Infinite® 200 PRO.

MICROPLATE READERS
DELIVERING PERFORMANCE AND VALUE TO EVERY LAB.

The proven easy-to-use detection platform that grows with your needs.

The new Infinite readers offer affordable high performance detection solutions, powered by monochromator- and filter based technologies.

Access to a full range of leading detection methods with six application-tailored configurations

Based on the acclaimed and proven Infinite 200 PRO reader, these new six upgradeable Infinite configurations provide a full range of leading detection methods in one easy-to-use modular instrument. Users can select from 6 configurations and options listed in the table below to create a perfect reader for their needs and budget.

Upgrade path from single to multi-mode detection modalities

Because ongoing research may require additional instrument capabilities in the future, single- or dual-mode configurations can be upgraded to a full blown monochromator and filter-based multimode reader, respectively. This full range of leading detection technologies is dedicated to deliver high quality results - every assay, every day.

Infinite	Detection modality	Main application
Infinite M Nano	Absorbance monochromator	Upgradeable absorbance plate reader delivering sensitive results for ELISAs and nucleic acid or protein quantification assays. Automated pathlength correction and low volume NanoQuant plate deliver high precision results every day, independent from sample volumes.
Infinite Lumi	Luminometer	Plate reader with dedicated optics designed to deliver exceptional results for glow, flash and dual-color luminescence applications.
Infinite M Nano+	Monochromator for absorbance and fluorescence intensity top/bottom	Dual-mode plate reader with monochromator-based optics for absorbance and sensitive fluorescence applications. Your adjustable tool, even for low concentration nucleic acid and protein quantification.
Infinite M Plex	Monochromator for absorbance and fluorescence intensity top/bottom; luminescence	Fully loaded multimode plate reader with monochromator-based optics, offering free wavelength choice and scanning capabilities. Your ready-to-go workhorse for all standard absorbance-, fluorescence- and luminescence assays.
Infinite F Nano+	Filter based absorbance; fluorescence intensity top/bottom	Dual-mode plate reader with filter-based optics for absorbance and fluorescence applications. Your cost-effective tool for highest demands in sensitivity.
Infinite F Plex	Filter based absorbance, fluorescence intensity top/bottom; fluorescence polarization; luminescence	Fully loaded multimode plate reader with filter-based optics – offering highest sensitivity within the Infinite 200 PRO family, combined with the broadest range of read modes. Your ideal system for low to medium throughput drug discovery, including HTRF® and Fluorescence Polarization.

Monochromator Infinite M-Series

M Nano
Delivering DNA/RNA/protein quantification and ELISA

M Nano+
Delivering dual-mode detection optimized for multi-users

M Plex
Multi-purpose reader for cytotoxicity and cell bioactivity

Lumi
Delivering luminescence with detection optimization

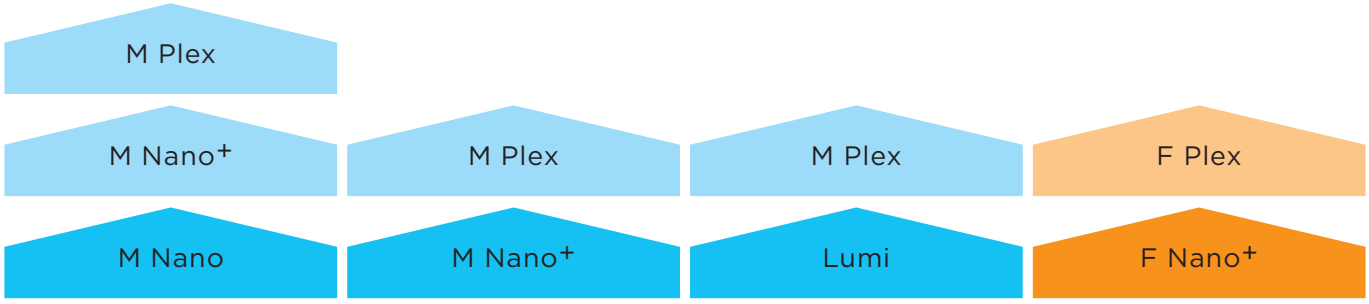
Filter Infinite F-Series

F Nano+
Dual-mode reader that delivers high sensitivity and performance

F Plex
Flexible multi-mode reader that delivers high sensitivity and performance

The Infinite configurations have 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.

Infinite Upgradeability to grow with your application needs



DLReady™ · LanthaScreen® Certified invitrogen · htrf · TRANSCREENER® Red TR-FRET validated · TRANSCREENER® Red FI validated · MycoAlert™ Ready Device Lonza · quad4 monochromators™ · 2µl NanoQuant Plate™ compatible

Delivering Performance.

The readers offer up to six detection modes for sample measurements in 6- to 384-well plates, PCR plates or cuvettes, based on the Quad4 Monochromators Infinite M and filter-based Infinite F configurations. 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.

Comparison of single-mode and multimode readers

	MONOCHROMATOR (M) CONFIGURATIONS				FILTER (F) CONFIGURATIONS	
Capabilities	M Nano single-mode	Lumi single-mode	M Nano⁺ dual-mode	M Plex multi-mode	F Nano⁺ dual-mode	F Plex multi-mode
Absorbance - monochromator	●		●	●		
Absorbance - filter					●	●
Fluorescence - monochromator			●	●		
Fluorescence - filter					●	●
Fluorescence - top reading			●	●	●	●
Fluorescence - bottom reading			●	●	●	●
Fluorescence-polarisation - filter						●
Luminescence		●		●		●

Options

- 1 or 2 injectors
- Cuvette port (for monochromator versions only)
- NanoQuant Plate™

Infinite reader capabilities

- Absorbance
- Absorbance spectra
- Fluorescence (top & bottom)
- Fluorescence spectra (top & bottom)
- Time resolved fluorescence (TRF)
- FRET
- TR-FRET
- Fluorescence Polarization (FP)
- Luminescence – glow, flash, dual-color
- Absorbance cuvette port
- NanoQuant plate
- Temperature control (RT+5 °C – 42 °C)
- Plate shaking linear, orbital
- Te-inject™ - reagent injectors
- QC tools for IQOQ services
- Connect™ microplate stacker
- ELISA
- Low-volume DNA/RNA quantification
- Nucleic acid labeling efficiency
- Protein quantification
- ATP quantification
- Ca^{2+} detection
- HTRF®, DELFIA®, LanthaScreen®
- Transcreener®
- Polarscreen®
- GeneBlazer®
- DLR®
- BRET – including NanoBRET™

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

Absorbance

The absorbance monochromator wavelength accuracy for 260/280 nm 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 NanoQuant Plate. This highly precise measurement tool uses a separate quartz optic for each sample, and requires no additional pathlength calibration.

The NanoQuant Plate is the only low volume plate on the market for sensitive, reliable and easy DNA/RNA quantification that is 100 % calibration free.

Superior performance in absorbance for low sample volumes

- DNA/RNA quantification during sample preparation for PCR-based assays in research, genetics, forensics and blood banking laboratories.
- Measuring the labeling efficiency of dye-labelled samples, such as for FISH- and microarray-based experiments.

Key applications:

- DNA quantification
- RNA quantification
- 260/280 purity checks
- Labeling efficiency
- ELISAs
- Protein quantification (e.g. BCA, Bradford, Lowry)
- 600 nm growth curves (bacteria, yeast)
- Enzyme kinetics
- Compound characterization

Pathlength correction and cuvette port

Software integrated pathlength correction for microplates and a dedicated cuvette port guarantee for maximum performance in all situations.

For absorbance measurements in microplates, where a major issue is varying pathlengths from well-to-well, an easily adjustable pathlength correction in i-control gives you full control over your sample for comparable readouts every time.

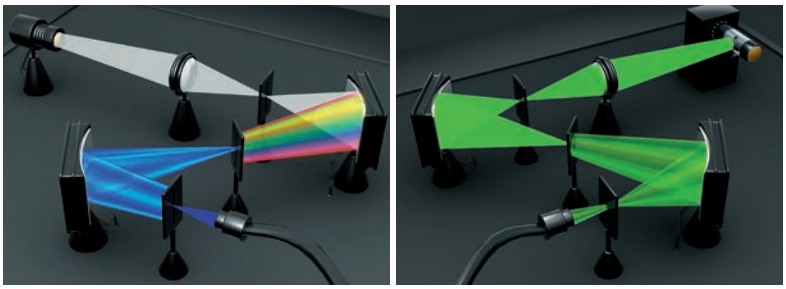
Fluorescence

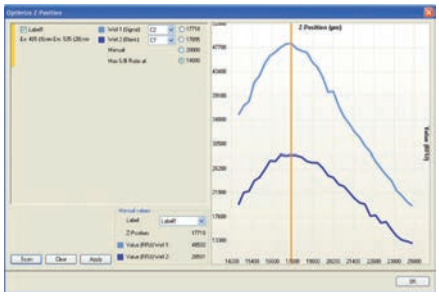
Choose between the ultimate flexibility of monochromators and unparalleled sensitivity of filter optics.

Fluorescence signal detection in microplates is at the heart of life science research. The Infinite fluorescence option is available with filter- or monochromator-based optics, enabling fluorescence top and bottom measurements in microplates. Whereas filter optics provide access to advanced detection technologies such as TR-FRET and FP, the monochromator-based optics enable for free wavelength choice between 280 and 850 nm and spectral recording of fluorescent dyes.

MONOCHROMATOR-BASED FLUORESCENCE OPTICS

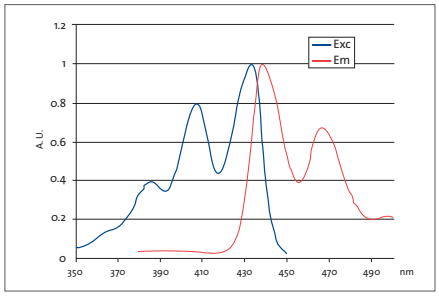
The Quad-4 monochromators™ system of the Infinite M readers offer free choice of any wavelength at any time for using practically every fluorescence assay and enables the characterization of fluorescence properties by spectral scanning. Like the filter optics, the monochromator optics are available with a fluorescence bottom fiber, that transfers this ultimate flexibility to cell-based assays.


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) and the emission (right picture).



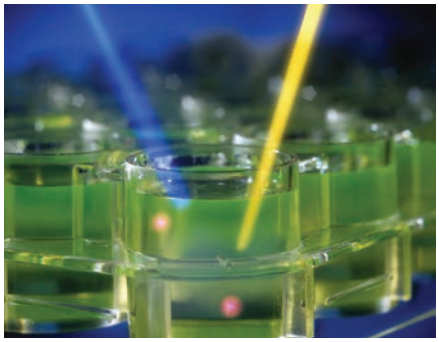
Automated z-focusing

Implementing assay miniaturization on the Infinite M readers is accomplished by automated, adjustable z-focus for fluorescence top measurements. Equally high sensitivity can be achieved for all plate formats, allowing the same high performance also in 384-well low volume plates. This feature, complete with integrated background correction, provides automatic optimization of the signal-to-noise ratio for every assays.



Fluorescence scanning

Quad4 monochromators technology enables highly sensitive spectral recording of fluorescence signals. Excitation and emissions scans can be easily set up in i-control software, allowing assay optimization at any time and ensuring the best possible signal acquisition for all fluorescence assays.



Key applications:

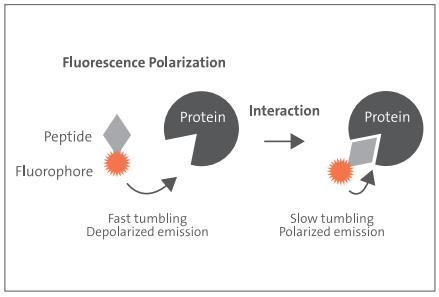
- DNA/RNA quantification (e.g. Picogreen®, Ribogreen®)
- Protein quantification (e.g. NanoOrange®)
- ELISAs
- ORAC
- Dye and compound characterization (excitation- and emission scans)
- Cell viability assays (e.g. Resazurin)
- FRET

FILTER-BASED FLUORESCENCE OPTICS

Infinite F readers are equipped with fiber-free filter optics and dichroic mirrors for screening applications such as Fluorescence Polarization and TR-FRET (i.e., HTRF®). Standard applications such as fluorescence-based DNA/RNA quantification assays are not only supported in microplates but also in Tecan's low volume NanoQuant plate. For cell-based assays, a dedicated fluorescence bottom fiber is implemented in the system.

Dichroic mirror

The filter optics for fluorescence top measurements in the Infinite F readers include a 510 nm dichroic mirror, which dramatically improves the performance for fluorescent dyes that are excited below and emit light above 510 nm. This technical finesse allows the reader to be certified for HTRF, a very popular screening technology.



Key applications

- DNA/RNA quantification (e.g. Picogreen®, Ribogreen®)
- Protein quantification (e.g. NanoOrange®)
- ELISAs
- ORAC
- Fluorescence Polarization (e.g. PolarScreen®)
- TRF (e.g. DELFIA®)
- FRET (e.g. GeneBLAzer®)
- TR-FRET (e.g. HTRF®, LanthaScreen®, Transcreener®)
- Cell viability assays (e.g. Resazurin)

Luminescence Empowered.

Optimized for glow-, flash- and multicolor-applications performed in 384-well plates.

Infinite readers with luminescence option show great sensitivity and a large dynamic signal range and in glow-, flash- and dual color luminescence measurements. A luminescence light fiber optimized for 384-well plates and 384-well injection capabilities for both injector channels results in no performance loss when moving to high density plate formats. This saves expensive reagents while increasing the sample number per assays and the overall throughput in every lab and for every luminescence-based application.

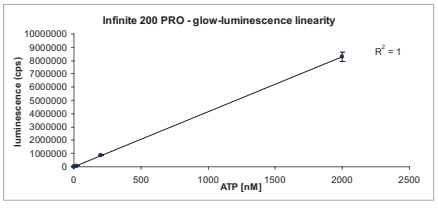
GLOW LUMINESCENCE

High dynamic signal range and dedicated detectors

The Infinite readers can be equipped with a sophisticated luminescence module optimized for 384-well plates. An optical density filter attenuates strong signals and avoids ‘over’ readings. This, in combination with a dedicated photomultiplier tube (PMT) operated in single photon counting, eliminates the conflict between sensitivity and dynamic range commonly associated with instruments that use a single PMT for fluorescence and luminescence measurements. This unique optical combination gives you superior sensitivity – effectively reducing the need for time-consuming dilutions – rivaling a standalone luminometer.

Luminescence optics

For most typical glow luminescence assays such as ATP quantification assays, chemiluminescent ELISAs, reporter assays, etc. it is beneficial to miniaturize the assays and to move to plate formats with low volumes, as the signal strength is not directly related to the sample. The Infinite readers therefore use a luminescence fiber optimized for 384-well plates guaranteeing minimum signal crosstalk between wells.

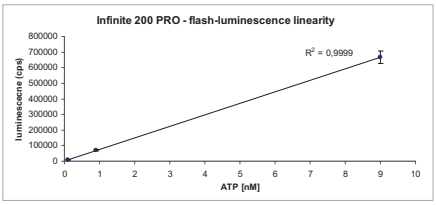


Glow luminescence linearity of the Infinite 200 PRO using optimized conditions.

FLASH LUMINESCENCE

High throughput ATP quantification and luminescence reporter assays

The Te-inject™ is the optional injector module of the Infinite readers. It is designed in a way that it can inject in up to 384-well plates with both injector channels to enable ATP quantification and cell reporter assays.



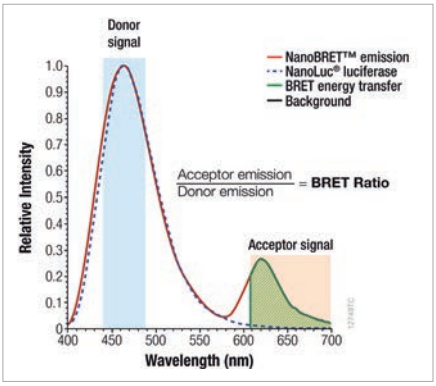
Flash luminescence linearity of the Infinite 200 PRO using optimized conditions for ATP detection.

Highly sensitive ATP quantification

The optical concept of the luminescence module in combination with the injector module allows for very low detection limits of ATP in a 384-well plate, measured with the ENLITEN® ATP assay.

Dual luciferase reporter assays DLR®

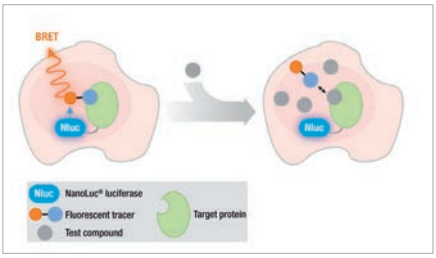
The Infinite 200 PRO is officially certified for Promega's Dual Luciferase Reporter (DLR) assay. As this assay technology requires injection of two different solutions in the same well of a 384-well plate, the Infinite readers belong to the small group of multimode readers being able to do so.



DUAL COLOR LUMINESCENCE

BRET applications made easy

The filter wheel of the luminescence module in the Infinite readers is equipped with four different color filters that allow you to sensitively perform dual color luminescence applications such as NanoBRET™, BRET2, ChromaGlo™ and others



The Infinite readers luminescence module is equipped with dedicated NanoBRET filters.

Nano-BRET™

The NanoBRET™ technology for protein:protein interaction (PPI) assays uses NanoLuc® Luciferase as the BRET energy donor and HaloTag® protein labeled with the NanoBRET™ fluorescent tracer as the energy acceptor, to measure the interaction of specific protein pairs. It provides a reproducible method for monitoring and screening protein interactions in live cells.

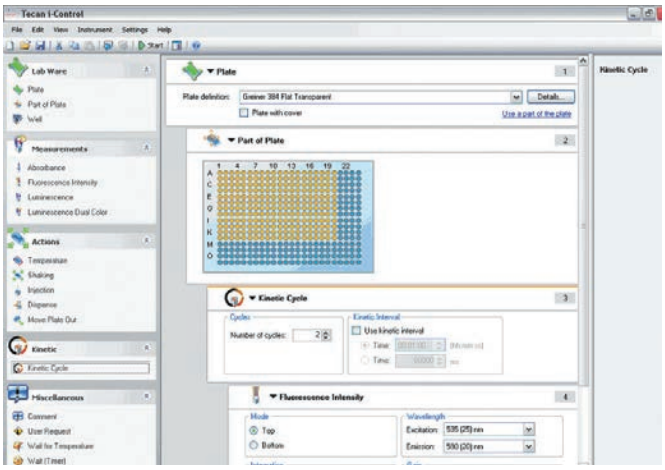
Software designed for your workflow

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.

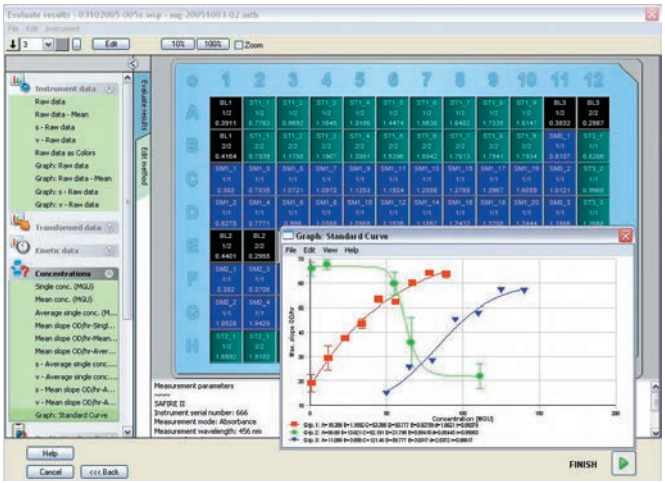
Each workflow can be easily created by dragging and dropping the processing steps into the assay protocol sequence. The application workflow is then visible to the user, and can be saved for future use. Data sets are easily managed and exported to Windows® compatible formats like Excel®.
The i-control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

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

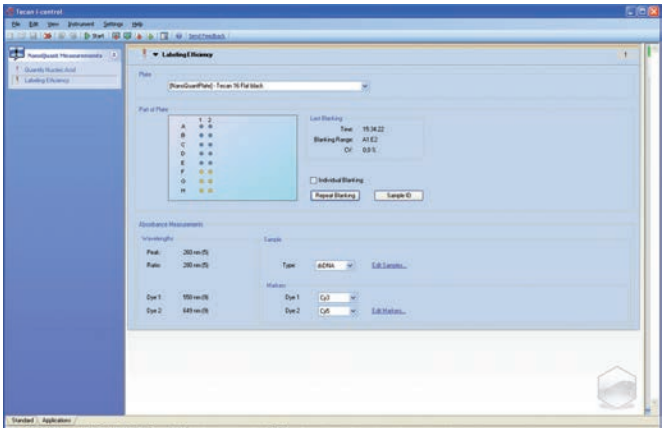
- Application-oriented workflow definition via drag-and-drop functionality
- Wizard-guided application definition for intuitive operation, available in different languages
- Easy conversion of data into results by Excel-style definition of transformations
- Advanced spectra calculation package – the perfect partner for your Infinite M 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



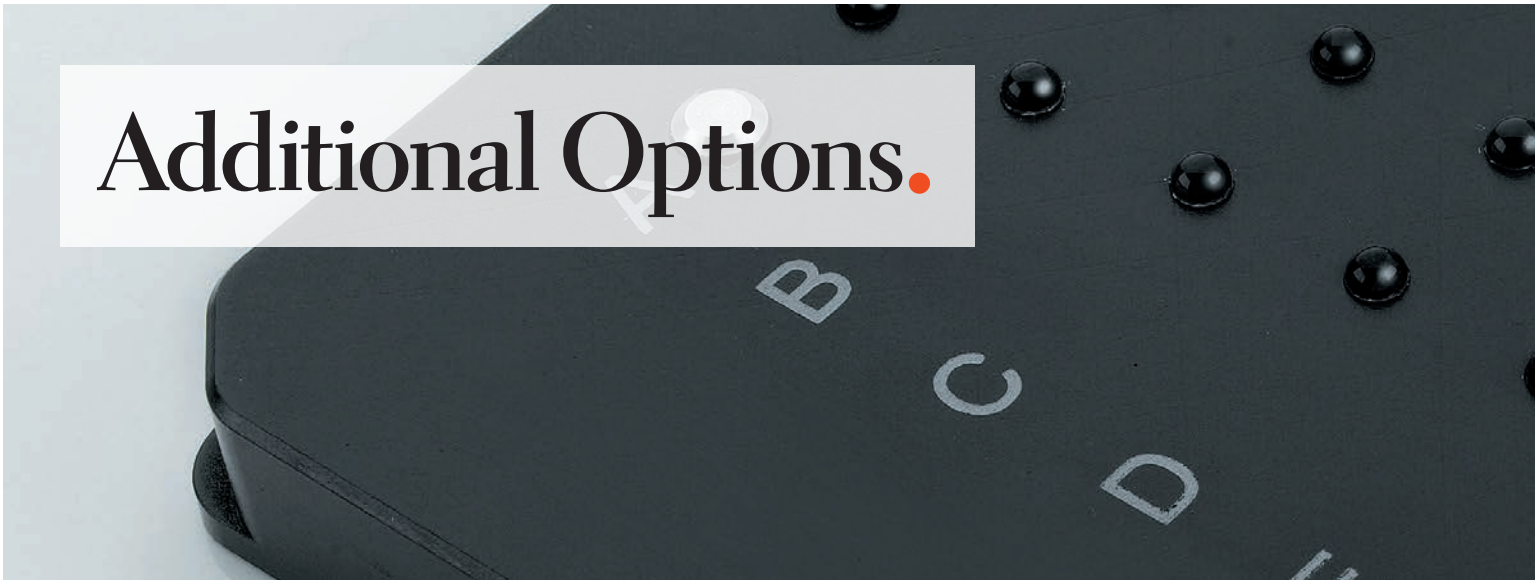
Workflow oriented i-control software supports complex assay protocols.



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



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



Additional Options.

Empower your research with related products

Te-inject™
Optional reagent injectors give you valuable dispensing capabilities for any assay, unlocking new applications and workflows in your lab.

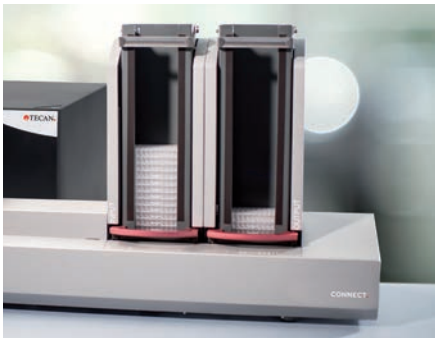
The Te-inject™ module of the Infinite readers comes with a 1 ml syringe, and can be equipped with one or two channels. The software allows you to easily select an injection volume in 1 µl increments, with a dead volume of only 100 µl.

Injectors are critically important for a myriad of assays, most notably flash luminescence and calcium flux assays (e.g. Fura-2, Fluo-4 etc.). The ability to inject right before starting a measurement is crucial for collecting accurate data.

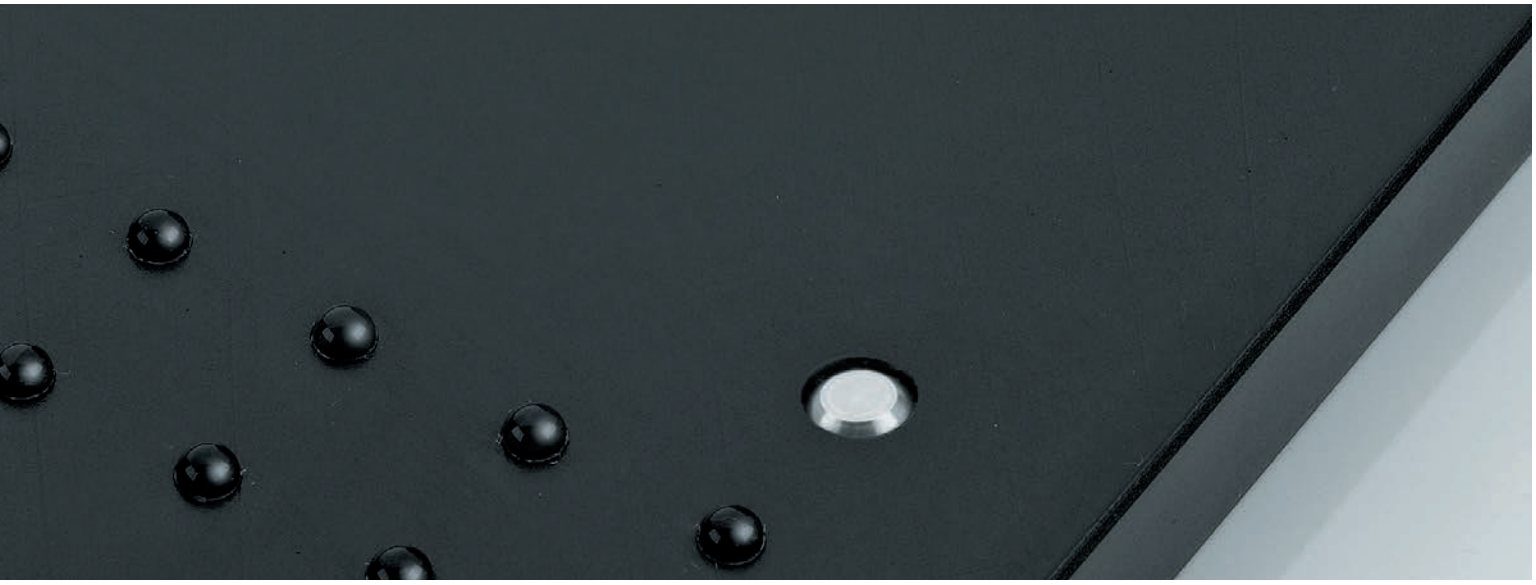
NanoQuant Plate™
Allows parallel quantification and analysis of up to 16 nucleic acid or protein samples, in volumes as little as 2 µl.

For convenience and optimal data quality, the NanoQuant Plate is the only low volume plate on the market that is 100 % calibration free. Saving you time and giving you consistent reliable performance, unlike alternative solutions.

In addition to standard absorbance measurements the NanoQuant plate is compatible with fluorescence top measurements (e.g. for Picogreen®, Ribogreen® assay), improving your DNA/RNA detection limits.



Connect
Tecan Connect is a versatile microplate stacker designed to allow walkaway batch processing for up to 50 microplates per run. It offers researchers increased throughput for a wide range of applications in genomics, proteomics and drug discovery. The compact system can accommodate all common microplate formats, from 6- to 1,536-wells, providing rapid and smooth transport of plates to and from the host instrument. Its easy-to-use software allows processing to be initialized at the click of a mouse, and is designed for straightforward integration.



MultiCheck™ – QC package
Gain a new level of confidence in your laboratory equipment in an accurate, cost-effective, and near effortless solution. The MultiCheck QC-package is designed to enable the rapid function check for Tecan multimode readers, and consists of the MultiCheck software package and an advanced QC-plate, supporting all major reading modes, including FI, TRF, FP, absorbance & luminescence.

Filters & Filter Slides
Investing in a filter-based system gives you a cost-effective solution for sensitive absorbance and fluorescence assays. Tecan's wide range of filters assures that you will be able to support your wide range of assays, while attaining peak performance.

Tecan Microplates
Ensure performance with Tecan Microplates for absorbance, fluorescence and luminescence measurements as well as cell imaging in SBS format. Transparent, black and white biochemical assay plates are designed for absorbance, fluorescence and luminescence measurements with low auto phosphorescence of white plates for good quality data and reduced pre-measurement incubation time. The Infinite readers are designed to be compatible with ANSI/SLAS (SBS) format and thus, performance is assured with minimum background signal.

Infinite 200 PRO – Typical performance values*

Light source	UV Xenon flashlamp	
Wavelength selection		
Infinite M configurations	Quad4 Monochromators system (2 excitation and 2 emission monochromators)	
Bandwidth	Ex: < 5 nm for λ ≤ 315 nm and < 9 nm for λ > 315 nm; Em: < 20 nm	
	Absorbance	**Fluorescence**
Wavelength accuracy	< ± 0.5 nm for λ > 315 nm; < ± 0.3 nm for λ ≤ 315 nm	< ± 2 nm for λ > 315 nm; < ± 1 nm for λ ≤ 315 nm
Wavelength reproducibility	< ± 0.5 nm for λ > 315 nm; < ± 0.3 nm for λ ≤ 315 nm	< ± 1 nm for λ > 315 nm; < ± 0.5 nm for λ ≤ 315 nm
Infinite F configurations	Up to 4 filter pairs per slide	
Wavelength range		
Fluorescence intensity	Ex 230 – 850 nm, Em 280 – 850 nm	
Absorbance	230 – 1000 nm	
Detectors	Fluorescence – PMT, 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 F configurations**	**Infinite M configurations**
Fluorescence top reading [1]	85 amol / well (100 µl, 384-well plate)	170 amol / well (100 µl; 384-well plate)
Fluorescence bottom reading [1]	5.0 fmol / well (200 µl; 96-well plate)	9.0 fmol / well (200 µl; 96-well plate)
TRF [2]	2.8 amol / well (100 µl; 384-well plate)	90 amol / well (100 µl; 384-well plate)
Luminescence sensitivity values		
Glow luminescence [3]	225 amol ATP / well (25 µl; low volume 384-well plate)	
Flash luminescence [4]	12 amol ATP / well (55 µl; 384-well plate)	
Absorbance		
Ratio accuracy 260 / 280 nm	± 0.07	
Precision @ 260 nm	< 0.2 %	
Accuracy @ 260 nm	< 0.5 %	
Measurement range	0 – 4 OD	
Injectors		
Pump speed	100 – 300 µl/s	
Injection volume	selectable in 1 µl increments; max. volume: 800 µl per stroke	
Dead volume	100 µl 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 (ENLITEN® Kit)

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

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