DrivingVisionNews.com
Automotive lighting and driver assistance technologies

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Editorial

The Public Must Hear, Read, See, Experience ADB

High beam seeing with low beam glare:
- Every lighting engineer and regulator, every traffic safety researcher, they've all dreamt of it for decades, and now it's here with ADB.
- Every driver needs it—without knowing it. Right now, buyers and drivers don't really know about the technology, and so they can't even imagine that such a clever, useful technology exists.
- It's a simple, catchy message, easy and intuitive for anyone to grasp. But it hasn't yet been effectively put across to the people who need to hear it.

VIPs from automotive companies frequently ask me what I think they should do to increase their business. I tell them to pull the lever that is ADB, the uniquely great breakthrough in vehicle lighting considering safety.
To succeed with ADB and strongly increase business, two actions have to be launched.

The first is to advertise ADB directly to the buying and driving public through all sorts of media—magazines, newspapers, TV, social networks, ride-and-drive demonstrations…the works. Automotive companies of every kind involved in the ADB value chain need to loudly welcome journalists and drivers to experience ADB live on real roads at night. Me, even after I have done probably more than a thousand night drives in my life, when I make night drives with a performant ADB system I am still amazed by the increase in safety and comfort compared to even the best static headlamps.
This week's in-depth contains some nifty old examples of how new lighting technology was advertised to driving enthusiasts in the past: through articles in motoring magazines, describing how new lights were being engineered and produced, better than the ones they were driving with. Now we have so many more tools and can reach so many more market segments: not just the driving enthusiast, but also the safety-minded parents, the frequent commuter, the outdoors hobbyist. We have to make a big push directly to all of these people, showing and telling how ADB makes night driving safer, easier, and more comfortable. And not just in places where ADB is already available; probably one of the best ways to turn up the heat in America is to go directly to car buyers and tell them the truth: ADB means **high beam seeing with low beam glare**, and it's a "today" technology, but NHTSA won't let you have it.

The second action is to convince the regulation authorities themselves on the great safety benefit of ADB and to launch field studies to quantify the improved seeing distance, decreased glare, reduced frequency and severity of crashes and their

consequent deaths, injuries, and property damage. We have now enough cars equipped with ADB—more than were equipped with HID headlamps when BaST demonstrated that technology's safety benefits. We've put parts of that study in this week's in-depth, too, to give a sort of demonstration of the kind of data we need to collect and scrutinise with ADB.

In sum: after the hard technical and technological work, now we must do the most important part: convince drivers and buyers that ADB should be on their next car, and regulators that ADB should be on every new vehicle on the road!

Sincerely yours

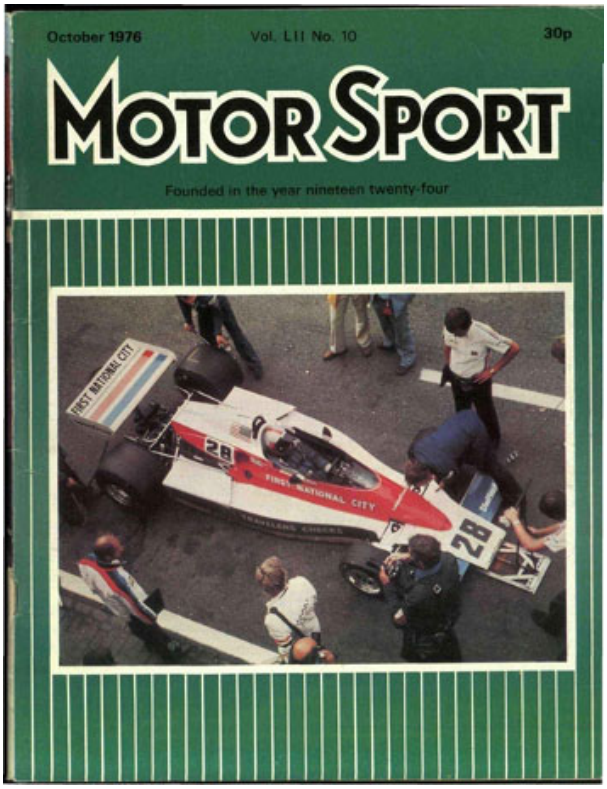
DVN PRESIDENT

In Depth Lighting Technology

Flashback: Selling Lighting Technology in the Beforetimes

This week, we take a look at an article about Cibié lights, published in a British driving enthusiast magazine in 1976. At that time, most UK vehicles used sealed beam headlamps, halogens were the newest technology beginning to gain some traction, and Cibié had just won the race (against Lucas, as it happens) to commercialise a "Z-beam" headlamp—the first innovation in low-beam cutoff shape in two decades, which could dramatically improve seeing distance in traffic without increasing glare (sound familiar?).
After that, keep reading for a reflash of a German study from 13 years ago, analysing crash data from cars with halogen vs. HID headlamps.

A Visit To Cibie: The French Home of Powerful Illumination



This article was written by one Clive Richardson and published **in the October 1976 issue** of Motor Sport magazine. The article was written after a visit to Cibié's French production plant and was a mix of technical information about cutting-edge vehicle lighting technology and promotional information about Cibié specifically. Herewith, an excerpt:

"If readers were asked who produces more car lights than anybody else in Europe, ten to one they'd reply Lucas, or maybe Bosch. They'd be wrong. Number One in Europe in the car lighting business is the French company of Cibié. In 1975 alone, Cibié manufactured no less than nine million car lamps, one million motorcycle lamps and three million front and rear light clusters.

Unless they're very bad or brilliantly good, most of us take lights for granted. But sit in a Lancia Stratos at 100 m.p.h. through a rally forest special stage at night behind the artificial daylight of six halogen lights, as I have, and lights take on rather more significance. And those Lancia lights, in common with those of practically all the quickest rally cars in Europe, apart from Datsun and Leyland, I think, are Cibié. There's no question of nationalistic pride among the world's teams; they must have the best and the best lights for rallying are Cibié.

"Earlier this year, Cibié announced for sale a new concept in headlamps, the Z-beam. To celebrate, and to give Cibié's general activities more exposure, we visited the company's Paris headquarters at Bobigny and the largest of the satellite manufacturing plants at Angers. What promised to be a boring subject turned out to be fascinating. The Chairman and owner is Pierre Cibié, at 66 an amazingly modest, unassuming patriarch, an appearance which conceals the brain of one of the world's foremost lighting engineers.

"At midnight we were dragged away from a gastronomic experience at Versailles to the chilly expanse of the nearby Guyancourt airfield for a demonstration of the Z-beam halogen headlamps. Conventional headlights use a V-shaped beam, horizontal towards the road centre, sloping upwards at 15 degrees towards the kerb. On motorways particularly this can lead to annoying, even dangerous mirror dazzle for cars being overtaken. The Z-beam eradicates this and dazzle on left-hand bends (in

British terms) by employing two horizontal beams, the kerbside one higher than the other, but never higher than the height of the lamps, linked together by a third line at 45 degrees. The central limit, at 45°, makes it possible to increase considerably the distance of the light projected in front of the vehicle, on the [British] left-hand side. By contrast with the scientific, computerised methods used to achieve this breakthrough in glass and lens design, which we had seen earlier in the laboratories, the method of demonstration, which involved us driving a fleet of Renaults towards the Dodge Monaco or having it attack us from behind, seemed crude, but proved inarguably the Z-beam's worth.

"Headlamp development and production is a far-too-complex thing to deal with here, encompassing such Tomorrow's World-type equipment as laser beam checks for optical prisms. I was left a little bit dumbfounded by it all and with even more admiration for Cibié products than I have always had. Unfortunately we could not see the centre of the company's competition activities, but a string of successes in events like the Monte Carlo Rally, the Safari and Le Mans speak for themselves.

Xenon Headlights Save Lives: TUV Rheinland Survey in 2007

TÜV published a study in September 2007 on the safety effects of HID headlamps. Here's a review of DVN's coverage at the time:

"Equipping cars with Xenon headlights save lives. That's the finding of a study just published by TÜV Rheinland. If all vehicles registered in Germany were equipped with Xenon headlights instead of conventional halogen ones, it would be possible to reduce the number of serious accidents occurring at night on country roads by over 50% each year, and by much as 30% on motorways. This in turn equates to a total of 6% fewer accidents involving casualties and 18% fewer fatalities. The investigation by TÜV Rheinland is based on a study by the Federal Highway Research Institute (BASt). Its study finds that between 1991 and 2002 the number of road traffic accidents occurring at night in Germany involving casualties decreased more significantly than the number of accidents occurring during the day.

"The objective of the current study was to find out whether or not there is a correlation between this drop in the number of accidents and innovative developments in the area of vehicle lighting—more specifically, the introduction of Xenon headlights. 'To find this out, we compared the rate of accidents involving high-end cars with and without Xenon headlights. We were able to prove that on country roads and motorways Xenon headlights have a statistically significant influence on the accident rate and, what is more, irrespective of other technical innovations such as anti-lock brakes and ESP', says TÜV Rheinland expert Dr. Hendrik Schäbe. As to be expected, Xenon headlights have no influence on the accident rate in urben traffic due to there being sufficient street lighting in cities. Currently, only around 10% of all cars registered in Germany are fitted with Xenon lights. 'And this despite the fact that the number of nighttime

accidents is continuing to decrease with the increasing proportion of Xenon headlights. Our analysis substantiates this', explains Schäbe."

Lighting News

Industry Will Keep China Supply Chains: Valeo CEO

LIGHTING NEWS

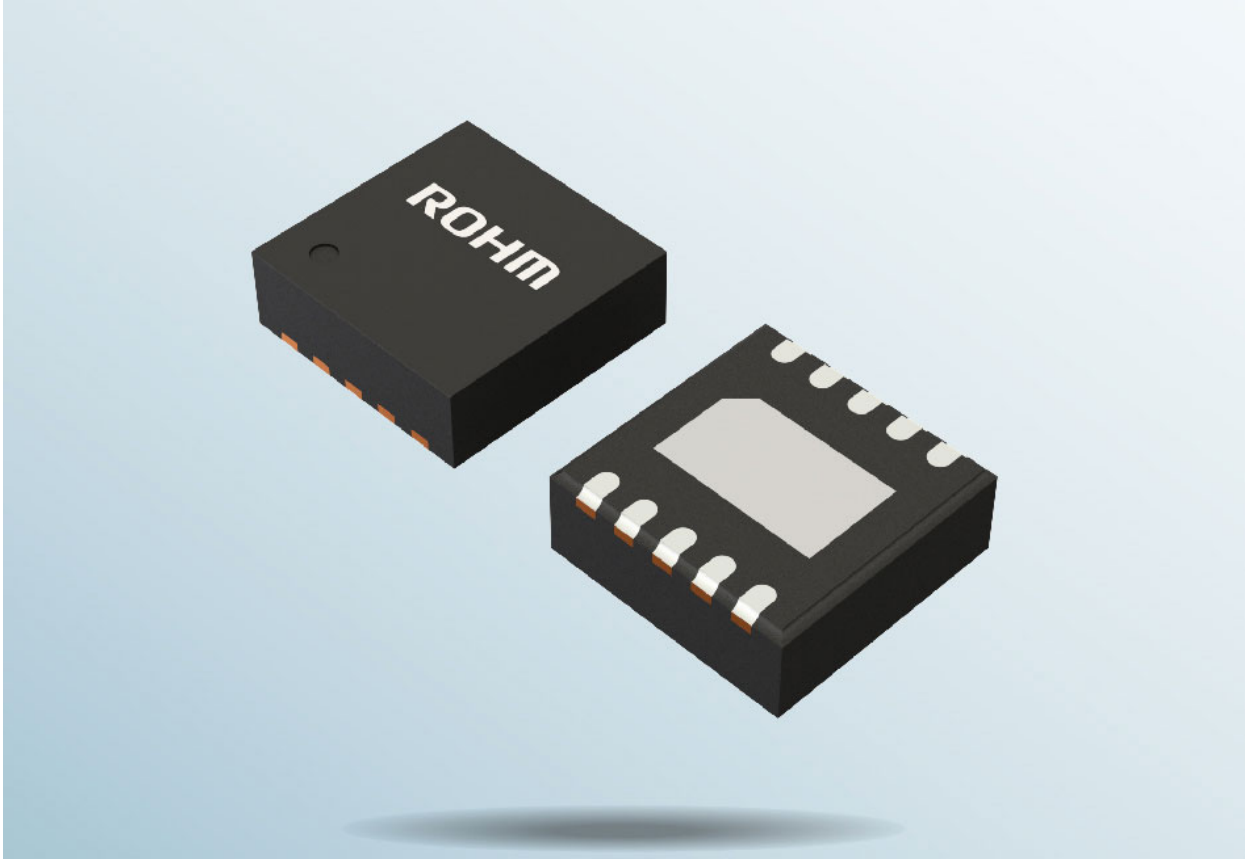
As the pandemic causes the deepest recession in most of a century, the European Union has proposed a €750bn recovery package that includes aims to ensure "strategic autonomy" in key sectors and stronger value chains within the EU.

European leaders have talked of bringing manufacturing back to member countries to avoid the type of crises that quickly followed the initial outbreak in China. The shutdown of auto parts factories there sent Europe's vehicle producers scrambling for replacements to feed assembly lines. Europe's dependence on foreign-made health-care protective gear such as masks and gowns also became painfully clear. But shortening logistics routes is not part of Valeo CEO Jacques Aschenbroich's plans to steer his company out of slump that has pushed European car sales to record lows.

Aschenbroich says "Our final customers and auto parts clients aren't ready to pay more if our supply chains were relocated, so if neither of them put a value on the risk, there is no chance that supply chains will be relocated". He added, "We should pay homage to these supply chains that have shown extraordinary resilience after withstanding successive shocks like Fukushima, flooding in Thailand and now COVID-19".

Rohm's New Monolithic LED Driver

LIGHTING NEWS



Rohm have a new extremely compact, high-output linear single-chip LED driver IC that provides stable lighting even in case of line voltage drops, making it ideal for a broad range of socket-type LED lamps used in vehicle systems.

Conventional onboard LEDs support various designs and functions by combining numerous electronic components on a modular substrate. Socket-type LED lamps that can be replaced as easily as bulbs have been attracting attention by offering superior maintainability, but it is difficult to decrease socket size, and that difficulty constrains design flexibility.

In response, Rohm developed their BD18336NUF-M, just 3 × 3 × 1 mm. It has a current bypass function that prevents LED blinkout and maintains a brightness of at least 30% at all times by switching the LED current path, even when the battery voltage decreases from 13 to 9 volts.

EC Greenlights AMS Buyout of Osram

LIGHTING NEWS

Austrian sensing company AMS won their bid on Osram last December, but it's taken until this past week for the European Commission to approve their acquisition of Osram. With that approval granted on 6 July, AMS completed the deal three days later on the 9th.

The EC concluded that the transaction wouldn't raise any competition concerns in the European Economic Area, noting that neither company held sufficiently large market power to cause concern, and concluding that the the typically rapid evolution of products in the optoelectronics sector and the sophisticated nature of product buyers will help maintain genuine competition.

With the buyout approved, AMS paid their offer price of €41 per share to holders of the Osram shares tendered for sale, raising AMS' total stake from 23 to 69 per cent.

"The European Union regulatory approval constituted the last remaining condition precedent for closing the transaction which is now fulfilled", AMS stated, adding that they are "excited about this success and looks forward to creating a worldwide leader in sensor solutions and photonics through the combination of AMS and Osram".

AMS CEO Alexander Everke said "Firmly rooted in Europe, we will leverage the strong technology, intellectual property, and market position of Osram in combination with ams and are convinced of our potential to become a world leader in the optical space".

Luc Marbach Elected President of SIA

LIGHTING NEWS

Following the General Assembly of the SIA (Society of Automobile Engineers) held last week, Luc Marbach was elected president of the SIA for a three-year term (2020-2023).

Luc Marbach succeeds Jacques Graizon, president of the SIA from 2016 to mid 2020.
“I have the honor to succeed as president to Jacques Graizon, whose enormous work and remarkable dedication during his tenure over 4 years at the helm of the SIA, ”said Mr. Marbach.
Luc Marbach is a graduate of the École Centrale de Paris, He has more than 30 years of experience in the automotive industry, acquired within the PSA Group, from which he is now detached. After 10 years in production, he turned to design, project management and program management. He was in particular Director of Projects for 207 and DS5 vehicles then Director of World Programs for high-end vehicles of the PSA Group

The SIA is first and foremost a benchmark center for automotive and mobility technologies. The priority with the 13 Communities of Experts is to promote and accelerate exchanges and the development of knowledge at the service of the sector and its engineers, managers and technicians, through Congresses,
SIA organizes the famous VISION congress which will be held on 7-8 October 2020, at Paris, Cité des Sciences.

Driver Assistance News

Tesla 'Very Close' to L5 AVs: Musk

DRIVER ASSISTANCE NEWS

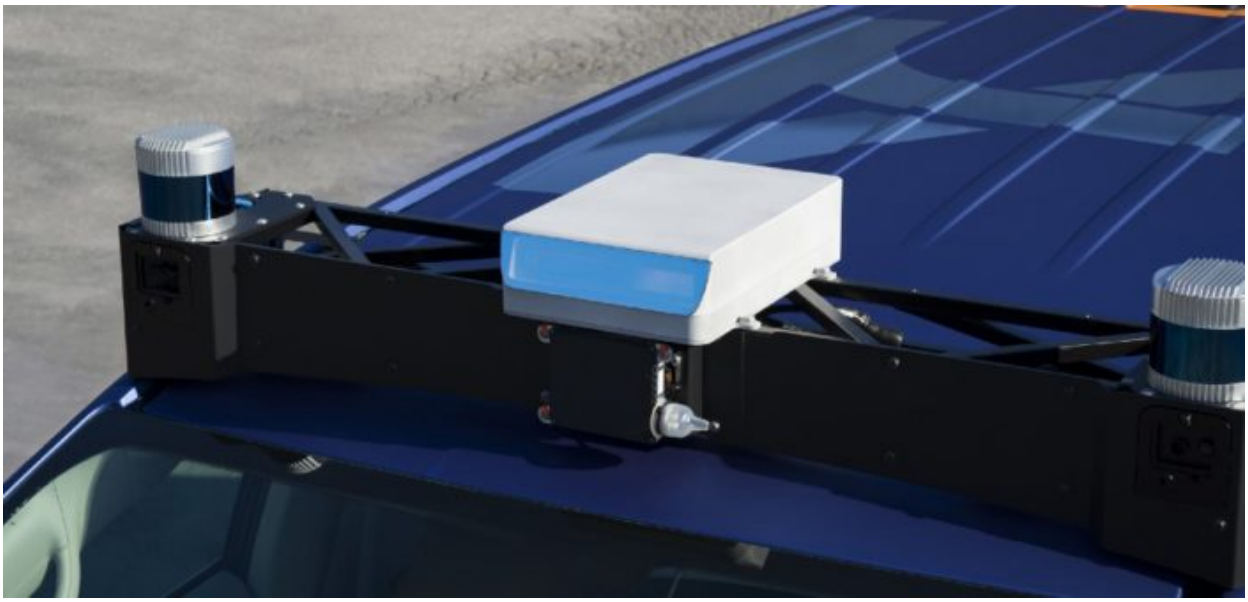
Notoriously cocksure CEO Elon Musk says Tesla are "very close" to achieving L^5 vehicle autonomy, though he didn't specify just how close;

"I'm extremely confident that Level 5 or essentially complete autonomy will happen, and I think will happen very quickly" Musk said in remarks made via a video message at the opening of Shanghai's annual World Artificial Intelligence Conference. "I remain confident that we will have the basic functionality for Level 5 autonomy complete this year."

Automakers and tech companies including Alphabet, Waymo, and Uber Technologies are investing billions in the autonomous driving industry. However, industry insiders generally agree it will take quite a bit of time for the technology to be ready for real.

FMCW Lidar On the Road

DRIVER ASSISTANCE NEWS



US-based self-driving platform developer Aurora have begun testing their newest FirstLight lidar system on development vehicles, following the company's acquisition in 2018 of lidar specialists Blackmore, who brought expertise in FMCW (frequency modulated, continuous wave) lidar technology.

Aurora say over the past two years they've worked on integrating this technology with their other hardware and software systems, to devise a lidar system with exceptional range and resolution.

FMCW lidar is relatively new, with most vehicle lidars using AM-based sensing (amplitude modulation). In AM systems, the amplitude of light waves from a lidar system is modulated, and the time of flight used to gauge the location of objects. Just as in FM versus AM radio, with FMCW lidar the frequency of the light waves is altered, rather than their amplitude, so instead of pulses of light there is a continuous wave which varies in frequency.

Aurora say this allows acquisition and tracking of not only an object's location but also its velocity, and that the continuous wave greatly extends the system's range and ability to see low-reflectivity objects such as pedestrians in dark clothing.

Jenoptik to Buy Trioptics

DRIVER ASSISTANCE NEWS

Trioptics will be absorbed into Jenoptik, who have agreed a two-stage deal to acquire Trioptics by the end of next year.

Trioptics, founded in 1991 by current CEO Eugen Dumitrescu, have headquarters just outside Hamburg, Germany. There are now more than 400 employees, including 100 in R&D, at sites across Europe, Asia, and the United States.

Trioptics' strong sales have driven annual turnover to around €80m in 2019, which means Jenoptik will add around 10 per cent to annual revenues and workforce once the deal is completed.
Dumitrescu, who along with CTO Stefan Krey will remain with the company, said "Together with Jenoptik, we can better capitalise on the growth potential created by the next wave of digitisation, with its rapidly increasing demand for digital imaging, virtual reality, and connectivity. Thanks to the synergies that can be realised through the joint market presence, we will continue the dynamic growth of recent years".

Velodyne to Go Public Via Graf Industrial RTO

DRIVER ASSISTANCE NEWS

Velodyne Lidar have raised USD $150m in a reverse takeover and will be combining with Graf Industrial to go public in the third quarter of this year. It is expected that Velodyne will be listed on the NYSE under the symbol of VLDR.

Pursuant to the business combination, Graf will acquire Velodyne through a reverse merger in which Velodyne is ascribed an enterprise value of approximately $1.6bn and equity value of around $1.8bn. Following the transaction and its expenses, Velodyne are expected to add about $190m cash to their balance sheet; up to $50m total cash consideration will be paid to existing Velodyne shareholders.

Current Velodyne shareholders, including David Hall and strategic investors Ford, Baidu, Nikon, and Hyundai Mobis, will retain an equity interest of more than 80% in the combined company.

"Partnering with Graf Industrial will provide the opportunity to enhance our leading position in the lidar and sensor markets broadly around the world, creating new and exciting opportunities for our customers and employees," said Velodyne's CEO Anand Gopalan.

LeddarTech Buy VayaVision

DRIVER ASSISTANCE NEWS

LeddarTech have bought Israeli sensor fusion and perception software company VayaVision, whose technologies LeddarTech plan to leverage in accord with LeddarTech's longrunning open platform strategy to deliver an end-to-end ADAS and AD sensor fusion and perception stack product that is adaptable, flexible, and scalable to enable customers to innovate and accelerate their time-to-market. The first perception software stack product based on LeddarTech's Leddar Pixell™ lidar sensor will be available for demonstration and sampling in the fourth quarter of this year, and in production in the first half of 2021.

Jinoid Pick Newsight CMOS Sensors

DRIVER ASSISTANCE NEWS

South Korean sensor provider Jinoid have chosen Newsight's CMOS image sensors for advanced smart vision and inspection sensor systems. Newsight's NSI3000 line sensor, and NSI1000 area sensor have already successfully passed Jinoid's evaluation, and the first batch of a thousand chips has been provided and assembled. The two companies intend to expand the collaboration.

Newsight's sensor chips are being integrated into Jinoid's main smart sensor families:
• The ZSC Series, a standalone sensing system for part inspection,
• The ZORP Series, which fits high speed pinhole inspection systems and can make good use of Newsight's ultra-high frame rate.
• The ZPE Series, a smart sensor for Android-based applications using Newsight's sensors' flexible configuration features.

Newsight recently released the NSI1000 chip. With 32 lines of 1,024 global shutter pixels, it is a multi-mode sensor capable of supporting Newsight's "eTOF"(enhanced time-of-flight). It works in multi-triangulation mode, which provides 32 highly accurate depth points concurrently, in-pixel accumulation, and multi-set configuration, which can change the chip's functionality from a regular camera to a depth camera, frame-by-frame. Newsight will hold a webinar this month to present the unique features of their sensor chips.

Jinoid *are a specialised sensor company, a Korean partner of Japan's Takenaka (Takex) sensor group, specialising in sensors for over 50 years. Since 2006, Jinoid have taken a leading role in the FA sensor field. Among Jinoid's top customers are Samsung, LG Display, BOE, and CSOT.*

Newsight Imaging *develop advanced CMOS Image sensor chips for 3D machine vision and spectral analysis. The company have 14 US and EU patents, were named "Cool Vendor" in the Nobel sensors category by Gartner, and received 3 grants by the Israeli Innovation Authority.*

General News

Audi CEO: "We Take the Crisis As An Opportunity"

GENERAL NEWS

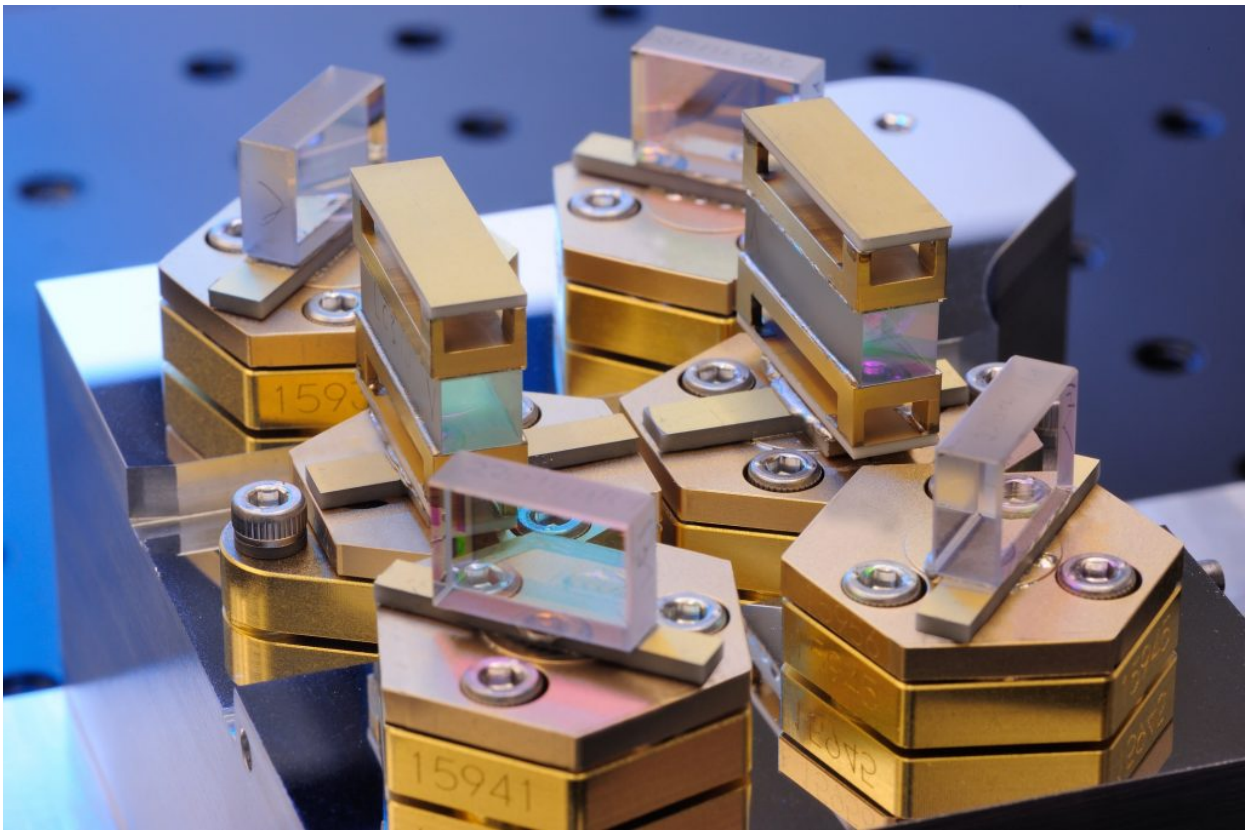
Audi's new CEO Markus Duesmann plans to leverage the deepest industry slump in decades to make the automaker nimbler and sharpen their technological edge after five years of management turmoil. He intends to review Audi's product range and accelerate vehicle development at the VW Group's premium-car division. "We take the crisis as an opportunity and even an invitation to try new things," Duesmann said.

The CEO was hired to revive profits at Audi after years of upheaval in the wake of the diesel-emissions crisis that erupted in 2015. Audi have wrestled with operational hiccups that delayed electric-car projects meant to help the automaker better compete with rival Tesla. It also saw several board members depart and last year struggled with production bottlenecks triggered by stricter emissions test procedures in Europe.

Audi's previous efforts to challenge Tesla struggled to gain traction, and one of Duesmann's key moves since taking over at Audi was to set up an engineering task force, called "Artemis", to develop a new electric car by 2024. The automaker plan to cut as many as 9,500 jobs in Germany by 2025 to improve earnings by about €6bn, Audi said last year.

EKOLAS Brings New Efficient Lasers

GENERAL NEWS



Osram Opto Semiconductors has been working for many years on high-power lasers for special applications such as metal processing using welding robots in the automotive industry. Now they are presenting impressive results in laser bars' performance and efficiency from the latest EKOLAS project funded by the German Federal Ministry of Education and Research.

Together with partners Laserline, Heraeus, Fraunhofer ILT, Fiberware, and Welser Profile, Osram Opto have worked on various assignments in the project EKOLAS. The main aim was to develop highly efficient infrared laser bars with outstanding output powers and to demonstrate them in industrial materials processing. The EKOLAS project, completed in February 2020, led to an infrared laser bar with an impressive maximum output of 400 watts in continuous wave operation. With an output of 300 watts, the bar sets a new standard with an efficiency of about 70% in the wavelengths of 1000 and 1020 nanometers.

"We are very excited to achieve, and in some cases even exceed, all of our targets in this project," says Sebastian Hein, EKOLAS Project Manager at Osram Opto. "The key to success was the development of innovative software tools for simulating the electro-optical properties of the lasers, which take into account the thermal distribution, temperature-dependent material properties and mode-dependent wave propagation in the resonator. These tools considerably accelerated and simplified the necessary test runs, making a fundamental contribution to the results of the project."

Skoda CEO Maier leave his post

GENERAL NEWS

Bernhard Maier,60, CEO of Volkswagen Group's Skoda brand, will leave his post after nearly five years at the end of July ; his successor will be elected by the board in August, Skoda said last week.

VW Group CEO Herbert Diess, who is Skoda's chairman, said in the release that Maier's years at Skoda were among the most successful in the company’s 125-year history. "I would like to thank Bernhard Maier for this and almost two decades of particularly successful years, first at Porsche and then at Skoda," he said

Skoda has boosted annual deliveries above 1 million in recent years but like other automakers it has been hit hard by the coronavirus outbreak. Its vehicle sales fell 14 percent to 237,000 in the first quarter. Operating profit dropped by €100 million to €300 million.