

Orion II Microplate Luminometer

When Performance is Key



If timely results are crucial...

If detection performance must be the best...

If your luminometer must adapt to your creative concepts...

If you believe in the value of true workmanship...

If only the best tools will do...

then the Orion II is the instrument for you.



Orion II When Performance is Key



Orion II Highest Performance For Your Lab

Get the best out of your luminescence assay.

Measure With The Highest Sensitivity

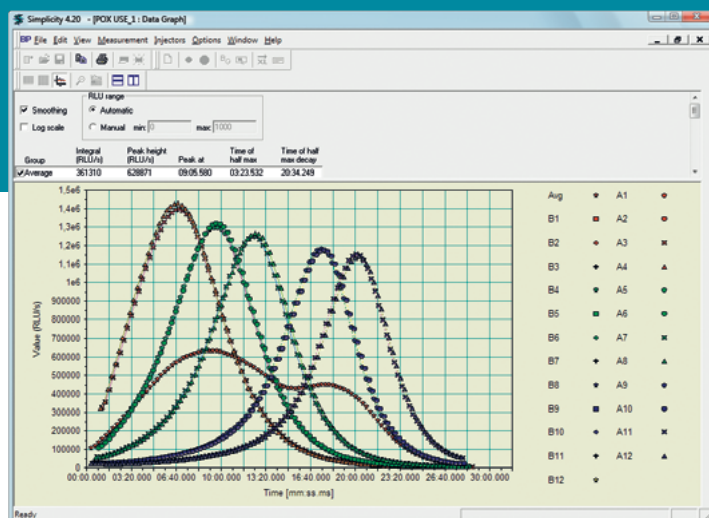
The outstanding sensitivity of Orion II is the result of the unique design, advanced engineering, and high quality workmanship. All functions of the Orion II are seamlessly integrated to render superior, user-friendly performance.

The detector is operated in photon counting mode, which guarantees the lowest signal background for unsurpassed signal to noise ratio and the highest linearity. The plate adjustment mechanism automatically compensates for variations in microplate size. The built-in safety circuit protects the detector from potential damage resulting from accidental exposure to high levels of light. In addition, a warning is produced should a sample ever exceed measurement range.

Orion II – Your Full Service Luminometer

The Orion II is more than a basic luminometer. It makes assay preparation flawless. For assays that require shaking, three mixing modes are available: linear, orbital and cross shaking. Flexible speed and amplitude settings allow easy adaptation to any assay protocol.

Orion II offers two different types of sample incubation. Top and bottom microplate incubation ensures exceptional temperature stability in the sample chamber for temperature control up to 50°C. For applications that require up to 42°C incubation, the optional bottom heating function is recommended.



Highest reproducibility in a flash reaction:

The combination of high precision injection and fast photon counting ensures excellent reproducibility of replicate measurements both in terms of raw data and kinetic curve shape.



The Orion II detection assembly: lowest noise and highest sensitivity among photon-counting detectors.

Orion II Excellent Results Quickly

Work with the instrument that's fast and easy to use.

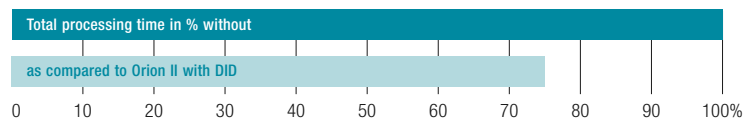
Orion II will exceed your expectations.

Intuitive Set-up

The Orion II utilizes plug and play installation for hassle free set up. According to user preferences, it can be connected to your PC via serial or USB port. The software will run on the latest Windows® version, as well as earlier versions. Once connected to the instrument, the configuration and instrument settings are transmitted to the PC software automatically.

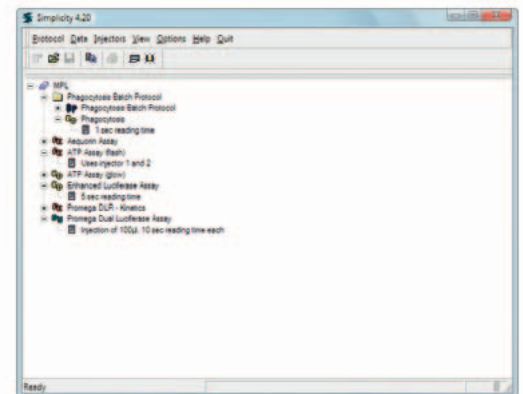
Optimized Protocols, Uncomplicated Operation and Fastest Throughput

The Orion II system has the capability to run samples and process measurements in the most time efficient manner. The proprietary Double Injection Design (DID) allows parallel processing of samples saving valuable assay time. DID has been applied to both 96-well and 384-well configurations.



Faster Sample Processing due to Double Injection Design (DID)

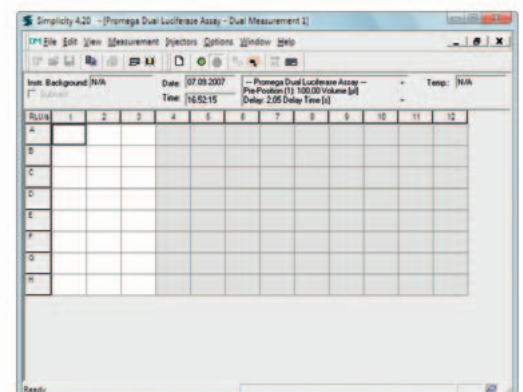
Three steps to start your measurement



Initialize protocol



Introduce plate



Press space key

Orion II Flexibility On Demand

**Why settle for less?
Orion II adapts to your needs.**

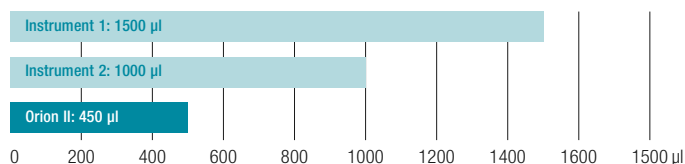
Your Reading Preferences Are Accommodated

Every luminescence-grade microplate in today market is compatible with the Orion II: black or white, compact or microstrip, standard or low-volume microplates.

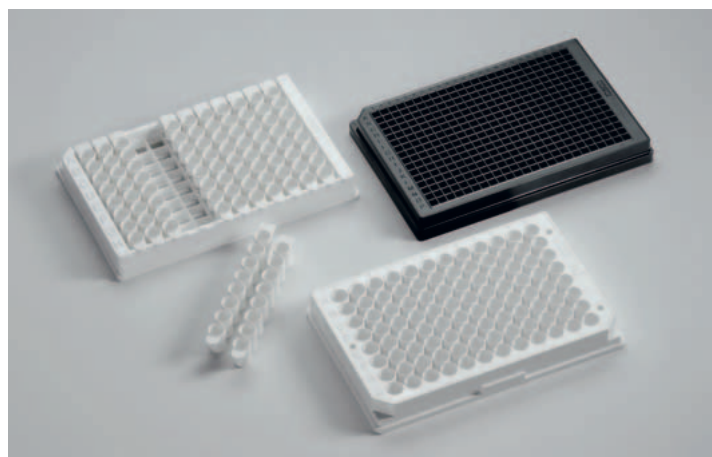
Processing mode is chosen by user: Measure by column or row. Reading time for an individual well may be set from 0.1 s to 100 s. The samples may be read multiple times for hours and even days. According to individual preference, user may choose to read single, dual or multiple measurement points. In addition, kinetics measurement may be selected with time resolution as fast as 2 ms.

Unlimited Options for Reagent Addition

The combination of reagent addition options is virtually unlimited. Up to four automatic reagent injectors are available with injection volumes of 10 to 150 μl each. For increased throughput, simultaneous injection is possible. The optimized reagent holders accommodate any shape and any size bottle in a position that allows the complete use of valuable reagent.



Orion II has considerably lower injection system volume than any other instrument. This leads to lower reagent consumption.



Orion II is compatible with all luminescence-grade microplates. Standard configuration measures 96-well microplates in compact and microstrip format.



The unique design of the bottle holders is just one of many features which make everyday operation easy.

Orion II Your Dependable Partner

**High reliability, easy maintenance,
and superior technical support
ensure worry free use throughout the life
of your luminometer.**



Replacement of injection system tubing does not require special training or tools.

More Than an Instrument – Lifetime Service and Support

Selling an instrument is only the beginning of a long-term relationship for us. Our experienced and customer-oriented technical team looks forward to helping you with any inquiry or request for assistance. Regardless of where you are, Berthold Detection Systems offers worldwide support and service. Our goal is to ensure that the luminometer will function reliably through its entire life-span.

In addition, Berthold Detection Systems offers a full-line of Validation Packages for onsite self-diagnostics and performance control. TestPlate and IQ/OQ/PQ brochure are available. Ask for detailed specifications.



Luminescence TestPlate with accessories and IC/OQ/PQ documentation packages.

Orion II Microplate Luminometer

Technical Data

Sample Format	96-well microplate, opaque in solid or strip format, configuration for both 96- well and 384-well microplate available.
Detector	Photomultiplier tube with bialkali cathode, effective spectral sensitivity range 300–600 nm, operated in photon counting mode.
Sensitivity	< 10 attomole ATP.
Crosstalk	Less than 3×10^{-5} .
Dynamic Range	6 decades.
Measuring Time	0.1–100 s per well.
Scan Pattern	Measurement by row or by columns. Random selectable single well, access by mouse-click.
Injectors	Up to four per Orion II system (upgradeable). Two injectors in pre-position, two in measurement position.
Injection Volumes	10–150 μ l per pump in increments of 1 μ l.
Injection Pattern	Double Injection Design DID: Simultaneous injection into two adjacent wells possible in column mode as well as in row mode.
Tubing	Chemically inert PTFE tubing and connections (PTFE; KEL-F; glass; PS), easily exchangeable liquid handling system and tips. Minimal dead volume due to short reagent lines.
Priming	Forward and reverse priming, external priming container or built-in priming container (optional).
Shaker	Linear, orbital and cross shaking.
Sample Incubation	Ranges for optional sample incubation: Room temperature to 42°C, ± 1 K (bottom heating). Room temperature to 50°C, ± 0.5 K (top and bottom heating).
Automation	Compatible to all known microplate transfer devices.
Interfaces	Serial interface (RS-232) and USB interface for PC.
Dimensions	W 385 mm, D 410 mm, H 255 mm.
Weight	22 kg.
Power	230 V 50 Hz; 115 V 60 Hz.
Power Consumption	30 VA, maximum 70 VA (4 injectors and heating).
Storage Temperature	0–40°C.
Operating Temperature	10–30°C.
Humidity	10–80% (non condensing).



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