Veriti™ PCR System Installation and Operation

Pub. No. 4376863   **Rev.** D

Note: For safety and biohazard guidelines, see the "Safety" appendix in the *Veriti™ Thermal Cycler User Guide* (Pub. No. 4375799). Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

Product description

This document summarizes the procedures for installing and using the Veriti™ Thermal Cycler. For detailed instructions, see the *Veriti™ Thermal Cycler User Guide* (Pub. No. 4375799). Information can also be found in the Veriti™ Thermal Cycler Help (accessed by pressing ? in the touchscreen).

Figure 1   Veriti™ Thermal Cycler

Required materials not provided

- Can of compressed air (For use in cleaning wells of sample block).
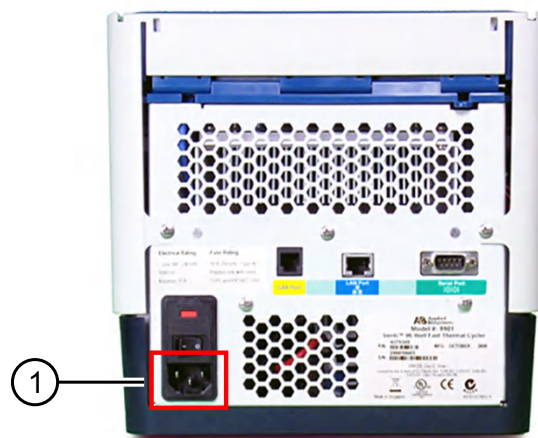- *(Optional)* Electrical protective devices.

  Note: The use of one or more of the following electrical protective devices is recommended.

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

Set up the Veriti™ PCR System

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

1. Open the shipping crate to unpack the instrument. You should receive one box containing the thermal cycler and the accessories.

2. Remove the packaging material, then inspect the instrument for shipping damage.

3. Use compressed air to clear out each well of the sample block to remove particles that may have collected inside during shipping.

4. Place the instrument at an installation site that:

   - Meets the spatial and weight requirements for the thermal cycler (see "System specifications" on page 5).
   - Is within 1 m (3 ft) of a 800-VA power receptacle.

5. Connect the instrument to a power outlet.

   a. Connect the power cord to the instrument.

   ① Power cord port

   b. Install any desired electrical protective devices.

   c. Connect the power cord to an 800-VA power receptacle.

6. Press the power button, then wait for the instrument to start up. Proceed with the installation after the touchscreen displays the Main Menu screen, indicating that the instrument is active.

   When you power on the instrument, the instrument may require a few minutes to start up.

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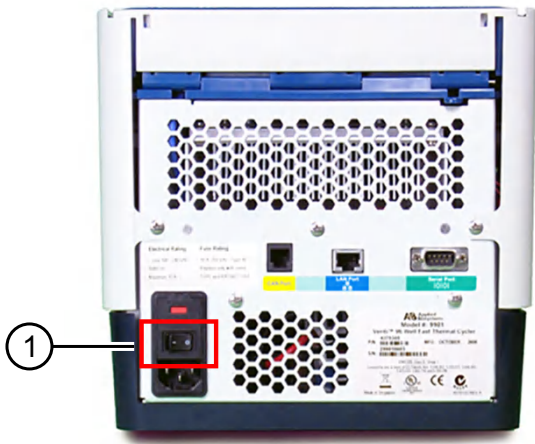
① Power switch

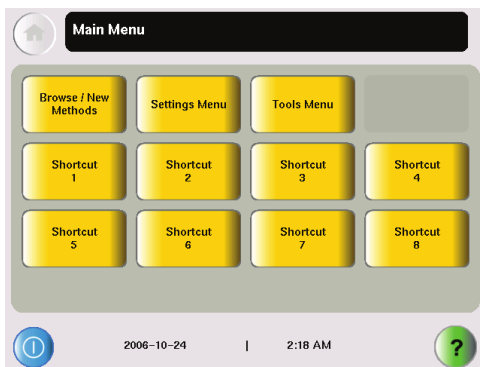The Main Menu screen is displayed upon successful installation.

Figure 2   Veriti™ Main Menu screen

7. Input your IP address from the Admin Menu (see "Interface command maps of the Veriti™ PCR System" on page 3).

Maintenance guidelines

⚠ **CAUTION!** 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.

To ensure proper operation:

- Regularly:
  - Wipe the instrument surfaces with a lint-free cloth.
  - Clean the vents, touchscreen, and sample block of the instrument.
  - Clean the sample wells with 100% isopropanol.
- Use only consumables recommended by Thermo Fisher Scientific for the instrument.
  Use of consumables that are larger or smaller than the specified volume can damage the instrument, contaminate the sample block, and/or decrease the PCR yield (due to inefficient thermal transfer).
- **Do not use sharp objects on the touchscreen.**
  Use only your fingers or blunt objects to enter commands on the instrument touchscreen. Sharp and/or pointed objects such as writing utensils can damage the surface of the touchscreen.
- **Back up frequently.**
  Routinely back up the configurations and files on your instrument to a USB drive. Regular backups protect against data loss caused by user error, power failure, or instrument error. For more information, see the *Veriti™ Thermal Cycler User Guide* (Pub. No. 4375799).

How to ship the instrument for service

If your Veriti™ instrument requires service, decontaminate the Veriti™ instrument and package it for shipping to Thermo Fisher Scientific. See the *Veriti™ Thermal Cycler User Guide* for shipping details.

For decontamination, use bleach solution in moderation. A 10% bleach solution is recommended for removing contamination from the Veriti™ instrument sample block; however, excessive use of the solution can corrode the block material.

Interface command maps of the Veriti™ PCR System

Main Menu
- Browse/New Methods
- My Account§
- Settings Menu
- Shortcuts
- Tools Menu

Settings Menu
- About the Instrument
- Admin Menu‡
- Configure Printer
- Configure Shortcuts
- Manage Folders
- Set Default Method#
- Set Idle Temperatures
- Set Time-outs

Admin Menu‡
- Back Up Methods & Settings
- Manage Users§
- Security
- Set Date & Time
- Set Instrument Name
- Set IP Address
- Upgrade Firmware

Common Buttons/Icons

(Home) Returns to the Main Menu screen.

(Close) Returns to the previous screen.

(Scroll Up/Down) Scrolls the adjacent list up and down.

(Help) Accesses the Help system.

Indicates that the sample block temperature is greater than 50°C.

Tools Menu
- Calculate Tm
- Convert a Method
- Run Cycle Performance Test
- Run Heated Cover Verification
- Run Temperature Verification
- Run TNU Test
- Show Statistics
- View Last Run

‡ Available only to users of the Administrators user group when Require Login is enabled in the Security screen.

§ Available only when Require Login is enabled in the Security screen.

Available only to users of the Administrators and Users user group when Require Login is enabled in the Security screen.

How to use the MicroAmp™ 96-well Tray and Retainer

IMPORTANT! Use the MicroAmp™ 96-well Tray and Retainer to prevent crushing of tubes in the thermal cycler.


When small number of tubes (1–2 tube strips or ≤8–16 tubes are placed in the sample block without support, they can be crushed or deformed when the lid of the thermal cycler is closed over the block. Using the tray and retainer set allows the pressure to be distributed evenly over the tubes and prevents uneven pressure across the block.

Using the tray and retainer set is optional when using ≥3 tube strips or ≥16 tubes that are distributed evenly across the block.

- The **blue** tray and retainer set is compatible for use with MicroAmp™ **single tubes or tube strips** with **separate** cap strips.

- The **blue** tray by itself is compatible for use with MicroAmp™ **tube strips** with **attached** caps.

- The **black** retainer is compatible for use with **single** MicroAmp™ reaction **tubes with attached caps**.

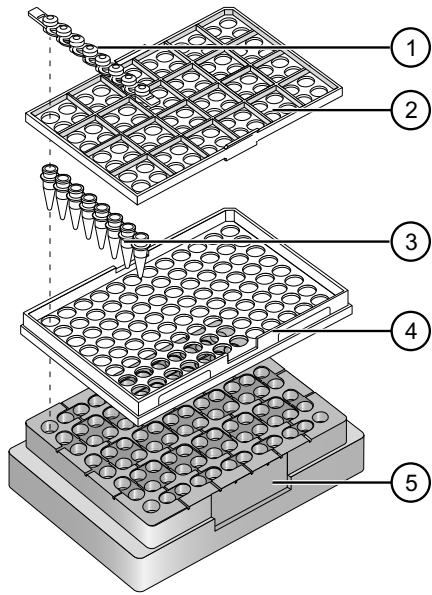## Prepare samples using MicroAmp™ tubes/tube strips with separate cap strips

1. Separate the **blue** tray and retainer by squeezing the release catch as indicated in the graphic.
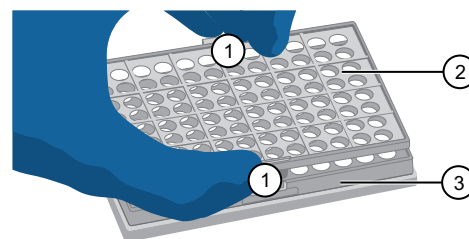
① Release catch
② MicroAmp™ 96-Well Retainer
③ MicroAmp™ 96-Well Tray

2. Place the **blue** tray on the 96-well base.

3. Load the tube strips on the tray.

4. Pipette the reaction mixture into the tubes.

5. Place the **blue** retainer over the tubes and snap the retainer into the tray.

6. Seal the tube strip using a MicroAmp™ cap strip. See "Seal tubes strips with cap strips" on page 5 for instructions.
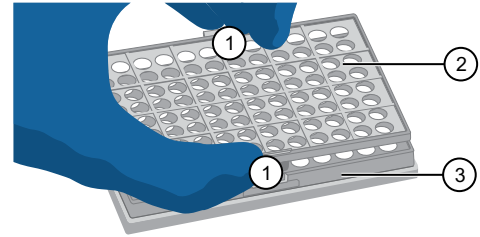
7. Remove the **blue** tray/retainer assembly containing the sealed tube strips from the 96-well base and place the assembly into the instrument.

① MicroAmp™ 8-Cap strip
② MicroAmp™ 96-Well Retainer
③ MicroAmp™ 8-Tube Strip (0.2-mL) or MicroAmp™ Reaction Tube without Cap (0.2-mL)
④ MicroAmp™ 96-Well Tray
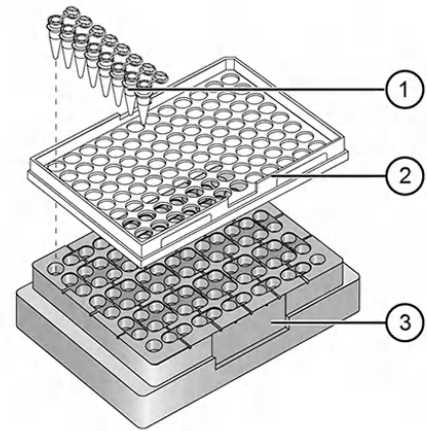⑤ MicroAmp™ Splash Free 96-Well Base

Prepare samples using MicroAmp™ tube strips with attached caps

1. Separate the **blue** tray and retainer by squeezing the release catch as indicated in the graphic.

① Release catch
② MicroAmp™ 96-Well Retainer
③ MicroAmp™ 96-Well Tray

2. Place the **blue** tray on the 96-well base.

3. Load the tube strips on the tray.

4. Pipette the reaction mixture into the tubes.

5. Seal the tube strip using a MicroAmp™ cap strip. See "Seal tubes strips with cap strips" on page 5 for instructions.

6. Remove the **blue** tray containing the sealed tube strips from the 96-well base and place the tray and sealed tube strips into the instrument.

① MicroAmp™ 8-Tube Strip with Attached Caps (0.2-mL)
② MicroAmp™ 96-Well Tray
③ MicroAmp™ Splash Free 96-Well Base

Seal tubes strips with cap strips

IMPORTANT! Apply significant downward pressure on the sealing tool in all steps to form a complete seal on top of the tubes.

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1. Align and place the cap strips on the tubes.

2. Seal the cap strips using the rocking capping tool:
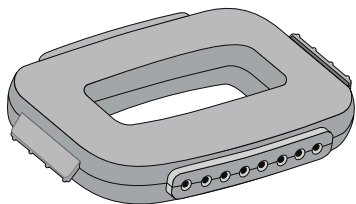
   a. Slip your fingers through the handle with the holes in the tool facing down.
   b. Place the holes in the tool over the first eight caps in a row.
   c. Rock the tool back and forth a few times to seal the caps.
   d. Repeat for remaining caps in the row, then for all remaining rows.

Prepare samples using MicroAmp™ Reaction Tubes

1. Set the **black** tray on a 96-well base.

2. Place the reaction tubes in the **black** tray.
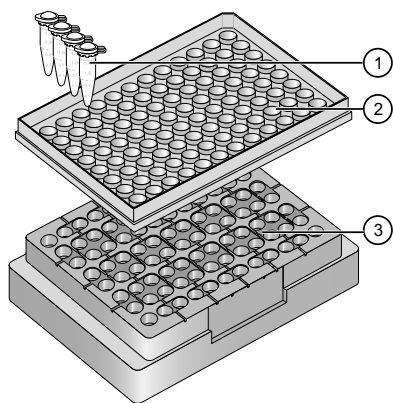
① MicroAmp™ Reaction Tube with Cap (0.2-mL)
② MicroAmp™ 96-Well Tray for VeriFlex™ Blocks
③ MicroAmp™ Splash Free 96-Well Base

3. Pipette the reaction mixture into the reaction tubes.

4. Cap the tubes.

5. Remove the **black** tray with sealed reaction tubes from the 96-well base and place the tray and sealed tubes into the instrument.

System specifications

Dimensions weight and power consumption

Property	Instrument footprint	Recommended clearance	Total
Length	48.5 cm (19.1 in)	15.5 cm [1] (6.1 in)	64 cm (15.2 in)
Width	23.7 cm (9.3 in)	0 cm (0 in)	23.7 cm (9.3 in)
Height[2]	40.0 cm (15.7 in)	15.5 cm [3] (6.1 in)	55.5 cm (21.8 in)
Weight	10.6 kg (22.6 lbs)		
Power consumption	800 VA (Maximum)		
	~260 VA (Average during thermal cycling)		
	~10 VA (During sleep/standby)		

[1] At the rear of the Veriti™ instrument to ensure adequate airflow and cooling.
[2] With heated cover open
[3] Above the Veriti™ instrument to provide adequate space for opening the heated cover.

Temperature and humidity requirements

Condition	Acceptable Range
Temperature	15–30°C (59–86°F)
Humidity	15–80% relative humidity, noncondensing

Note: Avoid placing the instrument adjacent to heaters, cooling ducts or in direct sunlight. Place away from any equipment such as a refrigerator or centrifuge that vibrates.

Power and communication ports

Port	Description
⎓	800 VA power cable port
品	10/100 Fast Ethernet port for connecting to a network
⇂	USB v1.0 port for connecting to an external network drive, jump drive, or other USB storage device
IOIOI	RS232 serial communication port for connecting the probe for the Temperature Verification Kit

Accessory products

Product	Cat. No.
96-well 0.2-mL reaction plates	
MicroAmp™ Optical 96-Well Reaction Plate	N8010560, 4316813
MicroAmp™ Optical 96-Well Reaction Plate with Barcode	4306737, 4326659
MicroAmp™ Optical 96-Well Reaction Plate with Barcode & Optical Caps	403012
MicroAmp™ Optical 96-Well Reaction Plate with Barcode & Optical Adhesive Films	4314320
MicroAmp™ EnduraPlate™ Optical 96-Well Clear Reaction Plates with Barcode	4483354, 4483352
MicroAmp™ TriFlex 3 x 32-Well PCR Reaction Plate	A32810, A32811
96-well 0.1-mL reaction plates	
MicroAmp™ Fast Optical 96-Well Reaction Plate, 0.1 mL	4346907
MicroAmp™ Fast Optical 96-Well Reaction Plate with Barcode, 0.1 mL	4346906, 4366932
MicroAmp™ EnduraPlate™ Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485, 4483494
384-well reaction plates	
MicroAmp™ Optical 384-Well Reaction Plate	4343370
MicroAmp™ Optical 384-Well Reaction Plate with Barcode	4309849, 4326270, 4343814
MicroAmp™ EnduraPlate™ Optical 384-Well Clear Reaction Plates with Barcode	4483285, 4483273
Strip tubes and caps	
MicroAmp™ Fast 8-Tube Strip, 0.1 mL	4358293
MicroAmp™ Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588
MicroAmp™ Optical 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589
MicroAmp™ 8-Tube Strip, 0.2 mL	N8010580
MicroAmp™ Optical 8-Tube Strip, 0.2 mL	4316567
MicroAmp™ 8-Cap Strip, clear	N8010535, N8011535
MicroAmp™ Optical 8-Cap Strips	4323032
MicroAmp™ 12-Cap Strip	N8010534, N8011534
Single Tubes	
MicroAmp™ Fast Reaction Tube with Cap, 0.1 mL	4358297, 4358293
MicroAmp™ Reaction Tube with Cap, 0.2 mL	N8010540, N8011540, N8010612
MicroAmp™ Reaction Tube without Cap, 0.2 mL	N8010533, N8011533
MicroAmp™ Optical Tube without Cap, 0.2 mL	N8010933
Seals and covers	
MicroAmp™ Clear Adhesive Film	4306311
MicroAmp™ Optical Adhesive Film	4360954, 4311971
MicroAmp™ 32-Well Clear Adhesive Film	A32812
Accessories	
MicroAmp™ Splash-Free 96-Well Base	4312063
MicroAmp™ 96-Well Support Base	4379590
MicroAmp™ 96-Well Base	N8010531
MicroAmp™ 96-Well Reaction Tube/Tray/Retainer Set, 0.2 mL	403083, 403086

Veriti™ PCR System Installation and Operation Quick Reference

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 found on Life Technologies' website 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**.

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