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A Valuable Advisor

Once a year the electronic supplier database of INSPECT is put into print. This catalog of companies active in the fields of machine vision and optical metrology is a sought-after advisor in many a purchase decision. Over 750 companies – producers of components and products as well as providers of technology, systems and services – with business activities in Europe and abroad are compiled in a comprehensive and informative way.

Advisors with in-depth market knowledge and broad overview about new developments are not only in demand by the procurement and engineering departments, also in top management the merits of recruiting outside expertise is long since known to larger or publicly traded companies with a mandatory board structure. It is a more recent development, however, that also small and medium-sized enterprises start to make use of the support a facultative advisory board can offer.

Often the advisory board members take on the role of a sparring partner for the executive management of the company. In this way they serve as both, controller and counsel. Broad experience, business expertise and the unbiased view of the matters at hand are considered as the greatest strengths of an advisor.

Especially small(er) high-tech companies are more and more on the lookout to professionalize their approach to strategic planning, controlling, finance and HR. The installation of a voluntary advisory board with very much the same rights and duties mandatory for publicly traded companies is a great way of enlisting high-level support in areas which cannot be staffed full-time.

Pioneers of this new approach are the big family-owned enterprises. According to an Intes survey of 2009 about 80 % of these companies with more than € 125 million annual turnover have installed a professional advisory board. These boards are no longer equipped with friends, family and the local mayor or county commissioner but instead consist of a carefully selected choice of experts for the specific requirements the company has. These requirements can range from specific customer market knowledge to experience in setting up production facilities in Asia to finance know-how or M&A expertise. Compared to project-specific consulting, provided by external experts, the advisory board has the benefit of a long-term commitment to the company (in most cases the board members are elected for a three to five years term) and is such much more involved and also knowledgeable about the company specifics than the consultant can normally be.

The establishment of a voluntary advisory board is not only highly valuable from the internal perspective of getting additional resources into the company but also from the outside perspective of company rating. Most banks and rating agencies base their risk assessment not only on financial ratios but also take the management structure and composition of the management team into account. A sole company reign, a rather common situation in our industry, often leads to a rating result detrimental to the business. A well established advisory board of business experts improves this rating and thus helps with better (or cheaper) access to external finance. Since company financing is becoming more and more a decisive growth factor this aspect is not to be neglected.

The high impact on the financial also results and a healthy company growth results from selecting the best business partners and suppliers right from the beginning. To this end we hope you will make good use of our annual buyers guide in front of you and our online database at www.inspect-online.com/buyers-guide.

Sincerely,
Gabriele Jansen
Publishing Director INSPECT

TOPICS

COVER STORY

TOPICS

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BUYERS GUIDE

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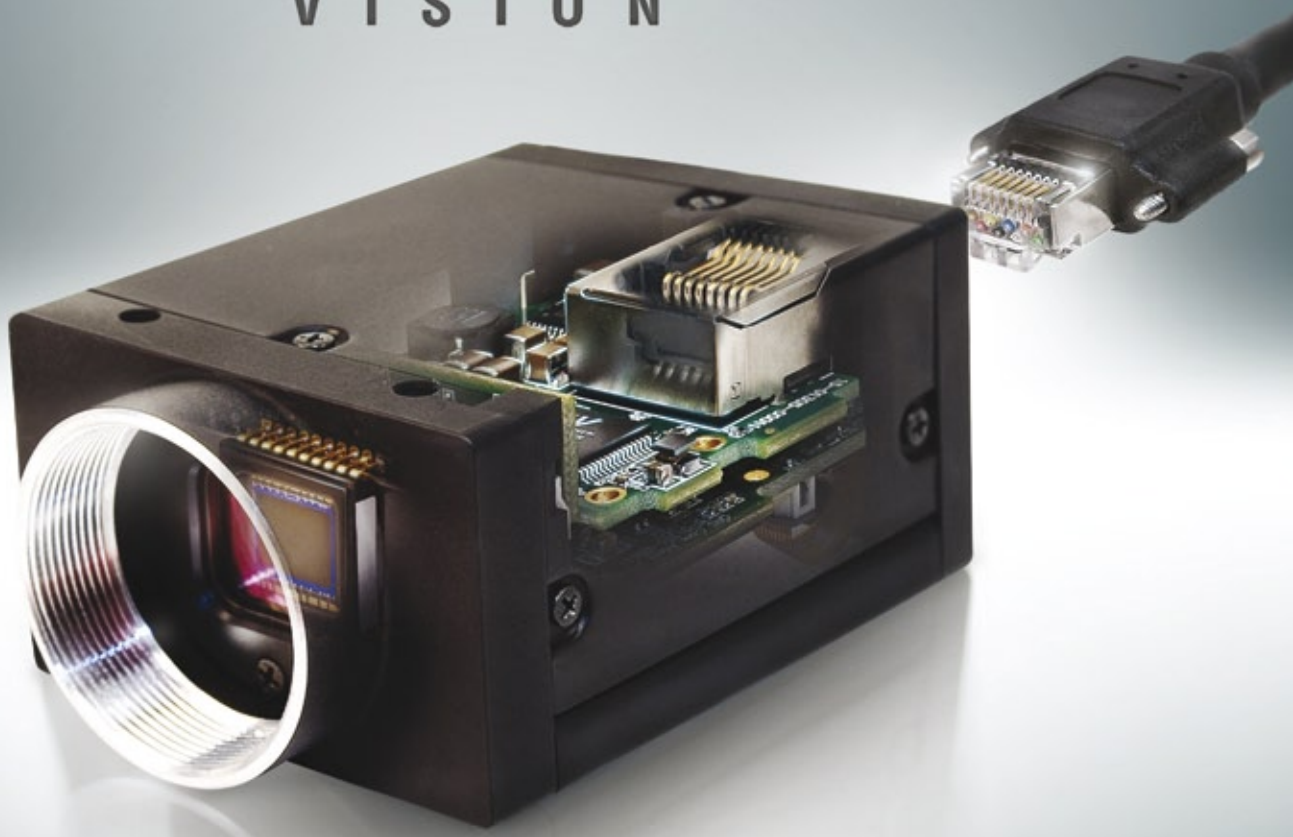

FASTEST IN CLASS

GS2-GE-20S4	2.0 MP	Sony ICX274 CCD	1600x1200 at 30 FPS
GS2-GE-50S5	5.0 MP	Sony ICX625 CCD	2448x2048 at 15 FPS

The GS2-GE-20S4 is the only GigE camera that runs the Sony ICX274 CCD - the industry's favourite 2 megapixel image sensor - at 30 FPS, while maintaining exceptional image quality.

SMALLEST IN CLASS

Measuring just 44 x 29 x 58 mm in size, the GS2-GE-50S5 is the smallest GigE Vision camera to use the Sony ICX625 CCD, a highly sensitive, dual-tap, 5 megapixel sensor capable of running at 15 FPS.

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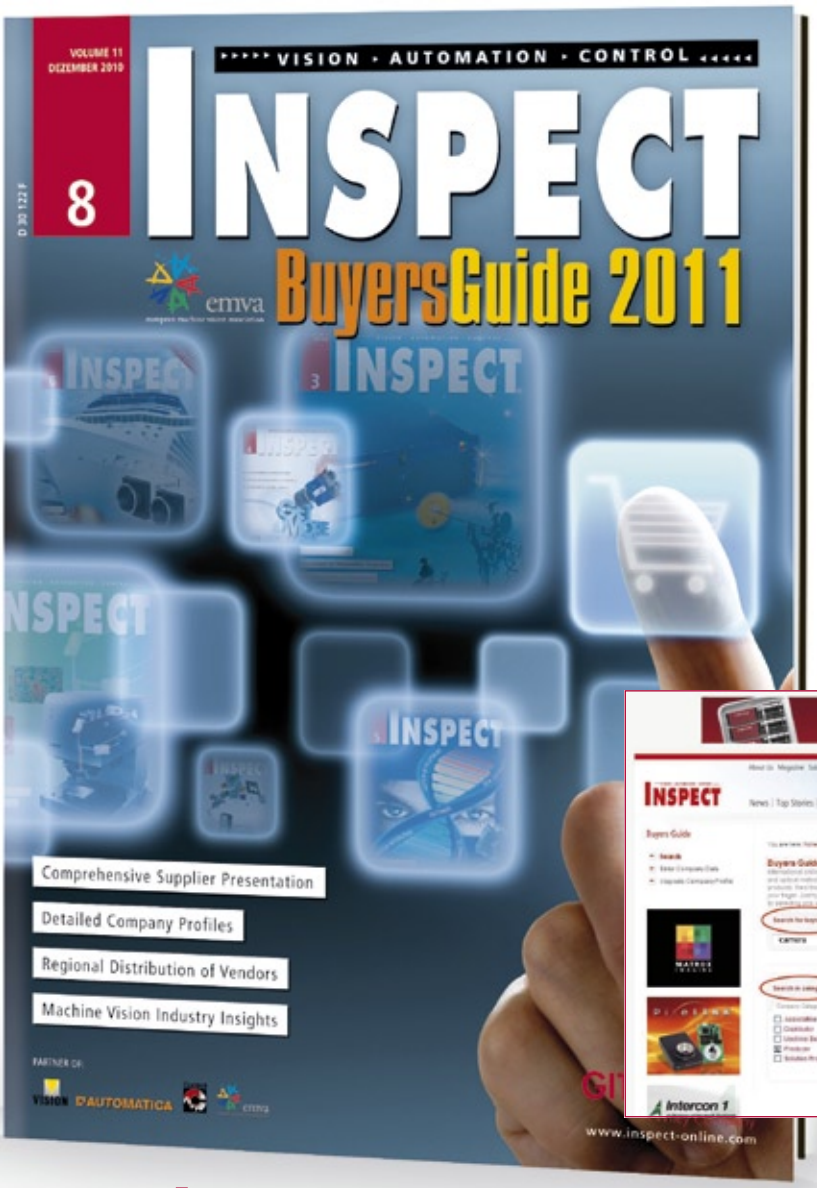
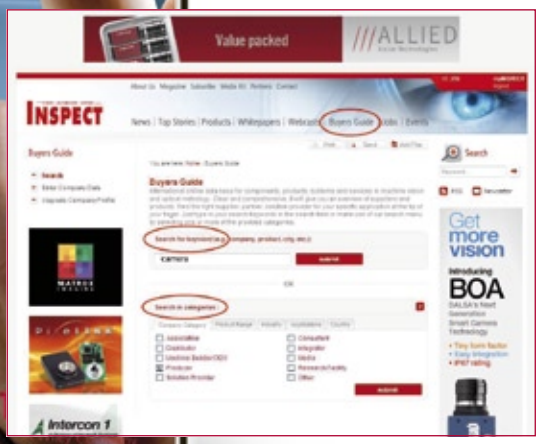
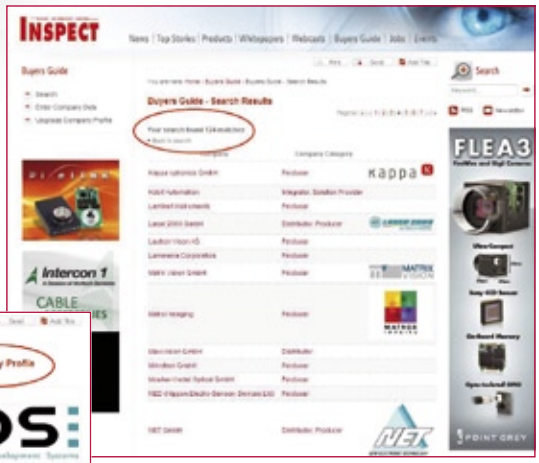


The INSPECT Buyers Guide is published in its third year now, for the second time it also serves as the official Buyers Guide of the EMVA, the European Machine Vision Association. The guide contains information about more than 750 companies from over 30 countries. The INSPECT Buyers Guide has a clear focus on companies doing business in Europe or exporting their goods to Europe. Naturally this comprehends companies and organizations from all over the world.



◀ The Online Buyers Guide provides sophisticated search functions for all listed companies

The full text search for "camera" yields 124 results: every company having used the word "camera" in their description is listed ▼



Machine Vision and Optical Metrology in Europe

The INSPECT Buyers Guide 2011

Throughout the year, we aim to provide you with information about new developments, technological trends, groundbreaking applications, new products and leading companies. Throughout the year we are faced with the recurring challenge: What to select, what to highlight, what to point out. There is never enough room to cover it all. So once a year we seize the opportunity to present to you a comprehensive overview of the machine vision and optical metrology industries.

◀ Companies providing a full-fledged company profile will be additionally found in multiple categories with the keyword search

Online …

The INSPECT Buyers Guide is a true cross-media product. At www.inspect-online.com/buyers-guide the online database provides sophisticated search functions for all listed companies. Every entry can be searched for with full-text search, and every listed company will be found here based on the individual company description. Additionally, every listed company will be found by name, company category (e.g. producer, integrator, research facility, association, etc.) and country of headquarters.

Companies wanting to provide more information and aiming at even better search results are listed with a company profile, including detailed company data and a listing of products offered, industries served and applications catered to. These, and only these, companies will be found in the respective search categories.

The online Buyers Guide is open for companies within the scope of the INSPECT all year round. In this way it is always up-to-date.

… and Print

The availability of data online is a clear benefit when presented with clever search functions. However, sometimes you do not want to bother going online, or you don´t want to search specifically but rather obtain a quick overview. In these instances a printed version has its unchallenged advantages. Not to mention the ease-of-use when taking notes right next to the provided data. Thus, once a year the INSPECT Buyers Guide printed edition is provided to you. With this guide we aim to give you a full overview that is still easy-to-use, a complete set of information that is still not too sub-divided into too many categories.

The INSPECT Buyers Guide 2011 is divided into three main chapters: Topics of long-term impact, company profiles for the main global regions, and company listings for the main product categories.

In an industry as innovative and dynamic as ours it will most likely never be possible to provide an overview that is final and complete, but we do our best to come as close as possible.

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Green Vision – Driving Factor for a Gre

INSPECT Expert Panel at Vision 2010

During the last century we have seen amazing technological advances which have made our lives better, richer and longer. But this has come at a high price: the balance and health of our eco-system, the survival of our natural environment, and ultimately endangering the survival of our own species. The question for all of us now is: do we have to live with that? Is there nothing we can do? Is it enough to rely on our leaders, on our government to save the planet?

We certainly have to make sure that our leaders will come to the right decisions, but each and every one of us can contribute as well. And we have technology at our hands that will help us in doing so.

Would you be surprised to learn that machine vision is one of the core technologies that could help us in protecting our environment? Come to think of it, every vision system for quality inspection on the factory floor contributes to save raw material and to reduce energy consumption. The earlier a quality flaw is being detected in the production process the less is the amount of energy wasted on further manufacture of something that is going to be scrapped anyway. This scenario holds true for a huge variety of different industries and products in almost endless variations. In addition, also the automation of production processes, for the example by use of robot vision, almost always increases the resource efficiency by applying any material much more precisely and therefore sparingly. But this is not all. Vision systems are also employed in the production of environmentally friendly - so-called green - products. They work for intelligent traffic control, effectively lowering fuel consumption and thus air pollution. They are instrumental in waste sorting and recycling and they are key technologies for high precision farming and for resource optimized woodworking.

With the five inspirational keynotes of our Expert Panel "Green Vision – Driving Factor for a Green Future" at Vision 2010 early November this year we intended to provide our audience with some insight into what is feasible today and maybe even convey some inspiration for the listener's (and reader's) own line of work.

On the following pages you will find some excerpts of the five inspirational keynotes, the presentations themselves can be downloaded at www.vdma.org/vision.

Jørgen Andersen

Camera Technology Put to Work for Reduction of Traffic Congestions, Fuel Consumption and Air Pollution

Jørgen Andersen, CEO JAI

We cannot live without transportation with a car, train, ship, or airplane. Transportation, however, is not free. You know about subjects like CO_2, fuel plants, emission, pollution and waste, congestion, all bad for the environment. In the following, I will show you how cameras and camera systems play an active role in minimizing these problems. The most obvious way is to reduce the emission coming from cars and trucks that we all depend on every day. This starts with making traffic more

efficient so there is less congestion and less pollution. In addition, vision systems are used to design more efficient engines and to make vehicles more streamlined so they run more efficiently and use less fossil fuel. Lastly vision technology is used in both manufacturing and recycling to reduce the planetary impact of vehicle production from start to finish.

Let us start by looking how vision based traffic management can improve the environment. The congestion may not be obvious at first but consider the following; more efficient tolling means less waiting or no waiting at toll plazas. Less stopping and starting means less idling which means less pollution and better use of fossil fuel. Likewise speed control can reduce accidents which cause traffic jams and more pollution. Congestion charging reduces the number of vehicles on the road by causing people to share rides and combine several trips into one. Fewer cars means fewer emissions and also fewer traffic jams and that means less air and noise pollution.

In an example from Austria, where JAI's ITS system has been installed in the Kaisermühlen tunnel since 2003, vision based section control reduces pollution by reducing accidents while providing the added benefit of fewer injuries and deaths. Here cameras were installed to monitor lanes and capture images of vehicles entering and leaving the tunnel. By matching the images, average speeds where calculated and compared against speed limits for automobiles and heavy goods vehicles. Not only did the project pay for itself with speeding fines, it also had removed tons of greenhouse gases from the atmosphere each year of operation: carbon monoxide 1.5 tons per year, nitrogen oxide 3.9 tons per year and carbon dioxide 1,288 tons per year, and remember this is just one tunnel. Once the cameras went into place, average vehicle speeds dropped dramatically. Accidents and congestion has been significantly reduced which caused the drop in emission. Similar to the Kaisermühlen project, the Dutch Ministry of Transport has utilized imaging technology to enforce speed limits and reduce congestion on multiple motorways in and around major metropolitan centers in the Netherlands. Once again by matching images, calculating speeds and enforcing violations, the project has resulted in reduced congestion, lower traffic emission and reduction in accidents and injuries. That is just a very short brief how vision technology can make transportation greener. It just takes a little inspiration.


Dr. Federico Giudiceandrea

Sensor-based Yield Optimization Enabling Resource Efficiency in Wood Processing

Dr. Federico Giudiceandrea, CEO Microtec

Wood is a natural resource with biological diversity and scanning wood can give a big advantage in the use of this raw material. Our approach is a multi sensor approach. We are not looking to wood only in the visual part of the electromagnetic spectrum but we are looking to the interaction between wood and the electromagnetic waves in the whole spectrum from radio waves to X-ray. We use 3D laser scanning, x-ray imaging, laser scattering, polarized light scanning, ultrasound analysis and microwave scanning. In a typical example of 3D scanning every image point represents a difference from a reference plane. So we can see the shape of wooden boards to optimize the later cutting. To do this we use standardized 3D modules for double triangulation. With x-ray imaging it is very easy to detect knots since knots have high contrast to the clear wood. In this case we are using a proprietary x-ray sensor technology developed by our company with a higher sensitivity than is normally used for medical applications. Another important technology for us is laser scattering. This technology is using the effect that a laser dot is reflected inside the walls of a cellular structure and scatters. On wood the laser dot is elongated in the direction of the fiber.

Another interesting technology is CT scanning. CT scanning is not only radiography but you can see the third dimension of an object based on the fact that you have an x-ray source rotating around the log or the board and the image you get is a Sinogram. By applying a mathematical transformation to this image you get an axial cut of the log or the piece of wood. The idea is to have a full scan of a log and to make what we call virtual cutting. This is cutting the log with-out cutting it and in this way finding the best position of the log, the best cutting pat-

tern. The problem is the speed, so if you have to make a turn for every image and you want to run with 2 m per second, you come out to have 200 turns per second which would be 12,000 turns per minute. And if you calculate the centrifugal force you have on the gantry on the outside of the scanner, you come up to 160,000 g, which is impossible. It is like in a black hole, so nothing will stay, everything will fly away. For this reason we have developed a technology which is called combing tomography with a large angle. We are using a large sensor of 0.5 m and with this kind of sensor we can reduce the rotation speed and come down to 60 g. With this machine we detect knots, perform virtual peeling, virtual cutting, and also virtual moldings. In this way you can have a better utilization of the resource wood.


Dr. Volker Rehrmann

Sensor and Machine Vision Technology in Waste Sorting and Recycling

Dr. Volker Rehrmann, Technical Director TiTech Group

Titech is taking the value out of the waste. Consider the waste you have at home: this could be household waste, could be electronic waste, could be car shredder waste, whatever type of waste. This waste is commingled and put together and in order to allow for high quality recycling, obviously this material needs to be sorted. We are using different types of technologies, but always some kind of machine vision technology is used, so we are working with images. We use a lot of different sensors because to distinguish different types of materials requires lots of different types of sensors. These sensors identify the objects on a conveyor belt moving at a couple of meters a second. They identify basically the material of the objects. And depending on what your task is, which type of material you want to recover and make a nice pure fraction out of it, at the belt you have a valve block that blows off the material from the belt and gives you a high quality pure fraction that can then be used to recycle. The value for the society is quite obvious. Recycling saves a lot of energy; there are hundreds of studies around showing that. And on top of that, we cannot afford to throw all of our valuable material away, just dig a hole somewhere and put all of the material into it and forget about it. We have the emerging countries China, India, coming up and their hunger and demand for raw materials is so high that we cannot afford to throw anything away. So we need to recover the material that we have. A new word for that is urban-mining.

We are using lots of different types of sensors, among them color cameras, near infrared spectroscopy, middle infrared spectroscopy, x-ray transmission, inductive type of sensors. The newest sensor we're using is x-ray fluorescence which means for the first time we can make high resolution images using elemental spectroscopy. This allows us to distinguish certain objects by their chemical ingredients. This is mainly used in metal sorting types of applications. Another field is obviously electronics waste for all the valuable materials you find in electronic waste. We are using also our technology here to sort and recover those and also from end-of-life car vehicles. All the old cars are recycled automatically using various different types of technologies to separate the different types of metals.

Minimization of Fertilizer and Pesticides Usage by Stereo Camera-based Steering Systems

Klaus-Herbert Rolf, Marketing Manager Claas Agrosystems

In the next few minutes I would like to guide you to the world of modern agriculture.

When you think about agriculture today, you'll find that the power and the performance of farm equipment continue to grow. Today machines are connected to the internet; they send every 5 seconds information about their position, information about the machine data and the status of the machines. They have automatic steering systems, and the fertilizer and the plant protection is applied as needed. The future has already arrived to agriculture; it's just not yet everywhere distributed.


Klaus-Herbert Rolf

Now let's turn to the camera system, my main point today. We use the "CamPilot System" to make professional business in agriculture. Our customers are producers of vegetables, of fruit and wine, corn and sugar beet, tree nursery and of course producer groups of organic culture, agriculture. Organic producers like to work at night because many weeds are activated by daylight and the result is when to work like this, you have not so much requirement for chemical plants and production for these weeds. One question I think will be on your side, is this profitable for farmers? Yes it is. When you think about a tree nursery producer for example, they need by 10 hectares producing area, 1.5 years for return on investment. I think it is a very good number.

Smart Cameras for the Quality Control in the Production of Solar Modules

Jan-Erik Schmitt, CEO Vision Components

The photovoltaic market has a perpetuous goal. This goal is improving the cell efficiency, because improving cell efficiency means of course improving the competitiveness of the solar energy against the other solutions. There are two ways: one way is improving the efficiency of existing technology for example through

optimization of the production process using machine vision. The second step is developing new cell types and the photovoltaic industry is working on that as well. A typical machine vision task in the photovoltaic industry using standard smart cameras is for example wafer and cell positioning and highly precise measurements for wafer handling, for laser etch isolation, for crack inspection, for etch defect control. All of this can be very easily done with a smart camera, also for a high throughput.

We also have a smart line scan camera that is used mainly in the thin film solar module production. In the thin film modules we don't print the circuits on the cells but you have the glass object and you put the object on the glass and then you scribe the circuit inside of the amorphous silicon. This may be done by a laser for example. The important thing in the solar industry for all cells, they want to use as much active surface as possible. So these circuit lines have to be parallel and very very close to each other. This is done with a laser and a smart line scan camera just in front of the laser, using the smart camera for the alignment of the laser itself. The camera detects every 5 milliseconds a measuring value and gives this to the laser for realignment. And of course we can go down to 1 micron measurement accuracy but that is nothing so special.


Jan-Erik Schmitt

We also have developed a specific electroluminescence camera that is very sensitive in the near infrared. With this technology just put power onto the cell, and then the cell starts to emit light. It's just an inverse use of a solar cell, but this can be used to detect internal defects. So you can really look inside of a solar cell, and then you can detect such kinds of defects as micro cracks or bad printing of the fingers and the cell. This would not be visible with visible light just looking on top of the cell. We're really looking into the cell.

The complete audio stream of the INSPECT Expert Panel can be found at the webcast section of www.inspect-online.com.

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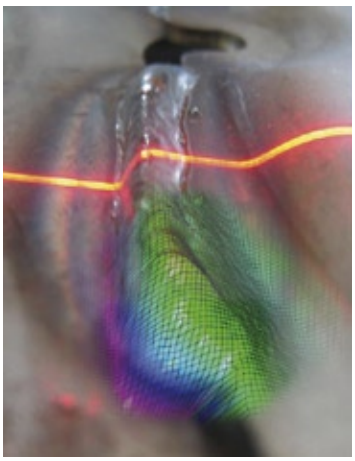
Why Machine Vision Has a Bright Future

Machine Vision in Factory Automation and Well Beyond

In industrial production, machine vision has displayed the qualities of a genuine all-rounder for many years. What is more, it has also proven itself in many other fields of application beyond the factory floor. Improved quality, greater reliability, increased safety and cost-effectiveness are benefits that are just as crucial in the non-manufacturing context as in the realm of industrial production. Technological advances and increased ease of use will further drive the use of machine vision. As a consequence, machine vision technology has a bright future in virtually all walks of life.

The Future of Industrial Production

The factory of the future will be designed to yield maximum benefit from the lowest possible consumption of material and energy. It will be common to have the strictest quality specifications in place. Demands placed on production flexibility will continue to increase as products become ever more individualized and model changeovers occur more frequently. On top of this, global competition will develop quickly: only those production facilities that are among the leaders in terms of productivity and costs will be able to survive. This transformation requires a pace of innovation more rapid than ever before. Machine vision will play a key role in this because it offers solutions suited to meet the challenges of the future. Current best practices in the pharmaceutical industry and in areas such as automobile safety components will become a blue print for industrial production as a whole in the future: 100% quality control rather than random checks – in other words, each and every stage of production will be subject to comprehensive documentation and traceability. This is economically feasible thanks to machine vision systems that undertake never failing quality checks along the production cycle. These systems also serve to avoid expensive product recalls, product liability claims and damage to the company image.



With machine vision becoming three-dimensional, many tasks can be accomplished in a cost-effective way (Source: SmartRay)

New Application Areas Open up New Markets

Whether on motorways, in the retail trade, in medical practices or on sports grounds – the versatility of machine vision technology has virtually no limits. Creative developers have long since identified this potential and are putting it to work in new applications which increase our everyday quality of life. Safety, health, environmental protection and efficiency top the list of benefits. By applying machine vision to solve more and more tasks in our daily lives, new markets are created for the technology. Examples include automatic forest fire recognition from outer space, practicing perfect golf swings, spotting fake paintings, warning drivers drifting out of their lane, comparing shoeprints to identify perpetrators or ascertaining the time spent in front of a supermarket shelf for market research.

Efficiency for the Future

The world's population is growing rapidly and more and more people want to have their share in a higher standard of living. A scenario of increasing consumption and limited resources requires technologies that can make more out of less and thus to smartly overcome consequences of the nearly 200 year old law of Malthus stating that the population growth rate is always higher than the economic growth rate. Firstly, in any product's cumulative energy consumption, the production phase accounts for a significant proportion of the energy and resources put into it – and this can be reduced. Machine vision systems increase the efficiency of production plants, reduce material inputs, prevent rejects arising and contribute to a higher level of energy efficiency. Secondly, automation – in combination with machine vision – also offers solutions which help green technologies win through by dramatically lowering production costs. This is currently happening in the field of photovoltaic, where automated production processes are being used in the manufacturing of high-quality solar modules, bringing the latter closer and closer to grid parity. Within a few years, solar electricity will be competitive without state aids. Thirdly, as consumption grows, the amount of waste produced inevitably increases with it – and this is full of reusable materials. If it is possible to separate these out at a higher level than we see today, waste

"Machine vision is a key technology for winning the future. It makes industrial production more competitive, offers a multitude of new applications in…

This simulator uses vision technology to enable surgeons to practice eye surgery without putting patients at risk (Source: VRmagic)

Vision technology plays an important role in helping regenerative forms of energy win through (Source: Allied Vision Technologies)

turns into a new resource. This, however, is not a task for humans but for the electronic eyes of machine vision: they can identify different materials in a fraction of a second and can sort them accurately and cost-effectively.

Technology Drivers

In addition to the many uses for machine vision, the technology itself is also progressing fast. With machine vision becoming three-dimensional, many tasks can be accomplished in a cost-effective way – from the precise inspection of adhesive beads or welded seams and automated gripping of unsorted items in boxes through to non-contact precision measuring of formed sheet metal parts in the production cycle. Standardized interfaces facilitate the integration of individual machine vision components into an overall workable system. This reduces the amount of effort required and makes the machine vision solution efficient and inexpensive. The efficiency of machine vision systems is rapidly increasing, thanks to higher-definition cameras, steadily increasing processor performance as well as multi-core processor technology, state-of-the-art software and standardized interfaces. Ever more rapid inspection speeds and accuracies are thus achieved at comparable costs.

…virtually every area of our daily lives and is a problem solver for the future challenges of humankind on planet earth."

Dr. Olaf Munkelt, Chairman, VDMA Machine Vision Group and Managing Director of MVTec Software GmbH

In many applications, color recognition is of great advantage. For example, different models or components can be identified or sorted, and quality checks can be conducted on the basis of color. Color recognition has now become a standard routine for which numerous machine vision solutions are available.

Whereas in the past experts were needed to implement machine vision solutions, today many adaptations can be carried out without any great prior knowledge, thanks to intuitive configuration options and ergonomic software user interfaces.

Last but not least: Complete systems can be housed in ever smaller casings. Such smart cameras and vision sensors can be integrated in places where little space is available and offer solutions that can be easily implemented.

Return on Investment

In assessing the cost-effectiveness of any investment, a cost-benefit analysis should be conducted covering its entire life cycle. When this is done, machine vision systems demonstrate the full extent of their cost savings potential. Minimal down times, stable processes and increased efficiency in the use of resources all pay off. Machine vision systems have often paid for themselves after only a few months.

100% quality checks are becoming the norm. In this application, the quality of Braille embossed on a medication packet is checked (Source: IDS Imaging Development Systems)

▶ **Author**

Dr. Olaf Munkelt, Chairman, VDMA Machine Vision Group and Managing Director of MVTec Software GmbH

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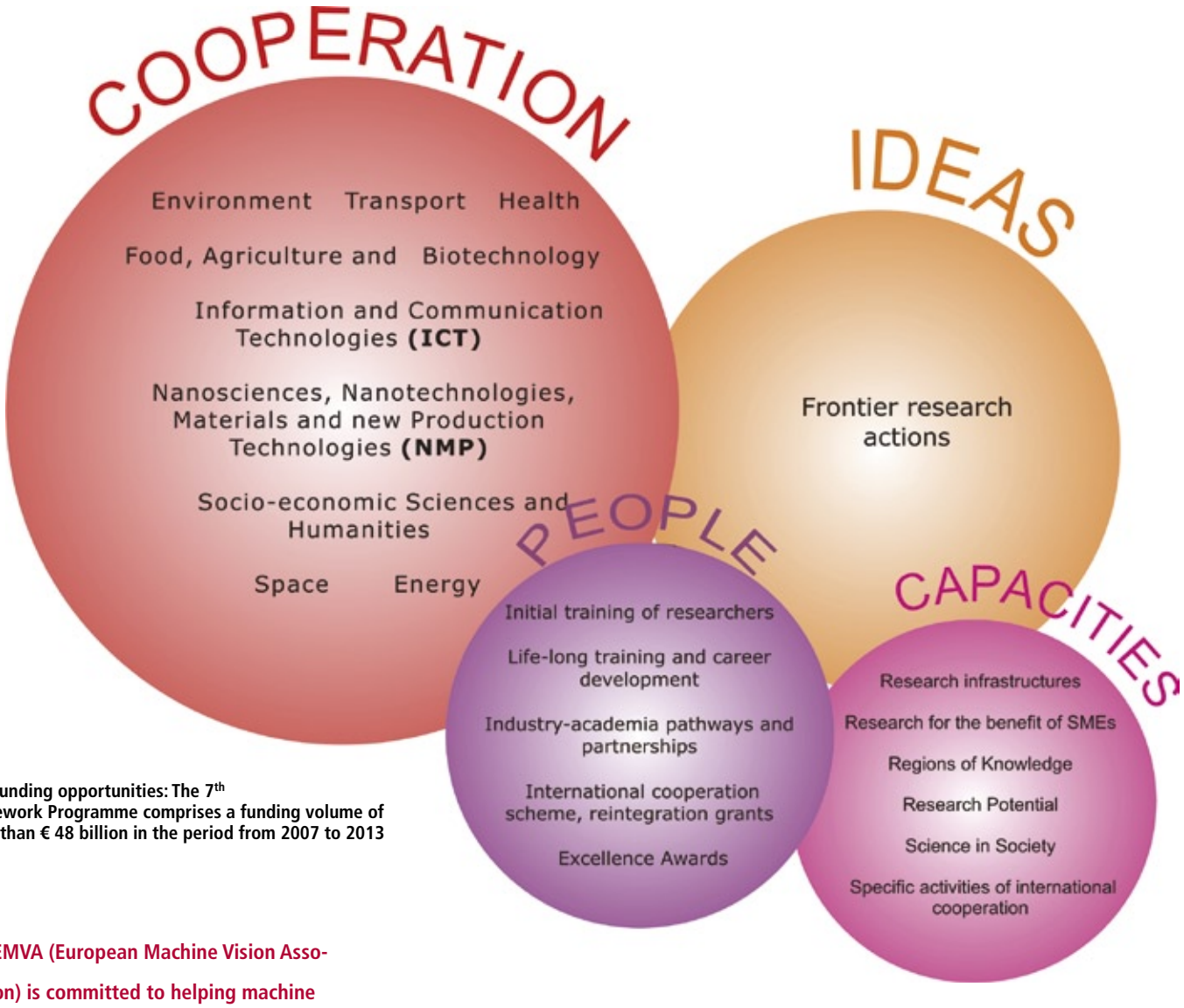
EMVA Facilitates European Research Funding



Vast funding opportunities: The 7th Framework Programme comprises a funding volume of more than € 48 billion in the period from 2007 to 2013

The EMVA (European Machine Vision Association) is committed to helping machine vision companies to be active and effective in creating new products and applications responding to key challenges, reducing financial risk of research activities, and facilitating European level cooperation.

emva
european machine vision association

Innovation is a vital policy issue in Europe, a priority to respond to the big challenges of the continent. As society, we trust in our learning and creativity capacities to tackle complex and urgent issues such as health, employment, climate and energy. But we need to develop real cultures and conditions in our citizens and in our Small and Medium Enterprises (SME) – to facilitate the construction of a knowledge-centred economy. For this we need to acknowledge that these small and medium companies – representing the vast majority of enterprises in Europe – will play a decisive role.

"By participating in European research projects my company DataPixel is not only obtaining financial support to develop technologies for the next 5–10 years, …

Meeting the Grand Challenges

Europe has identified the grand challenges of innovation, becoming visible in the Lund declaration (July 2009). One of them is "taking a global lead in the development of enabling technologies such as biotechnology, information technology, materials and nano-technologies." Meeting the Grand Challenges will be a pre-

requisite for continued economic growth and for improved chances to tackle key issues, bringing about new possibilities and increasing the well-being and quality of life for all.

Key Enabling Technologies

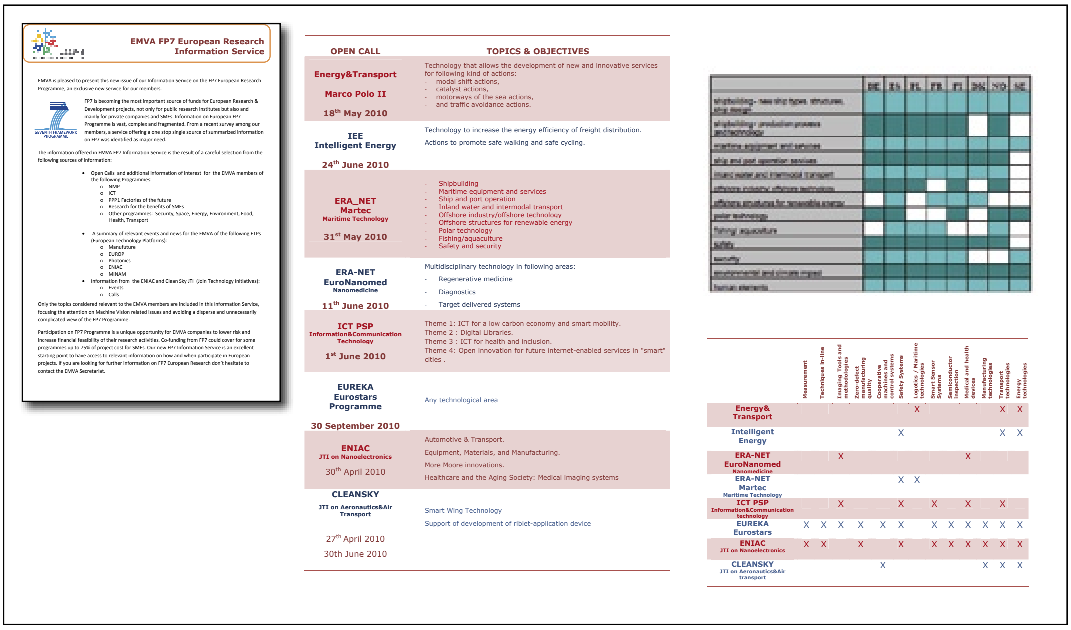
Machine vision is a key enabling technology (KET). KET are technologies needed for most of the applications identified in the big R&D themes of the European innovation programs: health, food, agriculture and biotechnology, information and communications technologies, nano production, energy, environment, transport, space, security, socio-economic sciences. We are innovative when developing machine vision solutions to analyze and identify cells in biotechnology cultures, to produce safer and less contaminant cars, or to guarantee the quality of critical components in aircraft manufacturing. But machine vision needs to be cutting edge and innovate itself fast in order to conquer new application areas. Our machine vision companies know very well that only a continuous investment in new product development and in solving new applications can lead to growing and sustainable business.

Cooperative Research at European Level

European Commission Research FP7 (7th Framework Programme) is a great opportunity for machine vision companies to reduce the financial effort and risk of research and development projects, and to benefit from cooperative research at European level. FP7 research actions are implemented via a wide range of project types ("funding schemes") with clearly defined purposes and evaluation criteria. But most of our machine vision companies are SMEs with limited capacity to have access to the information in a vast "jungle" of programs, to influence the definition of the European research topics, or to manage the complexity of management of European level cooperative projects.

Additionally, as a response to the global economic situation and difficult circumstances faced by the industry in 2008, the European Commission took the initiative to set out a decisive and coordinated action, the European Economic Recovery Plan, approving among other tools an increased investment in R&D and innovation by launching three major Public Private Partnerships (PPP): the Eu-

…but strengthen in my team the values of cooperation, creativity, courage and perseverance. Increasing the participation of EMVA member companies…



Opportunities at a glance: The monthly EMVA info service on FP7 gives an overview of the programs and calls that are relevant for machine vision

ropean Green Car Initiative, the European Energy-Efficient Buildings, and last but not least the Factories of the Future Initiative. One of the results of the Factory of the Future action has been the foundation of the European Factories of the Future Research Association (EFFRA), with the goal of representing the interests of European industrial companies in research policies. Factories of the Future represent an additional opportunity for machine vision companies to find cooperation partners and to influence future research programs and topics in Europe.

EMVA Research Activities Support

The potential is enormous, and EMVA is setting out to help machine vision companies to leverage the potential benefits and opportunities of European research activities.

The first step for EMVA was to find out which services machine vision companies most urgently need in order to be more effective in European research activities. This was done through a survey of the EMVA members. The result of this survey clearly identified three main topics: a) provide information in a practical way, b) promote MV topics in programmes (interest representation in Brussels), and c) assist in partner search/building of research consortia. Based on this, EMVA has defined three main goals:

- influencing the R&D programs,
- stimulation R&D cooperation,
- information and support to EMVA members.

Regarding the goal of information and support to our members, EMVA has already started to offer a monthly based Info Service on European Research and FP7 that is providing useful and practical information about the funding opportunities interesting for MV companies. By using clear and concise tables and overviews, the companies can have updated information of what programmes are open for proposals, the deadlines, and the topics covered that could be relevant for the machine vision sector.

Secondly, EMVA has created a Working Group on European Research Funding, which develops measures to implement the EMVA goals. In its kick-off meeting in Barcelona in October 2010, numerous activities were discussed: In order to communicate with the European institutions, a roadmap for machine vision in Europe needs to be developed. This roadmap can be easily linked to the five key enabling technologies of the European Commission and the objectives of the Lund Declaration as machine vision technology has much to offer to meet these challenges. Although it is a comparatively small industry sector its leverage effect on the sectors in which it is applied is immense.

Many research opportunities are not purely centered around machine vision technology. Much rather, machine vision technology often represents an important building block in the entire project and interacts with many other technology areas. Here, the European Factories of the Future PPP (EFFRA) offers an ideal platform for the European machine vision industry to push innovation together with other sectors of industrial production technology. To this end, EMVA has already established a close contact with EFFRA.

Lastly, EMVA will step up its activities in linking industry and research, in cooperating with other industrial associations (such as IRF for robotics or EFAC for assembly technology) and is currently analyzing possibilities to actively participate in European research projects.

The EMVA is convinced that with these activities much can be achieved for the machine vision industry in the near future. If you are interested in joining us in this venture, we look forward to hearing from you.

…like DataPixel in European funded projects is for me not only a challenge as member of the Executive Committee, but a personal commitment with these values."

Toni Ventura-Traveset, Member of EMVA Executive Committee and Managing Director of Datapixel S.L.

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S E E I N G I S B E L I E V I N G

Certifying System Integrators

A Key to Future Growth of the Machine Vision Industry

Over the past year the Automated Imaging Association (AIA) has been investigating ways to help system integrators successfully serve machine vision users. In focus groups with leading integrators it was determined that they wanted two things from AIA. First, a system integrator certification program to help users identify capable integrators. Second, they wanted AIA to more aggressively promote machine vision to companies considering the use of machine vision, highlighting the importance of working with capable system integrators.

Integrators told AIA that too often users choose a system integrator based on price alone. If the low-bid integrator is unable to successfully perform the work, the user ends up with a bad experience that gives the machine vision industry a black eye. The integrators urged AIA to develop a certification program that identified other criteria that users should take into account, such as the experience of the integrator, their track record of success, and the training of their key employees. AIA tested these ideas with leading machine vision users. They agreed that a certification program would be helpful since it would allow them to develop a "short list" of integrators to solicit bids from and might be useful in convincing their purchasing departments that the lowest bid isn't always the best one.

While the criteria for company certification are still being finalized, one essential component clearly will be the experience and knowledge of the system integrator's staff. Therefore, in May 2010, AIA introduced the Certified Vision Professional (CVP) – Basic Level series of classes and test at The Vision Show in Boston.

Certified Vision Professional

Classes in the Basic Level CVP cover the Fundamentals of Machine Vision, Beginning Lighting & Optics, Basic Vision Software and Algorithms and Camera and Image Sensor Technology Basics. A total of 37 people have either taken this series of courses and passed a test to earn their CVP certificate or passed the test without taking the courses, another option AIA provides to allow experienced machine vision professionals to demonstrate their proficiency.

At Automate 2011 slated for March 21–24, 2011, in Chicago, AIA will launch the Certified Vision Professional – Advanced Level program. Classes in the Advanced Level cover Advanced Color Theory and Applications, Reliable Vision Application Development, 3D Vision System Development, Non-Visible Imaging Theory and Techniques, Designing High-Speed and Linescan Vision Systems, Advanced Vision Lighting, Advanced Optics for Vision, Metrology and 2D Calibration Techniques, Particle Analysis and Classification Techniques, Advanced Camera and Image Sensor Technology, Advanced Vision Guided Robotics, and Advanced Vision System Integration.

As with the Basic Level, the Advanced Level exam will be open to people who have taken the courses as well as to others who wish to try the exam to demonstrate their proficiency without taking the courses.

"We have been very encouraged by the interest in and response to the CVP Program," said Greg Hollows, Vice Chairman of AIA and Chair of AIA's Education Committee that developed the program. "It's not just integrator personnel who have taken the classes or the test, but also people working for end users and suppliers. It shows that people in our industry are very interested in becoming more knowledgeable and demonstrating this to their employers or customers," Hollows explained.

Greg Hollows, Vice Chairman of AIA and Chair of AIA's Education Committee

Company Certification in the Making

In the meantime, AIA continues to develop the final criteria for company certification. The effort is complicated, but will prove worthwhile, said Rusty Ponce de Leon, AIA Chairman.

"There are a number of factors that have to be considered before finalizing the company certification program," he explained. "First, we have to make sure that we're able to collect and verify information that will be useful to end users. Second, we have to develop the right value proposition for integrators since it will cost them time and resources in order to become certified. And third, and

Rusty Ponce de Leon, AIA Chairman

most importantly, we have to ensure that the program means something in the marketplace, that users will take into consideration the AIA certification when selecting an integrator. We're making good progress on finalizing the program and hope to have it finished by Automate 2011 next March. "We believe the time AIA is putting into this will be worthwhile because the integrators and end users both want this program," Ponce de Leon asserted. "That's a strong motivator for us to keep working through the complicated issues."

Marketing for Integrators

While the certification program is being completed, AIA is moving forward with the second request from integrators, which is to expand its efforts to aggressively promote the use of machine vision and the important role that system integrators play in creating successful applications. The association launched a revamped Machine Vision Online website in 2010 that includes enhanced functionality making it easier for visitors to find an integrator by specific industry experience, geography, company name, and keyword. Further enhancements to the site are expected soon to provide additional focus on integrators. Case studies, technical papers, and news stories on the website give potential users more ideas on how to apply vision. The site has more than 20,000 visitors each month.

The Automate 2011 Show (formerly the International Robots, Vision, and Motion Control Show) will feature a special pavilion right at the entrance highlighting system integrators. The idea is that visitors will see complete solutions upon entering the show then learn more about the components required to build the systems. Automate 2011 is collocated with ProMat, the leading North American show for the materials handling and logistics industries, producing a much larger attendance than the previous show. The conference sessions at Automate 2011 will focus on practical applications and case studies, as will the conference at the next Vision Show in Boston in May 2012.

AIA's efforts to promote the industry have widened beyond traditional manufacturing markets into sectors such as security, lab automation, entertainment, and defense. Additionally, AIA promotes the machine vision industry globally in the attempt to reach new users in India, China, and other countries where machine vision is just taking root.

Capable Integrators Expand the Market

"As these new users turn to machine vision, we think AIA's Certification Program will be quite helpful," said Ponce de Leon. "Knowing an integrator has achieved industry certification should provide a comfort level to a company that has never used vision before, perhaps even more so than for experienced vision users," he asserted. "A key component of our outreach to new users is that there are capable integrators who can help them anywhere on the globe," Ponce de Leon said. "I'm confident that a successful System Integrator Certification Program will expand the machine vision market."

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Adding a New Dimension to Indian Vision Industry

A Short Introduction to the Imaging Association of India

From Images to Solutions

From digital microscopy to CCTV, from machine vision to traffic solutions: Imaging solutions have come of age in India. It was therefore concluded in 2008 that it was the right time to form the Imaging Association of India with the goal to improve things for all players in this field.

The Imaging Association of India is the Indian Imaging Solutions and Machine Vision industry's trade group, representing the leading companies in this field. Founded in 2008, the association represents manufacturers of complete systems, component suppliers, system integrators, distributors, end users, consulting firms, academic institutions and research groups directly involved with imaging and machine vision. IAI is organized specifically to promote the use of imaging for academic, research, medical and industrial applications. Efforts are in place to get researchers working in areas of imaging on board as special mentor members and, based on this knowledge bank, to start a vision academy in India soon.

With the early support by AIA (Automated Imaging Association of USA), EMVA (European Machine Vision Association) and Messe Stuttgart the first small steps of the new association became firm steps in the right direction. Both AIA and EMVA have rich experience as associations that not only inspire us but also give us an opportunity to lean on them for good tips on how to make progress as a new association in getting across the message to prospective members whose primary concern is "what's in it for me."

Objectives of the Imaging Association of India

- To create a common platform for manufacturers, suppliers, integrators, researchers and the academic fraternity engaged in imaging applications.
- To be a catalyst for the imaging industry growth in India.
- To collaborate with experienced global associations such as AIA, EMVA to get good speakers for training workshops, seminars and imaging events organized in India.
- To help the global imaging component manufacturers and solution providers in looking for the right partner in India to either start or further propel their business interests in India. Also an added service would be to help the companies interested in the Indian vision market to set up shop in India by giving them a clear market scenario also by providing details on government procedures and legal frameworks.
- To showcase Indian companies and their capabilities to the vision industry worldwide for joint projects in India and nearby Asian countries.
- To bridge the gap between universities, research scientists and industry to ensure a more rounded and faster growth for this technology.
- To work closely with Messe Stuttgart to create an imaging or vision specific Vision Show in India.
- To raise the bar for the Indian imaging industry.

Our booth at the recently concluded Vision 2010 has generated great enthusiasm amongst a lot of exhibitors at the show who are keen to utilize assistance from IAI for activities ranging from setting up shop in India, locating the right distributor in India to exploring contract manufacturing in India for better costing. The response has been overwhelming and we are getting more enquires by email. Its important for us to give due credit to the first overseas support from component manufacturers such as The Imaging Source, Components Express, Kowa and Unibrain who have signed up in 2009 as sponsor members. Also noteworthy and much appreciated was the support, solidarity with IAI expressed by the Japanese and Korean Imaging Associations.

Mission Statement

The IAI sees itself as a catalyst for the exponential growth for the Indian imaging industry. We strive to provide excellent B2B, B2C support and to assist international imaging companies in setting up business in India. Our goal is to help grow the pie bigger so that all members will have a bigger share.

The start to the IAI has been good and the future looks promising ... support from all sides of the globe is most welcome.

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TURNING IDEAS INTO COMPONENTS

Challenges of Machine Vision Lighting

Standardization Activities of JIIA Lighting Working Group

Lighting is commonly understood as a means to illuminate objects. In machine vision, however, the purpose of lighting is not to illuminate. Thus it follows that the design approach and methodology for machine vision lighting systems are completely different from those used for general purpose lighting. In this article, the author will summarize the design philosophy and techniques for machine vision lighting, and will briefly describe standardization efforts currently being advanced at the Japan Industrial Imaging Association (JIIA).

Humans rely on sophisticated mental processes to understand objects seen by the eyes, whereas machine vision systems simply judge visual information presented through a camera, and have no understanding of the object viewed. About half the issues relative to image understanding in machine vision systems stems from the two dimensional nature of machine vision imaging [1], and the other half relates to the distinction from human vision, where the bulk of visual functionality occurs at the mental level [2]. Image understanding is a mental process in which a three dimensional object is interpreted through its two dimensional projections. Projection of an image from a lower dimension onto a higher dimension is fundamentally a one-to-many correspondence problem, and there lies the challenge for image understanding [3].

What kinds of image information should be obtained, and under what conditions, to construct a one-to-one projection required for the correct interpretation of images? Answering these questions is the first step toward achieving machine image understanding.

The Role of Lighting in Machine Vision

Image information is the reduction of variations in the photo-physical properties of a three dimensional object onto two dimensional information expressed as contrasting light and darkness. In 2D machine vision, this is the only input information available, so successful implementation of machine vision depends on the optimization of this input.

The role of lighting in machine vision systems is to enable the extraction of features through the reflection from an object of contrasting light and darkness in order to achieve image understanding [4]. Feature extraction requires sufficient signal-to-noise ratio to be obtained through subsequent image processing to permit analysis of feature quantities for image understanding.

Mechanisms of Object Recognition

The first step of object recognition is detecting variations in light and converting them into a distribution of light intensity, i.e., an image with contrast. Image information thus obtained is evaluated with psychological quantities in the human brain, while machines can only judge the results of image analysis using physical quantities. Since psychological quantities cannot be fully represented using physical quantities, a machine-viewed image is not exactly the same as one seen by a human eye.

For machines, image understanding requires optimization of the image contrast which results from the interaction between light and object at the features of interest. This is precisely the role of machine vision lighting.

Conceptual Approach to Lighting in Machine Vision

The overall structure of a vision system is shown in figure 1. The role of lighting in machine vision is to selectively produce the variations in light required by the vision system for image understanding. Such variations in light are converted into a distribution of light intensity by the imaging optics, and then further converted into image information by the optical sensor and the camera. The resulting data is then analyzed by the image processing portion of the system.

Lighting for machine vision must be designed to bring out the variations in

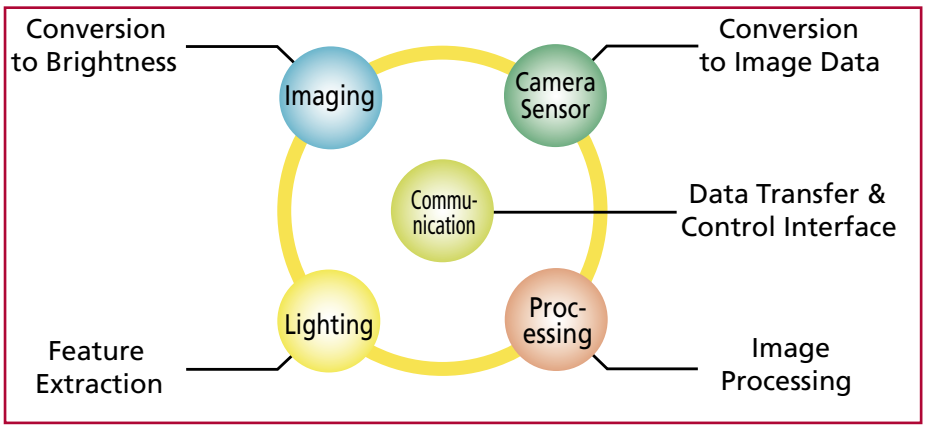
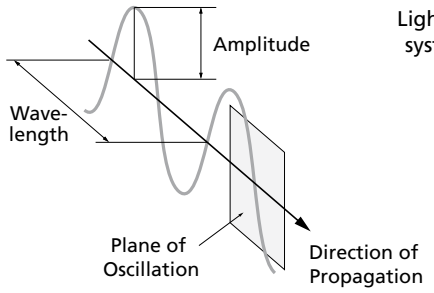
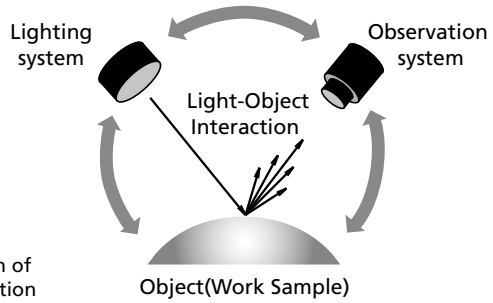


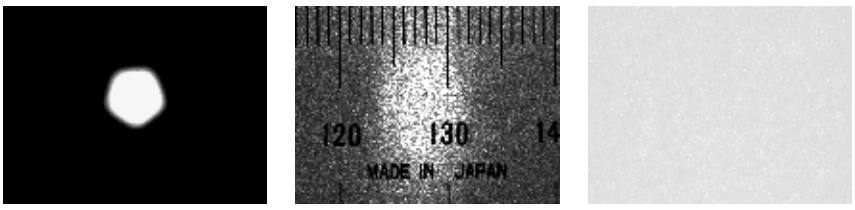
Fig.1: Functional elements of a vision system





Wave Element	Factors of Variation	Lighting system	Observation system
Plane of Oscillation	Optical Anisotropy Crystal or Molecular Structure	Polarizing Property Polarized Direction	Analyzing Property Analyzed Direction
Frequency Wavelength	Energy Interaction with Electron or Crystal Vibration	Wavelength Spectral Distribution	Spectral Characteristic Spectral Sensitivity
Amplitude	Absorption Property Spectral Characteristic	Luminance Illuminance	Gain・Exposure Time Dynamic Range
Direction of Propagation	Surface State Variation of Propagation Medium	Irradiation Axis Parallelism	Observation Axis Numerical Aperture(NA)

Fig. 2: Elements of variations in light and optimizing parameters



(a) Mirror : Direct Light

(b) Metal Ruler : Dispersed Direct Light

(c) White Paper : Scattered Light

Keeping lighting source ,∅ 6 mm diameter, 500 mm away from objects, imaging conditions are all the same with the exception of power of the illuminator.

Fig. 3: Uniformity of captured images for different surface conditions

light which are useful for the extraction of an object's particular features of interest. In order to capture variations in light correctly as physical quantities, light has to be considered as a wave, and variations in the properties of the waves must be quantitatively evaluated. A conceptual diagram is shown in figure 2. Any variation in light can be expressed as a variation in one or more of the four defining parameters of light shown in figure 2.

One important aspect of lighting in machine vision is the control of signal-to-noise ratio (S/N ratio) for the features of interest in images. Lighting needed for the above goal can be optimized by considering the four parameters of light listed in figure 2. These four parameters are mutually independent variables. Variations of interest can therefore be assigned to one of these four categories and individually optimized.

Standardization Needs

A need is perceived in the machine vision lighting industry for standardized criteria for quantifying the various effects of lighting on the contrast of resulting images. Efforts to standardize lighting design and performance specifications are currently underway within the JIIA Lighting Working Group.

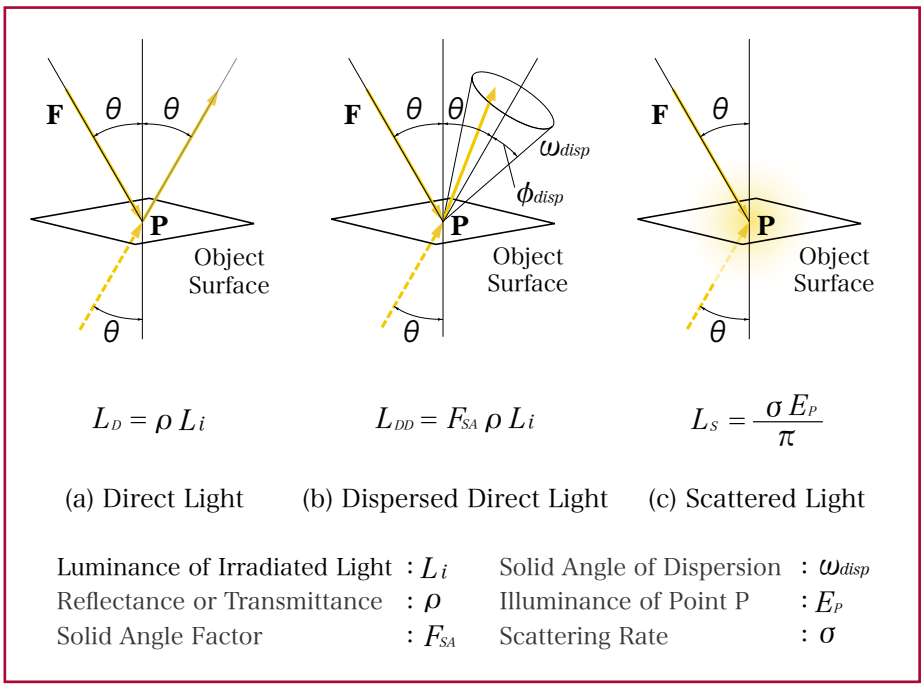


Fig. 4: Classification of light returned from object and its luminance

The contrast profile of an image is directly tied to the brightness of the object captured by the imaging optics. Figure 3 shows captured images of a) a mirror, b) a metal ruler, and c) a white sheet of paper. Except for the output power of the illuminator, all lighting conditions such as irradiation angle and distance from the objects, and all conditions within the imaging system, are identical. The output power of the illuminator used to capture the image of the white paper (c) is 1,000 times that used on the mirror (a) or the metal ruler (b). This alone is sufficient evidence of the need for a standardized specification for lighting "brightness."

As for the contrast profile of the images, the white paper (c) is nearly uniform, but significant unevenness is apparent in the mirror (a) and the metal ruler (b), and the nature of the unevenness differs between those two cases.

The above examples illustrate the necessity for defining the fundamental characteristics of lighting devices themselves, and of lighting design in general.

Classification of Light

Brightness captured by the camera is defined as provided in table 1. The radiant luminance of the bright field and the radiant luminance of the dark field respectively determine the brightness viewed by the camera. In order to define bright field and dark field, light returned from objects is classified into three categories, as shown in figure 4. It is then possible to logically explain each image in figure 4 as follows:

The mirror in a) returns direct light, whose luminance is proportional to the luminance of the illuminator and the reflectance of the object.

The metal ruler in b) returns dispersed direct light, whose luminance is determined by the luminance of the illuminator and the reflectance of the object, and factors involving solid angles.

The white paper in c) returns scattered light, whose luminance is proportional to the luminance and scattering rate at the object's surface.

Addressing the considerations above allows for a logical description of contrast profile and brightness and, equipped with this knowledge, we can optimize lighting processes as shown in figure 2.

Challenges of Machine Vision Lighting

Lighting in machine vision has been plagued by many a false assumption and misconception, and is in urgent need of standardization. In order for machine vision systems to further flourish, considerable progress must be made not only in the standardization of specifications for each constituent device, but also for system design as a whole.

Tab. 1: Radiant quantities, luminous quantities and brightness viewed from the sensor

Radiant Quantities		Luminous Quantities		(Sensor Luminous Quantities)※
$\int_0^\infty P_\lambda \, d\lambda$		$K_m \int_0^\infty P_\lambda V(\lambda) \, d\lambda$		$G_m \int_0^\infty P_\lambda S(\lambda) \, d\lambda$
Radiant Flux	[W, J/s]	Luminous Flux	[lm]	(Sensor Luminous Flux)※
Irradiance	[W/ ㎡]	Illuminance	[lx, lm/ ㎡]	(Sensor Illuminance)※
Radiant Intensity	[W/sr]	Luminous Intensity	[cd, lm/sr]	(Sensor Luminous Intensity) ※
Radiance	[W/sr·㎡]	Luminance	[cd/ ㎡ , lm/sr·㎡]	(Sensor Luminance)※

P_λ : Spectral Radiant Quantities [Radiant Unit/nm]
$V(\lambda)$: Spectral Luminous Efficiency
K_m : Maximum Luminous Efficacy [683 lm/W]
$S(\lambda)$: Relative Spectral Sensor Responsibity
G_m : Maximum Spectral Sensor Responsibity
※ : *Units are described with Radiant Quantities or Luminous Quantities*

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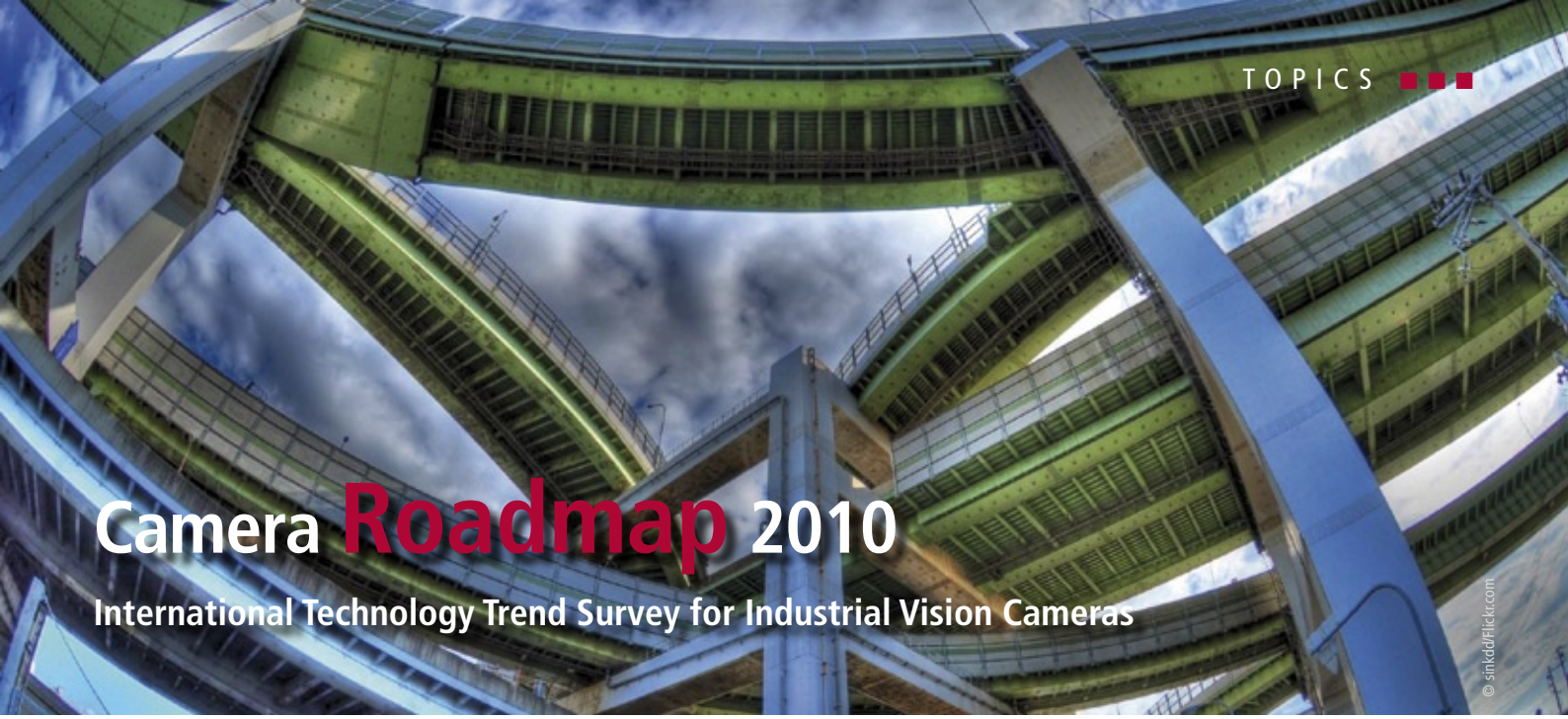

Camera Roadmap 2010

International Technology Trend Survey for Industrial Vision Cameras

Market studies in the field of industrial image processing are highly interesting for the manufacturers as well as for the users of components and products since they help to understand which technical characteristics are currently in demand and what the future trends are. For the field of cameras – which is turnover-wise the largest component group of industrial image processing – these topics have again been investigated in a market survey conceived and carried out by Framos Imaging.

Two questionnaires, provided in German and English language, respectively, have been developed for the survey in order to address camera users and camera manufacturers separately. To take into account the differences between market participants the number of cameras produced or deployed was used as a weighting factor in the evaluation of the survey results. This means that responses received greater weight in the overall assessment as the number of cameras increased. In order to eliminate statistical distortions from the study, the top 5% – that is, the largest users and manufacturers – were excluded from the study.

In addition, only those questionnaires where participants took at least five minutes to fully answer the questions were included since the responses can only be considered reasonably meaningful under this condition.

While 84 questionnaires were completed in total, nine of these were filled out in less than five minutes so that in the end 75 questionnaires were included in the analysis. After elimination of the top 5%, the survey took into account the responses of 38 manufacturers and 33 users, and covered 100,000 cameras produced and up to 500 cameras deployed in 2010. On average, the manufacturers that were surveyed produced 1,416 cameras mainly for industrial (60%) and security (26%) applications. The users that were surveyed deployed an average of 135 cameras mainly for industrial (77%) and scientific (16%) applications.

Lower and Higher Resolutions in Demand

As the camera resolution increases, so does the data density for more precise data analysis and therefore "better" results.

In the survey, the manufacturers indicated that 62% of their products currently have a resolution of <1 megapixel, 21% between 1 and 3 megapixel and 7% between 3 and 5 megapixel while 10% are in the high-resolution range of >5 megapixel.

The figures reported by the users are a bit different. 36% of deployed products have a resolution of <1 megapixel and 49% between 1 and 3 megapixel. Yet both see a growing demand for the high resolution range of >5 megapixel, manufacturers a plus of 9% and the users a plus of 4% in the next two years. It appears that this indicates a trend towards low resolution cameras for the general use and cameras with high resolution for specialized needs.

Development of Camera Pricing in the Last Three Years

The distribution of camera prices amongst manufacturers seems aligned with the resolution trend: the cheaper cameras up to € 650 have grown in importance to 52% of the entire manufactured cameras. And the high-end cameras with prices > € 2,000 hold 27%.

Users have a similar trend towards cheaper cameras up to € 650, however, their usage of expensive cameras has decreased over the last years from 31% to 9%. There is a certain deviation between supply and demand noticeable.

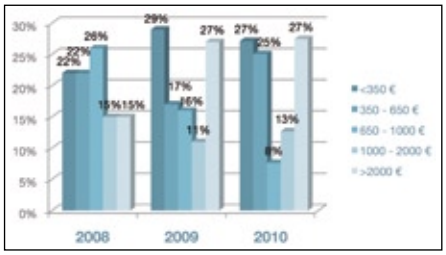

Fig. 1a: Camera Pricing Manufacturers

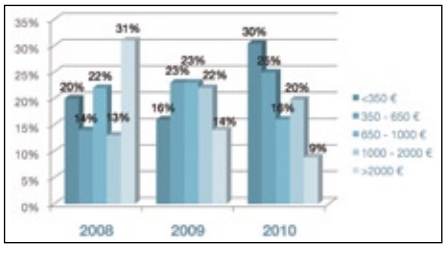

Fig. 1b: Camera Pricing Users

What about Chips: CCD or CMOS?

Looking at the proportion of CCD versus CMOS chips in the cameras sold or deployed in 2008, in 2010 and forecasted

for 2012, both manufacturers and users see a clear percentage shift in favour of CMOS technology. Manufacturers indicate a stronger decrease for CCD cameras than users (-58% till 2012).

The users who were surveyed currently deploy 27% CMOS cameras and 73% CCD cameras. An increase to 39% is expected for the deployment of CMOS cameras within the next two years. This means the users estimate that CCD cameras will still account for 62% of the deployed cameras two years from now. Therefore CMOS will at best assume a role equivalent to that of CCD cameras in the near future. This contradicts in a way how manufacturers see the market. They have already shifted their production to 56% CMOS and see a further drop of CCD to 30% by 2012. This could be explained by the ongoing price pressure in the market and the significant lower costs of CMOS sensors and cameras.

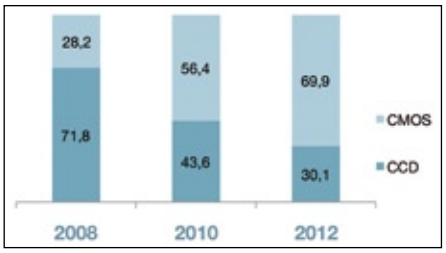

Fig. 2a: CCD/CMOS Manufacturers

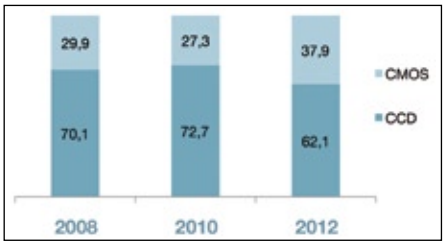

Fig. 2b: CCD/CMOS Users

Which Trend Is Stronger: Monochrome or Color Cameras?

The manufacturer's distribution in 2008 between monochrome and color cameras indicated a 2/3 monochrome and a 1/3 color market share. Since last year this development has shifted towards color cameras, with a 50:50 partition: 49% color cameras and 51% monochrome cameras. The percentages among users show a very similar picture: Color cameras accounted for 45% of the total number deployed while monochrome cameras accounted for 55%. This indicates that supply and demand are very well matched.

Which Is the Advanced Technology: Analog or Digital?

What do the survey respondents have to say about this? At this time, 19% of cameras being produced are analog and 79% digital. 23% of the surveyed manufacturers did not comment on the future trend, therefore it is difficult to give a clear perspective for the future. The surveyed users currently use more digital cameras (72%). This leaves 28% for the share of analog cameras. The users project a 16% increase in the digital camera share to a total market share of 84% in two years. They also estimate the share of analog cameras to be 16%.

The discrepancy between manufacturers and users in 2010 is partly due to the high proportion of security product manufacturers included in the survey. At this time, the security market is still very much defined by analog interfaces.

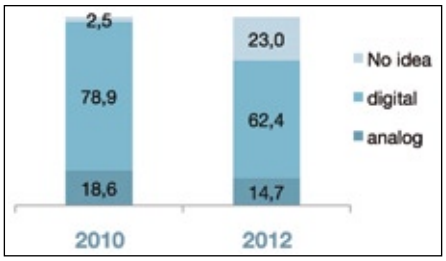

Fig. 3a: Analog/Digital Manufacturers

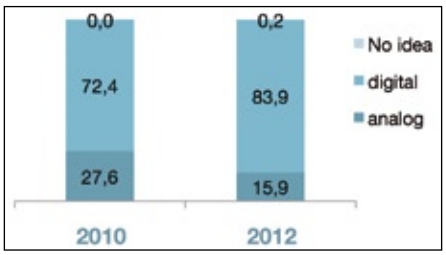

Fig. 3b: Analog/Digital Users

...and the Interface?

The camera interface has been the subject of heated discussions at trade shows and industry conferences for many years. We asked manufacturers and users to rank the use of interfaces in the upcoming two years. Here the deviation between manufacturers and users is quite high, as the manufacturers seem to also focus on a large number of alternative interfaces. These are summed under the "Other" category in the following graph. Users have clearly allocated more than 30% to interfaces such as USB 3.0 and 10 GigE, whereas manufacturers seem to be rather hesitant towards these new interfaces.

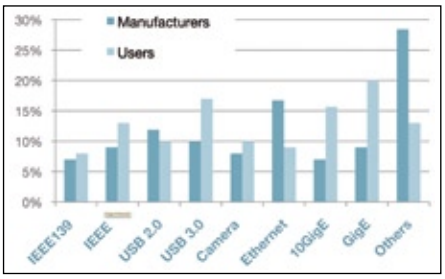

Fig. 4: Interfaces Trends by 2012

Smart Cameras: a Trend that Is Slowing Down?

Smart cameras represent 16% of the total camera production, while users have 33% deployment for these cameras. One of two manufacturers expects smart cameras to be either very important or important products two years from now. Only 16% dismiss smart cameras as irrelevant for them in the future (9% find them fairly unimportant and only 7% regard them as unimportant).

Users also assign a rather neutral role to smart cameras. 29% believe that smart cameras will be relevant to them in the future (26% of the users find smart cameras very important and 3% find them important). 7% of the manufacturers and 5% of the responding users, respectively, expected smart cameras to be fairly unimportant or unimportant to them in two years. It shows that manufacturers are stronger believers in smart cameras than users, although users currently have a stronger deployment than manufacturers.

Naturally, this brief summary only includes a small excerpt of the complete market survey results. The complete results including information on frame rates, readout technologies, optical mounts and sensor formats as well as all figures will be made available to the Framos newsletter subscribers.

We would like to take this opportunity to once again express our sincere thanks to all participants.

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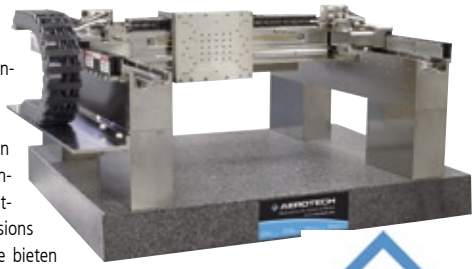

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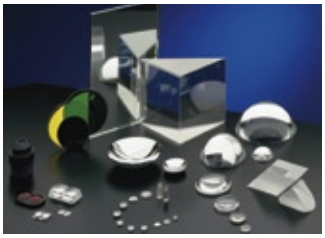

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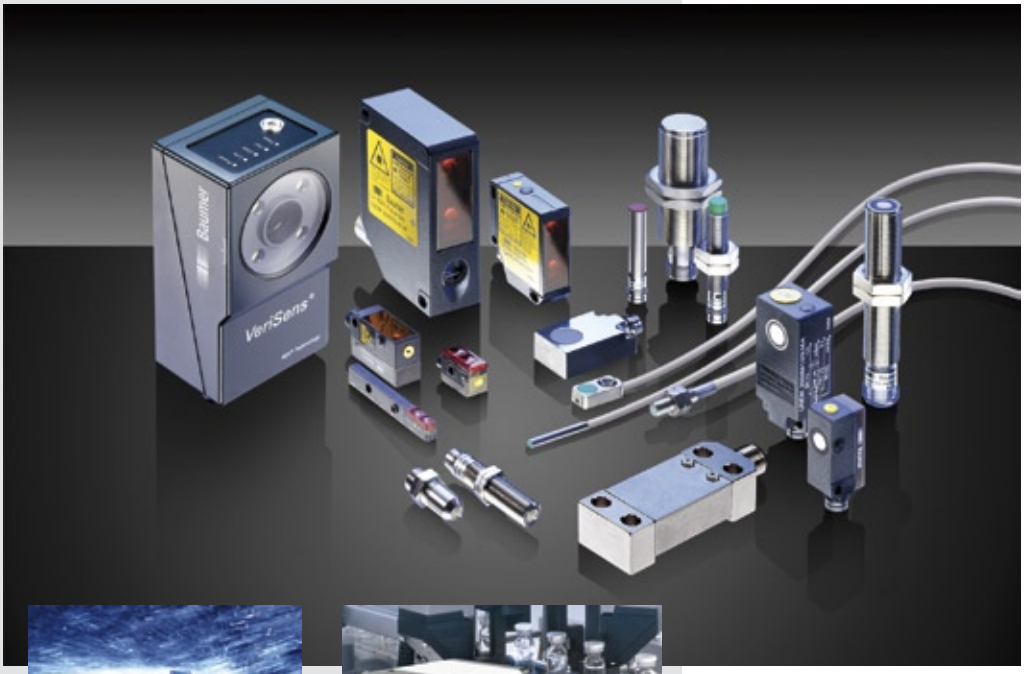

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Tel.: +49 7161 98872 300, Fax: +49 7161 98872 303, info@eltrotec.com, www.eltrotec.com

GP-3

Association

The EMVA has more than 122 members representing 23 nations. Its aim is to promote the development and use of machine vision technology and to support the interests of its members – machine vision companies, research institutions and national machine vision associations.
EMVA focuses on standardization, statistics, the annual EMVA Business Conference and other networking events, public relations and marketing.

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info@emva.org
www.emva.org

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Producer

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SG-1

Producer

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Tel.: +49 2159/538 1391, Fax: +49 2159/538 3170, robot.infos@epson.de, www.epson.de/robots
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Solution Provider

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A-3

Producer

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Producer

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KA-5

Producer

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Producer

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Integrator, Solution Provider

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K-3

Producer, Solution Provider

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Producer

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Research Facility

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MD-1

Research Facility

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Producer

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J-2

About Docter Optics

Turning Ideas into Components

Docter Optics is an internationally recognized OEM partner of the optical industry and the world's leading supplier of advanced projection lenses in headlights for automotive applications. The company's spectrum of services extends along the entire value chain: The 420 employees of the four Docter Optics competence centers – Precision Glass Components, Optical Systems, Express Glass Services and Automotive Solutions – have the experience and expertise required to take an initial idea to production-ready design and deliver customer-driven solutions.

A Single-Source Supplier: Optical Systems

Docter Optics has been involved in the development and production of lenses for over 20 years. During that time, the bundled resources of four business units have made it possible to achieve unique synergistic effects that have made Docter Optics a recognized specialist in the development and production of optical systems (lenses). A further core competence lies in the development and production of customer-specific optomechanical and optoelectronic subassemblies. In these areas, Docter Optics serves companies involved in biometrics, security/surveillance, medical technology and machine vision.

In addition, the Docter Optics Optical Systems competence center supplies industry with its well-known lenses, including the Tevidon special-purpose CCD and CMOS lenses, Auto-Tessar reflection-free miniature HDR lenses and Stilar 2.8/8 super-wide-angle lenses for 1.2" sensor chips.

Quality plus Efficiency: Precision Glass Components

Proprietary Docter Optics precision-molding technology permits exceptionally economical production of optical components – including everything from aspheres, arrays and free-form lenses to light pipes, – for a wide range of applications even in very large quantities. Customers benefit from the services of highly qualified optical designers and process engineers with the experience and expertise it takes to design and produce customer-specific optical components to meet virtually any requirements. Customers can order components ranging in size from 5 to 165 mm in diameter. In addition, Docter Optics has advanced coating facilities that make it possible to coat all optical components to customer specifications.

Top-tier Services – Express Glass Services

The Docter Optics Express Glass Services business unit produces semi-finished and finished products of optical glass, prototypes, samples and one-of-a-kind components as well as pre-production or limited series for customers worldwide. This business unit also maintains a large inventory of special optical glasses of all types.

Producer

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Producer

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Producer, Research Facility

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Producer

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Research Facility

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Producer

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Media

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About IDS Imaging Development Systems

Cameras, Accessories and Support for Image Processing
Committed to industrial image processing since its foundation in 1997, IDS Imaging Development Systems GmbH has been widely known for its development of frame grabbers. Today IDS offers a comprehensive range of USB and GigE based industrial cameras, accessories and software tools "made in Germany." The uEye camera series currently comprises over 1,200 model variants. They cater not only to the classical image processing markets, such as industrial automation and quality assurance, but also to the upcoming "new markets" of image processing, such as security technology and the non-industrial segment.

The uEye Industrial Camera Series
All uEye cameras boast an extremely compact design. The industrial cameras are available with high-quality CCD or CMOS sensors, with monochrome or color technology. The resolution ranges from 640 x 480 pixels to up to 10 Megapixel. The uEye RE cameras feature an IP65/67 rated housing, while the uEye LE versions offer full USB functionality on a single PCB. The GigE uEye series cameras extend the broad range of USB cameras by fast models for demanding machine vision tasks. The all new GigE uEye CP features Power-over-Ethernet and modern CMOS sensors in the smallest housing possible, making it the ideal replacement for analog cameras. The USB uEye ME is a versatile and robust all-round camera with angled housing that provides for easy integration into machines with little space.
Compact, small, powerful – with their design, mainstream bus technologies and high resolution sensors, the uEye industrial cameras perfectly meet the requirements of modern image processing.

Custom-made Cameras
Even though the uEye series features over 1,200 different models, not all the specific demands of OEM customers can be met at a satisfactory level by using the standard models. To accommodate these requirements, IDS also develops customized and project-related solutions.

Optimum Software Support
The powerful uEye software development kit (SDK) forms the basis. Demo programs for an easy camera configuration allow finding the best settings without previously programming a single line of code. The source code of the demo programs offers developers a useful programming basis. Direct interfaces are additionally provided for many current image processing libraries, such as Common Vision Blox, Halcon or LabView and the new universal camera interface standard GenICam will achieve shortest integration times for image processing.

Professional Service
Competent services complement and complete the product portfolio. They include, for example, application consulting, support during system integration and the design-in phase, feasibility studies, product loans, and software training. IDS has a staff of more than 80 employees at its head office in Obersulm, Germany, its subsidiary IDS Inc. in Woburn, USA, and in the representative office in Tokyo, Japan. The company is represented in almost all European countries as well as the Americas and Asia Pacific through experienced distributors.

Consultant

Jansen C.E.O. facilitates mergers and acquisitions mainly in the fields of machine vision and automation technologies, coaches on company growth strategies, provides market data research and advises on internal structure and process optimization projects.

Gabriele Jansen herself is active as business angel and serves as strategic advisor for a number of high-tech companies. With 20+ years of experience in the vision industry, most of those as an entrepreneur, she provides a very unique mix of industry insight and business acumen.

All services, consulting and coaching rendered by Jansen C.E.O. are tailored to the individual requirements of the company or the entrepreneur.

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J-3

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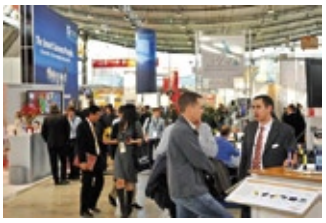
Media

Landesmesse Stuttgart organizes the VISION show in Stuttgart, Germany world's leading machine vision show in the heart of Europe. Vision 2011 takes place from November 8 to 10. Companies from all over the world will present the latest machine vision technologies and applications for mechanical engineering, the automotive and electrical industries, medical, telecommunications, the food industry and many other sectors of industry. VISION is a mustattend event for all users of machine vision.



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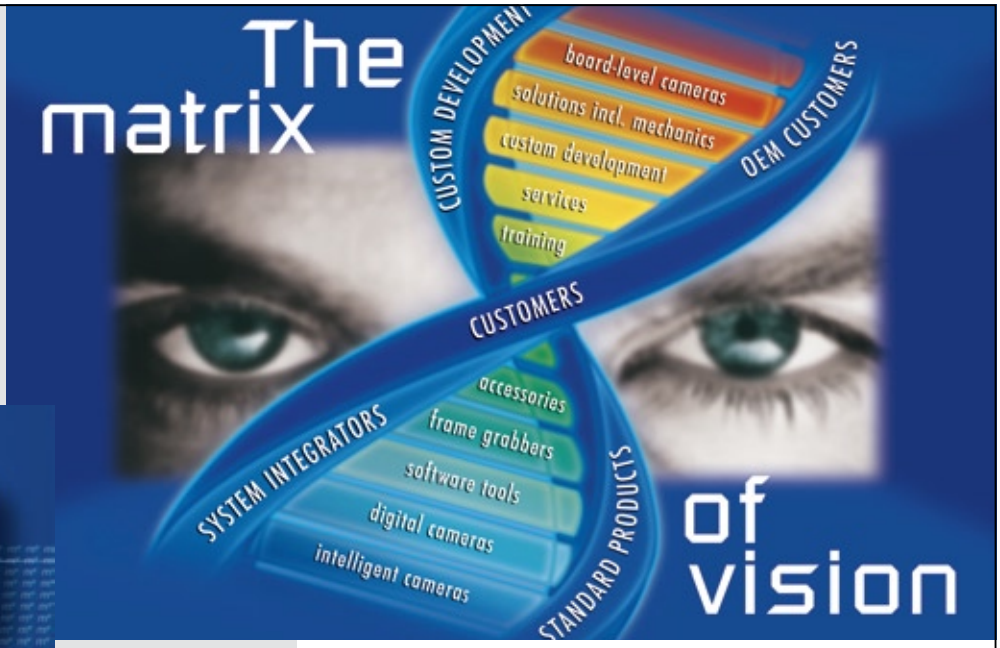

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Mobile: +33 608860979
info-france@matrix-vision.com

Matrix Vision Italy
Tel.: +39 0308982839
Mobile: +39 3403161382
info-italy@matrix-vision.com

Management
Gerhard Thullner, General Manager
Dietmar Unser, Sales Manager
Marcus Bleise, International Sales Manager

Foundation
1986

Staff
51-100

Products
Cameras, Frame Grabber, Lighting Equipment, Optics, Processors, R&D, Smart Cameras/Embedded Systems, Software, Vision Sensors

Applications
Digitalization, High Speed Analysis, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Metrology 2D, Metrology 3D, Part Identification, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Symbol Recognition, Thermography, Others

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics, Other

Associations
AIA, EMVA, Symop, VDMA, Other

Regions served
Africa, Asia, Australia, Central Europe, China, EMEA, Europe, Japan, Latin America, North America, national

About Matrix Vision GmbH

Matrix Vision was founded in 1986 by W. Armingeon and G. Thullner. Since 1992, the focus of our product line has been exclusively on the industrial image processing market. With a current staff of about 50 employees, we develop, support and distribute our extensive range of products worldwide.

Markets and Applications

Matrix Vision develops for and in conjunction with its system partners components and solutions for various industrial sectors. We supply solutions for the demanding markets, i.e. quality control of high-speed manufacturing processes with a high information density such as in the automobile industry or in mechanical engineering. The fields of surveillance, robotics, electronics, chemicals, pharmaceuticals, foodstuffs, printing, photography, microscopy and medicine also place high demands on the hard- and software of image processing systems. Matrix Vision bears all this in mind with an extensive range of products.

Classical and Innovative Products

Our frame grabbers for handling color and gray scale image data with analog, digital or CameraLink interface will continue to defend their market position for a long time to come. FireWire solutions made by Matrix Vision complement this range of products. Our intelligent cameras mvBlueLynx, the USB cameras mvBlueFox, the GigE cameras mvBlueCougar and the PowerXCell accelerator boards cater for the trend towards integration of camera, acquisition, processing and networking applications. The mvImpact software for applications such as measurement, OCR/OCV, as well as pattern, barcode, data matrix, object and color recognition, optimally supports the hardware components.

Our Strong-Points

Beside an extensive range of standard products we offer custom-specific OEM solutions, which provide maximum utility for the user as a result of continuous development.

Matrix Vision GmbH
Talstr. 16
71570 Oppenweiler
Germany
Tel.: +49 7191 9432 0
Fax: +49 7191 9432 288
info@matrix-vision.de
www.matrix-vision.de

See our ad on page 53

HN-4

Producer

Leica Geosystems AG Metrology Products · Moenchmattweg 5, 5035 Unterentfelden, Switzerland, Tel.: +41 627376767, Fax: +41 627230734, info.metrology@leica-geosystems.com, www.leica-geosystems.com/metrology

ZH-2

Producer

Leica Microsystems · Ernst-Leitz-Str. 17-37, 35578 Wetzlar, Germany, Tel.: +49 6441 29 4000, Fax: +49 6441 29 4155, sales.germany@leica-microsystems.com, www.leica-microsystems.com

GI-3

Producer

Leistungselektronik Jena GmbH (LEJ), this is more than 25 years of continuous research, product development and production in the field of electronic power supplies for gas discharge lamps, lamp housings and complete light sources also based on high power LED's. Additionally a selection of Xenon flashers in different versions is part of the product range.
The products are used in industrial applications as microscopy, machine vision, research and education, analytical products and solar simulation. For optimum profit of our customers all devices could be tailored to adapt to their systems.

MORE THAN LIGHT

LEJ
Stockholmer Str. 5
07747 Jena
Germany
Tel.: +49 3641 3530 0
Fax: +49 3641 3530 70
info@lej.de
www.lej.de

J-5

Producer

Lemo SA · 28 champs courbes, 1024 Ecublens, Switzerland,
Tel.: +41 21 695 16 00, Fax: +41 21 695 16 02, info@lemo.com, www.lemo.com

VD-1

Distributor, Producer

Lensation GmbH · Unterer Dammweg 12, 76149 Karlsruhe, Germany,
Tel.: +49 721 6054 3390, Fax: +49 721 6054 3393, info@lensation.de, www.lensation.de

KA-6

Producer

For 30 years Leutron Vision has designed and manufactured a broad range of versatile imaging products that will serve most imaging needs. Today Leutron Vision has developed a broad selection of industrial quality CCD and CMOS cameras that feature Gigabit Ethernet (GigE Vision), USB2.0, Smart and Camera Link interfaces. Leutron image acquisition products support digital line scan and area scan cameras, as well as analog cameras. Leutron products are compatible with most industrial machine vision software libraries. We do custom designs and private labeling.

Leutron Vison AG · Industriestrasse 57, 08152 Glattbrugg, Switzerland,
Tel.: +41 44 809 88 22, Fax: +41 44 809 88 29, intsales@leutron.com, www.leutron.com

ZH-3

Producer

Leuze electronic · In der Braike 1, 73277 Owen/Teck, Germany,
Tel.: +49 7021 573 0, Fax: +49 7021 573 199, info@leuze.de, www.leuze.de

GP-4

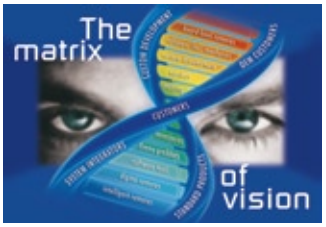
Consultant, Integrator, Research Facility, Solution Provider

Math & Tech Engineering GmbH · Robert-Bosch-Str. 6/1, 72654 Neckartenzlingen, Germany,
Tel.: +49 7127 958350, sales@mathtech.de, www.mathtech.eu

TÜ-4

Producer

The company was founded in 1986. With a huge product range, we are one of the largest developers of machine vision components in Europe. In addition to the headquaters in Germany near Stuttgart, we also have offices in Paris, France and Brescia, Italy. We develop products such as frame grabbers, video modules, smart cameras with DSP or PCbased technologies, USB/GigE cameras, customized products and software tools. We sell to customers such as system integrators, OEMs and distributors worldwide.



MATRIX VISION

Matrix Vision GmbH
Talstr. 16
71570 Oppenweiler
Germany
Tel.: +49 7191 9432 0
Fax: +49 7191 9432 288
info@matrixvision.com
www.matrixvision.de

HN-4

Distributor

MaxxVision is one of the leading value added distributors in the field of industrial machine vision in Germany. With a wide array of products in cameras, 360° view optics, telecentric lenses, illuminations, FPGA processing systems and customized solutions we serve all needs and requirements in machine vision. Our ISO certified company delivers the components for all kind of machine vision solutions. The products are applied in sophisticated applications like automatic identification, industrial production, quality control, logistics, electronic control, science, video surveillance etc.

MaxxVision GmbH · Sigmaringer Str.121, 70567 Stuttgart, Germany,
Tel.: +49 711 9979 963, Fax: +49 711 9799 650,info@maxxvision.com, www.maxxvision.com

S-6

Machine Builder/OEM, Producer

Micro Epsilon is a worldwide known specialist for measurement of dimension and non-contact temperature. We have the broadest spectra for high quality and precise metrology, to provide you the best solution. The assortment covers inductive sensors, laser sensors, laser scanners, ThruBeam systems, capacititve and confocalchromatic sensors, eddy current sensors, image processing, draw wire sensors, non contact temperature sensors, test benches and OEMsensors.

MICRO-EPSILON

Micro-Epsilon Messtechnik GmbH
Königbacher Str. 15
94496 Ortenburg
Germany
Tel.: +49 8542 168 0
Fax: +49 8542 168 90
info@microepsilon.de
www.microepsilon.com

PA-3

Producer

Mikromak Service · Bernhard-Lichtenberg-Str. 10, 10407 Berlin, Germany,
Tel.: +49 30 42022 402, Fax: +49 30 42022 401, info@mikromak.com, www.mikromak.com

B-7

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Canada
Tel.: +1 604 242 9937
Fax: +1 604 242 9938
info@ptgrey.com

Management
Vladimir Tucakov,
Director Sales & Marketing

Joerg Clement,
Business Development Manager Europe

Foundation
1997

Staff
100–200

Products
Cameras

Applications
Character Recognition, Digitalization, High Speed Analysis, Inspection Piece Parts, Material Testing, Metrology 3D, Part Identification, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Symbol Recognition

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics

Associations
AIA, EMVA, JIIA, Other

Regions served
Asia, Europe, Latin America, North America

POINT GREY

Point Grey Research GmbH
Schwieberdinger Straße 60
71636 Ludwigsburg
Germany
Tel.: 49 7141 488817 0
Fax: 49 7141 488817 99
eu-sales@ptgrey.com
www.ptgrey.com

See our ads on page 5

HN-5

About Point Grey Research, Inc.

Point Grey Research, Inc. is a worldwide leader in the development of advanced digital camera technology products for machine vision, industrial imaging, and computer vision applications. Based in Richmond, BC, Canada, Point Grey designs, manufactures and distributes IEEE-1394 (FireWire), USB 2.0, Gigabit Ethernet, and Camera Link cameras that are known for their excellent quality, performance, and ease of use. A broad range of hardware, software and mechanical engineering skills has allowed Point Grey to successfully bring many innovative and ground-breaking products to market. This drive for innovation has led to many industry firsts, including the first and smallest 1394b digital camera.

Since being founded in January of 1997, the company's approach to product pricing, quality control, and customer service has attracted thousands of customers worldwide, and its organic growth through product sales has enabled the company to expand significantly without any outside investment. Point Grey currently employs more than 100 people worldwide, and has a wholly-owned subsidiary in Germany that provides sales and support services to customers in Europe, Africa, and Israel. Point Grey's office in Japan works closely with the company's network of distributors in Japan, Korea, China, Singapore, and Taiwan.

End-to-End Imaging Solutions

A critical component of any vision system is the speed and reliability of the imaging pipeline, from light hitting the image sensor to data reaching the host system. Point Grey Research has taken ownership of the entire pipeline, and over the last 13 years has created a diverse portfolio of digital cameras, peripheral components, and software.

Point Grey offers more than 150 different single-lens, stereo, and 360-degree spherical digital cameras, with a variety of monochrome and color CCD and CMOS image sensors from VGA to 5 megapixels. Many product families also offer board-level or customized options for specific OEM applications. In addition, Point Grey has introduced its FirePro line of professional FireWire hubs, repeaters, and host adapter cards, which are designed to maximize the effectiveness and reliability of the entire imaging pipeline.

Quality, Service and Support

All Point Grey cameras and FirePro products are built using state-of-the-art manufacturing facilities, located in the company's 41,000 square-foot (3,800 m^2) corporate headquarters. These facilities include dedicated SMT lines, AOI and X-ray machines, industrial clean room, and automated test stations.

The "Seal of Quality" label that is applied to each Point Grey camera cannot be printed until the camera has been 100% inspected and tested. This rigorous quality testing, together with hassle-free product warranties, ensures that customers can rely on Point Grey cameras for their demanding vision applications.

Point Grey is also proud to offer world-class support on installation, configuration, customization and troubleshooting.

Producer

Mikrotron GmbH in Unterschleissheim near Munich develops, produces and sells optimized systems and components for industrial image processing; analog and digital frame grabbers, highspeed video systems and vision cameras for research, development and testing purposes. We also develop readytouse industrial electronics systems for large enterprises.

Mikrotron GmbH · Landshuter Str. 2022, 85716 Unterschleißheim Germany,
Tel.: +49 89 726342 00, Fax: +49 89 726342 99, info@mikrotron.de, www.mikrotron.de — M-11

Producer

Mitutoyo Messgeräte GmbH · Borsigstr. 8-10, 41469 Neuss, Germany,
Tel.: +49 2137 102 0, Fax: +49 2137 102 301, info@mitutoyo.de, www.mitutoyo.de — D-5

Producer

Moeller-Wedel Optical GmbH · Rosengarten 10, 22880 Wedel, Germany, Tel.: +49 4103 93776 10,
Fax: +49 4103 93776 60, info@moeller-wedel-optical.com, www.moeller-wedel-optical.com — HH-5

Producer

m-u-t AG · Am Marienhof 2, 22880 Wedel, Germany,
Tel.: +49 4103 9308-0, Fax: +49 4103 9308-99, info@mut-group.com, www.mut-group.com — HH-6

Integrator, Producer, Solution Provider

NanoFocus AG · Lindnerstr. 98, 46149 Oberhausen, Germany,
Tel.: +49 208 62000-0, Fax: +49 208 62000-99, info@nanofocus.de, www.nanofocus.com — OB-5

Producer

National Instruments is a leading machine vision and scientific imaging hardware and software tools provider. From inspecting automotive parts to researching advanced medicines, engineers and scientists use NI vision software and hardware to solve a diverse set of application challenges, faster and at a lower cost.

National Instruments Germany GmbH · Ganghoferstraße 70 b, 80339 München Germany,
Tel.: +49 89 741 31 30, Fax: +49 89 714 60 35, info.germany@ni.com, www.ni.com/vision — M-12

Solution Provider

neogramm GmbH & Co. KG · Julius-Hatry-Str. 1, 68163 Mannheim, Germany,
Tel.: +49 621 150 205 0, info@neogramm.de, www.neogramm.de — MA-1

Producer, Solution Provider

Since 1993 NeuroCheck GmbH has been offering turnkey solutions for all fields of automated visual inspection. All these solutions are based on the software product NeuroCheck, which is developed inhouse.

NeuroCheck GmbH · Neckarstr. 76/1, 71686 Remseck Germany,
Tel.: +49 7146 8956 0, Fax: +49 7146 8956 29, info@neurocheck.com, www.neurocheck.com — S-7

Producer

Nikon Metrology GmbH · Siemensstrasse 24, 63755 Alzenau, Germany, Tel.: +49 6023 91733-0,
Fax: +49 6023 91733-219, sales_germany@nikonmetrology.com, www.nikonmetrology.com — F-7

Solution Provider

OBE Ohnmacht & Baumgärtner GmbH & Co. KG · Turnstr. 22, 75228 Ispringen, Germany,
Tel.: +49 7231 802 0, Fax: +49 7231 802 156, trevista@obe.de, www.trevista.net — PF-3

Integrator

Octum GmbH · Renntalstraße 16, 74360 Ilsfeld, Germany,
Tel.: +49 7062 914 94 0, info@octum.de, www.octum.de — HN-6

Producer, Solution Provider

Olympus Europa Holding GmbH · Wendenstr. 14-18, 20097 Hamburg, Germany, Tel.: +49 40 23773 0,
Fax: +49 40 23773 4647, microscopy@olympus-europa.com, www.microscopy.olympus.eu — HH-7

Producer

opsira GmbH · Leibnizstr. 20, 88250 Weingarten, Germany,
Tel.: +49 7515 61890, Fax: +49 7515 61899, info@opsira.de, www.opsira.de — KN-3

Producer

OptoPolymer · Königsteinstr. 12, 80807 München, Germany,
Tel.: +49 89 35657183, Fax: +49 89 35657184, info@optopolymer.de, www.optopolymer.de — M-13

Integrator, Producer, Solution Provider

Opto develops and manufactures client driven optomechatronic modules, components and systems in quantities ranging from oneoff prototypes to full scale production. For over 3 decades, we have established ourselves as a leading developer of the most innovative vision solutions to the most demanding applications to our international customer base. Specialising in microscopy and machine vision, we take pride in developing market leading solutions for the most advanced inspection applications.

Opto Sonderbedarf GmbH · Lochhamer Schlag 14, 82166 Gräfelfing Germany,
Tel.: +49 89 898055 0, Fax: +49 89 898055 18, info@opto.de, www.opto.de — M-14

Machine Builder/OEM

OptoSurf GmbH · Nobelstr. 9-13, 76275 Ettlingen, Germany,
Tel.: +49 7243 766 013, Fax: +49 7243 766 034, info@optosurf.com, www.optosurf.com — KA-7

Producer

Optronis GmbH · Honsellstr. 8, 77694 Kehl, Germany,
Tel.: +49 7851-9126-0, Fax: +49 785-19126-10, info@optronis.com, www.optronis.com — OG-1

Producer

Otto Vision Technology GmbH · Im Steinfeld 3, 07751 Jena, Germany,
Tel.: +49 3641-67150, Fax: +49 3641-671515, info@otto-jena.de, www.otto-jena.de — J-6

Producer, Solution Provider

High quality electronic and electromechanical components, automation solutions only experience can provide and that "extra" service and support are what characterize Panasonic Electric Works Europe AG. Our emphasis on service is underlined by over 100 employees at our technology centers in Holzkirchen, Karlsruhe (founded 2008) and Gera as well as numerous sales offices around Germany.

Panasonic Electric Works Europe AG · RudolfDieselRing 2, 83607 Holzkirchen Germany,
Tel.: +49 8024 6480, Fax: +49 8024 648555, infode@eu.pewg.panasonic.com, www.panasonicelectricworks.de — M-15

Producer

Panasonic Marketing Europe GmbH · Winsbergring 15, 22525 Hamburg, Germany, Tel.: +49 40 8549 2606,
Fax: +49 40 8549 2856, info.medicalvision@eu.panasonic.com, pss.panasonic.eu/microcameras — HH-8

Machine Builder/OEM

Paul Leibinger GmbH · Daimlerstr. 14, 78532 Tuttlingen, Germany, Tel.: +49 7461 9286-0,
Fax: +49 7461 9286-199, sales@leibinger-group.com, www.leibinger-group.com — KN-4

Producer

In 1987, PCO AG was founded with the objective to develop and to produce specialized fast and sensitive video camera systems, mainly for scientific applications. Meanwhile the product range of PCO cameras covers digital camera systems with high dynamic range, high resolution, high speed and low noise, which are sold in the scientific and industrial market all over the world.

PCO AG · Donaupark 11, 93309 Kelheim Germany,
Tel.: +49 9441 2005 0, Fax: +49 9441 2005 20, info@pco.de, www.pco.de — R-2

Solution Provider

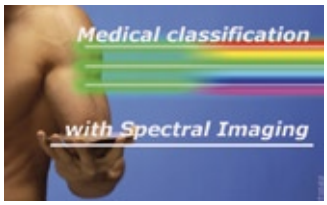
Pharmacontrol Electronic GmbH · Gernsheimer Str. 2, 64673 Zwingenberg, Germany,
Tel.: +49 6251 8545 0, Fax: +49 6251 8545 111, info@pharmacontrol.de, info@pharmacontrol.de — DA-7

Producer, Solution Provider

Phytec Messtechnik GmbH · Robert-Koch-Str. 39, 55129 Mainz, Germany,
Tel.: +49 6131 9221 0, Fax: +49 6131 9221 33, info@phytec.de, www.phytec.de — MZ-4

About CTR – Carinthian Tech Research AG

CTR is an industry-oriented contract R&D centre. We help companies to optimise existing procedures and develop new solutions in the field of automated process and quality control by applying the latest technological advances of sensor systems. This leads to greater reliability, smaller designs and thus higher profitability in production. Our expertise covers the complete R&D chain – feasibility studies, conception, tests, prototyping and individual system/product solutions. CTR has



been awarded over 45 patents and is certified according to ISO 9001/2000.

R&D Competences: Optical sensors, spectral imaging, spectroscopy, laser technology, image processing, x-ray, raman, terahertz spectroscopy, fluorescence spectroscopy, chemometry, statistical classification, software development, handling/automation technologies, optical simulation/design, microsystems, SAW sensor systems.

CTR – Carinthian Tech Research AG
Europastr. 4/1
9524 Villach
Austria
Tel.: +43 4242 56300
info@ctr.at
www.ctr.at

KL-1

Management
Simon Grasser, CFO,
simon.grasser@ctr.at
Raimund Leitner, R&D machine vision/spectral imaging,
raimund.leitner@ctr.at

Foundation
1997

Staff
11-50

Products
R&D

Applications
Character Recognition, High Speed Analysis, Inspection Piece Parts, Inspection Webbed Material, Part Identification, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Thermography, Others

Industries served
Electronics/Semiconductors, Foodstuffs/Beverages, Glass/Ceramics, Medical Technology, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Other

Associations
Other

Regions served
Central Europe, Europe, North America, national

Producer

Photonfocus AG is a leading developer and manufacturer of high performance CMOS image sensor and camera technologies for the machine vision industry. Based on leadingedge, proprietary sensor designs, our products feature extremely high frame rates, high dynamic and extensive programmability for use in many industrial vision applications. Additional Photonfocus offers customized sensor and camera solutions and provides designin support in vision system design.

Photonfocus AG · Bahnhofplatz 10, 08853 Lachen Switzerland,
Tel.: +41 55 4510000, Fax: +41 55 4510001, sales@photonfocus.com, www.photonfocus.com
ZH-4

Integrator, Solution Provider

pi4_robotics GmbH · Gustav-Meyer-Allee 25, 13355 Berlin, Germany,
Tel.: +49 30 7009 694 0, Fax: +49 30 7009 694 69, sales@pi4.de, www.pi4.de
B-8

Distributor, Integrator, Producer, Solution Provider

plasmo Industrietechnik GmbH · Dresdner Str. 81-85, 1200 Vienna, Austria,
Tel.: +43 1 236 2607 0, Fax: +43 1 236 2607 99, sales@plasmo.eu, www.plasmo.eu
V-1

Producer

POG Präzisionsoptik Gera · Gewerbepark Keplerstr. 35, 07549 Gera, Germany,
Tel.: +49 365 77393 0, Fax: +49 365 77393 29, info@pog.eu, www.pog.eu
J-7

Distributor

With more than 15 years experience in the machine vision market, Polytec has grown to be one of the major suppliers for components and instruments in Germanspeaking Europe. Today Polytec offers the full range of machine vision hardware and provides application and feasibility studies to solve complex illumination and image acquisition problems. Beyond that Polytec produces and sells worldwide a broad range of industrial LED lighting components and stroboscopes.

Polytec GmbH
PolytecPlatz 17
76337 Waldbronn
Germany
Tel.: +49 7243 604 180
Fax: +49 7243 699 44
bv@polytec.de
www.polytec.de
KA-8

Producer

Pro Design Electronic GmbH · Albert-Mayer-Strasse 14-16, 83052 Bruckmühl, Germany, Tel.: +49 171 30 34 752,
Fax: +49 7191 34 58 447, Frank.Eckardt@prodesign-europe.com, www.prodesign-europe.com
M-16

Producer, Research Facility, Solution Provider

Leader in R&D in industrial automation and robotics, nanotechnology, quality control and image processing.

Profactor GmbH · Am Stadtgut A2, 04407 Steyr, Austria,
Tel.: +43 7252 885 0, Fax: +43 7252 885 101, maria.fuehrlinger@profactor.at, www.profactor.at
L-1

Producer, Solution Provider

Proxitronic Industries AG · Robert-Bosch-Str. 32b, 64625 Bensheim, Germany,
Tel.: +49 6251 1703 0, Fax: +49 6251 1703 90, imaging@proxitronic.com, www.proxitronic.com
DA-8

Producer

Qioptiq designs and manufactures photonic products and solutions that serve a wide range of markets and applications in the areas of industrial manufacturing, medical and life sciences, research and development, defense and aerospace. The company is known for its highquality standard components, products and instruments, its custom modules and assemblies, its leadingedge innovation, its precision manufacturing and its responsive global resourcing.

Qioptiq GmbH & Co. KG · Königsallee 23, 37081 Göttingen Germany,
Tel.: +49 551 6935 0, Fax: +49 551 6935 166, sales@qioptiq.de, www.qioptiq.com
GÖ-2

Solution Provider

Quiss provides a wide selection of innovative systems for various inspection tasks in the fields of adhesive and sealant application, position detection and robot guidance as well as in the manufacture of metal packaging. Quiss systems detect and prevent manufacturing errors with utmost reliability, indicate weak points and help achieve continuous improvement in the production process. We are proud to serve our customers now for two decades in the area of industrial image processing.

Quiss GmbH · Lilienthalstr. 5, 82178 Puchheim Germany,
Tel.: +49 89 894 590, Fax: +49 89 894 111, info@quiss.com, www.quiss.com
M-17

Distributor

Rauscher GmbH is a leading distributor for all imaging components, including software, area and linescan cameras, frame grabbers, imageprocessing boards, smart cameras, embedded systems, optics, lighting and accessories.Rauscher GmbH combines distribution with high engineering competence. This enables all customers to efficiently develop and market their vision system.

Rauscher GmbH · JohannG.GutenbergStr. 20, 82140 Olching Germany,
Tel.: +49 8142 448 41 0, Fax: +49 8142 448 41 90, info@rauscher.de, www.rauscher.de
M-18

Integrator, Machine Builder/OEM, Solution Provider

rbc robotics · Werner von Siemens Str. 3, 65520 Bad Camberg, Germany,
Tel.: +49 6434 4733, info@rbc-robotics.de, www.rbc-robotics.de
WI-2

Integrator

2D and 3D inspection systemsOptical 3D measurement systemsHigh speed AOI systems

Rohwedder AG · Kesselbachstrasse 1, 88697 Bermatingen Germany,
Tel.: +49 75 44 502 100, michael.stoecker@rohwedder.com, www.rohwedder.com
RV-4

Distributor

Rubroeder GmbH Factory Automation · Theodor-Neizert-Str. 1, 56170 Bendorf, Germany,
Tel.: +49 2622 943 730, Fax: +49 2622 943 750, info@rubroeder.de, www.rubroeder.de
KO-1

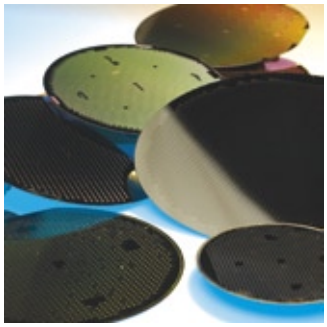
Solution Provider

SAC offers system solutions for machine vision applications in the field of 2D and 3D. Besides specific solutions, SAC develops individually customers' applications and provides as well standard solutions. Together with the customers, SAC designs concepts for the machine vision's integration into the production process. SAC's efficient system solutions range among others from 3D inspection, toothing inspection, over assembly quality assurance to surface inspection

SAC Sirius Advanced Cybernetics GmbH · Am Sandfeld 15, 76149 Karlsruhe Germany,
Tel.: +49 721 60 543 000, Fax: +49 721 60 543 200, sales@sacvision.net, www.sacvision.net
KA-9

About Dalsa

Dalsa Corporation is an international technology leader in the design, development, and manufacture of digital imaging products and solutions. In addition, Dalsa specializes in the engineering and fabrication of semiconductor components and services. The company has grown and currently employs approximately 1,000 people world-wide with sales offices across North America as well as in Europe and Asia supporting an international distribution network serving more than 40 countries. Today, Dalsa image sensors, cameras, frame grabbers and software are used in thousands of automated inspection systems around the world and across multiple industries.



Management
Bian Doody, CEO

Foundation
1980

Staff
501-1000

Products
Cameras, Frame Grabber, Processors, Software, Vision Sensors/Smart Cameras/Embedded Systems, X-ray Equipment

Applications
Character Recognition, Digitalization, High Speed Analysis, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Metrolgoy 2D, Metrolgoy 3D, Part Identifcation, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Symbol Recognition, Thermography, Others

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics, Other

Platfarms supported
Windows/Linux/DSP,ARM/FPGA/x86/32 & 64 bit

Associations
AIA, EMVA, JIIA

Regions served
Asia and Pacific, China, Europe, Latin America, North America, national

Dalsa
Breslauer Str. 34
82194 Gröbenzell (Munich), Germany
Tel.: +49 8142 467 70, Fax: +49 8142 467 746
sales.europe@dalsa.com, www.dalsa.com/mv

See our ad on page Inside Front Cover

M-19

About Framos

For nearly 30 years, Framos Imaging Solutions serves customers in the field of image processing. We are driven to 'teach machines to see' and are able to offer a comprehensive range of imaging components like imaging sensors, camera modules, cameras, and peripherals. As a knowledgeable partner we not only provide technical support but can as well offer camera development services and imaging solution tailored to your application needs.
In our offices in Germany, Great Britain, France and Italy more than 40 associates look forward to helping you. By fostering an open and trusting enterprise culture Framos strives to continuously offer you innovative and cost efficient solutions in imaging.

Office(s)
Framos Electronics Limited, UK
Tel.: +44 1276 404 141
Fax: +44 276 404 144
info@framos.co.uk

Framos Italia srl, Italy
Tel.: +39 039 68 99 635
Fax: +39 039 68 98 065
info@framos.it

Framos France, France
Tel.: +33 1 39 52 07 82
Fax: +33 1 39 52 07 96
info@framos.fr

Management
CEO: Dr. Andreas Franz

Foundation
1981

Staff
11-50

Products
Cameras, Interfaces/Cables/Peripherals, Lighting Equipment, Optics, Software, Vision Sensors

Applications
Character Recognition, High Speed Analysis, Inspection Piece Parts, Metrology 2D, Metrology 3D, Part Identification, Robot Vision 2D, Robot Vision 3D, Symbol Recognition

Industries served
Automotive and Suppliers, Energy/Water/Solar Technology, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics

Regions served
Asia, Europe, North America, national

Associations
EMVA, VDMA

Companies represented
Sony, Aptina, Pleora, Lumenera, Toshiba Teli, Sunex, Northwire, Pentax, Viimagic, Videology, Tamron, Boulder Imaging, Pacific Corp., Trimble, Fujinon, Euresys, Vision+Control

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Germany
Tel.: +49 89 710667 0
Fax: +49 89 710667 66
info@framos.de
www.framos.de

See our ad on page 43

M-20

Distributor

Schaefer Technologie GmbH · Robert-Bosch-Str 31, 63225 Langen, Germany,
Tel.: +49 6103 300 980, Fax: +49 6103 300 9829, info@schaefer-tec.com, www.schaefer-tec.com
F-8

Producer

Schäfter + Kirchhoff GmbH · Kieler Straße 212, 22525 Hamburg, Germany,
Tel.: +49 40 85 39 97-0, Fax: +49 40 85 39 97-79, info@SuKHamburg.de, www.SuKHamburg.de
HH-9

Distributor, Integrator, Solution Provider

Schoenherr Elektronik GmbH · Kurze Strasse 18, 09577 Niederwiesa, Germany,
Tel.: +49 3726 79050, info@schoenherr-elektronik.com, www.schoenherr-elektronik.com
C-2

Producer

Optimized lighting systems can be created from a broad range of Schott components including LED technology and Fiber Optics. Additionally, our technological expertise in imaging provides you with a comprehensive set of solutions in a vast range of applications.

Schott AG Lighting and Imaging · OttoSchottStrasse 2, 55127 Mainz, Germany, Tel.: +49 6131 660,
Fax: +49 6131 667705, lightingimaging@schott.com, www.schott.com/lightingimaging
MZ-5

Machine Builder/OEM, Solution Provider

Seidenader Vision GmbH has been developing and selling customized vision solutions, inspection systems and vision processors for all fields of industrial inprocess quality inspection for more than 20 years. The code reading and code verification solutions of Seidenader Vision provide a reliable basis for traceability of pharmaceutical products.

Seidenader Vision GmbH · Lilienthalstr. 8, 85570 Markt Schwaben, Germany,
Tel.: +49 8121 802 0, Fax: +49 8121 802 100, info@seidenader.de, www.seidenader.de
M-21

Producer

SensoPart Industriesensorik GmbH · Nägelseestr. 16, 79288 Gottenheim, Germany,
Tel.: +49 766594769-0, info@sensopart.de, www.sensopart.de
FR-2

Producer

Sensor to Image GmbH · Lechtorstr. 20, 86956 Schongau, Germany,
Tel.: +49 8861 2369 0, Fax: +49 8861 2369 69, email@sensor-to-image.de, www.sensor-to-image.de
A-7

Integrator, Solution Provider

Seritec GmbH · Gottlieb-Keim-Str. 60, 95448 Bayreuth, Germany,
Tel.: +49 921 990093 30, info@seritec.de, www.seritec.de
N-5

Producer

Shape Drive GmbH · Bindingstr. 11, 82131 Stockdorf, Germany,
Tel.: 49-89-45461246, info@shape-drive.com, www.shape-drive.com
M-22

Producer

Sharp Microelectronics Europe · Sonninstr. 3, 20097 Hamburg, Germany,
Tel.: +49 40 2376 0, Fax: +49 40 2376 2510, info.sme@sharp.eu, www.sharpsme.com
HH-10

Media

Sicherheit + Management · Roesslerstr 90, 64293 Darmstadt, Germany,
Tel.: +49-6151-80 90 130, steffen.ebert@wiley.com, www.gitsicherheit.de
DA-9

Producer

Sick is one of the world leading suppliers of Industrial Sensors and Safety solutions. Sick provides industrial vision cameras for factory and logistics automation. The product line includes Vision Sensors, Smart Cameras, Code readers, Accessories and Cameras for high speed 3D Machine Vision. Target customers are Machine Builders, System Integrators and End Users.

Sick AG · ErwinSickStr. 1, 79183 Waldkirch Germany,
Tel.: +49 7681 2020, Fax: +49 7681 2023863, eva.persson@sickivp.se, www.sick.com
FR-3

Solution Provider

Signum Computer GmbH · Rüdesheimer Str. 21, 80686 München, Germany,
Tel.: +49 89 5470550, Fax: +49 89 574583, sales@signum-vision.de, www.signum-vision.de
M-23

Producer

Distinct coding of products or parts of products is a key requirement of modern production processes. With our stationary and handheld code reading systems we offer just the right products for reading and verification of 1D and 2D codes, such as bar codes and data matrix codes, as well as optical character recognition (OCR). This allows tracking and tracing of production batches along the entire production process and beyond. Application-specific machine vision tasks – such as the automatic parts recognition by means of shapes, dimensions, samples, outlines, or colors – can be optimally solved with our vision sensors.

Siemens AG · Gleiwitzer Str. 555, 90475 Nürnberg, Germany,
Tel.: +49 911 895 0, Fax: +49 911 895 2132, info.rfid@siemens.com, www.siemens.de/ident
N-6

Producer

Sill Optics GmbH & Co. KG · Johann-Höllfritsch-Str. 13, 90530 Wendelstein, Germany,
Tel.: +49 9129 9023 0, Fax: +49 9129 9023 23, info@silloptics.de, www.silloptics.de
N-7

Solution Provider

Simon IBV GmbH · Bayreuther Straße 5b, 95494 Gesees, Germany,
Tel.: +49 9201 / 91 742-0, Fax: +49 9201 / 91 742-80, info@simon-ibv.de, www.simavis.de
N-8

Producer, Solution Provider

slomotec, Dr. Frank Gabler · Grimmelshausenstr. 14, 63628 Bad Soden-Salmünster, Germany,
Tel.: +49 6056 9836 674, Fax: +49 6056 2097 529, info@slomotec.de, www.slomotec.de
F-9

Producer, Solution Provider

Smartray GmbH · BGM-Finsterwalder-Ring 12, 82515 Wolfratshausen, Germany,
Tel.: +49 8171 9683 400, Fax: +49 8171 9683 401, info@smartray.de, www.smartray.de
M-24

Integrator, Solution Provider

SmartSurv Vision Systems GmbH · Malmsheimer Str. 7, 71063 Sindelfingen, Germany,
Tel.: +49 7031 3041800, Fax: +49 7031 3041800, info@smartsurv.de, www.smartsurv.de
S-8

Producer

Solving3D GmbH · Osteriede 5, 30827 Garbsen, Germany,
Tel.: +49 5131 907 97 20, Fax: +49 5131 907 97 29, info@solving3d.de, www.solving3d.de
H-2

Producer

Steinbichler Optotechnik GmbH · Georg-Wiesböck-Ring 12, 83115 Neubeuern, Germany,
Tel.: +49 8035 8704-0, Fax: +49 8035 1010, sales@steinbichler.de, www.steinbichler.de
M-25

Machine Builder/OEM

Stiefelmayer-Reicherter GmbH & Co. KG · Boschstr. 10, 73734 Esslingen, Germany,
Tel.: +49 711 490 4690 0, Fax: +49 711 490 4690 13, reicherter@stiefelmayer.de, www.stiefelmayer.de
GP-5

Integrator

Stöhrmann Systemtechnik · Im Erlenwäldele 21, 77955 Ettenheim, Germany,
Tel.: +49 7822 895203, Fax: +49 7822 895205, info@stoehrmann.de, www.stoehrmann.de
OG-2

Producer

Stratec Control Systems · Ankerstraße 73, 75203 Königsbach-Stein, Germany,
Tel.: +49 7232 4006 0, Fax: +49 7232 4006 25, info@bbull.com, www.bbull.com
PF-4

Producer

STZ Qualitaetssicherung & Bildverarbeitung · Werner-von-Siemens-Str. 12, 98693 Ilmenau,
Germany, Tel.: +49 3677 208066, Fax: +49 3677 208067, stz@stz-ilmenau.de, www.stz-ilmenau.de
SHL-2

Producer

SynView GmbH · Hessenring 83, 61348 Bad Homburg, Germany,
Tel.: +49 6172 38800 0, Fax: +49 6172 38800 10, info@synview.com, www.synview.com
F-10

Producer

Tamron Europe GmbH · Robert Bosch Str. 9, 50769 Köln, Germany,
Tel.: +49 221 970 32 50, Fax: +49 221 970 32 54, cctv@tamron.de, www.tamron.de
K-5

Solution Provider

Tema · Wilhelmstr. 41-43, 58332 Schwelm, Germany,
Tel.: +49 2336 9298 50, Fax: +49 2336 9298 82, info@temavisio.com, www.temavisio.com
D-6

About Fujinon

Fujinon is one of the foremost pioneers in the development of optical technology. Based on continuous research, long experience and leading quality Fujinon is able to provide products of the highest standard in the world.

Special tasks in image processing require a special lens and Fujinon offers the appropriate solution for almost every application. Whether with a high resolution of 5 megapixels or with 1.5 megapixels in fixed focal lengths, as zoom lenses or fisheye lenses, for 3 CCD cameras or UV optics

– each model is characterized by first-class Fujinon quality: high resolution and precise optics with minimized distortion for optimal image quality. The compact design also makes it very easy to incorporate these lenses into your existing system.

Foundation
1944

Staff
101-250

Products
Optics

Applications
Character Recognition, High Speed Analysis, Inspection Piece Parts, Metrology 2D, Metrology 3D, Part Identification, Robot Vision 2D, Robot Vision 3D, Symbol Recognition

Industries served
Automotive and Suppliers, Energy/Water/Solar Technology, Medical Technology, Packaging, Precision Engineering/Optics/Machine Vision, Traffic/Logistics

Regions served
Africa, Central Europe, EMEA, Europe

FUJINON
FUJIFILM

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Halskestr. 4
47877 Willich
Germany
Tel.: +49 2154 924 0
Fax: +49 2154 924 139
cctv@fujinon.de
www.fujinon.de

D-7

About Kappa optronics GmbH

There's no way around Kappa's portfolio – if the best solution is your goal!

We are market leader in customer-specific industrial camera solutions. Kappa is one of the few camera manufacturers with the specific know-how for the development and manufacture of extremely rugged cameras that, with their extraordinary adaptability, superior durability and outstanding signal quality, provide the decisive advantage our customers are looking for.

Our particular strength lies in how we combine our competency in industrial production with our ability to understand specific application contexts, allowing us to work together

with the client to develop the best camera solution, and to produce it reliably, efficiently, and with quality assured – be it for 20 or 2000 at a time. In so doing, our aim is to clearly exceed market expectations - by systematically expanding what our core competency has been for over 30 years: customer series!

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Fax: +33 561 27 81 15
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Karl-Heinz Bornemann, Director of Sales and Marketing
Christian Koziol, Kappa USA, Director of Sales
Christophe Tourné, Kappa France, Key Account Manager

Foundation
1978

Staff
51-100

Products
Cameras, Consulting, R&D, Software, Other

Applications
Digitalization, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Metrology 2D, Part Identification, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Others

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision , Traffic/Logistics, Other

Associations
AIA, EMVA, VDMA, Other

Regions served
Asia, Central Europe, China, EMEA, Europe, North America, national

kappa

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Kappa optronics GmbH
Kleines Feld 6
37130 Gleichen
Germany
Tel.: +49 5508 974 0
Fax: +49 5508 974 109
info@kappa.de
www.kappa.de

GÖ-3

Producer

The Imaging Source Europe GmbH · Sommerstr. 36, 28215 Bremen, Germany, Tel.: +49 421 335 91 0, Fax: +49 421 335 91 80, info@theimagingsource.com, www.theimagingsource.com HB-1

Producer, Solution Provider

Thermosensorik GmbH was founded 1998 as a pioneer in infrared technology for civil applications in research and industry. Thermosensorik offers infrared cameras and infrared optics, thermal excitation sources for heat flux thermography, various software solutions, turnkey solutions for nondestructive testing as well as services like feasibility studies and commissioned tests. Thermosensorik's products satisfy the highest demands be it in active and passive IR imaging, lockin or pulse thermography.

Thermosensorik GmbH
Am Weichselgarten 7
91058 Erlangen
Germany
Tel.: +49 9131 691 400
Fax: +49 9131 691 419
info@thermosensorik.de
www.thermosensorik.de
N-9

Producer

Tichawa Vision GmbH · Burgwallstr. 14, 86316 Friedberg, Germany, Tel.: +49 821 4555 53 0, Fax: +49 821 4555 53 20, sales@tichawa.de, www.tichawa.de A-8

Producer

TriDiCam GmbH · Finkenstr. 61, 47057 Duisburg, Germany, Tel.: +49 204 3783-2937, Jochen.Noell@tridicam.de, www.TriDiCam.de OB-6

Producer, Solution Provider

Since 1984 machine vision specialist Vitronic in Wiesbaden, Germany aims to contribute to the success of its customers. From qualitative surface inspections to threedimensional weld seam inspections and 3D Robot Vision, Vitronic assists in optimizing production processes. All inspection solutions are individually tailored to the customers' needs. Hardware and software naturally originate from one source, the highest service quality is ensured. Vitronic is active in various industries, among them automotive, medical and pharmaceuticals, packaging and photovoltaics. Due to its pioneering efforts and permanent investments in research and development, Vitronic is one of the leading machine vision companies worldwide.

Vitronic Dr.Ing. Stein Bildverarbeitungssysteme GmbH
Hasengartenstr. 14
65189 Wiesbaden, Germany
Tel.: +49 611 7152 0
Fax: +49 611 7152 133
sales@vitronic.com
www.vitronic.com
WI-3

Producer

VDS Vosskühler GmbH · Weiße Breite 7, 49084 Osnabrück, Germany, Tel.: +49 541 800 84 0, Fax: +49 541 800 84 10, vds@vdsvossk.de, www.vdsvossk.de OS-4

Producer

Vialux GmbH · Am Erlenwald 10, 09128 Chemnitz, Germany, Tel.: +49 371 33 42 47 0, Fax: +49 371 33 42 47 10, info@vialux.de, www.vialux.de C-3

Distributor

Videor E. Hartig GmbH · Carl-Zeiss-Str. 8, 63322 Rödermark, Germany, Tel.: +49 06074 888 0, Fax: +49 06074 888 100, info@videor.com, www.videor.com F-11

Solution Provider

visicontrol GmbH · Ettishofer Str. 8, 88520 Weingarten, Germany, Tel.: +49 751 560 13 0, Fax: +49 751 560 13 49, info@visicontrol.com, www.visicontrol.com KN-5

Machine Builder/OEM, Solution Provider

Visimation GmbH · Arbuchtalstr. 20, 72800 Eningen, Germany, Tel.: +49 7121 3040800, Fax: +49 7121 890705, post@visimation.de, www.visimation.de TÜ-5

Producer

As a technology leader, our company develops, produces and sells an optimally attuned modular system worldwide. It ranges from complex image processing systems to individual high performance LED lighting and precision optics. To master challenging image processing tasks that would overtax standard components, we offer our customers tailormade image capturing and processing solutions. Leading OEMs and system integrators have banked on state-oftheart design by Vision & Control for almost 20 years.

Vision & Control GmbH · Mittelbergstraße 16, 98527 Suhl, Germany, Tel.: +49 3681 79 74 0, Fax: +49 3681 79 74 22, www.visioncontrol.com SHL-3

Consultant, Other

Certified institution for practical education and further training of Machine Vision expertise. Covering all fields of Machine Vision.Courses in different levels of demand. Languages: German, English

Vision Academy · KonradZuseStr. 15, 99099 Erfurt, Germany, Tel.: +49 361 42 62 188, Fax: +49 361 42 62 189, www.visionacademy.org EF-1

Producer

Vision Components is a leading developer of machine vision technology, focusing on the manufacture and distribution of intelligent cameras for industrial use. With strategic partnerships with many key integrators and software providers, Vision Components offers a complete line of advanced industrial smart cameras for an array of applications. Product line includes single board OEM, miniature and standard Smart Cameras.

Vision Components GmbH · Ottostr. 2, 76275 Ettlingen, Germany, Tel.: +49 7243 2167 0, Fax: +49 7243 2167 11, sales@visioncomponents.com, www.visioncomponents.com KA-10

Producer

Vision Engineering Ltd. · Anton-Pendele-Str. 3, 82275 Emmering, Germany, Tel.: +49 8141 401670, Fax: +49 8141 4016755, info@visioneng.de, www.visioneng.de M-26

Producer

Vision Research Europe · Baldreitstrasse 5, 76530 Baden-Baden, Germany, Tel.: +49 7221 97064-65, Fax: +49 7221 97064-66, heiner.ramsbott@visionresearch.com, www.visionresearch.com KA-11

Solution Provider

Vision Tools Bildanalyse Systeme GmbH · Goethestr. 63-65, 68753 Waghäusel, Germany, Tel.: +49 7254 9351 0, Fax: +49 7254 9351 20, info@vision-tools.com, www.vision-tools.com MA-2

Integrator, Solution Provider

Visotect GmbH · Heubergstraße 19, 70806 Kornwestheim, Germany, Tel.: +49 7154 800 88 61, info@visotect.de, www.visotect.de S-9

Distributor

Vistas GmbH · Freisinger Str. 13, 85737 Ismaning, Germany, Tel.: +49 89 929 280 90, Fax: +49 89 929 280 99, info@vistas-gmbh.de, www.vistas-gmbh.de M-27

Distributor, Integrator, Producer, Solution Provider

viZaar AG · Hechinger Strasse 152, 72461 Albstadt, Germany, Tel.: +49 7432 98375 0, Fax: +49 7432 98375 50, info@vizaar.de, www.vizaar.de TÜ-6

About NET

NET GmbH is a manufacturer of high quality CCD and CMOS cameras for imaging solutions. The product line includes industrial and OEM board level cameras for a wide variety of applications in the industrial and medical field. The extensive range of vision cameras contains different interfaces like FOculus (IEEE1394), GimaGO (GigE) as well as iCube (USB2.0). NET offers an extensive range of board level cameras and camera heads as well as customized solutions.

Lenses, illumination and cable assemblies are offered as well. All of this products can be sourced either in Europe through NET or there wide distribution network as well as in the USA through NET USA and in Asia through NET Japan.

See our ad on page 11

NET GmbH
Lerchenberg 7
86923 Finning
Germany
Tel.: +49 8806 9234 0
Fax: +49 8806 9234 77
info@net-gmbh.com
www.net-gmbh.com

A-9

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Japan
NET Japan Co., Ltd.
Tel.: +81 45 478 1020
Fax: +81 45 476 2423
info@net-japan.com

USA
NET USA, Inc.
Tel.: +1 219 934 9042
Fax: +1 219 934 9047
info@net-usa-inc.com

Management
Uwe Post, Director Sales & Marketing

Foundation
1996

Staff
11-50

Products
Cameras, Interfaces/Cables/Peripherals, Lighting Equipment, Optics

Applications
Character Recognition, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Part Identification, Robot Vision 2D, Robot Vision 3D, Symbol Recognition

Industries served
Automotive and Suppliers, Energy/Water/Solar Technology, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision

Associations
AIA , EMVA

Regions served
Africa, Asia, Australia, Central Europe, China, EMEA, Europe, Japan, Latin America, North America, national

Companies represented
V S Technology Corp., Toshiba Teli Corp., DCM Sistemes S.L.

About Polytec GmbH

For over 40 years Polytec develops and manufactures high-quality measurement systems for the analysis of vibration, length, speed and surface topography. Furthermore Polytec manufactures optical spectrometer systems and components for various applications in process analytics.

Another focus is the distribution and service for opto-electronic components and modules as well as complete measurement systems for various applications. Polytec focuses on machine vision, lasers and laser systems, fiber optic sensing, optical telecommunication, optical radiation measurement, spectroscopy, semiconductor and photovoltaics, metrology as well as on electro-optical test systems.

Polytec has staffed offices throughout Europe, North America and Asia.

Polytec GmbH
Polytec-Platz 1-7
76337 Waldbronn
Germany
Tel.: + 49 7243 604 0
Fax: + 49 7243 699 44
info@polytec.de
www.polytec.de

KA-8

Office(s)

worldwide: see www.polytec.com

Foundation
1967

Staff
101-250

Products
Cameras, Interfaces/Cables/Peripherals, Lighting Equipment, Optical Instruments, Optics, Software, Topography, Vision Sensors/Smart Cameras/Embedded Systems

Applications
Character Recognition, High Speed Analysis, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Metrology 2D, Metrology 3D , Part Identification, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Symbol Recognition, Thermography

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision

Associations
EMVA, IVAM, VDMA

Regions served
Asia, China, Europe, Latin America, North America, national

Companies represented
Allison Park Group (APG), AOS Technologies, AVT, Basler, DeltaPix, Fujinon, Herke Videotechnik, Kowa, LAT, Leutron, Linos, Midwest Optical Systems, National Instruments, Navitar, Norpix, Pentax, Planistar, Schneider, Schott, Sony, Spectrum Illumination, Tordivel, Vision & Control, Zeiss

Solution Provider

VMT supplies customized turnkey image processing and laser sensor systems for all industrial sectors. VMT solutions are based on selfdeveloped product lines, which cover the entire application spectrum. As competence center for vision solutions in the Pepperl+Fuchs group, VMT offers absolute highlevel technology combined with highest investment security. VMT is consultant to its customers and provides them with a solid basis for decision making for their investments.

VMT Vision Machine Technic Bildverarbeitungssysteme GmbH · Mallaustr. 5056, 68219 Mannheim Germany, Tel.: +49 621 84250 0, Fax: +49 621 84250 290, info@vmtgmbh.com, www.vmtgmbh.com MA-3

Producer

VRmagic offers a wide range of USB components for industrial image processing – from external analogtodigital converters through to FPGA components with integrated image processing, intelligent cameras that run on an autonomous Debian Linux operating system, and 3D sensors.

VRmagic

VRmagic GmbH
Augustaanlage 32
68165 Mannheim
Germany
Tel.: +49 621 400 416 20
Fax: +49 621 400 416 99
info.imaging@vrmagic.com
www.vrmagicimaging.com
MA-4

Integrator, Solution Provider

Weber Systemtechnik · Hans-Sachs-Str. 10, 35576 Wetzlar, Germany,
Tel.: +49 6441 37804 0, info@wesys.de, www.wesys.de GI-4

Producer

wenglor sensoric gmbh · Wenglor Str. 3, 88069 Tettnang, Germany,
Tel.: +49 7542 5399 0, Fax: +49 7542 5399 988, info@wenglor.com, www.wenglor.com RV-5

Machine Builder/OEM, Solution Provider

Wenzel Group GmbH & Co. KG · Werner-Wenzel-Str., 97859 Wiesthal, Germany,
Tel.: +49 6020 201 0, Fax: +49 6020 201 1999, info@wenzel-cmm.com, www.wenzel-cmm.com F-12

Producer

Werth Messtechnik GmbH · Siemensstrasse 19, 35394 Giessen, Germany, Tel.: +49 641 7938 0,
Fax: +49 641 7938 719, marketing@werthmesstechnik.de, www.werthmesstechnik.de GI-5

Solution Provider

Wickon Hightech GmbH · Grieboer Dorfstraße 16B, 06886 Luth. Wittenberg, Germany,
Tel.: +49 2131 20 199 0, vertrieb@wickon.com, www.wickon.com MD-2

Solution Provider

Wolf Systeme AG · Südweg 3, 75245 Neulingen, Germany,
Tel.: +49 7237 48690 0, info@wolfsysteme.de, www.wolfsysteme.de PF-5

Producer

Ximea develops, manufactures, markets a wide range of camera technologies, components, (sub)systems, services for machine vision including visible, infrared and X-ray spectra. Just introduced are the Currera cameras, a self-sufficient complete intelligent vision system. A highly integrated Atom based PC with a camera (a variety of sensors are available) has been designed into a very small form factor. Added to this is a choice of preinstalled operating systems and IP libraries.

Ximea GmbH · Hafenweg 22, 48155 Münster Germany,
Tel.: +49 (251) 590 686 10, Fax: +49 (251) 1445736, info@ximea.com, www.ximea.com OB-7

Producer

X-Rite Europe GmbH · Althardstr. 70, 8105 Regensdorf, Switzerland,
Tel.: +41 44 842 24 00, Fax: +41 44 842 22 22, info-germany@xrite.com, www.xrite.com ZH-5

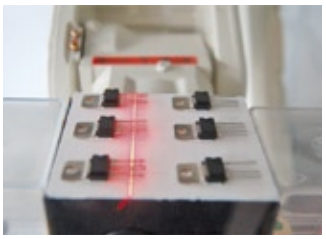
Machine Builder/OEM

Yxlon International GmbH · Im Bahlbrink 11-13, 30827 Garbsen, Germany,
Tel.: +49 5131 7098 0, Fax: +49 5131 7098 80, yxlon@han.yxlon.com, www.yxlon.com H-3

Producer

We are THE laser provider for innovative customer applications in the following sectors:

- Vision/3DMeasurement/Surface Inspection
- Biophotonics/Medical
- Laser projection for positioning applicationsOur vast number of laser projections is used as structured light in combination with various camera systems in image processing for triangulation measurement.The intelligent mechanics, electronics and optics of our products allow us to be very flexible with all requirements.



Z-LASER

Z-Laser Optoelektronik GmbH
Merzhauser Str. 134
79100 Freiburg
Germany
Tel.: +49 761 2964444
Fax: +49 761 2964444
info@zlaser.de
www.zlaser.com
FR-4

Integrator, Solution Provider

Zertrox GmbH & Co. KG · Bachstr. 62-64, 52066 Aachen, Germany,
Tel.: +49 241 9977 164, Fax: +49 241 9977 165, info@zertrox.de, www.zertrox.de BN-2

Producer

ZygoLOT GmbH · Im Tiefen See 58, 64293 Darmstadt, Germany,
Tel.: +49 6151 8806 27, Fax: +49 6151 8806 27, info@zygolot.de, www.zygolot.de DA-10

About Silicon Software GmbH

Silicon Software is one of the international technology leaders with innovative product lines for a broad range of applications and service provider for customized adaptations.

The company produces off-the-shelf products as well as customized OEM solutions. Base products are the series of intelligent image acquisition and processing boards, supporting PCI, PCI Express with Camera Link as well as GigabitEthernet. Advantage of this technology is the programmability of the on-board vision processors allowing to realize a broad field of real-time applications. Silicon Software delivers acquisition applets with sophisticated pre-processing functionality as well as SmartApplets with partial application solutions with its products.

Further focus is the VisualApplets product line. The graphical software tool dramatically eases the programming of vision processor hardware. Even software programmers and application engineers will be able to implement demanded and time-critical applications on FPGA hardware in a few minutes.

SILICONSOFTWARE

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Steubenstrasse 46
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Germany
Tel.: +49 621 789 507 0
Fax: +49 621 789 507 10
info@silicon-software.de
www.silicon-software.de

See our ad on page 19

MA-5

Management
Dr. Ralf Lay, CEO
Dr. Klaus-Henning Noffz, CEO

Foundation
1997

Staff
11-50

Products
Frame Grabber, Software, Other

Applications
Character Recognition, Digitalization, High Speed Analysis, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Metrology 2D, Metrology 3D, Part Identifikation, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Symbol Recognition, Others

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics, Other

Associations
AIA, EMVA, VDMA, Other

Regions served
Africa, Asia, Australia, Central Europe, China, EMEA, Europe, Japan, Latin America, North America, national

About Stemmer Imaging

Stemmer Imaging is Europe's largest imaging technology and service provider with subsidiaries in Germany, United Kingdom, France and Switzerland. Our customers have access to a wide variety of imaging products from the world's leading manufacturers who provide cutting edge vision technology across all product segments. In addition, Stemmer Imaging are the developers of the world's leading independent, modular programming library for imaging applications, Common Vision Blox (see www.commonvisionblox.com), and also manufacture application-specific products to enable complex solutions to be realised easily.

This broad range of components and solutions, plus our experience of more than 30 years in imaging and our comprehensive support by a staff of more than 130 employees with a high percentage of engineers allows us to offer you everything you need to solve your imaging task. **Stemmer Imaging – Imaging is our passion!**

STEMMER IMAGING

See our ad on page 15

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82178 Puchheim
Germany
Tel.: +49 89 80902 0
Fax: +49 89 80902 116
info@stemmer-imaging.de
www.stemmer-imaging.com

M-28

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United Kingdom
Tel.: +44 1252 780000
Fax: +44 1252 780001
info@stemmer-imaging.co.uk

Stemmer Imaging S.A.S.
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Tel.: +33 1 45069560
Fax: +33 1 40991188
info@stemmer-imaging.fr

Stemmer Imaging AG
Switzerland
Tel.: +41 55 4159090
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info@stemmer-imaging.ch

Foundation
1987

Staff
101-250

Products
Cameras, Consulting, Frame Grabber, Interfaces/Cables/Peripherals, Lighting Equipment, Optics, Processors, R&D, Smart Cameras/Embedded Systems, Software, Vision Sensors

Applications
Character Recognition, Digitalization, High Speed Analysis, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Metrology 2D, Metrology 3D, Part Identification, Particle Analysis, Robot Vision 2D, Robot Vision 3D, Symbol Recognition, Thermography, Others

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics, Other

Associations
AIA, EMVA, UKIVA, VDMA

Regions served
Asia, Europe, North America, national

About SVS-Vistek

SVS-Vistek is a innovative manufacturer of industrial cameras, a reliable supplier of components for machine vision purposes and a specialist for highly integrated imaging systems and solutions.

Founded in 1987 SVS-Vistek has more than 20 years of comprehensive experience in the machine vision market. Since 1999 the company has been developing and manufacturing its own digital cameras. 100% of SVS-Vistek's cameras are designed and manufactured near Munich in Seefeld, Germany. SVS-Vistek offers global sales and support through a worldwide network of highly skilled partners.

SVS-VISTEK

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Mühlbachstr. 20
82229 Seefeld
Germany
Tel.: +49 8152 9985 0
Fax: +49 8152 9985 79
info@svs-vistek.com
www.svs.vistek.com

M-29

Management
Ulf Weißer, President
Walter Denk, President
Andreas Schaarschmidt, President

Foundation
1987

Staff
11-50

Products
Cameras, Consulting, Frame Grabber, Integration Services, Interfaces/Cables/Peripherals, Lighting Equipment, Optics, Software, Turn-key Systems, Vision Sensors

Applications
Character Recognition, High Speed Analysis, Inspection Piece Parts, Metrology 2D, Part Identification, Robot Vision 2D, Symbol Recognition, Others

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics

Associations
AIA, EMVA, VDMA

Regions served
Asia, Central Europe, China, EMEA, Europe, Japan, Latin America, North America, national

Companies represented
Euresys S.A., Microscan, Moritex Schott, PerkinElmer, PixeLink

About Volpi AG

Volpi develops and produces fiber optic and optoelectronic systems and equipment. The two Volpi plants are situated in the center of the major European and American economic zones. In its target markets Life Science (Diagnostics, Bio-Pharma), Medical Technology, Machine Vision and Industrial Endoscopy Volpi is the strategic partner for sophisticated OEM components, high-quality standard products and private label solution.

Core Competencies: Optics, Fiber Optics, Optoelectronics, Light Emitters, High-Power LED, Thermal Management, Engineering, Contract Manufacturing

Products & Services: OEM custom illumination systems, LED illumination systems, fiber optics lighting components, LED light sources, light-lines, coaxial illumination systems, infrared illumination, lightguides, industrial endoscopes, non destructive testing (NDT), light modules, subsystems, micro endoscopes, fiber bundle endoscopes, private label products.

Volpi – Light is vision.

Light is Vision.

Volpi AG
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Fax: +41 4473 243 44
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www.volpi.ch

ZH-6

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Thomas Trachsler, Director Sales & Marketing
Thomas Baumann, CFO
Dr. Scott Kittelberger, COO Volpi USA
Reinhard Jenny, CTO
Jan Hauser, Head of R&D

Foundation
1953

Staff
51-100

Products
Lighting Equipment, Optical Instruments

Applications
Character Recognition, Inspection Piece Parts, Inspection Webbed Material, Material Testing, Metrology 2D, Part Identifikation, Particle Analysis, Symbol Recognition

Industries served
Automotive and Suppliers, Electronics/Semiconductors, Energy/Water/Solar Technology, Foodstuffs/Beverages, Glass/Ceramics, Mechanical Engineering/Line Building, Medical Technology, Metal, Packaging, Paper/Wood, Pharmaceuticals/Cosmetics/Chemicals, Plastics, Precision Engineering/Optics/Machine Vision, Traffic/Logistics, Other

Associations
AIA, EMVA, Other

Regions served
Central Europe, Europe, North America


Reykjavik
ICELAND
NORWA
NO
Oslo
Edinburgh
Belfast
DENMARK
DK
Dublin
IRELAND
Manchester
Liverpool
Odense
UNITED
KINGDOM
Cardiff
UK
London
Amsterdam
NL
NETHERLANDS
BE
Brussels
BELGIUM
GERMANY
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Frankfurt
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Munich
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Besançon
SWITZERLAN
FL
Bern
LIECHTENSTEIN
Bordeaux
Lyon
Milan
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Venice
Montelimar
Verona
Porto
SPAIN
Monaco
PORTUGAL
ANDORRA
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Girona
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Gävle
Helsinki
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Tallinn
Stockholm
ESTONIA
SE
Göteborg
Riga
LATVIA
Soeborg
Copenhagen
LITHUANIA
Vilnius
Minsk
Rostock
Gdynia
BELARUS
Warsaw
Berlin
Poznan
POLAND
Kiev
Katowice
Prague
Krakow
UKRAINE
Luhansk
CZECH REPUBLIC
SLOVAKIA
Vienna
Bratislava
MOLDOVA
AUSTRIA
Budapest
Chisinau
Cluj-Napoca
Graz
HUNGARY
SI
Ljubljana
ROMANIA
SLOVENIA
Zagreb
Bucharest
CROATIA
BOSNIA AND HERZEGOVINA
Zagreb
SERBIA
Sarajevo
BG
BULGARIA
Podgorica
Sofia
MONTENEGRO
Skopje
Rome
Tirana
MACEDONIA
Istanbul
Thessaloniki
ALBANIA
GREECE
TURKEY
TR
Athens

Producer

Active Silicon specialises in the design, manufacture and supply of digital imaging products and custom vision systems. Frame grabbers include the Phoenix, LFG and Snapper boards in PCI Express, COM Express, PCI, PMC, cPCI and PCI/104Express form factors with support for Windows, DOS, Mac, OS X, Linux, QNX and VxWorks platforms. These provide acquisition solutions for a wide range of applications supporting analogue, CoaXPress, LVDS, HDSDI and Camera Link (including PoCL) cameras.

Active Silicon Ltd · Pinewood Mews, Bond Close, SL0 0NA Iver, United Kingdom, Tel.: +44 1753 650600, Fax: +44 1753 651661, info@activesilicon.com, www.activesilicon.com UK-1

Producer

Adimec designs and manufactures highperformance industrial cameras for equipment manufacturers worldwide with demanding machine vision, medical, or military applications whose goal is to be a product leader in their market. The Netherlandsbased Holding company has business offices in Europe, the United States, Japan, and Singapore. Adimec cameras use high quality CCD and CMOS sensor technologies and support a range of interfaces such as CameraLink, GigE, CoaXPress, LVDS, HDSDI, DVI or custom.

Adimec · Luchthavenweg 91, 5657 EA Eindhoven, Netherlands, Tel.: +31 40 2353900, SalesEU@adimec.com, www.adimec.com NL-1

Solution Provider

Alliance Vision · 7 avenue du Meyrol, 26270 Montelimar, France, Tel.: +33 4 75 53 14 00, Fax: +33 4 75 53 14 04, infos@alliancevision.com, www.alliancevision.com F-1

Producer

AnaFocus is specialized in the design and production of custom highspeed, highperformance CMOS camera systems onchip (camera SoC) and vision systems onchip (VSoC) for industrial, surveillance, scientific, and medical applications. Additionally, AnaFocus develops and commercializes a catalogue of standard products consisting of highperformance CMOS singlechip solutions for imaging and vision.

AnaFocus · Avda. Isaac Newton, 4, 7th floor, attic, 41092 Seville, Spain, Tel.: +34954081273, Fax: +34954081242, rafael.romay@anafocus.com, www.anafocus.com E-1

Producer

Andor Technology · 7 Millenium Way, BT12 7AL Belfast, United Kingdom, Tel.: + 800 9027 0899, marketing@andor.com, www.andor.com UK-2

Distributor, Solution Provider

Applied Scintillation Technologies · 8 Roydonbury Industrial Estate, CM19 5BZ Harlow, United Kingdom, Tel.: +44 1279 641234, Fax: +44 1279 413, sales@appscintech.com, www.appscintech.com UK-3

Producer, Solution Provider

Aqsense develops and commercializes 3D software libraries and FPGA IP blocks for 3D cameras. Emphasizing in laser triangulation Aqsense's customized applications and engineering solutions are supported with training and seminars. Feasibility studies for 3D integration include the evaluation of cameras, lasers and hardware configuration.

Aqsense S.L. · C/ Pic de Peguera, 17003 Girona, Spain, Tel.: +34 972 183 215, Fax: +34 972 487 487, info@aqsense.com, www.aqsense.com/ E-2

Solution Provider

Awaiba LDA is a design house of CMOS image sensors for specific applications. Awaiba, develops image sensors for industrial inspection, medical endoscopes, high speed video systems and automotive on board cameras.Furthermore Awaiba offers consulting and development services for optics and packaging.

Awaiba · Madeira Tecnopolo, 9020105 Funchal, Madeira, Portugal, Tel.: +351291723124, Fax: +351291723174, info@awaiba.com, www.awaiba.com P-1

Distributor

Baumer has established itself as the leading company for vision technologies. Its wide range of digital cameras, vision sensors and further image processing products with cuttingedge technologies provides high quality for industrial, scientific and medical applications. Next to vision products Baumer is known as the premier innovator for precision sensors, motion control, identification solutions, gluing systems and process instrumentation for the automation market.

Baumer

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Via Resistenza 1
20090 AssagoMI
Italy
Tel.: +39 0 245706065
Fax: +39 0 245706211
sales.it@baumer.com
www.baumer.com
I-1

Producer

Bentham Instruments Ltd · 2 Boulton Road, RG2 0NH Reading, United Kingdom, Tel.: +44 118 975 1355, Fax: +44 118 931 2971, sales@bentham.co.uk, www.bentham.co.uk UK-4

Producer

CCS Lighting Solution, the world's highest standard of LED Lighting Technology, let our expertise work for you!

CCS
CREATIVE CUSTOMER SATISFACTION

CCS Europe
Bergensesteenweg 423 B13
1600 SintPietersLeeuw
Belgium
Tel.: +32 2 333 00 80
Fax: +32 2 333 00 81
info@ccseu.com
www.ccsgrp.com
BE-1

Producer

Crometic enforces machine vision and industrial automation by making topnotch technology accessible and widespread. Crometic designed our own custom and highperformance CMOS sensors without compromising on quality, noise and saturation.

CROMETiC
INNOVATING VISION

Crometic
Via JuliusDurst Str. 98
39042 Bressanone/Brixen
Italy
Tel.: +39 0472 273 730
Fax: +39 0472 273 790
info@crometic.com
www.crometic.com

I-2

Association

The EMVA has more than 122 members representing 23 nations. Its aim is to promote the development and use of machine vision technology and to support the interests of its members – machine vision companies, research institutions and national machine vision associations.
EMVA focuses on standardization, statistics, the annual EMVA Business Conference and other networking events, public relations and marketing.

emva
european machine vision association

EMVA –
European Machine Vision Association
Lyoner Str. 18
60528 Frankfurt, Germany
Tel.: +49 69 6603 1466
Fax: +49 69 6603 2466
info@emva.org
www.emva.org

G-1

Producer

CMOSIS nv · Amerikalei 163, 2000 Antwerpen, Belgium,
Tel.: +32 32 168610, Fax: +32 32 572129, info@cmosis.com, www.cmosis.com

BE-2

Distributor

CSI · 7 Meadowfield Park South, NE43 7QA Stocksfield, United Kingdom,
Tel.: +44 1661 842 741, Fax: +44 1661 842 741, GilScott@csi1.co.uk,

UK-5

Distributor, Producer, Solution Provider

Deben UK Limited · Brickfields Business Park, IP30 9QS Woolpit, Bury St. EdmundsSuffolk, United Kingdom, Tel.: +44 1359 244870, info@deben.co.uk, www.deben.co.uk

UK-6

Solution Provider

Digital Surf · 6 rue Lavoisier, 5000 Besançon, France,
Tel.: +33 3 81 50 48 00, Fax: +33 3 81 50 92 24, contact@digitalsurf.fr, www.digitalsurf.com

F-2

Producer

e2v is designer and manufacturer of high tech electronic components and subsystems including semiconductors, sensors and electronic tubes.e2v supplies high performance CCD and CMOS imaging sensors and cameras for a broad range of demanding applications, operating across the electromagnetic spectrum from Xrays, through ultraviolet and visible light to infrared.Delivered to standard or highly customized designs, our sensors serve space, astronomy, dental, scientific, medical and industrial markets.

e2v · Avenue de Rochepleine, BP123 3852 Saint Egreve Cedex, France,
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F-3

Integrator

We are the well known company around in Turkey as a Hi Tech vision system designer with robot integration

e3tam · B.Bulv 177d2, 34394 Istanbul, Turkey,
Tel.: +90 212 2752280, Fax: +90 212 2732319, inform@e3tam.com, www.e3tam.com

TR-1

Producer

Euresys is a major player in the field of machine vision and videosurveillance, developing and marketing highperformance products and services for image acquisition and computer vision. Euresys offers a complete range of robust and powerful image analysis tools for industrial machine vision applications; as well as innovative and high-performance image acquisition subsystems for highend videosurveillance and industrial machine vision applications.

EURESYS
Excellence in vision

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Belgium
Tel.: +32 43 677288
Fax: +32 43 677466
info@euresys.com
www.euresys.com

BE-3

Solution Provider

FDS Research develops realtime machine vision systems, proprietary software solutions and design and build turnkey vision system. These systems are in majority applied to car and automotive industry. Our solutions are applied worldwide and control several million pieces of different products daily. FDS applications are based on common FDS Imaging Software platform. These kinds of solutions offer customers easier support, quick adjustment, improvement, and application optimization.

FDS Research, d.o.o. · Suhadolcânova 28, 1231 Ljubljana?Crnu?ce Slovenia,
Tel.: +386 1 589 75 81, Fax: +386 1 589 75 87, info@fdsresearch.si, www.fdsresearch.si

SLO-1

Producer

Global Laser Ltd · Cwmtillery Industrial Estate, NP131LZ AbertilleryGwent, United Kingdom,
Tel.: +44 1495 212213, Fax: +44 1495 214004, sales@globallasertech.com, www.globallasertech.com

UK-7

Solution Provider

Icos Vision Systems · Industriepark Haasrode zone 1 Esperantolaan 8, 3001 Heverlee, Belgium,
Tel.: +32 16 398 220, Fax: +32 16 400.067, info@icos.be, www.icos.be

BE-4

Distributor

Infaimon is a company centered in machine vision, image analysis business and surveillance market and leader in the Spanish, Portuguese, Mexican and Latin America markets. We have a complete range of vision products.

Infaimon, S.L. · Vergós, 55, 8017 Barcelona Spain,
Tel.: +34 93 252 5757, Fax: +34 93 252 5758, infaimon@infaimon.com, www.infaimon.com E-3

Producer, Solution Provider

InRay Solutions Ltd. · 125 Tzarigradsko shosse blvd., block 2, room 510, 1113 Sofia, Bulgaria,
Tel.: +359 2 971 5751, Fax: +359 2 971 4796, inrays@inrays.com, www.inrays.com BG-1

Producer

JAI is a global manufacturer of digital cameras for machine vision, traffic imaging, global security solutions, medical imaging and scientific research. Besides a broad range of 1CCD interlaced/progressive area scan cameras, JAI is a leading provider of innovative multiimager cameras incorporating advanced prismblock technology, including 3CCD RGB area scan cameras, 2CCD multispectral cameras plus a complete family of 3CCD, 3CMOS and 4CCD color line scan cameras. JAI's product program includes cameras for visible, UV and NIR imaging, with color and monochrome sensors and GigE Vision/Camera Link interfaces.With more than 45 years in the industry, JAI is today renowned as a vision partner offering high quality and reliable camera technology with superior image fidelity supported by a dedicated worldwide customer support team.

See the possibilities

JAI A/S
Valby Torvegade 17, 1st floor
2500 Valby
Denmark
Tel.: +45 4457 8888
Fax: +45 4491 3252
camerasales.emea@jai.com
www.jai.com DK-1

Integrator, Solution Provider

JasVisio - Vision Artificial · Olivera, 3, 25286 Olius, Spain,
Tel.: +34 973 100 602, info@jasvisio.com, www.jasvisio.com E-4

Solution Provider

JLI vision a/s · Poppelgaardvej 7-9, 2860 Soeborg, Denmark,
Tel.: +45 39 66 08 09, Fax: +45 39 56 08 12, info@jli.dk, www.jli.dk DK-2

Distributor

Lambda Photometrics Ltd. · Lambda House, Batford Mill, AL5 5BZ Harpenden, United Kingdom,
Tel.: +44 1582 764334, Fax: +44 1582 712084, adrian@lambdaphoto.co.uk, www.lambdaphoto.co.uk UK-8

Producer

Lambert Instruments · Oosteinde 16, 9301 ZP Roden, Netherlands, Tel.: +31- 50 5018461,
Fax: +31- 50 5010034, info@lambert-instruments.com, www.lambert-instruments.com NL-2

Producer

Laser Quantum Ltd · Emery Court, SK4 3GL Stockport, United Kingdom, Tel.: +44 161 975 5300,
Fax: +44 161 975 5309, info@laserquantum.com, www.laserquantum.com UK-9

Producer

LAT elektronik AB is a Swedish company who develops and produces LED illumination for machine vision applications. More than 3,000 standard products and a wide range of controllers (manual, analog, RS-232, Ethernet) ensure that LAT AB is able to offer suitable products for all applications. Short delivery times, high quality and the ability to match customer demands by custom lighting developments are fundamental reasons to focus on LED lighting from LAT AB. Worldwide partners assure local service and assistance.

LATAB
Industrial LED Lighting

LAT elektronik AB
Krossgatan 18
16250 Vällingby
Sweden
Tel.: +46 87049225
Fax: +46 856432006
info@latab.se
www.latab.se SE-1

Distributor

Molenaar Optics VOF · P.O. Box 2, 3700 AA Zeist, Netherlands,
Tel.: +31 30 6951038, Fax: +31 30 6961348, info@molenaar-optics.nl, www.molenaar-optics.com NL-3

Producer

NTI · 32 Route de Seichebrieres, 45530 Vitry aux Loges, France,
Tel.: +33 238 593 051, Fax: +33 238 593 097, info@nti-measure.com, www.nti-measure.com F-4

Producer

Opto Engineering designs and manufactures optical systems for imaging, metrology, sensors, projection and lasers.

Opto Engineering Srl · via Cremona, 29/2, 46100 Mantova, Italy, Tel.: +39 0376 263525,
Fax: +39 0376 262432, info@optoengineering.com, www.optoengineering.com I-3

Integrator, Solution Provider

OptoFidelity Ltd. specializes in machine vision and optical measurement technology. With our solutions, we help our customers to shorten their research and development process.Our measurement systems are directed for the research and development of electronics industry and testing laboratories. The systems are used for testing and analyzing the user experience, quality of video image and displays as well as different characteristics of displays.

OptoFidelity Oy · Hemiankati 8 D, 33729 Tampere, Finland,
Tel.: 358407749259, sales@optofidelity.com, www.optofidelity.com FI-1

Producer, Solution Provider

Omron is a globally operating company in the automation technology sector. In addition to stateoftheart control, drive, safety and sensor technology, a main field of activity are image processing solutions for machine building and plant construction. As one of the world market leaders in industrial sensor technology, Omron has over 40 years experience in this sector.

Omron Europe B.V.
Wegalaan 6769
2132 JD Hoofddorp
Netherlands
Tel.: +31 23 568 13 00
Fax: +31 23 568 13 88
info@eu.omron.com
www.industrial.omron.eu

NL-4

Producer

For over 60 years now, Optics Balzers has been the preferred partner for innovative optical solutions. Together with its affiliated company in Jena, Optics Balzers is one of the global leaders in the supply of optical coatings and components. The Liechtensteinbased hightech company focuses on selected markets such as Sensors & Imaging, Biophotonics, Space & Defence, Lighting & Projection and Industrial Applications. The products and services that it offers range from optical thinfilm coatings, glass processing, patterning and sealing technologies to optical subassemblies, and are acknowledged as being unique worldwide.

Optics Balzers AG
Neugrüt 35
9496 Balzers
Liechtenstein
Tel.: +423 388 9200
Fax: +423 388 9390
info@opticsbalzers.com
www.opticsbalzers.com

LI-1

Distributor

Parameter AB, with over 20 years in the business, is the largest Machine Vision distributor and represents the market leaders in cameras, frame grabbers, lenses, illumination and software for Machine Vision in the Nordic and Baltic countries, Poland and Iceland.We offer consultative services and training to your Machine Vision professionals.Our customers are also market leaders in many different branches, such as paper, wood, bio medicine, electronics, food and manufacturing.

Parameter AB · Sandhamnsgatan 63C, 102 52 Stockholm Sweden,
Tel.: +46 855511000, michael.cohn@parameter.se, www.parameter.se

S-2

Distributor, Producer

Photonic Products Ltd · Sparrow Lane, Hatfield Broad Oak CM22 7BA, United Kingdom,
Tel.: +44 1279 717 170, Fax: +44 1279 717 171, sales@photonic-products.com, www.photonic-products.com

UK-10

Producer

Photron (Europe) Ltd · The Barn, Bottom Road, West Wycombe, Bucks, HP14 4BS, United Kingdom,
Tel.: +44 1494 481011, Fax: +44 1494 487011, ahilton@photron.com, www.photron.com

UK-11

Producer

SKS Vision Systems OY · P.O. Box 353, 40101 Jyväskylä, Finland,
Tel.: +358 20 764 8960, Fax: +358 20 764 8999, sales@visionsystems.fi, www.visionsystems.fi

FI-2

Producer

SPC Company b.v. · Vimmerik 28, 5253 CB Nieuwkuijk, Netherlands,
Tel.: +31 73 5131 188, Fax: +31 73 5131 189, sales@spccompany.nl, www.spccompany.nl

NL-5

Distributor

Special Application Products Ltd · Unit 5 Manor Farm Business Centre, Ipswich IP9 2TD, UK,
Tel.: +44 1473 327 732, Fax: +44 8701 400 163, sales@sapltd.co.uk, www.sapltd.co.uk

UK-12

Producer

STIL · 595 rue Pierre Berthier - Domaine Saint Hilaire, 13855 Aix-en-Provence, France,
Tel.: +33 4 42 39 66 51, contact@stilsa.com, www.stilsa.com

F-5

Producer

Sony Europe's Image Sensing Solutions division has an in-depth range of industry leading analog and digital component cameras and image sensing products. Sony ISS continues to expand its popular IEEE1394b camera series with his first CMOS Global Shutter industrial Camera: the revolutionary XCD-MV6 punches way above its weight, which is just 37 g. Less than two-thirds the size of the cubic, the new Micro Camera is a marvel of miniaturization and perfect for machine downsizing.
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www.pro.sony.eu/vision
UK-13

Producer

Sundance Multiprocessor Technology Ltd · "Ciltern House", HP5 1PS WatersideChesham, UK,
Tel.: +44 1494 793167, Fax: +44 1494 793168, DVIP@Sundance.com, www.sundance.com
UK-14

Producer

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Tattile Srl · Via Gaetano Donizetti 135, 25030 Mairano (BS), Italy,
Tel.: +39 030 97000, Fax: +39 030 97001,sales@tattile.com, www.tattile.com
I-4

Producer

Tordivel AS · Storgata 20, 184 Oslo, Norway,
Tel.: +47 2315 870 0, Fax: +47 2315 870 1, office@toridvel.no, www.scorpionvision.com
NO-1

Producer

TriVision · Havnegade 23, 5000 Odense, Denmark,
Tel.: +45 28353135, Fax: +45 63154709, korsgaard@trivision.dk, www.trivision.dk
DK-3

Producer

TVI's 3CCD Cameras

TVI Vision · Asentajankatu 3, 880 Helsinki, Finland,
Tel.: +358 207 579 518, Fax: +358 207 579 519, www.tvivision.com
FI-3

Integrator, Solution Provider

Machine Vision Systems supplier to OEM's and end users. Specialist in Inspection systems for PV solar cells, closures for bottles and liquid containers, Baby diapers.

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I-5

Machine Builder/OEM

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DK-4

Distributor, Producer

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NL-6

Distributor

Visionlink srl · Via Marco Polo 22, 20038 Seregno, Italy,
Tel.: 3,90363E+11, info@visionlink.it, www.visionlink.it
I-6

Distributor, Integrator, Solution Provider

We are a systems integrator with over 25 years of experience in building custom machine vision systems.

Vistek Machine Vision and Automation AS · Kemal Nehrozoglu caddesi, 41480 Kocaeli, Turkey,
Tel.: +90 262 6788 902, Fax: +90 262 6788 906, info@vistekas.com, www.vistekas.com
TR-2

Producer, Research Facility, Solution Provider

Xenics is the leading developer of innovative infrared detection solutions for a wide range of applications. Xenics designs, manufactures and sells infrared detectors and cameras, both linescan and 2D, covering the infrared wavelength ranges from 0.4 to 14 micrometers. In addition, Xenics delivers custom products according to the agreed specification and planning.

Xenics · Ambachtenlaan 44, 3001 Leuven, Belgium,
Tel.: +32 16 38 99 00, sales@xenics.com, www.xenics.com
BE-5


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Machine Builder/OEM

AGR International, Inc. · 615 Whitestown Road, 16001 ButlerPA, United States of America, Tel.: +1 724 482 2163, sales@agrintl.com, www.agrintl.com PA-1

Producer

Allison Park Group, Inc. · 4055 Alpha Drive, 15101 Allison ParkPA, United States of America, Tel.: +1 412 487 8211, Fax: +1 412 486 3157, sales@apgvision.com, www.apgvision.com PA-2

Machine Builder/OEM

Altair Industries, Inc. · 217 Racquette Drive, #5, 80524 Fort CollinsCO, United States of America, Tel.: +970 217 1623, altair.industries@comcast.net, www.altairindustriesinc.com CO-1

Producer, Solution Provider

Asylum Research · 6310 Hollister Ave., 93117 Santa BarbaraCA, United States of America, Tel.: +1 805 696 6466, Fax: +1 805 696 6444, sales@asylumresearch.com, www.AsylumResearch.com CA-1

Distributor

Baumer has established itself as the leading company for vision technologies. Its wide range of digital cameras, vision sensors and further image processing products with cuttingedge technologies provides high quality for industrial, scientific and medical applications. Next to vision products Baumer is known as the premier innovator for precision sensors, motion control, identification solutions, gluing systems and process instrumentation for the automation market.

Baumer

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6489 SouthingtonCT
United States of America
Tel.: +1 8606212121
Fax: +1 8606286280
sales.us@baumer.com
www.baumer.com
CT-1

Distributor

Bock Optronics Inc. · 14 Steinway Blvd., Suite 7, M9W 6M6 TorontoON, Canada, Tel.: 416-674-2804, Fax: 416-674-1827, sales@bockoptronics.ca, www.bockoptronics.ca ON-1

Solution Provider

Cimetrix Inc. · 6979 S. High Tech Drive, Salt Lake City, UT 84047, United States of America, Tel.: +1 801 256 6500, Fax: +1 801 256 6510, sales@cimetrix.com, www.cimetrix.com UT-1

Producer

Coherent Canada · 275 Kesmark, H9B3J1 MontrealQC, Canada, Tel.: +1 514 685 1005, lasers@stockeryale.com, www.coherent.com QC-1

Research Facility, Solution Provider

Coherix, Inc. · 3980 Ranchero Drive, 48108-2775 Ann ArborMI, United States of America, Tel.: +1 734 922 40, Fax: +1 734 761 9193, rons@coherix.com, www.coherix.com MI-1

Producer

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Producer

Computer Dynamics · 7640 Pelham Road, Greenville, SC 29615, United States of America, Tel.: +1 864 627 8800, Fax: +1 864 675 0106, CDIsales@gefanuc.com, www.cdynamics.com SC-1

Producer

CyberOptics Semiconductor, Inc. · 13555 SW Millikan Way, Beaverton, OR 97005, United States of America, Tel.: +1 503 495 2200, Fax: +1 503 495 2201, csinfo@cyberoptics.com, www.imagenation.com OR-1

Producer

Comprising Dalsa's Digital Imaging division offers Machine Vision components to OEMs and end users – the widest range of machine vision components in the world. From industryleading image sensors through powerful and sophisticated cameras, frame grabbers, vision processors and software to easytouse vision appliances and custom vision modules, our innovative technology helps give you competitive advantage in your imaging application, whatever it may be.

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Distributor

Digital West Imaging · 450 Mountain View Road, El Cajon, CA 92021, United States of America, Tel.: +1 866 593 1900, Fax: +1 966 593 1901, sales@DigitalWestImaging.com, www.DigitalWestimaging.com CA-2

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Directed Perception · 890C Cowan Road, Burlingame, CA 94010, United States of America, Tel.: +1 650 692 3900, Fax: +1 650 692 3930, sales@dperception.com, www.DPerception.com CA-3

Solution Provider

Dunkley International Inc. · 1910 Lake St., Kalamazoo, MI 49001, United States of America, Tel.: +1 269 343 5583, Fax: +1 269 343 5614, ekenneway@dunkleyintl.com, www.dunkleymachinevision.com MI-2

Producer

Epix, Inc. · 381 Lexington Drive, Buffalo Grove, IL 60089-6934, United States of America, Tel.: +1 847 465 1818, Fax: +1 847 465 1919, epix@epixinc.com, www.epixinc.com IL-2

Producer

FastVision · 131 D.W. Highway #529, 3060 NashuaNH, United States of America, Tel.: +1 603 891 4317, Fax: +1 603 891 1881, sales@fast-vision.com, www.fast-vision.com NH-1

Producer

Fiberoptics Technology · 1 Quassett Road, Pomfret, CT 06258, United States of America, Tel.: +1 860 928 0443, Fax: +1 860 928 7664, sgiamundo@fiberoptix.com, www.fiberoptix.com CT-2

Producer

FJW Optical Systems, Inc. · 322 N Woodwork Ln, Palatine, IL 60067-4933, United States of America, Tel.: +1 847 358 2500, Fax: +1 847 358 2533, irsales@findrscope.com, www.findrscope.com IL-3

Integrator, Solution Provider

FSI Technologies Inc. · 668 Western Ave., 60148 LombardIL, United States of America, Tel.: +1 630 932 9380, Fax: +1 630 932 0016, info@fsinet.com, www.fsinet.com IL-4

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Gevicam Inc. · 673 S. Milipitas Blvd, Milpitas, CA 95035, United States of America, Tel.: +1 408 262 5772, Fax: +1 408 262 0962, info@gevicam.com, www.gevicam.com CA-4

Producer

Manufacturer of standard and custom camera cable assemblies include CameraLink, Mini Camera Link, FireWire, USB, GigE and other analog and digital cable assemblies. Highflex and industrial grade cable assemblies are available for robotic and other high flex applications. Additional products include bulk cable, power supplies, and fiber optic extenders.

Intercon 1 · 7746 Goedderz Rd., Ste 110, 56425 Buxter, MN, United States of America, Tel.: +1 2188283157, Fax: +1 218 828 1096, intercon@nortechsys.com, www.intercon1.com MN-1

Producer

Lambda Research Corporation · 25 Porter Road, 01460-1434 LittletonMA, United States of America, Tel.: +1 978 486 0766, Fax: +1 978 486 0755, sales@lambdares.com, www.lambdares.com MA-1

Distributor

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Producer

Lincoln Laser Company · 234 East Mohave, Phoenix, AZ 85004, United States of America, Tel.: +1 602 257 0407, Fax: +1 602 257 0728, bcmcgrath@lincolnlaser.com, www.lincolnlaser.com AZ-1

Producer, Solution Provider

LMI Technologies Inc. specializes in leading edge machine vision technologies. Founded in 1976, LMI developed much of the 3D machine vision industry, accumulating more than 100 patents. LMI is recognized for designing and manufacturing sensors for specific vertical market applications under the Sensors That See brand. LMI also provides custom design services to help our customers design and build unique machine vision and robotic solutions.

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Producer

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Producer

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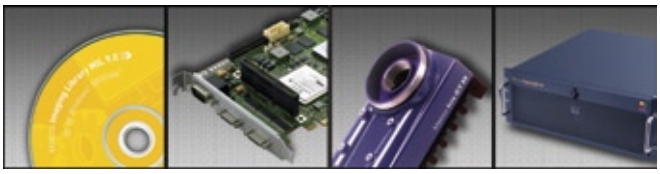
Producer



Established in 1976, Matrox Imaging is a leading developer of componentlevel solutions for machine vision, image analysis, medical imaging, and video surveillance. Products include frame grabbers, vision processors, imaging computers, industrial and smart cameras, and application development software.

MATROX IMAGING

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Canada
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imaging.info@matrox.com
www.matroximaging.com
QC-2

Producer

Metaphase Technologies, Inc. · 3412 Progress Drive (unit C), Bensalem, PA 19020, United States of America, Tel.: +1 215 639 8699, Fax: +1 215 639 0977, info@metaphase-tech.com, www.metaphase-tech.com PA-3

Producer

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Distributor, Integrator, Solution Provider

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Producer, Solution Provider

Navitar · 200 Commerce Drive, 14623 RochesterNY, United States of America, Tel.: +1 585 359 4000, Fax: +1 585 359 4999, info@navitar.com, www.navitar.com NY-2

Producer

Newnex creates long distance connection solutions for machine vision and inspection applications through fiber, CHTS and Coax Cables for 1344 GigE and USB 2.0 etc. Newnex also manufactures high flex, angled, locking and custom design cables.

Newnex Technology Corp. · 1231 Alderwood Ave., Sennysale, CA 94089 United States of America, Tel.: +1 408 749 1480, Fax: +1 408 749 1963, information@newnex.com, www.newnex.com CA-5

Producer

StreamPix digital video is recording software for single or multiple cameras simultaneously. Includes support for a wide variety of Firewire A or B, USB 2, GigE and CameraLink cameras and frame grabbers using original vendor API's. Supports time stamping, synchronization between multiple cameras, bayer conversion, IrigB and data acquisition. Compatible with various compression codecs and 3D Lut. Acquire at up to 500 fps x 1,280 x 1,024 8 bits to disk from a single or two cameras. NorPix also provides turnkey systems including software, hardware, triggering and Irigb timing.

NORPIX digital video recording software

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H3KIG6 Montreal, QC
Canada
Tel.: +1 514 846 0009
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sales@norpix.com
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QC-3

Other

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Solution Provider

Optel Vision · 2680, boul. du Parc Technologique, G1P 4S6 Quebec CityQC, Canada, Tel.: 1-418-688-334, Fax: 1-418-6889397, info@optelvision.com, www.optelvision.com QC-4

Producer

Optical Research Associates · 3280 E Foothill Blvd Ste 300, 91107 PasadenaCA, United States of America, Tel.: +1 626 795 9101, Fax: +1 626 795 9102, info@opticalres.com, www.opticalres.com CA-5

Integrator

Orus Integration Inc · 1109 Hwy 13, H7W 5J8 LavalQC, Canada, Tel.: +1 450 688-3151, Fax: +1 514 221-2026, ldicaire@orusintegration.com, orusintegration.com QC-5

Producer

PixeLINK · 3030 Conroy, K1G 6C2 OttawaON, Canada, Tel.: +1 613 247 1211, sales@pixelink.com, www.pixelink.com ON-4

Producer

Pleora Technologies Inc. is a global supplier of Ethernet video connectivity products for the broadcast, medical, machine vision and security/surveillance industries. Pleora ás awardwinning iPort and EtherCast product families transport imaging and video data in real time over lowcost Ethernet Connections with extremely high performance. Pleora, a Frost and Sullivan Product Innovation Awardwinner, is headquartered in Ottawa, Canada.

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Producer

Point Grey Research, Inc. is a worldwide leader in the development of advanced digital camera technology products for machine vision, industrial imaging, and computer vision applications. Based in Richmond, BC, Canada, Point Grey designs, manufactures and distributes IEEE1394 (FireWire), USB 2.0, Gigabit Ethernet, and Camera Link cameras that are known for their excellent quality, performance, and ease of use. A broad range of hardware, software and mechanical engineering skills has allowed Point Grey to successfully bring many innovative and groundbreaking products to market. This drive for innovation has led to many industry firsts, including the first and smallest 1394b digital camera.

POINT GREY

Point Grey Research, Inc.
12051 Riverside Way
V6W 1K7 RichmondBC
Canada
Tel.: +1 604 2429937
Fax: +1 604 2429938
info@ptgrey.com
www.ptgrey.com
BC-1

Producer

Power Technology, Inc. · PO Box 191117, 72219-1117 Little RockArkansas, United States of America, Tel.: +1 501 407-0712, Fax: +1 501 407-0036, sales@powertechnology.com, www.powertechnology.com — AR-1

Producer

PPT VISION · 6301 Old Shakopee Road, 55438 BloomingtonMN, United States of America, Tel.: +1 952 996 9500, Fax: +1 952 996 9501, sales@pptvision.com, pptvision.com — MN-2

Solution Provider

Pressco Technology Inc. · 29200 Aurora Road, 44139 ClevelandOH, United States of America, Tel.: +1 440 498 2600, Sales@pressco.com, www.pressco.com — OH-1

Producer

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sales@prophotonix.com
www.prophotonix.com
NH-3

Producer

Rad-icon Imaging Corporation · 888 East Arques Avenue, 94085 SunnyvaleCA, United States of America, Tel.: +1 408 736 6000, sales@rad-icon.com, www.rad-icon.com — CA-6

Producer

SensorDesk, Inc. · 30 Merion Pl., 8648 LawrencevilleNJ, United States of America, Tel.: +1 609 642 1377, Fax: +1 609 964 1928, voigt@SensorDesk.com, www.SensorDesk.com — NJ-1

Producer

Servo-Robot Inc. · 1370 Hocquart, J3V 6E1 St-BrunoQC, Canada, Tel.: +1 450 653-7868, Fax: +1 450 653-7869, sales@servorobot.com, www.servorobot.com — QC-6

Producer

Smart Vision Lights · 1800 Holton Rd Suite D 353, 49445 MuskegonMI, United States of America, Tel.: 1-231-722-1199, Fax: 1-231-722-9922, bobby@smartvisionlights.com, www.smartvisionlights.com — MI-3

Producer

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MI-4

Solution Provider

SPG Data 3D Corporation · 2151 Leonard de Vinci, Ste-Julie, Quebec J3E 1Z3, Canada, Tel.: +1 450 922 3515, Fax: +1 450 922 3510, sales@spgdata3d.com, www.spgdata3d.com — QC-7

Producer

Sunex, Inc. · 5963 La Place Court, Suite 3092, Carlsbad, CA 92008, United States of America, Tel.: +1 760 602 0988, Fax: +1 760 602 0681, sales@sunex.com, www.sunex.com — CA-7

Producer

Tekstar Optical Inc. · 270 Kohr Rd., Kings Park, NY 11754-1237, United States of America, Tel.: +1 631 663 3558, Fax: +1 631 269 5368, info@tekstaroptical.com, www.tekstaroptical.com — NY-3

Solution Provider

TYZX, Inc. · 3715 Haven Avenue, Suite 110, 94025 Menlo ParkCA, United States of America, Tel.: +1 650.906.8434, info@tyzx.com, www.tyzx.com — CA-8

Distributor, Integrator

Vega Technology Group · PO Box 80526, 44708 CantonOH, United States of America, Tel.: +1 330 754 2506, Fax: +1 330 754 2507, admin@vegatcgroup.com, www.vegatcgroup.com — OH-2

Integrator, Solution Provider

Vision Machines Inc. · PO Box 447, 1730 BedfordMA, United States of America, Tel.: +1 781 275 2020, Fax: +1 781 275 2028, info@vision-machines.com, www.vision-machines.com — MA-2

Producer

Vision Research · 100 Dey Rd., 7470 WayneNJ, United States of America, Tel.: +1 973 696 4500, Fax: +1 973 696 0560, phantomn@visionresearch.com, www.visionresearch.com — NJ-2

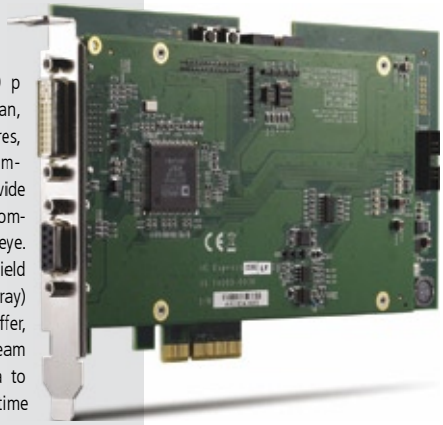
Producer

Vizzion, Inc. · 321 Sasamat Lane, V7G 2S4 North VancouverBC, Canada, Tel.: +1 604 985 3358, info@vizzion.com, www.vizzion.com/development — BC-2

Machine Builder/OEM

Xiris Automation Inc. · 1016 Sutton Drive, Unit C5, L7L 6B8 BurlingtonON, Canada, Tel.: +1 905 331 6660, Fax: +1 905 331 6661, sales@xiris.com, www.xiris.com — ON-6

New 1080p High-definition Frame Grabber



Adlink's HDV62, a full high-definition frame grabber, delivers uncompressed images acquisition and video streaming. With 1,920 x 1,080 p resolution, progressive scan, and noise reduction features, HDV62 achieves greater image quality, as well as a wide aspect ratio that is more comfortable to the human eye. Equipped with an FPGA (Field Programmable Gate Array) and 512 MB memory buffer, the HDV62 is able to stream image of a specified area to the host PC, and real-time hardware color space conversion to offload repetitive tasks from the host CPU.

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ADLINK TECHNOLOGY INC.

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D-8

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Jenoptik Imaging Modules

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Featuring CCD or CMOS imagers with resolutions ranging from 0.45 up to 12.5 mega pixel Jenoptik board level cameras suit any need. They are obtainable with cooling optionally and come with either USB or FireWire interface.

For applications requiring high sensitivity, a dedicated range of scientific grade CCD imaging modules features low-noise electronics, thus providing broad dynamic range and superior image quality. By implementing these high performance imaging components into customized solution, system integrators will benefit from Jenoptik's broad know-how in professional image processing.

The SDK is included in the scope of delivery and is available for WIN, MAC or Linux. Of course easy integration is possible using enclosed Labview drivers or an ActiveX control.

JENOPTIK

Jenoptik Optical Systems GmbH
Goeschwitzer Strasse 25
07745 Jena
Germany
Tel.: +49 3641 65 3083
Fax: +49 3641 65 2144
digitalimaging.os@jenoptik.com
www.jenoptik.com/digitalimaging

J-8

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High Power LED Directive Light – A Must-have for Professionals

The XBar is a high power LED illumination with a wide range of different wavelengths.

With its robust housing the XBar is ideal for applications in demanding industrial environments.

The XBar lights can be used as replacement for halogen or fluorescence lights. They can bridge effortless large distances and illuminate broader areas as they are common with Pick'n'Place applications in robotic systems. The necessary work volumes can not be covered with conventional machine vision illumination systems. The popular fluorescence lamps often require a housing of the complete robot cell and require due to the short life span frequent maintenance.

The maintenance can be reduced, due to the LED technology, down to a one time installation over the life time of the system. With the high illumination power combined with a band pass filter housing can be eliminated.

XBar systems are similar well suited to set up the classical illumination techniques of machine vision like dark field, bright field, top light and backlight for larger inspection items, like car tires or drink crates..

LASER 2000 The Future of Photonics

Laser 2000 GmbH
Argelsrieder Feld 14
82234 Wessling
Germany
Tel.: +49 8153 405 0
Fax: +49 8153 405 33
contact@laser2000.de
www.laser2000.de

M-30

See our profile on page 38

Distributor

Adept Electronic Solutions · Level 1, 15 Drake St, 6017 Osborne ParkWA, Australia,
Tel.: +61 892425411, adept@adept.net.au, www.adept.net.au

AUS-1

Producer

Alditech · Institutskaya, 142290 Pushchino, Russia,
Tel.: +7(4967)736220, web@alditech.ru, www.alditech.ru

RUS-1

Distributor

Baumer has established itself as the leading company for vision technologies. Its wide range of digital cameras, vision sensors and further image processing products with cuttingedge technologies provides high quality for industrial, scientific and medical applications. Next to vision products Baumer is known as the premier innovator for precision sensors, motion control, identification solutions, gluing systems and process instrumentation for the automation market.

Baumer

Baumer (China) Co., Ltd.
Building 30, 2nd Floor, Section A, Minyi Road 201,
Songjiang District
201612 Shanghai, China
Tel.: +86 2167687095
Fax: +86 2167687098
sales.cn@baumer.com
www.baumer.com

CN-1

Distributor, Solution Provider

G4 Technology Co., Ltd. · 5F, No. 46, Sec. 3, Minquan E. Rd, Taipei 104-77, Taiwan,
Tel.: +886 2 2503 1803, Fax: +886 2 2503 1802, ken@g4.com.tw, www.g4.com.tw

RC-1

Producer, Solution Provider

Gidel was founded in 1993 as a highend system development and integration company. With our projectlevel approach, we created several powerful and advanced tools for highperformance system development. In 1997 we began providing our inhouse development systems to the industry.

Gidel provides machine vision components utilizing FPGA technology for Frame Grabbers, Image Processing, Hardware Accelerations for Algorithms and Camera/Machine Simulators.

Gidel Ltd. · 2 Ha'ilan St. P.O.Box 281, 30600 Or Akiva Israel,
Tel.: +972 4 610 2500, Fax: +972 4 610 2501, sales_eu@gidel.com, www.gidel.com

IL-1

Producer

Goyo Optical Inc · 3-8-31 Hamazaki, 351-0033 Asaka-Saitama, Japan,
Tel.: +81-48-474-2235, info@goyooptical.com, www.goyooptical.com

J-1

Producer

Toshiba Teli Corporation develops and manufactures CMOS and CCD cameras for machine vision, industrial automation, inspection, measurement, robotics, 3D, pick and place, AOI & medical imaging. The product assortment includes Gigabit, Firewire, PoCL, Cameralink, Linescan, analog, RS170 (EIA), CCIR, near infrared, remote head cameras, minicube and HD CMOS cameras using CCD and CMOS sensors up to 12 megapixel. Toshiba Teli Corporation also manufactures OEM cameras and HD LCD Monitors for the medical industry. Please visit our website to request more information or a demonstration of our products including our 12 MP 4K x 3K resolution camera running a full 25FPS and our new Full HD CMOS 60FPS.

Toshiba Teli Corporation
471 Asahigaoka
1910065 HinoTokyo
Japan
Tel.: +81 425 89 8771
Fax: +81 425 89 8774
hkiyama@toshibateli.co.jp
www.toshibateli.co.jp
J-4

Association

Japan Industrial Imaging Association · 2-10-15, Nakameguro, Yamate Ave. K Bldg., 153-0061 MeguroTokyo, Japan, Tel.: +81 3 3716 3933, Fax: +81 3 3716 3933, info@jiia.org, www.jiia.org
J-2

Producer

Kamiera · 6A Massada St., 45294 Hod Hasharon, Israel,
Tel.: +972 9 7603425, Fax: +972 9 7421622, info@kamiera.com, www.kamiera.com
IL-2

Producer

NED (Nippon Electro-Sensory Devices Ltd) · Shinagawa-ku, Ohi 1-45-2 Gibraltar Ohi Bldg, 4f, 140-0014 Tokyo, Japan, Tel.: 81-80-4010-2684, d.phillip@ned-sensor.com, www.ned-sensor.co.jp/
J-3

Integrator

View-Factor · Av Circunvalacion, Cochabamba, Bolivia,
Tel.: +591 4 445 4595, agalindo@view-factor.com, www.view-factor.com
BOL-1

Cameras & Image S

ABS
www.abs-jena.de

Adimec
www.adimec.com

Aicon 3D Systems
www.aicon.de

AIM Infrarot Module
www.aim-ir.de

AKE-Components
www.ake-components.de

Allied Vision Technologies
www.alliedvisiontec.com

Allison Park Group
www.apgvision.com

Alrad Imaging
www.alrad.co.uk

AMS Technologies
www.ams.de

AnaFocus
www.anafocus.com

Andanta
www.andanta.de

Andor Technology
www.andor.com

AOS Technologies
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Applied Scintillation Technologies
www.appscintech.com

Artray
www.artray.co.jp

Asentics
www.asentics.de

Automation Technology
www.automationtechnology.de

Awaiba
www.awaiba.com

BAP Image Systems
www.bapis.de

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumer.com

Beijing Microview
www.microview.com.cn

BFI Optilas
www.bfioptilas.com

Bock Optronics
www.bockoptronics.ca

Canesta
www.canesta.com

C-Cam Technologies
www.c-cam.be

China Daheng Group
www.daheng-image.com

Chromasens
www.chromasens.de

Cmos Vision
www.cmosvision.com

CMOSIS
www.cmosis.com

Cognex
www.cognex.com

Cohu
www.cohu-cameras.com

Compar
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Computer BV
www.computerbv.de

Cosyco
www.cosyco.de

Crometic
www.crometic.com

CSEM
www.csem.ch

Cypress Semiconductor
www.cypress.com

Dalsa
www.dalsa.com

Data Vision
www.datvision.com

Datalogic Automation
www.automation.datalogic.com

Dedo Weigert
www.dedoweigertfilm.de

Devitech
www.devitech.dk

Digital West Imaging
www.DigitalWestimaging.com

e2v
www.e2v.com

Eastman Kodak
www.kodak.com/go/imagers

ebs Automatisierte Thermographie und Systemtechnik
www.irpod.net

Edmund Optics
www.edmundoptics.de

EHD imaging
www.ehd.de

Eltec Elektronik
www.eltec.com

Eltrotec Sensor
www.eltrotec.com

Entner Electronics
www.entner-electronics.com

Epix
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Erhard + Leimer
www.erhardt-leimer.com

Eureca Messtechnik
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Euresys
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Fabrimex Systems
www.fabrimex-systems.ch

Fairchild Imaging
www.fairchildimaging.com

Fastec Imaging
www.fastecimaging.com

FiberVision
www.fibervision.de

FJW Optical Systems
www.findrscope.com

Flir Systems
www.flir.com

Fluke
www.fluke.de

Framos
www.framos.eu

Fraunhofer IMS
www.ims.fraunhofer.de

FSI Technologies
www.fsinet.com

ensors

Fuzhou Feihua Optoelectronic Technology
www.fzfh.com

G4 Technology
www.g4.com.tw

Gevicam
www.gevicam.com

Goodrich/SUI
www.sensorsinc.com

Goratec
www.goratec.de

gsvitec
www.gsvitec.com

Hamamatsu Photonics
www.hamamatsu.com

Helion
www.helionvision.com

HGV Vosseler
www.hgv.de

High Speed Vision
www.hsvision.de

Hitachi Kokusai Electric Europe
www.Hitachi-keu.com

Horn Imaging
www.horn-imaging.de

Ico Data
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IDS
www.ids-imaging.com

Ikegami
www.ikegami.de

Illunis
www.illunis.com

Image House
www.imagehouse.dk

Image S
www.imagessrl.com

Imaging Solutions Group
www.isgchips.com

Imi Technology
www.imi-tech.com

Impac Infrared
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Imperx
www.imperx.com

IMS Chips
www.ims-chips.de

Industrial Vision Systems
www.industrialvision.co.uk

Infaimon
www.infaimon.com

InfraTec
www.infratec.de

Insensiv
www.insensiv.de

IOS
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Ircam
www.ircam.de

IS Imaging Solutions
www.imaging-solutions.de

JAI
www.jai.com

Japan F.A. Systems Corporation
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JenCam
www.jencam.de

Jenoptik Optical
www.jenoptik.com/os

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Kamiera
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Kappa opto-electronics
www.kappa.de

Karlheinz Hinze Opto-engineering
www.hinze-opto.de

KeeKoon Electronics
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Klughammer
www.klughammer.de

Kvant
www.kvant.sk

Lambda Photometrics
www.lambdaphoto.co.uk

Lambert Instruments
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Leitner Industrial Endoscopy
www.leitner-efer.de

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LMI Technologies
www.lmitechnologies.com

Lord Ingenierie
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Lumenera
www.lumenera.com

Luster LightVision Tech
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msiVision
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NAC
www.nacinc.de

Narragansett Imaging
www.nimaging.com

National Instruments
www.ni.com

NED
www.ned-sensor.co.jp

NET
www.net-gmbh.com

NeuPro Solutions
www.neupro-solutions.com

NTI
www.nti-measure.com

OBE Ohnmacht & Baumgärtner
www.trevista.net

Odem Technologies
www.odem.co.il

Olympus
www.olympus-europa.com

Omron
www.industrial.omron.de

Opto Fidelity
www.optofidelity.com

Opto Sonderbedarf
www.opto.de

Optrima
www.optrima.com

Optris
www.optris.de

Optronis
www.optronis.com

Orbis
www.orbis.eu

Panasonic Electric Works
www.panasonic-electric-works.de

Parameter
www.parameter.se

PCO
www.pco.de

Pentacon
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PerkinElmer Optoelectronics
www.perkinelmer.com

Philips
www.apptech.philips.com/vision

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Rubroeder
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Salvador Imaging
www.salvadorimaging.com

Schael-Optik
www.schael-optik-ltd.com

Schäfter + Kirchhoff
www.sukhamburg.de

Schmachtl
www.schmachtl.at

SDT - Dr. Seitner
www.sdt-seitner.com

Second2None
www.visiondragon.com

Secube
www.secube.co.kr

Sedeco Vision Components
www.sedeco.nl

Seiwa Optical
www.seiwaopt.co.jp

Sensor to Image
www.sensor-to-image.de

Sentech
www.sentech.co.jp

Sharp Microelectronics
www.sharpsme.com

SKS Vision Systems
www.visionsystems.fi

Slomotec
www.slomotec.de

Smartray
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Softhard Technology
www.softhard.com

Soliton Technologies
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Sony
www.sonybiz.net/vision

Stemmer Imaging
www.stemmer-imaging.com

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

Sugitoh
www.sugitoh.jp

SVS Vistek
www.svs-vistek.com

SVSI
www.southernvisionsystems.com

Symco
www.symco.co.jp

Tattile
www.tattile.com

Tekno Optik
www.teknooptik.se

Tekstar Optical
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The Imaging Source
www.theimagingnsource.com

Thermosensorik
www.thermosensorik.de

Tichawa Vision
www.tichawa.de

Toshiba
www.toshiba.ch

Toshiba Teli
www.toshiba-teli.co.jp

TriDiCam GmbH
www.TriDiCam.de

TVI Vision
www.tvivision.com

Unibrain
www.unibrain.com

VDS Vosskühler
www.vdsvossk.de

Vega Technology Group
www.vegatcgroup.com

Vialux
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Videology Imaging Solutions
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Videor Technical
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ViDiSys
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visicontrol
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Visiolaser
www.vannier-photelec.fr/visiolaser

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Vision Components
www.vision-components.com

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Visionlink srl
www.visionlink.it

Vistas
www.vistas-gmbh.de

Vistek
www.vistekas.com

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ViZaar
www.vizaar.de

VKT
www.vkt.de

VRmagic
www.vrmagic.com

Weiss Imaging and Solutions
www.weiss-imaging.de

Werner Nophut
www.dsam.de

Xenics
www.xenics.com

Ximea GmbH
www.ximea.com

Zertrox
www.zertrox.de

Consulting, Marketing, Education & Other Services

A.I.D.A. IMVG
www.associazionevisione-imvg.it

AIA Automated Imaging Association
www.machinevisiononline.org

AIDO
www.aido.es

Alfavision
www.alfavision.de

AMC
www.amc-hofmann.com

Arvoo Imaging Products
www.arvoo.com

AS Thermographie
www.as-thermografie.de

Asentics
www.asentics.de

Austrian Research Centers
www.smart-systems.at

Awaiba
www.awaiba.com

Carl Zeiss 3D Metrology Services
www.zeiss3d.de

CMES - Chinese Mechanical Engineering Society
www.cmes.org

Cmos Vision
www.cmosvision.com

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www.cmosis.com

Cognex
www.cognex.com

Collischon Optik-Design
www.mikro-optik.de

CSEM
www.csem.ch

CTMV
www.ctmv.de

Datapixel
www.datapixel.com

de Man Industrie-Automation
www.deman.de

Delta Digital Video
www.delta.dk

Digital West Imaging
www.DigitalWestimaging.com

Duwe 3D
www.duwe-3d.de

EMVA European Machine Vision Association
www.emva.org

Entner Electronics
www.entner-electronics.com

Erhard + Leimer
www.erhardt-leimer.com

Farbmessung Schröder
www.farbmessung.com

FiberVision
www.fibervision.de

Framos
www.framos.eu

Fraunhofer Allianz Vision
www.vision.fraunhofer.de

Fritz Pauker Ingenieure
www.pauker-ingenieure.de

G4 Technology
www.g4.com.tw

GBS
www.gbs-ilmenau.de

GFaI
www.gfai.de

GIT Verlag
www.gitverlag.com

Graphikon
www.graphikon.de

HGV Vosseler
www.hgv.de

IAI Imaging Association of India
www.iaionline.org

IDS
www.ids-imaging.com

Imaging Lab
www.imaginglab.it

Impuls
www.impuls-imaging.com

INB Vision
www.inb-vision.com

Infaimon
www.infaimon.com

InRay Solutions
www.inrays.com

IS Imaging Solutions
www.imaging-solutions.de

IVAN
www.feda.nl

Jansen C.E.O.
www.jansen-ceo.com

JIIA Japan Industrial Imaging Association
www.jiia.org

Joanneum Research
www.joanneum.at

Kappa opto-electronics
www.kappa.de

Landesmesse Stuttgart
www.vision-fair.de

Lincoln Laser Company
www.lincolnlaser.com

Messe München
www.messe-muenchen.de

msiVision
www.msivision.com

Neurocheck
www.neurocheck.com

Frame Grab

NTI
www.nti-measure.com

OBE Ohnmacht & Baumgärtner
www.trevista.net

Omron
www.industrial.omron.de

Optical Research Associates
www.opticalres.com

Opto Fidelity
www.optofidelity.com

Opto Sonderbedarf
www.opto.de

P.E. Schall
www.schall-messen.de

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Polytec
www.polytec.com

Rubroeder
www.rubroeder.de

Sensor to Image
www.sensor-to-image.de

SmartSurv
www.smartsurv.de

Solving3D
www.solving3d.de

SPG Data 3D
www.spgdata3d.com

Stemmer Imaging
www.stemmer-imaging.com

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

Supercomputing Systems
www.scs-vision.ch

SVS Vistek
www.svs-vistek.com

Symop
www.symop.com

UKIVA
www.ukiva.org

University of Applied Scienes
www.fbmn.h-da.de

Univision
www.univision.it

Van de Loosdrecht Machine Vision
www.vdlmv.nl

VDMA Industrielle Bildverarbeitung
www.vdma.org/vision

Vega Technology Group
www.vegatcgroup.com

Vision & Control
www.vision-control.com

Vision Academy
www.vision-academy.org

Vision Club of Finland
www.automaatioseura.fi

Vision Machines
www.vision-machines.com

Vision N
www.vision-n.de

Vision Tools
www.vision-tools.com

Visionlink
www.visionlink.it

Vistek
www.vistekas.com

Vitronic
www.vitronic.com

VMT
www.vmt-gmbh.com

wenglor sensoric
www.wenglor.com

Zertrox
www.zertrox.de

Active Silicon
www.activesilicon.com

Adlink
www.adlinktech.eu

Alacron
www.alacron.com

Alrad Imaging
www.alrad.co.uk

Arvoo Imaging Products
www.arvoo.com

Baumer
www.baumer.com

Beijing Microview
www.microview.com.cn

BitFlow
www.bitflow.com

Bock Optronics
www.bockoptronics.ca

China Daheng Group
www.daheng-image.com

Cognex
www.cognex.com

Computer BV
www.computerbv.de

Cosyco
www.cosyco.de

Cyberoptics Semiconductor
www.imagenation.com

Dalsa
www.dalsa.com

Data Vision
www.datvision.com

EHD imaging
www.ehd.de

Ellips
www.ellips.nl

Eltec Elektronik
www.eltec.com

Epix
www.epixinc.com

Fabrimex Systems
www.fabrimex-systems.ch

Fast
www.fast-corp.co.jp

Framos
www.framos.eu

G4 Technology
www.g4.com.tw

Gidel
www.gidel.com

HaSoTec
www.hasotec.com

HGV Vosseler
www.hgv.de

IDS
www.ids-imaging.com

Image House
www.imagehouse.dk

Image S
www.imagessrl.com

Imaging Solutions Group
www.isgchips.com

Imperx
www.imperx.com

Infaimon
www.infaimon.com

IS Imaging Solutions
www.imaging-solutions.de

Isra Vision
www.isravision.com

Japan F.A. Systems Corporation
www.jfas.co.jp

Jenoptik Optical Systems
www.jenoptik.com/os

Karlheinz Hinze Opto-engineering
www.hinze-opto.de

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Kvant
www.kvant.sk

Lambda Photometrics
www.lambdaphoto.co.uk

Leutron Vision
www.leutron.com

Luster LightVision Tech
www.lusterinc.com

Matrix Vision
www.matrix-vision.de

Matrox Imaging
www.matrox.com/imaging

MaxxVision
www.maxxvision.com

Menzel Vision and Robotics
www.menzelab.com

Microsystems
www.microsystems.it

Mikrotron
www.mikrotron.de

msiVision
www.msivision.com

National Instruments
www.ni.com

Odem Technologies
www.odem.co.il

Orbis
www.orbis.eu

Parameter
www.parameter.se

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Polytec
www.polytec.com

Qualimatest
www.qmt.ch

Rauscher
www.rauscher.de

Schael-Optik
www.schael-optik-ltd.com

Schmachtl
www.schmachtl.at

Second2None
www.visiondragon.com

Seldes
www.seldes.com

Sensor to Image
www.sensor-to-image.de

Silicon Software
www.silicon-software.de

Stemmer Imaging
www.stemmer-imaging.com

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

Sundance Multiprocessor Technology
www.sundance.com

SVS Vistek
www.svs-vistek.com

Symco
www.symco.co.jp

The Imaging Source
www.theimagingnsource.com

Videology Imaging Solutions
www.videologyinc.com

ViDiSys
www.vidisys.de

Vision Tools
www.vision-tools.com

Visionlink srl
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Vistek
www.vistekas.com

Weiss Imaging and Solutions
www.weiss-imaging.de

Laser Diode Module

InViso is an innovative range of diode based laser modules designed to meet the demanding requirements of high thermal performance machine vision applications at wavelengths ranging from the UV to the infrared and power levels up to 100 mW. Focused on customer needs rather than constraint-driven development approaches, the resulting product contains a robust feature set allowing faster system integration with a high degree of repeatability.
Among the many applications benefiting from InViso are high-speed sorting and classification systems as well as automated inspection in the semiconductor, food & beverage, solar, mining, and pharmaceutical industries.

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New PL-C Camera Offers Smaller Cameras for Demanding Industrial Applications

The PL-C series cameras use 33% less camera hardware than existing PixeLink offerings and are 38% to 45% smaller than cameras from PixeLink's existing professional camera line, the PL-B series. The new PL-C series of cameras offers industrial customers a high-end, lightweight professional camera. With the PL-C, customers get the same professional capabilities of our PL-A and PL-B series, but in a smaller, more versatile package using a Firewire 1394b interface. The PL-C series is ideal for use in biometric, parts inspection and metrology applications, to name a few. Available in color and monochrome versions and offer 1.3, 2.0, 4.0, 5.0 and 12 Megapixel camera versions.
As with all PixeLink cameras, PL-C series cameras can be combined with the acclaimed PixeLink Software Developer's Kit (SDK) to streamline and simplify the integration of the camera into machine vision applications.

PixeLINK

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Fax: +1 613 247 200
info@pixelink.com
www.pixellink.com

ON-4

Illum & Lighting Sys

ABW
www.abw-3d.de

Advanced Illumiation
www.advancedillumination.com

Allison Park Group
www.apgvision.com

Alrad Imaging
www.alrad.co.uk

Balluf
www.balluf.de

Baumer
www.baumer.com

BFI Optilas
www.bfioptilas.com

Bock Optronics
www.bockoptronics.ca

Büchner Lichtsysteme
www.buechner-lichtsysteme.de

Cavitar
www.cavitar.com

CCS Europe
www.ccs-grp.com

Ceres Vision
www.ceresvision.de

Chromasens
www.chromasens.de

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www.cognex.com

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www.coherent.com

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www.dcmsistemes.com

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www.dedoweigertfilm.de

Digital West Imaging
www.DigitalWestimaging.com

Edmund Optics
www.edmundoptics.de

Erhard + Leimer
www.erhardt-leimer.com

Fabrimex Systems
www.fabrimex-systems.ch

Falcon LED Lighting
www.falcon-lighting.de

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www.faseroptik-henning.de

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www.fibervision.de

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www.finger-kg.de

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Frankfurt Laser Company
www.frlaser.com

FSI Technologies
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G4 Technology
www.g4.com.tw

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www.gardasoft.com

Global Laser
www.global-lasertech.co.jp

GPP Chemnitz
www.gppc.de

Hamamatsu Photonics
www.hamamatsu.com

Helmut Hund
www.hund.de

Hema
www.hema.de

Herbert Waldmann
www.waldmann.com

HGV Vosseler
www.hgv.de

IB/E Optics
www.ibe-optics.com

iiM
www.iimag.de

ILEE
www.ilee.ch

Image House
www.imagehouse.dk

Image S
www.imagessrl.com

Infaimon
www.infaimon.com

Insensiv
www.insensiv.de

IS Imaging Solutions
www.imaging-solutions.de

Japan F.A. Systems
www.jfas.co.jp

Jenoptik Optical Systems
www.jenoptik.com/os

Jos. Schneider Optische Werke
www.schneiderindustrialoptics.com

Karlheinz Hinze Optoengineering
www.hinze-opto.de

Keyence
www.keyence.de

Klughammer
www.klughammer.de

Kvant
www.kvant.sk

Lambda Photometrics
www.lambdaphoto.co.uk

Laser 2000
www.laser2000.de

Laser Components
www.lasercomponents.com

LAT elektronik
www.latab.se

LDD Trading Associates
www.LDDLIGHT.com

Leitner Industrial Endoscopy
www.leitner-efer.de

LEJ Leistungselektronik Jena
www.lej.de

Leutron Vision
www.leutron.com

LMI Technologies
www.lmitechnologies.com

LOT Oriel
www.lot-oriel.com

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www.lusterinc.com

Matrix Vision
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www.metaphase-tech.com

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www.microscan.com

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www.mikrovision.de

Moritex
www.moritex.com

msiVision
www.msivision.com

MTD
www.mtd-light.com

Myutron
www.myutron.com

NET
www.net-gmbh.com

NeuPro Solutions
www.neupro-solutions.com

OBE Ohnmacht & Baumgärtner
www.trevista.net

Odem Technologies
www.odem.co.il

Olympus
www.olympus-europa.com

Omicron Laserage
www.omicron-laser.de

Omron
www.industrial.omron.de

Opto Engineering
www.opto-engineering.com

Opto Precision
www.optoprecision.de

Opto Sonderbedarf
www.opto.de

Optometron
www.optometron.de

OptoPolymer
www.optopolymer.de

Orbis
www.orbis.eu

Parameter
www.parameter.se

PerkinElmer Optoelectronics
www.perkinelmer.com

Phaer
www.phaer.be

Phlox
www.phlox-gc.com

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Planistar Lichttechnik
www.planistar.de

POG Präzisionsoptik Gera
www.pog.eu

Polytec
www.polytec.com

Power Technology
www.powertechnology.com

Profactor
www.profactor.at

Qualimatest
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Rauscher
www.rauscher.de

RH Engineering
www.rhengineering.de

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www.schael-optik-ltd.com

Schäfter + Kirchhoff
www.sukhamburg.de

Schmachtl
www.schmachtl.at

Schott AG Lighting and Imaging
www.schott.com

Second2None
www.visiondragon.com

Sedeco Vision Components
www.sedeco.nl

Seiwa Optical
www.seiwaopt.co.jp

Sharp Microelectronics
www.sharpsme.com

Sill Optics
www.silloptics.de

Smart Vision Lights
www.smartvisionlights.com

Soliton Technologies
www.solitontech.com

Special Application Products
www.sapltd.co.uk

Spectrum Illumination
www.spectrumillumination.com

Stemmer Imaging
www.stemmer-imaging.com

StockerYale
www.stockeryale.com

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

SVS Vistek
www.svs-vistek.com

Symco
www.symco.co.jp

tecin
www.tecin.de

Tekno Optik
www.teknooptik.se

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www.temavisio.com

The Imaging Source
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Univision
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V Cubed
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www.vialux.de

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www.visicontrol.com

Visiolaser
www.vannier-photelec.fr/visiolaser

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www.vision-control.com

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Carl Zeiss Microimaging
www.zeiss.de/mikro

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www.deben.co.uk

Dr. Heinrich Schneider Messtechnik
www.dr-schneider.de

Edmund Optics
www.edmundoptics.de

EHD Imaging
www.ehd.de

Eltrotec Sensor
www.eltrotec.com

Fei Company
www.fei.com

FRT Fries Research & Technology
www.frt-gmbh.com

G4 Technology
www.g4.com.tw

GE Inspection Technology
www.geinspectiontechnologies.com

Helmut Hund
www.hund.de

Hipp Endoskop Service
www.hipp-endoskopservice.com

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Infinity Photo-Optical
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Jenoptik Optical Systems
www.jenoptik.com/os

Karl Storz
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Karlheinz Hinze Optoengineering
www.hinze-opto.de

Kdorf Automation
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Panasonic
www.pss.panasonic.eu/microcameras

PCE Power Control
www.pce-powercontrol.de

Physik Instrumente
www.pi.ws

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Pro Design Electronic
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Richard Wolf
www.richard-wolf.com

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www.seiwaopt.co.jp

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STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

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Tekno Optik
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Thermosensorik
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Vega Technology Group
www.vegatcgroup.com

Vision Engineering
www.visioneng.de

Visitool
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Volpi
www.volpi.ch

Walter Uhl
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autoVimation
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BAP Image Systems
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Eltrotec Sensor
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Ernst & Engbring GmbH & Co. KG
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Fabrimex Systems
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www.gigalinx.net

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Japan F.A. Systems
www.jfas.co.jp

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Lemo
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Leoni
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LMI Technologies
www.lmitechnologies.com

Luster LightVision Tech
www.lusterinc.com

Mad City Labs
www.madcitylabs.com

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www.matrox.com/imaging

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www.newnex.com

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www.orbis.eu

Parameter
www.parameter.se

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pi4_robotics
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Pleora Technologies
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www.prodesign-europe.com

Schmachtl
www.schmachtl.at

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Seldes
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www.silicon-software.de

Stemmer Imaging
www.stemmer-imaging.com

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

Supercomputing Systems
www.scs-vision.ch

SVS Vistek
www.svs-vistek.com

Symco
www.symco.co.jp

The Imaging Source
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Thinklogical
www.thinklogical.com

Unibrain
www.unibrain.com

ViDiSys
www.vidisys.de

Vision & Control
www.vision-control.com

Vision Tools
www.vision-tools.com

Vistas
www.vistas-gmbh.de

Xilinx
www.xilinx.com

Optic Metrol

3D Alliance
www.3dalliance.de

3D Shape
www.3d-shape.com

Alicona Imaging
www.alicona.com

AMS Technologies
www.ams.de

Andor Technology
www.andor.com

Applied Scintillation Technologies
www.appscintech.com

Armstrong Optical
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Avantes
www.avantes.com

Benteler Maschinenbau
www.benteler.de/maschinenbau

Bentham Instruments
www.bentham.co.uk

Berliner Glas
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www.breitmeier.de

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www.breuckmann.com

BST International
www.bst-international.com

CMC Kuhnke
www.cmc-kuhnke.de

ColorLite
www.colorlite.de

Dantec Dynamics
www.dantecdynamics.com

Datapixel
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Delta Digital Video
www.delta.dk

Digital Surf
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Dr. Heinrich Schneider Messtechnik
www.dr-schneider.de

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www.drwehrhahn.com

Dyoptyka
www.dyoptyka.com

EHD Imaging
www.ehd.de

EVK DI Kerschhaggl
www. evk.biz

Electronic Systems
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ElektroPhysik Dr. Steingroever
www.elektrophysik.com

Eltromat
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Eltrotec Sensor
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Faro
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FJW Optical Systems
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Flir Systems
www.flirthermography.de

FRT Fries Research & Technology
www.frt-gmbh.com

G4 Technology
www.g4.com.tw

GE Sensing & Inspection Technologies
www.gesensinginspection.com

GF Messtechnik
www.gfmesstechnik.de

GOM
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Goratec
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www.heitronics.com

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www.hgv.de

Hipp Endoskop Service
www.hipp-endoskopservice.com

Hommel Etamic
www.hommel-etamic.de

IB/E Optics
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Ico Data
www.icodata.de

iiM
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ILEE
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Imetric
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Isis Optronics
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Isi-sys
www.isi-sys.com

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www.jenoptik.com/os

Kleiber Infrared
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Konica Minolta
www.konicaminolta.eu

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Lambda Photometrics
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www.lamtech.de

Land Instruments
www.landinst.com

LAP
www.lap-laser.com

Laser 2000
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Laser Components
www.lasercomponents.com

Laser Quantum
www.laserquantum.com

LayTec
www.laytec.de

LDV Systeme
www.ldv-systeme.de

Chunghwa Telecommunication Laboratories
www.leadinglight.com.tw

Leica Geosystems
www.leica-geosystems.com/metrology

Leitner Industrial Endoscopy
www.leitner-efer.de

Limess
www.limess.com

LOT Oriel
www.lot-oriel.com

Mahr
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Meta Vision Systems
www.meta-mvs.co.uk

MG Optical Solutions
www.mgopticalsolutions.com

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www.mikropack.de

Mitutoyo
www.mitutoyo.de

Moeller-Wedel Optical
www.moeller-wedel-optical.com

Molenaar Optics
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www.moritex.com

Fraunhofer IFF
www.mpt.iff.fraunhofer.de

m-u-t
www.mut-group.com

Mycrona
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NanoFocus
www.nanofocus.de

Nikon Metrology
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NTI
www.nti-measure.com

nub3d
www.nub3d.com

Odem Technologies
www.odem.co.il

OGP Messtechnik
www.ogpmesstechnik.de

Olympus
www.olympus-europa.com

opsira
www.opsira.de

Optimet Optical Metrology
www.optimet.com

Opto Sonderbedarf
www.opto.de

Opto Fidelity
www.optofidelity.com

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Opto Precision
www.optoprecision.de

Optoprim
www.optoprim.de

OptoSurf
www.optosurf.com

Optris
www.optris.de

Orbis
www.orbis.eu

Oxford Instruments
www.oxford-instruments.com

Parameter
www.parameter.se

Fritz Pauker Ingenieure
www.pauker-ingenieure.de

Pentacon
www.pentacon.de

Perceptron
www.perceptron.com

PerkinElmer Optoelectronics
www.perkinelmer.com

Phaer
www.phaer.be

phoenix|x-ray
www.phoenixxray.com

Phynix
www.phynix.de

pi4_robotics
www.pi4.de

Plasmo Industrietechnik
www.plasmo.eu

Polygon
www.polygon-technology.de

Precitec Optronik
www.precitec-optronik.de

Premosys
www.premosys.com

Princeton Instruments
www.princetoninstruments.com

Proxitronic
www.proxitronic.com

Quest Innovations
www.quest-innovations.com

Raytek
www.raytek.de

Richard Wolf
www.richard-wolf.com

Roper Scientific
www.roperscientific.de

Rudolph Technologies
www.rudolphtech.com

Schäfer Technologie
www.schaefer-tec.com

Jos. Schneider Optische Werke
www.schneiderindustrialoptics.com

SGM Schut
www.schut.com

Tordivel
www.scorpionvision.com

Sensor Instruments
www.sensorinstruments.de

Goodrich/SUI
www.sensorsinc.com

Shape Drive
www.shape-drive.com

Sick
www.sick.com

SIOS Meßtechnik
www.sios.de

Soliton
www.soliton-gmbh.de

Specim Spectral Imaging
www.specim.fi

Steinbichler Optotechnik
www.steinbichler.com

Stiefelmayer
www.stiefelmayer.de

STIL
www.stilsa.com

SynView
www.synview.com

Taylor Hobson
www.taylor-hobson.com

tec5
www.tec5.com

TechnoTeam
www.technoteam.de

Tekno Optik
www.teknooptik.se

Topometric
www.topometric.net

Ulis
www.ulis-ir.com

Visiolaser
www.vannier-photelec.fr/visiolaser

Vialux
www.vialux.de

Videometer
www.videometer.com

Vision Machines
www.vision-machines.com

SKS Vision Systems
www.visionsystems.fi

ViZaar
www.vizaar.de

Volform
www.volform.se

Wente/Thiedig
www.wente-thiedig.de

Werth Messtechnik
www.werthmesstechnik.de

Wild
www.wild.at

Xenics
www.xenics.com

X-Rite
www.xrite.com

Yxlon International
www.yxlon.com

Carl Zeiss IMT
www.zeiss.de

Carl Zeiss Microimaging
www.zeiss.de/mikro

Z-Laser
www.z-laser.com

Zwick
www.zwick.de

ZygoLOT
www.zygolot.de

Optics

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www.alliedvisiontec.com

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www.imagehouse.dk

Image S
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IMT
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Infaimon
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Ircam
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IS Imaging Solutions
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Japan F.A. Systems
www.jfas.co.jp

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www.jenoptik-ps.de

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www.keekoon.com

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LOT Oriel
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Luster LightVision Tech
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Pentax
www.pentax.de

Phaer
www.phaer.be

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pi4_robotics
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POG Präzisionsoptik Gera
www.pog.eu

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Profactor
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Qioptiq
www.qioptiq.com

Qualimatest
www.qmt.ch

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RH Engineering
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www.schael-optik-ltd.com

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www.sukhamburg.de

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www.schmachtl.at

Schott AG Lighting and Imaging
www.schott.com

Second2None
www.visiondragon.com

Sedeco Vision Components
www.sedeco.nl

Seiwa Optical
www.seiwaopt.co.jp

Sill Optics
www.silloptics.de

Space
www.spacecom.co.jp

Spectros
www.spectros.ch

Spectrum Illumination
www.spectrumillumination.com

Stemmer Imaging
www.stemmer-imaging.com

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

Sugitoh
www.sugitoh.jp

Sunex
www.sunex.com

SVS Vistek
www.svs-vistek.com

Symco
www.symco.co.jp

Tamron
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Tekno Optik
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Tekstar Optical
www.tekstaroptical.com

The Imaging Source
www.theimagingnsource.com

Thermosensorik
www.thermosensorik.de

Vega Technology Group
www.vegatcgroup.com

Videology Imaging Solutions
www.videologyinc.com

Videor Technical
www.videor.com

Vision & Control
www.vision-control.com

Vision Light Tech
www.visionlighttech.com

Visionlink
www.visionlink.it

Visitool
www.visitool.de

Volpi
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VS Technology
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Weiss Imaging and Solutions
www.weiss-imaging.de

ZygoLOT
www.zygolot.de

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Alicona Imaging
www.alicona.com

Anafocus
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Austrian Research Centers
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Awaiba
www.awaiba.com

BFI Optilas
www.bfioptilas.com

Breuckmann
www.breuckmann.com

Cmos Vision
www.cmosvision.com

CMOSIS
www.cmosis.com

Cognex
www.cognex.com

Collischon Optik-Design
www.mikro-optik.de

CSEM
www.csem.ch

CTR Carinthian Tech Research
www.ctr.at

Cypress Semiconductor
www.cypress.com

de Man Industrie-Automation
www.deman.de

Delta Digital Video
www.delta.dk

Docter Optics
www.docter-optics.com

Eltec Elektronik
www.eltec.com

Eltrotec Sensor
www.eltrotec.com

Entner Electronics
www.entner-electronics.com

Erhard + Leimer
www.erhardt-leimer.com

FiberVision
www.fibervision.de

Fraunhofer Allianz Vision
www.vision.fraunhofer.de

Fraunhofer IFF
www.mpt.iff.fraunhofer.de

Fraunhofer IMS
www.ims.fraunhofer.de

FRT Fries Research & Technology
www.frt-gmbh.com

GBS
www.gbs-ilmenau.de

Gevicam
www.gevicam.com

GFaI
www.gfai.de

Graphikon
www.graphikon.de

HaSoTec
www.hasotec.com

Helion
www.helionvision.com

HGV Vosseler
www.hgv.de

IDS
www.ids-imaging.com

Imaging Lab
www.imaginglab.it

Impuls
www.impuls-imaging.com

IMS Chips
www.ims-chips.de

Infaimon
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Isomorph
www.isomorph.it

Jenoptik Optical Systems
www.jenoptik.com/os

Joanneum Research
www.joanneum.at

Kamera Werke Dresden
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Leica Geosystems
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Lincoln Laser Company
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LMI Technologies
www.lmitechnologies.com

Matrix Vision
www.matrix-vision.de

MaZet
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Norpix
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Panavision Imaging
www.panavisionimaging.com

PCO
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Sensor to Image
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SmartSurv
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SPG Data 3D
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SPIE
www.spieeurope.org

Stemmer Imaging
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STZ Qualitätssicherung und Bildverarbeitung
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Tema
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Vision & Control
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Vision Machines
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Vision Tools
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Vistek
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Soft ware

a&b software
www.ab-soft.com

ABW
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www.adaptive-vision.com

Alditech
www.alditech.ru

Alfavision
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Alicona Imaging
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Alliance Vision
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Andor Technology
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Digital Surf
www.digitalsurf.com

Duwe 3D
www.duwe-3d.de

Dynalog
www.dynalog-us.com

ebs Automatisierte Thermographie und Systemtechnik
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EHD Imaging
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www.eltec.com

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EVT Eye Vision Techology
www.evt-web.com

Fabrimex Systems
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Fast
www.fast-corp.co.jp

FDS Research
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FiberVision
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Framos
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FSI Technologies
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iiM
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INB Vision
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InRay Solutions
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IS Imaging Solutions
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www.ni.com

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OBE Ohnmacht & Baumgärtner
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Vision Components
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Vision Machines
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Vision N
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Vision Tools
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Visionlink
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Vitronic
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Weiss Imaging and Solutions
www.weiss-imaging.de

Wenzel
www.wenzel-cmm.com

X-Rite
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Zertrox
www.zertrox.de

Vision Sensors, Smart Caméras & Embedded Systems

Active Silicon
www.activesilicon.com

Adaptive Vision
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AIT Göhner
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Alfavision
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EVT Eye Vision Techology
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Hans Turck
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Hema
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ifm Electronic
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Image S
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Imago
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IMR Automatisierungstechnik
www.imr-le.de

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IOSS
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Japan F.A. Systems
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K + P Krempien + Petersen
www.kup-image.de

Kamiera
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www.keyence.de

Kontron
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National Instruments
www.ni.com

NeuPro Solutions
www.neupro-solutions.com

Neuricam
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Norpix
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OBE Ohnmacht & Baumgärtner
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www.scholzsue.de

Phytec Messtechnik
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www.siemens.de/simatic-sensors/mv

SKS Vision Systems
www.visionsystems.fi

Smartray
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Soliton Technologies
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Sony
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Wintriss Engineering
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Ximea
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Vision Systems, Turnkey Solutions, Integration Services

3D Alliance
www.3dalliance.de

3D Shape
www.3d-shape.com

a&a technologies
www.aa-technologies.de

ABB
www.abb.com

Act Smartware
www.act-smartware.de

Adaptive Vision
www.adaptive-vision.com

Adept Electronic Solutions
www.adept.net.au

Adept Technology
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AGR International
www.agrintl.com

AIT Göhner
www.VisionAndID.com

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alfa vision systems
www.alfavisionsystems.com

Alfavision
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Alliance Vision
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Altair Industries
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Applied Vision
www.appliedvision.com

ASB automation technology
www.asb-technologie.de

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ATM Vision
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ATN Automatisierungstechnik
www.atn-gmbh.com

Austrian Research Centers
www.smart-systems.at

Automation Technology
www.automationtechnology.de

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www.automationwr.de

Autoware
www.autoware.it

AVT Advanced Vision Technology
www.avt-inc.com

Balluf
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Bi-Ber
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Ceres Vision
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China Daheng Group
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Faude Automatisierungstechnik
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