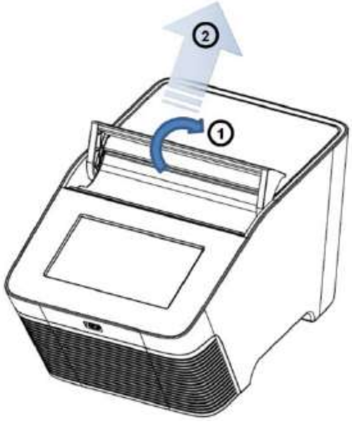
Ver. 2.0, 2020/06/22

# TurboCycler 2 Quick Operation Guide

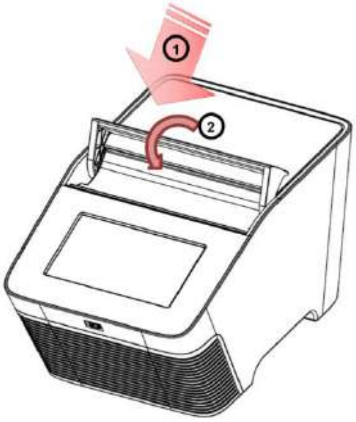
Scan the QR code on page 8 to download the Operation Manual.

## Hardware operation

**1.** To open the lid, pull the handle upward and lift the lid backward to the upright position.



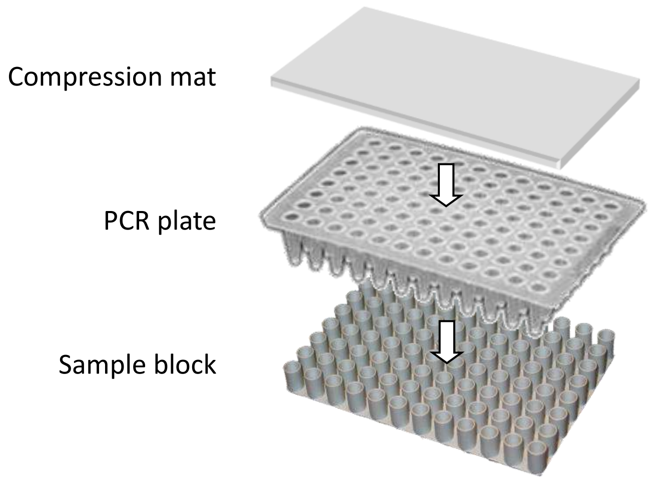
**2.** To close the lid, pull the lid downward and close the handle to the lock position.



**3.** Lid heater setting:

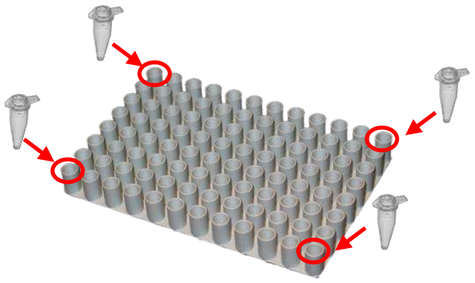
| PCR vessels | Compression mat | Lid heater temperature |
|---|---|---|
| Regular PCR plate, tube-strips and tubes | Not necessary.<br>The 1 mm compression mat can be used to help maintaining the sealing integrity in case the PCR plate has any imperfection on the rim of the well. | 105°C |
| Low profile PCR plate, tube-strips and tubes | The 5.2 mm compression mat must be used to ensure sufficient contact pressure from the heated lid | 120°C |

a. Instruction for applying the compression mat:

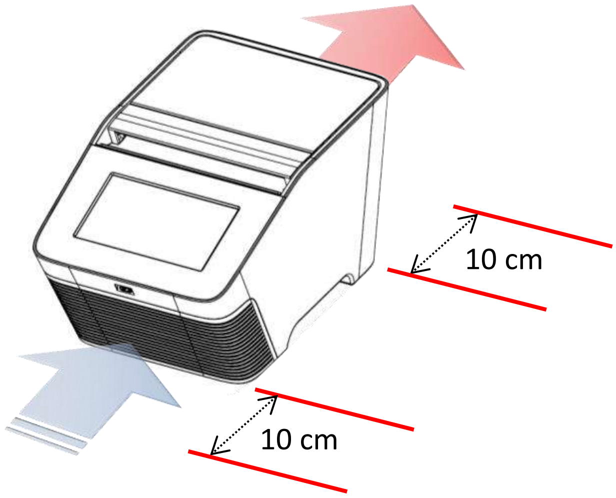


b. For detailed instructions on the lid heater setting, please refer to **section 3.4** of the TurboCycler 2 Operation Manual.

**4.** In order to prevent the deformation of the PCR vessels, and to ensure even distribution of the pressure from the lid, when PCR tubes or tube-strips are used, please load extra empty tubes on the 4 corners of the sample block. Always make sure that all the sample tubes/ tube–strips are distributed evenly on the sample block.



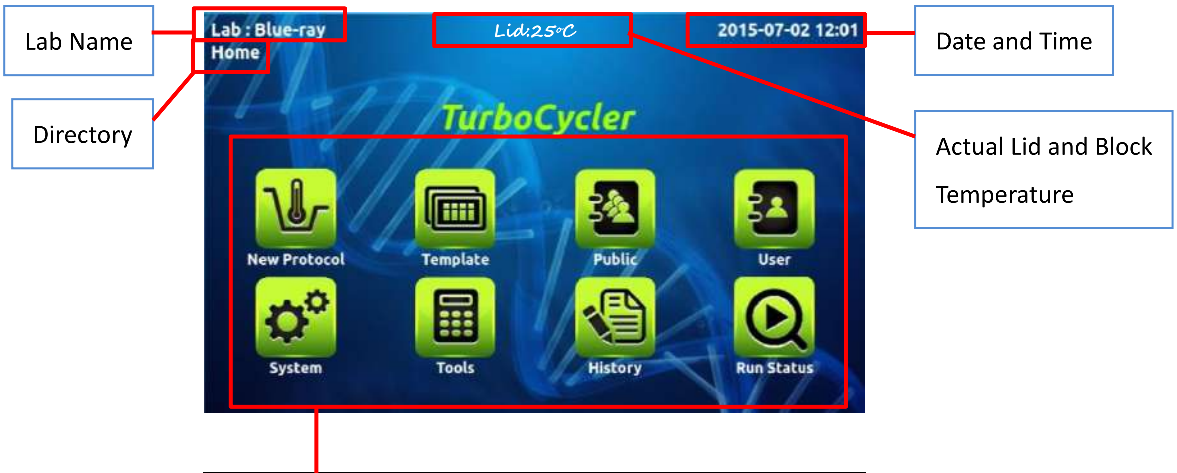
**5.** Ventilation air flow path:



Please make sure there is no obstacle in the air flow path. At least 10 cm of space is required at the front and the back of the instrument.

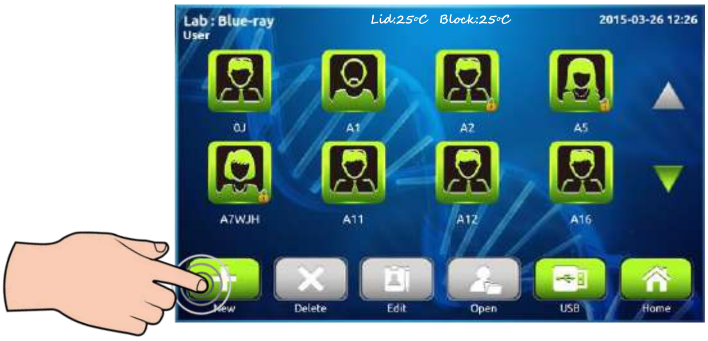
## Software operation

1. **Main Screen:** Tap on the ***“TurboCycler”*** title to log in.


Lab Name
Directory
Lab : Blue-ray
Home
Lid:25°C
2015-07-02 12:01
Date and Time
Actual Lid and Block Temperature
TurboCycler
New Protocol
Template
Public
User
System
Tools
History
Run Status

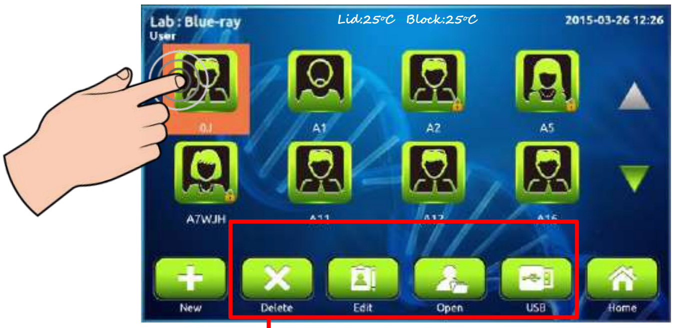
| Main function icons: | |
|---|---|
| | **New Protocol**<br>For new protocol creation and editing |
| | **Template**<br>Built-in protocol template |
| | **Public**<br>Short cut to the Public folder |
| | **User**<br>For user folder management |
| | **System**<br>System setting |
| | **Tools**<br>Built-in assistant tools |
| | **History**<br>Protocol run history logbook |
| | **Run Status**<br>Display the status of the running protocol |

2. **User folder management:**
   a. On the main screen, tap on to enter the user folder management section.
   b. Tap on + to create a new user folder.


Lab : Blue-ray
User
Lid:25°C Block:25°C
2015-03-26 12:26
OJ
A1
A2
A5
A7WJH
A11
A12
A16
New
Delete
Edit
Open
USB
Home

Input the folder name and password (optional). Tap the user icon to toggle to the icon you want to use for the new folder.

c. To modify an existing user folder, tap on the icon to select the folder. The selected folder's icon will be highlighted.

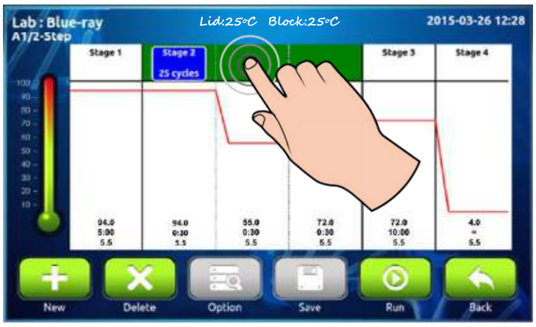

Lab : Blue-ray
User
Lid:25°C Block:25°C
2015-03-26 12:26
0J
A1
A2
A5
A7WJH
A11
A12
A16
New
Delete
Edit
Open
USB
Home

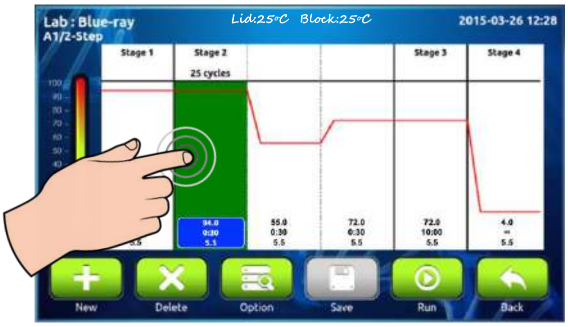
| Icons for user folder editing | |
|---|---|
| ✕ | Delete the selected folder |
| ✎ | Modify the name and password |
| 👤 | Open the folder |
| 🔌 | Open the USB flash drive |

**3. To create a new protocol:**

a. On the main screen, tap on 🌡 to create a new protocol.

b. To select the **Stage** / **Step**, tap on the stage header or the step segment. The selected area will be highlighted.

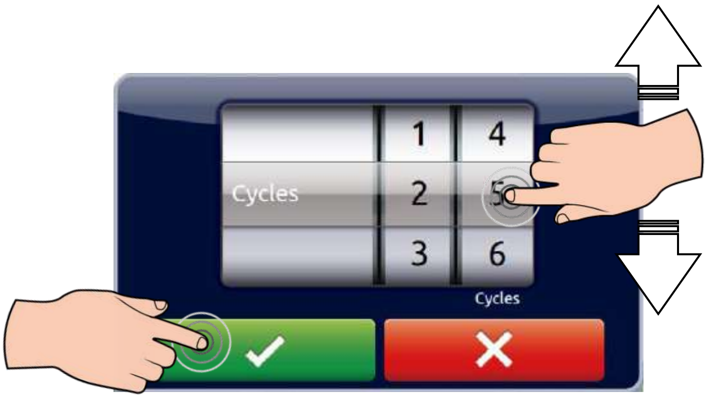

Lab : Blue-ray
A1/2-Step
Lid:25°C Block:25°C
2015-03-26 12:28
Stage 1
Stage 2
25 cycles
Stage 3
Stage 4
94.0
5:00
5.5
94.0
0:30
5.5
55.0
0:30
5.5
72.0
0:30
5.5
72.0
10:00
5.5
4.0
∞
5.5
New
Delete
Option
Save
Run
Back


Lab : Blue-ray
A1/2-Step
Lid:25°C Block:25°C
2015-03-26 12:28
Stage 1
Stage 2
25 cycles
Stage 3
Stage 4
94.0
0:30
5.5
55.0
0:30
5.5
72.0
0:30
5.5
72.0
10:00
5.5
4.0
∞
5.5
New
Delete
Option
Save
Run
Back

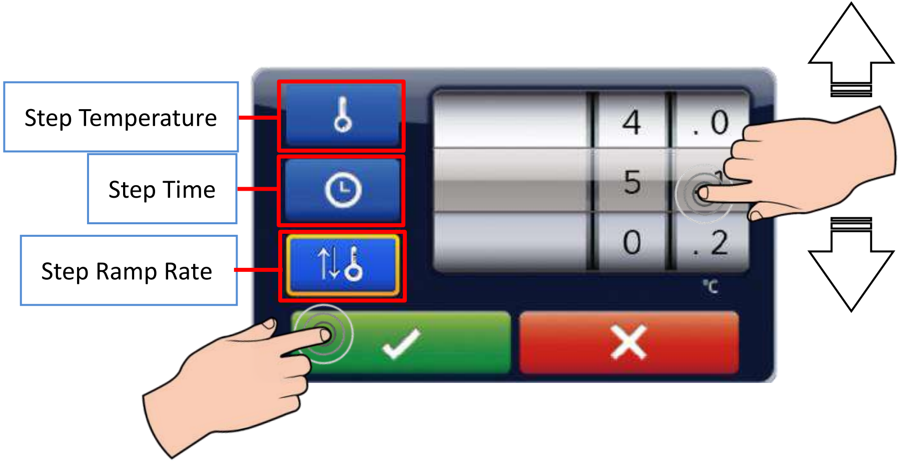
c. Tap on + to duplicate the **Stage** / **Step**.

d. Tap on ✕ to delete the **Stage** / **Step**.

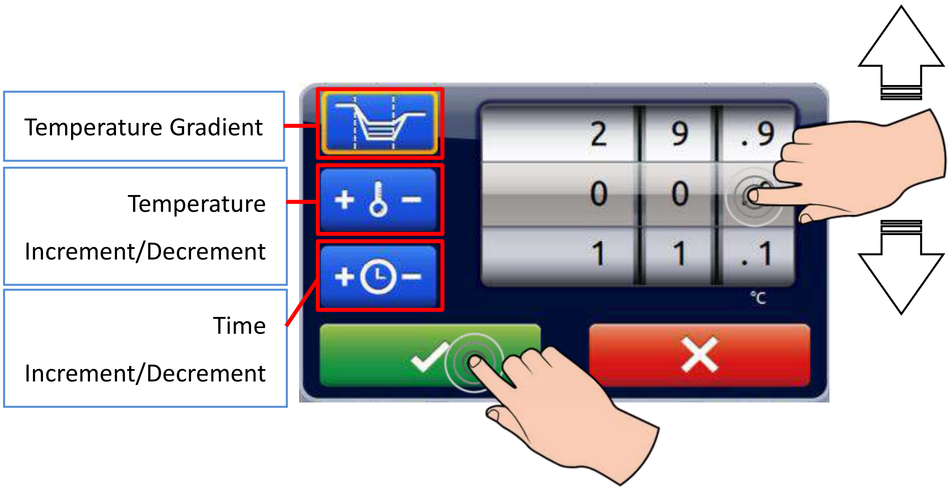
e. Tap on Stage 2 20 cycles in the **Stage** header to modify the cycle number of the stage.


Cycles
1
2
3
4
5
6
Cycles

f. Tap on 55.0 0:30 5.5 in the **Step** to modify the step temperature, time or ramp rate.


Step Temperature
Step Time
Step Ramp Rate
4
5
0
.0
.1
.2
℃

g. Tap on the icon to set the optional Gradient, Temperature increment/decrement per cycle or the Time increment/decrement per cycle for the selected step.

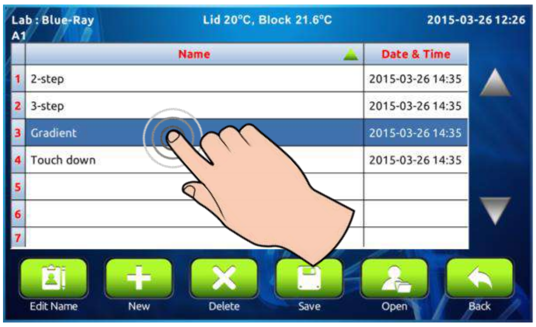

Temperature Gradient
Temperature Increment/Decrement
Time Increment/Decrement
2
0
1
9
0
1
.9
.0
.1
℃

h. Tap on 💾 to save the protocol. Input the protocol name and tap on “**OK**”, then you’ll be brought to the user folder selection screen. Tap on the user folder icon to select the folder, and then tap on 💾 to save to the folder. Alternatively, you can tap on 🔌 to save the protocol to the USB flash drive.

### 4. To edit an existing protocol:

a. Please refer to the step c. in “**Section 2. User folder management**” to open the folder.

b. Tap to select the protocol.



Lab : Blue-Ray
A1
Lid 20°C, Block 21.6°C
2015-03-26 12:26

|  | Name | Date & Time |
|---|---|---|
| 1 | 2-step | 2015-03-26 14:35 |
| 2 | 3-step | 2015-03-26 14:35 |
| 3 | Gradient | 2015-03-26 14:35 |
| 4 | Touch down | 2015-03-26 14:35 |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |

Edit Name
New
Delete
Save
Open
Back

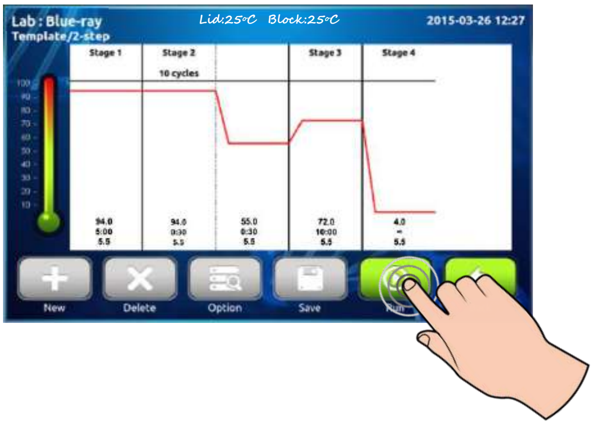
Tap on 👤 to open the protocol.

c. Follow the instructions of step b. to h. in “**Section 3. To create a new protocol**” to edit and save the protocol.

### 5. To run an existing protocol:

a. Follow the instructions of step a. and b. in “**Section 4. To edit an existing protocol**” to open the protocol.

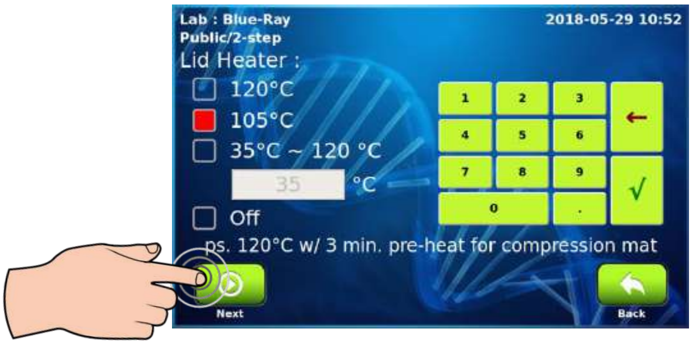
b. Tap on ▶ to initiate the run.



Lab : Blue-ray
Template/2-step
Lid:25°C Block:25°C
2015-03-26 12:27

Stage 1
Stage 2
10 cycles
Stage 3
Stage 4
100
90
80
70
60
50
40
30
20
10
94.0
5:00
5.5
94.0
0:30
5.5
55.0
0:30
5.5
72.0
10:00
5.5
4.0
∞
5.5
New
Delete
Option
Save
Run

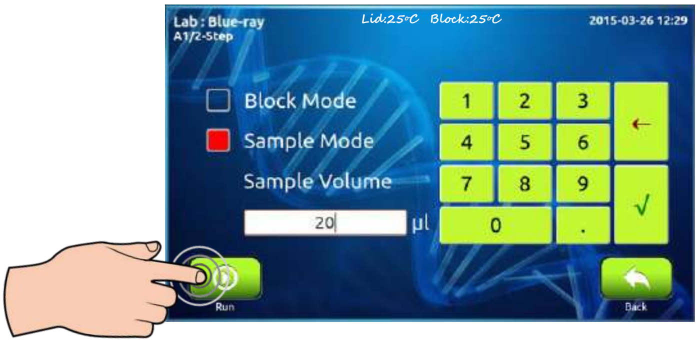
c. Specify the lid heater temperature.



Lab : Blue-Ray
Public/2-step
2018-05-29 10:52

Lid Heater :
☐ 120°C
☒ 105°C
☐ 35°C ~ 120 °C
35 °C
☐ Off
ps. 120°C w/ 3 min. pre-heat for compression mat

d. Specify the mode you want to use to run the protocol. Key in the sample volume if you select the “**Sample Mode**”. Tap on ▶ to start the run.



Lab : Blue-ray
A1/2-Step
Lid:25°C Block:25°C
2015-03-26 12:29

☐ Block Mode
☒ Sample Mode
Sample Volume
20 µl

## 6. Tools:

| Icon | Function | Description |
|---|---|---|
| Tm | **Tm Calculator** | Calculate the Tm for the input primer |
| ♨ | **Incubation** | Use the TurboCycler as an incubator |
|  | **Copy Number Convertor** | Convert the DNA concentration into copy number |
|  | **Mastermix Preparation Wizard** | Calculate the volume of the reagents needed to make the mastermix |
| ? | **Help** | Display the quick operation guide |

## 7. System:

| Icon | Function | Description |
|---|---|---|
| ☀ | **Brightness** | Adjust the LCD screen brightness |
| 🔊 | **Beep Sound** | Turn on/off the system buzzer |
| 🕒 | **Time & Date** | Set the system time and date |
| 📶 | **Wi-Fi** | Change the Wi-Fi related setting |
| 👤 | **Administration** | System Administration |
| ⚒ | **Service Mode** | Enter system service mode |

## Note:

1. The content of this document is subject to change without prior notice. Please visit Blue-Ray Biotech's website at www.blue-raybio.com for update information.
2. If you have any questions about the operation of the TurboCycler, please contact sales@blue-raybio.com for assistance.
3. Sacn the QR code to access the product website and the operation manual.

Product Website
Operation Manual