

EC-PowerMonitor EC-PM



The Electronically Calibrated Power Monitor (EC-PowerMonitor) not only measures beam power in the processing zone but also has an integrated self-test function by means of which the correct working order as well as the accuracy of the measuring device can be checked any time.

Self-Test function

A heating cartridge warms the cooling water and the electrically generated heat capacity is determined calorimetrically. This value is compared with the electrical power consumed by the heating cartridge. Therefore, the EC-PowerMonitor has highly accurate measuring systems for the power consumption and the operating voltage of the heating cartridge.

The EC-PowerMonitor meets highest industrial standards:

- State-of-the-Art power meter, suitable as a reference system
- Long-term stability due to the robust construction and the use of a flow rate sensor without moving parts
- Accuracy and reproducibility due to the use of high quality sensors and components

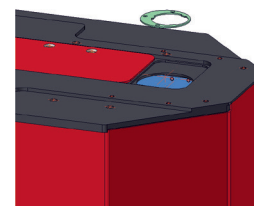
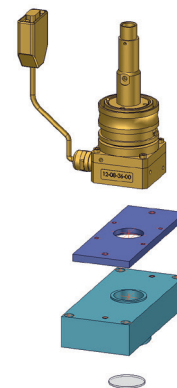
- Reliable operation in a rough operating environment due to robust and stable construction
- Redundancy of measuring results due to integrated self-test function

In Practice

The EC-PowerMonitor is intended for laser manufacturers as well as users as a measurement standard. Moreover, the production with laser beams can be compared across different production sites, which ensures homogeneous measuring standards.

Measured Beam Parameters

Beam power of continuous wave laser sources with simultaneous internal referencing by the heat cartridge is employed.



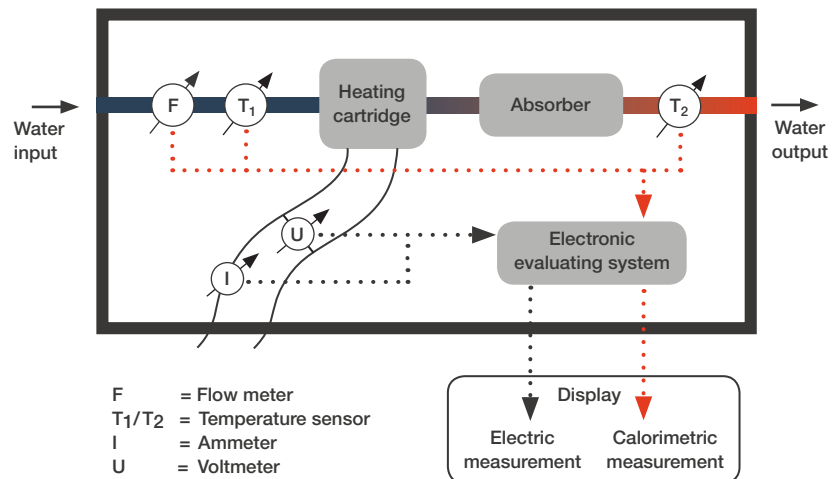
Mounting of the LLK-D fiber connector on the EC-PM

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Options

The following options are available for the EC-PowerMonitor:

- Fiber adapter for the direct measurement of laser beams from the fiber for many standard systems: LLK-B, LLK-D, QBH
- Mount for the connection to a FocusMonitor
- Transport box



Principle of the reference measurement in the EC-PowerMonitor

Technical Data

Measurement Parameters	
Power range	200W – 10kW
Irradiation time	continuous
Wavelength range	800 – 1100nm, 10600nm
Entrance aperture	48mm
Max. Power density	10kW/cm ²
Accuracy	± 2%
Reproducibility	± 1%
Time constant	15s up to 99% of final value
Electronic Calibration Parameters	
Power heating cartridge	3200W
Accuracy self-test	better than 0,5%
Power consumption heating cartridge	230V, 16A
Supply Data	
Power supply	24V DC ± 5%, max. 0.5A
Compressed air	for shutter mechanism
Min. air pressure	2bar
Max. air pressure	3bar
Cooling water flow rate	> 5l/min
Maximum water inlet pressure	6,5bar
Communication	
Interfaces	serial/USB
Dimensions and Weight	
Dimensions (L x W x H)	400x242x205mm
Weight (approx.)	16kg
Environmental Conditions	
Operating temperature range	+10 °C up to +40 °C
Permissible relative humidity (non-condensing)	10 – 80%