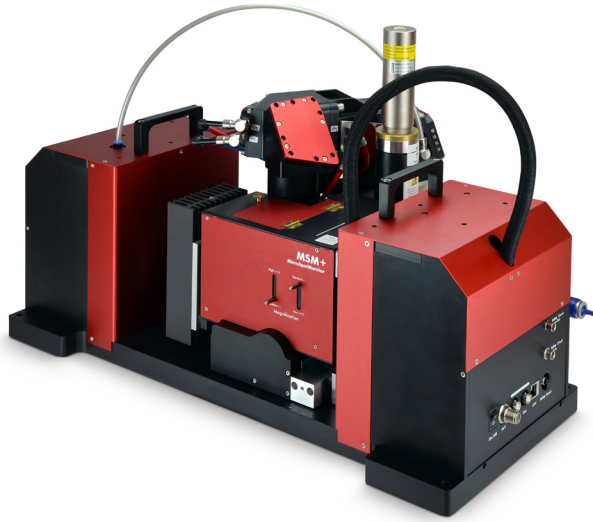
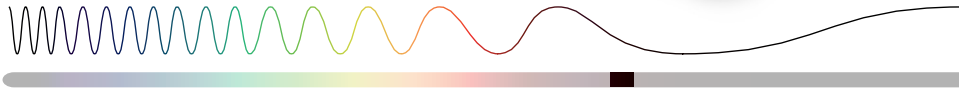
MicroSpotMonitor MSM+ HB

PRIMES

- Fiber and disc laser
- Diode laser
- Ultrashort pulse laser
- CO_2 laser





1 025 – 1080 nm

The most sophisticated and advanced camera based beam profiler for high power beam characterization.

- Caustic
- Raw beam
- Power
- Beam profile
- Pointing stability
- Vector
- Focus shift

POWER RANGE	10 W – 20 kW
BEAM QUALITY M^2	Single mode - Multi mode
BEAM DIAMETER	20 – 1 000 µm
SPECIAL FEATURE	Mount for fiber sockets
INTERFACES	Ethernet

Tech Corner

The MicroSpotMonitor MSM+ HB is the most sophisticated and advanced camera based measuring device for high power lasers available on the market. With its unique design and its perfectly chosen components and optical elements the MSM+ HB is the ideal fit to attenuate and image a laser beam at up to 20 kW multi- or 10 kW single mode.

Our HighBrilliance measuring objective offers 4.5 fold magnification and is designed to reduce self induced focus shift to a minimum (~ 5 % / z_R*kW SM). Additional beam splitters within the main housing as well as a filter wheel equipped with selectable neutral density filters enlarge the range of measurable power levels. Furthermore, the MSM+ HB is equipped with two selectable internal objectives, expanding the possible magnification to 1.8 or 7.1 fold.

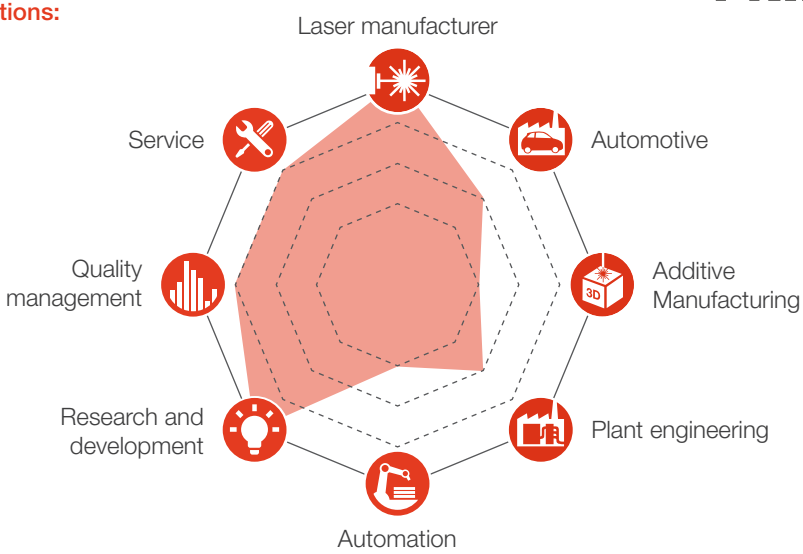
For measuring the caustic of a focused laser, the internal axes are moving the complete optical setup along the propagation of the laser. With its optional mount for fiber sockets, it is possible to measure the influence of a focusing head on a fiber laser with the MSM+ HB.

Thus, the propagation of a fiber guided laser can directly be measured. Deviations between the fiber and the focus measurement can be displayed and evaluated within the PRIMES LaserDiagnosticsSoftware LDS.

With an optional PowerLossMonitor PLM connected to the water circuit of the MSM+ HB, temporally resolved information on the laser power can be provided. An integrated safety circuit monitors the condition of the equipment and will immediately shut off the laser in the event of a fault.

MEASUREMENT PARAMETERS	MSM+ HB10	MSM+ HB20
Max. laser power Single mode Multi mode	 5 kW 10 kW	 10 kW 20 kW
Admissible wavelength range	1 025 nm – 1 080 nm	
Beam diameter	20 µm – 1 000 µm	
Admissible measuring range	$\pm 3z_R$	
Max. input NA	0.11	
Max. working range z	120 mm	40 mm
SUPPLY DATA		
Power supply In standby mode	24 V DC ± 5 %, max. 1.8 A 0.4 A	
Recommended cooling water flow rate Min. cooling water flow rate Cooling water temperature T_{in} Maximum water inlet pressure	0.7 l / min / kW 5 l / min	10 l / min dew-point temperature < T_{in} < 30 °C 4 bar	
Compressed air pressure Maximum pressure Specification of compressed air according	0.5 bar – 1.0 bar 2 bar ISO 8573-1:2010 [6:4:4]	
COMMUNICATION		
Interfaces	Ethernet, PRIMES-Bus RS485, Safety circuit	
DIMENSIONS AND WEIGHT		
Dimensions (L × W × H) excl. cables and plugs	600 x 401 x 388 mm	727 x 400 x 385 mm
Focal position above base plate	320 – 400 mm	390 – 410 mm
Weight (approx.)	35 kg	42 kg

Applications:



System description: The MicroSpotMonitor MSM+ HB is designed to meet market requirements of constantly increasing power levels of high brilliant laser sources. The camera based system measures all relevant parameters of a focused laser. The MSM+ HB measures the power density distribution with the highest resolution and accuracy. Developing new laser sources, optimizing the optical path of focusing heads or verifying the performance of lasers in processing machines has never been that easy and reliable.

Your benefit: The new “plus generation” of our established MicroSpotMonitor provides higher measuring rates, enhanced algorithms and new measuring modes. Fully automatic caustic measurements and new features within our LaserDiagnosticsSoftware LDS increase the usability for basic measurements, while providing detailed information for in-depth analyses of your beam profile.

CONCLUSION

Laser systems equipped with single or multi mode fiber lasers at power levels up to 20 kW can be surveyed in great detail. Power density distributions along the propagation of the focused or fiber guided laser will enable an easy root cause analysis. Distortions, aberrations or, more common, spatters and defects on optical surfaces are directly detectable. Appropriate countermeasures can be initiated in a targeted and immediate manner.

For further information please visit www.primes.de/msm+hb

PRIMES GmbH | Max-Planck-Straße 2 | 64319 Pfungstadt | Germany | www.primes.de
Version: 1.0 EN - 03_2022 | Specifications subject to change without further notice.