Automate your PCR
Biometra TRobot II

PCR Thermal Cycler

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An Endress+Hauser Company

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 serves as an addition to the product portfolio of the globally established and tradition-steeped 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

Automate your PCR

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 through

- **Free 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 possible through dedicated, ultramodern and self-explanatory software

Full Range of Applications

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.

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, up to marginal positions, is also vital in ensuring reliable results.

The Biometra TRobot II meets these requirements ideally in all three block formats. The 96 well silver block even achieves a heating rate of up to 5 °C/s with low power consumption.

Linear gradient function

The popular Biometra function for simple programming of a temperature gradient that is as linear as possible is also available in the automated thermal cycler.
This function allows you to quickly enter a temperature gradient for different annealing temperatures across the long side of the block. It is then easy 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.

Choose from three different sample blocks

Block	Format	Material	Gradient function	Special features
96 G	96-well, 0.2 ml tubes/strips/plates	Aluminum	Yes, over 12 rows	Default format High heating and cooling rates
96 SG	96-well, 0.2 ml tubes/strips/plates	Silver	Yes, over 12 rows	Default format Excellent heating and cooling rates
384 G	384-well plates	Aluminum	Yes, over 24 rows	High-throughput High heating and cooling rates

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.

Smart Tune Lid Concept

The Biometra TRobot II is safely opened and closed by means of an arc-shaped movement with a single motor drive. The particularly robust yet finely tunable patent-pending design offers many benefits.

Freedom of choice of sample plates

Prior to a run, the pressure of the lid on the sample plates can precisely be adjusted via the software according to plate height and sealing system, whether foils or mats. This option greatly expands the range of plates and sealing systems that can be used. The risk of evaporation of sample liquid for all well positions in the block is consistently minimized through the selection of the appropriate lid contact pressure.

In contrast to devices with hinged or sliding lids, the Biometra TRobot II lid lock applies force vertically downwards over the sample plate. This rules out any shifting of sealing foils or mats. The same pressure is always applied over the entire block surface up to the corner positions. This creates the same test conditions for all samples and is vital to ensure a high degree of reproducibility and reliable results.

Minimal service requirements

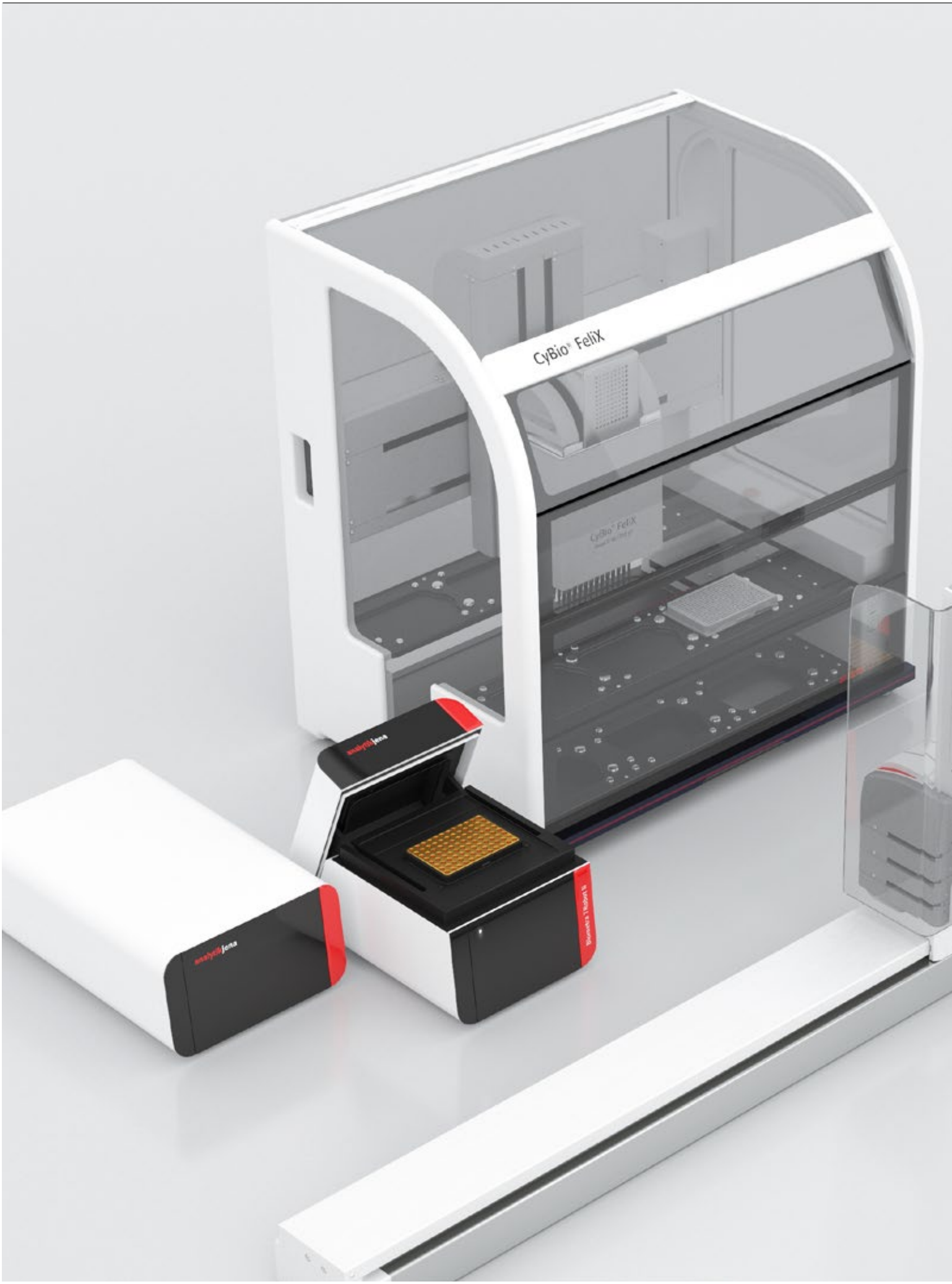
The mechanism for opening and closing the lid with a single drive makes use of virtually wear-free technology. This ensures high device availability and stable performance of the entire automation system.

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. Depending on the desired spatial arrangement, the cycler block can be reached by the robotic arm from different directions. The robotic arm can also pass over the thermal cycler at any time due to the low device height.

Consistently developed for use in automated processes:

- Small footprint – saves space on the platform
- Free platform design – accessible with the gripper from three sides
- Adjustable lid pressure for reproducible results in the entire block
- Wear-free lid drive for long, trouble-free operation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Easy Plate Removal Guaranteed

It is essential that the plates can be easily detached from the sample block even after prolonged incubation at various temperatures and under high contact pressure.

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 rules out sample liquid being transferred to the sealing foil.

Suitable for a wide range of plastic materials:

- Directly compatible with full-skirted microtiter plates
- Can be used with half-skirted microtiter plates with an adapter frame and no further small parts
- Suitable for sealing foils and mats

Smooth surfaces – easy to clean

After the plate is loosened, the pins completely return to the sample block 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 framework that is reliably activated and under slight counter-pressure, immediately interrupting the closing process.

Comfortable Control

The automated thermocycler is completely controlled 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 the robotic platform software. The thermal cycler comes with a cutting-edge driver and clear documentation. In addition, our technical support is always available.

Biometra TSuite control software

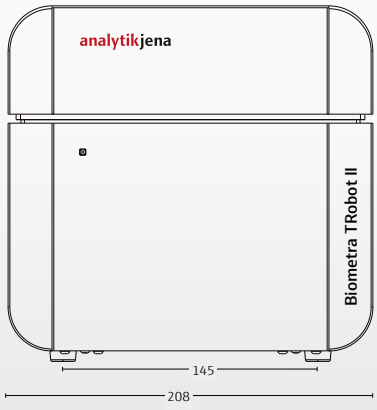
The Biometra TRobot II can also be controlled via its own software, independent of a robotic platform. The Biometra TSuite computer software, developed specifically for this device, offers the full range of functions for controlling the cycler, creating programs, managing the device and documenting its relevant states and actions in detail. Encrypted data transmission ensures the integrity 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

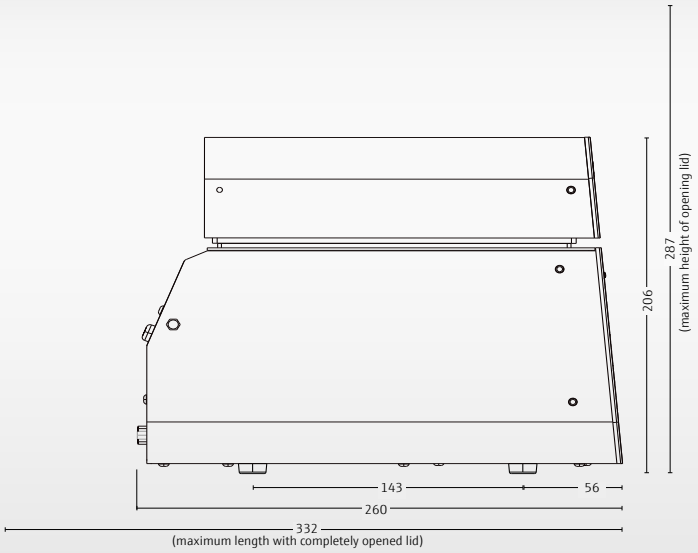
An LED display on the block module indicates the status of the thermal cycler via a color and light code. This means the status of the device can be recognized at any time, even without checking the software display.

Technical Data

Dimensions of the Biometra TRobot II PCR module

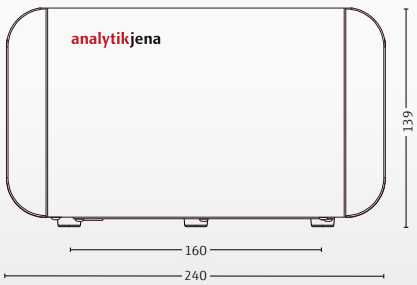


▲ PCR module front view

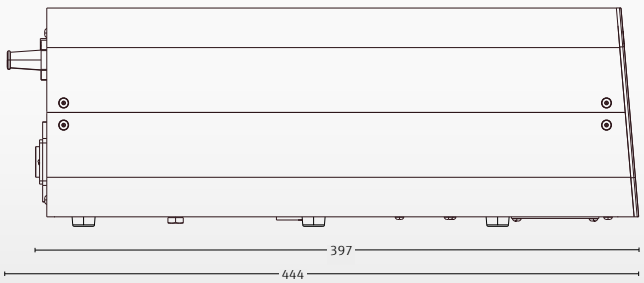


▲ PCR module side view

Dimensions of the Biometra TRobot II controller



▲ Controller front view



▲ Controller side view

Data given in mm.

Technical Data

PCR module

Model	Biometra TRobot II 96 G	Biometra TRobot II 96 SG	Biometra TRobot II 384 G
Block	Aluminum, special alloy	Silver, gold-coated	Aluminum, special alloy
Capacity	96 x 0.2 ml tubes/ 96-well microplates/ 12 x 8-well strips, 0.2 ml	96 x 0.2 ml tubes/ 96-well micro plates/ 12 x 8-well strips, 0.2 ml	384-well microplate
Proposed sample volume	5 - 50 µl	5 - 100 µl	5 - 25 µl
Max. heating rate[1]	4.0 °C/s	5.0 °C/s	2.5 °C/s
Max. cooling rate[1]	3.0 °C/s	4.5 °C/s	1.5 °C/s
Max./min gradient	24 °C/0.1 °C	24 °C/0.1 °C	18 °C/0.1 °C
Gradient temperature range	20 °C to 99 °C	20 °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 to 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		
Interfaces	25 pin signal cable, 12 pin power cable		
Cables	2 x 3 m, one-side fixed at the rear side of the controller		
Control	Remote control via Biometra TSuite computer software or dll-integration in robotic software		
Module dimensions (mm)			
Width	208		
Depth	260 (maximum length with open lid: 332)		
Height	206 (maximum height with lid open in middle position: 287)		
Weight	9.5 kg		

[1] measured within the sample block

Technical Data

Controller

Characteristics	
Power	100 V, 115 V, or 230 V, 50 - 60 Hz
Power Consumption	550 W
User Interfaces	Serial RS232, USB via RS232-to-USB adapter (included) and Ethernet
Dimensions (W x D x H, mm)	240 x 397 (444 incl. cable ports) x 139
Weight	8.4 kg

Order Information

Order number	Description
846-x-070-901	**Biometra TRobot II 96 G** with 96-well aluminum block (0.2 ml) with gradient feature, controller, cables, Biometra TSuite computer software
846-x-070-902	**Biometra TRobot II 96 SG** with 96-well silver block (0.2 ml) with gradient feature, controller, cables, Biometra TSuite computer software
846-x-070-903	**Biometra TRobot II 384 G** with 384-well aluminum block with gradient feature, controller, cables, Biometra TSuite computer software

x = 2 for 230 V, 4 for 115 V, 5 for 100 V, 50 - 60 Hz

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

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