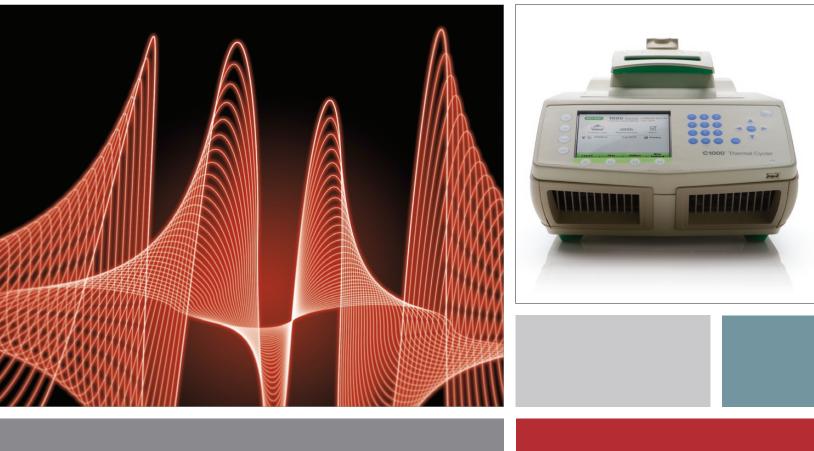
### **Amplification: Thermal Cyclers**



# 1000-Series Thermal Cycling Platform



## The Next Generation of PCR Instruments

Take control of your experiments. Bio-Rad's 1000-series thermal cycling platform gives you the power to do the experiments you want to do, the way you want to do them. The high-performance 1000-series platform can be configured to meet any researcher's unique needs. Choose the C1000<sup>™</sup> thermal cycler, the S1000<sup>™</sup> thermal cycler, or a combination of both. Choose from multiple interchangeable reaction modules, including two for real-time PCR. Use graphical or text-based programming, optimize PCR assays using the gradient feature, and transport your files and data with a USB flash drive. No matter how you configure your 1000-series system, you'll get superior thermal performance in a simple-to-use, dependable instrument that delivers accurate results and the flexibility to expand as your research grows.





### 1000-Series Features — Fast, Friendly, and Flexible

- Friendly
- Decrease run times and get results when you need them
- Quickly create protocols including fast and ultrafast protocols using the protocol autowriter
- Save time by optimizing annealing temperature in a single run using a temperature gradient
- Start running experiments immediately using the accessible interface, intuitive programming, and helpful tools provided by onboard or PC-based software
- Transfer data quickly and easily using a USB flash drive
- Upgrade to real-time PCR in seconds with minimal setup and factory-calibrated optics
- Analyze results when and where you want; instruments and software can send an email notification with an attached data file when a run is completed
- Get reliable results for years with durable solid-state optical components for real-time PCR and a patented\* O-ring seal that protects thermal electric modules (TEs)



- Choose the best setup for your needs with 2 chassis options and 4 interchangeable reaction modules
- Run 2 independent experiments simultaneously with the gradient-enabled dual-block reaction module
- Perform real-time PCR experiments in stand-alone mode without a computer
- Expand the platform as your research grows multi-instrument control for 2–32 thermal cyclers or up to 4 real-time systems for high throughput
- Use your favorite consumables fully adjustable lid accommodates a wide range of PCR tubes, plates, and sealers

\* U.S. patent 7,051,536.

## What Is Fast?

If you're like most researchers, you want to get results faster. Many factors contribute to the overall time it takes to get PCR results: the time to design, program, and optimize a protocol, the time to run the protocol, and the time to analyze the results. Bio-Rad has developed a complete thermal cycling system that will speed every step of your PCR process to give you what's really important a shorter time from setup to results.

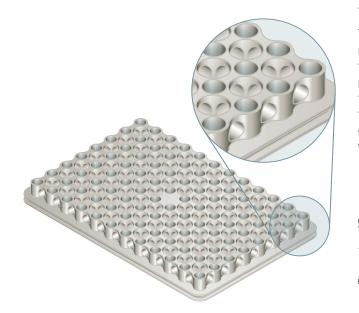
**Protocol autowriter** — generates an optimal protocol based on your polymerase, primers, and product length

**Thermal gradient feature** — identifies optimal annealing temperature in a single run

Reduced-mass honeycomb sample block -

fast ramping and settling produce the shortest time to target temperature

Intuitive software — makes programming faster and easier for PCR and real-time PCR



The patented\* reduced-mass honeycomb sample block heats and cools more quickly than standard blocks, so average ramp rates are increased and overall run times are reduced.

### **Superior Uniformity**

The rate and efficiency of PCR critically depend on the precision of the temperature steps. To obtain reliable, consistent results, it is important that all wells maintain the proper temperature throughout each incubation step. This is especially critical for precise quantitation in real-time PCR. 1000-series thermal cyclers have six independently controlled TEs, the heating and cooling elements of the thermal cycler, to maintain tight temperature uniformity at all points during a run — even during ramping.

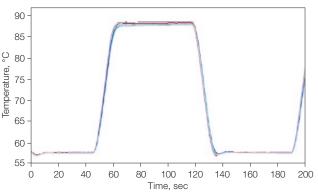
### **Rapid Arrival at Target Temperature**

A key component of overall protocol run time is the time to reach target temperature, which is determined by the average ramp rate and the time for the sample block to reach thermal uniformity. Maximum ramp rate is less important, because it can fluctuate significantly during the ramp. The C1000 and S1000 thermal cyclers' tight temperature control produces high average ramp rates and uniformity during ramping, to yield fast time to target temperature and faster protocol run times.

#### Performance

The overall run time of a PCR reaction depends on protocol design, enzyme type, and the thermal capabilities of the thermal cycler. 1000-series thermal cyclers deliver premium thermal performance for reproducible results and fast run times.

The time to reach target temperature, which comprises the average ramp rate and the settling time (the time it takes to reach thermal uniformity), is the key factor determining how fast a thermal cycler can run a given PCR protocol. Average ramp rate is a better indicator of a cycler's capabilities than maximum ramp rate because the latter is generally not maintained throughout a temperature step. The average ramp rate of 1000-series cyclers, combined with a 10-second settling time, allows fast run times while maintaining excellent thermal accuracy and uniformity.



Rapid arrival at target temperature and superior uniformity. 1000-series thermal cyclers exhibit high average ramp rates, rapid settling time, and tight thermal uniformity throughout the ramp. This graph shows the temperature measured by probes in 15 wells across a sample block. The traces are nearly indistinguishable due to the tight uniformity. Note the consistent ramp rate throughout heating and cooling.

\* U.S. patent 7,632,464.

## What Is Friendly?

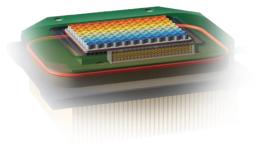
Friendly means no hassles. Friendly means giving you the freedom to do the things you want to do. And most of all, friendly means trustworthy and dependable. Bio-Rad's 1000-series instruments simplify your work with tools accessed with an easy-to-use interface. 1000-series instruments are dependable and long-lasting, and they generate data you can trust.

- Easily interchangeable reaction modules let you change formats quickly without tools
- 6 TEs produce precise, uniform temperatures
- O-ring hermetic seal protects TEs from condensation, maximizing their life
- Real-time PCR detection system uses longlasting solid-state light-emitting diodes (LEDs) and photodiodes

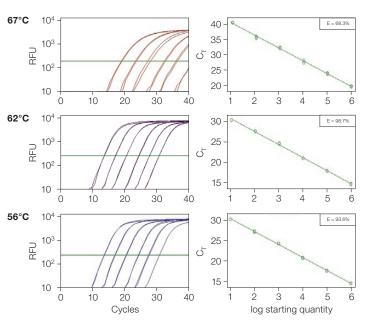
### Thermal Gradient for Easy Protocol Optimization

The programmable temperature gradient allows you to identify optimal annealing temperature in a single PCR experiment by letting you test eight incubation temperatures at once.

The 1000-series gradient feature uses dynamic ramping, which means the temperature gradient forms during ramping and all wells come to the designated temperature at the same time. As a result, the incubation period is the same for all samples, which is crucial for transfer of gradient to nongradient protocols.



**O-ring hermetic seal extends the life of the heating and cooling elements.** Condensation from constant heating and cooling can degrade TEs, causing them to fail. Bio-Rad's 1000-series cyclers include a patented O-ring seal (red in illustration) that forms an airtight barrier around the TEs, preventing exposure to condensation. This substantially lengthens the life of TEs and guarantees outstanding thermal performance.



Thermal gradient experiment for optimizing annealing temperature. A tenfold dilution series (10<sup>6</sup> to 10 copies) of plasmid containing *GAPDH* template was amplified in the presence of SYBR<sup>®</sup> Green dye using a protocol with an annealing thermal gradient ranging from 55 to 68°C. Results are presented for three temperatures, showing 62°C as the optimal in this case, with early C<sub>T</sub> values and the highest standard curve efficiency. C<sub>T</sub> threshold cycle; RFU, relative fluorescence units.



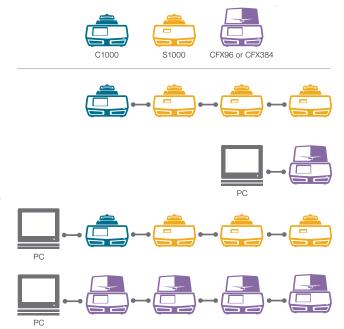
### O What Is Flexible?

Since PCR is central to genomics research, you need a flexible platform that can adapt as your research evolves. Bio-Rad's 1000-series cycling platform offers two chassis options, four interchangeable reaction modules, and simple expansion capabilities, so you can create a setup that can grow with you and continue to meet your needs.

First, choose a chassis: the feature-rich C1000 thermal cycler, the streamlined, equally powerful S1000 thermal cycler, or a combination of the two. Next, choose one or more reaction modules: 96 wells, 384 wells, two independently controlled 48-well blocks, or a six-channel 96-well or five-channel 384-well optical reaction module for real-time PCR. Adding instruments to increase throughput is as easy as connecting a USB cable - up to 32 thermal cyclers can be controlled by one computer. You can even connect thermal cyclers and real-time PCR detection systems, run different protocols, and start experiments at different times.

Depending on your setup, you can also choose to:

- Use text-based or graphical programming
- Create protocols on your own or have the software help
- Adjust the lid to use your favorite reaction tubes or plates
- Run a standard, fast, or ultrafast protocol
- Display your data in a variety of formats
- Transfer data directly to a PC or use a USB flash drive



#### **Stand-Alone**

 C1000 or S1000 thermal cycler and CFX96 or CFX384 real-time PCR detection system

### **Stand-Alone Multi-Instrument**

- C1000 cycler control of up to 3 S1000 cyclers
- CFX96 or CFX384 control of up to 3 S1000 cyclers

### **Software-Controlled Stand-Alone**

- C1000 cycler controlled by C1000 Manager<sup>™</sup> software
- CFX96 or CFX384 system controlled by CFX Manager<sup>™</sup> software

#### Software-Controlled Multi-Instrument

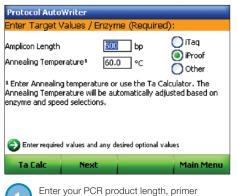
- Up to 8 C1000 cyclers, each connected to 1–3 S1000 cyclers, controlled by C1000 Manager software
- 1 CFX96 or CFX384 system connected to 1–3 S1000 cyclers, controlled by CFX Manager software
- Up to 4 CFX96 and/or CFX384 systems controlled by CFX Manager software

### **Create Faster Protocols**

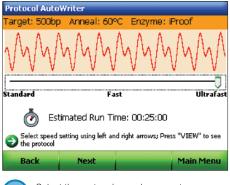
### With the Protocol Autowriter, Protocol Setup Is As Easy As



Using the right cycling protocol can have a great impact on the efficiency of your PCR. The C1000 thermal cycler's protocol autowriter sets a new standard for easy programming by generating a customized temperature protocol based on your PCR product length, enzyme type, and primer annealing temperature. Using established PCR guidelines, the protocol autowriter suggests a cycling protocol with hot start, initial denaturation, annealing/extension steps, and final extension. It can even create a fast protocol for you, so you can get results faster.

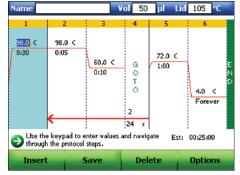


annealing temperature  $(T_a)$ , and polymerase.



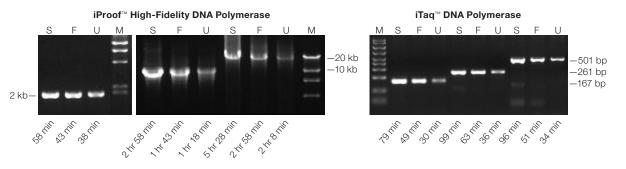


Select the protocol speed you want - standard, fast, or ultrafast.





Run, edit, or save the suggested protocol.



Protocols generated by the protocol autowriter at various standard (S), fast (F), and ultrafast (U) settings yield comparable results. Fragments (2 kb, 10 kb, and 20 kb) were amplified from a DNA template by iProof DNA polymerase, and various fragments up to 501 bp in length were amplified from human genomic DNA using iTaq DNA polymerase. Equal amounts of reaction mixture were loaded into the well for each set of amplicons. M, marker.

### **Thermal Cyclers**

### C1000 Thermal Cycler – A Premium Instrument for PCR

The C1000 cycler is the flagship of the 1000-series thermal cycling platform, offering unmatched performance for fast, reliable results and a state-of-the-art interface with new ways to optimize protocols and monitor runs. The C1000 cycler offers all the powerful features of the 1000-series platform, so you can:

- Run real-time PCR experiments using the CFX96 or CFX384 optical reaction module
- Optimize reactions for speed using the protocol autowriter
- Easily create and view protocols using the large color display and intuitive graphical and text-based programming
- Get answers quickly using desktop support, data logging, and run reports
- Send an email notification of run completion
- Use a familiar working environment with an interface based on the Windows operating system
- Store all your data and manage and transfer files using a USB flash drive
- Protect files with optional log-in, restricted user privileges, and secured mode for controlled environments
- Increase throughput simply and easily by daisy-chaining up to 3 additional cyclers or adding PC control for up to 32 cyclers

### Dual 48/48 Reaction Module – It's Like Having Two Thermal Cyclers in One

Bio-Rad offers a gradient-enabled dual reaction module that allows you to run two independent experiments at the same time. This ability is valuable for laboratories with multiple users running different applications on different schedules. A dual thermal gradient is convenient for protocol optimization, allowing more variables to be tested simultaneously.



Experiment 1:

Finished

1000

V

Experiment 2:

In progress

### S1000 Thermal Cycler – A Great Companion

The S1000 cycler is just right for researchers who require less — or more — than what the C1000 cycler offers. Those who simply need dependable performance can use the S1000 cycler as a stand-alone instrument for PCR. Those who need more than one powerful cycler can connect up to three S1000 cyclers to a C1000 cycler, to form a high-throughput multi-bay instrument.

The S1000 cycler offers the same thermal performance as the C1000 cycler, and also lets you:

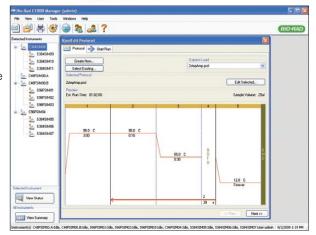
- Get optimal sealing using your favorite vessels and sealers with the fully adjustable heated lid
- Program protocols easily with the semi-graphical user interface
- Choose a reaction module that suits your needs dual 48-well, 96-well, or 384-well format

### C1000 Manager Software

C1000 Manager software operates on Windows XP and Windows Vista operating systems, and allows users to:

- Write and edit protocols on a PC, then transfer them to a C1000 cycler using a USB portable memory device
- Control up to 32 1000-series cyclers from a single computer (8 C1000 thermal cyclers, each connected to 3 S1000 thermal cyclers)
- Send protocols to connected thermal cyclers and start runs on individual or multiple blocks, either independently or simultaneously
- Monitor the progress of individual blocks and instruments from a central screen
- View, zip, and send report logs
- Receive email notification of run completion





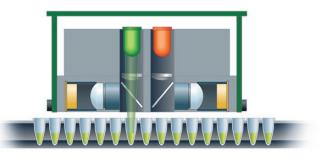
### **Real-Time PCR Detection Systems**

The CFX96 or CFX384 optical reaction module converts a C1000 cycler into a powerful and precise real-time PCR detection system. Both real-time PCR systems include advanced optical technology combined with precise thermal control to deliver the most sensitive, reliable detection in different throughput formats. The accompanying CFX Manager software, which runs on a PC, provides numerous features and tools to simplify experiment setup and data analysis.

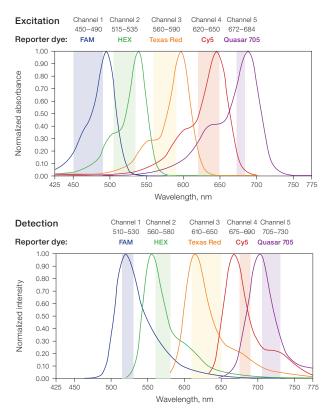


With the CFX96 and CFX384 systems you can:

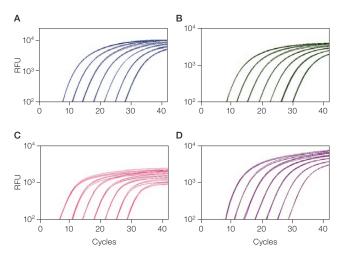
- Detect up to 5 targets per well in the CFX96 system or up to 4 targets per well in the CFX384 system using long-lasting LEDs and sensitive photodiodes
- Tailor a run to suit your application using multiple data acquisition modes, including a fast scan for SYBR<sup>®</sup> Green and FAM
- Get your experiment under way before taking the time to enter or edit plate information — both systems automatically collect data from all wells
- Run the systems in multiple configurations, including in stand-alone mode without a computer
- Get more accurate gene expression results by using multiple reference genes and individual reaction efficiencies for normalization
- Analyze data when and where you want when a run is finished, get email notification with a data file attached



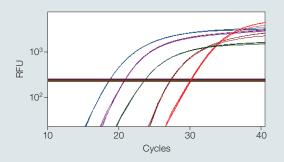
As the CFX96 or CFX384 optics shuttle travels across the plate, light is focused directly into the center of each sample well. Side view of the optics shuttle shows the green LED firing over a well.



Excitation and detection wavelength ranges for the CFX96 system. Channels 1–4 are identical to the CFX384 system.



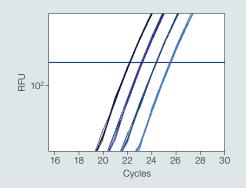
Linearity of four-target multiplex detection using the CFX384 system.
 A–D, fluorescence data from a series of tenfold dilutions of plasmid DNA (10<sup>8</sup>–10<sup>2</sup> copies) amplified using reporter dyes to monitor four targets:
 FAM/actin; , HEX/GAPDH; , Texas Red/cyclophilin; , Cy5/tubulin.
 RFU, relative fluorescence units.



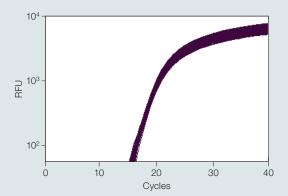
Accurate five-target multiplex gene expression using the CFX96 system. Human spleen RNA was transcribed into cDNA using the iScript<sup>™</sup> cDNA synthesis kit. cDNA (50 ng) was amplified in four replicate 50 µl reactions using five reporter dyes to monitor fluorescence data from five targets: =, FAM/actin (18.02 ± 0.02); =, Cy5/tubulin (20.07 ± 0.03);

■, HEX/GAPDH (22.81 ± 0.02); ■, Quasar 705/IL-1 $\beta$  (26.39 ± 0.04);

, Texas Red/IL2 (29.17  $\pm$  0.07). Average C<sub>T</sub> values are shown in parentheses. RFU, relative fluorescence units.



Precise target discrimination using the CFX96 system. One-cycle spacing between C<sub>T</sub> values is precisely maintained in a series of twofold dilutions of human genomic DNA from 120 to 15 ng. IL-1 $\beta$  target was amplified using a FAM-labeled detection probe with iQ<sup>TM</sup> supermix. Graph shows eight replicates for each dilution with the following average C<sub>T</sub> values: 22.15 ± 0.02, 23.14 ± 0.04, 24.28 ± 0.03, 25.41 ± 0.04. RFU, relative fluorescence units.



**Excellent uniformity using the CFX384 system.** IL-1 $\beta$  plasmid template diluted to 10<sup>5</sup> copies per reaction amplified in the presence of a FAM-labeled detection probe with iQ supermix. Graph shows 384 replicates of 5  $\mu$ l reactions. Average C<sub>7</sub> value = 18.11 ± 0.045. RFU, relative fluorescence units.

## A Complete System

1000-series cyclers and reaction modules are a powerful platform for genomics research. Bio-Rad offers a wide selection of reagents, vessels, and sealers to help you make the most of your PCR experiments.

#### **Reagents for Optimal Performance**

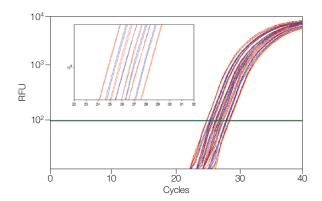
Bio-Rad reagents demonstrate performance over a wide dynamic range of input RNA, cDNA, and genomic DNA. SsoFast<sup>™</sup> EvaGreen<sup>®</sup> supermix is the first member of Bio-Rad's next-generation family of high-performance, real-time PCR reagents. This supermix uses patented\* Sso7d fusion protein technology to deliver excellent performance in a wide range of qPCR applications. iProof high-fidelity DNA polymerase is a highly efficient enzyme that helps you reduce protocol run times and amplify long targets. iScript cDNA synthesis kits and iScript one-step RT-PCR kits minimize the potential for primer-dimer formation and other nonspecific PCR artifacts, delivering maximum sensitivity and consistent results every time.

#### **Don't Worry About Your Consumables**

Bio-Rad's broad selection of reaction vessels, including 0.2 ml tubes, full-height and low-profile microplates, and high-density 384-well plates, allows you to choose the best vessel for your application. A full selection of reliable sealers is available for each vessel and can be selected based on vessel type, cycling application, and storage method.

For more product information, go to **www.bio-rad.com/amplification**.

\* U.S. patents 6,627,424; 7,541,170; and 7,560,260.



Exceptional reproducibility can be achieved with SsoFast EvaGreen supermix. Efficient discrimination and reliable quantification can be obtained from 1.33-fold serial dilutions of input template. The *CBP* gene was amplified from varying amounts of human genomic DNA (5 ng to 500 pg). From left to right: (**■**) 5 ng, 2.83 ng, 1.60 ng, 903 pg, and 511 pg; (**■**) 3.76 ng, 2.13 ng, 1.20 ng, and 679 pg. *CBP* efficiency = 96.5%, r = 0.996. Insert is a magnified view showing robust discrimination and reproducible amplification. RFU, relative fluorescence units.



Bio-Rad's broad selection of vessels and sealers for PCR and real-time PCR.



iScript Select cDNA Synthesis Kit



iProof High-Fidelity DNA Polymerase



iScript<sup>™</sup> One-Step RT-PCR Kit with SYBR<sup>®</sup> Green



iTaq<sup>™</sup> SYBR<sup>®</sup> Green Supermix with ROX



iTaq DNA Polymerase and dNTP Mix



SsoFast EvaGreen Supermix

### **Specifications**

Thermal Cycler	C1000	S1000
Input power	Up to 850 W, maximum	Up to 850 W, maximum
Frequency	50–60 Hz, single phase	50–60 Hz, single phase
Display	12 x 9 cm, high resolution, color	LCD
Ports	5 USB A, 1 USB B	4 USB A, 1 USB B
Memory	>1,000 typical programs onboard, unlimited with USB flash drive expansion	>1,000 typical programs onboard
Dimensions (W x D x H)	13 x 18 x 8"	13 x 18 x 8"
Weight	23 lb	23 lb
Temperature control modes	Calculated and block	Calculated and block
Programming options	Step-based graphical, text based, automatic	Semi-graphical, text based
Security features	Password-protected folders, optional log-in, and secured mode for highly regulated environments	Password-protected folders
Reporting	Exportable run logs, system error logs	Yes, if attached to a C1000 cycler
Onboard software	Windows CE 6.0	No
PC compatibility	Windows XP or higher	Windows XP or higher, through C1000 cycler
USB peripheral compatibility	Mouse, USB flash drive, bar code reader	No
Real-time PCR upgrade	CFX96 and CFX384 modules	No
instant incubation	Yes	Yes

Reaction Module	96-Well Fast	Dual 48/48 Fast	384-Well
Sample capacity	96 x 0.2 ml tubes	2 x 48 x 0.2 ml tubes	1 x 384-well microplate
Maximum ramp rate	5°C/sec	4°C/sec	2.5°C/sec
Average ramp rate	3.3°C/sec	3°C/sec	2°C/sec
Temperature range	0–100°C	0–100°C	0–100°C
Temperature accuracy	±0.2°C of programmed target at 90°C	±0.2°C of programmed target at 90°C	±0.2°C of programmed target at 90°C
Temperature uniformity	$\pm 0.4^{\circ}$ C well-to-well within 10 sec of arrival at 90°C	$\pm 0.4^{\circ}$ C well-to-well within 10 sec of arrival at 90°C	$\pm 0.4^{\circ}$ C well-to-well within 10 sec of arrival at 90°C

#### Thermal Gradient (available on all reaction modules)

Gradient accuracy	±0.2°C of programmed temperatu	re at end rows	
Row uniformity	±0.4°C well-to-well (within row) with	nin 10 sec of arrival at target temperature	
Gradient range	30–100°C		
Temperature differential range	1–24°C		
Optical Reaction Module	CFX96	CFX384	
Excitation	6 filtered LEDs	5 filtered LEDs	
Detection	6 filtered photodiodes	5 filtered photodiodes	
Range of excitation/emission wavelengths	450–730 nm	450–690 nm	
Sensitivity	Detects 1 copy of IL-1 $\beta$ human genomic DNA	Detects 1 copy of IL-1β human genomic DNA	
Dynamic range	10 orders of magnitude	10 orders of magnitude	
Scan time			
All channels	12 sec	<20 sec	
Single channel fast scan	3 sec	8 sec	

For more information, go to www.bio-rad.com/1000-series.

#### **Ordering Information**

Ordering in	normation
Catalog # 185-1048	Description C1000 Thermal Cycler With Dual 48/48 Fast Reaction Module, includes C1000 thermal cycler chassis, dual 48/48
185-1096	fast reaction module, USB key C1000 Thermal Cycler With 96-Well Fast Reaction
	<b>Module</b> , includes C1000 thermal cycler chassis, 96-well fast reaction module, USB key
185-1384	C1000 Thermal Cycler With 384-Well Reaction Module, includes C1000 thermal cycler chassis, 384-well reaction
185-2048	module, USB key S1000 Thermal Cycler With Dual 48/48 Fast Reaction Module, includes S1000 thermal cycler chassis, dual 48/48 fort reaction module
185-2096	fast reaction module S1000 Thermal Cycler With 96-Well Fast Reaction Module, includes S1000 thermal cycler chassis, 96-well fast
185-2384	reaction module <b>S1000 Thermal Cycler With 384-Well Reaction Module</b> , includes S1000 thermal cycler chassis, 384-well reaction module
184-5096	<b>CFX96 Optical Reaction Module</b> , for use with C1000 thermal cycler chassis, includes CFX Manager software, license for gbase <sup>aus</sup> software, communication cable,
185-5096	reagents, consumables CFX96 Real-Time PCR Detection System, includes C1000 thermal cycler chassis, CFX96 optical reaction module, CFX Manager software, license for qbase <sup>PLUS</sup>
184-5384	software, communication cable, reagents, consumables <b>CFX384 Optical Reaction Module</b> , for use with C1000 thermal cycler chassis, includes CFX Manager software, license for qbase <sup>PLUS</sup> software, communication cable,
185-5384	reagents, consumables CFX384 Real-Time PCR Detection System, includes C1000 thermal cycler chassis, CFX384 optical reaction module, CFX Manager software, license for gbase <sup>PLUS</sup>
184-1000	software, communication cable, reagents, consumables C1000 Thermal Cycler Chassis, includes USB key, power
184-2000	cord; does not include reaction module S1000 Thermal Cycler Chassis, includes power cord;
184-0048	does not include reaction module <b>Dual 48/48 Fast Reaction Module</b> , independent dual 48-well reaction module, fits C1000 and S1000 thermal cyclers, gradient enabled
184-0096	96-Well Fast Reaction Module, fits C1000 and S1000 thermal cyclers, gradient enabled
184-0384	<b>384-Well Reaction Module</b> , for high throughput, fits C1000 and S1000 thermal cyclers, gradient enabled
184-4000 184-5008	C1000 Manager Software, version 1.0, includes installation CD CFX Manager Software, Chinese Edition, includes 3 user licenses, installation CD, 3 HASP HL keys
184-5028	<b>CFX Manager Software, Russian Edition</b> , includes 3 user licenses, installation CD, 3 HASP HL keys
184-5001	CFX Manager Software, Security Edition, includes 1 user license, installation CD, HASP HL key
184-5025	Precision Melt Analysis <sup>™</sup> Software, includes 2 user licenses, installation CD, 2 HASP HL keys, melt calibration kit
170-8890	iScript cDNA Synthesis Kit, 25 x 20 µl reactions, includes 5x IScript reaction mix, iScript reverse transcriptase, nuclease-free water
170-8894	iScript One-Step RT-PCR Kit for Probes, 50 x 50 μl reactions, includes iScript reverse transcriptase for one-step RT-PCR, 2x probes RT-PCR reaction mix, nuclease-free water

Catalog #	Description
170-8870	iTaq DNA Polymerase, 5 U/µl, includes 250 U polymerase,
	1.25 ml of 10x PCR buffer (200 mM Tris-HCl, pH 8.4, 500 mM KCl),
	1.25 ml of 50 mM MgCl <sub>2</sub> solution
172-5301	iProof High-Fidelity DNA Polymerase, 2 U/µl, 100 U
172-5200	SsoFast EvaGreen Supermix, 200 x 20 µl reactions,
	2x mix contains dNTPs, Sso7d fusion polymerase, MgCl <sub>2</sub> ,
	EvaGreen dye, stabilizers
172-5201	SsoFast EvaGreen Supermix, 500 x 20 µl
172-5202	SsoFast EvaGreen Supermix, 1,000 x 20 µl
172-5203	SsoFast EvaGreen Supermix, 20 ml bottle, 2,000 x 20 µl
HSP-3805	Hard-Shell® Thin-Wall 384-Well Skirted PCR Plates, clear shell,
	white well, 50
MLP-9601	Multiplate <sup>™</sup> 96-Well Unskirted PCR Plates, natural, 25 plates
MSB-1001	Microseal <sup>®</sup> 'B' Adhesive Seals, optically clear, 100
TBC-0802	8-Tube Strips and Domed Cap Strips (0.2 ml), natural,
	20 bags of 12 x 8-tube strips and 12 x 8-cap strips (1,920 PCR
	tubes and 1,920 caps)
TCS-0801	Domed 8-Cap Strips, for 0.2 ml PCR tubes and plates, natural, 120
TWI-0201	PCR Tubes With Domed Caps (0.2 ml), natural, 1,000

Cy is a trademark of GE Healthcare group companies. EvaGreen is a trademark of Biotium, Inc. Bio-Rad Laboratories, Inc. is licensed by Biotium, Inc. to sell reagents containing EvaGreen dye for use in real-time PCR, for research purposes only. Microsoft, Windows, and Windows Vista are trademarks of Microsoft Corporation. Quasar is a trademark of Biosearch Technologies, Inc. SYBR is a trademark of Molecular Probes, Inc. Bio-Rad Laboratories, Inc. is licensed by Molecular Probes, Inc. to sell reagents containing SYBR Green I for use in real-time PCR, for research purposes only. Texas Red is a trademark of Invitrogen Corporation.

Practice of the patented 5' Nuclease Process requires a license from Applied Biosystems. The purchase of these products includes an immunity from suit under patents specified in the product insert to use only the amount purchased for the purchaser's own internal research when used with the separate purchase of Licensed Probe. No other patent rights are conveyed expressly, by implication, or by estoppel. Further information on purchasing licenses may be obtained from the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

Notice regarding Bio-Rad thermal cyclers and real-time systems: Purchase of this instrument conveys a limited non-transferable immunity from suit for the purchaser's own internal research and development and for use in human in vitro diagnostics and all other applied fields under one or more of U.S. Patent Numbers 5,656,493; 5,333,675; 5,475,610 (Claims 1, 44, 158, 160–163, and 167 only); and 6,703,236 (Claims 1–7 only), or corresponding claims in their non-U.S. counterparts, owned by Applera Corporation. No right is conveyed expressly, by implication or by estoppel under any other patent claim, such as claims to apparatus, reagents, kits, or methods such as 5' nuclease methods. Further information on purchasing licenses may be obtained by contacting the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

Bio-Rad's real-time thermal cyclers are licensed real-time thermal cyclers under Applera's United States Patent Number 6,814,934 B1 for use in research, human in vitro diagnostics, and all other fields except veterinary diagnostics.

Bio-Rad's thermal cyclers and real-time thermal cyclers are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 6,767,512 and 7,074,367.

Hard-Shell plates are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 7,347,977; 6,340,589; and 6,528,302.



Bio-Rad Laboratories, Inc.

Life Science Group 
 Web site
 www.bio-rad.com
 USA
 800
 424
 6723
 Australia
 61
 2
 914
 2800
 Austral
 01
 877
 89
 01
 Belgium
 09
 385
 55
 11
 Brazil
 55
 31
 3689
 6600

 Canada
 905
 364
 3435
 China
 86
 0
 8732
 2339
 Czech
 Republic
 420
 241
 430
 532
 Denmark
 44
 52
 10
 0
 Finland
 09
 804
 20
 France
 01
 47
 95
 69
 65

 Germany
 089
 31
 840
 Greece
 30
 210
 777
 4396
 Hong
 Kong
 852
 2789
 300
 Huard
 311
 424
 402300
 Israel
 03
 68
 600
 Korg
 483
 5000
 Korg
 483
 500
 Korg
 483
 53
 147
 770
 Russia
 7457
 71