LTB LASERTECHNIK BERLIN

LIGHT. PRECISION. ANALYTICS.

Energy measuring module for pulsed lasers

Micro Joule Meter

- USB-powered
- Pyroelectric sensor
- High sensitivity (30 nJ)
- High dynamics 14 bit
- Compact and low cost

The USB-powered energy meter works on the basis of the pyroelectric measurement principle. It can be used for measuring very small pulse energies (30 nJ – 250 µJ resp. 500 µJ) and it is characterized by a very low background noise limit of 6 nJ. The measurement dynamics is 14 bit.
All the function units for measurement acquisition, processing, settings, software calibration, digitalization and storage are included into the very compact measurement module. Several modules can be operated in parallel on a PC. The measured values are displayed via the software. Each energy value gets a time stamp in the measurement module already, thus the energy values can be represented as function of time or alternatively of the pulse number. Export and statistic functions are provided for the evaluation of the measurements. In addition, correction factors can be entered when attenuators are used or transmission losses are to be evened out.

Besides all current light fibers the free beam can also be measured. The SMA connection can easily be mounted and removed with the included tools.

The µ-Joule Meter was developed for on-line monitoring in laser-induced industrial analytics and medical diagnostics. Further application areas are the development of systems and methods, simultaneous monitoring of processes as well as system calibration and service.

Modern measurement methods require very small energy amounts in order to initialize the measurement process. On the same time their dosage and evaluation become ever more important.
The µ-Joule Meter is ideally suited for this due to its high sensitivity, the linearity on all the measurement ranges, its ideal insertion dimensions and its long time stability.

Applications

- on-line monitoring
- simultaneous monitoring of processes
- system calibration

Specifications

			PEM 250	PEM 500
General	Max. repetition rate	Hz	500	
	Pulse width	ps - µs	3 - 50	
	Detection threshold	nJ	30	
	Measuring ranges	µJ	0.25; 2.5; 25; 250	0.25; 2.5; 25; 250; 500
	Max. peak density	MW/cm^2	10	
	Spectral sensitivity	µm	0.19 - 1.2	
	Linearity	%	< 1*	
	Accuracy	%	± 4**	
	Calibration wavelength**	nm	337	
	Dynamic range	bit	14	
	Sensor area	mm	Ø 8	
	Nominal voltage	V	5 V DC via USB-interface	
	Dimensions	mm	100 x 27 x 14.5	

			PEM 250	PEM 500
Connection to PC	Connector		USB	
	Cable length	m	1.7	

			PEM 250	PEM 500
Environment and conditions of use	Operating temperature	°C	+15 ... +38	
	Storage temperature	°C	-10 ... +60	
	Max. rel. air humidity	%	85	

* for the calibration wavelength range
**customization possible

Subject to technical changes

Options:

- Stand
- Software development kit (SDK), based on our dll
- Display unit: Subnotebook inclusive Win 10

State: 1.1.2022

LTB Lasertechnik Berlin GmbH • Am Studio 2c • D-12489 Berlin • Germany
+49.30.91 20 75 - 100 • +49.30.91 20 75 - 199 • info@ltb-berlin.de • www.ltb-berlin.de