Biometra
An Analytik Jena Company

TProfessional TRIO Thermocycler

Three Thermocyclers in one
for maximum flexibility
and high sample throughput

Innovation · Advancement · Development

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Three Thermocyclers in one for maximum flexibility and high sample throughput

Three independent Thermocyclers in one housing

The TProfessional TRIO Thermocycler is the only instrument that provides three independent blocks and heated lids in one housing. Thanks to the multiblock technology three different independent protocols can be run in parallel. Moreover by the use of the new Temperature Optimisation Step function gradient-like programs, providing three different annealing temperatures for the optimisation of primer pairs can be easily created.

The TProfessional TRIO Thermocycler is available in different versions with three blocks for 48 x 0.2 ml tubes , 30 x 0.5 ml tubes or as combi block version for 48 x 0.2 ml or 18* x 0.5 ml tubes. Therefore the TProfessional TRIO offers high throughput in parallel operation (up to 144 x 0.2 ml samples) in combination with the flexibility to run different protocols. This makes the TProfessional TRIO Thermocycler the perfect instrument for laboratories with the demand for high flexibility and the often required need to optimise new PCR protocols.

* capacity increases to 35 x 0.5 ml tubes by use of small cap tubes

Features

- Three independent Thermocyclers in one housing
- Highest heating and cooling rates (up to 5 °C/sec)
- Runs three different programs at the same time
- High parallel throughput up to 144 samples
- Different block formats available: 30 well, 48 well, combi
- Improved block accessibility
- Three High Performance Smart Lids (HPSL) with automatic pressure control
- New air stream design
- Large VGA Display
- Pre-installed protocols
- New Temperature Optimisation Step
- Protocol quick start option
- Versatile USB functions
- Skip function
- Multiblock selection function

Higher capacity for 0.5 ml tubes

The TProfessional TRIO has three independent blocks and three Smart lids

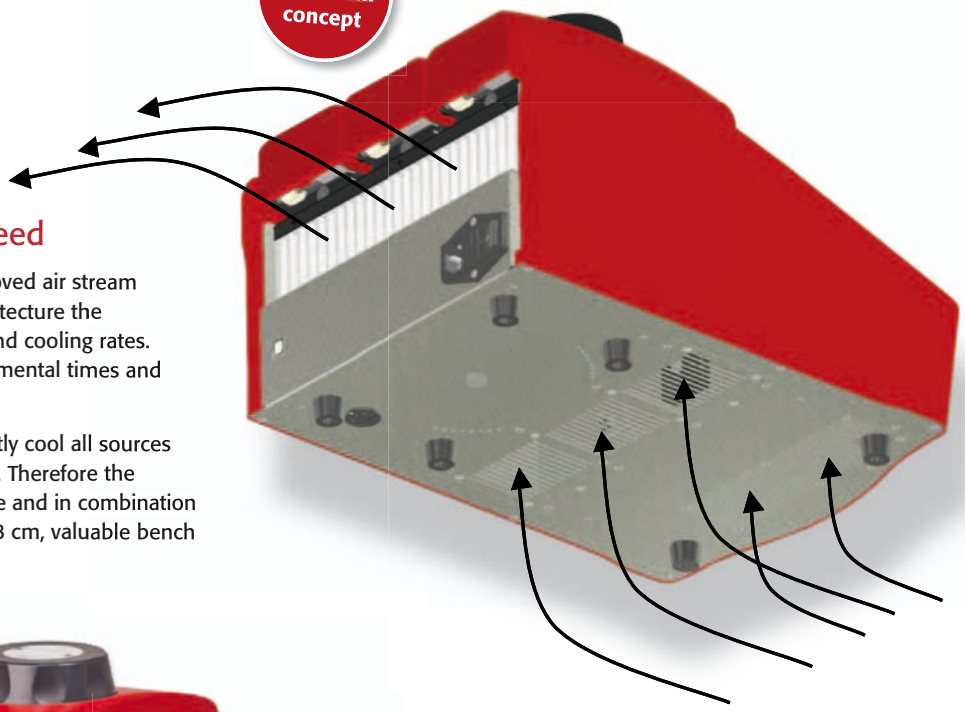
New air stream concept

Heating rate up to 5°C/sec

Air stream design and high speed

By combining the elegant housing with improved air stream design and the complete new hardware architecture the TProfessional TRIO achieves higher heating and cooling rates. High ramping rates provide both short experimental times and increased specificity.

The airstream is specifically guided to efficiently cool all sources of heat emission and is exhausted to the rear. Therefore the instruments can be placed directly side by side and in combination with the compact footprint of only 30 cm x 38 cm, valuable bench space is saved.



Two air inlets are located at the bottom of the TProfessional TRIO. Inside the housing the air is efficiently transmitted by vents to all heat emitting parts. The air leaves the instrument at the rear.

Higher memory capacity

Easy spreadsheet or graphical programming

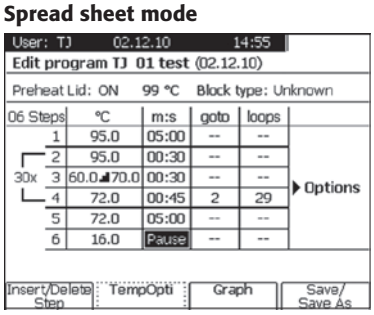
The large VGA display and the keypad of the TProfessional TRIO Thermocycler are arranged at an angle to ensure ergonomic, reflection-free programming. Four softkeys below the display offer quick access to all functions needed in the individual context and four menu buttons above the display to the main menus. In addition direct start and stop buttons on the keypad provide maximum convenience for the navigation within the software.

The intuitive TProfessional TRIO software offers easy spreadsheet programming philosophy. New programs are easily created in a well arranged screen that avoids the need to toggle between different windows. This makes the creation of new or editing existing programs fast and easy. One touch leads from the spreadsheet to the alternative graphical programming mode.
For easy retrieval, programs can be stored in 30 individual subdirectories (optionally password protected). By the administrator function the accumulation of unused programs or user directories can be managed to keep the memory content up-to date.

Easy spreadsheet progamming ...

All program steps are entered in a single screen, thus avoiding endless serial program windows.

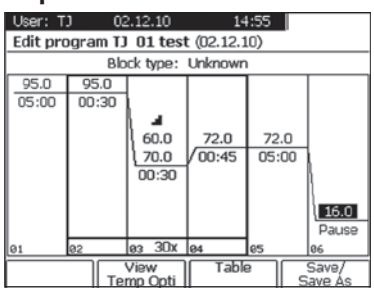
Spread sheet mode



... or graphical editing.

In addition to spreadsheet programming, the TProfessional TRIO allows editing of protocols in the graphical mode.

Graphical mode



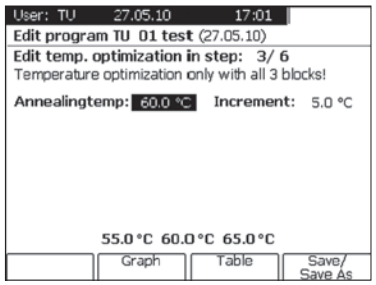
Convenient setup of Temperature Optimisation Steps

To find the optimal annealing temperature of new primer pairs the TProfessional TRIO Thermocycler offers the new Temperature Optimisation Step function. By making use of the three independent blocks the Temperature Optimisation Steps provide different annealing temperatures in a gradient-like fashion.

In the corresponding screen just enter an annealing temperature for the block in the middle and an increment, defining the temperature difference for the first and third block. For maximum ease of use programs containing Temperature Optimisation Steps automatically start on all three blocks so there is no need to start and stop the blocks individually.
For easy identification during programming the Temperature Optimisation Steps are indicated by a staircase shaped icon (see figure Easy spreadsheet programming) and corresponding protocols become saved with the extension "TOS" (see figure Quick Start of the last five programs).

Window for programming Temperature Optimisation Steps

The annealing temperature defines the temperature for central block at this step and the increment the temperatures for the first and third block.



NEW software functions

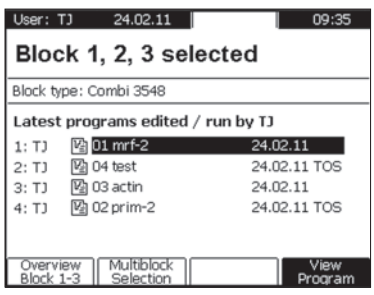
Pre-installed protocols and Quick Start option

The TProfessional TRIO is delivered with a folder containing pre-installed protocols for various PCR applications. The pre-installed protocols can be started directly or copied into any user directory to become modified as desired.

The pre-installed protocols therefore offer an excellent tool to obtain the desired result as quickly as possible and without much programming effort. Another useful option to accelerate the way to results is to access the protocol Quick Start option. For each individual user the TProfessional TRIO displays the five most recently used programs for quick start. For routinely used programs there is no need to toggle between different windows or to scroll through the user directory for the required program.

Muliblock selection function

By the multiblock selection function PCR protocols can be started on more than one block simultaneously.

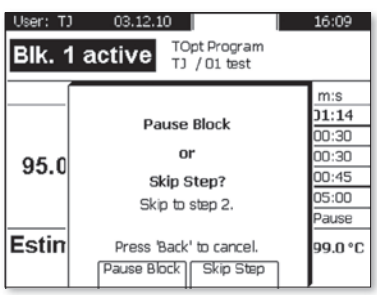


Skip function

By the new skip function single protocol steps it is possible to bypass single steps. The TProfessional TRIO directly proceeds with the next program step.
The skip function can be used to shorten the run time of protocols if applicable.

Skip function

The Skip function allows to skip a program step during the run. The program directly proceeds with the next step.



High Performance Smart Lid technology

The TProfessional TRIO Thermocyclers heated lids prevent condensation and provide reliable contact between samples and thermoblock.
The lids are powered by Biometra's well known Smart Lid technology with integrated clutch mechanism which automatically limits the lid pressure applied to the plasticware and thus saves the tubes from damage. In addition by formation of a homogeneous air cushion an even temperature distribution between the samples is ensured, significantly improving the temperature uniformity. This also serves for reproducible conditions amongst different PCR runs.

The temperature of the independently working lids can be set individually in a range between 30 and 99 °C. This also ensures optimal conditions also for other applications similar to PCR e.g. restriction enzyme reactions. With one press on the front button, the lids gently swing open and arrest in their end position.
The combination of the easier to access blocks now arranged at the same level as the block frame and housing provides a maximum of convenience for individual users.

The TProfessional TRIO lids feature the High Perfomance Smart Lid technology with automatic pressure limitation and a smooth opening mechanism.
The blocks are more easily accessed for inserting and removing PCR plates.

USB functions

The TProfessional TRIO Thermocycler is equipped with two USB ports. The USB B port serves for the connection of the Thermocycler to a computer and the USB A port to connect a USB stick.

By using the USB functions it is very easy to synchronize the memory contents of instruments to provide a backup of important data.
Data transfer protocols, user directories or even the complete memory content can also be exchanged between instruments.
Moreover for documentation the run log files, extended self tests and service info files for remote failure analysis can be saved.

The USB functions are the ideal tool for administration of TProfessional TRIO Thermocyclers and to expand the memory capacity.

Technical specifications

	TProfessional TRIO 30	TProfessional TRIO 48	TProfessional TRIO combi
Order number	070-720	070-723	070-724
Capacity	3 blocks for 30 x 0.5 ml tubes each	3 blocks for 48 x 0.2 ml tubes or 48 well microplates or 6 x strips of 8 each	3 combi blocks for 18 x 0.5 ml tubes** or 48 x 0.2 ml tubes or 48 well microplates or 6 x strips of 8
Max. Heating rate*	4.0 °C/sec	5.0 °C/sec	3.0 °C/sec
Avg. Heating rate*	3.6 °C/sec	4.2 °C/sec	2.7 °C/sec
Max. Cooling rate*	3.6 °C/sec	4.5 °C/sec	2.7 °C/sec
Avg. Cooling rate*	3.2 °C/sec	3.8 °C/sec	2.4 °C/sec
Temperature Uniformity*		± 0.6 °C at 95 °C ± 0.3 °C at 70 °C ± 0.2 °C at 50 °C	
Temperature range	3 °C to 99 °C		
Multiblock tool	Temperature Optimisation Step		
Control accuracy	0.1°C		
Blocks	Aluminium		
Software	Toggle between easy spreadsheet and graphical mode, adjustable ramp rates, time and temperature increments, Extended Self Test, Service Info Files, PC control by TProfessional Manager software, versatile USB functions including software updates and exchange of image files.		
Program memory	30 individual subdirectories, 350 average programs		
Display	¼ VGA screen, 320 x 240 pixel		
Auto restart after power failure	Yes		
Cool samples at 4 °C	Yes		
Heated lid	High Precision Smart Lid for optimal lid pressure and excellent temperature uniformity		
Lid temperature range	30 °C to 99 °C		
Power consumption	1000 Watt		
Power supply	100, 115, 230V / 50–60 Hz		
Noise emission	Very low		
Interfaces	1x USB A Port, 1x USB B Port		
Dimensions (W x D x H)	30 cm x 38 cm x 19 cm		
Weight	15 kg		
Working conditions	5 – 35 °C, 70 % relative humidity		

* According to Biometra standard procedure.

** Capacity increases to 35 x 0.5 ml tubes by use of small cap tubes

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