EnVision® Multimode Plate Reader

For research use only. Not for use in diagnostic procedures.

PerkinElmer®
For the Better

TAKE A FRESH LOOK AND DISCOVER ALL THAT'S NEW

Already the platform of choice for HTS, the tried and tested EnVision plate reader is now even *better*, with an array of exciting enhancements that can take your applications to the next level. The system provides even higher sensitivity for time-resolved fluorescence (TRF) applications. It continues to deliver optimal results from our proprietary Alpha, LANCE®, and DELFIA® assay technologies. And our updated software provides tools to facilitate 21 CFR Part 11 compliance for integration into regulated environments (GxP).

This is globally established, robust, proven technology, with more than 14,000 (and counting) peer-reviewed, published papers to its credit. And with a robust network of service engineers and application scientists across the globe, you can count on us to support you and your applications.

The EnVision system: Tried, tested, and proven to inspire science with *attitude*.

EnVision Multimode Plate Reader

2018 Winner of SelectScience® Seal of Quality Award

SelectScience® Seals of Quality recognize the top 0.1% of laboratory products that consistently receive the highest customer review ratings and are designed to further assist scientists worldwide in making important purchasing decisions for their labs.

Better speed, throughput, *and* sensitivity

The EnVision multimode plate reader provides exceptional speed, ultrahigh throughput, and maximum sensitivity across all detection technologies. The gold standard for high-throughput screening, the EnVision microplate reader gives you robust performance and reliable data, time after time, with exceptional sensitivity and minimal downtime.

A broad selection of proven technologies

The standard EnVision system configuration reads all traditional detection technologies:

- Absorbance
- Fluorescence intensity
- Luminescence, including glow, flash, and dual luminescence
- Time-resolved fluorescence (TRF) and TR-FRET, including our DELFIA, LANCE, and LANCE *Ultra* technologies, LanthaScreen™, and certified for use with HTRF® technology
- Fluorescence polarization

What's more, the EnVision platform supports all these detection technologies with kinetic and scanning measurements, a wide range of filters, dichroic mirrors, and bottom reading for fluorescence intensity and TRF measurements. And it accepts all standard microplates, including 96-, 384-, 1536-, and 3456-well formats.

Increase your capabilities, capacity, and throughput

You can also extend your lab's assay capabilities with advanced options such as:

- Laser technology for our proprietary AlphaScreen® and AlphaLISA® technologies, including AlphaPlex™ and Alpha CETSA®
- Ultrasensitive luminescence
- TRF laser module
- Quad-monochromators

We offer a wide choice of label-specific bar-coded filters and optical mirror modules for almost all assays – and if your optimal optics aren't in our standard portfolio, we can provide customized modules for you. Plus, you can add a dispenser for fast response cell-based assays and plate stackers to increase capacity and throughput.

The Solution of Choice for All Your Assays

Cellular

Bottom-reading, shaking, scanning, temperature-control, and kinetics capabilities make EnVision the go-to reader for cellular assays.

GPCR

High-throughput read technologies are perfect for a wide range of GPCR assay types, such as AlphaScreen, LANCE, and AequoScreen®.

Reporter Gene

Scanning and kinetics capabilities and label-specific optical mirror modules and filters enable GFP assays and dual reporter-gene assays using luciferase and beta lactamase.

Enzyme

Accurate, stable temperature-control and restacking capabilities let you perform sensitive kinetic measurements across a wide dynamic range and high-speed measurements at short-repeat intervals.

Kinase

LANCE *Ultra* / TR-FRET biochemical assays are ideal for tyrosine/serine/ threonine kinases. Alpha technologies measure phosphorylated peptides, full protein substrates, and endogenous phosphorylated proteins in a cellular format.

Quantification

A range of filters and optical mirror modules covering the UV/Vis spectrum enable direct measurement of DNA, protein, and classical ELISAs; AlphaLISA, AlphaScreen, and DELFIA capabilities offer wider dynamic range and higher sensitivity.

WHAT DOES YOUR IDEAL PLATE READER LOOK LIKE?

The EnVision multimode plate reader comes in two configurations: You can choose the **EnVision 2105 XCite reader** for the ultimate in sensitivity – an affordable single-detector system ideal for the most challenging research and assay development applications. Or opt for the **EnVision 2105 HTS system** – a superfast, dual-detector reader designed specifically to support demanding high-throughput discovery applications. Both instruments offer the same unsurpassed sensitivity and analytical performance.

Innovative hybrid design for maximum flexibility

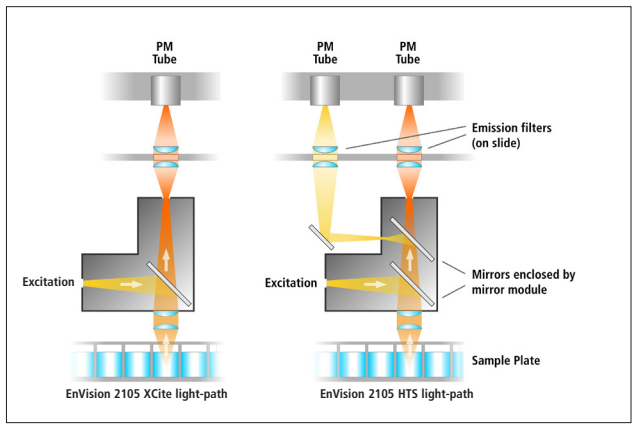
EnVision plate readers come with filter-based technology for absorbance, fluorescence, luminescence, TRF, and fluorescence polarization. The systems can also be equipped with quad monochromators for absorbance and fluorescence, enabling you to choose any wavelength and perform wavelength scans for maximum flexibility.

Ultimate performance in time-resolved fluorescence

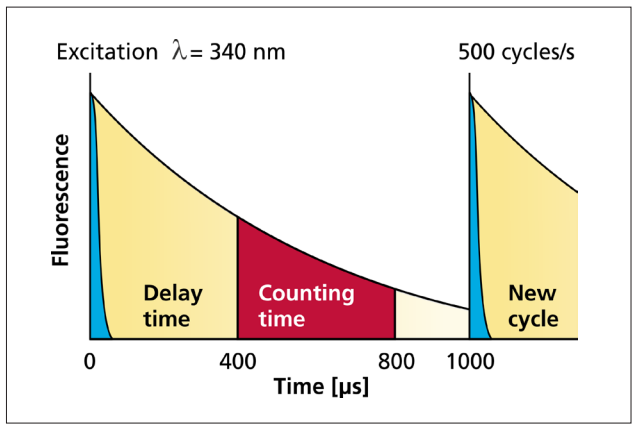
Flash lamp-based TRF is standard on the EnVision system and offers good signal-to-noise ratios and speed for everyday applications. For higher speed and sensitivity, you can choose a high-energy laser which delivers a faster decaying pulse that enhances long-lived dye signal but decays completely by the time of measurement.

In comparison, a Xenon lamp excitation pulse decays slower, with increased background noise during measurement. The TRF laser therefore gives superior signal-to-noise ratios and exceptionally fast measurement times – less than 36 seconds for a 1536-well plate, including loading times.

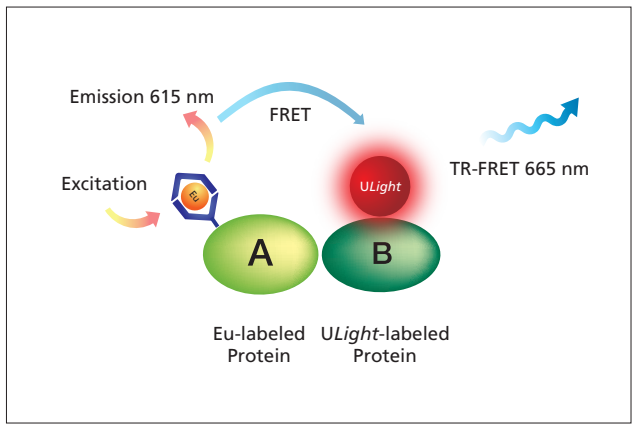
New optical components employing advanced optical technologies further improve the inherently excellent signal-to-background ratio of the EnVision TRF technologies. And our proprietary LANCE, LANCE *Ultra,* and DELFIA assay technologies are developed and optimized on the EnVision plate reader.



Working together with the EnVision reader's label-specific optical modules, the Proprietary Direct Optics™ system contributes to the instrument's exceptional sensitivity.



Lanthanides such as Europium decay slowly. In TRF, measurement is delayed after excitation until background emissions have died down (blue: excitation pulse (laser); yellow: fluorescence signal from lanthanide; red: detection period). In addition, emissions are redshifted, further reducing noise.

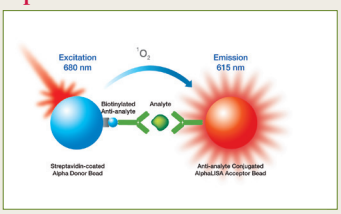


LANCE *Ultra* assay principle: LANCE *Ultra* uses a Europium (Eu) chelate donor dye, and a small, redshifted *U*Light™ acceptor dye. *U*Light dye provides a strong signal with minimal steric hindrance, which is perfect for kinase and GPCR applications. Ideal for high-throughput screening, LANCE *Ultra* TR-FRET assays are sensitive, homogeneous, and easy to use.

Alpha Technology: The Assay That Measures It All

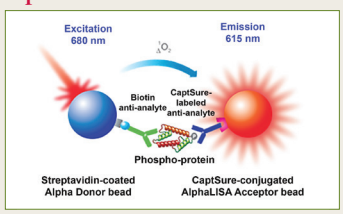
Alpha technology is a bead-based proximity assay. When Alpha Donor and Acceptor beads are brought together, a cascade of chemical reactions is set in motion, creating a greatly amplified signal. The highly versatile beads can be coated with various biomolecules, enabling detection of unique biological events. There's an Alpha technology solution for just about every research application, and subsequent detection using the Alpha-proven EnVision multimode plate reader. What's more, the Alpha Toolbox enables you to set up your own assay using ready-to-use Alpha beads for numerous capture solutions.

AlphaLISA®



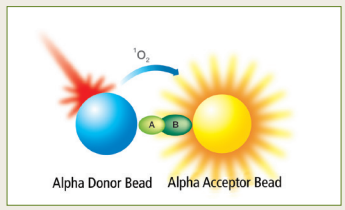
For results in half the time of ELISA, without wash steps, and with excellent sensitivity in a variety of matrices, including serum and plasma

AlphaLISA® *SureFire® Ultra™*



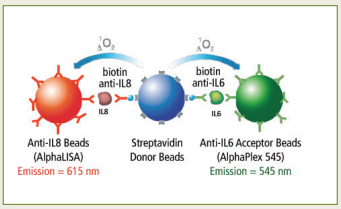
Detects phosphorylated proteins faster, in more complex samples, and with better sensitivity with the use of CaptSure™ technology

AlphaScreen®



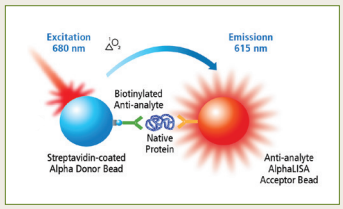
Perfect for studying fusion-tagged proteins or protein:protein interactions, and for testing cAMP, cGMP, phosphorylated peptides, or samples in a simple matrix

AlphaPlex™



Enables detection of multiple analytes in a single well for faster and more relevant results, even in low sample volumes

Alpha CETSA®



Enables you to assess target engagement earlier in the drug discovery process, so you can disqualify compounds earlier and have greater confidence in promising ones

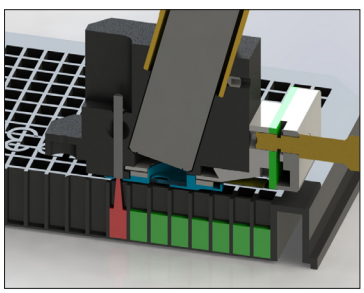
Two modes of detection to meet your needs

Two Alpha detection modules are available for the EnVision reader, each with a dedicated excitation laser. The standard Alpha detection module has a unique plate temperature-control mechanism that minimizes the effect of temperature gradients on assay performance. This system also delivers all the speed necessary for utilizing AlphaPlex detection technology.

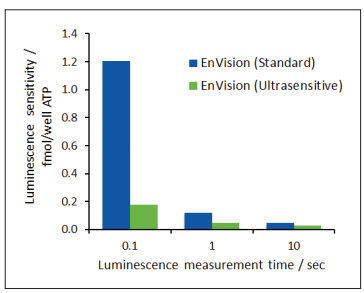
The HTS Alpha detection module is more than twice as fast as the standard module, due to its special optical design.

Ultrasensitive luminescence that makes the most of cells and reagents

Working with primary, stem or difficult-to-transfect cells presents a unique set of challenges. Optional ultrasensitive luminescence boosts sensitivity by almost 10 times versus standard luminescence by bringing the detector closer to the sample – giving you more information from every cell. With the ultrasensitive luminescence option, the time per 384-well plate decreases from over one hour to less than two minutes – not only freeing up the instrument, but also minimizing drift effects.



Alpha HTS module: While the signal is measured in one well, the beads in the next well are excited by the laser. The detector is placed directly above the plate for minimal signal loss.



Luminescence measurement time and sensitivity comparison: Standard EnVision system versus an EnVision reader with ultrasensitive luminescence, using a white ProxiPlate™-384.

APPLICATION OPTIONS AND SOFTWARE FOR EVEN MORE FLEXIBILITY

You can complement the EnVision system's already unmatched speed with optional automation and accessories that increase throughput and extend your lab's capabilities to include time-course measurements, enzyme assays, and many other cell-based assays. For the highest throughput applications, the EnVision plate reader can be easily integrated into complete robotic solutions from PerkinElmer and other automation providers.

EnVision plate reader with dispenser and stacker

Temperature control

To ensure reproducibility of cellular and enzyme kinetic assays and other assays that require a defined temperature range, the EnVision platform's temperature control option lets you precisely regulate from 2 °C to 55 °C above ambient. Temperature control is uniform across the plate, and a top-heating plate eliminates condensation problems.

Dispenser

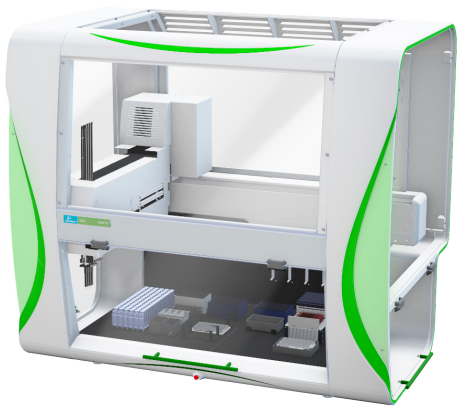
The EnVision dispenser can be used with 1- to 384-well plates in all reading modes. It consists of two pump units, which allow precise delivery of reagents in 1 µl increments over a volume range of 2 µl to 475 µl. In addition, a magnetic stirrer and a heater for the reagent bottle enable dispensing of cells, with an adjustable dispensing speed setting that lets you optimize for viscosity, cell density, and other assay requirements.

Plate stacker

Available for 20 or 50 plates, interchangeable plate stacker magazines can easily be added to increase capacity and throughput. For kinetic assays, the grip-fed restacking function lets you maintain the order of plates in the stack, increasing the reliability of data.

Flexible automation

For increased throughput or walkaway convenience, we offer a range of automated liquid-handling systems such as the JANUS® G3 Automated Workstation. EnVision plate readers are also compatible with a wide range of third-party automation systems.



The JANUS® G3 Automated Workstation is a flexible liquid-handling solution able to handle a wide range of plate types. The JANUS system can be integrated with the EnVision reader as part of your workflow for online assays or for preparing assay plates offline via the PlateStak™ microplate storage system.

Software that enhances productivity

Powerful software makes it easy to take advantage of all the performance and versatility of the EnVision platform. An intuitive interface with preset user-specific protocols makes setting up the system fast and easy. For data analysis, features such as automatic curve fitting and flexible interpretation of standards controls and unknowns give the EnVision system the power to handle a broad range of assay types. The software also integrates smoothly into your lab's network, and into lab automation and data management systems.

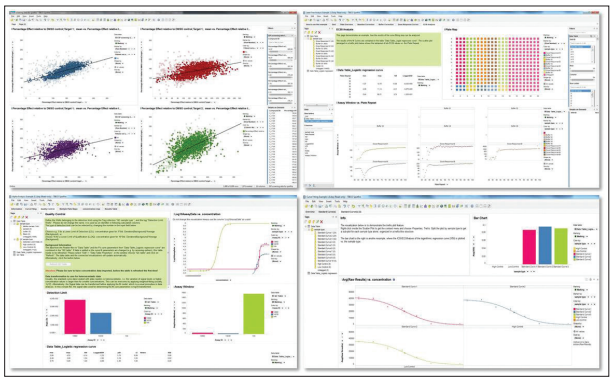
Software to facilitate compliance

For regulated environments, our Enhanced Security mode provides technological controls and features that support 21 CFR Part 11 compliance with access levels, data security, and a comprehensive audit trail of user actions.

Seamless integration with MyAssays Desktop Enhanced Security data analysis software is also possible, ensuring data integrity. My Assays Desktop offers advanced analysis and reporting features.

Advanced data visualization and analysis

With TIBCO Spotfire®, you can make the most of your high-quality plate reader data by harnessing advanced data visualization and analysis capabilities. The TIBCO Spotfire® Analyst for Multimode Detection (MMD) package is tailored for plate reader data analysis, enabling you to visualize, correlate, compare, and analyze your data – and share it freely with your colleagues.



Assay specific templates for plate reader data allow rapid familiarization with TIBCO Spotfire®

Assays and reagents for virtually any application

Our industry-leading reagents and assays include:

- ELISA-alternative Alpha technology
- LANCE and LANCE *Ultra* TR-FRET
- DELFIA TRF
- lites luminescence assays
- AequoScreen luminescence assays

And if you don't find what you need, our specialist team can develop custom assay solutions for you.

Better microplates mean better results

We offer a wide range of microplates for fluorescence, luminescence, and absorbance assays, such as the highly versatile OptiPlate™, shallow well ProxiPlate™, 1/2 Area Plate for low volume assays, and AlphaPlates to minimize crosstalk in Alpha technology assays.

Count on our support

Your application needs are as individual as you are. So we take a consultative approach to every engagement with you. Our expert-global service and support teams, comprising dedicated lab- and field-based applications specialists, can work with you in partnership to overcome the unique challenges your application brings. And what's more, we can offer IQ/OQ testing for instruments including the EnVision plate reader.

Summary of EnVision multimode plate reader models and options

BASE UNIT	
EnVision HTS plate reader	5 filter-based technologies (dual detectors): Abs, FI, Lum, FP and TRF
EnVision XCite plate reader	5 filter-based technologies (single detector): Abs, FI, Lum, FP and TRF
OPTIONAL DETECTION TECHNOLOGY MODULES	
Ultrasensitive luminescence module	
Standard Alpha module	Includes Alpha laser
Standard Alpha module with temperature control	Includes Alpha laser
HTS Alpha module	Includes ultrasensitive luminescence module and Alpha laser
HTS Alpha module with temperature control	Includes ultrasensitive luminescence module, temperature control and Alpha laser
TRF laser module	
Quad monochromator (fluorescence/absorbance)	
OPTIONAL ACCESSORIES	
Temperature control module	
Dispenser	2 channel
Stacker	
Stacker magazine – 20 plates	
Stacker magazine – 50 plates	
Plate barcode reader	For EnVision XCite only
SOFTWARE OPTIONS	
Enhanced security software package	

For more information visit www.perkinelmer.com/EnVision

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