

**Thermo Scientific
Varioskan Flash
Spectral Scanning
Multimode Reader**



Optimal performance for demanding research assays

Thermo Scientific Varioskan Flash together with SkanIt Software offers optimal performance for demanding research assays

Thermo Scientific Varioskan Flash is a spectral scanning multimode reader, including fluorescence intensity, time-resolved fluorescence (TRF), photometric, and luminometric detection technologies. It offers optimal performance for demanding research assays with unlimited wavelength selection, up to three onboard dispensers, utmost optical performance and the advanced Thermo Scientific SkanIt Software.

Unlimited wavelength selection for assay optimization

The Thermo Scientific Varioskan Flash spectral scanning multimode reader combines fluorescence intensity, time-resolved fluorescence (TRF), photometric, and optional luminometric detection technologies.

It provides unlimited wavelength selection, and thereby allows both spectral analysis and measurement at any single wavelength. This gives ultimate flexibility for identifying the optimal measurement wavelength for any assay, now and in the future.

High-performance optical technology

High-quality performance is obtained with the optimized optics of Varioskan® Flash. In fluorometry, stray light transmission is minimized using quadruple monochromators. This ensures ultimate spectral quality that guarantees superior assay sensitivity. In addition, the quadruple monochromator optics offers excellent performance and flexibility in measuring either single or multilabel assays over a wide concentration range. Furthermore, the bottom reading possibility enables the user to select the optimal reading position for fluorometric measurement.

In photometry, double monochromator design produces a very low stray light level ensuring excellent linearity. Outstanding accuracy and precision are guaranteed with the perfect beam optics.

Varioskan Flash has two dedicated detection optics for luminometry: Scanning optics that is excellent for studying and optimizing luminometric assay parameters, and the high sensitivity Varioskan LumiSens optics, specially designed for measurement of any luminometric assay with excellent sensitivity, including multilabel assays requiring wavelength selection.

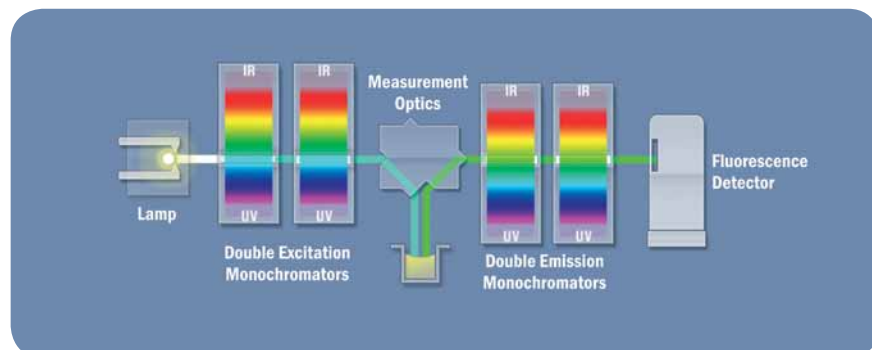
Onboard dispensers for exact follow-up of kinetic reactions

For easy and accurate reagent additions, Varioskan Flash can be equipped with up to three onboard dispensers.

The dispenser facilitates the work and allows easier optimization of assays. The instrument supports simultaneous dispensing and measurement, thereby enabling follow-up of kinetic reactions directly from reaction onset. This capability is essential for flash type luminescence reactions, Ca²⁺ flux studies and other rapid kinetic applications. The ability to add

reagents in any order or in any phase of the kinetic assay allows execution of sequential multistep assays, such as ATP and reporter gene applications.

In addition, automated dispensing guarantees reproducible dispensing from day to day and from person to person.



The utmost sensitivity and a wide dynamic range is achieved by Varioskan Flash's optical system with quadruple monochromators.

- Fluorescence intensity (top/bottom)**
- Time-resolved fluorescence (TRF)**
- Spectral scanning luminometry**
- High sensitivity luminometry (flash and glow)**
- UV/Vis photometry**
- Multilabel measurement (BRET, FRET, TR-FRET)**

Varioskan Flash supports various detection technologies.

Varioskan Flash capabilities provide versatility for assays

Assays requiring any measurement wavelength from low UV to near IR can be performed due to a wide spectral range of the Varioskan Flash. Photometric pathlength correction is ideal for direct measurement of DNA, RNA and proteins. Fluorometric UV measurement of fluorescent amino acids is an efficient tool in label-free assays for protein structure changes.

Fluorescent cell based assays provide high-performance with Varioskan Flash due to selectable top or bottom reading, flexibility in plate formats and a high-precision incubator. With TRF technology, Varioskan Flash offers great flexibility for high-performance cellular assays without interference from biological background. Time-resolved fluorescence resonance energy transfer (TR-FRET) assays are easily optimized using the TRF spectral scanning function of the Varioskan Flash. Additional TRF delay time optimization using automatic τ value calculation makes it straightforward to define the best possible measurement parameters.

The luminometric monochromator mode of Varioskan Flash offers a unique possibility to optimize measurement wavelengths in luminometric multilabel assays. Thereafter, assays can be performed with superior sensitivity with the normal or filter mode of the dedicated Varioskan LumiSens optics.



Varioskan Flash spectral scanning multimode reader

High-performance incubator for controlled assay conditions

To maintain optimal and constant reaction conditions, Varioskan Flash has a high-performance onboard incubator that ensures controlled assay conditions. It is ideal for cellular assays, enzyme assays and other applications where temperature control is essential.

Specially designed for automation

Varioskan Flash has been designed for easy integration with automated systems. The robotic plate carrier of Varioskan Flash is specially designed for convenient robot arm access, allowing microplate gripping in both portrait and landscape configurations. Thermo Scientific SkanIt Software also has a special remote control interface for integration with automated systems and LIMS.

Logical assay setup using SkanIt Software

The powerful SkanIt® Software allows easy assay optimization, flexible data handling and convenient report formatting. The unique steplist feature makes assay setup highly visual and flexible, and the workflow logical and easy to follow.

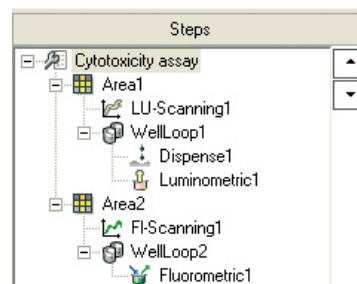
There are two editions of SkanIt Software available: a Research Edition for scientists working in life science research, and a Drug Discovery Edition offering features needed for compliance with the FDA's 21 CFR Part 11, for the drug discovery industry.



Onboard dispensers enable optimization of kinetic assays and facilitate assay development.

Applications:

- Apoptosis assays
- Ca^{2+} flux assays
- Cell proliferation
- Cellular assays
- Cytotoxicity and ADMETox
- Direct DNA, RNA and protein quantitation
- ELISA/FIA/TRF-ELISA assays
- Enzyme kinetic studies
- Europium assays
- FRET assays
- TR-FRET assays
- BRET assays
- GPCR assays
- Ion channel assays
- Kinase assays
- Multilabel assays
- Reporter gene assays
- Signal transduction
- Tryptophan and tyrosine UV fluorescence



The Steplist in SkanIt Software makes assay setup visual and logical.

Technical Specifications

Fluorescence Intensity/Time-Resolved Fluorescence	
Plate types	6 – 1536-well plates
Wavelength selection	Double excitation and double emission monochromators
Excitation wavelength range	200 – 1000 nm
Emission wavelength range	270 – 840 nm
Excitation/emission bandwidth	5 nm and 12 nm/12 nm
Light source	Xenon flash lamp
Sensitivity/dynamic range	Fluorescence intensity, top reading: < 0.4 fmol fluorescein/well, > 6 decades, 384-well plate Fluorescence intensity, bottom reading: < 4 fmol fluorescein/well, > 5.5 decades, 384-well plate Time-resolved fluorescence, top reading: < 120 amol Europium/well, > 6 decades, 384-well plate
Luminometry	
Plate types	6 – 1536-well plates, spectral scanning 6 – 384-well plates
Wavelength selection	All wavelengths, filters and double monochromators
Wavelength range	360 – 670 nm, spectral scanning 270 – 840 nm
Sensitivity/dynamic range	< 7 amol ATP/well, > 7 decades, flash ATP reaction, 384-well plate
Photometry	
Plate types	6 – 384-well plates
Wavelength selection	Double monochromators
Wavelength range	200 – 1000 nm
Bandwidth	5 nm
Light source	Xenon flash lamp
Linear measurement range	0 – 4 Abs (96-well plate) at 450 nm, ± 2% 0 – 3 Abs (384-well plate) at 450 nm, ± 2%
Accuracy	± 2% or 0.003 Abs, whichever is greater, at 200 – 399 nm (0 – 2 Abs) ± 1% or 0.003 Abs, whichever is greater, at 400 – 1000 nm (0 – 3 Abs)
Precision	SD < 0.001 Abs or CV < 0.5%, whichever is greater, at 450 nm (0 – 3 Abs)
Dispenser	
Dispenser	up to 3, automatic dispensing position control
Plate types	6 – 384-well plates
Syringe size	1 ml (standard), 5 ml (on request)
Dispensing volume	1 – 10 000 µl, with 1 µl increments (1 ml syringe) Automatic safety control based on maximum well volume
Accuracy	< 0.2 µl or 2%, whichever is greater, 5 – 10 000 µl (1 ml syringe, 0.40 mm tip)
Precision	5 – 19 µl < 5%, 20 – 10 000 µl < 2% (1 ml syringe, 0.40 mm tip)
Dispensing speed	30 s, 96-well plate 80 s, 384-well plate (5 µl/well, 1 ml syringe, 0.40 mm tip)
Incubator	From ambient + 4°C to 45°C at ambient 25°C
Shaker	Orbital with adjustable speed and diameter
General Features	
Measurement modes	Endpoint, kinetic, spectral scanning with all detection technologies
Measurement speed	96-well plate in 15 s, 384-well plate in 45 s, and 1536-well plate in 135 s (minimum kinetic interval time from A1 back to A1)
Spectral scanning speed	< 2 s/well, 400 – 500 nm, 1 flash, 2 nm steps
Overall dimensions	540 mm (W) x 580 mm (D) x 500 mm (H) [21.3" (W) x 22.8" (D) x 19.7" (H)]

Ordering Information	
Product Code	Description
5250030	Varioskan Flash
5250040	Varioskan Flash, including bottom reading
5250500	Varioskan LumiSens option (also enabling luminometric spectral scanning)
5250510	Dispenser option (1st, 2nd or 3rd)

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BRMRVario08-0309
1516470 / 0609 / Rev D

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