

EnVision Multilabel Plate Readers

sensitivity
versatility
speed



Chart Your Course with EnVision—
the Flagship of its Class

Propel your assays through *any*

Getting to the finish line first is everything in Lead Discovery. That's why we developed the only multilabel plate readers that easily switch from one detection technology and application to another.

Thanks to their unique design featuring modular label-specific optical mirror modules, high energy flash lamp, and high speed detectors, our EnVision™ Multilabel Plate Readers outperform any other benchtop readers in speed, sensitivity and versatility.

Choose from two models: the affordable, single-detector EnVision Xcite Multilabel Plate Reader or the faster, dual-detector EnVision Multilabel Plate Reader.



application— right on your benchtop



Change your course easily with EnVision

Because they're upgradeable, you may never need another multilabel reader if you own either EnVision instrument. Why? As your application needs change or new applications come on line, you just add more mirror modules, not buy a different instrument.

Proprietary Modular Design Optimizes Every Label and Application

User-changeable label-specific optical mirror modules provide you with the best possible performance for each and every label or application. Decide what assay to run, put the appropriate mirror module into EnVision and run your assay — it's that simple.

Reads All Nonisotopic Detection Technologies

- AlphaScreen™ technology
- Fluorescence Intensity
- Fluorescence Polarization, including PerkinElmer's [FP]₂™ technology
- Time-Resolved Fluorescence (TRF), including PerkinElmer's DELFIA®, LANCE™ and TruPoint™ technologies
- Luminescence, including glow, flash and dual luminescence
- Absorbance

Performs All Major Applications

- Cellular assays
- GPCR assays
- Genotyping assays
- Reporter gene assays
- Enzyme assays
- Quantification assays
- Immunoassays
- Other cell applications

Integrated technology provides unparalleled speed and sensitivity

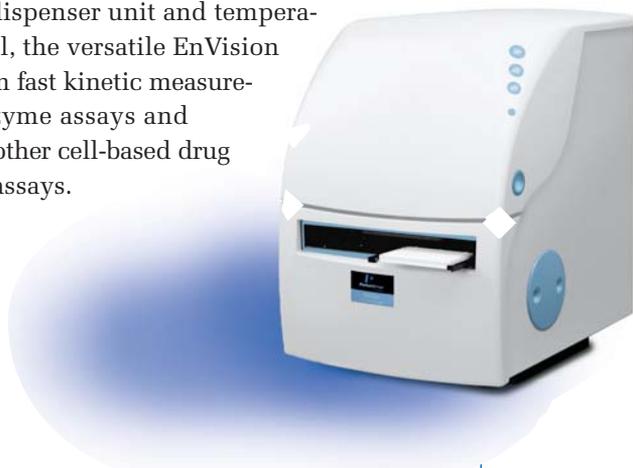
Everything about EnVision's design contributes to making it the fastest and most sensitive benchtop plate reader on the market.

EnVision's label-specific optical mirror modules provide superior detection sensitivity and contribute to measurement speed. A high energy 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 of a 1536-well plate — it's less than 36 seconds including plate loading times!

Even 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.

EnVision meets today's needs of cell-based assays

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.



Get ahead and stay ahead with

Its speed *plus* superior AlphaScreen sensitivity
will keep you in the lead.

Besides reading the five common nonisotopic detection technologies, the versatile EnVision readers also handle our sensitive AlphaScreen technology! AlphaScreen is a valuable addition to any Lead Discovery lab because it's adaptable to an unusually wide range of biological interactions.

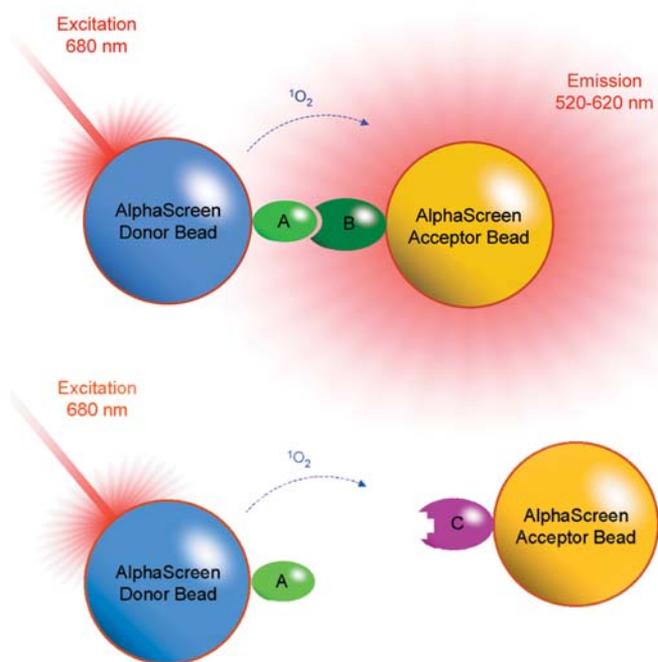
AlphaScreen (Amplified Luminescent Proximity Homogeneous Assay) is a robust homogeneous technology offering the perfect combination of excellent results, cost effectiveness and versatility, especially for low affinity binding assays. Its low backgrounds and high S/B ratios make it an ideal technology for demanding screening assays. Miniaturize down to 5 μL to conserve reagents and minimize cost without compromising assay robustness.

EnVision's laser source excitation provides maximum energy for AlphaScreen technology, making EnVision the fastest AlphaScreen reader on the market. Plus AlphaScreen technology delivers great sensitivity across a wide range of targets. Together you get EnVision's speed plus superior sensitivity!

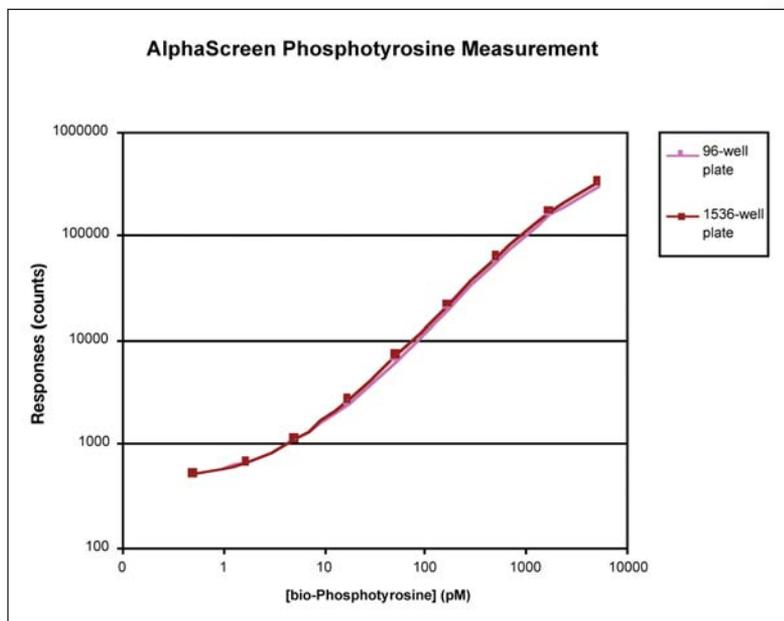
EnVision AlphaScreen options are available in two versions: the Standard Option for medium throughput use and the HTS "Turbo" Option for high throughput use. Choose the AlphaScreen Standard Option for assay development and medium throughput screening. Choose the HTS "Turbo" Option for high throughput screening. The "Turbo" Option delivers a throughput of 96,000 samples/day or more using 384-well plates (less than 2 minutes per plate), and 77,000 samples/day using 1536-well plates (less than 10 minutes per plate). For some assays, this may be optimized for even faster read times with Turbo.

EnVision's speed plus AlphaScreen technology means high throughput with great sensitivity across a wide range of targets. The AlphaScreen technology platform is so easy and flexible that assay development time can often be greatly compressed, increasing overall productivity.

An EnVision ordered with the AlphaScreen HTS "Turbo" option automatically includes our Enhanced² Luminescence option, an additional luminescence detector to provide enhanced luminescence performance for labs with high sensitivity needs.



AlphaScreen binding and no binding situations



Typical AlphaScreen phosphotyrosine standard curves in 96- and 1536-well format measured on an EnVision.



Typical Throughput of AlphaScreen Assays on Various Plate Readers

384-well plate	Time/plate (min:ss)	Throughput vs. Fusion	Samples/8hr.
Fusion	8:40		21,000
EnVision Std Alpha	5:40	1,5	33,000
AlphaQuest	3:04	2,8	60,000
EnVision Alpha HTS	1:52	4,6	96,000

1536-well plate	Time/plate (min:ss)	Throughput vs. Fusion	Samples/day
Fusion	34:02		22,000
EnVision Std Alpha	19:45	1,4	37,000
AlphaQuest	9:30	3,5	77,000
EnVision Alpha HTS	9:23	3,5	77,000

EnVision AlphaScreen throughput compared to other instruments.

Enter every race with confidence

Perform *all* your lab's major applications on EnVision.

The EnVision is the only multilabel plate reader on the market that can deliver optimized performance in every application, guaranteed. Additionally, PerkinElmer offers a number of exclusive assay technologies that perform extremely well on EnVision.

Because we're the largest supplier of high-performance reagents — either off-the-shelf or customized through our assay service — you can run reliable assays with peace of mind.

Meet your application needs with DELFIA and LANCE

PerkinElmer offers extremely high sensitivity DELFIA separation assays and fast, convenient LANCE homogeneous assays based on time-resolved fluorometry (TRF). Our LANCE/DELFIA optical mirror modules and filters allow you to take advantage of these workhorse technologies when you order an EnVision.

TRF capitalizes on the unique fluorescence properties of lanthanide chelates. Because their fluorescence lasts as much as 200,000 times longer than conventional fluorophores, results are measured after all nonspecific fluorescence has died down. And because the Stokes shifts are so wide, measurement takes place at clearly separated wavelengths.

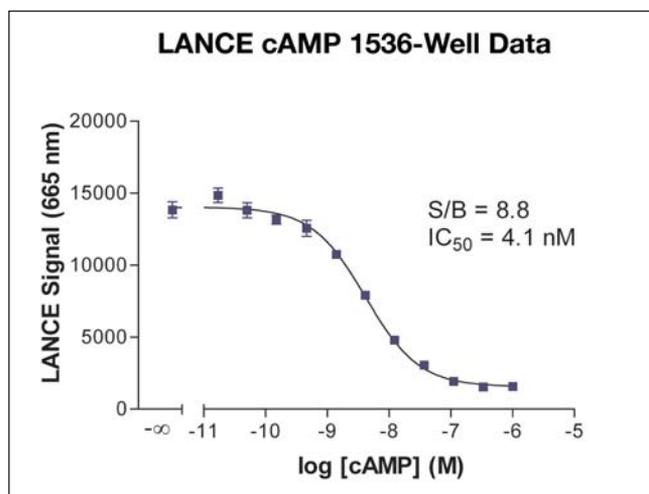
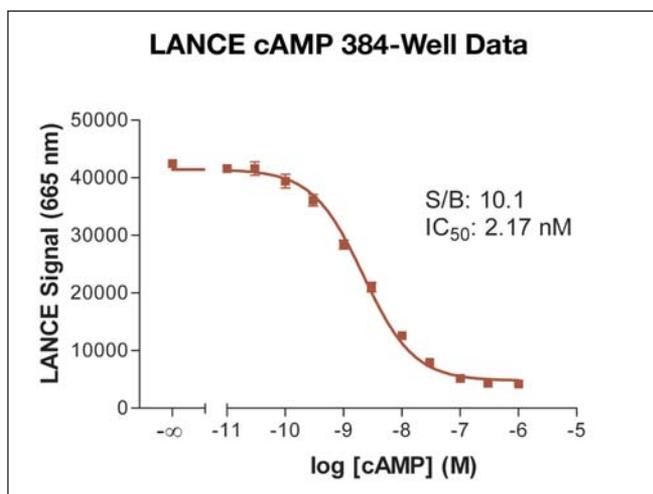
You'll get extremely low background and high signal measurements. The great specificity of each lanthanide's emission spectrum also means you can measure several different labels as part of the same TRF assay, multiplexing assays. PerkinElmer offers specific optical modules and ready protocols to optimize your results for DELFIA assays.

Please ask your PerkinElmer representative for more information about our DELFIA and LANCE systems based on TRF and visit our website at www.perkinelmer.com/DELFIA or www.perkinelmer.com/LANCE.



Perform cellular assays with ease

Below-reading, shaking, scanning, and kinetics are some of the features that make EnVision the ideal tool for cellular assays. All this is preinstalled. To further meet the growing needs of cell-based drug discovery assays, the EnVision product line now offers both temperature control and dispenser. The flexible dispenser is suitable for ion-channel, membrane potential, flash luminescence, dual reporter gene and BRET. This option enables many applications that require immediate measurement after the activation step. In Ca²⁺ assays the fluorescence signal is measured in kinetic mode during and after the



Our uHTS LANCE cAMP assay utilizes TR-FRET technology and red-shifted Alexa Fluor® dye to deliver superior S/B and Z', boosting screening productivity. Data shown above were generated on a 2102 EnVision Multilabel Reader.

dispensing step. In flash luminescence application the substrate is dispensed to the well, the plate is mixed shortly and the signal is registered.

Utilize GPCR assays with several of our popular technologies

Fast-reading EnVision is ideal for GPCR assays using our AlphaScreen, TRF or FP technologies. PerkinElmer's GPCR Superstore encompasses the world's most comprehensive product offering for GPCR research and drug discovery. For more information about our GPCR offering, visit www.perkinelmer.com/GPCR.

Accomplish genotyping assays through our fluorescent polarization detection systems

Choose EnVision's fluorescent polarization mirror module and filters and take advantage of our award-winning AcycloPrime™-FP SNP Detection Systems. For more information visit our SNPscoring.com site, the most comprehensive source of information on FP-TDI platform for SNP genotyping.

Run the gamut of reporter gene assays

EnVision has comprehensive and versatile scanning and kinetics capabilities, as well as the below-reading needed for GFP assays. Dual reporter gene assays, using, for example, luciferase and beta lactamase, can be accomplished with the appropriate optical mirror modules and filters.

Tackle enzyme assays of any kind

EnVision can perform kinetic measurements that you define for enzyme assays. Its sensitivity and wide dynamic range allow you to perform many types of assays, such as kinase, protease, helicase or caspase assays. When doing kinetic enzyme assays, the high speed of EnVision enables short repeat intervals (measurement every 10s for 384). This improves the assay precision, statistics and robustness by avoiding both quench effects and need of exact measurement timing.

Achieve the best performance in quantification assays

EnVision's wide range of filters and optical mirror modules cover the UV/Vis wavelength range, so direct measurement of DNA and protein is easy and convenient. You can achieve high performance detection of all ELISA assays and immunoassays using different labels.



Be first to the finish with EnVision

Invest just once, and the EnVision will adapt to

Whether you choose the EnVision Multilabel Reader (dual-detector) or the EnVision Xcite Multilabel Reader (single-detector), you're guaranteed to get a fast, benchtop instrument recognized as the most sensitive and versatile plate reader available. And, if you decide to move from the single emission Xcite to the dual wavelength HTS instrument, we'll perform the upgrade right in your lab.

The EnVision is an application-oriented plate reader that allows you to choose the optical mirror modules and filters for the detection technologies and applications you want to run. When you add another application or expand your needs, just add another mirror module.

Choose from two upgradeable EnVision models

The **EnVision Xcite Multilabel Reader** is an affordable single-detector model, designed to be expanded as your throughput and applications requirements increase. It can be upgraded in your lab to add dual detection, plate barcode readers, and stackers, enhanced luminescence capabilities and any other available option. The EnVision Xcite includes below emission reading, a high speed light source and adjustment of measurement height function.

The **EnVision Multilabel Reader is our state-of-the-art dual-detector model** and among the fastest HTS readers in the market. It is also easily field-upgradeable. Choose stackers to increase capacity and throughput. Or add enhanced luminescence capabilities especially designed for our Image FlashPlate® technology, a scintillant-coated microplate assay platform that emits in the red-spectral range. Whatever your needs are, this sophisticated HTS instrument will handle them.

Temperature control

The EnVision temperature control is ideal for cellular and enzyme kinetic assays, which require a defined temperature range. The temperature of the measured chamber can be regulated from +2 °C above ambient to + 45 °C with a uniformity of ± 1 °C. The heating time from room temperature to + 37 °C is less than 10 minutes!

EnVision dispenser

The EnVision dispenser unit consists of two pump units, magnetic stirrer and a heater. The innovative structure provides many great features:

- The dispenser allows precise delivery of reagents in 1 μ L increments over an adjustable volume range of 2-475 μ L.
- The dispenser can be used in 1-384 well plates with all reading modes.
- Barcode identified TipMount, a user-changeable part that holds the tips. The advanced dispenser design allows simultaneous dispensing and reading in all reading modes, an essential feature for fast kinetic assays!
- An adjustable dispense speed setting to cover the different demands of viscosities, cells etc.
- The maintenance of the injectors is supported by easily accessible prime/wash hardware buttons for user convenience.
- A pump-back function to minimize dead volume and save reagents.
- Real-time kinetics live display.

— now and in the future

your changing needs.



Key Features (Model and Option Dependent)

- **Proprietary label-specific optical mirror modules** — the EnVision holds up to four separate label-specific optical mirror modules simultaneously. Modules are barcoded and can be selected from the software interface. Change or replace modules whenever you like. Choose from a wide range of optimized label-specific sets when you order your instrument (specific barcoded optical mirror module and associated filters). Or ask us to create customized filters and optical mirror modules to suit your specialized needs.

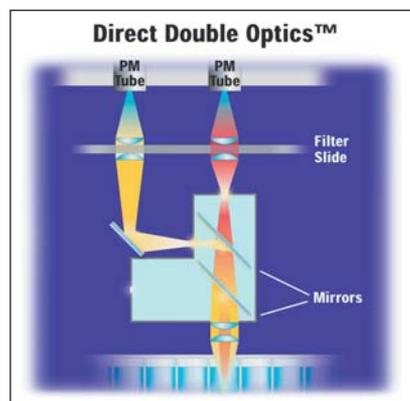


Barcoded filters and optical mirror modules.

- **Proprietary direct double optics** — EnVision includes a full lens system without light guides or fiber bundles on the top measurement, which contributes to the reader's speed and sensitivity.
- **Supports all six main non-radiometric technologies** — with the ability to perform defined kinetic measurements for enzyme assays; scanning of the well area for cellular assays and reading of small membranes, chips and slides.
- **Compact footprint** — EnVision's 580h x 700d x 420w mm footprint make it among the smallest multilabel plate readers available with stackers, so it's ideally suited for multi-user labs. It's only 550 mm deep without the 20- or 50-plate stackers.
- **Background-reducing photoluminescence detectors** — two red-sensitive temperature-stabilized photomultiplier tube detectors increase measurement speed, a great advantage in all dual emission measurements such as fluorescence polarization and LANCE assays.

For chemiluminescence and time-resolved fluorescence measurements the detectors are used in single photon counting mode. For fluorescence intensity and fluorescence polarization measurements the detectors are used in data analog mode with user-adjustable gain, against maximized performance.

- **Large wavelength regions** — from 240 nm to 850 nm enable the EnVision to support DNA and protein qualification assays.
- **High power excitation lamp** — speeds up TRF and FP measurements for extremely high performance.
- **Offers a variety of count modes** — includes ratio measurements, dual ratio measurements, dual emission TRF measurements, top or bottom reading, measurement height adjustment, focus point adjustment, and multiple window time-resolved fluorescence (with the TRF module).
- **Easily integrates** — automation allows ready integration with laboratory automation systems such as robotic plate-loaders.
- **Fast measurement of all plate formats** — reads up to 1536-well microplates. It measures 1536-well formats in less than one minute (1 flash/well).
- **Windows® XP software** — supports easy connectivity and database storage of all results and protocols.
- **Intuitive software and help tools** — easy to learn and use.



Optical design showing the label-specific mirror module.

Our intuitive software keeps pace

Easy selection, creation, optimization and assay start.

We know that everything you do is about getting to the results so we've built a wealth of strong features into our robust EnVision software. Running under Windows XP, it clearly provides all of the information you need right on screen. For reliability and convenience, protocols and results are automatically stored in a database.

Preset protocols and the flexibility to customize

Our preset protocols cover labels, plates and filters, and the software's Protocol Explorer enables quick protocol access and editing. There's even a Protocol Wizard to make starting a new assay quick and easy.

Additionally, the flexible software provides limitless opportunities to create your own application-specific protocols. It even provides interactive guidance when you're creating your own protocols or optimizing your labels.

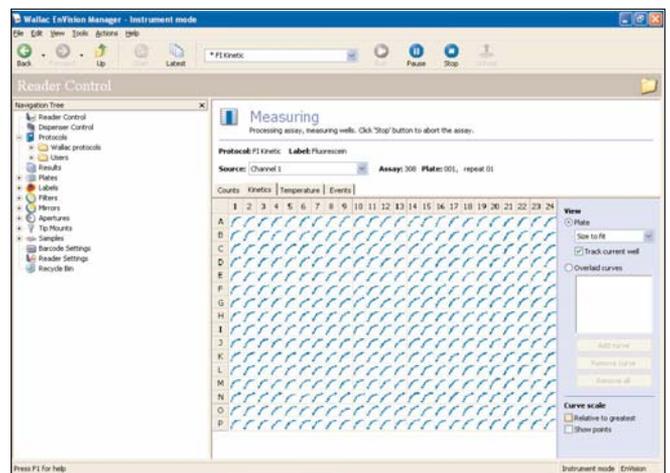
Our EnVision software also supports basic calculations like blank correction, +/- and ratio calculations. Everything has been thought through to make processing your data fast, accurate and convenient.

Barcodes on EnVision's filters and optical mirror modules enable the software to recognize the actual setup of your instrument and avoid unnecessary errors in operation.

Key Features

- **Easy-to-learn user interface** uses the well-known layout of Microsoft Windows software.
- **Pre-set user specific measurement protocols** provide true support in a multi-user environment.

- **Real-time guidance tools** assist in creating measurement protocols and settings.
- **Real-time guidance** helps select optimal optics for each label.
- **Auto-save and undo functions** enable smooth keyboard operation.



Software supports very complex measurement (such as real-time kinetics) and operation sequences as well as simple and easy protocols.

e with EnVision's sophisticated capabilities

- **Powerful tools to design even complex plate measurement sequences and operations.**
- **Real time-kinetics display.**
- **High flexibility plate barcode features** (i.e. splitting the barcode to identify both protocol and plate).
- **Data output to files, network and printer** with flexible export format (i.e. individually selectable fields).
- **Automatic data export and run termination at end of assay** (i.e. when plate-stacker is empty).
- **Optional functionality for 21 CFR Part 11 compliance.**

Count on the modular EnVision—for smooth sailing now and in the future

EnVision is designed to be customizable so that it contains only the features beneficial for you. No need to invest in features you do not need, the modular design allows you to upgrade later as your needs change. You'll get superior sensitivity and unbeatable speed in a benchtop reader that's truly the flagship of its class. Please consult with your sales representative to build the EnVision right for you. To contact your local sales representative or receive help placing an order, call 1-800-762-4000. To find your local sales office, visit www.perkinelmer.com/lasoffices.

Please visit our website at www.perkinelmer.com/plate_readers to view our free **interactive EnVision tutorial** and to find application and reference information.

Dedicated Worldwide Support Network

People and Applications Supporting Performance Excellence

PerkinElmer is recognized worldwide for advanced instrumentation systems and outstanding customer support. We continue to be your partner in life science research providing instruments for scintillation, gamma, and microplate counting; quantitative imaging; and liquid handling. We are committed to providing the best instrument application support, field service, and telephone support. We are proud of our tradition of working with laboratories to accelerate the pace of life science research.

People putting technology to work for you—all over the world

With over 12,000 instrument installations worldwide, we provide researchers with a total solution of high quality instrumentation and application expertise. We have more than 300 highly trained service engineers in more than 60 countries. This makes PerkinElmer the largest, most well trained plate reader and liquid scintillation analyzer instrument service organization in the world.

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