appliedbiosystems

SimpliAmp™ Thermal Cycler

USER GUIDE

Installation, Use, and Maintenance

for use with:
Invitrogen™ and Applied Biosystems™ PCR reagents

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C.0	30 June 2016	Rebrand, add Connect use
B.0	September 2014	A few feature updates: Remote Service, Simulation Mode, Run Details
A.0	May 2014	New document

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1 Product information

The SimpliAmp™ Thermal Cycler is an end-point thermal cycler, specifically designed for the amplification of nucleic acids using the Polymerase Chain Reaction (PCR) process. The user interface includes a touchscreen with a graphical display that shows the time, status, and temperature for each run. A touchscreen keypad allows you to enter information into fields on the display screen. It is also compatible with the Applied Biosystems™ Thermal Cycler Fleet Control Software.

Instrument overview

The SimpliAmp™ Thermal Cycler (Cat. no. A24811) allows you to:

- Optimize your PCR with the help of the Veriflex™ blocks
- Program the instrument from the touchscreen interface
- Access the system remotely through a mobile application
- Simulate other PCR instruments with Thermal Simulation modes

Figure 1 SimpliAmp™ Thermal Cycler

This user guide provides information on how to maximize the capabilities of this system.

Detailed specifications for the SimpliAmp™ Thermal Cycler are found in Appendix D, “Instrument specification and layout”.

2 Start, sign on, and configure the instrument

Touchscreen menu overview

On powering on the instrument, you will first see the following Splash screen.

Figure 2 SimpliAmp™ Thermal Cycler Splash screen

After the Splash screen, the Home screen appears.

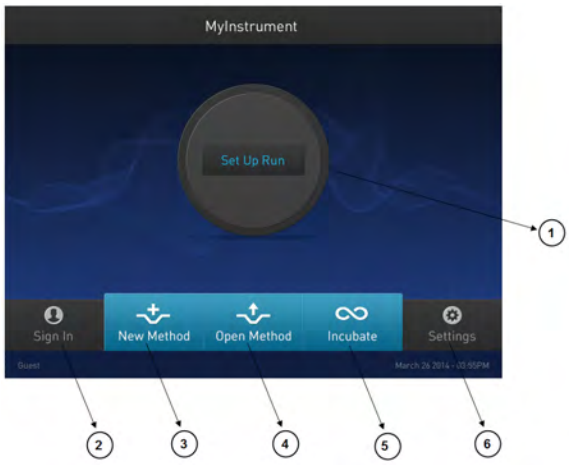
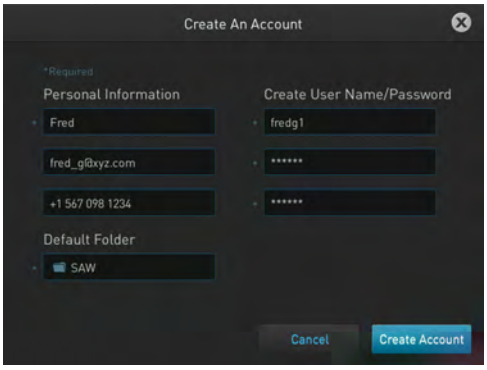


Figure 3 Home screen

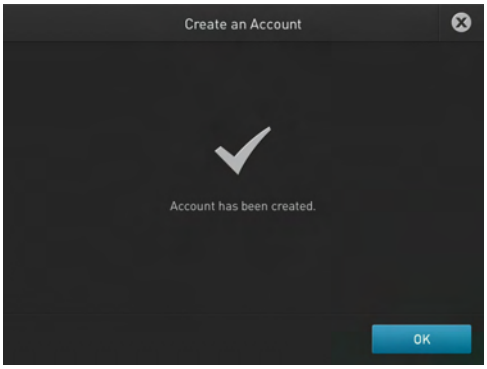
The Home screen includes the following features:

1. **Status dial**: The Status dial appearing on the Home screen displays the current temperature of the block, the time elapsed for a run, and the run status while the instrument is in use.

   When the instrument is not in use, the status dial will show the 'Set Up Run' display. You can start a run by touching the status dial where it says Set Up Run. For instructions on starting a run by this method, see “Perform a run” on page 22.
2. **Sign In**: Touch **Sign In** to create an account or to enter information to sign in to your account.
   - To create a new account:
     a. In the Sign In screen, touch **Sign Up**.
     b. In the Create An Account screen, enter your personal information, create a user name and password, and enter a name for the default folder that will contain the account information.

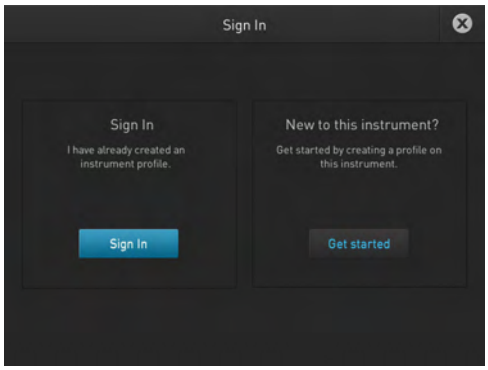


     c. Touch **Create Account**



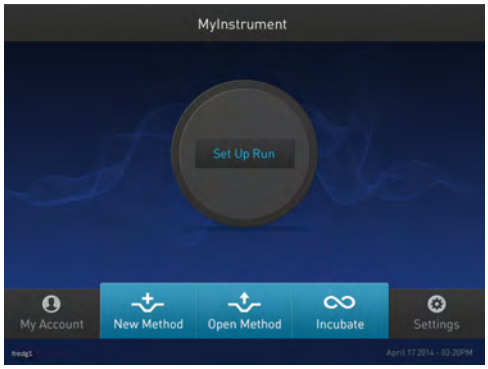
- To sign-in to an existing account:
  a. Enter your user name and password.

Note: To sign-in to an existing account as an administrator, enter your user name as "Administrator" and password as "password<last four digits of instrument serial number>".



  b. Touch **Sign In**.

Note: Once you have signed into your account, the Sign In button on the Home screen turns to My Account. The user name (custom or administrator) appears in the bottom-left of the Home screen.



3. **New Method**: Touch **New Method** to create a new run method with the help of the default templates that are pre-loaded with the instrument. Touching New Method takes you to the Setup Run screen that allows you to create a new run method by using the default templates or existing methods. You can also create a run method for incubation from the Setup Run screen.
4. **Open Method**: Touch **Open Method** to select an existing run method to start a run. Touching Open Method takes you to the Select Method screen that displays the existing run methods. The run methods are sorted and stored in various folders. Select a folder to display the run methods within the folder. Touch a run method under the Method name to edit that run method in the edit mode.
5. **Incubate**: Touch **Incubate** to use the instrument as a precise incubator for non-PCR workflows.
6. **Settings**: Touch **Settings** to configure the instrument.

Use the Touchscreen

You interact with the instrument using a touchscreen. Table 2 describes the several buttons common to many of the screens in the SimpliAmp™ Thermal Cycler.

Table 2 Buttons in the touchscreen

Button	Function
	Returns to the previous screen
	1. Current temperature **2.** Time remaining **3.** Status of the block (pre-heating, running, and so on) **4.** Username
	Scrolls up and down through a list of items.
and buttons.	View other stages
	Closes the current modal window.
	Indicates whether the Wi-Fi is on or off.
	Indicates whether a USB is inserted into the instrument.
	Indicates whether the instrument is connected to the network.

Enter text

When you touch a field that requires the input of text, the text editor, as seen in the following figure, opens. Table 3 displays the buttons to touch to enter different information types.

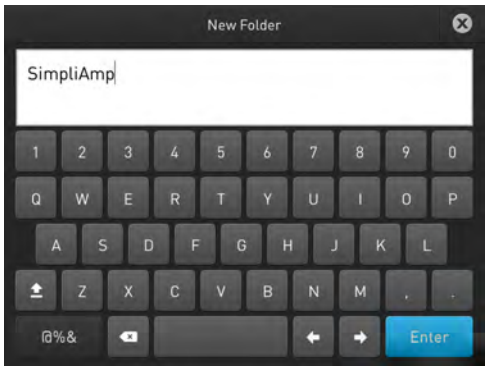


Table 3 Buttons to enter different information

To...	Touch
Enter a lowercase letter	A letter button.
Enter an uppercase letter	, then the letter (s). When you are done, touch again.
Enter punctuation or other symbols	@%&, then the symbol(s). When you are done, touch @%& again.
Delete the last letter	
Close the editor and save any changes	Enter to accept the entry and close the editor.
Close the editor and discard any changes	

Enter numerals

When you touch a field that requires a numerical input, the numeric editor, as seen in the following figure, opens. Table 4 displays the buttons to touch to perform different functions while entering numbers.

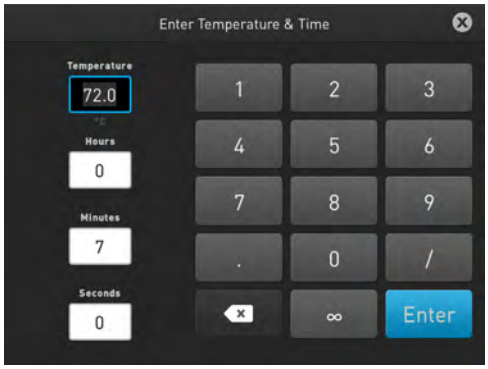


Table 4 Functions performed by entering numbers

To...	Touch
Enter a number	A number button.
Enter decimal, colon, or infinity symbol	the button with the respective symbol.
Delete the last number	
Close the editor and save any changes	

3 Create and run experiments on the instrument

Workflow

Start the instrument

▼

Create a new run method

▼

Edit a run method

▼

Load the plate in the instrument

▼

Perform a run *or*

Perform a run on multiple instruments

▼

(Optional) Monitor the run

▼

View and export the run report

▼

Unload the plate from the instrument

▼

(Optional) Manage methods and folders

Create a new run method

1. In the Home screen, touch **New Method**.

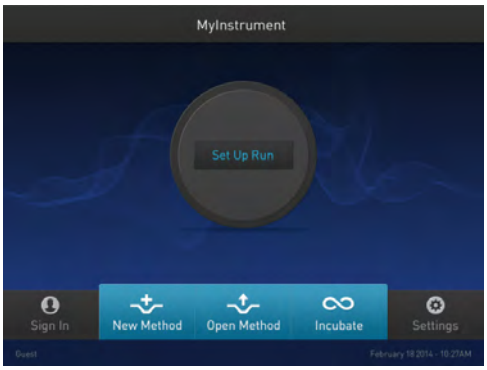


Figure 4 Touchscreen Home

The Setup Run screen opens up.

2. In the Setup Run screen, touch **Open Template**, **Open Method**, or **Incubate**.

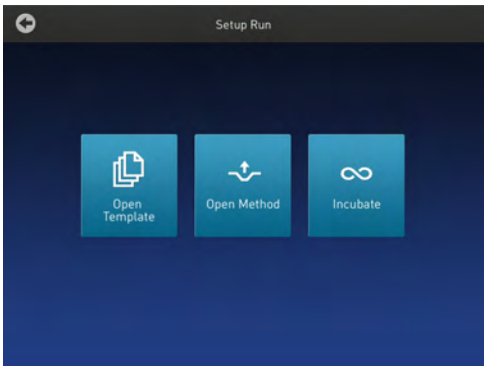


Figure 5 Setup Run screen

a. Touch **Open Template** to create a new method using an existing template. Select from the categories listed in the Select Method Template screen.

Figure 6 Select Method Template screen

b. Touch **Open Method** to create a new method using an existing run method. Select from the methods listed in the Select Method screen.

Note: The Select Method screen opens up if you touch Open Method in the Home screen or in the Setup Run screen.

Figure 7 Select Method screen

3. Irrespective of the source for creating a new run method, once you select one of the methods, you will come to the Method Edit screen.

Figure 8 Preview of Run Method

See “Edit a run method” on page 16 for instructions on editing a run method.

Note: You can choose to directly start a run without editing a run method. To start a run, touch **Next**.

Edit a run method

The Edit Method screen serves as a preview of the run method you have selected.

If you do not want to edit any of the parameters, you can start a run directly by touching **Next**.

1. In the Edit Method screen for the run method that you have selected, touch **Edit** or anywhere on the graphical temperature profile to start editing the parameters.

Figure 9 Options available in the Run Method preview screen

You will see that each of the numbers are surrounded by black fields indicating that they are editable. At this point, you can edit any of the temperatures, times, heated cover, number of cycles, and other parameters seen on the screen.

2. Touch **Manage Steps** to manage the steps; for example, add or delete a stage or step, or set more advanced parameters.
   a. Touch **Add Steps** to add a step.
   b. Touch **Remove Steps** to delete a step.
   c. Touch **Add Stages** to add a stage.
   d. Touch **Remove Stages** to delete a stage.

The '+' buttons appear while adding a step or stage, while the '–' buttons appear while deleting a step or stage.

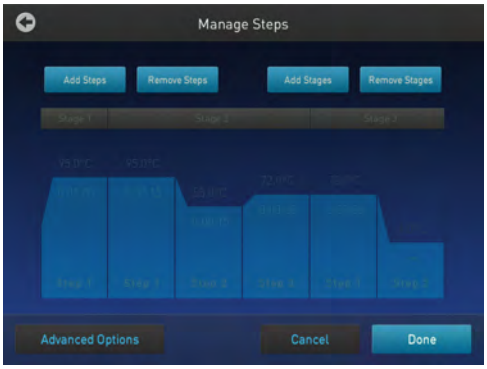


Figure 10 Manage Steps screen

Touch **Done** to finish managing the steps or **Advanced Options** to modify the advanced parameters.

3. Touch **Advanced Options** to edit the VeriFlex™ blocks, AutoDelta, Ramp Rates, and Simulation Mode parameters.

Figure 11 Advanced Options screen

- Touch **Simulation Mode** to set the simulation mode. The simulation modes include the following:
  - No Simulation
  - Applied Biosystems™ 2720
  - Bio-Rad™ T100™
  - Bio-Rad™ MyCycler™
  - MJ Research™ PTC-200
  - Eppendorf™ Mastercycler® gradient

– TaKaRa® Dice PCR Thermal Cycler
– BIOER™ XP Cycler

Note: Simulation modes make SimpliAmp™ Thermal Cycler perform like another instrument. This is done by simulating the ramp rate of another instrument. Not all of the listed simulation modes are available on all configurations of SimpliAmp™ Thermal Cycler

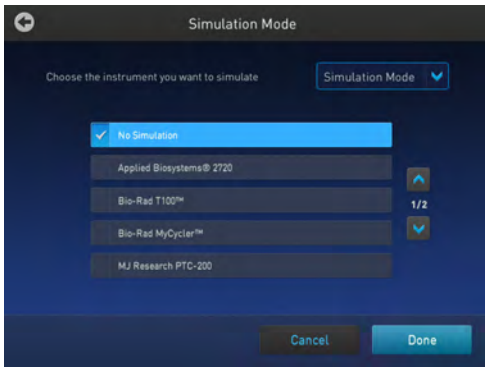


Figure 12 Advanced Options — Simulation Mode

In the Simulation Mode screen:

a. Select the instrument you would like to simulate.
   Touch **No Simulation** to run the instrument in the default mode
b. Touch **Done** to save the selection or **Cancel** to exit the screen.
c. Use the button in the top right corner of the screen to return to the Advanced Options screen.

- Touch **Ramp Rates** to edit the ramp rate of the individual steps.

Figure 13 Advanced Options — Ramp Rates

a. Touch a particular ramp rate to open the editor to edit the ramp rate.
b. Touch **Done** to save the selection or **Cancel** to exit the screen.
c. Use the button in the top right corner of the screen to return to the Advanced Options screen.

Note: If you set a simulation mode other than No Simulation, then the ramp rate will be locked and unavailable for editing.

- Touch **VeriFlex™** to edit the VeriFlex™ blocks parameter.
  a. Touch the icon to choose the steps you want to apply VeriFlex™.

Figure 14 Advanced Options — VeriFlex™

  b. In the Edit VeriFlex™ screen, adjust the temperature range across the block for the selected steps.

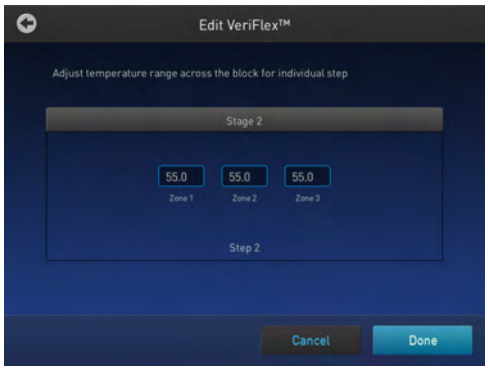


Figure 15 Edit VeriFlex™

  – Touch **Remove VeriFlex™** to remove the VeriFlex™ blocks setting.

Note: Remove VeriFlex™ is visible only if there is an existing VeriFlex™ blocks setting.

  – Touch **Done** when finished or **Cancel** to exit the screen.

  c. Touch **Done** to return to the Edit Method screen.

  d. Use the button in the top right corner of the screen to return to the Advanced Options screen.

- Touch **AutoDelta** to apply the AutoDelta setting to a step.
  a. Touch the icon to choose the steps you want to apply AutoDelta.

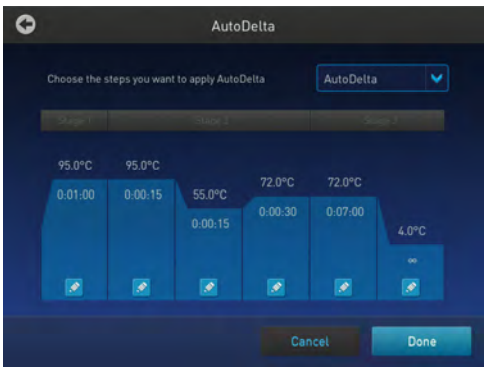


Figure 16 Advanced Options — AutoDelta

  b. In the Edit AutoDelta screen, enter the information for setting up AutoDelta.
    a. Enter the Starting Cycle.
    b. Enter the DELTA temperature and/or time. Use the '-' and '+' toggle button to set the DELTA values to be either negative or positive, respectively.
    c. Touch **Remove AutoDelta** to remove the AutoDelta setting.

> **Note:** **Remove AutoDelta** is visible only if there is an existing AutoDelta setting.

    d. Touch **Done** when finished or **Cancel** to exit the screen.

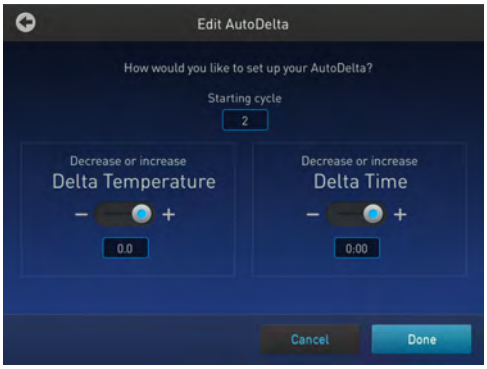


Figure 17 Edit AutoDelta

  c. Touch **Done** to return to the Edit Method screen.

Once you have edited a run method, you can save the method to the destination folder by touching **Save As** in the Run Method preview screen or choose to start a run without saving the run method.

4. Touch **Save As** to save the edited run method.

Figure 18 SimpliAmp™ Thermal Cycler Run Method preview screen

a. In the Save As screen, enter a name of the edited run method.

Note: Names can be up to 100 characters. Names may not contain any of the following characters: %*?|;:,!@#$.()<>/\"'`~{}[]=+&^ (tab). Spaces, underscores, and dashes are allowed.

b. Touch a folder (for example, Public)to select a destination folder where you want to save the run method.

Note: The Save As button turns to Save in the Edit Method screen once you have saved the template as a new method.

5. Touch **Save** when you are done.

Load samples into the instrument

Note: Refer to *How to Use MicroAmp™ Reaction Plates, Tube Strips, and Tubes* (Pub. no. 100033471) for instructions on filling, sealing, and loading MicroAmp™ reaction plates, tube strips, and tubes.

Place the sample tray or plate onto the sample block(s)

The steps for placing the sample tray on the sample block(s) are the same for:

- A sample tray/retainer
- A sample tray without a retainer
- A 96-well plate.

1. Lift the sample tray from the splash-free 96-well base and place it in the sample block(s).
2. Place the MicroAmp™ Tray or Plate onto the sample block(s) so that well A1 is at the upper left corner of the tray, as shown in the following figure:

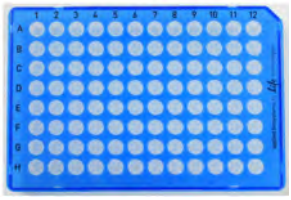


Figure 19 MicroAmp™ Optical 96-Well Reaction Plate (0.2 mL)

3. Close the heated cover.

Perform a run

Prepare your samples and load the sample block(s) as described in “Load samples into the instrument” on page 21.

1. Close the cover.
2. Start a run from the Home screen in one of the following ways. Touch:
   - **New Method**
   - **Open Method**
   - **Incubate**
   - **Status dial**

Note: See “Create a new run method” on page 14 to create a new run method or see “Edit a run method” on page 16 to edit an existing run method.

3. Touch **Next**.
   The Run Parameters screen is displayed:

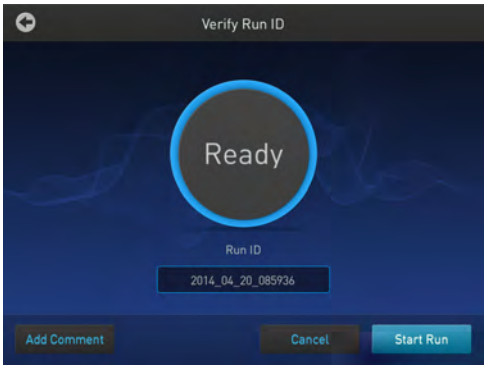


Figure 20 Run Parameters screen

4. Touch the field under Run ID, then enter the applicable information in the Enter the Run ID screen.
   The default Run ID is YYYYMMDDHHMM, where “YYYYMMDD” is the date and “HHMM” is the current time.
   You can choose to retain the default Run ID.

5. Touch **Add Comment** to enter any comments about the run.

6. Touch **Start Run**. The cover is heated to the required temperature, then the run begins.
   While the run is in progress, the Home screen is displayed. When the run is complete, the Status Dial on the Home screen displays Done and Remove Samples.

7. Touch **Done** once you have removed the samples.
   The Status Dial is now ready for another run and displays Set Up Run.

Perform a run on multiple instruments

Use the Multi-Instrument Setup feature to perform runs on multiple instruments.

1. In the Multi-Instrument Setup screen, touch the Off and On toggle button to make the instrument on which you are running an experiment visible to other instruments on the network.

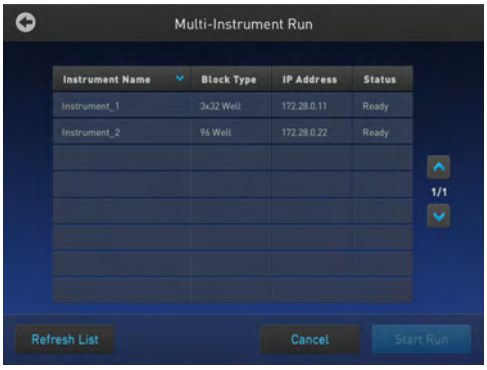
2. Touch the second set of Off and On toggle buttons to find other instruments on the network.

3. Select an existing or new method and proceed to the Start Run screen.

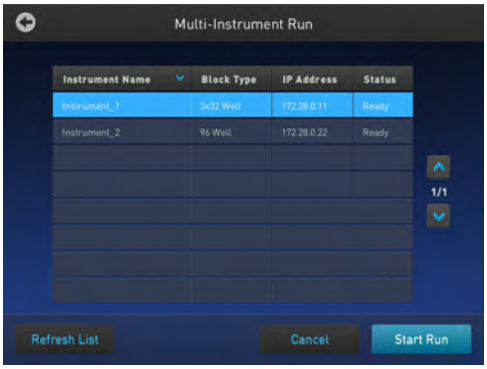
4. In the Start Run screen, touch **Scan Devices** instead of the Start Run button.

   Note: The Scan Devices button appears in the Start Run screen when you enable the multi-instrument run.

   The instrument starts scanning for all available SimpliAmp™ Thermal Cycler instruments on the same network which have the "Make Visible" setting enabled. All available instruments are displayed in a table in the Multi-Instrument Run screen.



5. Select one or more instruments from the table to enable the Start Run button.



6. Touch **Start Run**.
   Once a run starts and completes successfully on a remote instrument, a pop-up message saying that the workflow has ended appears.

Note: You cannot monitor a run taking place remotely.

Monitor a run

Monitor via the Home screen

After a run has started, the Home screen appears again with the dials updated with current information on the run. The dials display the following run information:

- Current block temperature
- Time remaining since the run started
- Run status

To monitor the run progress, touch the dial that is running to go the Run Monitoring screen.

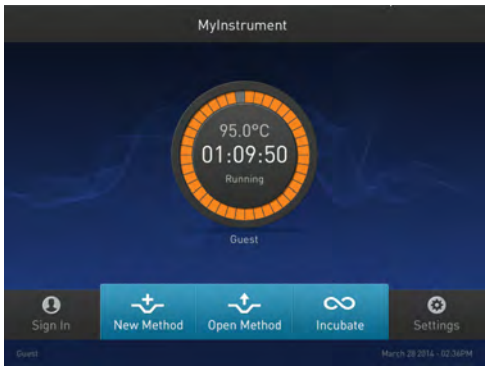


Figure 21 SimpliAmp™ Thermal Cycler Home screen

Monitor via the run monitor screen

You can follow the status of a run using the Run Monitoring screen as shown in the following figure:

Figure 22 SimpliAmp™ Thermal Cycler Run Monitoring screen

The screen shows the run method profile and additional information that does not appear in the Dial on the Home screen.

Table 5 Elements of the Run Monitor screen

Element	Description
Start Time	Displays the time a run started.
Time Remaining	Displays the time remaining for a run.
~ End Time	Displays the approximate time at which the run will end.

Table 5 Elements of the Run Monitor screen *(continued)*

Element	Description
Details	Provides more details about the run. Touching Details brings up the Progress Details screen with the following run information: • Run ID • Run User • Simulation Mode • Start time • Estimated End time • Sample Temperature • Cover Temperature • Reaction Volume
Edit	• Helps edit run parameters like temperature, time, and cycles. • Helps skip the current holding step. However, if the run is currently ramping, the Skip button will not function.
Pause	Helps pause a run. Touching Pause changes the button to Resume. Touch Resume to continue the run.
Stop Run	Helps stop a run. After a run has completed or been aborted, the Home screen appears again.

If the power fails

If a power failure occurs during a run, the instrument attempts to continue the run when the power returns. The run begins at the first step of the stage where the power failed.

Note: If the time between the initial power failure and the time the power returns is more than 12 hours, the run is not continued.

View and export the run report

To view a report:

1. In the Home screen, touch **Settings**.
2. In the Settings screen, touch **Run History**.
3. In the Run History screen, touch the Run ID of the run you want to view.
   The report is displayed.
4. Touch **Export** to save the report on a USB drive. Touch **Print**.

Remove the samples from the instrument

Grasp the sample tray/retainer assembly or reaction plate firmly with both hands (or by using MicroAmp™ Multi Removal Tool, Cat. no. 4313950) and gently rock it back and forth until the tubes (or plate) are free.

CAUTION! Sample caps may pop off if the cover is opened when the sample block(s) temperature is above 27 °C.

Manage methods and folders

Use this feature to copy a run method from one folder to another, rename a particular method name, or delete a method.

Note: If your instrument has been connected to the Connect, you will automatically see **Cloud** as one of your folder options.

1. In the SimpliAmp™ Thermal Cycler Home screen, touch **Open Method** to go to the **Select Method** screen.

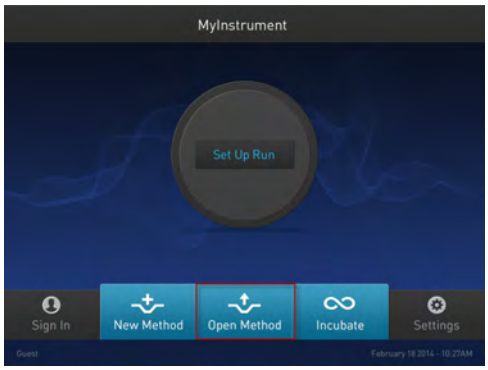
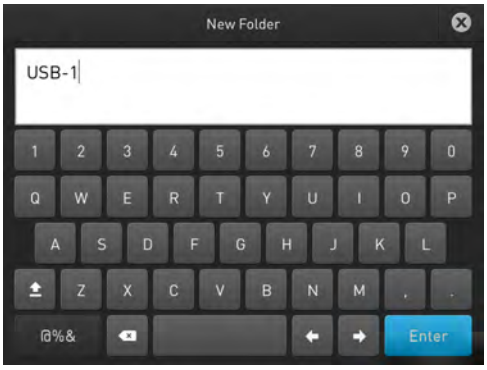


Figure 23 Home screen

2. In the **Select Method** screen, touch:
   - **New Folders** to create a new folder, or
   - **Manage Folders** to edit an existing method

Figure 24 Select Method screen

3. Touch **New Folder**, and in the New Folder dialog box, enter a name for the new folder you want to create.



Touch **Enter**.

4. In the Manage Folders screen,

   a. Touch **Copy** to copy a run method from one existing folder to another. For example, you can copy a run method from the Public folder into the New folder 1. You can also copy a run method from an existing folder into a new folder.

   Note: Back up your method files to a USB drive frequently, or before sending in your SimpliAmp™ Thermal Cycler for service.

b. In the **Copy Method** screen, select the folder you would like to copy the method to, or touch **New Folder**. Touch **Paste Method**.

c. Touch **Rename** to rename a particular method/ folder name.

d. Touch **Delete** to delete a particular method/ folder.

e. Touch **Done** to save the changes and return to the **Select Method** screen.

4 Maintenance

As-needed maintenance

Clean the instrument

WARNING! Always wear protective glasses and gloves when servicing the instrument. Also, make sure you disconnect the instrument from AC line power before you begin any service procedure. Always wear protective glasses and gloves when servicing the instrument. Also, make sure you disconnect the instrument from AC line power before you begin any service procedure.

Preparation

Before cleaning the instrument:

1. Power off the instrument by disconnecting the power.
2. Allow the instrument to cool until the heated cover and sample block(s) reach room temperature.

Clean the touchscreen

Clean the touchscreen with any commercially available LCD cleaning product. Be careful not to scratch the screen.

Clean the sample wells

If you use any cleaning or decontamination method, except those recommended in the manual, you risk damaging the equipment. Clean the sample wells once a month or as needed.

WARNING! During instrument operation, the temperature of the heated cover can be as high as 110°C, and the temperature of the sample block(s) can be as high as 100°C. Before performing the procedure, keep hands away until the heated cover and sample block(s) reach room temperature.

Clean the sample wells using a cotton swab dampened with isopropanol. **Do not** flush sample wells using a wash bottle or allow liquid to overflow from the wells.

1. Follow the steps in "Preparation" on page 32.
2. Open the heated cover.
3. Remove the sample tray from the sample block(s) and set it aside.
4. Use a cotton swab soaked in isopropanol to clean the sample wells thoroughly. Make certain that the isopropanol has evaporated completely before reloading a sample tray.

Decontaminate the sample wells

If the sample wells become contaminated with any biological agents, clean the wells thoroughly with a cotton swab soaked in 1:10 v/v dilution of 5.25% sodium hypochlorite (Clorox® bleach).

IMPORTANT! Use bleach solution in moderation. We recommend the use of 10% bleach solution for removing contamination from the SimpliAmp™ instrument sample block(s); excessive use of the solution, however, can corrode the sample block(s) material. To prevent damage to the sample block(s):

- Avoid applying excessive amounts of bleach solution. If possible, instead of using a squeeze bottle or soaked cloth, use an atomizer to deliver the solution to the wells of the block(s).
- After treating with bleach solution, rinse the sample block(s) thoroughly using deionized water.

Note: Removing residual bleach from the surfaces of the instrument using water minimizes the long-term effects of bleach treatments.

If the sample block(s) become contaminated with radioactivity, use a commercially available decontaminant to remove the contamination. If the block(s) cannot be decontaminated, the instrument cannot be returned for service.

Clean the heated cover

Clean the heated cover once a month or as needed.

CAUTION! During instrument operation, the temperature of the heated cover can be as high as 110°C based on the touchscreen maximum cover set point allowed, and the temperature of the sample block can be as high as 100°C. Before performing the procedure, keep hands away until the heated cover and sample block reach room temperature.

To clean the heated cover:

1. Follow the steps in "Preparation" on page 32.
2. Open the heated cover.

3. Soak a cotton swab or piece of clean cloth with isopropanol and gently wipe the heated platen.

WARNING! CHEMICAL HAZARD. Isopropanol is a flammable liquid and vapor. Exposure may cause eye, skin, and upper respiratory tract irritation. Prolonged or repeated contact may dry skin and cause irritation. Exposure may cause central nervous system effects such as drowsiness, dizziness, and headache. Read the MSDS, and follow the handling instructions.

4. Remove any remaining isopropanol from the cover.

Note: If the platen becomes contaminated with amplified DNA, then raise the heated cover to the cleaning position, wipe the platen with a cloth or cotton swab soaked in bleach, then rinse with water.

Clean the heated platen once a month or as needed.

Decontaminate the heated cover

If the heated cover become contaminated with amplified DNA, raise the heated cover to the cleaning position and wipe the cover with a cloth or cotton swab soaked in 1:10 v/v dilution of 5.25% sodium hypochlorite (Clorox® bleach), then wipe the cover with a damp cloth.

Replace the fuses

Required materials

- Two UL Listed fuse, rated 10A, 250VAC, size: 5 x 20 mm
- Fine flat-tip screwdriver

Procedure

DANGER! ELECTRICAL SHOCK HAZARD. Severe electrical shock, which could cause physical injury or death, can result from working on an instrument when the high voltage power supply is operating. To avoid electrical shock, disconnect the power supply to the instrument, unplug the power cord, and wait at least 1 minute before working on the instrument.

1. Power off the instrument by disconnecting the power.
2. Insert a small flat-tip screwdriver into the slot in the upper portion of the power entry module, and open the door.
3. Pull out the fuse compartment to inspect the two fuses in the fuse compartment:
4. Pull out the blown fuse(s) from the fuse compartment and replace with new Two UL Listed fuse, rated 10A, 250VAC, size: 5 x 20 mm.
5. Place the fuse compartment back into the power entry module (there is only one orientation) and close the door.

6. Press the door until it locks in place.
7. Connect the instrument power cord.

Upgrade the system firmware

About the upgrade

If there is a new version of the firmware for the SimpliAmp™ Thermal Cycler, you may be required to load the new firmware on the instrument.

You will need a USB drive and, if your instrument requires login, the login details to upgrade the firmware.

IMPORTANT! You cannot upgrade the firmware while a run is in progress.

Upgrade the firmware

1. Open the About Instrument screen to determine the version number of the existing firmware. To open the About Instrument screen, in the Home screen, touch **Settings**. In the Settings screen, touch **About Instrument**.
2. Record the version number of the firmware, then touch **Done**.
3. On a computer connected to the Internet, go to **thermofisher.com** to determine the version number of the new firmware.
4. Click **Product Support**, then **Technical Resources ▶ Product Support ▶ Software, Patches & Updates**
5. Select SimpliAmp™ Thermal Cycler in the list, then click **Updates & Patches**.
6. Find the appropriate file. If the version number is:
   - The same as the current version (from step 3), you do not need to upgrade the firmware.
   - Different from the current version (from step 3), follow the steps below to download and upgrade the firmware.
7. Insert a USB drive into the USB port on the computer to download the new firmware to the USB drive.
8. Click the link in the Software column to download the file. Select the USB drive as the location for the saved file.
9. Remove the USB drive from the computer when the download is complete.

To upgrade the instrument with the new firmware:

1. Insert the USB drive with the new firmware in the USB port.
2. In the Home screen, touch **Settings**, or touch the shortcut to the Upgrade Firmware screen if you have enabled the USB pop-up.
3. In the Settings screen, touch **Maintenance & Services**.
4. In the Maintenance & Services screen, touch **Software Update**.
   The Software Update screen opens:

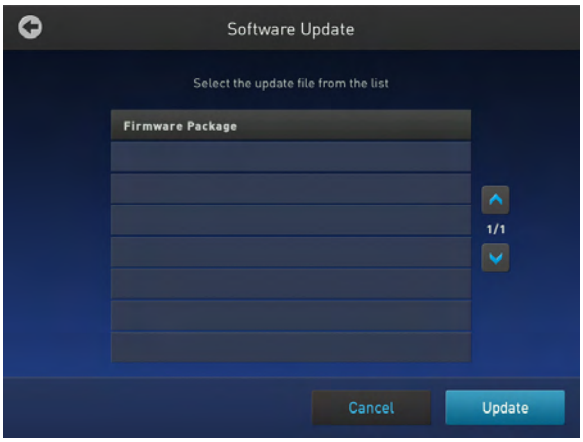


Figure 25 Software Update screen

5. Touch the name of the file with the new firmware, then touch **Update**.
6. Touch **Yes** to confirm that you want to upgrade.

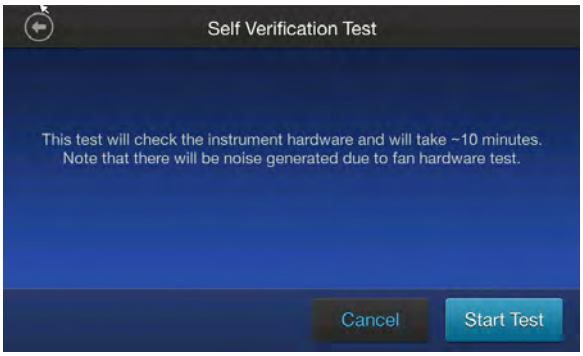
IMPORTANT! To prevent instrument malfunction and required service, do not power off the instrument during the upgrade.

When the upgrade process is complete, the instrument will restart automatically.

Self Verification test

Use the **Self Verification Test** feature to check the instrument hardware. The check includes testing the block, heated cover, and other components.

Carry out the **Self Verification Test** periodically or whenever there is an intermittent instrument error. Contact your service representative in case of block failure.



Procedure

1. In the **Home** screen, press **Settings** ▸ **Maintenance & Services** ▸ **Self Verification Test**
2. In the **Self Verification Test** screen, press **Start Test** to begin testing or **Cancel** to exit the screen.

   Note: The test takes about 10 minutes. Once the test is completed the test results will be displayed in the form of a report.

3. Press **Export** to save the test report to a USB drive or **Close** to exit the screen.

Order kits and replacement parts

Refer to Appendix B, “Ordering information”to obtain part numbers for kits and replacement parts.

A Install and connect to a network

This chapter includes the procedures for installing the SimpliAmp™ Thermal Cycler.

Package contents

Ensure that the SimpliAmp™ Thermal Cycler package you receive includes one box containing the following:

- One SimpliAmp™ Thermal Cycler instrument
- Power cable
- Starter Kit
- Analysis Certificates

Materials

Required materials

- Scissors, pocket knife, or box cutter
- Compressed air
- Protective hardware, as appropriate (see below)

Optional protective hardware

Use the following devices to protect the SimpliAmp™ Thermal Cycler from damage resulting from electrical hazards and the resultant loss of data. Before installing the system, decide what additional hardware (if any) you want to install.

- Power line regulator (1.5-kVA)
- Surge protector/line conditioner (10-kVA)
- Uninterruptible power supply (1.5-kVA)

Unpack the product

IMPORTANT! Save the packing materials and box in case you need to ship the instrument for service.

1. To unpack the SimpliAmp™ Thermal Cycler:
   a. Cut the straps securing the instrument box.

b. Cut the tape securing the top flaps of the instrument crate, then open the flaps.

c. Remove the SimpliAmp™ Thermal Cycler Accessories from the instrument and set them aside.

d. Lift and remove the cover from the instrument crate.

e. Remove the packing material from the SimpliAmp™ Thermal Cycler, then inspect the instrument for shipping damage.

IMPORTANT! If the SimpliAmp™ Thermal Cycler is damaged, note the location and appearance of the damage, then contact Technical Support or your service representative (see "Customer and technical support" on page 90).

2. Move the SimpliAmp™ Thermal Cycler to the desired installation site. Follow these guidelines for lifting and moving:
   - Make sure that you have a secure, comfortable grip.
   - Keep your spine in a neutral position.
   - Bend at the knees and lift with your legs.
   - Do not lift and twist your torso at the same time.
3. Verify that the package containing the SimpliAmp™ Thermal Cycler Accessories includes the SimpliAmp™ Thermal Cycler Starter Kit.

Set up the system

1. Remove the packing material:
   a. Open the SimpliAmp™ Thermal Cycler heated cover.

   b. Using a can of compressed air, deliver a blast of air into each well of the sample block(s) to remove any particles that may have collected during transportation.
2. Close the heated cover.
3. Connect the power cable to the SimpliAmp™ Thermal Cycler.

Figure 26 Power cable inlet in the SimpliAmp™ Thermal Cycler

4. (Optional) Install any of the recommended protective devices (see "Optional protective hardware" on page 38).
5. Connect the power cable to the AC power source receptacle.

6. *(Optional)* Connect the instrument to the network by inserting the ethernet cable into the ethernet port at the back of the SimpliAmp™ Thermal Cycler. For instructions on setting up the wired connection, see “Set up the wired connection” on page 41.

   In the absence of the ethernet cable or the ethernet port, you can connect the instrument to the network via the USB-enabled Wi-Fi Card (Cat. No. A26774) as shown in the following graphic.

   Note: The USB-enabled Wi-Fi Card is an optional purchase.

   Insert the Wi-Fi Card into the USB port at the back of SimpliAmp™ Thermal Cycler. For instructions on setting up the wireless connection, see “Set up the wireless connection” on page 43

Figure 27 USB port in the SimpliAmp™ Thermal Cycler unit

7. Toggle the power switch, then wait for the instrument to start up. The touchscreen displays the Main Menu, indicating that the SimpliAmp™ Thermal Cycler startup is complete. When you power on the instrument, the instrument may require about 45 seconds to start up.

   Note: First time users will be prompted with the End User License Agreement (EULA) screen. See List item. on page 52 for more information on the EULA.

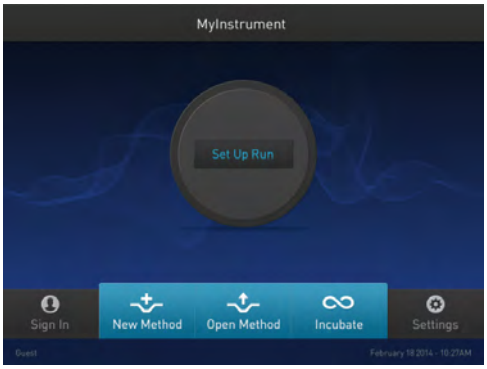


Figure 28 SimpliAmp™ Thermal Cycler Touchscreen Home

Set up the wired connection

See “Set up the system” on page 39 for instructions on connecting the SimpliAmp™ Thermal Cycler to the network. To set up the wired connection:

1. On the Home screen, touch **Settings**.

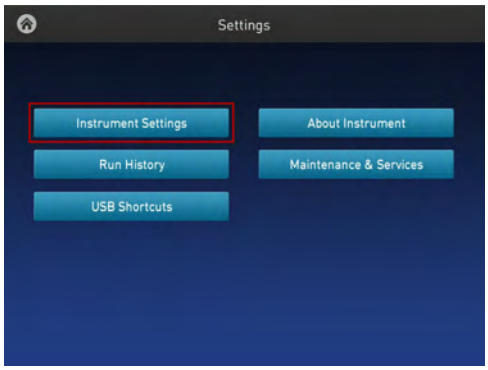


Figure 29 SimpliAmp™ Thermal Cycler Settings screen

2. In the Settings screen, touch **Instrument Settings**.

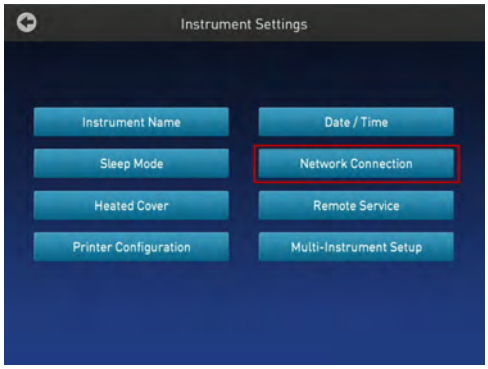


Figure 30 SimpliAmp™ Thermal Cycler Instrument Settings screen

3. In the Instrument Settings screen, touch **Network Connection**.

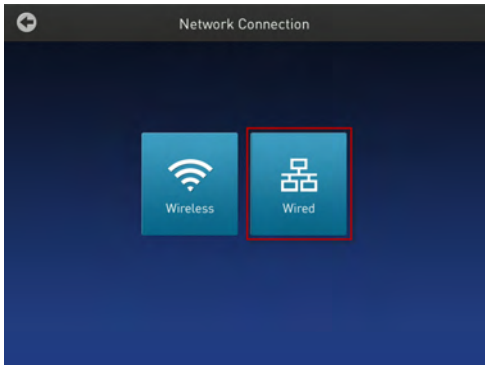


Figure 31 SimpliAmp™ Thermal Cycler Network Connection screen

4. In the Network Connection screen, touch **Wired**.
   The Network Configuration screen opens up.

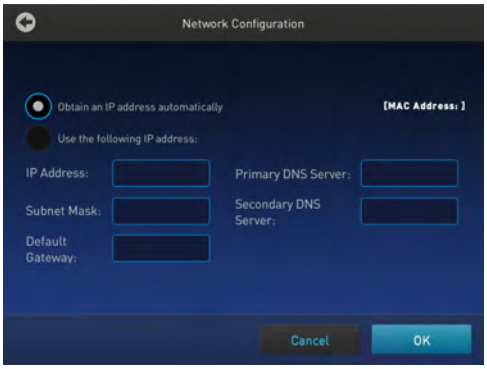


Figure 32 SimpliAmp™ Thermal Cycler Network Configuration screen

In the Network Configuration screen, you can choose to connect to the network by obtaining the IP address either automatically (using DHCP) or manually. If your instrument is not on a network, you do not need to set the IP address.

Note: Ask your system administrator if the IP address is assigned statically or dynamically. For static addresses, you need to know the IP address for the instrument, the subnet mask, and the default gateway.

- Automatically:

  Touch **Obtain an IP address automatically** (using DHCP). A check mark appears when DHCP is selected.

  or

- Manually:

  Touch **Use the following IP Address**, then enter the appropriate IP addresses for the instrument, the Subnet Mask, and, optionally, the Default Gateway, the Primary DNS Server, and the Secondary DNS Server using the numeric editor. Addresses are in the form of X.X.X.X, where each X is a 3- digit number, from 001 to 255.

5. Touch **OK** to save the changes and go back to the Network Connection screen. Touch **Cancel** to exit the screen without saving the changes.

Set up the wireless connection

See “Set up the system” on page 39 on connecting the USB-enabled Wi-Fi Card into the SimpliAmp™ Thermal Cycler. To set up the wireless connection:

1. Refer to “Set up the wired connection” on page 41 through step 3 to arrive at the Network Connection screen.

2. In the Network Connection Type screen, touch **Wireless**.

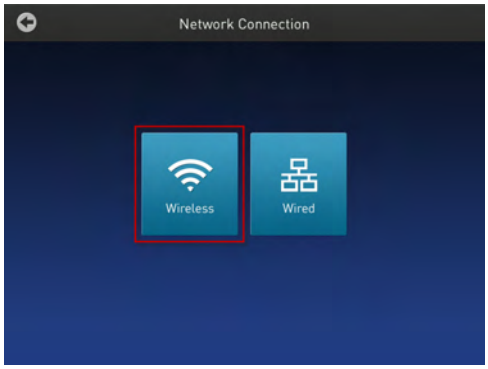


Figure 33 SimpliAmp™ Thermal Cycler Network Connection screen

The Choose Network screen will come up and the wireless symbol will appear active. Touch **Cancel** to exit the screen.

Note: During initial setup, if you selected the Wired option in the Network Connection Type screen, you will be required to enter your IP address if you selected the Static IP wired option. If you selected the Dynamic IP wired option, the IP address is automatically populated.

---

3. Once a wireless connection has been detected, a list of the available networks will be displayed in the Choose Network screen. Touch the network name of your choice or touch **Join Other Network**.

   If you choose Join Other Network, the Configure and Join Network screen opens.

4. In the Configure and Join Network screen, enter the name and security type of the network.

Note: When you touch in the Network Name field, a keypad will come up to facilitate making the entry.

---

5. From the Security type drop-down menu, touch to select the security type and enter the relevant information in the screen.

Note: Contact your IT Systems Administrator for information on security type.

You can select from the following options:

- Open
- WEP
- WPA Personal
- WPA2 Personal

- WPA Enterprise
- WPA2 Enterprise

Note: The above options are available only if you selected Join Other Network in step 3. You cannot change the security type if you selected an existing network.

6. Touch **Join** to continue or **Cancel** to exit from the Find and Join a Network screen.
7. Depending on the security type you have selected, enter the appropriate passwords and touch **Join**.
   If you entered the correct information, the Network Connection Complete screen will appear. Touch **OK** to continue. If you entered incorrect information, the Network Connection Failed screen will come up and you will require to go back to security type screen to resolve the issue. Touch **OK** to continue.

Use instrument without signing in

By default, you are not required to sign in on the instrument, however this can be changed in the administrator settings. If the instrument is configured by an Administrator to allow guest access (⚙ **Settings** ▸ **Manage Users** ▸ **Sign In Required** set to off), you can use the instrument without signing in.

If you do not sign in to the instrument:

- All actions are logged to **Guest** user profile.
- You have access only to the **Public** folder for selecting and storing experiments.
- You cannot transfer data to the Cloud (only to USB or network drive).

Create a new user profile on the instrument

In the home screen:

1. Touch 👤 **Sign In**.
2. Touch **Get Started**.
3. Touch **Name**, then enter a username and touch **Enter**.
4. Touch **Password**, then enter password and touch **Enter**.
5. Touch **Confirm Password** and repeat the previous step.
6. Touch **Create profile**.

Note: Link your instrument profile to your Connect account at this point, or after signing in.

7. Sign in to the profile you just created.

Sign in

In the home screen:

1. Touch **Sign In**.
2. Touch **Sign In**, then select your username.
3. Enter your password, then touch **Enter**.
4. Link your instrument profile to Connect.

Sign out

1. In the home screen, touch **My Profile**.
2. Touch **Sign Out**.

Set up mobile and cloud connectivity to SimpliAmp™ Instrument and your mobile device

Create a Connect account

1. Go to **thermofisher.com/connect** from your web browser.
2. Click **Sign up now** and follow the prompts to create an account.

Set mobile cloud connectivity in the SimpliAmp™ Instrument

Connect your SimpliAmp™ Thermal Cycler to the internet using a wireless or wired connection.

Note: See “Set up the wired connection” on page 41 and “Set up the wireless connection” on page 43 for setting up a wired and wireless connection.

Login as the Administrator login to link the instrument to the Cloud

1. Touch **Sign In** from the **Main** screen.
2. Touch **Sign In** from the **Sign In** screen.
3. Touch **Administrator** when asked to choose screen name.
4. Enter the password for the Administrator account. By default, the password is "password<last four digits of instrument serial number>".
5. You will then be redirected back to the home screen.
6. Touch **My Profile** from the **Main** screen.
7. Touch on the **Cloud** tab.

8. Enter your Connect user name and password and select **Link Account**. Create an account on **thermofisher.com** if you have not done so already.

9. Upon successful authentication, the Administrator is linked to Connect. Subsequently, any user can log in and proceed to perform linking the instrument to their Connect account.

Note: The administrator account must be activated first to connect the instrument to the Cloud. Afterwards, many users can create unique user profiles using their own log in information. Each unique profile must have a unique Connect account.

Link instrument profile to your Connect account

Linking your profile to your Connect account allows you to:

- Download methods stored in your Cloud account to the instrument.
- Transfer methods from the instrument to your Cloud account.

Link your instrument profile to Connect

1. Sign in to your instrument profile.
2. Touch **My Profile**.
3. Touch **Cloud**.
4. Enter your Connect username and password, then touch **Link Account**.
5. Touch **Done** to exit the confirmation screen.

Your instrument profile will link to your Connect account.

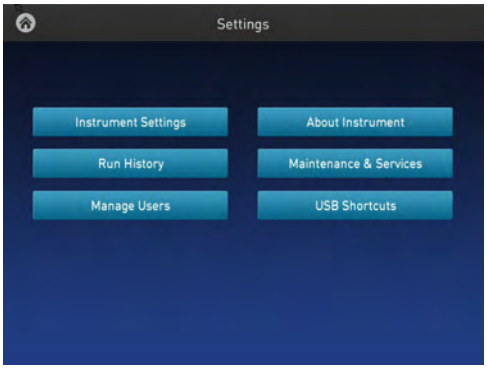
Set up mobile connectivity on a mobile device

Download the "Instrument Connect Mobile Application" on your mobile device.

1. For iPad™ or iPhone™ devices, download the application from the iTunes™ music store by searching for Instrument Connect by Thermo Fisher Scientific.
2. For Android devices, download the application from Google™ Play by searching for Instrument Connect by Thermo Fisher Scientific.
3. Log in to the instrument connect mobile application using your Connect login and password.

Recommended instrument settings

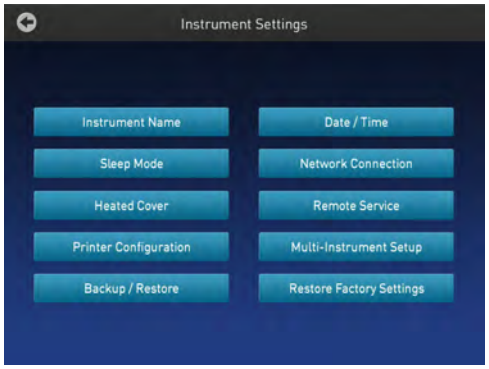
You can configure the following instrument settings by touching **Settings** on the Home screen:



Note: The Manage Users button is visible only when you sign in as an administrator.

- **Instrument Settings**: Touch **Instrument Settings** to set various additional parameters:

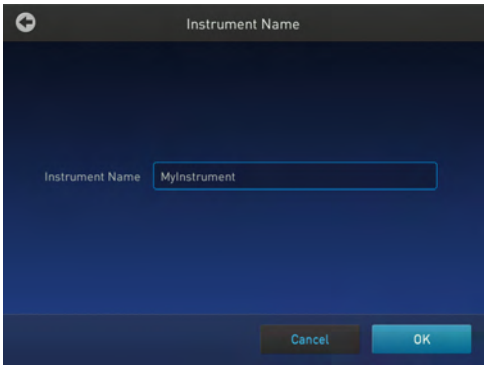
  Set the following in the **Instrument Settings** screen:



Note: The Backup/Restore and Restore Factory Settings are available only when you sign in as an administrator.

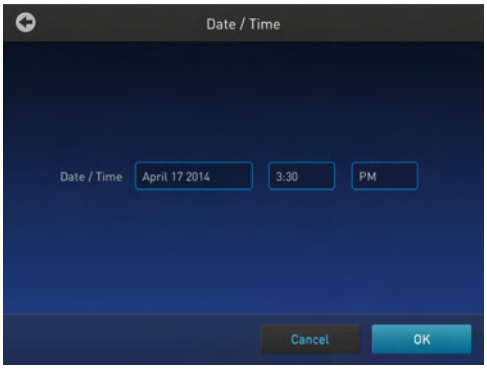
- **Instrument Name**: Touch the **Instrument Name** field and, using the text editor, enter up to 25 alphanumeric characters to identify the instrument.

  Note: The instrument name cannot have spaces. Separate consecutive characters with a hyphen or underscore; for example, *MyInstrument*.



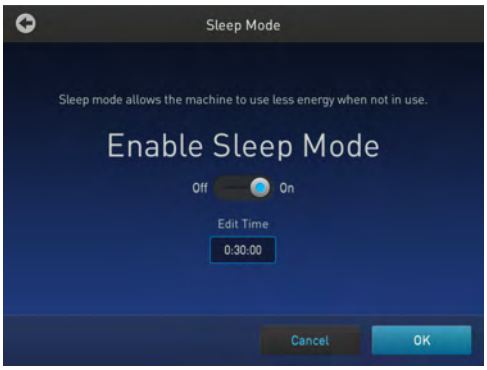
- **Date/ Time**: Touch **Date/ Time** to set the date and time for a run.
  a. Enter the date and time in the Date/Time field using the numerical editor that comes up when you place the cursor in the respective fields.

     You can toggle between AM and PM by touching in the field directly.
  b. Touch **OK** to save the date and time changes or **Cancel** to exit.

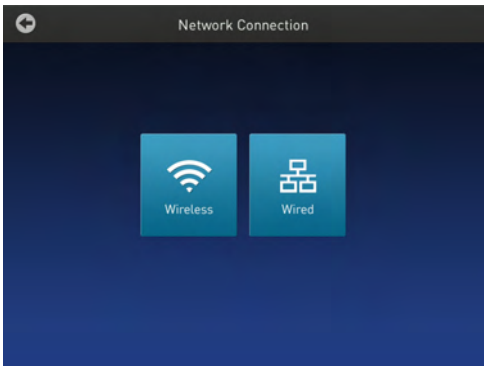


- **Sleep Mode**: In the **Sleep Mode** screen, touch the **Off** and **On** toggle button to disable or enable, respectively, the sleep mode.

  In the 'On' mode, you can edit the time (in minutes) after which the instrument will go from the idling state into standby mode.

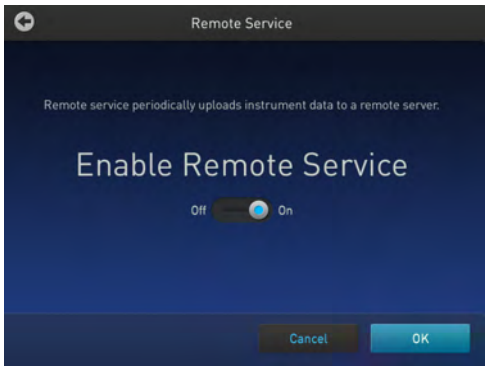


- **Network Connection**: Touch **Network Connection** to select the type of network connection. You can select from the Wireless and Ethernet options. For details on using the Wireless and Ethernet options, see “Set up the wired connection” on page 41 and “Set up the wireless connection” on page 43, respectively.

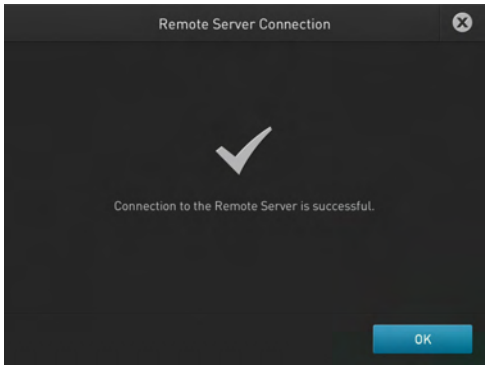


- **Heated Cover**: Use the On and Off toggle button in the **Heated Cover** screen to enable and disable, respectively, editing the heated cover idling temperature.
  a. To edit the idling temperature, touch **On**
  b. Enter a temperature between 30°C and 110°C.
  c. Touch **OK** to save, or touch **Cancel** to exit without saving your changes.

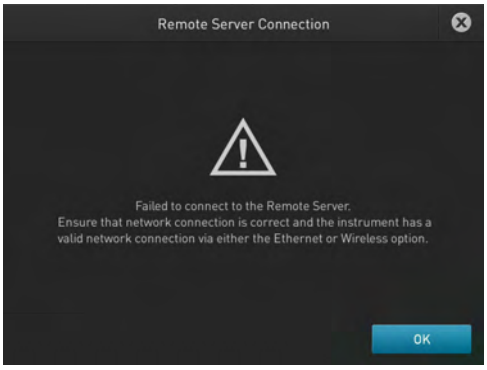
- **Remote Service**: Use the On and Off toggle button in the Remote Service screen to enable or disable, respectively, remote service. The feature allows the instrument to periodically upload data to a remote server.
  a. To enable remote service, touch **On**.



  b. Touch **OK** to save, or touch **Cancel** to exit without saving the changes.
  On clicking **OK**, the system tests the connection to the Remote Server. If the connection is successful, the **Remote Server Connection** screen displays the following message:



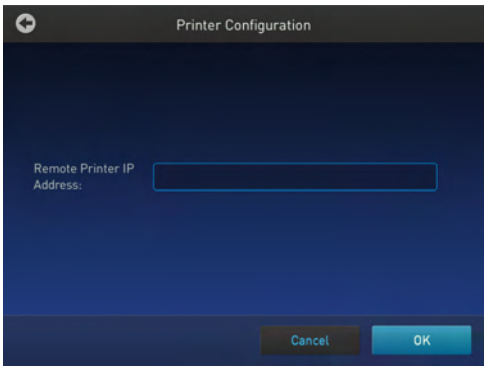
  In the absence of a valid network connection, the system will fail to connect to the Remote Server, and the **Remote Server Connection** screen displays the following message:



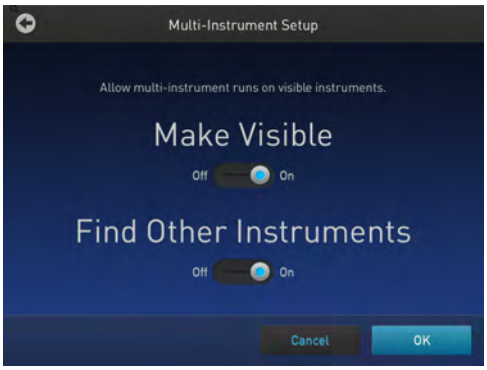
Note: To connect to the SimpliAmp™ Thermal Cycler with your mobile device (using the PCR Essentials app), Remote Services must be switched on. For more information on convenient access, visit **thermofisher.com/simpliamp**.

- **Printer Configuration**: In the **Printer Configuration** screen, enter the IP address of the printer in the **Remote Printer IP Address**

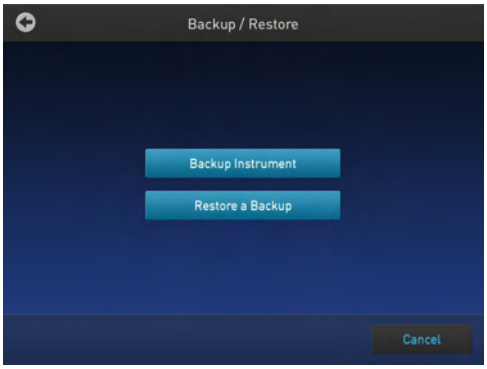
  After you have entered the IP address, touch **OK** to save the change or **Cancel** to exit the screen.



- **Multi-Instrument Setup**: Use this feature to allow multi-instrument runs on visible instruments. In the **Multi-Instrument Setup** screen, touch:
  a. The Off and On toggle button to make the instrument on which you are running an experiment invisible or visible, respectively, to other instruments on the network.
  b. The second set of Off and On toggle buttons to ignore or find, respectively, other instruments on the network.



- **Backup/Restore (for Admin only)**: In the **Backup/ Restore** screen, touch:
  - **Backup Instrument** to back up the instrument settings, user accounts, and methods on the instrument you are working to a USB drive.
  - **Restore a Backup** to view the files that you have backed up on a USB drive.

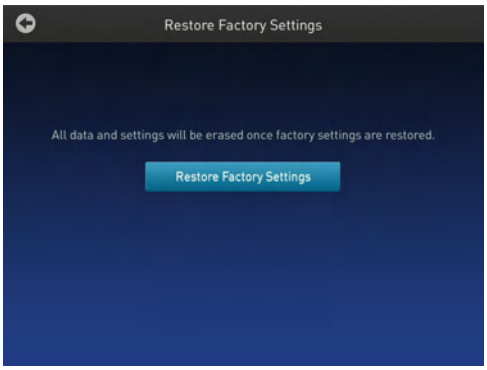


This feature can be useful in event of a hardware failure or while setting up multiple instrument runs.

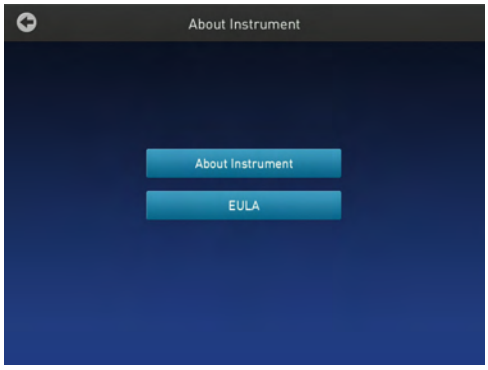
- **Restore Factory Settings (for Admin only)**: Touch **Restore Factory Settings** to remove all the data and customized settings and revert to factory settings. Touch **Yes** to confirm if you want to restore factory settings or **Cancel** to exit the screen.

  At the end of the restoration process, the message, "Your instrument has been restored." will be displayed and the instrument will automatically reboot after 30 seconds.

Note: All data and settings will be erased once factory settings are restored.



- **About Instrument**: Touching **About Instrument** will take you to the About Instrument screen where you can find out more information about the instrument as well as view the End User License Agreement (EULA).
  - Touch **About Instrument** to find out more about the SimpliAmp™ Thermal Cycler. In the **About Instrument** screen, you can view information like firmware version and instrument statistics.
  - Touch **EULA** to view the End User License Agreement. You can also save the EULA document to a USB drive.

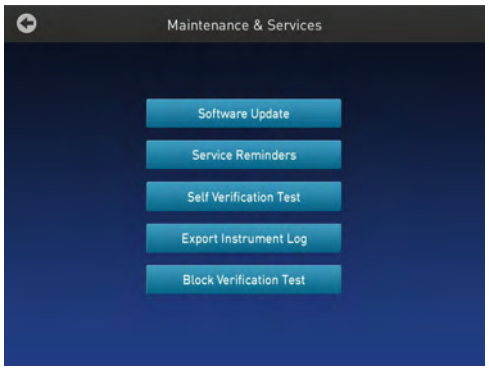


- **Run History**: The **Run History** screen displays the entire list of runs performed using a particular SimpliAmp™ Thermal Cycler.
  a. In the **Run History** screen, touch a particular Run ID to view the details of that run.

  b. Touch **Export** to save the run details to a USB device or **Print** to print the run details.

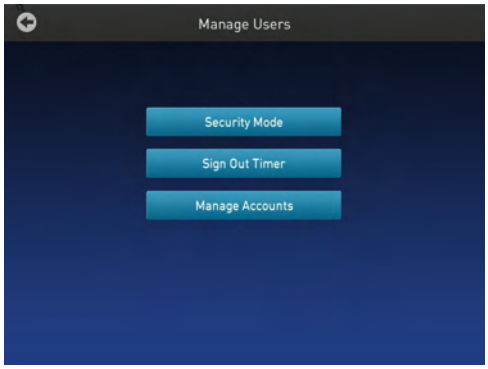
Note: If you sign in as an Administrator, you can manage the Run History. For example, deleting a run history.

- **Maintenance & Services**: You can perform the following in the **Maintenance & Services** screen:
  - **Software Update**: Touch **Software Update** to update the System firmware. See "Upgrade the system firmware" on page 35 for instructions on updating the firmware.
  - **Service Reminders**: Touch **Service Reminders** to set the time interval for the service reminder. Use the Off and On toggle button to turn off and on, respectively, the service reminder. If you select On, the time interval field becomes visible. Touch the time interval field to choose from 12 Months, 9 Months, 6 Months, 3 months, and 1 Month. Touch **OK** to save the change or **Cancel** to exit the screen.
  - **Self Verification Test**: Touch **Self Verification Test** for the instrument to conduct a check on the instrument hardware. The check includes testing the block, heated cover, and other components. See Chapter 4, "Maintenance" for instructions on conducting the self-verification test.
  - **Export Instrument Log**: Touch **Export Instrument Log** to export the instrument logs to a USB. Insert the USB into the USB drive before using this feature.
  - **Block Verification Test**: Touch **Block Verification Test** to perform a block verification test. Ensure that you have the Temperature Verification Kit (TVK) (Cat. No. 4377669) before performing this test. Touch:
    - **Verify Block Temperature** to carry out the block temperature test.
      a. Choose the test type from Heated Cover, Temperature Verification, or Temperature Non-Uniformity.
      b. Touch **Next**. Connect the TVK, and depending on the test type perform insert the TVK probe into a specific zone.
      c. Touch **Start Test**.
    - **Verify Cycle Performance** to check the cycle performance of the instrument.



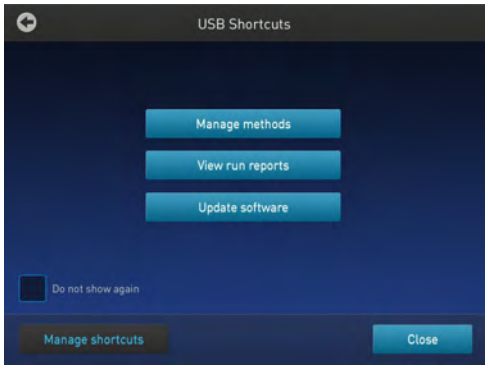
- **Manage Users** (for Admin only): Touch **Manage Users** to manage the instrument when it is being used by multiple users. Touch:
  - **Security Mode** to choose the security mode of the instrument. You can choose from Open Mode, Restricted Mode 1, and Restricted Mode 2.
    - **Open Mode**: In this mode, you can use an instrument without having an account.
    - **Restricted Mode 1**: In this mode, you can use an instrument only if you have a valid account. You can create a new account. See “Touchscreen menu overview” on page 7 for more information on creating a user account.
    - **Restricted Mode 2**: This mode is designed for the lab that wants to provide limited flexibility on what can be run on the instrument. In this mode, a user cannot edit, create, or delete methods. You must log in, and once logged in, you can only run methods that are designated by an administrator.

      As an administrator, you must create an account for each of your users, and you must designate which methods you want these users to be able to run. To select methods that you would like to allow your users to run, log in as the administrator and save the desired methods into a folder called 'restricted'. After logging off as administrator, only the users you have created will be allowed to use the machine, and they will only be able to run (not edit/delete/move) the methods that have been added to the "restricted" folder. See “Touchscreen menu overview” on page 7 for more information on signing into an account as an administrator.
  - **Sign Out Timer** to change the duration of inactivity before a user has signed out. You can change the time in the **Edit Time** field.
  - **Manage Accounts** to edit the administrator account information.
    a. Touch a row with the account name and in the **Manage Account** screen edit the account information.
    b. Touch **Delete Account** to delete an administrator account and **Reset Password** to reset a password.



- **USB Shortcuts**: Touch **USB Shortcuts** to display the shortcuts available when a USB is inserted into an instrument.
  a. Touch **Show Shortcuts** to display the shortcuts. Select from **View methods**, **Export run reports**, **Backup / Restore** (only if signed in as an administrator), and **Update software**.
  b. Touch **Save** to save the change or **Cancel** to exit the screen.

When a USB device is plugged into the USB port, a pop-up dialog box with pre-selected options is displayed.



Touch **Do not show again** to prevent the pop-up from appearing when the USB device is inserted in the future or **Close** to dismiss the pop-up screen.

B

Ordering information

Instrument part numbers

Contact your regional sales office to order kits, accessories, consumables, and spare parts for the SimpliAmp™ Thermal Cycler (Cat. No. A24811).

Consumables

Table 6 SimpliAmp™ Thermal Cycler Consumables

Consumable	Cat. No.
Single Tubes	
MicroAmp™ Reaction Tube with Cap, 0.2-mL	N8010540 N8011540
MicroAmp™ Reaction Tube with Cap, Assorted Colors, 0.2-mL	N8010840
MicroAmp™ Reaction Tube with Cap, Autoclaved, 0.2-mL	N8010612
MicroAmp™ Reaction Tube without Cap, 0.2-mL	N8010533 N8011533
MicroAmp™ Reaction Tube without Cap, Assorted Colors, 0.2-mL	N8010833
MicroAmp™ Optical Tube without Cap, 0.2-mL	N8010933
MicroAmp™ 96-Well Reaction Tube/Tray/Retainer Set, 0.2-mL	403083 403086
Reaction Trays	
MicroAmp™ 96-Well Reaction Tray for VeriFlex™ Systems	4379983
MicroAmp™ 96-Well Reaction Tray/ Retainer for VeriFlex™ Systems	4381850
96-Well Plates	
MicroAmp™ Optical 96-Well Reaction Plate	N8010560 4316813

Table 6 SimpliAmp Thermal Cycler Consumables *(continued)*

Consumable	Cat. No.
MicroAmp™ Optical 96-Well Reaction Plate with Barcode	4306737 4326659
MicroAmp™ Optical 96-Well Reaction Plate with Barcode and Optical Caps	403012
MicroAmp™ Optical 96-Well Reaction Plate with Barcode and Optical Adhesive Films	4314320
MicroAmp™ EnduraPlate™Optical 96-Well Clear Reaction Plate with Barcode	4483354 4483352
MicroAmp™ EnduraPlate™Optical 96-Well Blue Reaction Plate with Barcode	4483343
MicroAmp™ EnduraPlate™Optical 96-Well Green Reaction Plate with Barcode	4483349
MicroAmp™ EnduraPlate™Optical 96-Well Red Reaction Plate with Barcode	4483350
MicroAmp™ EnduraPlate™Optical 96-Well Yellow Reaction Plate with Barcode	4483395
MicroAmp™ EnduraPlate™Optical 96-Well Multicolor Reaction Plate with Barcode	4483355 4483356
MicroAmp™ EnduraPlate™Optical 96-Well Clear GPLE Reaction Plate with Barcode	4483348 4483351
8-Well Strips	
MicroAmp™ 8-Tube Strip, 0.2-mL	N8010580
MicroAmp™ 8-Tube Strip, Assorted Colors, 0.2-mL	N8010838
MicroAmp™ Optical 8-Tube Strip, 0.2-mL	4316567
MicroAmp™ 8-Cap Strip	N8011535
MicroAmp™ 8-Cap Strip, Assorted Colors	N8010835
MicroAmp™ Optical 8-Cap Strip	4323032

Table 7 SimpliAmp™ Thermal Cycler sample handling supplies

Part Name	Cat. No.
MicroAmp™ Adhesive Film Applicator	4333183
MicroAmp™ Multi-Removal Tool	4313950
MicroAmp™ Cap Installing Tool (Handle)	4330015
MicroAmp™ 96-Well Base	N8010531

Table 7 SimpliAmp Thermal Cycler sample handling supplies *(continued)*

Part Name	Cat. No.
MicroAmp™ Splash Free 96-Well Base	4312063
MicroAmp™ Centrifuge Adapter	N8013822

C

Troubleshooting

Troubleshooting

Use the following table to help troubleshoot problems with your Veriti™ Thermal Cycler.

Observation	Possible cause	Recommended action
Slow screen response or screen changes sporadically.	Screen is out of calibration.	Call service to redo touchscreen calibration.
Instrument reports error(s).	Hardware malfunction.	Run the self verification test "Procedure" on page 37.
Reduction in instrument performance due to incorrect temperature readings.	Temperature sensor out of calibration.	Run the Cycle Performance Test.
		Call the field service representative to perform the temperature verification test.
		Perform the temperature verification test using the external multi-channel temperature verification kit (TVK).
Printing fails.	Printer incorrectly configured on instrument.	Make sure the printer IP address on the instrument matches the IP address from the system administrator.
	Printer not connected to network.	Connect Ethernet cable to printer.
	Instrument not connected to network.	Connect Ethernet cable to instrument.
		Confirm network is functioning.
	Ethernet cable bad.	Try a different Ethernet cable.
		Confirm network is functioning.
When running on multiple instruments, can't see instruments in Select Instruments screen	Instrument(s) not connected to network.	Connect Ethernet cables to the instruments.
		Connect Ethernet cable to the network switch.
	Switch powered off.	Switch power on.
	Ethernet cable bad.	Try a different Ethernet cable.
	IP address conflict.	Change the IP addresses on the instruments.
	Allow Remote Runs setting in **Instrument Name** screen set to No.	In **Instrument Name** screen, change Allow Remote Runs to Yes.
No screen display	Blown fuse.	Check fuses.
Screen display missing characters or is illegible.	LCD screen failure.	Request service.

Observation	Possible cause	Recommended action
No response when you power on the instrument.	Not connected to power source.	Switch power on.
		Connect power cord.
Sample tubes melt during run.	Incompatible consumables used.	Use recommended consumables.
	Heated cover or sample block(s) too hot.	Run the Heated Cover Verification Test.
Heating cover is stuck.	Cam, platen, or cover assembly malfunctioning	Request service.
Sample tubes are crushed or deformed after run.	Incompatible consumables used, or proper trays/retainer accessories not used.	Use recommended consumables.

Return an instrument for service

Before returning an instrument for service, back up the run methods and instrument settings, as described in "Manage methods and folders" on page 29 and t_eGUI Reco Instr Settings on page 52. This practice ensures that if the service center sends you a replacement instrument, you can restore the run methods and other settings.

To return an instrument for service:

1. Contact your local customer care center or technical support group to obtain a copy of the Certificate of Instrument Decontamination, a service notification, a service call number, and, if required, packaging.
2. Decontaminate the instrument.

   IMPORTANT! If the sample block(s) become contaminated with radioactivity, use a commercially available decontaminant to remove the contamination. If the block(s) cannot be decontaminated, the instrument cannot be returned for service.
3. Complete and sign a copy of the Certificate of Instrument Decontamination.
4. Fax the Certificate of Instrument Decontamination to the customer care center.
5. Pack the instrument in the provided packaging, without any accessories or power cords. Include a hard copy of the Certificate of Instrument Decontamination in the box.

   Note: Repairs for instruments without the Certificate of Instrument Decontamination are delayed.
6. Affix the provided postage to the box, then ship the instrument to the designated facility.
   The repair process requires 2 to 3 weeks.

D Instrument specification and layout

This chapter lists the instrument specifications for the SimpliAmp™ Thermal Cycler using the 96-Well Sample Block.

Site requirements

The SimpliAmp™ Thermal Cycler is for indoor use. Ensure that the installation site:

- Meets the spatial and weight requirements (see “System specifications” on page 64)
- Meets environmental requirements (see “Environmental requirements” on page 62)
- Is within 1 m (3 ft.) of an AC power source receptacle
- Is away from water

Environmental requirements

Temperature and humidity requirements

Ensure that the installation site is maintained under the following conditions:

Table 8 Temperature and humidity requirements

Condition	Acceptable range
Temperature	15 to 30°C (59 to 86°F)
Humidity	15 to 80% relative humidity, non-condensing

Avoid placing the instrument adjacent to heaters, cooling ducts, or in direct sunlight. Fluctuations between day and night temperatures can cause system instability. Place away from any equipment that vibrates, such as a refrigerator or centrifuge.

Pollution

The SimpliAmp™ Thermal Cycler has a Pollution Degree rating of 2. It may be installed in an environment that has non-conductive pollutants only, such as dust particles or wood chips. Typical environments with a Pollution Degree II rating are laboratories and sales and commercial areas.

Altitude

The safety of SimpliAmp™ Thermal Cycler use was tested for altitudes up to 6000 ft.

Technical specifications

The following table displays the system specifications for the SimpliAmp™ Thermal Cycler.

Table 9 SimpliAmp™ Thermal Cycler technical specifications:

Feature	Specification
Maximum block ramp rate[1]	4°C/sec
Maximum sample ramp rate[1]	3°C/sec
Temperature accuracy	±0.25°C (35 to 99.9°C)
Temperature range for protocol run	0°C to 100.0°C
Temperature non-uniformity[2]	<0.5°C
Dimensions	• Height: 21 cm (8.27 in) • Width: 24.0 cm (9.45 in) • Depth: 46 cm (18.11 in)
Weight	8.5 kg (18.3 lb)
PCR volume range	• Supported: 10 - 100 µL • Settable: 1 - 100 µL
Instrument memory	USB, on-board
Display interface	8" color TFT LCD
Power	100-240 V, 50-60 Hz Max: 600 W
VeriFlex™ blocks	• 3 VeriFlex™ zones • Supported 10°C (5°C zone-to-zone) • Settable[3] 20°C (10°C zone-to-zone)
Ambient humidity	15% - 80% Relative Humidity, non-condensing (acceptable range)
Ambient operating temperature	15°C to 30°C (acceptable range)

[1] Reaction volume @ 1 µL
[2] 30 seconds after clock start
[3] Temperature accuracy ±0.5°C and Temperature non-uniformity < 0.75°C

Table 10 Power and communication ports

Port	Description
~	AC power cable port

Table 10 Power and communication ports *(continued)*

Port	Description
	10/100 Fast Ethernet port for connecting to a network
	USB v2.0 port for connecting to an external network drive, jump drive, or other USB storage device
RS232	RS232 serial communication port for connecting the probe for the Temperature Verification Kit
	USB v2.0 port for connecting to USB-enabled Wi-Fi Card

System specifications

Table 11 Physical dimensions, weight, and power consumption

Parameter	Instrument footprint	Recommended clearance	Total
Height	21 cm (8.27 in)	24 cm (9.44 in)[1]	45 cm (17.71 in)
Width	24.0 cm (9.45 in)	0 cm (0 in)	24.0 cm (9.45 in)
Depth	46 cm (18.11 in)	23.0 cm (9 in)[2]	69 cm (27.1 in)
Weight	8.5 kg (18.3 lb)		
Power consumption	600 W - Maximum consumption		
	164 W - Average during thermal cycling		
	30 W - During sleep/ standby		

[1] With the heated cover open

[2] At the rear of the instrument to ensure adequate airflow and cooling

Location of power point and ports on the instrument

The following graphic displays the location of the power cord insertion point as well as the various ports provided in the instrument.

E Predefined run methods

The following run methods (distributed across ten categories) are supplied with the SimpliAmp™ Thermal Cycler. A particular run method can appear in more than one category. These run methods are based on our recommended protocols and should be considered as starting points for the different applications. Your results may vary between instrument models, so some optimization may be needed. Please note that the ramp rates of these methods are set at 100%.

The following table lists the categories and the run methods they include.

Table 12 Pre-defined categories and run methods

Category	Run method
Blank Template	• General PCR Run Method • Blank PCR 1 • Blank PCR 2
Basic PCR	• AmpliTaq™ 360 Method • AmpliTaq™Method • Basic PCR Taq Method
Hot Start	• AmpliTaq™ 360 Method • AmpliTaq Gold™ Method • AmpliTaq Gold™ Fast PCR Run Method • Platinum® Taq DNA Polymerase Method • Platinum® Taq SuperMix Method
Sequencing	• BigDye™ Direct Cycle Sequence Method • BigDye™ Direct PCR Run Method • BigDye™ Kit Fast Run Method • BigDye™ Kit Standard Run Method
Optimization	• Time Release Run Method • Touchdown PCR Run Method
RT-PCR	SuperScript® III 1-Step System Method

Table 12 Pre-defined categories and run methods *(continued)*

Category	Run method
High Fidelity	• AccuPrime™ PFX 2-Step Method • AccuPrime™ PFX 3-Step Method • AccuPrime™ Taq High Fidelity Method • Platinum® PFX 2-Step Method • Platinum® PFX 3-Step Method • Platinum® Taq High Fidelity Method
High Specificity	• AccuPrime™ PFX 2-Step Method • AccuPrime™ PFX 3-Step Method • AccuPrime™ Taq DNA Polymerase Method • AccuPrime™ Taq High Fidelity Method
Next-Gen Sequencing	TargetSeq™ Exome Enrichment Method
Long PCR	• Elongase® 2-Step Method • Elongase® 3-Step Method • AccuPrime™ Taq High Fidelity Method • Platinum® Taq High Fidelity Method
Digital PCR (only for Dual Flat block)	• 3D • OpenArray™ Genotyping

These run methods cannot be edited or deleted, but if you save them with a different name or to a different folder, you can edit them.

The following sections provide the method details:

Note: For illustration purpose, the tables display maximum ramp rate. These will however change with different block types.

AccuPrime™ PFX 2-Step Method

Cycle/Step		Stage 1	Stage 2	Stage 3	Stage 4	Reaction volume (µL)	Cover temp. (°C)
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	120	15	Infinite			
Step 2	RampRate	—	6.0	—	—		

(continued)

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Step 2	Temperature	—	68.0	—	—	50	105.0
	Hold Time		60				

AccuPrime™ PFX 3-Step Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	25	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	120	15	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		55.0				
	Hold Time		15				
Step 3	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

AccuPrime™ Taq DNA Polymerase Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	25	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	120	15	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		55.0				
	Hold Time		15				
Step 3	RampRate	—	6.0	—	—		

(continued)

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Step 3	Temperature	—	68.0	—	—	50	105.0
	Hold Time		60				

AccuPrime™ Taq High Fidelity Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	25	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	15	15	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		52.0				
	Hold Time		15				
Step 3	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

AmpliTaq™ 360 Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	95.0	72.0			
	Hold Time	180	95.0, 30	420			
Step 2	RampRate	—	6.0	4.0, Infinite	—		
	Temperature		58.0				
	Hold Time		30				
Step 3	RampRate	—	6.0	—	—		

(continued)

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Step 3	Temperature	—	72.0	—	—	50	105.0
	Hold Time		60				

AmpliTaq Gold™ 360 Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	95.0	72.0			
	Hold Time	300	15	420			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		55.0	4.0			
	Hold Time		30	Infinite			
Step 3	RampRate	—	6.0	—	—		
	Temperature		72.0				
	Hold Time		60				

AmpliTaq Gold™ Fast PCR Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	96.0	72.0			
	Hold Time	600	3	10			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		62.0	4.0			
	Hold Time		3	Infinite			
Step 3	RampRate	—	6.0	—	—		

(continued)

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Step 3	Temperature	—	68.0	—	—	50	105.0
	Hold Time		5				

AmpliTaq Gold™ Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	95.0	72.0			
	Hold Time	300	15	420			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		55.0	4.0			
	Hold Time		15	Infinite			
Step 3	RampRate	—	6.0	—	—		
	Temperature		72.0				
	Hold Time		30				

AmpliTaq™ Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	95.0	72.0			
	Hold Time	60	15	420			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		55.0	4.0			
	Hold Time		15	Infinite			
Step 3	RampRate	—	6.0	—	—		

(continued)

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Step 3	Temperature	—	72.0	—	—	50	105.0
	Hold Time		30				

Basic PCR Taq Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	95.0	72.0			
	Hold Time	60	15	420			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		55.0	4.0			
	Hold Time		15	Infinite			
Step 3	RampRate	—	6.0	—	—		
	Temperature		72.0				
	Hold Time		30				

BigDye™ Direct Cycle Sequence Method

Cycle/Step		Stage					Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4	5		
Cycles		1	1	1	25	1	50	105.0
Step 1	RampRate	4.0	6.0	6.0	6.0	4.0		
	Temperature	37.0	80.0	96.0	96.0	4.0		
	Hold Time	900	120	60	10	Infinite		
Step 2	RampRate	—	—	—	6.0	—		
	Temperature				50.0			
	Hold Time				5			
Step 3	RampRate	—	—	—	6.0	—		

(continued)

Cycle/Step		Stage					Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4	5		
Step 3	Temperature	—	—	—	60.0	—	50	105.0
	Hold Time				75			

BigDye™ Direct PCR Run Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	96.0	72.0			
	Hold Time	600	3	120			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		62.0	4.0			
	Hold Time		15	Infinite			
Step 3	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		30				

BigDye™ Kit Fast Run Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	25	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	96.0	96.0	4.0			
	Hold Time	60	10	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		50.0				
	Hold Time		5				
Step 3	RampRate	—	6.0	—	—		

(continued)

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Step 3	Temperature	—	60.0	—	—	50	105.0
	Hold Time		75				

BigDye™ Kit Standard Run Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	25	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	96.0	96.0	4.0			
	Hold Time	60	10	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		50.0				
	Hold Time		5				
Step 3	RampRate	—	6.0	—	—		
	Temperature		60.0				
	Hold Time		240				

Elongase® 2-Step Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	30	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	30	30	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

Elongase® 3-Step Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	30	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	60	30	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		55.0				
	Hold Time		30				
Step 3	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

General PCR Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	95.0	72.0			
	Hold Time	60	15	420			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		55.0	4.0			
	Hold Time		15	Infinite			
Step 3	RampRate	—	6.0	—	—		
	Temperature		72.0				
	Hold Time		30				

Platinium® PFX 2-Step Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	120	15	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

Platinium® PFX 3-Step Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	120	15	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		55.0				
	Hold Time		30				
Step 3	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

Platinium® Taq DNA Polymerase Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	30	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	30	30	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		55.0				
	Hold Time		30				
Step 3	RampRate	—	6.0	—	—		
	Temperature		72.0				
	Hold Time		60				

Platinium® Taq High Fidelity Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	35	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	30	15	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		55.0				
	Hold Time		15				
Step 3	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

Platinium® Taq SuperMix Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	30	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	94.0	4.0			
	Hold Time	30	15	Infinite			
Step 2	RampRate	—	6.0	—	—		
	Temperature		55.0				
	Hold Time		15				
Step 3	RampRate	—	6.0	—	—		
	Temperature		72.0				
	Hold Time		60				

SuperScript® III 1-Step System Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	40	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	60.0	94.0	68.0			
	Hold Time	900	15	300			
Step 2	RampRate	6.0	6.0	6.0	—		
	Temperature	94.0	55.0	4.0			
	Hold Time	120	30	Infinite			
Step 3	RampRate	—	6.0	—	—		
	Temperature		68.0				
	Hold Time		60				

TargetSeq™ Exome Enrichment Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		72	–	–	–	50	105.0
Step 1	RampRate	6.0	–	–	–		
	Temperature	47.0					
	Hold Time	3600					

Time Release Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1	40	1	—	50	105.0
Step 1	RampRate	6.0	6.0	6.0	—		
	Temperature	95.0	95.0	72.0			
	Hold Time	60	15	420			
Step 2	RampRate	—	6.0	6.0	—		
	Temperature		55.0	4.0			
	Hold Time		15	Infinite			
Step 3	RampRate	—	6.0	—	—		
	Temperature		72.0				
	Hold Time		30				

Touchdown PCR Method

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Cycles		20	10	—	—	50	105.0
Step 1	RampRate	6.0	6.0				
	Temperature	94.0	94.0				
	Hold Time	15	15				
Step 2	RampRate	6.0	6.0				
	Temperature	65.0	55.0				

(continued)

Cycle/Step		Stage				Reaction volume (µL)	Cover temp. (°C)
		1	2	3	4		
Step 2	Hold Time	30	30	—	—	50	105.0
	AutoDelta Temperature	-0.5	—				
	AutoDelta Starting Cycle	1	—				

3D

Cycle/Step		Stage				Reaction volume (nL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1x	39x	1x	—	1	70.0
Step 1	RampRate	0.8	1.2	1.2			
	Temperature	96.0	60.0	60.0			
	Hold Time	600	120	120			
Step 2	RampRate	—	0.8	1.2			
	Temperature	—	98.0	10.0			
	Hold Time	—	30	∞			

OpenArray™ Genotyping

Cycle/Step		Stage				Reaction volume (nL)	Cover temp. (°C)
		1	2	3	4		
Cycles		1x	50x	—	—	33	70.0
Step 1	RampRate	1.3	1.3				
	Temperature	94.0	99.0				
	Hold Time	600	30				
Step 2	RampRate	—	1.1				
	Temperature	—	54.0				
	Hold Time	—	21				
Step 3	RampRate	—	0.1				

(continued)

Cycle/Step		Stage				Reaction volume (nL)	Cover temp. (°C)
		1	2	3	4		
Step 3	Temperature	—	57.0	—	—	33	70.0
	Hold Time	—	90				

About the Thermal Cycler Fleet Control Software

The Applied Biosystems™ Thermal Cycler Fleet Control Software (Cat. No. A40070) is used to manage users, methods, run reports, and multiple PCR instruments through a single user interface. The software is compatible with all Applied Biosystems™ Thermal Cyclers. The Thermal Cycler Fleet Control Software can be purchased separately, and is not included with the SimpliAmp™ Thermal Cycler. For more information visit **thermofisher.com**.

Connect the thermal cycler to the network

1. Connect the thermal cycler to your network using an Ethernet cable.
2. Go to **Settings Menu Admin Menu Set IP Address** to set up your thermal cycler network configuration.

G Safety

WARNING! GENERAL SAFETY. Using this product in a manner not specified in the user documentation may result in personal injury or damage to the instrument or device. Ensure that anyone using this product has received instructions in general safety practices for laboratories and the safety information provided in this document.

- Before using an instrument or device, read and understand the safety information provided in the user documentation provided by the manufacturer of the instrument or device.
- Before handling chemicals, read and understand all applicable Safety Data Sheets (SDSs) and use appropriate personal protective equipment (gloves, gowns, eye protection, and so on). To obtain SDSs, see the “Documentation and Support” section in this document.

Symbols on the instrument

Symbols may be found on the instrument to warn against potential hazards or convey important safety information. In this document, the hazard symbol is used along with one of the following user attention words:

- **CAUTION!** – Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
- **WARNING!** – Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
- **DANGER!** – Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

Symbol	English	Français
	Environmental protection symbol of the China RoHS directive. The number in the symbol indicates the "Environment-friendly Use Period" of the product in years. The symbol is used if a substance restricted in China is used in excess of the maximum permitted limit.	Symbole de protection de l'environnement de la directive RoHS de la Chine. Le nombre indiqué dans le symbole indique "période d'utilisation favorable à l'environnement" du produit au cours des années. Le symbole est utilisé si une substance restreinte en Chine est utilisée au-delà de la limite maximale autorisée.

Symbol	English	Français
	Caution, risk of danger Consult the manual for further safety information.	Attention, risque de danger Consulter le manuel pour d’autres renseignements de sécurité.

(continued)

Symbol	English	Français
	Caution, hot surface	Attention, surface chaude
	On	On (marche)
	Off	Off (arrêt)
	Protective conductor terminal (main ground)	Borne de conducteur de protection (mise à la terre principale)
	Do not dispose of this product in unsorted municipal waste **CAUTION!** To minimize negative environmental impact from disposal of electronic waste, do not dispose of electronic waste in unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provision and contact customer service for information about responsible disposal options.	Ne pas éliminer ce produit avec les déchets usuels non soumis au tri sélectif. **MISE EN GARDE !** Pour minimiser les conséquences négatives sur l'environnement à la suite de l'élimination de déchets électroniques, ne pas éliminer ce déchet électronique avec les déchets usuels non soumis au tri sélectif. Se conformer aux ordonnances locales sur les déchets municipaux pour les dispositions d'élimination et communiquer avec le service à la clientèle pour des renseignements sur les options d'élimination responsable.

Safety alerts on this instrument

Additional text may be used with one of the symbols described above when more specific information is needed to avoid exposure to a hazard. See the following table for safety alerts found on the instrument.

English	Français
CAUTION! Hazardous chemicals. Read the Safety Data Sheets (SDSs) before handling.	**MISE EN GARDE ! Produits chimiques dangereux.** Lire les fiches signalétiques (FS) avant de manipuler les produits.
CAUTION! Hazardous waste. Refer to SDS(s) and local regulations for handling and disposal.	**MISE EN GARDE ! Déchets dangereux.** Lire les fiches signalétiques (FS) et la réglementation locale associées à la manipulation et à l'élimination des déchets.

Location of safety labels on this instrument

Figure 34 Location of the safety label on the rear panel of the SimpliAmp™ Thermal Cycler

Figure 35 Location of the safety label on the 96-Well Sample Block

Safety information for instruments not manufactured by Thermo Fisher Scientific

Some of the accessories provided as part of the instrument system are not designed or built by Thermo Fisher Scientific. Consult the manufacturer's documentation for the information needed for the safe use of these products.

Instrument safety

General

CAUTION! Do not remove instrument protective covers. If you remove the protective instrument panels or disable interlock devices, you may be exposed to serious hazards including, but not limited to, severe electrical shock, laser exposure, crushing, or chemical exposure.

Physical injury

CAUTION! Moving Parts. Moving parts can crush, pinch and cut. Keep hands clear of moving parts while operating the instrument. Disconnect power before servicing.

WARNING! Sharp Edges. The edges of this container are sharp.

Electrical safety

WARNING! Ensure appropriate electrical supply. For safe operation of the instrument:

- Plug the system into a properly grounded receptacle with adequate current capacity.
- Ensure the electrical supply is of suitable voltage.
- Never operate the instrument with the ground disconnected. Grounding continuity is required for safe operation of the instrument.

WARNING! Power Supply Line Cords. Use properly configured and approved line cords for the power supply in your facility.

WARNING! Disconnecting Power. To fully disconnect power either detach or unplug the power cord, positioning the instrument such that the power cord is accessible.

Cleaning and decontamination

CAUTION! Cleaning and Decontamination. Use only the cleaning and decontamination methods specified in the manufacturer's user documentation. It is the responsibility of the operator (or other responsible person) to ensure the following requirements are met:

- No decontamination or cleaning agents are used that could cause a HAZARD as a result of a reaction with parts of the equipment or with material contained in the equipment.
- The instrument is properly decontaminated a) if hazardous material is spilled onto or into the equipment, and/or b) prior to having the instrument serviced at your facility or sending the instrument for repair, maintenance, trade-in, disposal, or termination of a loan (decontamination forms may be requested from customer service).
- Before using any cleaning or decontamination methods (except those recommended by the manufacturer), users should confirm with the manufacturer that the proposed method will not damage the equipment.

Safety and electromagnetic compatibility (EMC) standards

The instrument design and manufacture complies with the following standards and requirements for safety and electromagnetic compatibility.

Safety

Reference	Description
EU Directive 2014/35/EU	European Union “Low Voltage Directive”
IEC 61010-1 EN 61010-1 UL 61010-1 CSA C22.2 No. 61010-1	*Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*
IEC 61010-2-010 EN 61010-2-010 UL 61010-1-2-010 CSA C22.2 No. 61010-2-010	*Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-010: Particular requirements for laboratory equipment for the heating of materials*
IEC 61010-2-081 EN 61010-2-081 UL 61010-1-2-081 CSA C22.2 No. 61010-2-081	*Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes*

EMC

Reference	Description
Directive 2014/30/EU	European Union “EMC Directive”
EN 61326-1	*Electrical Equipment for Measurement, Control and Laboratory Use – EMC Requirements – Part 1: General Requirements*
AS/NZS CISPR11	*Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical (ISM) Radiofrequency Equipment*

Environmental design standards

Reference	Description
Directive 2012/19/EU	European Union “WEEE Directive”—Waste electrical and electronic equipment
Directive 2011/65/EU	European Union “RoHS Directive”—Restriction of hazardous substances in electrical and electronic equipment
SJ/T 11364-2014	“China RoHS” Standard—Marking for the Restricted Use of Hazardous Substances in Electronic and Electrical Products For instrument specific certificates, visit our customer resource page at **www.thermofisher.com/us/en/home/technical-resources/rohs-certificates.html**.

Chemical safety

WARNING! GENERAL CHEMICAL HANDLING. To minimize hazards, ensure laboratory personnel read and practice the general safety guidelines for chemical usage, storage, and waste provided below. Consult the relevant SDS for specific precautions and instructions:

- Read and understand the Safety Data Sheets (SDSs) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials. To obtain SDSs, see the “Documentation and Support” section in this document.
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing).
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood).
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer's cleanup procedures as recommended in the SDS.
- Handle chemical wastes in a fume hood.
- Ensure use of primary and secondary waste containers. (A primary waste container holds the immediate waste. A secondary container contains spills or leaks from the primary container. Both containers must be compatible with the waste material and meet federal, state, and local requirements for container storage.)
- After emptying a waste container, seal it with the cap provided.
- Characterize (by analysis if necessary) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure that the waste is stored, transferred, transported, and disposed of according to all local, state/provincial, and/or national regulations.
- **IMPORTANT!** Radioactive or biohazardous materials may require special handling, and disposal limitations may apply.

Biological hazard safety

WARNING! BIOHAZARD. Biological samples such as tissues, body fluids, infectious agents, and blood of humans and other animals have the potential to transmit infectious diseases. Conduct all work in properly equipped facilities with the appropriate safety equipment (for example, physical containment devices). Safety equipment can also include items for personal protection, such as gloves, coats, gowns, shoe covers, boots, respirators, face shields, safety glasses, or goggles. Individuals should be trained according to applicable regulatory and company/ institution requirements before working with potentially biohazardous materials. Follow all applicable local, state/provincial, and/or national regulations. The following references provide general guidelines when handling biological samples in laboratory environment.

- U.S. Department of Health and Human Services, *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, 5th Edition, HHS Publication No. (CDC) 21-1112, Revised December 2009; found at:
  https://www.cdc.gov/labs/pdf/CDC-BiosafetymicrobiologicalBiomedicalLaboratories-2009-P.pdf
- World Health Organization, *Laboratory Biosafety Manual*, 3rd Edition, WHO/CDS/CSR/LYO/2004.11; found at:
  www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf

Documentation and support

Related documentation

The following related documents are shipped with the system:

Document	Publication number	Description
SimpliAmp™ Thermal Cycler Installation and Operation Quick Reference	A24827	Describes the procedures for installing and using the SimpliAmp™ Thermal Cycler that is described in detail in the SimpliAmp™ Thermal Cycler User Guide.
SimpliAmp™ Thermal Cycler System Documentation	A24828	Provides the reference for accessing user documentation from the product website and contact details for service and technical support.
SimpliAmp™ Thermal Cycler Starter Kit Insert	A24829	Lists the samples of consumables, necessary to start the SimpliAmp™ Thermal Cycler, included in the kit and the ordering information for additional consumables.

Note: For additional documentation, see “Customer and technical support” on page 90.

Customer and technical support

Visit **thermofisher.com/support** for the latest service and support information.

- Worldwide contact telephone numbers
- Product support information
  - Product FAQs
  - Software, patches, and updates
  - Training for many applications and instruments
- Order and web support

- Product documentation
  - User guides, manuals, and protocols
  - Certificates of Analysis
  - Safety Data Sheets (SDSs; also known as MSDSs)

  Note: For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

Limited product warranty

Life Technologies Corporation and/or its affiliate(s) warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have any questions, please contact Life Technologies at **www.thermofisher.com/support**.