PocketMonitor PMT

The PocketMonitor (PMT) is a mobile power measuring device which can be employed easily and was designed for the application in everyday production. The compact and robust design as well as the fast and simple application are key features.

Due to the robust aluminum housing the electronics are protected from shocks and humidity. In its closed state, the absorber protects the control elements from damage.

The microprocessor-based electronics measure the temperature of the absorber by means of which the power of the laser beam is calculated with a resolution of one watt. Due to the high resolution, measurements in a very wide power range with a consistent accuracy can be carried out.

The large 4½ digit display can either display the measured power or the temperature. The integrated lithium cell provides the PocketMonitor with enough power for at least 10,000 measurements.

In Practice

Due to its compact design and the easy handling, the PocketMonitor is employed in environments in which many laser beam sources are used. Thus, it is ideal for service engineers of laser and machine manufacturers as well as technicians in testing facilities and la-boratories. The high mobility of the device without any external connections is a striking factor.

Measured Beam Parameters

Power of continuous wave laser sources at:

- Wavelength: 800 - 1100 nm or 10.6 µm

- Maximum Laser power: 20 W – 12 kW (depending on model)

- Measuring time: 10 s or 20 s depending on the power

Measuring Procedure – the Principle:

The PocketMonitor measures laser power according to the ballistic principle. Here, an absorber is irradiated with laser radiation for a defined period of time (10 s/20 s). By means of the rise in temperature and the known absorber mass, the irradiated power can be determined with a resolution of up to 1 W (PMT 120icu) or up to 0.01 W (PMT 002p) after a ther-malization period.

Different Models

Six different absorber versions are available for different power ranges. The models PocketMonitor 70icu and 120icu with a copper cone are inten-ded for very high power densities.

For selection of the suitable device, the power density and the maximum power are often equally important. The models PMT 70icu and PMT 120icu have particularly high reserves. With these, measurements with more than $5 \, kW/cm^2$ at a laser power of 5 kW or even 12 kW are possible.

Left to right: PMT 05p, 70icu, 120icu

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Options

The PocketMonitor is not only available with different absorbers but also as a special model with a separate absorber. Connection cables are available with a length of 5 m, 10 m or 15 m.

Furthermore, a version with an analog interface (4 – 20 mA) as well as an OEM version for a direct, mechanical integration in a processing head is available. The option of a calibration certificate completes the offer. A regular recalibration is recommended.

The transport box, which is available as an accessary, provides maximum protection from damages.

As all options are available for the entire absorber range, the PocketMonitor is a very flexible measuring device.

PMT 70icu with separate absorber

Technical Data

	002p	01p	05p	30p	70icu [1]	120icu [1]
Parameters Measurement						
Power range	1 W – 20 W	5 W – 100 W	25 W – 500 W	150 W – 3 kW	350 W – 7 kW	500 W – 12 kW
Max. power density						
at < 1 kW	2.5 kW/cm²	2.5 kW/cm²	2.5 kW/cm²	2.5 kW/cm²	–	–
at < 3 kW	–	–	–	1.5 kW/cm²	–	–
at 5 kW	–	–	–	–	5 kW/cm²	5 kW/cm²
Measuring accuracy	± 4 %					
Reproducibility	± 2 %					
Irradiation time	10 s or 20 s					
Dimensions and Weight						
Absorber diameter	21 mm	25 mm	45 mm	79 mm	79 mm	99 mm
Absorber height	20 mm	20 mm	15 mm	20 mm	75 mm	75 mm
Weight, approx	0.53 kg	0.53 kg	0.56 kg	0.67 kg	1.11 kg	1.55 kg
Environmental Conditions						
Operating temperature range	15 – 35 °C					
Storage temperature range	5 – 45 °C					
Reference temperature	23 °C					
Admissible humidity (non-condensing)	0 – 80 %					

[1] **This model requires a beam incidence central to the aperture.**