

Product Information

LB 9000 Data Logger



Applications

- Particulates Monitors
(with ABPD/AERD compensations)
- Radioactive Gas, Iodine and Tritium Monitors
- Moving Filter applications
(Stepwise & Continuous operation)
- Water Monitoring
- Dose- and Dose rate monitoring
- Combined measurement systems

Functions

- Universal multi-counter data acquisition system
- Flexible data acquisition system for radiation protection applications
- Operating system: Windows® XP, Windows® 7
- 19"-rack with 10 HU (incl. keyboard drawer 1 HU & electronic fan 1 HU)
- Industrial-PC with 12" TFT-Monitor and Touch screen
- Passive Backplane with 11 slots for 5 different plug in boards (modules).
Depending on the application one or more of these boards can be mounted
- Visualisation of the measurement values and graphs on 8 freely definable user screens
- Alarm and status page
- Integrated service tools for quality assurance and periodical tests
- 2 password protected access levels
- F²C-Data communication via RS 232 or Ethernet
- FIFO data memory with 10.000 values per channel
- Embedded watchdog function (Relay board)
- Optionally Watchdog function via external PLC



LB 9000 Data Logger

Equipment concept

The Data Logger LB 9000 with its PC software is a universal data acquisition system for a variety of detector systems in radiation protection. All kinds of different probes, sensors and peripheral devices can be connected.

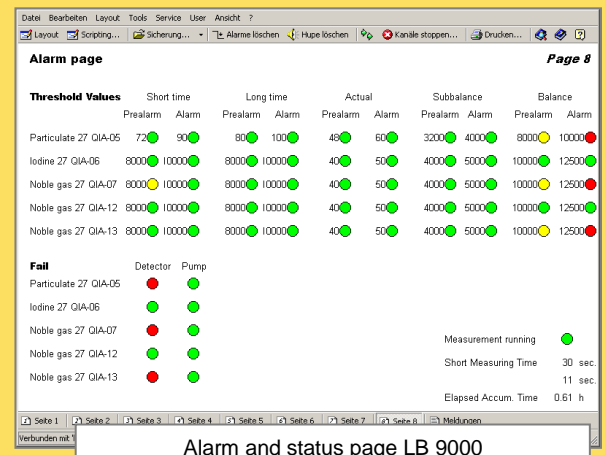
The 19"-rack design enables the usage in a desktop housing or as a rack mounted device. Both versions are characterized by a compact and visually attractive designed metal enclosure and equipped with a coloured touch screen.

The Data Logger has a modular structure so that it can be set up and retrofitted depending on the application. Intelligent modules are used to which the detectors and sensors are connected:

- ABPD-board for pseudo-coincidence measurement
- Detector DAQ-board
- Universal IO-board
- 8-fold current-output-board
- Relay-board with 8- or 16-fold relay card with double changers
- Detector Power Supply module (4 Tuchel-connectors)



LB 9000 Data Logger
(19"-rack, 8 HE, 12"TFT Touch screen)



Alarm and status page LB 9000

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 with up to 50 virtual measuring channels combined with 20 analog outputs and 70 digital outputs.

The system can be upgraded to max. 15 boards by using an additional rack.

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

General Information

- Data communication with F²C protocol via RS 232 or Ethernet.
- FIFO data memory with 10.000 values for each channel
- Wide range power supply (93 – 264 VAC)



Backside LB 9000

LB 9000 Data Logger

Software system

The Data Logger features the latest state of the art technology and a technically mature software system that can be configured by the user. It takes over the complete control of all modules, calculation and integral calculation and the graphical presentation on the screen.

All measured values, different integral values and exceeding or not reaching limit values can be monitored and output depending on the user's requirements.

The configuration of the virtual channels is individually programmable for each channel via provided software assistants. Averaging algorithms (rate meter or moving average), and alarm thresholds can be selected. Besides the definition of radiometric channels the configuration of the digital in- and outputs as well as the relay outputs are possible.

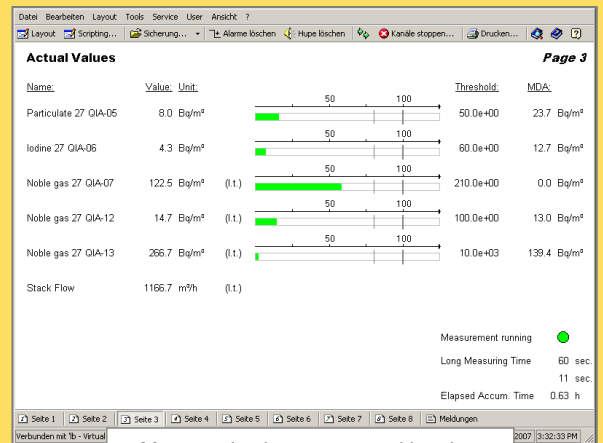
The Microsoft™ based PC software has a very user-friendly graphical interface.

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

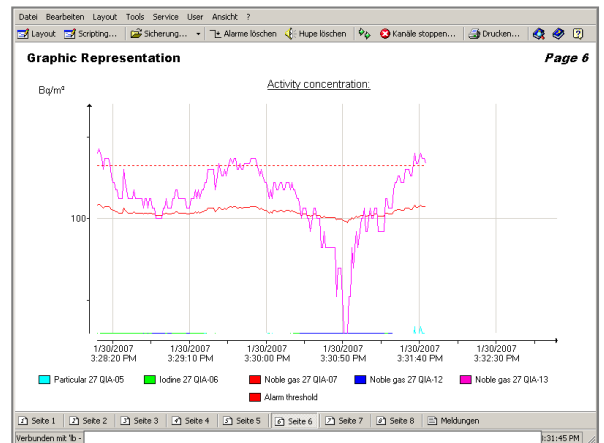
The application software features two password-protected access levels: the User password allows you to set up the system and measurement parameters, run measurements and carry out recurrent test functions. With the Administrator password you can, in addition, configure the complete system: Installation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



Measured values presented in a bar graph and thresholds



Measured values presented in a bar graph with corresponding thresholds



Chronological trend of the measured values

Technical Data LB 9000

Mechanical Data / Hardware

19"-rack, euro board, desktop housing or rack mounting device,

Passive Backplane with 11 slots for 6 different plug in boards (modules). Depending on the application one or more of these boards can be mounted,

Communication between the modules via CAN-bus, intelligent data acquisition modules with μ -controller,

Wide range power supply EC50C (93-264VAC), +5V/5A, +15V/0,8V, -15V/0,5A with IEC mains connector, On-Off switch and mains fuse

Processor board

Industrial-PC with graphical display (12" TFT-monitor with touch screen), colour display

CAN card: PC-104/PCI

Operating system: Windows® XP, Windows® 7 ; keyboard with trackball

Interfaces

Back panel: 1 x USB port, 1 x Ethernet, 1 x parallel (printer), 1 x mouse connection, 1 x keyboard, 2 x RS 232 serial

Front panel: 1 x USB port

Mains supply

110/230 VAC, power consumption: max. 100 W, fuse: 3A,T

Ambient conditions

Operating temperature range: 0°C to 50°C

Relative humidity: 20 to 80%, non-condensing

Software

Internal watchdog function integrated into the relay board firmware,

Data communication with F²C Protocol via RS232 or Ethernet,

FIFO Data buffer with 10000 measurement records per channel,

Import/export configuration & setup for external back up, setup configuration report in rtf format

Hardware-modules

Multi I/O module (LB 39417):

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, connection via phoenix terminal block (32 pin connector)

Multi I/O module (LB 39417-(01)):

see LB 39417, 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 39415-01):

Pseudo-coincidence board with α, β, γ - counter BNC inputs for norm pulses, 2 independent HV-outputs (up to 1.4 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, 3 internal counting channels, 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):

Adds another dual SCA 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 (Embedded watchdog function)

16-fold Relay board: 16 potential-free, freely programmable relay-outputs with double changer

External 8-fold Relay board: 8 freely programmable relay-outputs with double changer, additional 24 V power supply required

Low Voltage Board (LB 39416):

4 x Tuchel connectors with 5 V and ± 15 V each

Subject to change without prior notice

