

PRESS RELEASE

Even Greater Precision While Scanning Without Limits

New Power Control Functions for Virtually Boundaryless Image Fields

Puchheim, Germany – Dec. 6, 2018 – OEM laser deflection and positioning systems manufacturer SCANLAB GmbH now adds even more materials-processing power control capabilities to XL SCAN, the combined solution for simultaneously controlling scan heads and XY stages. For specialized industrial ultra-short pulse (USP) lasers, these new features and algorithms offer control capabilities such as: constant pulse intervals, deflection-angle-dependent energy densities or controlled laser power settings. The virtually limitless scanned image field has proven itself in practice and demonstrably boosts throughput, e.g. in film processing, PCB drilling and large-scale laser marking.



Laser processing is often constrained by a scanner's image field. Large-scale processing traditionally gets performed stepwise via individual image fields, called 'tiles'. But this method bears the risk of longer process times and stitching errors, i.e. misaligned marking at image field boundaries. To overcome this problem, SCANLAB and ACS Motion Control last year introduced a new scan concept. XL SCAN and

the jointly developed syncAXIS control software enable simultaneous control of an excelliSCAN scan head and a mechanical XY stage with two servo axes. This solution employs an RTC6 control board to transmit motion profiles to both stage and scanner. The application's precision is thereby limited solely by the stage's and scanner's precision – the control itself introduces no additional error. This concept decisively differentiates XL SCAN from competitors' systems that close a feedback loop between the scan system and stage, but are constrained by very slow dynamics. A typical feedback loop's 10- μ s transmission/preview latency, together with a scanner speed of 2.5 m/s, could already cause deviations of 25 μ m.

Positive Effects of Control

Larger systems can even employ multiple instances – such as two scan heads and four stages – controlled from a single PC. The new scan concept has meanwhile proven itself in diverse industrial and research organization applications, and its functionality is being further extended based on customer feedback.

A new trajectory planner enables exact control of two laser parameters in conjunction with triggerable USP lasers. For users, this means a controllable pulse interval on the middle line or the inner contour of the laser track. Also available is laser power control – completely independently of scan patterns or motion speeds.

Plus, syncAXIS control allows also with various deflection angles to assure a constant fluence on the workpiece.

“We’re positively surprised by our customers’ feedback. For instance, customers’ tests of XL SCAN for display fabrication and glass surface processing boosted their precision by a factor of 3 compared to other manufacturers’ systems,” reports SCANLAB CEO Georg Hofner regarding experience gained in recent months. “Appreciably enhanced user productivity is probably a further factor behind growing demand for this combined scan solution.”

Print-quality images can be downloaded at
<https://www.scanlab.de/en/news-events/image-library>

Current tradeshow calendar:

SPIE.Photonics West 2019 from February 5 – 7, 2019 in San Francisco, CA, USA,
South Hall – Booth 2251.

Photonics Russia 2019 from March 4-7, 2019 in Moscow, Russia.

LASER World of Photonics China 2019 from March 20 – 22, 2019 in Shanghai,
China, Hall W2 – booth 2214.

About SCANLAB:

With over 35,000 systems produced annually, SCANLAB GmbH is the world-leading and independent OEM manufacturer of scan solutions for deflecting and positioning laser beams in three dimensions. Its exceptionally fast and precise high-performance galvanometer scanners, scan heads and scan systems find application in industrial materials processing and the electronics, food and beverage industries, as well as biotech and medical technology. For over 25 years, SCANLAB has secured its international technology leadership through pioneering developments in electronics, mechanics, optics and software, as well as the highest quality standards.

ACS Motion Control Inc.:

ACS Motion Control is a global company providing EtherCAT® network based high performance machine control systems for motion centric applications. Since 1985, ACS Motion Control has provided state of the art control solutions to world leading manufacturers. ACS has its international headquarters in Israel with sales and support centers in the USA, Germany, China and South Korea.

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