

Fluoroskan Ascent[®] FL

The Fluoroskan Ascent FL is a combination instrument equipped with both fluorometric and luminometric technologies. With on-board dispensers, an incubator and a shaker, this advanced reader is well suited to a wide range of fluorometric, glow and flash luminometric applications.

High-performance optics

The direct illumination optics of Fluoroskan Ascent FL produces the highly focused light beam for fluorometric measurements, preventing crosstalk and ensuring accurate readings. A choice of 3 mm and 1.5 mm beam diameter settings allows optimal readings of 1- to 96- and 384-well plates. High sensitivity is one of the main benefits of fiberless optics and a feature vital to luminometry. By adding filters, greater flexibility can be achieved for advanced luminometric applications.

On-board dispensers, incubator and shaker

With up to three reagent dispensers, an incubator and a shaker, the Fluoroskan Ascent FL provides full coverage for fluorometric and flash luminometric applications. Dispensing volumes can be adjusted in 1 μ l increments over a volume range of 5 – 1000 μ l. The system can dispense and measure simultaneously, which is essential for fast flash-type luminescence reactions, fluorometric Ca²⁺ measurements, and other fast kinetic applications.

Effective robotic integration

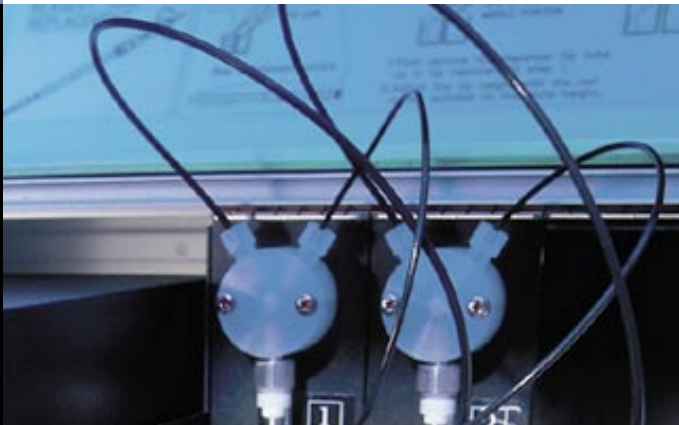
Specially designed for complete robot compatibility, the Fluoroskan Ascent FL can be used for high-volume tests. The plate carrier allows convenient access for different types of robotic arms, and Ascent Software enables easy integration with robotic and HIS/LIMS systems. To allow high-volume testing, Fluoroskan Ascent FL can be combined with automated plate handling devices.

Versatility for fluorometric and luminometric applications

Ascent Software for Fluoroskan Ascent FL is specially designed for fluorometric and luminometric applications. Both detection methods can even be used in one session for analyzing the same sample well. For example, a combination of fluorescent and luminescent reporter proteins, such as GFP and luciferase, can be used for the detection of two simultaneously present reporters. For further information about the features of Ascent Software, see pages 24–26.

Fluorometric DNA quantitation

Several fluorometric methods can be used to quantify DNA. PicoGreen, for example, is an ultra-sensitive dye used for fast endpoint measurements of dsDNA in solution. Correspondingly, OliGreen is used for oligonucleotide and ssDNA quantitation. Cellular DNA can also be detected with a variety of fluorochromes, such as propidium iodide and ethidium homodimer. These dyes also indicate the viability of the cell population.



Bioluminescent aequorin detection

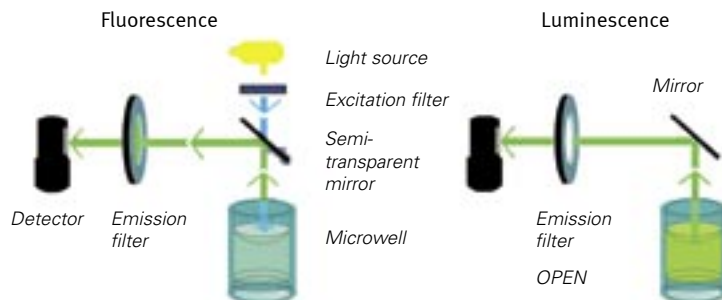
Aequorin and aequorin derivatives are used as labels in sensitive bioluminescence immunoassays and hybridization assays. In these procedures, the flash-type reaction of aequorin requires very fast monitoring of the signals produced. The Fluoroskan Ascent FL and Ascent Software support simultaneous dispensing and reading, enabling aequorin signals to be monitored from the start of the reaction.

IQ/OQ/PQ

The instrument qualification IQ/OQ/PQ Protocol Book is available for the Fluoroskan Ascent FL. For further information about the features of the IQ/OQ/PQ, see page 52.

Application areas of the Fluoroskan Ascent FL

- ATP detection
- Immunoassays
- Reporter gene assays
- DNA quantitation
- Hybridization assays
- Quantitation of PCR products
- FRET assays
- BRET and BRET² assays
- Molecular beacon assays
- Ca²⁺ flux assays
- Cytotoxicity
- Cell proliferation
- Cell adhesion
- Bacterial quantitation
- Phagocytosis
- Enzymatic activity
- Oligonucleotide assays***)



Technical Specifications

General specifications

Plate types	1-, 6-, 12-, 24-, 48-, 96-, and 384-well plates, as well as Terasaki and PCR plates. Can also be programmed for custom configurations. Maximum dimensions 90 mm x 134 mm x 25 mm
Measuring speed	Minimum kinetic interval time 15 seconds for a 96-well plate
Shaker	Orbital, speed 60 – 1200 rpm, diameter 1 – 50 mm
Dispensers	1 to 3 dispensers
Dispensing volume	5 – 1000 µl in 1 µl increments
Dispensing speed	25 seconds per plate (96-well plate, 5 µl/well)
Incubator temperature range	From RT (25°C) +3°C to +45°C when ambient temperature is 25°C

Fluorometric specifications

Light source	Quartz halogen lamp, 30 W
Detector	Photomultiplier tube
Excitation wavelength range	From 320 nm to 700 nm
Emission wavelength range	From 360 nm to 670 nm (optional from 360 nm to 800 nm)
Filters	High-quality interference filters. The excitation filter wheel can hold a maximum of eight filters, and the emission filter wheel can hold a maximum of six filters.
Excitation filters *)	320 nm, 355 nm, 390 nm, 430 nm, 440 nm, 444 nm, 485 nm, 530 nm, 544 nm, 578 nm, 584 nm, 646 nm **) Other filters available upon request
Emission filters *)	405 nm, 460 nm, 485 nm, 510 nm, 518 nm, 520 nm, 527 nm, 538 nm, 555 nm, 590 nm, 604 nm, 612 nm, 620 nm, 678 nm **), 680 nm **). Other filters available upon request
Theoretical sensitivity	2 fmol fluorescein/well in a black 96-well strip plate
Dynamic range	> 6 decades

Luminometric specifications

Detector	Photomultiplier tube
Spectral range	From 270 nm to 670 nm
Theoretical sensitivity	5 fmol ATP/well (typical), ATP Monitoring Kit
Dynamic range	> 9 decades over whole gain setting area

*) Standard instrument codes include two predefined filter pairs: Ex 355 nm/Em 460 nm, Ex 485 nm/Em 538 nm. Additional filters should be specified when ordering.

**) Only with wide wavelength range PMT

→ Ordering information on pages 54–55. ***) Read more about Thermo's oligonucleotide products at www.thermo.com/oligos