inspect America

Fall **2022**

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Lenses: How to Choose, How to Clean

Technology – Products – Market Experts

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The trade show season begins – and it's going to be great

Dear Reader,

Fall is starting and with it the trade show season. I don't know about you, but besides all the pre-trade show stress – which consists in my job mainly of finishing issues – I'm really looking forward to the events: I can finally meet the familiar contacts again and get to know new ones, plus I get to see the products live and in 3D instead of just a photo of them in the press release.

The most important show is the Boston Vision Show with over 120 exhibitors from North America, Asia and Europe. This number alone shows that it will be a great show with lots of exciting product launches and interesting discussions. A small foretaste is offered by the preview, right on the next page.

Don't miss the interview with Daniel Seiler, CEO of Automation Technology, a German camera manufacturer. He is currently in the process of expanding his company's presence in the US. Definitely a reason to keep an eye on AT.

No less exciting is the interview with Mark Oliver, Vice President of Marketing and Business Development at Efinix. Among other things, he talks about the new mid-range FPGA his company recently released. It's fast enough for embedded vision applications, and cost-effective enough to be profitable for simpler applications.

For moving picture enthusiasts, lens specialist Sunex presents three selected videos that answer questions that every imaging user has asked: What should I look for when choosing a lens for a board-level camera? How do I get a custom lens? And how do I clean the lens?

I hope you enjoy reading the second issue of inspect America.

Best regards,
David Löh
Editor in Chief

PS: How do you like the second issue of inspect America? Please feel free to contact me. I look forward to your comments: david.loeh@wiley.com.

PPS: Have you already subscribed to our bi-weekly newsletter? If not, you can subscribe free of charge here. Then you will receive the next issue as well as many interesting news about machine vision directly into your mailbox.

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Back in Boston

Oct. 11–13, 2022, the Vision Show from the Association for Advancing Automation Returns to Boston

The Vision Show is North America's leading machine vision and imaging event, showcasing the latest products, providing opportunities to meet leading companies, and offering educational sessions taught by top industry experts. For the first time since 2018, the show is returning to Boston Hynes Convention Center this October.

The show will feature the latest advancements in vision, imaging, sensing, machine learning, and embedded technologies, while offering real-world solutions to manufacturing and automation challenges. In addition to the learning opportunities offered by the conference, the free simultaneous trade show offers the opportunity to learn about the new developments from the major embedded vision companies. More than 3,000 attendees of the show originate from more than 45 countries. Their professions range from users of vision, sensing, and imaging technologies to system integrators and manufacturers of mobile and collaborative robots, artificial intelligence programs, augmented reality systems, and many more.

Over 140 exhibitors are expected to participate in the trade show this year, allowing attendees to meet community experts and key suppliers and learn about the latest innovations and get hands-on experience. ■

TKH Acquires Nerian

The Dutch TKH takes over the camera manufacturer Nerian completely. The German company, based in Stuttgart, develops and manufactures high-speed 3D cameras.

Following the acquisition, Nerian will be integrated into the TKH Vision machine vision division. Like the other companies in this division, it will continue to sell its products under the Nerian brand. Existing partnerships are also to remain in place.

Dr. Konstantin Schauwecker, Managing Director of Nerian, comments on the acquisition: „We are proud to join TKH Vision and expand their capabilities of in both industrial and non-industrial applications. Nerian will benefit from the synergy of the larger commercial organization and well-established supply-chain and production facilities of TKH, which will greatly accelerate Nerian's ability to capture market share and we look forward to this next phase in our development."

Mark Radford, Vice President of TKH Vision, adds: „Combined with our extensive market reach, advanced software, and turnkey solution capabilities, Nerian's 3D cameras will allow for new solutions for challenging applications, including mobile robotics and autonomous vehicles, bin-picking and robot guidance across a variety of markets."

pattern projectors to increase accuracy for difficult-to-measure objects.

Image: Nerian

Nerian, manufacturer of 3D smart cameras, is acquired by the TKH Group. Pictured: the Scarlet 3D stereo camera

Image: Edmund Optics.

Edmund Optics has appointed Samuel Sadoulet as the company's Chief Executive Officer.

Edmund Optics Appoints new CEO

Edmund Optics has appointed Samuel Sadoulet as the company's Chief Executive Officer. Sadoulet will succeed Robert Edmund and assume his responsibilities with immediate effect.

At the same time, Edmund Optics announces the retirement of Robert Edmund and the appointment of Marisa Edmund as Chair of the Board of Directors. Marisa Edmund and the Board of Directors have appointed Samuel Sadoulet as Chief Executive Officer.

Samuel Sadoulet has 25 years of management and engineering experience at Edmund Optics, with a professional background in physics and optical sciences. In addition to his strong expertise, he has held multiple operational roles and helped build Edmund Optics' reputation as a leader in customer service and engineering solutions, most recently as President and Chief Operating Officer. Sam Sadoulet received his bachelor's degree in physics from the University of Rochester (USA), his master's degree in Optical Engineering from the University of Arizona (USA) and his Executive MBA from INSEAD (France). He is also Chair of the Executive Committee of SPIE, the International Society for Optics and Photonics, and a member of A3, the Association for Advancing Automation.

Image: Waygate

UKBIC and Waygate Technologies agree long-term partnership to drive innovation in battery pack and cell inspection.

Battery Pack Inspection: Waygate Technologies and UK Battery Industrialisation Centre Cooperate

Waygate Technologies, manufacturer of non-destructive industrial testing (NDT) equipment, has signed a strategic partnership agreement with the UK Battery Industrialisation Centre (UKBIC). This is a national development facility for battery manufacturing and offers scaling opportunities and skills for qualification in the battery sector. The MOU aims to accelerate the development of battery technologies through the interaction of UKBIC's manufacturing research facility and Waygate Technologies' expertise as a provider of industrial computed tomography (CT)-based inspection solutions. The company has extensive experience in battery pack and lithium-ion cell inspection and research projects. Together, they aim to create a digital twin that optimizes production of all battery types and yield in gigafactories.

Nicola Jannis, CEO of Waygate Technologies, said, „The growing battery industry is one of our key strategic growth areas. We are therefore very excited to partner on this project to develop better battery technology for more sustainable mobility."

For Waygate, the agreement is a milestone in its strategy to strengthen the company's position in battery inspection and drive innovation that improves electric vehicle safety, productivity and competitiveness for its customers.

UKBIC plays a central role in the UK government's Faraday Battery Challenge (FBC), a national program led by UK Research and Innovation (UKRI). The goal of the program is to help companies seize the opportunities presented by the transition to a low-carbon economy.

Evident to be Sold to Bain Capital

Olympus is divesting its Evident subsidiary, which provides scientific and industrial solutions. The buyer is the private equity firm Bain Capital. According to the agreement concluded, all shares in Evident will be transferred to Bain Capital on January 4, 2023. Olympus spun off the Scientifc Solutions business unit with the Life Science and Industry application sectors into the independent subsidiary Evident as early as April 2022. Following the sale of the imaging business, this was a further step towards a pure focus on medical technology. With the sale of Evident, Olympus now intends to expand this business area. The focus is to be on the Endoscopic Solutions and Therapeutic Solutions business units. Yoshitake Saito, President and Representative Director of Evident, commented on the company's future focus: „Evident will continue under the umbrella of Bain Capital to offer a wide range of innovative products and services to the company's customers around the world. Building on our long experience, we will expand our digital technologies, including cloud-based solutions, to provide added value to our customers.

Olympus is divesting its Evident subsidiary, which provides scientific and industrial solutions.

Daniel Seiler has been Managing Director of camera manufacturer Automation Technology since March 2022.

“We Foster a Culture of Quick Decision-making and Implementation”

Interview with Daniel Seiler, CEO of AT – Automation Technology

Daniel Seiler has been CEO of camera manufacturer Automation Technology since March 1, 2022. In the interview with inspect, he talks about the corporate culture and his expansion plans to the USA. Seiler also reveals which innovations AT will be showing at Vision.

inspect: You have been Managing Director at Automation Technology since March 1 of this year. What was the first thing you initiated there?
Daniel Seiler: I had already been involved with the company as an advisor since the beginning of 2021, before I moved to the management board in March 2022. This means that I was of course able to initiate some of the issues before taking on the new role, or to drive them forward with greater commitment afterwards. In addition to questions of strategic orientation, this includes our recruiting process in concrete terms: As a high-tech company, we are heavily dependent on skilled workers. I am proud that we have already succeeded in filling a dozen new positions this year – an excellent achievement for a company of our size.

inspect: What do you place particular emphasis on in the company?
Seiler: In a word: speed. That starts with our products: Our 3D sensors deliver data rates that no other product can match. Above all, however,

we are fast as a company when it comes to implementation. On the one hand, this is due to our still manageable company size of about 50 people and the flat hierarchies with very short coordination paths. On the other hand, we consciously cultivate a culture of quick decision-making and implementation, and take a pragmatic and agile approach.

inspect: AT wants to expand its business in the USA. What are the concrete plans?
Seiler: We are currently conducting a search for a "Director Business Development" to be based on the U.S. East Coast and manage our office there. In addition to two people who are currently already providing technical and sales support for the North American continent from Canada and Europe, this will be the basis for our expansion in this market. Furthermore, we are in concrete planning stages for the opening of an American subsidiary with the goal of hiring several employees there in the next two years and doubling our share of sales.

inspect: The machine vision industry has been growing stably in the double-digit percentage range per year for a long time. For this year, however, the VDMA is forecasting growth of only 5 percent in Germany. In which countries or regions does AT want to grow?
Seiler: In my eyes, this double-digit percentage growth can be achieved both for the industry as a whole and for AT in the medium and long term.

I see embedded vision more as a progressive development and higher integration of solution-related components, whereas the topic of AI has fundamentally disruptive potential.«

Daniel Seiler, Managing Director of Automation Technology

Our order situation confirms that we can also continue our growth above the industry average. The subdued sales expectations in the current and coming year are due to the extremely limited availability of some semiconductor parts and other components. I am convinced that we will leave this crisis behind us and continue our growth course.

At AT, more than every second shipment is already going abroad, with our sales split between Europe, North America and Asia. In addition to Europe, our main focus in the next few years will be on the North American market, where we already supply strong partners and OEM customers.

Daniel Seiler, Managing Director of Automation Technology: "The long-term oriented planning and stockpiling of the past years has so far helped us to remain able to deliver."

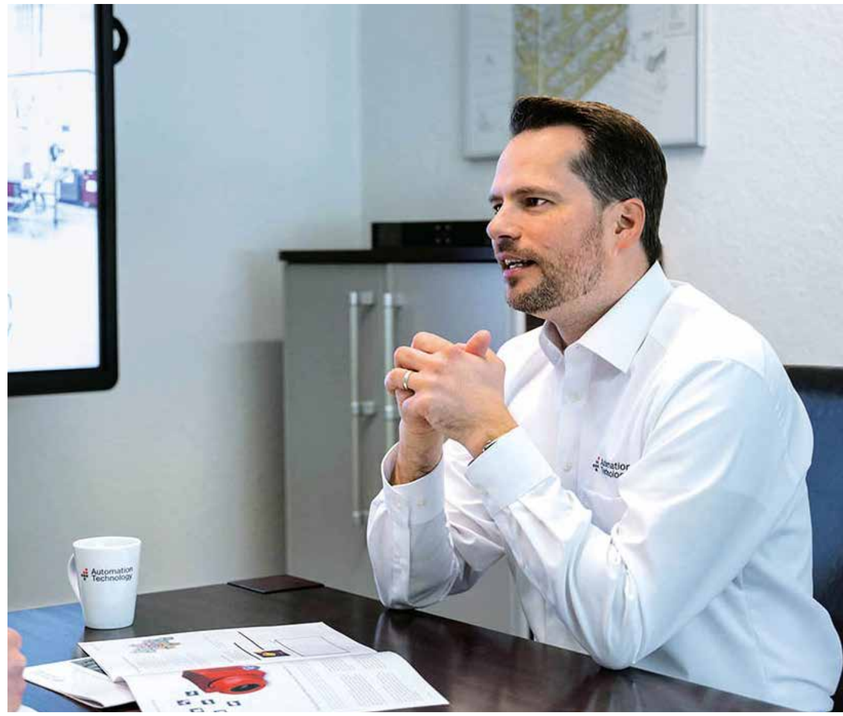
inspect: Consolidation in machine vision is in full swing. AT was also acquired by a majority by financial investor Pinova Capital in 2020. What role do the owners play in your expansion plans?
Seiler: With our investor Pinova, we have gained a fantastic partner who not only backs us financially, but above all strategically. The cooperation is enormously constructive and our regular consultations are characterized by a great deal of trust. The funds and the contacts that Pinova provides us with encourage us to press ahead with the expansion plans described. For example, we are currently planning a building extension for our headquarters in Bad Oldesloe, but we are also keeping an eye on the dynamic machine vision market for possible acquisitions.

inspect: Energy costs and supply problems have dominated the news for months. How much do these factors affect AT's business?
Seiler: Every company I know in our industry is affected by the current bottlenecks in semiconductor components and increasingly also by the rise in energy market prices – AT is no exception. However, the long-term oriented planning and stockpiling of the past years has helped us to remain able to deliver so far, and we will continue to be able to deliver products next year.

inspect: Artificial intelligence and embedded vision are currently experiencing hype. How do you assess the potential of these technologies?
Seiler: I am observing this hype with a great deal of interest and fascination, although both technologies have been topics in machine vision in particular for a long time. I see embedded vision more as a progressive further development and higher integration of solution-related components, whereas the topic of AI has fundamentally disruptive potential.

inspect: AT recently presented the C6 3D camera series and also submitted it to the inspect award 2022. Why do you think the series deserves a trophy?
Seiler: The trophy is deserved by our engineers who developed this fascinating product. Introduced this year, the C6 series version 3070 offers a truly unique advantage for demanding applications: Thanks to a custom image sensor that AT designed together with a CMOS specialist, this is the fastest commercially available triangulation sensor in the world. Due to an intelligent on-chip compression of the laser data, we achieve a higher profile rate at 3K resolution than any other product I know of. In addition, with Multipeak and Multipart, we have two functions that enable our customers to solve complex 3D problems even more elegantly.

inspect: The portfolio of 3D and infrared cameras is to be expanded. What can inspect readers expect in the direction of Vision?
Seiler: At Vision in October, we will present the C6-3070 for the first time at a global trade show.



Daniel Seiler, Managing Director of Automation Technology, in the interview

And our smart thermal imaging camera IRSX will be further developed with new apps for the industrial sector. We are already looking forward to the exciting discussions with users about their infrared and 3D applications. ■

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All images: Automation Technology

“There is a huge drive to push AI capability to the edge”

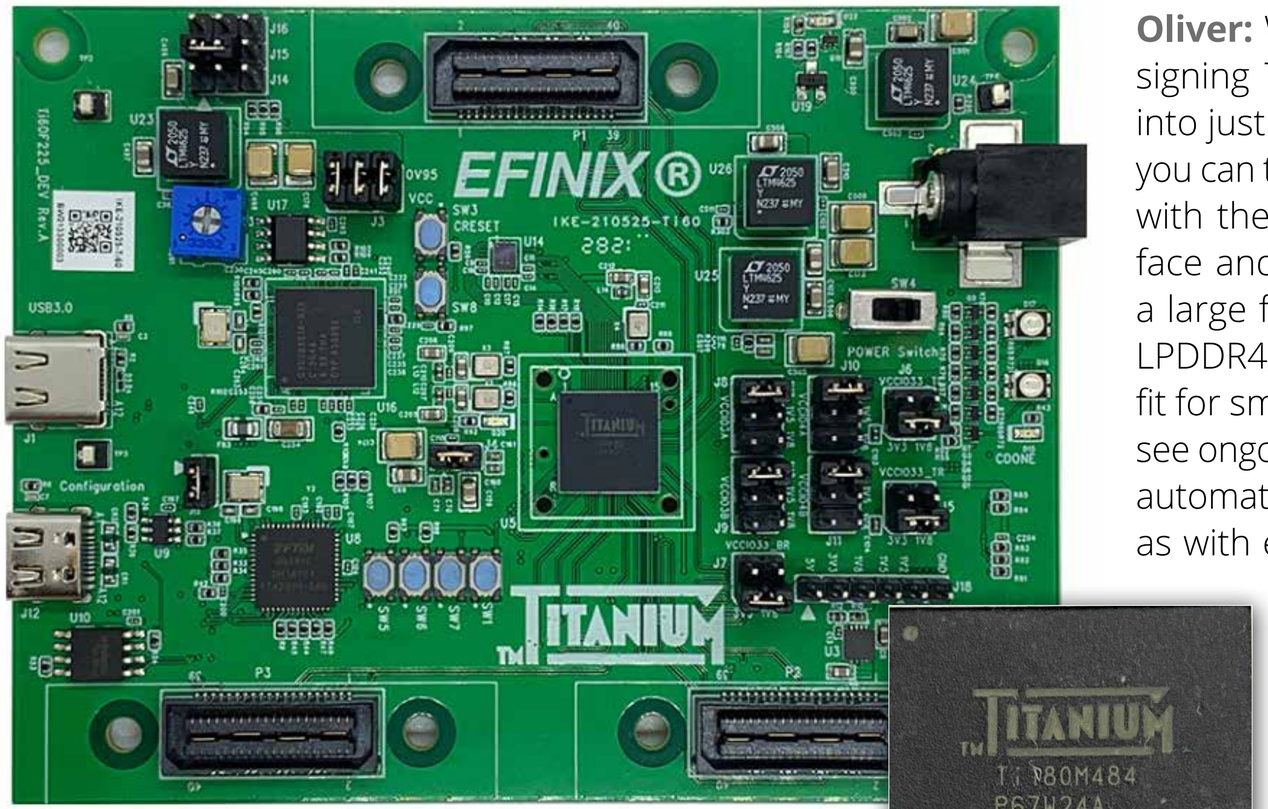
Interview with Mark Oliver, Vice President of Marketing and Business Development at Efinix

Efinix has recently launched a mid-range FPGA. With this, the company fills the gap between low-cost-low-performance devices and very expensive high-performance ones. To mark the occasion, inspect spoke with Mark Oliver, vice president of marketing and business development, who also took the opportunity to discuss current trends. But the topic is also how Efinix is trying to enable camera developers to achieve a faster time-to-market.

Mark Oliver, Vice President of Marketing and Business Development at Efinix

inspect: Recently, Efinix has launched the FPGA Ti180. What are its key features?
Mark Oliver: Yes indeed, we recently rolled out the Titanium Ti180 and we are now sampling early customers with silicon. The FPGA is the latest member of the Titanium family and is fabricated in the same 16 nm process node. It has 180K logic elements but thanks to the efficient Quantum Compute Fabric, retains a small, low power footprint. It has an embedded LPDDR4/4X interface for high-speed connectivity to external memory as well as high speed 2.5G MIPI interfaces for connectivity with the latest camera sensors. It features 13 Mbits of embedded memory as well as 640 DSP blocks. It shares the same security features as the other Titanium designs making it a good fit for edge applications.

inspect: Why does it make sense to supplement the product range of FPGAs with a mid-range model?
Oliver: We are seeing huge demand for mid-range FPGA devices. It is becoming increasingly clear that Moore’s law is slowing down and it is becoming prohibitively expensive to produce custom silicon for all but the highest volume applications. Designer are looking for alternatives that are cost effective and deliver fast time to market. Efinix FPGAs deliver just that in a dense and efficient platform. Using Efinix FPGAs, de-



▲ The Titanium Ti60 F225 Development Kit provides a Raspberry Pi camera module and the Ti60 FPGA.

signers can innovate rapidly in a configurable fabric delivering application that run at hardware speed with low power consumption.

Once the design is ready, the cost-effective nature of the Efinix devices means that the application can be taken to high volume production using the same devices that were used in development in the lab. That makes for very fast time to market with zero risk and NRE.

inspect: For which applications is it primarily suitable?

▲ The Titanium Ti180 FPGAis the latest member of the Titanium family and is fabricated in the same 16 nm process node.

Oliver: We have customers designing Titanium family devices into just about every application you can think of. I have to say that with the high speed MIPI interface and the possibility to have a large frame buffer in external LPDDR4, it is a particularly good fit for smart camera designs. We see ongoing designs for industrial automation cameras and cameras with embedded AI as well as the more traditional surveillance and thermal applications.

inspect: Which industries and applications will the already planned future mid-range FPGAs cover?

Oliver: One of the clear trends we see in the market right now is the drive towards edge compute. There is a huge desire to place compute next to where the data is generated and where it has context. These edge applications are a great fit for Efinix FPGAs. They are characterized by constrained space and power yet high compute performance requirements. As vision and Artificial intelligence are increasingly finding application at the edge the compute requirements are increased even more driving the need for a parallel approach that is only achievable with custom silicon or FPGA. With the price of custom silicon solutions exploding, FPGAs are coming into their own. We see a huge adoption of Efinix products at the edge where increasing amounts of data need to be processed in real time.

These applications are not confined to the more obvious edge applications such as smart cities and automotive, but also extend into areas such as AR/VR for both consumer and industrial applications. Here, many different sensors need to be aggregated in real time to extract real time intelligence. This is a trend that is not easily satisfied by conventional processing techniques and is becoming prohibitively expensive for custom solutions. We see FPGAs expanding beyond their traditional role to become self-contained and highly parallel edge compute platforms. ■

Read the full interview at WileyIndustryNews.com.

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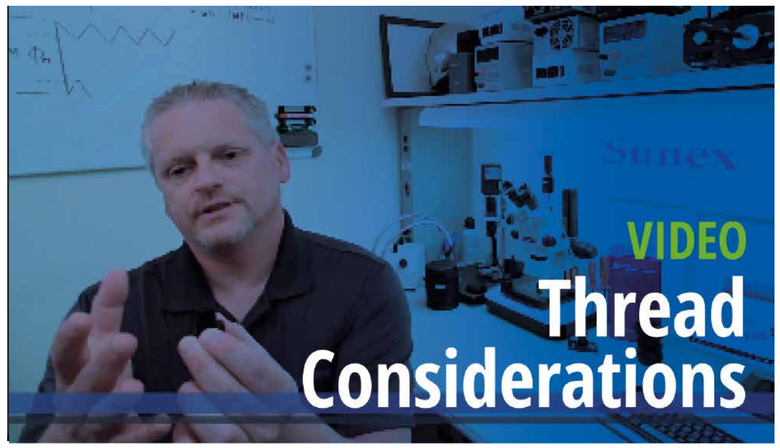
All images: Efinix

Some quick facts about lenses

How-to-Videos for machine vision experts

Asking which lens is the right one for a particular application is no longer enough. It is just as important that the lens fits the existing hardware exactly. And once the perfect lens has been found, sooner or later the question arises as to how best to clean it. Machine vision experts Ben Roberts and Ingo Foldvari cover these and other topics in their videos. And as a little spoiler to the second question: don't do it – except when it's absolutely necessary.

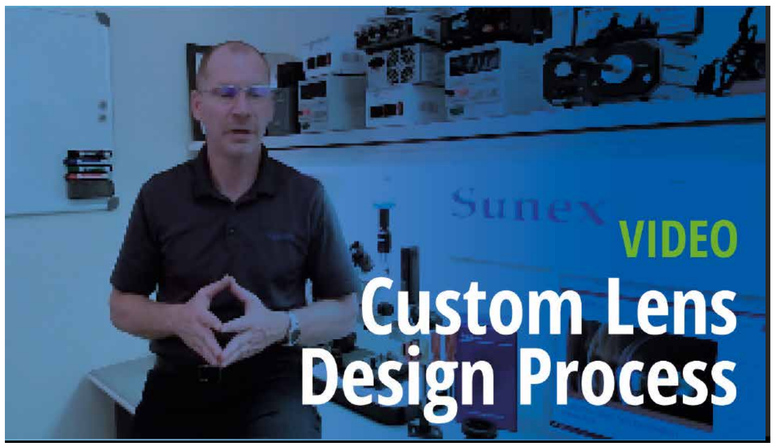


Thread Considerations

In any machine vision application, the perfect interplay between multiple components is essential for achieving the best and most consistent performance. A seemingly trivial task of matching the lens and mount (holder) threads on board-mount lenses can have severe performance implications if not done right. From basic considerations of the threaded lens and mount combination and standard methods to a basic understanding of thread spec and tolerance helps to make the right choices.

How to clean a lens

The general guideline for cleaning optics is "if it's not dirty, don't clean it." Handling optics increases their chances of getting dirty or damaged, so optics should only be cleaned when necessary. The proper cleaning products and methods are equally essential to clean the optic. There are different cleaning methods, and certain specialized optics require particular attention and change in procedures to maintain consistent performance in machine vision applications.



Custom Lens Design Process

If an off-the-shelf solution can't meet critical requirements for a machine vision application, modifying and exiting lens or a customized solution optimized for a specific use case are the next options. Sunex has an extensive library of mature designs and lenses in high-volume mass production that can be modified regarding F/#, barrel features, IP-sealing, and IR-cut filter. If that is not enough, then a full custom design is recommended to meet your unique requirements in terms of performance, size, and cost.

“Complex Parts Drive the Demand for High Resolution CT at Production Speeds”

Interview with Mike Domke, General Manager, and Brian Finken, Vice President for Waygate Technologies

Brian Finken, Vice President Industrial X-Ray and CT Solutions for Waygate: “More complex parts and cost pressures in manufacturing industries drive the demand for solutions that offer high resolution CT at production speeds.”

Mike Domke, Executive General Manager Visual & Advanced Inspection Solutions for Waygate: “We rebranded as Waygate Technologies, a Baker Hughes business in 2020. Creating an independent brand was an important step in the further development of the business.”

Computer tomography is also suitable for testing large, complex components. Mike Domke, Executive General Manager Visual & Advanced Inspection Solutions, and Brian Finken, Vice President Industrial X-Ray and CT Solutions, both for Waygate Technologies, talk about this and what Waygate Technologies has up its sleeve for its customers in an interview with inspect.

inspect: With the breakaway from General Electric, GE Inspection Technologies became Waygate Technologies. What has changed in the company since then, apart from the company name?

Mike Domke: We rebranded as Waygate Technologies, a Baker Hughes business in 2020. Creating an independent brand was an important step in the further development of the business. We offer more premium non-destructive testing (NDT) solutions than any other brand and have expanded that portfolio over the past two and a half years, for example by adding an inspection robotics unit. We also continue to enhance our customer centricity and drive the developments of inspection software and data management solutions.

inspect: Can you give an example of some recent key innovations?

Domke: We have brought a number of new products across our core technologies to market in recent history. With regards to remote visual inspection, we among others added artificial intelligence to our industry-leading video borescope Everest Mentor Visual iQ. Suitable for use in all industrial environments it features a HD camera head combined with built-in connectivity options for better detection and shared decision making without delay. The major software upgrade this year also added AI-enabled assisted defect recognition (ADR), analysis and measurement capabilities. The Everest Mentor Visual iQ, like all our visual inspection devices, is manufactured in the US.

Brian Finken: Looking to our other segments, Waygate Technologies for example introduced the Phoenix Power scan HE, the industry's fastest high energy CT scanner for parts of up to 1 ton and 2 m in height. The 9 mega electron volts high-energy CT scanner is able to scan large, complex parts and assemblies with high speed, precision, and ease of use. It can scan and measure internal features of critical, high-density components and assemblies for a variety of industries, such as aviation, space exploration, automotive, oil and gas and batteries. The first model of the Phoenix Powerscan HE is located in our largest Customer Solutions Center (CSC) in Cincinnati, USA.

Last but not least, we focused on the software side and significantly enhanced Inspectionworks, our agnostic platform for inspection data management. It allows our customers to combine data from multiple NDT tools and efficiently acquire, store, analyze, and act on the data obtained across the entire lifecycle of their products.

inspect: What role does the North American market play for Waygate?

Domke: Waygate Technologies has long been established in the North American market. Our parent company Baker Hughes is headquartered in the US and a staple in the North American energy technology sector. Waygate Technologies and a number of our legacy product categories are similarly well established across a range of industries. Powerhouses in the Silicon Valley, large brands in the aerospace and aviation industries, and the defense sector carry particular weight in our US operations. One rapidly growing industry that is certainly unique to the U.S. market is Space Exploration. Besides the famous Nasa, other newer big players in the industry are also among our customers.

inspect: What points of contact does Waygate have in North America?

Finken: First of all, there is our main manufacturing hub for visual inspection solutions in Skaneateles (NY). Secondly, we own two major Customer Solutions Centers (CSC) in Cincinnati (OH) and in San Jose (CA). Cincinnati is home to our largest global CSC. It features our latest X-ray, CT, ultrasound, and RVI technologies, as well as a climate-controlled laboratory for precise 3D metrology with CT. ■

Read the full interview at WileyIndustryNews.com.

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The video borescope Everest Mentor Visual iQ is Suitable for use in all industrial environments. It features a HD camera head combined with built-in connectivity options for better detection and shared decision making without delay.

All images: Waygate Technologies

New Products

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www.ioss.de

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All-in-One Solution Receives US Patent

www.smartvision-lights.com

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Homogeneous Laser Ring

www.laser-components.com

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Superior Speed in a Familiar Format

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Cost Effective Deep Learning Neural Network

www.flir.com

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State-Of-The-Art Deep Learning Technologies

www.mvtec.com

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Color 3D Camera

www.photoneo.com

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Automated Quality Control with Collaborative Robots

www.creaform3d.com

AI-Based Code Readers With Self-Optimisation

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The DMR410/420 code readers from IOSS with automatic optimisation of the reading strategy enable high process reliability.

The reading strategy of the code reader continuously improves during the ongoing process; the more codes are read, the more strategies the integrated software generates or optimises completely independently. This makes the system insensitive to possible process fluctuations and eliminates the need for constant adjustment and the associated costs. For particularly difficult reading tasks such as highly reflective or round surfaces or very small Data Matrix codes, additional telecentric attachment optics or passive dome illumination are available.

The code readers can be set up to meet individual requirements and the various interfaces facilitate integration into systems. They are available in various technical versions with different sensor resolutions, lenses and illumination colours. The reading systems can be used for all Data Matrix codes in industrial sectors such as automotive, semiconductors, logistics and automation.

Image: IOSS

All-in-One Solution Receives US Patent

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Image: Smart Vision Lights

The Led lighting manufacturer Smart Vision Lights has been awarded patent number US 11,328,380 B2 for its machine vision innovation, the Do All Light.

It's an all-in-one solution that combines a dome light, two dark field illumination angles, NIR and RGBW ring lights, and a four-quadrant multispectral ring light in a single unit. The Do All Light is particularly suitable for robotics and other flexible automation systems.

The ring lights can be controlled independently and have red, green, blue, white and 850 nm NIR channels that can be mixed for any colour or for VIS and NIR inspections. The dome light provides diffuse illumination for electronics inspection and other final inspections where hot spots and shadows can be a challenge. The two angles of the dark-field ring lights can illuminate a wide range of scenes, from fine surface textures to larger features such as screws. Finally, the four-quadrant ringlight enables 3D photometric stereo inspection.

Homogeneous Laser Ring

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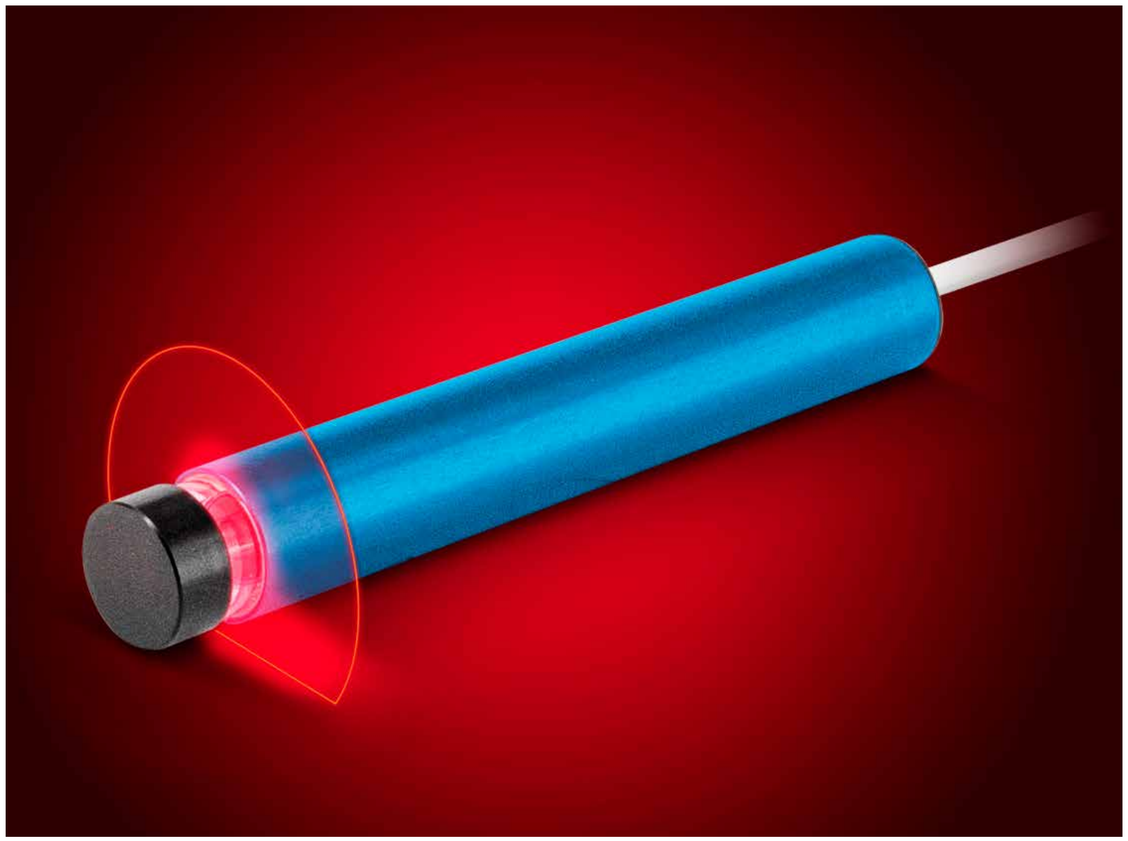

Image: Laser Components

The Flexpoint Radial laser module from Laser Components can be used to precisely measure the inside of a pipe and detect irregularities as small as 50 µm. The fine, ring-shaped beam has a homogeneity of 80 percent and achieves an output power of 50 mW at a wavelength of 660 nm. The laser light is directed onto a cone-shaped mirror in the module and reflected uniformly at an angle of 360°. Thus, the space-saving laser module gets by without rotating elements that would make it failure-prone. The focus of the laser line is adjusted in production to the needs of the customer's application.

Flexpoint Radial was developed in close cooperation with MSG Maschinenbau to facilitate the inspection of high-pressure pipelines. To withstand the immense stresses of daily operation, the tubes must have a perfectly round cross-section. In the past, this could only be determined via inaccurate measurements on the outside. With the ring laser module, surveying equipment can create a detailed 3D model of the inside of a pipe, making precise measurements possible (a detailed user story can be found here).

Superior Speed in a Familiar Format

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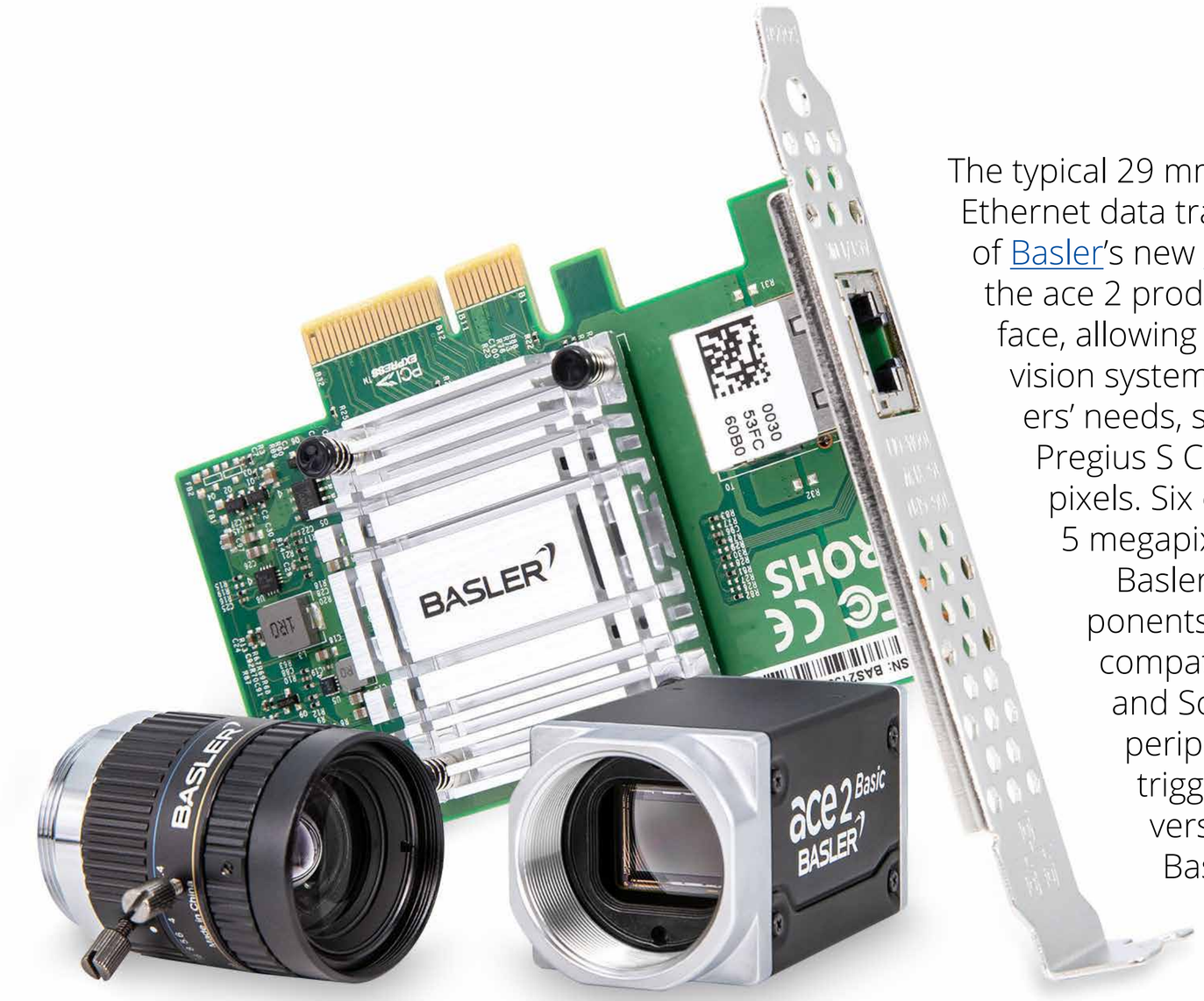

Image: Basler

The typical 29 mm x 29 mm size combined with five times faster Gigabit Ethernet data transmission—the ace 2 Basic camera is the centerpiece of Basler's new 5GigE portfolio. The well-known small form factor of the ace 2 product line remains unchanged with the new 5GigE interface, allowing customers to smoothly upgrade the camera in their vision system. Offering a range of performance to meet customers' needs, six models are equipped with Sony's 4th generation Pregius S CMOS sensors for high resolutions of 24, 20 and 16 megapixels. Six other models offer medium resolutions of 12, 8 and 5 megapixels. Both are available in mono and color variants.

Basler places particular emphasis on coordinating all components in its Vision portfolio. The 5GigE solution includes five compatible product groups: Cameras, Lenses, PC Cards, Cable and Software. Additional accessories such as: network and peripheral devices, a tripod connection, mount adapters, or trigger boards are also available for the new 5GigE camera versions. Visitors to the Boston Vision Show can discover Basler's 5GigE portfolio at booth #310.

Cost Effective Deep Learning Solution

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Deep Learning is a powerful tool for vision system designers looking to quickly automate complex and subjective decision making. However, this technology can be prohibitive for non-experts due to the need for multiple software tools, large data-sets, specialized skills of developers, and their associated costs.

To overcome these challenges, Teledyne Flir has collaborated with Neurala to provide an end-to-end development and deployment solution. Engineers can now build and deploy a cost-effective DL neural network using small datasets directly onto a Teledyne FLIR Firefly DL machine vision camera using Neurala's VIA – No hosts, no peripherals, no expertise.

Image: Teledyne Flir

State-Of-The-Art Deep Learning Technologies

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Image: MVTec

MVTec will sport a larger presence at this year's Boston Vision Show. At the booth, MVTec will demonstrate how machine vision, acting as the "eye of production," optimizes and automates processes in Industry 4.0. With deep learning technology, for example, MVTec offers a wide range of capabilities with the flexibility and optimization features needed to help customers confidently and efficiently integrate deep learning into their own applications. Last but not least, two new software versions, Halcon 22.11 and Merlic 5.2, will also be presented in Boston.

Color 3D Camera

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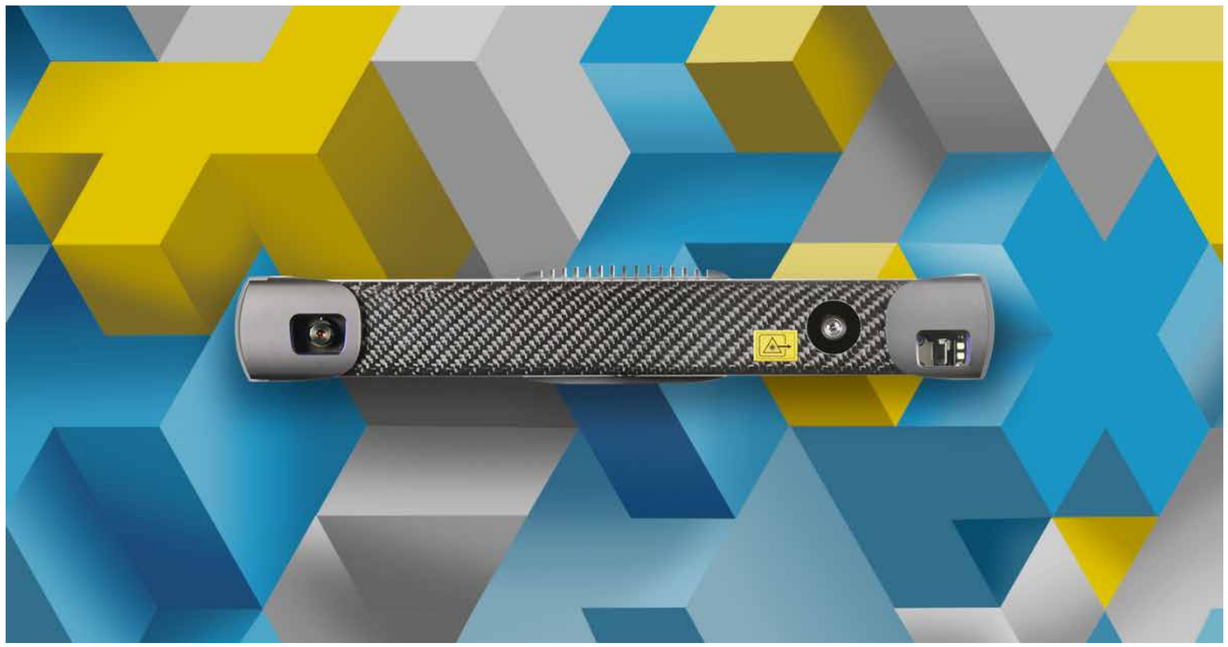

Image: Photoneo

Photoneo will showcase at the Boston Vision Show its 3d camera Motioncam-3D Color. The camera brings a combination of three key properties – 3D data, motion, and color. The fusion of these elements in a single device is unique in the market and makes the camera the only device that enables real-time colorful 3D point cloud creation of moving scenes in high resolution and accuracy.

Motioncam-3D Color is a powerful tool for AI applications as it provides high-quality, real-time 3D data of objects moving up to 144 km/h. As such, it opens a new range of possibilities for decision-making and visualization applications, including object recognition, inspection and quality control, VR and AR, 3D model creation for the Metaverse and digital twins, or data streaming for distant teleoperation of industrial applications.

Automated Quality Control with Collaborative Robots

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Image: Creaform

Creaform releases its new VX Scan-R software module for the VX Elements 10 platform. This latest version now offers an advanced compatibility with a wider range of robots, including collaborative ones, all of which take simplicity and ease of use to the next level while increasing quality control productivity.

The VX Scan-R software is an integral part of the renowned R-Series. It is an automated 3D scanning solution for at-line applications, in turnkey solutions, or for customizable layouts. VX Scan-R offers a reliable and accurate digital twin environment for program preparation, scan simulations, and execution. Used with the Metrascan 3D-RTM, a robot-mounted optical CMM scanner, the R-Series is designed for companies that want to find defects earlier and ensure that all parts are measured correctly, without human impact and subjectivity.

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