

## Data Sheet

### Geiger Muller Dose Rate Probe LB 6500-H10

#### USE

Used as dose rate probe in radiation protection

#### Type Approvals PTB-Bauartzulassung

LB6500-4-H10 23.71 / 04.03

LB6500-3-H10 23.71 / 04.04

(in combination with the LB 111 Micro  
Gamma Counting Electronics)

23.71

04.03

23.71

04.04



#### Measured Radiation Quantity

Ambient dose equivalent  $H^*(10)$

Ambient dose rate equivalent  $\dot{H}^*(10)$

#### Application

Dose rate probe for environmental  $\gamma$ -monitoring or for local dose rate measurement.

#### Features

Dose rate probe in Stainless steel envelope with integrated GM counter tube, amplifier –pulse shaper stage and High Voltage module.

Exists in 2 versions

LB6500-4-H10 Low dose rate  $\leq 10$  mSv/h

LB6500-3-H10 High dose rate  $\leq 1$  Sv/h

#### Functional Description

The probe contains following modules:

- ▶ Ambient Equivalent Energy compensated GM counter tube.
- ▶ High voltage for the GM counter tube (high voltage setting internally).
- ▶ Amplifier discriminator circuit.

#### Technical Data

##### ▶ Dose Rate Range

LB 6500-4-H10: 100 nSv/h – 10 mSv/h  
(Type approved: 500 nSv/h – 3 mSv/h)

LB6500-3-H10: 1  $\mu$ Sv/h – 1 Sv/h  
(Type approved: 10  $\mu$ Sv/h – 1 Sv/h)

##### ▶ Energy Range

LB 6500-4-H10:  
PTB Type Tested: 65 keV – 1,3 MeV  $\pm 40\%$   
with regard to Cs-137 and  $0^\circ$   
Angular response +/-  $45^\circ$

LB6500-3-H10:  
PTB Type Tested: 50 keV – 1,3 MeV  $\pm 40\%$   
with regard to Cs-137 and  $0^\circ$   
Angular response +/-  $45^\circ$

##### ▶ Life cycle

LB 6500-4-H10 5 x 1E10 counts  
LB6500-3-H10 5 x 1E10 counts

##### ▶ Intrinsic Background

LB 6500-4-H10 approx. 0,08 cps  
LB6500-3-H10 approx. 0,014 cps

##### ▶ Calibration Factor

LB 6500-4-H10 0,617  $\mu$ Sv/h per cps  
LB 6500-3-H10 7,05  $\mu$ Sv/h per cps

▶ **Output Signal**

Polarity: positive  
 Amplitude: +12V (in 1 kOhm load)  
 +6V (in 50 Ohm load)  
 Width: 5  $\mu$ s  
 Min. Repetition time: 1,5  $\mu$ s  
 Rise & Fall time: 100 ns / 1  $\mu$ s  
 Impedance: 50  $\Omega$

▶ **High Voltage**

DC Converter  
 Voltage range: 300 to 650 V (internal set point via trimmer)

▶ **Operating Voltage**

LB6500-4-H10: 450 Volt  
 LB6500-3-H10: 575 Volt

▶ **Connecting Cable**

7-core Shielded cable: 0,75mm<sup>2</sup>  
 UL-POWER-PUR-D  
 LIH 12Y  
 Outer diameter: 7.5 mm  
 Max. Length:  $\leq$  100 m  
 Lay out: 0 V green  
 +14.5 to 25 V yellow  
 pulse out brown  
 shield black

▶ **Supply Voltage, Current consumption**

+ 14,5 to 25 V: 15 mA (at background )

▶ **Operating Conditions**

Ambient Temp: -20 to +40°C  
 Rel. Humidity, condensing: 30 to 90 %  
 Condensing  
 Storage Temp: max. 60°C

▶ **Protection Degree**

IP 65

▶ **Dimensions / Weight**

Outer Diameter: 45 mm  
 Length: 320 mm  
 Weight: approx. 1000 g

Energy response LB 6500-H10

