



EASY HANDLING. RELIABLE RESULTS.

The LB 201 Becquerel Monitor for the analysis of food and liquids

BECQUEREL MONITOR LB 201

Simple operation. Precise result.



Determination of gamma activity in foods with ease

Ensuring food and its ingredients are safe to eat and meet international limits has become increasingly important after nuclear accidents, such as Fukushima in 2011 and Chernobyl in 1986. The Becquerel Monitor LB 201 reliably detects gamma activities in food samples, liquids and smaller bulk goods.

From switching on the device to the result of the measurement is just a few steps. The simple software of the evaluation unit guides even users without prior knowledge to the measuring result with ease.

Thereby, the use of a Marinelli sample cup made of plastic ensures a consistent measuring geometry.



Figure 1: The Becquerel Monitor LB 201 for testing food samples in combination with a Marinelli sample cup. A: evaluation unit, B: detection unit

LB 201 advantages at a glance

- ♦ **Simple handling:**
Just a few steps from switching on the unit to the measurement result.
- ♦ **Low minimal detectable activity (MDA):**
The sensitive detector in combination with the lead shielding allow for a detection limit of approx. 20 Bq/l to be reached within 1 hour of measurement.
- ♦ **Automatic ⁴⁰Potassium suppression:**
By setting an upper energy threshold, measurement interferences of the naturally occurring nuclide ⁴⁰K are not included in the result.
- ♦ **Mobility and flexibility:**
Thanks to the modular design consisting of two separate units, the LB 201 adapts perfectly to your workplace.

Measurement principle

The 25 mm Ø × 25 mm NaI(Tl) crystal ensures a reliable measurement of gamma radiation.

In addition, the lead shielding drastically reduces the background. Through these attributes and the detector geometry with the Marinelli sample cup a detection limit of approx. 20 Bq/l can be achieved (measurement time 1 hour).

Also, the LB 201 comes with a automatic ⁴⁰K compensation method. Potassium is in nearly all biological products, i.e. also in food. Thus, the ⁴⁰K is also a naturally occurring nuclide in the earth. Through a second energy window, the effects of ⁴⁰K are removed.

YOUR RESULT IS JUST A FEW STEPS AWAY

Evaluation unit of the Becquerel Monitor LB 201.

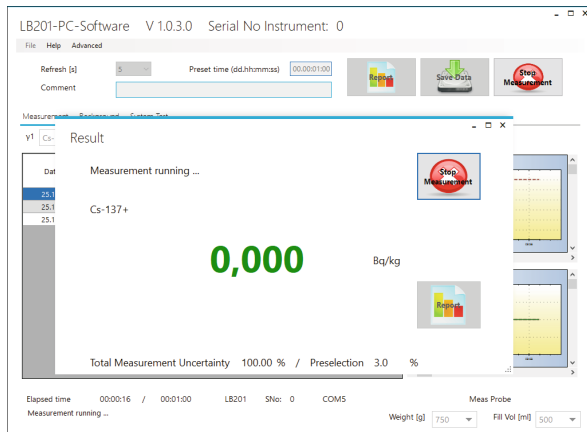


Figure 2: Simple operation, unambiguous results – the PC software of the LB 201.

The LB 201 measures the actual background every time the unit is started in order to reliably reflect changes in ambient radiation in the measurement result.

The calibration of the LB 201 is set at the factory for each detector and stored in the detector electronics. With the help of the optional calibration source, the device can be checked at regular intervals.

The evaluation unit of the LB 201 can display the measurement results in cps, Bq/l and Bq/kg and stores up to 2400 measurement data with date and time.

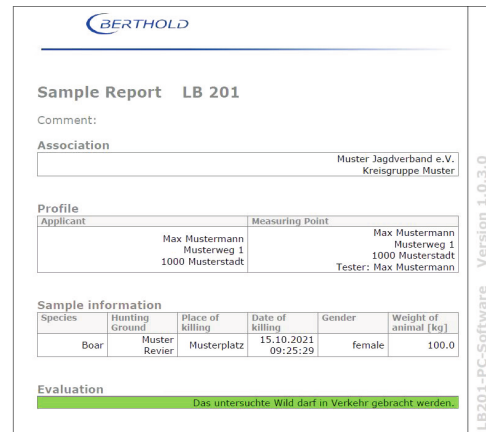


Figure 3: The software provides a customizable results report.

Besides the direct measurement on the device, a sophisticated PC software makes it easy to start and archive measurements with the LB 201. For each measurement, a detailed report with a sample description and the measurement location can be created as a PDF file.

In addition, the parametrisation of the device as well as the readout and printing of the measurement data can be carried out.



TECHNICAL SPECIFICATIONS

Detector Unit

Type	Nal(Tl) Crystal 25 mm Ø x 25 mm
Probe	with built-in threshold amplifier and high-voltage generator
Operating Voltage	5 VDC ±5 %
Max. current consumption	1.5 A
Dimensions	Electronics housing (120 mm x 120 mm) Height: 190 mm with lead shielding attached: 240 mm
Temperature range	Storage: -20 to 55 °C Operation: 5 to 40 °C Transport: -20 to 55 °C
Rel. humidity	10 to 85 %, non-condensing
Maximum tolerable temperature change	+10 °C/h, -8 °C/h
Altitude	Max. 2000 m above sea level
Protection	IP 55
Protection class	III
Weight	approx. 0.8 kg (without lead shielding)
Lead Shielding	
Dimensions (H x Ø)	approx. 130 mm x 136 mm
Weight	approx. 8 kg
Measuring beaker	Plastic, useable volume 0.5 l (H x Ø) approx. 99 mm x 114 mm

Data Logger

Display	Monochrome LCD 192 x 64 pixels Electro-luminescent lighting
Keyboard	Membrane keyboard, 6 buttons, 4 soft keys, 1 x device on/off, 1 x sound/LCD lighting on/off 2 LEDs for alarm display and function control
Data storage	2400 measured values with date and time
Dimensions	200 x 400 x 300 (L x B x H in mm)
Weight	1400 g (included Batteries)
Operation temperature range	-20 °C to +40 °C
Storage temperature range	-20 °C to +55 °C
Rel. humidity	10 % to 85 % (non-condensing)
External pressure	500 hPa to 1300 hPa (in operation)
Communication	USB (1 device, 1 Host for Memorystick), RS 485
Alarms	Acoustic: Piezo oscillator 2.5 to 3 kHz alarm as an interrupted continuous tone, single pulse (switchable) as tone burst
Warnings	LED signals when threshold values are exceeded or function display. Text messages in the display for exceeding the measuring range and detector failure.



Figure 4: LB 201 Aluminium Transport Case

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ORDERING INFORMATION

Instrument

59974	Becquerel Monitor LB 201, incl. 1 x marinelli beaker 0.5 l, 1 x aluminium transport case, PC software set and device stand
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Accessories

8533	1 x Marinelli sample beaker, plastic, useable volume 0.5 l
71872	10 x Marinelli sample beaker, plastic, useable volume 0.5 l
14324	Calibration source (nuclide: ¹³⁷ Cs)

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