



Infinite[®] 200 PRO multimode microplate readers

Immediate access to all wavelengths in an affordable, scalable detection family – with the patented NanoQuant Plate™ and Gas Control Module (GCM™)



A photograph of the Infinite M200 PRO plate reader. The device is a sleek, modern instrument with a dark grey or black finish. A 96-well plate is loaded with a yellowish-orange liquid and is being processed by the machine. The brand name 'infinite' is printed in a stylized font, with 'M200 PRO' in a smaller, sans-serif font next to it. The lighting is dramatic, highlighting the metallic surfaces and the contents of the plate.

infinite M200 PRO

Detection solutions that grow with your ideas

Building on the success of the Infinite 200 series, Tecan has developed the Infinite 200 PRO, with enhancements that cater to the needs of today's scientists. The Infinite 200 PRO offers flexible, scalable detection solutions for a wide range of assays, using monochromator- and filter-based technologies.

Access to a full range of leading detection methods

Infinite 200 PRO can provide a full range of leading detection methods in one easy-to-use modular instrument. Users can select from modules listed in the table below to create a perfect reader for their needs.

Infinite M200 PRO – Monochromator

The Quad4 Monochromators™ of the Infinite M200 PRO provides exceptional sensitivity, and allows the user to select any wavelength from UV to NIR, and to perform absorbance, excitation and emission scans. Users can access all wavelengths, and change from top to bottom reading, for easy measurement of multiplexed assays at the touch of a mouse click – no manual hardware changes are required.

- Fluorescence intensity top reading including TRF, with automated z-adjustment and background correction
- Enhanced fluorescence intensity bottom reading with OR (Optimal Read) function, including TRF
- Spectrally enhanced photomultiplier tube
- Absorbance
- Photon counting luminescence, including dual color luminescence
- Cuvette port for absorbance
- Temperature control
- Injectors
- NanoQuant Plate
- Gas control module (GCM)

Infinite F200 PRO – Filter

The Infinite F200 PRO uses a patented intelligent filter slide system with an integrated flash counter to monitor the number of flashes the filter is exposed to. And its fluorescence polarization module as well as its AlphaScreen/AlphaLISA module are perfectly suited for binding studies in homogenous mix and read assays. A dichroic filter allows TR-FRET applications, and the filter modules offer a cost-efficient solution for routine applications at fixed wavelengths.

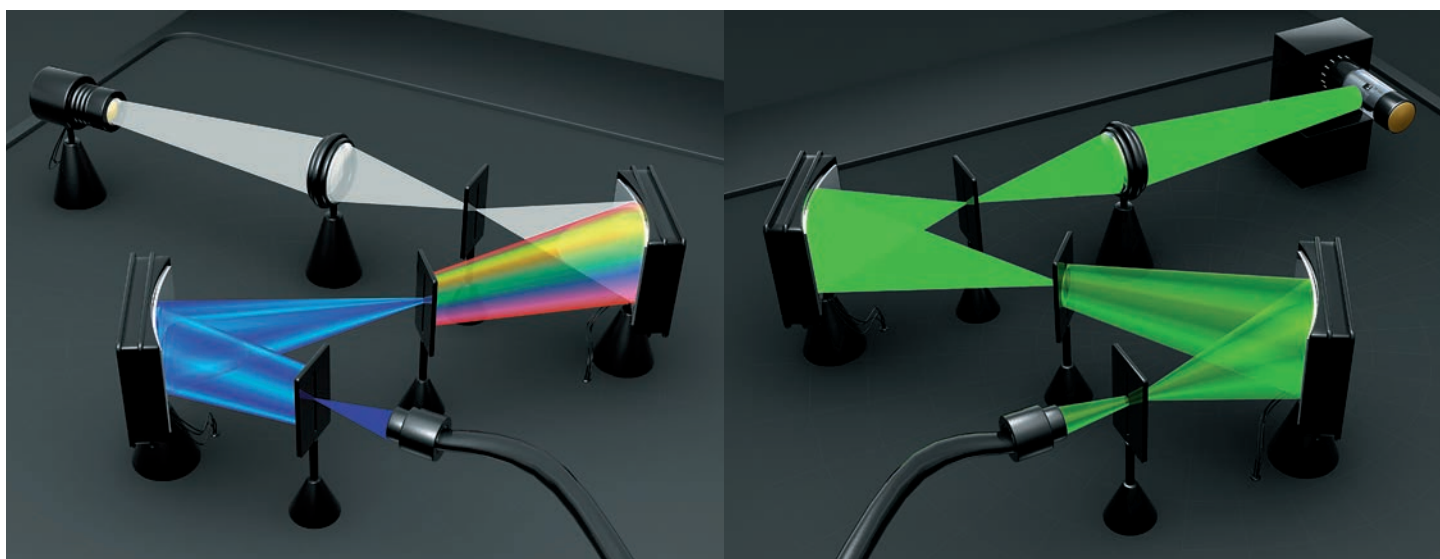
- Fluorescence intensity top reading including TRF
- Enhanced fluorescence intensity bottom reading with OR (Optimal Read) function, including TRF
- TR-FRET/HTRF®
- AlphaScreen® and AlphaLISA®
- Spectrally enhanced photomultiplier tube
- Absorbance
- Photon counting luminescence, including dual color luminescence
- Fluorescence polarization
- Temperature control
- Injectors
- NanoQuant Plate
- Gas control module (GCM)

Select your application, customize your detection device and perform your measurements quickly and easily

Broadly applicable modular detection solutions to widen application capabilities

Detection is at the heart of biopharmaceutical and diagnostic assay measurements. In today's rapidly changing application environment the Infinite 200 PRO's modular, cost-effective design permits fast wavelength selection.

The Infinite 200 PRO has been developed to deliver accuracy and performance in a format that allows you to build a versatile detection system to match your changing application needs. With the Quad4 Monochromators-based Infinite M200 PRO and filter-based Infinite F200 PRO detection options, the reader offers up to eight detection modes for sample measurements in 6- to 384-well plates, PCR plates or cuvettes. Three sets of advanced optics and three high performance detectors – optimized for the requirements of fluorescence, luminescence and absorbance reading – allow uncompromised performance in all detection modes.



The Quad4 Monochromators technology makes use of a double monochromator on both the excitation and emission side. The picture above outlines the double monochromator system architecture on the excitation (left picture) and the emission (right picture).

The Infinite 200 PRO offers unlimited flexibility for a wide range of biological assays and measurements including:

- DNA/RNA quantification
- Protein quantification
- Ion channel studies
- Ion flux studies
- Calcium ion detection
- Reporter gene and gene expression assays
- Cell viability and toxicity assays
- Cell-based assays
- Binding studies
- Enzyme assays
- ELISA
- Immunoassays
- Fluorescence and luminescence applications
- TR-FRET/HTRF applications
- AlphaScreen and AlphaLISA assays



Tecan's filter slide with patented system for monitoring the number of flashes.

Various modules are available with the Infinite M200 PRO and Infinite F200 PRO extended wavelength range and enhanced sensitivity

A spectrally enhanced photomultiplier tube extends emission wavelength range from 330 – 600 nm to 280 – 850 nm, allowing the use of red-shifted dyes and minimizing interference caused by autofluorescence. A UV Si photodiode absorbance detector provides excellent sensitivity for the wavelength range of 230 – 1,000 nm, even at low concentrations.

Superior performance in absorbance for low sample volumes

The instrument's improved wavelength accuracy for 260/280 nm absorbance measurements allows high sensitivity determination of DNA or RNA concentration. Up to 16 samples with volumes as low as 2 µl can be measured simultaneously with Tecan's patented (EP2045015) NanoQuant Plate. This highly precise measurement tool uses a separate quartz optic for each sample, and requires no additional plate calibration.



Gas Control Module

The patented Gas Control Module (GCM; EP2428792) for the Infinite 200 PRO offers a comprehensive solution for a variety of cell-based applications in this versatile multimode reader. Two independent gas inlets allow the automated control of CO₂ and O₂ concentration inside the reader chamber and help to maintain stable culture conditions during prolonged experiments and allow assays to be performed under anaerobic or physiological conditions. Maintaining the optimal CO₂ concentration within the measurement chamber helps stabilize pH and medium conditions, while the independent control of O₂ concentration (oxygen reduction is achieved using N₂) provides hypoxic or simulated in vitro growth conditions. Combining this with precise temperature control and efficient shaking, the Infinite 200 PRO makes cell-based assays more biologically relevant. In addition, the elimination of data gaps (e.g. overnight or on weekends) minimizes the number of repeated assays and leads to more consistent and reliable data than can be achieved manually.

The GCM's acoustic and visible warning system offers excellent measurement reliability. This system is able to detect if the gas pressure or flow changes dramatically during an experiment or quickly recognize if the target concentration deviates or will not be reached.

Altitude influences the atmospheric partial pressure of CO₂, affecting the measured value. The GCM's unique altitude correction function compensates for this, ensuring precise, stable measurement and regulation of gas concentration inside the reader chamber.

Tecan's impressive GCM allows the optimization of the gas mixture within the reader, providing the perfect solution for experiments with mammalian cells, hypoxia assays, cell viability studies, invasion assays, ischemia or reperfusion studies and many more.



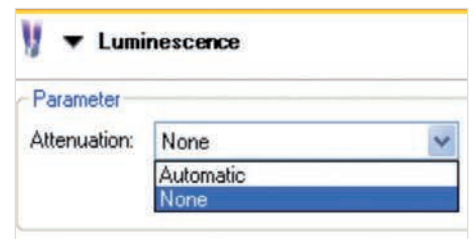


Comprehensive format flexibility

The Infinite M200 PRO offers outstanding format flexibility, and can perform both fixed wavelength and scanning spectrophotometric measurements, using standard 1 × 1 cm cuvettes or low volume microcuvettes in an upright position. In addition, it is compatible with all standard microplate formats, from 6- to 384-wells, including low volume plates and Tecan's unique NanoQuant Plate.

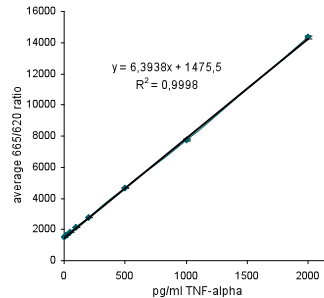
Ready to go luminescence

The luminescence module is capable of reading dual-color luminescence assays, with a photon counting detector that can record even the lowest light levels from an assay, and an integrated set of luminescence filters enable BRET1 and BRET2 applications. The dynamic range for luminescence measurements has also been improved, helping the analysis of sets of samples with wide variation, without the need to adjust sample concentrations.

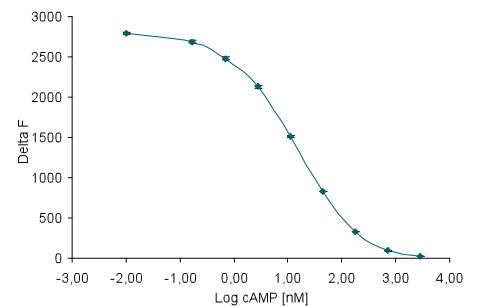


Access to advanced assay systems

A dichroic mirror allows TR-FRET (HTRF) assays on the Infinite F200 PRO, and enhances detection limits for TRF Top Europium and FI Top Fluorescein measurements. This sophisticated system makes the Infinite F200 PRO an attractive and cost effective option for these demanding applications.



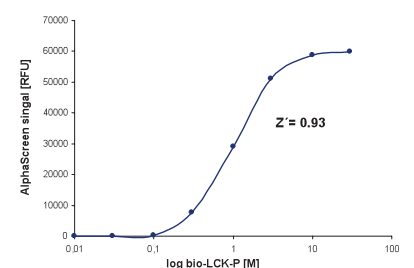
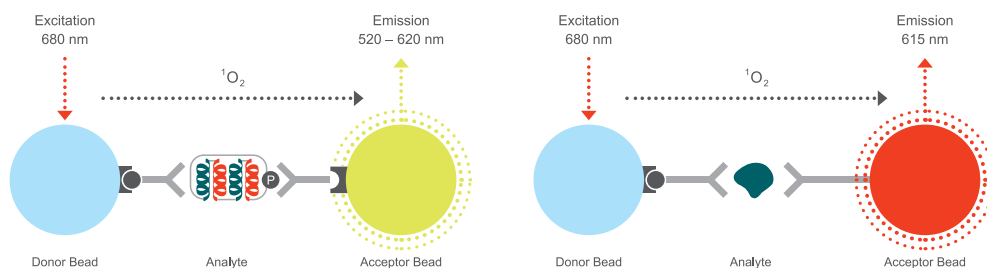
Human TNF-alpha kit: The measurement of a dilution series of the TNF-alpha standard shows a linear course ($R^2 = 0.9998$) from 2000 to 20 pg/ml TNF-alpha.

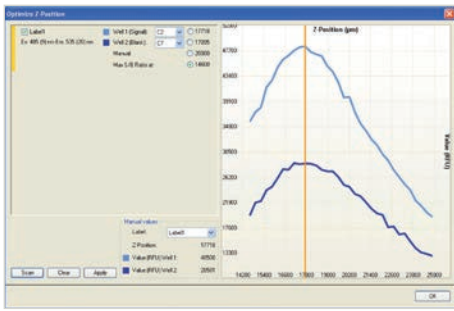


cAMP HiRange kit: The Delta F values obtained with the cAMP dilution series are inversely proportional to the cAMP concentration, resulting in the sigmoidal shape of the curve that is typical for competitive assays.

AlphaScreen and AlphaLISA for high sensitivity detection

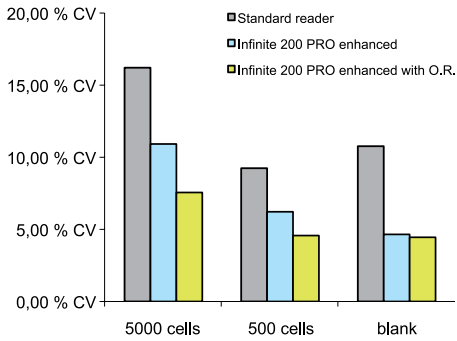
AlphaScreen and AlphaLISA are homogeneous assay formats used for the measurement of biological interactions, both based on PerkinElmer's innovative bead technology. With the Infinite F200 PRO, Tecan offers an affordable alternative to cost-intensive laser-based AlphaScreen and AlphaLISA detection systems. Based on its highly acclaimed fluorescence top optics, the AlphaScreen and AlphaLISA option for Infinite F200 PRO delivers highly sensitive and robust assay results with measurement times perfectly suited for low- to medium-throughput applications.





Automated, adjustable z-focus

Implementing assay miniaturization on the Infinite M200 PRO is helped by the automated, adjustable z-focus for FI Top measurements. Equally high sensitivity can be achieved for all plate formats, allowing the same high performance in low volume plates. This new feature, complete with background correction, is particularly suited to cell-based applications using autofluorescent growth media, providing automatic optimization of the signal-to-background ratio.



Cell-based applications

The Infinite 200 PRO benefits from enhanced FI Bottom reading. Its special Optimal Read (OR) function has been designed specifically to optimize and improve cell-based measurements. Very low CVs, high intra- and inter-well reproducibility can be achieved when measuring adherent cells in microplates, offering increased sensitivity. The Infinite 200 PRO provides linear and orbital shaking – with adjustable amplitude in conjunction with frequency and duration – making it perfect for enzyme, bacterial and cell-based assays. The Infinite 200 PRO also allows temperature control for cellular and biochemical assays that require specific reaction temperatures, with top heating to avoid condensation in lidded plates, ensuring the best performance for covered MTP applications.



Optimized injector module

The injector module allows dispensing of up to two reagents per well, helping to replace a manual pipetting step or to trigger fast kinetic reactions in fluorescence, luminescence and absorbance modes. Its metal-free needles are ideal for ion studies, by preventing interference of metal ions in reactions. The injectors have variable volume and speed settings, and can be used together with the ratio mode to allow fast switching of wavelengths in a wide range of applications. The injector module has also been optimized for less wastage of substrates and buffers, with lower dead volumes for priming and the ability to tilt vessels, and its bulk reagent dispense function eliminates tedious pipetting steps for 6- to 384-well plates. Maintenance of the injectors is supported by easily accessible prime/wash buttons.



MultiCheck™ – QC package for Infinite 200 PRO series

The Infinite 200 PRO has been designed to support users who need to meet GLP (Good Laboratory Practice) standards. A MultiCheck QC plate, which includes installation and operational (IQ OQ) checks and documentation, helps to ensure that all Infinite 200 PRO devices meet the standards needed for quality control laboratories, and satisfies the need to assure production standards in pharma and biotech settings.

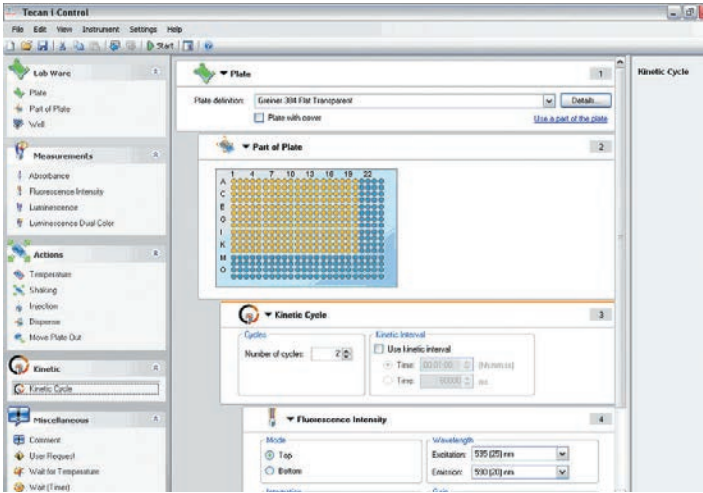


Built-in performance features

The Plate In/Out button is another useful feature that has been introduced, in response to popular demand.



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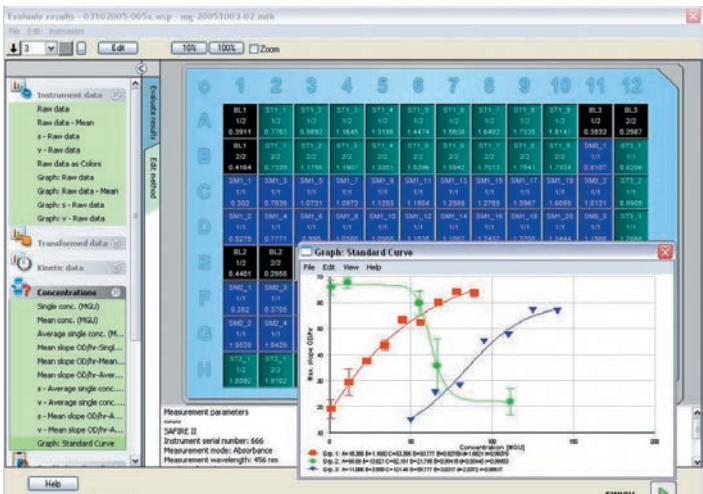
Workflow oriented i-control software supports complex assay protocols.

Software designed for your workflow

Infinite 200 PRO users have complete access to intuitive software solutions that match their detection needs. The Infinite 200 PRO comes complete with i-control™ software interface that allows the user to define the workflow for each application.

Each workflow can be easily created by dragging and dropping the processing steps into the assay protocol sequence. The application workflow is then visible to the user, and can be saved for future use. Data sets are easily managed and exported to Windows® compatible formats like Excel®.

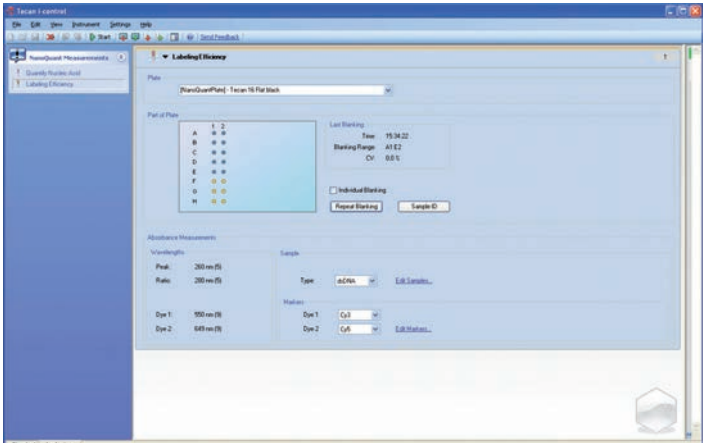
The i-control software includes an application-oriented tab for rapid DNA/RNA quantification in the NanoQuant Plate, and identifies dye incorporation by measuring nucleic acid labeling efficiency. For more advanced data processing, Tecan's proven Magellan™ software provides features that perfectly match the flexibility of the Infinite 200 PRO. Magellan Tracker is designed to meet 21 CFR Part 11 requirements for electronic records and signatures, in compliance with FDA regulations.



Magellan software allows easy presentation and evaluation of data from multiple experimental groups on a microplate.

Highlights of Magellan software in combination with the Infinite 200 PRO include:

- Application-oriented workflow definition via drag-and-drop functionality
- Wizard-guided application definition for intuitive operation, available in different languages
- Easy conversion of data into results by Excel-style definition of transformations
- Advanced spectra calculation package – the perfect partner for your Infinite M200 PRO reader
- Convenient handling of dilution series and ICx calculations
- Kinetic data analysis with calculation of slopes, onsets and enzyme kinetics
- Pre-defined example files for a range of applications to help you get started immediately
- Comprehensive plate library for fast selection of your favorite microplate



i-control application for nucleic acid quantification and measuring labeling efficiency.

Infinite M200 PRO and F200 PRO – Typical performance values*

Light source	UV Xenon flashlamp	
Wavelength selection	Quad4 Monochromators system (2 excitation and 2 emission monochromators)	
Infinite M200 PRO	Ex: < 5 nm for $\lambda \leq 315$ nm and < 9 nm for $\lambda > 315$ nm; Em: < 20 nm	
Bandwidth		
Wavelength accuracy	< $\pm 0,5$ nm for $\lambda > 315$ nm; < $\pm 0,3$ nm for $\lambda \leq 315$ nm	Fluorescence < ± 2 nm for $\lambda > 315$ nm; < ± 1 nm for $\lambda \leq 315$ nm
Wavelength reproducibility	< $\pm 0,5$ nm for $\lambda > 315$ nm; < $\pm 0,3$ nm for $\lambda \leq 315$ nm	< ± 1 nm for $\lambda > 315$ nm; < $\pm 0,5$ nm for $\lambda \leq 315$ nm
Infinite F200 PRO	Up to 4 filter pairs per slide	
Wavelength range	Standard	Optional
Fluorescence intensity	Ex 230 – 600 nm, Em 330 – 600 nm	Ex 230 – 850 nm, Em 280 – 850 nm
Fluorescence polarization	Ex 300 – 600 nm; Em 330 – 600 nm	Em 330 – 850 nm
Absorbance	230 – 1000 nm	
Detectors	Fluorescence – PMT, optional UV and red-sensitive Absorbance – UV silicon photodiode Luminescence – photon counting system with low dark current PMT	
Plate formats	6- to 384-well plates, cuvettes, NanoQuant Plate	
Temperature control	Ambient +5 °C up to 42 °C	
Shaking	Linear, orbital	
Fluorescence sensitivity ¹⁾ values	Infinite F200 PRO	Infinite M200 PRO
Fluorescence top reading ¹⁾	85 amol / well (0,85 pM; 384-well plate)	170 amol / well (1,7 pM; 384-well plate)
Fluorescence bottom reading ¹⁾	0,7 fmol / well (3,5 pM; 96-well plate)	1,2 fmol / well (6 pM; 96-well plate)
TRF ²⁾	2,8 amol / well (28 fM; 384-well plate)	90 amol / well (0,9 pM; 384-well plate)
FP ¹⁾	< 4 mP standard deviation @ 1 nM Fluorescein N / A	
Luminescence sensitivity values	Standard	
Glow luminescence ³⁾	225 amol ATP / well (9 pM; low volume 384-well plate)	
Flash luminescence ⁴⁾	12 amol ATP / well (218 fM; 384-well plate)	
Absorbance		
Ratio accuracy 260 / 280 nm	$\pm 0,07$	
Precision @ 260 nm	< 0,2 %	
Accuracy @ 260 nm	< 0,5 %	
Measurement range	0 – 4 OD	
AlphaScreen		
Detection Limit	≤ 50 ng/ml Omnibeads ⁵⁾	
Uniformity	≤ 5 % CV ⁵⁾	
Z' value	$\geq 0,8$ ⁶⁾	
Typical reading time	< 11 min (384-well plate)	
Injectors		
Pump speed	100 – 300 μ l/s	
Injection volume	selectable in 1 μ l increments; max. volume: 800 μ l per stroke	
Dead volume	100 μ l including pump back	
Fastest Read Times		
96 well plate	20 sec	
384 well plate	30 sec	
Wavelength Ex / Em-scan, 96 well plate		
450 – 550 nm, 5 nm step	150 sec	

¹⁾ Detection limit for Fluorescein, ²⁾ Detection limit for Europium, ³⁾ Detection limit for ATP (144-041 ATP detection kit SL (BioThema), ⁴⁾ Detection for ATP (ENLITE® Kit)

⁵⁾ (PE # 6760626); (384-well small volume plates), ⁶⁾ (P-Tyr-100 Assay Kit, PE # 6760620); (384-well small volume plates)

* Specifications are subject to change. Performance values represent the average observed factory tested values. For product specifications refer to operators manual.

Australia +61 3 9647 4100 **Austria** +43 62 46 89 33 **Belgium** +32 15 42 13 19 **China** +86 21 220 63 206 **Denmark** +45 70 23 44 50 **France** +33 4 72 76 04 80
Germany +49 79 51 94 170 **Italy** +39 02 92 44 790 **Japan** +81 44 556 73 11 **Netherlands** +31 18 34 48 17 4 **Singapore** +65 644 41 886 **Spain** +34 935 95 25 31
Sweden +46 8 750 39 40 **Switzerland** +41 44 922 89 22 **UK** +44 118 9300 300 **USA** +1 919 361 5200 **Other countries** +43 62 46 89 33

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