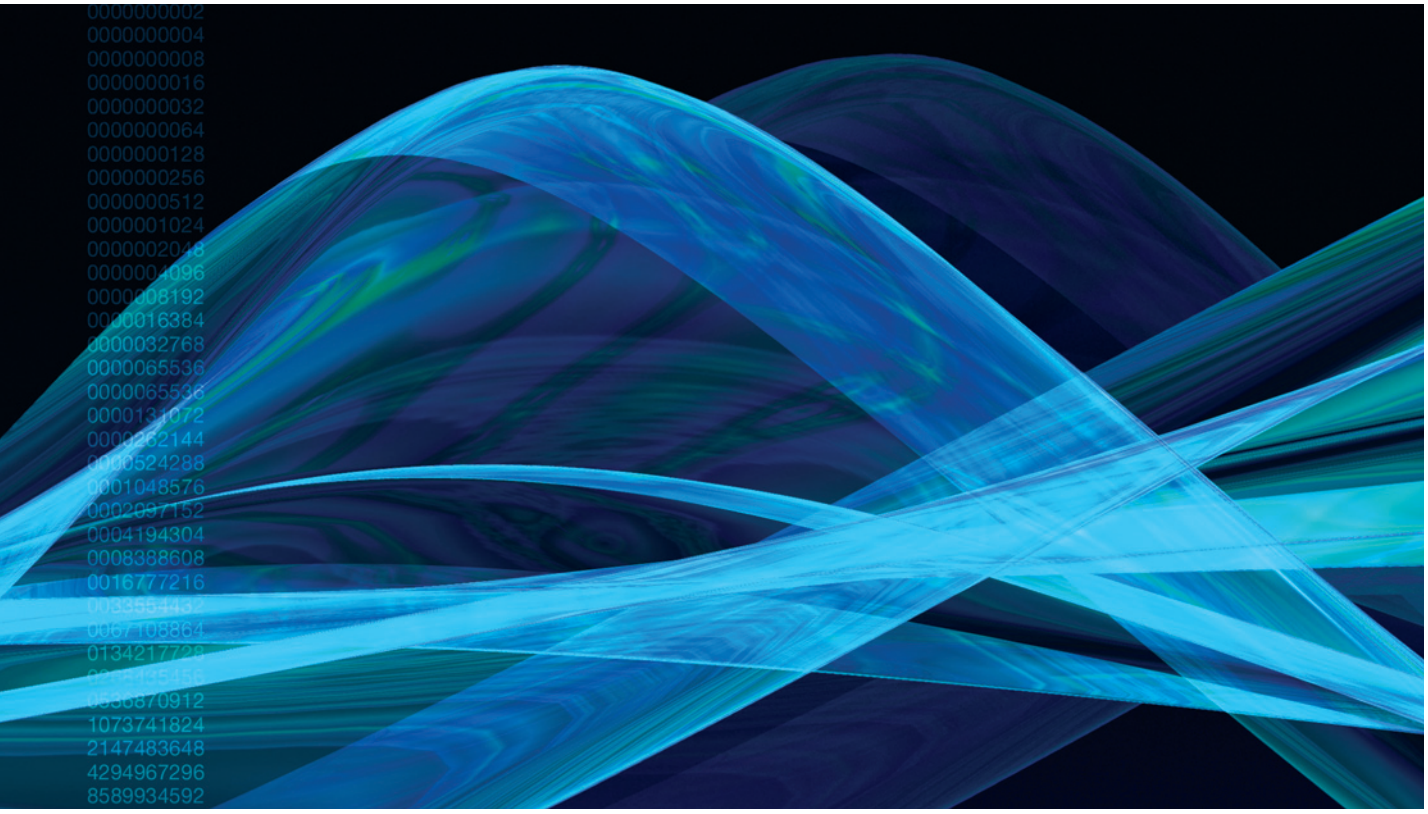


DNA Engine Opticon® 2

Two-Color Real-Time PCR Detection System

One Just Right for You

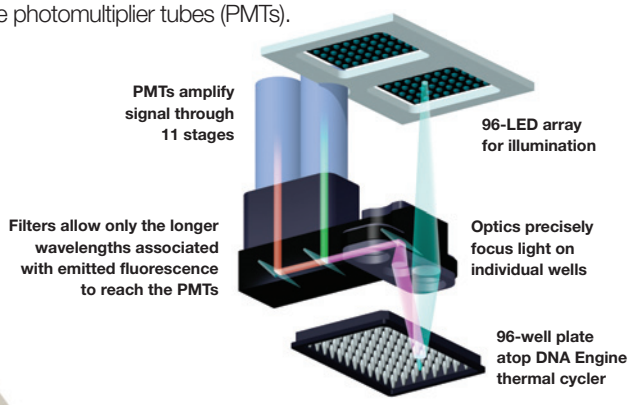
BIO-RAD

High-Resolution Real-Time PCR Detection

Real-time detection simplifies DNA quantitation, genotyping, and many other applications. The DNA Engine Opticon 2 system features an innovative optical design and a built-in DNA Engine® thermal cycler for extraordinary real-time performance. The DNA Engine Opticon 2 system produces reliable, high-resolution results, and the accompanying Opticon Monitor™ software makes data analysis easy.

Innovative Optical Design for Extraordinary Sensitivity and Low Maintenance

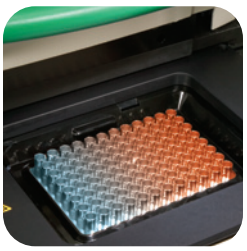
The DNA Engine Opticon 2 system has a robust optical design with no moving parts. Its 96 light-emitting diodes (LEDs) fire in rapid sequence to illuminate individual wells, resulting in minimal cross talk. Emitted fluorescence is detected by highly sensitive photomultiplier tubes (PMTs).



Because LEDs are durable, with a stable output over time, the optical system requires minimal maintenance. PMTs amplify signal, improving signal-to-noise ratio so small signals can be discerned. This design permits reliable detection of one initial template copy, while delivering a linear detection range of up to 10 orders of magnitude.

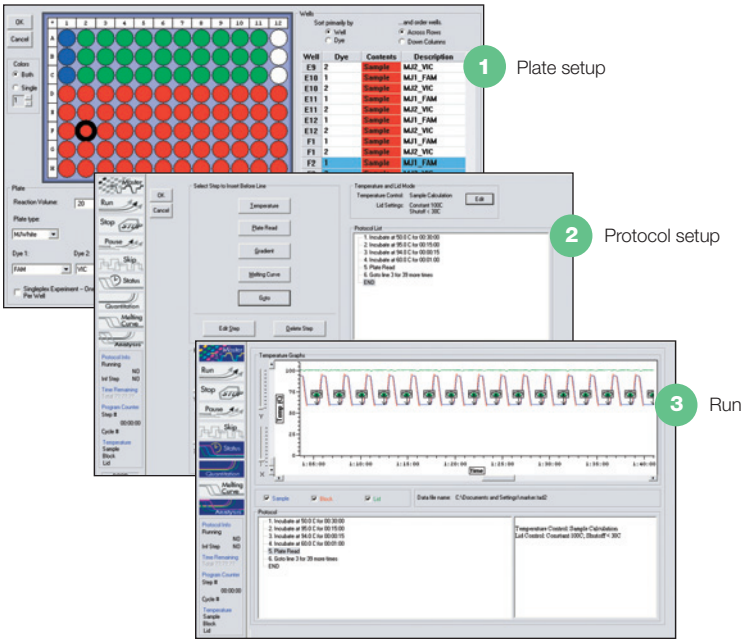
Advanced Thermal Control

The accurate, uniform thermal control of the incorporated DNA Engine cycler yields reliable, reproducible results, and a temperature gradient feature allows you to optimize cycling conditions in a single experiment.

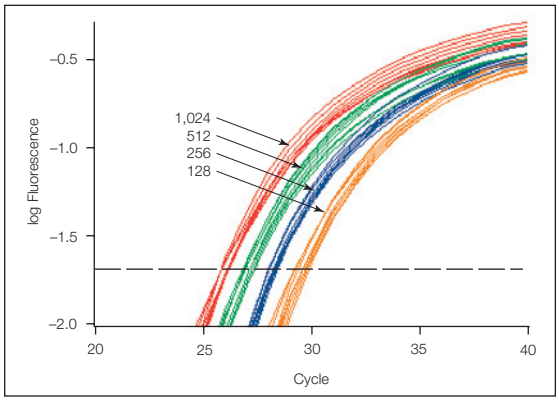


Intuitive Software

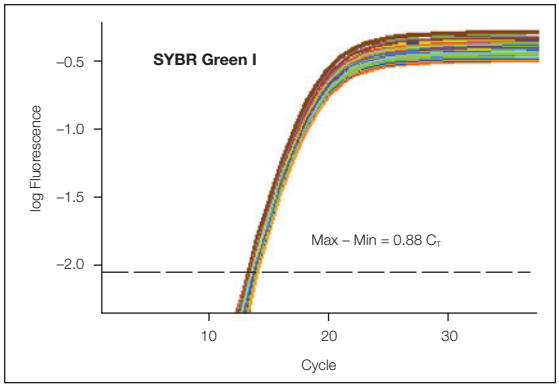
Researcher-oriented software makes experimental setup and analysis easy. You can go from start to run in just three steps, observe data acquisition in real time, and begin data analysis while the run is in progress. Multicolor capability allows detection of SYBR Green I and FAM in the first channel, and a range of fluorophores (including TET, HEX, VIC, and TAMRA) in the second channel — for a multitude of applications, such as RT-qPCR and allelic discrimination. Melt-curve analysis is included for verifying product identity, and a special analysis feature allows automated scoring of genotypes.



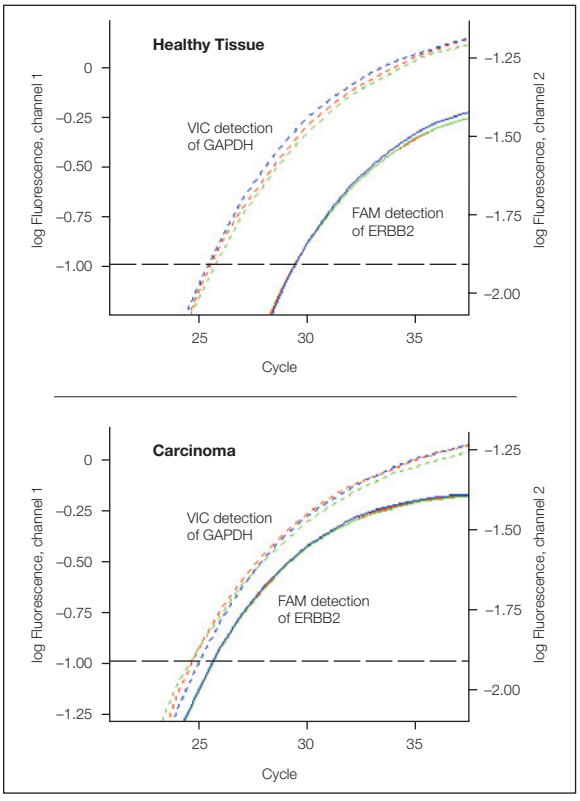
Performance and Application Data



High resolution. Two-fold differences in starting copy number are easily distinguishable. Plot shows log fluorescence vs. cycle number during amplification of plasmid containing β-actin cDNA. The experiment was performed in replicate (n = 6). Initial template copy number is indicated for each dilution set.

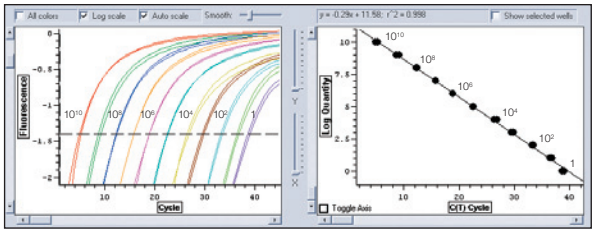


Uniformity. Plots of log fluorescence show the consistency in C_T values across wells. Plasmid containing β-actin (95 replicates) was amplified on a DNA Engine Opticon 2 system. Single no-template control not shown. Initial template copy number =10^6.

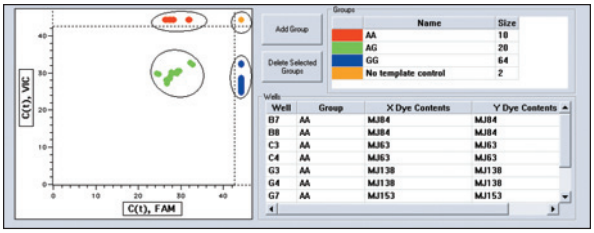


Two-color multiplexing. Multiplexing simplifies and improves the accuracy of gene expression analysis. Results from a two-color duplex experiment comparing the expression of the ERBB2 gene in healthy (upper panel) and carcinoma (lower panel) breast tissue samples. Amplification of ERBB2 and a housekeeping gene (GAPDH) was monitored with differently labeled hydrolysis probes. Note that the C_T of ERBB2 for the carcinoma is about four cycles earlier, which indicates approximately 16-fold greater expression of this gene.*

* This information is provided for research purposes only.



Wide dynamic range with single-copy detection. Left, log of fluorescence intensity vs. cycle number is shown for duplicated reactions amplified from plasmid containing human β-actin cDNA. A FAM-labeled hydrolysis probe was used to detect product over a range of 10 orders of magnitude in starting template copy number. Right, these replicates plotted on a standard curve.



Automated scoring of genotypes. Differently labeled SNP-specific hydrolysis probes were used to detect amplification of different alleles from >200 patient samples. For each sample, the C_T values obtained with each probe were plotted against each other (left) using an analysis feature in the Opticon Monitor software. Data plotted in this way cluster into genotypic groups depending on which channel(s) detected fluorescence. The panels on the right were used to create and define data groups.

Specifications and Ordering Information

DNA Engine Opticon 2 System	
Sample capacity	96-well microplate (low-profile) or 12 x 0.2 ml 8-tube strips (low-profile)
Sample volume	10–100 µl (20 µl recommended)
Input power	100–240 VAC, 50–60 Hz, 850 W max.
Dimensions (W x D x H)	34 x 47 x 60 cm
Weight	29 kg
Fluorescence excitation range	470–505 nm
Fluorescence detection range	Channel 1: 523–543 nm; channel 2: 540–700 nm
Linear dynamic range of starting copy number	Up to 10 orders of magnitude
Detection limit of starting template copy number	Down to single-copy detection

DNA Engine Thermal Cycler	
Speed of ramping	Up to 3°C/sec
Temperature range	0–105°C
Temperature accuracy	Average temperature within ±0.3°C of programmed value at 90°C, NIST-traceable
Temperature uniformity	±0.4°C within 30 sec of arrival at 90°C

Catalog #	Description
CFB-322001G	**DNA Engine Opticon 2 Two-Color Real-Time PCR Detection System**, includes optical tower, DNA Engine thermal cycler, 96-well sample block, analysis software

Appearances and specifications are subject to change without notice.

Bio-Rad Laboratories, Inc.

Life Science Group

Web site *www.bio-rad.com* ***USA*** *(800) 4BIORAD* ***Australia*** *02 9914 2800* ***Austria*** *(01)-877 89 01* ***Belgium*** *09-385 55 11* ***Brazil*** *55 21 2527 3454* ***Canada*** *(905) 712-2771* ***China*** *(86 21) 6426 0808* ***Czech Republic*** *+ 420 2 41 43 05 32* ***Denmark*** *44 52 10 00* ***Finland*** *09 804 22 00* ***France*** *01 47 95 69 65* ***Germany*** *089 318 84-0* ***Greece*** *30 210 777 4396* ***Hong Kong*** *(852) 2789 3300* ***Hungary*** *36 1 455 8800* ***India*** *(91-124)-2398112/3/4, 5018111, 6450092/93* ***Israel*** *03 951 4127* ***Italy*** *39 02 216091* ***Japan*** *03-5811-6270* ***Korea*** *82-2-3473-4460* ***Latin America*** *305-894-5950* ***Mexico*** *55-52-00-05-20* ***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*** *7 095 721 1404* ***Singapore*** *65-64153188* ***South Africa*** *00 27 11 4428508* ***Spain*** *34 91 590 52 00* ***Sweden*** *08 555 12700* ***Switzerland*** *061 717 95 55* ***Taiwan*** *(886 2) 2578 7189/2578 7241* ***United Kingdom*** *020 8328 2000*