BERTHOLD TECHNOLOGIES

detect and identify

Junior LB 9509

The portable tube luminometer

Junior LB 9509

The portable tube luminometer

The Junior is a small portable tube luminometer designed for all common applications using glow-type bioluminescent and chemiluminescent reagents. Excellent performance, its small size and low weight paired with battery operation make the Junior a highly versatile instrument which can be used in any location – the laboratory, on site or outdoors. The Junior is used in a number of diverse fields of application including biomedical research, clinical diagnostics, hygiene monitoring, process control in biotechnology and environmental monitoring, e.g. water quality.

Sensitive

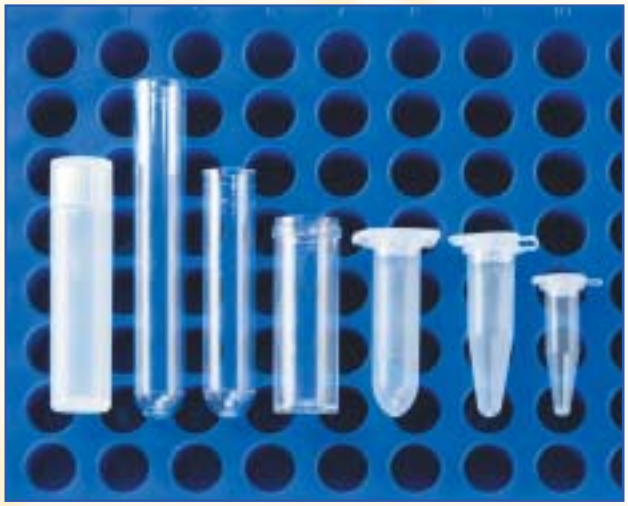
The detection unit of the Junior consists of a state-of-the-art ultra fast single photon counting photomultiplier with low noise. For demanding applications a "high sensitivity" model with a specifically selected ultra low noise detector is available driving the detection limit down to less than 50 amol ATP.

Dynamic

BERTHOLD TECHNOLOGIES' single photon counting electronics and selected photomultiplier tubes with low noise and high saturation level ensure a wide dynamic range. The user will benefit by being able to measure low signals as well as high ones without the need to change any settings.

Versatile

The unique design of the measuring chamber allows the use of a variety of different sample tubes and sizes. Besides the traditional lumi vials, microcentrifuge tubes (Eppendorf cups) and capped 4 mL vials can be used.



Independent

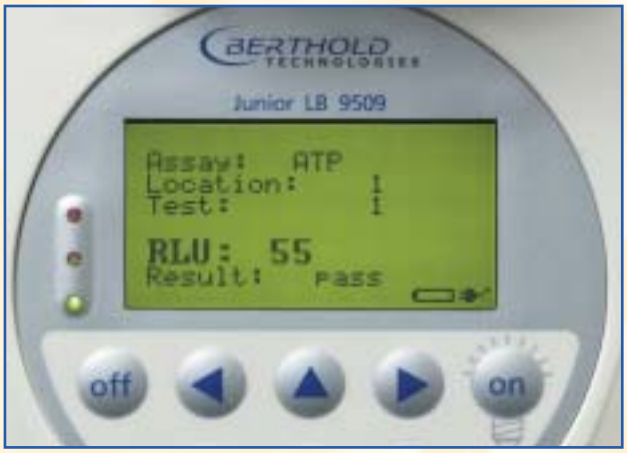
The Junior can be operated independently from a mains supply for many hours as it is equipped with rechargable batteries. In the lab the instrument can be connceted to a mains supply thereby automatically recharging the batteries.

BERTHOLD TECHNOLOGIES

detect and identify

Easy-to-use

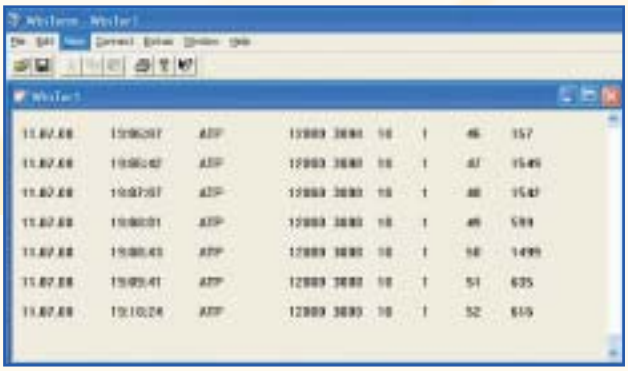
The lean and dedicated software is operated through a membrane keypad. The well arranged graphical display shows selected protocol, sample



location and number and the RLU value of the measurement. In addition a set consisting of a red, a yellow and a green LED unmistakably indicates whether a signal and thus a sample is above an upper limit (red), below a lower limit (green) or in between (yellow).

Smart

Up to 2,000 measurement results will be stored in the instrument´s memory. Criteria like time of measurement and measurement location may be used to search for results in order to review them. The same criteria may be applied to select results for being downloaded to a computer. The PC software WinTerm arranges the data properly and transfers them into an EXCEL spreadsheet.



Portable

With a weight of only 2 Kg and its small size the Junior can be carried and taken to the sampling location for measurements on site.

A metal transport case providing space for the Junior and accessories is an ideal solution for outdoor use.

Reliable

A stringent selection of detectors ensures a neglectable day-to-day variation of instruments, thus providing a high reliability of the measurements.

Economical

The graphic display is illuminated only when the instruments is in use. As soon as the instrument is idle the illumination is turned off to save energy.

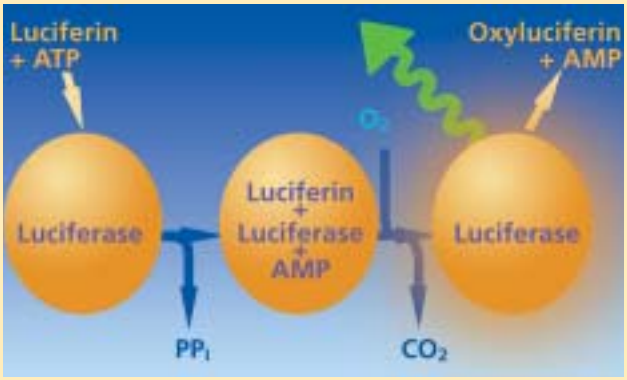
BERTHOLD TECHNOLOGIES

detect and identify

Applications

Reporter Gene Assays

In basic research of gene regulation as well as in drug discovery and recently even in clinical diagnostics luciferases, ß-glucuronidases, ß-galactosidases and secreted alkaline phosphatases have become standard tools offering high sensitivity and wide dynamic range. Dual reporter type assays, e.g. DualGlo™ reporter gene assay, are popular as they provide an internal control for transfection efficiency or general expression level and cell viability. Chemistries with a stable light emission can be measured with the Junior by adding the reagents manually.



ATP determination

A detection limit of 50 attomol of ATP per tube makes the Junior ideally suited for the determination of cellular ATP content – an indicator of cell viability, e.g. in tumor chemosensitivity assays, cell proliferation or antibiotic susceptiblty.

Hygiene Monitoring

Since all living organisms contain ATP, the ATP dependent bioluminescence luciferase-luciferin reaction can be used to check in a fast and simple way whether surfaces, liquid or solid reactants and products are contaminated. Bioluminescent ATP detection in hygiene monitoring offers speed (only minutes needed), convenience and sensitivity. The Junior can be used right at sample sites with any commercially available kits and reagents. The instrument can be set with the required ”Pass” and ”Fail” limits. Red and green LEDs which are triggered by the set limits indicate whether a sample is contaminated.

Toxicity and mutageneity of water samples

When luminescent bacteria, e.g. Vibrio fischeri, are inoculated in water samples containing toxic substances they loose their ability to luminesce dependent on the toxicity of the water sample.

Enzyme acivities

Luminogenic substrates offer a sensitive and robust means to determine the presence and activity of a set of various enzymes like caspases, proteases, monoamine oxidase, CYP 450 and kinases.

DNA probe assays

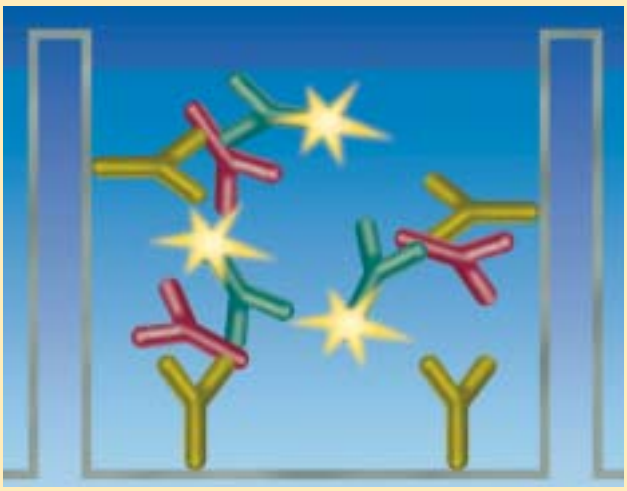
ECL labelled oligo nucleotide probes can be applied for sensitive detection of target DNA samples.

Mycoplasma detection

Viable Mycoplasma can be detected through the presence of certain enzymes which convert ADP to ATP. The ATP level can then be detected using a Luciferase-Luciferin reagent creating a luminescent glow.

Luminescent Immunoassay (LIA)

By exchanging chromogenic substrates of horseradish peroxidase (HRP) or alkaline phosphatase (AP) with luminogenic ones a 100-fold increase in sensitivity can be achieved. The light emission is stable over hours eliminating the addition of stop solutions as used with chromogenic assays.



Junior LB 9509

Technical Specification and Order information

Detection unit	photomulitiplier in single photon counting mode spectral range 380 – 630 nm
Sensitivity	standard model: <3 fmol ATP 0.4 amol firefly luciferase, high sensitivity model: <50 amol ATP <30 zmol firefly luciferase
Dynamic range	6 orders of magnitude
Tube formats	lumi vials 12 x 47 mm (09777) lumi vials 12 x 55 mm (26152) lumi vials 12 x 75 mm (09778) vials 15 x 42 mm (32737) Eppendorf tubes 2 mL Eppendorf tubes 1.5 mL capped vials 4 mL 14 x 54 mm
Display	illuminated graphic display, 128 x 64 pixel 3 LEDs (green, yellow, red) connected to software-set threshold levels
Software	built-in software operated via membrane keypad definition of measurement time (1 – 999 s), sampling site, sample number review of results with search function, result download to computer
Data storage	up to 2,000 most recent (FIFO)
Language	English and German
PC software	WinTerm (option) terminal software for data transfer to PC and export to EXCEL spreadsheets
Regulations	CE
Power Supply	110 – 230 V; 50/60 Hz; 35 VA
Temperature	storage: 0 – 40 °C operation: 15 – 35 °C
Humidity	10 – 90 %, non-condensing
Dimensions	150 x 280 x 170 mm (W x D x H)
Weight	2 Kg

Order information	Order Number
Junior LB 9509, high sensitivity	32526-11
Junior LB 9509, standard	32526-10
WinTerm terminal software for data transfer to PC (Win 2000, WinNT, WinXP, WinVista)	29890
Lumivials 5 mL, 12 x 75 mm, 3000 pieces	09778
Lumivials 3.5 mL, 12 x 75 mm, 2000 pieces	26152
Lumivials 3 mL, 12 x 47 mm, irradiated, 1000 pieces	09772
Adapter, Plastikvials 15 mm x 42 mm, 10 pieces	32737
Rechargeable Batteries (pack of 3)	19713
Sturdy Metal Transport Case for storage and transport of Junior LB 9509 and accessories	32700
PC Connection Cable	26204

BERTHOLD TECHNOLOGIES

BERTHOLD TECHNOLOGIES GmbH & Co. KG

P.O. Box 100 163
75312 Bad Wildbad
Germany

Phone: +49 7081 177-0
Fax: +49 7081 177-100
E-mail: Bio@Berthold.com
Internet: www.Berthold.com/bio

Junior LB 9509 · 03-2009.3000 · Id.Nr.: 32526PR2 Rev.02