

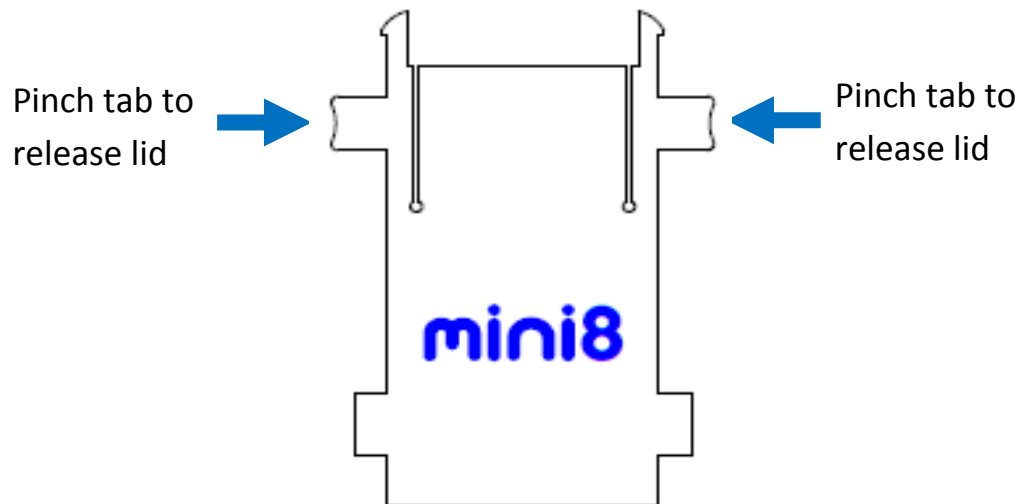
miniPCR™ Thermal Cycler User's Guide

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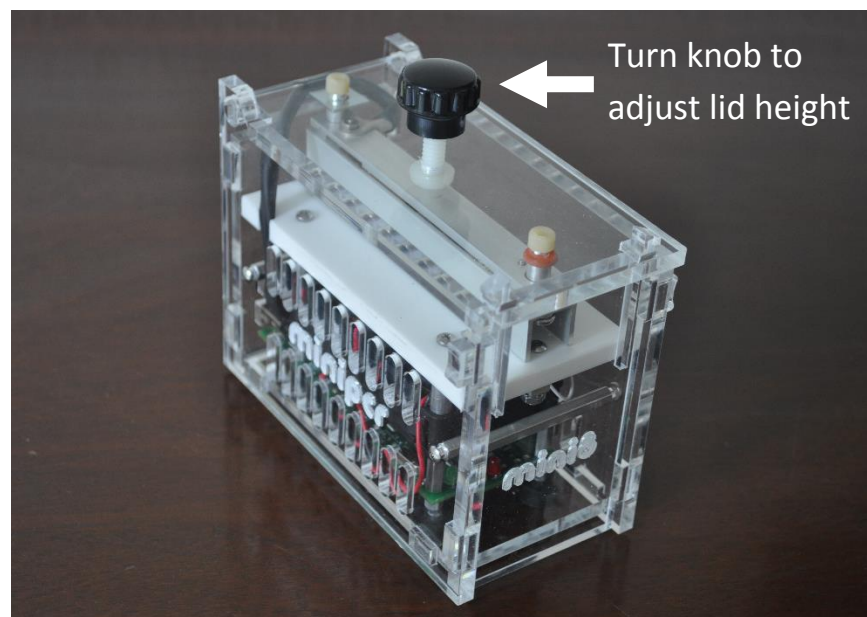
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I. Loading your samples

1. **Latch release:** To release the lid safety latch, **pinch the side tabs on the front plate of your miniPCR™** device (indicated by arrows) using your thumb and index fingers. **Lift the lid** while keeping the side tabs pinched, and you are ready to load your samples.



2. **Heated lid adjustment:** After loading the test tube samples, press the lid shut and gently adjust its height by turning the lid adjustment knob clockwise. Tighten gently until you feel mild resistance from the tube caps, being careful not to over-tighten.



II. Setting up your miniPCR™ thermal cycler

1. **Install the miniPCR™ software** on your Windows PC or Mac

2. Double-click on the **miniPCR.exe icon** on your desktop



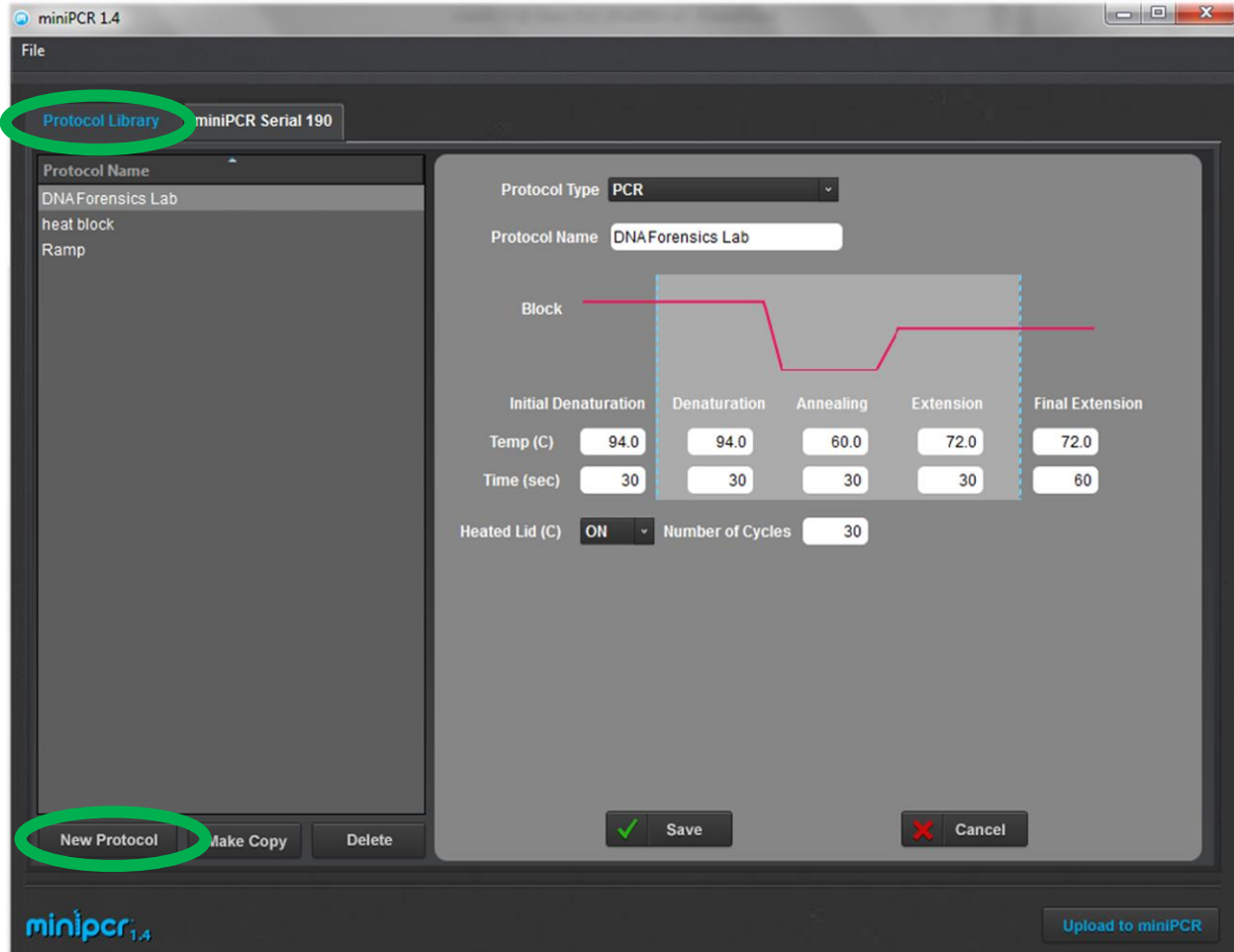
3. **Connect the USB cable** to your computer and also to your miniPCR thermal cycler

All LEDs on your miniPCR™ device will blink several times.

You are ready to use your miniPCR™ thermal cycler

III. Creating, storing, and editing protocols

Use the built-in Protocol Library to create and store a virtually unlimited number of protocols



TO CREATE AND STORE A NEW PROTOCOL:

1. Open miniPCR in your computer and remain on the **"Protocol Library"** tab
2. Click on the **"New Protocol"** button on the lower left corner
3. Select the **"Protocol Type"** from the top drop-down menu
 - **PCR**: for cycling reactions
 - **Linear Ramp**: for slow heating or annealing reactions
 - **Heat Block**: for steady incubations

4. Enter a Protocol Name; for example "**Marisa's PCR**"
5. Define protocol parameters:
 - **PCR:** Step temperatures and durations, number of cycles
 - **Linear Ramp:** Start and Final temperatures, duration
 - **Heat Block:** Incubation temperature, duration
6. Click "**Save**" to store your new protocol
 - Your protocol is now ready to use and available in the Protocol Library
 - Clicking "**Cancel**" will abandon all changes
 - **Tip:** clicking "Upload to miniPCR" will automatically save your protocol

TO EDIT AN EXISTING PROTOCOL:

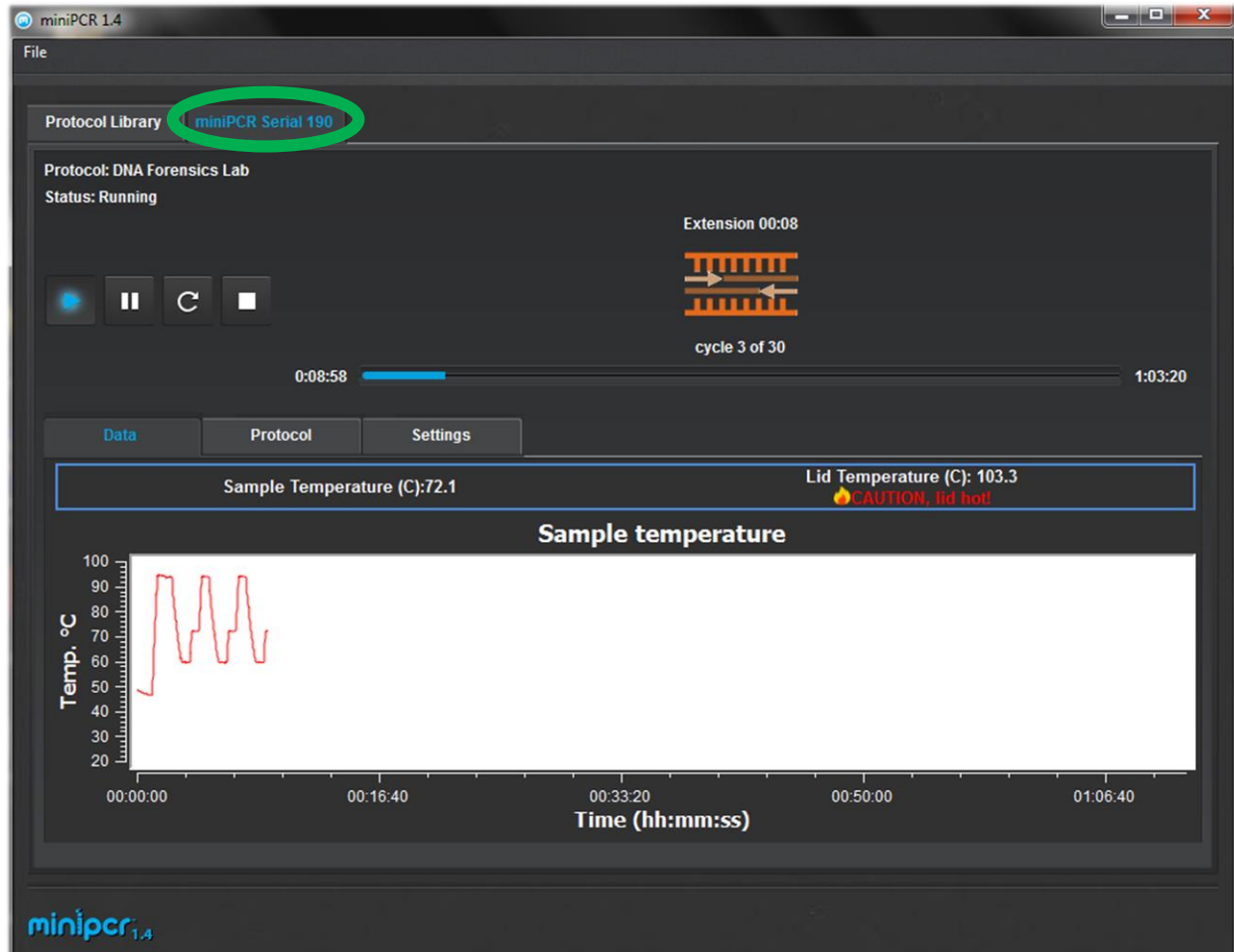
1. Click on the desired protocol from your Protocol Library
2. Update **protocol parameters** (e.g. change the number of cycles)
3. Press "**Save**" to store the updated protocol parameters

TO SAVE A MODIFIED VERSION OF AN EXISTING PROTOCOL:

1. Click on the desired protocol from your Program Library
2. Click "**Make Copy**". A new protocol will be created ("Protocol Name(copy)")
3. **Edit** protocol name and parameters as desired
4. Press "**Save**" to store the modified protocol copy

IV. Running and monitoring protocols

miniPCR™ software allows you to monitor reaction parameters in real time, and export the data




TO RUN A NEW PROTOCOL



- Connect your **miniPCR™ thermal cycler via USB** cable
 - **Tip:** USB connection is sufficient to program miniPCR thermal cyclers; AC power is optional at this step
- **Click on the desired protocol** from your Protocol Library
- Click the blue **"Upload to miniPCR" button** to program miniPCR
 - A dialogue box will appear: highlight the desired miniPCR, then click "OK"
 - miniPCR LEDs will flash several times to signal a successful upload

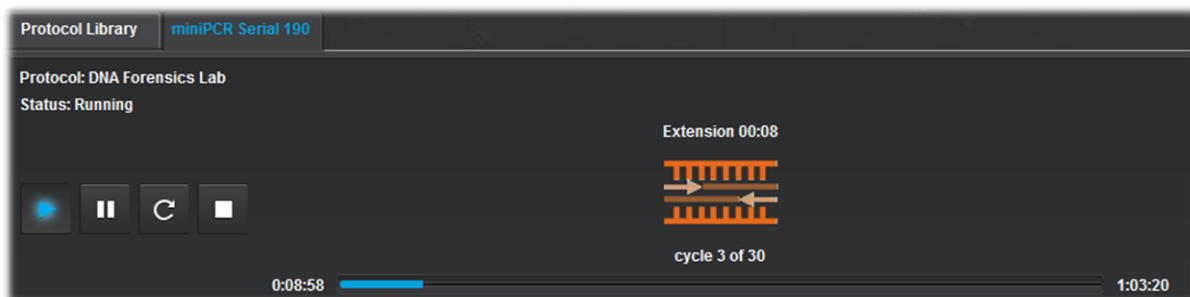
- **To begin your run, connect miniPCR to an AC power outlet and turn the power switch ON**
 - The LEDs will turn on (GREEN during initialization, later RED)
 - miniPCR is now running; you may unplug the USB cable if you wish to

TO RE-RUN YOUR LAST PROTOCOL

- **From power OFF position:** Connect to AC power, **turn the power switch ON**
 - Your run will begin automatically
 - You DO NOT NEED to be connected to the PC via USB cable
- **From power ON position:** click on the "Restart" button in your miniPCR™ software
 
 - miniPCR™ MUST BE connected to the PC via USB for this to work
 - Alternatively, you can also turn OFF and then ON your miniPCR™

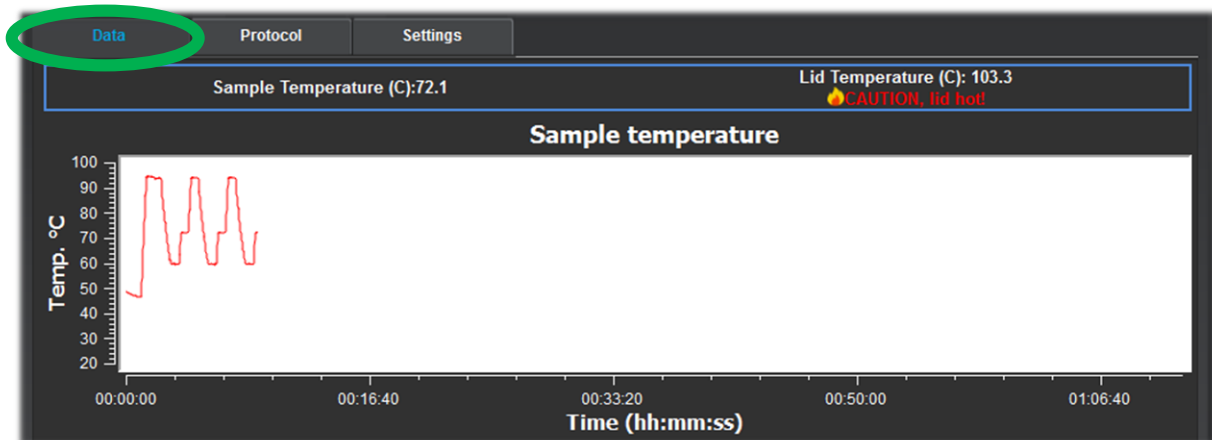
TO MONITOR AND CONTROL YOUR RUN

1. While on a USB connection, **click on "[miniPCR name]" tab** to view:
 - **Protocol name** (top, bold)
 - **Status:** Running, Stopped, Paused, Complete, etc.
 - **Current step, cycle, and time in step**
 - **Elapsed time** (left) and **remaining reaction time** (right)
 - You can **Pause**  **or Stop**  your reaction at any time



2. In addition, **click on the "Data" tab** to follow reaction parameters in real time
 - **Lid temperature:** current value

- **Block temperature:** current value and trace over time
- View **Protocol** parameters ("Protocol" tab)
- Device **Settings** ("Settings" tab)



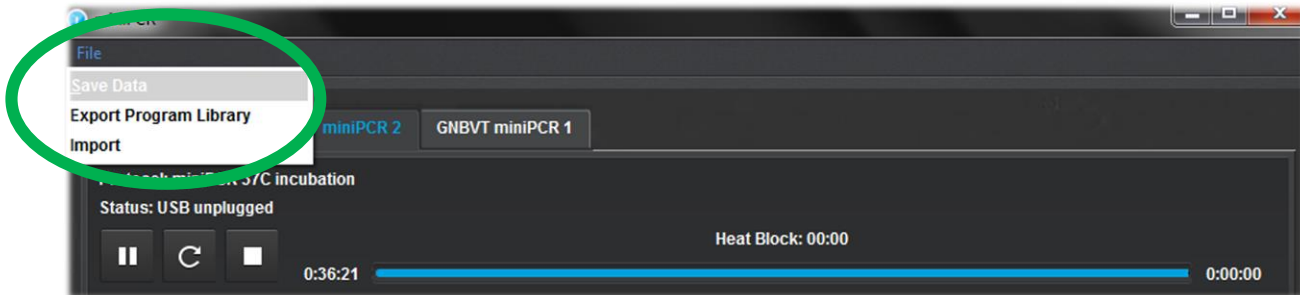
3. On your miniPCR™ thermal cycler - The **status LEDs** will report
 - **Green:** miniPCR is initializing or cooling
 - **Red:** miniPCR is heating
 - **Yellow:** miniPCR run error. Press "Restart" and try again.
 If problem persists contact support@minipcr.com
4. When the protocol is complete, **all miniPCR™ LEDs ON signal the end of your run**

Tips:

- **miniPCR™ can be programmed while connected to a computer via USB**
 - Programming miniPCR does not require AC power
- **miniPCR™ can run protocols connected to the AC outlet alone**
 - Running a miniPCR protocol does not require a USB connection

V. Importing and exporting data

You can save miniPCR™ run data, and backup, store, and share your miniPCR Protocol Library



TO SAVE YOUR RUN DATA (data collection is only active during USB connection)

1. Click on **File → Save Data**
2. A dialogue box will appear: **select the desired miniPCR, then click "OK"**
3. **Save the data file** in your miniPCR folder, or select a new folder
 - Data will be saved as a comma-separated values (.csv file)

TO EXPORT AND IMPORT PROTOCOL LIBRARIES

1. Click on **File → Export Program Library**
2. **Save the Protocol Library** file in your miniPCR folder, or select a new folder
 - All your protocols will be saved in a single .plf extension file
3. To import a Library File, click on **File → Import**
4. Browse to the desired **Library file** and select it
5. **Click "Open" to import the file**
 - All protocols in the selected library will be added to your existing library
 - You will be prompted to rename any duplicate protocols

Tip: Your miniPCR folder comes pre-loaded with an "Examples.plf" library ready to import

VI. miniPCR™ Mobile App Operation

For USB-host enabled Android phones and tablets. Requires USB On-The-Go (OTG) adapter (available from www.minipcr.com and other vendors).

TO INSTALL THE miniPCR™ MOBILE APP ON YOUR ANDROID DEVICE

- Visit the Google Play Store at <https://play.google.com/store>
- Download the free app from the Google Play Store

TO CONNECT THE miniPCR™ MACHINE TO YOUR ANDROID DEVICE

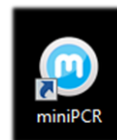
- Follow these steps in the sequence described:
 - Connect the male plug of the USB OTG adapter cable to the microUSB port of your Android device
 - Plug the miniPCR USB cable into the female socket of the OTG adapter



Note: always follow the steps in the order described to establish proper connectivity! The reverse sequence will fail to establish proper communication with your device.

TO RUN THE miniPCR™ MOBILE APP

- Tap the miniPCR icon to open the app
- Follow the instructions on the screen
 - App operation is extremely intuitive
 - For a full list of features visit www.minipcr.com
- The Library screen:
 - Allows users to create and store new protocols
 - Enables smart sorting and sharing of your Protocol Library
- The Monitor screen:
 - Allows users to operate the miniPCR controls (Start, Pause, Stop, Restart)
 - Displays elapsed and remaining reaction times (Alarm On/Off feature)
 - Plots and display reaction parameters in real time



VII. Appendix

MAINTENANCE

miniPCR™ devices do not require regular maintenance. They can be cleaned using water or a mild laboratory cleaning agent. They should not come into contact with organic solvents or corrosive solutions. Ensure that no liquid enters the device. For safety reasons, the device must be switched off and disconnected from the power supply before cleaning begins.

The device may only be opened by qualified service personnel. miniPCR's Limited Warranty will not be honored in the event of damage caused by unauthorized servicing.

OPERATING CONDITIONS

miniPCR™ thermal cyclers are designed to be safe to operate under the following conditions:

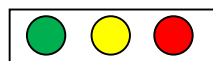
- Indoor use
- Altitude up to 2,000 m
- Temperature 9°C to 40°C
- Maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C
- Main supply voltage fluctuations not to exceed ±10% of the nominal voltage
- Electrical supply by provided adapter, AC 100-240V, 50-60hz, 65-70W or higher
- Protection from accidental spills

Other use conditions will impinge on safety and performance and will void the Warranty.

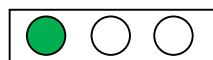
VII. Quick guide: miniPCR™ LED interface



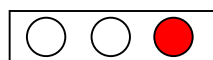
- **All LEDs flashing:** protocol uploaded or device initializing



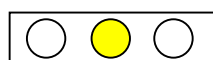
- **All LEDs on:** protocol complete



- **Green LED: intermittent,** lid heating; **solid on,** sample block cooling



- **Red LED on:** sample block heating



- **Yellow LED blinking:** error, reinitialize device or contact support