



# Spectrum

COMPACT  
CE SYSTEM





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## Take Control of Your Experiments

The Spectrum Compact CE System is an integrated and efficient instrument that brings you the independence to perform Sanger sequencing and fragment analysis in your laboratory, under your control and at your convenience.

The Spectrum Compact CE is designed for many existing 4-, 5-, and 6-color fluorescently labeled dideoxynucleotide triphosphate sequencing chemistries. It also supports the next generation of 8-color Promega STR kits.

## Capillary Electrophoresis Got Personal

The Spectrum Compact CE System is the solution for academic, clinical research and forensic laboratories looking to take analyses into their own hands. This innovative instrument provides a high return on investment, conserves valuable bench space and allows flexibility in sample batch sizes.



### Analysis In Your Own Hands

Perform sequencing and fragment analysis right at your benchtop. Obtain single-base pair resolution with up to 8-dye fragment multiplexing.



### Fast and Accurate Result

No waiting to batch samples or send samples to an outside lab with 32-sample capacity at your benchtop.



### Compact Design and Ease of Use

Benchtop ready with a built-in touchscreen and easy-to-use system interface.



### Customer Support You Deserve

To help you get started, we provide on-site installation and personalized training.



## The Spectrum Compact CE System

### A personal, benchtop instrument

- Conforms to your workflow
  - » No waiting to batch samples or send samples to an outside lab
- Enables a more efficient workflow
  - » 32-sample capacity using four 8-well strip tubes
  - » 4-capillary cartridge, 36cm
- Saves time and reduces reagent waste

### Remote Access software

- Review alerts, consumables and instrument status all from browser application directly accessing the instrument connected on the same network.
  - » Enter sample information
  - » Edit assays and protocols
  - » Monitor runs
  - » Review and download data



### Capable of Sanger sequencing and fragment analysis

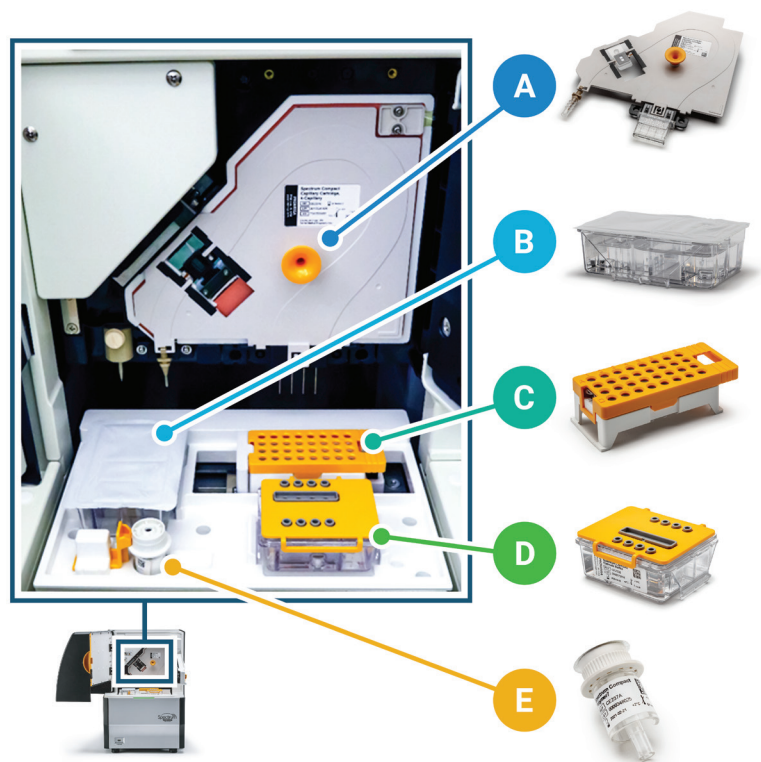
- Compatible with commercially available sequencing kits using dTAMRA, dROX, dR6G, dR110
  - » Uses fluorescently labeled dideoxynucleotide triphosphates
  - » Optimized for a broad range of applications including:
    - *De novo* sequencing
    - NGS confirmation
    - Resequencing
    - Mutation detection
    - Mitochondrial sequencing
    - mRNA sequencing
    - Viral Genotyping
    - Plasmid Sequencing
    - Clone Construction Verification
    - 16S and ITS Microbial Species Identification
- Designed to work with all common STR kits on the market
  - » Compatible with 4-, 5-, 6- and 8-dye STR chemistries
  - » Other applications include:
    - Microsatellite analysis
    - PCR amplicon sizing
    - SNP genotyping
    - Human identification
    - Cell line authentication
    - Mixed sample analysis
    - Cell and gene therapy quality control



## Plug-and-Play, Prefilled Consumables

Plug-and-play prefilled consumables with guided software user interface brings capillary electrophoresis capabilities to the hands of any researcher in the laboratory regardless of skill level or expertise. Not only is the Spectrum Compact CE System simple to set up and operate, but the dedicated consumables are independently packaged, offering significant benefits:

- Manage your own usage lifetimes without any waste. For example, don't limit the lifetime of your capillary array based on buffer or polymer expiration dates or usage levels.
- Visually inspect each consumable (buffer levels and mechanical interactions) to easily troubleshoot issues without replacing an entire consumable set at once.
- Decrease energy usage and avoid potential condensation—Spectrum Compact does not utilize on-board refrigeration or require the instrument to remain powered on for consumable preservation.



### A. Capillary Cartridge

- 4-Capillary, 36cm.
- Located behind the oven door.
- Easily installed by snapping into place and lies flat against oven to maintain migration stability.
- Sufficient for 1200 samples (300 injections and no hard-stops).

### B. Anode Buffer Cartridge

- Contains the buffer for the anode electrode.
- Sufficient for 320 samples (80 injections).

### C. Sample Cartridge

- Holds up to four 8-well strip tubes for a total of 32 samples.

### D. Cathode Buffer Cartridge

- Contains the buffer for the cathode electrodes.
- Sufficient for 320 samples (80 injections).

### E. Polymer Cartridge

- Contains the respective denaturing polymer (Polymer4 or Polymer7) for fragment analysis or Sanger sequencing.
- Sufficient for 96 samples (24 injections). Only hard-stop is insufficient polymer.





## Integrated Touch Screen Operation

The Spectrum Compact Control Software provides a simple user interface with a clear display of useful features including run setup, consumables and array usage information, as well as system maintenance reminders.

- Easy-to-use operational workflow wizard
- Operations run directly on the instrument touch screen
- Ability to monitor run progress and view analyzed results while a run is in progress
- Preloaded assays ready for use
- Export files in .fsa or .ab1 format (compatible with commercially available data analysis software such as GeneMapper®, GeneMarker® and Mutation Surveyor®).

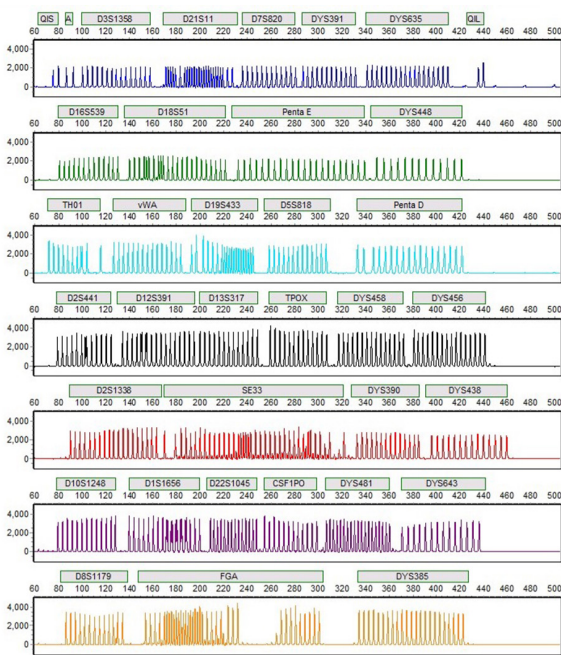




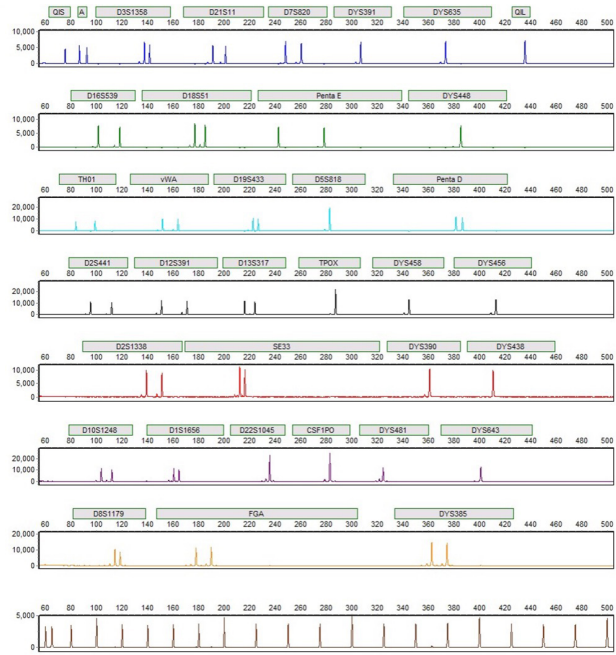
## Small-Footprint Advanced Multiplexing

The Spectrum Compact CE System offers the high performance of an 8-dye-compatible sequencer in a benchtop instrument for fast and affordable results.

These new 8-dye systems enable amplification and detection of more loci from challenging samples, due to the narrower range of product amplicon sizes, resulting in more meaningful analyses.

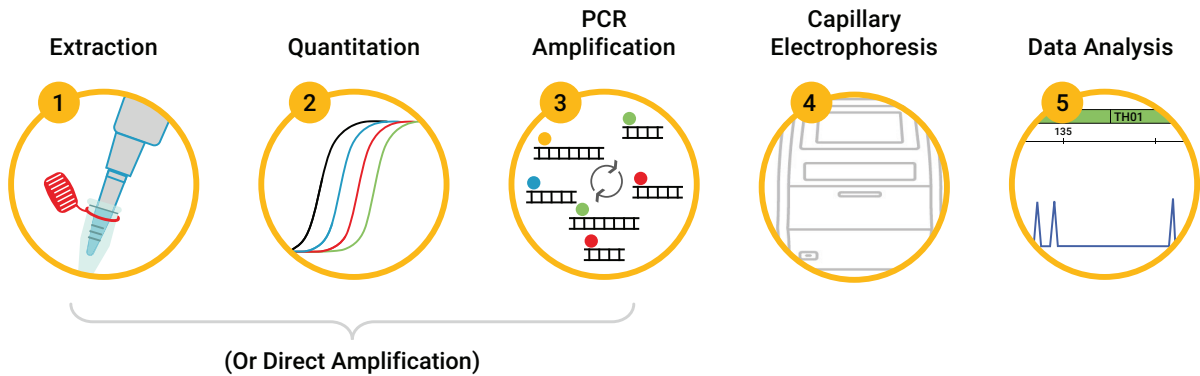


Electropherogram of the PowerPlex® 35GY System allelic ladder run on Spectrum Compact CE System.



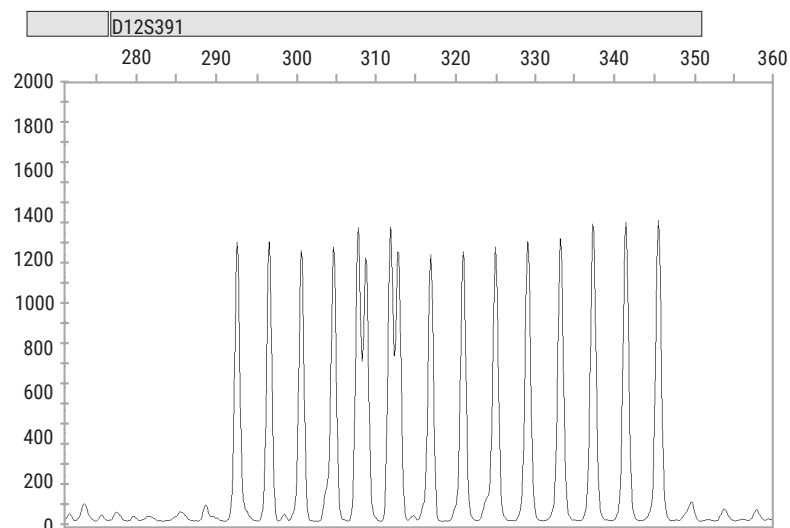
Electropherogram of 1ng of 2800M Control DNA amplified with the PowerPlex® 35GY System and separated using the Spectrum Compact CE System.

## Fragment Analysis Workflow





## Single-Base Resolution



Spectrum Compact CE System achieves a 1bp resolution as seen in the D12S391 locus in the PowerPlex® 17 ESI System allelic ladder.

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*A personal, affordable benchtop instrument for Sanger sequencing and fragment analysis applications*

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## GeneMarker®HID Software for Spectrum CE Systems

GeneMarker®HID Software for Spectrum CE Systems (GMHID-Spectrum) supports data analysis with all commercially available human identity kits. A range of reporting options are available to meet LIMS and report printing needs, and analysis and display options can be easily configured to support your laboratory's workflow.

### Other benefits include:

- Database searching and relationship testing modules
- Review tools, such as automated contamination checking and project comparison
- Time savings of at least 25%<sup>(1)</sup>
- Less analyst intervention
- Supports Spectrum (.promega) and existing CE file types (.fsa and .hid files)
- The analysis of 8-color chemistry requires the use of GeneMarker®HID for Spectrum Systems.

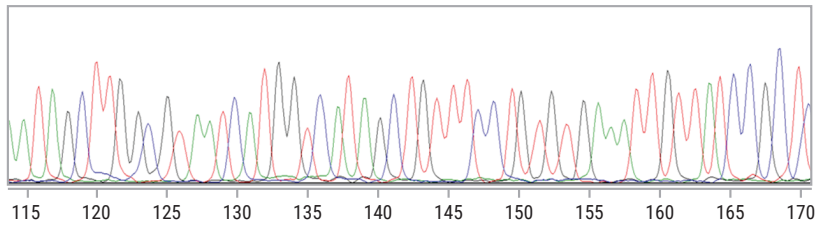
1. Holland, M.M. and Parson, W. (2011) GeneMarker® HID: A reliable software tool for the analysis of forensic STR data. *J. Forensic Sci.* **56**, 29–35.



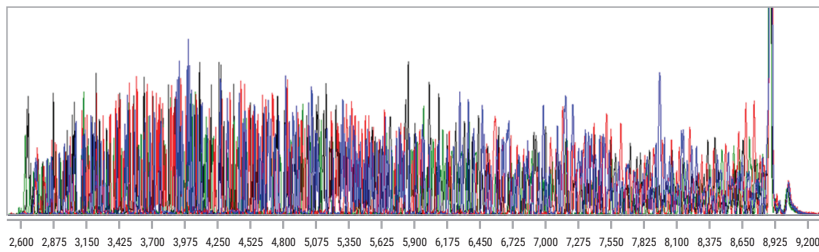
## Accurate and Fast Sequencing

The Spectrum Compact CE System supports Sanger sequencing applications used as orthogonal technology for verification of NGS base calls, and DNA and gene sequencing required in a variety of genomic applications.

Panel A



Panel B

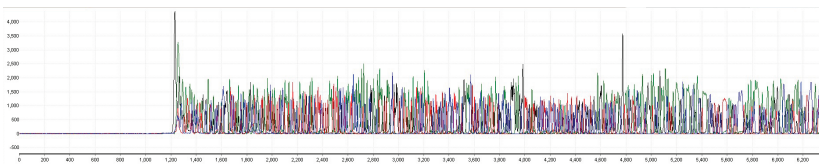


Representative portion of an electropherogram (Panel A) generated using the ProDye™ Terminator Sequencing System on a Spectrum Compact CE System. Injection was performed at 1.2kV for 4 seconds with Polymer7; Panel B shows raw data of standard sequencing run.

## More Bases, Less Time

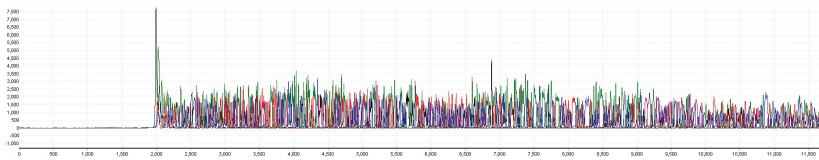
Combine ProDye™ Terminator Sequencing System with the Spectrum Compact CE System for more bases in less time.

Fast Mode



At least 600 bases with a run time of around 30 minutes

Standard Mode



At least 800 bases with a run time of around 60 minutes

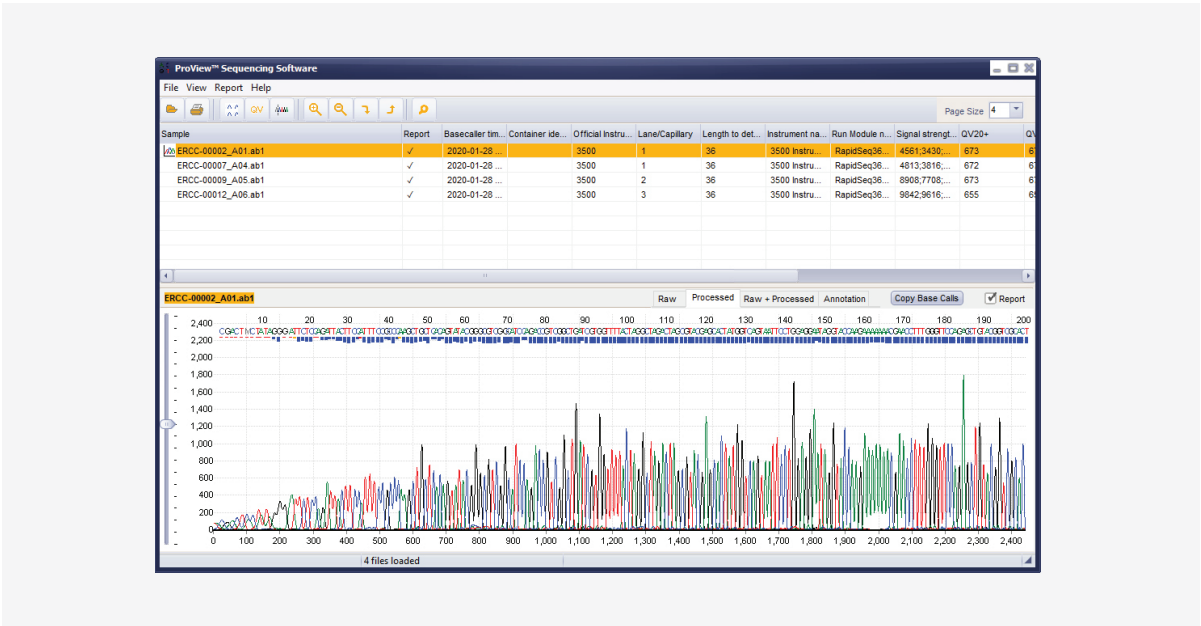
Raw view of entire electropherogram using the ProDye™ Terminator Sequencing System on the Spectrum Compact CE System.



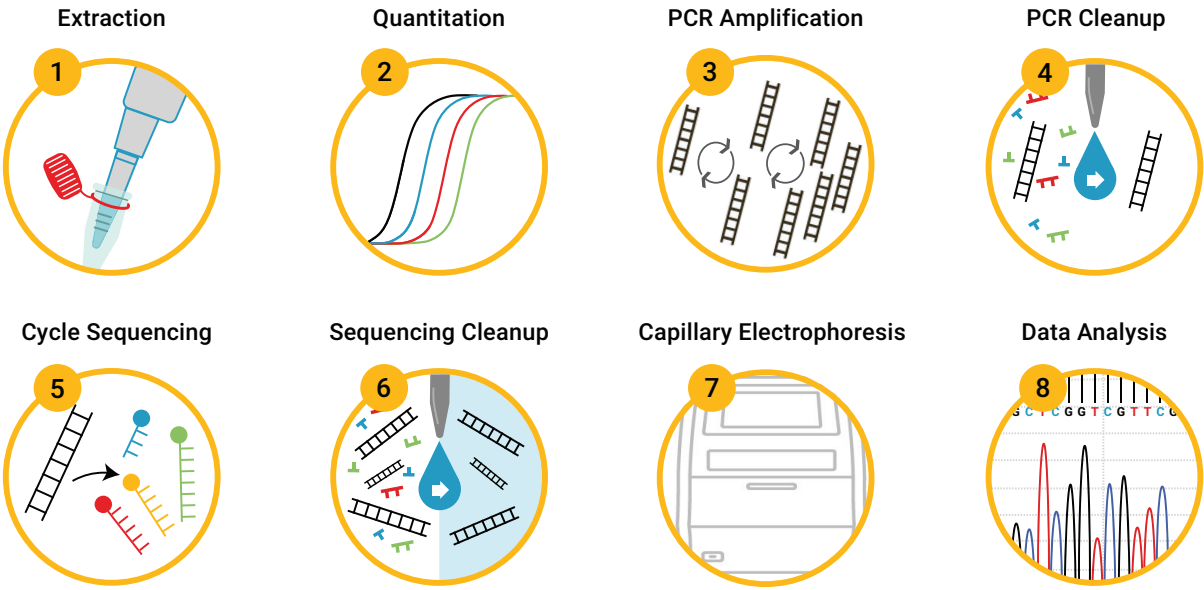


# ProView™ Sequencing Software

ProView™ Sequencing Software is a customizable Sanger sequencing viewer capable of displaying .ab1 files generated on many currently available capillary electrophoresis (CE) sequencers. This software can be used to view and edit sequence information, display electropherograms, generate reports, display embedded information and save edited files in multiple formats.



# Sanger Sequencing Workflow





## Promega Support

Promega chemistries and the Spectrum Compact CE system are provided as an integrated solution for delivering optimized results for your sequencing and fragment analysis. Our supporting teams are available to consult with you from start to finish. When you choose Promega, you have complimentary and rapid access to expertise in technical services, application and field support scientists, service engineers and product management professionals. We will help you build and optimize your workflow from day one and as your research evolves in the future.

Our Validation Services team provides a range of services designed to meet your laboratory's needs and your preferred scope of work:

- Phone-based and on-site consultation
- On-site bench work tailored to your requirements
- Rapid turnaround of data analyses and summary reports

## System Components

The Spectrum Compact CE System is supplied as follows:

- Capillary electrophoresis instrument
  - Integrated touch screen with operational software
  - On-site service for installation and operational training
  - Remote Access software
  - Protocol and strip setup tools
  - 12-month warranty, including one preventive maintenance visit
- Starter Kits include:
    - » 4-capillary cartridge
    - » Polymer4 and Polymer7
    - » Anode and cathode buffers
    - » Cathode septa mats and retainer
    - » Plate bases and retainers
    - » Capillary Preservation Buffer
- Reagents necessary for installation and system test.*

## Run Module Specifications

Run Module	Polymer Type	Average Run Time (Minutes)	Typical Contiguous Read Length (base)
Fast Sequence	Polymer7	≤34	≥600
Standard Sequence	Polymer7	≤68	≥800

Run Module	Polymer Type	Average Run Time (Minutes)	Size Range (Base pairs)*
Fragment Analysis	Polymer7	≤35	60-600
Fragment Analysis	Polymer4	≤44	60-600

\*Size precision 60-600bp <0.16nts



## Spectrum Compact CE System Specifications

Number of Capillaries	4
Capillary Array Length	36cm
Number of Dye Colors	8
Throughput	Four 8-well strip tubes
Dimensions	40cm W × 60cm D × 60cm H (15.75in W x 23.62in D x 23.62in H)
Weight	45kg (99lb)
Power Input	100–240VAC; 50/60Hz; 260VA 15amps
Operating Temperature	15°C–30°C
Warranty	1-year limited warranty on parts and labor. Extended warranties available.
Training	Instrument Operational training included. Additional chemistry training for fragment analysis and/or Sanger sequencing available.
Validation Support	Available separately—please inquire.



## Ordering Information

Product	Size	Cat.#
Spectrum Compact CE System	1 each	<a href="#">CE1304</a>
Spectrum Compact Buffer	2 pairs	<a href="#">CE2300</a>
Spectrum Compact Cathode Septa Mat	10 each	<a href="#">CE2301</a>
Spectrum Compact Cathode Retainer	4 each	<a href="#">CE2302</a>
Spectrum Compact Polymer4	4 × 96 wells	<a href="#">CE2404</a>
Spectrum Compact Polymer7	4 × 96 wells	<a href="#">CE2407</a>
Strip Septa Mat, 8-Well	24 each	<a href="#">CE2308</a>
Spectrum Compact Strip Base & Retainer, 32-Well	4 each	<a href="#">CE2332</a>
Spectrum Compact Capillary Cartridge, 4-Capillary 36cm	1 each	<a href="#">CE2340</a>
Capillary Preservation Buffer	10ml	<a href="#">CE2399</a>
	24 reactions	<a href="#">CR4324</a>
ProDye™ Terminator Sequencing System	200 reactions	<a href="#">CR4302</a>
	1000 reactions	<a href="#">CR4310</a>



To learn more, visit:  
[www.promega.com/SpectrumCompact](http://www.promega.com/SpectrumCompact)



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