

DIFFERENTIATING FEATURES

CENTRO LB 963 MICROPLATE LUMINOMETER



Instrument Model Number: Centro LB 963 Microplate Luminometer (Part Number 70325)

Instrument Description: The Centro LB 963 Microplate Luminometer is a high-performance, easy to use 96-well microplate luminometer for both, flash and glow luminescence applications.

Manufacturer: Berthold Technologies GmbH & Co. KG

Berthold Technologies GmbH & Co. KG is the original manufacturer and sole supplier, by itself or through its authorized distributors, of the Tristar 3 LB 942 Multimode Microplate Reader.

Differentiating Features and Benefits

A. General

1. The proprietary **ultrasensitive design** of the Centro Microplate Luminometer combines lowest background and negligible crosstalk (10^{-6}) with superior sensitivity and a wide dynamic range.
2. The system includes **free-of-charge instrument driver updates** for the life-time of the instrument.
3. The optional injectors, are integrated into the laboratory housing saving space and providing convenient access.
4. Preconfigured configurations with the freedom to choose the number of injectors.
5. The system has a flat surface on its top, providing enough space to put down a laptop.
6. Berthold Technologies offers Telephone Technical Support and Field Applications, Sales, and Service Support to help solve chemistry and instrumentation problems encountered with supported applications.
7. The system is developed and manufactured in accordance with quality system requirements that comply with ISO9001:2015 standards as well as ISO 14001:2015.

B. Instrument

B.1 Detection Technologies

The instrument can is equipped with the following detection technologies:

Flash- & Glow Luminescence

B.2 Detection Unit

The system is equipped with

1. Low-noise photomultiplier tube in single photon counting mode (spectral range: 340 – 630 nm)

Low-noise photomultipliers are selected for high performance and operated in photon counting mode

- I. Single photon counting mode advantages
 - i. Large dynamic range of >6 decades (without need for adjustments or switching)
 - ii. Stable response and no need for response calibration
 - iii. Without gain adjustment
- II. Fast reading times

B.3 Measurement modes

The system offers the following measurement modes:

1. Well scanning with 100 x 100 points
2. Kinetic measurements (option to perform long-term kinetics over **7 days** and more)
3. Endpoint measurements

B.4 Optical system

1. The system is equipped with the proprietary **ultrasensitive design**, combining lowest background and negligible crosstalk (10⁻⁶) with superior sensitivity and a wide dynamic range.

B.5 Reagent injection

1. Up to 3 reagent injectors based on **JET injection technology** by Berthold Technologies, using Teflon bellows for accurate and fast injections even for smallest injections volumes. JET injectors guarantee most efficient mixing as well as extreme longevity.
 - a. Variable speeds: 200 – 440 µl/sec
 - b. Variable volumes: 10 – 100 µl
 - c. 1 µl increments
 - d. Fast and efficient mixing
 - e. Frictionless
 - f. Injectors suitable for injection of cell suspensions
 - g. Only Teflon, Teflon-derivates and PP in contact with reagents
 - h. Accuracy better 98 % (total volume range)
 - i. Precision better 98 % (total volume range)
 - j. Prime volume of <1 ml (for entire and homogeneously filled lines)
 - k. Possibility to retrieve reagents back from line
 - l. Customizable priming procedure (via software)
 - m. Injection in measurement position (e.g. fast kinetics) (not in the XS model)
 - n. Reagent containers and reagent level visible during operation

B.6 Shaking

1. The integrated shaking function offers 3 modes (linear, orbital and double orbital) and user-definable speed (420 to 1020 rpm) and amplitude (0.1 to 5 mm)

B.7 Incubation

1. +5°C above ambient up to 45°C.

B.8 Waste pump

1. All instruments come with an integrated waste pump for priming and washing of the injectors. No need to insert a washing plate if you prime or wash your injectors.

B.9 Crosstalk reduction

1. The specific crosstalk reduction design of the system results in a crosstalk of 10⁻⁶

B.10 Microplate formats

1. The following sample/plate formats can be used in the system:
 - a. 96-well plates, solid and strip

C. Performance

1. Luminescence:
 - i. < 1.8 amol ATP (Centro XS)
 - ii. < 1.8 zmol firefly lucif. (Centro XS)
 - iii. < 5 amol ATP (Centro)
 - iv. < 2 zmol firefly luciferase (Centro)

D. Software

1. The **instrument control and evaluation software (ICE)** is designed to control the instrument and perform data analysis. The analysis module of the software provides
 - a. Live graphic display
 - b. Data export (XLS, TXT, PDF)
 - c. Ratio calculation
 - d. Curve fitting

2. The **optional MikroWin Software** offers instrument control as well as advanced analysis and quality control (QC) functions (features are version depending). QC features include
 - a. Customized analysis report function
 - b. Audit trail
 - c. Configurable user hierarchies
 - d. Automated file name generation
 - e. Control history for validation
 - f. Assay lot no. verification
 - g. 21 CFR part 11 compliance

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