CFX96 Touch[™] Real-Time PCR Detection System



Bulletin 6075

Real-Time PCR

Advancing qPCR Together

The CFX96 Touch Real-Time PCR Detection System lets you quickly set up runs, easily monitor their progress, and use powerful analysis tools. Solid-state optical components provide sensitive detection for precise quantification and target discrimination. Five-target multiplexing enables powerful simultaneous analyses, or tailor the run to detect SYBR[®] Green in the single-color fast scan mode. Set up runs and view data traces in real time on the integrated touch screen. CFX Manager[™] Software is customizable for all levels of users and different experiment needs. A startup wizard and intuitive experiment setup make it easy to get started with real-time PCR. Data analysis modules include gene expression by normalized expression (ΔΔCq) using multiple reference genes and individual reaction efficiencies in the calculations. Extract more meaningful information from runs by using bar chart, clustergram, scatter plot, volcano plot, or heat map analysis.



Specifications

Maximum mamp rate5°C/secTemperature range0-100°CAverage ramp rate3.3°C/secTemperature range0.2°C of programmed target at 90°CHeating and cooling methodPetiterTemperature uniformity±0.2°C of programmed target at 90°CGradient0.4°C well-to-well within 10 sec of arrival at 90°Carrival at 90°CGradient0.100°C1.24°C0.100°COperational range30-100°C500°Carrival at 90°CProgrammable span1.24°C0.100°Carrival at 90°COptical Detection6 filtered photodiodesScan time12 secBarge of excitation/ emission wavelengths6 filtered photodiodesScan time3 secSensitivityDetects 1 copy of target sequence in human genomic DNA12 sec3 secSoftwareVindows 7, Windows 8Data exportSave, copy, and print all graphs and spreadsheets from right-citick menu Export specified data in multiple reference genes and individual reaction efficienciesSave, copy, and print all graphs and spreadsheets from right-citick menu Export specified data in multiple formatsCopy of target security (ACq) or normalized expression (AACq) with multiple reference genes and individual reaction efficiencies and an analysis to politic analysis for comparison of an unimited number of Cq valuesEccrical approvalsAllelid Giscrimination of an unimited number of Cq valuesEccrical approvalsEC, CESample capacityYesElectrical approvalsEC, CESample capacity96 wellsDimensions (W x D x H)33 x46 x36 cm	C1000 Touch [™] Thermal Cycler with 96-Well Reaction Module				
Average ramp rate 3.3°C/sec Temperature accuracy ±0.2°C of programmed target at 90°C Heating and cooling method Petier Temperature uniformity ±0.4°C well-to-well within 10 sec of arrival at 90°C Gradient 00-10°C Temperature uniformity ±0.4°C well-to-well within 10 sec of arrival at 90°C Operational range 90-10°C Temperature uniformity ±0.4°C well-to-well within 10 sec of arrival at 90°C Operational range 1-24°C Temperature uniformity ±0.4°C well-to-well within 10 sec of arrival at 90°C Operational range 6 filtered LEDs Dynamic range 10 orders of magnitude Detection 6 filtered photodiodes Scan time 12 sec Range of excitation/ 20-730 nm All channels 12 sec Software Detects 1 copy of target sequence in human genonic DNA Save, copy, and print all graphs and spreadsheets from right-click menu Exports paysism Windows 7, Windows 8 Data export Save, copy, and print all graphs and spreadsheets from right-click menu Export paysismodes PCR quantification with standard curve Meltiple formats Copy and paste into Microsoft Excel, Word, or PowerPoint file Multiple analysis modes PCR quantification analysis for comparison of an unlimited number	Maximum ramp rate	5°C/sec	Temperature range	0-100°C	
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LidHeats up to 106°Carrival at 90°CGradient Operational range Programmable span30–100°C 1–24°Cstate spaceOptical Detection6 filtered LEDsDynamic range10 orders of magnitudeRange of excitation6 filtered photodiodesScan time All channels12 secRange of excitation/ emission wavelengths50–730 nmAll channels Single channel fast scan12 secSensitivityDetects 1 copy of target sequence in human genomic DNASave, copy, and print all graphs and spreadsheets from right-click menuMemoryMinimum of 1 GB Multiple x analysisUp to 5 targets per wellSave, copy and print all graphs and spreadsheets from right-click menuData analysis modesPCR quantification with standard curve Melticurve analysis options include bar chart, clustergram, scatter plot, volcano plot, and heat map Multiple reference genes and Individual reaction efficiencies Data analysis options include bar chart, clustergram, scatter plot, volcano plot, and heat map Multiple to issue analysis for comparison of an unlimited number of Cq values Alutipet discimination End-point analysisIEC, CESample capacity96 wellsDimensions (W x Dx H) 33 x 46 x 36 cm (13 x 18 x 14 in,)Sample capacity96 wellsDimensions (W x Dx H) 23 x 14 (pl.)	Heating and cooling method	Peltier	Temperature uniformity	±0.4°C well-to-well within 10 sec of	
Gradient 30-10°C Programmable span 1-24°C Optical Detection 6 filtered LEDs Excitation 6 filtered photodiodes Range of excitation/ emission wavelengths 450-730 nm Sensitivity Detects 1 copy of target sequence in human genomic DNA Software Operating systems Operating systems Windows 7, Windows 8 Memory Minimum of 1 GB Memory Minimum of 1 GB Multiplex analysis Up to 5 targets per well Data analysis modes PCR quantification with standard curve Melt curve analysis Gene expression analysis by relative quantity (ACq) or normalized expression (AACq) with multiple reference genes and individual reaction efficiencies Data analysis modes Copy and paste into Microsoft Excel, Word, or PowerPoint file Outsornizable reports containing run settirp lot, volcano plot, and heat map Spreadsheets can be directly printed or saved as PDFs Multiple file gene expression analysis for comparison or an unlimited number of Cq values Leensed for real-time PCR Allelic discrimination End-point analysis Pies Loensed for real-time PCR Yes Sample capacity 96 wells Sample capacity 96 wel	Lid	Heats up to 105°C		arrival at 90°C	
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Excitation6 filtered LEDsDynamic range10 orders of magnitudeDetection6 filtered photodiodesScan time12 secRange of excitation/ emission wavelengths3 sec3 secSensitivityDetects 1 copy of target sequence in human genomic DNA12 secSoftware	Optical Detection				
Detection6 filtered photodiodesScan time All channels12 sec 3 secRange of excitation/ emission wavelengths450-730 nmAll channels Single channel fast scan12 sec 3 secSensitivityDetects 1 copy of target sequence in human genomic DNADetects 1 copy of target sequence in human genomic DNASave. copy, and print all graphs and spreadsheets from right-click menuSoftwareMinimum of 1 GBData exportSave. copy, and print all graphs and spreadsheets from right-click menuMultiplex analysisUp to 5 targets per wellExport specified data in multiple formatsData analysis modesPCR quantification with standard curve Melt curve analysis by relative quantity (ΔCq) or normalized expression (ΔACq) with multiple reference genes and individual reaction efficiencies genes and individual reaction efficiencies Alleic discrimination t analysisCopy and paste into Microsoft Excel, Word, or PowerPoint file Ousta analysis options include bar chart, clustergram, scatter plot, volcano plot, and heat map Alleic discrimination t and-point analysisJetrical approvalsSystemKesElectrical approvalsIEC, CE S33 x 46 x 36 cm (13 x 18 x 14 in.)Sample capacity96 wellsDimensions (W x D x H) Weight33 x 46 x 36 cm (13 x 18 x 14 in.)	Excitation	6 filtered LEDs	Dynamic range	10 orders of magnitude	
Range of excitation/ emission wavelengths450–730 nmAll channels Single channel fast scan12 secSensitivityDetects 1 copy of target sequence in human genomic DNA3 secSoftwareOperating systemsWindows 7, Windows 8Data exportSave, copy, and print all graphs and spreadsheets from right-click menuMultiplex analysisUp to 5 targets per wellData exportSave, copy, and print all graphs and spreadsheets from right-click menuData analysis modesPCR quantification with standard curve Melt curve analysisExport specified data in multiple formats Copy and paste into Microsoft Excel, Word, or PowerPoint file Customizable reports containing run settings, data graphs, and spreadsheets or of an unlimited number of Cq values Allelic discrimination End-point analysisCopy and paste into Microsoft Excel, Word, or PowerPoint file Customizable reports containing run settings, data graphs, and spreadsheets and individual reaction efficiencies and individual reaction efficiencies and individual reaction performancies and individual reaction efficiencies allelic discrimination End-point analysisElectrical approvalsElec, CESystemSareSareSare (C, CE Sample capacitySa x 46 x 36 cm (13 x 18 x 14 in.)Sample size1-50 µl (10–25 µl recommended)Weight21 kg (47 lb)	Detection	6 filtered photodiodes	Scan time		
SensitivityDetects 1 copy of target sequence in human genomic DNASoftwareOperating systemsWindows 7, Windows 8Data exportSave, copy, and print all graphs and spreadsheets from right-click menuMemoryMinimum of 1 GBExport specified data in multiple xanalysisExport specified data in multiple formatsData analysis modesPCR quantification with standard curve Melt curve analysisExport specified data in multiple formatsData analysis modesPCR quantification with standard curve Melt curve analysis by relative quantity (\(\Delta\) copy on normalized expression (\(\Delta\) copy and heat map perssion (\(\Delta\) copy and heat map on an unlimited number of Cq values Allelic discrimination End-point analysisVeltate analysisSystemLicensed for real-time PCR Sample capacityYesElectrical approvals Dimensions (W x D x H)IEC, CE 33 x 46 x 36 cm (13 x 18 x 14 in.)Sample size1-50 µl (10-25 µl recommended)Weight21 kg (47 lb)	Range of excitation/ emission wavelengths	450–730 nm	All channels Single channel fast scan	12 sec 3 sec	
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MemoryMinimum of 1 GBgraphs and spreadsheets from right-click menuMultiplex analysisUp to 5 targets per wellExport specified data in multiple formatsData analysis modesPCR quantification with standard curveExport specified data in multiple formatsMelt curve analysisGene expression analysis by relative quantity (ΔCq) or normalized expression (ΔΔCq) with multiple references genes and individual reaction efficienciesCopy and paste into Microsoft Excel, Word, or PowerPoint fileData analysis options include bar chart, clustergram, scatter plot, volcano plot, and heat map Multiple file gene expression analysis for comparison of an unlimited number of Cq values Allelic discrimination End-point analysisHercircal approvalsSystemLicensed for real-time PCR Sample capacityYesElectrical approvalsLicensed for real-time PCR Sample sizeYesElectrical approvalsIEC, CESample size1–50 µl (10–25 µl recommended)Weight21 kg (47 lb)	Operating systems	Windows 7, Windows 8	Data export	Save, copy, and print all	
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Allelic discrimination Customizable reports containing run settings, data graphs, and spreadsheets can be directly printed or saved as PDFs Multiple file gene expression analysis for comparison of an unlimited number of Cq values Allelic discrimination End-point analysis Electrical approvals System Electrical approvals Licensed for real-time PCR Yes Sample capacity 96 wells Jands Dimensions (W x D x H) Sample size 1–50 µl (10–25 µl recommended)		Gene expression analysis by relative quantity (ΔCq) or		Excel, Word, or PowerPoint file	
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Sample capacity 96 wells Dimensions (W x D x H) 33 x 46 x 36 cm (13 x 18 x 14 in.) Sample size 1–50 µl (10–25 µl recommended) Weight 21 kg (47 lb)	Licensed for real-time PCR	Yes	Electrical approvals	IEC, CE	
Sample size 1–50 µl (10–25 µl recommended) Weight 21 kg (47 lb)	Sample capacity	96 wells	Dimensions (W x D x H)	33 x 46 x 36 cm (13 x 18 x 14 in.)	
	Sample size	1–50 µl (10–25 µl recommended)	Weight	21 kg (47 lb)	
Communications USB 2.0	Communications	USB 2.0			





Linearity of five-target multiplex detection. A–E, fluorescence data from a series of tenfold dilutions of plasmid DNA (10⁸–10² copies) amplified using reporter dyes to monitor five targets: ■, FAM/actin; ■, HEX/GAPDH; ■, Texas Red/cyclophilin; ■, Cy5/tubulin; ■, Quasar 705/*IL*-1*β*; F, standard curves generated from data in A–E, reaction efficiencies range from 97 to 103%. Cq, quantification cycle; RFU, relative fluorescence units.



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–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. Inset is a magnified view showing robust discrimination and reproducible amplification. RFU, relative fluorescence units.

Ordering Information

Catalog #	Description
184-1100	C1000 Touch Thermal Cycler Chassis, includes USB flash drive, power cord; does not include reaction module
184-5097	CFX96 [™] Optical Reaction Module, for use with C1000 Touch
	Thermal Cycler Chassis, includes CFX Manager Software,
	license for qbase+ Software, communication cable
185-5196	CFX96 Touch Real-Time PCR Detection System, includes
	C1000 Touch Thermal Cycler Chassis, CFX96 Optical
	Reaction Module, CFX Manager Software, license for qbase+
	Software, communication cable, reagents, consumables

185-5195	CFX96 Touch Real-Time PCR Detection System, includes
	C1000 Touch Thermal Cycler Chassis, CFX96 Optical Reaction
	Module, CFX Manager Software, license for qbase+ Software,
	communication cable
184-5001	CFX Manager Software, Security Edition, includes 1 user
	license, installation CD, HASP HL key
184-5025	Precision Melt Analysis [™] Software, includes 2 user licenses,
	installation CD, 2 HASP HL keys, melt calibration kit
184-5075	CFX Automation System II, includes plate handler and
	barcode scanner, mounting plate, automation software
181-4000	PX1 [™] PCR Plate Sealer, includes heat sealing instrument
181-4030	Optically Clear Heat Seal, for use with PX1 PCR Plate
	Sealer, 100
MSB-1001	Microseal [®] 'B' Adhesive Seals, optically clear, 100
HSP-9655	Hard-Shell [®] Low-Profile 96-Well Skirted PCR Plates,
	white well, white shell, 50
HSP-9955	Hard-Shell Low-Profile 96-Well Skirted PCR Plates,
	white well, white shell, barcoded, 50
170-8840	iScript [™] Reverse Transcription Supermix for RT-qPCR,
	25 x 20 µl reactions, includes 100 µl 5x iScript RT Supermix,
170 5007	Script RI Supermix No-RI Control
172-5037	Script Advanced cDNA Synthesis Kit for RI-qPCR,
	25 x 20 µl reactions, includes 100 µl 5x iScript Advanced
170 5070	Reaction Mix, 25 µi IScript Advanced Reverse Transcriptase
172-5270	SsoAdvanced Universal SYBR® Green Supermix, 2 ml
	(2 x 1 mi viais), 200 x 20 µi reactions, 2x qPCR mix, contains
170 5000	Sso/d fusion polymerase, ROX Normalization Dyes
172-5280	SsoAdvanced Universal Probes Supermix, 2 mi
	(2 X T mi viais), 200 X 20 µi reactions, 2X qPCR mix, contains
170 5160	Solution polymerase, ROA Normalization Dyes
112-3100	50 x 50 ul reactione
170 5005	SingleShot™ SVPD® Croop One Step Kit 100 v 50 vi reastione
172-2092	Singleonor Stor Green One-Step Kit, 100 X 50 µl reactions

Visit bio-rad.com/web/CFX96TouchSpecs for more information.

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Bio-Rad's 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.

The use of SsoAdvanced and SsoFast Supemixes is covered by one or more of the following U.S. patents and corresponding patent claims outside the U.S.: 5,804,375; 5,538,848; 5,723,591; 5,876,930; 5,994,056; 6,030,787; 6,171,785; and 6,258,669. The purchase of these products includes a limited, non-transferable immunity from suit under the foregoing patent claims for using only this amount of product for the purchaser's own internal research. No right under any other patent claim and no right to perform commercial services of any kind, including without limitation reporting the results of purchaser's activities for a fee or other commercial consideration, are conveyed expressly, by implication, or by estoppel. These products are for research use only. Diagnostic uses under Roche patents require a separate license from Roche. Further information on purchasing licenses may be obtained from the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

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.





Life Science

Group

Bio-Rad Laboratories, Inc.

Web site www.bio-rad.com USA 800 424 6723 Australia 61 2 9914 2800 Austria 43 1 877 89 01 Belgium 03 710 53 00 Brazil 55 11 3065 7550 Canada 905 364 3435 China 86 21 6169 8500 Czech Republic 420 241 430 532 Denmark 44 52 10 00 Finland 09 804 22 00 France 01 47 95 69 65 Germany 49 83 31 840 Greece 30 210 9532 220 Hong Kong 852 2789 3300 Hungary 36 1 459 6100 India 91 124 4029300 Israel 03 963 6050 Italy 39 02 216091 Japan 81 3 6361 7000 Korea 82 2 3473 4460 Mexico 52 555 488 7670 The Netherlands 0318 540666 New Zealand 64 9 415 2280 Norway 23 38 41 30 Poland 48 22 331 99 99 Portugal 351 21 472 7700 Russia 7 495 721 14 04 Singapore 65 6415 3188 South Africa 27 (0) 861 246 723 Spain 34 91 590 5200 Sweden 08 555 12700 Switzerland 026674 55 05 Taiwan 886 2 2578 7189 Thailand 1800 88 22 88 United Kingdom 020 8328 2000