

qTOWER³ 84 auto
Real-Time quantitative PCR



Technical Data

qTOWER³ 84 auto

General

- Automation-friendly design
 - Reduced footprint
 - Decoupled power module
- Achieving security and maximum configuration flexibility
 - Free accessibility of the microplate tray
 - Motorized drawer and plate lifter
 - Unique labware detection function
- Multiplex capabilities to fit all laboratory needs
- Patented fiber optical system with 10-year long-term warranty

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Sample block	Aluminium with special alloy
Block capacity	384 well microplates with optical foil (verified for automation processes, full-skirted)
Sample size	2 – 30 µL (5 – 20 µL recommended)
Block exchange	No
Number of blocks	1
Heating	Max. 4 °C/second
Cooling	Max. 2 °C/second
Block technology	High-power peltier elements
Standby temperature	Possible, down to 4 °C
Temperature control mode	<ul style="list-style-type: none"> ▪ Block Control ▪ Tube Control
Adjustable temperature range	4 °C to 99 °C
Temperature uniformity	55 ° ± 0.15 °C after 15 seconds
Temperature control accuracy	± 0.1 °C
Temperature increments	Min. 0.1 °C / cycle
Time increments	Min. 1 sec / cycle
Display	No
Software	PC control with qPCRsoft auto
Interfaces	USB for PC connection or Ethernet for the connection with the external power module

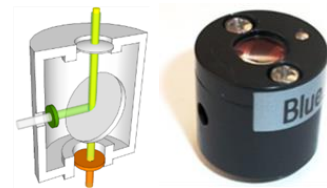
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Dimensions (W × H × L)	310 × 479 × 365 mm (Drawer closed) 310 × 479 × 477 mm (Drawer open)
Traveling distance of drawer	112 mm
Position tolerance of the sample plate when the drawer is moved out	± 0.15 mm
Noise emission	Max. 45 dB
Weight	Approx. 27 kg
Heated lid	Included, 30 °C to 110 °C
Contact pressure lid	30 kg, automated
Safety features	<ul style="list-style-type: none"> ▪ Sample chamber is monitored by sensors ▪ Overheating protection in the heated lid ▪ Interlock switch (drawer)
Warranty	<ul style="list-style-type: none"> ▪ 2 years warranty on device system ▪ 10-year long-term warranty on high performance optics

Optics

Measurement principle	Fiber optic shuttle system with 16 optical fibers
Light source	4 longlife, high-power LEDs (RGBW)
Detector	Highly sensitive PMT (Photo Multiplier Tube)
Readout time	6 seconds for 384 wells independent of the number of selected dyes
Wavelength range	Excitation: 465 nm - 625 nm; Emission: 524 nm - 710 nm
Color modules	<ul style="list-style-type: none"> ▪ 12 Color-, FRET- and Protein modules ▪ 6 positions inside device
Configuration	Preconfigured with four color modules
Upgradability	Possible with service



qPCR Application

Sensitivity	1 nmol/L FAM in 10 µL sample volume
Dynamic range	10 orders of magnitude
Passive reference	<ul style="list-style-type: none"> ▪ Not necessary, due to single excitation/detection of each well ▪ Optional within software
Multiplex analysis	Up to 6-fold

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Parameters color modules

Preinstalled color modules

Name	Excitation	Emission	Examples of detectable fluorescent dyes
Color module 1	465 ± 15 nm	524 ± 12 nm	FAM TM , SYBR [®] Green, Alexa488 [®]
Color module 2	510 ± 15 nm	565 ± 15 nm	JOE TM , HEX TM , VIC [®] , YakimaYellow [®]
Color module 4	560 ± 15 nm	610 ± 15 nm	ROX TM , TexasRed [®] , Cy3.5 [®]
Color module 5	625 ± 10 nm	680 ± 15 nm	Cy5 [®] , Alexa633 [®] , Quasar670 TM

Optional color modules

Name	Excitation	Emission	Examples of detectable fluorescent dyes
Color module 3	530 ± 15 nm	585 ± 15 nm	TAMRA TM , DFO TM , Alexa546 [®]
Color module 6	625 ± 10 nm	710 ± 20 nm	Cy5.5 [®]
FRET module 1	465 ± 15 nm	585 ± 15 nm	FAM TM (Donor) / TAMRA TM (Acceptor)
FRET module 2	465 ± 15 nm	680 ± 15 nm	FAM TM (Donor) / Cy5 [®] (Acceptor)
FRET module 3	465 ± 15 nm	710 ± 20 nm	FAM TM (Donor) / Cy5.5 [®] (Acceptor)
FRET module 4	510 ± 15 nm	680 ± 15 nm	JOE TM (Donor) / Cy5 [®] (Acceptor)
FRET module 5	465 ± 15 nm	610 ± 15 nm	FAM TM (Donor) / ROX TM (Acceptor)
Color module protein 1	465 ± 15 nm	585 ± 15 nm	SYPRO [®] Orange

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Power module qTOWER³ 84 auto

Dimensions (W × H × L)	290 × 186 × 335 mm
Weight	Approx. 12 kg
Power supply	100 / 115 / 230 V
Max. Power	950 W
Frequency	50/60 Hz
Output ports Number (incl. designation)	3 (POWER, DATA 1, DATA 2)
Fuses	2× 10 AT / 250 V
Protection type	IP 20
Protection class	I
Warranty	2 years warranty on device system

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