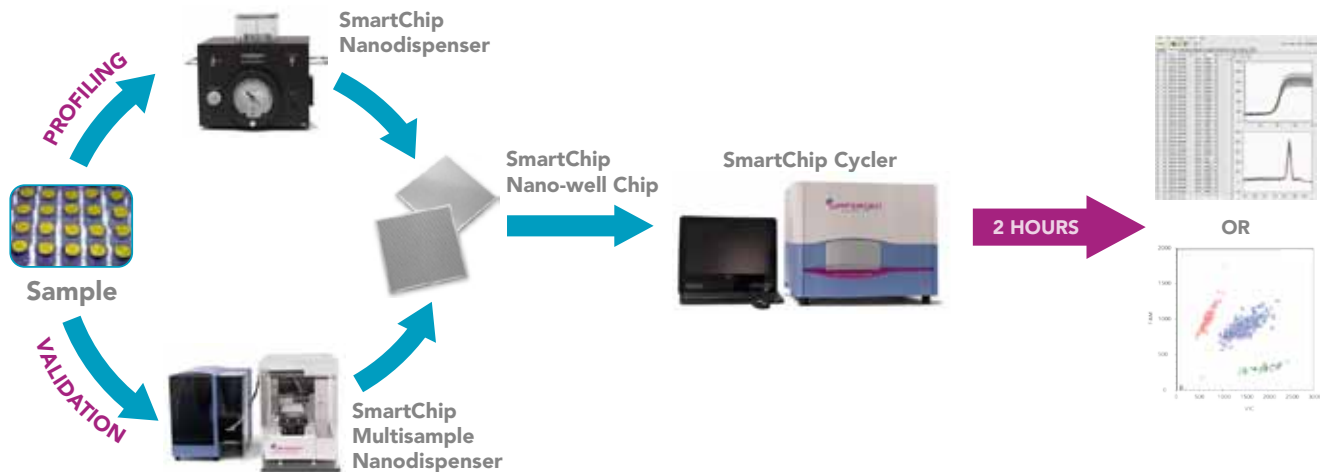


Advancing the science of tomorrow today.

## SmartChip Real-Time PCR System



**Figure 1.** The SmartChip Real-Time PCR System offers superior flexibility on a single integrated platform. Profile a single sample across 1000s of targets, validate multiple samples across 10s to 100s of targets, or screen 100s of samples across a few targets. A simple, automated workflow delivers accurate and cost-effective expression or SNP genotyping results in 2 hours.

### High-Throughput, Real-Time PCR

The SmartChip System consists of a family of instruments and gene panels that enables high-throughput, high-density, real-time PCR for gene expression or SNP genotyping analysis. The SmartChip Nanodispenser is a vacuum-based instrument allowing single-sample profiling of ~1000 genes, while the SmartChip Multisample Nanodispenser is a high-precision, nanoliter-volume liquid handling system customized with a chip cooling station and an enclosed humidification environment for delivering multiple samples on custom target sets. In just over 2 hrs, the SmartChip Cycler can process a

SmartChip multi-assay panel, enabling gene expression analysis or SNP genotyping of 5,184 reaction wells on a single chip. Employing a SYBR® Green two-step qPCR protocol for expression analysis, SmartChip panels are readily available for profiling pre-defined oncology or microRNA targets or customized into pathway or function-based panels specific to your research needs. Common SNP genotyping protocols making use of FAM and VIC dyes are optimized to meet your high-throughput experimental needs in a cost-effective manner.

### THE SMARTCHIP REAL-TIME PCR SYSTEM COMPONENTS



#### SmartChip Nanodispenser

- Easy to operate
- Fast sample loading
- Precise sample delivery



#### SmartChip Multisample Nanodispenser

- Load up to 384 samples
- Active evaporation control
- Proven high-precision delivery platform



#### SmartChip Cycler

- 5,184 parallel reactions
- Approx. 2-hr run time
- 100-nL reactions

Additional details about SmartChip Panels can be found in Product Note MKT-0007.

## SmartChip Real-Time PCR System

### Product Note

#### SmartChip Cycler Specifications

Reactions	Parallel Reactions: 5,184	Reaction Volume: 100 nL per well
Precision	Standard deviation <0.2 Ct between 5,000 and 10,000 copies of a control template	
Filters (center-width, nm)	Excitation Filter 1 SYBR®/FAM™ dyes: 475±42 Filter 2 OPEN: 510 ± 84 Filter 3 ROX™ dye: 543 ± 50 Three empty positions	Emission Filter 1 SYBR®/FAM™ dyes: 550 ± 50 Filter 2 OPEN: 605 ± 80 Filter 3 ROX™ dye: 625 ± 40 Two empty positions
Camera	Cooled CCD camera, 16 MPixel	
Illumination	250 W Quartz Tungsten Halogen stabilized lamp, rated at 1000 hrs	
Thermal Cycler	Ramp Rate: 65–95°C <20 sec, 95–65°C <15 sec Typical 40 cycle runs take approximately 2 hrs Melt temperature profile is user programmable (range, 0.5–2°C per second; recommended ramp rate, 0.5°C/sec) Thermal uniformity is ±0.5°C at 76°C	
Software	SmartChip qPCR—instrument control & analysis software. Five user licenses per Cycler.	
Computer	Enterprise class, 32-bit Windows® 7 — 4 Gb memory, 250 Gb storage, 1 Gb network adapter, USB ports for memory sticks, CD/DVD reader, LCD monitor, All-in-One chassis	
Power Requirements	100–120 VAC/200–240 VAC ± 10%, 8.0/4.0 A at 47–63 Hz; Two outlets (Cycler, CPU)	
Thermal Cycler Fuse	5 x 20 mm, T6.3AH	
Air	Clean Dry Air (recommend –40°C dewpoint) regulated to 4.8–6.9 BAR (70–100 PSI) Regulator output: 4 mm OD urethane tubing or with M5 or 1/8 NPT female port (consult WaferGen for other thread forms)	
Environmental Conditions	15–30°C Ambient; 10–70% Relative humidity, non-condensing; <2000 m altitude; Pollution degree ≤2	
Dimensions	Thermal Cycler: (W) 70 cm, (H) 50 cm, (D) 60 cm CPU Monitor and Keyboard: (W) 15 cm, (H) 50 cm, (D) 26 cm Plus keyboard and mouse	
Weight	SmartChip Cycler: 57 kg, CPU and Monitor: 44 kg	
Certifications	TUV (North America), CE Mark (European Union)	

#### SmartChip Nanodispenser Specifications

Power Requirements	115/110 VAC ± 10%, 60/50 Hz, 0.75A	
Nanodispenser Fuse	5 x 20 mm, T3.15AH	
Vacuum	0–28 in Hg (0–94.5 kPa)	
Sound Level	<70 db(A)	
Environmental Conditions	15–30°C Ambient; 10–70% Relative humidity, non-condensing; <2000 m altitude; Pollution degree ≤2	
Dimensions	(W) 40 cm, (H) 28 cm, (D) 32 cm	
Weight	13.7 kg	
Certifications	TUV (North America), CE Mark (European Union)	

#### SmartChip Multisample Dispenser Specifications

Maximum # of samples	384	
Dispense volume	100 nL per Well	
Laptop Computer	Enterprise class, 32-bit Windows 7 — 2 Gb memory, 250 Gb Storage, 1 Gb network and wireless, USB, DVD reader	
Power Requirements	100-120VAC/200-240VAC, 20.0/10.0A at 60/50Hz: Four outlets (Multisample dispenser, chiller, pump control box, computer)	
Environmental Conditions	15-30°C Ambient; 10-70% Relative Humidity, non-condensing	
Dimensions	Fluidic Module: (W) 28 cm, (H) 33 cm, (D) 45 cm Stage Module: (W) 27 cm, (H) 40 cm, (D) 60 cm Laptop Computer: (W) 35 cm, (H) 30 cm, (D) 27 cm	Pump Control Box: (W) 26 cm, (H) 38 cm, (D) 51 cm Chiller: (W) 26 cm, (H) 40 cm, (D) 51 cm
Weight	Multisample dispenser: 65 kg, CPU: 2.7 kg	
Performance Specification	Printed Lambda, CTSD <0.2	
Dispenser Run time	48 samples <10 minutes, 384 samples < 60 minutes	
Certifications	TUV (North America), CE Mark (European Union)	

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