

Franklin™ Real-Time PCR Thermocycler and Biomeme Go App

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Brief Overview

The **Biomeme Franklin™** transforms your smartphone into a thermocycler for real-time PCR or isothermal analysis with sample-to-result in 30-60 minutes, depending on the test protocol. Our mobile thermocycler enables multiplex real-time detection of up to 27 targets from 1 sample or test 9 samples for up to 3 targets each. Just under 3 lbs, hand-held, and battery-operated for maximum portability enabling a full day's work out in the field on a single charge. Franklin™ comes in 3 different variations depending on the color channel detection you require (see *Technical Specifications* for details).

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Thermocycler Technical Specifications

| SPECIFICATION | VALUE | |
|--------------------------------|--|--|
| Sample Capacity | 9 Wells | |
| Reaction Volume per Well | 20µL | |
| Total Channels | 3 | |
| Franklin™ one9 Fluorophore* | FAM / SYBR (Green) | |
| Franklin™ two9 Fluorophores* | FAM / SYBR (Green), ATTO647N (Red) | |
| Franklin™ three9 Fluorophores | FAM / SYBR (Green), TexasRedX (Amber), ATTO647N (Red) | |
| System Control & Data Transfer | Wireless (BLE) | |
| Integrated Barcode Scanner | Yes | |
| Max Samples per Run | 9 | |
| Max PCR Targets per Run | 27 | |

| Weight | 1.20 kg / 2.65 lb | |
|-------------------------------|-------------------------------------|--|
| Operating Ambient Temperature | 4 - 40°C / 39 - 104°F | |
| Operating Humidity Limit | 0 - 99% | |
| Operating Altitude Limit | 3,048 m / 10,000 ft | |
| Wall Power (VAC) | 100 - 240V | |
| Voltage | 19V | |
| Full Load Current | 3.3A | |
| Internal Battery | 5 hrs | |
| Quantitative | Yes | |
| IP Rating | IP30 | |
| Indoor/Outdoor? | Indoor or Outdoor in a Covered Area | |
| Pollution Degree | 2 | |

Degree of Ingress Protection

Keep 5 cm Clearance Around the Thermocycler for Proper Performance

Note: The Franklin[™] one9 is limited to the FAM/SYBR (Green) channel and the two9 is limited to the FAM/SYBR (Green) and ATTO647N (Red) channels only. You can <u>upgrade your thermocycler(s)</u> at any time without returning your device.

Thermocycler Button Layout

There are a total of 4 buttons located on the top of your Franklin[™] thermocylcer:



Logging In and Out of Biomeme Go

To log in (Requires internet connection)

- 1. Open the Biomeme Go mobile app on your smartphone by tapping the app icon on your phone's home screen.
- 2. Enter your email address and password (both are case sensitive).
- 3. Tap the <u>Login</u> button.
- 4. If you're part of multiple teams (Enterprise Users Only), select which team to log in under (you can toggle between teams once logged in).

Note: If you have forgotten your password, click "Forgot Password" or email <u>support@biomeme.com</u>. If you are traveling to a remote location to perform PCR and will not have internet access while there, you must log in before your connection is lost.

To log out

- 1. Open the <u>User</u> menu by clicking the user icon **L** in the top left corner.
- 2. Select Logout.

Loading Sample into Go-Strips

Attention: Contents of the Go-Strip may shift during transport. When starting to work with your test, make sure the cake of the lyophilized reagent rests at the bottom of the Go-Strip wells. Tap the bottom of the sealed Go-Strip gently but firmly against a solid surface before removing the foil seal and adding your sample.

- Tear open the foil pouch to retrieve your Go-Strip, but do not discard the foil pouch as you'll need to scan the QR code.
- Remove the foil seal from your Go-Strip, and transfer 20µL of purified sample into each well of your Go-Strip.
- Once all wells of your Go-Strip are filled, place a void filling cap into the strip.
- Align the Go-Strip and void filling cap so that the strip connections are visible through the cap cutouts as shown in the illustration below.



Placing into Franklin™ Thermocycler

- Open the lid of your thermocycler by pressing the latch on top of the unit.
- Place your Go-Strip, with the void filling cap inserted, into a 3-well slot. Don't worry if the void filling cap feels slightly loose. When the lid of the thermocycler is closed, it will secure the caps into place, sealing the PCR reaction.

• It's important to make sure your Go-Strip is oriented correctly when placing it into your thermocycler. Make sure the strip connections that are visible through the void filling cap cutouts are facing the back of your thermocycler as shown in the illustration below, then close the lid.



• Navigate to the Biomeme Go mobile application on your smartphone to begin your testing protocol. For further instructional information, please contact support@biomeme.com.

Note: Transport your Franklin[™] thermocycler in its carrying case. Additionally, moving your thermocycler while thermocycling could result in errors. We highly recommend not moving or opening the device while thermocycling to avoid losing your PCR run. After your run has completed, be careful when removing your Go-Strips and void filling caps to avoid liquid splatter.

How To Start Your First Run

- 1. Grab your smartphone and log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. From the main dashboard of Biomeme Go, tap <u>Start Run</u>.

3. If your test kit pouch has a QR code R printed on it, you may use your smartphone camera to capture it. Simply point the camera at the QR code to be scanned.

Note: The first time you scan a QR code, you may be asked to give your QR scanner permission to access the camera on your device. You will only have to grant permission once.

- 4. If a QR code is unavailable, tap <u>Select Test</u> to choose from a list of available tests. If your test is unavailable in the list, then you'll need to create a new protocol (see "How to Create a New Protocol").
- 6. Biomeme's Go-Strips are highly adaptable to meet your individual needs, so choose the run layout that fits your test best.
- 7. Choose to <u>Scan</u> or <u>Generate</u> your Sample IDs. You can change these on the next screen if you'd like. You're able to scan barcodes and QR codes from directly within the app.
- 8. Review your Sample IDs and tap <u>Continue</u> once you're ready to proceed.
- 9. Select which folder you would like to save your run into. If you haven't yet created a folder, click <u>Add Folder</u> located towards the top right corner to create one.
- Once you have selected the folder to save your run into, you can optionally change your <u>Run Name</u>, update your <u>GPS Coordinates</u>, and/or add <u>Location</u> tags.
- 11. If you wish, you can add a note to the run file by selecting the Note icon *in the upper right corner.*

- 12. Tap Confirm to proceed to Run Setup.
- 13. If you haven't already, power on your thermocycler by pressing the Power
 button on top of your device and tap <u>Continue</u> back in the Biomeme Go app.
- 14. If your smartphone is not already connected to your thermocycler via Bluetooth (BLE) or serial, the app will prompt you to connect.
 Enable Bluetooth on your thermocycler by pressing the Bluetooth subtraction button on top of the device.
- 15. Tap <u>Scan</u> in the app and wait a few seconds for your device to be found.
- 16. Once the thermocycler is found, select it in order to pair your devices.

Note: The first time you to try scan for devices, you'll be asked to give the Biomeme Go app permission to turn on Bluetooth. Please make sure that the "Location" service is enabled in your phone settings. The latest version of Bluetooth requires that location discovery is enabled to properly pair devices.

- 17. You are almost ready to start your run. If you would like to, select <u>View Load</u> <u>Strips Tutorial</u> located below the <u>Confirm</u> button to learn more about properly loading your Go-Strips into your thermocycler. If not, tap <u>Confirm</u> to proceed.
- 18. Ensure your Go-Strips are loaded and the lid is closed on your thermocycler before starting your run.
- 19. Tap the <u>Start Run</u> button!

During the Run

- 1. The Biomeme Go app will remain in live view while the test runs. The app will display how many minutes remain in your run, the thermocycler battery percentage, and the cycle number.
- 2. By swiping to the left, you will be able to view real-time data as the test proceeds. You can toggle between Go-Strips by touching the wells you wish to view using the tabs at the top of the screen. You can always swipe to the right to return to the previous screen.
- 3. You can manually stop the run at any time by tapping the <u>Stop</u> button in the upper right corner. Do note that this will end the run and you will not be able to restart the test. The run data up to that point will then be available in the <u>Data Management</u> section of the app. Runs intentionally stopped by the user are not considered incomplete runs.

Note: You do not need to worry about your smartphone screen turning off or going to sleep. The experiment will continue to run. If the app freezes or crashes, the experiment will also continue to run and your data can be found in the Incomplete Runs section of the app once you've reloaded the Biomeme Go app and reconnected to the thermocycler. For more information on Incomplete Runs, please refer to the "<u>Recovering</u> <u>& Reattaching Test Data</u>" section.

How To Create a New Project Folder

- Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Select <u>Data Management</u> from the main dashboard of Biomeme Go.
- 3. Tap <u>Add Folder</u>.
- 4. Enter a name for your new folder.

5. Tap the <u>Add Folder</u> button to create and save.

How To Create a New Protocol

- Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Select <u>Protocol Management</u> from the main dashboard of Biomeme Go.
- 3. Tap <u>Add</u>.
- 4. Enter a name for your new protocol (e.g. Northern Pike).
- 5. If you wish, give your target(s) names.
- 6. Edit your thermocycling parameters as needed by clicking on each text field that you would like to change.
- 7. Enable or disable <u>Reverse Transcription</u> and <u>Extension</u> steps by adjusting the toggle accordingly.
- 8. Tap <u>Confirm</u> to save your new protocol.

How To Delete a Protocol

- Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Select <u>Protocol Management</u> from the main dashboard of Biomeme Go.
- 3. Swipe left on the name of the protocol you wish to delete.

4. Tap the red <u>Delete</u> button that appears. Once a protocol is deleted, you cannot recover it.

Interpreting Results

Depending on your protocol, quantitative and/or qualitative results will be available for your review within 45 minutes to an hour. Below are a few examples of each as well as amplification plots for baselined and raw data.

Note: The colors, statements, and Cq values used in the screenshots below are only examples and your results interface may vary. Please consult your Team Admin for details regarding the Cq ranges for your team's protocol(s).

Quantitative Interpretation



1. Export Your Results

Share your results via email or download to a shared drive (e.g. Google Drive).

2. Fluorescent Channels

See which fluorescent channels were used and amplified during your run (e.g. Green, Amber, Red).

3. Well Selection

Toggle tabs to see your results per Go-Strip, per channel (e.g. Wells 1 - 3, 4 - 6, 7 - 9).

4. Quantitative Results (Cq) View Cq values for each of your

5. Baselined Data

View amplification plots for your baselined data.

6. Raw Data

targets.

View amplification plots for your raw data.



Baselined Data Example

Raw Data Example



Franklin™ PCR Thermocycler and Biomeme Go User Manual

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Qualitative Interpretation

1. **Major Summary Statement** Your summary result message refined by Cq ranges (e.g. 1 - 300 = low, 301 - 3,000 = medium, > 3,000 = high).

2. Background Color

Background color based on your test result (e.g. green, yellow, red).

3. **Minor Summary Statement** Your instructions for what to do next

Your instructions for what to do next based on the result (e.g. send to lab for further analysis).

4. Qualitative Results

Your results per target refined by Cq ranges (e.g. 1 bar = Low, 2 bars = Medium, 3 bars = High).

| ÷ | Pa | nel Name | |
|-------|-----------|-------------------------|-----------|
| | TARGE | TID | |
| | Targe | et ID goes h | ere |
| | SAMPL | E ID. | |
| | Samp | ole ID goes | nere |
| | Dete S | cted - High Q: 1,470 | 1 |
| | | | |
| Wells | : 1-3 | Wells 4-6 | Wells 7-9 |
| | Target ID | Target ID | Target ID |
| | | | |
| | | Toursell | |
| | Target ID | Target ID | Target ID |
| | | | |
| | Target ID | Target ID | Target ID |

Target Drilldown View



Viewing Completed Run Data

Run data for completed and intentionally stopped runs is available in the Data Management section of Biomeme Go.

- 1. Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Select <u>Data Management</u> from the main dashboard of Biomeme Go.
- 3. Choose the folder in which your run data is saved.
- 4. Tap the name of the run you wish to view.

Viewing Incomplete Runs

Incomplete Runs can occur for a variety of reasons (see "Common Scenarios" for examples). If this happens, you can still view the incomplete run data:

- Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Select <u>Incomplete Runs</u> from the main dashboard of Biomeme Go to view a list of all runs classified as incomplete.

Note: After selecting your incomplete run, please wait roughly 30 seconds before your run data begins to populate. Be sure to connect to your thermocycler via wire or Bluetooth so your app can automatically transfer data off the thermocycler once available. Runs that are intentionally stopped by the user are not considered incomplete runs and the run data will not be available in this section of the Biomeme Go app.

Thermocycler LED Status Indicators

Vertical LED on the front of your thermocycler.

Franklin[™] has 5 LEDs on the front of the unit. The LEDs are used to convey various states of the thermocycler as outlined in the table below.

| COLOR | INTERPRETATION |
|--------|--|
| WHITE | 5 solid indicates your thermocycler is on 5 blinking indicates Bluetooth (BLE) is pairing |
| GREEN | 2 solid indicates remaining battery is between 21 and 40% 3 solid indicates remaining battery is between 41 and 60% 4 solid indicates remaining battery is between 61 and 80% 5 solid indicates remaining battery is between 81 and 100% 1 blinking indicates charging |
| YELLOW | 1 solid indicates run start to 9% complete 2 solid indicates run is between 10 and 31% complete 3 solid indicates run is between 32 and 53% complete 4 solid indicates run is between 54 and 75% complete 5 solid indicates run is between 76 and 99% complete |
| RED | 1 solid indicates remaining battery is between 0 and 20% 5 blinking indicates thermocycler lid is open or an error Note: If the battery is in the red, you shouldn't start your run until you plug your thermocycler into power. |
| BLUE | 5 blinking indicates your test is complete and data is ready to be synced to your smartphone |

Turning Your Thermocycler On and Off

To power on your thermocycler, press and hold the power button U (located on the top of the unit) for roughly half a second. The status LED on the front of your thermocycler will illuminate white to indicate it has successfully turned on.

To turn the unit off, press and hold the power button for 1.5 seconds and the status LED will turn off upon release of the button. The unit will also turn itself off after 15 minutes of inactivity.

Charging & Checking Thermocycler Battery Status



Note: To preserve your smartphone's battery life, disconnect from the thermocycler when it's not in use.

If your battery is running low, simply plug the AC power adapter into an outlet and insert the power connector into the back of your thermocycler. The LED on the back of the thermocycler will illuminate blue.

If you're unable to turn your thermocycler off using the power button on top, you may press the reset button to force it off (all test data on the unit will be lost).

Lastly, when the battery **D** button is held, the LED on the front of your thermocycler indicates the battery charge status as follows:

| LED STATUS | | BATTERY PERCENTAGE | |
|------------|-------|--------------------|--|
| 5 solid | GREEN | 81 - 100% | |
| 4 solid | GREEN | 61 - 80% | |
| 3 solid | GREEN | 41 - 60% | |
| 2 solid | GREEN | 21 - 40% | |
| 1 solid | RED | 0 - 20% | |

A single green LED will blink while charging. If your battery charge is between 0 and 20%, the bottom most LED will blink green while charging.

If your battery charge is greater than 20%, the top most LED will blink green while charging.

For proper battery maintenance and performance, please fully charge the thermocycler battery at least once every six months. The thermocycler should not be left without charging for extended periods of time. If your device has not been charged in more than six months and you cannot get the thermocycler to turn back on, please contact support@biomeme.com

Enabling & Disabling Bluetooth (BLE *) on Your Thermocycler

Bluetooth can be turned on or off at any time by pressing and holding the Bluetooth button on the top of your thermocycler for roughly half a second. By default, Bluetooth is disabled. A blue LED will light up next t o the BLE button indicating it is enabled.

Once enabled, tap <u>Connect via BLE</u> when prompted in the smartphone app. If working with multiple Franklin[™] thermocyclers, select the appropriate unit and tap <u>Confirm</u>. The LED on the front of your thermocycler will flash white indicating it's connected.

How To Update the Biomeme Go App

- Navigate to the <u>Google Play Store</u> on your smartphone by tapping the Play Store *▶* icon on your phone's home screen.
- 2. Tap the hamburger menu icon \blacksquare in the top left corner.
- 3. Select <u>My Apps & Games</u>.
- 4. Choose <u>Update</u> next to Biomeme Go.

Note: If your app is already up-to-date, you will not see the app icon appear in the updates section. This is perfectly normal and no further action is required at this time.

How To Run a Melt Curve

- 1. Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Tap <u>Protocol Management</u> from the main dashboard of Biomeme Go.
- 3. Tap <u>Add</u>.
- 4. Select <u>Melt Curve</u>.
- 5. Set your desired parameters:
 - a. Melt Starting Temperature (C°)
 - b. Melt Ending Temperature (C°)
 - c. C° Per Step
- 6. Tap <u>Confirm</u>.
- 7. Tap Start Run.

Note: PCR and Melt Curves are separate runs in Biomeme Go. After your PCR finishes, create a new Melt Curve run (following the steps above). The PCR and Melt Curve data will be stored as separate runs within the app and to Biomeme Cloud users.

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Transferring Data



Wireless (Bluetooth)

On your computer, make sure your Bluetooth is set to <u>Receive a File</u>. This will prepare your computer to accept the data transfer from your smartphone.

- In the mobile app, navigate through <u>View Results</u> and select a test.
- Once on the test result screen, tap <u>Send</u> in the top right corner.
- A menu will slide in with sharing options. Select <u>Bluetooth</u> and transition to the <u>Choose Bluetooth Device</u> screen.

Note: Instructions could vary depending on your computer and/or smartphone Operating System. If you require further assistance, please contact support@biomeme.com.

Reporting a Problem or Error

- 1. Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Tap the Gear icon 🍄 in the top right corner to open the <u>Settings</u> menu.

- 3. Click the Settings sub-menu item.
- 4. Under Contact Us, click <u>Report Error</u>.
- 5. Select your email client (e.g. Gmail) and add support@biomeme.com to the "To" field if it's not already there. An email will automatically be drafted on your behalf with all the necessary device information for us to better help resolve your issue(s).

Note: Do not remove the body or the attachment that was automatically added to your email. This information helps our engineering teams troubleshoot.

Viewing Thermocycler Device Information in Biomeme Go

- 1. Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").
- 2. Tap the Gear icon 🍄 in the top right corner to open the <u>Settings</u> menu.
- Select the Settings sub-menu item and from there you'll see thermocycler-specific information (e.g. Software Version, Serial Number, MAC Address, etc.).

Switching Teams (Enterprise Plan Only)

1. Log into the Biomeme Go app if you haven't done so already (see "Logging In and Out").

- 2. Tap the Gear icon 🏟 in the top right corner to open the <u>Settings</u> menu.
- 3. Click the <u>Switch Team</u> sub-menu item.
- 4. Select from the list of available teams.
- 5. Alternatively, tap the User icon sin the top left corner and choose <u>Selected Team</u> to make a switch.

Maintenance & Cleaning

The Biomeme Franklin[™] thermocycler is maintenance-free and has no serviceable parts. In the case of thermocycler failure or damage, please contact <u>support@biomeme.com</u>.

The outside of the Franklin[™] thermocycler can be cleaned using 70% ethanol solution which must be sprayed on a cloth rather than directly on the Franklin thermocycler. Lysol wipes or Micro-Chem Plus wet paper towels are acceptable as well. Do not spray or pour solution directly onto the thermocycler when cleaning.

- Do not disassemble the thermocycler for cleaning
- Do not immerse in water or cleaning solutions
- Do not clean with soap or other solutions
- Avoid cleaning the heating wells (silver)

If you do need to clean your heating wells because it's impacting performance, please contact support@biomeme.com for specific instructions.

Safety Notice

The instrument can pose electrical hazards to the operator if used inappropriately and hence it is important to understand, familiarize and implement the safety notices given below to ensure safety of the operator.

The instrument and its equipment should be operated, maintained, stored and as directed in this document. Failure to comply may impair the protection provided by the instrument and its ancillary equipment.

General Safety Warnings



Do not modify the instrument hardware. The system is not user serviceable by the user in any circumstances.



Do not place the instrument near liquid filled containers or areas where the instrument and its equipment may be subjected to dripping or splashing liquids.



Do not use the instrument in extreme heat, humidity, dust and vibration conditions Electrical Safety Notice.



CAUTION - Heating wells may be hot. Care must be taken when inserting or removing cuvettes.

Electrical Safety Warnings



Unplug AC power cord from the wall outlet in case of an emergency.

| SYMBOL | DESCRIPTION |
|--------|---|
| | Caution, possibility of electric shock |
| | Caution, hot surface |
| Ĺ | Caution |
| Ť | Keep Dry |
| | No Waste This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product. |

Declaration of Conformity

This declaration of conformity is issued for:

| Product: | Biomeme Franklin™ qPCR Thermocycler |
|---------------|-------------------------------------|
| Model Number: | Franklin™ |

The object of this declaration is in conformity with European Union directives 2014/35/EU, 2014/30/EU and 2011/65/EU.

The following harmonized standards were applied:

| Safety: | IEC 61010-1:2010, AMD1:2016 | |
|-----------------------|-----------------------------|--|
| | IEC 61010-2-010:2014 | |
| | IEC 61010-2-081:2015 | |
| | IEC 62133-2:2017 | |
| EMC: | IEC 62479:2010 | |
| | IEC 61326-1:2013 | |
| | ETSI EN 301 489-1 V2.1.1 | |
| | ETSI EN 301 489-17 V3.1.1 | |
| Hazardous Substances: | EN 50581:2012 | |

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Troubleshooting

Common Scenarios

Did you start your run and return to your thermocycler later in the day only to realize it's now off? Maybe your app crashed or your phone died and you're wondering how to retrieve your test results? Below are some common scenarios and the steps to take to get your results.

| Scenario Reference Table | | Smartphone App | |
|--------------------------|-----|----------------|--------|
| | | Open | Closed |
| Franklin | On | Α | В |
| Thermocycler | Off | С | D |

Note: **DO NOT** *push Stop Run in the app. This will lose any run data that has not successfully synced from the device to the app. For security reasons the same smartphone used to initiate the test must be used to download the test results.*

"My test has been running for a while but the number of cycles isn't decreasing on the app. What should I do?

This means that the Bluetooth connection between the device and the app has been interrupted. DO NOT press Stop Run. Instead you just need to reset the Bluetooth connection. Follow the steps in Scenario **A** below.

"My run has completed and I've pressed a bunch of buttons. I'm feeling flustered, confused, and frustrated; what should I do?"

- 1. Turn off the thermocycler and close the Biomeme smartphone app.
- 2. Follow the steps described in section **D** below.

If you're still having problems recovering and/or reattaching your test data, please contact support@biomeme.com.

"My Biomeme Go app is returning a WRONG THERMOCYCLER error."

- 1. Turn off the thermocycler and close the Biomeme smartphone app.
- 2. Follow the steps described in section **D** below.

A: "My thermocycler is **ON**, my test is currently running or has completed, and my Biomeme Go app is still **OPEN**."

- 1. Power cycle the Bluetooth. Press the Bluetooth subtraction button on top of the thermocycler to turn **OFF** the Bluetooth Pairing.
- 2. Press the Bluetooth subtraction back on top of the thermocycler to turn the Bluetooth connection back on.
- 3. Press <u>Scan</u> in the Biomeme smartphone app.
- 4. Select your thermocycler from the list in the app.
- 5. Tap <u>Confirm</u> in the app.

Note: If your test is currently running, the LED on the front of your thermocycler will be blinking amber. If your test has completed, the front LED will be blinking blue.

B: "My thermocycler is ON, my test is currently running or has completed, and my Biomeme Go app has CLOSED."

- 1. Relaunch the Biomeme smartphone app by selecting the icon on your smartphone's home screen.
- 2. Press the Bluetooth * button on top of the thermocycler to turn it **OFF** the bluetooth.

- 3. Press the Bluetooth sutton on the top of the thermocycler to turn Bluetooth back **ON**.
- 4. From the app's home screen, tap Incomplete Runs.
- 5. Select your test from the list of incomplete runs.
- 6. Press the <u>Scan</u> button in the app and select your thermocycler.
- 7. Tap <u>Connect via BLE</u> in the app.
- 8. Tap the <u>Reattach Test</u> button in the app.
- 9. Please wait while your run data is transferred.

C: "My thermocycler is **OFF** and my Biomeme Go app is **OPEN**."

- 1. Press the Power **U** button on top of your Franklin[™] three9 thermocycler to turn it back on. If your thermocycler doesn't turn back on, make sure it's connected to a power source as your battery may have died.
- 2. Press the Recovery O button on top of your thermocycler.
- 3. The thermocycler will quickly blink blue, white, red, then green indicating it has successfully recovered the previously completed or failed run.
- 4. Press the Bluetooth 🖇 button on top of your thermocycler.
- 5. Press <u>Scan</u> in the Biomeme smartphone app.
- 6. Select your thermocycler from the list in the app and tap <u>Confirm</u>.
- 7. Please wait while your run data is transferred.

Note: This assumes your test was completed before the thermocycler powered off. It is usually not possible to reattach and recover the run data if the thermocycler shut off during the run. Please always ensure your device has at least 30% battery power before starting your run.

D: "My thermocycler is **OFF** and my Biomeme Go app is **CLOSED**."

- 1. Press the Power Ü button on top of your Franklin[™] three9 thermocycler to turn it back **ON**. If your thermocycler doesn't turn back on, make sure it's connected to a power source as your battery may have died.
- 2. Press the Recovery \circlearrowright button on top of your thermocycler.
- 3. The thermocycler will quickly blink blue, white, red, then green indicating it has successfully recovered the previously completed or failed run.
- 4. Press the Bluetooth 🖇 button on top of your thermocycler.
- 5. Relaunch the Biomeme smartphone app by selecting the icon on your smartphone's home screen.
- 6. From the Biomeme app's home screen, tap Incomplete Runs.
- 7. Select your test from the list of incomplete runs.
- 8. Press <u>Scan</u> in the Biomeme smartphone app.
- 9. Select your thermocycler from the list in the app and tap <u>Confirm</u>.
- 10. Tap <u>Connect via BLE</u> in the app.
- 11. Tap the <u>Reattach Test</u> button in the app.
- 12. Please wait while your run data is transferred.

Note: This assumes your test was completed before the thermocycler powered off. It is usually not possible to reattach and recover the run data if the thermocycler shut off during the run. Please always ensure your device has at least 30% battery power before starting your run.

Bluetooth

Why is my Bluetooth (BLE) not connecting?

If you are having trouble connecting, ensure that you enabled Bluetooth on both your smartphone and thermocycler.

Why is my thermocycler not showing up in the connection list in my app?

Ensure that Bluetooth is turned **ON**. The LED next to the thermocycler's Bluetooth **b** button should be illuminating blue. If your thermocycler is still not showing in the list of the app, try tapping <u>Scan</u> in the app multiple times to allow for discovery.

My Bluetooth connection was lost during a test run...

If you lose your Bluetooth connection, the smartphone app will notify you that the connection has been lost. It will prompt you to reconnect to the thermocycler if you are able to. Upon reconnecting, the test data will update on the smartphone after a short delay (1-2 seconds).

How do I change the Bluetooth name of my thermocycler?

You must first pair your thermocycler and smartphone. Then...

- 1. From the Biomeme Go main dashboard, tap the gear icon in the upper right corner.
- 2. Select <u>Settings</u>.
- 3. Tap the text field with the existing Bluetooth name and override it with a name of your choice (no spaces, 18 characters max).
- 4. Tap <u>Rename</u>.

General

What happens if my test stops prematurely?

If your test fails, the smartphone will notify you of the error returned from the thermocycler. Your last run will be saved in the Biomeme mobile app up to the point of failure, but the data will not be processed resulting in no Cq values, baseline, or graph of smooth data. The raw data and information about your run is still exportable through the xlsx spreadsheet, however.

My thermocycler turned off during a test run...

If your thermocycler turns off during a test, then the thermocycler battery may be dead and the unit should be plugged into power. Your connection to the smartphone will also be lost. If this happens, we recommend you to stop the run in the smartphone mobile app. See Recovering & Reattaching Test Data for more details.

I have a low battery warning at test start...

You are able to start a test, but ensure that you are plugged into a charger before the thermocycler runs out of power.

How do I stop a test?

While the test is running, you have the ability to press the stop run button. Doing so will prompt the mobile app to ask you to confirm that you would like to stop the test in progress. Upon stopping, your run will be saved to the current point, and available in the test results section of the mobile app.

The thermocycler failed to start test...

If your run fails to start, the app will return to the home screen and have you restart the setup of your test. Restart the thermocycler then reconnect the smartphone. If starting still fails after many retries, please contact <u>support@biomeme.com</u>.

How do I upgrade my one9 and/or two9 thermocycler to add additional

color channel detection?

Adding additional color detection channels to your thermocycler is easy and does not require you to return your unit or purchase any new parts. All you'll need is the MAC address for the thermocycler(s) requiring an upgrade which can be found on the label on the bottom of your unit(s).

Start by navigating to the settings menu \clubsuit in the Biomeme mobile app and tap upgrade. From there, you'll be redirected to our mobile-friendly online store where you can purchase additional color channels such as ATTO647N (Red) and TexasRedX (Amber). Once your order is received, a Biomeme representative will follow up regarding your MAC address(es) and use this to provide you with a unique 16-character unlock code (per unit) to be entered using the Biomeme mobile app. Please note, your smartphone must be connected to the thermocycler via Bluetooth or serial in order to complete the upgrade.

What should I do if I receive a heater error message?

Retry running your test, but if the error persists please contact <u>support@biomeme.com</u>.

Disclaimer

For Research Use Only. Not for use in human or veterinary diagnostics. The performance characteristics of this product have not been established.

Biomeme products may not be transferred to third parties, resold, modified for resale or used to manufacture commercial products or to provide a service to third parties without written approval of Biomeme, Inc.

Biomeme warrants every thermocycler to be free of defects in material and workmanship for one year from the date of shipment to buyer. All warranties are subject to our <u>Terms and Conditions and Privacy Policy</u> (https://biomeme.com/privacy-policy-and-terms-of-use/).

Biomeme, Inc. 1015 Chestnut Street, Suite 1401 Philadelphia, PA, USA 19107 <u>support@biomeme.com</u> <u>Patent Protected</u> (https://biomeme.com/patents/)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device contains: FCC ID: XPYNINAB1 IC: 8595A-NINAB1

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

This device may not cause interference. This device must accept any interference, including interference that may cause undesired operation of the device.