



# Innovative Solutions for Drug Discovery and Life Sciences Research

Advancing Discovery

# Multi-mode microplate reader portfolio

## Key features



Improved sensitivity across entire spectrum



Super cooled PMT for improved luminescence range



Flash assays captured easily using SmartInject™ Technology



Library of user-configurable applications to choose from



Pipette errors eliminated for true OD measurements with no temperature dependency



Automation-compatible options



**SpectraMax® i3x**

Unlimited breadth of user upgradeable application modules

- Multi-mode microplate reader and imaging system
- Wide dynamic range
- StainFree™ cell counting technology
- Library of user-configurable applications
- Advanced curve fitting and statistical analysis
- Cell confluence and cell viability imaging, and quantitation of nucleic acids and proteins on a single reader
- Optional western blot detection



**SpectraMax® Mini**

Budget-friendly multi-mode microplate reader with best-in-class data analysis software

- Three modes of detection for UV-Vis absorbance, fluorescence and luminescence
- Accommodates plate types from six to 384-well format
- Easily upgradeable with interchangeable filter cubes
- Xenon flash lamp for detection of a lower concentration of samples over a wide range of wavelengths
- Best-in-class SoftMax® Pro software offering pre-configured protocols for most commonly used applications



**SpectraMax® iD3/iD5**

Multi-user microplate readers with a large touchscreen and NFC functionality

- Built-in near-field communication (NFC) functionality for access to custom protocols and results with a single tap
- Enhanced touchscreen workflows for walk-up usability
- Ultra-cooled photomultiplier tube (PMT) detector for background noise reduction
- QuickSync feature pushes data to any computer within the same network
- Flexibility to set up experiments using either filters, monochromators, or a combination of both on the SpectraMax iD5 reader

# Multi-mode microplate reader portfolio



**SpectraMax® M Series**

Configurable readers with triple-mode cuvette ports, validation tools, and compliance software

- Choose from varying reader modes (2–5)
- Dual monochromator tunability
- Automated absorbance pathlength correction
- Endpoint, kinetic, spectral and well-scanning
- Validation and compliance tools
- Robotics compatibility



**SpectraMax® Paradigm**

High-throughput screening capability on one fast, configurable microplate reader

- Automatic Z-height optimization for fast top- and bottom-reads
- Manual gain adjustment eliminated with reads up to seven logs of sample concentration in a single pass of a plate
- Multiple calculations performed on one data set
- Side-by-side comparison of multiple experiments
- Fastest read times for 96–1536 well plates
- Robotics compatibility



**FlexStation® 3**

Precise optics, fluidic transfer, and assay flexibility on one integrated microplate reader

- Five-mode reader with a wide range of applications
- User-definable liquid transfer enables multiple live cell kinetic assays
- User-defined pipetting simplifies assay optimization
- Instrument and software validation
- Benchtop FLIPR® system
- Robotics compatibility



**FilterMax™ F3 & F5**

Filter-based detection for absorbance, fluorescence, glow luminescence

- LEDs are high powered at critical wavelengths with an optimized light source for a specific dye or application
- Low cost of ownership and minimum maintenance
- The photomultiplier tube (PMT) with increased sensitivity for red dyes
- Linear dynamic range over six orders of magnitude
- Improved detection limit for TRF

# Absorbance microplate readers

## Key features



Small footprint



Pipette errors eliminated for true OD measurements with no temperature dependency



Spectral resolution ensures accuracy of DNA absorbance measurements



Two-fold improvement in speed



Automated injector workflows



DNA, RNA, and protein quantitation



Predefined protocols with SoftMax Pro Software



**SpectraMax®  
ABS/ABS Plus  
Microplate Readers**

Fast absorbance detection for a wide range of assays without the use of filters

- Compact design
- 96- or 384-well microplate compatibility
- Eight-channel optics for fast reads
- Pipetting errors eliminated with patented PathCheck Sensor to measure the optical pathlength of samples in a microplate
- Validation and compliance tools



**SpectraMax® QuickDrop  
Micro-Volume  
Spectrophotometer**

One-drop for a full-spectrum micro-volume absorbance spectrophotometer

- Easy to use
- Touchscreen interface with preconfigured analysis methods
- Fixed path length requires no calibration
- Micro-volume sample port has no moving parts to break or skew results regardless of viscosity
- Data can be exported easily to a USB drive for additional analysis
- One-swipe cleaning



**EMax® Plus  
Microplate Reader**

Visible absorbance microplate reader in a compact footprint

- Eight standard filters cover a wide range of applications
- Custom options such as discontinuous kinetics feature for pausing and resuming kinetic reads, predefined calculation options for common data analysis functions, and easy data export
- Powerful curve fitting protocols and statistical analysis features included for easy visualization of acquired data

## Fluorescence microplate readers



### Gemini™ XPS/EM Microplate Readers

Fluorescence  
detection  
without filters

- No filters needed
- High level of sensitivity
- Validation tools
- Robotics compatible

## Luminescence microplate reader



### SpectraMax® L Microplate Reader

Sensitive  
luminometer with  
programmable  
injector options  
for 96- and 384-  
well microplates

- Detect dim samples with unsurpassed sensitivity
- Avoid saturation issues with nine orders of dynamic range
- Enable robust performance with autorinse injectors
- Validation and compliance tools

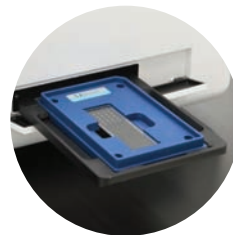
## Handlers and accessories



### StakMax® Microplate Handling System

Simple,  
economical  
microplate  
automation  
for any lab

- Integrates with SpectraMax readers
- Stacks up to 50 plates
- Robust and reliable
- Easy to set up and use
- Can recycle plates for multiple reads
- Leverages the power of SoftMax Pro Software



### SpectraDrop™ Micro-Volume Microplate

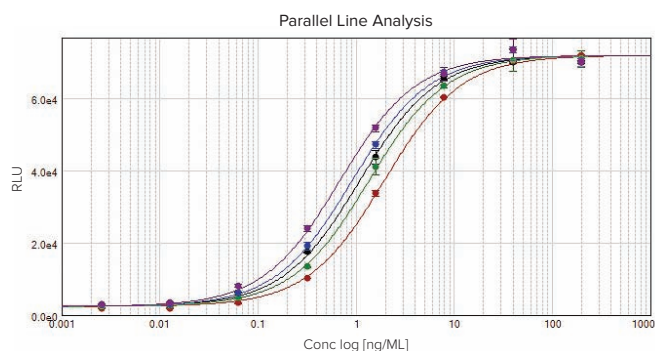
Smaller, faster  
quantitation  
of DNA, RNA,  
and protein

- Micro-volume detection for 1-64 samples
- Elegant simplicity for multiuser labs
- User versatility with different volume size and density options
- Multi-channel pipettor can be used
- Cleaning with hassle-free handling

# SoftMax<sup>®</sup> Pro Software

The most published microplate reader control and data analysis software

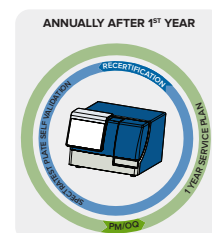
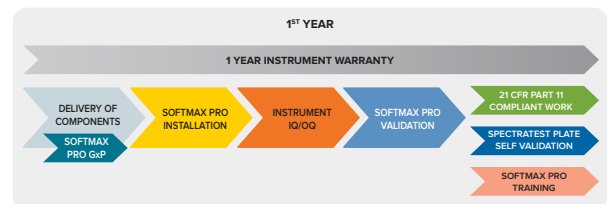
- Software powers discovery on all Molecular Devices readers
- Simplified data measurement through library of prewritten protocols
- Software validation protocols available for IQ/OQ/PQ of hardware and software
- Import and analysis of complex data acquired from any scientific instrument
- Over 160 built-in protocols with preconfigured assay parameters for a wide variety of common assays
- Discontinuous kinetics feature allows for custom assay workflow and runs multitask kinetics
- Complex, customizable curve fittings
- Flexible data output formats support research and publications



# SoftMax<sup>®</sup> Pro GxP Software

Meet FDA guidelines in GMP/GLP labs with complete validation tools

- System audit trail for tracking and recording all actions and for paperless documentation with eSignatures
- Microsoft SQL database for complete control over file access permissions
- Document workflow and status system for maintaining data integrity with control over document workflows
- Windows Active directory for authenticating and authorizing all users
- Signing and approving different steps of a document
- Assigning users to different projects with different roles
- Auto export of signed XML files



# Validation plates

The SpectraTest® Validation Plates provide automated, comprehensive, and traceable validation of optical performance, plus automatic verification of our microplate readers.



## Automated for ease of use

All test measurements and calculations are handled automatically by the SoftMax Pro Software protocols. Should any of the measurement parameters fall outside defined limits, a test failure is reported with the suspect parameters identified.



## NIST traceability

Calibration of the plate's filter standards is accomplished through the use of an instrument calibrated with primary NIST standards.



## Recertification service

To maintain confidence in the standards, we recommend having validation plates recertified at one-year intervals. Validation plates sent to us are disassembled, cleaned, calibrated, recertified according to ISO 17025, and returned with a new certificate of calibration.

[The Multi-Mode Validation Plate offers additional testing of TRF, HTRF, and fluorescence polarization read modes on FilterMax™ F3/F5 and SpectraMax® i3x, iD5, and Paradigm® microplate readers.]

# IQ/OQ/PM services

Ensure ongoing compliance for your Molecular Devices microplate readers and be audit ready with our Installation Qualification, Operational Qualification, and Preventive Maintenance (IQ/OQ/PM) services.

## Installation Qualification (IQ)

Verifies and documents that all necessary components required for operation are received and properly installed in accordance with Molecular Devices operational specifications.

## Operational Qualification (OQ)

Tests the mechanical, electrical, and optical components of each instrument to verify proper operating functions in accordance with manufacturer specifications.

## Preventive Maintenance (PM)

Ensures each instrument meets operational specifications through comprehensive, multipoint inspection. The instrument is calibrated, inspected, and lubricated. Potential issues are proactively addressed.

Certificate of Calibration Number:		XXXX	
ABS Test results			
Test Description	Test Specification	Test Results - Plate Passes/Fails/NA	Test Results - Cuvette Passes/Fails/NA
Photometric Accuracy	Average OD = Certificate Value +/- ((.01 * Certificate Value) + .006)	PASSES	PASSES
Photometric Precision	Average OD = Certificate Value +/- ((.01 * Certificate Value) + .003)	PASSES	PASSES
Photometric Linearity	Average OD = Certificate Value +/- ((.01 * Certificate Value) + .006) in the Standard range of PD30 to PD 100	PASSES	PASSES
Wavelength Accuracy	Measured Peak = Certificate Peak +/- 1 nm	PASSES	PASSES
Stray Light at 220nm	Minimum OD >= 2.5	PASSES	PASSES

Example of document to evaluate if the reader performs within its specifications.

## Key features



Easy operation



Minimized wash time

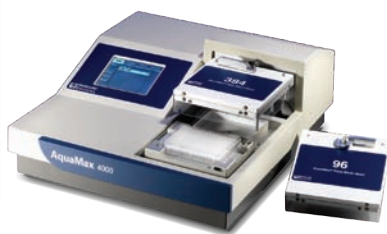


Reduced residual volume



Patented cell wash head to gently wash cells

## Microplate washers



**AquaMax<sup>®</sup>**  
**Microplate Washers**

Microplate washers  
for biochemical and  
cell-based assays

- Interchangeable 96- and 384-well wash heads
- Dispense entire plate at once for fast additions
- Completely programmable via touchscreen interface
- No external pumps or computer
- Comprehensive, automated cleaning utilities
- Robotics-friendly design
- Low residual volume saving precious and expensive buffers



**MultiWash<sup>™</sup>+**  
**Microplate Washer**

96- and 384-well  
automated washer

- Walk-up usability
- Start simply with wash and rinse bottles (included)
- Liquid handling one column at a time
- Flexible system washes 96- or 384-well plates
- Automated rinse reduces clogging
- Quiet and efficient
- Low residual volume saving precious and expensive buffers

# Microarray scanners



**GenePix® 4300/4400  
Microarray Scanner**

High-resolution,  
high-quality imaging  
for up to four-color  
microarrays

- High-resolution imaging
- Ultimate sample compatibility
- Houses up to four lasers
- 16-position emission filter wheel
- Fully integrated with GenePix Pro Software



**GenePix® 4100A  
Microarray Scanner**

Affordable, high-  
quality imaging for  
two-color microarrays

- Compact, affordable, and easy to use
- Superior imaging accuracy
- Outstanding reproducibility
- Flexible fluorophore collection
- Fully integrated with GenePix Pro Software



**GenePix® Pro Microarray  
Image Analysis Software**

The industry standard  
in microarray  
image analysis

- Multiplexed image acquisition
- Powerful automated spot-finding algorithms
- Walk-away batch analysis
- Automated quality control flagging
- Import/export of industry-standard file formats
- Full control of GenePix SL50 slide loader
- Integration with GenePix scanners and Acuity® informatics software

## Key features



High quality images



Multiple imaging modes



3D imaging and analysis



Turnkey application modules



Ease of use



Environmental control



Automation-compatible

## Imaging systems



### ImageXpress® Confocal HT.ai High-Content Imaging System

A scalable, high-throughput, high-content screening solution with 7-channel high-intensity laser light source and machine learning capabilities

- Eight-channel, seven laser light source generates brighter images with a higher signal compared to LED light sources, while cutting acquisition speed in half for most 3D organoid and spheroid assays.
- Spinning disk confocal technology reduces haze from out-of-focus light for deeper tissue penetration, resulting in sharper images with improved axial resolution.
- Automated water immersion technology offers up to 4X the signal for greater sensitivity and image clarity without sacrificing speed.
- IN Carta software utilizes modern machine learning with accessible, guided workflows for high-content image analysis



### ImageXpress® Micro Confocal High-Content Imaging System

Combines speed, sensitivity, and resolution for confocal imaging

- Ideal for 3D organoid and spheroid imaging
- Our most sensitive high-content imager
- Confocal imaging at the speed of widefield imaging
- Greater than 3 log dynamic range
- -25 nm stage resolution
- 3D volumetric analysis
- Laser excitation available

# Imaging systems



**ImageXpress® Micro 4  
High-Content  
Imaging System**

Configurable, high-throughput widefield imaging for fast biological processes

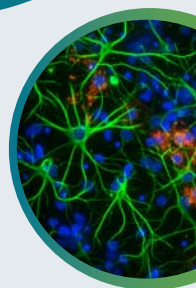
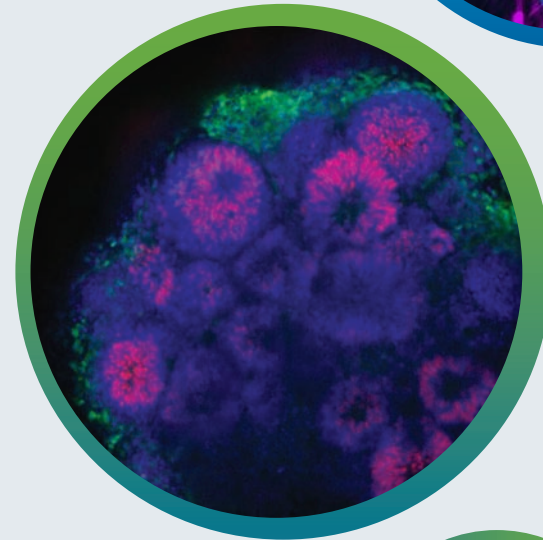
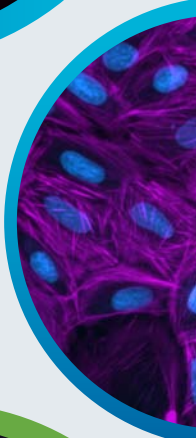
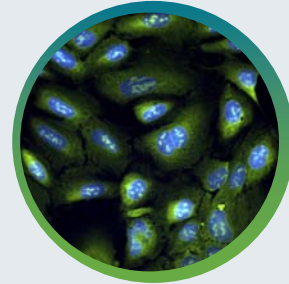
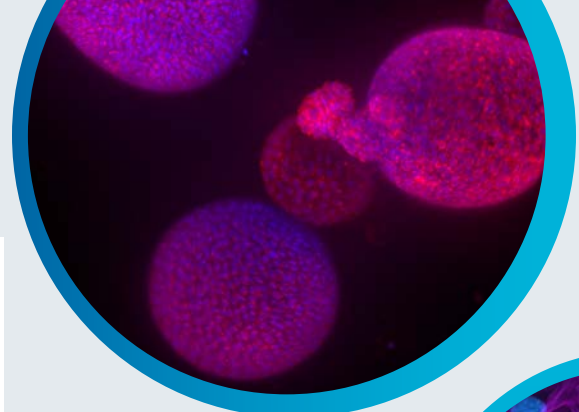
- Ideal for high-throughput screening, time-lapse imaging from calcium assays to multi-day subcellular assays, and intracellular yeast assays
- Greater than 3 log dynamic range
- 25 nm stage precision
- 3D volumetric analysis
- Upgradeable to confocal imaging



**ImageXpress® Pico  
Automated Cell  
Imaging System**

Compact system that allows users to go from samples to results in minutes

- Ideal for cell counting, transfection efficiency, and cell health assays
- 25+ preconfigured application protocols
- 3D z-stack acquisition
- On-the-fly analysis
- Tablet and touchscreen compatible
- Access data from a browser—anytime, anywhere
- Leverage IN Carta for complex image analysis problems



# High-content image acquisition and analysis software



## IN Carta® Image Analysis Software for ImageXpress high-content imaging systems

Provides robust, quantitative results from complex biological images and datasets

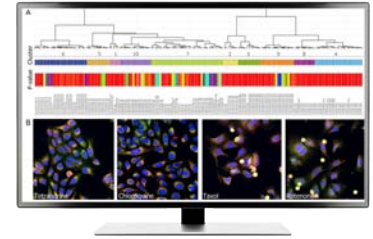
- Harness the power of machine learning without the need for a data scientist
- Intuitive user interface simplifies workflows and gets the job done
- Analyze data at scale with ease
- Machine learning helps make sense of complex phenotypical changes with the optional Phenoglyphs module
- Leverage artificial intelligence to solve segmentation problems
- Custom module editor provides all the flexibility you need for analysis of 2D, 3D, and 4D datasets



## MetaXpress® software for ImageXpress high-content imaging systems

Multi-level analysis tools for a wide range of applications

- Meet high throughput requirements with a scalable, streamlined workflow
- Adapt your analysis tools to tackle your toughest problems, including 3D analysis
- Schedule automatic data transfer between third-party hardware sources and secure database
- Set up hundreds of routinely used HCS assays using MetaXpress software modules
- Export data to IN Carta software, leveraging intuitive, modern machine learning



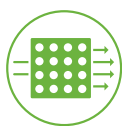
## StratoMineR™ Advanced Analytics

Helping biologists analyze the complex data derived from high-content image analysis

- Generate rich, interactive visualizations using advanced data mining methods
- An intuitive analytics workflow built for biologists. No coding required
- Use all of your high-content data to discover, characterize, and analyze phenotypes
- Build your own accurate Artificial Intelligence (AI) models to discover the drugs of tomorrow



## Key features



Complex event analysis with ScreenWorks Peak Pro 2



Configurable optics to suit your needs



User-changeable pipette modules to accommodate 96, 384, or 1536



Customizable automation options

## High-throughput cellular screening



### FLIPR Penta High-Throughput Cellular Screening System

High-throughput kinetic screening for toxicology and lead compound identification

- Assess toxicity effects—The HS-EMCCD camera option allows for up to 100 measurements per second, providing detailed information about cardiomyocyte and/or neuronal oscillation. Combined with the ScreenWorks® Peak Pro 2 software analysis module, compound-induced pro-arrhythmic effects such as EAD-like events can be easily identified and flagged.
- Identify lead compounds—With seven LED sets, many filter options, and fluorescence or luminescence detection, the FLIPR system supports many assays, including calcium flux, potassium, and membrane potential.
- Configure to your throughput—The FLIPR Penta system can be configured to match user needs. From manual assays to automated solutions, to measuring 96-, 384-, or 1536-well samples at a time, to using wash or no-wash assay kits in adherent or suspension cell mode, the system can be upgraded as needs change in the future.

# Microbial colony picking



**QPix 400 Series  
Microbial Colony Pickers**

Automated microbial clone screening and library management system

- Use the QPix system for synthetic biology, DNA assembly, antibody discovery, protein engineering, and phage display workflows
- Streamline your workflow with scalable automation – pick up to 30,000 colonies per day
- Electronic data tracking for well-documented data control
- Sterile environment with customizable HEPA filtration options
- Available with high-resolution single-cell imaging capability on day zero. Automatically screen and pick clones that are both high producing and monoclonal—all in one system.\*

\*Price, time to deliver, and specifications will vary based on mutually agreed technical requirements. Solution requirements may cause an adjustment to standard performance. Custom solutions are subject to Molecular Devices Custom Products Purchase Terms.

Modular integration with **automation and robotics for increased throughput**

**Flexible bed setup** allows the use of multiple formats of source and destination plates

Barcode reader provides **reliable traceability of data**

Automated plate de-lidding **maintains sterility**

Objective software data analysis and database integration **allow clear and concise record of experimental data**



Acoustic sensors detect agar height, helping high-precision robotics to **pick single colonies gently and accurately**

Organism-specific, interchangeable picking heads offer flexibility to **handle multiple organisms**

Wash baths and halogen heat sterilization **eliminate cross-contamination among pins**

# Mammalian screening

## Key features



Verify monoclonality easily—Objective selection, imaging, and data collection streamlines tracking of colony formation from a single cell



Sort viable single cells efficiently—High accuracy robotics combined with gentle fluidics-based systems establish viable clones with much higher efficiency



Streamline workflows—Automation with sample tracking increases throughput, allows for more walk-away time, and provides consistent results



Custom automation options\*



### ClonePix 2 Mammalian Colony Picker

Automate antibody discovery and cell line development workflows. Reduce cost by finding your highest producers with fewer reagents.

- Screen 10X more clones than limiting dilution
- Increase probability of identifying high-value clones
- Condense the workflow into a single solution
- Eliminate or recover unstable clones early



### CloneSelect Imager and CloneSelect Imager FL

High contrast multichannel fluorescent technology that allows for accurate single cell detection and proof of monoclonality at day 0.

- Document evidence of single cells and confluency digitally for auditing and submission to regulatory authorities. The Monoclonality Report is an audit-ready document that supports filing for an Investigational New Drug (IND) Application with the FDA. (21 CFR Part 312)
- Image cells non-invasively at multiple time points to monitor colony formation
- Screen using high resolution white light imaging and multichannel fluorescence
- Deliver real-time results with on-the-fly analysis
- Automation and integration ready



### CloneSelect Single-Cell Printer Series

Microfluidics-based system for single-cell cloning using image-based cell sorting

- Confidently isolate cells and provide consistent, high-quality image evidence of monoclonality to the FDA
- Enable the isolation of highly sensitive cell lines by increasing post-sort viability up to 15X compared to flow cytometry
- Improve clonal outgrowth over 5X compared to limiting dilution due to highly efficient cell sorting
- Minimize cross contamination through disposable cell printing cartridges
- Fast turnaround time—prints a 96-well plate within 5–10 minutes
- Sort wide range of cell lines: CHO, HEK, SF9, iPSC, primary cells

\*Only available in North America, Mainland China, Hong Kong, Macau and Taiwan