

Register your instrument!
www.eppendorf.com/myeppendorf



Temperature control systems Eppendorf ThermoStat C

Operating Manual

Copyright © 2025 Eppendorf SE, Germany. All rights reserved, including graphics and images. No part of this publication may be reproduced without the prior permission of the copyright owner.

Eppendorf® and the Eppendorf Brand Design are registered trademarks of Eppendorf SE, Germany.

Eppendorf trademarks and trademarks of third parties may appear in this manual. All trademarks are the property of their respective owners. The respective trademark name, representations and listed owners can be found on www.eppendorf.com/ip.

U.S. Patents and U.S. Design Patents are listed on www.eppendorf.com/ip.

Table of contents

1	About this manual.	6
1.1	Notes on this manual.	6
1.2	Warning notice structure.	6
1.3	Graphics.	6
1.4	Other applicable documents.	7
1.5	Certificates.	7
2	Safety.	8
2.1	Intended use.	8
2.2	Residual risks when used as intended.	8
2.2.1	Personal injury.	8
2.2.2	Material damage.	9
2.3	Application limits.	10
2.4	Target groups.	10
2.5	Information for the owner.	11
2.6	Personal protective equipment.	11
2.7	Information on product liability.	12
2.8	Information on the device.	12
3	Product description.	13
3.1	Features.	13
3.2	Product overview.	14
3.3	Control panel.	15
3.3.1	Operating controls.	15
3.3.2	Operating controls.	15
3.3.3	Display.	16
3.3.4	Symbols.	17
3.3.5	Menu structure.	17
3.4	Accessories.	19
4	Functions.	21
5	Installation.	22
5.1	Preparing installation.	22
5.1.1	Checking connection requirements.	22
5.1.2	Checking the location.	22
5.1.3	Checking the delivery and packing.	23
5.1.4	Unpacking the device.	23
5.1.5	Checking the delivery condition.	24
5.1.6	Checking the delivery package.	24
5.2	Performing the installation.	24
5.2.1	Setting up the device.	24
5.2.2	Connecting the device to the power supply.	24

6	Operation	26
6.1	Preparing the device for the application	26
6.1.1	Switching on the device	26
6.1.2	Setting the language	26
6.1.3	Adjusting the contrast	26
6.1.4	Adjusting the volume	26
6.2	Applications	27
6.2.1	Inserting the adapter for conical vessels	27
6.2.2	Removing the adapter for conical vessels	28
6.2.3	Tempering the thermoblock	28
6.2.4	Tempering with a time setting	28
6.2.5	Tempering with <i>Temp Control</i> or <i>Time Control</i>	29
6.2.6	Tempering in continuous run mode	29
6.2.7	Pausing time counting	30
6.2.8	Programs	31
6.2.9	Creating a program	31
6.2.10	Reducing ramp rates	32
6.2.11	Loading a saved program	33
6.2.12	Editing a program	34
6.2.13	Deleting a program	35
6.3	Advanced settings	35
6.3.1	Adjusting the contrast	35
6.3.2	Adjusting the volume	35
6.3.3	Activating the key lock	36
6.3.4	Deactivating the key lock	36
7	Maintenance	37
7.1	Maintenance plan	37
7.2	Maintenance	37
7.2.1	Setting the service interval	37
7.2.2	Updating the software	37
7.2.3	Validating temperature control	38
7.3	Cleaning	38
7.3.1	Cleaning the device	38
7.3.2	Disinfecting the device	39
8	Troubleshooting	40
8.1	Error messages	40
8.2	General errors	40
9	Shut down	42
9.1	Switching off the device	42
10	Transport	43
10.1	Preparing the device for transport	43
10.2	Shipping the device	43

11 Disposal	44
11.1 Legal regulations	44
11.2 Preparing for disposal	46
11.3 Handing over the device to the disposal company	46
12 Technical data	47
12.1 Dimensions	47
12.2 Weight	47
12.3 Power supply	47
12.4 Ambient conditions	48
12.5 Electromagnetic compatibility	49
12.6 Interfaces	49
12.7 Noise level	49
12.8 Application parameters	49
12.9 Thermoblocks	50

1 About this manual

1.1 Notes on this manual

The dates in this manual correspond to the international date format as specified in the ISO 8601 standard. All dates are shown in the format YYYY-MM-DD or YYYY-MM.

1. Read this manual completely before using the product.
2. Please ensure that you have the manual available while using the product.



The current version of the manual can be found at www.eppendorf.com/manuals.

- Contact Eppendorf SE to obtain another version of the manual.

1.2 Warning notice structure



HAZARD LEVEL! Type of danger

Source of danger

Consequences of disregarding the danger

- Measures to avoid the danger

Symbol	Hazard level	Type of danger	Meaning
	DANGER	Personal injury	Will lead to severe injuries or death.
	WARNING	Personal injury	May lead to severe injury or death.
	CAUTION	Personal injury	May lead to minor or moderate injuries.
	NOTE	Material damage	May lead to material damage.

1.3 Graphics

Depiction	Meaning
1.	Work steps
2.	
•	Bullet point

Depiction	Meaning
<i>Text</i>	Display text
Key	Name for port, button, status lamp, or key
	Important information
	Tip

1.4 Other applicable documents

The following documents supplement this manual:

- Manuals for accessories and consumables

1.5 Certificates

Declarations of conformity, certificates, Safety Data Sheets, etc. for the product can be found on the respective product page at www.eppendorf.com. This also applies to the China RoHS (Restriction of Hazardous Substances) regulation.

2 Safety

2.1 Intended use

The Eppendorf ThermoStat C is used for tempering liquids in sealed reaction tubes or plates for sample preparation and processing.

This device is intended for general laboratory use and may only be operated by persons trained in laboratory techniques and procedures.

2.2 Residual risks when used as intended

If the product is not used as intended, the installed safety devices may not function correctly. To reduce the risk of personal injury and material damage and to avoid dangerous situations, please observe the general safety instructions.

2.2.1 Personal injury

2.2.1.1 Biological hazards

Pathogenic biological agents can harm your health and the environment.

- Observe national regulations and the biosafety level of your laboratory.
- Wear your personal protective equipment.
- Observe the Safety Data Sheets and instructions for use for the accessories.
- For information on handling germs or biological material of risk group II or higher, read the "Laboratory Biosafety Manual" (source: World Health Organization, Laboratory Biosafety Manual, in the current version).

Escaping substances can harm your health.

- Use only sealed and stable vessels and plates.
- When working with hazardous, toxic, and pathogenic samples, comply with nationally prescribed safety regulations. Observe the biosafety level of the laboratory.
- Use your personal protective equipment (gloves, clothing, goggles, etc.).
- If necessary, use a workstation with air extraction.

2.2.1.2 Explosion hazards

The use of explosive substances or substances with violent reactions may cause explosions. Do not operate the device under the following conditions:

- In an explosive atmosphere
- In areas where work with explosive substances is carried out
- With explosive substances or substances with violent reactions
- With substances that may, combined with a reactant or without such reactant, form an explosive atmosphere

2.2.1.3 Electrical hazards

If liquids get inside the device, users may suffer an electric shock. A potentially fatal electric shock causes arrhythmia and respiratory paralysis or severe burns.

- Switch off the device and disconnect it from the mains before starting any cleaning or disinfection work.
- Do not connect the device to the mains/power line unless both the inside and outside of the device are completely dry.

Touching parts that carry high voltage can cause an electric shock. A life-threatening electric shock can cause cardiac arrhythmia, burns and respiratory paralysis.

- Only use earth/grounded sockets with a protective earth (PE) conductor.
- Ensure that a residual current circuit breaker is present and accessible.
- Ensure that the housing and mains/power cord are not damaged.
- In case of danger, disconnect the device from the mains/power line.
- Do not open or remove the housing.
- Compare the technical data of the mains/power cord and the mains/power plug with the technical data on the name plate, taking into account national laws and regulations. This also includes legally required test seals. Use only approved mains/power cords with plugs.
- Make sure that the mains/power plug and earth/grounded socket match and that the electrical PE conductors of the device and the building installation are securely connected to each other.
- Only clean and maintain the device when it is disconnected from the mains/power line.
- Have the device regularly checked for electrical safety in accordance with national requirements.

2.2.1.4 Thermal hazards

The thermoblock can be very hot after heating and cause burns.

- Avoid direct contact with a heated thermoblock.

2.2.2 Material damage

2.2.2.1 Sample loss

In the following cases, the closures of reaction vessels or plates may open and sample material may escape:

- High vapor pressure of the contents
- Inadequately sealed lid

- Damaged sealing lip
- Inadequately secured film

Always check that consumables are securely sealed before use.

2.2.2.2 General hazards

The use of accessories and spare parts other than those recommended by Eppendorf SE may impair the safety, functioning, and precision of the device. Eppendorf SE cannot be held liable or accept any liability for damage resulting from the use of accessories and spare parts other than those recommended.

- Only use the accessories and spare parts recommended by Eppendorf SE.
- Only use accessories and spare parts that are in perfect technical condition.

2.2.2.3 Mechanical hazards

The display can be damaged by mechanical pressure.

- Do not apply any mechanical pressure to the display.

2.2.2.4 Thermal hazards

The device can be damaged by overheating.

- Do not place the device near heat sources (e.g., heater, drying cabinet).
- Do not expose the device to direct sunlight.
- Ensure unobstructed air circulation. Maintain a clearance of at least 10 cm around all ventilation gaps.

2.3 Application limits

Due to its design, the product is not suitable for use in a potentially explosive atmosphere.

The product may only be used in a safe environment, such as a ventilated laboratory or under a fume hood. Substances which may potentially contribute to an explosive atmosphere may not be used.

2.4 Target groups

This manual is intended for the following target groups, who have different qualifications and levels of knowledge.

Owner

The owner is any natural or legal person who operates or owns the device.

The owner provides the product and the necessary infrastructure. The owner has a special responsibility to ensure the safety of all persons working on the product.

User

The user operates the product and works with it. The user must be instructed in the use of the product. The user must have read and fully understood the manual.

Any tasks that go beyond operation may only be performed by the user if this is specified in this manual. The owner must explicitly assign these tasks to the user.

Technical personnel

The technical personnel supervises the building services and ensures the technical pre-requisites for the operation of the product.

Authorized service technician

The authorized service technician is trained and certified by Eppendorf SE to service, maintain and repair the product.

2.5 Information for the owner

The owner must ensure the following:

- The product is in a safe operating condition.
- The safety devices are all available and functional.
- The product is serviced and cleaned according to the information in this manual.
- The product is disposed of in accordance with local regulations.
- All work on the product is carried out by users, technical personnel, or authorized service technicians who are suitably qualified.
- Personal protective equipment is available and is worn.
- The manual is available during the use of the product.
- The manual is part of the product. Use the following link to download the current version of the manual: <https://www.eppendorf.link/documents>. For a printed or older version of the manual for your product, please contact your Eppendorf partner.

2.6 Personal protective equipment

Personal protective equipment serves to ensure the safety and protection of the user when working with the product.

Personal protective equipment must comply with country-specific regulations and the regulations of the laboratory.

2.7 Information on product liability

The owner of the device will be held liable for personal and material damage in the following cases:

- The device is used outside of its intended use
- The device is not used in accordance with the operating manual
- Manipulation of safety devices
- The device has spare parts installed that are not authorized by Eppendorf SE
- The device is used with accessories or consumables that are not recommended by Eppendorf SE
- Cleaning agents are used that are not recommended by Eppendorf SE
- Chemicals are used that are not recommended by Eppendorf SE
- Shipment not in original packing or in improper substitute packing
- The device is maintained or repaired by persons not authorized by Eppendorf SE
- Unauthorized modifications

2.8 Information on the device

Informa- tion	Meaning	Location
	WARNING Observe the safety-relevant informa- tion in the operating manual.	Rear of the device On the thermoblock
	WARNING Risk of burns on hot surfaces after heating the thermoblock	On the heating/cooling plate

3 Product description

3.1 Features

The device enables effective tempering of liquids.

The thermoblocks can be replaced quickly and easily without tools. The thermoblocks can be used with the following laboratory vessels:

- Reaction tubes with volumes from 0.2 mL to 5.0 mL
- Conical tubes with volumes from 15 mL to 50 mL
- Microplates and deepwell plates with any bottom contour
- PCR plates in 96-well and 384-well formats
- Tubes with diameters from 11.0 mm to 11.9 mm
- Cryogenic tubes with volumes from 1.5 mL to 2 mL, flat bottom

Tempering

- **Pause time counting:** If you want to add reagents or replace vessels during tempering, you can pause time counting without interrupting the temperature control procedure.
- **Multi-step tempering:** In addition to a simple temperature control run, you can freely program programs with up to 4 consecutive steps (Steps). The temperature and duration of each step can be freely selected. The program steps run automatically one after the other.
- A total of 15 program slots are available.
- The 5 most common temperatures (4 °C, 16 °C, 37 °C, 56 °C, 95 °C) can be selected directly.

Lid and Eppendorf ThermoTop

- The lid ensures uniform temperature control and protects the samples from unwanted light exposure.
- The Eppendorf ThermoTop prevents the formation of condensate on the tube inner wall or tube lid thanks to **condens.protect®** technology.

SmartExtender

The SmartExtender heats laboratory vessels, independently of the Eppendorf Smart-Block, in a second temperature zone.

Product description

Eppendorf ThermoStat C
English (EN)

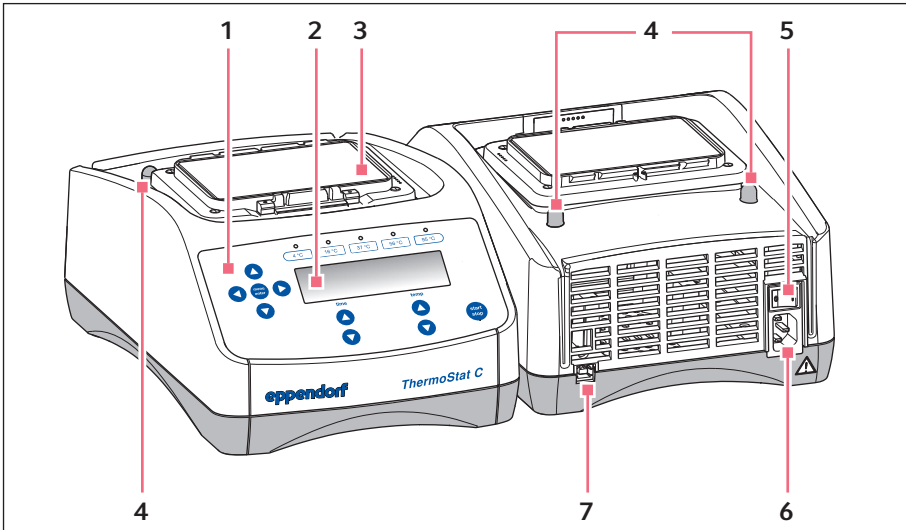
3.2 Product overview

Fig. 3-1: Eppendorf ThermoStat C

- | | | | |
|---|-----------------------|---|---|
| 1 | Operating controls | 5 | Power switch |
| 2 | Display | 6 | Power cord socket |
| 3 | Heating/cooling plate | 7 | USB interface (for software updates and authorized service) |
| 4 | Spigots | | |

3.3 Control panel

3.3.1 Operating controls

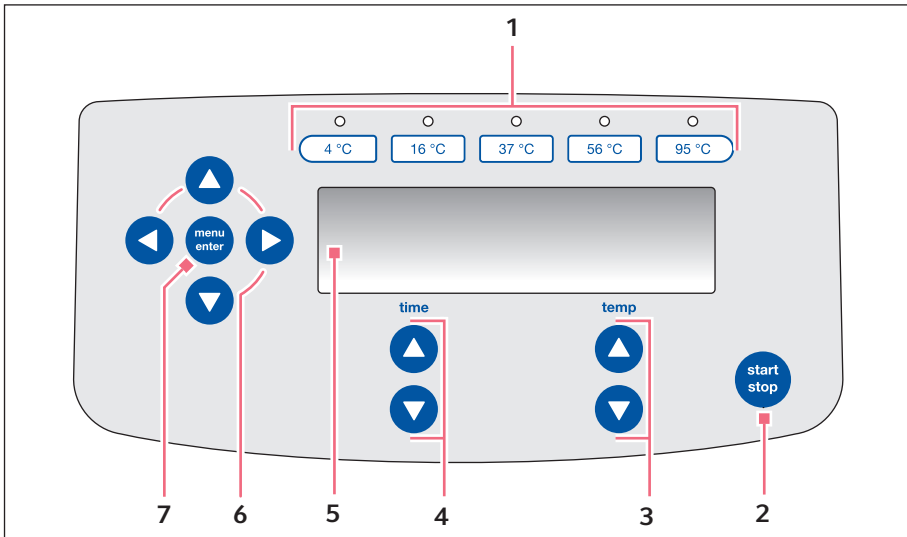


Fig. 3-2: Operating controls of the Eppendorf ThermoStat C

- | | |
|--------------------------------------|-------------------------|
| 1 Temperature keys with control LEDs | 5 Display |
| 2 start/stop softkey | 6 Menu arrow keys |
| 3 temp arrow keys | 7 menu enter key |
| 4 time arrow keys | |

3.3.2 Operating controls

Operating control	Function
	Call up functions Execute the displayed function Confirm the <i>Back</i> function to navigate to the higher menu level
	Directly select the temperature keys for temperature control

Operating control	Function
	Start and stop tempering
	Navigate in the software
	Change values for temperature and temperature control duration

3.3.3 Display

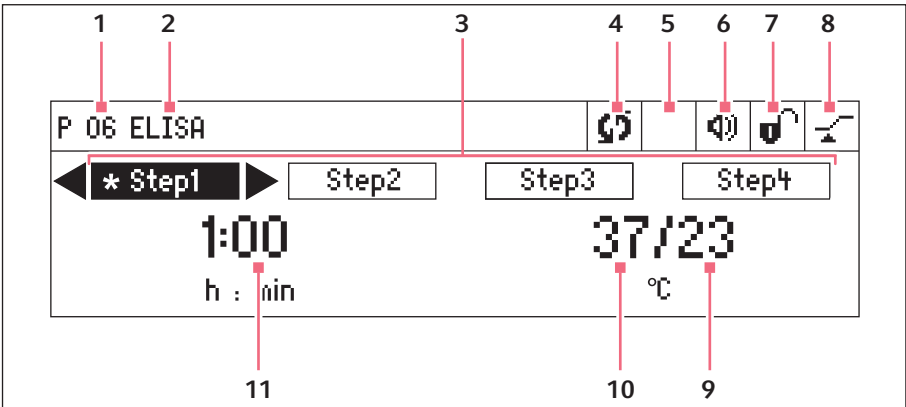


Fig. 3-3: Display overview

- | | | | |
|---|--|----|---|
| 1 | Program number | 7 | Key lock |
| 2 | Program name | 8 | Time mode |
| 3 | Program steps (Step 1 to Step 4) *: current Step | 9 | Actual temperature |
| 4 | Device status | 10 | Set temperature When the set temperature is reached, only one value is displayed. |
| 5 | Accessories used | 11 | Temperature control duration |
| 6 | Speaker | | |

3.3.4 Symbols

Symbol	Description
	The key lock is activated.
	The key lock is deactivated.
	The ThermoTop is attached.
	The SmartExtender is attached.
	<i>Time Control</i> : time counting starts immediately.
	<i>Temp Control</i> : time counting starts when the set temperature is reached.
	The device is running a program.
II	Time counting paused
	The signal tone is activated.
	The signal tone is deactivated.

3.3.5 Menu structure

Menu level 1	Menu level 2	Menu level 3	Menu level 4
<i>Back</i>			
<i>Exit program</i> (if loaded)			
<i>Eppendorf SmartBlock</i>			
	<i>Back</i>		
	<i>Programs</i>		
		<i>Back</i>	
		<i>P 01 --</i>	
			<i>Back</i>
			<i>Load</i>
			<i>Edit</i>

Menu level 1	Menu level 2	Menu level 3	Menu level 4
			<i>Delete</i>
		...	
		<i>P 15--</i>	
	<i>Time Mode</i>		
		<i>Back</i>	
		<i>Time Control</i>	
		<i>Temp Control</i>	
<i>SmartExtender (if attached)</i>			
<i>Key lock</i>			
	<i>Back</i>		
	<i>Key lock on</i>		
	<i>Key lock off</i>		
<i>Settings</i>			
	<i>Back</i>		
	<i>Signal tones</i>		
		<i>Back</i>	
		<i>Volume</i>	<i>0%</i>
			<i>20%</i>
			<i>40%</i>
			<i>60%</i>
			<i>80%</i>
			<i>100%</i>
		<i>Repetitions</i>	<i>1 x</i>
			<i>5 x</i>
			<i>10 x</i>
			<i>Unlimited</i>
	<i>Contrast</i>		

Menu level 1	Menu level 2	Menu level 3	Menu level 4
		<i>Back</i>	
		<i>Contrast</i>	
			0 % 25 % 50 % 75 % 100 %
	<i>Language</i>		
		<i>Back</i>	
		<i>English</i>	
		<i>German</i>	
		<i>French</i>	
		<i>Italian</i>	
		<i>Spanish</i>	
	<i>Service</i>		
		<i>Back</i>	
		<i>No notification</i>	
		<i>After 500 operating hours</i>	
		<i>After 1000 operating hours</i>	
		<i>After 2000 operating hours</i>	

3.4 Accessories

Lid

The Lid ensures uniform temperature control and protects samples from unwanted light exposure.

Product description

Eppendorf ThermoStat C
English (EN)

ThermoTop

The ThermoTop prevents the formation of condensate on the vessel inner wall or vessel lid thanks to **condens.protect®** technology.

SmartExtender

The SmartExtender heats laboratory vessels, independently of the Eppendorf Smart-Block, in a second temperature zone.

4 Functions

Height sensor

In combination with the Eppendorf SmartBlock plates, the height sensor automatically distinguishes between deepwell plates and microplates.

***condens.protect* technology**

This process prevents the formation of condensate on the tube inner wall or tube lid when using the Eppendorf ThermoTop.

Tempering

The 5 most common temperature parameters are predefined for temperature control and can be selected directly using the temperature keys.

Peltier cooling

- Peltier cooling allows samples to be cooled to 30 °C below ambient temperature.
- The temperature range is adjustable from -10 °C to 110 °C.

5 Installation

5.1 Preparing installation

5.1.1 Checking connection requirements

All prerequisites must be met before the device can be installed and put into operation.

Checking the electrical connections



DANGER! Electric shock

If the PE conductor connection is missing, you may receive an electric shock. An electric shock causes cardiac injuries and respiratory paralysis.

- Make sure that the mains/power plug and earth/grounded socket match and that the electrical PE conductors of the device and the building installation are securely connected to each other.



Do **not** use multiple earth/grounded sockets.

1. Check that the electrical connection meets the following conditions:
 - The power connection complies with the requirements on the name plate.
 - An earth/grounded socket with a PE conductor is available.
 - The earth/grounded socket can be reached with the power cord. Distribution boxes or extension cables must not be used.
 - The earth/grounded socket is always freely accessible.
 - A residual current circuit breaker is present and accessible.
 - The power plug on the device or the earth/grounded socket is accessible at all times during operation so that the device can be properly disconnected from the power line.
2. Connect the power cord of each device directly to an earth/grounded socket.

5.1.2 Checking the location

All requirements must be met before the device can be installed and put into operation.

1. Check that the location meets the following conditions:
 - Ambient conditions as specified in *Chapter 12 "Technical data" on page 47*
 - Resonance-free bench with a horizontal, level, and non-slip work surface
 - Footprint designed to support the weight of the device
 - Good ventilation, no obstructions within 30 cm of the ventilation gaps
 - The power switch and disconnecting device of the power system circuit are accessible
 - Ergonomic height of the footprint
 - The room has access control according to the biosafety level of the device.
2. Check that the location is protected from the following influences:
 - Heat sources
 - Sparks
 - Open flames
 - Direct sunlight
 - UV radiation
 - Strong electromagnetic radiation
 - Humidity

5.1.3 Checking the delivery and packing

1. Check whether the packages indicated on the delivery note match the packages actually delivered.
2. Check the packing for transport damage.
3. Report any visible damage to your Eppendorf partner.

5.1.4 Unpacking the device

1. Transport the device to its designated location.
2. Open the packing.
3. Remove the transport pads.
4. Remove the accessories from the packing.
5. Lift the device out of the packing.
6. Remove the plastic wrapping from the device.

5.1.5 Checking the delivery condition

1. Check the device and accessories for visible damage.
2. Report any damage to your Eppendorf partner.

5.1.6 Checking the delivery package

1. Check that the supplied components match the specifications of the delivery package.
2. If any parts are missing, contact your Eppendorf partner.

Scope of delivery

Quantity	Description
1	Eppendorf ThermoStat C
1	Power cord
1	Short instructions

5.2 Performing the installation

5.2.1 Setting up the device

Prerequisites:

- The location meets the requirements.

1. Place the device in its intended location.

5.2.2 Connecting the device to the power supply



DANGER! Electric shock

If the PE conductor connection is missing, you may receive an electric shock. An electric shock causes cardiac injuries and respiratory paralysis.

- Make sure that the mains/power plug and earth/grounded socket match and that the electrical PE conductors of the device and the building installation are securely connected to each other.

Prerequisites:

- The device has been set up in accordance with this manual.
- The device has been unpacked and left standing at the location for at least 3 h.

1. Connect the power cord to the device.
2. Plug the power plug into the earth/grounded socket.

6 Operation

6.1 Preparing the device for the application

6.1.1 Switching on the device

Prerequisites:

- The device is set up and connected according to this operating manual.

1. Switch on the power switch.

6.1.2 Setting the language

The device is shipped with the language setting *English*. To set a different language, proceed as follows:

1. Press the **menu/enter** key, select *Settings > Language*, and confirm with **menu/enter**.
2. Select a language and confirm with **menu/enter**.

A check mark appears in front of the selected language.

6.1.3 Adjusting the contrast

1. Press the **menu/enter** key.
2. Select *Settings > Contrast* and confirm with **menu/enter**.
3. Select a contrast level and confirm with **menu/enter**.

6.1.4 Adjusting the volume

1. Press the **menu/enter** key.
2. Select *Settings* and confirm with **menu/enter**.
3. Select *Signal tones* and confirm with **menu/enter**.
4. Select a volume level and confirm with **menu/enter**.

6.2 Applications

6.2.1 Inserting the adapter for conical vessels



CAUTION! Glass splinters

Poorly fitting glass vessels may become detached from the thermoblock. Breakage of glass vessels can lead to sharp glass splinters that can cause personal injury.

- Only place recommended vessels and plates in the thermoblock.



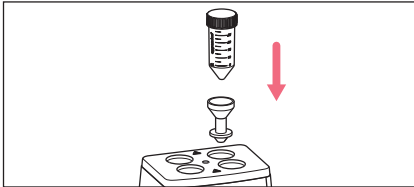
CAUTION! Burns

The adapter for conical vessels quickly reaches high temperatures. You may burn yourself on the hot adapter.

- Do not touch the hot adapter.
- Before removing the adapter, allow the adapter to cool down completely.

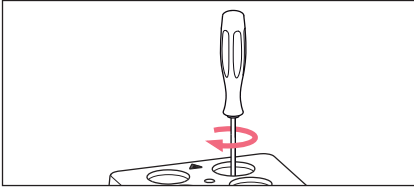


Use the conical vessels (25 mL) together with an adapter.

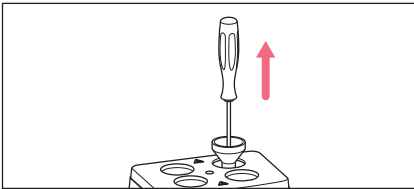


1. Insert the adapter into the hole in the thermoblock.
2. Press the adapter down to the bottom of the thermoblock.

6.2.2 Removing the adapter for conical vessels



1. Screw the removal tool into the thread of the thermoadapter.



2. Use the removal tool to completely remove the adapter from the hole in the thermoblock.

6.2.3 Tempering the thermoblock

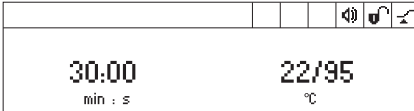
You can temper the device in a permitted ambient temperature of 5 °C – 40 °C. You can temper below the ambient temperature from -25 °C to 110 °C.

- If the actual temperature flashes on the display, the device is not controlling the temperature.
- As soon as the set temperature is changed using the **temp** arrow keys, the device begins to temper.
- When the set temperature is reached, the display shows only one value.

6.2.4 Tempering with a time setting

Prerequisites:

- The time mode is set to *Time Control* .



1. Use the **time** arrow keys to set the temperature control duration.
2. Use the **temp** arrow keys to set the temperature.
3. To start time counting, press the **start/stop** key.

The  symbol flashes on the display. The temperature control duration is counted down.

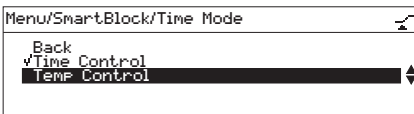
The display shows the remaining temperature control duration and the actual/set temperature.

A signal sounds when the temperature control duration has elapsed.

6.2.5 Tempering with *Temp Control* or *Time Control*

You can specify when time counting starts:

- Time counting starts immediately:  *Time Control*.
- Time counting starts when the set temperature is reached:  *Temp Control*.

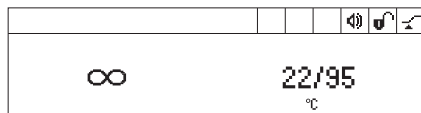


1. To open the menu, press the **menu/enter** key.
2. Use the menu arrow keys to select the *SmartBlock > Time Mode* menu item.
3. Use the menu arrow keys to select *Time Control* or *Temp Control*.
4. Confirm with the **menu/enter** key.
A check mark indicates the selected setting.
5. To exit the menu, press the left menu arrow key 3 times.

6.2.6 Tempering in continuous run mode



Prolonged tempering at low temperatures can cause ice to form on the thermoblock.



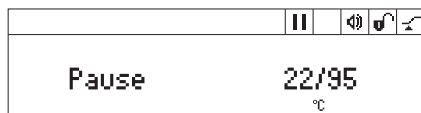
1. To temper for an unlimited period of time, use the **time** arrow keys to select the ∞ setting (before 5 s or after 99:30 h).
2. Use the **temp** arrow keys to set the temperature.
The device starts tempering immediately.
3. Press the **start/stop** key to start time counting.
The  symbol flashes on the display.
The display alternately shows the temperature control duration and the ∞ symbol.
The actual temperature and the set temperature are constantly displayed. The actual temperature rises slowly.
4. Press the **start/stop** key to end the temperature control procedure.
A signal sounds.
The display shows the last used parameters.



In continuous run mode, a temperature control duration of more than 99:30 h is possible. After 99:30 h, the display shows only the ∞ symbol.

6.2.7 Pausing time counting

If you want to add reagents or replace vessels during tempering, you can pause time counting without interrupting the temperature control procedure.



1. Press and hold the **start/stop** key for 2 s to pause time counting.
The display alternately shows the temperature control duration and pause.
Temperature control continues.
2. Press the **start/stop** key to resume time counting.

6.2.8 Programs

A program consists of up to 4 program steps *Step*. The program steps run automatically one after the other. You can save the following settings for each program step:

- Temperature control duration
- Temperature
- Program steps with reduced ramp rates

The program ends automatically.

The device has 15 program slots.

6.2.9 Creating a program

P 06		
Cancel	Save	Options
01:00	37	1000
h : min	°C	rpm

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select an empty program slot and confirm with **menu/enter**.

Creating a single-step program

P 06		
Cancel	Save	
	A B C D E F G H I J K L M	
	N O P Q R S T U V W X Y Z	
	1 2 3 4 5 6 7 8 9 0 _ <	

1. Set the temperature control duration and temperature using the **time** and **temp** arrow keys.
2. Select *Save* and confirm with **menu/enter**.
3. Select letters or numbers using the menu arrow keys and confirm with **menu/enter**.
The program name can have a maximum of 15 characters.
4. Select *Save* to save the program with the program name.
5. Select the program slot using the menu arrow keys and confirm with **menu/enter**.

Creating a multi-step program

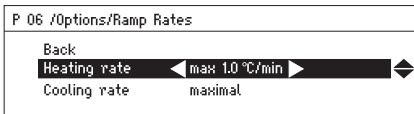
P 06 /Options	
Back	
Add step	◀▶
Delete step	
Interval Mix	
Ramp rates	

P 06		
Cancel	Save	Options ▶▶
Step 1	01h:00m	37 °C
Step 2	10m:00s	56 °C

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select an empty program slot and confirm with **menu/enter**.
5. Set the temperature control duration and temperature for the 1st program step using the **time** and **temp** arrow keys.
6. Select *Options* and confirm with **menu/enter**.
7. Select *Add step* and confirm with **menu/enter**.
The set parameters are applied to step 1.
8. Set the parameters for the 2nd program step.
9. You have several options for the next step:
 - To save the program with 2 program steps, select *Save*.
 - To program a 3rd and 4th program step, go to *Options* and select *Add step*.
 - To delete a step from a program, go to *Options* and select *Delete step*.

6.2.10 Reducing ramp rates

The device allows you to reduce both the heating and cooling rates. Reduced ramp rates can only be set for programs.



1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select an empty program slot.
5. Set the temperature control duration and temperature using the **time** and **temp** arrow keys.
6. Select the *Options* menu item and confirm with **menu/enter**.
7. Select the ramp rates and confirm with **menu/enter**.
8. Select and change the heating or cooling rate using the menu arrow keys.
9. Select the *Back* menu item and confirm with the **menu/enter** key to exit the *Ramp rates* menu.



If you start a program that runs with reduced heating or cooling rates, a message will appear: *The program's ramp rates are restricted.*

6.2.11 Loading a saved program

Loading a saved temperature

The keys above the display allow you to quickly select the temperature for unlimited temperature control.

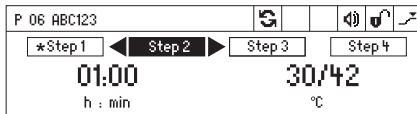
1. Press a key (**4 °C** to **95 °C**) to call up a stored temperature.
 The LED above the key lights up blue.
 The display shows the stored parameters.
2. To start the temperature control procedure, press the **start/stop** key.

Loading a program from the program list

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select the *Load* menu item and confirm with **menu/enter**.

The display shows the program parameters.

For programs with multiple program steps, the display shows the parameters of the first program step. To display the parameters of the other program steps, use the menu arrow keys to select the corresponding step.



5. To start the program, press the **start/stop** key.

The asterisk indicates the active program step *Step 1*.

The display shows the parameters of *Step 2*.

The order of the steps cannot be changed.

6.2.12 Editing a program

There are two ways to change a saved program:

- Changing a program via the *Edit* menu item in the program list
- Changing a program during operation

Changing a program via the *Bearbeiten* menu item in the program list

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select the *Edit* menu item and confirm with **menu/enter**.

The display shows the saved parameters.

Changing a program during operation

1. Load the program from the program list.
2. Change the parameters.
For programs with program steps, use the menu arrow keys to select a step and change the parameters of that step.
3. Start the program.
After the program has finished, a message appears stating that the program has been changed. You can confirm or discard the changes.

6.2.13 Deleting a program

1. Press the **menu/enter** key.
2. Select *SmartBlock* and confirm with **menu/enter**.
3. Select *Programs* and confirm with **menu/enter**.
4. Use the arrow keys to select the *Delete* menu item and confirm with **menu/enter**.
The display shows the message *Confirm delete*.
5. Confirm with **menu/enter**.

6.3 Advanced settings

6.3.1 Adjusting the contrast

1. Press the **menu/enter** key.
2. Select *Settings > Contrast* and confirm with **menu/enter**.
3. Select a contrast level and confirm with **menu/enter**.

6.3.2 Adjusting the volume

1. Press the **menu/enter** key.
2. Select *Settings* and confirm with **menu/enter**.
3. Select *Signal tones* and confirm with **menu/enter**.
4. Select a volume level and confirm with **menu/enter**.

6.3.3 Activating the key lock

1. Press the **menu/enter** key.
2. Select *Key lock* and confirm with **menu/enter**.
3. Select *Key lock on*.

The display shows the  symbol.

6.3.4 Deactivating the key lock

1. Press the **menu/enter** key.
2. Select *Key lock* and confirm with **menu/enter**.
3. Select *Key lock off*.

The display shows the  symbol.

7 Maintenance

7.1 Maintenance plan

Interval	Maintenance work
As required	↪ <i>Chapter 7.3.1 "Cleaning the device" on page 38</i>
	↪ <i>Chapter 7.3.2 "Disinfecting the device" on page 39</i>

7.2 Maintenance

Eppendorf SE recommends having your device inspected and maintained at regular intervals by trained and skilled personnel.

Eppendorf SE offers customized service solutions for preventive maintenance, qualification and calibration of your device. For information, offers and contact options, visit our website www.eppendorf.com/epservices.

7.2.1 Setting the service interval

The device offers the option of setting service reminders. To set a service interval, proceed as follows:

1. Press the **menu/enter** key.
2. Select *Settings* and confirm with **menu/enter**.
3. Select *Service* and confirm with the **menu/enter** key.
4. Use the menu arrow keys to select the service interval (after 500, 1000, or 2000 operating hours).

To turn off the notification, select *No notification*.

A message will appear when the selected operating hours have been reached. Contact your local Eppendorf partner. You can find the contact details online at www.eppendorf.com/contact.

7.2.2 Updating the software



Do not cancel the software update. If you cancel the software update, data will be lost and you will need to reset the device to its factory settings. Contact your local Eppendorf partner.



Install a software update only if it provides new functions. This applies, for example, if you want to use a SmartExtender. To do so, download the automatic update from the Eppendorf website.

1. Download the automatic update from the Eppendorf website www.eppendorf.com/software-downloads.
2. Unzip the ZIP file on your computer.
3. Connect the device to the computer using a suitable USB cable.
4. Start the installation wizard and follow the instructions on the screen.

7.2.3 Validating temperature control

To check the temperature accuracy of the thermoblock, use the Eppendorf Temperature Verification System – Single Channel. In combination with the temperature sensor for the device, the exact temperature in the thermoblock can be measured.

Information on verification with the Eppendorf Temperature Verification System – Single Channel can be found in the corresponding operating manual.

7.3 Cleaning

For any questions regarding cleaning and decontamination, or the cleaning agents used, please contact your local Eppendorf partner.

7.3.1 Cleaning the device

Material:

- Distilled water
- Soap-based cleaning agent
- Cloth

Prerequisites:

- The device is disconnected from the power line.
 - The device has cooled down.
1. Clean all external parts of the device with a mild soap solution and a lint-free cloth.
 2. Wipe off the soap solution with distilled water.
 3. Allow all cleaned parts to dry.

7.3.2 Disinfecting the device

Material:

- Disinfectant containing 70 % ethanol
- Cloth

Prerequisites:

- The device has been disconnected from the power line.
- The device has cooled down.

1. Dampen a lint-free cloth with disinfectant.
2. Wipe all parts of the device with the cloth.

8 Troubleshooting

If you cannot rectify the error using the suggested measures, contact your local Eppendorf partner. You can find the address online at www.eppendorf.com.

8.1 Error messages

Error description	Cause	Solution
The thermoblock is not recognized.	The thermoblock is not compatible with the device.	Use a compatible thermoblock.
	The thermoblock is not attached correctly.	Remove the thermoblock and reattach it.
	The interface between the device and the thermoblock is contaminated.	Clean the bottom of the thermoblock to remove any contamination. Remove any contamination from the top of the device, especially the viewing window on the side of the heating/cooling plate.
Error message preceded by a number code.	Various causes are possible.	Switch off the device and wait for 10 seconds. Switch the device back on. If the error message appears again, contact your local Eppendorf partner.
SmartExtender is not recognized by the device.	Eppendorf ThermoStat C requires software version 3.0.0 or higher to recognize the SmartExtender.	Perform a software update. The software can be downloaded from the Eppendorf website.

8.2 General errors

Error description	Cause	Solution
The display remains dark.	There is no network connection.	Check the power connection and power supply. Switch on the device.

Error description	Cause	Solution
The set temperature is not reached.	The set temperature is more than 30 °C below the ambient temperature.	Place the device in a cooler environment.
The ThermoTop LED is not lit.	No thermoblock is attached.	Use a compatible thermoblock with the condens.protect® symbol: 
	The thermoblock is not compatible with Eppendorf ThermoTop.	Use a compatible thermoblock with the condens.protect® -symbol: 
	The interface between the device and Eppendorf ThermoTop is contaminated.	Remove any contamination from the front of the Eppendorf ThermoTop. Remove any contamination from the top of the device, especially the viewing window in front of the heating/cooling plate.
The Eppendorf ThermoTop does not fit on the device.	The thermoblock is not compatible with Eppendorf ThermoTop.	Use a compatible thermoblock with the condens.protect® symbol: 
	The Lid is attached to the thermoblock.	If you are using the Eppendorf ThermoTop, do not use the Lid.
The device does not temper.	Various causes are possible.	Contact your local Eppendorf partner.

9 Shut down**9.1 Switching off the device**

1. Switch off the power switch.

10 Transport

10.1 Preparing the device for transport

Prerequisites:

- The device is not in operation.
- The device has been cleaned and decontaminated.

1. Ensure that there is no condensate in the thermoblock.

10.2 Shipping the device



Use the original packing to transport the device. If the original packing is no longer available, please ensure that the device is sufficiently protected by replacement packing during storage and further transport. Eppendorf SE is not liable for damage caused by improper replacement packing.



WARNING! Contamination

Shipping or storing a contaminated device or contaminated accessories may lead to contamination of persons or cause damage to health.

- Decontaminate the device and accessories before shipping or putting them into storage.

Material:

- Packing

Prerequisites:

- The device has been taken out of operation.
- The device has been decontaminated.

1. Download the decontamination certificate for returned goods from the website www.eppendorf.com.
2. Fill out the decontamination certificate.
3. Pack the device.
4. Attach the decontamination certificate securely to the outside of the packing.
5. Ship the device.

11

Disposal

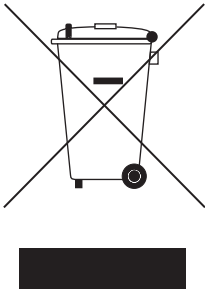
11.1

Legal regulations

Electrical and electronic equipment in EU countries

Electrical and electronic equipment must be disposed of in EU member states in accordance with Directive 2012/19/EU. This directive has been implemented into national law by all EU member states.

Electrical and electronic equipment placed on the market after August 13, 2005, must be specially marked. According to the European standard EN 50419, the following symbol can be used for this marking:



Batteries and rechargeable batteries in EU countries

Batteries and rechargeable batteries must be disposed of in an environmentally sound manner in EU member states in accordance with Regulation (EU) 2023/1542. They must not be disposed of with household waste.

Consumers are required to dispose of used batteries and rechargeable batteries at an authorized collection point.

Table 1: Marking on batteries

Symbol	Meaning
	Battery must not be disposed of with household waste.
	Battery contains cadmium. Battery must not be disposed of with household waste.

Symbol	Meaning
	Battery contains mercury. Battery must not be disposed of with household waste.
	Battery contains lead. Battery must not be disposed of with household waste.

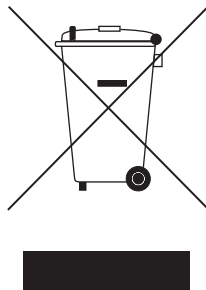
Non-EU countries

Non-EU countries have country-specific standards for the disposal of waste electrical and electronic equipment and the disposal of batteries and rechargeable batteries.

Notes on disposal of electrical and electronic equipment in the United Kingdom

In the United Kingdom, the disposal of electrical and electronic equipment is governed by national regulations which are based on national legislation from 2013, The Waste Electrical and Electronic Equipment Regulations 2013 (as amended), which apply to these devices.

According to these regulations, any electrical and electronic equipment that was put on the market after August 13, 2005 in the business-to-business sector – which applies to this product – must no longer be disposed of with household waste. They are marked with the following symbol to indicate this:



As the disposal regulations may differ from one country to another, please contact your supplier for more information.

11.2 Preparing for disposal

Preparing disposal according to legal regulations



For information on the legal regulations that apply in your country, contact your local authority and your Eppendorf partner.



Dispose of non-decontaminable devices as hazardous waste.

1. Check which legal regulations apply to disposal in your country.
2. Choose a certified waste disposal company or contact your Eppendorf partner.

Creating a decontamination certificate

Prerequisites:

- The device has been decontaminated.
1. Download the decontamination certificate from the website <https://www.eppendorf.link/decontamination/>.
 2. Complete the decontamination certificate.

11.3 Handing over the device to the disposal company

1. Inform the disposal company of any hazards posed by the device, e.g., locking devices, flammable substances.
2. Hand over the device and the decontamination certificate to the certified disposal company.

12 Technical data

12.1 Dimensions

Eppendorf ThermoStat C

Width	20.6 cm
Depth	30.4 cm
Height	13.6 cm

12.2 Weight

Eppendorf ThermoStat C

Weight	4.4 kg
--------	--------

12.3 Power supply

Power supply voltage	100 V – 130 V $\pm$ 10% 220 V – 240 V $\pm$ 10%
Power frequency	50 Hz – 60 Hz
Power consumption	Max. 200 W
Overvoltage category	II
Pollution degree	2
Protection class	I
Specifications for power cords in Europe with E/F power plugs	Cable type AC 250 V / 10 A 3G 1 mm ² with double insulation Power plug according to IECEE CEE-7 / IEC 60884-1 and C13 appliance coupler according to IEC 60320-1
Specifications for power cords in Europe with other power plugs	Use the power cord in accordance with national regulations Cable type AC 250 V / 10 A 3G 1 mm ² with C13 appliance coupler according to IEC 60320-1 and with power plug according to national regulations and IEC 60884-1

Technical data

Eppendorf ThermoStat C
English (EN)

Specifications for power cords in Canada and the USA	Cable type AC 125 V / 10 A SJT 3x18 AWG with double insulation Power plug NEMA 5-15 according to ANSI/NEMA WD-6 and C13 appliance coupler according to UL/IEC 60320-1
Specifications for power cords outside Europe, Canada and the USA	Use the power cord in accordance with national regulations

12.4 Ambient conditions**Operation**

Ambience	For indoor use only
Ambient temperature	5 °C – 40 °C
Relative humidity	10% – 90%, non-condensing
Atmospheric pressure	79.5 kPa – 106 kPa
Maximum geographical altitude	2000 m above MSL (approx. 80 kPa)

Transport

Ambient temperature general transport	-25 °C – 60 °C
Ambient temperature air freight	-40 °C – 55 °C
Relative humidity	10% – 95%
Atmospheric pressure	30 kPa – 106 kPa

Storage

Ambient temperature in transport packing	-25 °C – 55 °C
Ambient temperature without transport packing	-5 °C – 45 °C
Relative humidity	10% – 95%
Atmospheric pressure	70 kPa – 106 kPa

12.5 Electromagnetic compatibility

Electromagnetic compatibility	IEC 61326-1, Class B ICES-001, Class B Class B is the basic electromagnetic environment (at locations which are directly supplied with low voltage from the public supply network) FCC Part 15, Class B
-------------------------------	--

12.6 Interfaces

USB interface	For connection to VisioNize and for software updates with the automatic update of Eppendorf ThermoMixer.
---------------	--

12.7 Noise level

Eppendorf ThermoStat C

The noise level was measured frontally in a sound measuring room with accuracy class 3 (DIN EN ISO 3746) at a distance of 1 m from the device and at lab bench height.

Device	< 40 dB(A)
--------	------------

12.8 Application parameters

Temperature

The heating and cooling rates refer exclusively to the thermoblock and can change with the filling volume in the vessels.

Temperature control range	-10 °C – 110 °C, adjustable in increments of 1 °C Minimum: 30 °C ±2 °C below ambient temperature Maximum: 100 °C, with Eppendorf SmartBlock 12 mm and Eppendorf SmartBlock cryo 110 °C	
Temperature accuracy	Set temperature 20 °C – 45 °C	Set temperature < 20 °C or > 45 °C
Eppendorf SmartBlock 1.5 mL	± 0.5 °C	± 1 °C

Temperature homogeneity	In the range of 20 °C – 45 °C Max. ± 0.5 °C, for all positions of the thermoblock	
Heating rate*	5.5 °C/min	
Cooling rate*	At set temperature above ambient temperature At a set temperature between ambient temperature and 30 °C below ambient temperature	Maximum Below ambient temperature: 2.0 °C/min Cooling rate: 5.0 °C/min

*The heating rate and cooling rate can be restricted.

Time

Parameter	Range	Step size
Run time	5 s up to 99:30 unlimited	
Setting range	5 s – 1 min	5 s
	1 min – 20 min	15 s
	20 min – 1 h	1 min
	1 h – 10 h	5 min
	1 h – 99.5 h	30 min

12.9 Thermoblocks

The following thermoblocks can be used with the device:

Thermoblock	Vessels/plates	Maximum temperature	Accessories
SmartBlock 0.5 mL	Reaction tubes with a volume of 0.5 mL	100 °C	ThermoTop or Lid
SmartBlock 1.5 mL	Reaction tubes with a volume of 1.5 mL	100 °C	ThermoTop or Lid

Thermoblock	Vessels/plates	Maximum temperature	Accessories
SmartBlock 2.0 mL	Reaction tubes with a volume of 2.0 mL	100 °C	ThermoTop or Lid
SmartBlock 5.0 mL	Reaction tubes with a volume of 5.0 mL	100 °C	—
SmartBlock 12 mm	Tubes with a diameter of 11 mm to 11.9 mm	110 °C	—
SmartBlock cryo	Cryogenic tubes with a volume of 1.5 mL to 2.0 mL	110 °C	—
SmartBlock 15 mL	Conical tubes with a volume of 15 mL	100 °C	—
SmartBlock 50 mL	Conical tubes with a volume of 50 mL	100 °C	—
SmartBlock plates	Microplates and deepwell plates with different bottom contours	100 °C	ThermoTop or Lid
SmartBlock PCR 96	96-well PCR plates PCR tubes 0.2 mL	100 °C	ThermoTop or Lid
SmartBlock PCR 384	384-well PCR plates	100 °C	ThermoTop or Lid
SmartBlock DWP 500*	Eppendorf Deepwell Plates 96/500 µL	100 °C	ThermoTop or Lid
SmartBlock DWP 1000*	Eppendorf Deepwell Plates 96/1000 µL	100 °C	ThermoTop or Lid

*Eppendorf SmartBlock DWP 500 and Eppendorf SmartBlock DWP 1000 can only be used with Eppendorf Deepwell Plates (optimal fit and optimal temperature transfer).



Evaluate Your Manual

Give us your feedback.

www.eppendorf.com/manualfeedback

Your local distributor: www.eppendorf.com/contact

Eppendorf SE · Barkhausenweg 1 · 22339 Hamburg · Germany
eppendorf@eppendorf.com · www.eppendorf.com