BIO-SCIENCE

MOLECULAR DEVICES

SpectraMax iD5e

Multi-Mode Microplate Reader

Enhanced five-mode reader with hybrid optics, environmental controls, and injectors

The SpectraMax® iD5e microplate reader offers advanced detection capabilities with its five detection modes: absorbance, fluorescence, luminescence, time-resolved fluorescence (TRF), and tunable fluorescence polarization (FP). Supported by hybrid optics, a touchscreen interface, and temperature control, this reader provides flexibility and precision for complex assays. Optional upgrades include bottom-read luminescence, TR-FRET (including HTRF®), and western blot detection. For live cell assays and microbial growth experiments, environmental controls for CO_2/O_2 and advanced shaking are also available.

Intuitive data acquisition and analysis are powered by SoftMax® Pro Software, the industry's most cited microplate reader software.

Key benefits

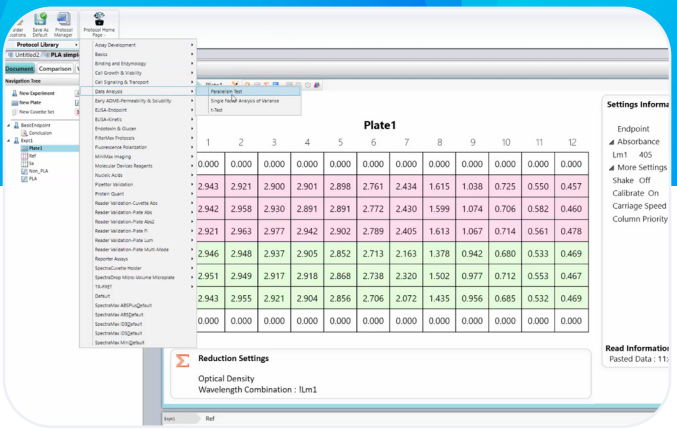
Perform ELISA, nucleic acid and protein quantitation, cell viability, microbial assays, western blot, and more

Use the touchscreen to easily set up protocols, run experiments or view tutorial videos

Automatically identify filter sets using NFC functionality, simplifying workflows and ensuring accuracy and reliability

Optional gas mixer and advanced shaking for live cell assays

Key features



Superior hybrid optical system

The high-efficiency monochromator and filter-based optical system, combined with an ultra-cooled photomultiplier tube (PMT), minimizes noise while increasing sensitivity, selectivity, and dynamic range.

Simplified data acquisition and analysis

Over 200 preconfigured protocols are available for a wide variety of common assays, including protocols for our entire suite of reagents. SoftMax Pro Software integrates data acquisition and analysis into a single, user-friendly interface.

Flexible temperature control

Simple-to-use temperature control allows you to adjust your experiment's conditions from ambient up to 66°C, expanding your laboratory's capabilities to include temperature sensitive assays.

Continuous support & service

Remote and onsite PhD level support is offered for technical and application related topics.

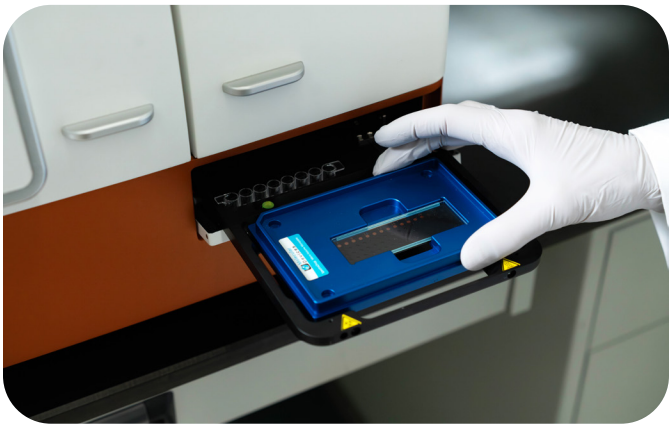
Optional features

Dual injectors

On-board fluidics are available for fast kinetic assays with SmartInject® Technology, ensuring complete reagent mixing in every well for high-precision with 10 µL dead volume.

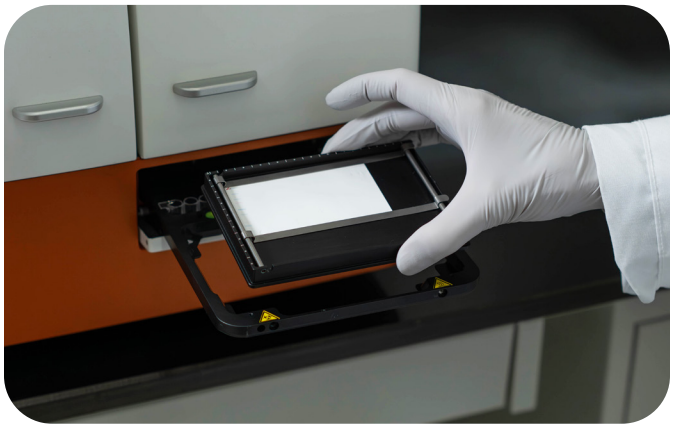
Live cell assays

Advanced shaking and user-installable gas mixer (CO_2/O_2) that support ideal environments for cell-based and microbial growth experiments are available as optional upgrades.



Microvolume & cuvette options

The SpectraDrop Micro-Volume Microplate for low-volume (2 to 4 µL) and SpectraCuvette™ Adapter Plate for cuvette-based applications eliminate the need for additional instrumentation.



Western blot capable

The Western Blot detection module is optimal for quantitating as little as femtogram protein samples, providing improved sensitivity, extended signal stability and versatility to support a wide range of applications.

Perform a wide range of assays & applications

- Apoptosis
- Cytotoxicity
- Real-time cell viability
- ATP flash luminescence
- ELISA
- Reporter gene
- Cell signaling
- Microbial growth
- Enzyme activity
- DNA/RNA/Protein quantitation
- Microvolume detection
- Western blot detection

Expanded assay capabilities

Equipped for high performance, the SpectraMax iD5e is designed to read (or detect) highly sensitive HTRF®, DLReady, and SpectraMax® DuoLuc™. Microplate reader assays requiring near infrared (IR) or red-shifted fluorophores can be read with great sensitivity using the iD5e reader's filter system. Easily installed filters allow for near-IR fluorescence detection that is 10–40 times more sensitive than conventional monochromator based detection.

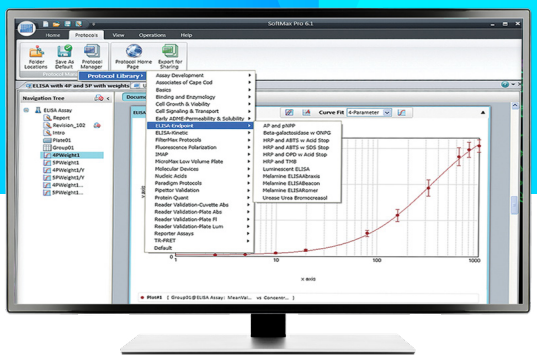
DLReady

SpectraMax® DuoLuc™ certified

Complete solution for all your research needs

For over 40 years, Molecular Devices has provided scientists with tools to expand the boundaries of their research. Our microplate readers are the industry's most cited instruments and have empowered life science researchers to advance protein and cell biology, breaking the barriers to novel, landmark discoveries. The SpectraMax iD5e reader is built on the same foundation that has made our entire SpectraMax microplate reader product line among the most trusted in the industry.

40 YEAR ANNIVERSARY



Data acquisition & compliance software for researchers

SoftMax Pro Software – Standard Research Labs

SoftMax Pro Software is the industry's leading data acquisition and analysis software, designed for ease of use and powerful performance in non-regulated research environments.

SoftMax Pro GxP Software – Regulated GMP/GLP Labs

SoftMax Pro GxP Software is our most secure software to help you achieve full FDA 21 CFR Part 11 and EudraLex Annex 11 compliance in GMP/GLP labs. Its streamlined workflows assure data integrity, where every step is optimized to simplify analysis and reporting.

Installation services

Our software installation services verify and document that required components are installed to operational specifications. SoftMax Pro GxP Software can be installed on a single computer or on a multi-computer networked environment by our expert technical support or professional services team via remote access, respectively.

Validation service

Our on-site SoftMax Pro GxP Software validation service supports FDA and EudraLex guidelines and is conducted by our certified professional. Each step in the process will be carefully planned and executed.

SpectraTest Validation Plates and Recertification

The SpectraTest® Validation Plates are valuable tools for verifying that absorbance-, fluorescence-, and luminescence-capable microplate readers are operating correctly for GMP and GLP laboratories.

Specifications

General specifications

Dimensions (in.)	15.79 (H) x 20.94 (W) x 23.54 (D)
Dimensions (cm)	40.1 (H) x 53.2 (W) x 59.8 (D)
Weight	88.1 lbs. (40 kg)
Power requirements	100–240 VAC, 2 A, 50/60 Hz
Robotic compatible	Yes

General performance

Plate formats	6 to 384 wells
Light source	Xenon flash lamp
Reading capabilities	Microplates, cuvettes (via adapter), low volume (SpectraDrop)
Detectors	Photomultiplier Tube and Photodiode
Shaking	Linear, orbital and double orbital
Temp. control	5°C above ambient to 66°C[1]
Temp. uniformity	± 0.75°C
Temp. accuracy	± 1°C at 37°C set point
Spectral scanning	Abs, Fl, Lum, TRF
Endpoint reading	Abs, Fl, Lum, TRF, FP, FRET, TR-FRET
Kinetic reading	Abs, Fl, Lum, TRF, FP, FRET, TR-FRET
Well scanning	Over 20 by 20
Wavelength selection	1.0 nm increments

Standard read times (minutes:seconds)

	96 wells	384 wells
Absorbance	0:28	1:28
Fluorescence intensity[2]	0:21	1:08
Luminescence[2]	0:21	1:03
Time-Resolved Fluorescence	0.25	1:12
Fluorescence Polarization	0:35	1:48

Absorbance photometric performance

Wavelength range	230–1000 nm
Wavelength bandwidth	4.0 nm full width half maximum
Wavelength accuracy	± 2.0 nm across wavelength range
Wavelength repeatability	± 1.0 nm
Photometric range	0–4.0 OD
Photometric resolution	0.001 OD
Photometric accuracy	< ±0.010 OD ±1.0% 0–3 OD VIS, 0–3 OD UV
Photometric precision (repeatability)	< ±0.003 OD ±1.0% 0–3 OD VIS, 0–3 OD UV
Stray light	< 0.05% @ 230 nm, 280 nm

Fluorescence intensity performance

Wavelength range (EX mono)	250–830 nm
Wavelength range (EM mono)	270–850 nm
Wavelength range (filters)	See accessory list
Wavelength selection (mono)	1.0 nm increments
Dynamic range	> 6 logs

Sensitivity, top read (fluorescein)	Monochromator	Filters
96 wells	1 pM	0.3 pM
384 wells	1 pM	0.5 pM
Sensitivity, bottom read (fluorescein)	**Monochromator**	**Filters**
96 wells	2 pM	2 pM
384 wells	2.5 pM	2.5 pM

Specifications (continued)

Fluorescence polarization performance

Wavelength range (EX mono)	(300–)[3] 400–750 nm, 1.0 nm increments	
Wavelength range (EM mono)	(300–)[3] 400–750 nm, 1.0 nm increments	
Wavelength range (filters)	See accessory list	
Detection limit[4]	**Monochromator**	**Filters**
96 wells black	2 mP @ 10 nM	1 mP @ 1 nM
384 wells black	2 mP @ 10 nM	2 mP @ 1 nM
Measurement range[5]	Delta > 200 mP	Delta > 320 mP

Time-Resolved Fluorescence performance

Wavelength range (EM mono)	450–750 nm	
Wavelength range (EX filter)	350 nm	
Wavelength range (EM filter)	490 nm (Terbium), 616 nm (Europium) For other filters, see accessory list	
Linear dynamic range	Up to 5 logs	
Sensitivity	**96 wells (white)**	**384 wells (white)**
Standard TRF	30 fM Europium (6 amol/well)	30 fM Europium (3 amol/well)
Enhanced TRF Module (optional)	10 fM Europium (2 amol/well)	10 fM Europium (1 amol/well)

Luminescence performance

Wavelength range	300–850 nm 300–650 nm for “All Wavelengths” setting
Wavelength selection	Choice of simultaneous detection of all wavelengths or selection in 1.0 nm increments. For filters, see accessory list
Dynamic range	> 7 decades
Cross-talk	< 0.1% in white 96- and < 0.2% in 384-well microplates
Sensitivity	20 amol ATP (“flash” luminescence using Promega ENLITEN® ATP Assay System)

Injector system with SmartInject Technology (optional)

Injectors	2
Read modes	Abs, FI, Lum
Dispense accuracy	± 5% at 100 µL
Dispense precision	CV ≤ 2% at 100 µL
Dead volume	Injector Tubing: 250 µL < 10 µL with Reverse Prime function

SpectraMax aer gas mixer (optional)

O_2 control range	1–21% in 0.1% increments[6]
CO_2 control range	0.1–15% in 0.1% increments[7]
O_2 accuracy	±1.0% (37°C, 1% O_2)
CO_2 accuracy	±1.0% (37°C, 5% CO_2)

1. *At temperature range from 55°C (131°F) up to 66°C (150.8°F) ambient temperature of 25°C (77°F) is required.*
2. *Using lowest setting and speed read when available.*
3. *Requires optional UVIS polarizer*
4. *1x Stdev Fluorescein replicates [mP]*
5. *ThermoFisher P3088, FP One-Step reference kit*
6. *Upper limit is altitude dependent*
7. *Lower limit at ambient with 0.04%*

Filters and modules

Applications	Filters and modules	Molecular Devices part number
BRET1 assays	Donor emission filter: Fluorescence Filter with holder 485nm BW 20nm	6590-0092
	Acceptor emission filter: Fluorescence Filter with holder 535nm BW 25nm	6590-0099
BRET2 assays	Donor emission filter: Luminescence Filter with holder 410nm BW 80nm	6590-0086
	Acceptor emission filter: Luminescence Filter with holder 515nm BW 30nm	6590-0097
Enhanced BRET2 (eBRET2) assays	Donor emission filter: Luminescence Filter with holder 410nm BW 80nm	6590-0086
	Acceptor emission filter: Luminescence Filter with holder 515nm BW 30nm	6590-0097
BRET3 assays	Donor emission filter: Luminescence Filter with holder 565nm BW30 nm	6590-0131
	Acceptor emission filter: Luminescence Filter with holder 590nm BW20	6590-0102
NanoBRET assays	Donor emission filter: 447 nm BW 60 nm	6590-0088
	Acceptor emission filter: 610 nm LP	6590-0117
Transcreener fluorescence intensity assays	Fluorescence Filter with holder 565nm BW 30nm	6590-0131
	Fluorescence Filter with holder 625nm BW 35nm	6590-0108
IMAP fluorescence polarization (FP) assays with FAM-labeled substrates	Set of 2 Fluorescence Polarization Filters 485 nm BW 20 nm Polarized Vertical & Horizontal	6590-0136
	Set of 2 Fluorescence Polarization Filters 535 nm BW 25 nm Polarized Vertical & Horizontal	6590-0137
IMAP fluorescence polarization (FP) assays with TAMRA-labeled substrates	Set of 2 Fluorescence Polarization Filters 595 nm BW 25 nm Polarized Vertical & Horizontal	6590-0137
	Set of 2 Fluorescence Polarization Filters 595 nm BW 25 nm Polarized Vertical & Horizontal	6590-0139
Transcreener fluorescence polarization (FP) assays	Excitation filters: Set of 2 Fluorescence Polarization Filters 624 nm BW 40 nm Vertical & Horizontal	BR-Custom
	Emission filters: Set of 2 Fluorescence Polarization Filters 684 nm BW 24 nm Vertical & Horizontal	BR-Custom
ValitaTiter and ValitaTiter Plus assays	Set of 2 Fluorescence Polarization Filters 485nm BW 20nm Polarized Vertical & Horizontal	6590-0136
	Set of 2 Fluorescence Polarization Filters 535nm BW 25nm Polarized Vertical & Horizontal	6590-0137

Filters and modules (continued)

Applications	Filters and modules	Molecular Devices part number
ScanLater Western Blot (TRF)	Enhanced TRF Module	0200-7030
	ScanLater Membrane Holder	6590-0146
HTRF assays with Eu cryptate donor/red acceptor	Enhanced TRF Module	
	Excitation: 340 nm BW 70 nm	6590-0080
	Donor emission: 616 nm BW 10 nm	6590-0118
	Acceptor emission: 665 nm BW 10 nm	6590-0121
HTRF assays with Tb cryptate donor/red acceptor	Enhanced TRF Module	
	Excitation filter: 340 nm BW 70 nm	6590-0080
	Donor emission filter: 616 nm BW 10 nm	6590-0118
	Acceptor emission filter: 665 nm BW 10 nm	6590-0121
IMAP TR-FRET assays with FAM-labeled substrates	Enhanced TRF Module	
	Excitation: 340 nm BW 70 nm	6590-0080
	Donor emission: 490 nm BW 10 nm	6590-0095
	Acceptor emission: 520 nm BW 15 nm	6590-0098
IMAP TR-FRET assays with TAMRA-labeled substrates	Enhanced TRF Module	
	Excitation: 340 nm BW 70 nm	6590-0080
	Donor emission: 535 nm BW 25 nm	6590-0099
	Acceptor emission: 595 nm BW 35 nm	6590-0105
LanthaScreen Eu TR-FRET assays	Enhanced TRF Module	
	Excitation: 340 nm BW 70 nm	6590-0080
	Donor emission: 616 nm BW 10 nm	6590-0118
	Acceptor emission: 665 nm BW 10 nm	6590-0121
LanthaScreen Tb TR-FRET assays	Enhanced TRF Module	
	Excitation: 340 nm BW 70 nm	6590-0080
	Donor emission: 490 nm BW 10 nm	6590-0095
	Acceptor emission: 520 nm BW 15 nm	6590-0098

Filters and modules (continued)

Applications	Filters and modules	Molecular Devices part number
THUNDER TR-FRET assays	Excitation filter: 320 nm BW 100 nm	available from Molecular Devices
	Donor emission filter: 616 nm BW 10 nm	6590-0118
	Acceptor emission filter: 665 nm BW 10 nm	6590-0121
Transcreener TR-FRET assays	Enhanced TRF Module	0200-7030
	Excitation filter: 320 nm BW 100 nm	available from Molecular Devices, BR-Custom
	Donor emission filter: 616 nm BW 10 nm	6590-0118
	Acceptor emission filter: 665 nm BW 10 nm	6590-0121

Filter related references

1. NanoBret
   - Measure p53-MDM2 protein interaction with NanoBRET technology
   - Assessing Reader Capability for NanoBRET Technology | Molecular Devices
2. Optimized settings for Transcreener FI Assays on SpectraMax iD3 and iD5 microplate readers
3. Configuring the SpectraMax® iD5 Multi-Mode Microplate Reader for ValitaTiter Assays | Molecular Devices
4. Optimizing performance of Transcreener fluorescence polarization assays with the SpectraMax iD5 Multi-Mode Microplate Reader
5. Configuring SpectraMax® and FlexStation® Multi-Mode Microplate Readers for IMAP® Assays | Molecular Devices
6. Estimation of Protein Molecular Weights with ScanLater Western Blot Protein Ladder
   - Validate CRISPR-Edited Cells using Imaging and Western Blot Detection on a Microplate Reader
   - Wells to Western: Exploring Cellular Heat Shock Response | Molecular Devices
7. Optimized HTRF settings for SpectraMax multi-mode microplate readers
8. Optimized settings for Transcreener TR-FRET assays on SpectraMax iD5 and i3x readers

Learn more about the
SpectraMax iD5e Multi-Mode Microplate Reader

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