

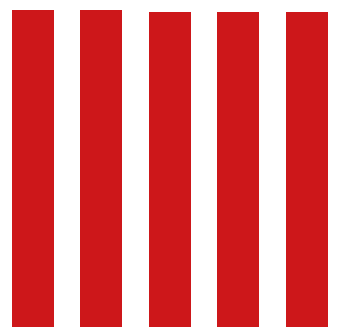
**OSI** *Optoelectronics*  
An OSI Systems Company

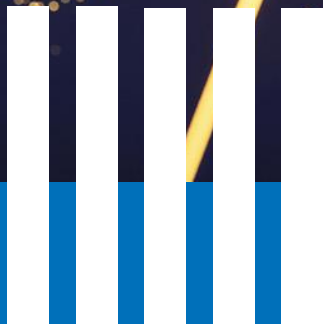
**Advanced Photonix - Laser Diode - Laser Scan**

**Passion for Photonics**

**OSI Optoelectronics is the leading global provider of innovative photonics, optoelectronics and advanced electronic systems for leading Aerospace & Defense, Medical and Industrial Original Equipment Manufacturers (OEMs). These demand high-reliability, high-performance and market-driven technology solutions today.**







# COMPANY PROFILE

## About us

OSI Optoelectronics is a leading provider of advanced optoelectronics and electronic assemblies. These technical elements are key to enabling critical functions such as analytics and monitoring, test and measurement, communication and tracking and imaging in a wide variety of industries including:

- Aerospace & Defense
- Medical & Life Sciences
- Automation & Industrial Production
- Automotive & Consumer Electronics

Our design and manufacturing operations are housed in 12 world-class facilities around the globe, where our team of experts designs and develops premium photodetectors, laser diodes, imaging and medical sensors, photonic modules and instruments. These resources, combined with more than 50 years of experience in the field of optoelectronics, have given OSI Optoelectronics the expertise to develop incredibly efficient manufacturing processes that exceed the rigorous standards set by our customers.



**Our customers have direct access to our experienced engineers helping them through the design cycle at any stage, whether concept or finished design**

## Solving our customer's problems

OSI Optoelectronics (formerly UDT Sensors) expanded its product and capabilities portfolio by merging with Advanced Photonix, OSI Laser Diode, OSI Laser Scan, Advanced Microelectronics (AME), Centrovision, and OSI Fibercomm. Today, we continue to grow as the largest and most experienced developer and manufacturer of market-driven photonics components and systems that meet the most demanding reliability and environmental requirements.



“

**Complete solutions  
and services from  
concept to design  
to production.**



**GLOBAL LEADER IN TECHNOLOGY,  
CUSTOMIZATION AND MANUFACTURING**

**WORLD CLASS TECHNOLOGY**

**GLOBAL LEADER IN CUSTOMIZATION**

**MULTI-VENDOR SERVICES**

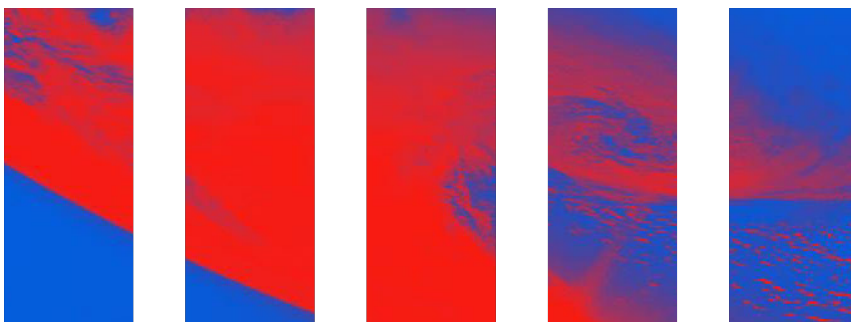
**GLOBAL SUPPORT**

# DELIVERING INNOVATIVE SOLUTIONS

At OSI Optoelectronics, we provide complete solutions and services from concept to design to production. With our extensive engineering capabilities in a variety of disciplines, we have created a company for your most pressing needs, with an experienced engineering team to back them up.

Our extensive assortment of standard products, developed with our core expertise in advanced optoelectronics technologies, provides customers with a wide range of solutions to meet their every need. We also provide customized solutions that are tailor-made to meet specific customer needs and withstand the most rigorous specifications and environmental requirements.

Our team is constantly reviewing and enhancing our offerings – taking full advantage of the latest technological advancements to provide solutions that support critical applications. As a leading OEM provider of custom solutions in advanced high-reliability market segments, OSI Optoelectronics can be trusted to deliver technology to support our customers' every goal.







# MANUFACTURING SERVICES

With expertise in medical and life sciences, aerospace and defense, security, communication, and industrial solutions, our design and manufacturing services are developed for scalability from prototype to volume production.

# DEVELOPMENT PROCESS



## 1. Design & Simulation

At OSI Optoelectronics our top priority is helping our customers solve their unique problems, regardless of the conditions, market or industry. We take pride in our extensive assortment of standard offerings, which have been designed, tested and qualified for notable organizations. Beyond our original product line, however, OSI Optoelectronics has consistently pioneered the development and manufacturing of custom photonic solutions for a wide variety of industries and applications including defense and aerospace, automotive, communications and medical technology.

We believe that the most efficient way to accomplish this is to allow for collaboration and transparency in the development process. Together with our innovative vertical integrations' teams, OSI Optoelectronics has streamlined our processes to minimize design cycle-time and accelerate time to implementation.

By offering customers direct access to experienced engineers we become part of your engineering team, starting with specifications and continuing to delivery of the high-performance application-specific device. OSI Optoelectronics experts provide valuable insight and support through the entire design cycle, ensuring that the most innovative and effective technologies are implemented to achieve maximum results.

This proven, hands-on approach to development empowers our customers to turn ideas into solutions that will differentiate their products in the marketplace.

- Silicon and III-V compound Photodetectors
- Semiconductor Laser Diodes

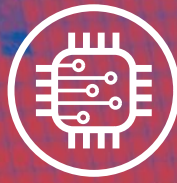
Your team will work closely with experienced OSI Optoelectronics engineers to turn a concept into a complex photodetector or laser diode device using extensive design tools. By collaborating through every phase of the design cycle, we ensure that the resulting product will meet or exceed your expectations.



## 2. Fabrication & Engineering

- Semiconductor Fabrication process design
- Wafer processing

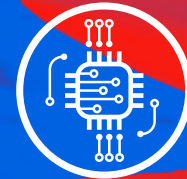
With top of the line in-house semiconductor fabrication services, OSI Optoelectronics leads the industry in providing the best, most advanced, and most economical photodetectors and laser diodes. Our engineers leverage innovative engineering technologies, along with inherent knowledge of a wide range of materials and their known interactions, to develop high-performing solutions that meet specific customer requirements.



## 3. Photonics Packaging

- Hermetic Packaging
- Chip on board & Flex
- Chip on Ceramic
- Multi-Chip Module
- Flip Chip Bonding
- Hybrid on ceramic
- Lead-Frame
- PCB, Flex circuits
- Surface mount package

We have surpassed the art of optoelectronics packaging turning the high-performing photonics and optoelectronics into real devices, to guarantee required performances, reliability and cost-effectiveness. Our packaging engineering expertise covers multi-discipline technologies spanning from optics to mechanics, to electronics and material science. Our packaging engineers provide technical assistance to select the best package for your application. Our high-precision assembly technologies can provide virtually any package for your devices, such as molded plastic packages, ceramic substrate, TO cans, chip on PCB or flex, and any other custom package configurations.



## 4. Subsystem Design

### Exceptional Reliability & Quality

Our commitment to quality is demonstrated by maintaining all of our worldwide facilities with the highest industry standards. In addition to worldwide AS9100 certification, our facilities in California, Massachusetts, India, and Malaysia are U.S FDA registered. We also employ strict Statistical Process Control techniques in various stages of design reviews, product and process improvement.

- Mixed signal control circuit design
- Multilayer mixed signal PCB and Flex
- PCB and Flex fabrication, assembly, test and integration
- Automatic test design

We offer both mixed-signal PCB and flex designs, by integrating sensors, photodetectors, laser diodes, LEDs and other electronics into a hybrid electro-optics circuit.

Our team of electro-optics engineers design optical receivers (PIN, APD based) and optical transmitters (LED and Laser Diode based) circuits in-house, with mixed-signal hybrid ceramic, printed circuit boards (PCB) or flex.



## 5. Test and Calibration

- Optical performance testing
- Electrical performance testing
- High speed automated probes
- Spectral scans
- Spot scans

Our state of the art manufacturing facilities are equipped with cutting edge technologies, capable of automating or semi-automating testing protocols in-house. This process allows for the inspection and characterization of the numerous electro-optical parameters included in finished devices and modules, as well as evaluation of the integrity of the physical assembly of each product. This phase of development allows OSI Optoelectronics engineers to evaluate and calibrate individual elements of a device, from optical adjustments to communications systems updates, to ensure that each finished product is capable of meeting specific application standards.



## 6. Qualification

- In-house environmental tests
- MIL, ESCC and ESS
- Customer specific requirements

We have spent decades adjusting our design and manufacturing processes to ensure that the products we create can meet the most rigorous standards facing our customers. Our aerospace and defense compliant protocols, for example, include precautions to ensure that every element of a product from semiconductor to the sensor to electronic assembly is of the highest quality and capable of exceeding the most stringent regulatory requirements.

We manufacture, test and qualify products in accordance with the Department of Defense MIL-I-45208, MIL-PRF-19500, MIL-STD-883, and MIL-STD-750, European Space Agency ESCC-5000 standards or customer-specific requirements. OSI Optoelectronics is also compliant with International Traffic in Arms Regulations (ITAR) standards for aerospace certification facilities (ISO AS9100).

# PHOTODETECTORS

As one of the largest manufacturers of standard and custom photodiodes and optical sensors in the world, we deliver top of the line engineering design and manufacturing of:

**SILICON, INGAAS, GAN, GAAS**

**PIN PHOTODIODES**

**AVALANCHE PHOTODIODES**

**X-RAY, UV, VISIBLE, NEAR IR**

**RADIATION DETECTORS**

**HIGH-SPEED PHOTODIODES**

**1-D & 2-D ARRAYS**

**1064NM OPTIMIZED  
DETECTORS**

**TWO-COLOR DETECTORS**

**LATERAL POSITION SENSORS**

**SEGMENTED POSITION  
SENSORS**

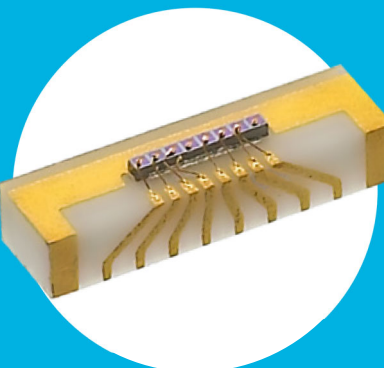
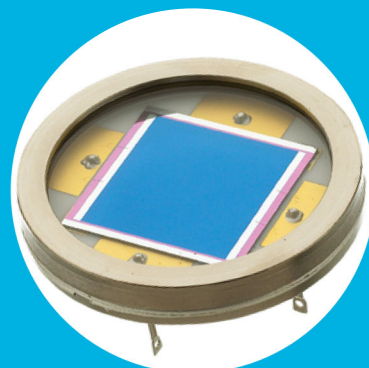
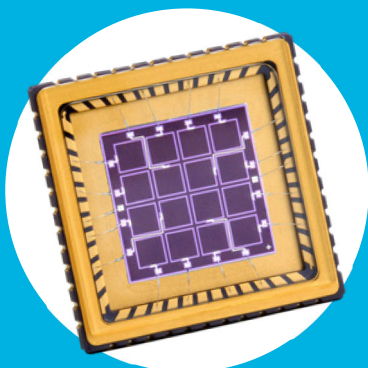
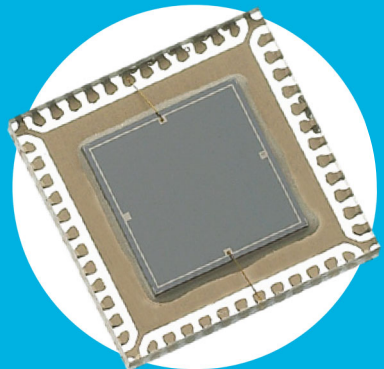
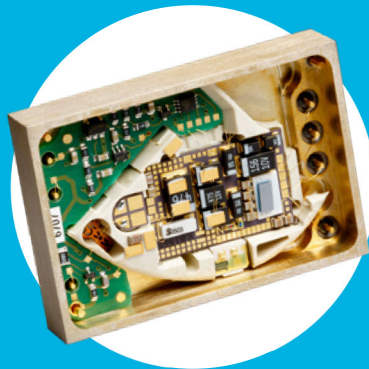
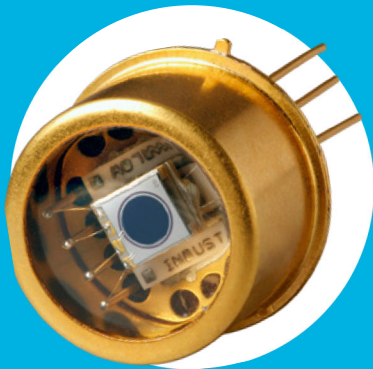
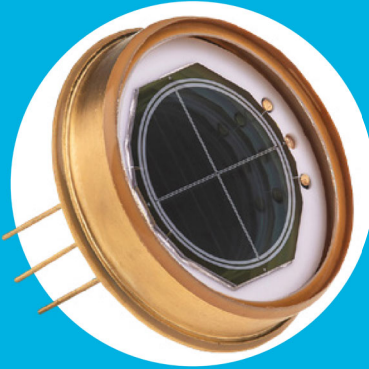
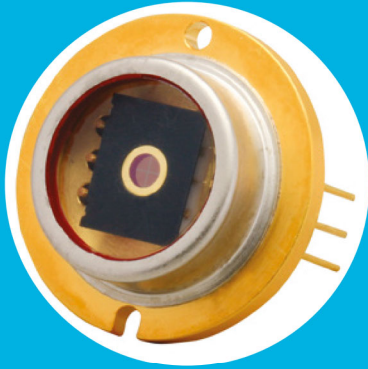
**BACK-ILLUMINATED  
DETECTORS**

**DETECTOR FILTER  
COMBINATION**

**PHOTODIODE AMPLIFIER  
HYBRIDS**

**AND MORE**







## **INDUSTRIAL & COMMERCIAL**

**PROXIMITY  
SENSORS**

**ENCODERS**

**OPTICAL  
COMMUNICATION**

**LIDAR**

**TEMPERATURE  
MEASUREMENT**

**GALVANOMETERS**

Our high-performance photodetectors are a key component in existing and emerging technologies. They are critical to enabling key functions from basic remote sensors to complex applications in space. Our customers are using OSI Optoelectronics' state of the art photodetectors in diverse industries and applications.



**Almost everything we know about the  
world, we have learned through light!**

**Prof. Dr. T.W. Hänsch,  
Nobel prize winner**



## **AEROSPACE, DEFENSE**

**LASER BEAM RIDER  
RECEIVER**

**LASER RANGE FINDER,  
GYRO, WARNING  
SYSTEMS**

**TARGET DESIGNATOR**

**SUN SENSORS AND  
STAR TRACKERS**

**FREE SPACE  
COMMUNICATION**

## **SECURITY**

**BAGGAGE AND PARCEL  
INSPECTION**

**CARGO AND VEHICLE  
INSPECTION**

**BIOMETRICS**

**FORENSICS**

## **MEDICAL & LIFE SCIENCES**

**SPECTROSCOPY**

**SPO2 SENSORS**

**MOLECULAR  
IMAGING**

# LASER DIODES

We offer semiconductor laser diodes in a wide range of wavelengths, power, and package configurations to suit each of our customer's unique specifications. These tailored solutions are specifically designed to provide the most advanced solutions for applications in market segments such as defense, materials processing, medicine, and test and measurement. Some of our most popular laser diode technologies include:

**GAAS, INP BASED SEMICONDUCTOR LASER DIODES**

**HIGH POWER PULSED LASERS DIODES >300W**

**HIGH POWER MONOLITHIC STACK**

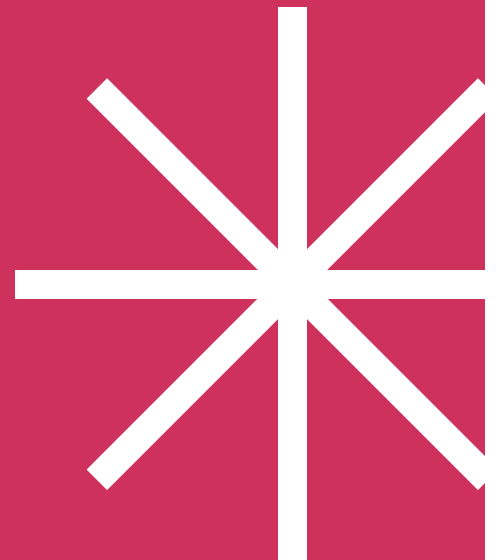
**PULSED LENS**

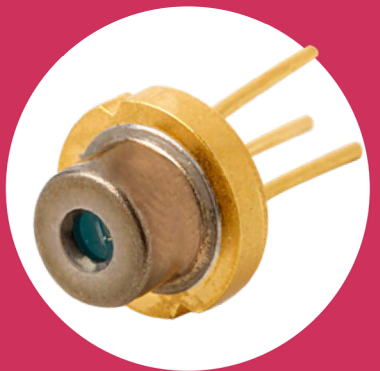
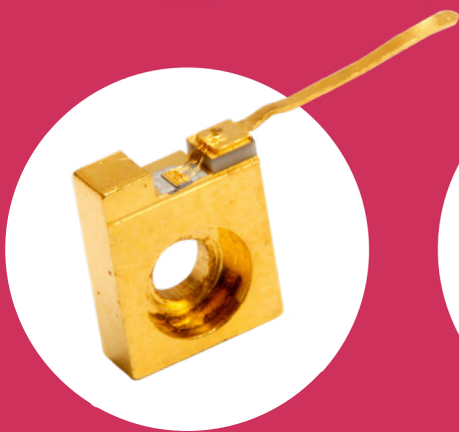
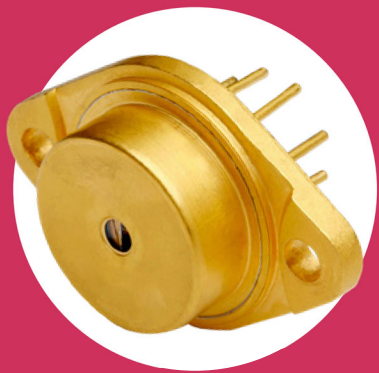
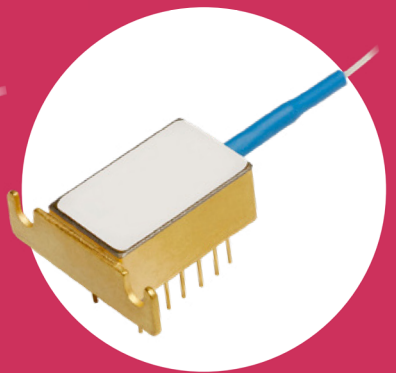
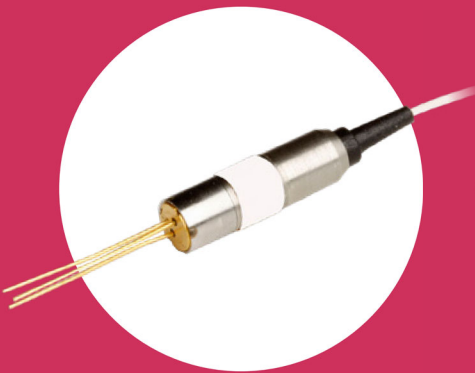
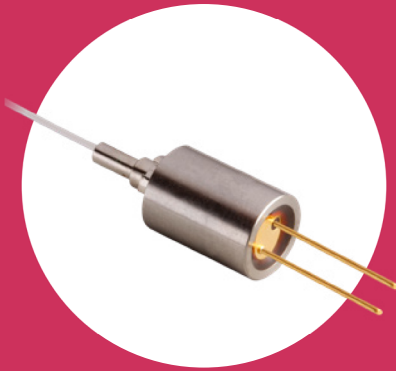
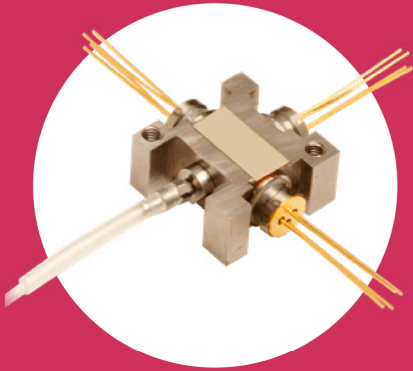
**PULSED DFB**

**SM & MM LASER > 500MW**


**COMBINERS & TRIBINERS**

**TO BASED, 14-PIN DIL & BUTTERFLY, HHL, COAXIAL FIBER PIGTAILED DEVICES, AND MINI-DIL BASED PACKAGING**









OSI Optoelectronics offers a variety of semiconductor laser diodes with different wavelengths, power and packaging to support laser diode functionality depending on the environment and application. Practical applications of this advanced technology include:

**WEAPONS SIMULATION**

**MISSILE FUSES**

**LASER RANGEFINDERS**

**LIDAR**

**ADVANCED SURVEYING  
EQUIPMENT**

**FIBER OPTIC GYROSCOPES**

**OPTICAL COMMUNICATION  
SYSTEMS**

# SENSORS & MODULES

OSI Optoelectronics offers a variety of combined modules to support the practical application of each component. These models are typically composed of photodetectors, laser diodes, LEDs, passive components as well as mixed-signal electronics on PCB and flex circuit substrate, in a variety of applications. Some of these modules include:

**POSITION SENSORS**

**AVALANCHE PHOTODIODES**

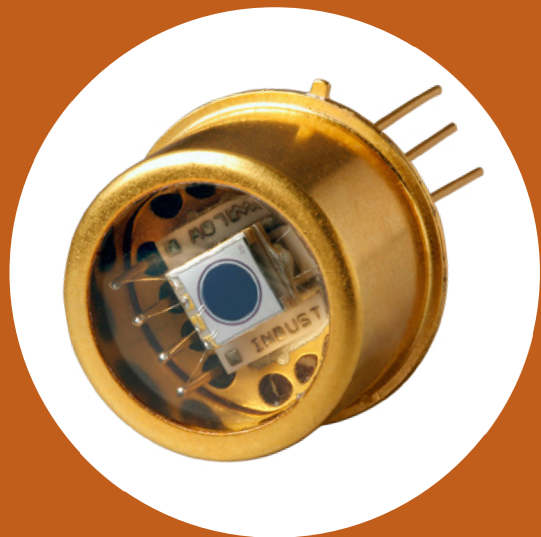
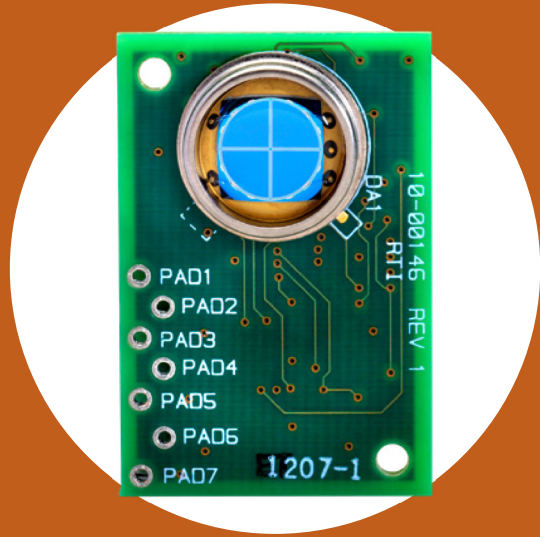
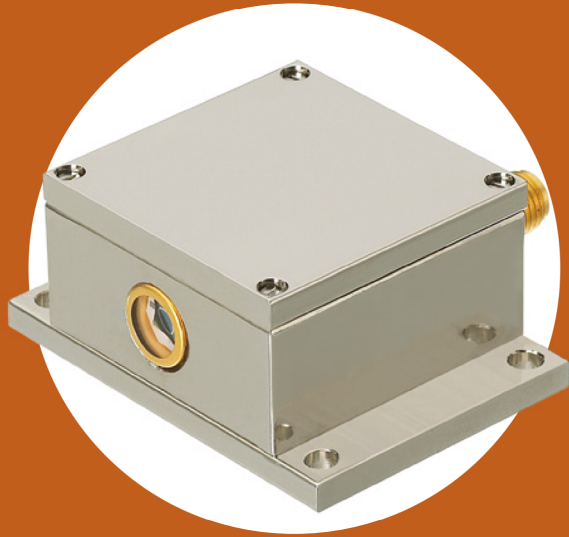
**PHOTOSENSORS**

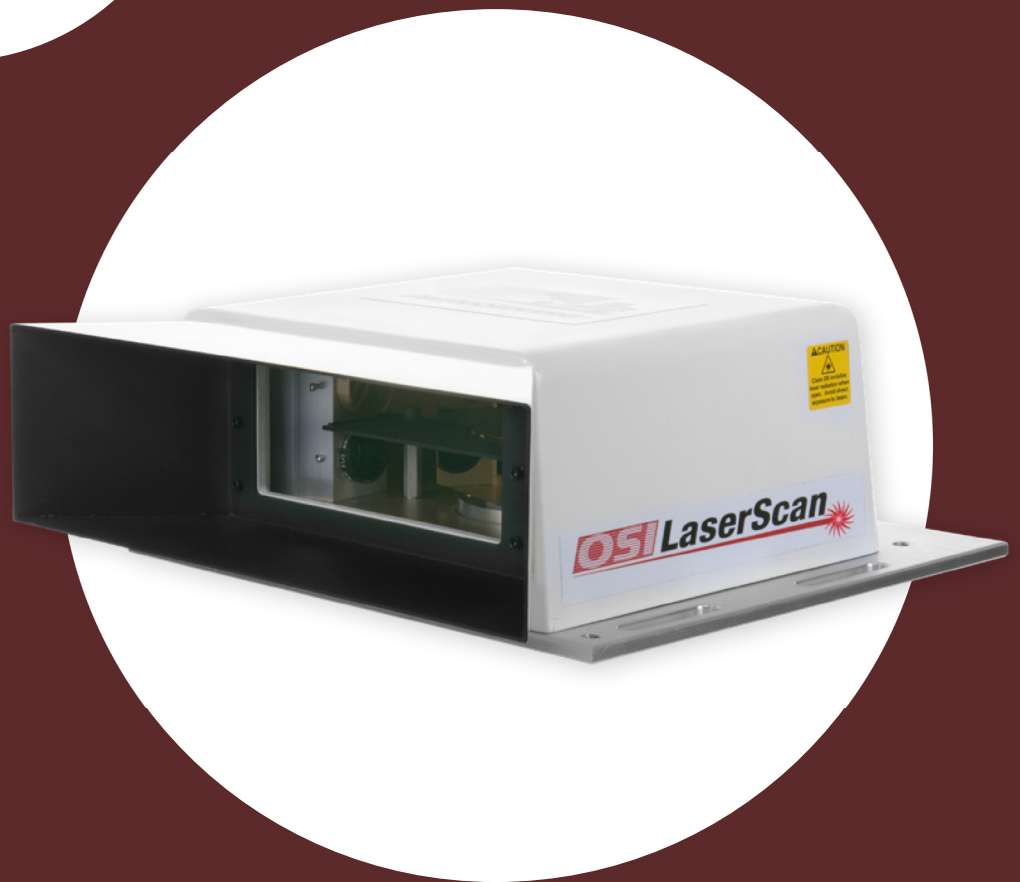
**COLORIMETRY**

**FLAME SENSORS**



**Technologies enabling digitalization, Internet of Things (IoT), big data, artificial intelligence and autonomous transportation.**



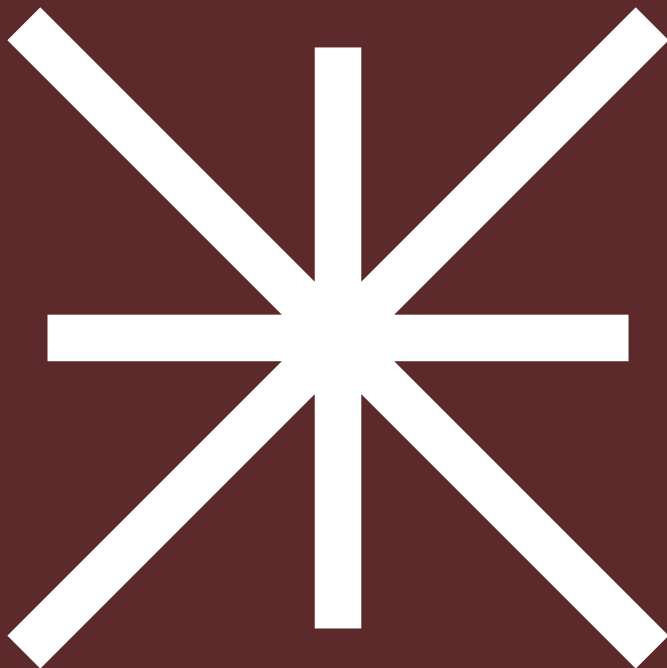




# SYSTEMS & INSTRUMENTS

OSI Optoelectronics offers a variety of highly accurate and reliable Vehicle Detection & Classification systems for axle and tire-based vehicle detection. Our laser-based classification systems perform the best in-pavement solutions, compared to stop-and-go events which are inefficient and hinder throughput.

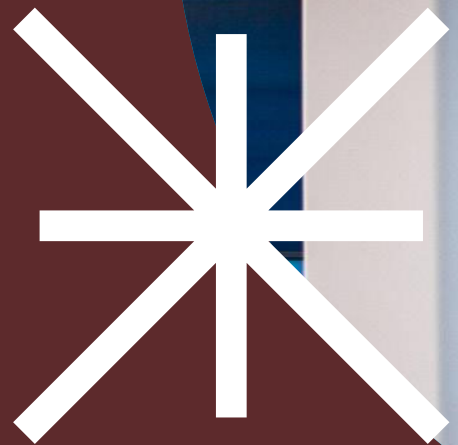
Our AutoSense™ systems include automatic vehicle detection and classification technology with complex patented algorithms that power an intricate software solution. This program was developed specifically to meet the highest accuracies and market standards for vehicle classification.



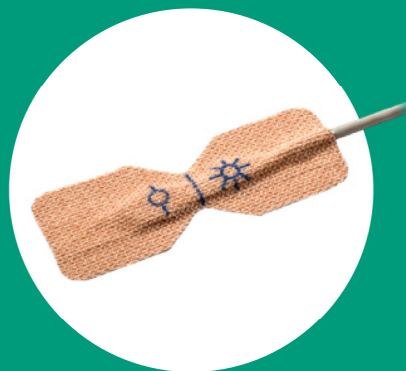
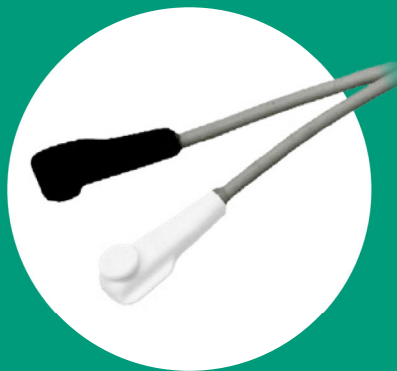
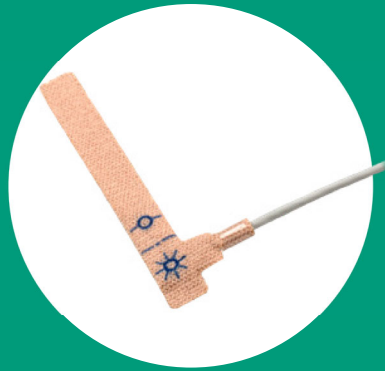
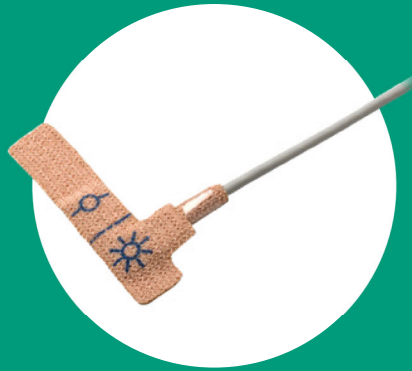
The enhanced capabilities presented by our vehicle detection and classification offerings have proven extremely useful for roads, highways and intelligent infrastructure initiatives. Leveraging the innovative ability to identify vehicles in motion provides a huge benefit for toll roads.



**Highly accurate  
and reliable  
Vehicle Detection  
& Classification  
systems.**







# MEDICAL SENSORS

OSI Optoelectronics family of advanced medical sensors are currently being used to support life-saving technologies all over the world. Our thin and flexible pulse oximeter sensors are used for a wide variety of functions from measuring vital signs to carrying out functions that provide critical support to patients.

Our team of engineers has developed a wide range of medical sensor technology to serve patients from infants to adults, with comfortable solutions that provide industry-leading results. Some of the most common medical devices in use today include:

**PEDIATRIC PULSE  
OXIMETER**

**ADULT PULSE OXIMETER**

**INFANT / NEONATAL  
PULSE OXIMETER**

**GENTLE TOUCH  
PEDIATRIC FABRIC  
SENSOR**

**Y-SENSOR**

ADULT FINGER SENSOR

GENTLE TOUCH ADULT  
FABRIC SENSOR

GENTLE TOUCH INFANT  
FABRIC SENSORS

GENTLE TOUCH NEONATAL  
FABRIC SENSORS



**Comfortable  
solutions  
that provide  
industry-leading  
results.**



# IMAGING SENSORS

As a leader in the design and manufacturing of X-ray detector array boards and modules for security, medical, scientific and industrial applications, OSI Optoelectronics offers a diverse range of imaging sensors to support the specific needs of our customers. These advanced components leverage X-ray sensors with various scintillation crystal technology, to detect and convert incoming photons ranging from a few keV to several MeV into electrical signals. Imaging sensors produce two or three dimensional results that can present with either front or back illumination for best possible evaluation and analysis.

Our advanced imaging X-ray technology has proven incredibly valuable for a wide range of industries and is most often used in digital imaging solutions such as security, medical imaging, and non-destructive testing. Some common applications of this technology include:

**MEDICAL CT**

**LINE ARRAY BAGGAGE  
& PARCEL INSPECTION**

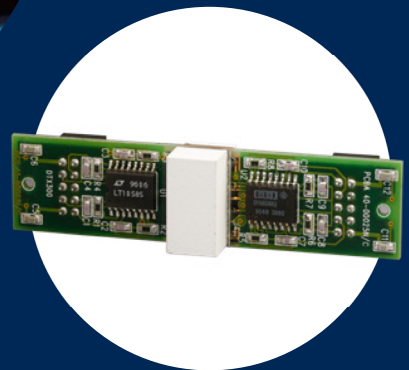
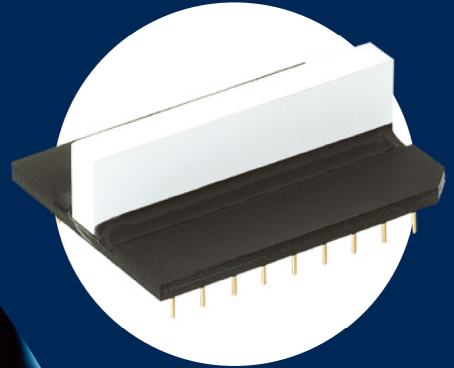
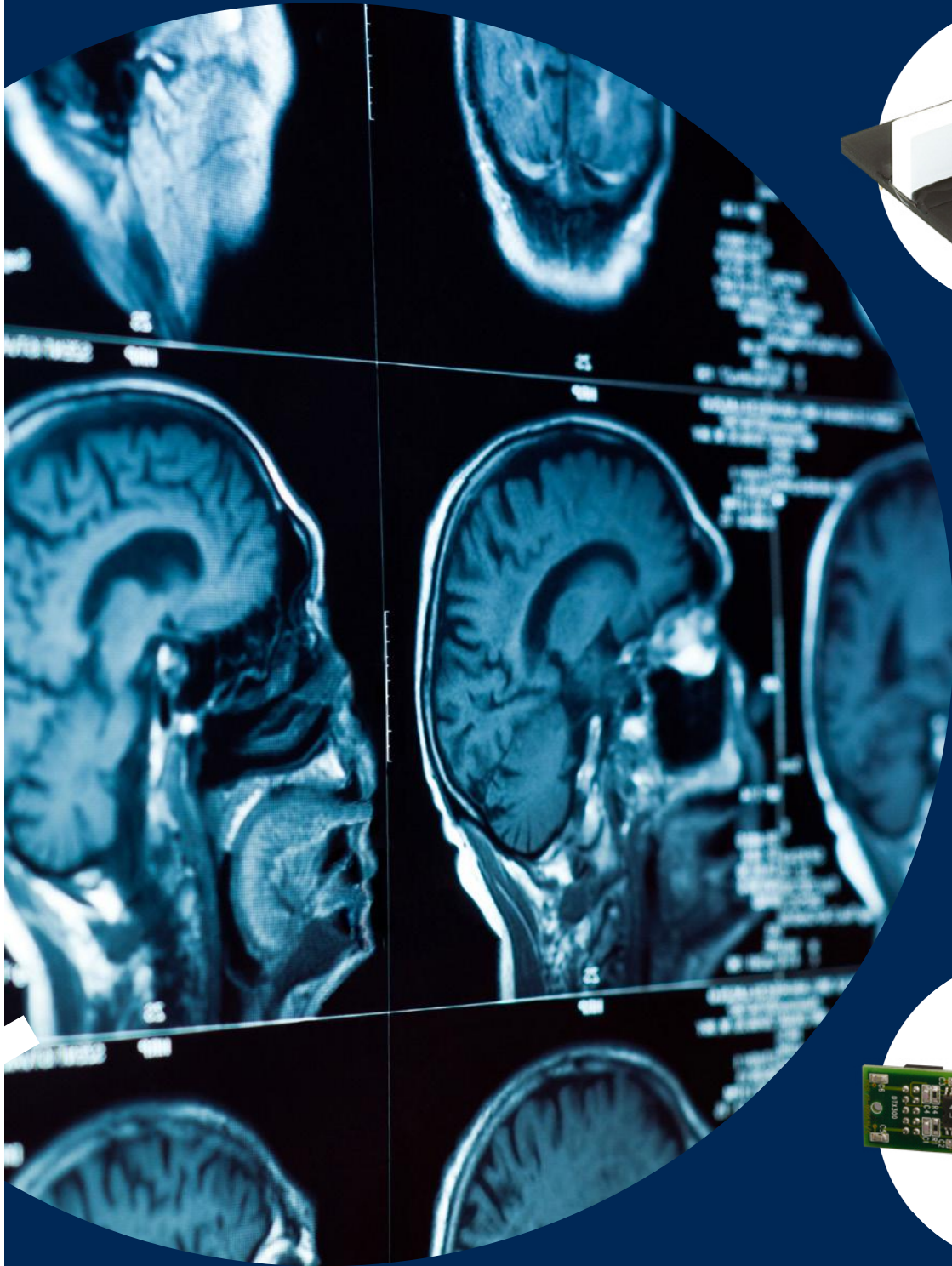
**CT BAGGAGE  
INSPECTION**

**HIGH ENERGY CARGO  
& VEHICLE INSPECTION**

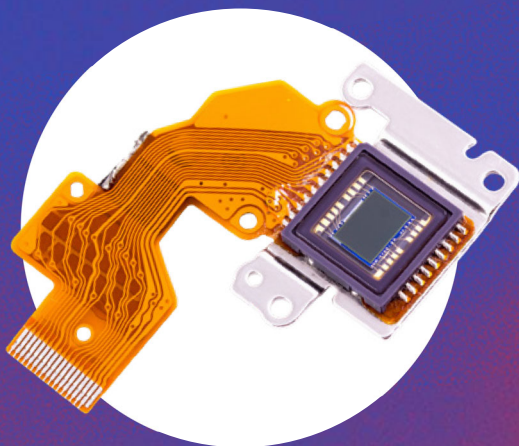
**NON-DESTRUCTIVE  
X-RAY TEST**







# VALUE ADDED SERVICES



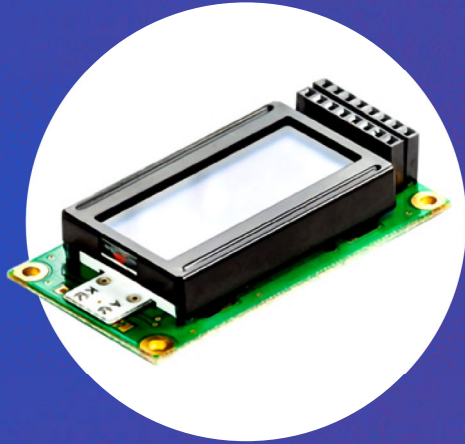
## Flex and Rigid-Flex Circuit

OSI Optoelectronics specializes in complete flex circuit and rigid-flex circuit turnkey solutions. Because not all electronic devices operate on a single PCB, these circuit solutions link multiple PCBs together as a single unit. By linking these functions, you can improve the overall durability and flexibility of your board and functions. OSI Optoelectronics' precision services take care of this for you, by including every element such as design, engineering, material recommendations, assembly, quick turn prototypes, test plans and fixtures.

## PCB assembly

OSI Optoelectronics is the premier vendor for complete PCB assembly services. With a high level of attention to detail, our board assembly operations are tailored for exceptional flexibility to handle the varying process demands that our customers require. We use the most advanced equipment, highly skilled personnel, and efficient processes to provide superior PCB services that suit any application or industry.



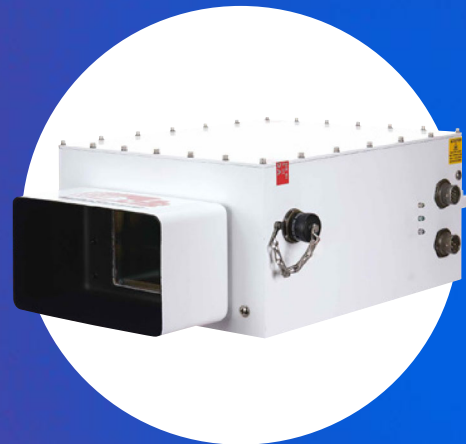


### **Custom Display**

OSI Optoelectronics provides design and fabrication of custom display products. From off the shelf parts to custom display solutions, our high level of detail, technical capabilities, and creative problem solving enables us to deliver tailored displays that meet the demands across industries.

### **Box Build**

OSI Optoelectronics provides box build integration assembly for sub-systems and modules, as well as full product integration. We specialize in hybrid production for cost optimization while ensuring quality. Our box build solutions are part of a comprehensive array of electro-optical and electro-mechanical assembly and full system integration services.



### **Cable and Harness**

As a premier manufacturer, OSI Optoelectronics offers a wide range of cost-effective, high-performance solutions for cable and wire harness assemblies. We design, develop, and assemble complex harness solutions using advanced production techniques that will provide security and assurance for your operation. Our reliable custom cable and harness assembly are currently utilized in critical applications worldwide.



**QUALITY SYSTEMS CERTIFICATIONS,  
REGISTRATIONS AND STANDARDS**

AS9100 Certified  
ISO 9001 Certified  
ISO 13485 Certified  
ISO 140001 Certified  
ISO 13485 Certified

Test and Environmental Test  
Capabilities compliant to  
- MIL-STD-883  
- MIL-STD-750  
- MIL-I-45208  
- MIL-PRF-19500  
- GR-468-CORE

**WORLD HEADQUARTERS**

OSI Optoelectronics  
Formerly UDT Sensors  
Formerly Centrovision  
Formerly OSI Fibercomm  
12525 Chadron Ave  
Hawthorne, CA 90250,  
USA

Tel: +1 310-978-0516  
Fax: +1 310-644-1727

**GLOBAL LOCATIONS**

**NORTH AMERICA**

Hawthorne, CA  
Camarillo, CA  
Santa Clara, CA  
Edison, NJ  
Englewood, CO

**CANADA**

Scarborough, ON

**EUROPE**

Cambridgeshire, UK

**CENTRAL AMERICA**

Nogales, Mexico

**ASIA**

Hyderabad, India  
Johor Bahru, Malaysia  
Singapore  
Batam, Indonesia

**Passion for Photonics**



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