



MiniOne® PCR System

Instruction Manual



Catalog # M4000

Version 030724

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The MiniOne® PCR system is a molecular biology tool to perform polymerase chain reaction protocols or incubation protocols.

Safety

1. Wear lab coats, gloves, and eye protection whenever possible.
2. Use caution with all electrical equipment such as PCR machines and electrophoresis units.
3. The PCR machine has surfaces that can be extremely hot. Use caution when opening and closing the lid and when placing and removing tubes.
4. Heating and pouring molten agarose is a splash hazard. Use caution when handling hot liquids. Wear eye protection and gloves to prevent burns.
5. Wash your hands thoroughly after handling biological materials and chemicals.
6. Dispose of all materials in a biohazard bag or in a wash tub containing a 10% bleach solution.

Warranty

The MiniOne® PCR System, is warranted to be free of defects in materials and workmanship for a one year period from the date of purchase. If a defect is found during this warranty period, Embi Tec will replace the defective parts at no charge, provided the customer agrees to fill out the Return Authorization Form and the product is returned within the warranty period.

This warranty specifically excludes:

- Defects caused by improper operation
- Damage caused by improper handling or accidental misuse
- Damage caused by the use of organic solvents
- Common replacement parts including carbon electrodes and fuses
- Damage incurred during shipping

Cleaning and Maintenance

- Never submerge the MiniOne® PCR System in water.
- The components of the MiniOne® PCR System are **NOT** compatible with organic solvents such as acetone or ethanol. Cleaning the system with organic solvents voids all warranties.
- **DO NOT** open the MiniOne® PCR System. Warranty void if these parts have been opened.

Packing List



MiniOne® PCR System (1)



Power supply (1)

Input voltage 100-240V



Power cord, region specific (US, EU or UK), (1)



PCR Validation kit (1)

Validation kit provides enough reagents for two PCR runs, each amplifying three different size fragments, then visualizing the results with MiniOne® Electrophoresis.

(1) validation kit is provide per order, not per unit

System Specifications

Sample Capacity	16 x 0.2 mL standard PCR tubes
Heating/Cooling mechanism	Peltier
Temperature range	4°–99°C
Heated lid	Yes, with safety interlock
Communications	Bluetooth® Low Energy wireless technology
Software	Graphical programming interface; Real-time protocol monitoring
Weight	1.9 lb (860 g) approx.
Dimensions	12 x 12 x 12 cm (4.7 x 4.7 x 4.7 in) approx.
Operating voltage	100–240 VAC
Connectivity	Mobile apps available for : iPhone, iPad, Android phone, Amazon Fire Macbook/PCR software available by request and requires the purchase of MiniOne® Bluetooth LE Dongle (M4050)

Assembly

Plug the power cord into the power supply and then plug the power supply into the back of your unit and turn the power on. The green light on the front of the machine will come on. Wait for 5 seconds before proceeding.



How to Run the MiniOne® PCR system

1. Search for “MiniOne PCR” to download the MiniOne PCR app from the Google Play Store, Apple App Store or the Amazon App Store for the Amazon Fire tablet. The app icon should look like this:



2. Load your prepared samples into the 16-well plate, pressing down so they make good contact with the sides of the wells. The machine will not start until the lid is closed. When the lid is closed the green light will go from blinking to steady, indicating that you are ready to run.



3. Tap the MiniOne PCR icon on your mobile device to open the app.



NOTE: Screen images between Android OS and iOS will look different but the programming is similar. Android OS images are being use for this document. Some screen images are shortened.

- Under the **BLUETOOTH** tab, tap the **Connect** button next to the name of the machine you want to connect with. The ID number of the PCR machine is located on the bottom of the PCR unit.



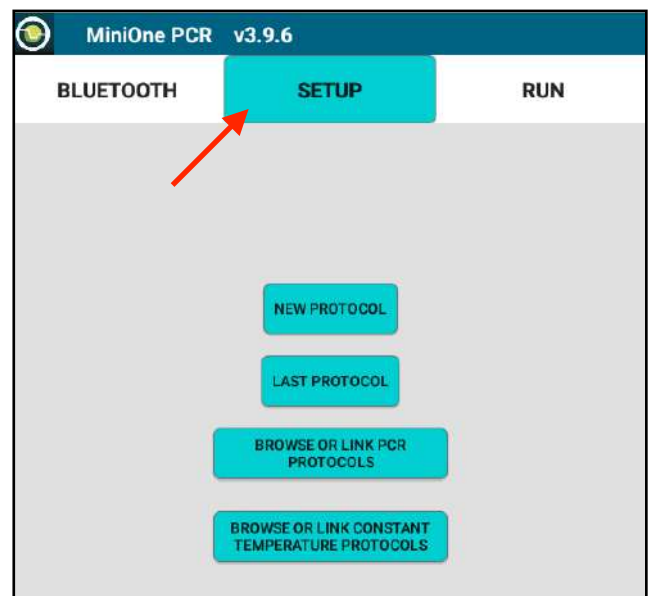
- SETUP tab:

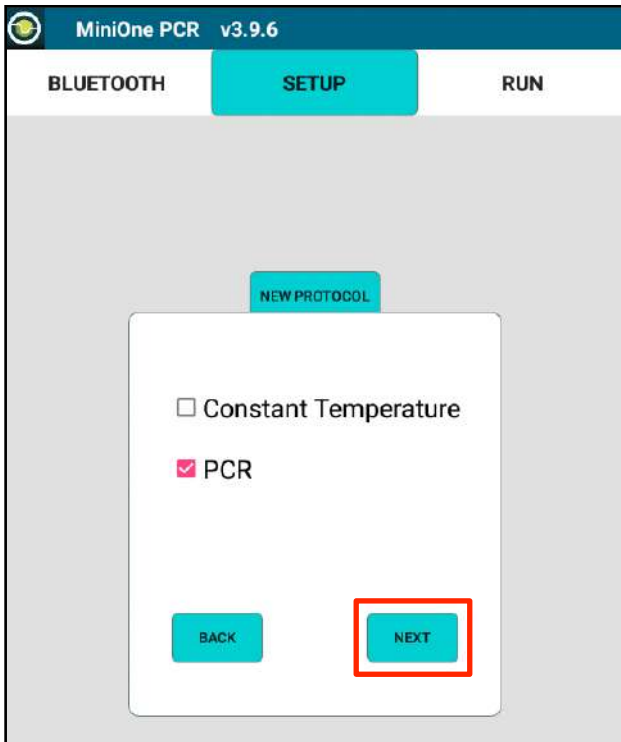
- New Protocol to set up a program from scratch
 - Last Protocol to access the protocol most recently modified
 - Browse PCR protocols to access all of the thermal cycling programs stored on your tablet
 - Browse Constant Temperature Protocols to access all constant temperature incubation programs.
- NOTE: Protocols are not stored on the miniOne PCR unit, only on the tablet.



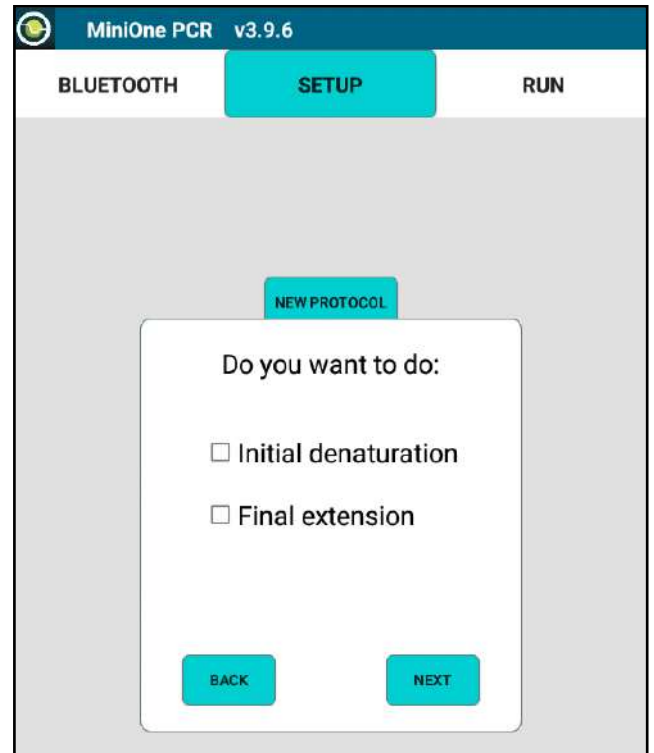
Creating a PCR Protocol

- Select **New Protocol** from the **SETUP** tab

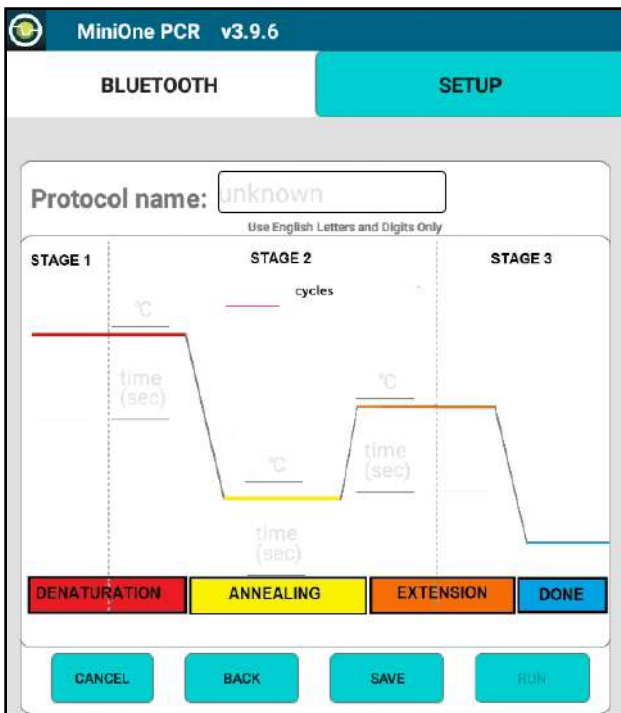




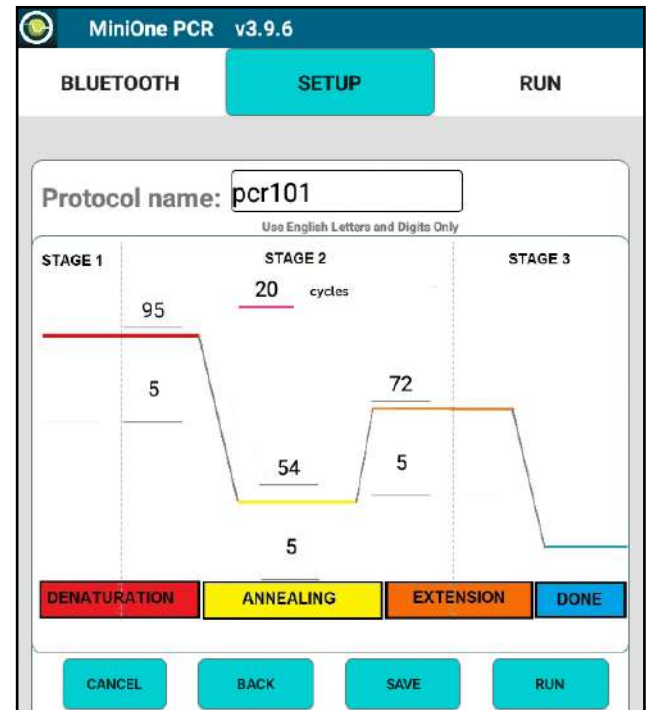
2. Select PCR, tap NEXT



3. Select Initial denaturation or Final extension only if your protocol requires this. If not, tap NEXT



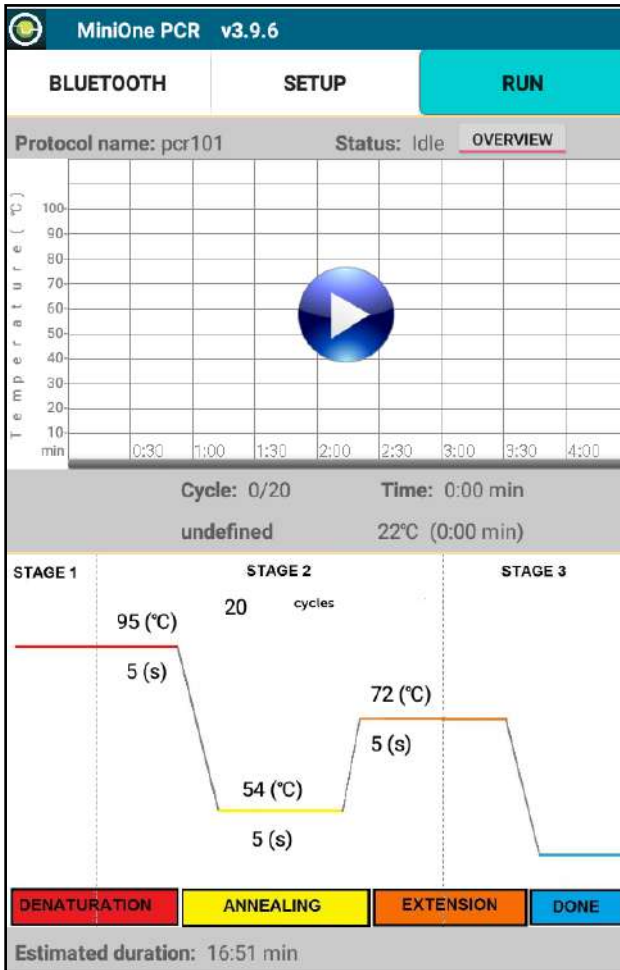
4. Each stage has an entry location to input temperature (°C) and time (seconds). Tap an entry location and enter your values from the keyboard. Enter the total number of cycles and give the protocol a name (English letters and number only). When the program has been entered, tap **SAVE** to save the protocol to the mobile device, or **RUN** to advance to the **RUN** page.



Example protocol:

- Denaturation: 95°C, 5 seconds
- Annealing: 54°C, 5 seconds
- Extension: 72°C, 5 seconds
- 20 total cycles

Executing the Protocol

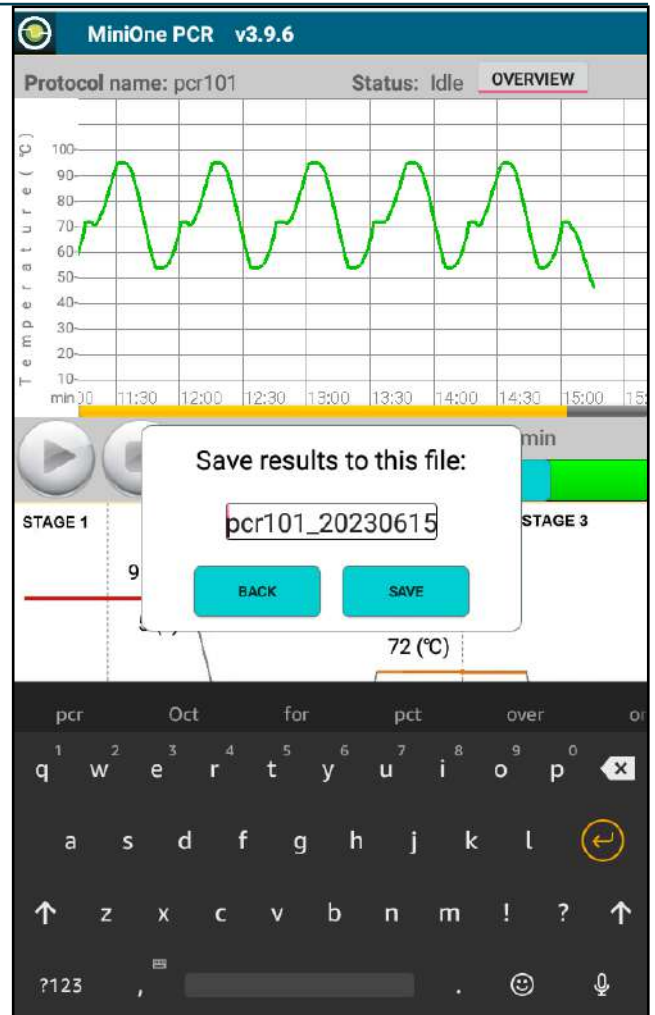
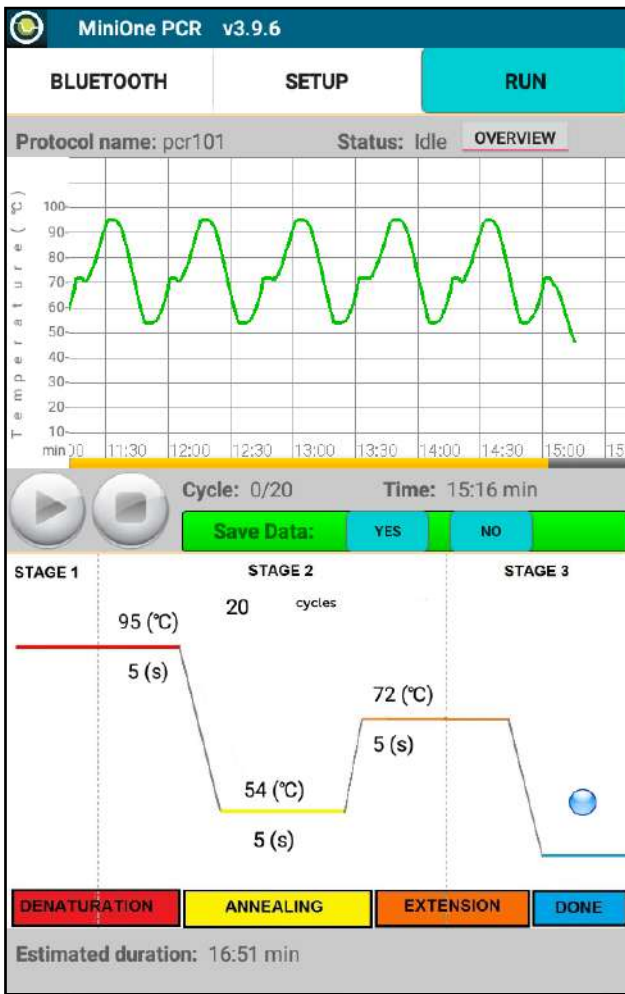


5. Press the **PLAY**  button to start the protocol

7. Monitor your run with real time display of temperature vs time, know which cycle number you are on, how much time has elapsed, total protocol time, which stage you are currently in. The color of the stage matches the LED color on the MiniOne PCR system:

Red - Denaturation
Yellow - Annealing
Orange - Extension
Blue - 4°C hold

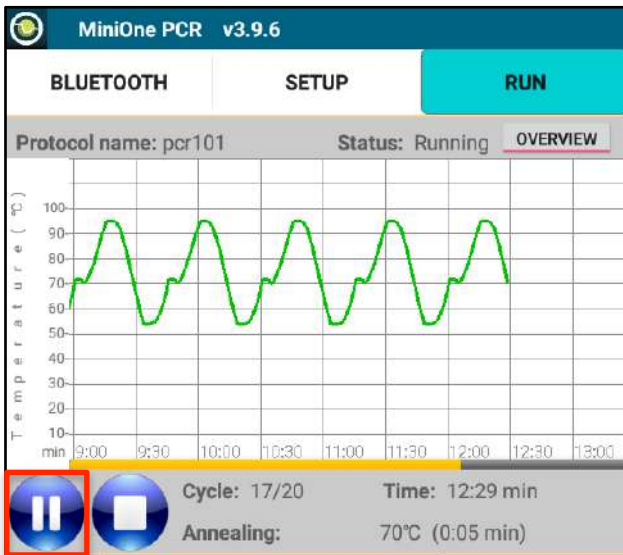
6. The red light on the front of your MiniOne will start to blink and you will hear a fan turn on.



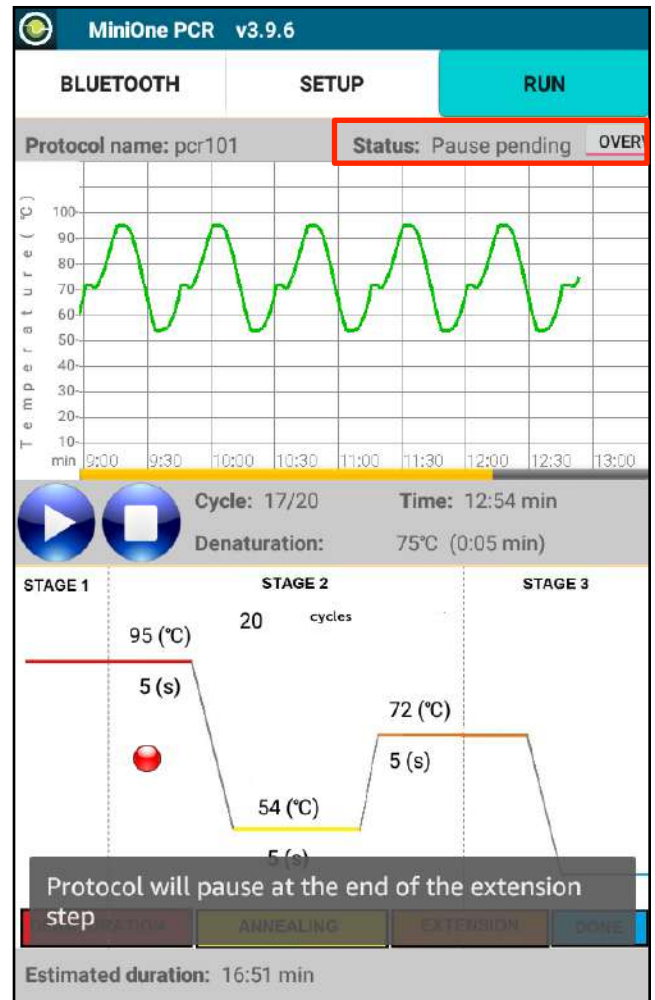
9. When your protocol is complete, the Blue MiniOne® PCR status light will be on and your mobile device will chime (keep the volume up). Tap the **STOP** button. You will be prompted about saving your Temperature vs. Time data. Tap Yes if you would like to save it.

10. On iOS devices you have the option to mail yourself the file directly from the app. With Android OS you will save the file to your mobile device. You can email this to yourself through your email program.

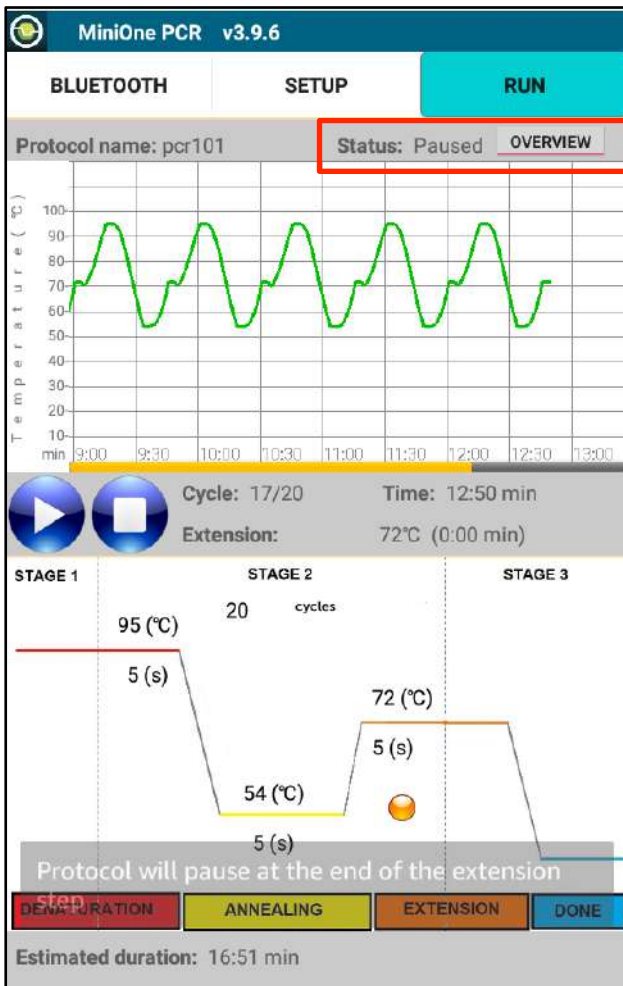
Pausing the Protocol



1. Press the PAUSE button

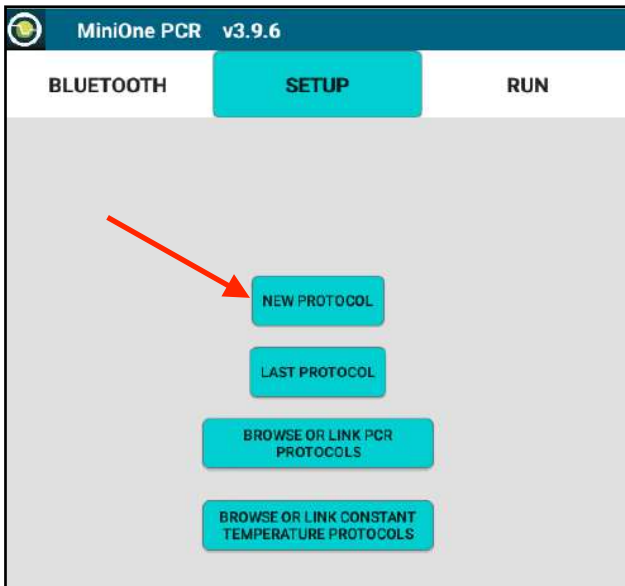


2. You will get a message that the unit will pause at the end of the extension step, and the STATUS now reads **Pause pending**

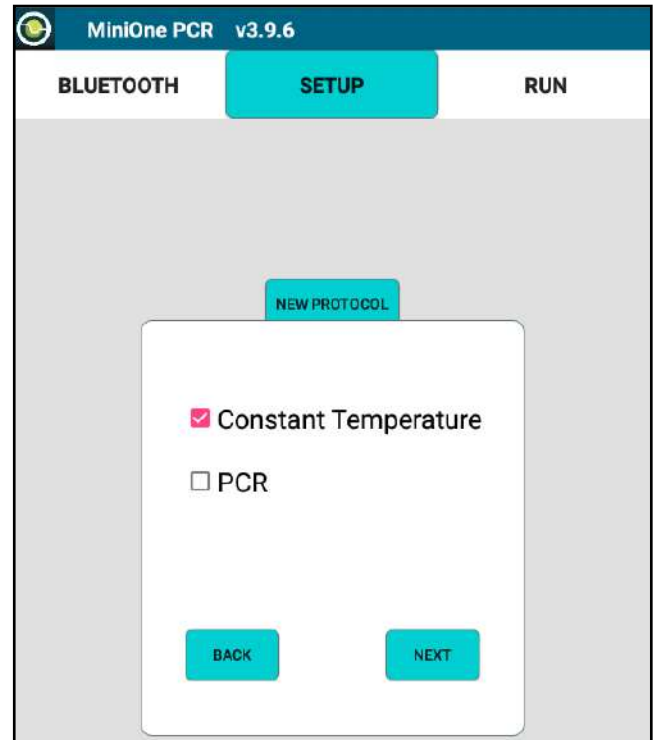


3. When in the extension step, the STATUS changes to **Paused**

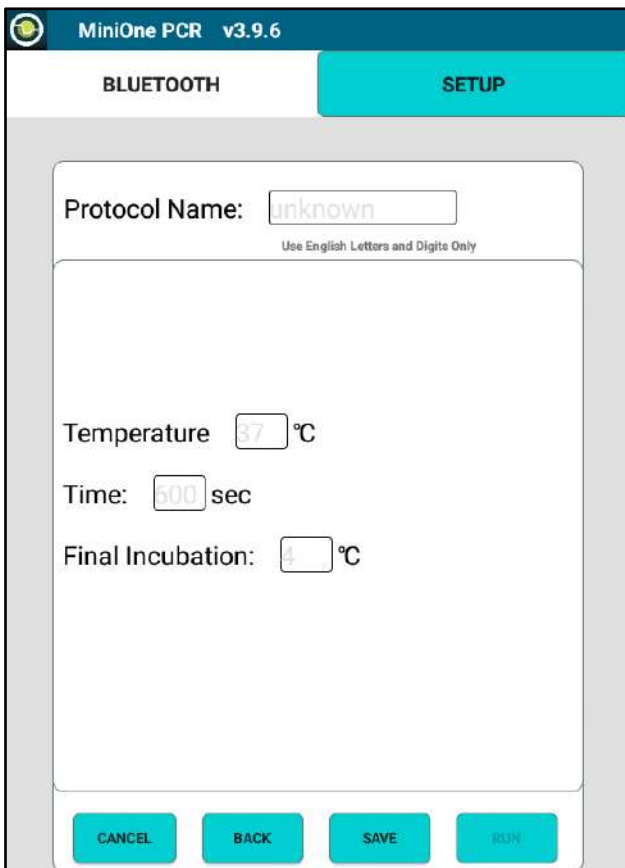
Creating a Constant Temperature Protocol



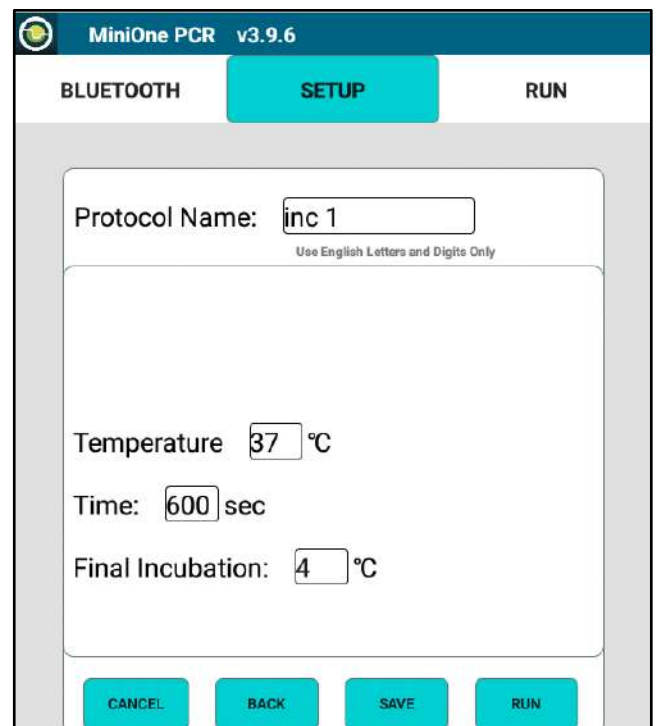
1. Select New Protocol from the SETUP tab



2. Select Constant Temperature, tap NEXT



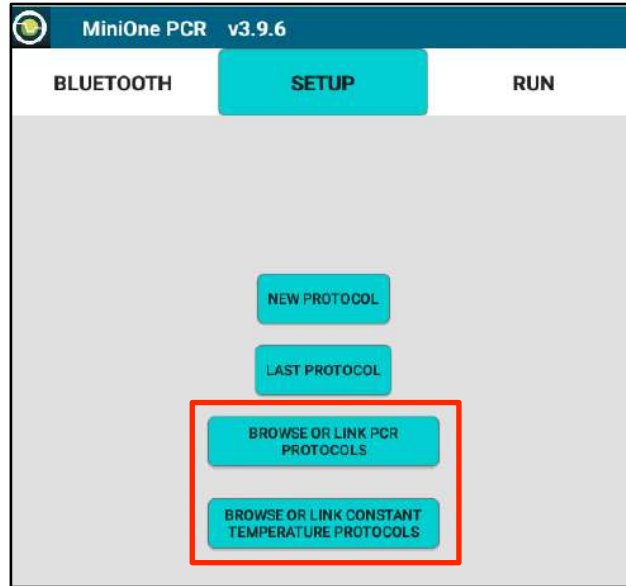
3. Enter temperature (°C) and time (seconds). (English letters and number only). When the program has been entered, tap **SAVE** to save the protocol to the mobile device, or **RUN** to advance to the RUN page.



Example protocol

- Temperature: 37°C
- Time: 600 sec
- Final Incubation: 4°C

Protocol Libraries



View your stored protocol in the protocol libraries by tapping **Browse or Link PCR Protocols** or **Browse or Link Constant Temp Protocols**



PCR Protocols (screen shortened)



Constant Temperature Protocols (screen shortened)

Linked Protocols for Android™ OS

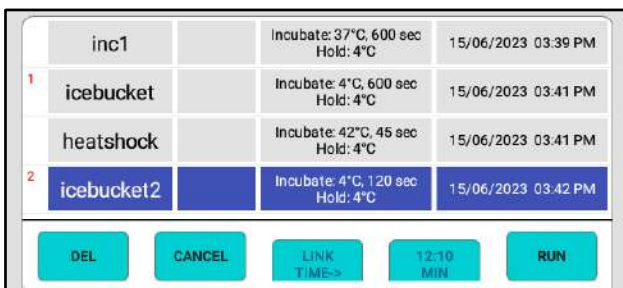
Individual protocols can be “added” together to run one after another. You must be connected to the PCR machine to LINK protocols.



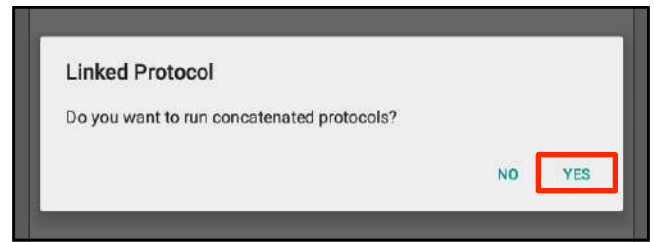
1. Tap to highlight the first protocol in your sequence, then tap the LINK button.



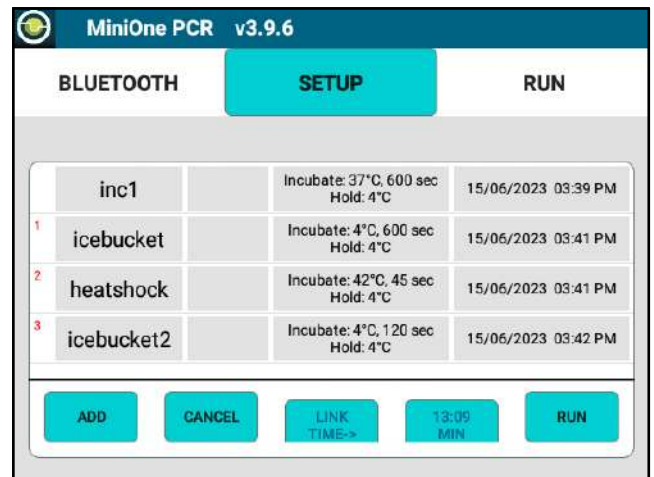
3. A red number 1 will appear next to your first protocol



To remove a protocol from your link, tap to highlight then tap DEL button



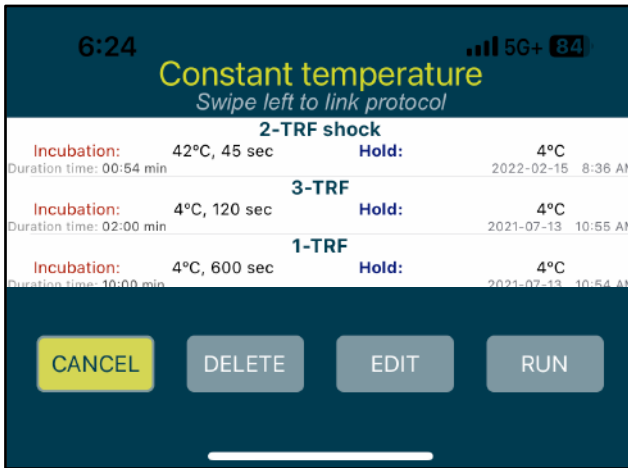
2. To confirm you want to link protocols, tap YES



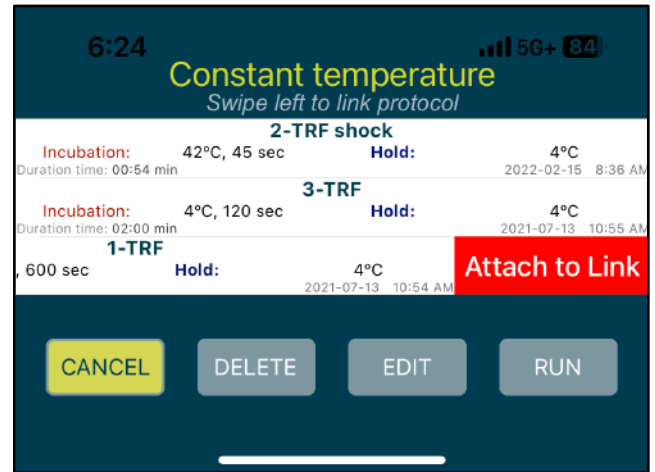
4. Select your next protocol and tap the ADD button. A red number 2 will show up next your second protocol. Continue to add protocols.
5. When you are ready to run the linked protocols, tap RUN to move to the Run Screen

Linked Protocols for iOS®

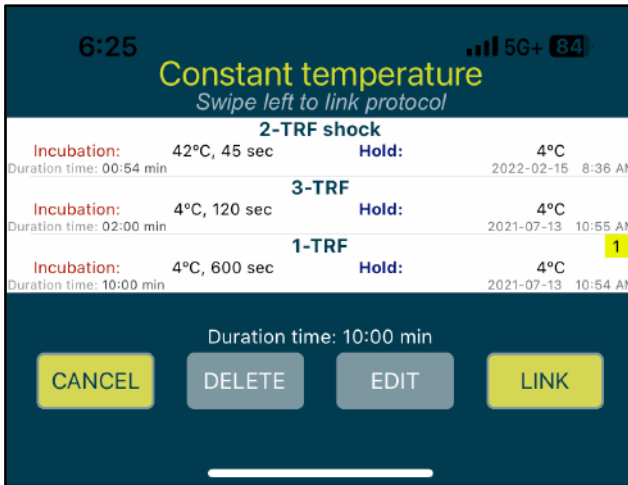
Individual protocols can be “added” together to run one after another. You must be connected to the PCR machine to LINK protocols.



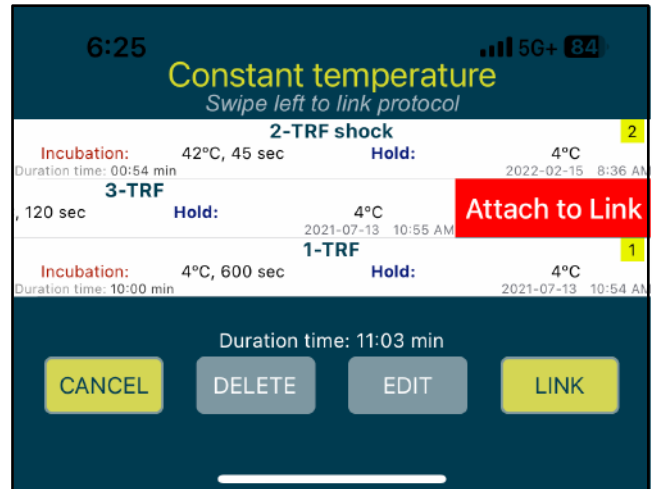
1. Select your first protocol and swipe left



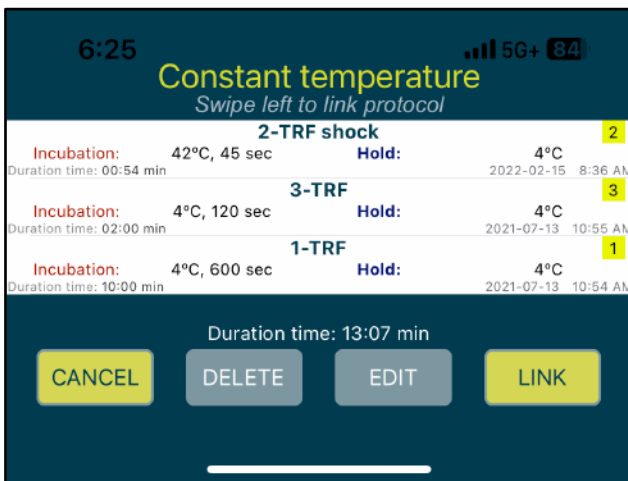
2. Tap Attach to Link



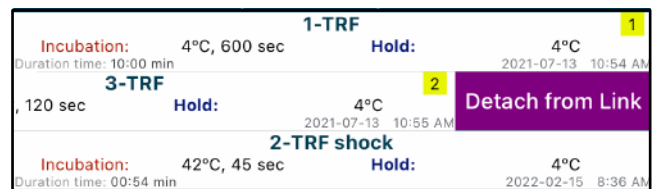
3. Your first protocol now has a number 1 to the right.



4. Continue to swipe left and tap Attach to Link until all protocols are attached. The yellow numbers will confirm the order in which your linked protocol will run.



5. When ready, tap LINK to advance to the RUN screen.



To remove a protocol from your link, swipe left and tap Detach from Link.



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