



LB 5340 Data Logger

Data Logger for measurement applications in radiation protection

Equipment concept

The Data Logger LB 5340 is a universal data acquisition system, which could be used for a variety of measuring applications in all scopes of radiation protection measurement techniques.

The 19"-rack design enables the usage in a desktop housing or as a rack mounted device. Both versions are characterized by a compact and visually attractive designed metal enclosure and equipped with a colored touch screen. For service purposes a mouse and/or keyboard can be connected.

Due to the modular design the Data Logger can be equipped, according to the application required, with different detectors, sensors and peripherals by means of modules. Up to 6 different modules can be used:

- ABPD-board for pseudo-coincidence measurements
- Detector DAQ-board
- Universal IO-board
- 8-fold current-output-board
- Relay-board with 5 relays with double changers
- Detector Power Supply module (4 Tuchel-connectors)

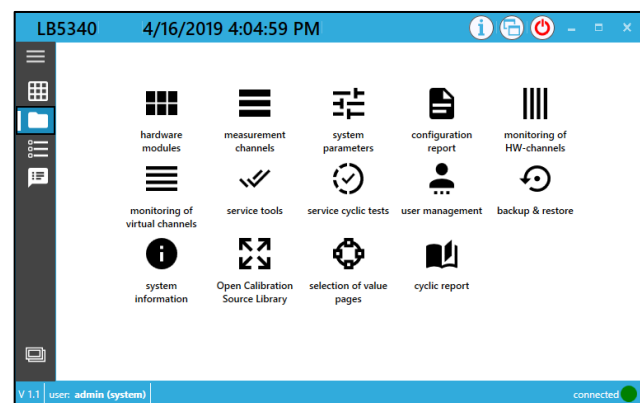
If necessary the modules can be used in a multiple way. Up to 10 slots are available so that you can configure a large-scale system.

All connections are located on the backplane and are easily accessible. One USB-connector is available on the front panel of the device.

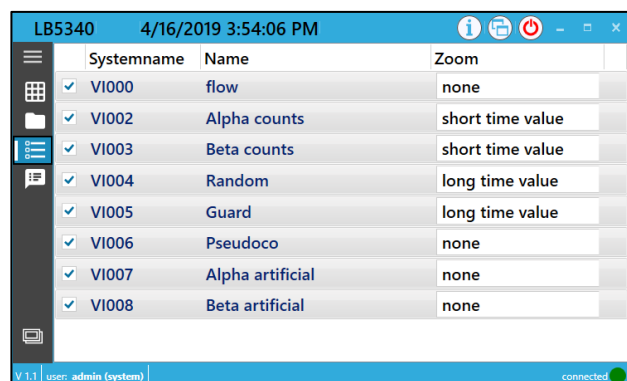
The system processes the module control, calculation of all measuring results, as well as balancing.



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Configuration menu



Selection of the displayed virtual channels (example)

Software system

The LB 5340 features the latest state of the art technology and a technically mature software system that can be configured by the user. An attractive and user-friendly user guidance allows a smooth configuration of the parameters.

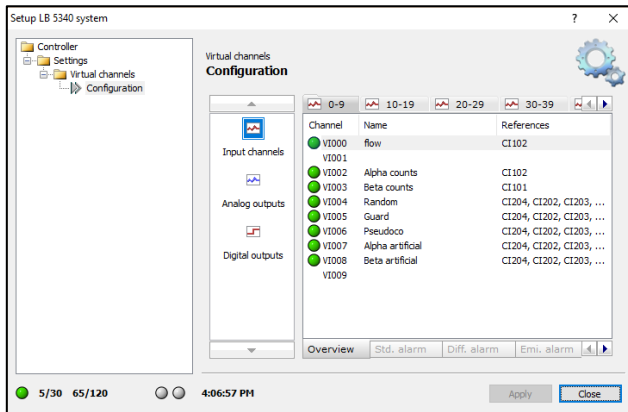
The configuration of the virtual channels is individually programmable for each channel via provided software assistants, for example parametrization of the channels or allocation of averaging algorithms (rate meter or moving average).

Besides the definition of radiometric channels the configuration of the digital in- and outputs as well as the relay outputs are possible.

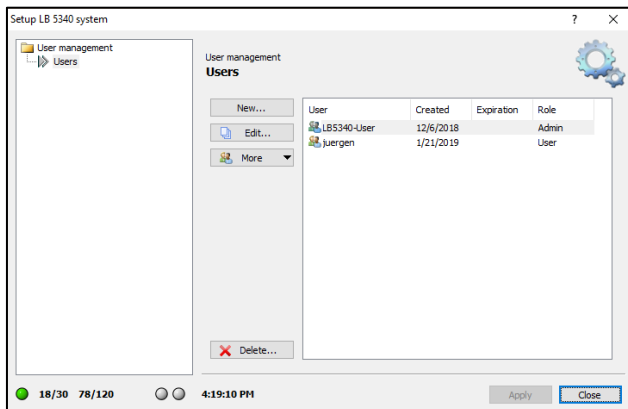
There are various service functions: Background measurement, determination of calibration factors, plateau measurement and determination of pseudo-coincidence factors.

The measured values and graphics are shown by means of different depictions in pre-defined screen pages. It is possible to make a pre-selection of the presented screens. Another possibility for presentation is the zoom-function, which allows an enlarged view of up to 4 measuring channels. This feature enhances the display readability at a greater distance from the data logger.

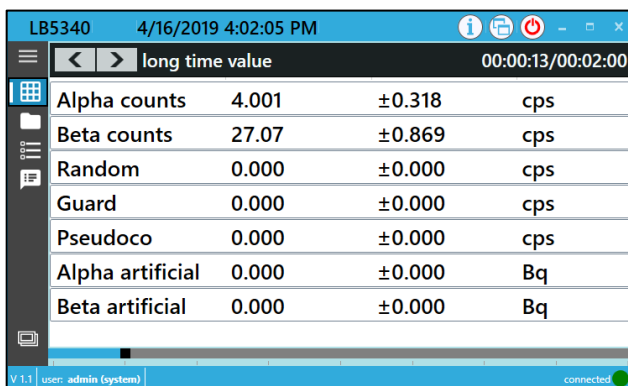
The application software features two password-protected access levels: The User account allows you to set up the system and measurement parameters, run measurements and carry out recurrent test functions. With the Administrator account you can, in addition, configure the complete system: execution of calibration functions, setup of measuring channels and definition of analogue and digital in- and outputs.



Configuration of measurement channels (example)



User Administration



Measured values with corresponding statistical uncertainty

Technical Data

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Mechanical Data

Hardware:	19" rack, desktop housing or rack mounting device; passive backplane with 10 slots for plug in boards (modules); Communication between the modules via CAN-bus, On-Off switch and mains fuse
Processor board:	Mini-PC, 7" TFT-Monitor with touch screen CAN card: PC-104/PCI Windows® 10, keyboard with trackball
Interfaces:	Back panel: 3 x USB port, 1 x Ethernet, 2 x RS 232 Front panel: 1 x USB port
Mains supply:	110/230 VAC, max. 100 W, fuse: 3A,T

Ambient conditions

Operating temperature range:	0°C to 50°C
Relative humidity:	20% to 80%, non-condensing

Software

Watchdog function:	Integrated into the relay board firmware
Data communication:	F ² C Protocol via RS 232 or Ethernet
Data buffer:	10.000 measurement records per channel
Back up function:	Parameter up-/download for external back up, setup configuration report in rtf format

Hardware Module

Multi I/O module LB 39417-01:	4 counting inputs, 2 current inputs (0/4-20 mA), 2 current outputs (0/4-20 mA), 4 digital inputs, 4 control voltages for probe high voltage 0-5 V, 8 open-collector-outputs,
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	connection via phoenix terminal block (48 pin connector)
ABPD module LB 39415:	Pseudo-coincidence board with α, β, γ - counter BNC inputs for norm pulses, 2 independent HV-outputs (up to 4 kV)
ABPD module LB 39415-02:	Pseudo-coincidence board with α, β, γ - counter BNC inputs for norm pulses, 2 independent HV-outputs (up to 2.8 kV)
DAQ module LB 39414:	1 HV-supply unit up to 4 kV (12 Bit resolution), preamplifier for GM-, Proportional-Counters and Scintillation detectors, software controlled main amplifier (8 Bit), 2 x freely selectable Regions of Interest (ROI's), 1 integral discriminator, 2 HV-outputs (1 x direct and 1 x over voltage Tripler stage HVx3), 1 BNC counter input and 1 BNC counter output
DAQ module extension LB 39414-01:	2 more energy windows to the DAQ module using the same detector input, allows to set 4 ROI's on the spectrum
8-fold current output board:	8 independent current outputs (0/4-20 mA), linear or logarithmic scale selectable
Relay boards:	5 potential-free, freely programmable relay-outputs with double changer, embedded watchdog function
Low Voltage Board LB 39416:	4 x Tuchel connectors with 5 V and ± 15 V each

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Note:

This instrument is not intended to be used for diagnostic and/or therapeutic purposes for human beings and is not a medical device – according to the definitions of the European Council Directive 93/42/EEC concerning medical devices.