LB 134 Universal Monitor UMo II

Protecting people and the environment

BERTHOLD

A VERSATILE & MOBILE MONITOR FOR RADIATION PROTECTION

The LB 134 Universal Monitor UMo II with integrated dose rate detector

One device, multiple applications. The LB 134 is a versatile instrument for dose and dose rate, as well as the exposure rate and even contamination measurements. The system quickly adapts to your needs through a variety of different detectors that can be attached to the base unit.

The LB 134 is also available as LB 134 Light without integrated dose rate detector.

This enables the system to be used for many different applications:

- Determination of the gamma or neutron dose rate in ambient equivalent dose and dose rate H*(10)
- Detection of radioactive alpha and beta/gamma contaminations
- Fast tracking of contaminations and activities

Dose rate monitoring according to your needs

Solutions for monitoring the radiation dose are indispensable tools when working with radiation sources or X-ray machines in laboratories, radiology, radiography or any other technical irradiation facility.

Dose and dose rate monitoring systems from Berthold reliably detect any increase in the dose rate at your workplace and enable you to take decisions quickly and well-informed.

Benefits at a glance

Designed for mobility:

- Lightweight, handy but nonetheless very robust.
- Practical carrying system.

Designed for simplicity:

- Integrated dose rate detector.
- The basic unit recognizes the external probe and automatically adjusts the parameters.

Designed for connectivity:

- PC software including remote application.
- Option of connecting to the visualisation and archiving software MEVIS.

LB 134 UMo II base unit. Its software offers numerous measuring modes and parameter settings.

EXCELLENT SENSITIVITY, GREAT FLEXIBILITY

Dose and dose rate monitoring solutions

The LB 134 performs its task as a dose and dose rate meter excellently in gamma, X-ray and neutron radiation fields. This is why the UMo II is a reliable partner for quick detection of any increase in dose rate at the workplace.

Solutions for gamma and X-Ray fields	Solutions for neutron fields
LB 134 with integrated dose rate detector LB 1346 Measuring range: 100 nSv/h to 20 mSv/h Energy range: 50 keV to 1.3 MeV	**LB 6411 high-sensitivity neutron detector** Measuring range: 30 nSv/h to 100 mSv/h Energy range: thermal up to 20 MeV
LB 1236-H10 high-sensitivity dose rate detector Measuring range: 50 nSv/h to 10 mSv/h Energy range: 30 keV to 1.3 MeV	**LB 6411-Pb for high energy neutrons** Measuring range: 30 nSv/h to 100 mSv/h Energy range: validated up to 100 MeV

Benefits for dose and dose rate monitoring

- **Versatile detection:**
  Integrated dose rate detector (Geiger-Müller tube) and 3 additional external detector options for gamma or neutron radiation detection.
- **Versatile application:**
  Operation as portable or semi-stationary system.

Mobile measurement setup of LB 134 UMo II connected to LB 6411 Neutron Dose Rate Probe.

Portable combination of the LB 134 UMo II with the LB 1236-H10 gamma probe.

WHEN SENSITIVITY COUNTS

Exposure rate measurements & radiation sensors

"Its excellent sensitivity as well as its high adaptability make the UMo II a versatile solution for dose and dose rate, as well as exposure rate and contamination measurements."

Dr. Rüdiger Collatz, Berthold Technologies

The UMo II as a portable neutron survey meter solution

The UMo II LB 134 can be used in combination with the neutron measuring device LB 6414 as a mobile measuring system for plutonium contaminations, providing excellent sensitivity. The energy-dependent response of the device has been optimized for fission neutrons.

Applications

- Detecting illegally traded plutonium
- Locating Plutonium contaminations
- Measurement of ^{240}Pu equivalent mass
- Nuclear waste inspection
- Measurement of ^{252}Cf and other neutron sources
- Monitoring the intensities of neutron radiation fields

Detector

- ^{3}He proportional counter tube in PE moderator
- Neutron energy range: Optimized for 10 keV to 1000 keV
- Ambient dose equivalent response H*(10):
  – 27 counts/nSv or 0.13 µSv/h per cps for Am-Be
  – 68 counts/nSv or 0.05 µSv/h per cps for ^{252}Cf
- Dimensions: 310 mm × 180 mm × 130 mm

The LB 134 can be used as a portable neutron survey meter in combination with the LB 6414.

The UMo II as a portable gamma survey meter solution

The UMo II LB 134 provides a high γ-sensitivity when connected to the LB 1234 NaI Scintillation-Counter probe. A combination, that makes it an ideal measurement system for the detection and rapid identification of radioactive sources.

Applications

- Transport control
- Waste inspections
- Border and baggage controls
- Control of metal scrap
- Localization of contaminations
- Activity measurement

Detector

- LB 1234 with 1" × 1" or LB 1234-2 with 1.5" × 1.5" NaI Crystal
- γ-sensitivity: 250 cps per µSv/h in ^{137}Cs radiation field and 3000 cps per µSv/h in ^{241}Am radiation field
- Background: approx. 30 cps at 0.1 µSv/h γ-ambient dose rate
- Energy range: 25 keV to 2 MeV
- Dimensions: Ø 40 mm × 305 mm, LB 1234-2 Ø 51 mm × 305 mm (Ø 50 mm at the handle)

In combination with the LB 1234, the UMo II LB 134 offers a powerful mobile system for detecting radioactive gamma sources.

NO CHANCE FOR RADIOACTIVE CONTAMINATION

Explore our LB 134 measurement solutions

Radionuclides are used in a wide variety of applications. However, they can also be dangerous if handled improperly. Therefore, working with radioactive materials requires continuous monitoring to detect possible contamination of surfaces and objects in work areas as well as on clothing and exposed skin. The LB 134 wide range of connectable detectors makes it a versatile measurement system for reliably detecting contamination, regardless of radionuclide or location.

LB 134 - LB 1343 combination with matching wall mountings.

Benefits for contamination measurement

Highest sensitivity:

- Provides high measuring accuracy and sensitivity, even at low energies with Berthold's patented ZnS-single photon counting technique.

Supports a wide range of applications:

- Provides various measuring modes: ratemeter, scaler timer, survey, clearance.
- Display in cps or Bq/cm² with factory-defined calibration factors for more than 50 radionuclides.
- Free memory locations available for customer-specific calibration factors

Extremely low background:

- <10 cps for LB 1342,
- <15 cps for LB 1343

Two different scintillator probes are available: LB 1342 with 170 cm² area (left) and LB 1343 with 345 cm² area (right).

EASY DATA MANAGEMENT

LB 134 PC-Software

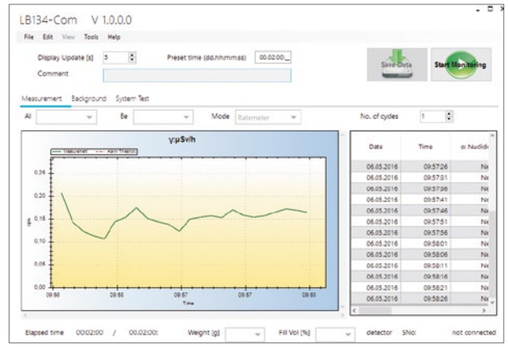
The LB 134 software has been designed with your application in mind.

Easy data processing:

- Graphical data evaluation
- Zoom function
- Calculation of the characteristic limits according to ISO 11929
- Carry out online measurements

Easy adjustment of measurement parameters:

- Simple configuration of all measurement parameters via PC
- Generation of backup files (parameter configuration) and download via PC or USB stick



The LB 134 software displays the measuring points in a clear graphical format and the zoom function makes it easy to analyse them.

Also available with practical carrying system

PERFECTLY ADAPTED TO YOUR APPLICATION: LB 134 ACCESSORIES

A wide range of accessories adapts the UMo II perfectly to your application:

- A selection of matching wall brackets permits the UMo II to be used as a semi-stationary system or as an exit monitor for personnel. The instrument and the detectors can be easily detached from the wall bracket and used as portable monitor when needed.
- A variety of different cables enables the connection to various portable detectors.
- Practical carrying system.

Carrying system with flexible straps for hanging or for one-handed measurements. The strap can be easily detached from the device and offers practical edge protection.

TECHNICAL SPECIFICATIONS

Technical data and order information LB 134

Technical Data	
Instrument	
Display	Monochrome LCD 192 x 64 pixel Electro-luminescence illumination
LB 1346 Gamma radiation detector	Geiger-Müller tube (built-in), not available in light version
Measurement modes	Ratemeter, scaler-timer, search, clearance mode
Dimensions	160 x 160 x 55 (L x W x D in mm)
Weight	750 g (with batteries)
Data memory	2400 measured values with date & time
Communication	USB (1 device, 1 host for memory stick), RS 485, low voltage relay
Max. operating time	>15 h alkaline batteries 2.6 Ah (4 x AA) >10 h NiMH rechargeable batteries 1.9 Ah (internal detector activated)
Environmental conditions	
Temperature Range	–20 °C to +40 °C (operation)
Rel. humidity	0 % to 80 % (no condensation)
External pressure	500 to 1300 hPa (operation)
Protection class	IP 53 (according to IEC 60529)

Order information	
Instrument & accessories	
62688-10	LB 134 base unit
62688-20	LB 134 Light
62552	Wall bracket LB 134
59221	Set of Ni-MH accus (4) for LB 134
62869	Connection Cable 11p. - 11p.
64971	Detector Spiralcable with angle plug-in connection 11p. - 11p.
65287	LB 134 Extension Cable, 8m long, 11p. - 11p.
66578	Connection Cable RS485/Relais 6p, free ends, 3 m long
62436	Case for LB 134, probes and access
Probe options & accessories	
63189	LB 1342 contamination probe 170 cm²
77317	Carrying system
65281	Wall bracket LB 1342
63190	LB 1343 contamination probe 345 cm²
64140	Wall bracket LB 1343
63998	LB 1236D-H10 gamma probe
64039	LB 6411D neutron dose rate probe
64040	LB 6411-1D neutron dose rate probe (with reduced gas pressure)
55589	Case for LB 134 with LB 6411
64144	Bracket LB 134 for LB 6411
64985	LB 6414D neutron survey meter
72386	Case for LB 134 with LB 6414
36103	LB 1234 NaI scintillation counter probe 1“
70701	LB 1234-2 NaI scintillation counter probe 1.5“
Subject changes without prior notice.	

TRANSFORMING SCIENCE INTO SOLUTIONS

Experience and expertise are of great importance to be able to ensure safety-relevant measurements properly and reliably. With more than 70 years of experience in planning and design, installation and commissioning, calibration, documentation and service of radiation protection measurement systems, we continue to support our customers in their task to continuously optimize their work processes and to ensure the safety of the environment and personnel.

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