PRESS RELEASE

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>> LASER World of PHOTONICS 2025 <<

SCHULZ-ELECTRONIC PRESENTS NEW SEMICONDUCTOR SAFETY SWITCH FOR LASER SYSTEMS WITH HIGH CLOCK CYCLES

Mechanical circuit breakers in laser systems deactivate the driver of the laser diode and disconnect it from the mains. When restarting, the driver must be fully booted up - a time-consuming process that can also place a heavy load on the electronic components. Customer requirements have led SCHULZ-ELECTRONIC to develop the SES semiconductor safety switch, with which even high clock cycles can be realized without mechanical wear. The innovation be presented for the first time at LASER World of PHOTONICS 2025 with DIN EN 13849-1 PL e certification.

High-power laser diodes are potentially dangerous or even lethal, which is why these systems must generally comply with the highest safety standard in accordance with DIN EN ISO 13849-1 (Performance Level e). During operation, however, it is regularly necessary to open the safety cabins - for example to change workpieces or in the event of a fault. It is imperative that the laser is reliably switched off.

In most systems, mechanical safety contactors are installed for this purpose, which disconnect the power supply - comparable to an emergency stop - from the supply voltage with each cycle.

However, this means that the driver of the laser diode is deactivated and completely disconnected from the power supply. When it is switched on again, the driver must be completely restarted. Not only is this method slow, but the electronics are not designed to carry out this process hundreds or even thousands of times a day. The consequences are heavy wear on the switching contacts, increased electrical stress, reduced service life and rising maintenance costs.

As a specialist for professional power supplies, SCHULZ-ELECTRONIC supplies system manufacturers with laser diode drivers and other electronic components. This customer group increasingly requested a safety switch that would allow higher cycle times to be realized in production. As no suitable solution was available on the market, SCHULZ-ELECTRONIC initiated an in-house development. The **SES semiconductor safety switch** will be presented to trade visitors for the first time at LASER World of PHOTONICS 2025 officially certified to EN 13849-1 PL e.

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With the SES from SCHULZ-ELECTRONIC, an electronic, self-monitoring switch is now available that is connected directly between the driver and the laser diode and is not subject to mechanical wear. The SES safety switch offers the following advantages:

- Safe and reliable separation of diode and driver
- Fast recommissioning and therefore minimal system downtimes
- New application possibilities with very high clock frequencies in the range of seconds
- Long service life of electronic components compared to mechanical switches
- Minimal maintenance costs and reduced service calls
- Significantly higher switching currents than relays: Model variants up to 150 V and over 400 A available

The SES semiconductor safety switch from SCHULZ-ELECTRONIC is certified in accordance with DIN EN ISO 13849-1 and meets the requirements for performance level e.

About SCHULZ-ELECTRONIC

SCHULZ-ELECTRONIC is a leading solution provider and development partner for professional power supplies. Whether laboratory power supply, industrial power supply, laser diode driver or pulse generator - the product portfolio includes all leading brands. In addition, SCHULZ-ELECTRONIC develops highly complex special solutions and complete systems from batch size 1. SCHULZ-ELECTRONIC supplies devices, assemblies and components for the automotive industry, the solar and photonics sector, research and development facilities, the aerospace industry and the railroad sector. Founded in 1975 and headquartered in Baden-Baden, the company has branches in Berlin, Basel (CH) and Shanghai (CN).

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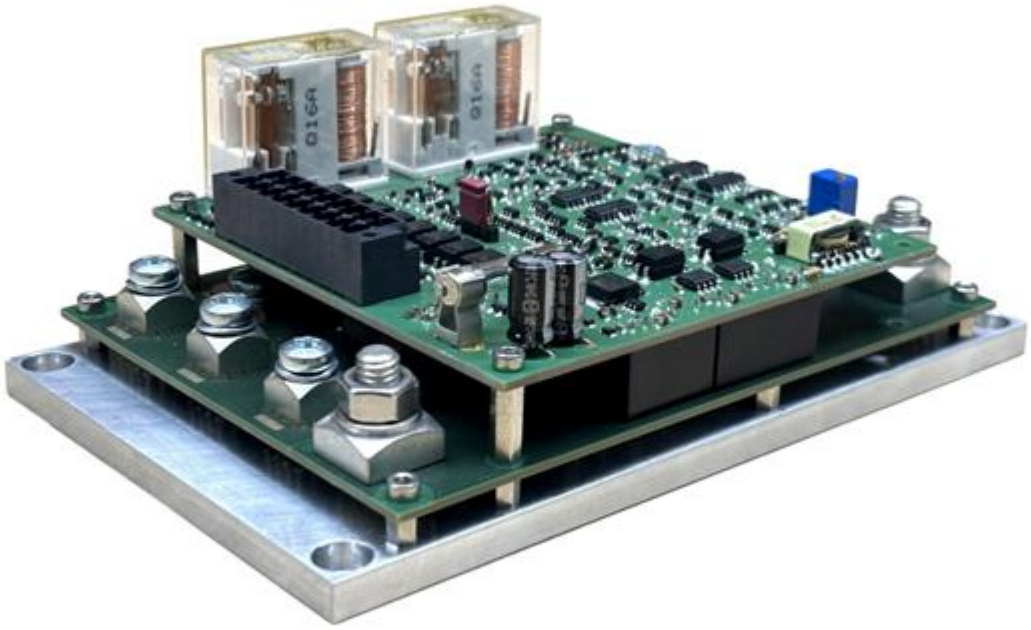

Caption: The innovative semiconductor safety switch SES enables the operation of laser systems with very high clock cycles.

Image source: SCHULZ-ELECTRONIC GmbH

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