Multipurpose Tool for the Electronics Lab

LPKF ProtoLaser U4

- Excellent quality and high material variety due to the UV laser wavelength
- Laser-stabilized in the low energy area for the processing of thin and sensible materials
- Power measurement on the substrate level for process control
- Compact and safe: lab-ready

LPKF ProtoLaser U4: Specialist in Micro-Material Processing

There is not enough room to show all the applications which can be professionally processed with the LPKF ProtoLaser U4. A small sample, from left: processing of metal layers on Al_2O_3 (with 40 µm drill holes); flexible and rigid circuit board processing (structuring, cutting, drilling).

LPKF

One System, Multiple Applications

The LPKF ProtoLaser U4 with integrated UV laser is capable of processing a wide variety of materials. It is easy to install and even easier to use. The high pulse energy of the UV laser leads to a residue-free ablation process, resulting in geometrically precise contours.

The LPKF ProtoLaser U4 can structure or cut diverse materials quickly and cleanly. The laser wavelength used makes the UV laser a truly multifunctional tool. A UV laser beam can cut individual boards out of large boards with high precision and no stress, drill holes and microvias, and create openings in solder masks. It can cut and structure LTCCs, fired ceramics, ITO/TCO substrates, delicate prepregs, and laminated materials like FR4- or RF-specific substrates.

The processing of various materials is supported by the CircuitPro Advanced software. An extensive materials library supplies the laser parameters for key materials. Because the ProtoLaser U4 works without material contact, tooling costs are a thing of the past. Micro material processing thus benefits from the fine laser beam diameter, the extremely precise focusing along the Z-axis, and the exact control of the processing positions.

LPKF ProtoLaser U4	
Max. layout area (X/Y/Z)	305 mm x 229 mm x 7 mm (12” x 9” x 0.28”)
Max. material size (X/Y/Z)	315 mm x 239 mm x 10 mm (12.4” x 9.4” x 0.39”)
Laser wavelength	355 nm
Max. laser power	5.7 W
Laser pulse frequency	25 – 300 kHz
Diameter of focused laser beam	20 ± 2 µm (0.78 ± 0.08 mil)
Structuring speed	5.5 cm^2/min (0.9 in^2/min)[a] on laminated substrates 18 µm (0.5 oz) Cu
Minimum line/space	50 µm / 20 µm (2.0 mil / 0.8 mil)[a] on FR4 18 µm (0.5 oz) Cu
Positioning accuracy in the scan field	± 10 µm (± 0.39 mil)
Repeatability in the scan field	± 2.2 µm (± 0.09 mil)
Dimensions (W x H x D)	910 mm x 1650 mm x 795 mm (35.8” x 64.9” x 31.3”)[b]
Weight	350 kg (772 lbs)
Power supply	110 – 230 V, 50 – 60 Hz, 1.5 kW
Compressed air supply	Min. 6 bar; 185 l/min (min. 87 PSI; 185 l/min)
Cooling	Air-cooled (internal cooling cycle)
Ambient temperature; humidity	22 °C ± 2 °C (71.6 °F ± 4 °F); < 60 %
Software	LPKF CircuitPro Advanced
Options and accessories	Dust extraction unit, compressor, starter set

[a] Depending on material and laser beam parameters

[b] Height with open hood: 1765 mm (69.5”)

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Specifications and other product information are matter of change without prior announcement. Photos may show optional accessories.

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