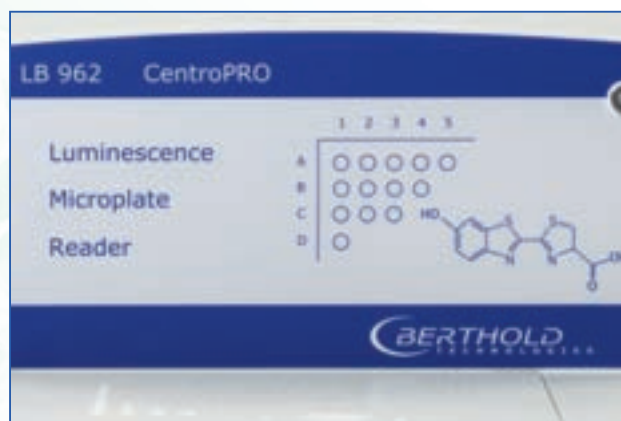


detect and identify



# CentroPRO LB 962

Microplate Luminometer

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## Microplate Luminometer

### A PRO for your laboratory

**Precise**

**Reliable**

**Outstanding**

The outstanding microplate luminometer CentroPRO offers a superb range of functionality with the superior performance you want – and can expect from an instrument developed by Berthold Technologies. The microplate luminometer CentroPRO comes with the key features for most basic research applications without the complexity of superfluous options.

Based on the experience of developing and building luminometers for more than 30 years the CentroPRO is a microplate luminometer with state-of-the-art technology.

### Sensitivity

#### ▶ Low level detection

True photon counting technology coupled with selected low noise photomultipliers is the only accepted way to achieve a low and stable background. This is a major parameter for high sensitivity in a luminescence measuring system enabling detection of extremely low amounts of analyte.

- less than 20 amol ATP per well
- less than 8 zmol Firefly Luciferase per well

#### ▶ Save reagents and money

The high sensitivity derived from the photon counting technology and the selected low noise photomultiplier tubes offers an additional benefit when detecting the lowest signal levels is not the key to an assay. In those cases the consumption of expensive reagents or valuable cells can be greatly reduced.

#### ▶ Save time

In assays in which detecting lowest amounts of signal is not the driving force you can significantly reduce the reading time per sample in the CentroPRO and save valuable total operation time. Again this is achieved by the high sensitivity of the instrument.

### Negligible Crosstalk

#### ▶ Trustworthy data

In luminescence the wells that are not being measured will still produce light. This phenomenon is referred to as crosstalk when it affects the reading of the well being measured. It is extremely important to have means in the optics to block those signals. In the CentroPRO the blocking is extremely efficient resulting in a crosstalk of those signals as low as  $10^{-6}$ . Only efficient crosstalk reduction ensures quantifiable and trustworthy measurement of weak signals located next to wells with high signals.





## Reliability

### ▶ Get the same from the same

Precise mechanics and the intrinsic stability of photon counting technology guarantee unrivalled repeatability of measurements. The instrument's performance is stable over years. Time-consuming daily calibration is thus unnecessary and you can concentrate on other and more important duties.

## Accuracy

### ▶ The real value counts

Like all Berthold Technologies instruments the CentroPRO comes to your laboratory checked against a certified light source. With this reassurance you are able to work with accurate, traceable and comparable results.

## Robustness

### ▶ A companion for years

Berthold Technologies instruments are known for their quality and longevity providing a working life of decades. This is a feature gaining importance with today's limited budgets and environmental awareness.

## Dynamic Range

### ▶ Large by default

Photon counting technology is characterised by a large dynamic range defined at the lower end by the low noise of the selected photomultiplier. The upper end is defined by the ability of the counting electronics to record and differentiate single pulses out of an avalanche of pulses. The CentroPRO is able to count up to 25 Mio pulses per second equivalent to a dynamic range spanning 7 orders of magnitude.



As no additional adjustments (such as gain and high voltage setting) are needed the CentroPRO offers convenience and security for every measurement over the entire life of the instrument.

## Ease of use

### ▶ Intuitive handling

Loading of the microplate is as easy and straightforward as defining a measurement protocol and as starting a measurement with the user-friendly ICE software. You will intuitively know your next click!





## detect and identify

### ICE Software

The Instrument Control and Evaluation software has been designed with the demands of today's researchers in mind: The ease of use during protocol creation, measurement and data export has been achieved with the wizard-driven and clearly structured ICE software for the CentroPRO.

#### Protocol Wizard

An unlimited number of protocols can be created and stored. The Protocol Wizard guides you through the specific settings of a protocol.

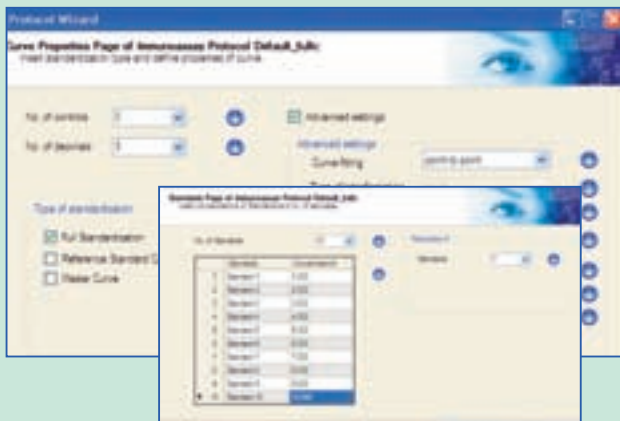
#### Raw Data Measurements

The Raw Data protocol type supports measurements with single or dual readings (e.g. Dual-Glo®) and subsequent ratio calculation or subtraction of the readings.



#### Curve Fitting

Assays requiring the calculation of concentrations based on measured standards are created with the Immunoassay Protocol Wizard. Up to 10 standard concentrations can be used for a point-to-point curve interpolation.



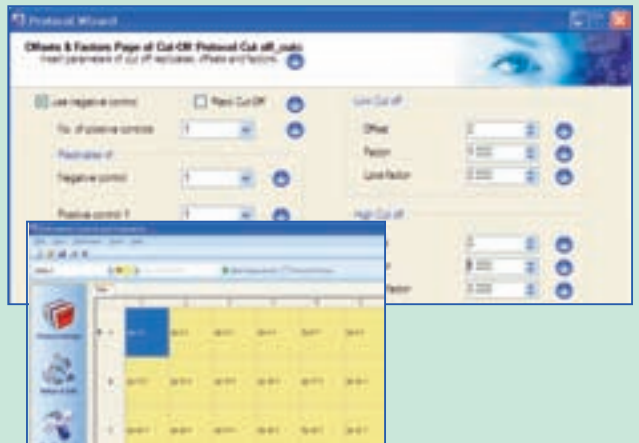
For more sophisticated curve fitting the full Immunoassay evaluation option offers additional algorithms such as cubic spline, linear regression and 4PL. In addition the alternative axis transformations log/log and logit/log can be applied.

#### Cut-off measurements

This specific protocol structure provides a step-by-step definition of settings for upper and lower limits. The results are flagged when the measured data are outside the defined cut-off values.

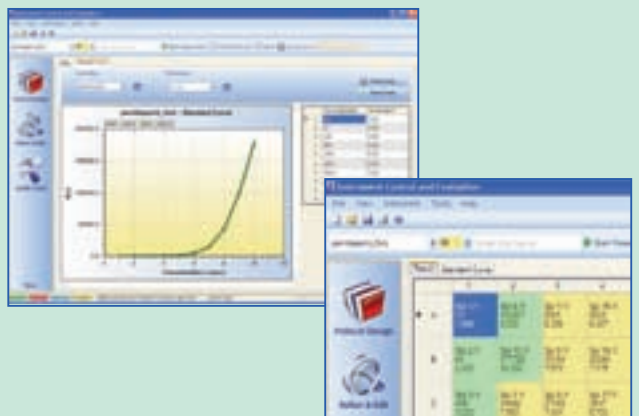
#### Intuitive Dialogues

Starting a measurement, displaying results and exporting data is straight forward due to clearly structured screens and intuitive dialogues. During routine operation you simply select the required protocol, load the plate and start the measurement.



#### Multiple displays

Measured data and calculated results together with the well ID are displayed. With standard curve measurements the curve graphic is available with the possibility to edit standard values.



#### Report function

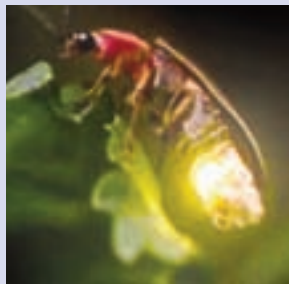
For documentation of results the powerful report function offers multiple selection options including the choice of saving the report in XLS, DOC, RTF or PDF formats or simply printing a hardcopy.

## Applications

### Reporter Gene Assays

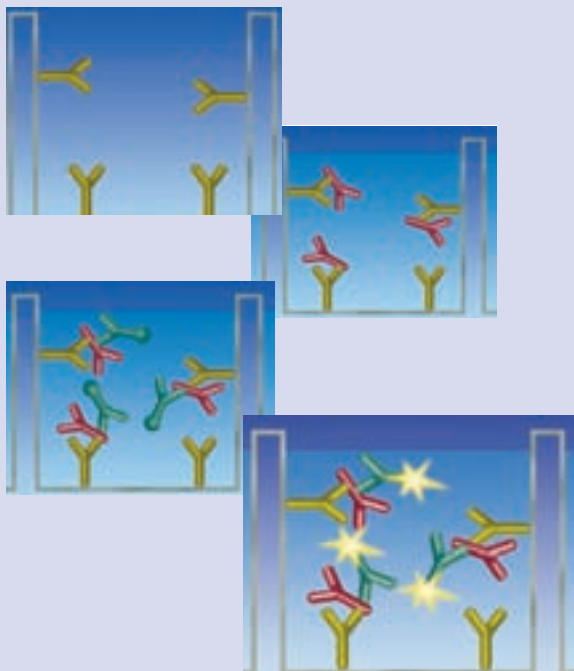
All common glow type reporter gene assays can be measured with the CentroPRO. Especially in basic research of gene regulation as well as in drug discovery the use of luciferases,  $\beta$ -galactosidases and  $\beta$ -glucuronidases and have become a standard tool offering the highest sensitivity.

Even the dual luminescence type assays, e.g. Dual-Glo® Reporter Assay, can be measured with the CentroPRO with manual reagent addition. Those assays have become a favourite means as they provide an internal control for transfection efficiency or general expression level.



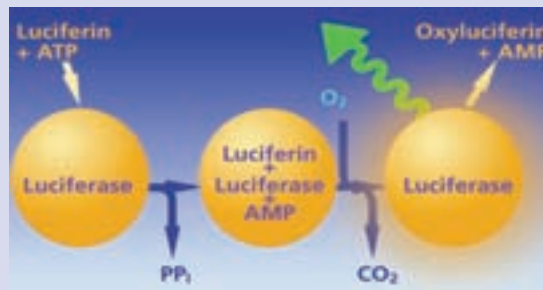
### Luminescent Immunoassays

By replacing colorimetric substrates of horse-radish peroxidase or phosphatases with luminescent labels an increase in sensitivity up to 100-fold can be achieved. ICE software and its curve fitting function add convenient and extensive data evaluation capabilities to the superb instrument performance.



### ATP determination

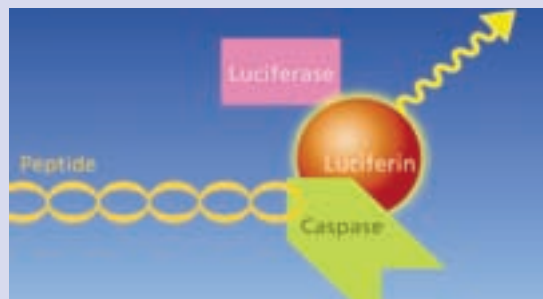
Glow type assays for ATP determination - based on the light generating Firefly reaction - can be measured with the CentroPRO. Since all living cells contain ATP, cell proliferation assays or bacterial detection assays can be measured with the instrument, too.



### Caspase Assays

Monitoring the activity of Caspases - a group of cystein-aspartic acid peptidases - is a key method in apoptosis research. The assays are designed around specific peptide substrates for Caspase 3, 7, 8 and 9 respectively which will be cleaved when Caspases are present indicating cells are in an apoptotic state.

Assay technologies are available with luminescent readout through the release of Luciferin which acts as the substrate for the subsequent light generating Luciferase reaction.



### Kinase Assays

The Luciferase reaction can be used as well for monitoring kinases. Kinases are modifying the activity of specific proteins and are extensively used to transmit signals and control complex processes in cells.

Their enormous diversity and their role in signal transduction make them attractive targets for research and drug design.

# CentroPRO LB 962

## Technical Specification and Order Information

### Technical Specification

Detection unit	Low-noise photomultiplier tube in single-photon counting mode spectral range: 340-630nm
Sensitivity	20 amol ATP ~ 7.5 zmol firefly luciferase
Dynamic range	> 6 orders of magnitude
Crosstalk	Low crosstalk trough cross-talk reduction design <10 <sup>-6</sup>
Plate formats	96 well opaque microplates and strip plates with outer dimensions: (W x L x H) 86 x 128 x 14 mm
Interface	USB
PC operating system	Win 2000, Win NT, Win XP, Win Vista
PC requirements	Pentium processor, 500 MHz (or better), CD ROM drive, display 1024 x 768 (or better), USB
Power supply	110-240 V, 50/60 Hz, 30 VA External autoranging mains adaptor
Regulations	CE, UL, CSA
Temperature range	Storage 0 - 40 °C Operations 15 - 35 °C
Humidity	10 - 85% non condensing
Dimensions	300 x 400 x 200 mm (W x D x H)
Weight	6 Kg

Patents: EP 1 279 948 A 1 (pending), DE 101 36 866 A 1 (pending)



### Operation modes

Single measurement	0.1 to 600 s
Dual measurement	each 0.1 to 600 s
Delay	up to 600 s
Measurement orientation	by row or by column
Shaking	variable amplitude and speed

#### ICE Software Research

- Wizard support for parameter creation
- Input of plate layout (standards, replicates)
- Single raw data assays
- Ratio calculation
- Subtraction of measurement values
- Standard curve with point-to-point fit
- Full standardisation (up to 10 standards)
- Axis transformation: lin/lin
- Export: XLS, DOC, RTF, PDF

#### optional:

- Cut-off measurements and evaluation
- Standard curve with cubic spline, linear regression
- Axis transformation: log/log, logit/log
- Master curve (universal standard curve taken from kit insert adjusted with calibrators)
- Reference curve (measured curve = master curve)
- Use of last measured curve
- Support of kit lot numbers (GLP)

### Order information

### Order number

CentroPRO LB 962	52180-30
Microplate Luminometer incl. ICE Research	
ICE Softw. upgrade (Research→Advanced)	53615-02
Microplates 96 well, white, 40 pieces	23300
Microplates 96 well, white, sterile, 50 pieces	51838
Microplates 96 well, black with white wells, 100 pieces	55008
Microplates 96 well, white, clear bottom, cell culture, 100 pieces	24910
Luminescence test plate for QC	40105-10

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