Smart Line TL

The Intelligent Single Tube Luminometer

Berthold
DETECTION SYSTEMS

The Smart Line TL
changes the way to run your immunoassay

Concept
The Smart Line TL single tube luminometer is a new, innovative product designed to satisfy the requirements of the most demanding applications in the fast growing field of chemi-luminescent assays. The Smart Line TL is redefining luminescence measurements by utilizing smart card technology.

Applications
The Smart Line TL is a stand-alone workstation for flash and glow luminescence applications performed in single tube format including:
· Qualitative Luminescent Immunoassays
· Competitive Luminescent Immunoassays (LIA) bound + free fraction
· Immuno-Luminometric Assays (ILMA)
· DNA/RNA Probe Assays

Assay Card
The Assay Card is a smart card with an embedded memory chip that stores assay protocol parameters and data reduction procedure. Each protocol is stored on a separate card. The protocols are introduced to the luminometer by inserting the appropriate Assay Card in the easily accessible slot on the front of the luminometer. Assay Card technology makes switching from one protocol to another quick and easy by simply replacing the Assay Card in the instrument.

Three steps to perform your measurement

Insert Assay Card

Insert sample

Obtain result

Performance

The Smart Line TL single tube luminometer is designed for low to medium throughput level. It is a small, user-friendly instrument that combines a distinctive mechanical design with advanced photon counting electronics and a highly sensitive detector. The unique sample chamber design makes certain that the samples are always loaded properly and effortlessly. The sample holder optimizes light collection. It guarantees the correct positioning of each sample and ensures homogeneous sensitivity. For the best possible sensitivity, the detector is located under the sample chamber in very close proximity to the sample. The photon counting electronics provide the lowest signal background and the highest linearity.

Injection System

The Smart Line TL can be equipped with up to two high precision reagent injectors. Variable injection speed and precise injector positioning allow homogenous mixing of reagents for every type of sample, including coated tubes, coated beads and magnetic particles. The injector lines are built of chemically inert materials. The Smart Line TL is equipped with reliable, bellow-type injector pumps. The unique Smart Line TL design permits easy service access to all components of the injection system. Priming and cleaning of the injection lines in Smart Line TL is an easy and error proof procedure. All necessary priming and cleaning sequences can be stored on individual smart cards.

Data Evaluation

The Smart Line TL is capable of processing both qualitative and quantitative assays. The on-board software supports automatic data processing by utilizing settings stored on the Assay Card.

Qualitative data reduction

Employs Cut-off calculation algorithm with complete set of negative, positive and undecided criteria to classify samples.

Quantitative data reduction

Full standard curve using up to 10 standards. Optional re-use of standard curve with 2-point calibration.

Involves several curve fitting algorithms:

· Regression
· Smoothed cubic spline
· Four-Parameter Logistics (4 PL)

Smart Line TL Technical Data

Luminometer	
Detector	Photon counter, spectral range 300-600 nm.
Measurement Chamber	Retractable drawer with reflector.
Sample Format	Tube 12 mm in diameter (75 or 55 mm length).
Sensitivity	Better than 10 attomol ATP.
Printer	Thermal matrix printer with 40 characters per line.
User Interface	Internal smart card drive (read and write).
Data Port	Serial interface (RS-232).
Power Requirements	12 V, 2.5 A supplied through mains adapter (included).
Dimensions	H: 25 cm, W: 32 cm, D: 20 cm
Weight	3.9 kg including two injectors.
General Operating Software (Microprocessor)	Operation via Assay Card with guided user dialogue. Automatic control of all measurement and injection functions.
Measurement and Operating Parameters	Variable measuring and delay time settings in increments of 0.1s. Flexible injector volume and injection delay time settings. Data output in RLU or RLU/sec. Short-term kinetics.
Data Reduction Algorithms	Qualitative evaluation: Cut-off. Quantitative evaluation: Regression, Smoothed Cubic Spline with lin/lin, lin/log or logit/log transformation, Four-Parameter Logistics (4PL).
Automatic Online Data Processing Software	Cut-off classification: pos./neg./questionable. Evaluation of standard curve from 2-10 standards. Reuse of standard curve with up to 2 calibrators. Controls (0-6)
System Set-up Tools	Individual priming/washing routine via smart card or keypad. Light-check function via smart card or keypad.
Additional Software Features	Reagent level control.

Injectors	
Design	Microprocessor controlled bellow-type injectors for optimal control of injection profile.
Number of Injectors	0, 1, 2 (upgrading possible).
Injection Volume	20–300 µl in increments of 10 µl.
Precision	20 µl: ±1%; 100 µl: < ±0.5%; 300 µl: < ±0.1%.
Accuracy	± 3 µl.
Tubing	Chemically inert PTFE tubing and connections (PTFE or KEL-F).

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ZERT Zertifiziertes QM-System DIN EN ISO 9001 Reg.Nr. 00029

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