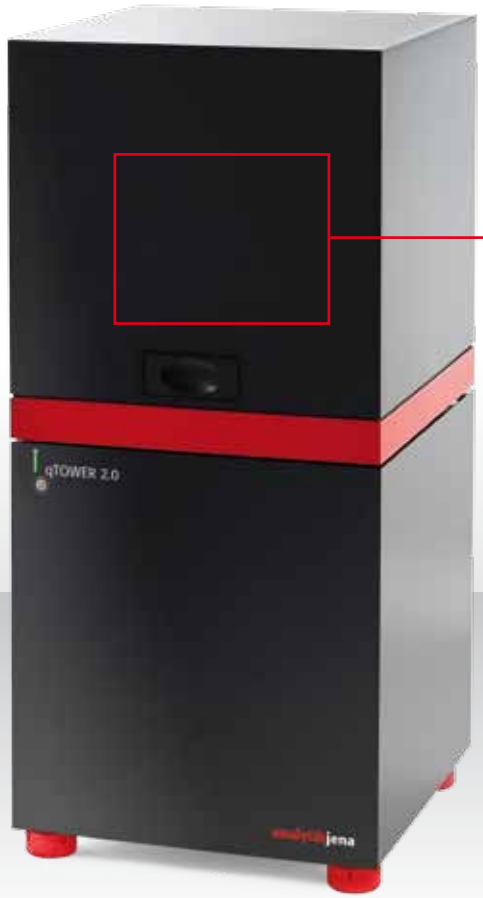
analytikjena

qTOWER 2.0 / 2.2 | Standard real-time PCR with striking design

- Quantitative real-time PCR in proven 96 well standard SBS format
- Patented high performance optical system with a long-term warranty of 10 years
- State-of-the-art heating rates of up to 5.5 °C/sec



Licensed and authorized thermal cycler
PCR
For detailed license information consult manual

long-therm warranty
✶ 10 Years ✶
high end optical components

Life Science unlimited

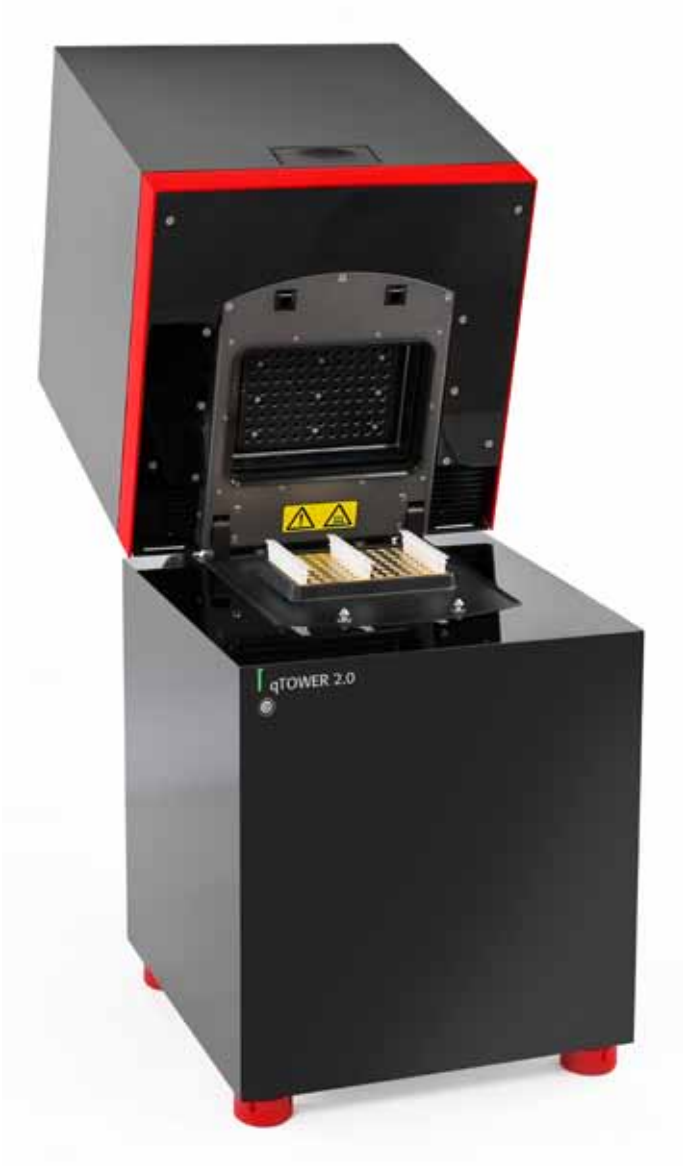
qTOWER 2.0

Standard real-time PCR with striking design

Now, in addition to the qTOWER for *rapid* qPCR, the product family includes the standard real-time thermal cycler qTOWER 2.0. Featuring a striking, modern design, this system allows quantitative PCR in an established 96 well SBS standard format. The qTOWER 2.0 offers an open platform for any kind of real-time PCR plastic materials, such as 0.2 ml single tubes, 8 well strips or 96 well microplates.
The high quality silver block of the qTOWER 2.0 ensures an outstanding level of temperature homogeneity of 0.2 °C along the whole block and is therefore ideally suited for all real-time PCR applications. In combination with the optional gradient function, different assays can be optimized with minimum effort. The qTOWER 2.0 is equipped with a patented, fiber-optic shuttle system for the best possible excitation and detection of a variety of known fluorescence dyes.

Features

- Quantitative real-time PCR in proven 96 well SBS standard format
- State-of-the-art ramping rates of up to 5.5 °C/sec
- For usage of different optical plastic ware: 0.2 ml tubes, 8 well strips or 96 well microplates
- Optimized for volumes of 10 – 60 µl
- Available with or without gradient function (max. temperature range of 40 °C)
- Patented high performance optical system with a long-term warranty of 10 years
- Individual configuration with up to 6 different measurement channels
- Selection out of 10 high-resolution, retrofittable color or FRET modules
- High-speed scan: 6 sec. for a 96 well microplate (independent of the number of dyes to be measured)
- Multilingual intuitive control and evaluation software
- Wide variety of different evaluation methods



qTOWER 2.0 with gold-coated 96 well silver thermal block

Silver block technology

The 96 well block of the qTOWER 2.0 is the basis for performing quantitative real-time PCR. The thermal block is made of gold-coated silver to achieve the best possible performance and maximum thermal conductivity. The resulting outstanding homogeneity and uniformity of temperature combined with state-of-the-art heating rates of up to 5.5 °C/sec and cooling rates of up to 4.0 °C/sec make the instrument the first choice for standard real-time PCR.

Optionally, the qTOWER 2.2 with gradient function is available. The maximum gradient temperature range of 40 °C across 12 columns optimally prepares the instrument to establish new primer pairs. Thereby a special feature is the possibility of programming linear gradients, which not only significantly simplifies the evaluation of results, but also optimizes the whole adaptation process.

- Quantitative real-time PCR in proven 96 standard SBS format
- Flexible use of different optical plastic materials: 0.2 ml tubes, 8 well strips or 96 well microplates
- State-of-the-art ramping rates of up to 5.5 °C/sec
- High performance gradient function across 12 columns with a range of 40 °C

Striking design: Compact footprint for minimal floor space

To avoid potential condensation and to prevent possible sample loss, the qTOWER 2.0 is equipped with a motorized heated lid. It is adjustable up to 110 °C and guarantees optimum contact pressure on the sample tubes or plates during the complete run, independent of the used consumables.

Patented fiber optical shuttle system

The qTOWER 2.0 works with 3 independent, blue, white and red, long-term stable LEDs to optimally excite the different, applicable fluorescence dyes in a wide spectral range. It ensures the highest possible quantum yield to be achieved in each real-time PCR experiment. The qTOWER 2.0 can process sophisticated multiplex experiments with up to 6 different, fluorescence-labelled probes – ranging from blue to the far-red spectral range – without any difficulty. Moreover, the patented optical system consists of a shuttle with 8 high performance fibers, which guarantee a read-out of the 96-well block within only 6 seconds – independent of the number of dyes to be measured.

- Patented high performance optical system with 8 optical fibers and 3 LEDs
- Optimum homogenous excitation and detection for each well
- Read-out of a 96 well microplate within only 6 seconds - independent of the number of dyes

Each component of the high performance fiber optical system has a 10-year long-term warranty.

Maximum flexibility

The qTOWER 2.0 can be freely configured with the available Color and FRET modules. Depending on the application, it can be adapted to either intercalating or DNA binding dyes, hydrolysis probes or even to hybridization probes (FRET probes). The system can easily be retrofitted for future use with additional so-called Color or FRET modules. This keeps the field of applications of the qTOWER 2.0 extremely flexible and easily expandable.

- Mounting of up to 6 different Color or FRET modules
- Use of intercalating or DNA binding dyes, hydrolysis probes and hybridization probes
- Freely configurable color filter selection

The evaluation and control software qPCRsoft also offers the highest level of flexibility and ease of use. The logical arrangement of all tools, intuitive handling and, last but not least, the parameter-orientated memory and programming concept make the software easy to use and clear. While a cycle is in progress, the operator can easily evaluate the data of previous experiments in parallel. Based on the Ct value determination via manually or automatically adapted thresholds, the samples can be quantified absolutely or relatively and the efficiency of the PCR can be determined. In addition, the delta-delta Ct method (with or without relation to PCR efficiency) and a method for allelic discrimination, e.g. for the detection of point mutations, are available.

- qPCRsoft: easy to use and clearly structured
- Integrated evaluation algorithms, e.g. absolute and relative quantification, delta-delta Ct method, PCR efficiency, allelic discrimination
- Parameter-orientated program guides;
- User management with 3 authorization levels

The qTOWER 2.0 or 2.2 convinces in every aspect and is the ideal instrument for quantitative standard real-time PCR.

Technical data

Optical system			
Principle of measurement	Top-reading fluorescence detection via 8 optical fibers with color modules for excitation and emission filters		
Light source	High-power, long-life LEDs		
Detector	CPM – channel photo multiplier | Highly sensitive | Decreased SNR		
Number of color modules	10 available | 6 positions inside device		
Parameters of the color modules			
Name	**Excitation**	**Emission**	**Dyes (examples)**
Color module 1	470 nm	520 nm	FAM, SYBR®Green, Alexa488
Color module 2	515 nm	545 nm	JOE, HEX, VIC, YakimaYellow
Color module 3	535 nm	580 nm	TAMRA, DFO, Alexa546, NED
Color module 4	565 nm	605 nm	ROX, TexasRed, Cy3.5
Color module 5	630 nm	670 nm	Cy5, Alexa633, Quasar670
Color module 6	660 nm	705 nm	Cy5.5, LightCycler Red
FRET module 1	470 nm	580 nm	FAM (donor) / TAMRA (acceptor)
FRET module 2	470 nm	670 nm	FAM (donor) / Cy5 (acceptor)
FRET module 3	470 nm	705 nm	FAM (donor) / Cy5.5 (acceptor)
FRET module 4	515 nm	670 nm	JOE (donor) / Cy5 (acceptor)
Analytical parameters			
Sensitivity	1 nM FAM in minimal 30 µl sample volume		
Read-out time	6 seconds for 96 wells independent of the number of dyes to be measured		
Block capacity	96 wells for 96 well microplates, 8-well strips or individual tubes		
Sample volumes	10 – 60 µl		

System and application parameters of the thermal cycler		Other technical data	
Heating rate	5.5 °C/sec max.	Weight	Approx. 20 kg
Cooling rate	4.0 °C/sec max.	Dimensions (WxHxD)	275 x 585 x 275 mm
Block homogeneity	± 0.2 °C	Power supply	100 – 240 V
Control accuracy	± 0.1 °C	PC-interface	USB
Sample block temperature	3 °C – 99 °C	Software	▪ qPCRsoft | Control and evaluation software ▪ Absolute and relative quantification ▪ Delta-delta Ct method ▪ Allelic discrimination ▪ PCR efficiency
Time inc/dec	± 0.1 to 1 sec/cycle		
Temperature inc/dec	± 0.1 to 1 °C/cycle		
Gradient	Max. 40 °C across 12 columns	Warranty	▪ 2 years ▪ 10 years warranty on the components of the high performance optical system
Lid	▪ Heated lid up to 110 °C ▪ SPS technology		
Contact pressure	10 kg/plate automatically		
Number of programs	Not limited		

Order information

Order number	Description
844-00501-2	**qTOWER 2.0** | Instrument system, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00502-2	**qTOWER 2.2** | Instrument system with gradient function, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00520-0	**Color module 1** - FAM, SYBR®Green, Alexa488
844-00521-0	**Color module 2** - JOE, HEX, VIC, Yakima Yellow
844-00522-0	**Color module 3** - TAMRA, DFO, Alexa546, NED
844-00523-0	**Color module 4** - ROX, TexasRed, Cy3,5
844-00524-0	**Color module 5** - Cy5, Alexa633, Quasar670
844-00525-0	**Color module 6** - Cy5.5, LightCycler Red
844-00526-0	**Color module FRET 1** - FAM / TAMRA
844-00527-0	**Color module FRET 2** - FAM / Cy5
844-00528-0	**Color module FRET 3** - FAM / Cy5.5

** The Color or FRET modules can be ordered separately. The qTOWER 2.0 or 2.2 can be equipped with up to 6 modules.*

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