

BIOER

REAL-TIME PCR SERIES

***Fluorescent Quantitative
Detection System***

Add : 1192 Bin An Rd., Hi-tech (Binjiang) District, Hangzhou, 310053, P.R.China

Tel : +86-571-87774575

E-mail : overseas@bioer.com.cn

Http ://www.bioer.com.cn

Fax : +86-571-87774553

After-sales service : +86-571-87774558

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HANGZHOU BIOER TECHNOLOGY CO., LTD.

Chapter 1



Fluorescent Quantitative Detection System

Early in 1995, BIOER TECHNOLOGY started research and development on application of semiconductor thermoelectric module (peltier), and in 2002 launched LineGene I Fluorescent Quantitative PCR Detection System which has obtained national patent for invention (Patent No.: ZL01116421.2) and has been the first quantitative PCR in China with independent intellectual property and approved to be registered under China's State Food and Drug Administration. Over the years, BIOER has continued its innovation and successively launched LineGene and QuantGene series real time PCR detection systems.

With the unique design, excellent temperature control accuracy and uniformity, LineGene Series has become one of the world's most universal and precise systems and has been referred to by many literatures.

QuantGene Series is the brand-new product launched by BIOER based on the consistent superior quality of LineGene Series.



QuantGene 9600



LineGene 9600 Plus



LineGene K Plus



LineGene Mini

QuantGene 9600



NEW!

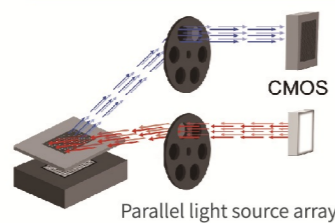
Based on the consistent superior quality of LineGene family, QuantGene 9600 has adopted mature thermoelectric refrigeration technology, brand-new light source and light path design. The unique constant-current power and 6-zone independent temperature control method ensure more rapid, correct and stable fluorescence quantitative analysis of the product, while maintaining its excellent performance in low energy consumption.

The product is modularized with various configurations to choose from. Meanwhile, it has been added with functions including independent temperature control, low-temperature storage of sample at 4°C, and automatic dehumidification.

Compared with last-generation equipment, it will comprehensively realize automatic gain setting and improve user experience. In the meantime, system customization is available for satisfying requirements of various clients. Thus, it will fully meet the demand of scientific research and clinical diagnosis.

Light path detection system

Light path detection system



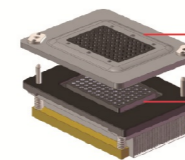
- Completely new parallel light source array; improve laser effect and intensify fluorescence signal.
- Illuminating and receiving respectively adopt independent filter wheel; it thus requires no path expansion to deal with secondary laser detection test.
- With concentrated beam conduction design of imported high-end optical fiber adopted, it can improve fluorescence signal and reduce optical conduction loss.
- It has adopted top imaging technology and requires less than 1 second to test one channel.

Light path system



- Light path
- Adopt new-generation high-sensitive CMOS
- Brand-new optical design and image calculation processing

Superior performance on temperature control and sealing effect



- Hot lid
- Better temperature uniformity
- Temperature control module
- Adopt long-service life semi-conductor refrigerator
- Adopt 6 temperature zone module
- Adaptable to various test tubes

Temperature control module

Internal hot lid

Internal hot lid ensures better temperature uniformity and reduces reagent evaporation in test tube to the maximum extent.

High temperature rise rate

High ramp rate, adopt long-service life thermoelectric module

Block with 6 independent temperature zones

Block with 6 independent temperature zones and TAS technology ensures high temperature uniformity between each well.

Good sealing effect

With superior performance on sealing effect, the temperature control module can store sample in low temperature without dew formation. After experiment is finished, the sample is not necessary to be taken out immediately, easier for downstream application use.

Intelligent operating system

UI design

New UI design of international standard can adapt to the operation custom in mainstream market both at home and abroad.

Adaptable to smart phone app

Smart phone app ensures remote operation and real time monitoring.

Auto Gain

User experience is improved with the comprehensive accomplishment of auto gain.

Multiple analysis modes

It covers multiple analysis modes: qualitative/absolute quantitative, standard curve, melting curve, high-resolution melting curve (HRM), SNP analysis, and relative quantitative and isothermal amplification.

Comprehensive analysis

Comprehensive analysis and report functions, flexibly print multiple and single sample reports.

Product parameters

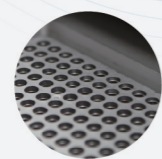
Product name	QuantGene 9600 Fluorescence Quantitative PCR Detection System					
Product model	FQD-96C					
Sample capacity	0.2ml single tube (with transparent cap), 96×0.2(0.1) ml PCR plate (with transparent cap) 8-strip tube (with transparent caps)					
Reaction system	10-100μL(96 well block)					
Dynamic range	1~10 ¹⁰					
Detection path	F1	F2	F3	F4	F5	F6
Suitable probe/dye	FAM, SYBR Green I	HEX/VIC/TET/JOE/CY3 /NED/TAMRA	ROX, TEXAS-RED	Cy5	Cy5.5	Customized
Excitation wavelength	300-800nm					
Fluorescence detection wavelength	500-800nm					
Module working temperature range	4-105°C (resolution: 0.1°C)					
Max. temperature heating rate	5.0°C/s					
Max. temperature cooling rate	5.0°C/s					
Temperature control precision	±0.15°C					
Temperature uniformity	≤±0.2°C					
Hot lid temperature range	Setting temperature: 30-110°C (adjustable, minimum: ambient temperature +5°C)					
Temperature control mode	Block Mode and Tube Mode					
Special function	Absolute quantitative automatic analysis, relative quantitative, SNP analysis, Melting curve analysis, 6 independent temperature zones, HRM, Multi-channel crosstalk calibration, background correction, Auto Gain, customizable parameters, etc.					
Gradient control section	6-zone temperature control					
Port method	USB port (connect to computer); Bluetooth port					
Input power	100-240V, 50/60Hz, 1000VA					
Outer dimension	380mm×400mm×380mm					
Net weight	20KG					
Safety protection and alarm	Over-temperature protection and alarm for hot lid; Over-temperature protection for switch power					
Safety certification	CE/EMC, in line with RoHS2 requirements					

*effect value tested in standard lab environment.

LineGene 9600 Plus



LineGene 9600 Plus real time PCR detection system is specially designed for research and clinical users. It adopts the newest customized semi-conductor refrigerator (Peltier) of Ferrotec. With advanced optical fiber technology and brand-new global wide-voltage switch power, patent technology of unique heat dissipation and patent mode of bottom detection, LineGene 9600 Plus presents higher ramp rate, better temperature control precision, temperature uniformity and performance stability.



96-well high throughput



Motors with auto brake for self-protection



Maximum 36°C gradient temperature range



3D hot lid



Portable tablet compatibility with wireless use makes operation easier.

Product features

Superior performance

- New TE module with special technique to ensure long service life
- Precise temperature control technology ensures temperature fluctuation of each well lower than 0.1°C
- Unique bottom detection, compatible to reaction volume down to 5µl
- Combination of precise light path system and super highly-sensitive PMT system ensures super high sensitivity and precision of fluorescence detection
- LED excitation light source of super long service life requires no maintenance.
- Brand-new automatic hot lid technology, free from manual operation, automatic open and close, effectively prevent reagent evaporation
- 6 channels fluorescence detection, no crosstalk between different channels
- Equipped with whole block scanning and formulated line scanning mode, 96-well double-color scanning takes only 5.5s

Powerful software system

- Operation interface in English language, simple to use
- Multiple templates, easy to find experiments saved, and fast to set up new experiment.
- Various analysis modes: qualitative/absolute quantitative, standard curve, melting curve, high-resolution melting curve (HRM), SNP analysis, relative quantitative and isothermal amplification.
- Humanized software with user friendly interface
- Comprehensive analysis and report function, flexibly print single and multiple sample reports
- Custom gain and auto gain fully satisfy various experiment demand of different users.

Powerful technical team

- BIOER owns over fifteen years' experience in professional PCR development and technical accumulation.
- BIOER provides comprehensive pre-sales technical support and after-sales application engineers.
- It owns professional reagent development team which can provide a full range of reagents independently developed to deal with compatibility of the upstream and downstream reagents, making scientific research easier.

Product parameters

Product name	LineGene 9600 Plus Fluorescent Quantitative Detection System					
Product model	FQD-96A					
Sample capacity	96×0.2ml PCR plate, 12×8-strip tubes, 96×0.2ml single tube (transparent bottom)					
Reaction system	5~100µL					
Dynamic range	1~10 ¹⁰					
Medical instrument registration certificate	G.X.Z.Z. 20153400273					
Detection path	F1	F2	F3	F4	F5	F6
Suitable probe/dye	FAM,SYBR Green I	HEX/VIC/TET/JOE/CY3 /NED/TAMRA	ROX, TEXAS-RED	Cy5	Cy5.5	Reserved path
Excitation wavelength	300-800nm					
Detection wavelength	500-800nm					
Module working temperature range	4-105°C (resolution: 0.1°C) with SOAK low-temperature storage function					
Ramp rate	4.0°C/s (max)					
Temperature control precision	±0.1°C					
Temperature uniformity	≤±0.3°C					
Hot lid temperature range	30-110°C (adjustable, default by 105°C and automatic hot lid)					
Temperature control mode	Block Mode and Tube Mode (automatic control based on liquid level)					
Operation mode	Continuous operation					
Gradient temperature range	1~36°C					
Fluorescence intense detection repetition	5%					
Scanning mode	Full-plate scanning and designated line scanning					
Scanning time	5.5s					
Special function	Absolute quantitative automatic analysis, relative quantitative, SNP analysis, Melting curve analysis, 6 independent temperature zones, HRM, Multi-channel crosstalk calibration, background correction, Auto Gain, customizable parameters, etc.					
Programming	Max. 20 segments for each program, max. 99 cycles					
Operating system	Microsoft: Windows 7/Window 8.1/Window 10 application software: :Excel 2000/2002/2003/2007/2012					
Minimum computer configuration	RAM: 512M, hardware space: 10GB CPU: Pentium®4 virtual memory: ≥1000MB					
Port method	Support USB and RS232 data port and Bluetooth port					
Input power	100-240V, 50/60Hz, 600W					
Outer dimension	410mm×386mm×352mm					
Certification	Ferrotec Peltier/CE/EMC/RoHS2.0/PICC Product Quality Liability Insurance/IVD/MET					

QuantGene 9600

LineGene 9600 Plus

LineGene K Plus

LineGene Mini

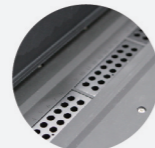
LineGene K Plus



LineGene K Plus fluorescent quantitative detection system adopts fluorescence real-time detection method to analyze amplification of PCR templates, suitable for polymerase chain reaction fluorescence quantitative detection in research areas including human genome engineering, forensic medicine, oncology, organization and population biology, paleobiology, zoology, and botany, and in clinical diagnosis for virus, cancer and genetic disease. The PCR detection system is in-vitro medical diagnosis equipment which can be used in clinical lab for copy-number quantitative analysis of various genes with fluorescence polymerase chain reaction method.



Portable tablet compatibility with wireless use makes operation easier.



Unique three independent modules, precise temperature control, and easy PCR tube placement



Status LED indicator brings user better experience.



3D hot lid, constant pressure, sealing and insulating



Compact and light, takes less space.

Product features

Powerful performances

- Unique module bottom detection technology of patent for invention effectively prevents mutual interruption
- High-intensity LED excitation light source, energy conservation, high efficiency, long service life and free from maintenance
- Unique sandwich Ferrotec Peltiers heating method increases thermal transmission contact area, accelerates heat transmission and improves temperature ramp rate
- Multiple-point temperature control ensures best temperature uniformity of 48 wells
- Three independent temperature control modules ensure more accurate control of different annealing temperatures.
- Equipped with SOAK constant temperature function, meeting the low-temperature storage demand
- Brand-new automatic hot lid technology, free from manual operation, automatic control, effectively prevent reagent evaporation

Intelligent operating system

- Flexible program setting, comprehensive analysis and report functions
- Portable tablet compatibility with wireless use makes operation easier.
- Multiple templates, easy to find saved experiments, and fast to set up new experiment.
- Various analysis modes: qualitative, relative/absolute quantitative, standard curve, melting curve, high-resolution melting curve (HRM), SNP analysis, and isothermal amplification.
- Comprehensive analysis and report function, flexibly print single and multiple sample reports

Product parameters

Product name	LineGene K Plus Fluorescence Quantitative PCR Detection System			
Product model	FQD-48A			
Sample capacity	48×0.2ml (suitable for single tube and 8-strip tubes)			
Reaction system	5~100μL			
Medical instrument registration certificate	G.X.Z.Z. 20153400273			
Detection path	F1	F2	F3	F4
Suitable probe/dye	FAM,SYBR Green I	VIC, HEX,JOE, Cy3, TAMRA	ROX, TEXAS-RED	Cy5 Quasar-670
Excitation wavelength	445~485nm	513~533nm	561~581nm	620~650nm
Detection wavelength	515~535nm	554~574nm	602~622nm	674.5~689.5nm
Module working temperature range	4-105°C (resolution: 0.1°C)			
Ramp rate	4°C/s(max)			
Temperature control precision	±0.1°C			
Temperature uniformity	≤±0.3°C			
Hot lid temperature range	Ambient temperature +5~110°C (default by 105°C and automatic hot lid)			
Temperature control mode	Three independent temperature control sections, temperature difference range 0.1~6°C			
Operation mode	Continuous operation			
Special function	Absolute quantitative automatic analysis, relative quantitative, SNP analysis, Melting curve analysis, 6 independent temperature zones, HRM, Multi-channel crosstalk calibration, background correction, Auto Gain, customizable parameters, etc.			
Operating system	WindowsXP/Windows7/Windows8/Windows10			
Control computer	May select Surface Pro series, PC/Laptop			
Port method	Support USB and RS232 data port and Bluetooth port			
Input power	100-240V,50/60Hz,500W			
Outer dimension	384mm×353mm×348mm			
Certification	Ferrotec Peltier/CE/EMC/RoHS2.0/PICC Product Quality Liability Insurance/IVD			

QuantGene 9600

LineGene 9600 Plus

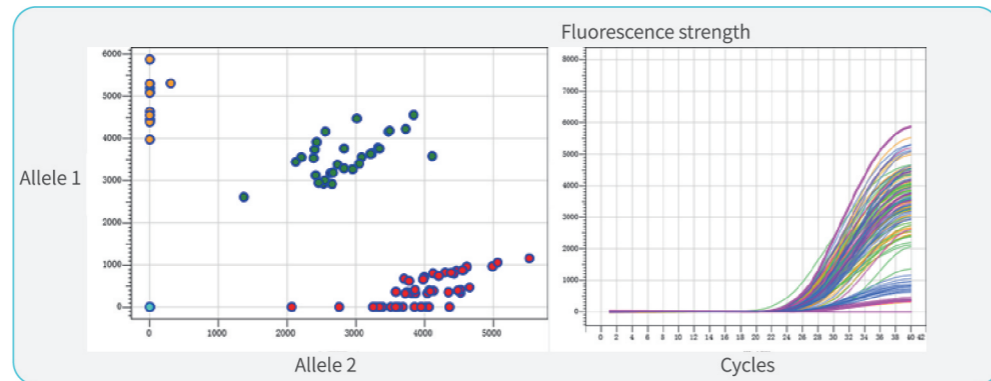
LineGene K Plus

LineGene Mini

Cases of BIOER Fluorescence Quantitative PCR Detection System Application

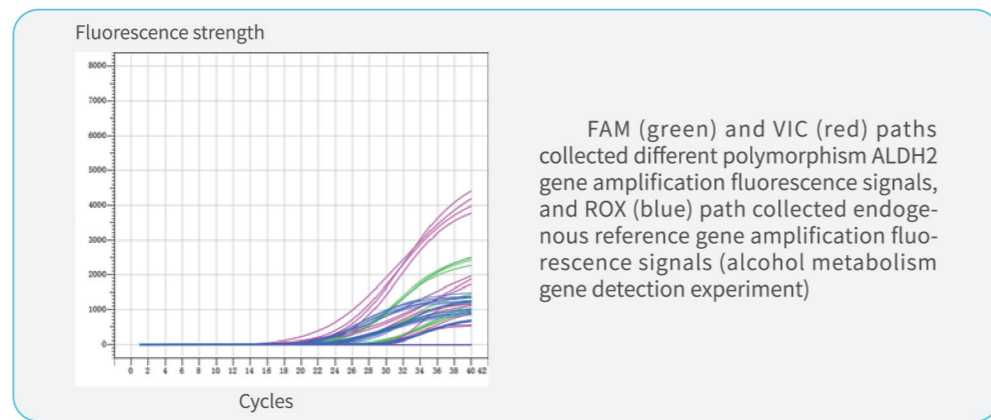
Case I SNP analysis of folic acid detection reagent kit by a Jiangxi company

Nucleotide sequences of the same locus on the same chromosome from different individual usually are the same, and when single nucleotide basic group difference makes nucleotide sequence present polymorphism such as replacement, loss and insert, it is called as single nucleotide polymorphism.



SNP scatter diagram of fluorescence sampling analysis and amplification curve of the experiment (96-well plate experiment) are shown above; the curve presents perfect smooth curve; in SNP scatter diagram, the genotypes match original genotypes (precise medical individualized medication).

Case II Human ALDH2 (aldehyde dehydrogenase) Gene Polymorphism Detection Reagent Kit-Absolute Quantitative

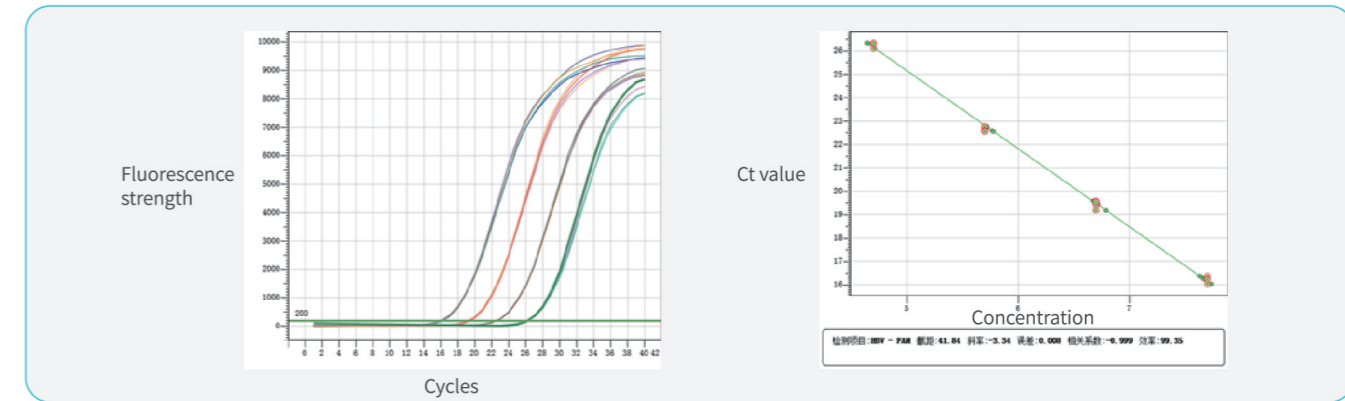


FAM (green) and VIC (red) paths collected different polymorphism ALDH2 gene amplification fluorescence signals, and ROX (blue) path collected endogenous reference gene amplification fluorescence signals (alcohol metabolism gene detection experiment)

BIOER fluorescence quantitative PCR detection is of high sensitivity. When the reagent fluorescence amplification is relatively low, it can improve the gain to amplify fluorescence signals to adjust, and the operation is flexible (precise medical individualized medication).

Case III Absolute Quantitative Experiment for "Hepatitis B Virus Nucleic Acid Amplification (PCR) Fluorescence Quantitative Reagent Kit" Independently Developed by BIOER

Hepatitis B Virus Nucleic Acid Amplification (PCR) Fluorescence Quantitative Reagent Kit extracts HBV DNA from human serum or plasma, introduced by primer and with four deoxynucleotides as substrate, carries out in-vitro amplification by enzymatic action of heat-proof DNA polymerase. In the system, Tapman probe method and competitive internal standard technology are adopted to quantitatively detect the quantity of HBV DNA in human serum or plasma. It can be used for auxiliary clinical diagnosis of HBV and treatment effect observation for antiviral drugs.



The above graph shows the experiment results of BIOER HBV reagent kit standard sample of four repetitions and four gradients in BIOER Fluorescence Quantitative PCR Detection System. We can observe that the HBV reagent kit is of good stability, good curve repeatability, evident gradient, highly reliable quantitative results and strong fluorescence signals.

Supporting Reagent List

Article No.	Product name	Specification	Experiment type
BSA01	RT-007AWV reverse transcriptase	200U/1000U	
BSB40	BioRT HiSensi cDNA First Strand Synthesis kit	100T	cDNA synthesis
BSB07	BioRT One Step RT-PCR kit	100T	RT-PCR
BSB07	BioRT Master One Step RT-PCR kit	100T	
BSB05	BioRT Two Step RT-PCR kit	100T	Real-time PCR
BSB30	BioEasy Master Mix plus (SYBR Green)	200T	
BSB33	BioRT Real Time RT-PCR kit (SYBR Green)	50T/100T	
BSB03	BioEasy SYBR Green I Real Time PCR kit	100T/200T	
BSB25	BioEasy Master Mix (SYBR Green)	200T	
BSB08	BioEasy Taqman PCR Magic Mix kit	200T	
BSB35	BioEasy Master Mix (Probe,high ROX)	200T	
BSB23	BioRT Real Time RT-PCR kit	50T/100T	Real-time PCR
BSB01M1	HBV PCR Fluorescence Quantitative Diagnostic kit	48T	
BSB02M1	HCV RT-PCR Fluorescence Quantitative Diagnostic kit	48T	
BSB24M1	HIV-1 Fluorescence Quantitative Diagnostic kit (with internal control)	48T	
BSB18M1	HCMV PCR Fluorescence Quantitative Diagnostic kit	48T	
BSB04M1	Human Telomerase Reverse Transcriptase (hTERT) mRNA One Step RT-PCR Quantification kit	48T	
BSB06M1	Human Telomerase associated RNA (hTR) One Step RT-PCR Quantification kit	48T	
BSB19M1	Human TB PCR Fluorescence Quantitative Diagnostic kit	48T	

Visit <http://en.bioer.com.cn/> to learn more!

QuantGene 9600

LineGene 9600 Plus

LineGene K Plus

LineGene Mini

QuantGene 9600

LineGene 9600 Plus

LineGene K Plus

LineGene Mini

LineGene Mini



LineGene Mini is a portable real time PCR detection system developed by BIOER especially for applications in diversified and high-complicacy using environment. The product has adopted small-capacity design of single tubes and 8-strip tubes. In the meantime, customized Peltier module, brand-new light path design and top scanning have been adopted to build a new generation of BIOER fluorescence quantitative PCR. In spite of small size, the product can configure up to four detection channels and the detection performance can reach the equal level of a full-scale qPCR system.

As it is easy for transport and operation, LineGene Mini is suitable for real-time monitoring in pasture, forestry center, farm and water source, as well as for disaster-affected area or field hospital for quick and correct clinical diagnosis of disastrous situation and epidemic situation. Surely, it also facilitates transport and use among labs.

Product feature Small size, big function

- 01 suitable for single tube and 8-strip tubes, 16 wells design, light weight and portable
- 02 Up to 4 targets multiplexing, fluorescence detection performance equivalent to a full-scale qPCR system.
- 03 Brand-new heat dissipation module design, max. ramp rate up to 5°C/sec.
- 04 Adopt unique temperature control technology, temperature control accuracy $\pm 0.15^\circ\text{C}$.
- 05 Customized Ferrotec TE module
- 06 Brand-new light path design ensures higher sensitivity and detecting stability.
- 07 Detection sensitivity: down to one copy.
- 08 Experiment program can be saved as template file, easier to set up new program.

- 09 Software operation interface in China, easy and simple, quick learning
- 10 Cover multiple analysis modes: qualitative/absolute quantitative, standard curve, melting curve, SNP analysis, and relative quantitative and isothermal amplification.
- 11 Open system, verified by several reagents in the market
- 12 External power supply can deal with battery power supply and can be used in quick inspection vehicle and in field.

Product parameters

Product name	LineGene Mini Fluorescence Quantitative PCR Detection System		
Product model	FQD-16A		
Sample capacity	16×0.2ml test tube (flat and transparent tube cap), 8 connected 0.2ml test tube (flat and transparent tube cap)		
Reaction system	10-100μl		
Dynamics range	1-10 ¹⁰		
Detection path	BYQ 6618E	BYQ 6622E	BYQ 6623E
Suitable probe/dye	F1 : FAM,SYBR Green I F3 : ROX	F1:FAM,SYBR Green I F2:VIC,HEX,TET,JOE, TAMRA,CY3,NED	F1:FAM,SYBR Green I F2:VIC,HEX,TET,JOE,TAMRA,- CY3,NED F3:ROX F4:CY5
Excitation wavelength	400~700nm		
Detection wavelength	450~750nm		
Module working temperature range	0-100°C (resolution: 0.1°C)		
Ramp rate	4°C/s (Max)		
Temperature control precision	$\pm 0.1^\circ\text{C}$		
Temperature uniformity	$\pm 0.15^\circ\text{C}$		
Hot lid temperature range	Temperature setting: 85~110°C (adjustable)		
Temperature control mode	Tube mode		
Temperature control technology	Semi-conductor refrigerator		
Temperature display resolution	0.1°C		
Preheat time	Requires no pre-heat		
Port method	USB port (connected to computer)		
Input power	DC24V 180W		
Outer dimension	280mm×220mm×240mm		
Net weight	6.5Kg		
Safety protection and alarm	Temperature sensor short circuit or open circuit alarm and protection (module, hot lid, radiator temperature sensor)Hot lid over-temperature protection and alarm		
Safety Certification	Ferrotec Peltier/CE/EMC/RoHS2.0/ IVD		

*effect value tested in standard lab environment.

QuantGene 9600

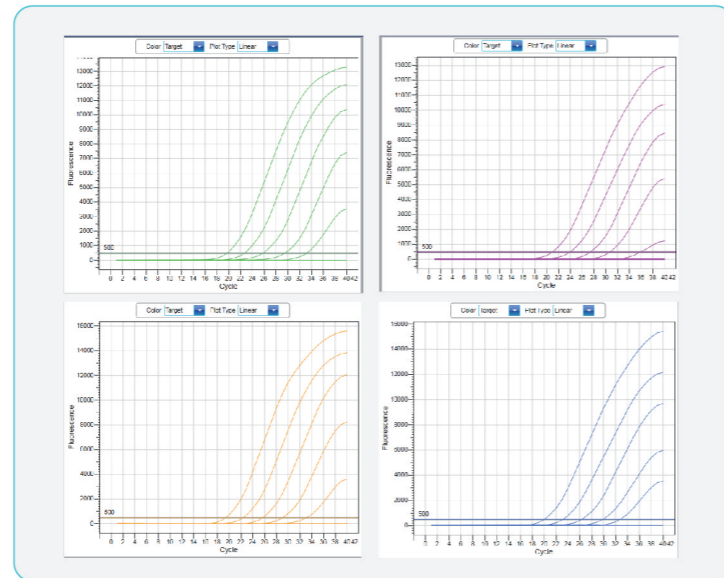
LineGene 9600 Plus

LineGene K Plus

LineGene Mini

Experiment case

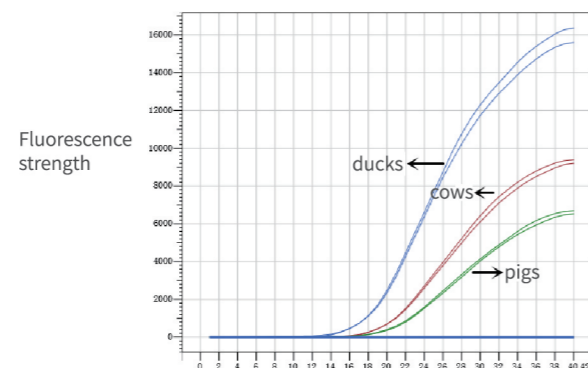
Case I Verification experiment of gonococci CT, UU, GN detection reagent kit in LineGene Mini
Respectively dilute positive control in gonococci detection reagent kit to 10, 100, 1000 and 10000 times and detect as below:



Sample No.	CT value			
	FAM	JOE	ROX	CY5
Positive control stoste	19.81	21.08	19.53	20.1
10-times diluent	22.74	24.08	22.48	23.23
100-times diluent	25.91	27.51	25.77	26.41
1000-times diluent	29.57	30.83	29.14	29.95
10000-times diluent	33.3	36.02	33.17	32.85
Negative control	—	—	—	—

Conclusion: from the amplification curve, we can observe evident gradient amplification of the channels, and minimal-concentration diluent has evident amplification curve, the instrument is of favorable sensitivity and the negative control has no take-off.

Case II Sources nucleic acid detection kit for cows, pigs and ducks (fluorescence quantitative PCR method) can detect their own source at the same time.



Supporting food safety inspection-pathogenic bacteria nucleic acid detection reagent kit list

Article No	Product name	Specification	Methodology
BSB37	Salmonella PCR Fluorescence Quantitative Detection kit	24T/48T	Real-time PCR
BSB10	Enterobacter sakazakii DNA Fluorescence PCR Detection kit	48T	
BSB38	Escherichia coli O157 PCR Fluorescence Quantitative Detection kit	24T/48T	
BSB41	Pseudomonas aeruginosa nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB54	Listeria monocytogenes nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB55	Vibrio parahaemolyticus nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB56	Bacillus cereus nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	

Supporting food safety inspection-animal origin nucleic acid detection reagent kit list

Article No	Product name	Specification	Methodology
BSB42	Chicken-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	Real-time PCR
BSB43	Duck-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB44	Goose-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB45	Bovine-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB46	Swine-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB47	Sheep-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB48	Horse-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB49	Donkey-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB50	Rat-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB51	Sable -origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB52	Fox -origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	
BSB53	Bovine, sheep and duck-origin nucleic acid detection reagent kit (fluorescent PCR method)	24T/48T	

Visit <http://en.bioer.com.cn/> to learn more!

Field of application

Animal / livestock husbandry, pet hospital, food safety inspection, cross laboratory, university scientific research, mobile laboratory, animal disease control center, and quick inspection vehicle etc.

BIOER

THERMAL CYCLER

Add : 1192 Bin An Rd., Hi-tech (Binjiang) District, Hangzhou, 310053, P.R.China

Tel : +86-571-87774575

E-mail : overseas@bioer.com.cn

Http ://www.bioer.com.cn

Fax : +86-571-87774553

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HANGZHOU BIOER TECHNOLOGY CO., LTD.

Chapter 2

Thermal Cycler

- Product serialization
- Semi-conductor heating/cooling
- Multiple modules for selection
- Fast ramp rate
- Good temperature uniformity
- High temperature control accuracy
- Adjustable hot lid function
- Powerful software functions
- New touch screen display
- Gradient and Touch Down functions and other special requirements can be met



GeneMax



LifeECO



GeneTouch Plus

02

Chapter

GeneMax



GeneMax is a high-end thermal cycler created by BIOER Company with all its strengths. The design completely centers on the subject of “precise and intelligent temperature control”. The combination of 6-zone independent temperature control and double-mode temperature control between lines realizes free setting of annealing temperature of the ranks within a deviation of 5°C.

In the meantime, a large screen of 10.4 inches for operation, together with highly efficient and stable ARM9 processor and ThreadX system configuration, expound the real meaning of “high end” of the equipment.

Additionally, based on the Ni-Al alloy module of the product, BIOER has promoted the upgraded version of “Electroless Nickel/Immersion Gold module”, striving for a more superior temperature performance, as perfection is always the goal of BIOER for its products.

Product features

Multi-mode temperature control

- **General mode**
Annealing temperature can present linear change based on set value
- **Senior mode**
Annealing temperature of the ranks can be independently set by users (temperature difference between ranks is less than 5°C)

Intelligent computation

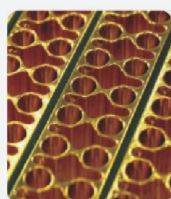
Equipped with Tm value calculation function, can further optimize experiment and improve downstream experiment success rate.

Password protection

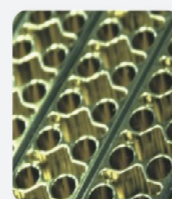
Provide dynamic password protection system, follow programs and protect experiment conditions and results.

Large-screen operation

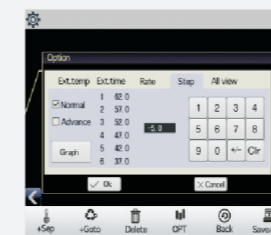
10.4-inch touch screen interface, independently developed UI operating system is easier to be learned and understood.



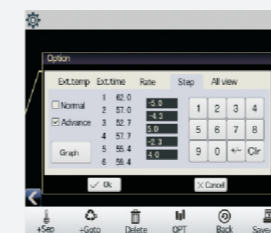
Noble ENIG module
Super high temperature uniformity $\leq 0.1^\circ\text{C}$, satisfy rigid experiment requirements



Classical alloy module
Mature module design, temperature uniformity $\leq 0.2^\circ\text{C}$, extremely high price performance ratio



Specially equip the high-end model with Bluetooth signal port.



Product parameters

Product name	GeneMax	
Product model	TC-S/96/G/H(b)BA	TC-S/96/G/H(b)BB
Module model	B-96G	
Sample capacity	96-PCR plate, 12×8-strip tubes, 96-well×0.2ml single tubes	
Temperature range	4.0~105°C	
Max.heating rate	5°C/s	
Max.cooling rate	4°C/s	
Temperature uniformity	$\leq \pm 0.2^\circ\text{C}$	
Temperature accuracy	$\leq 0.1^\circ\text{C}$	
Max. cycle number	99 suitable for nested PCR experiment	
Time increment/decrement	0~9m59s, suitable for Long PCR experiment	
Temperature increment/decrement	0~9.9 °C, suitable for Touch down PCR experiment	
Tm value calculation function	Yes	
Soak function	Yes	
Range of temperature difference between ranks	0.1~5.0°C	
Hot lid temperature	30~110 °C (adjustable, minimum control temperature: ambient temperature +5 °C)	
Communication port	Internet port (LAN), USB port	
Input power	100~240V, 50~60Hz, 800W	
Dimension	457x316x309 (LxMxH)	
Net weight	14Kg	
Certification	Ferrotec Pelitier / CE / EMC / MET/RoHS2.0 / PICC Product Quality Liability Insurance	

* Ideal value measured in standard lab environment.

GeneTouch



Gene Touch is a product of most complete configuration in the Touch series of BIOER. Equipped with free module replacement function, it can configure 5 experiment modules to realize experiments of various modes covering from regular 0.2ml single test tube to glass slides. All modules are equipped with gradient temperature control function, as well as with TAS technology (marginal temperature compensation technology) to ensure temperature difference between wells is less than $\pm 0.2^{\circ}\text{C}$.

Product features

Multi module configuration

User can independently replace module within 1 minute, making it easy and convenient. One host machine is suitable for various experimental systems.

Easy and convenient operation

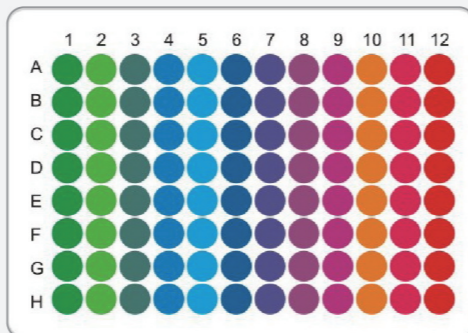
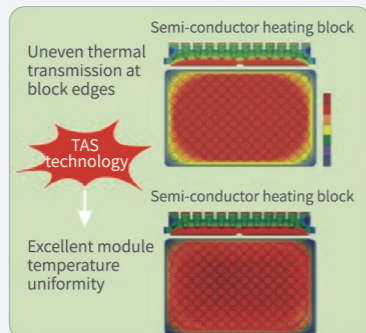
Adopt independently designed UI operating interface, easy to be learned and understood. Only by reading through the simple SOP operation instruction, user can learn how to use the equipment within 10 minutes.

Gradient function

Can realize temperature setting between $30 \sim 105^{\circ}\text{C}$, gradient temperature difference between ranks can be as high as 30°C .

Remote monitoring

Can be connected to APP software via Bluetooth for exclusive use of Bioer instruments to realize real-time monitoring of equipment operation status and experiment results with mobile terminal.



B96GA B3084UA B384GA



B48DA B41A

Three operating methods for your choice.

1.Connected operation mode



2.Standalone operation mode



3.Networking operation mode



Product parameters

Product name	GeneTouch				
Product model	TC-EA (main body)				
Module model	B-96GA	B-384GA	B-3048UA	B-48DA	B-41A
Sample capacity	96×0.2ml tube 96-PCR plate 12×8 strip tubes	384 micro-well plate (full skirt)	30×0.5ml 48×0.2ml 4×12 strip tubes	48×0.2ml 6×8-strip tubes each block	4 in situ plates
Temperature range	4~105°C				
Max temperature heating/cooling rate	≥4°C/s	≥2.8°C/s		≥4°C/s	≥1.8°C/s
Temperature uniformity	≤±0.2°C				
Temperature accuracy	≤±0.1°C				
Gradient temperature range	30~105°C	30~105°C	—	—	—
Gradient temperature difference range	1~30°C	1~30°C	—	—	—
Max. cycle number	99 suitable for nested PCR experiment				
Time increment/decrement	0~9m59s, suitable for Long PCR experiment				
Temperature increment/decrement	0.1~9.9 °C, suitable for Touch down PCR experiment				
Soak function	Yes				
Hot lid temperature	30~110 °C (adjustable, minimum control temperature: ambient temperature +5 °C)				
Communication port	Internet port (LAN)				
Input power	100-240V, 50~60Hz, 600w				
Net weight	10.5kg				
Dimension	368x250x285mm(L*W*H)				
Certification	Ferrotec Peltier/MET/CE/EMC/RoHS 2.0/PICC Product Quality Liability Insurance				

GeneMax

GeneTouch

GeneTouch Plus

LifeTouch

LifeECO

XP
Cyber

GeneTouch Plus



To deal with the experimental requirements from users for gradient gene amplification test and simultaneous multi-user experiment, BIOER has especially extended and developed a dual-block independent-gradient thermal cycler of high performance based on GeneTouch.

The product has inherited all advantages of GeneTouch, and also has added internal vacuum dissipation technology for effectively dissipating heat. Thus, it can realize rapid and precise temperature change, and provide clients with PCR instrument of high price performance ratio.

Product features

Dual-module and dual-gradient

Can realize multi-user multi-module gradient amplification experiment

Precise temperature control

Adopt internal vacuum dissipation technology, realize temperature control effect of high-efficiency heat transmission with cost-effective materials in limited dissipation space.

Product parameters

Product name	GeneTouch Plus
Product model	B-48DA
Sample capacity	6×8 strip tubes, 48×0.2ml each tube
Temperature range	4~105°C
Max. temperature heating/cooling rate	4°C/s
Temperature uniformity	≤±0.2°C
Temperature accuracy	≤0.1°C
Gradient temperature range	30-105°C
Gradient temperature difference range	1-30°C
Gradient temperature accuracy	≤±0.5°C
Max. cycle number	99 suitable for nested PCR experiment
Time increment/decrement	0~9m59s, suitable for Long PCR experiment
Temperature progressive increase/decrease	0~9.9 °C, suitable for Touch down PCR experiment
Tm value calculation function	Yes
Soak function	Yes
Hot lid temperature	30~110 °C (adjustable, minimum control temperature: ambient temperature +5 °C)
Communication port	Internet port LAN/USB2.0/RS232/Bluetooth
Network control	One computer can control up to 30 instruments at the same time for work.
Input power	100~240V, 50~60Hz, 600W
Dimension	457x316x309 (LxMxH)

LifeTouch



Life Touch is a highly-efficient universal thermal cycler specially designed and developed by BIOER to satisfy needs of users from various industries. Except for the rapid temperature heating and cooling performance of general qualitative PCR instruments, the product also has the advantages including moderate size, light weight and long service life. It is suitable for both 0.1ml and 0.2ml test tubes. Meanwhile, it adopts Peltier customized and manufactured by Ferrotec from Japan and is equipped with special TAS (marginal temperature compensation technology) to realize rapid and even temperature change.

Product features

Complete-steel structure

The equipment has adopted complete-steel structure, contributing to high reliability, good vibration and fall resistance, and favorable stability.

High-end touch screen

It adopts 6.5-inch colorful touch screen imported with original packaging from Japan. The screen boasts sensitive operation, large visual angle display and clear imaging.

High impermeability

High impermeability design of the sample reaction room prevents condensation of samples under long-time storage in low temperature. (Except high-temperature and high-humidity environment beyond the allowable scope of the equipment).

Precise temperature control

It can reach maximum temperature heating and cooling rate of 5°C/s, and average temperature uniformity ≤±0.2°C

Product parameters

Product name	LifeTouch
Product model	TC-96/G/H(b)B
Sample capacity	96-well × 0.2ml, 96-well full skirt, semi-skirt, universal none-skirt, 12×8 connected tube
Temperature range	4~105°C
Max. temperature heating/cooling rate	≥4°C/s
Temperature uniformity	≤±0.2°C
Temperature accuracy	≤0.1°C
Gradient temperature range	30-105°C
Gradient temperature difference range	1~30°C
Max. cycle number	99 suitable for nested PCR experiment
Time increment/decrement	0~9m59s, suitable for Long PCR experiment
Temperature increment/decrement	0~9.9 °C, suitable for Touch down PCR experiment
Soak function	Yes
Hot lid temperature	30~110 °C (adjustable, minimum control temperature: ambient temperature +5 °C)
Communication port	Internet port (LAN)
Input power	100-240V, 50~60Hz, 600w
Net weight	10kg
Dimension	345x250x270mm (LxMxH)
Certification	Ferrotec Peltier / MET / CE/EMC / RoHS2.0 / PICC Product Quality Liability Insurance

GeneMax

GeneTouch

GeneTouch Plus

LifeTouch

LifeECO

XP
Cyber

LifeECO



Product features

High gradient performance

Besides rapid gene amplification experiment, it is also equipped with gradient function for exploring amplification conditions, and the range of gradient temperature difference can reach 30°C.

Networking operation

Multiple equipment-connected operation can be realized through USB or network cable to adapt to batch test by enterprises or scientific research labs.

Easy maintenance

Main consumable parts of the equipment have been modularized and can be maintained and replaced on site.

The product is an economical qualitative PCR instrument launched by BIOER. It mainly aims at satisfying demands of most users (limited budget but with demand for test). The appearance and frame design inherit the complete-steel structure of former models, and it is easy to transport and operate, and has high vibration resistance performance.

It is applicable to gene amplification experiments for teaching in colleges and general labs, and gene detection needs in enterprise and government sectors. Also, it is suitable for various mainstream test tubes in the market. It is sturdy and durable, and easy to operate.

Product parameters

Product name	LifeECO
Product model	TC-96/G/H (b) C
Sample capacity	96-well × 0.2ml, 96-well full skirt, semi-skirt, universal none-skirt, 12×8 connected tube
Temperature range	4~105°C
Max.temperature heating rate	≥4°C/s
Temperature uniformity	≤±0.3°C
Temperature accuracy	≤±0.1°C
Gradient temperature range	30-105°C
Gradient temperature difference range	1~30°C
Max.cycle number	99 suitable for nested PCR experiment
Time increment/decrement	0~9m59s, suitable for Long PCR experiment
Temperature increment/decrement	0.1~9.9 °C, suitable for Touch down PCR experiment
Soak function	Yes
Hot lid temperature	30~110 °C (adjustable, minimum control temperature: ambient temperature +5 °C)
Communication port	USB port
Input power	100-240V, 50~60Hz, 600w
Net weight	8kg
Dimension	345x250x270mm
Certification	Ferrotec Pelitier / MET / CE / EMC/RoHS2.0 / PICC Product Quality Liability Insurance

XP Cyber



Product features

Independent control

Independently controlled two-unit modules can operate two different PCR experiments respectively.

Torque-type adjustment

Torque-type adjustment of hot lid pressure can prevent actual evaporation and pollution to the greatest extent and prevent screw loose caused by over tightness.

Consistent dimension

The exterior dimension can meet over 90% test beds. The length and width are completely consistent with that of test beds, and thus it can reduce space waste.

It is a classical conventional PCR model of BIOER. With block-interchangeable feature, it is a qualitative thermal cycler of multiple functions and applications. It can meet PCR experiment requirements of various PCR reaction tubes, various numbers of cells and various types. Although the key-type operating interface looks old fashioned, it is sturdier and more durable, and poses less requirements for using environment. It is very suitable for glove-on operation.

It can store over 99 reaction programs, automatically recognize blocks without artificial setting. Also, blocks replacement can be very easy. It is suitable for multiple experiments' requirements in one lab.

Product parameters

Product name	XP				
Product model	TC-XP-E	TC-XP-F	TC-XP-H	TC-XP-D	TC-XP-G
Module model	XP-E	XP-F	XP-H	XP-D	XP-G
Sample capacity	48 × 0.2ml PCR test tube 30 × 0.2ml PCR test tube	384 micro-well plate (full skirt)	4 in-situ glass slides	Each module 48 × 0.2ml (two modules can operate two different programs at the same time)	96 × 0.2ml PCR test tube 96-well reaction plate 12 × 8 connected PCR reaction tube
Temperature range	4~99.9°C				
Max.temperature heating/cooling rate	≥4°C/s				
Temperature uniformity	≤±0.4°C				
Temperature accuracy	≤±0.3°C				
Gradient temperature difference range	1~30°C				
Max.cycle number	99				
Hot lid temperature	30~110 °C (adjustable, minimum control temperature: ambient temperature +5 °C)				
Max.number of segments	5 segments				
Max.procedures	16 procedures				
Computer port	RS232				
Input power	220V, 50Hz, 600W				
Net weight	10Kg				
Dimension	470x340x260 (LxWxH)				
Medical instrument registration certificate	Z.S.Y.J.X. (Z.) Z. 2013 No. 2400391				
Quality warranty	Professional test of EU standard cycletest, and test report can be provided.				
Certification	Ferrotec Pelitier / MET / CE / EMC / RoHS2.0 / PICC Product Quality Liability Insurance				