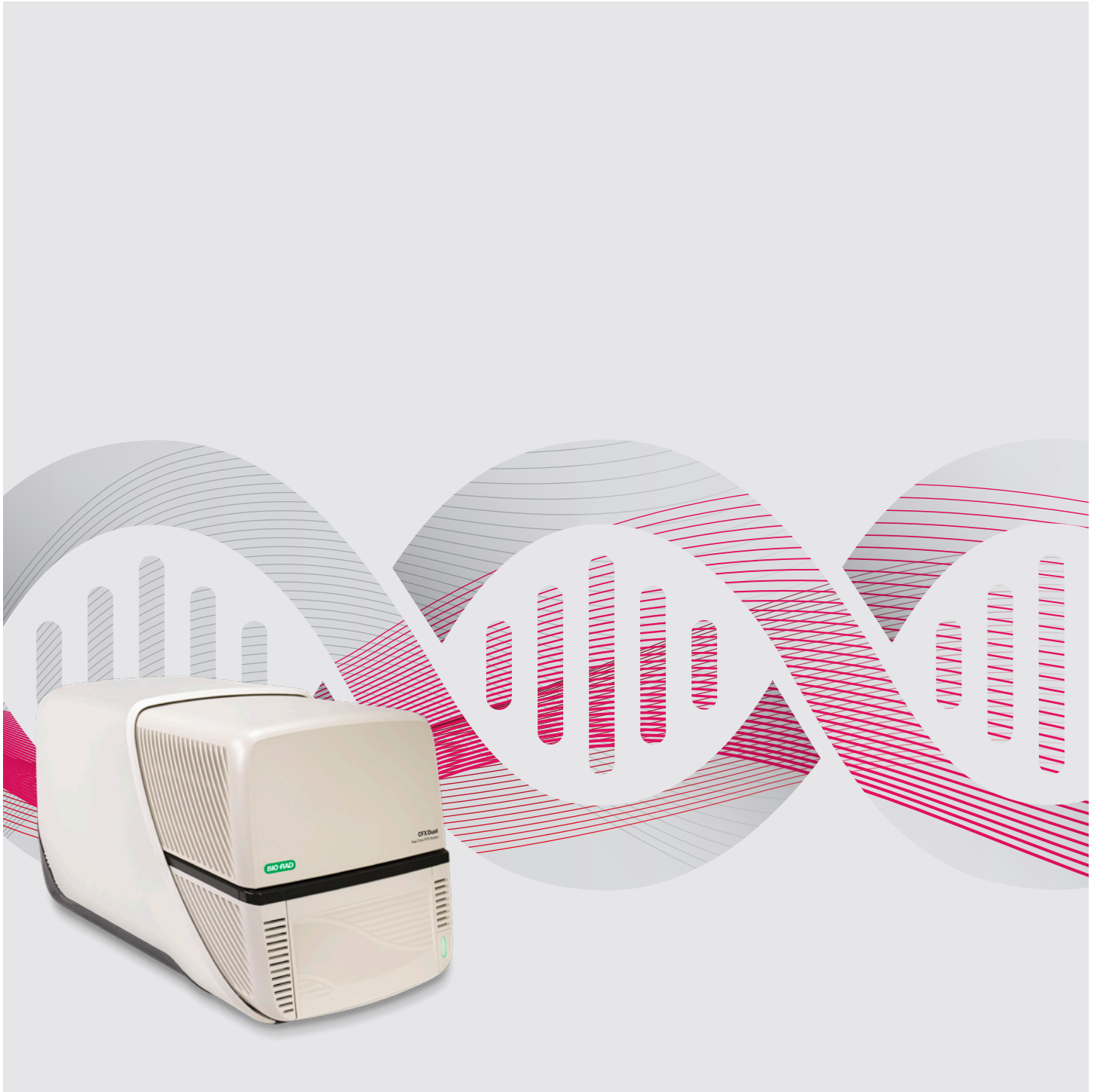


Real-Time PCR

CFX Duet Real-Time PCR System

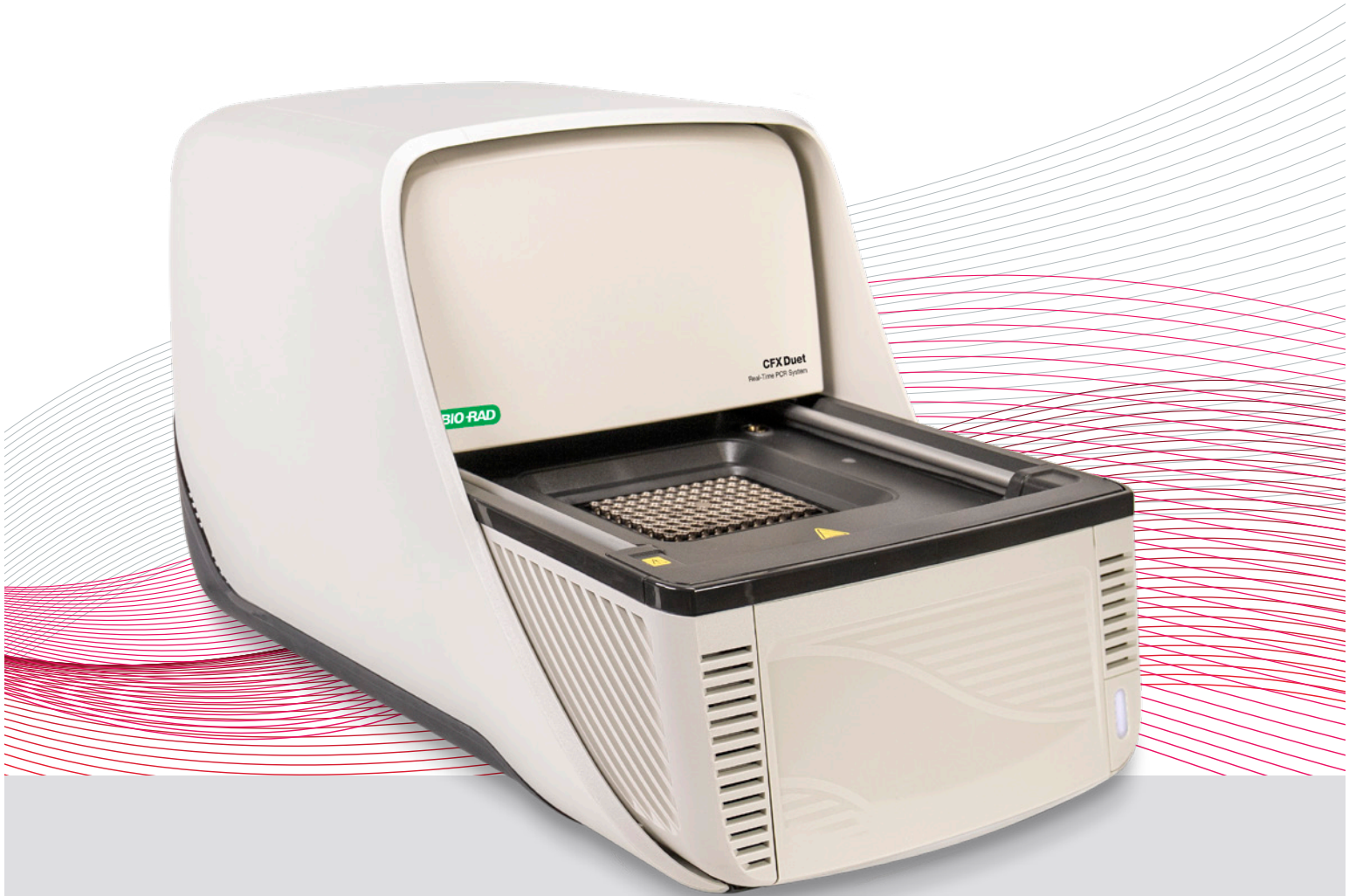


Visit [bio-rad.com/CFXDuet](https://www.bio-rad.com/CFXDuet) for more information.



CFX DUET REAL-TIME PCR SYSTEM

POWERFUL YET ACCESSIBLE GENOMICS ANALYSIS



With the CFX Duet Real-Time PCR System, Bio-Rad Laboratories, Inc. makes powerful and consistent quantitative PCR (qPCR) accessible to every laboratory. High-end thermal performance and the proprietary, accurate optical shuttle system from our CFX Opus Systems now comes in an easy-to-use, dual color format. Our popular CFX Maestro Software drives this system and makes essential genomics analyses approachable for the economical lab.

Search your mobile app store for **CFX** to see, using augmented reality, how the system fits into your lab, or visit [bio-rad.com/CFXDuet](https://www.bio-rad.com/CFXDuet) for links and details.



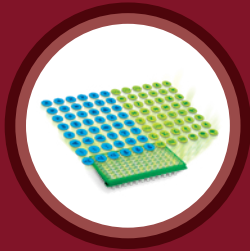
HAVE CONFIDENCE IN YOUR ENTIRE GENOMICS WORKFLOW

Unlike many suppliers, Bio-Rad offers everything you need for real-time PCR experiments, from sample preparation to data analysis. Simplify and optimize your workflow with our robust suite of reagents, instruments, and software, so that you can get publication-quality data every time.



Cell Lysis and RNA Isolation

- Aurum Total RNA Mini Kit
- Aurum Total RNA 96 Kit
- Aurum Total RNA Fatty and Fibrous Tissue Kit
- PureZOL RNA Isolation Reagent
- SingleShot Cell Lysis Kits



Target Selection

- PrimePCR Assays
- PrimePCR Pathway Panels
- PrimePCR Custom Plates



Reaction Setup

- SsoAdvanced Universal Supermixes
- iTaq Universal Supermixes
- Reliance One-Step Multiplex Supermix
- iTaq One-Step Universal Kits
- SingleShot Cell Lysis RT-qPCR Kits
- iScript Reverse Transcription Supermix for RT-qPCR
- iScript gDNA Clear cDNA Synthesis Kit
- PCR Plastics



Detection

- CFX Family of Real-Time PCR Systems



Analysis

- CFX Maestro Desktop Software

ROBUST OPTICAL DESIGN

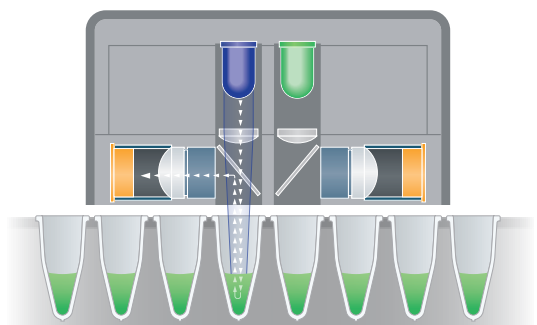
The solid-state optical technology of the CFX Duet System provides sensitive detection for precise quantification and target discrimination. Scanning just above the sample plate, the optics shuttle individually illuminates and detects fluorescence in each well with high sensitivity and consistency. This technology differs from competing technologies that use a single light source and camera, eliminating the need for normalization to remove the effects of varying detection angles. See Bio-Rad [bulletin 6047](#) for more information on our CFX optics.

Two-Target Multiplexing

The CFX Duet System can discriminate between two targets in a single reaction well. The optical filter sets are designed to maximize fluorescence detection for specific dyes in specific channels. At every position and with every scan, the optics shuttle is reproducibly centered above each well so the light path is always fixed and optimal. There is no need to sacrifice data collection in one of the channels to normalize to a passive reference.

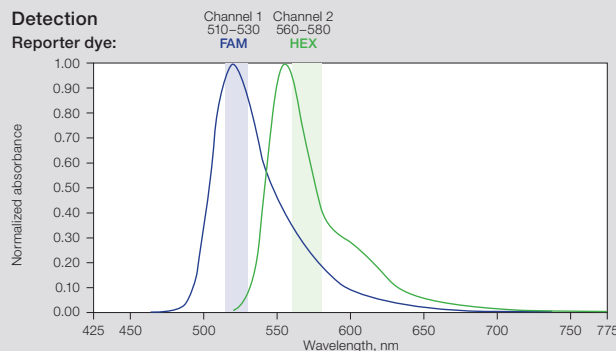
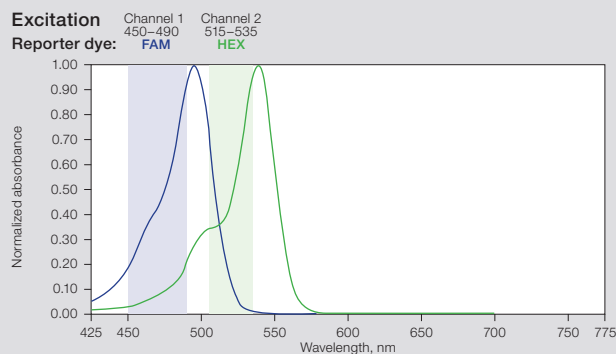
Multiple Data Acquisition Modes

The CFX Duet System can acquire data using several modes. Choose to acquire data for SYBR® Green I, EvaGreen®, and single-color FAM protocols using the fast scan mode or choose to acquire data from both FAM and HEX channels when performing multiplex protocols. The CFX Duet System includes one channel with an LED-filter photodiode combination designated for single-color fluorescence resonance energy transfer (FRET) experiments, further expanding your experimental options. FRET mode can expand your experimental options to applications such as protein thermal shift (melt) analysis.



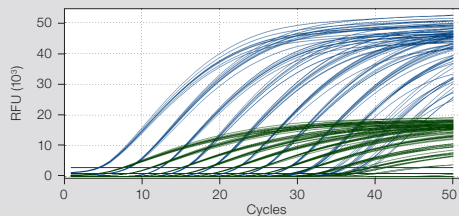
As the CFX Duet System's optical shuttle travels across the plate, light is focused into the center of each sample well. Side view of the optics shuttle shows the 450–490 nm LED firing and SYBR® Green emitting at 520 nm into the detector.

Discrete Channels for Multiplex Data Acquisition

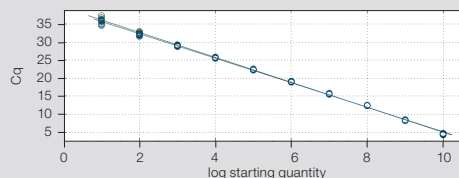


Outstanding Duplex Performance

Amplification



Standard Curve



○ Standard
— FAM E=97.1% R²=0.999 Slope=-3.394 y-int=39.100
— HEX E=94.7% R²=0.999 Slope=-3.455 y-int=39.585

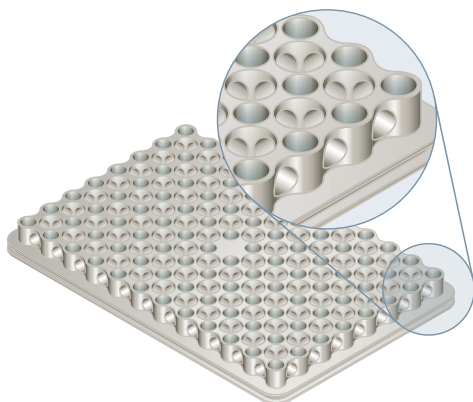
Duplex detection of two plasmids encoding IL-1 β and GAPDH.

Both plasmid targets were detected across 10 orders of magnitude (10^{10} to 10^0 copies) using SsoAdvanced Universal Probes Supermix on a CFX Duet System. The results demonstrated exceptional performance with superior efficiency and linearity over a wide dynamic range. Cq, quantification cycle; RFU, relative fluorescence units.

CONSISTENT THERMAL CYCLING

Superior Uniformity

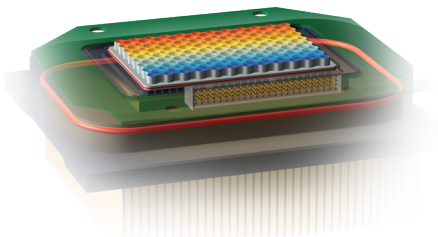
We took a great block and made it even better. The CFX Duet System uses an improved version of the CFX Touch Systems' block to offer exceptional performance and uniformity while keeping compatibility with our consumables. With the best thermal uniformity and accuracy Bio-Rad has ever produced, you'll never worry about using the block from edge to edge again, even with highly sensitive assays.



Bio-Rad's patented reduced-mass sample block heats and cools more quickly than standard blocks, improving thermal uniformity and minimizing edge effects.

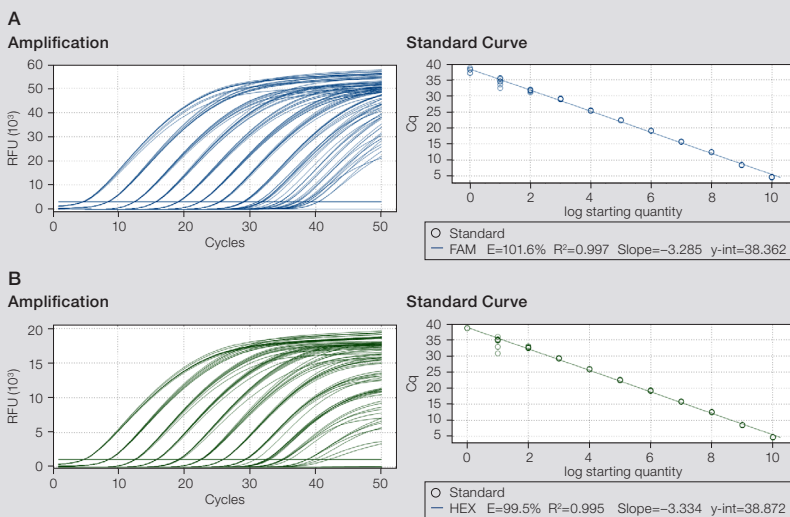
Gradient Optimization

Not all qPCR systems offer the value of gradient functionality. The thermal gradient feature of the CFX Duet System allows you to optimize your assay in a single experiment, minimizing the use of precious samples and reagents and saving valuable research time. At any step in a protocol, users can program a temperature gradient of up to 24°C across the reaction block, with exceptional temperature uniformity and reproducibility within each gradient zone.

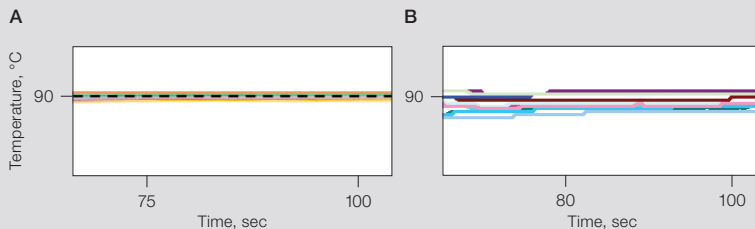


Large Dynamic Range

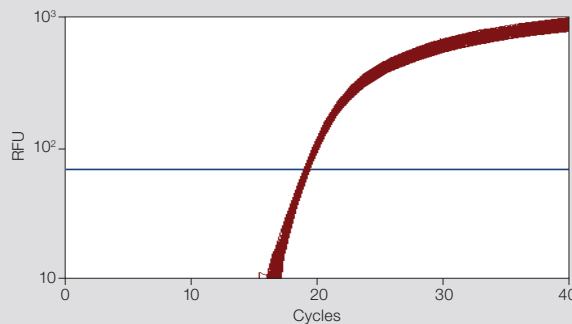
The CFX Duet System's precise thermal performance and optics can achieve excellent results over 10 logs of input in both FAM and HEX channels.



Detection of *IL1B* in both FAM and HEX channels. A tenfold dilution series (10^6 to 10 copies) of plasmid encoding IL-1 β was amplified and detected with **A**, FAM probes and **B**, HEX probes. Cq, quantification cycle; RFU, relative fluorescence units.



Superior thermal uniformity for reproducible results. The temperature measured by probes in 15 wells across a sample block. **A**, temperatures across the sample block vary by $\pm 0.3^\circ\text{C}$ for the CFX Duet System, an improvement of 0.1°C over **B**, the temperature variability across the CFX Touch Systems' sample block.



Excellent uniformity. A plasmid template encoding IL-1 β diluted to 10^5 copies/reaction amplified in the presence of a FAM dye-labeled detection probe with IQ Supermix. Graph shows 96 replicates of 10 μl reactions. Average quantification cycle (Cq) = 19.81 ± 0.10 . RFU, relative fluorescence units.

EASY-TO-USE SOFTWARE



Custom data view. View and analyze the data relevant to your needs on one screen with custom data view.

With CFX Maestro Software You Can:

- **Perform automatic statistical analysis in seconds** — run *t*-tests or analyze your data using one-way analysis of variance (ANOVA) with just a few mouse clicks
- **Extract more meaningful information from each run** — analyze data using bar charts, box and whisker plots, dot plots, clustergrams, scatter plots, or volcano plots
- **Create and export publication-ready graphics** — annotate graphs with *P* values, text, and arrows to call out specific data. Change colors, fonts, and legends. Export graphs at any size and resolution for presentations, posters, or publication
- **Integrate PrimePCR Assays easily** — save time with predesigned and validated PrimePCR Primers and Plates. Drag and drop your PrimePCR worksheet into CFX Maestro Software to instantly create your plate setup. Post-run, check run quality with the PrimePCR controls analysis tool
- **Perform further data analysis using qbase+ Software** — CFX Maestro Software comes with a premium license for qbase+ Software to further enhance your data analysis capabilities

Precision Melt Analysis Software

Precision Melt Analysis Software imports and analyzes data files generated by the CFX family of Real-Time PCR Systems to genotype DNA samples based on their thermal denaturation. The software can be used for a variety of applications, including gene variant discovery, single nucleotide polymorphism (SNP) screening, identification of insertions, deletions, or other unknown mutations, and analysis of methylated DNA percentage in unknown samples.

The Security You Need

The Security Edition of CFX Maestro Software integrates the power of the CFX Duet System with tools that enable U.S. FDA 21 CFR Part 11 compliance.

Have confidence in the security of your data, thanks to:

- **Mandatory password-protected login** — valid Windows User Profile (local or directory) and password are required
- **Hardware protection key (HASP HL key)** — key must be attached to a USB port on the computer to use the software
- **File encryption** — files cannot be opened or edited using other programs
- **Automatic file checking** — integrity and validity are checked each time a file is opened
- **Electronic signatures** — more than one electronic signature can be applied to any file that can be opened with the software
- **Time- and date-stamped audit trails** — read-only information in the audit trail can be viewed only while the data file is open

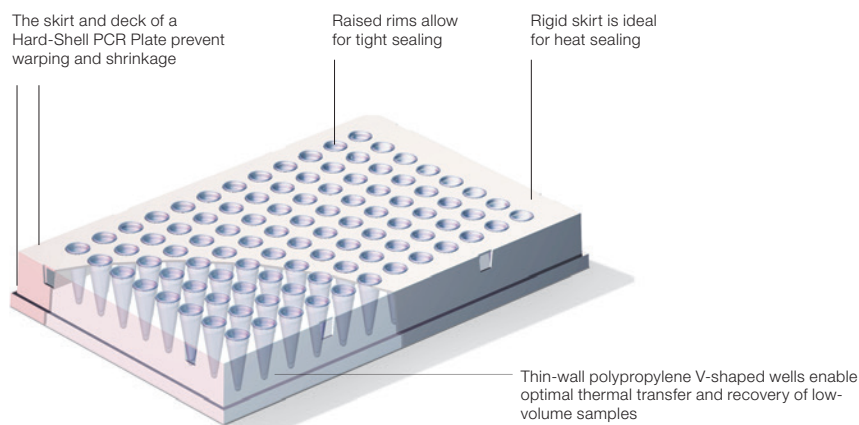
COMPLEMENTARY PCR PLASTICS & REAGENTS

Bio-Rad PCR Plastics

Bio-Rad PCR Plastics, specifically our Hard-Shell PCR Plates, are the perfect partner for your CFX Duet System.

Hard-Shell PCR Plates offer:

- Automation compatibility
- Superior well-to-well uniformity for reliable and reproducible real-time PCR results
- Warp resistance and superior stability for durability during robotic handling, high-speed centrifugation, and storage
- Optional user-readable barcode with alphanumeric labels for easy well identification in high-throughput settings
- Footprint and well spacing designed to match American National Standards Institute (ANSI) and Society for Laboratory Automation and Screening (SLAS) standard dimensions
- Plastics certified free from DNase, RNase, and human DNA
- Choice of 96- or 384-well format



Features of Hard-Shell PCR Plates.

Bio-Rad PCR Reagents

Bio-Rad PCR Reagents offer trusted performance for our Real-Time PCR Systems, including the CFX Duet System.

Our Bio-Rad PCR Reagents include:

- Advanced buffer formulations** — our PCR reagent buffers have been refined to deliver top-notch performance. Use them confidently with a broad range of complex sample types and target regions, as well as under varying reaction parameters (primer concentration, annealing temperature, salt concentration, and cycling protocol)
- Universal reference dyes** — a proprietary blend of reference dyes means you won't need different, system-specific dye concentrations. With our universal reference dyes, reaction setup is easy and data are less variable. Our reference dyes are compatible with high-ROX, low-ROX, and ROX-independent systems
- Robust Reliance Reverse Transcriptase** — the Reliance Reverse Transcriptase is genetically engineered for high thermostability and efficient, sensitive cDNA synthesis, even with challenging samples and targets
- Powerful Sso7d* fusion DNA polymerase** — our Sso7d fusion DNA polymerase is designed to succeed where others fail. It features improved processivity for effective amplification through regions of strong secondary structures, GC-rich regions, and longer products, even in the presence of PCR inhibitors

The Best Fit for Your Application

To determine which products will work best for your system, talk to your local representative, or check out our selector tools:

- [PCR Plastics Selector](#)
- [PCR Reagents Selector](#)



* U.S. patent 7,560,260.

Ordering Information

Catalog #	Description
Instrument	
12016265	CFX Duet Real-Time PCR System , includes power cord, USB cable
Software	
All software for Windows unless otherwise noted.	
12013758	CFX Maestro Software , includes USB installation drive, video quick guides, PDF instruction manual, license for qbase+ Software
12012832	CFX Maestro Software, Security Edition , 1 license
12013028	CFX Maestro Software, Security Edition , 5 licenses
12012833	CFX Maestro Software , Russian Edition
12012834	CFX Maestro Software , Chinese Edition
1845025	Precision Melt Analysis Software , includes 2 user licenses, installation CD, 2 HASP HL keys, melt calibration kit
Consumables	
HSP9655	Hard-Shell 96-Well PCR Plates , pkg of 50, low profile, thin wall, skirted, white shell/white wells
HSP9601	Hard-Shell 96-Well PCR Plates , pkg of 50, low profile, thin wall, skirted, white shell/clear wells
MSB1001	Microseal 'B' PCR Plate Sealing Film , pkg of 100, optically clear seals for PCR plates
TLS0851	0.2 ml 8-Tube PCR Strips without Caps , low profile, white
TLS0801	0.2 ml 8-Tube PCR Strips without Caps , low profile, clear
TCS0803	0.2 ml Flat PCR Tube 8-Cap Strips , optical, ultraclear
Reagents	
1845098	CFX Qualification Plate , 96-well
12010176	Reliance One-Step Multiplex RT-qPCR Supermix , 1 ml (1 x 1 ml), 200 x 20 µl reactions
1725270	SsoAdvanced Universal SYBR® Green Supermix , 2 ml (2 x 1 ml), 200 x 20 µl reactions
1725016	SsoAdvanced Universal Inhibitor-Tolerant SYBR® Green Supermix , 2 ml (2 x 1 ml), 200 x 20 µl reactions
1725095	SingleShot SYBR® Green One-Step Kit for Cell Lysis and RT-qPCR , 100 x 50 µl reactions
17005726	SEQuoia Complete Stranded RNA Library Prep Kit , 24 reactions
12011928	SEQuoia Dual Indexed Primers Set , 12 vials of unique dual indexed primers, 96 reactions

Visit bio-rad.com/CFXDuet for more information about the CFX Duet Real-Time PCR System.

Visit bio-rad.com/PCRplastics and bio-rad.com/PCRreagents for more information about PCR consumables and reagents, respectively.

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SYBR is a trademark of Thermo Fisher Scientific Inc. Bio-Rad Laboratories, Inc. is licensed by Thermo Fisher Scientific Inc. to sell reagents containing SYBR Green I for use in real-time PCR, for research purposes only.

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Life Science
Group

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