

PHOTONICS NEWS

Magazin der LASER COMPONENTS GmbH

LASER | 2019

lasercomponents.com

TRADE
SHOW
edition



THE ART OF PHOTONICS

COMPANY

LASER COMPONENTS has seen considerable growth during the recent years and is paving the way for future growth with a new production facility in Arizona. ∞

AUTOMOTIVE

Our laser technology plays a crucial part in almost every aspect of the automotive future – be it in LiDAR systems, in spectroscopic pollution sensors or in powerful welding tools. ∞

MACHINE VISION

Machines are taking over when it comes to sorting, analyzing, and processing industrial goods and even food. Without our laser modules, many of them would be blind as a bat. ∞

MEDICAL

Many medical applications use special lasers and optical fibers. It goes without saying that standards for quality and sterility are exceedingly high in this field. ∞

INDUSTRY

Lasers and fiber optics have become crucial in modern manufacturing and engineering, with LASER COMPONENTS supplying key elements for many applications. ∞



Imprint

LASER COMPONENTS GmbH

Wernervon-Siemens-Str. 15
82140 Olching / Germany

Tel: +49 8142 2864-0
Fax: +49 8142 2864-11

www.lasercomponents.com
info@lasercomponents.com

General Manager: Patrick Paul
Commercial Register in Munich HRB 77055
Editor: Claudia Michalke, Walter Fiedler

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2nd WORKshop on UV Technologies

November 26–27, 2019



WORKshop

LASER COMPONENTS and SPECTARIS host the
2nd International WORKshop on UV Technologies.

The event focuses on the UV emission, transmission, detection as well as market analysis of the technologies, latest developments, and commercial applications.

Paper Submission: July 26, 2019
Paper Acceptance: September 20, 2019
Registration Acceptance: October 25, 2019

www.uv-workshop.info

Dear visitors,

Every two years, the gates to the leading trade show of the laser industry open in our hometown of Munich. For LASER COMPONENTS, it is therefore not just a home game in which we want to live up to our role as host, but the highlight of the year par excellence.

In preparation for the current trade show, the documents from 2017 will naturally be put on your desk. Well absorbed by the daily business, it is sometimes difficult to comprehend the positive development of one's own company adequately. Preparing for a major trade show, however, makes it clear what has been achieved over the past two years. Our aim is to make this experience possible for every visitor to our booth.

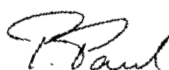
Our components have evolved in many areas. Higher sensitivities, higher damage thresholds, lower power consumption, and smaller size – and all of this often combined with more attractive prices due to significantly increased production quantities.

Many key technologies are now available in-house and have made our components more complex and intelligent. Looking at future mass markets has also motivated us to increasingly think in terms of modular options from which customers can choose exactly the vertical range of manufacture they need for their applications.

In addition to the usual product presentation, we have again planned sufficient space at our booth for our most important trade show objective: Communication with our customers.

As a special highlight this year, we would also like to give you the opportunity to escape the stress of the show for just a few minutes and invite you to an art installation in which you can experience light and glass in an innovative and appealing form.

We look forward to your visit.



Patrick Paul

Geschäftsführer, LASER COMPONENTS GmbH



Get in Touch!

Meet Our Experienced Team at LASER. World of Photonics!

Dr. Mike Hodges

+49 8142 2864-50

m.hodges@lasercomponents.com

Manuel Herbst

+49 8142 2864-91

m.herbst@lasercomponents.com

Winfried Reeb

+49 8142 2864-42

w.reeb@lasercomponents.com

Dr. Olga Stroh-Vasenev

+49 8142 2864-48

o.stroh-vasenev@lasercomponents.com

Sven Schreiber (CSO)

+49 8142 2864-27

s.schreiber@lasercomponents.com

Lukasz Abramek (CEE)

+49 8142 65440-10

l.abramek@lasercomponents.com

Patrick Paul (CEO)



ACTIVE COMPONENTS

Dr. Andreas Hornsteiner

+49 8142 2864-82

a.hornsteiner@lasercomponents.com

Dr. Christina Manzke

+49 3301 522 99 98

c.manzke@lasercomponents.com

Armin Kumpf

+49 8142 65440-11

a.kumpf@lasercomponents.com

Michael Oellers

+49 2161 2779883

m.oellers@lasercomponents.com

Florian Kiesch

+49 8142 2864-738

f.kiesch@lasercomponents.com

Florian Tächl

+49 8142 2864-38

f.taechl@lasercomponents.com

FIBER OPTICS



INFRARED DETECTORS OPTICAL FILTERS

Johannes Kunsch
+49 8142 2864-28
j.kunsch@lasercomponents.com

Uwe Asmus
+49 8142 2864-43
u.asmus@lasercomponents.com

Dr. José Carrión
+49 8142 2864-60
j.carrión@lasercomponents.com
Björn Götze
+49 8142 2864-53
b.goetze@lasercomponents.com



Barbara Herdt
+49 8142 2864-41
b.herd@lasercomponents.com

René Sattler
+49 8142 2864-763
r.sattler@lasercomponents.com

Rainer Franke
+49 8142 2864-39
r.franke@lasercomponents.com

Hamza Ben Ghazala
+49 8142 2864-736
h.ben-ghazala@lasercomponents.com



LASER OPTICS

Stephan Krauß
+49 8142 2864-32
s.krauss@lasercomponents.com

Jochen Maier
+49 8142 2864-22
j.maier@lasercomponents.com

René Bartipan
+49 8142 2864-103
r.bartipan@lasercomponents.com

Nadine Kujath
+49 8142 2864-701
n.kujath@lasercomponents.com

LASER MODULES MEASUREMENT TECHNOLOGY



ALBALUX FM

REDEFINING LIGHT.

small components. MASSIVE IMPACT.

WEB L19-001

ALBALUX FM is set to spark a new innovation wave in medical and machine vision illumination solutions. It is the world's first laser white light module with bright and highly directional fiber optic output. The efficient optical fiber emits >150 lumens with sharp narrow beam edges, bridging the gap between LED and Xenon. For the most critical procedures, true precision and contrast-rich illumination is now within hand reach. ■

Stephan Krauß: +49 8142 2864-32
s.krauss@lasercomponents.com





New Production Facility for Detectors in the USA

LASER COMPONENTS Lays the Foundations for the Future

With the building of its new production facility for detectors, LASER COMPONENTS has begun laying the foundation for the future. At the end of April, the ceremonial setting of the cornerstone for the new 26,000 ft² building took place in Chandler, Arizona. Work on the building, which will serve as a central development and production site for all LASER COMPONENTS detector technologies, should be completed by the spring of 2020. The facility, which will be equipped with production areas and cleanrooms according to the latest standards, is designed for up to 70 employees and thus offers sufficient space for the growth that CEO Patrick Paul expects to see in the coming years.

"We deliberately chose the location for our new plant near our previous headquarters. This will allow us to continue to benefit from the expertise of our long-standing employees and to expand our close ties with Arizona State University," says Patrick Paul. "In addition, major players in technologies related to autonomous driving have recently settled in Chandler. This market is becoming increasingly important for our optical detectors."

LASER COMPONENTS manufactures detectors for vastly different technologies in the USA. These include silicon and InGaAs avalanche photodiodes, which collect the smallest amounts of light. Further components include PbS/PbSe, InAs, InGaAs, and pyroelectric detectors, which are mainly used for gas measurement and flame detection.

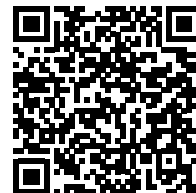
"Manufacturers of sophisticated security systems have relied on our detectors for many years now," explains Dragan Grubisic, general manager of the LASER COMPONENTS Detector Group. "The automotive industry is known for its high standards of quality, which is why we are confident that our high-end products make us an attractive partner. With the new facility, we will be able to manufacture the quantities necessary to meet the enormous growth potential of this market."

The best example of the implementation of the Group's ambitious plans is the production facility in Canada, which successfully qualified pulsed laser diodes for use in the automotive industry after its expansion two years ago. ■



On the Road to Self-Driving Cars

Optoelectronics for the 5th Level



WEB L19-002 In the world of science fiction, self-driving cars are practically standard vehicles. In "real life," we are catching up fast with authors' imaginations. Even today, it seems as if a new warning system is being added every year. Lane departure warning systems, distance and parking assistants are already available in mid-range cars. At least in stop-and-go mode, higher-priced models practically drive themselves. Does that mean commuters have time to take a little nap in the daily morning traffic jam? The technology is not quite there yet, but there is tough competition among car manufacturers on the road to autonomous driving.

Whenever this automotive future begins, one thing is certain: so-called vehicle-environment sensor technology will play a major role in achieving this next step because in order to independently steer through traffic, the vehicle must be able to keep an eye on its surroundings at all times. Many of the solutions – such as LiDAR (Light Detection And Ranging) – are already being used in assistance systems.

LiDAR uses light reflection to measure the distance of objects according to the so-called Time-of-Flight (ToF) method. Since pulsed laser diodes emit their beams at an interval of a few nanoseconds and – as we all know –

nothing is faster than light, LiDAR provides reliable information in the shortest possible amount of time. Using the measurement points, a computer calculates a detailed three-dimensional image of the surroundings. Compared to other systems, however, the scanning field of a single transmitter-receiver unit is limited. Therefore, sensor arrays are used to monitor larger areas. Scientists recently developed a matrix-chip that allows LiDAR measurements without moving parts. Light-based systems are usually used at close range.

The portfolio of LASER COMPONENTS includes automotive qualified components for LiDAR detectors. ■

∞ Read more using our Web-Code

Quality of Pulsed Laser Diodes Meets Highest Demands

Qualification for Automotive Industry

WEB L19-003

LASER COMPONENTS is proud to announce that the first of its Pulsed Laser Diodes has achieved qualification for use in the automotive industry.

In the interests of safety and technological excellence, the automotive industry demands the highest quality standards from their suppliers – including those delivering electronic components. To qualify, companies must demonstrate compliance to the reliability and environmental standards of the

Automotive Electronics Council (AEC). Car companies also push the boundaries when it comes to functionality in extreme surrounding conditions. While other industries take the temperatures inside a manufacturing plant as a reference, car electronics must also prove their reliability in arctic or tropical climates and are therefore tested at a range of temperatures from -40°C to 105°C (-40°F to 221°F). Similar standards are applied for humidity and mechanical shocks.

“So far, our PLDs have been very successful in laser scanning applications. Thanks to research areas like automotive driving, there is an increasing number of requests from the automotive industry”, says Winfried Reeb, Head of Business Unit Active Components at LASER COMPONENTS. “This first successful qualification proves that we are prepared for this promising yet demanding market. ■

Winfried Reeb: +49 8142 2864-42
w.reeb@lasercomponents.com

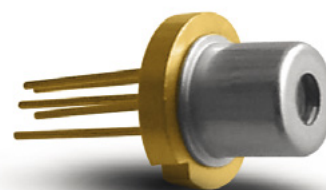
High Power PLD QuickSwitch

Shortest Pulses for Precise Measurement

WEB L19-004

Our hybrid 905 nm high-power QuickSwitch PLD generates the world's shortest pulse width of 2.5 ns typical at a pulse frequency of up to 200 kHz. It can be equipped with various storage capacitors, depending on which, it achieves an optical peak power up to

89 Watts. PLD, high current switch and charge storage capacitor are enclosed in a compact TO56 housing with an additional ground pin. This results in a Faraday cage effectively protecting the QuickSwitch and its surroundings from electromagnetic interference. ■



Winfried Reeb: +49 8142 2864-42
w.reeb@lasercomponents.com

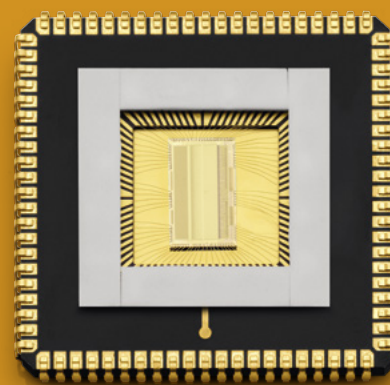
SPAD Arrays Expand Product Portfolio

Detector for Flash LiDAR Systems

WEB L19-005

Conventional LiDAR scanners use a failure-prone mechanism with rotating mirrors. Flash LiDAR technology, however, uses highly sensitive 2D single-photon avalanche diode (SPAD) arrays. With a resolution of 2 x 192 pixels and noise < 50 cps, these components are around 10⁶ (one million) times more sensitive than the photodiodes integrated in smartphones.

Unlike classic LiDAR, the arrays do not detect just one point; each individual pixel provides information on the position. In addition, the sensor and evaluation electronics have been mounted on the same chip for the first time. This makes this new development particularly space saving. For example, car manufacturers could install it behind windshields or headlights. ■



Winfried Reeb: +49 8142 2864-42
w.reeb@lasercomponents.com

Roadside Monitoring

Tuning Down Pollution with Optoelectronic Technologies

WEB
L19-
006

It took less than a century for cars to become an indispensable part of our modern lifestyle. They keep us mobile and take us to faraway places. But the flip side of the coin has become as obvious as the advantages: Vehicular air pollution affects air quality in both metropolitan and small-town areas all around the world.

Throughout Europe, politicians and scientists have been discussing a diverse range of measures to limit exhaustion of CO₂, greenhouse gases, and particulate matter. At the **LASER COMPONENTS IR WORKshop** in 2016, Dr. T.K. Subramaniam of the Department of Science & Humanities (Physics) at Sri Sairam Engineering College in Chennai, India proposed a laser-based method that would allow the in-situ roadside measurement of all pollutants in a single scan.

He applied Tunable Diode Laser Absorption Spectroscopy (TDLAS), which builds on well-known spectroscopic principles and uses sensitive detection techniques, coupled with tunable diode lasers and optical fibers developed by the telecommunications industry.

According to Dr. Subramaniam, highway intersection ramps and toll plazas would be the best spots for roadside exhaust controls. A number of instruments could be used simultaneously when the vehicles are at "idling condition" after running through long distances.

Some US states follow a similar strategy by conducting mobile roadside emission tests – not unlike speed traps or alcohol tests. Experts state that compared to station-based tests, roadside controls can check thousands of in-use vehicles under real-life conditions. ■

Attractive Pricing for InGaAs Photodiodes

Due to technological advancement, our facilities in Arizona are now able to produce our much-demanded IG17 InGaAs photodiodes from larger wafers. We are happy to pass the resulting price advantage to our customers, offering our usual high-quality standards at even more attractive prices. ■

Joe Kunsch:

+49 8142 2864-28

j.kunsch@lasercomponents.com



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e-mobility



» Weitere interessante Verknüpfungen

E-Mobility Requires High-Power Lasers

Welding Hairpins for Electric Motors

WEB
L19-
007

Electric mobility is on the rise worldwide. In 2017, more than one million electric cars were registered for the first time over the course of one year. This amounts to 57 percent more than in the previous year. Companies such as the laser specialist TRUMPF see it as a great opportunity for both themselves and German industry because automobile manufacturers need innovative technologies for mass production. They require robust processes that can be quickly scaled from today's low production volumes to mass production. This calls for expertise in laser technology to efficiently and affordably manufacture key components, such as electric drives, power electronics, and batteries.

Automotive manufacturers are increasingly relying on so-called hairpin technology for electric motors. To generate a stable magnetic field, the immovable parts of an electric motor are typically wound with copper wire. Due to the thick copper wires, this is too complex and time-consuming for strong electric motors designed to drive a car. In the hairpin process, a compressed-air pistol shoots preformed "hairpins" made of rectangular copper wire into grooves at the edge of the motor. The wires are then wound together and welded. The highest precision is required to maintain the electrical conductivity of the copper. Such clean and precise welds can only be achieved with lasers. On the other hand, the copper material poses new challenges for manufacturers. ■

∞ Read more using our Web-Code

It Is All About Optics

In many areas, laser material processing has become part of everyday production. The quality of industrial lasers in any application mainly depends on the shape, guidance and other beam parameters, and therefore on the optical components used in the machine.

At LASER COMPONENTS, we help you to find a solution that matches the power, wavelength and intended application of your industrial laser. In our optics manufacturing facilities, we use various coating methods to ensure that your optics always meet the highest quality standards – be it for single products or an entire series. ■

Barbara Herdt:

+49 8142 2864-41

b.herd@lasercomponents.com



Automation in the Food Industry

Sorting, Analyzing, Processing – Optoelectronic Methods Are Almost Standard Today

WEB
L19-
008

"The good ones go on the dish, the bad ones put out if you wish." Even in fairy tales, food such as peas and lentils had to be separated from undesired foreign substances. This fundamental principle has remained the same, even today. However, whereas in the story world it was possible to call on a host of busy little birds, in the real world we rely on state-of-the-art optical technology.

Industrial Image Processing with Food?

One of the most important fields of application of optical technologies is quality control. In facilities in which tons of fruits, vegetables, meat, and fish are processed daily, it is unthinkable to carry out quality control by hand. Consumers are becoming more and more demanding. It no longer comes down to just the objective criteria of quality for

consumers: it is becoming increasingly important that food also looks good. Sensors and laser light help to sort, process, and analyze the food. ■

∞ Read more using our Web-Code

FLEXPOINT® MVsquare Line Laser Module

No Cares! Be Square!

WEB
L19-
009

One major challenge in the series production of 3D sensor systems for industrial image processing is the fine adjustment of the line laser. Focus and beam position must be set correctly for each individual module. The MVsquare offers a remedy for this: Its rectangular housing serves as a clear reference surface for the alignment of the line laser during installation. All parameters are set at the factory according to customer specifications and the module can be integrated without further adjustments. Since mechanical elements such as the focusing mechanism are not required, the customer can be sure that all parameters remain unchanged even after installation.

For applications in which every millimeter counts, the MVsquare is also available in a version in which the laser beam is deflected by 90° and exits the side of the housing. This saves considerable space in the z-axis, especially when installed in small sensor housings: Instead of the total module length of 65 mm, it is only necessary to reserve 15 mm. Nothing changes in the beam parameters. ■

Stephan Krauß: +49 8142 2864-32
s.krauss@lasercomponents.com



Laser Light – When Randomness Is Desired

Truly Random Patterns

WEB L19-010

The FLEXPOINT® MVstereo laser module was developed for 3D stereo image processing, in which three-dimensional structures are calculated from pixel information. For this purpose, the module projects a randomly arranged cloud of dots onto a surface. In addition to the “pseudo-random patterns” previously used, “truly random patterns” with 31,806 or 47,708 dots are now also available: Repetitions do not occur with these patterns – not even with partial patterns.

The range of pseudo-random patterns has also been extended: Versions with 40,100 and 29,594 dots are now also available. Due to the different number of dots and the different fan angles of the patterns, customers can choose the optimal optics for their application.

Such projectors are used in the recognition of gestures and in volume and depth measurements. ■

Jochen Maier: +49 8142 2864-22
j.maier@lasercomponents.com



Ringlaser

Bright Light all the Way Round

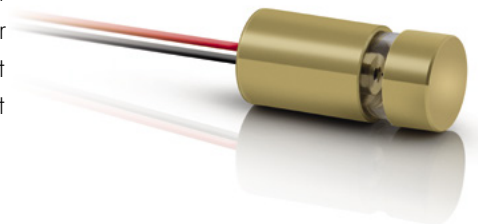
WEB L19-011

With the 360° Line Laser Module LC-LMR-635-15-A, LASER COMPONENTS offers customers a new way to create a ring-shaped line with consistent optical characteristics. Using a cone-shaped reflector, the 635 nm light is distributed in a circular form, reaching a typical output power of 15 mW. An integrated Auto Power Control (APC)

circuit compensates for fluctuations in temperature and input voltage and ensures consistent optical performance.

The Ringlaser Module may be applied to provide lighting for the inspection of tubes and pipes, where the cw laser allows for more accurate measurement than legacy systems with rotating light sources. ■

Stephan Krauß: +49 8142 2864-32
s.krauss@lasercomponents.com



Infrared Laser Diodes in an SMD Package

Reliable Laser Sources with Good Temperature Properties

WEB L19-012

For the NIR wavelength of 940 nm, Arima has started, for the first time, offering two laser diodes in SMD housings. The ADL-94Y011YF1 and 94Y01EYF2 versions both differ in their housing design. With a footprint of 3 mm x 3 mm (IYF1) and 3.5 mm x 3.5 mm (EYF2) and a height of just 0.75 mm, they deliver 200 mW of optical power.

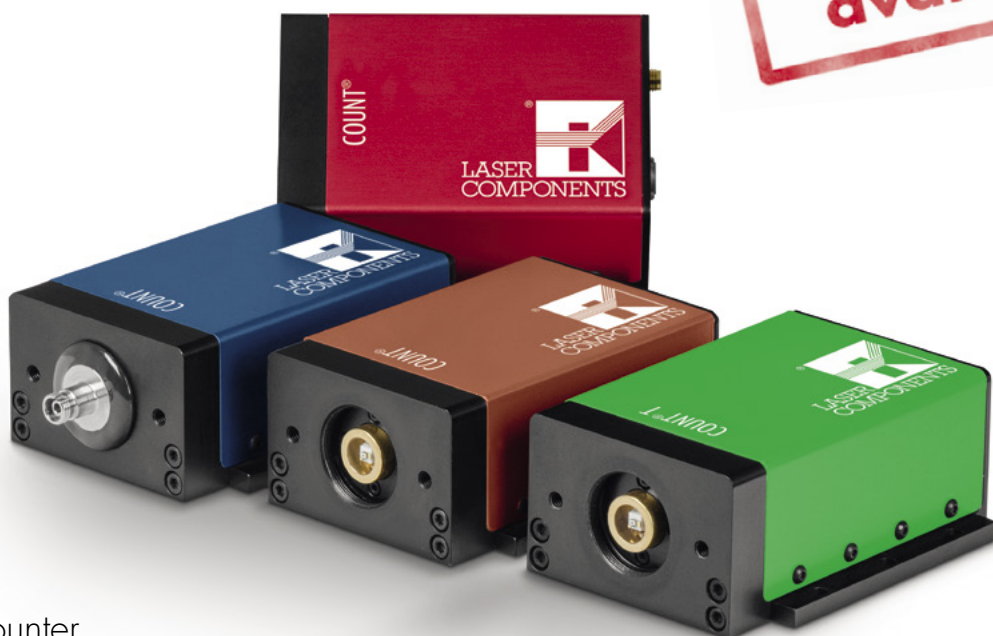


At temperatures of up to 50°C, they feature consistently high performance. The laser diodes are primarily designed for distance measurement, 3D sensor applications, and pumping fiber lasers. ■

Manuel Herbst: +49 8142 2864-91
m.herbst@lasercomponents.com

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Photon Counter

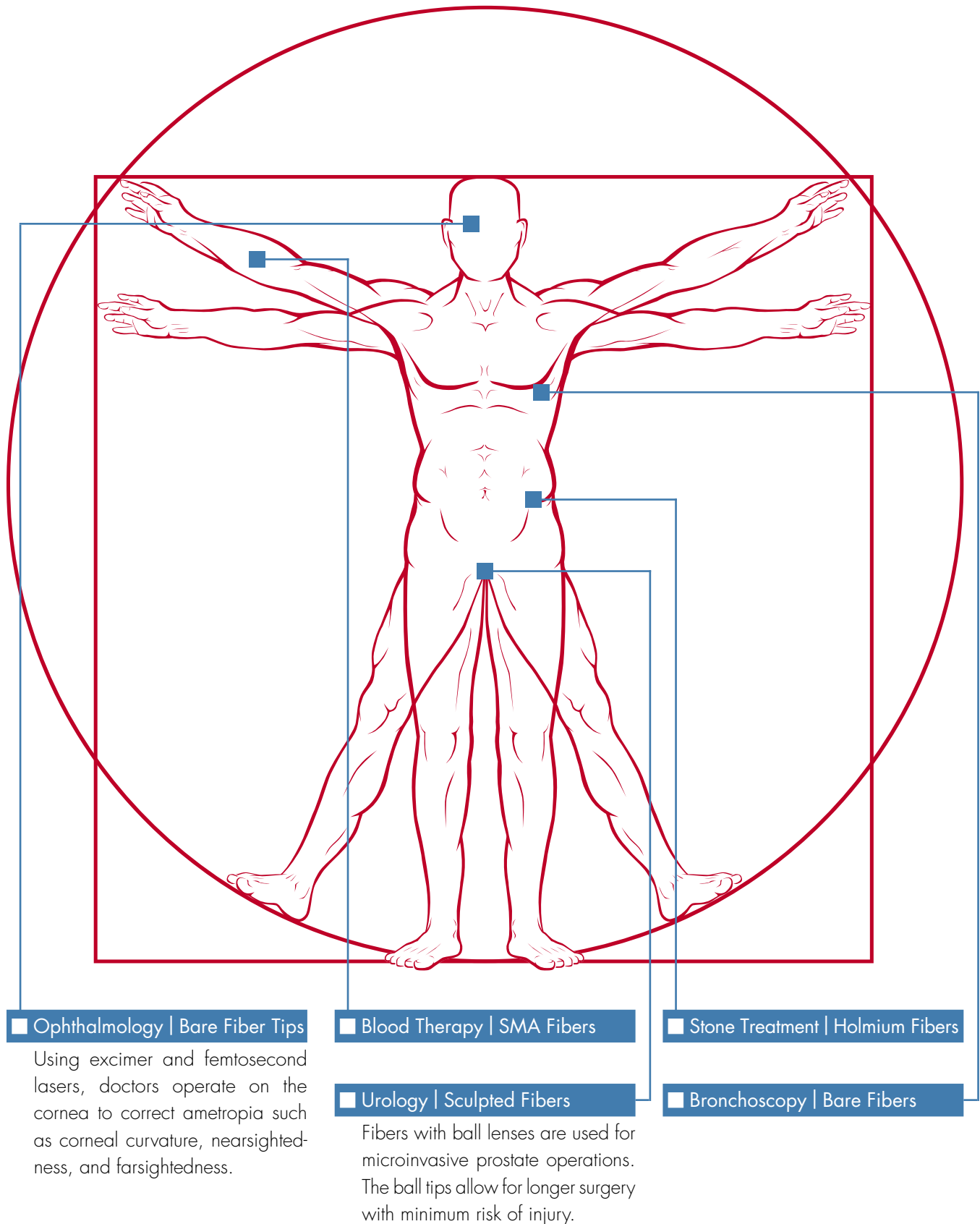
Every Second Counts!

COUNT® photon counters with high detection efficiency and low dark count rate. We deliver your COUNT® module quickly, reliably and at reasonable prices. ■

- COUNT® – The award-winning standard module
- COUNT® BLUE – Optimum performance in the blue, green and yellow spectra
- COUNT® NIR – Highest efficiency with long wavelengths
- COUNT® T – For time-correlated counts

Premium Fiber Optics for Medical Applications

High-End Components for a Healthy Body



Fibers with Ball Lenses and End Caps

Expansion of Technology in the Field of Fiber Optics

WEB L19-014

Ball lenses are used in fiber optic technology to optimize the illumination characteristics of the fiber. Depending on the geometry of the light source, these lenses are used to focus or collimate light. This is why they are used in endoscopes and other medical applications. The rounding of the ball lens also reduces the risk of injury during examination.

Florian Tächl:

+49 8142 2864-38
f.taechl@lasercomponents.com

Fiber optic end caps are rod lenses made of quartz glass that are fused to the fiber to distribute the power density over a larger area and increase the damage threshold of the fiber. This makes it easier to couple the light into the fiber and use fibers with small core diameters for high-power applications. Upon request, our end caps can be equipped with AR coating.

All fibers are processed and sterilely packed according to ISO 13485. Thus, they meet all hygiene requirements for medical technology. ■



New Laboratory Splicer Family: FITEL S185

Compact, Affordable Models

WEB L19-015

LASER COMPONENTS now offers the following splicing units: FITEL S185PM and FITEL S185HS. With these models, the manufacturer Furukawa has started a new product family with inexpensive, compact models for special applications.

The core-centering, three-axis splicer S185PM is designed for polarization-maintaining fibers with diameters from 80µm to 150µm and is therefore also

suitable for special fibers and high-strength splices. Since the adjustment and rotation precision have been further improved, it is now possible to splice short fiber lengths. In addition, there are numerous new functions that make splicing easier. The FITEL S185PM is easy and intuitive to operate via the integrated touchscreen. The compact device can be equipped with a rechargeable battery on an optional basis and has a WLAN interface for remote control and data transmission.

The S185HS is based on the same platform but does not have rotating sockets for splicing PM fibers. It was designed for applications in which high-precision, high-strength splices are required. ■

Dr. Chris Manzke:

+49 3301 522 99 98
c.manzke@lasercomponents.com



Industry Solutions

High Performance for Demanding Applications

Manufacturing and engineering are two of the most important segments in any modern industrial society. Lasers and fiber optics have become crucial to this fields, with LASER COMPONENTS supplying key elements for many applications. Learn more about our portfolio: White light lasers for endoscopy, hermetic feedthroughs to use optical fibers in harsh environments, or specialty fibers. ■



Hermetic Feedthroughs for Fiber Optics

Sealed in Any Case

WFB L19-016 To use optical fibers in pressure chambers or vacuum applications, they have to be guided from the outside into the inner environment. Feedthroughs that can withstand high pressure and also feature high temperature stability are used for this purpose. We offer a wide range of products for multi-mode, single-mode, and PM fibers that are suited for high-vacuum (HV), ultra-high-vacuum (UHV), and high-pressure applications.

Direct Fiber Feedthroughs

Direct fiber feedthroughs without a connection option at the flange make it possible to achieve high packing densities at a good price/performance ratio. Two versions are available:

- Pressure-tight feedthroughs that are waterproof and airtight
- HV and UHV-tight fiber feedthroughs

Connector-based Feedthroughs

These versions are particularly flexible since the fibers outside and inside the chamber are interchangeable. This is particularly advantageous when using sensitive fibers or during maintenance work inside the chamber in which the connectors can be separated easily. This range of products consists of HV and UHV-suitable connector and coupler-based solutions.

Product Features

Our feedthroughs are available at different pressure levels from 10^{-5} to 10^{-12} mbar l/s and for different ISO flanges (e.g., KF and CF flanges). For baking-out purposes, temperatures of up to 180°C can be specified. In addition to standard flanges, custom assemblies can also be provided. The mechanical and optical design is customized to meet your requirements. A hermetic seal is also available for gases and liquids.

Upon your request, we can also provide a new feedthrough that can handle vacuum as well as a moderate level of pressure at the same time. ■

Florian Tächl:

+49 8142 2864-38

f.taechl@lasercomponents.com



Innovators Award for ALBALUX

In Recognition of Making an Impact in Lighting



A success story for our ALBALUX FM laser white light module for machine vision applications. We are proud to win silver in the lighting, lenses, and optics category at the Vision Systems Design Innovators Awards presentation, held during the Automate show in Chicago, IL. Based on SLD Laser's LaserLight technology that generates 100x the intensity of an LED with 1/10 the beam angle, our engineering team has developed the ALBALUX FM module with remote fiber optic beam output and drive electronics in a compact enclosure.

The ALBALUX FM was first introduced to the market at the SPIE Photonics West show in San Francisco, CA and finding early market adoption in machine vision applications. ■



© Vision Systems Design magazine



White Laser Light Sources Emerge

Winner in Luminance and Long Range

WEB L19-017

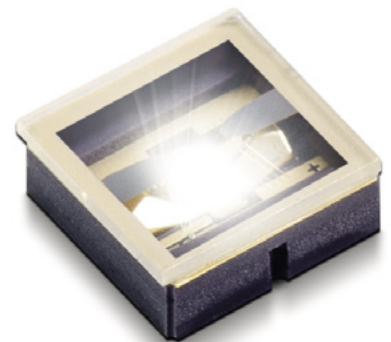
The award winning LaserLight from SLD Laser is a novel bright light source that will drive a new generation of OEM illumination solutions for medical, machine vision, and specialty illumination applications.

Based on patented semipolar GaN laser diodes, the sources use advanced phosphor technology, offering unique performance properties with:

- Up to 100x the intensity of white light LED
- 1/10 of the optics size required to produce the same beam angle as LED
- Precise beam directivity

LaserLight will come as a miniature SMD (Surface Mount Device) or star package mount with built-in safety features and emits up to 450 lumens. ■

Stephan Krauß: +49 8142 2864-32
s.krauss@lasercomponents.com



BOTDR Systems Test Fiber Links

Optical Temperature and Strain Measurement

WEB L19-018 Brillouin scattering can be used to detect temperature differences and strain in optical networks, even over long distances, and localize them within a few meters. Viavi Solutions is the only manufacturer to have developed BOTDR measuring devices that can even distinguish which of the two factors caused the change in the optical signal.

For example, when monitoring district heating pipelines, it is possible to determine whether a fault is due to temperature changes or mechanical influences. The system can also be used to monitor gas pipelines, overhead lines, or bridges. A single fiber is sufficient to monitor distances of up to 200 km.

Viavi Solutions offers two versions of its BOTDR measuring devices: The OTU-8000 is designed for stationary use in a control cabinet. As part of an ONMSi solution, the Brillouin measurement can be combined with other methods. This ensures comprehensive 24-hour monitoring of critical infrastructures. The portable version can be integrated into the MTS-8000 system and offers a technician a wide range of measurement options on site. ■

Armin Kumpf: +49 8142 65440-11
a.kumpf@lasercomponents.com



LWL Symposium



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Trends and Visions
in telecom networks

Get updated on optical fibers
and broadband technologies

24.10.2019

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DATA CENTERS
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& FUTURE**



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The 2019 symposium will once again
offer inspiring talks from renowned experts.
The workshop will be held in German.

D-SCOPE MT from Data-Pixel

Fastest MTP/MPO Connector Microscope on the Market!

WEB L19-019

At LASER World of PHOTONICS, LASER COMPONENTS is proud to announce the brand new D-SCOPE MT microscope by Data-Pixel, dedicated to the metrological validation of MTP/MPO connectors with MT-12/24 or MT-16/32 ferrules.

The fully automatic D-SCOPE MT is the ideal instrument for checking the conformity of connectors to IEC standards, it benefits from years of industry experience and feedback. It has been designed for standard production lines, automated manufacturing lines or laboratory applications.



In the same measurement cycle, D-SCOPE MT checks every optical fiber surface condition at high magnification, and allows the operator to control the cleanliness of the connector endface and guide holes.

The D-SCOPE MT offers the best performance, accuracy and repeatability of defect detection with Data-Pixel's BLINK automated inspection software, in compliance with IEC standards. ■

Dr. Chris Manzke:

+49 3301 522 99 98

c.manzke@lasercomponents.com

Wafer Coatings

Customized Thin Films

WEB L19-020

Wafers, such as those required in microchip manufacturing, must often be equipped with AR coatings or mirrors. As this is not part of the core business of microchip manufacturers, many companies do not have the necessary equipment or know-how to apply reliable coatings. This is where LASER COMPONENTS comes into play: In our coating chambers, we can process all standard sizes up to twelve inches.

We equip wafers made of silicon, fused silica, N-BK7, and other glasses with standard or customized coatings depending on your application and required specifications. This includes AR coatings and all types of mirrors. You supply us with the cleaned wafers, provide us with your specifications, and we take care of the rest. As a rule, you will receive the finished coated wafers back after four weeks. ■

Rainer Franke: +49 8142 2864-39
r.franke@lasercomponents.com



New Family of High-Power Single-Mode Laser Diodes

Different Submounts and Wavelengths Available

WEB L19-021 Sheumann Laser is introducing a new family of high-power, single-mode laser diodes in 3 mm (C3), 4 mm (C4), and 6 mm (C6) chip-on-submount lengths. The C6 provides up to 650 mW average output power at 1064 nm. The 980 nm C3 and 785 nm C4 reach an average of 500 mW and 450 mW, respectively. The 3 mm and 4 mm diodes are also available on Sheumann's non-planar C-Mount and CL-Mount submounts.

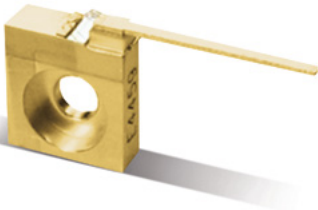
The new diodes are the result of an internal innovation initiative. Sheumann's technical team designed and qualified a new growth structure capable of producing reliable, high-power single-mode lasers, which can be bonded to compact and versatile submounts. Regarding his team's success, Sheumann's president Gary Sousa stated: "We have successfully demonstrated reliability with longer chip lengths, which allows us to achieve significantly higher power levels across all of our wavelengths for single-mode.

Our ability to custom design specific wavelengths and produce these new high power diodes is very unique in the industry, and we look forward to expanding this line and our capabilities in the near future." For Sheumann's customers, these new products will play a key role in improving the performance of spectroscopy and LiDAR systems as well as enabling unique pumping applications. ■

Manuel Herbst:

+49 8142 2864-91

m.herbst@lasercomponents.com



RIO ORION Laser Module

Narrow Linewidth Single Frequency Laser Source

WEB L19-022 RIO's 1550 nm and 1064 nm ORION laser module builds upon the proven performance of the PLANEX product series. Lasers are also available in ITU Grid wavelengths and custom wavelengths in this range. In addition to high reliability and robustness, it provides superior value with up to 20 mW output power, very low RIN, low phase noise, narrow linewidth, and high wavelength stability. Its packaging is designed to achieve a highly integrated, self-contained module with a small form factor.

The heart of the ORION module is a high-performance single frequency External Cavity Lasers (ECL) based on RIO's proprietary PLANEX technology. It consists of a gain chip and a planar light wave circuit (PLC) with a Bragg grating. The coupling of these components forms a cavity with significant benefits, such as low wavelength sensitivity to bias current and temperature.

These outstanding features make ORION the perfect semiconductor solution for applications that require high accuracy and resolution; e.g. Optical Parametric Oscillators (OPO), high-resolution spectroscopy, LiDAR and other precision metrology applications. ■

Dr. Andreas Hornsteiner:

+49 8142 2864-82

a.hornsteiner@lasercomponents.com



U-LINK by Gentec-EO

Small, Fast and Universal PC Interface

WEB
L19-023

With its new U-LINK PC interface, Gentec-EO created a compact and economical link for all their thermopiles, photodetectors and pyroelectrics – both power and energy measurement. Thanks to a unique digital method for suppressing the noise on the lower

energy ranges, it is able to measure energy levels as low as a few fJ. The device is available with either a USB or an RS-232 output. Its free and intuitive software includes an acquisition module and real-time statistical functions such as: Max, Min, Average, Standard Deviation, RMS and PTP Stability. ■



Nadine Kujath: +49 8142 2864-701
n.kujath@lasercomponents.com

UP-QED Series

Power Detectors for Lasers with Extreme Power and Energy Density

WEB
L19-024

Gentec-EO launches a new series of power detectors specifically designed for high energy, solid-state lasers. Thanks to a proprietary absorber that diffuses the measured beam and absorbs it in a larger volume, the new UP-QED series have the highest damage thresholds on the market: 100 kW/cm² in power density and up to 300 J/cm² in energy density.

They are available in two sizes: UP16-QED with a 16 mm Ø aperture for small beams, and UP52-QED with a 52 mm Ø aperture for large beams. ■

René Bartipan: +49 8142 2864-103
r.bartipan@lasercomponents.com



4-in-1 Optomechanics Bundle

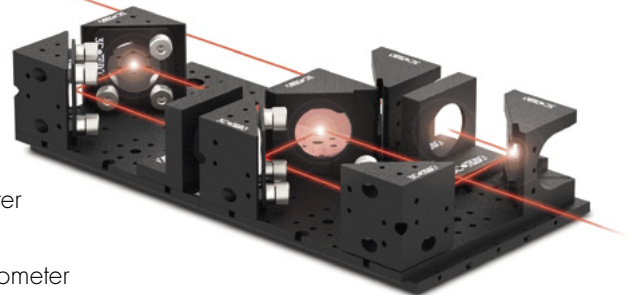
Components for Four Optical Setups

WEB
L19-025

Demanding experiments in laboratories and universities place high demands on the optomechanical components used. In a 4-in-1 bundle, 3D Optix has put together the optomechanical components with which four of these demanding experiments can be easily carried out.

- Michelson interferometer (Ø1"/25 mm)
- Mach-Zehnder interferometer autocorrelator Ø1"/25 mm
- Intensity autocorrelator (Ø1"/25 mm)
- Broadband pump-probe experiment Ø1"/25 mm

Due to the three-dimensional design, they can also be used in a space-saving way under cramped conditions.



In addition, partial elements can be implemented as subunits are quickly and easily integrated into an existing structure and removed again. ■

René Sattler: +49 8142 2864-763
r.sattler@lasercomponents.com

Design your individual setup:
www.3doptix.com

SHOWtime

25.+26.06. ■ **5:00 pm**



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HAPPY HOUR
24.06. ■ **4:00 pm**

