Molecular Devices

SpectraMax i3 Multi-Mode Platform

A flexible, user-upgradeable microplate detection system

Key Features

- User-upgradeable application cartridges and imaging cytometer option
- Sensitivity across spectrum with Spectral Fusion Illumination
- Expanded dynamic range
- Control and analytics provided by SoftMax Pro Software

The SpectraMax® i3 Platform from Molecular Devices® is a multi-mode detection system that evolves with your future needs and offers an unlimited breadth of application possibilities.

Superior flexibility

The SpectraMax i3 Multi-Mode Platform comes with standard spectral absorbance, fluorescence, and luminescence detection. Additionally, user-installable options allow the SpectraMax i3 System to grow with your changing application needs to fulfill and go beyond the standard plate reader applications, protecting your initial investment. As new assays are developed or your needs change, simply add a detection cartridge like ScanLater™ Western Blot System or the SpectraMax® MiniMax™ Imaging Cytometer option as opposed to buying a brand new system.

Superior optics

Monochromator optics support Absorbance, Fluorescence, and Luminescence, while user-exchangeable cartridges expand the system's detection to Time Resolved Fluorescence, HTRF, Fluorescence Polarization, AlphaScreen, and Western Blot detection modes. Combined with the SpectraMax MiniMax Imaging Cytometer option, this platform is the most versatile microplate detection system available on the market.

The SpectraMax i3 System not only offers unlimited flexibility with our patented cartridge architecture, it also uses advanced Spectral Fusion™ Illumination as the excitation source and provides extended dynamic range with a patent pending design. Spectral Fusion Illumination is a combination of a flash lamp and powerful LEDs, producing a powerful light source, ultimately increasing the sensitivity of the system across the full spectrum. The dynamic range extension uses a combination of optical and electronic components to not only provide optimal sensitivity, but also maximize the signal range.

Superior software

Supported by industry-recognized SoftMax® Pro Microplate Data Acquisition and Analysis Software, users are now able to extend the ease-of-use of their typical plate reader applications to cell-based imaging and western blot detection.

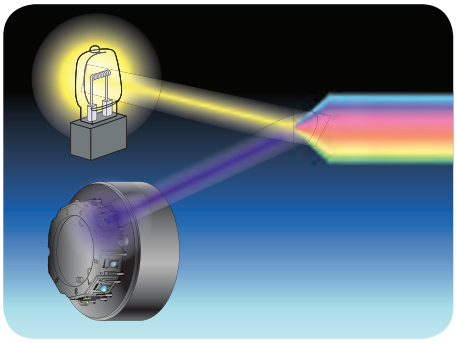
Optional enhancements

- SpectraMax MiniMax Imaging Cytometer
- ScanLater Western Blot System
- SpectraDrop™ Micro-Volume Microplate
- SpectraTest® Validation Packages (ABS1, FL1, LM1)
- SoftMax Pro GxP Microplate Data Compliance Software
- IQ/OQ Protocols

New applications in minutes

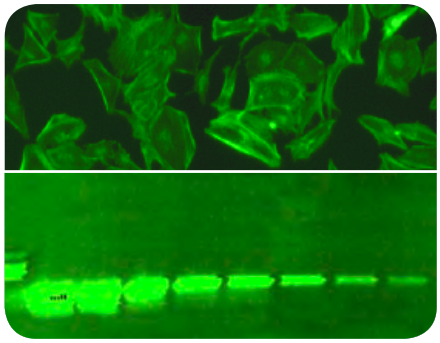
Adding modes and functionality is minutes away. Insert a cartridge to perform new applications.

Spectral Fusion Illumination



A powerful combination of Xenon flash lamp and light emitting diodes (LEDs) provides unmatched signal strength and superior sensitivity across the spectrum.

Live cell imaging



Top: The SpectraMax MiniMax Imaging Cytometer option allows for live cell images and analysis. **Bottom:** The ScanLater Western Blot Detection Cartridge enables protein detection.

Technical specifications (base system)

General specifications	
Dimensions (in.)	12.63 (H) x 15.38 (W) x 23.38 (D)
Dimensions (cm)	42.23 (H) x 39.05 (W) x 59.37 (D)
Weight	68.3 lbs. (31.0 kg)
Power consumption	< 200 watts
Power source	100–240 VAC, 2 A, 50/60 Hz
Robotic-compatible	Yes
General photometric performance	
Plate formats	6 to 1536 wells§
Light source	Spectral Fusion Illumination (Xenon flash lamp + high-powered LEDs or laser diode in detection cartridges)
Reading capabilities	Microplates, cuvettes (via adapter)
Detectors	PMT and/or photodiode
Shaking	Linear and orbital
Injectors	Option available
Temp. control	4°C above ambient to 45°C
Temp. uniformity	± 0.75°C
Temp. accuracy	±1°C at 37°C set point
Environmental control	Gas quick connect
Spectral scanning	Abs, FI, Lum
Endpoint reading	All modes
Kinetic reading	All modes
Well scanning	Over 20 by 20 in all modes
Wavelength selection	1.0 nm increments

Standard read times (minutes:seconds)*		
	96 wells	**384 wells**
Absorbance	0:30	1:40
Fluorescence intensity	0:25	1:25
Luminescence	0:30	1:15

* With 6 flashes in absorbance and 3 flashes in fluorescence mode and 0.1 sec./well integration in 96-well luminescence mode and 0.04 sec./well integration in 384-well luminescence mode

§ 1536 detection available via detection cartridges

Absorbance photometric performance		
Wavelength range	230–1000 nm	
Wavelength bandwidth	4.0 nm	
Wavelength accuracy	± 2.0 nm	
Wavelength repeatability	± 1.0 nm	
Photometric range	0–4.0 OD	
Photometric resolution	0.001 OD	
Photometric accuracy	< ±0.010 OD ±1.0%, 0–2 OD	
Photometric precision	< ±0.003 OD ±1.0%, 0–2 OD	
Stray light	< 0.05% @ 230 nm	
Fluorescence intensity performance		
Wavelength range	250–850 nm	
Wavelength selection	1.0 nm increments	
Bandwidth (EX/EM)	Adjustable EX 9/15 nm EM15/25 nm	
Dynamic range	> 6 logs	
Top sensitivity (fluorescein)	**Optimized**	**Guaranteed****
96 wells	0.5 pM	3 pM
384 wells	1 pM	4 pM
Bottom sensitivity (fluorescein)	**Optimized**	**Guaranteed****
96 wells	5 pM	10 pM
384 wells	5 pM	20 pM
Luminescence performance		
Wavelength range	300–850 nm	
Wavelength selection	Choice of simultaneous detection of all wavelengths or selection in 1.0 nm increments	
Dynamic range	> 6 decades	
Cross-talk	< 0.3% in white 96- and 384-well microplates	
Sensitivity (ATP-Glow)	**Optimized**	**Guaranteed****
96 wells	15 pM	75 pM
384 wells	30 pM	200 pM

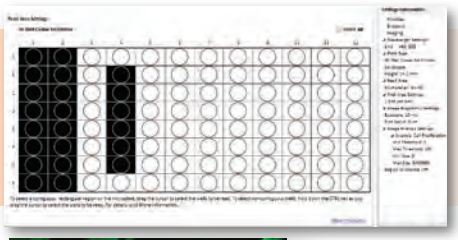
** For properly functioning, operating, and maintained equipment

Additional cartridges

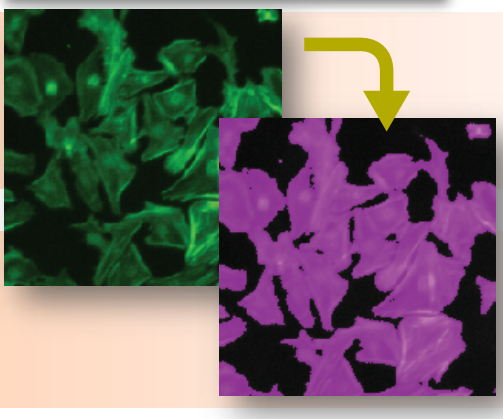
Cartridge	Description	Name	Specifications	Optimized sensitivity	Guaranteed sensitivity	Slots used
 ScanLater	Western blot detection using ScanLater Western Blot Assay Kit TRF-based with 340/80 nm EX and 616/10 nm EM	0200-7027	EX range: 340/80 nm EM range: 616/10 nm	High fg levels of Streptavidin	High fg levels of Streptavidin	2
 AlphaScreen	AlphaScreen and AlphaLisa detection using 1 W 680 nm EX laser diode and a 570 nm (100) EM filter Pick best speed, sensitivity, and price for your needs Guaranteed sensitivity: < 100 amol phosphorylates biotin-peptide in 25 µL assay volume in a 384-well plate	0200-7017POS	Alpha 384 STD 96 and 384-well plates		< 100 amol (384-well)	1
		0200-7018POS	Alpha 384 HTS 96 and 384-well plates		< 100 amol (384-well)	1
		0200-7019POS	Alpha 1536 HTS 96, 384, and 1536-well plates		< 100 amol (384-well)	1
 HTRF	Cisbio HTRF detection with optimized Xenon light source and 616, 665 nm EM filters Measures both emissions simultaneously	0200-7011POS	6- to 1536-well plates	Exceeds Cisbio certification requirements		2
 TRF	LED light source and Europium EX and EM filters (370-616 nm) Suitable for assays using Europium chelate and similar labels Includes 642 nm EM filter for TR-FRET assays with Samarium labels	0200-7008POS	6- to 1536-well plates	96–0.0125 pM 384–0.01 pM 1536–0.08 pM	96–well: 0.05 pM 384–well: 0.065 pM 1536–well: 0.19 pM	1
 FP	Fluorescence Polarization detection for fluorescein- or rhodamine-like labels Using specific LED and EX/EM filters for 6- to 1536-well plates	0200-7009POS 0200-7010POS	Fluorescein FP EX 485 nm, EM 535P and 535S nm Rhodamine FP EX 535 nm, EM 595P and 595S nm	96–0.5 mP 384–0.5 mP 1536–1.5 mP	96–well: 3 mP 384–well: 3 mP 1536–well: 6 mP	1
 LUMI	Glow luminescence detection for different plates	0200-7014POS	Glow for 96-well plates	96–well: 1 pM	96–well: 1.5 pM	1
		0200-7015POS	Glow for 96- and 384-well plates	96–well: 1.2 pM 384–well: 3 pM	96–well: 2 pM 384–well: 4 pM	1
		0200-7012POS	Glow for 96-, 384-, and 1536-well plates	96–well: 1.5 pM 384–well: 6 pM 1536–well: 19 pM	96–well: 2.5 pM 384–well: 10 pM 1536–well: 25 pM	1
 Dual-Color LUMI	Dual-color luminescence detection for 6- to 384-well plates	0200-7016POS	BRET^2 with 410 and 515 nm EM filters	No certification specifications available		1
		0200-7013POS	Chroma-Glo luminescense assay with 510 and 610 nm EM filters	No certification specifications available		1
 FI	Fluorescence cartridges with specific LED EX light source and EM filters Includes a second EM filter for FRET assays For 6- to 1536-well plates	0200-7002POS	Coumarin–Fluorescein EX 360 nm, EM 465/535 nm		384–well: 133 pM 1536–well: 375 pM	1
		0200-7003POS	Fluorescein–Rhodamine EX 485 nm, EM 535/595 nm		384–well: 1.3 pM 1536–well: 3.75 pM	1
		0200-7004POS	Cy3–Cy5 EX 535 nm, EM 595/655 nm		384–well: 2.0 pM 1536–well: 7.5 pM	1
		0200-7005POS	CFP–YFP labels EX 445 nm, EM 485/535 nm		384–well: 67 pM 1536–well: 625 pM	1

Visualize cells with your microplate reader

Set up

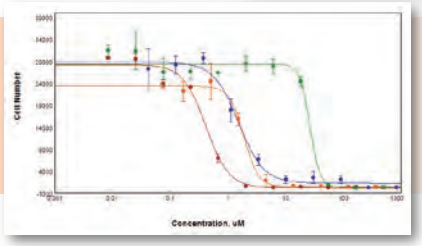


Acquire



Identify

Analyze

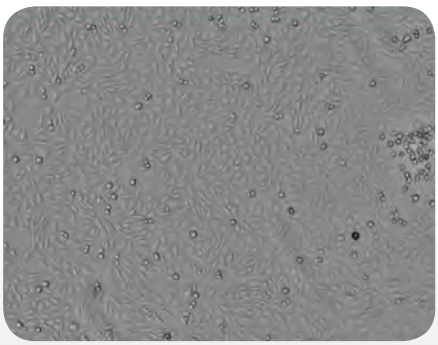


Imaging with the SpectraMax MiniMax Imaging Cytometer mirrors the plate reading workflow on the SpectraMax i3 System. The plate is set up for reading and images are acquired according to specified parameters. Cells in each image are identified by SoftMax Pro Software and cell-by-cell statistics are collected. Data are then analyzed and visualized in different graphical representations.

The SpectraMax MiniMax Imaging Cytometer is controlled by the well-established SoftMax® Pro Software, and is further enhanced by the analysis capabilities of the MetaMorph® Software backbone. Powerful cell identification and image analysis are supported in fluorescence mode and easily accessible within the software. In the settings interface, users can select between fluorescence or transmitted light, define plate type, read area and number of images per well, plus specify positive/negative wells.

Users can also select fluorescent analysis types with corresponding output parameters as follows:

Analysis types	Output parameters
Cell count	• Cell count • Average area • Average intensity • Average integrated intensity
Cell proliferation	• Covered area
Marker expression	• Expression in image



Unstained CHO cells observed under transmitted light using the SpectraMax MiniMax Imaging Cytometer. This upgradable option allows quick visual inspection of cell health prior to plate reading without switching instruments.

Contact Us

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Check our website for a current listing of worldwide distributors.

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