

qTOWER

- Combines advantages of rapidPCR and fast real-time fluorescence detection
- Integrated real-time software including automatic data analysis with different methods for quantification, expression ratios and PCR efficiency
- Multi-component analysis
- Equipped with up to 4 excitation and emission filters
- Optimized for low sample consumption

Optical system

Principle of measurement	Top-reading fluorescence detection via 8 light fiber cables with color modules for excitation and emission filters
Light source	3 different long-life LEDs
Detector	<ul style="list-style-type: none"> ▪ CPM – channel photo multiplier ▪ Highly sensitive ▪ Decreased SNR
Number of color modules	<ul style="list-style-type: none"> ▪ 9 available ▪ 4 positions inside device

Parameters color modules

Name	Excitation	Emission	Dyes (examples)
Color module 1	470 nm	520 nm	FAM, SybrGreen, 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
FRET 1	470 nm	580 nm	FAM (donor) / TAMRA (acceptor)
FRET 2	470 nm	670 nm	FAM (donor) / Cy5 (acceptor)
FRET 3	470 nm	705 nm	FAM (donor) / Cy5.5 (acceptor)
FRET 4	515 nm	670 nm	JOE (donor) / Cy5 (acceptor)

Analytical parameter

Sensitivity	<ul style="list-style-type: none"> ▪ 1 nM FAM in minimal 15 µl PCR buffer (equals to 15 fmol FAM per well)
Read out time	<ul style="list-style-type: none"> ▪ 4 sec for 96 wells independent of the number of spectral channels
Microplate format	<ul style="list-style-type: none"> ▪ Ultrathin-walled 96 well microplate LP (low profile)
Sample volume	5 – 20 µl
Sample capacity	96 in parallel

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System and application parameter rapidPCR

Heating rate	12 °C/sec max, (0.1 to 12 °C/sec)
Cooling rate	8 °C/sec max, (0.1 to 8 °C/sec)
Block homogeneity	± 0.2 °C
Control accuracy	± 0.2 °C
Block temperature	4 °C – 99 °C
Time inc/dec	± 0.1 to 1 sec/cycle
Temperature inc/dec	± 0.1 to 1 °C/cycle
Contact pressure	60 kg/plate, automatic
No. of programs	Not limited on PC
Run time	Down to <15 min (application-dependent)
Temperature control mode	<ul style="list-style-type: none"> ▪ Block control ▪ (simulated) Tube control
Lid	<ul style="list-style-type: none"> ▪ Heated sliding lid up to 110 °C (motorized opening/closing) ▪ SPS technology

Other technical data

Weight	Approx. 18 kg
Dimensions (W x H x D)	240 mm x 430 mm x 255 mm
Power supply	100 – 240 V ± 15 % (47 – 63 Hz)
Power consumption	420 W (max.)
PC-interface	USB port
Software	<ul style="list-style-type: none"> ▪ qPCRsoft ▪ Control and evaluation software ▪ Absolute and relative quantification ▪ Delta-delta ct ▪ Allele discrimination ▪ Melting curve analysis ▪ PCR efficiency
Warranty	2 years warranty
Long time guaranty	10 years for optical compounds



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