

*Exicycler*TM384

Real-Time Quantitative PCR System



Exicycler™ 384 | Real – Time PCR System

Cost Saving Strategies

Exicycler™ 384 accommodate as many as 384 samples at once, four times greater than a traditional 96 well instrument. In addition, the amount of reagent is dramatically reduced by 75%. Saving time and reagent use will help you maximize cost saving strategies.



Applications

- Quantification of Gene Expression
 - MicroRNA expression analysis
 - Gene detection
 - Virus load analysis
- Pathogen Detection
- Genotype Analysis
 - SNP (Single nucleotide polymorphism) detection
 - Drug resistance analysis
- Genetic Disease Detection
- Oncology
- DNA Methylation Study

Use a Quarter of Reagent!
Quadruple Throughput!

Sensitive Optics by Light Polarization

Bioneer's imaging technique based on light polarization provides sensitive detection for robust and reliable results. Patented polarizing optical apparatus mitigates the common problem of a reflection light*, allowing precise quantification and target discrimination (Figure 1).

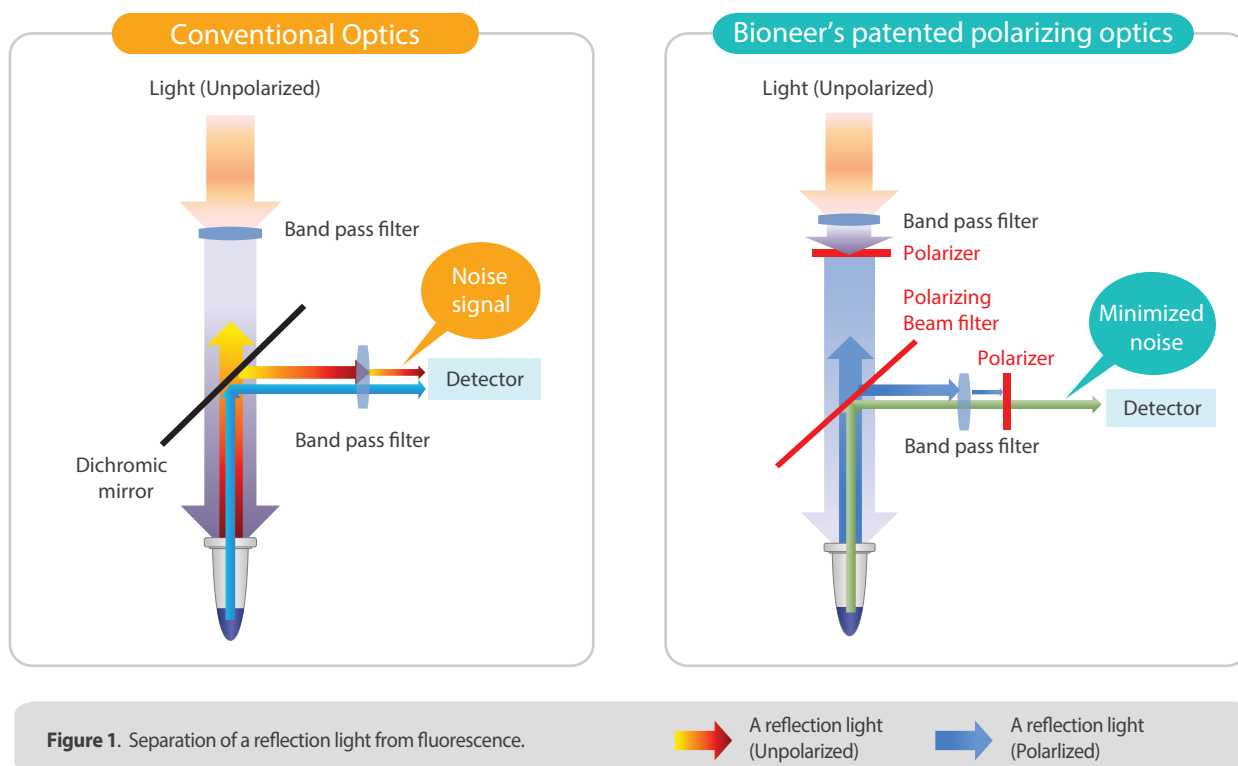


Figure 1. Separation of a reflection light from fluorescence.

* Problem of a reflection light: In the conventional technology, excitation light is generally brighter than fluorescence generated from the sample and therefore interferes with it. Furthermore, it is hard to completely distinguish one from the other which can cause imprecise and unreliable results.

True 5-color Multiplexing

Exicycler™ 384 is a flexible, 5-color system with advanced optical features (light tunnel technology), which eliminates use of a reference dye. No need to reserve one channel for a reference dye, 5-color multiplexing is available.

Filter	Excitation	Emission	Fluorescence dye
1	475nm	530nm	FAM, SYBR Green I
2	520nm	560nm	JOE, TET
3	550nm	590nm	TAMRA, Cy3
4	570 nm	630 nm	Texas Red, ROX
5	630 nm	690 nm	Cy5

Multiplex gene expression at low volume

PCR with a minimum volume of 5 µl of reagent – Efficient and economical

The benefit of using a minimum volume of 5 µl is that both the efficiency and economy are improved as the cost is reduced by drastically reducing the amount of reagent consumed. No need to reserve one channel for a reference dye, which enables 5-color multiplexing, DNA amplified in reactions using five reporter dyes to check five targets (Figure 2).

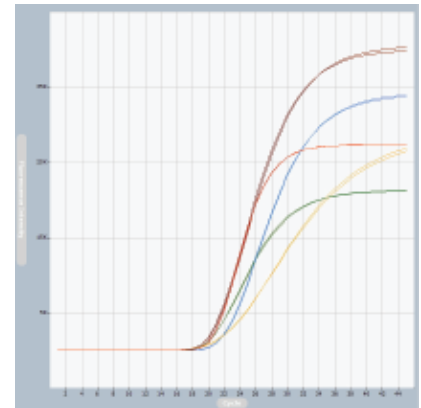


Figure 2. Up to 5 target genes can be detected in a single tube with a minimum volume of 5 µl
 ■ : FAM/T. vaginalis ■ : TET/M. hominis
 ■ : TAMRA/TMV ■ : CY5/HSV type2
 ■ : Texas Red/HSV type1

Wide Linear Dynamic Range

Over 9 logs of detection dynamic range - Sensitive

The benefit of having wide linear dynamic range is especially important for the quantification of low concentration target. It simplifies experiments by avoiding repeating assays. *Exicycler*[™] 384 has nine orders of magnitude wide dynamic range especially for the quantitative experiment. Fluorescence data from a series of 10-fold dilution of PGK1 DNA (10^{10} copies) amplified using reporter dyes to check on target: FAM/PGK1. Graph shows ten Ct values about each dilution: 7.8, 10.3, 13.9, 18.1, 21.6, 25.7, 29.3, 32.7, 36.5, 39.4 (Figure 3).

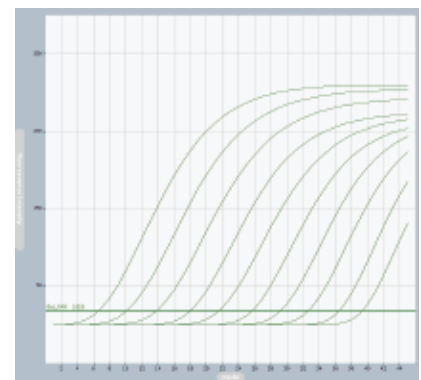


Figure 3. Ct values of 10-fold diluted samples show a wide dynamic range of quantification

Target discrimination

Precise detection by concentration difference (2-fold serial dilutions)

Exicycler[™] 384 is able to distinguish precisely from the sensitive concentration difference of target to be amplified. Fluorescence data from a series of 2-fold dilution of CSF2 DNA (10^8 copies) amplified using reporter dyes to check one target: TET/CSF2. Graph shows ten Ct values about each dilution: 14.3, 15.5, 16.7, 17.8, 19.0, 19.9, 21.0, 22.1, 23.3, 24.3 (Figure 4).

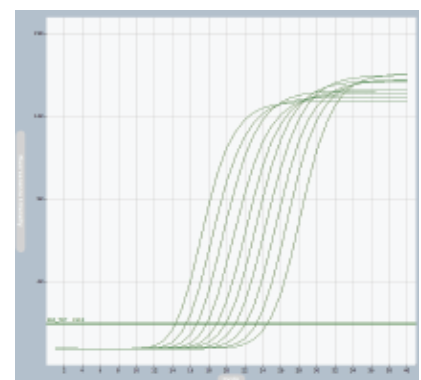


Figure 4. *Exicycler*[™] 384 provides sensitive detection and precise target discrimination down to 2-fold differences

Excellent Accuracy and Uniformity

1. Precise temperature control with cutting-edged algorithm for reproducibility

Precise temperature control system improves temperature accuracy and uniformity throughout the entire wells of thermal block. The temperature deviation is less than $\pm 0.3^{\circ}\text{C}$ between center and border wells (Figure 5).

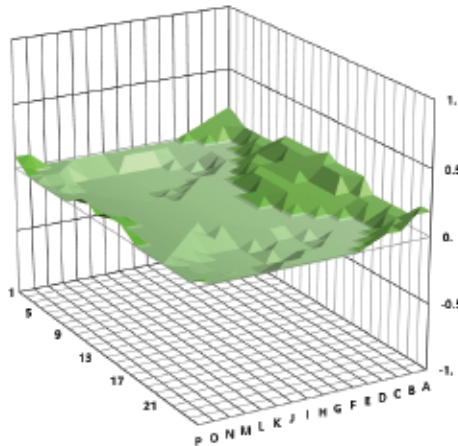


Figure 5. The temperature range of well-to-well

2. Excellent homogeneity of amplification.

With implementation of LT technology in the optics module, well-to-well signal variation is minimized and well-to-well optical homogeneity is improved. No matter in which well the reaction occurs, the Ct variation will be within 0.5 (Figure 6).

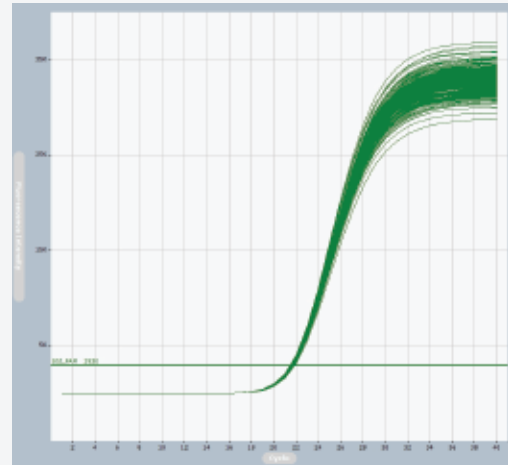


Figure 6. qPCR result using 10^6 copies of Lambda DNA in each of 384 well positions

Intuitive Software

User-friendly interface provides convenience for every step of qPCR process including protocol setup, data analysis and result storage.

Analysis software on *Exicycler*™ 384 has 4 different tools. Data analysis modules include Absolute Quantification, Relative Quantification, Existence/Nonexistence, SNP Genotyping and melting curve analysis (Figure 7). Simply choose an appropriate tool for your experimental purposes.

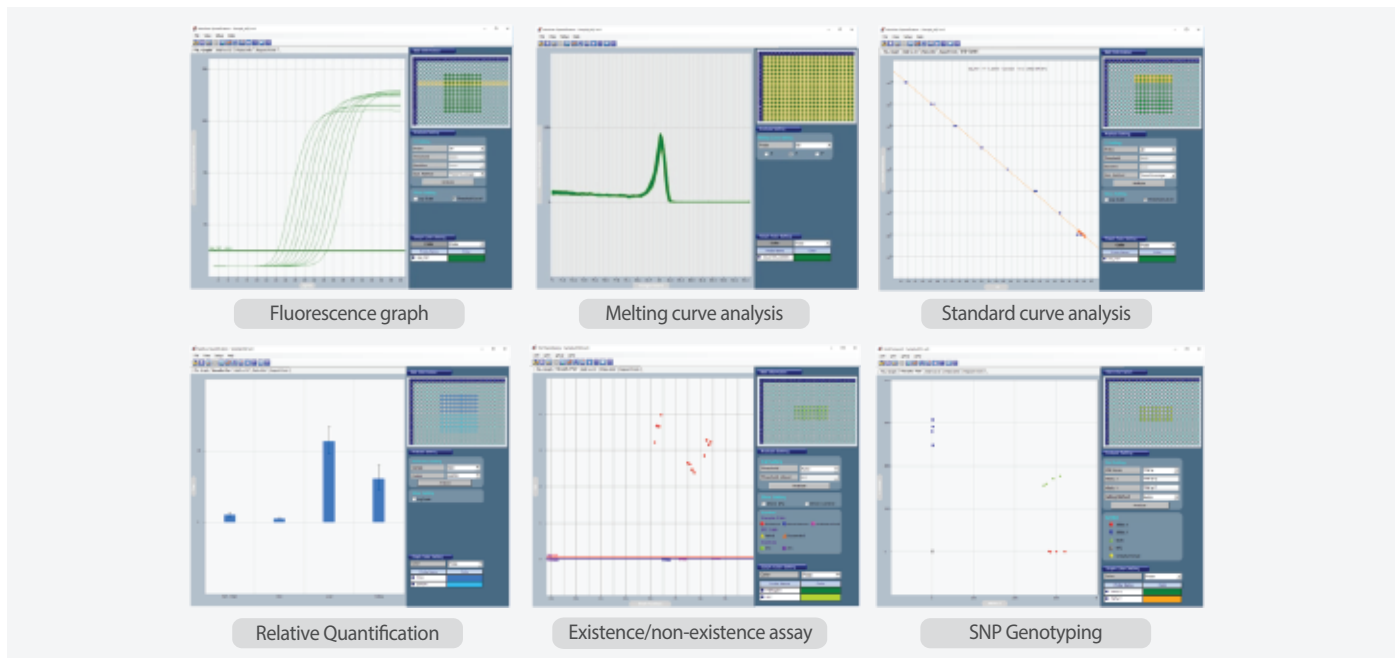


Figure 7. *Exicycler*™ 384 Analysis Software

Ordering Information

Cat No.	Product Description
A-2061	Exicycler™ 384 Real-Time Quantitative Thermal Block
Cat. No.	Premix & Reagent
K-6253	AccuPower® 2X GreenStar™ qPCR Master Mix / 100 rxn, 50 µl reaction
K-6603	AccuPower® Plus DualStar™ qPCR Master Mix(2X), 2.5 ml

Specifications

Physical specifications	
Dimension (cm)	35.5(W) x 54(H) x 47(D)
Weight (kg)	41
Sample capacity/ size	384
Sample volume (μℓ)	5 ~ 20 (10 recommended)
Power consumption	100 ~ 240 VAC, 50/60 Hz, Max 800VA
Operating temperature (°C)	15 ~ 30
Operating Humidity (%)	20 ~ 80, no condensation

Thermo module specifications	
Method of heating / cooling	Peltier
Temperature range (°C)	4.0 ~ 99.9
Temperature accuracy (°C)	± 0.3
Temperature uniformity (°C)	± 0.3
Ramping rate (°C /sec)	Max 4.5
Temperature increment range (°C)	0.1 ~ 2.0
Lid temperature (°C)	90 ~ 120
Time increment range (sec)	1 ~ 60
Gradient operational range (°C)	40 ~ 95 (between 1 ~ 20)

Computer specifications	
Operating system	Windows 7 (32-bit OS only)
Processor speed	Intel Dual Core E2160 (1.8GHz) or higher
Memory	1GB or higher
Communication port	USB 2.0 high speed
Screen resolution	1280 X1024 or higher

Optical specifications	
Light source	Short arc lamp (120W)
Sensor	16-Bit 2D CCD
Excitation Filter / Emission Filter	5 Sets

Contact Us

<p>Bioneer Corporation 8-11 Munpyeongseo-ro, Daedeok-gu Daejeon, 34302, Republic of Korea Tel: +82-42-930-8777 (Korea: 1588-9788) Fax: +82-42-930-8688 E-mail: sales@bioneer.com</p>	<p>Bioneer Inc. 155 Filbert St. Suite 216 Oakland, CA 94607, USA Toll Free: +1-877-264-4300 Fax: +1-510-865-0350 E-mail: order.usa@bioneer.us.com</p>	<p>Bioneer R&D Center Korea Bio Park BLDG #B-702 700 Daewangpangyo-ro, Bundang-gu, Seongnam-si Gyeonggi-do, 13488, Republic of Korea Tel: +82-31-628-0500 Fax: +82-31-628-0555</p>
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