

2104 EnVision

Multilabel Plate Readers



The 2104 EnVision® Multilabel Plate Readers are fast, sensitive and versatile benchtop readers that deliver optimized performance in every application and for every label. Their unique design features modular label-specific optical mirror modules, high energy flash lamps, and high speed detectors. The EnVision is available in two models: the affordable, single-detector EnVision Xcite Multilabel Plate Reader or the faster, dual-detector EnVision Multilabel Plate Reader.

User-changeable, label-specific optical mirror modules and filters provide superior detection sensitivity and contribute to measurement speed. As your laboratory's application needs change or new applications come on line, you can add more modules to extend EnVision's functionality.

A high energy Time-Resolved Fluorescence (TRF) **Laser** excitation flash lamp reduces the number of repeated flashes needed, making the excitation cycle

for detection as short as possible. The fastest mode uses an innovative “on-the-fly” detection synchronized with the excitation without stopping the plate between wells. This makes EnVision exceptionally fast measuring absorbance or fluorescence intensity on a 1536-well plate — less than 36 seconds including plate loading times.

The **plate conveyor and stackers** have been optimized to achieve maximum possible speed, with parallel functionality as well as fast physical movements. The EnVision instruments are easily integrated into robotic systems and are designed to provide the greatest configuration flexibility including accepting microplates from 1- to 3456-wells. When combining the speed of EnVision with the **high precision dispenser unit** and **temperature control** the versatile EnVision can perform fast kinetic measurements, enzyme assays and numerous other cell-based drug discovery assays.

Combine the sensitivity of a filter-based reader with the wavelength scanning and versatility of a monochromator-based reader. The **Absorbance Monochromator** measures absorbance assays smoothly with a single monochromator while the **Fluorescence Intensity Monochromator** measures absorbance and fluorescence intensity with a powerful quad monochromator package. Monochromator options can be combined with other EnVision options, including **ultra-sensitive Luminescence** or the **HTS “Turbo” AlphaScreen®** reader.

Technologies

- AlphaScreen® technology
- Fluorescence Intensity
- Fluorescence Polarization
- Time-Resolved Fluorescence (TRF), including PerkinElmer’s DELFIA® and LANCE® technologies
- Luminescence, including glow, flash and dual luminescence
- Absorbance

Maximum Throughput (Time per Plate)

Technology	Kinetic cycle	Single read	Stackers**
96-well plate	6 s	22 s	28 s
384-well plate	10 s	27 s	32 s
1536-well plate	20 s	36 s	42 s

**Mean of 10 plates

General

Light source:	Xenon flash lamp
Plate format:	1- to 3456-well
Temperature control:	
Temperature range:	from 2 °C above ambient up to 50 °C (0.5 °C increments)
Uniformity:	±1 °C
Heating time:	<10 minutes (from RT up to 37 °C)
Shaking:	linear, orbital, dual orbital
Dispenser:	
Dispense volume:	2-475 µL (1 µL increments)
Pump speed:	100-500 µL/s
Dead volume:	750 µL with pump back function <50 µL using standard tubing and factory settings

Typical Throughput (Time per Plate)

Plate format	96-well	384-well	1536-well
Fluorescence intensity/Absorbance (on-the-fly)	0:22	0:27	0:36
Fluorescence intensity/Absorbance (10 flash)	0:32	1:03	2:56
Fluorescence polarization (30 flash)	0:37	1:22	4:15
TRF LANCE (30 flash)	0:37	1:22	4:15
TRF DELFIA (100 flash)	0:55	2:32	8:52
AlphaScreen STD	1:32	4:54	19:28
AlphaScreen HTS	0:51	1:52	9:23

Detection Limit Specifications with Default Settings

Plate format	96-well	384-well	1536-well
Fluorometry (Filters) (Fluorescence intensity with fluorescein, 100 flashes from top)	<4 pM <0.8 fmol/well (200 µL)	<4 pM <0.2 fmol/well (50 µL)	<20 pM <0.15 fmol/well (7.5 µL)
Fluorometry (Monochromators) (Fluorescence intensity with fluorescein, 500 flashes from top)	<15 pM <3 fmol/well (200 µL)	<50 pM <5 fmol/well (100 µL)	
Fluorescence polarization (fluorescein 1 nM, SD)	<1 mP	<1 mP	<7 mP
TR-Fluorometry (Europium)	<55 fM <11 amol/well (200 µL, yellow plate)	<20 fM <1 amol/well (50 µL)	<50 fM <0.5 amol/well (10 µL)
TR-Fluorometry, TRF LASER option (Europium)	<15 fM <3 amol/well (200 µL, yellow plate)	<5 fM <0.25 amol/well (50 µL)	<15 fM <0.15 amol/well (10 µL)
Photometry (Filters or Monochromators) (Measuring range @ 405 nm)	0-4 OD (200 µL)	0-4 OD (50 µL)	0-3 OD (7.5 µL)
AlphaScreen (STD and HTS) (Phosphorylated bio-peptide, kinase assay*)		<100 amol (25 µL)	
Luminometry (Standard)	<80 amol/well (200 µL, flash reagent)	<10 pM (50 µL, glow reagent)	
Luminometry (Enhanced)	<5 amol/well (200 µL, flash reagent)		

* AlphaScreen detection limit <100 amol of biotinylated-LCK-P peptide, 25 µL/well in 384-well plate. AlphaScreen detection limit of biotinylated-LCK-P peptide was determined with 3 x SD over background method using AlphaScreen Phosphotyrosine (PT66) Assay Kit (Cat. No. 6760602C). Serial dilutions were made into assay buffer by diluting 10 nM b-LCK-P reaction mix containing Acceptor and Donor beads. Measurement was performed after a 1-hour incubation.

Photometry Specifications

Accuracy @ 2 OD < 2 %
Precision @ 2 OD < 0.1%

Monochromator Specifications

Photometric performance with absorbance monochromator:

Bandwidth:	<8 nm
Wavelength accuracy:	±2.0 nm
Wavelength range:	230-1000 nm
Photometric resolution:	0.001 OD
Wavelength precision:	±0.2 nm
Wavelength selection:	tunable in 0.1 nm increments

Fluorescence intensity performance with quad monochromators

Bandwidth:	<8 nm
Wavelength selection:	tunable in 0.1 nm increments
Excitation/emission spectrum scan measurements	230-850 nm

Physical Data:

Dimensions:

Height:	580 mm (22.8 in)
Depth:	550 mm (21.7 in)
Width:	420 mm (16.5 in)
Weight:	50 kg (110.2 lb)

Electrical Requirements:

120 - 240 volts or 220-240 volts

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