

## 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 ramping rates of up to 5.5 °C/sec



high end optical components  
\* 10 Years \*  
long-term warranty



## qTOWER 2.0 / 2.2

### 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 12 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

#### 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

To avoid potential condensation and to prevent possible sample loss the qTOWER 2.0 is equipped with a 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.



■ qTOWER 2.0 with gold-coated 96 well silver thermal block



■ Striking design: Compact footprint for minimal floor space

### 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 from 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   Increased SNR		
Number of color modules	12 available   6 positions inside device		
Parameters of the color modules			
Name	Excitation	Emission	Dyes* (examples)
Color module 1 Order number: 844-00520-0	470 nm	520 nm	FAM™, Sybr® Green, Alexa488®
Color module 2 Order number: 844-00521-0	515 nm	545 nm	JOE™, HEX™, VIC®, YakimaYellow™
Color module 3 Order number: 844-00522-0	535 nm	580 nm	TAMRA™, DFO™, Alexa546®, NED™
Color module 4 Order number: 844-00523-0	565 nm	605 nm	ROX™, TexasRed®, Cy3.5®
Color module 5 Order number: 844-00524-0	630 nm	670 nm	Cy5®, Alexa633®, Quasar670™
Color module 6 Order number: 844-00525-0	660 nm	705 nm	Cy5.5®, LightCycler Red®
FRET module 1 Order number: 844-00526-0	470 nm	580 nm	FAM™ (donor) / TAMRA™ (acceptor)
FRET module 2 Order number: 844-00527-0	470 nm	670 nm	FAM™ (donor) / Cy5® (acceptor)
FRET module 3 Order number: 844-00528-0	470 nm	705 nm	FAM™ (donor) / Cy5.5® (acceptor)
FRET module 4 Order number: 844-00529-0	515 nm	670 nm	JOE™ (donor) / Cy5® (acceptor)
FRET module 5 Order number: 844-00531-0	470 nm	605 nm	FAM™ (donor) / ROX™ (acceptor)
Color modul Protein 1 Order number: 844-00530-0	490 nm	580 nm	SYPRO® Orange
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	<ul style="list-style-type: none"> <li>qPCRsoft   Control and evaluation software</li> <li>Absolute and relative quantification</li> <li>Delta-delta Ct method</li> <li>Allelic discrimination</li> <li>PCR efficiency   Melting curve analysis</li> </ul>
Time inc/dec	± 0.1 to 1 sec/cycle	Warranty	<ul style="list-style-type: none"> <li>2 years</li> <li>10 years warranty on the components of the high performance optical system</li> </ul>
Temperature inc/dec	± 0.1 to 1 °C/cycle	Remarks	<ul style="list-style-type: none"> <li>Licensed and authorized thermocycler</li> </ul>
Gradient	Max. 40 °C across 12 columns		
Lid	<ul style="list-style-type: none"> <li>Heated lid up to 110 °C</li> <li>SPS technology</li> </ul>		
Contact pressure	10 kg/plate automatically		
Number of programs	Not limited		

## Order information

Order number	Description
844-00501-2	<b>qTOWER 2.0</b>   Instrument system for 220 V, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR
844-00502-2	<b>qTOWER 2.2</b>   Instrument system 220 V with gradient function, without PC, including qPCRsoft, thermal block and detection module* for the performance of quantitative real-time PCR

\* 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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Subject to changes in design and scope of delivery  
as well as further technical development!



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