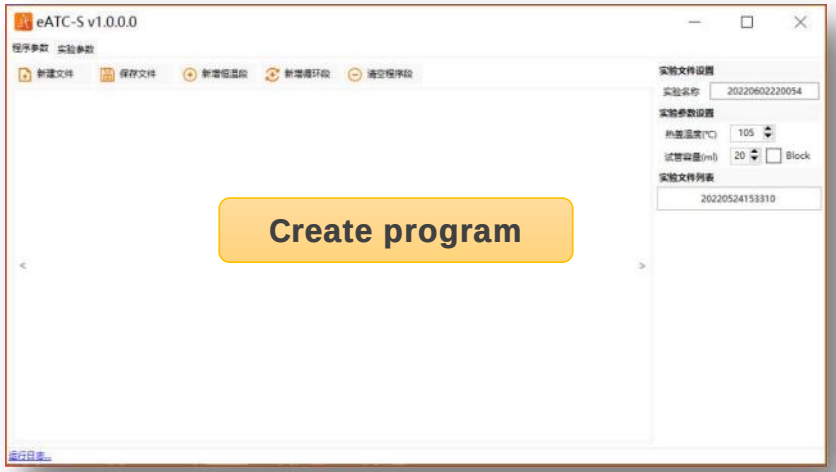
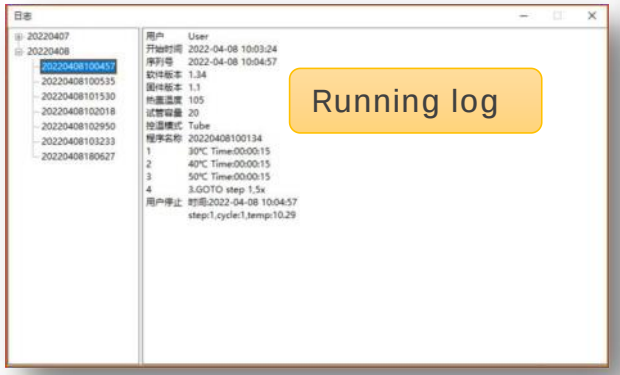
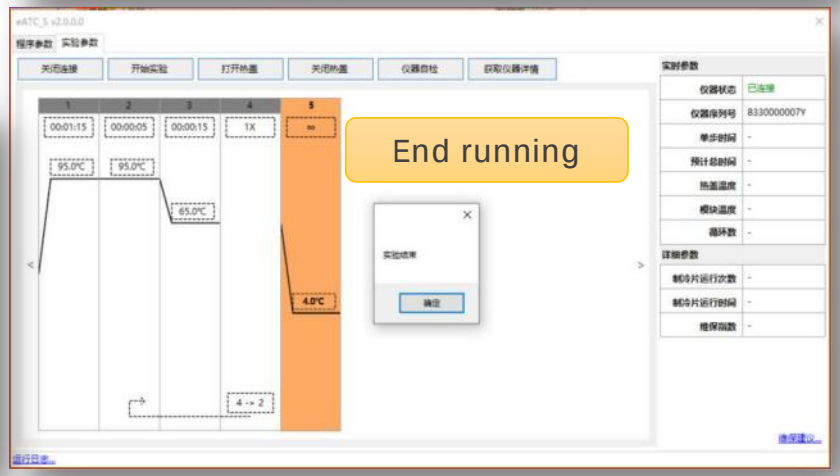
Serial communication protocol manual

Automated PCR for workstation (eATC-S)



End running

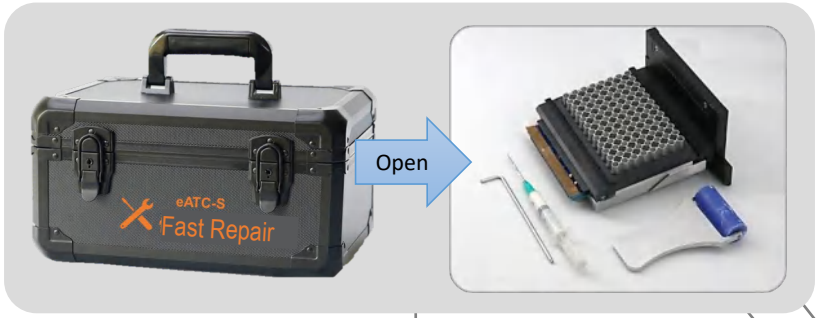




7. Repair kit ...

- Peltier is the core component of PCR instrument, but also damageable component, it determines the operation of PCR instrument.
- Replacing Peltier is a very professional job, which requires a lot of professional knowledge and special tools.
- This toolbox solves the above problems. We integrate the design of block, temperature sensor, circuit, plug, Peltier and pressing mechanism to form a standard thermal module, which is packed in a toolbox with thermal interface materials and disassembly tools for spare parts. When necessary, the user can complete the replacement in a few minutes without temperature calibration.
- The "Quick repair kit box" needs to be bought separately.

8. Fast repair...



Attention!
Ensure that the thermal grease on the contact interface of the spare module is uniform, proper, flat, and free of foreign matter and scratches. Add or reduce if necessary, and apply evenly with a roller. After the module is inserted, press the module by hand and grind it left and right to ensure full contact of interface materials.

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6. Send the damaged module back to Eastwin for repair and return to the user for backup

1. Open the hot lid.

2. Removing the two locking screws and pull out the module.

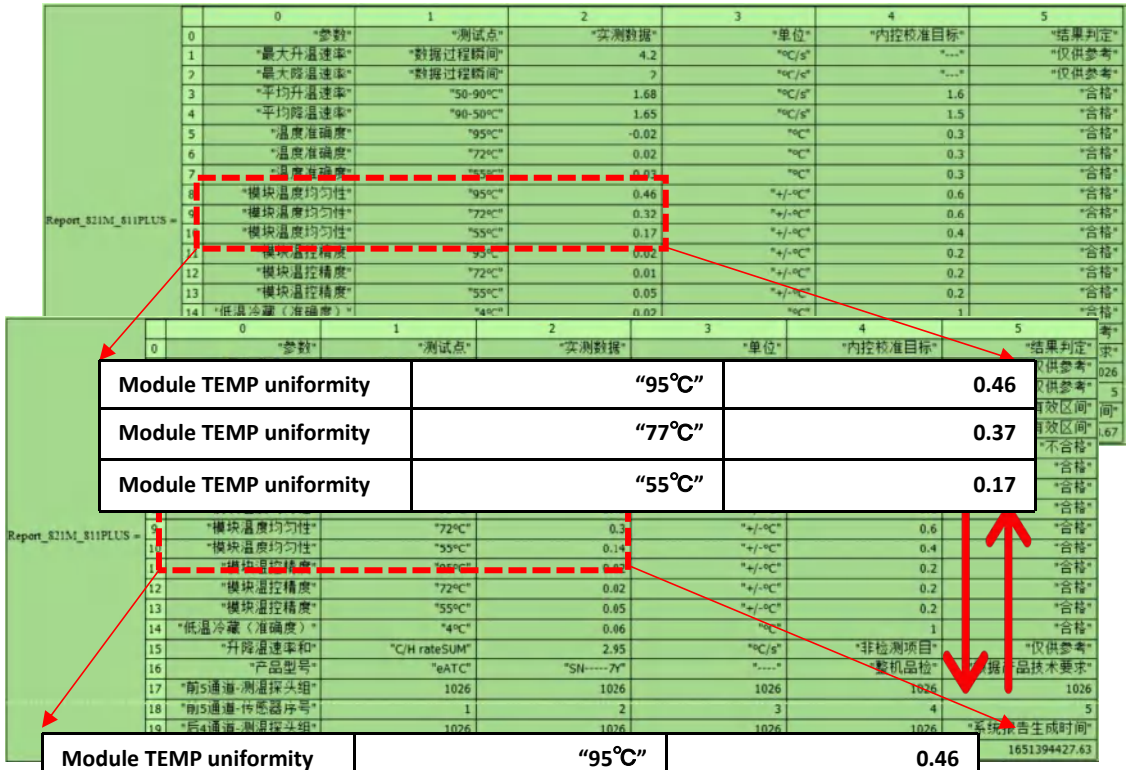
3. Put in a spare module.

4. Install two locking screws and complete the replacement.

5. Close the hot lid and run the self-test to observe if the instrument works normally.

9. Interchangeability verification...

1. Repeated disassembly and assembly on the same module and the same host...Completely interchangeable



Module TEMP uniformity	“95℃”	0.46
Module TEMP uniformity	“77℃”	0.37
Module TEMP uniformity	“55℃”	0.17

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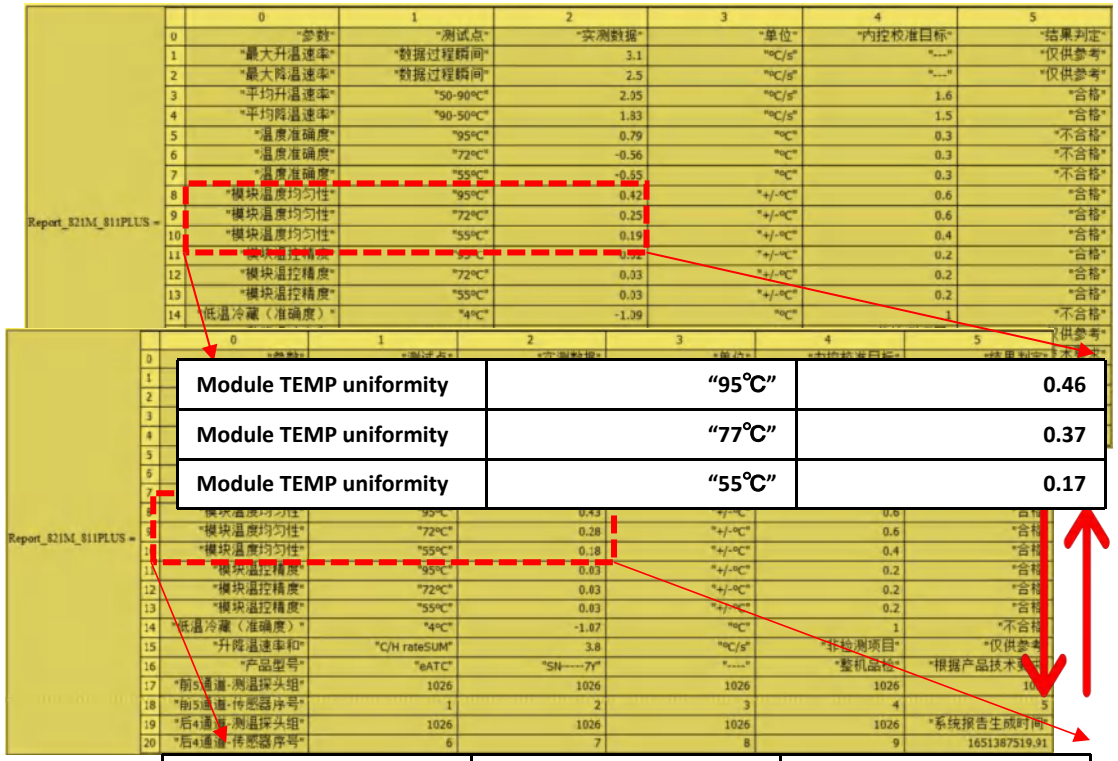
2、 Repeated disassembly and assembly on the same module and the different host.....Completely interchangeable



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10. Main technical parameters...

Functions: With all the functions of our ETC821 thermal cycler

- Adapted blocks: 0.2ml*96 wells full skirt plate, 384 wells plate
- Temperature accuracy: ≤±0.2℃
- Block temperature control accuracy: ≤±0.1℃
- Block temperature uniformity: ≤±0.3℃ @55℃
- Max. heating rate: ≥4℃/s
- Avg. heating rate: ≥2℃/s (50-90℃)
- Avg. cooling rate: ≥1.5℃/s (90-50℃)
- Block temperature control technology: 3 zones Peltier temperature control
- Cooling technology: Liquid cycle cooling
- Hot lid: electric hot lid

Unique technology:

- Liquid cooling technology, fast module technology, free calibration technology.

Experiment management:

- Administrator, visitor, password management, screen lock, log export.

Expenrimental safety:

- Peltier intelligent life warning, module DIY, module free calibration, quick repair kit.

Conmunication & Control:

- Communication interface: S232C protocol, DB9 mother type seat.
- Control system: With operating screen and software. Through communication protocol control, remote control of hot lid movement (opening and closing), coordination of running program (selecting program, running, stopping, etc.) and feedback of host status (host SN, program status, hot lid location, host fault code, motor fault, etc.) can be performed on PC.
- Reaction plate grasping mode: The reaction plate can be operated by the robot arm from the front, from the sides or from above.

Power supply & Dimension:

- Power supply: 100-240V~, 50/60Hz, 1000VA
- Net weight: 14kg(host 6.9kg, cooling unit 7.1kg)
- Gross weight: about 17kg
- Carton size: L*W*H=540*450*385mm

11. Automated series products...

eATC-S
Automated thermal cycler

- Only suitable for full skirt plate, small size, full functions.
- Suitable for placement in the workstation or multiple sets of placement.
- can be used as an independent PCR instrument.

eATC
Automated thermal cycler

- Suitable for full size test tubes. Large volume, full function.
- Suitable for placement outside the workstation.
- can be used as an independent PCR instrument.

ECU831
Cooling unit

- Suitable for general workstation, 4~70℃
- Communication interface.
- Modules can be customized.

12. Painpoints and solutions...

Inheco

Thermo

Major defects of automated PCR in the market

VS

Ultrassay' s solution

Ultrassay

4. Hot lid sealing is a common pain point, is also the difficulty.

Air outlet

1. Too long control connection, poor anti-interference ability, easy to interrupt the communication or crash,restart is often required.

Remote controller

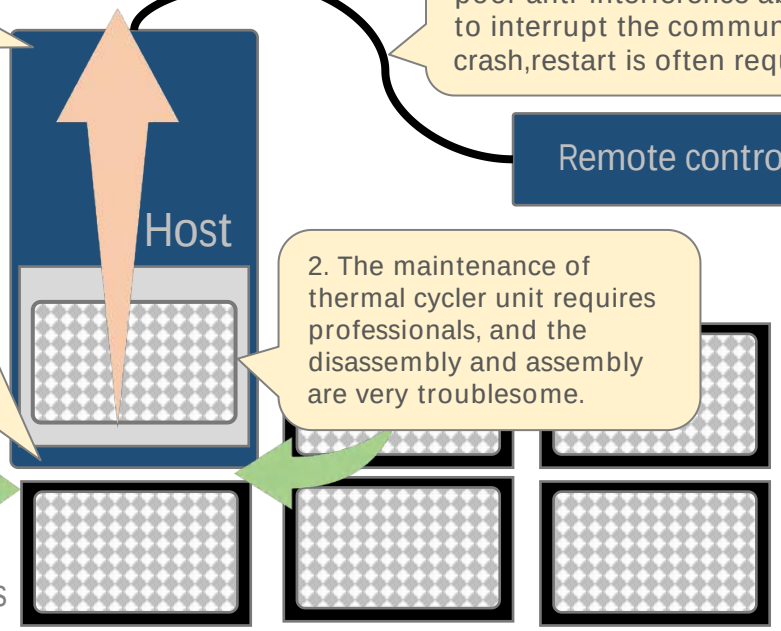
3. The air inlet space is small and the heat dissipation capacity is insufficient, which directly reduces the temperature performance of the instrument and prolong the PCR test time.

Host

2. The maintenance of thermal cycler unit requires professionals, and the disassembly and assembly are very troublesome.

Air inlet

Blocks



1. Local internal control, no crash or disconnection problem.

2. Remote heat dissipation, no need to consider shielding the air outlet.

3. Fast repair design, users can replace by themselves, free of calibration.

4. Unique sealing bracket, silica gel plate replacement mechanism, to solve your pain points.

13. Competitive analysis...

Ultrassay

Features :

- Module replacement DIY , free of calibration.
- Water cooling, compact layout, no troubles of shielding the air outlet.
- Local control, strong anti-interference, will not cause communication interruption.
- Small size, about 3.5 blocks in size.
- With operating screen, can be used as an independent PCR instrument.
- Performace : uniformity≤0.2℃.

Inheco

Features :

- Module replacement requires professionals.
- The air inlet in the case is easily shielded by the blocks, which affects the heat dissipation performance and temperature change speed of the instrument.
- Remote control, poor anti-interference, easy to interrupt the signal.
- The hot lid wire is easy to break.
- Small size, about 3 blocks in size.
- Without screen, cannot be used as an independent PCR instrument.
- Performace: uniformity≤0.15℃.

Thermo Fisher

Features :

- Module replacement requires professionals.
- Air cooling, the air inlet in the case is easily shielded by the blocks, which affects the heat dissipation performance and temperature change speed of the instrument.
- Remote control, poor anti-interference, easy to interrupt the signal.
- Small size, about 3.5 blocks in size.
- Without screen, cannot be used as an independent PCR instrument.
- Performace: uniformity≤0.2℃.

Accurate you can trust !