PCR Thermal Cycler

Leading PCR Expertise for the Automated Workflow

Biometra TRobot II

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Biometra TRobot II

Automate your PCR runs and other incubation tasks with the new thermal cycler Biometra TRobot II. Gain valuable time for other tasks and improve your efficiency.

The new automated thermal cycler Biometra TRobot II is an addition to the product portfolio of the globally established and long-respected Biometra thermal cyclers. Entrust your valuable samples to a professional with more than 30 years of experience in the development of thermal cyclers.

Reliably developed technology means that you can count on its application, which is of paramount importance in automated systems. You can perform sophisticated applications very simply, thanks to top-quality performance data and various block formats. Vital data reproducibility is achieved through excellent block homogeneity, modern temperature management and innovative device lid technology.

Biometra TRobot II

Leading PCR Expertise for the Automated Workflow

Benefit from features that are tailored to the specific requirements of automated systems:

Ready for your applications

- **Guaranteed best measurement results:** Above-average performance data for heating and cooling as well as block homogeneity
- **Optimized annealing temperatures** through a linear gradient function
- **Flexible:** Each user finds a suitable format through three different sample blocks

"Smart Tune" lid concept

A unique lid opening patent-pending concept with an arc-shaped movement guarantees optimum integration into robotic systems

- **Easy access to the sample block** from three sides
- **Evaporation-free runs** through extremely uniform, finely tunable lid contact pressure
- **Space-saving and robust**

Smart release of sample plates

- **Trouble-free removal of microtiter plates:** Patent-pending release system gently lifts the plates out of the block

Easily integrated with Smart Control

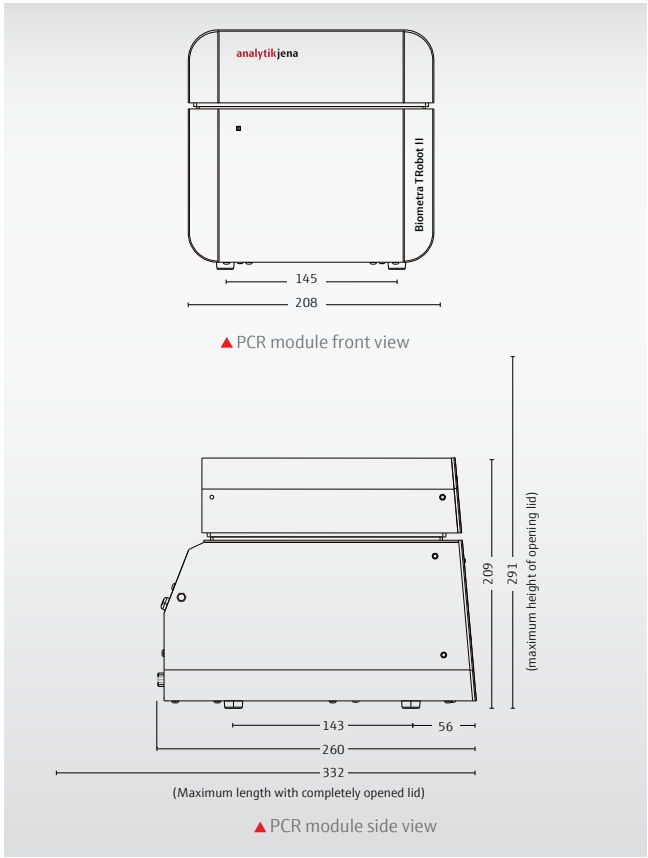
- **Easy integration** into automation systems thanks to conveniently prepared drivers
- **Biometra TSuite:** Independent control of the thermal cycler thanks to dedicated, ultramodern and self-explanatory software

Full Range of Applications at Minimum Footprint

The Biometra TRobot II has been specifically developed for integration into automation systems. At the same time, it offers the full range of features of a professional thermal cycler.

Minimum space requirement

With its small size, the Biometra TRobot II is ideal for use in all common robot systems. The compact PCR module is placed directly on the automation deck and the separate controller can be stored underneath the platform.



Dimensions of the Biometra TRobot II PCR module, data given in mm

Developed for use in automated processes:

- Free platform design – gripper has access from three sides
- Adjustable lid pressure for reproducible results in the entire block
- Wear-free lid drive for long, trouble-free operation

High performance for best results

Short protocol runtimes and highly specific results require high heating and cooling rates and precise control of the target temperatures. Temperature homogeneity across the entire block, even reaching marginal positions, is also vital in ensuring reliable results.
The Biometra TRobot II meets these requirements ideally in all three block formats and the 96 well silver block even achieves a heating rate of up to 5 °C/s.

Linear gradient function

The linear gradient function allows you to quickly enter a temperature gradient for different annealing temperatures across the long side of the block. Then it's simple to use the PCR results to determine which temperature range is optimal for annealing primers to the DNA and produces the highest, most specific yield.
It often makes sense to optimize these conditions, especially for new PCR protocols. With the gradient function, this can be done on the same thermal cycler that will later be used in the automated application. This is a prerequisite for optimum results.

Extended user management

Automated systems are often used in environments that require a clearly regulated user structure for GMP-compliant application. The Biometra TRobot II offers three different user levels, from administrator to user with general rights to user with restricted rights. The administrator can also assign specific user rights individually

Convinces through wide range of applications

Automated working methods are becoming more and more important in all industrial sectors. Especially in the Pharma & Life Science industry the degree of automation is increasing and here the TRobot II can show its strengths to improving efficiency.

Easy Plate Handling and Access – Guaranteed!

The Biometra TRobot II is safely opened and closed by a robust yet finely tunable patent-pending movement design. The plates can be detached from the sample block easily, even after prolonged incubation at various temperatures and under high contact pressure.

Full compatibility with robotic platforms

The arc-shaped movement of the heating cover allows the device to open very wide. The sample block is accessible from three sides when the lid is fully open. This presents unique opportunities for integrating the automated thermal cycler into a robotic platform. The robotic arm can also pass over the thermal cycler at any time due to the low device height.

Smart release of plates

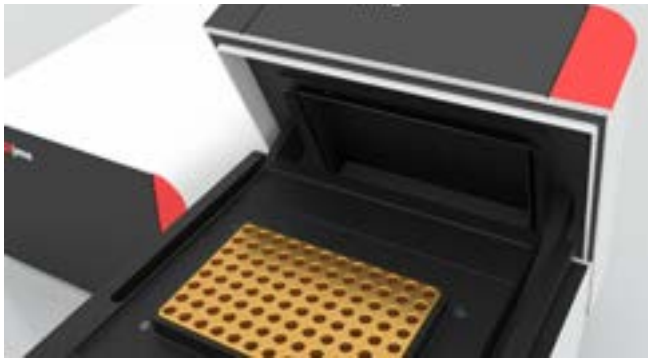
The Biometra TRobot II uses a patent-pending "smart release" concept: Four small cylindrical pins, recessed in the sample block, lift the plate slightly at the same time the lid is opened, thereby safely releasing it from the sample block. The gentle, proportioned lifting mechanism ensures that the plate does not suddenly come loose. This prevents sample liquid from being transferred to the sealing foil.

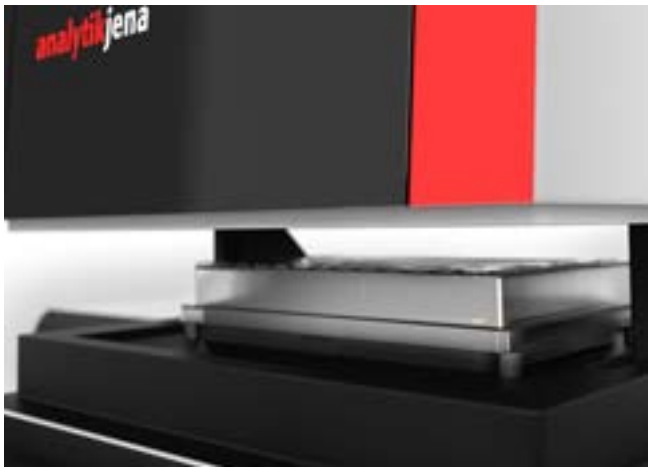
Smooth surfaces – easy to clean

After the plate is loosened, the pins completely return to the sample block completely so that the block surface remains smooth. This facilitates cleaning and decontamination of the block area.

Safety is a priority

Despite the automatic lid closure, there is no risk of injury to the user at any time. The heating cover contains a safety frame that is reliably activated and under slight counter-pressure, immediately interrupting the closing process.





Suitable for a wide range of plastic materials:

- Directly compatible with full-skirted microtiter plates
- Can be used with half-skirted microtiter plates with a simple adapter frame
- Suitable for sealing foils, mats and lids

Freedom of choice of sample plates

Prior to a run, the pressure of the lid on the sample plates can be adjusted precisely via the software to accommodate the plate height and sealing system. The Biometra TRobot II lid lock applies force vertically downwards over the sample plate. This prevents any sealing foils or mats from shifting. The same pressure is always applied over the entire block surface, even in corner positions, and creates the same test conditions for all samples and is vital to ensure a high degree of reproducibility and reliable results.

Minimal service requirements

The mechanism for opening and closing the lid with a single drive utilizes virtually wear-free technology. This ensures high device availability and stable performance of the entire automation system.

Convenient Control

The automated thermocycler is controlled completely by external software – typically integrated into the robot software or via the Biometra TSuite computer software.

Convenient software driver

The Biometra TRobot II automated thermal cycler can be easily integrated into a robotic platform software. The thermal cycler comes with a cutting-edge .NET Framework API and clear documentation. The number of addressable devices is almost unlimited. Up to 1,000 devices can be managed by the software.

Biometra TSuite control software

The Biometra TRobot II can also be controlled via its own software, independent of a robotic platform. The Biometra TSuite computer software, developed specifically for this device, offers the full range of functions for controlling the cycler, creating programs, managing the device and documenting its relevant states and actions in detail. Encrypted data transmission ensures the integrity and security of your data. Various log files enable GMP-compliant use and, in the event of a malfunction, help locate the cause of the error prior to a service visit.

Always well-informed

An LED display on the block module indicates the status of the thermal cycler via a color and light code. This means the status of the device can be observed at any time, even without checking the software display.

Choose from three different systems

The Biometra TRobot II guarantees excellent performance data. The choice of three systems allows to find the right device for every situation.

Model (Order number, includes PCR module and controller)	**Biometra TRobot II 96 G** (846-x-070-901[a])	**Biometra TRobot II 96 SG** (846-x-070-902[a])	**Biometra TRobot II 384 G** (846-x-070-903[a])
Block	Aluminum, special alloy	Silver, gold-coated	Aluminum, special alloy
Capacity	96 × 0.2 mL tubes/ 96 well microplates/ 12 × 8 well strips, 0.2 mL	96 × 0.2 mL tubes/ 96 well micro plates/ 12 × 8 well strips, 0.2 mL	384 well microplate
Proposed sample volume	5–50 µL	5–100 µL	5–25 µL
Max. heating rate[b]	4.0 °C/s	5.0 °C/s	2.4 °C/s
Max. cooling rate[b]	3.1 °C/s	4.8 °C/s	1.8 °C/s
Gradient function	Yes, over 12 rows	Yes, over 12 rows	Yes, over 24 rows
Max./min gradient	24 °C/0.1 °C	30 °C/0.1 °C	18 °C/0.1 °C
Gradient temperature range	20 °C to 99 °C	10 °C to 99 °C	20 °C to 99 °C
Temperature uniformity at 55 °C after 15 s	± 0.20 °C	±0.15 °C	±0.15 °C
Block temperature range	3 °C to 99 °C		
Control accuracy	±0.1 °C		
Lid temperature range	30 °C–110 °C		
Lid pressure range	4–12 kg		
Plate ejection function	Patent-pending Smart Release feature		
Access to sample block	From three directions		
Program memory	394 programs at 6 steps per program, unlimited when saving on computer		
Interfaces (PCR module)	For DSub 25 signal cable, DSub 24W7 power cable, 3 m long, one-side fixed at the rear side of the controller.		
Interfaces (controller)	Serial RS232, USB via RS232-to-USB adapter and Ethernet, 3 m long RS232 cable included		
Control	Remote control via Biometra TSuite computer software or Biometra Library .dll-integration in robotic software		
Field of application	Default format High heating and cooling rates	Default format Excellent heating and cooling rates	High-throughput High heating and cooling rates

[a] x = 2 for 230 V, 4 for 115 V, 5 for 100 V ±10%, 50–60 Hz

[b] Measured within the sample block

Further technical details and order information can be found on our website: www.analytik-jena.com/trobot

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Pictures: Analytik Jena GmbH
Subject to changes in design and scope of delivery as well as further technical development.

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