



## Self-Test Dongle

Instructions for use

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## 1 **Operating instructions**

### 1.1 Using this manual

These instructions for use for the self-test dongle are a supplement to the operating manual for the Mastercycler pro and the Mastercycler nexus.

Please also read the operating manual of the respective Mastercycler. The current version of the operating manual can be found under [www.eppendorf.com](http://www.eppendorf.com)

## 2 **Product description**

### 2.1 Features

The self-test dongle enables the *Self Test* function for the following devices:

- Mastercycler pro device family in connection with the Control Panel 6320 (with USB ports)
- Mastercycler nexus device family



If more devices from these two device families are connected to a master device with self-test dongle, the *Self Test* function will be enabled for all devices.

With the *Self Test* function, the following properties of the thermoblock can be tested:

- Heating and cooling rates
- Function of the temperature control circuits
- Temperature homogeneity in each of the three block zones (left, middle and right zone)
- Temperature homogeneity throughout the entire block

After a successful self-test, a certificate can be generated in PDF format.

### 3 Operation

#### 3.1 Enabling the *Self Test* function

##### Prerequisites

- A user is logged in (if the *PIN* function is active).
- The navigation tree is displayed.



The status of the *Self Test* function is displayed in the navigation tree.

- *Self Test* function enabled
- *Self Test* function locked

- ▶ Connect the self-test dongle to a free USB port on the thermal cycler.  
The message *Please wait* appears.  
After a few seconds, the self-test dongle will be detected.  
The *Self Test* function is enabled.

The *Self Test* function remains enabled until the self-test dongle is removed.

#### 3.2 Conducting a self-test



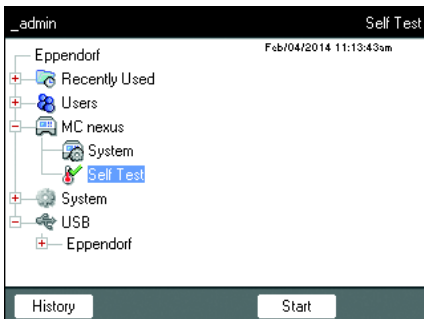
##### **CAUTION! Risk of burns from hot thermoblock and heated lid.**

The thermoblock and the heated lid very quickly reach temperatures above 95 °C.

- ▶ Keep heated lid closed until the temperature of the thermoblock is below 30 °C.

##### Prerequisites

- The *Self Test* function is enabled.



1. Load the thermoblock with an empty PCR plate.
2. Close the heated lid.
3. Select the device in the navigation tree.
4. Select the *Self Test* function.
5. Press the *Start* softkey.  
The *Test Results* window is displayed.

**6** Operation  
Self-Test Dongle  
English (EN)

_admin "MC nexus" Cycler Self Test			
Test Results	Left	Center	Right
Heating/cooling rates	UNTESTED	UNTESTED	UNTESTED
Temperature control	UNTESTED	UNTESTED	UNTESTED
Temperature homogeneity	UNTESTED	UNTESTED	UNTESTED
Overall temp. homogeneity	UNTESTED		
Press "Start" to begin	Lid --- °C		Block --- °C
Start		Exit	

6. Press the *Start* softkey.  
The self-test starts automatically.  
Information on the current test will be displayed.

3.2.1 Test procedure

_admin "MC nexus" Cycler Self Test			
Test Results	Left	Center	Right
Heating/cooling rates	PASS	PASS	PASS
Temperature control	Test in progress...		
Temperature homogeneity			
Overall temp. homogeneity			
Determining block temperature homogeneity.	Lid 105 °C		Block 74.8 °C
Abort			

<i>Left, Center, Right</i>	Left, middle and right block zones according to the temperature control loop of the block
<i>Heating/cooling rates</i>	Temperature control speed of the block during heating or cooling
<i>Temperature control</i>	Accuracy of the temperature control
<i>Temperature homogeneity</i>	Temperature homogeneity in each individual control system
<i>Overall temp. homogeneity</i>	Temperature homogeneity throughout the entire block

The temperature homogeneity and the accuracy of the temperature control are determined at the block temperatures 4 °C, 35 °C, 55 °C, 75 °C and 95 °C after a holding time of 30 s.

The test result is displayed after 5 to 10 minutes.

### 3.2.2 Displaying the results

The self-test is considered passed if all partial tests have been successfully completed.

- *PASS*: partial tests passed.
- *FAIL*: partial tests failed.

Test Results	Left	Center	Right
Heating/cooling rates	PASS	PASS	PASS
Temperature control			FAIL
Temperature homogeneity			
Overall temp. homogeneity	FAIL		
TEST FAILED		Lid 105 °C Block 93.0 °C	

Start      Exit

- ❗ If the self-test is not passed, this indicates that the block is aging, maladjusted or has a malfunction. Please contact the authorized service if this is the case.
- ❗ Use the Eppendorf Temperature Verification System to verify and adjust the block's temperature accuracy.

### 3.2.3 Creating a certificate

After the self-test has been passed, a certificate in PDF format can be exported to an external storage medium.

#### Prerequisites

The self-test was passed in all partial tests, and the test result is displayed.

1. Connect a storage medium.
2. Press the *Certificate* softkey.

The certificate is copied to the storage medium as PDF file. When the storing process is complete, the path to the copied file is displayed.

The certificate can be displayed on a computer and printed. For this purpose, a PDF viewer such as Adobe Reader is required.

The certificate contains fields where a validity date and a signature can be added in handwriting.



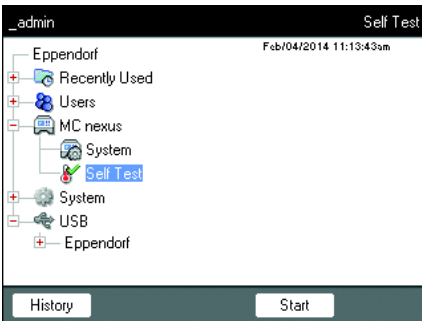
Fig. 3-1: Example of a certificate



### 3.3 Displaying, printing or exporting the history

#### Prerequisites

- A user is logged in (if the *PIN* function is active).
- The navigation tree is displayed.

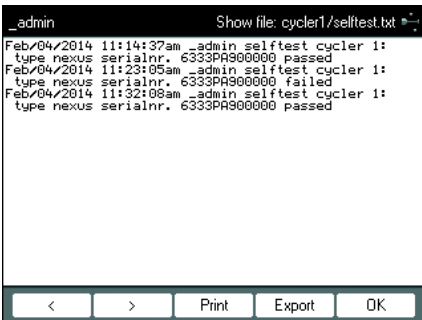


1. Select the device in the navigation tree.
2. Select the *Self Test* function.
3. Press the *History* softkey. The history is displayed.

#### 3.3.1 Printing the history

##### Prerequisites

A supported printer is connected (see operating manual of the thermal cyclers).





- ▶ Press the *Print* softkey.

#### 3.3.2 Exporting the history into file

1. Connect external storage medium.
2. Click the *Export* softkey.
3. Select PDF or TXT file format and confirm with *Ok*.

The file is copied to the storage medium. When the storing process is complete, the path to the copied file is displayed.

#### 4 Troubleshooting

Symptom/message	Cause	Remedy
Self-test dongle is not detected.	The self-test dongle was connected to a USB hub that is not supported.	▶ Connect the self-test dongle directly.
	The USB ports of the control panel are not active because the control panel was connected to a Mastercycler ep (the symbol  is displayed).	▶ Connect the control panel directly to a Mastercycler pro (see operating manual of the Mastercycler pro).
	The USB ports were switched off due to a defective or incompatible USB device (the symbol  is displayed).	<ul style="list-style-type: none"> <li>▶ Disconnect all USB devices from the thermal cyclcer.</li> <li>▶ Restart the thermal cyclcer.</li> </ul>
The <i>Self Test</i> function is not displayed.	No user is logged in.	▶ Log in as user or administrator.
	A device of the Mastercycler ep series has been selected.	▶ Select a Mastercycler pro node.

**5 Transport, storage and disposal**

**5.1 Disposal**

In case the product is to be disposed of, the relevant legal regulations are to be observed.

**Information on the disposal of electrical and electronic devices in the European Community:**

Within the European Community, the disposal of electrical devices is regulated by national regulations based on EU Directive 2012/19/EU pertaining to waste electrical and electronic equipment (WEEE).

According to these regulations, any devices supplied after August 13, 2005, in the business-to-business sphere, to which this product is assigned, may no longer be disposed of in municipal or domestic waste. To document this, they have been marked with the following identification:



Because disposal regulations may differ from one country to another within the EU, please contact your supplier if necessary.

**6 Ordering information**

Order no. (International)	Order no. (North America)	Description
6320 071.001	950030040	<b>Self-Test Dongle</b> For Mastercycler pro and Mastercycler nexus
0056 000.003	0056000003	<b>Temperature Verification System USB – Single channel</b> For Mastercycler nexus, Mastercycler pro und Mastercycler ep, ThermoMixer, ThermoStat
0056 001.000	0056001000	<b>Temperature sensor</b> for Temperature Verification System USB – Single channel 96 Well
0056 002.006	0056002006	384 Well

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