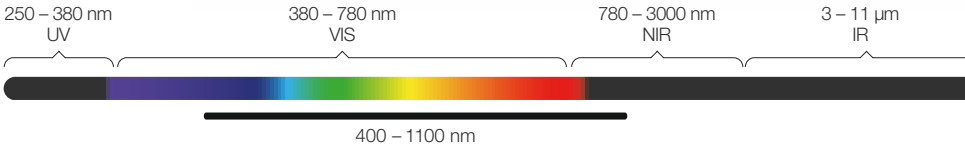
Cube

PRIMES

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



Compact. Accurate. Easy to use.
Your power meter of choice, especially in confined spaces.

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

POWER RANGE	Cube 25 W – 12 kW Cube L 200 W – 20 kW
ACCURACY	± 3 %
BEAM DIAMETER	Cube up to 30 mm Cube L up to 45 mm
HIGHLIGHT	Pulsed laser > 50 µs Internal storage
INTERFACES	Bluetooth, API, Micro-USB

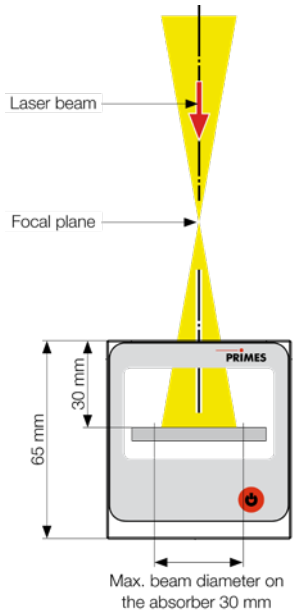
Engineered for Precision

Designed for simplicity, speed, and reliability, the PRIMES Cube is ready to use in just moments. Ideal for validating your machine's power output and identifying fluctuations, helping you maintain performance, perform adjustments, and ensure consistent part quality. A must-have for every machine operator and field service professional!

Review measuring results instantly on the display or on your computer or mobile device. The Cube stores results internally so they can be analyzed later using the Cube App or LaserDiagnosticsSoftware (LDS). The intuitive one-button control also lets you access previous measurements directly on the device display.

User independent yet highly accurate measurements: The laser power is measured based on the temperature rise of the absorber and the determined pulse length.This calorimetric measurement principle delivers the most reliable results as it is independent from position, spot diameter and other influences.

Forget the fine-tuning. Just irradiate the absorber – we'll take care of the accuracy.



Alignment of Cube to laser beam. For Cube L, values in the table on p. 3 apply accordingly.

With the PRIMES Cube App for Android™, operating any Cube model becomes even easier. Use your smartphone or tablet to wirelessly connect via Bluetooth, control your measurements, and monitor results in real time. The user-friendly interface allows you to preset entire measurement series and send them to the Cube with a single tap. The app displays laser power, pulse duration, and energy per pulse graphically — along with standard deviations for deeper insight. The PRIMES Cube App is available on the Google Play Store.

Prefer using a PC? Simply connect the Cube via micro-USB or Bluetooth and use our advanced LaserDiagnosticsSoftware LDS for extended control options, data analysis, and secure backups.

Other PRIMES Cube Models

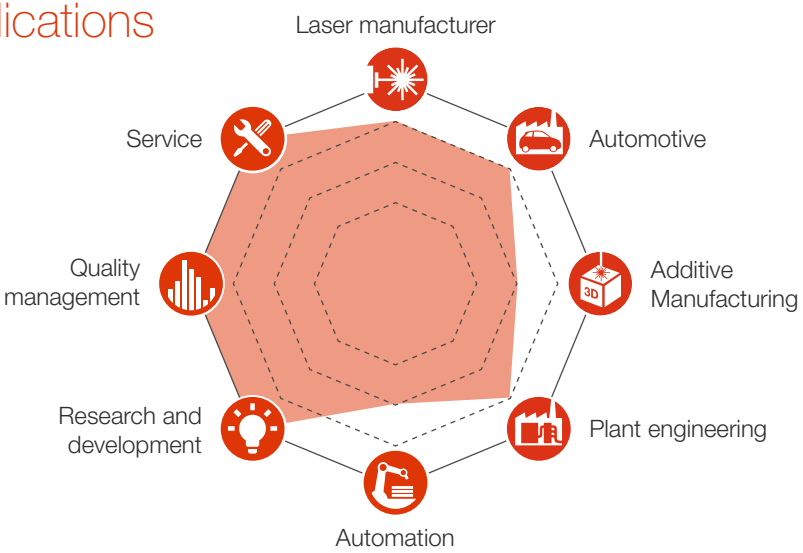
Cube L1	operating close to focus at up to 16 kW
Cube M	specifically designed for AM machines
Cube XT	up to 150 kW

MEASUREMENT PARAMETERS	CUBE	CUBE L
Power range	25 – 12 000 W [1]	200 – 20 000 W [1]
Wavelength range	440 – 460 nm, 510 – 540 nm and 800 – 1 100 nm	440 – 460 nm, 510 – 540 nm and 800 – 1 100 nm
Max. beam diameter on the absorber	30 mm	45 mm
Max. power density on the absorber at beam diameters > 10 mm 10 – 3 mm 3 – 1.5 mm < 1.5 mm	30 mm underneath the aperture 4 kW/cm² 5 kW/cm² 10 kW/cm² 12 kW/cm²	30 mm underneath the aperture 4 kW/cm² - - -
Irradiation time (depending on laser power)	0.1 – 2.0 s [1]	0.1 – 2.0 s [1]
Min. on/off times (duty cycle) for pulsed lasers (e.g. max. 10 kHz at 50 % duty cycle)	50 µs	50 µs
Max. laser rise time	< 1% of irradiation time	< 1% of irradiation time
Energy per measurement	50 – 3 000 J	depending on beam diameter [2]: d > 35 mm: 200 - 5000 J 28 - 35 mm: 200 - 4000 J 20 - 28 mm: 200 - 3000 J d < 20 mm: 200 - 2000 J
Recommended energy per measurement	300 – 500 J	500 – 2 000 J
Total duration until measurement value output	< 15 s	< 15 s
Nominal measurement frequency	300 J: 1 cycle/min 3 000 J: 1 cycle /15 min	700 J: 1 cycle/min 5 000 J: 1 cycle/15 min
DEVICE PARAMETERS		
Max. absorber temperature	120 °C	120 °C
Max. angle of incidence perpendicular to inlet aperture	± 5 °	± 5 °
Max. centered tolerance	± 2.0 mm	± 5.0 mm
Accuracy	± 3 %	± 3 %
Reproducibility	± 1 %	± 1 %
SUPPLY DATA		
Power supply	Built in lithium-ion battery, which can be charged via a micro-USB port	
COMMUNICATION		
Interfaces	Bluetooth, micro-USB, API	Bluetooth, micro-USB, API
Software	LaserDiagnosticsSoftware (LDS) and Cube App	
DIMENSIONS AND WEIGHT		
Dimensions (L x W x H) (without connectors)	60 x 65 x 65 mm	92 x 97 x 65 mm
Weight (approx.)	400 g	1 100 g

[1] The stated limit values are to be understood in correlation with the permitted maximum energy ($E = P \cdot t$).

[2] Limiting the maximum energy as a function of the beam diameter serves to protect the device and prolongs its service life.

Applications



Your benefit

The PRIMES Cube delivers fast, precise and the most reliable laser power measurements for CW and pulsed lasers. One ultra-compact device for powers from just a few watts to multiple kilowatts, delivering ±3 % accuracy, independent of environmental conditions and user interference. No water cooling, quick to use, and fully mobile. View power, pulse duration and energy live, with full control at your fingertips.

- Unrivalled measuring accuracy and reproducibility
- Works across VIS and NIR wavelengths
- Fully portable – no cables, no water cooling
- Wireless operation via Bluetooth
- Built in display and internal memory for measurement series

CONCLUSION

Whether for qualification, service, or daily diagnostics – PRIMES Cube suits every service case and meets every power challenge with confidence.

For further information please visit www.primes.de/cube

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