



# PocketMonitor



## Small Jack of All Trades for Robust Power Measurement

**Take care of your tools by measuring the power of your laser beam source with a measuring device that only weighs a pound, is two fingers wide, but is tailor-made for your needs with just the right options. Do you remember Newton and his cradle? This palm-sized pocket monitor uses the exact same ballistic principle of momentum transfer and is ready to prove its worth wherever great mobility is required in a tough environment.**

The PocketMonitor (PMT) is a mobile, easy-to-use power meter device developed specifically for everyday use in production. It is sure to impress with its compact, durable design as well as its fast, easy use. A full aluminum casing protects sensitive electronics from shocks and moisture. When folded together, the absorber protects operating elements from undesired damages.

The microprocess-based electronics measure the temperature increase of the absorber and then use this to calculate the power of the laser beam with a high accuracy of  $\pm 4\%$ . High resolution makes it possible to perform measurements in a very broad power range while maintaining the same precision. In the large 4.5-digit display, the exact power or the temperature are shown interchangeably. An incorporated lithium cell supplies enough power to the PocketMonitor for about 10 000 measurements.

## Size Matters in Tight Spaces

Due to the absorber's astoundingly compact dimensions, which lie between a tiny 2.1 cm and 9.9 cm, and its ease of use, clients love using the PocketMonitor in spaces where many laser beam sources are used. This makes it a power meter device that is equally enticing to the service engineers of laser and machine manufacturers as well as technicians in inspection establishments and labs. The device's great degree of mobility without any external connections is both a top reason to buy and a decisive factor overall.



## The Principle

The PocketMonitor measures laser power according to the ballistic principle. In this process, an absorber is exposed to irradiation for a defined period of time (10 s/20 s). After a period of thermal exposure, the heating and known weight of the absorber can be used to determine the amount of power.

## Beam Parameters

Power of continuous wave lasers at

- Wavelength: 800 – 1 100 nm or 10.6  $\mu\text{m}$
- Maximum laser power: 500 W – 12 kW (depending on the model)
- Measuring time: depending on power 10 s or 20 s



PMT 70icu with separate absorber

## Models & Options

- 1 Large selection with four different absorber versions for different power ranges. PocketMonitor 70icu and 120icu with copper cone are designed for the highest power densities.
- 2 When it comes to choosing a suitable device, the power density is often just as important as the maximum power. Especially high reserves are offered by our models PMT 70icu and PMT 120icu, that can be used for even those measurements with laser powers exceeding 5 kW/cm<sup>2</sup> at 5 kW.
- 3 All models are available with a separate absorber and various cable lengths.
- 4 More options: a type with power interface (5 – 20 mA) or an OEM version for direct, mechanical integration with a processing lens.
- 5 Take advantage of the option offered by a calibration certificate. Regular recalibration is recommended.
- 6 We recommend having a suitable case for safe transport and storage.



## Technical Data

|   | PMT 05p <sup>1)</sup>   | PMT 30p <sup>1)</sup>                                 | PMT 70iag, 70icu <sup>1)</sup> | PMT 120iag, 120icu <sup>1)</sup> |
|---|---|---|--------------------------------|----------------------------------|
| <b>MEASUREMENT PARAMETERS</b>   |   |   |                                |                                  |
| Power range   | 25 W – 500 W <sup>2)</sup>  | 150 W – 3000 W <sup>2)</sup>                          | 350 W – 7 000 W <sup>2)</sup>  | 500 W – 12 000 W <sup>2)</sup>   |
| Wavelength range  | 800 - 1100 nm<br>or 10.6 μm   | 800 - 1100 nm<br>or 10.6 μm                           | 800 - 1100 nm<br>or 10.6 μm    | 800 - 1100 nm<br>or 10.6 μm      |
| Max. beam diameter on the absorber  | 27.5 mm   | 48 mm   | 36 mm                          | 36 mm                            |
| Max. power density on the absorber<br>(inlet aperture)<br>at < 1 kW<br>at < 3 kW<br>at 5 kW | 2.5 kW/cm <sup>2</sup><br>–<br>–  | 2.5 kW/cm <sup>2</sup><br>1.5 kW/cm <sup>2</sup><br>– | –<br>–<br>5 kW/cm <sup>2</sup> | –<br>–<br>5 kW/cm <sup>2</sup>   |
| Irradiation time  | 10 s (at maximum permissible laser power),<br>20 s (at 50 % of the maximum permissible laser power) |   |                                |                                  |
| <b>DEVICE PARAMETERS</b>  |   |   |                                |                                  |
| Max. angle of incidence perpendicular<br>to inlet aperture                                  | ± 5 °   | ± 5 °   | ± 5 °                          | ± 5 °                            |
| Max. centered tolerance   | ± 2.0 mm  | ± 2.0 mm  | ± 2.0 mm                       | ± 2.0 mm                         |
| Measuring accuracy  | ± 4 %   | ± 4 %   | ± 4 %                          | ± 4 %                            |
| Reproducibility   | ± 2 %   | ± 2 %   | ± 2 %                          | ± 2 %                            |
| <b>DIMENSIONS AND WEIGHT</b>  |   |   |                                |                                  |
| Absorber diameter   | 45 mm   | 79 mm   | 79 mm                          | 99 mm                            |
| Absorber height   | 15 mm   | 20 mm   | 75 mm                          | 75 mm                            |
| Weight (approx.)  | 0.56 kg   | 0.67 kg   | 1.11 kg                        | 1.55 kg                          |
| <b>ENVIRONMENTAL CONDITIONS</b>   |   |   |                                |                                  |
| Operating temperature range   | 10 – 40 °C  | 10 – 40 °C  | 10 – 40 °C                     | 10 – 40 °C                       |
| Storage temperature range   | 5 – 50 °C   | 5 – 50 °C   | 5 – 50 °C                      | 5 – 50 °C                        |
| Reference temperature   | 22 °C   | 22 °C   | 22 °C                          | 22 °C                            |
| Permissible relative humidity<br>(non-condensing)   | 10 – 80 %   | 10 – 80 %   | 10 – 80 %                      | 10 – 80 %                        |
| <b>PROTECTION</b>   |   |   |                                |                                  |
| Protection category   | IP 51   | IP 51   | IP 51                          | IP 51                            |

<sup>1)</sup> Please refer to the specifications on the identification plate for the type of your device.

<sup>2)</sup> The stated limit values are to be understood in correlation with the permitted maximum energy ( $E = P \cdot t$ ).