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INSPECT

BuyersGuide

- Global Market Trends for Machine Vision
- Comprehensive Supplier Presentation
- Detailed Company Profiles
- Regional Distribution of Vision Vendors

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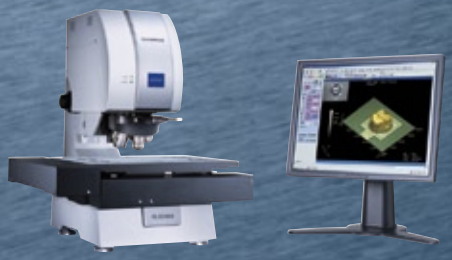

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O L Y M P U S M I C R O S C O P Y

New by INSPECT

This issue of INSPECT brings you, for the first time, the new Buyers Guide, the European reference for components, products, systems and services for machine vision and optical metrology. As the leading European journal for machine vision and optical metrology in industrial applications, we have published this issue in English language.

Starting 2009, INSPECT will be published monthly. With 10 yearly issues (two double issues), we will keep you updated with the latest, detailed information on machine vision, automation, quality assurance and measuring technology in the manufacturing industries. We have also expanded the INSPECT concept to live up to our European and global presence. The monthly print issues will be published in German and an English version of every issue will be distributed as ePaper.

The INSPECT team has been expanded to accommodate the new concept and expansion, and together with the former Editor-in-Chief and now Publishing Director Gabriele Jansen, I have taken on the responsibility as Editor-in-Chief for these issues. For many of our valued readers, my face is not a new one, as you will know me as Editor-in-Chief of my previous publication for quality management and quality assurance. The expansion of INSPECT is a logical reaction to the globalization of the manufacturing industry and for me, bringing in my experience and market knowledge is an enjoyable task. Having a professional publishing management team with clear goals and a passion for innovation behind us will also help to implement the expansion successfully.

The new format will also be accompanied by an extensive online presence. Managing Director of GIT VERLAG, Dr. Michael Schön, emphasized in industry journal Horizont: “The aim of the new multimedia concept is to provide our partners with professional platforms for the exchange of thoughts, opinions and information.”

On behalf of the INSPECT team, I would like to wish you a successful year 2009.

Harald Grobholz

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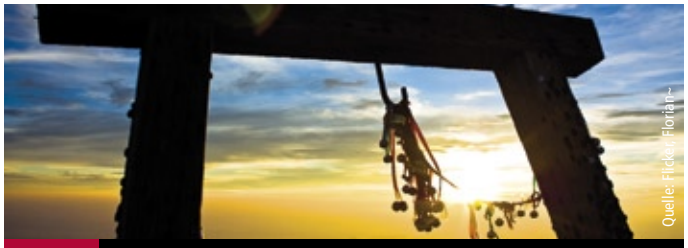

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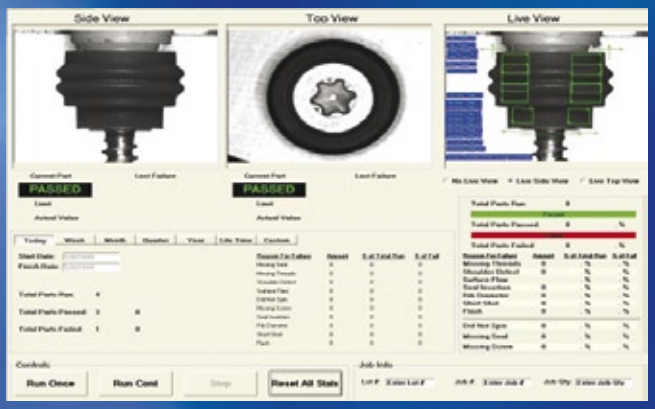
position | identification | verification | measurement | flaw detection

DISCOVER
THE RELIABILITY OF BLUE



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Understanding Depth

Range Image Sensors and 3D Data Acquisition

For us human beings, it is easy to understand pictures. We are able to estimate depth easily by using the information given by motion or the disparity between the two images seen with our two eyes. In contrast to this, – even with the incredible growth of computational capacity and power in the last years – computers are not able to understand images in every context. An image provided by a common camera depicts the intensity distribution of the scene without any 3D data. One of the main problems in the research field of image understanding is the lack of three-dimensional (3D) data. The interest in range images for high-end research projects and applications has increased dramatically in the last decade. One way to capture 3D information is the ability to directly acquire range images with laser range sensors. These sensors deliver a discrete representation of the surface in the scene, which offers a greater chance for computers to increase the level in image understanding.

A wide variety of laser range scanners are available in the market. Range images differ from "usual" intensity images in the consideration of additional depth information. For depth measuring two major principles — triangulation and time-of-flight (TOF) — are used in many fields of research and applications. TOF and phase measurement methods are long range technologies and triangulation based methods belong to close range methods.

The non-contact approach is the most important aspect of visual range measurement methods. This allows for the measurements of substances which may be hot, chemically aggressive, sticky or sensitive, provided that sufficient light is reflected back from the surface. There is no possibility of any damage or wastage to the object. In addition, these techniques are relatively fast and economical. On the other hand, visual non-contact methods are vulnerable against transparency and multiple reflections. Different methods exist for the visual data acquisition and even range data is obtained in many different ways. In general, the range data acquisition is separated into two categories – active and passive range imaging, respectively. In the passive method, no special light is required in addition to the ambient light for illumination. The most common data sources for industrial applications are still passive camera systems.

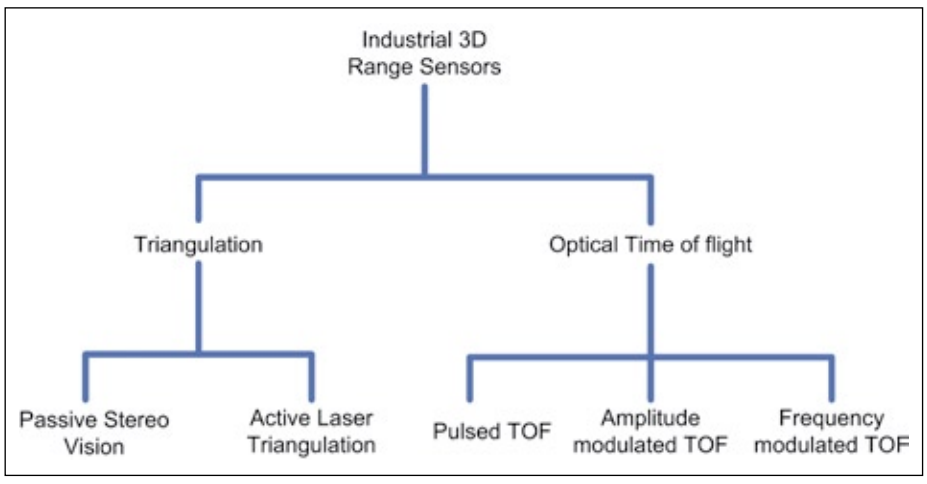

Fig. 1: Industrial 3D Range sensors

In active range imaging, a dedicated and well defined light source (e. g. laser light source) is used in cooperation with a visual capture device. At the moment, these active sensors are superior to other industrial measurement methods regarding their accuracy, cost and robustness compared to stereo camera systems. The well known methods "time-of-flight" (TOF) and "triangulation" are part of the active methods. In the active triangulation scheme, the scene is illuminated by a laser source from one direction and viewed by a sensor from the other direction. TOF measures the time of a reflected laser pulse to determine the distance to an object.

The advantages of the active methods are the production of dense sampling points and the high robustness and precision compared to the passive methods. However, additional light sources must be added in the scene and the methodology does not correspond to human stereo vision.

Figure 1 shows the variety of different measurement technologies. TOF and phase measurement methods are long range technologies (over 1 m) and triangulation-based methods belong to close range methods. Most long range measurement sensors are used for surveying and mapping in architectural and cultural heritage, geodesic laser scanning, archeological heritage conservation, and the 3D scanning of buildings. Active close range 3D sensors are often used in quality management, reverse engineering, visualization and 3D modeling, and have become one of the major aspects of computer vision and robotics.

The process of reconstructing an existing object (reverse engineering) which gives all the information about the shape and size of the object is very important for industrial applications. Quality management can use the Computer Aided Design (CAD) model of the product through range imaging to ensure the uniformity in shape and size.

Triangulation

The principle of triangulation is based on simple geometrical constraints. An active triangulation system consists of a light source and a receiving unit. There are triangulation-based sensors existing that deliver one-dimensional, two-dimensional and range image data. Depending on the resulting dimension, the active triangulation methods can be separated in Single Spot Triangulation, Sheet of Light Triangulation and Coded/Structured Light Triangulation.

Single Spot Laser Triangulation is based on simple trigonometric equations. A laser spot is projected onto the object. The scene is recorded with a CCD array. If the distance changes to the laser, the position of the reflection in the CCD array also changes. Due to geometric relations, the changed distance can be calculated the other way round.

The distance to the object in figure 2 can be calculated by the following equation:

$$x = D\frac{\frac{x_0}{D} + \frac{x' - x_0}{f}}{1 - \frac{x_0}{D}\frac{x' - x_0}{f}} \qquad (1.1)$$

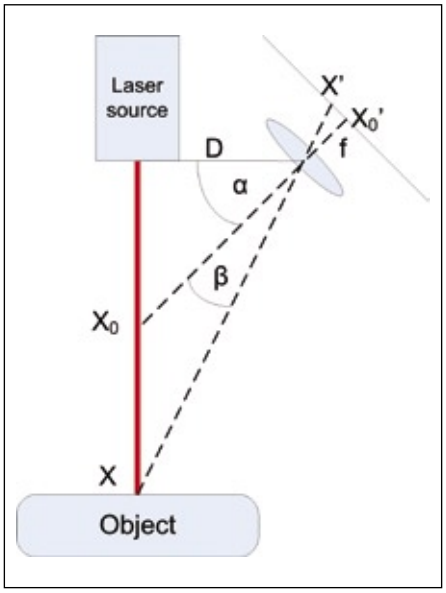

Fig. 2: Triangulation principle

Figure 2 shows the configuration for a reflected laser spot and a CCD-array, which can be used for determining a one-dimensional distance value. The accuracy (usually ~1:1000) depends on the distance between the laser and receiving unit and the object distance. Active triangulation is usually used in measuring a range of 0.1–5 m. Measurement times of less than 10 ms are common, allowing real-time study of moving or vibrating objects. Active triangulation can also be extended to a laser line and CCD-matrix, resulting in a two-dimensional distance array.

In this application the triangulation system acquires a fully two-dimensional profile. A camera captures the projected line. With the help of the geometric configuration the distance can be acquired. For each column Xi in the camera matrix, the geometrical considerations (Equation 1.1) of single spot triangulation are applied.

A further method of triangulation sensors belongs to structured or coded light techniques. A coded pattern – such as a gray coded or phase-coded pattern — is used to illuminate the scene for acquisition. In a growing number of industrial applications, structured light approaches are realized. For the acquisition of 3D scenes, no scanning or moving profile sensors are required, so this method is usually faster than other 3D scanning techniques.

In the last few years, the accuracy of structured light range data acquisition has increased up to 1 µm. More and more companies offer promising solutions. Unfortunately, this measurement technique still suffers from ambient light influences, complex calibration and the lack of a ready-to-use solution for industrial environments. Several 2D trian-

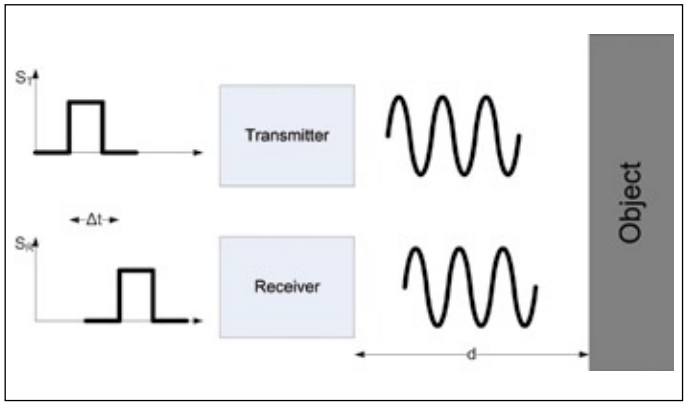

Fig. 3: Pulsed TOF measurement principle

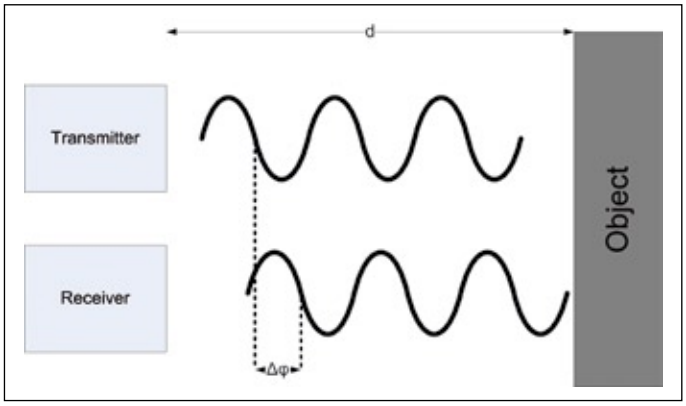

Fig. 4: Modulated Continuous Wave TOF measurement principle

gulation-based laser range sensors are available for industrial applications. Most of these are close range sensors with a laser stripe source and a camera inside a fixed frame without the need of calibration.

Time of Flight

Time-of-flight (TOF) laser distance sensors measure the distance between the object and the light source along a light beam. Time-of-flight systems send out a light beam towards an object. The light is diffusely reflected by the surface and a part of the light returns to the receiver. The time that light needs to travel from the laser diode to the object surface and back is measured. When the light pulse is emitted a high accuracy stopwatch is started. The light pulse travels to the target and back to the receiver. When the light pulse arrives, the stopwatch is stopped and the time of the flight is calculated. With the known speed of light the distance to the object is determined.

Figure 3 shows the TOF configuration. In practice, the active light source and the receiver are located very closely to each other. Illumination and observation directions are approximately collinear, so this avoids shadowing effects. The existing methods relying on the principle of TOF can be separated in Pulsed TOF and Modulated Continuous Wave TOF.

In the case of pulsed TOF, the travel time is directly proportional to the distance traveled, taking into account the velocity of light in the involved medium using the following equation:

$$d = \frac{c\,\Delta t}{2\,n} \qquad (1.2)$$

It applies here: c is the velocity of light and Δt is the time taken by the signal to travel from the source to the object and back. The involved medium is integrated as the refraction index n. The equation contains a factor of 0.5 because of the way to the object and back. Theoretically, the accuracy of the depth measuring is independent from the distance of the object to the camera and only depends on the precision achieved measuring the travel time. But precision in the millimeter and sub-millimeter range requires pulse lengths of a few picoseconds and the associated electronics. Mainly, the pulse rate influences the maximum range for TOF sensors. To send out a new pulse, the receiving unit has to wait for the last echo arriving from the object. Some long range sensors use the pulsed TOF method to measure distances up to a few kilometers for cartographic mapping. At ranges of a few kilometers and above, a different problem arises: at such distances the amount of reflected photons that reach the detector is very small. The sensitivity of the receiving unit and the power of the emitted light pulse are limited in all real range sensors. This leads to a limitation of the range of these sensors. A variation of the time-of-flight distance measuring is the measuring of the phase shift. This method effectively measures the difference between emitted and received signals. A continuous wave (CW) laser emits light continuously and, therefore, is called a CW-laser.

As shown in figure 4, the distance information is extracted from the received signal by comparing its modulation phase to that of the emitted signal. The range of phase measurement TOF sensors depends on the wavelength of the modulated signal so the resolution of these sensors can be improved if signals with short wavelength are used. That being said, this leads to a reduced maximum range of phase shift measurement. The maximum unambiguous detectable phase delay is a full cycle of the modulation period. For phase shifts over 360°, however, an unequivocal determination of the distance is not trivial, which means that the maximum useful measurable distance is half of the distance traveled by light during one period. This continuous wave can be modulated in the amplitude or the frequency. An amplitude modulated continuous wave (AMCW) is often a sinusoid wave and this wave is modulated in amplitude by varying the power. Frequency modulated continuous wave (FMCW) distance measurement is achieved by measuring the phase of the modulation of the transmitted light. Phase shift measurement has a higher precision than that of conventional TOF measuring. In practice, a combination of these two procedures is often used. This method is typically used for measurement distances of a few tens of meters. The accuracy is between a few millimeters and two or three centimeters, depending on time measurement and on the distance between the object and the scanner (object distance). The TOF-principle is extended for industrial range image data acquisition by moving the laser line or by putting many laser emitting/receiving units together.

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Innovation in Imaging

Vision 2008 Even More International

Increases in Number of Exhibitors and Occupied Exhibition Area

Vision is continuing its success story. After an excellent start at the New Stuttgart Trade Fair Centre last year, Vision 2008 featured more exhibitors, was even more international and occupied even more space. The International Trade Fair for Machine Vision and Identification Technologies is thus underlining its position as the world's leading trade fair for the industry.

Machine Vision is a key technology for economical and modular automation. Without Machine Vision systems, companies in the automotive industry, the automotive component supply industry, the electronic/electrical engineering industry and the metalworking industry, to name only a few, cannot produce economically or guarantee their product quality either. This enabling technology, which serves to an extremely wide range of customer industries, has been recording impressive sales increases during recent years, even during economically weak periods. However, Machine Vision is even now continuing to exploit its enormous market potential. Although the main application area for Machine Vision is still regarded to be industrial production where there is a need for zero defect control to increase quality or minimise costs, Machine Vision has for years generated a significant share of its market growth in non-industrial applications. Exhibitors at Vision have also taken account of this fact since both the trade fair and the accompanying program also contained numerous examples and a great deal of background information on these non-industrial applications.

In 2008, for the first time, two standard halls were completely occupied with a total exhibition area of 20,000 m2. 292 exhibitors and 17 representative companies presented their product innovations and services in these halls. 45 % of the exhibitors came from foreign countries. They came primarily from Europe, but also from Israel, Japan, Canada, Switzerland, Taiwan, the USA and the People's Republic of China. A total of 28 countries was represented at Vision 2008.

The Vision was supported by three national and international associations, i. e. the German Engineering Federation (VDMA), the European Machine Vision Association (EMVA) and the Automated Imaging Association (AIA).

Special Show "International Machine Vision Standards"

A number of manufacturers have long been agreeing international standards in order to simplify the combination of Machine Vision components from different manufacturers. Visitors could attain an overview of the most important standards, their application areas and their advantages during the special show entitled "International Machine Vision Standards". Experts gave information and were available for questions. This special show was organised by Messe Stuttgart and the three international Machine Vision associations AIA, EMVA and JIIA (Japanese Industrial Imaging Association).

The best of the best: FireWire and GigE cameras from Allied Vision Technologies and Prosilica.

Modern vision applications requirements are changing. Their tools as well. And with them the way of thinking in developing camera models that will still be as advanced after many years as they were the day they were created. By adding GigE cameras from Prosilica, Allied Vision Technologies complements its product lineup of high-performance FireWire cameras - offering the best of both worlds. Visit us: **www.alliedvisiontec.com**

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

PC Accelerator Board with PowerXCell 8i Processor

On the one hand, the powerful IBM Cell/B.E. processor guarantees impressive 3D visualization in the games console Playstation 3, on the other hand, it helps the Roadrunner in Los Alamos to place first on the ranking of worldwide fastest computers. With the mvXCell-8i PCIe accelerator board Matrix Vision (www.matrix-Vision.de) makes the power of IBM PowerXCell 8i processor available for standard PCs.

The latest Cell/B.E. (Cell Broadband Engine) PowerXCell 8i processor has a standard core (PPE) working as a manager and eight cores (SPEs), which are optimized for fast parallel processing of pixel and DP float data. On the mvXCell-8i, all nine cores work with 2.8 GHz. For this reason, the board can reach 180 GFLOPS single precision and 90 GFLOPS double precision float. Furthermore, with four GB DDR-RAM the board provides enough memory for dozens of image data. The mvXCell-8i can be used as an accelerator board for Windows and Linux systems or as a standalone Linux computer.

Matrix Vision: mvXCell-8i PCIe accelerator board

Basler aviator camera series with two new camera models based on Kodak's new KAI-01050 CCD sensor

New Aviator Area Scan Camera Series

Basler Vision Technologies (www.baslerweb.com) is expanding the product portfolio by adding its new Basler aviator camera series with two new camera models based on Kodak's new KAI-01050 CCD sensor. The Basler aviator series is a high speed mainstream camera. It exhibits superior image quality even at high speed image capture rates. The first models of this series feature 1 megapixel resolution (1024 x 1024 pixels) at 120 frames per second. The Basler aviator is equipped with Kodak's state-of-the-art CCD sensors. The cameras provide progressive scan readout and global shutter technology. They are an ideal fit for various applications like semiconductor manufacturing, electronics manufacturing, metrology and medical imaging.

New Driver Software for aAll uEye Cameras

IDS (www.ids-imaging.de) presented a new version of its uEye driver. The latest 3.30 release comes with a host of enhancements. Besides boosting the performance of the camera/software combination, the new driver has increased support of many hardware features. This applies in particular to the Gigabit Ethernet models. The camera's RS232 interface, for example, now allows full use as the standard COM port for controlling a pan/tilt unit or a light controller.

With the new driver many CMOS models achieve up to 50% higher frame rates when using the subsampling and binning functions.

The GigE versions of the uEye series benefit most from the new release. They now support a colour depth of up to 12 or 36 bits, depending on the sensor. The maximum frame rate of the 5 Mpixel versions has increased to 15 fps. In addition colours can now be calculated either in the PC or in the camera.

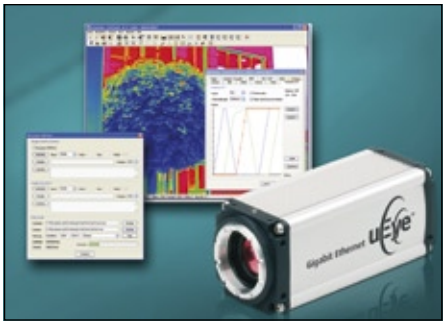
Super Wide Angle Lens for Industrial Imaging Applications

Carl Zeiss (www.zeiss.com/photo) has now introduced the Distagon T* 3,5/18 ZF for industrial applications and technical automation – a compact wide angle system covering an extremely wide image angle. Many industrial imaging applications demand more than excellent imaging performance. Only an extreme image angle can ensure that large objects are captured reliably and completely in a small space.

With the new Distagon T* 3,5/18 ZF, industrial robots for quality assurance tasks achieve an impressive diagonal image angle of up to 99°. This means maximum acquisition of ambient and object information, even at short distances, making the lens ideal for near-range photogrammetry and optical measurements of components, e.g. in the automotive industry.

Two New Stingray FireWire Cameras

The Stingray camera family, launched by Allied Vision Technologies (www.allied-Visiontec.com) at last year's Vision 2007, has grown with the addition of two new models that combine the newest Sony CCD sensors with AVT's clever Smart Features.



IDS presented a new version of its uEye driver

The Stingray F-125 is equipped with the new, high-sensitivity Sony CCD sensor ICX445 with 1.3 megapixel resolution. Thanks to ExView HAD technology, the camera delivers an especially high light-sensitivity. Combined with Stingray electronics, the user can expect outstanding image quality. With its IEEE 1394b interface, the Stingray F-125 can deliver up to 30 frames per second at full resolution.

The Stingray line has now been expanded upward with the addition of the Stingray F-504. The camera is equipped with the new 5 megapixel Sony ICX655 sensor, with single-channel read-out, and as such requires no channel balance. It delivers razor-sharp images for applications requiring a high degree of detail.

Both of these new cameras have inherited the Stingray family's comprehensive functionality package for the optimization of image data before its transfer to a PC.

The Stingray camera family, launched by Allied Vision Technologies

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Machine Vision Software with Easy User Interface

The SAC machine Vision interpreter is based on the latest SAC Coake 6.7 platform (www.sac-Vision.de). With this universal high-performance tool it is possible to solve applications in the field of optical measurement and inspection technology more efficiently than before. Due to the easy structured user interface, machine Vision tasks can be realized quickly and comprehensively – after a short training scheme – without any previous knowledge of the user.

The command sequence is compiled in the well-structured Coake program editor via drag & drop. Several standard commands are already included in the scope of delivery. The command selection ranges from simple commands to complex macros which are completely preconfigured for the use of typical tools.

The inspection and interim results can be filed or are transferred via the integrated interface. The results can be correlated. The data can be edited with Office software programs as well as special statistic and quality programs. Common machine interfaces are already integrated.

Carl Zeiss introduced the Distagon T* 3,5/18 ZF for industrial applications and technical automation – a compact wide angle system covering an extremely wide image angle

Next Generation Smart

Sony (www.sonybiz.net/Vision) has launched its second generation of smart cameras, the XCI series. The four new camera modules, launched by Sony Europe's Image Sensing Solutions (ISS) di-Vision, process image data before transmitting to a PC and combine a powerful CPU with an open FPGA delivering a 3X performance improvement over the previous generation.

The camera modules in the new product family are available for VGA (XCI-V100) and SXGA (XCI-SX100) monitoring, with colour and black and white modules created for each.

The camera's FPGA provides pre processing for real time raw image data without any load placed on its 1GHz CPU, reducing the camera's power consumption. To add flexibility, the function of the module's four inputs and eight outputs can be specified using the FPGA.

The addition of color analysis in two of the four new camera modules enables the smart cameras to be used in a diverse range of markets where hue is vital to data analysis with initial beta tests including airport security, animal welfare in agriculture, traffic surveillance, forest fire prevention and machine Vision applications.

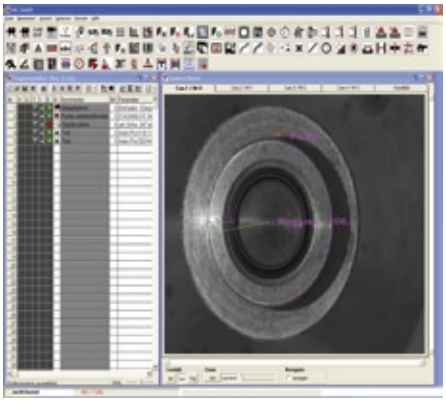
All cameras in the range are sized 94x70x139.5 mm, support C and CS mounting, come with 512 Mb of SDRAM, eight memory buffers and a 1 Gb memory card accessory with Windows XPe is also available. To ensure system cabling is as simple as possible, the XCI series utilizes a share trigger line.

New Sensor Architecture and New Possibilities for Use

The image processing specialist Vision & Control (www.Vision-control.com) has extended the Vision sensor platform camat to include the new generation of Vision sensors, camat S48 Multi-Head. The Vision sensors can be configured, for the first time, with up to four remote sensor heads, and convince with their small dimensions and low weight, opening up new possibilities for use in industrial image processing. The compact sensor heads already integrate precision optics, powerful homogeneous LED lighting as well as high-resolution imaging sensors. The captured image data are transferred to the controller, the heart of the Vision sensor, and evaluated. Fast mounting of the sensor heads, weighing only 80 g, in confined spaces as well as the intuitive "Step-by-Step" user guidance ensures that the user can quickly implement the inspection tasks to be solved.

LMI Launched Two New Products

New at Vision, LMI technologies (www.LMItechnologies.com) was introducing FireSync, a Vision engineering platform to simplify and accelerate the entire Vision system development process from specification to final assembly. Also premiering is HexSight 4.0 with color. The approachable machine Vision library with a comprehensive list of capabilities was demonstrated its new support for color image acquisition and processing in live demonstrations.



The SAC machine Vision interpreter is based on the latest SAC Coake 6.7 platform. With this universal high-performance tool it is possible to solve applications in the field of optical measurement and inspection technology more efficiently than before

Multi-sensor Camera with up to Four Freely Positional Sensors

VRmagic (www.vrmagic.com) presented a FPGA camera with up to four pixel-synchronous sensors. The CMOS sensors with global shutter are connected to the camera by an LVDS data cable and can be freely positioned. The image data is coordinated on a FPGA module with at least 256 MB RAM. The multi-sensor camera can produce pixel-synchronous images from several positions, as required for 3D reconstruction, for example. Light-section-, Gray-code- and phase shift processes can even be applied to moving objects when using the multi-sensor camera.

They also introduced a compact, programmable intelligent camera. The new intelligent component from VRmagic is

Vision & Control has extended the Vision sensor platform camat to include the new generation of Vision sensors, camat S48 Multi-Head

a high-performance camera featuring a combination of ARM processor, DSP and an optional FPGA module. Deployed is the DaVinci processor by Texas Instruments. The camera operates autonomously with a Linux operating system.

Smart Camera for Machine Vision

Matrox Imaging (www.matrox.com) announced the Matrox Iris GT, the next-generation smart camera for machine Vision applications. Designed for the harshest and most demanding environments, the small, fast and rugged Matrox Iris GT is the perfect fit for industrial applications.

All Baumer TX digital cameras are engineered around our belief in "Versatility through Innovation"

The Matrox Iris GT is powered by an Intel 1.6 GHz Atom processor and runs Windows CE 6.0, Microsoft's real-time embedded operating system. Matrox Iris GT features an integrated graphics controller with VGA output, 256 MB DDR 2 memory, and 1 GB of flash disk. For connectivity to external devices, Matrox Iris GT includes a 10/100/1,000 Ethernet port, a USB 2.0 port, an RS-232 serial port, an opto-coupled trigger input and strobe output. Matrox Iris GT also supports Ethernet/IP and Modbus over TCP/IP communications to directly interact with PLCs and other automation equipment.

CVB GigE Vision-Server – Turning the Tables

When people talk about software for GigE Vision cameras they are usually referring to the drivers required for image capture. Now, Stemmer Imaging (www.stemmer-imaging.de) is turning the tables by offering an innovative GigE Vision Server for Common Vision Blox (CVB) for the first time.

Sony launched its second generation of smart cameras, the XCI series

With its independent imaging libraries, Common Vision Blox has, for some time, offered the most comprehensive and powerful implementation of the GigE Vision and GenICam standards. With the new GigE Vision Server, a suitably equipped computer behaves like a complete GigE Vision and GenICam compatible camera, with freely configurable features. As one would expect, Stemmer Imaging's CVB remains true to the principle of hardware independence. The data output by the CVB GigE Vision Server conforms to the GigE Vision and GenICam standards and is therefore compatible with any standards compliant software interfaces from other providers.

Stemmer Imaging is offering an innovative GigE Vision Server for Common Vision Blox (CVB)

CVB GigE Vision Server opens up completely new areas of opportunity for imaging. At its most basic level, images can be transferred from a hard disk or from any CVB compatible imaging hardware, via a network interface, thus making use of the benefits offered by simplified GigE Vision cabling.

TX Digital Cameras – Versatility through Innovation

All Baumer TX digital cameras are engineered around our belief in "Versatility Through Innovation" (www.baumeroptronic.com). By combining state-of-the-art sensor technology with proprietary components and know-how, Baumer guarantees a quality image is transferred from the sensor to the interface and to the final application. Versatility is ensured by integrating the technology into a innovative, compact housing and by conforming to industrial standards such as Gigabit Ethernet and FireWire. The TX camera family covers a diverse range of applications with versatile well-designed models. Where the entry level TXGC03 model uses CMOS sensors to provide an attractive solution for simple visualization or image processing the TXG50 model uses a high-resolution 5 megapixel CCD for sophisticated image processing requirements.

Higher Resolution and DSP Coprocessors

National Instruments (www.ni.com) announced the extension of its NI Smart Camera product line with the introduction of three new products. The NI 1744, NI 1762 and NI 1764 Smart Cameras deliver faster processing speed and higher image resolution to offer more powerful options for engineers requiring an embedded machine Vision solution.

Powered by a 533 MHz PowerPC, the new NI 1744 Smart Camera features a high-resolution image sensor that acquires images up to 1.3 megapixels (1,280 x 1,024). Industrial engineers and machine builders can use the camera to inspect objects for smaller defects and make measurements with four times the resolution of previous NI Smart Cameras.

For engineers needing higher performance for pattern matching, optical character recognition and code reading, the NI 1762 Smart Camera offers a 720 MHz Texas Instruments DSP coprocessor alongside the 533 MHz PowerPC, making it possible to run algorithms up to four times faster with no changes to the application software.

The new NI 1764 Smart Camera offers the highest resolution and performance of all the new cameras, featuring the 1.3 megapixel image sensor and the 720 MHz Texas Instruments DSP coprocessor. The NI 1764 is ideal for uses such as high-speed manufacturing line applications that are inspecting large objects or locating and identifying small codes or features.

New Version Halcon 9

MVTec Software GmbH announced the new version 9.0 of its software Halcon (www.halcon.com). With this software release, the Munich-based manufacturer of machine Vision software again sets high standards.

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Within the machine Vision community, Halcon is considered as a technology-leading force. The new version 9.0 will be released in January 2009 and provides unique innovations to the users.

Again, Halcon offers valuable speed-ups with its new version 9.0, especially regarding it's exceptional automatic operator parallelization, which distributes the processing to the number of available cores. This technique has been speeded up considerably and thus significantly increases the benefit of multi-core computers.

Furthermore, Halcon 9.0 provides unique new matching technologies. In the future, it will be possible to robustly and reliably find 2D objects (e. g., labels) or work pieces with a corresponding structure even in images with strong perspective distortions.

World's Fastest In GaAs Camera Now with Double CameraLink

Xenics' (www.Xenics.com) new high-speed digital Cheetah-640CL, covering the SWIR spectral band 0.9.to 1.7 µm, offers a 640 x 512 pixel resolution at 20 µm pixel pitch and a record full frame rate of 1,730 Hz. Cheetah enables fast data transfer via double CameraLink. The camera is fully software-configurable; it combines the TE-cooled InGaAs FPA detector head with all control and communications circuitry in a convection-cooled compact housing.

With a frame rate of 1,730 fps at its full 640 x 512 pixel resolution, the new Cheetah-640CL sets a world-record for InGaAs cameras. Cheetah features 14-bit digitization to capture and display 14-bit optical data for high-speed imaging. The camera's 16 outputs provide 14 bit each at a 40 MHz pixel clock. Pixel operability is >99 %. A graphical user interface that provides direct access to various camera settings such as ROI, integration time, sensor temperature and ADC, makes the camera flexible and easy to use.

Cheetah-640CL is perfectly suited for high-speed, hyperspectral image SWIR applications as well as laser-beam profiling and Vision enhancement in industrial, automotive, airborne or medical applications (OCT), semiconductor inspection and on-line process control. Thermal imaging of hot objects ranges from 200 °C to 800 °C.

CMOS Image Sensor for Machine Vision and Holographic Data Storage Applications

Cypress Semiconductor Corp. (www.cypress.com) announced the commercial sampling of a CMOS image sensor with industry-leading digital data throughput of 13.2 Gbps. The new 3.0-megapixel LUPA-3000 sensor offers a triggered and pipelined synchronous shutter with a high frame rate of 485 frames-per-second (fps) and windowing capability for undistorted images and fast readout. The sensor also features on-chip digital LVDS (Low Voltage Differential Signaling) outputs that simplify the transport of sensor data and overall camera design for machine Vision and holographic data storage applications.

"The high-speed LUPA-3000 sensor opens up the holographic data storage market to our industry leading portfolio," said Cliff Drowley, vice president of Cypress's image sensor business unit.

Microscan introduced the new QX Platform which combines Quick Connect and X-Mode technologies to deliver high performance barcode reading with unmatched simplified connectivity and networking in industrial automation environments

Xenics' new high-speed digital Cheetah-640CL offers a 640 x 512 pixel resolution at 20 µm pixel pitch and a record full frame rate of 1,730 Hz

"Its unparalleled performance exemplifies Cypress's drive to push the envelope of image sensor capabilities."

Contour-based Object Recognition

Vision Components (www.Vision-components.com) presented new software solutions for industrial image processing applications, such as the pattern matching tool VC Smart Finder. The software allows users to identify structures (e.g. bottle labels or complex components) by means of preset patterns. The real-time program, which operates with subpixel accuracy, ensures high-speed processes: it recognizes between 10 and 100 objects per second at a 640 x 480 pixel resolution. Object recognition is not influenced by rotational position, object size or illumination. Moreover, the software reliably recognizes objects which are occluded by up to 80%. An intuitive, easy-to-use teach-in option allows users to include new objects.

QX Platform Technology

Microscan (www.microscan.com) introduced the new QX Platform which combines Quick Connect and X-Mode technologies to deliver high performance barcode reading with unmatched simplified connectivity and networking in industrial automation environments. The first product introduced with the new QX Platform technology is the QX-830 compact laser scanner.

In naming the new platform technology, the "Q" represents the Quick Connect system of cabling and easy networking, with streamlined setup and connectivity through M12 Ultra-Lock connectors from Molex. The QX-830 is the ONLY data acquisition device with Quick Connect technology. The "X" represents X-Mode symbol reconstruction technology to deliver aggressive barcode reading out of the box.

Users can expect the Quick Connect system to simplify setup and deployment of single and multiple reader networks, while providing IP65 sealing for harsh industrial environments with the new Molex M12 Ultra-Lock connectors. The QX Platform also reduces the number of accessories required for multiple reader network solutions, and brings considerable savings in material costs as well as installation time.

Monochrome Versions

e2v (www.e2v.com) announced the launch of two new high performance monochrome models to its EliiXA range of industrial line scan cameras. The new 4096 pixel multi-line monochrome camera delivers scene grab rates of up to 54 KHz, or a four times improvement in sensitivity at 18 KHz, while featuring expanded spectral response.

EliiXA's unique row spacing (only 20 µm center-to-center), coupled with its wide spectral response, made it a success in the color line scan camera market. This technology is now being applied to full monochrome models to provide an attractive alternative to the high-performance 4K pixel line-scan camera market.

The monochrome cameras will be available in two models: 4S and the 3V: The 4S EliiXA monochrome model is an 18 KHz 4096 pixel camera, with extremely high sensitivity, ideally suited for low light use, an application currently only addressed by TDI cameras.

The 3V monochrome model can grab scenes running at 54 KHz; making it an alternative for demanding applications requiring both speed and resolution of 4096 pixels, today only served by more expensive CCD TDI or high-end CMOS cameras. While the multi-line sensor physically operates each individual line, simultaneously, at 18 KHz, a patented process re-orders the lines, ultimately making the camera behave like a single line camera.

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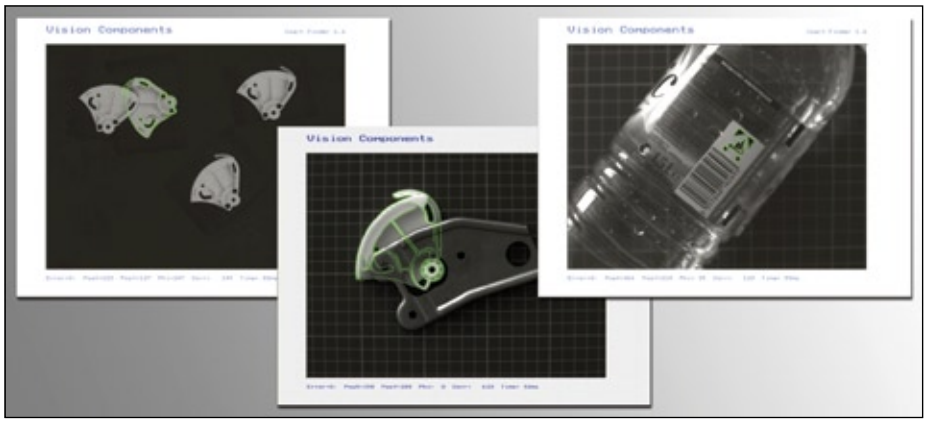

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Åke Lindqvist New IFR President

The International Federation of Robotics (IFR) elected unanimously Åke Lindqvist, ABB, as new President and Junji Jay Tsuda, Yaskawa Electric, as new Vice President at its Executive Board Meeting on 16th October 2008 in Seoul. The biannual meeting of IFR Executive Board members was held in Seoul on the occasion of the International Symposium on Robotics (ISR). The incumbent President, Stefan Müller, Kuka Roboter, retired following his successful two-year presidency. Müller was pleased about the election: "The election of Åke Lindqvist and Junji Tsuda respectively represents a sensible next step which also reflects the importance of their respective markets. I would hope to see countries such as China, Brazil, India, Mexico and Russia working together with us in the IFR in the near future, giving them representation in the only world-wide federation for industrial and service robots. In this and all their other undertakings I wish my successors and the entire IFR Executive Board every success."

www.ifr.org

Vintec Award 2008 to Daimler

At the Euroblech trade fair in Hanover, Dr.-Ing. Norbert Stein, President and Sole shareholder of Vitronic, presented the Vintec Award 2008 to Guenter Kasper, head of axle production at Daimler. The award was presented after the joint development and installation of a ground-breaking welding concept at the Daimler plant in Mettingen. Welded seams are automatically inspected and optimized using Virowsi, a weld seam inspection system from Vitronic. Since its installation in February 2007 more than 8 million welded seams have been inspected and, if necessary, optimized. After successfully implementing the system on the production line of the C-Class, Daimler has also decided to use the unique solution for the new E-Class and with it remains a step ahead of all automobile manufacturers.

www.vitronic.com

News

e2v Signs US Distribution Agreement

e2v have signed a distribution agreement allowing Physimetrics to distribute e2v's range of line-scan cameras throughout the US. The camera families, AviivA and EliixA, set the industry bar for quality and performance in the industrial machine vision market, with recent additions of new color, quadrilinear, and monochrome models. Physimetrics, a US based sales and technical support specialist in machine vision and image processing, provides the US market with years of experience in machine vision requirements, a commitment to quality, and the provision of class leading customer service. Backing e2v's technical expertise in camera design and application, and to further assist system manufacturers, Physimetrics also provides a full range of products to support e2v's camera range, including frame grabbers, software, lenses and cables.

www.e2v.com

New Managing Director at VMT

With effect from 1st November 2008, Dr. Ing. Stefan Gehlen, a recognized expert in image processing and automation, joined the management board of VMT Vision Machine Technic Bildverarbeitungssysteme, Mannheim/Germany. After completing a study program and graduating from the Technical University in Darmstadt, Dr. Gehlen chaired the Board of Directors of ZN Vision Technologies, Bochum. Important technological innovations were accomplished under his management, such as automated face identification processes. Appointing Dr. Gehlen has strengthened the strategic role of image processing solutions within the Pepperl+Fuchs Group. For VMT and its customers, it is an important step in the direction of long-term assurance of innovation capability and professional competence.

www.vmt-gmbh.com

Topics with Impact:

Big Brother Is Watching You?

INSPECT Panel Discussion "Machine Vision and Security" at Vision 2008

How about applying the high performance and industry weathered robustness of machine vision technology to the analysis of surveillance camera images? How far could one get by comparing and matching performance and requirements of both areas – Vision and Security? Could automating the surveillance processes help in protecting privacy?
In this year´s panel discussion during the Industrial Vision Days at Vision 2008 in Stuttgart, six experts from both industries were invited by INSPECT to discuss state-of-the-art and future developments of camera based surveillance.

About 160 trade show visitors followed the lively discussion between the six panelists. The allotted hour was much too short to cover all aspects of the topic. Machine Vision and camera based Security Technologies have quite some potential to benefit from closer cooperation of the respective market players. Maybe this open panel was a first step to fuel a further continuation of the information exchange.

From many a visitor´s point of view, the discussion certainly came to a peak when the industry representatives shared their view of the future of video surveillance.*

Klaus Baumgartner,
Siemens Building Technologies

I am convinced that we have to get used to the thought that video surveillance will continue to penetrate the public and also the semi-public areas. Does that worry me? It does not. With the huge amount of data, that will thus be provided, there is no other way than to reduce this data already on a meta level. When an event occurs that was actually supposed to be detected, and only then, original data will be provided to the authorized recipient for evaluation.

Our industry is faced with the important task to design security standards guaranteeing that all acquired data will remain private up until the pre-defined situation occurs that requires the analysis of the data.

Volkhard Delfs,
Panasonic Systems Solutions

Today we are at the verge of overcoming the restrictions analogue video technology had imposed on us. That will result in an improvement of options but also in additional challenges. The success will be based on our efforts in making the cameras somewhat smarter to unburden the

* Editor's Note: The panel discussion was originally conducted in German language. Any flaws in the transcription into the English language text of this article lie solely in the responsibility of the editor.

operator. Especially in open air low contrast scenarios it is very, very difficult to detect motion, even for the human eye. Sensors, however, are perfectly capable here, provided that they come with computing power.

It will be no small task to integrate pre-processing functionality into the camera with the goal to distinguish pixel noise from actual object movement, even at low light conditions, as a threshold of what will be presented to an operator. We spoke earlier about applications with 8,000 cameras [editor's note: in casinos], no operator can cope with that. The systems need to be more clever. Event driven display, integration of other sub-systems, visualization of conditions: that is no small task lying ahead of us.

Dr. Stefan Gehlen, VMT

The vision of integrating IP and IT in security has already begun. This trend is fast and irreversible. In cameras and system technology we will see more resolution, higher accuracy. This results not necessarily in larger areas to be covered but in higher quality of the captured data, enabling automated image analysis.

On another note and looking at the development in Asia, we come to a totally different aspect: the question on how to open up new fields of application for video analysis. Border control, for example. The driving factor here will be the automation of security. The business case will no longer be the security application but the automation of security processes.

Prof. Dr. Jörg Krüger, Innovation Cluster Secure Identity

In automation, in production, everywhere we have the same problem of data overflow. The world around us is connected. We can collect data with no end, but we are no longer able to analyze this data. What we need are mining technologies to get information out of data. This will be our task for the next couple of years. One possibility to apply this to video technology is to detect and describe the relations between single objects. To not only detect single objects but to find the logical scenaric correlation between these objects. This is still a long way, but first approaches can be seen already manifold in research.

Looking at the hardware aspect, we will see more 2,5 D in the future compared to today´s rather 2D products. We will use the depth information in addition since this helps us to detect objects more accurately or to separate objects from each other. There is a lot to achieve methodically. That of course pleases me as a scientist.

Dr. Dietmar Ley, Basler Vision Technologies

I am convinced that there will be applications with smaller requirements for data analysis or image analysis. I'm thinking here of applications in retail where a wrong decision does not present a problem. The main task here is to understand how my shop works, which aisles enjoy especially high customer attention, which crowd my shop attracts, how to optimize my business. Another application might be, and here the two worlds will cross each other somewhat, to monitor production cells by using technology developed for security applications, substituting light curtains by scene analysis to e.g. stop a robot when a human enters the working zone. That is not necessarily the high end application, but something that will already work tomorrow. I think we should look for applications that are already feasible with the state-of-the-art. Along the way we will acquire the skills for the more difficult and demanding tasks. Experience already acquired in machine vision can be used here to implement good and profitable applications. These applications maybe a little bit off the path of traditional security tasks but instead more in the area of surveillance. That is my expectation for the near future.

Rudolf Spielberger, Bosch Security Systems

I happened to come across a press release last week, stating that three quarters of the German population wishes for an increased video surveillance. That, of course, pleases our industry.

Ultimately, our path will lead us from today´s situation of creating video garbage, tera bytes of it, to transforming this data into meaningful meta data. Into information really providing us with the facts we need for decisions. And ultimately we aspire, independent from cross-system usage, a future where video surveillance is not merely relevant after the fact, but where, with the help of smart components, we master the step to act before a critical event takes place, to even prevent this event.

In case you missed this discussion at the Vision and you would like to learn more from the experts, you will find the audio stream of the event at www.inspect-online.com.

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European Diversity

Machine Vision Has Seen Robust Growth in 2008

Quelle: Flickr, rockcohen

The European machine vision industry has seen a steady growth in the past years. For the year 2008, optimistic forecasts were justified, although major changes in demand and use of machine vision products, which already commenced a year before, did continue. It seems that the high expectations once more have been met.

General Trends in Europe's Machine Vision Market

According to the 2007 EMVA market study, easy-to-use and inexpensive standard products, such as vision sensors or smart cameras, were clearly in high demand in the previous year, and will have also been in 2008: Due to advanced hardware and software, they are able to perform tasks for which – not long ago – more complex solutions had to be created. Nevertheless, complex, high-end and application-specific devices still constitute the biggest portion of sales and push the limits of what is technically and economically feasible.

Industrial production once again generated by far the biggest contribution to the total turnover of the European machine vision industry in 2007; with the automotive and electric/electronic industry as key drivers. But even outside the industrial production sector, there is great potential for new applications of vision technology, with future mega-topics such as environmental protection and the demographic change to mention just a few. The cost-efficient standard systems will help to capture these new areas of application.

In-house production of machine vision systems by industrial equipment manufacturers increased somewhat in 2007. Linked to this trend, robot manufacturers tend to integrate machine vision into the robot and offer packages.

Regarding the business activities outside the European borders, machine vision cameras from European companies recorded good sales. North America and Asia were the main destinations for these shipments. This underlines the trend of the growing importance of the export business to the whole sector over the past few years.

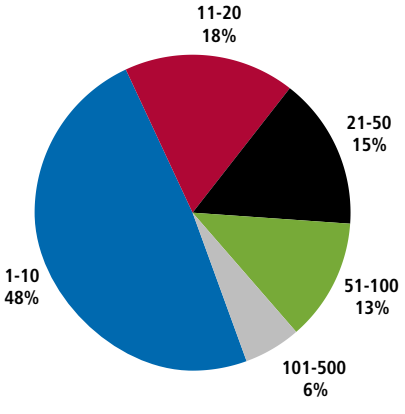
Small Enterprises Dominate

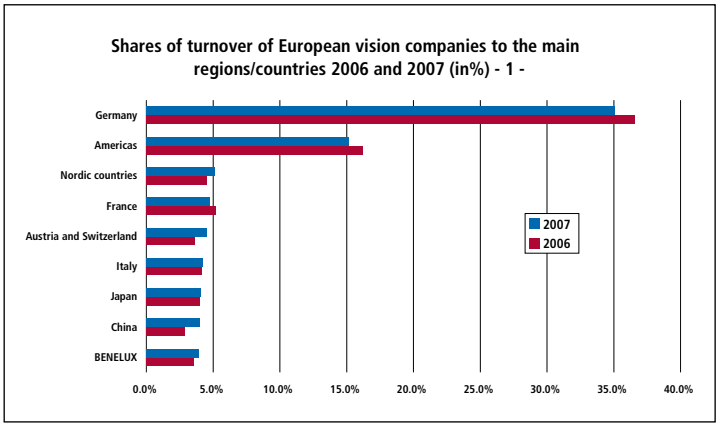
The machine vision industry in Europe is still dominated by Small and Medium Enterprises (SME). On average, in 2007, the companies in the European market employed 37 people, with a peak in the German market: here the average size was 40 employees. The majority of machine vision enterprises in Europe employed less than 50 people in 2007. Almost every second machine vision company in Europe has ten employees or fewer and can be counted as a small enterprise.

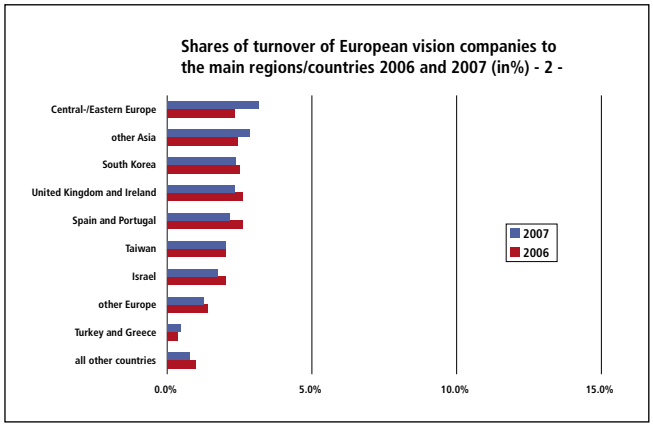
Over the past years, a trend has emerged that an increasing number of companies in the automation industry set up their own vision systems division. According to this, the proportion of "pure" vision companies is declining. As for the largest European market – Germany – by now, only half of the machine vision companies are still "pure". In all other European countries, more than 60% of the machine vision companies still name machine vision as their sole business. But even when machine vision is only a division within the company, mostly there is only a small number of employees working in the vision sector. In Europe there are no "pure" machine

Structure of vision companies in Europe 2007

Shares of companies by employees in the vision sector in %







vision companies with more than 500 employees.

Internationalization is more and more an issue in the machine vision industry. Some 10 % of the participants of the 2007 edition of the "European Vision Technology Market Statistics" were subsidiaries of companies from outside of Europe. At the same time, almost 20 % of the European vision technology companies also employed people on other continents.

Export to Asia Growing

Recorded sales volumes of the European machine vision companies participating in the Market Statistics survey increased by 4 % in 2007 over the previous year. Some 69 % of the total sales in 2007 were realized within Europe. Here, smaller markets such as Austria, Switzerland, Benelux, the Nordic countries, and Turkey managed to compensate stagnation or even a slight downturn in the main markets Germany, France, Spain, Portugal, Ireland, and the U.K. Outside of Europe, North America again proved to be a major market area for European vision technology, with a share of 14 % of the total sales volume in 2007. The fastest growing market in Asia remained China, where exports surged by 42 % in 2007, and reached 5 % of the total sales. Altogether Asia, for the first time, measured up to the North American market in terms of sales volume.

Vision Systems

Sales of vision systems by European companies remained at a high level in 2007, while their share of the total turnover dropped by two percentage points to 52 %. Following this trend, the turnover of application-specific vision systems dropped the second year in a row and reached a level of 40 % of total turnover in 2007. While the unit sales of these turnkey vision systems decreased, the average unit price rose.

Fewer, but more valuable systems were in demand.

On the other hand, numerous areas nowadays require simpler standard systems, which is why the turnover of these lower priced configurable systems is steadily increasing. Smart cameras with embedded intelligence, another product group recorded separately, become more and more important. This also applies to vision sensors, the shooting stars in machine vision technology. In 2007, 20,500 units were sold. Compared with the unit sales rate of 7,200 in 2006, the expression shooting star is not disproportionate.

Vision Components

The turnover of components made by European machine vision companies rose in 2007 by 9 % compared to the previous year, giving them a share of 45 % of total machine vision turnover. Cameras again were the most important component. Unit sales increased by 7 %. Frame grabbers were less in demand than in earlier years, due to the continuing trend towards digital cameras. The steadily falling unit price played a role here, too. Optics and Lighting appliances both increased their turnover compared to the previous year, as well as vision software, which saw a slight increase of 1 %.

Customers of European Vision Technology

For the system suppliers, the automotive industry remained the largest purchaser of European vision systems, with 26 % of the total turnover. Also the number of robots supplied to the automotive industry increased considerably in Europe, China and other Southeast Asian countries, as well as in North America. This indicates high investments, which will have appeared in the balance sheets of the vision technology companies with a one-year delay in 2008.

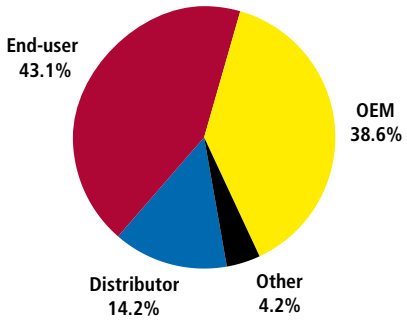
In the electrical/electronics sector, supplies to the semiconductor industry decreased somewhat in 2007, while all other sub sectors increased purchases of machine vision products compared to the previous year. This includes the photovoltaic industry, which is currently booming especially in Germany. For robot manufacturers in the metal industry demand had already gone up in 2006, and continued to do so in 2007. Strong demand for metal products correlates with a need to modernize and expand production facilities.

Due to the strong wood and paper industry in the northern part of Europe, sales in this sector were more important in Nordic countries than in the traditional big markets for the machine vision industry, such as Germany. The use of machine vision systems in the pharmaceutical/cosmetics industry, as well as the metal and the medical device industry considerably increased in 2007, and all sectors invested heavily in automation. The ever advancing medical progress and the demographic development make the demand for medical components and devices, as well as pharmaceutical products rise. High quality standards and cost pressure force companies here to increase the level of automation.

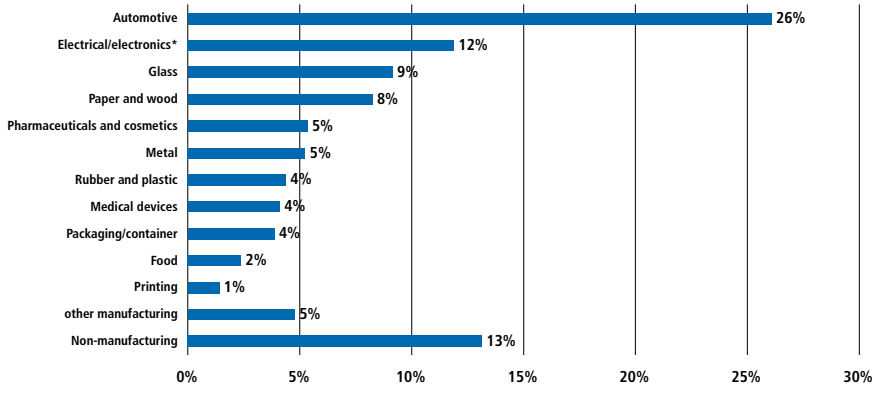
Whereas system manufacturers sold fewer machine vision solutions to the sectors of packaging and filling, as well as printing, orders from the food industry again rose considerably. However, with just about 2 %, the share of the food industry in the total turnover to all industry sectors is still marginal.

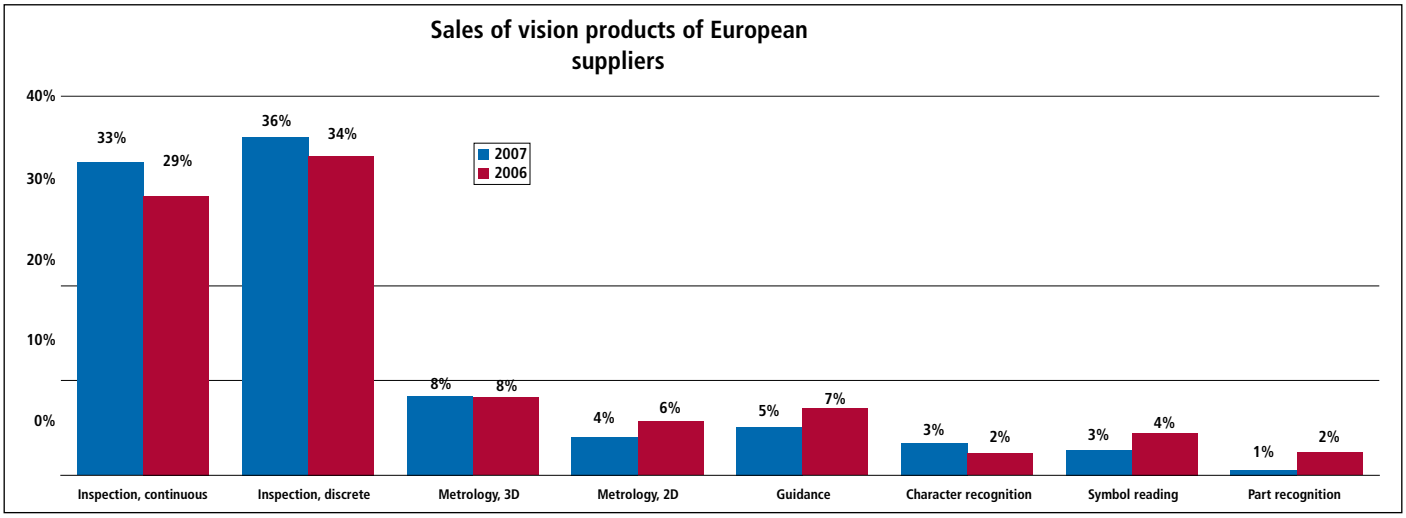
If the customers of European systems suppliers are split up by their position in the value chain, one can see that the major part of turnover is realized with end-users (43.1 %), followed by Original Equipment Manufacturers (OEMs) with a share of 38.6 %. Distributors accounted for 14 % of the total sales. Viewed separately, the strongly represented German companies made 41 % of their turnover to OEMs, all other European companies only about

Total turnover of vision products of European companies 2007 by customer type in %



Total turnover of vision products 2007 Shares of turnover by industries in %





24 %. These results fit in the German picture of a traditionally strong machine building industry. Quite interesting to note is that vision component suppliers in Europe made a remarkable amount of their total turnover with end-users. This underlines the trend, that an increasing number of manufacturers integrate their own machine vision solutions.

Great potential for new applications of vision technology can be found outside the area of industrial production. All non-manufacturing appliances accounted for 13 % of the sector turnover in 2007. Social mega-trends such as environmental protection, resource conservation or the demographic change are opening up new areas of application and markets.

Continuous Demand for Inspection

Among the eight main applications of European Vision Technology, inspection is still by far the most important one, and demand here continues to increase. This applies both for inspection of discrete items (piece parts), the share of which increased by two percentage points to 36 % in 2007; as well as for inspection of continuous products ("web" inspection), which rose to a share of 33 % in 2007 from 29 % in the previous year. Checking, and in particular checking individual parts, still is the standard application for machine vision.

Besides inspection, 3D metrology keeps being important with a share of 8 %. Manufacturers assume that this application will gain importance in the field of sophisticated metrology, not only in the automotive industry, but also in robotics for pick and place applications. Guidance, which includes robot guidance but can also be applied to other tasks, overtook 2D metrology in 2007. The trend towards robot vision is stable, more and more robot manufacturers provide complete solutions in cooperation with machine vision suppliers. Character recognition and symbol reading both applied 3 % of the shares; part recognition with only 1 % played a minor role.

Economic Outlook

In 2008, the trend of internationalizing business activities has continued among machine vision companies in Europe. Expectations of a 6 % increase in turnover will most likely have been met. Dark clouds coming from the financial sector will have done no harm to this forecast, at least until the end of the year, due to existing order cushions. As for 2009, the economic slowdown caused by the global financial crisis will subsequently affect the industry sector, and with this also the machine vision industry. With lower expectations for the coming year on the one hand, many European machine vision enterprises still remain optimistic to be able to maintain the high level of the market volume seen in 2008, but do not expect growth potential in 2009.

The European machine Vision Association (EMVA) representing the machine vision industry in Europe is about to expand its "European Vision Technology Market Statistics". As of 2009 and the years to come, new chapters such as more country-specific reports, and macroeconomic data for the regions examined will be added. The aim is to increase market intelligence with this new tool and to address additional target groups who will benefit from this report. All European machine vision companies, e.g. companies selling vision products out of Europe, are invited to participate in the annual EMVA market survey and in turn will receive the complete results free of charge. For purchase of the study contact info@emva.org.

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Asian Sun Rising

Japanese Market Study by JIIA

The Japan Industrial Imaging Association (JIIA), supported by JIIA member companies as well as other non-member companies, collects market statistic data mainly for the Japanese market and is published every year. Based on this study the author highlights some significant trends of the Japanese Machine Vision market.

With special focus on the area camera, JIIA compared the data collected for the Japanese financial years of 2007 and 2006 (the Japanese financial year is from the 1st April of a given year till the 31st March of the following year).

As the table on the right shows, the total quantity sold based on ex-factory in 2007 was 3.2% higher than in 2006. However, the members that provide their data to JIIA, represented as 'JIIA Member' above, sold 17.5% less than during the previous year. On the other hand, the results for the other companies indicated as "JIIA Non-Member" in the table, are evidently growing stronger.

Due to a lack of available data regarding the sold amount, a definite information analysis is not possible for the time being. The rapidly decreasing ex-factory quantity sold by JIIA member companies ought to raise anxiety.

(Quantity based on Ex-Factory of Camera Manufacturer (pcs.)

	Financial Year 2006	Financial Year2007	
JIIA Member	248,155	204,775	▼17.5%
JIIA Non-Member	90,000	145,225	△61.4%
Total	338,155	349,000	△ 3.2%

Strong Asian Market

Chart 1 shows the distribution of cameras sold by JIIA member companies with regard to their destination. Compared to the data of 2006, the export to the Asian market increased to more than 15%, and now exceeds more than 10% of the total quantity exported. Roughly 13% of exports to Korea, and roughly 57% of exports to China are proof that the market for Machine Vision in Asia is strongly increasing.

On the other hand, it has always been the case that the export percentage to Europe has been roughly at 15%, but in 2007 it has begun to fall down to little less than 5%. In addition, the export to North America is reduced to about 25%.

A comparison with the statistical data for the AIA/EMVA's production is necessary. Regarding the digital interface, it is possible to think that Japanese corporations are behind their European counterparts. From now on, JIIA will need to take more initiative to improve the relative importance of new digital interfaces like CameraLink, IEEE1394 and especially GigE and other new standards.

Within Japan in general, the market share has been stable for several years.

Image Resolution

Let's take a look at the image resolution trend next. Chart 2 represents the deeply rooted market share of the TV standard. Combined with VGA, the total market share is a little more than 70%. However, the market share used to be even higher at slightly over 80% in 2004. Now it has decreased by 10% to 70%. It is not because 1M or 2M have had an increase in usage. Moreover, and worthy of a special mention, 4M~5M cameras have had a greater prominence. This result is of great interest.

Interfaces

We will now take a look at the market share of the different interfaces. Chart 3 shows that the analogue system, based on quantity sales, had an overwhelming percentage share of the market at 80%. Only four years ago, in 2004, digital interfaces had a mere 5% of market share. However, it penetrated the market and in 2007 it collectively had a more prominent total of

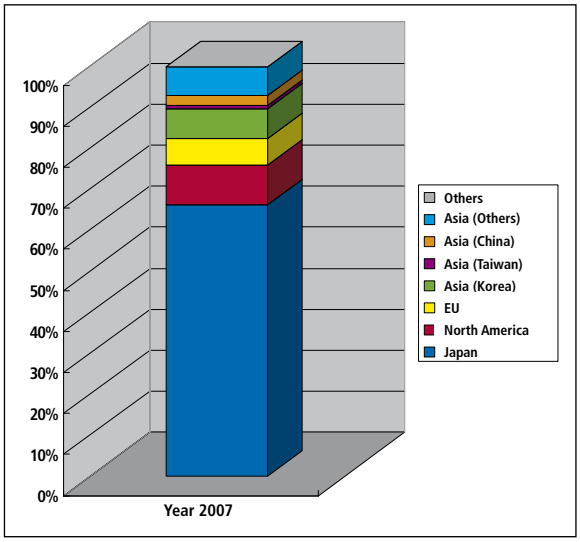
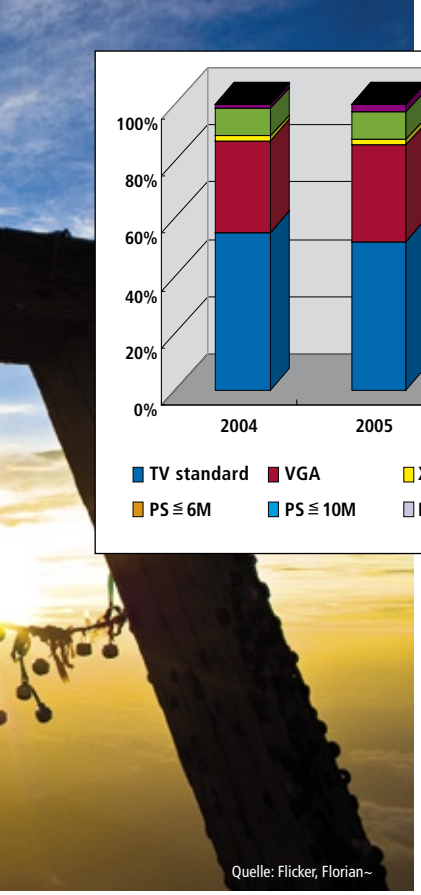


Chart 1: Distribution of Ex-Factory Camera Sales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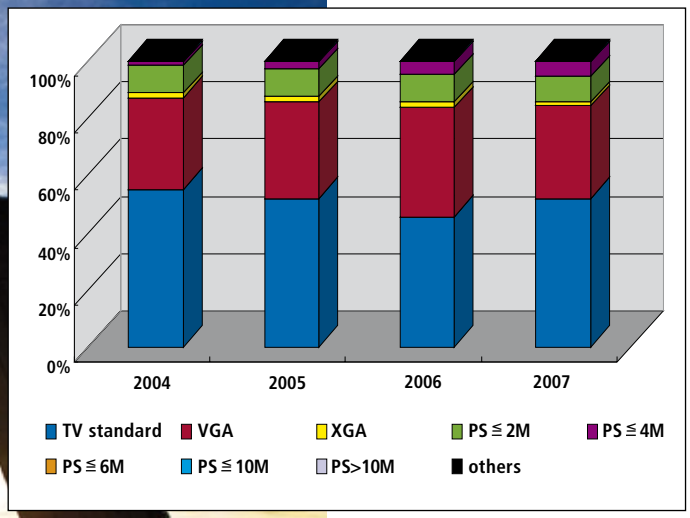

Chart 2: Image Resolution Trend

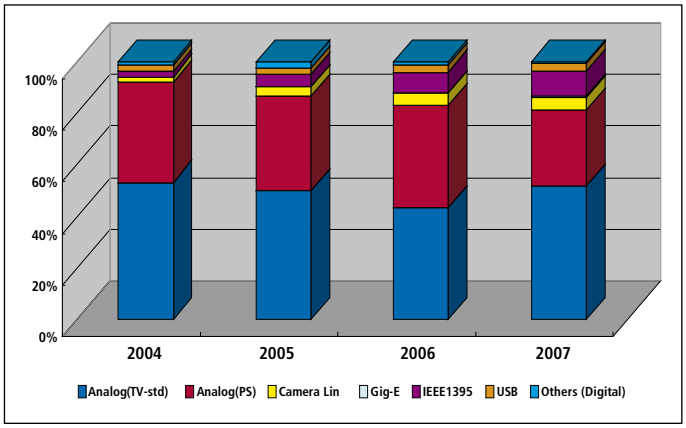

Chart 3: Interface Trend

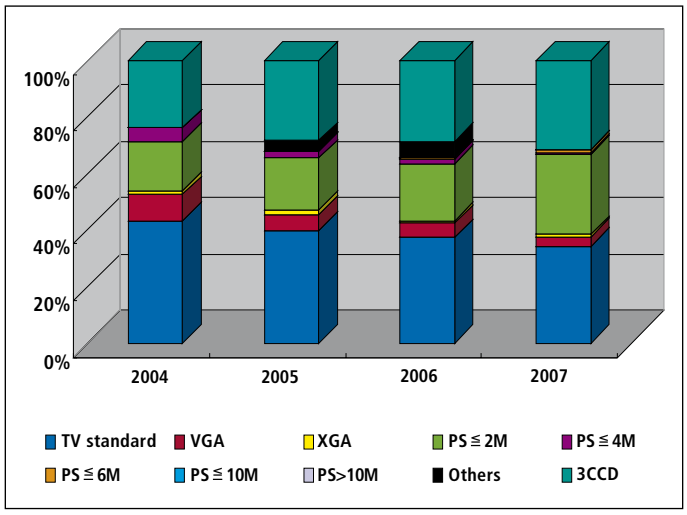

Chart 4: Picture Resolution Trend for Color Cameras

20% of market share. Within the detailed classification of digital interfaces, CameraLink only had a marginal increase from 2006 to 2007.

Manufactured goods that were based upon the IEEE1394 standard, increased by up to 10% in total. The reason of this is because more and more IEEE1394 products have been released into the market. It is most certainly possible to say that the rise in the market share of the IEEE1394 standard is of great interest.

However, concerning GigE, the market share has not really increased from a total of 1%. The reason behind this is, as mentioned previously in the statistical data of EMVA and AIA above: Japan is still behind their European counterparts concerning the emergence of GigE, and this is of great concern.

Color Cameras

Finally, looking at color cameras, Chart 4 shows the relative comparison of sales for different camera resolutions. In terms of quantity the TV standard is still by far the strongest, having around 80% of market share. However, looking at the turnover, the TV standard has only 34% of the market.

Chip resolution of up to 2 million pixel has about 28% of the market and 3CCD has 32% of the market. TV Standard is becoming cheaper and cheaper. The market demand for high accuracy processors using higher resolution cameras or 3CCD cameras is ever increasing.

Outlook

At the time I was asked to write this article, it was a historically bad time worldwide, right in the midst of the financial crisis. Before, and ever since 2001, the Machine Vision market in Japan had developed and grown favorably. But in spite of this, the financial crisis has disrupted the recovery and favorable growth, which has been felt strongly in Tokyo.

At this certain point of time, at the end of the first half of the Japanese financial year, one can usually forecast the expectations of 2009, in normal times. However, semiconductors, electronic components, the automotive industry market and related products together have more than 70% of market share in the Asian market, and it is very difficult to forecast the coming year due to the financial crisis.

After the 'burst of the bubble', in the beginning of the 1990s, Japan has been concentrating thoroughly to restore the domestic financial situation, especially for the reorganization of the financial environment. Japan has spent a lot of effort to improve the economic climate and this period has been coined as the so called 'lost 10 years'. Because of the bubble burst, and its restoration, the Japanese economy has had a rather sluggish recovery compared to the British and American economies. As a result of this sluggish recovery, the Japanese economy has not been so hard-hit compared to the British and American economies during this global financial crisis.

The Japanese economy relies heavily on exports and imports. The Japanese Yen exchange rate has appreciated 20% over the US dollar and has also appreciated 30% over the Euro, and this rapid increase in strength in the Yen has affected the Japanese exports negatively. And in turn the Machine Vision market has been affected accordingly.

In this tough and extremely unfortunate global financial crisis, all countries must help one another to overcome this global financial crisis, and bring back the Machine Vision market to its normal state of activity, as soon as possible.

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Yes, We Can

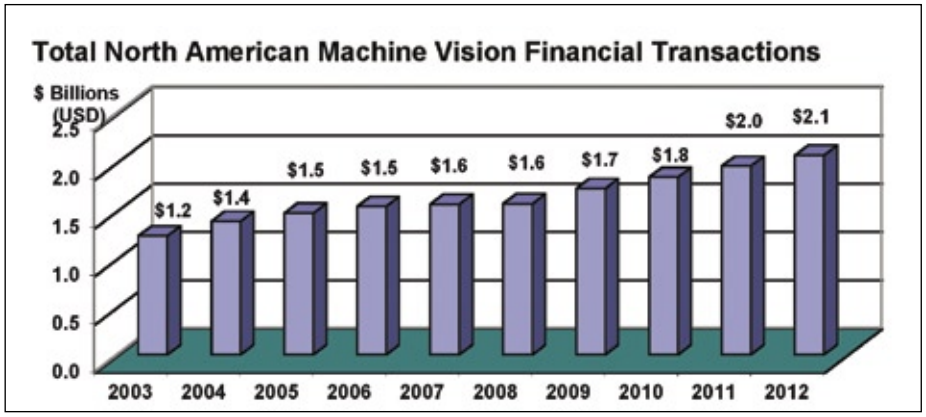
Machine Vision in North America

Quelle: Flickr, JPhilipson

Despite some warning clouds on the horizon, long-term prospects for machine vision sales in North America remain positive. The short-term outlook is not quite as rosy however. In this article, the author shares some results of the 2008 AIA Market Study (Machine Vision Markets – 2007 Results and Forecasts to 2012) and offers some predictions for the years ahead, factoring in the effects of a weakening economy.

Machine vision (MV) companies selling their products in North America are keen to learn how the weakening economy will affect their sales in the quarters ahead. Of course, it is not possible to foretell the future of sales with certainty, but it is evident that an understanding of sales performance presupposes a longer-term perspective. In the short term, sales volumes are subject to the vagaries of the business cycle. Consequently, using only recent data to forecast sales runs the risk of over-forecasting in good economic times and under-forecasting, when the economy is weak. By contrast, a longer-term perspective allows the forecaster to identify and extrapolate the underlying sales trend as a baseline forecast and overlay forecasted economic impacts for the years ahead. In this way, taking a longer-term perspective avoids an uncritical mindset that automatically assumes a long-term "gloom and doom" scenario in bad times or, conversely, an "over-exuberant" scenario in good times.

To assess the overall health of machine vision sales in North America, we add total MV component and system sales in North America (market basis) to derive total MV financial transactions. (This most succinctly captures the general performance of machine vision companies operating in the North American market instead of focusing on individual product markets.) When we plot these total financial transactions over time, we see strong evidence of a solid, long-term trend.



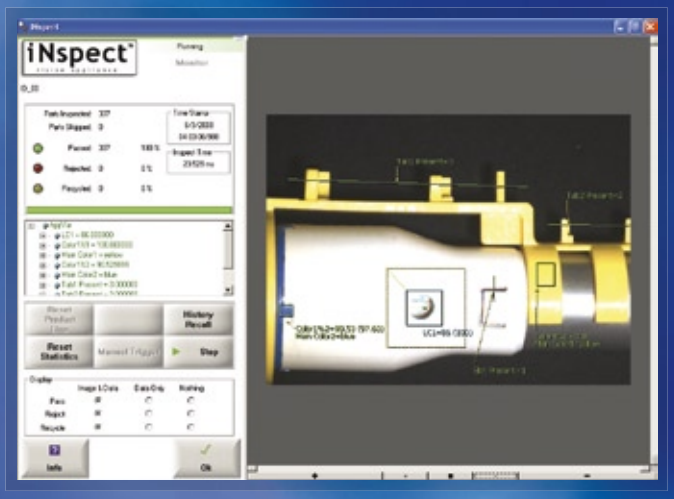
Impressive Growth from Humble Roots

As shown by the bar graph left, total MV financial transactions in North America increased from US$1.2 billion in 2003 to US$1.6 billion in 2007. According to the 2008 AIA MV Market Study, this solid growth will continue, reaching US$2.1 billion by 2012.

This impressive pattern of growth is not at all surprising, given the performance of machine vision since its inception. According to the 2008 AIA study, machine vision in North America has made major inroads in manufacturing and other sectors of the economy. From its humble roots approximately 25 years ago in North America, machine vision has evolved into an important automation technology, having attained an indispensible role as an enabler of quality control, productivity and cost containment in a growing number of industries.

sensors - cameras - frame grabbers - processors - software - vision solutions

DISCOVER
THE VERSATILITY OF BLUE



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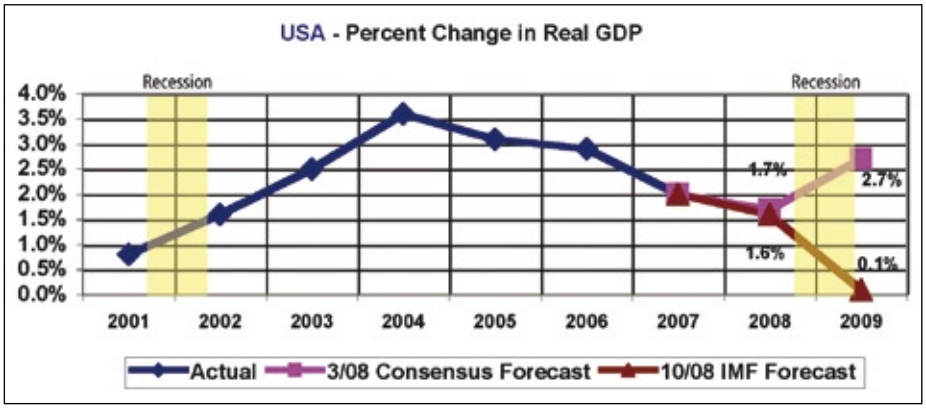
Recession Forecasted

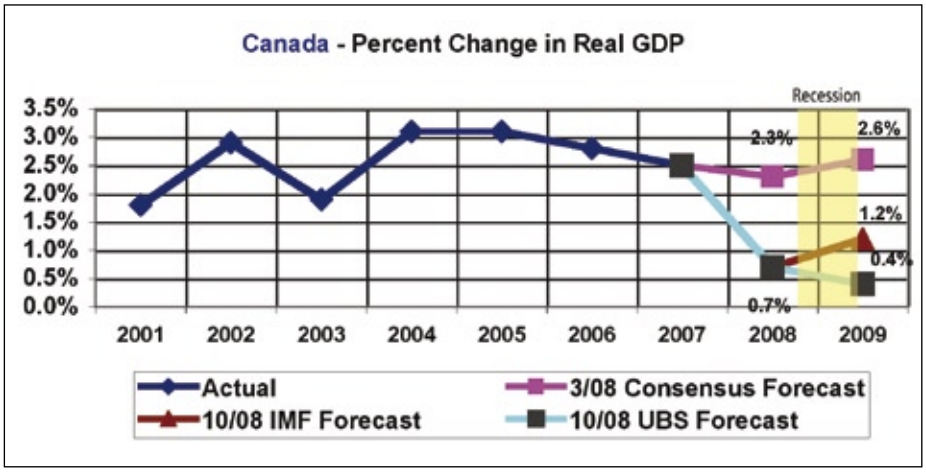
In addition to reflecting the historical, long-term trend in MV sales, the market study's North American forecast also was in line with the consensus forecast of economists at the time, which foresaw an economic slowdown instead of a recession. Consequently, we predicted only a minor departure from the historical trend line. However, it is now apparent that North America is, or will experience a recession, as shown by the revised economic forecasts in the upper right hand table.

According to the International Monetary Fund (IMF)'s latest forecast, the USA will experience a recession in the second half of 2008 which will extend into part of 2009. Real GDP in 2009 will reach only 0.1%.

Will Canada follow the USA into recession? The IMF does not think so, forecasting real GDP at 1.2%. UBS does however; its forecast for Canada in 2009 is only 0.4% Thus, agreement has not yet emerged regarding the likelihood of a recession in Canada. But for North America as a whole, the prognosis is clearly recession, since the US economy is roughly 10.8 times larger than that of Canada.

For machine vision companies, however, the critical issue is: how will these economic forecasts, if true, affect MV sales.



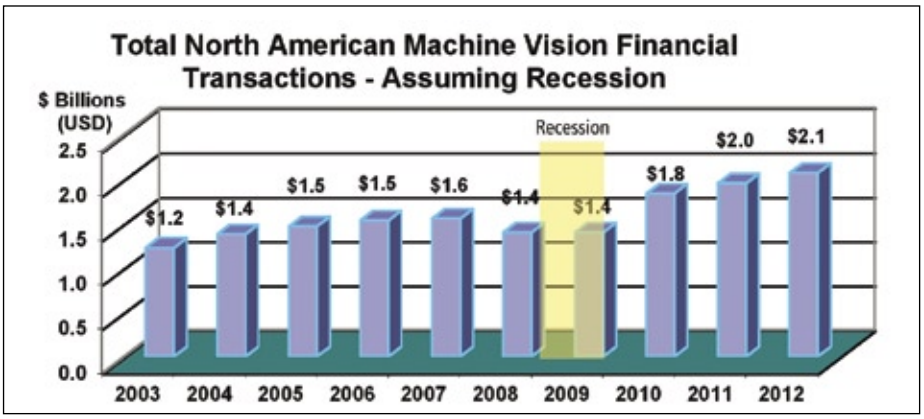


Long-term Prospects Bright

Based on the impacts of the 2001 US recession, our strong expectation is that at least in the latter half of 2008 and 2009 the recession will slow MV sales growth. As indicated by our historical sales data (not shown), growth rates of MV sales following the 2001 recession went negative for a number of product markets in 2002 and 2003. This is of course very much in line with intuition and personal experiences in the industry. As sales people know best, demand for MV products is driven largely by capital expenditures (Capex), which the CFOs of companies sharply curtail in anticipation of bad times as required by their fiduciary responsibilities.

While it is very difficult to accurately forecast MV sales in times of economic turbulence, it is possible to estimate what the MV growth rates reflecting the 2001 recession would do to the volume of MV Financial Transactions in 2008 and 2009. As shown by the following bar chart, total transactions would dip to US$1.4 billion in both years, a loss of US$0.2 and US$0.3 billion, respectively. But of course all recessions are different in terms of duration and severity. The latest recession could be worse or milder than the 2001 recession, depending on many factors including actions taken by the government. It is simply not possible to know in advance.

At the same time, one thing is clear. While MV companies in North America will probably face tough times in the short term, their long-term prospects remain bright. History shows that the machine vision industry in North America is highly resilient. Despite the impacts of the 2001 recession, MV sales eventually recovered strongly, evincing once again healthy rates of growth across product markets, as sales growth returned to the long-term trend line. We expect the same thing to happen again.



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A Technology Together with a Dream

Machine Vision in China

There was a legend in the ancient orient that someone might obtain the insight by hard anneal and self-cultivation, and the Bible also described that our human ancestors had suffered the original sin in order to understand the world. So it is obvious that people must undergo crucifixions before they may understand the real world, and this is similar true both in east and west cultures. However, only in our modern industrial society, the technology machine vision may bring a great extension and liberation to the function of human perception.

Quelle: Flickr, Norma Desmond

The Status of Machine Vision in China

In China, the application of machine vision came with the introduction of technology in the 1980s; and it was firstly used in semiconductor and electronics industry. The application of machine vision in this industry has played a pivotal role in improving the quality and productivity of electronic product manufacturing. At present, China is becoming one of the most active regions for machine vision growth in the world, and the scope of applications has covered almost all sectors of national economy, including industry, agriculture, medicine, military, aerospace, meteorology, astronomy, public security, transport, scientific research and others. However, the application in industry accounts for the largest share, and the important reason may be that China has become the machining center of the global manufacturing industry.

Reviewing the existing achievements will help us to understand the present situation and future needs of machine vision in China. Machine vision technology has been successfully applied in almost all industrial test fields. At the same time, China is a large agricultural country with rich agricultural products, thus it is of great significance to automatically classify the agricultural products automatically and practice right quality for right price so as to produce better economic results. With the rapid development of industrialized agriculture, the machine vision technology is also an important application in monitoring the crop growing status to enable the scientific irrigation and fertilization.

The requirements determine the products. Machine vision has mastered the initiation and development phases in China. The next step is how to tend towards the future in China's social environment.

Trends in Manufacturing Industry

There are many factors affecting the launch, application and growth of machine vision, which not only include technical aspects but also the commercial part. At present, the needs from manufacturing are crucial. The development of the manufacturing industry promotes the needs of machine vision, and it also determines that machine vision will gradually develop from simply collecting, analyzing, delivering data and judging action to systematization, "intelligentization" and specialization. This trend at the same time indicates that machine vision technology and automatic equipment will be more closely integrated.

Except for the semiconductor and electronics industries as the main growth areas for machine vision, it should be fully noticed that the Chinese government may continuously increase its efforts to upgrade the traditional manufacturing industry. They have put forward the scientific development thoughts of "the information technology drive industrialization", and track "the new industrialization road" in recent years. This brings unprecedented opportunities for the development of machine vision. In the next few years, with the developing of China´s manufacturing industry, the application status of machine vision will change from the low-end in the early stage to the high-end, and the manufacturing automation will be developed toward the smart, efficient, high-quality and precise direction.

Roadmap to Promote the Development of the Chinese Machine Vision Market

The goals for the further development of machine vision products have gradually formed as follows:

1. To form a unified and open standard.
   Machine vision products and the re-

lated technologies can be developed and matched in a common platform to promote the application of Chinese machine vision to meet the international standards, and also to boost the whole industry development.

2. As for the products, machine vision will decreasingly depend on the PC technology, and it will be more closely integrated with the control and measurement of other data collection means. The embedded visual products will gradually replace the PC card-based products and SDK methods, so as to enhance the reliability and maintainability of the vision products and to facilitate continuous improvement and upgrading.
3. The vast standardization technology is required to be adopted in the machine vision products, the secondary development may be carried out according to the user requirements so as to adapt the manifold needs. At the same time, machine vision equipment manufacturers are not only the providers, but have the system integration capability to solve problems.

The development of modern vision theory and technology requires that machine vision products can not only be able to simulate the functions of human eyes, more importantly it shall be able to finish the jobs that human eyes are insufficient for. Based on the continuously maturing and perfection of today's technologies of electronics, optics and computer, many advantages of machine vision, such as automation, objectivity, non-contact and high-precision, high-speed as well as the reliability of industrial on-site environments, have been very apparent.

Market Survey

The survey result, which is carried out by "Control Engineering China", about the current application of machine vision products in China and the user's specific requirements may be helpful to the future market development strategy. According to the statistics, the application fields which mostly use machine vision today are ranked as motion control, testing, diagnosis, testing and maintenance, SCADA, continuous processing and batch processing, machine control, CNC, robots and so on (see fig. 1).

Figure 2 shows the major application obstacles of machine vision products in the Chinese market. The listed six factors are budget limitation, the uneasy usage, the project implementation resource limitation, the acceptance level by operators, the understanding on the visual technology, the priority level being not high enough compared with other automation projects. It also indicates that the most prominent obstacles in the current application may be the insufficient understanding of vision technology and budget constraints.

Figure 3 shows the investigation results regarding user criteria for selecting machine vision products. The most important criteria are the technical support ability and the complete solution (including software) delivery ability of the supplier. The price factor is only ranked as number 6.

The Rising Domain of Machine Vision Demand in China

China is at a high-speed stage of economic and social development, along with a rapid urbanization process and the implementation of a large number of infrastructure projects, all required to install "electronic eyes", and these applications have put forward the urgent needs for high-end vision products with intelligent image processing and analysis functions.

In order to strengthen the social security, visual monitoring has become a basic city security measure. For example, Guangdong will install 1 million surveillance cameras to cover all key areas till 2010. Moreover, 250,000 "surveillance cameras" have been used only in Guangzhou for monitoring the city zone at present. Similar to European countries, a lot of cities in China will enter the information security era with millions of "electronic eyes".

One of the most important goals for intelligent visual monitoring systems is to reduce the rate of false alarm. The errors are mainly due to moving objects in the monitoring area, such as a shadow of a flying cloud, reflected light of the sunshine, and also are possible from the system themselves, camera shaking with wind, light and aperture mismatched, and so on. Especially in the field of bank applications, it is required to see the people and scene features by adopting the natural contrast correction under a strong light contrast, and it has become the key factor for success or failure of the whole monitoring system. In addition, the application fields such as the detection and identification of fingerprints, pupils, facial features have become an area for rapid growth of machine vision.

The Ecological Analysis of the Machine Vision Market

In the current and also the coming period, the machine vision market in China will mainly indicate the ecological characteristics which are interdependent and promote each other between technology, price and applicability.

The two main points are technical factors. Firstly, it is more difficult to design and implement high-end systems due to the composition of the machine vision application which may involve various specialties. Secondly, the miniaturized and integrated products will become an important direction to achieve "the vision system on chip", the development of the intelligent machine vision and the automatic image information analysis system have indicated the significant advantage of the integrated visual products.

As for the machine vision product prices, the cost performance is an important factor in the current market. Even as one thought by industry experts, the own unique industry individuality of machine vision is the universality of product applications; the other is that its products can not directly create value. The high expectations from users in machine vision technology and the high development costs of the vision device hardware and software research will be the contradiction between supply and demand in the market development in the future time. To resolve this problem, we mainly rely on technical progress and improvement of the product cost performance.

As for the applicability, it appears in the integration of technologies and de-

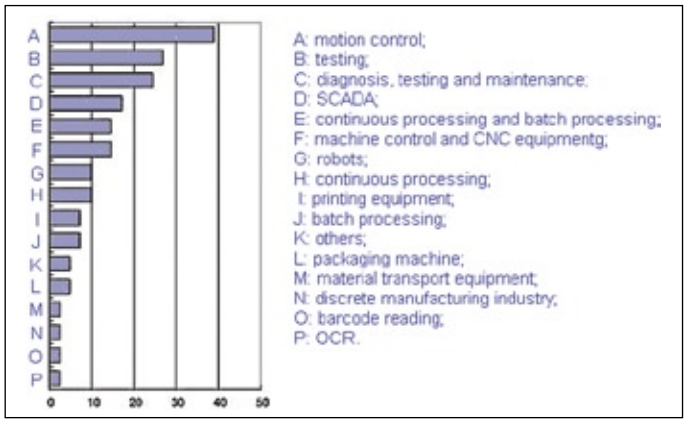

Fig. 1: Machine Vision Applications

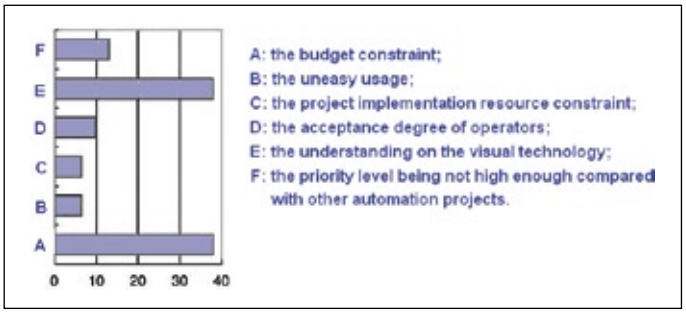

Fig. 2: Major obstacles for the application of machine vision products

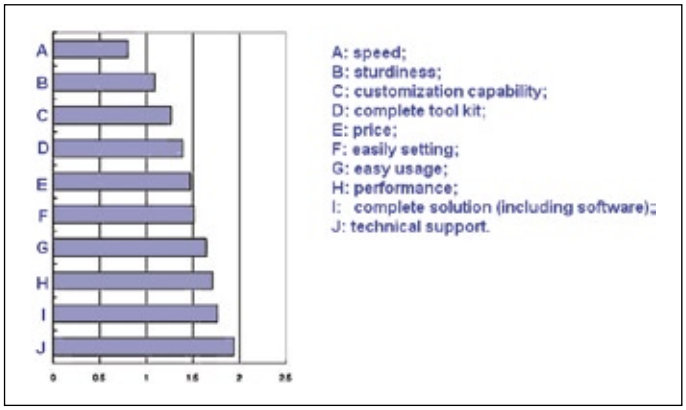

Fig. 3: Decision criteria for users to select machine vision products

mands. As mentioned above, the diversified and personalized programs of machine vision products and systems, and the professional services may be increasingly important. At the same time, during the developing process of product miniaturization technology, it should be able to gradually overcome the weakness of too "complicated" operating conditions, so as to realize its application in the limited space and conditions provided by users.

What requires special attention is that the relation between machine vision technology, which is interdisciplinary and cross-industry, and the integrative mechanical system covering the light mechanical/electrical and software, is very close. However, the severe shortage of the required talents, the insufficiency of application engineers and their knowledge structure may affect the research and development of machine vision products and the industrialized application capacity. Even as the rising and development of the computer technology has directly corresponded with the increasing pullulation of computer professionals in software and hardware. CMES, the China Mechanical Engineering Institute, who leads China's manufacturing industry and its subordinate industry committees, will play the important role in organization, popularization, policy support for technical guidance, personnel training, project planning, foreign cooperation and market development.

Conclusions

During the 20 years of development, the machine vision technology is not only one interdisciplinary and cross-industry field with the character with high and new technologies integration. Moreover, it also is becoming one emerging industry with the goal of intelligent information systems and mechanical intelligence. It becomes a new technology and economy development point which has caught the attention of all sectors of the community. In its application areas, effects such as the automation, informationization, intellectualization, high-quality, high efficiency, high precision have been achieved. With the continuous application of new technologies and theories in machine vision systems, the peoples sensing capability may encompass the span from "Giant" to "Remoteness" so that people come to a fully new cognitive world and complete the tasks which may be difficult or impossible to carry out today. Therefore, machine vision will boost the development of productivity and the great progress of society.

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European Machine Vision Market Overview

Who Is Who in Machine Vision and Optical Metrology

Europe accounts for roughly one third of all Machine Vision revenues worldwide. It is a vast and highly diversified market. Even after 16 years of European Union and seven years of Euro currency, Europe is still and will continue to be for years to come an area of very diverse countries, cultures, languages and industry centers. To get an overview which companies out of which areas cater to which of the Vision needs of which industries is a challenging task. With our INSPECT Buyers Guide, launched with this 2009 edition, we attempt to present the suppliers to the European markets in a transparent and comprehensive manner.

On the following pages you will find information about local and global companies serving the European markets with vision and optical metrology products, presented in a couple of different ways.

We structured the range of products and services in 13 main categories:

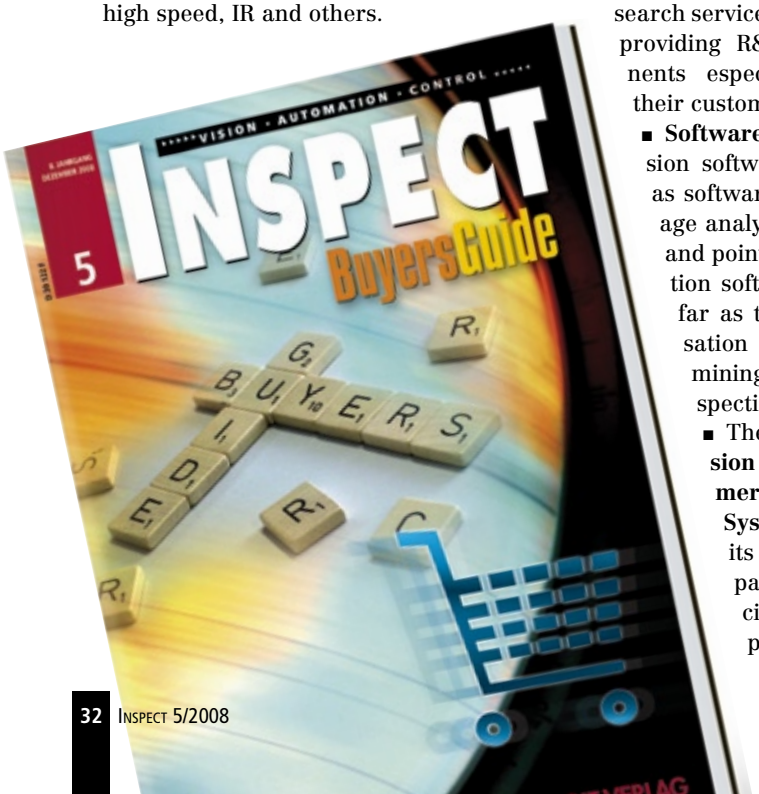
- **Cameras** comprises the whole range of area and line scan cameras, CCD and CMOS as well as thermography, high speed, IR and others.
- Under **Consulting** you will find industry associations, consultants but also companies that offer consulting as one part of their product range.
- **Frame Grabber** covers the different types of image acquisition boards.
- The category **Generic and Turn Key Vision Systems** actually spans from PC-based vision system products to any type of hardware turn-key systems including engineering and installation services.
- **Lighting Equipment** is LED, laser, strobes, fluorescent light and more, focused on the vision and metrology industries needs.
- At **Microscopes** and **Endoscopes** the instruments as well as the accessories can be found.
- **Optical Instruments** is a rather large category covering products as diverse as color measurement, spectrometer, surface measurement, optical coordinate measurement machines and 3D metrology products.
- The products in the **Optics** category are lenses, filters and optics calculation software.
- **Processors, Interfaces, Cables and Peripherals** is dedicated to the respective components specifically for the vision and metrology products and applications.
- In the **R&D** group research institutes are found, companies offering research services and also companies providing R&D intensive components especially developed for their customers.
- **Software** covers machine vision software products as well as software for microscopy image analysis, 3D measurement and point cloud based calculation software and reaches as far as temperature compensation software and data mining tools for quality inspection systems.
- The whole range of **Vision Sensors, Smart Cameras and Embedded Systems** is compiled in its own group, encompassing application specific as well as generic products.
- Last but not least, the category **Others** lists companies which offer an additional product range not listed before, specifically for vision and metrology applications.

For maximum ease of use, we decided to list each company with their respective weblink in each category covered by their product range. This way it will be easy for you to find what you are looking for at a quick glance without having to trail you finger through endless fine-print tables with scattered dots. The compilation of data was done based on the companies´ own input and on our own research.

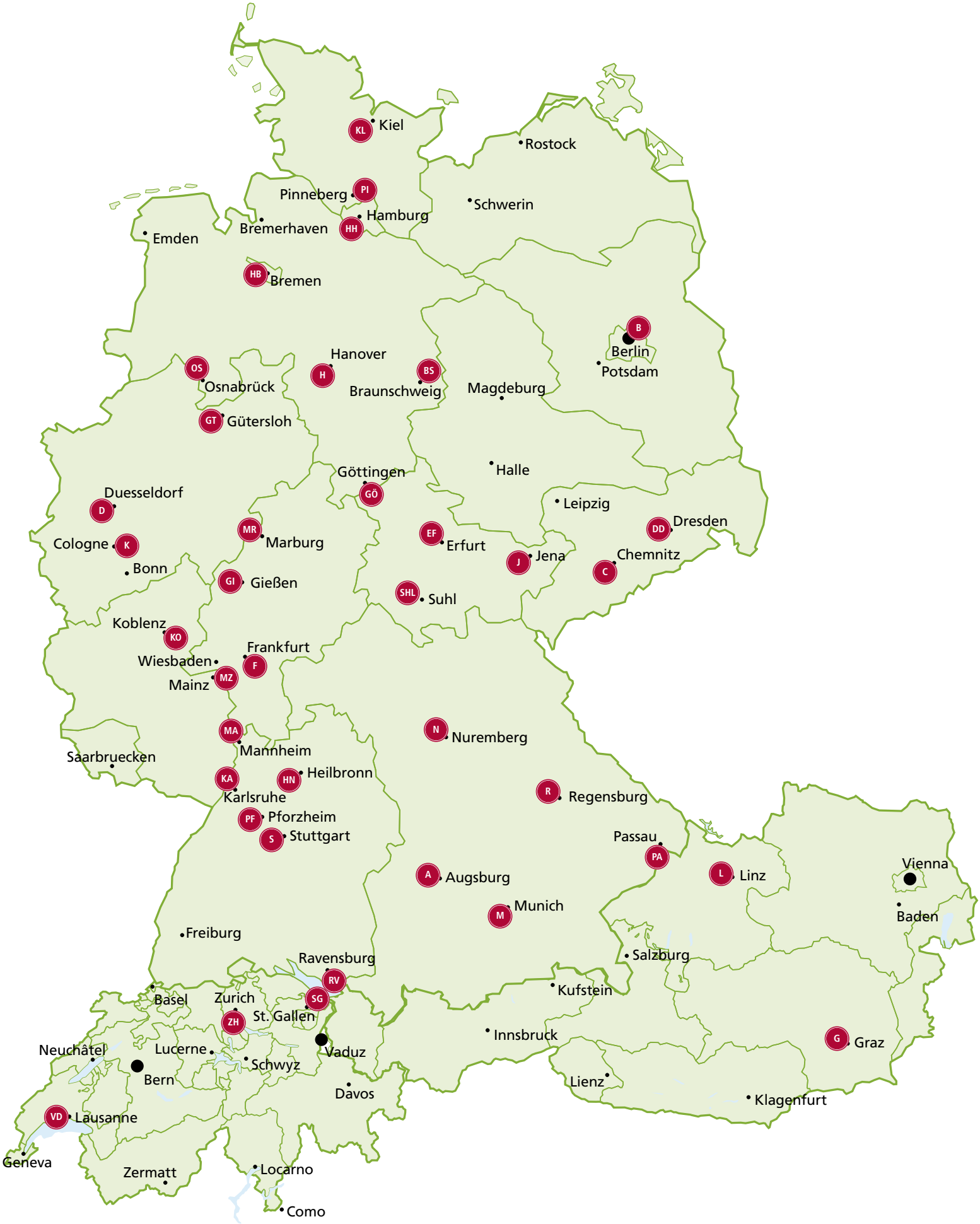
In addition to the listings we offered all suppliers the opportunity to present themselves in a larger format. Accordingly you will find a number of company entries complete with all contact data and a short self-presentation and some company profiles with additional company data and a detailed description of the firm and the product range.

All companies presented in this way are shown in the maps of German speaking countries, Europe, North America and World to give you a chance to find out easily where the headquarter of your supplier is located.

We hope that you will get a lot of use out of this Buyers Guide during the upcoming year. Some aspects we wanted to approach a little bit differently than similar directories you might know to provide even more usability. We would appreciate your feedback and all kinds of additional ideas to make the tool more valuable to you with every new edition.



▶ **Contact**
Gabriele Jansen, INSPECT
gabriele.jansen@wiley.com
www.inspect-online.com


KL
Kiel
Rostock
PI
Pinneberg
Hamburg
Schwerin
HH
Bremerhaven
Emden
HB
Bremen
B
Berlin
Potsdam
Hanover
OS
H
BS
Osnabrück
Braunschweig
Magdeburg
GT
Gütersloh
Halle
Göttingen
GÖ
Duesseldorf
D
Leipzig
Dresden
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Chemnitz
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Mainz
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N
Nuremberg
Mannheim
Saarbruecken
KA
HN
Heilbronn
Karlsruhe
R
Regensburg
PF
Pforzheim
S
Stuttgart
Passau
PA
A
Augsburg
L
Linz
Vienna
M
Munich
Baden
Freiburg
Salzburg
Ravensburg
RV
Kufstein
Basel
Zurich
SG
St. Gallen
ZH
Innsbruck
G
Graz
Neuchâtel
Lucerne
Vaduz
Schwyz
Bern
Lienz
Davos
Klagenfurt
VD
Lausanne
Geneva
Zermatt
Locarno
Como

Producer

Adlink Technology provides a wide range of embedded computing products and services to the test & measurement, automation & process control, gaming, communications, medical, network security, and transportation industries. Adlink products include ETX and COM Express modules for industrial computing, AdvancedTCA, CompactPCI, PCI Express-based data acquisition and I/O and vision and motion control. Adlink provides customization and system integration services, and maintains low manufacturing costs.

Adlink Technology Inc.
Nord Carree 3
40477 Düsseldorf
Germany
Tel.: +49 211 495 55 52
Fax: +49 211 495 55 57
emea@adlinktech.com
www.adlinktech.eu

D-1

Machine Builder

Aicon 3D Systems is one of the world leading providers of optical camera based 3D measurement systems. Aicon develops and distributes systems for the business areas of inspection and testing including car safety and tube inspection. With Aicon's latest products for automated test and process control, the company enters new worldwide market fields. The majority of Aicon's clients operate in the automotive and aerospace market.

Aicon 3D Systems GmbH
Biberweg 30C
38114 Braunschweig
Germany
Tel.: +49 531 58 000 58
Fax: +49 531 58 000 60
info@aicon.de
www.aicon.de

BS-1

Distributor

We are an independent distributor, especially for Sony, Micron and Hirose.

AKE-Components GmbH
Bahnhofstr. 32
76744 Wörth
Germany
Tel.: +49 7271 9897 20
Fax: +49 7271 9897 29
sales@AKE-Components.de
www.ake-Components.de

KA-1

Solution Provider/Research Facility

To our costumer we offer complete solutions for quality assurance using imaging processing and optical measurement.

Alfavision GmbH & Co. KG
Am Sportfeld 2
94121 Salzweg
Germany
Tel.: +49 851 75689 0
Fax: +49 851 75689 22
info@alfavision.de
www.alfavision.de

R-1

Producer

Alicona is a leading supplier in high resolution optical 3D measurement. Even at complex topographies with steep flanks and strongly varying reflection properties measurements yield a vertical resolution of up to 10 nm. Alicona systems are successfully used in quality assurance in the lab and in production.

Alicona Imaging GmbH
Teslastraße 8
8074 Grambach bei Graz
Austria
Tel:: +43 316 4000 700
Fax: +43 316 4000 711
info@alicona.com
www.alicona.com

G-1

Distributor

AMS Technologies is a leading pan-European distributor of high-tech components and systems with superior engineering capabilities. The product offering comprehends active and passive components, subsystems and instruments. Components include transmitters, detectors, couplers, lenses and switches; sub-systems and instruments light sources, interferometers splicers, polishing machines and a wide range of accessories.

AMS Technologies
Fraunhoferstr. 22
82152 Martinsried/Munich
Germany
Tel.: +49 89 89577 0
Fax: +49 89 89577 199
info@ams.de
www.ams.de

M-1

The new Stilar® 2.8/8:

"To give 1.2" sensor chips a better view."

The challenges facing manufacturers of machine-vision cameras for industrial image processing applications are becoming more formidable every day. And Docter Optics can help meet and overcome these challenges. For example, with the new STILAR® 2.8/8, a super-wide-angle lens designed and developed especially for 1.2" sensor chips (CMOS or CCD) with maximum resolution. Contact our specialists for further information.

SPIE Photonics West
27 – 29 January 2009
Booth 415

DOCTER® OPTICS

www.docteroptics.com

Solution Provider

Asentics vision technology offers comprehensive know-how and long-year experiences for industry- and product-specific solutions for industrial image processing tasks. Competence by which our customers directly benefit, both economically and by further improving their product quality.

Asentics GmbH & Co. KG
Birlenbacher Str. 19-21
57078 Siegen
Germany
Tel.: +49 271 303 91 0
Fax: +49 271 303 91 19
info@asentics.de
www.asentics.de

K-1

Solution Provider/Producer

AT – Automation Technology was founded in 1998 as a systems house for industrial image processing. Its technologies mean that AT is a specialist in industrial infrared imaging and high-speed 3D image processing. Automation Technology offers the world fastest high-resolution 3D sensors for high-speed 3D measurement in accordance with the light-sheet triangulation method. Furthermore, AT is a provider of industrial thermography solutions for automation, monitoring and non-destructive testing.

Automation Technology GmbH
Hermann-Bössow-Str. 6-8
23843 Bad Oldesloe
Germany
Tel.: +49 4531 88011 0
Fax: +49 4531 88011 20
info@automationtechnology.de
www.automationtechnology.de

HH-1

Solution Provider

ATMvision develops Vision Inspection Systems with solution oriented concepts for the production processes for various industries. With highest efficient software concepts and using the newest 2D and 3D technologies, ATMvision develops "on the fly" and "stop & go"-systems. ATMvision manufactures the following automation and inspection technologies: Surface inspection, Measurement systems, Inspection systems, Robot vision, Quality check, 3D-technology.
ATMvision supplies customers world wide.

ATMvision
Weiherstr. 5
88682 Salem
Germany
Tel.: +49 7554 986990
Fax: +49 7554 98699999
info@atmvision.com
www.atmvision.com

RV-1

Producer

Balluff, as a leading, globally active sensor specialist and connectivity provider with more than 2,190 employees, offers a full-range line of high-quality sensors, accessories and custom solutions for every area of factory automation. In addition to the main headquarters in Neuhausen, Germany, the company has production and development locations as well as subsidiaries and representatives around the world. This guarantees their customers fast, local availability of products, perfected service and high quality applications assistance anywhere in the world.

Balluff GmbH
Schurwaldstr. 9
73765 Neuhausen
Germany
Tel.: +49 7158 173 0
Fax: +49 7158 5010
balluff@balluff.de
www.balluff.de

S-1

Producer/Solution Provider

Basler AG develops, produces and markets Vision Technology worldwide – the technology on which artificial vision systems are based. Our components, solutions, and services are optimally designed to meet customer application needs and play a key role in optimizing the industrial production process.

BASLER VISION TECHNOLOGIES

Basler Vision Technologies
An der Strusbek 60-62
22926 Ahrensburg
Germany
Tel.: +49 4102 463 0
Fax: +49 4102 463 109
info@baslerweb.com
www.baslerweb.com

HH-2

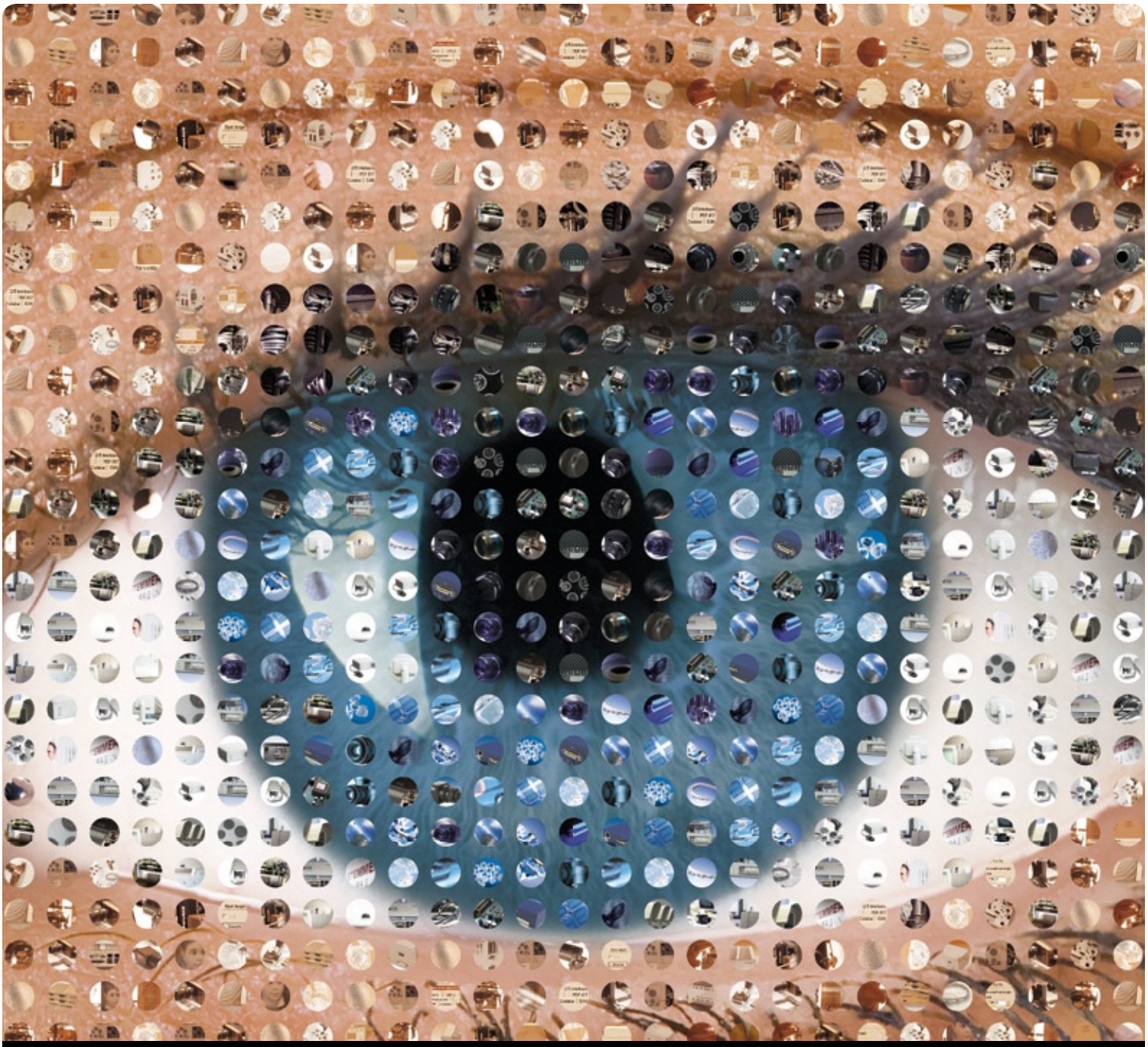
Producer

The Baumer Group has established itself as the premier innovator of precision sensors, motion control, image processing, identification solutions, gluing systems and process instrumentation for the automation market.
The products of the Baumer Group keep production processes running in numerous applications world-wide. With high precision and reliability, our automation components and systems provide proven solutions at highest benefit for our customers.
Selected specialized companies are members of the Baumer Group in the segments Factory Automation and Process Automation.

Baumer

Baumer GmbH
Pfingstweide 28
61169 Friedberg
Germany
Tel.: +49 6031 60 07 0
Fax: +49 6031 60 07 70
sales.de@baumergroup.de
www.baumergroup.com

F-1



ONE VISION – UNLOCK THE POSSIBILITIES!

► STEMMER IMAGING has one vision – delivering success to our customers. As Europe's largest technology supplier of imaging components and services we offer the competence and experience that make you stronger. Together we unlock the possibilities of vision.

IMAGING IS OUR PASSION

► **WWW.STEMMER-IMAGING.COM**




GERMANY
+49 89 80902-0

UK & IRELAND
+44 1252 780000

FRANCE
+33 1 45069560

SWITZERLAND
+41 55 4159090

STEMMER IMAGING – INCORPORATING FIRSTSIGHT VISION AND IMASYS

STEMMER® IMAGING

Distributor

BFi OptiLas is a pan-European distributor of specialist products and services to the electronics and opto-electronics market. BFi OptiLas offers specialized imaging products including:
High speed Imaging solutions with frame rates up to 150,000 fps • High power Laser illumination systems for welding seem inspection and visualisation of ultra fast, bright or hot objects • High-resolution CCD/CMOS Camera Systems with Ethernet or USB/ FireWire interfaces • Thermal IR OEM camera modules.

BFi OptiLas
Boschstr. 12
82178 Puchheim
Germany
Tel.: +49 89 890 135 56
Fax: +49 89 890 135 37
info@bfioptilas.com
www.bfioptilas.com

M-2

Producer

Breuckmann has been playing a key role in developing and optimising topometric 3D metrologies for more than two decades. With more than 300 systems installed per year, Breuckmann 3D scanners are among the most powerful and successful systems in the world of image-forming 3D metrology.

Breuckmann GmbH
Torenstr. 14
88709 Meersburg
Germany
Tel.: +49 7532 4346 0
Fax: +49 7532 4346 50
sales@breuckmann.com
www.breuckmann.com

RV-2

Producer

The performance spectrum of Büchner Lichtsysteme GmbH extends from the concept via the development to the production of LED lighting systems. As a committed manufacturer we respond flexibly to the corresponding customer requirements. For instance, this includes the modification of our standard products as well as the development and manufacture according to customer-specific requirements.

IMAGING • LIGHT • TECHNOLOGY
BÜCHNER

Büchner Lichtsysteme GmbH
Büschelstr. 8a
86465 Welden
Germany
Tel.: +49 8293 909 112
Fax: +49 8293 909 111
info@buechner-lichtsysteme.de
www.buechner-lichtsysteme.de

A-2

Distributor/Producer

CBC (Deutschland) GmbH, one of the biggest manufacturers of video surveillance systems, is successful with technical and economical convincing CCTV solutions worldwide. With its brand computar the company offers a broad bandwidth of functional strong and high-performance lenses. Particularly with the new mega pixel lenses CBC has specialized on industrial demands. The quality lenses convince with precision and high image quality and provide the best focus in every respect even with high requirements.

CBC GROUP
CBC (DEUTSCHLAND) GmbH

CBC (Deutschland) GmbH
Hansaallee 191
40549 Düsseldorf
Germany
Tel.: +49 211 53067 0
Fax: +49 211 53067 180
info@cbc-de.com
www.cbc-de.com

D-2

Solution Provider

Chromasens designs and manufacturers customized image capturing systems for different branches of industry. The engineers and scientists of Chromasens work closely with customers to develop the most optimal system.
Also, Chromasens designs and manufacturers standardized components like the color line scan camera Aleos or the LED line scan illumination Corona.

Chromasens GmbH
Max-Stromeyer-Str. 116
78467 Konstanz
Germany
Tel.: +49 7531 876 0
Fax: +49 7531 877 303
info@chromasens.de
www.chromasens.de

RV-3

Producer

Cognex Corporation designs, develops, manufactures, and markets machine vision sensors and systems. Cognex vision sensors are used in factories around the world to automate the manufacture of a wide range of items and to assure their quality. Cognex is the world's leader in the machine vision industry, having shipped more than 450,000 machine vision systems, since the company's founding in 1981. In addition to its corporate headquarters in Natick, Massachusetts, Cognex also has regional offices and distributors located throughout North America, Japan, Europe, Asia, and Latin America.

Cognex Germany, Inc.
Emmy-Noether-Str. 11
76131 Karlsruhe
Germany
Tel.: +49 721 6639 0
Fax: +49 721 6639 599
info@cognex.de
www.cognex.com

KA-2

Company category
Producer

Product category
Cameras, Frame Grabber, Optics, Lighting equipment, Software, Vision Sensors/Smart Cameras/Embedded Systems

Company Officials
Dr. Oliver Vietze – CEO and Chairman, Rüdiger Förster – Sales Manager, Rainer Klug – Operations, Severino Bruno – Finance, Dr. Axel Vietze – Process Instrumentation

Date established
1952

Employees
2,000

Industries served
Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy/Water/Solar technology

Applications
Inspection piece parts, Robot Vision 2D, Character Recognition, Symbol Recognition, Part Identification, Metrology 2D, Particle Analysis, Digitalization, Others

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA, VDMA

Baumer

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Pfingstweide 28
61169 Friedberg
Germany
Tel.: +49 6031 60 07 0
Fax: +49 6031 60 07 70
sales.de@baumergroup.com
www.baumergroup.com

F-1

See our ad on page 11

About Baumer

Baumer is one of the leading international manufacturers of innovative and high-quality sensors and systems in factory and process automation. With more than 2,000 employees worldwide and 250 employees (including some 100 engineers) in the area of industrial image processing and image sensor technology, Baumer belongs to the leading companies in the vision industry. Our customers benefit from internationally comprehensive consultation and reliable service.

Digital Imaging

Baumer offers a wide range of industrial digital cameras and customized OEM camera modules, specifically designed for demanding image processing applications. The portfolio includes matrix cameras, with various color and monochrome sensors. Resolutions are available from VGA up to 8 megapixel. The digital cameras support state of the art interfaces, like Gigabit Ethernet and FireWire. Next to that Baumer offers innovative developments, e.g. cameras with IP67 housing as well as cameras and network components for Power over Ethernet, the one cable solution for Gigabit Ethernet.

Smart Vision

Baumer VeriSens vision sensors close the gap between traditional photoelectric sensors and complex image processing systems. The user is provided with comprehensive functions which support numerous inspection tasks in automated production, like control of part completeness, control of part presence, or control of part location and identification. VeriSens vision sensors are characterized by an extremely compact design and, due to the innovative Baumer FEX processor technology, provide a process reliability in this class unachieved until now.

Sensor Solutions

The measuring sensor technology covers a wide area of application. Laser distance sensors are well suited for measuring cycles on small and quick moving objects or such with frequently changing colors over a distance of up to 1 m with the principle of triangulation. Ultrasonic sensors use the transmission from ultra sound to measure distance. The most important measurement is the velocity of sound or the run-time of ultrasonic impulses, which are transported by the medium air. Inductive sensors are best suited for the distance measurement of electro-conductive objects, such as steel, aluminum or other metallic alloys. The measuring cycle method is based on the evaluation of induced eddy currents.

Distributor

Video Recording Systems from LowCost to High End.

Cosyco GmbH
Starnberger Weg 1a
82110 Germering
Germany
Tel.: +49 89 847087
Fax: +49 89 8416129
info@cosyco.de
www.cosyco.de

M-3

Solution Provider

CTMV offers business solutions for quality assurance in the field of automotive as well as for process optimization of manufacturing in the fields of metal working, extrusion and foil/glass production. Applications are focused on cutting-edge, sophisticated surface inspection of visually difficult materials like glass, metals, plastic tubes and foils, precise dimensional measurements mainly for the stamping industry as well as position detection of moving and/or complex parts for handling.

CTMV GmbH & Co. KG
Schwarzwaldstr. 7A
75173 Pforzheim
Germany
Tel.: +49 7231 566 177 200
Fax: +49 7231 566 177 299
info@ctmv.de
www.ctmv.de

PF-1

Producer

Datasensor Sp4, present on the international market for over 35 years, is a leader in the development production and commercialization of photoelectric devices for detection, safety, measurement and inspection in industrial automation.

Datasensor GmbH
Tegernseer Str. 75
83624 Otterfing
Germany
Tel.: +49 8024 90277 0
Fax: +49 8024 90277 99
info@datasensor.de
www.datasensor.com

M-4

Solution Provider

The company de Man Industrie-Automation GmbH is for more than 35 years specialist for holistic automation solutions. The delivery spectrum reaches from automatic storage systems and conveying engineering and robot plants up to ident systems based on barcode and RFID.

de Man Industrie-Automation GmbH
Industriestr. 18
33829 Borgholzhausen
Germany
Tel.: +49 5425 9497 0
Fax: +49 5425 5774
info@deman.de
www.deman.de

GT-1

Solution Provider

The dhs Image Data Base is a modular software solution for "Digital Imaging" in microscopy, lab and QA applications. Software modules for image archiving, acquisition, processing, analysis and documentation are available. dhs furthermore provides hardware (cameras, frame grabber, PC systems, optics etc.) and services (individual programmings, installations, trainings, consulting etc.).
The products are used in both stand-alone and complex network applications.

dhs Dietermann & Heuser Solution GmbH
Herborner Str. 50
35753 Greifenstein-Beilstein
Germany
Tel.: +49 2779 9120 0
Fax: +49 2779 9120 99
vertrieb@dhssolution.com
www.dhssolution.com

F-2

Machine Builder

Measuring technology, grown on experience. Manufacturer of huge range of optical and multi-sensor measuring machines like measuring and profile projectors, workshop microscopes, multi-sensor measuring machines, shaft measuring machines, crankshaft measuring machines, camshaft measuring machines, free form laser scanner, optical measuring device and special measuring equipment in custom-built design.

Dr. Heinrich Schneider Messtechnik GmbH
Rotlay Muehle
55545 Bad Kreuznach
Germany
Tel.: +49 671 291 02
Fax: +49 671 291 200
info@dr-schneider.de
www.dr-schneider.de

MZ-1

Subsidiaries

Docter Optics Express Glass Services
Docter Optics GmbH
Str. der Deutschen Einheit 6
07819 Triptis
Germany
Tel.: +49 36482 88 173
Fax: +49 36482 88 174
egs@docteroptics.com

Docter Optics North America
Docter Optics, Inc.
1425 West Elliot Road
Suite A-105
Gilbert, AZ 85233
USA
Tel.: +1 480 844 7585
Fax: +1 480 844 7826
doi@docteroptics.com

Docter Optics Japan
General Bldg., 2F
No. 25-20, Sakashita 1-Chome
Itabashi-ku
Tokyo 174-0043
Japan
Tel.: +81 3 3969 3731
Fax: +81 3 3969 3732
docter.optics@genexco.org

Company category
Solution Provider, Producer, Research Facility

Product category
Optics, R&D

Company Officials
Dr. Jan Hamkens, Managing Director of the Docter Optics group

Anna-Maria Weiss-Ziegler, Head of Sales, Optical Systems

Frank Müller, Sales Manager, Optical Systems
Tel.: +49 36481 27 217
Fax: +49 36481 27 462
frank.mueller@docteroptics.com

Date established
1984

Employees
320

Industries served
Automotive and suppliers, Precision engineering/Optics/Machine vision, Energy/Water/Solar technology

Applications
Inspection piece parts, Part Identification, Particle Analysis, Material Testing

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim

DOCTER® OPTICS

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Germany
Tel.: +49 36481 27 0
Fax: +49 36481 27 270
info@docteroptics.com
www.docteroptics.com

SHL-2

See our ad on page 35

About Docter Optics

Optical systems and lenses from Docter Optics set industry benchmarks in the areas of biometrics and industrial image processing.

Docter Optics, the world leader in the development and production of molded optical glass components, has also traditionally partnered with industry in the area of lenses and optical systems for industrial image-processing and biometric applications. In addition to its well-known Tevidon series of lenses, Docter Optics recently introduced the new Stilar 2.8/8 and Auto-Tessar reflection-free miniature lenses. The Stilar and Auto-Tessar lenses will both enable industry to deploy completely new applications.

Stilar 2.8/8 – The benchmark lens for 1.2″ CMOS and CCD cameras

Docter Optics has opened up a new window of opportunity with its new Stilar 2.8/8. The Stilar is the first super-wide-angle lens developed especially for high-performance camera systems with 1.2″ sensor chips. It features a focusing range of 0.10 m to infinity, excellent color correction over the entire visual spectrum and high edge-to-edge resolution. The lens comes with a standard C mount, and additional step rings are optionally available. The Stilar 2.8/8 is ideal for machine-vision and surveying cameras as well as for special surveillance applications.

Auto-Tessar – Miniature lenses that absorb glare

Docter Optics miniaturized Auto-Tessar series HDR lenses are now the choice of preference for applications that call for zero error and compact design under strong glare conditions and require no power supply. These lenses are especially designed to completely absorb reflections and veiling glare without the use of electronic means. And the smallest Auto-Tessar weighs in at only 6.5 g! The benefits these lenses offer for airborne, aerospace and land-based mobile applications as well as for industrial cameras and surveillance systems are obvious – reliable imaging with no information loss in combination with absolutely minimal error from technical sources.

Tevidon CCD lenses

The Tevidon CCD lenses produced by Docter Optics have been a popular choice for years. Tevidon lenses were developed especially for stationary camera systems and feature an excellent price-performance ratio. A system of adapters makes this range of models extremely versatile. The standard Tevidon line now includes a total of eight lenses. They range from the wide-angle Tevidon 1.5/4 for three-chip cameras to the 45 Tevidon-macro lenses, which are available with fixed apertures of 4.5, 5.6 or 8/45 available. Production of other lenses belonging to the Tevidon repertoire is also possible upon request.

Optical subassemblies

The Docter Optics Optical Systems business unit develops and produces special optical subassemblies for a wide range of industrial applications, including everything from biometrics to solar energy.

Distributor

Duwe-3d AG has a long experience in the field of optical metrology and data analysis. As European partner of InnovMetric Software Inc., Duwe-3d AG is exclusive distributor in Germany, Austria and Switzerland. The PolyWorks software is market leader for the 3D-analysis of surfaces in the automotive and supplier industry. Its applications in combination with mobile, probing and optical systems are almost unlimited. Our team supports you with consulting, individual training and technical helpdesk.

Duwe-3d AG
Hundweilerstr. 15
88131 Lindau (B)
Germany
Tel.: +49 8382 275 900
Fax: +49 8382 275 9029
info@duwe-3d.de
www.duwe-3d.de

RV-4

Distributor/Producer

Edmund Optics is a leading producer of optics, imaging, and photonics technology. Supporting the R&D, electronics, semiconductor and biomedical markets around the globe; EO products are used in a variety of applications ranging from DNA sequencing to retinal eye scanning to high-speed factory automation. EO's state of the art manufacturing capabilities combined with its global distribution network has earned it the position of the world's largest supplier of off-the-shelf optical components.

Edmund Optics
Zur Giesserei 19-27
76227 Karlsruhe
Germany
Tel.: +49 721 6273 730
Fax: +49 721 6273 750
sales@edmundoptics.de
www.edmundoptics.de

KA-3

Solution Provider

EHR is specialized in high precision metrology machinery for measuring rotationally symmetrical objects e. g. gearings based on non-contact 2D and 3D measurement technologies like telecentric arrangement, laser triangulation, confocal chromatic sensors and others.

EHR GmbH
Wittumstr. 10
75181 Pforzheim
Germany
Tel.: +49 7231 9731 0
Fax: +49 7231 9731 9
info@ehr.de
www.ehr.de

PF-2

Producer

Eltec Elektronik develops and markets high-quality components and innovative concepts for industrial image processing. The product portfolio comprises frame grabbers, intelligent cameras, and complex image processing systems for an extremely wide range of sectors and industrial applications. The modern vision solutions are applied for inspection purposes, quality control, and in transportation and safety technologies, etc.
Our core competences in hardware and software together with deep understanding of complex system associations are the basis for technical innovations and economical solutions.

ELTEC systems

Eltec Elektronik AG
Galileo-Galilei-Str. 11
55129 Mainz
Germany
Tel.: +49 6131 918 100
Fax: +49 6131 918 195
info@eltec.com
www.eltec.com

MZ-2

Distributor/Producer/Solution Provider

Producer of color-, laser-, optosensors and technical endoscopes. We solve vision applications by our PAV-Vision system. 2D Code Reader & LED-light sources for camera applications are in our program.
We are distributor for Tattile (Italy). Cameras like Giga Ethernet-, Camera link-Cameras, Embedded Cameras, where the customer can solve his own application, are in our program.
BW & color cameras with highest resolution/live cameras.

Eltrotec Sensor GmbH
Heinkelstr. 2
73066 Uhlingen
Germany
Tel.: +49 7161 98872 300
Fax: +49 7161 98872 303
info@eltrotec.com
www.eltrotec.com

S-2

Association

The EMVA has more than 110 members representing 20 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. To find out more visit the web site www.emva.org.

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

F-3

Subsidiaries
IDS Imaging Development Systems Inc.
400 West Cummings Park
Suite 3400
Woburn, MA 01801
USA
Tel.: +1 781 787 0048
Fax: +1 781 287 1258
usasales@ids-imaging.com

Company category
Producer

Product category
Cameras, Frame Grabber, Optics, Software, Interfaces/Cables/Peripherals, Consulting, R&D

Company Officials
General Manager:
Juergen Hartmann
Sales Director: Niall Worn
Purchase Manager:
Achim Terhoeven
R&D Manager: Alexander Balz

Date established
1997

Employees
80

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/ Optics/ Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy/Water/Solar technology

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Robot Vision 3D, Character Recognition, Symbol Recognition, Part Identification, Metrology 2D, Metrology 3D, Particle Analysis, Material Testing, Digitalization

Companies represented
MVTec (Germany only)

Platforms supported
Windows, Linux

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA, VDMA

IDS Imaging Development Systems GmbH
Dimbacher Straße 6-8
74182 Obersulm
Germany
Tel.: +49 7134 961 96 0
Fax: +49 7134 961 96 99
info@ids-imaging.com
www.ids-imaging.com

HN-1

See our ad on page 14+15

About IDS Imaging Development Systems

Cameras, Accessories and Support for Industrial Image Processing: Your Imagination Is Our Challenge

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 100 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 five megapixels. The uEye RE and uEye LE versions are optimized for their intended uses. RE if tough is not tough enough, LE – as little as possible, as much as necessary. The GigE uEye HE and the all new GigE uEye SE extend the broad range of USB cameras by powerful models for sophisticated, complex machine vision and compact and cost effective solutions for a wide range of image processing applications. Compact, small, powerful – with their design, with the mainstream bus technologies USB and GigE and the high-resolution sensors, the uEye industrial cameras perfectly meet the demanding requirements of modern image processing.

Custom-Made Cameras for Special Requirements

Even though the uEye series features over 100 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 Second Half of the Camera

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 leasing, and software training. IDS has a staff of approx. 80 employees in the development, production, sales, marketing and support departments at its head office in Obersulm, Germany and its subsidiary IDS Inc. in Woburn, USA. The company is represented in almost all European countries as well as the Americas and Asia through exclusive distributors.

Consultant/Producer

Manufacturing of Megapixel Cameras, Custom Camera Design, FPGA-Design, Electronic Design.

Entner Electronics
Sigmund-Nachbauer-Str. 10
6830 Rankweil
Austria
Tel.: +43 5522 75717 0
Fax: +43 5522 75717 4
thomas.entner@entner-letcronics.com
www.entner-electronics.com

G-2

Solution Provider

Various camera systems for the inspection of web surfaces (film, foil, aluminum, paper, textiles) and 100 % print inspection systems.

Erhardt+Leimer GmbH
P.O. Box 10 15 40
86136 Augsburg
Germany
Tel.: +49 821 2435 0
Fax: +49 821 2435 682
info@erhardt-leimer.com
www.erhardt-leimer.com

A-3

Producer

Falcon supplies LED-lightings for machine visions.

Falcon LED Lighting Ltd.
Fasanenweg 7
74254 Offenau
Germany
Tel.: +49 7136 9686 0
Fax: +49 7136 9686 10
info@falcon-led.de
www.falcon-lighting.de

S-3

Producer

Festo AG, a leading provider of automation technology solutions, is offering a portfolio of proven and innovative machine vision systems and components:
Intelligent line-scan cameras for type, orientation and quality inspection, intelligent matrix cameras for position, type and quality inspection, code reading and OCR as well as a high-speed-cameras for monitoring and optimization of fast motion sequences.

Festo AG & Co. KG
Ruiter Str. 82
73734 Esslingen
Germany
Tel.: +49 711 347 1219
Fax: +49 711 347 54 1219
MASN@de.festo.com
www.festo.com

S-4

Solution Provider

FiberVision GmbH was founded in 1995 as a spin-off of RWTH Aachen University. Today, FiberVision is a full scope machine vision supplier. The engineers and scientists develop and build optical measurement, positioning and test systems for industrial use. Be it a configurable Smart Camera system for manifold use or a PC based multi camera system for a special task: FiberVision makes the access to complex technologies easy by providing user interfaces for intuitive use.

FiberVision GmbH
Jens-Otto-Krag-Str. 11
52146 Würselen
Germany
Tel.: +49 2405 4548 0
Fax: +49 2405 4548 14
info@fibervision.de
www.fibervision.de

K-2

Producer/Solution Provider

Fisba Optik is a world leader in optical systems, instruments and components. But we are far more than just a manufacturer of optics. We work closely with our customers to develop solutions that deliver both technical and economic success.
Fisba unites all aspects of optical expertise and expert knowledge of many disciplines under one roof. Optic designers and engineers, backed by specialists in physics and coating technology, develop, analyze and optimize optic systems for the entire spectral range from UV to NIR – integrated and sustainable.

Fisba Optik AG
Rorschacherstr. 268
9016 St. Gallen
Switzerland
Tel.: +41 71 282 3131
Fax: +41 71 282 3130
info@fisba.ch
www.fisba.com

SG-1

Subsidiaries
Please visit our website for detailed information about all our European subsidiaries

Company category
Solution Provider/Producer

Product category
Cameras, Optics, Lighting equipment, Software, Microscopes, Optical Instruments

Company Officials
Michael C. Woodford – Executive Managing Director, Olympus Europe Group

Dr. Helmut Koehler – Executive Managing Director, Olympus Life Science Europa GmbH

Michael Czempiel – Managing Director, Microscopy, Olympus Life Science Europa GmbH

Esther Ahrent – Department Manager Marketing Communication, Olympus Life Science Europa GmbH

Date established
Olympus Europe Group: 1963

Employees
Olympus Europe Group: 4,800

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Energy/Water/Solar technology

Applications
Inspection piece parts, Part Identification, Metrology 2D, Metrology 3D, Particle Analysis, Material Testing, Digitalization

Regions served
Europe

OLYMPUS

Olympus Life Science Europa GmbH
Wendenstr. 14-18
20097 Hamburg
Germany
Tel.: +49 23773 0
Fax: +49 23773 4647
microscopy@olympus-europa.com
www.microscopy.olympus.eu

HH-4

See our ad on page Inside Front Cover

About Olympus Life Science Europa

Olympus Microscopy: Meeting All Exacting Industrial Quality Requirements

For over 80 years, Olympus has been one of the world's leading manufacturers in the opto-digital industry. As one of the biggest and most respected providers of microscope systems, Olympus offers a comprehensive range of professional system solutions for all market requirements. These include entry-level inspection microscopes to high-end system solutions enabling pioneering research and routine applications in materials science, as well as innovative imaging systems and information technology for all industrial applications. Furthermore, Olympus offers a wide range of microscopes and accessories for observing surfaces and analysing new materials and nanoparticles.

High Performance Microscope Systems

Microscopy is an indispensable tool for materials and industrial research and development. With progressive developments in the areas of digital photography and image processing, as well as analysis and archiving, the range of possible microscope applications has changed radically, especially in recent years. Modern manufacturing processes do not only demand the most professional and precise microscope system solutions, but users also expect the manufacturer to provide a reliable and first class service. To this end, Olympus develops custom software and hardware solutions for microscopical imaging, in which all components are optimally integrated. Olympus users also get total peace of mind with comprehensive service and support at all times. With its broad product spectrum, Olympus covers the requirements of all market areas. It provides models for routine tasks, high-end system solutions for inspection and metrology, as well as devices for material science research applications.

Flexibility as Standard

Flexibility is always one of the first considerations in the design of all Olympus microscopes. From the top-quality inspection MX series upright microscopes to both routine use and sophisticated systems of the GX series inverted microscopes, there are no exceptions. Constantly evolving toward greater simplicity and higher precision, the peerless Olympus OLS3100 Lext 3D provides near-UV cLSM capability for advanced metrology and fine surface profile applications.

All industrial level microscopes are equipped with infinity corrected optics and numerous ports. These enable components such as laser light sources, filters and cameras, to be integrated easily into the light path. For example, Olympus has developed two versatile illumination systems for its unique SZ2 and SZX2 industrial stereo microscope ranges. These lighting systems deliver uniform illumination over a large area and light up points of interest, providing an innovative and flexible approach to effective sample illumination, for all industrial and materials applications.

The User's Dividend

As a result of this attention to detail across the entire range, whatever Olympus microscope or imaging system is in-place, the user will experience the best possible images and functionality with unsurpassed comfort, each and every time.

Distributor/Solution Provider

Framos Imaging Solutions serves customers in the field of industrial image processing. We offer a comprehensive range of image processing components and solutions in our branch offices in Germany, Great Britain, Italy and France. Our team consists of almost 40 associates, and we are achieving sales in the two-digit million Euro range. We are driven to 'teach machines to see'. At the same time, we are an innovative collaboration partner and expert for high-quality image processing projects.

Framos GmbH
Zugspitzstr. 5, Haus C
82049 Pullach
Germany
Tel.: +49 89 710667 0
Fax: +49 89 710667 66
info@framos.eu
www.framos.eu

M-5

Solution Provider

Surface Metrology Systems.

FRT, Fries Research & Technology GmbH
Friedrich-Ebert-Strasse
51429 Bergisch Gladbach
Germany
Tel.: +49 2204 2430
Fax: +49 2204 2431
info@frt-gmbh.com
www.frt-gmbh.com

K-3

Producer

Machine Vision lenses from Fujinon offer perspectives that point the way to the future for industrial image processing.
The extensive range offers the perfect solution for every situation: lenses with exceptional focal lengths, 3 CCD lenses with up to 16x zoom, a comprehensive number of fixed focal length lenses or revolutionary 5 megapixel technology for opening up a whole new perspective in best.
Benefit from Fujinon's many years of expertise – and bring quality into focus.

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

D-3

Solution Provider

Gefasoft develops, manufactures and distributes innovative machine vision systems and complete assembly and measuring machines for the medical, automotive, electronic and semiconductor industry. Gefasoft also developed a library of 3D machine vision algorithms and data processing tools, targeted to the requirements of volume production. The 3D inspection system is integrated into the production line.

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Donaustaufer Str. 115
93059 Regensburg
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Tel.: +49 941 799 96 0
Fax: +49 941 799 96 66
info@gefasoft.com
www.gefasoft.com

R-2

Solution Provider

Inspection and reverse engineering of measurement data. alignment, GD&T, RPS and 321, reporting, surfacing.
Quality control and inspection, reverse engineering, initial sample test reports.

Geomagic GmbH
Leibnizstr. 51
70193 Stuttgart
Germany
Tel.: +49 178 7767 887
Fax: +1 919 474 0216
europe@geomagic.com
www.geomagic.com

S-5

Solution Provider

Graphikon develops and manufactures complete inspection solutions for inline and offline quality control in the production process.
With G/Inspect, Graphikon provides a modular system for general inspection tasks in the fields of manufacture, assembly and logistics.
The product groups G/Solar, G/Wafer and G/Glas are systems specially geared towards the requirements of our most important markets, for development of inspection solutions composed of scaleable components and assemblies.

Graphikon GmbH
Mandelstr. 16
10409 Berlin
Germany
Tel.: +49 30 4210 4777
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sales@graphikon.de
www.graphikon.de

B-1

Subsidiaries

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Fax +33 1 40991188
info@stemmer-imaging.fr

Switzerland
Stemmer Imaging AG
Tel. +41 55 4159090
Fax +41 55 4159091
info@stemmer-imaging.ch

Company category
Distributor

Product category
Cameras, Frame Grabber, Optics, Lighting equipment, Software, Vision Sensors/Smart Cameras/Embedded Systems, Interfaces/Cables/Peripherals, X-ray equipment, Optical Instruments, Consulting, Marketing, other

Date established
1987

Employees
approx. 130

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy/Water/Solar technology, many others!

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Robot Vision 3D, Character Recognition, Symbol Recognition, Part Identification, Metrology 2D, Metrology 3D, High Speed Analysis, Thermography, Particle Analysis, Material Testing, Digitalization, many others

Companies represented
Ilumination: CCS, Gardasoft, Hema, StockerYale, V-Cubed, Volpi, Z-Laser
Optics: Fujinon, Jenoptik, Linos, Mamiya, Navitar, Nikon, Pentax, Schneider-Kreuznach, Sill, Tamron, Thales-Optem, Zeiss
Cameras: Allied Vision Technologies (AVT), Automation Technology, Dalsa, Flir, JAI, Mikrotron, Sony, Toshiba, TVI, VRmagic
Acquisition: Active Silicon, Cyberoptics, Dalsa, Pleora, Silicon Software, VRmagic
Software: Aqsense, Silicon Software, Stemmer Imaging
Systems: Cognex, Dalsa, Stemmer Imaging
Accessories: AD&D, B+W Filter, Phrontier, Stemmer Imaging

Platforms supported
Windows Vista, Windows XP

Regions served
National, Europe, North America, South/ Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA, VDMA, UKIVA

STEMMER IMAGING

Stemmer Imaging
Gutenbergstr. 9-11
82178 Puchheim
Germany
Tel.: +49 89 80902 0
Fax: +49 89 80902 116
info@stemmer-imaging.de
www.stemmer-imaging.com

M-23

See our ad on page 37

About Stemmer Imaging

Stemmer Imaging is Europe's largest imaging technology provider with subsidiaries in Germany (Puchheim near Munich), United Kingdom (Tongham near London), France (Suresnes near Paris) and Switzerland (Pfäffikon near Zurich). The parent company was formed in 1987 in Puchheim and expanded in 2004/05 by combining the expertise of the companies formerly known as Firstsight Vision Ltd. (UK), Imasys S.A.S. (France) and OmniRay (Switzerland).

Stemmer Imaging customers have access to a wide variety of imaging products from the world's leading manufacturers, carefully selected and evaluated by our experts to be best of breed in the word. In combination these manufacturers provide cutting edge vision technology across all product segments, something that is unique in Europe.

Stemmer Imaging are the developers of the world's leading image processing development environment, Common Vision Blox, and also manufacture application-specific products to enable complex solution to be realised easily. We have extensive in-house expertise to draw on with a high percentage of engineers, allowing us to supply the best possible service to our customers when choosing an imaging solution. Stemmer Imaging does not install end user solutions – instead, using our close partnerships with a large number of experienced system integrators, we can provide expert technical know-how for the planning, integration and realisation of complete solutions.

In fact, the services provided by Stemmer Imaging go far beyond just this; with more than 30 years of imaging experience and a staff of more than 120 employees, we are able to offer comprehensive support services to all of our customers. Our experts can support you from A to Z – finding the best technical solution and the most cost effective combination of components for your imaging task – assisting you in a solution-oriented and reliable way, before, during and also after the project. Feasibility studies, training and direct customer support are just some of the examples of the value add we give you.

As Europe largest vision technology supplier our customers not only benefit from our knowledge when specifying a solution but also from extremely competitive pricing due to our purchasing volume and fast delivery from our stock of over €3 million.

This broad range of components and solutions, plus our experience and our comprehensive support allows us to offer you everything you need to solve your imaging task.

Stemmer Imaging – Imaging is our passion!

Producer

Hamamatsu Photonics is a worldwide leading manufacturer of opto-electronic components and systems. Among others we offer sensors and systems for spectroscopy (including ultra fast), scientific-grade cameras, beam monitoring solutions, photon counting detectors and systems, photomultipliers, photodiodes, IR detectors.

HAMAMATSU
PHOTON IS OUR BUSINESS

Hamamatsu Photonics Deutschland GmbH
Arzbergerstr. 10
82211 Herrsching
Germany
Tel.: +49 8152 375 0
Fax: +49 8152 2658
info@hamamatsu.de
www.hamamatsu.de

M-6

Consultant/Producer/Research Facility

Development and production of smart cameras and LED-Light-Systems for machine vision.
Development and production of Hard- and Software for machine vision.
Applications and video electronics circuit board assembly, test and electronic device assembly.

hema electronic GmbH
Roentgenstr. 31
73431 Aalen
Germany
Tel.: +49 7361 9495 0
Fax: +49 7361 9495 45
info@hema.de
www.hema.de

S-6

Solution Provider

HGV supplies scaleable turnkey machine vision solutions for all kinds of quality inspection:
Flexible measurement systems (FMS) with robots, in-line-measurement, process control, robot guiding, assembly control, part handling (pick & place), surface inspection, sorting & identification.

HGV Vosseler GmbH & Co. KG
An der Lehmgrube 9
74613 Oehringen
Germany
Tel.: +49 7941 9100 0
Fax: +49 7941 9100 50
info@hgv.de
www.hgv.de

S-7

Producer

Holoeye Photonics AG and its US-subsidiary, Holoeye Corp., are providing services and products in the fields of diffractive optics (DOE), spatial light modulation (SLM) and LCOS microdisplay components.
Holoeye offers design and production services of diffractive micro-optical elements, Spatial Light Modulators (SLM) which are based on high-resolution translucent or reflective microdisplays and a great variety of high resolution LCOS microdisplay types and products.

Holoeye Photonics AG
Albert-Einstein-Str. 14
12489 Berlin
Germany
Tel.: +49 30 6392 3660
Fax: +49 30 6392 3662
contact@holoeye.com
www.holoeye.com

B-2

Solution Provider

IB/E Optics is service provider and producer for customized optics in the area of imaging and illumination.
We are your partner for industrial customized solutions of imaging optics, illumination systems and machine vision applications. Beside developing and construction we also offer the complete manufacturing of prototypes and small series.
Our own CNC-manufacturing allows a rapid realization and flexibility for customized solutions.

IB/E Optics Ing.-Büro Klaus Eckerl
Industriestr. 6
94116 Hutthurm
Germany
Tel.: +49 8505 3222
Fax: +49 8505 3400
ibe@ibe-optics.com
www.ibe-optics.com

PA-1

Producer

Since 1998 iiM develops and produces a constantly growing selection of LED lighting with highest functionality and performance. Luminous efficiency, design and industrial fitness are thereby important criteria. Ring- and arealights, darkfield lights, spots, coaxial- and domelights are available as static or flashed variants in different sizes and light colors. A large spectrum of diffusers and Fresnel lenses completes the product range. As engaged partner for our customers we develop and produce also special lighting according to their requirements.

iiM AG
Auf der Höhe 1
98617 Meiningen
Germany
Tel.: +49 3693 88585 0
Fax: +49 3693 88585 11
info@iimag.de
www.iimag.de

EF-1

About Allied Vision Technologies

Founded in 1989, Allied Vision Technologies GmbH of Germany is a 100% subsidiary of the public Augusta Technologie AG. AVT designs, produces and sells cameras and components for image processing in industrial and life science applications. With innovative products, superior manufacturing quality and a service-driven organization, Allied Vision Technologies is well established as a premier provider of digital camera solutions for machine vision worldwide. Allied Vision Technologies holds 100% of Allied Vision Technologies Inc. (Newburyport, USA) and Prosilica Inc. (Vancouver, Canada).

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Taschenweg 2a
07646 Stadtroda
Germany
Tel.: +49 36428 677 0
Fax: +49 36428 677 24
info@alliedvisiontec.com
www.alliedvisiontec.com

J-1

See our ad on page 9

Subsidiaries

USA
Allied Vision Technologies Inc.
Tel.: +1-877 USA 1394
(toll free North America)
Fax: +1 978 225 2029
info@alliedvisiontec.com

Canada
Prosilica Inc.
Tel.: +1 604 875 8855
Fax: +1 604 875 8856
sales@prosilica.com

Company category
Producer

Product category
Cameras, Interfaces/Cables/Peripherals, Optics

Company Officials
CEO: Frank Grube

Date established
1989

Employees
120

Industries served
Automotive and suppliers, Mechanical engineering/Line building, Electronics/Semiconductors, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Traffic/Logistics

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Robot Vision 3D, Character Recognition, Part Identification, Digitalization

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA, VDMA, JIIA

About Framos

For more than 25 years, the Framos Imaging Solutions Company serves customers in the field of industrial image processing. We offer a comprehensive range of image processing components and solutions in our branch offices in Germany, Great Britain, France and Italy. Our team consists of almost 40 associates, and we are achieving sales in the two-digit million Euro range. We are driven to 'teach machines to see'. At the same time, we are an innovative collaboration partner and expert for high-quality image processing projects. We foster an open and trusting enterprise culture and keep striving for improvement through continued learning.

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Zugspitzstraße 5, Haus C
82049 Pullach
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Tel.: +49 89 710667 0
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www.framos.eu

M-5

See our ad on page 21

Company category
Solution Provider/Distributor/Consultant

Product category
Cameras, Frame Grabber, Optics, Lighting equipment, Software

Company Officials
CEO: Dr. Andreas Franz

Date established
1981

Employees
40

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy/Water/Solar technology

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Robot Vision 3D, Character Recognition, Symbol Recognition, Part Identification, Metrology 2D, Metrology 3D, High Speed Analysis

Companies represented
Sony, Thomson, Toshiba Teli, Lumenera

Regions served
National, Europe, North America, Asia and Pacific Rim

Associations
EMVA, VDMA

Producer

Development and manufacture of high-quality solutions for infrared temperature measurement (sensor, software, mechanical integration etc.), both in single point measurement and thermal imaging.

Impac Infrared
Kleyerstr. 90
60236 Frankfurt/Main
Germany
Tel.: +49 69 97373 0
Fax: +49 69 97373 167
info@impacinfrared.com
www.impacinfrared.com

F-4

Solution Provider

Impuls GmbH creates products for scientific image processing and image analysis as well as machine vision on the PC. The products are sold worldwide to end users as well as OEMs, VARs and system houses that create customized solutions around the Impuls products.
Impuls GmbH also carries out custom software development projects in the field of image processing and image analysis for markets such as life sciences and machine vision.

Impuls GmbH
Carl-Benz-Str. 13
82205 Gilching
Germany
Tel.: +49 8105 773640
Fax: +49 8105 773642
sales@impuls-imaging.com
www.impuls-imaging.com

M-7

Producer

Infinity Photo-Optical Company, headquartered in Boulder, Colorado, USA, also has a Sales Office in Göttingen, Germany, which serves the EU and all European countries.
Infinity manufactures long-distance microscopes, continuously-focusable microscopes, macro systems, internal-focusing devices and other lenses for industrial inspection, process/product monitoring, machine vision, QC, advanced imaging, non-contact gauging/inspection and laser/biomedical research.

Infinity Photo-Optical GmbH
Hans-Böckler-Str. 10a
37079 Göttingen
Germany
Tel.: +49 551 49957 0
Fax: +49 551 49957 10
info@infinity-de.com
www.infinity-de.com

GÖ-1

Solution Provider

in-situ GmbH is a growing company with more than 20 years experience in the field of machine vision.
We specialize in industrial, medical and scientific applications offering image processing systems in a broad range of products, as well as special developments in hardware and software. Our main focus is turn-key systems and customer-specific solutions.

in-situ GmbH
Mühlweg 2a
82054 Sauerlach
Germany
Tel.: +49 8104 6482 30
Fax: +49 8104 6482 43
vision@in-situ.de
www.in-situ.de

M-8

Producer

Ircam is a German manufacturer of advanced IR cameras and systems for IR imaging and thermography.
Ircam offers the dual-band and dual-color IR camera series Ircam Geminis for synchronous, pixel-registered acquisition in two bands (MWIR & LWIR) or two small spectral ranges (MWIR & MWIR). Other camera series are the high-speed Ircam Velox, the scientific Ircam Equus, the Ircam Taurus and the uncooled Ircam Caleo. All models can be delivered with MIO measurement interface, filter wheel, motor focus and Gigabit Ethernet.

Ircam GmbH
Nürnberger Str. 71
91052 Erlangen
Germany
Tel.: +49 9131 970098 0
Fax: +49 9131 970098 99
info@ircam.de
www.ircam.de

N-1

Solution Provider

High Speed Cameras, High Framerate Cameras, systems and accessories, exclusive IDT/Redlake dealer.

IS – Imaging Solutions GmbH
Arbachtalstr. 6
72800 Eningen u. A.
Germany
Tel.: +49 7121 680 853 0
Fax: +49 7121 680 853 9
info@imaging-solutions.de
www.imaging-solutions.de

S-8

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.

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

M-24

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Subsidiaries

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info@net-japan.com

USA
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Company category
Distributor/Producer

Product category
Cameras, Optics, Lighting equipment, Interfaces/Cables/Peripherals

Company Officials
Uwe Post – Director Sales & Marketing

Date established
1996

Employees
approx. 30

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy/Water/Solar technology

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Robot Vision 3D, Character Recognition, Symbol Recognition, Part Identification, Material Testing

Companies represented
V S Technology Corp.
Toshiba Teli Corp.

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA

Consultant

Based on 20 years of experience in the vision industry and a broad international network, Jansen C.E.O. provides support in the following areas: inter/national joint ventures and cooperations, mergers & acquisitions, strategic marketing, market data research and internal structure and process optimization. All services, consulting and coaching are tailored to the individual requirements of the company or the entrepreneur.

JANSEN C. E. O.
Consulting - Execution - Optimization

Jansen C.E.O.
P.O. Box 1148
64629 Heppenheim
Germany
Tel.: +49 178 1755972
jansen@jansen-ceo.com
www.jansen-ceo.com

F-5

Producer

Jos. Schneider Optische Werke GmbH develops, manufactures and distributes optical and precision components, filters and assemblies for Machine Vision and other image processing applications. These premium optics solutions help system integrators and machine builders improve their image processing systems.

Jos. Schneider Optische Werke GmbH
Ringstr. 132
55543 Bad Kreuznach
Germany
Tel.: +49 671 601 387
Fax: +49 671 601 286
industrie@schneiderkreuznach.com
www.schneiderindustrialoptics.com

MZ-3

Producer

LOGLUX i5 Camera Link and FireWire cameras in monochrome and color versions.

Kamera Werk Dresden Optronics GmbH
Bismarckstr. 57
01257 Dresden
Germany
Tel.: +49 351 28 06 0
Fax: +49 351 28 06 392
info@kwdo.de
www.kwdo.de

DD-1

Producer

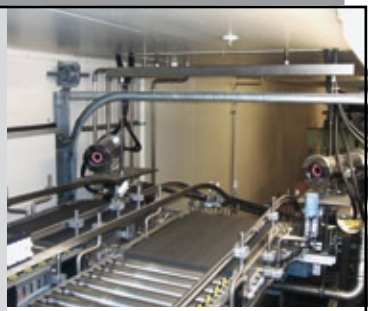
Kappa opto-electronics GmbH is an internationally operating medium sized company. For 30 years Kappa has stood for the highest standards in the area of cameras and image processing solutions. With our highly sensitive and at the same time extremely rugged cameras and system solutions we provide important interfaces of control processes and for the acquisition of product quality and safety data.
Our products and solutions prove their worth in the following markets: Industry, Security, Defense, Aviation and Medical.

Kappa opto-electronics GmbH
Kleines Feld 6
37130 Gleichen
Germany
Tel.: +49 5508 974 0
Fax: +49 5508 974 115
info@kappa.de
www.kappa.de

GÖ-2

Solution Provider

Optical Inspection Systems ensure your product quality. Also, they help to reduce production costs and to file your product quality history. Kdorf Automation develops and implements customized vision systems for quality control. We select the optimal hardware components such as camera systems and lighting equipment which make your application a reliable and cost efficient investment. We are experts in intelligent camera systems and also complex PC-based environments.



kdorf automation imaging

Kdorf Automation
Industrierring Ost 66
47906 Kempen
Germany
Tel.: +49 2152 894 8033
Fax: +49 2152 894 8034
kontakt@kdorf.de
www.kdorf.de

D-4

Producer

As a global leader in embedded computer technology, Kontron supplies a diversified customer base of OEMs, system integrators and application providers. The company helps its customers to considerably reduce their time-to-market and to gain a competitive advantage with products including high-performance open computer platforms and systems, single board computers and human-machine interfaces. Kontron employs more than 2,600 people worldwide.

Kontron
Oskar-von-Miller-Str. 1
85386 Eching
Germany
Tel.: +49 8165 77 777
Fax: +49 8165 77 279
sales@kontron.com
www.kontron.com

M-9

About Rauscher

Rauscher GmbH is a leading distributor for all imaging components, including software, area- and linescan cameras, frame grabbers, image-processing 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
Johann-G.-Gutenberg-Str. 20
82140 Olching
Germany
Tel.: +49 8142 448 41 0
Fax: +49 8142 448 41 90
info@rauscher.de
www.rauscher.de

M-16

See our ad on page 1

Company category
Distributor

Product category
Cameras, Frame Grabber, Optics, Lighting equipment, Software, Processors, Vision Sensors/Smart Cameras/Embedded Systems, Interfaces/Cables/Peripherals

Company Officials
Ernst Rauscher

Date established
1973

Employees
14

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy Water/Solar technology, Others

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Robot Vision 3D, Character Recognition, Material Testing, Symbol Recognition, Part Identification, Metrology 2D, High Speed Analysis, Particle Analysis, Digitalization, Others

Companies represented
Matrox, e2v, Photonfocus, Prosilica, Advanced Illumination

Platforms supported
Microsoft Windows, Linux

Regions served
National

Associations
EMVA, AIA, VDMA

About Silicon Software

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 as well as customized OEM solutions. Base products are the series of intelligent image acquisition and processing boards, supporting PCI, PCI Express as well as GigabitEthernet. Advantage of this technology is the programmability of the on-board vision processors

allowing to realize a broad field of applications.

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 hardware in a few minutes.

Silicon Software GmbH
Steubenstraße 46
68163 Mannheim
Germany
Tel.: +49 621 789507 0
Fax: +49 621 789507 10
info@silicon-software.de
www.silicon-software.de

MA-1

See our ad on page 31

Company category
Producer

Product category
Frame Grabber, Software

Company Officials
Dr. Ralf Lay – CEO
Dr. Klaus-Henning Noffz – CEO

Date established
1997

Employees
23

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy/Water/Solar technology, Entertainment, Communications

Applications
Inspection piece parts, Inspection web material, Part Identification, Metrology 2D, Metrology 3D, High Speed Analysis, Particle Analysis, Material Testing, Digitalization, Image Acquisition Networks, Postal sorting and documentation

Platforms supported
Windows 32/64bit, Linux 32/64bit, QNX, PCI 32/64bit, PCIe, OEM developments

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA, VDMA

Distributor/Producer

As a specialist supplier to the photonics market, Laser 2000 is committed to excellence in the quality of service and products that we provide to customers throughout Europe.
Laser 2000 Business Unit „Image Processing & Machine Vision": To improve productivity and quality in industrial environments we support the increasing demand for photonics products. Our engineers assist customers in selecting the appropriate combination of light source, camera and software.

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

M-10

Producer

The Metrology Division offers the most complete range of equipment and software used in the metrology field today. Innovative products enable industrial customers to measure large components accurately to extreme tolerances and process the data directly in their CAD systems. Its product range includes laser trackers, image-processing systems, and high-precision industrial total stations, along with a broad spectrum of software that can communicate with all commercial CAD products.

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-1

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.

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

J-2

Producer

Lemo designs and manufactures precision custom connection solutions. Lemo's high quality push-pull connectors are found in a variety of challenging application environments including medical, industrial control, test and measurement, audio-video, and telecommunications.

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

Producer

For more than 40 years Leuze electronic is a leading manufacturer and developer of optoelectronic sensors, identification and machine vision systems, data transmission systems, as well as optoelectronic systems for safety at work and industrial automation.
Leuze electronic is a member of the Leuze-group and world-wide represented. Strong-qualified field sales teams comprehensively serve the market. In combination with the customer support centre, a maximum customer orientation is guaranteed.

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

S-9

Producer

Matrix Vision develops for and with its system partners components and solutions for various industrial sectors. Effective solutions are in demand, not only in quality control of high-speed manufacturing processes. The fields of surveillance, robotics, medicine and so on also place high demands on the hard- and software of image processing systems.
We are developing frame grabbers, smart, USB and GigE cameras optimally supported by our software, as well as multi-core solutions like our PCIe accelerator board. Beside this extensive range of standard products we develop customized solutions.

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

S-10

About Sill Optics

Sill Optics founded in 1894 is a private owned medium size company, specializing in the production of optical components. With an investment in latest equipment, we can comply with any modern demands on optical manufacturing in highest precision or high power laser quality for rapid prototyping or off the shelf components. The product range covers optical components and assemblies for OEM Equipments like scan lenses and beam expanders for Laser application, Telecentric lenses, LED Condensors, light sources for machine vision and Lenses for Shadow Projectors and Measurements.

A dedicated and experienced team can support the customer, achieving the best solution for his application. By keeping the direct link to our team will always have a look at the feasibility of the optical and mechanical design.

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-3

Company category
Solution Provider/Producer

Product category
Optics, Lighting equipment

Company Officials
Berndt Zingrebe – Managing Director – berndt.zingrebe@silloptics.de
Markus Klahr – Sales Manager – markus.klahr@silloptics.de
Konrad Hentschel – R&D Manager – konrad.hentschel@silloptics.de

Date established
1894

Employees
135

Industries served
Mechanical engineering/Line building, Packaging, Precision engineering/Optics/Machine vision, Pharmaceuticals/Cosmetics/Chemicals, Medical technology, Glass/Ceramics, Energy/Water/Solar technology

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

Regions served
National, Europe, North America, Asia and Pacific Rim

Associations
VDMA

About Vision & Control

Vision & Control – Pioneering Vision

As a technology leader, our company develops, produces and sells an optimally attuned modular system worldwide. It ranges from complex image processing systems such as camat vision sensors, pictor intelligent cameras and vicosys multi-camera systems to individual vicolux high performance LED lighting and vicotar precision optics.

To master challenging image processing tasks that would overtax standard components, we offer our customers tailor-made image capturing and processing solutions.

Leading OEMs and system integrators have banked on state-of-the-art design by Vision & Control for almost 20 years. Our products are the first choice wherever top priority is assigned to flexibility, speed, reliability and industrially robust construction.

Vision & Control GmbH
Mittelbergstraße 16
98527 Suhl
Germany
Tel.: +49 3681 79 74 0
Fax: +49 3681 79 74 22
www.vision-control.com

SHL-1

Company category
Producer

Product category
Cameras, Optics, Lighting equipment, Software, Vision Sensors/Smart Cameras/Embedded Systems, Interfaces/Cables/Peripherals, R&D, other

Company Officials
Dr. Juergen Geffe
(Managing Director)

Date established
1991

Employees
40

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Metal, Glass/Ceramics, Paper/Wood, Energy/Water/Solar technology

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Character Recognition, Symbol Recognition, Part Identification, Metrology 2D, High Speed Analysis

Platforms supported
vcwin operating software

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA, VDMA, UKIVA

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 and components we serve all needs and requirements in machine vision. Our ISO certified company delivers the components for all machine vision solutions. The products are applied in sophisticated applications of automatic identification, industrial production, quality control, logistics, electronic control, science and video surveillance.

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-11

Machine Builder

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, Thru-Beam systems, capacitive and confocal-chromatic sensors, eddy current sensors, image processing, draw wire sensors, non contact temperature sensors, test benches and OEM-sensors.

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

PA-2

Producer

Solution Provider for motion analysis in digital image sequences, 2D and 3D.

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-3

Producer

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

Mikrotron GmbH
Landshuter Str. 20-22
85716 Unterschleißheim
Germany
Tel.: +49 89 726342 00
Fax: +49 89 726342 99
info@mikrotron.de
www.mikrotron.de

M-11

Distributor

Mitutoyo represents the most extensive range of products for length measuring:
Coordinate Measuring Machines, Vision Measuring Systems, Form Measuring Instruments, Optical Measuring, Sensor Systems, Test Equipment and Seismometers, Digital Scales and DRO Systems, Small Tool Instruments and Data Management.

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

For the machining industry we offer visual and electronic autocollimators for measuring straightness, flatness, and positioning accuracy of index tables in the machine tool industry.
For the optical industry we offer interferometers for shape testing, goniometers, goniometer-spectrometers, visual and electronic autocollimators, collimators, testing telescopes, diopter telescopes, focometer, prism binoculars, cameras, and zoom lenses.

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-3

Producer

National Instruments is transforming the way engineers and scientists design, prototype and deploy systems for measurement, automation and embedded applications. NI empowers customers with off-the-shelf software such as NI LabView and modular cost-effective hardware, and sells to a broad base of more than 25,000 different companies worldwide, with no one customer representing more than 3 % of revenue and no one industry representing more than 10 % of revenue.

National Instruments Germany GmbH
Konrad-Celtis-Str. 79
81369 München
Germany
Tel.: +49 89 741 31 30
Fax: +49 89 714 60 35
info.germany@ni.com
www.ni.com/vision

M-12

Producer/Solution Provider

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

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-12

Solution Provider

OBE offers products and services for the automatic inspection of technical and decorative surfaces under the brand name of trevista. trevista was specially developed for the 100 % inspection of shiny components. A wide range of surfaces such as turned, milled, ground, polished and electroplated surfaces can thus be safely and efficiently checked. Our spectrum ranges from components to integrated machine vision solutions for specific parts and finally up to complete automated inspection systems.

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

S-13

Solution Provider

For over 80 years, Olympus has been one of the world's leading manufacturers in the opto-digital industry. As one of the most respected providers of microscope systems, Olympus offers a comprehensive range of system solutions for all market requirements. These include entry-level inspection microscopes to high-end systems enabling pioneering research and routine applications in materials science, as well as innovative imaging systems and information technology for all industrial applications.

Olympus Life Science Europa GmbH
Wendenstr. 14-18
20097 Hamburg
Germany
Tel.: +49 40 237 73 0
Fax: +49 40 237 73 973
info@olympus-europa.com
www.olympus-europa.com

HH-4

Solution Provider

Since 1980, we have been a specialist developer and manufacturer of market leading Optomechatronic Modules, Components and Systems. We have delivered special plug and play solutions ranging from single vision components all the way to complex imaging systems. Thanks to our comprehensive in-house manufacturing capability, we are able to meet any production demand – from rapid single unit prototyping all the way to serial production. We will be pleased to assist you with any level of advice.

Opto Sonderbedarf
Lochhamer Schlag 14
82166 Gräfelfing
Germany
Tel.: +49 89 898055 0
Fax: +49 89 898055 18
info@opto.de
www.opto.de

M-13

Producer

Because of its ideal properties as a Lambertian reflector, OptoPolymer offers a broad range of optical applications.
The diffuse reflecting base material is particularly processed PTFE and works in its optical characteristic as volume reflector.

OptoPolymer
Königsteinstr. 12
80807 München
Germany
Tel.: +49 89 35657183
Fax: +49 89 35657184
info@optopolymer.de
www.optopolymer.de

M-14

Machine Builder

Non-contact surface measurement: Roughness, Roundness, Waviness.

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-4

Producer

Panasonic Corporation is one of the World's largest manufacturers of consumer electronics. Panasonic System Solutions' mission as a group member of the Panasonic Co. is to use our expertise in digital AV and IT system solutions to provide the infrastructure for the ubiquitous network society. The Industrial and Medical Vision dep. offers a comprehensive range of micro camera equipment suitable for many applications including medical, industrial, live science and broadcast.

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-5

Producer

PCO AG is manufacturer of high speed and high performance CCD- &CMOS camera systems for scientific, industrial and OEM applications.

PCO AG
Donaupark 11
93309 Kelheim
Germany
Tel.: +49 9441 2005 0
Fax: +49 9441 2005 20
info@pco.de
www.pco.de

R-3

Solution Provider

PCE offers a wide range of application-specific and well established systems for the control of pharmaceutical packaging. This range covers from simple control sensors to image processing used in complex applications such as Pharma Track & Trace. Thereby efficient image processing technology is embedded in an easy to handle user interface. The data acquired is available on all levels of process management. All systems comply with GMP standards.

Pharmacontrol Electronic GmbH
Gernsheimer Str. 2
64673 Zwingenberg
Germany
Tel.: +49 6251 8545 0
Fax: +49 6251 8545 111
info@pharmacontrol.de
www.pharmacontrol.de

F-6

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 leading-edge, 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 design-in support in vision system design.

Photonfocus AG
Bahnhofplatz 10
8853 Lachen
Switzerland
Tel.: +41 55 4510000
Fax: +41 55 4510001
sales@photonfocus.com
www.photonfocus.com

ZH-2

Solution Provider

Phytec is developer and manufacturer of imaging hardware with a special focus on customer specific products. Based on ready-made single board computers and camera boards, Phytec offers an easy way to integrate digital imaging into serial products.
Solutions can either be based on miniaturized microcontroller boards or standard-PC components.

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

Solution Provider

Inspection Machines

pi4_robotics GmbH
Gustav-Meyer-Allee 25
13355 Berlin
Germany
Tel.: +49 30 7009 694162
Fax: +49 30 7009 694 69
sales@pi4.de
www.pi4.de

B-4

Producer

POG Präzisionsoptik Gera develops, produces and distributes client-specific, optics for the whole spectral range. Founded in 1991 as MBO from the Carl Zeiss Group, POG today has three main product lines: a) customized and standard optical microstructures – reticles, scale, resolution and calibration targets, b) custom optical systems – from optics design to series production –, and c) custom high precision optical components from UV to IR.

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

EF-2

Distributor

Illumination: Fiber-optics, Halogen cold light sources, Metal halide light sources, Xenon stroboscopes, LED lightheads and controllers.
Lens: Standard CCTV lenses, Telecentric and macro lenses, System lenses.
Camera: Analog and digital cameras, Matrix- and line-scan cameras, Cabling and signal transfer, copper cables, fiber-optic transmission for digital cameras Frame Grabber: Analog input, Digital input, FireWire IEEE 1394, Optional DSPs.

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-5

Producer/ Research Facility/Solution Provider

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

Profactor GmbH
Am Stadtgut A2
4407 Steyr
Austria
Tel.: +43 7252 885 0
Fax: +43 7252 885 101
manfred.schaffrath@profactor.at
www.profactor.at

L-1

Solution Provider/Producer

Producer of image intensifiers, intensified cameras, special purpose cameras, detectors heads, subunits for low light and short-exposure applications. Engineering of customized products (single pieces, prototyping and series).
Product Range: electrooptical short-gating units (down to 5ns), intensified and EMCCD cameras, x-ray cameras, open MCP detector systems, UV cameras with single photon detection, SIT replacement cameras, powerline inspection system, camera upgrades and fiber optical couplings.

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

F-7

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-15

Distributor

Rauscher GmbH is a leading distributor for all imaging components, including software, area- and linescan cameras, frame grabbers, image-processing 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
Johann-G.-Gutenberg-Str. 20
82140 Olching
Germany
Tel.: +49 8142 44841 0
Fax: +49 8142 44841 90
info@rauscher.de
www.rauscher.de

M-16

Distributor

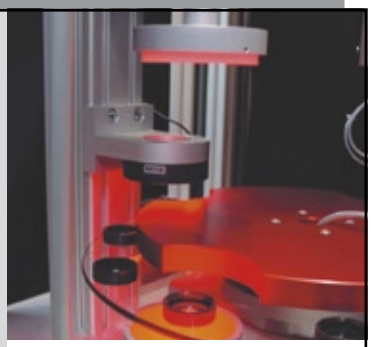
The Rubroeder GmbH Factory Automation offers systems for the PCB-, solar- and fuel-cell production as well as for semiconductor-packaging. Its systems for automated optical inspections by MVP acquire images "on-the-fly" and allow for solder-paste-, placement- and end-of-line inspections of PCBs. The 850-G system makes inspections of semiconductor packaging applications possible. It inspects paste, flux, the placement of die as well as epoxy.

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

System Solutions for Machine Vision: Machine Vision solutions determine the automation industry as a key technology. Besides specific solutions that SAC develops individually for the customers' applications, the company offers as well standard solutions. Together with the customers SAC develops concepts for the integration of Machine Vision into the production process. SAC offers efficient system solutions e.g. for Toothing Inspection, 3D Inspection, Assembly Quality Assurance and 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@sac-vision.net
www.sac-vision.net

KA-6

Solution Provider

Seidenader Vision GmbH has been developing and selling customized vision solutions, inspection systems and vision processors for all fields of industrial in-process quality inspection for almost 20 years. Seidenader Vision is part of the Seidenader Group with head office in Munich/Germany and subsidiaries in USA and Belgium.

Seidenader Vision GmbH
Lilienthalstr. 8
85570 Markt Schwaben
Germany
Tel.: +49 8121 802 486
Fax: +49 8121 802 100
info@seidenader.de
www.seidenader.de

M-17

Solution Provider

Being in market since 1989, Sensor to Image is one of the most established companies in the field of machine vision. Focused on OEM business, products like frame grabbers and image processing boards have been developed in the past. Now we are focused on FPGA based smart systems and technology for machine vision to realize powerful systems with small dimensions.

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

M-18

Producer

Sharp is a worldwide developer of core digital technologies that are playing an integral role in shaping the next generation of electronic products for consumer and business needs. Sharp Microelectronics Europe offers groundbreaking solutions in the areas of LCD, Opto Components, CCD/CMOS camera solutions and components, RF/IR, IC and LSI components, along with packaging and integration skills that help design engineers throughout Europe to bring their ambitious ideas to market.

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-6

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 1-D and 2-D codes, such as bar codes and data matrix codes. 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

Siemens AG
Gleiwitzer Str. 555
90475 Nürnberg
Germany
Tel.: +49 911 895 0
Fax: +49 911 895 2132
info.simatic-sensors@siemens.com
www.siemens.de/simatic-sensors/mv

N-2

Solution Provider

Signum was established in 1982 and was from the beginning specialized in providing complete machine vision solutions for the industry. Our activities are mainly focused on imprint control, surface inspection, position tracking and control, process control and code reading. We provide systems for the automotive supplying, pharmaceutical and print industry as well as for semiconductor and plastic manufacturers.

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-19

Producer

Silicon Software GmbH, located in Mannheim/Germany, manufactures intelligent Image-Processing Boards, Frame Grabbers, and OEM Products based on reprogrammable FPGA Technology. We offer services to customize the processing functionality of our products. The graphical hardware programming software Visual Applets is a further product focus, which enhances the Real-Time preprocesing capability of the processing boards and gives the opportunity to customize applications by the customers themselves.

Silicon Software
Steubenstr. 46
68163 Mannheim
Germany
Tel.: +49 621 789 507 0
Fax: +49 621 789 507 10
info@silicon-software.de
www.silicon-software.de

MA-1

Solution Provider

Highspeed cameras, machine vision, long time highspeed video recording, data acquisition for highspeed cameras, multi-head highspeed camera systems, custom solutions, rental, services.

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-8

Solution Provider

Manufacturer/Supplier of intelligent 3D-Cameras and 3D-Vision-Sensors for all areas of industrial image processing.

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-20

Solution Provider

survace for surface inspection (machine vision), survmotion for motion detection and tracking (surveillance).

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-14

Producer

Solving3D is manufacturer of metric solutions for machine vision based on photogrammetric measurement techniques with the core competency in development of camera based measurement systems for in-line applications and inspection as well as for dynamic applications in vehicle safety.
The systems have the distinction of precise stereo image measurement and laser triangulation. Solving3D develops and distributes measurement systems for in-line applications as well as customer specific solutions.

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-1

Machine Builder

Hardness Testing Machines, Spring Testing Machines, 3D Co-ordinate Measuring Machines.

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

S-15

Producer

Industrial image processing, software products and hardware (unique solutions and small series); applied research and development; statistical techniques of quality assurance and CAQ; consulting and further education; workshops and employee training for quality assurance, image processing and production measurement technology; preparation of companies for certification according to ISO 9001:2000; consulting of companies regarding raising funds for research and development projects

stw Steinbeis-Transferzentrum Qualitätssicherung & Bildverarbeitung

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

EF-3

Producer

We are a leading supplier of reliable and reasonable high-resolution digital cameras and custom imaging systems for machine vision. The portfolio of our product range for the domestic market covers the whole field of machine vision components, starting with illumination, followed by lenses, cameras, frame grabber, imaging libraries and computer hardware. Internationally we provide global sales, service and support through our distributors in Europe, USA and Asia for the SVCam camera series.

SVS-Vistek GmbH
Mühlbachstr. 20
82229 Seefeld
Germany
Tel.: +49 8152 99 85 0
Fax: +49 8152 99 85 79
info@svs-vistek.com
www.svs-vistek.com

M-21

Producer

Tamron is a 58 years old lens manufacturer providing high quality/performance machine vision lenses. We have 2/3, 1/1.8 Mega Pixel lenses, which can maximize performance of the mega pixel cameras. The MOD of the lenses are 10 cm, and the distortion is designed to be nearly 0 %.

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-4

Solution Provider

Tema, affiliated with the Mühlbauer Group, is an international provider of one-stop turnkey machine vision solutions mainly for the packaging, security printing, and minting sector but also for other industries. Though focusing on surface and print inspection, a variety of methods are used to guarantee 100 % fully automatic inspection, protocols, and statistics. Company developed software and lighting solutions enable customized vision systems – either as inline solutions or stand-alone units.

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

D-7

SPOILT FOR CHOICE

„He who stops advertising to try and save money, could just as easily stop his clock to try and save time!"
Henry Ford

Request a free sample copy!

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GIT VERLAG
A Wiley Company

Producer

Established in 1990, The Imaging Source has become a leading manufacturer of industrial machine vision cameras, frame grabbers and video converters, serving the following sectors: Factory automation, Quality inspection, Medical systems, Microscopy systems, Life science projects and Astronomy.
All imaging components manufactured by The Imaging Source ship with the SDK IC Imaging Control.

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.theimagingnsource.com

HB-1

Producer

The first camera products were line scan cameras developed for spectroscopy analysis and online measuring. With these cameras we started to develop a wide range of industrial cameras. Our competence includes Contact Image Sensors, cameras and interfaces.

Tichawa Vision GmbH
Burgwallstr. 14
86316 Friedberg
Germany
Tel.: +49 821 6080 660
Fax: +49 821 6080 661
sales@tichawa.de
www.tichawa.de

A-5

Producer

VDS Vosskuehler develops and produces high performance digital cameras for industrial and medical application.
Digital Cameras: CCD, CMOS, NIR, LWIR, UV, XRAY.

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-1

Producer

Vialux was founded in 2000 based upon the owners' 20 years background in optical metrology. Combining advanced opto-electronics with mature software algorithms forms the strength of the company in this field. Vialux addresses with its products customer needs in different industrial branches. The hand-held z-Snapper camera represents a new generation of 3D scanner that is powered by DLP technology. Vialux is a Value Added Reseller for DLP Discovery components and provides world-wide support.

VIALUX

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-1

Solution Provider

visicontrol is developing, producing, and selling machine vision systems for automation and quality control. Our systems are based on our own machine vision software and hardware.

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

RV-5

Machine Builder/Solution Provider

Visimation supplies high value vision systems for automation. As a young and growing company we support high demanding globally operating customers from the automotive supplier industry. Our range of products and services expands from the integration of machine vision systems via the design and production of complex customized plants to the inspection of parts in commission orders.

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

S-16

Producer

Innovations for Machine Vision: As a technology leader, Vision & Control develops, produces and sells an optimally attuned modular system worldwide. It ranges from complex image processing systems such as vision sensors, intelligent cameras and multi-camera 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 tailor-made image capturing and processing solutions.

VISION&CONTROL
SYSTEMS • LIGHTING • OPTICS

Vision & Control GmbH
Mittelbergstr. 16
98527 Suhl
Germany
Tel.: +49 3681 79 74 0
Fax: +49 3681 79 74 33
sales@vision-control.com
www.vision-control.com

SHL-1

Consultant

Certified institution for practical education and further training of Machine Vision expertise.
We offer manufacturer-based and product-neutral training in the technology and in the background of practice-related Machine Vision, right up to the highest level of the technology.

Vision Academy GmbH
Konrad-Zuse-Str. 15
99099 Erfurt
Germany
Tel.: +49 361 4262 187
Fax: +49 361 4262 189
infopoint@vision-academy.org
www.vision-academy.org

EF-4

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
Ottostr. 2
76275 Ettlingen
Germany
Tel.: +49 7243 2167 0
Fax: +49 7243 2167 11
sales@vision-components.com
www.vision-components.com

KA-7

Solution Provider

Vision Tools is one of the leading suppliers of Industrial Image Analysis Systems (Quality control, Character recognition, Robotics) for car manufacturers and their suppliers as well as the electrical industry. Further application fields are: plastic industry and pharmacy.

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

KA-8

Distributor

CCD/CMOS Sensors, CCD Cameras, EMCC Cameras, CMOS/CCD Line Scan Cameras, Firewire 1394B to PCIe Interface Boards, Illumination Devices, DC/DC Converters, Fingerprint Security Products.

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-22

Producer/Solution Provider

Vitronic has been marketing since 1984 standard products with client-specific extendable modules up to individual specific solutions. They are developed, manufactured and marketed by Vitronic. In this way, the clients receive turnkey ready systems from one source – from the hardware to the software. Thanks to its pioneering achievements and its persistent investment in research and development, Vitronic is today one of the leading companies in the field of image processing. In the year 2008 Vitronic had more than 300 employees.

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

MZ-5

Solution Provider

VMT supplies customized turnkey image processing and laser sensor systems for all industrial sectors. VMT solutions are based on self-developed product lines, which cover the entire application spectrum. As competence center for vision solutions in the Pepperl+Fuchs group, VMT offers absolute high-level 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 Bildverarbeitungssysteme GmbH
Mallaustr. 50-56
68219 Mannheim
Germany
Tel.: +49 621 84250 0
Fax: +49 621 84250 290
info@vmt-gmbh.com
www.vmt-gmbh.com

MA-2

Producer

Volpi is a provider of fiber optic and LED illumination components for use in machine vision, microscopy, and medical diagnostics. Another main area of activity is the development of fiber optic sensors for customized applications.

Volpi AG
Wiesenstr. 33
8952 Schlieren
Switzerland
Tel.: +41 4473 243 43
Fax: +41 4473 243 44
mail@volpi.ch
www.volpi.ch

ZH-3

Producer

The German camera manufacturer VRmagic offers a wide range of components for industrial image processing – from external analog-to-digital converters through to FPGA components with integrated image preprocessing and fully autonomously working intelligent cameras. The product range includes cameras in housing and OEM variants – from sensor boards through to special designs such as multisensor cameras. The modules can be individually configured as required.

VRmagic GmbH
Augustaanlage 32
68165 Mannheim
Gemany
Tel.: +49 621 4004 16 20
Fax: +49 621 4004 16 99
info@vrmagic.com
www.vrmagic.com

MA-3

Solution Provider

For 25 years the name of wenglor has stood for innovative products for contact free object recognition. Founded in 1983 wenglor today employs more than 500 people worldwide and continues to develop on an international basis.
Over 50,000 leading customers throughout the world trust wenglor to master their industrial automation challenges. wenglor offers a broad range of Image Processing, Vision Sensors, OCR Readers, Scanners, Illumination and of course service and trainings for all these products. wenglor looks forward to finding the solution to your vision application.

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-6

Machine Builder/Solution Provider

The optical measuring system from Wenzel verifies components directly in the production process. Through the combination with the reliable measuring software Metrosoft CM it is possible to control parts directly in the production line without delays. Due to the use of an intelligent camera system work pieces are checked within the cycle time of the production line. The measuring data can then be given immediately to the process controller.

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-9

Machine Builder

Werth Messtechnik GmbH is the leading international manufacturer of multisensor coordinate measuring machines. Product range: optical and tactile multisensor coordinate measuring machines – including x-ray computer tomography, measuring and profile projectors.

Werth Messtechnik GmbH
Siemensstr. 19
35394 Gießen
Germany
Tel.: +49 641 7938 0
Fax: +49 641 7938 719
mail@werthmesstechnik.de
www.werthmesstechnik.de

GI-1

Producer

X-Rite is the global leader in color science and technology. The company, which now includes design industry color leader Pantone, Inc., develops, manufactures, markets and supports innovative color solutions through measurement systems, software, color standards and services. X-Rite's expertise in inspiring, selecting, measuring, formulating, communicating and matching color helps users get color right the first time and every time, which translates to better quality and reduced costs.

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-4

Machine Builder

Yxlon International is the leading supplier of Industrial X-ray inspection systems and industrial Computed Tomography (CT) solutions for the non-destructive testing of materials (NDT).

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-2

Solution Provider

Zertrox is your local vision specialist in Aachen-Germany with European experience. We develop the fitting solution for your task and deliver a vision system that satisfies you. Within over five years of experience our customers come from the automotive, metal, paper, plastic and glass industry. We will find the right vision system for your task – just give us the chance to prove this.

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

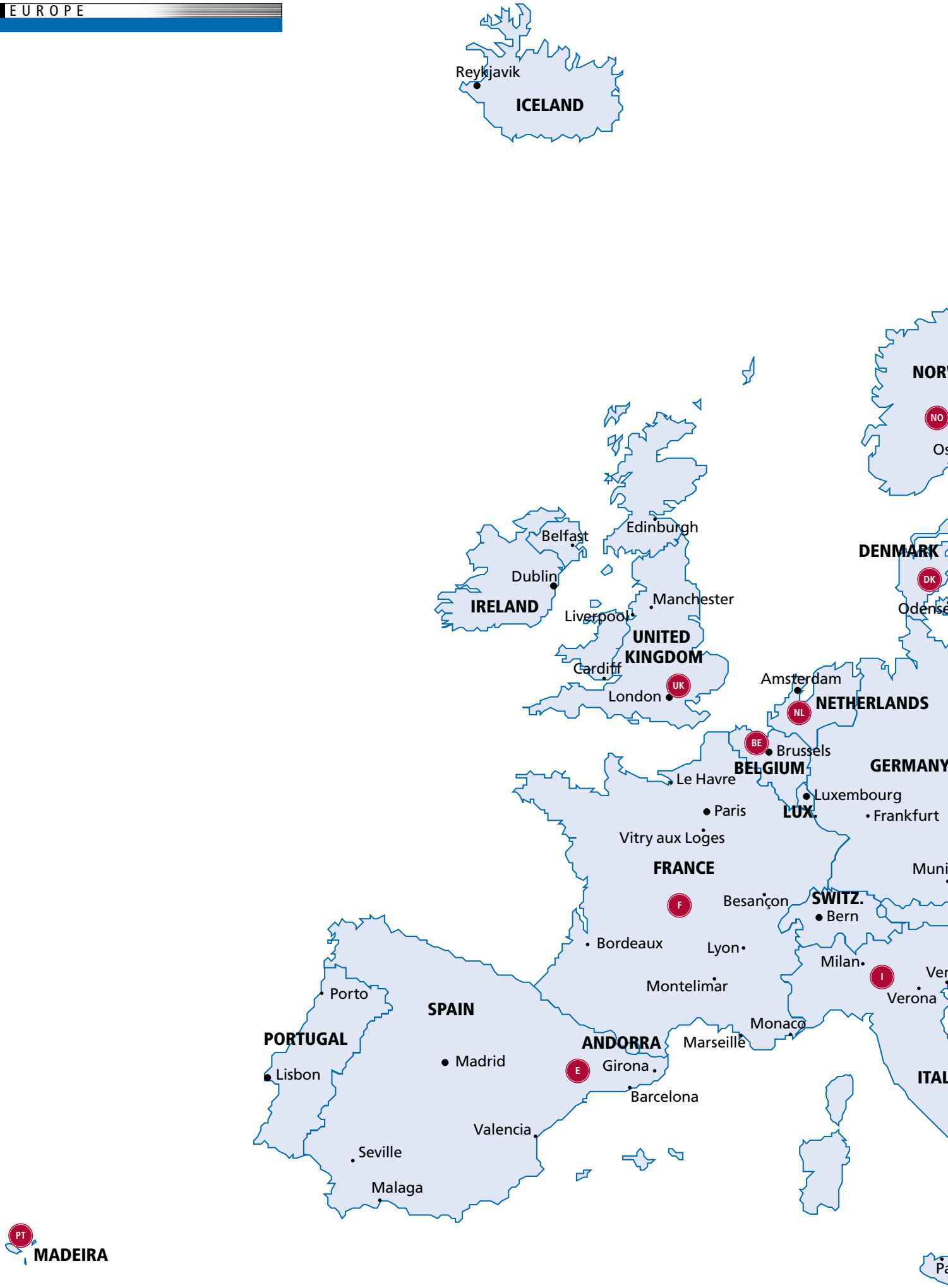
K-4

Producer

ZygoLOT was founded in 1999 as a joint venture between LOT-Oriel GmbH and Zygo Corporation, supplier of optical metrology instruments, precision optics, and electro-optical design/manufacturing services. LOT-Oriel, the exclusive European distributor of ZYGO's metrology products for more than 30 years, formed ZygoLOT with a group of highly-skilled people having a long history and high level of competence with optical metrology, and understands how to apply ZYGO technologies to best serve our customers.

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

F-10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BG
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Thessaloniki
ALB.
GREECE
Palermo
Athens

Producer

Active Silicon specializes 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 PC/104-Plus 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, LVDS, HD-SDI and Camera Link (including PoCL) cameras.

Active Silicon Ltd
Pinewood Mews, Bond Close
Iver SL00NA
United Kingdom
Tel.: +44 1753 650 600
Fax: +44 1753 651 661
info@activesilicon.com
www.activesilicon.com

UK-1

Solution Provider

Alliance Vision is one of the leading companies in France, who provides innovative engineering, software solutions and imaging products in the field of machine vision and image analysis. Our team of highly qualified professional engineers operates in France to provide on-site evaluation and installation of vision and imaging systems.

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

Distributor/Solution Provider

Applied Scintillation Technologies is a leading provider of advanced imaging and detection solutions. Our extensive knowledge and expertise enables us to supply a diverse range of application-focused products for both standard and customized solutions.

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

UK-2

Producer

Aqsense develops and commercializes 3D image acquisition and processing technologies that allow high speed in-line 100 % production inspection, for the Machine Vision Industry. The technology is offered to OEM companies and systems integrators already offering and familiar with 3D acquisition systems.
Our expertise is the mastering of our light stripe peak detection and ultra-fast, patent-pending, 3D registration procedures, implemented on FPGA and multi-processor software designs.

Aqsense, SL
Parc Científic i Tecnològic de la UdG
Ed. Jaume Casademont, Porta A,
Despatx 23
C/Pic de Peguera, 15
17003 Girona
Spain
Tel.: +34 972 183 215
Fax: +34 972 487 487
info@aqsense.com
www.aqsense.com

E-1

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 LDA
Madeira Tecnopolo – Ceim S4
9020-105 Funchal – Madeira
Portugal
Tel.: +351 291 72 31 24
Fax: +351 291 72 00 31
info@awaiba.com
www.awaiba.com

PT-1

Producer

Bentham manufactures spectroradiometer and spectrophotometer systems for the characterisation of light sources and optical properties of materials (UV, visible and infrared). Accessories include monochromators, light sources, integrating spheres, detectors, positioning devices and calibration standards.

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

UK-3

Producer

Image sensor design and production.

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

BE-1

Machine Builder

Sales/Service of Micron-Resolution filmscanners e.g PerkinElmer MicroDensitometers

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

UK-4

Solution Provider

Digital Surf, founded in 1989, is a leading provider of solutions for surface metrology to metrology instrument manufacturers, research laboratories and industry worldwide. The company provides 2D/3D/4D imaging and analysis software based on its Mountains technology. It provides scanning solutions including modular, expandable control systems for driving multi-gauge, multi-axis profilometers and high precision confocal chromatic optical distance gauges based on its Volcanyon technology.

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 electro-magnetic spectrum from X-rays, 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
38521 Saint Egreve Cedex
France
Tel.: +33 47658 3000
Fax: +33 47658 3480
enquiries@e2v.com
www.e2v.com

F-3

Producer

Euresys is a major player in the field of machine vision, developing and marketing high-performance products and services for imaging acquisition and vision-oriented analysis. Euresys offers a complete range of robust and powerful image analysis software tools for industrial machine vision; as well as innovative and high-performance image acquisition subsystems for high-end video surveillance and industrial machine vision applications.

Euresys
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4031 Angleur
Belgium
Tel.: +32 43 677288
Fax: +32 43 677466
info@euresys.com
www.euresys.com

BE-2

Solution Provider

FDS Research develops real-time machine vision systems, proprietary software solutions and design and build turn-key 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-Črnuče
Slovenia
Tel.: +386 1 589 75 81
Fax: +386 1 589 75 87
info@fdsresearch.si
www.fdsresearch.si

SI-1

Solution Provider

Inspection systems for quality control of semiconductor cells and wafers and solar cells.

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-3

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
08017 Barcelona
Spain
Tel.: +34 93 252 5757
Fax: +34 93 252 5758
infaimon@infaimon.com
www.infaimon.com

E-2

Solution Provider/Producer

InRay Solutions is a company specialized in custom software and hardware development and consulting services. We are a reliable and innovative modern company, offering not only products, but also successful solutions. One of our main activities is development of high resolution digital camera for industrial and scientific applications together with real-time image processing systems. We have developed and successfully implemented integral systems for control and monitoring. Our team of highly skilled IT professionals has the knowledge and experience to help you achieve your business targets.

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 manufacturer of high quality, industrial-grade cameras for the machine vision, transportation, military, aerospace, homeland security, medical and scientific markets.
JAI provides the broadest camera offering of any industrial matrix camera manufacturer in the world. JAI's product line features both CCD and CMOS technologies, spatial resolutions from VGA to multi-mega pixel, progressive scan and interlaced format, and sensitivity to light levels as low as .00001 lux.

JAI A/S
Produktionsvej 1
2600 Glostrup – Copenhagen
Denmark
Tel.: +45 44578888
Fax: +45 44913252
camerasales.emea@jai.com
www.jai.com

DK-1

Solution Provider

Customer specified and turnkey vision systems for the industry: pharmaceutical, glass, plastic, steel, food, packaging etc. Customer specified systems at a fixed price and time – with a functional guarantee. Guidance for specification, design, test and validation of vision systems. JLI vision systems can be integrated with existing production equipment.

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 is a Distributor in the UK for a wide range of Vision Products from key suppliers in Europe, the USA and Far East.

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

UK-5

Producer

Laser Quantum is a world-class manufacturer of high quality solid-state laser sources specializing in CW visible and IR. Our products are known throughout the world for reliability, compactness, performance-excellence and long operational lifetime. You'll find our products in scientific laboratories and integrated in systems and machines world-wide.

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

UK-6

Solution Provider

Accurate and fast 3D measurement for large volume parts using digital photogrammetry.

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

Solution Provider

With its headquarters in Kyoto, Japan, Omron Corporation is a global leader in the field of automation. Established in 1933, Omron has more than 35,000 employees in 34 countries working to provide products and services to customers in a variety of fields, including industrial automation, electronic components industries and healthcare. The European organization has its own development and manufacturing facilities, and provides local customer support in all European countries.

OMRON

Omron Europe BV
Wegalaan 67-69
2132 JD Hoofddorp
The Netherlands
Tel.: +31 23 568 13 00
Fax: +31 23 568 13 88
info@eu.omron.com
www.industrial.omron.eu

NL-1

Producer

Manufacturer of Telecentric Lenses, Custom Optics and LED illuminators.

Opto Engineering
via Cremona 29/2
46100 Mantova
Italy
Tel.: +39 0376 26 35 25
Fax: +39 0376 26 24 32
info@opto-engineering.com
www.opto-engineering.com

I-1

Distributor/Producer

Photonic Products is a manufacturer of custom designed laser diode modules and laser diode assemblies and an authorised distributor of high performance, premium quality industrial laser diodes and high power lasers from the top Japanese laser diode manufacturers: Sanyo, Opnext and Sony, and precision optical lenses from Panasonic to OEMs in the industrial, medical, scientific and defence markets.

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-7

Producer

Photron, designer and manufacturer of high speed imaging systems sets new standards with high frame rates, image resolution and light sensitivity.
The new Fastcam SA-1 system provides MegaPixel image resolution at frame rates up to 5,400 fps and a maximum recording rate of 675,000 fps with reduced image resolution. This unique high speed imaging performance together with an unequalled light sensitivity makes the Fastcam SA-1 the new system of choice for a wide variety of applications.

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-8

Producer

Sick IVP provides industrial vision cameras for factory automation. The product line includes Vision Sensors, Smart Cameras and cameras for high speed 3D machine vision. Target customers are OEM machine builders, system integrators and large end-users. Sick IVP is a part of the Sick Group, one of the world leading suppliers of industrial sensors.

Sick IVP AB
Wallenbergs gata 4
583 35 Linkoping
Sweden
Tel.: +46 13 36 21 00
Fax: +46 13 21 13 45
info@sickivp.com
www.sickivp.com

SE-1

Producer

Integrated machine vision cameras Visi5000, Visi40 paper industry: VisiEdge web edge tracking sensor, VisiEye web break detector steel industry: VisiLine Centring system, width measurement.

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-1

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 recently announced its second generation smart cameras, with a 3X performance improvement. These highly flexible color cameras extend the smart camera concept to several new markets, such as security, agriculture and traffic control.
Sony ISS has also added GigE modules, for long lead applications, to its portfolio, complementing its IEEE1394 offering.

SONY

Sony United Kingdom Limited
SES Division
The Heights, Brooklands
Weybridge, Surrey KT13 0XW
United Kingdom
Tel.: +33 1 55 90 35 12
Fax: +33 1 55 90 35 17
zone@eu.sony.com
www.sonybiz.net/vision

UK-9

Producer

Textile quality inspection
Blueberry Color Sorter
Narrow Fabric Inspection

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

NL-2

Distributor

High brightness LED lights for machine vision with all lights available from UV through to IR, microscopes, camera housings, filters.

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

UK-10

Solution Provider

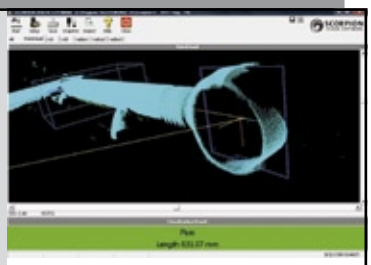
Sundance modular and customizable COTS hardware and software systems are easy to reconfigure to suit all high-speed I/O and signal processing applications, enabling the rapid prototyping and development of embedded systems.

Sundance Multiprocessor Technology Ltd
"Ciltern House", Waterside
Chesham: HP5 1PS
United Kingdom
Tel.: +44 1494 793167
Fax: +44 1494 793168
DVIP@Sundance.com
www.sundance.com

UK-11

Producer

Tordivel AS is a global machine vision company. Our unique and independent Scorpion Vision Software is the platform for world class vision systems and OEM solutions. Scorpion Vision Software is a powerful, flexible and extremely expeditious software tool for industrial vision. The most advanced 2D and 3D solutions are made without any programming. Scorpion Vision Software is distributed through a global network of partners.
Polytec GmbH is the German partner.



TORDIVEL

Tordivel AS
Storgata 20
0184 Oslo
Norway
Tel.: +47 2315 870 0
Fax: +47 2315 870 1
office@toridvel.no
www.scorpionvision.com

NO-1

Producer

"The Seal Inspector" is controlling that the seals of food packages are without impurities. "The Package Inspector" is capable of a unique inspection of packages, like controlling the artwork, dimensions, overmoulding and gaps between labels.
The solution approaches the packing industry which needs extensive visual package control. Both solutions are very competitive on the European market place.

TriVision
Havnegade 23
5000 Odense
Denmark
Tel.: +45 28353135
Fax: +45 63154709
korsgaard@trivision.dk
www.trivision.dk

DK-3

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.

Univision s.r.l.
via Appiani 3
20038 Seregno
Italy
Tel.: +39 0362 600201
Fax: +39 0362 600129
info@univision.it
www.univision.it

I-2

Distributor/Producer

The trilogy of light, lens and filter is crucial for a good working vision system.
We offer a wide range of illumination, lenses and filter solutions. Our products are used in the industrial Machine Vision industry, Traffic Automation (i.e. license plate recognition) and Security Business.
We also customize standard products to suit individual customer requirements.

VLT – creating optical solutions

Vision Light Tech
creating optical solutions

Vision Light Tech
Protonenlaan 22
5405 NE Uden
The Netherlands
Tel.: +31 413 260067
Fax: +31 413 260938
info@vlt.nl
www.visionlighttech.com

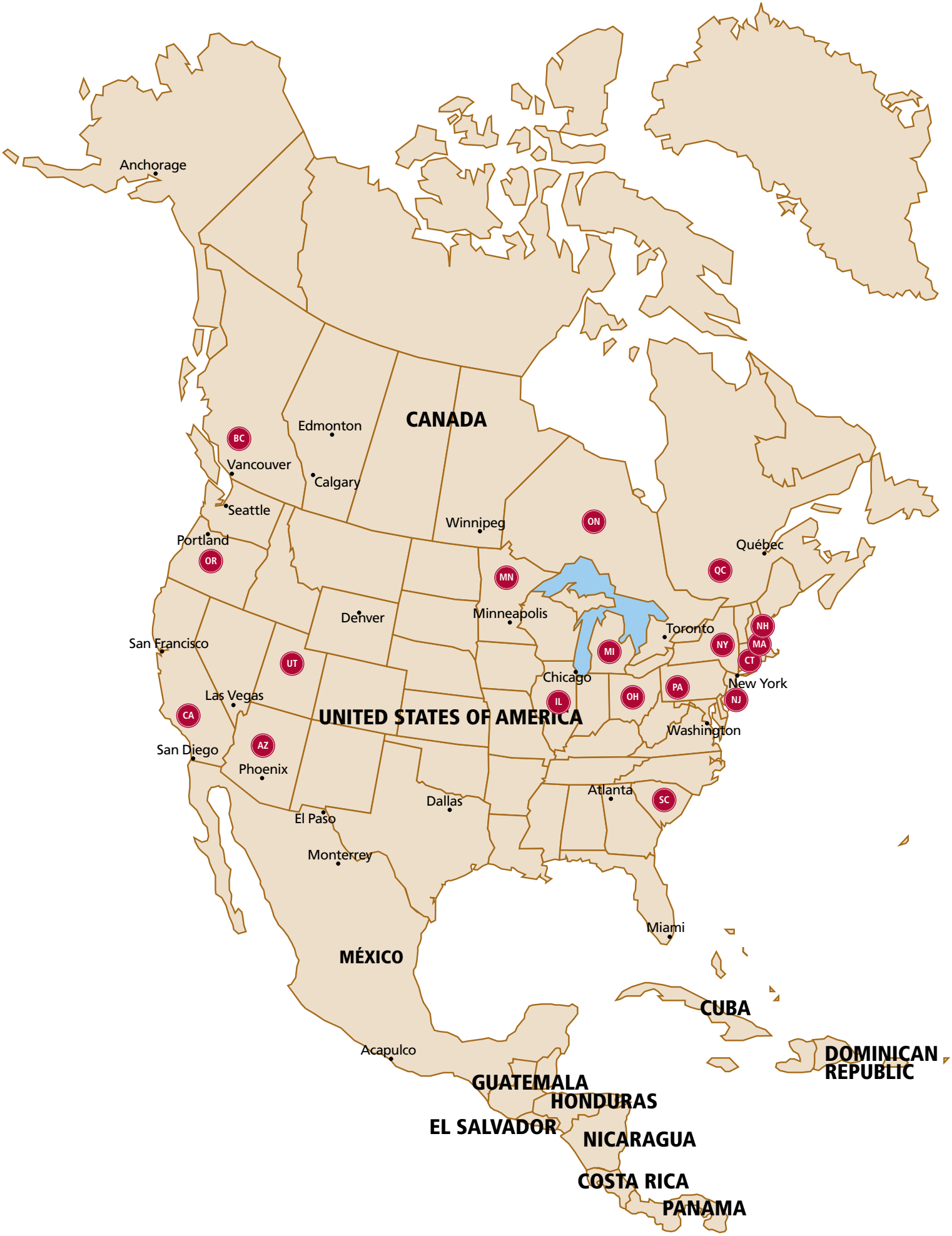
NL-3

Distributor

Leading Italian distributor of machine vision components. Cognex, Sony, E2V and more.

Visionlink s.r.l.
via Cristoforo Colombo 22
20038 Seregno
Italy
Tel.: +39 0362 600 202
Fax: +39 0362 600 129
info@visionlink.it
www.visionlink.it

I-3


Anchorage
CANADA
Edmonton
BC
Vancouver
Calgary
Seattle
Winnipeg
ON
Portland
OR
Québec
QC
MN
Minneapolis
Denver
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NY
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MI
CT
UT
Chicago
New York
Las Vegas
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OH
NJ
IL
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UNITED STATES OF AMERICA
Washington
San Diego
AZ
Phoenix
Atlanta
SC
Dallas
El Paso
Monterrey
Miami
MÉXICO
CUBA
Acapulco
DOMINICAN REPUBLIC
GUATEMALA
HONDURAS
EL SALVADOR
NICARAGUA
COSTA RICA
PANAMA

Producer

Allison Park Group, Inc. manufactures camera and lighting enclosures for harsh environments including: explosion proof, food (FDA), and corrosive washdown. We offer custom and OEM solutions, additionally we manufacture several lines of Pan & Tilt mounts that work with most cameras and light sources.

Allison Park Group, Inc.
4055 Alpha Drive
Allison Park, PA 15101
USA
Tel.: +1 412 487 8211
Fax: +1 412 486 3157
sales@apgvision.com
www.apgvision.com

PA-1

Solution Provider

Cimetrix offers powerful machine modeling and motion-control software products for high volume vision-guided control applications. Code can reduce time to market by up to 50 % by offering both a powerful, offline simulation development environment (Cimulation) and a robust, real-time motion and I/O control system (Cimcontrol).

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

UT-1

Producer

Manufacturer of flat panel display systems, both computers and monitors, for the OEM and end-users in an array of industries and applications.
Hazardous Area systems carry full agency approvals (Class I, Zone 1 & 2, etc.); NEMA-rated, Stand-Alone systems suit plant floor or commercial environments. Panel-Mount and Open-Frame systems offer multiple display sizes and up to 2.0 GHz Intel Core 2 Duo processors. Touchscreens are available on most of our products.

Computer Dynamics
7640 Pelham Road
Greenville, SC 29615
USA
Tel.: +1 864 627 8800
Fax: +1 864 675 0106
CDIsales@gefanuc.com
www.cdynamics.com

SC-1

Producer

CyberOptics Semiconductor is an industry authority on frame grabbers and machine vision applications. Customers enjoy a built-in connection to live engineering and installation support experts, as well as to online frame grabber expertise in the form of selection guides, white papers, and in-depth technical information.
For in-depth information on Imagenation frame grabbers, go to www.imagenation.com.

CyberOptics Semiconductor, Inc.
13555 SW Millikan Way
Beaverton, OR 97005
USA
Tel.: +1 503 495 2200
Fax: +1 503 495 2201
csinfo@cyberoptics.com
www.imagenation.com

OR-1

Solution Provider

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 industry-leading image sensors through powerful and sophisticated cameras, frame grabbers, vision processors and software to easy-to-use vision appliances and custom vision modules, our innovative technology helps give you competitive advantage in your imaging application, whatever it may be.

Dalsa
605 McMurray Road
Waterloo, Ontario N2V-2E9
Canada
Tel.: +1 519 886 6000
Fax: +1 519 886 8023
sales.americas@dalsa.com
www.dalsa.com/mv

ON-1

Distributor

High speed digital cameras for slow motion instant replay and motion analysis. In the lab or on the production line.

Digital West Imaging
450 Mountain View Road
El Cajon, CA 92021
USA
Tel.: +1 866 593 1900
Fax: +1 966 593 1901
sales@DigitalWestImaging.com
www.DigitalWestimaging.com

CA-1

Producer

Pan-tilt devices for cameras, lasers, antennas, machine vision.

Directed Perception
890C Cowan Road
Burlingame, CA 94010
USA
Tel.: +1 650 692 3900
Fax: +1 650 692 3930
sales@dperception.com
www.DPerception.com

CA-2

Solution Provider

Dunkley designs and builds turnkey vision systems.

Dunkley International Inc.
1910 Lake St.
Kalamazoo, MI 49001
USA
Tel.: +1 269 343 5583
Fax: +1 269 343 5614
ekenneway@dunkleyintl.com
www.dunkleymachinevision.com

MI-1

Producer

Epix, Inc. designs and manufactures frame grabbers, cameras, image acquisition and processing software, camera kits, and video to disk computer systems for machine vision, medical imaging, and high speed video analysis applications. We provide superior customer support from the initial purchase decision through image analysis. We can create custom cameras, frame grabbers, and software for your application.

Epix, Inc.
381 Lexington Drive
Buffalo Grove, IL 60089-6934
USA
Tel.: +1 847 465 1818
Fax: +1 847 465 1919
epix@epixinc.com
www.epixinc.com

IL-1

Producer

Manufactures high-speed megapixel digital cameras and systems based on state-of-the-art imagers and having high-speed, scalable, integrated FGPA's, processors, and memory subsystems. These features enable stand-alone recording or high-speed in-camera image processing. Also, FastVision offers lossless or lossy compressed image recording. Advanced IP and optimized software is available that can be added to allow stand-alone processing modes or integration.

FASTVISION

FastVision
131 D.W. Highway #529
Nashua, NH 03060
USA
Tel.: +1 603 891 4317
Fax: +1 603 891 1881
sales@fast-vision.com
www.fast-vision.com

NH-1

Producer

FTI designs and manufactures standard and custom fiberoptic lighting components including light sources and fixturing, for front, back, and oblique lighting required by area and line scanning applications.
The company distributes standard products thru traditional distribution channels, while working directly with integrators and OEMs for custom designed solutions.

Fiberoptics Technology
1 Quassett Road
Pomfret, CT 06258
USA
Tel.: +1 860 928 0443
Fax: +1 860 928 7664
sgiamundo@fiberoptix.com
www.fiberoptix.com

CT-1

Producer

FJW manufactures self-contained hand-held Find-R-Scope Infrared Viewers, Ultraviolet Viewers, and Thermal Cameras, plus Near-Mid IR Cameras. These products convert IR and UV to visible, allowing the user a clear view to inspect sources and images which are not apparent to the naked eye. Use the handheld Find-R-Scope viewer to determine if using IR imaging can provide improved contrast. Models sensitive from 180 nm (UV) to as long as 2200 nm, plus 8-14 microns. Also great for aligning laser systems.

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

IL-2

Subsidiaries

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

Company category
Producer

Product category
Cameras

Company Officials
Vladimir Tucakov, Director Sales & Marketing
Joerg Clement, Business Development Manager Europe

Date established
1997

Employees
more than 70 employees

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Packaging, Precision engineering/Optics/Machine vision, Plastics, Pharmaceuticals/Cosmetics/Chemicals, Foodstuffs/Beverages, Medical technology, Metal, Glass/Ceramics, Traffic/Logistics, Paper/Wood, Energy/Water/Solar technology

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

Platforms supported
IEEE-1394 (FireWire) and USB 2.0

Regions served
Europe, North America, South/Central America, Asia and Pacific Rim, ROW

Associations
EMVA, AIA, 1394 TA

Point Grey Research, Inc.
12051 Riverside Way
Richmond, BC, V6W 1K7
Canada
Tel.: +1 604.242.9937
Fax: +1 604.242.9938
info@ptgrey.com
www.ptgrey.com

BC-1

See our ad on page 7

About Point Grey Research

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) and USB 2.0 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 innovative and ground-breaking products to market. This drive for innovation has led to many industry firsts, including both the first and the world's smallest 1394b digital camera. Since its founding 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 70 people worldwide, and has a German subsidiary that provides sales and support services to customers in Europe, Africa and Israel. The company has also established a strong 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 11 years has created a diverse portfolio of digital cameras, peripheral components, and software.

Point Grey offers more than 75 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. All Point Grey cameras comply with the IIDC v1.31 specification, which allows them to be used with many third-party software packages, such as those from Cognex, Matrox, MVTec, and National Instruments. Also included with every camera is the FlyCapture software development kit (SDK), a complete software package that includes device drivers, a full software API library, demo programs and C/C++ example source code.

Solution Provider

FSI Technologies Inc. provides machine vision systems and solutions, specialized lighting, and related expertise and consultant services.
Systems include FireCube and other units powered by NeuroCheck, as well as DSP-based units for inspection of assemblies, agricultural, cast, molded, machined, and electronic products. Our Assured Path to Success program has a 100 % success rate on even the toughest applications. Since 1959.

FSI Technologies Inc.
668 Western Ave.
Lombard, IL 60148
USA
Tel.: +1 630 932 9380
Fax: +1 630 932 0016
info@fsinet.com
www.fsinet.com

IL-3

Producer

Designs and manufactures high-performance Gigabit Ethernet CCD/CMOS cameras for ITS, military, homeland security, machine vision, medical and scientific markets. Also specializes in neural network smart cameras as stand-alone systems. GigE Vision compliance ensures compatibility with third-party hardware and software to simplify integration. Serving OEMs, end-users and research institutions worldwide. Products are manufactured in the U.S.A.

Gevicam Inc.
673 S. Milipitas Blvd
Milpitas, CA 95035
USA
Tel.: +1 408 262 5772
Fax: +1 408 262 0962
info@gevicam.com
www.gevicam.com

CA-3

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
Buxter, MN 56425
USA
Tel.: +1 800 237 9576
Fax: +1 218 828 1096
intercon@nortechsys.com
www.intercon-1.com

MN-1

Producer

Electro-optics Modules; Polygonal mirrors; Polygonal Scanners; Precision Motors; High-speed Spindles.

Lincoln Laser Company
234 East Mohave
Phoenix, AZ 85004
USA
Tel.: +1 602 257 0407
Fax: +1 602 257 0728
bcmcgrath@lincolnlaser.com
www.lincolnlaser.com

AZ-1

Producer

Matrox Imaging is an established and trusted supplier to top OEMs and integrators involved in the manufacturing, medical diagnostic and security industries. The components delivered include cameras, interface boards and processing platforms, all designed to provide optimum price-performance within a common software environment.

Matrox Imaging
1055 St. Regis Blvd.
Dorval, Quebec H9P 2T4
Canada
Tel.: +1 514 822 6020
Fax: +1 514 822 6273
imaging.info@matrox.com
www.matroximaging.com

QC-1

Producer

LED Lighting for machine vision and custom LED lighting design services.

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

PA-2

About LMI Technologies

LMI Technologies Inc. (LMI) 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. More recently LMI has received attention for establishing new vision sensor technology that supports the universal machine vision market. Under their Vision Components Division LMI has established the FireSync platform, HexSight hardware and software products, as well as the recently launched maestro controller. Each of our LMI product solutions provide OEMs, System Integrators, engineering consultants, and in-house engineering teams with functional tools to rapidly design and install vision systems for their unique applications. LMI also provides custom design services to help our customers design and build unique machine vision and robotic solutions.

LMI Technologies Inc.
1673 Cliveden Avenue
Delta, British Columbia, V3M 6V5
Canada
Tel.: +1-604 636 1011
Fax: +1-604 516 8368
Info@lmitechnologies.com
www.lmitechnologies.com

BC-2

See our ad on page 5

Subsidiaries
LMI Technologies BV
Heerlen
The Netherlands
Tel.: +31 45 850 7000
info@lmitechnologies.com

Company category
Solution Provider

Product category
Cameras, Optics, Lighting equipment, Software, Processors, Vision Sensors/Smart Cameras/Embedded Systems, Interfaces/Cables/Peripherals, Topography, R&D

Company Officials
Leonard Metcalfe – CEO, Terry Arden – CTO, Neil Hummel – CFO, David Snell – Vice President of Sales & Marketing, Cor Maas – President of Vision Components Division, Barry Dashner – New Business Development Manager

Date established
1976

Employees
100

Industries served
Mechanical engineering/Line building, Automotive and suppliers, Electronics/Semiconductors, Precision engineering/Optics/Machine vision, Metal, Glass/Ceramics, Paper/Wood, Energy/Water/Solar technology, Road &Transportation, Rubber & Tire, Agriculture

Applications
Inspection piece parts, Inspection web material, Robot Vision 2D, Robot Vision 3D, Character Recognition, Symbol Recognition, Part Identification, Metrology 2D, Metrology 3D, High Speed Analysis

Regions served
National, Europe, North America, South/Central America, Asia and Pacific Rim

Associations
EMVA, AIA

Producer

Midwest Optical Systems designs filters expressly for machine vision applications, cameras and lenses which match the camera's spectral response and the currently-used lighting types. Specific filters are available for use with monochromatic (color) or white LED's, fiber optic illumination, structured diode-generated light patterns, and other lighting commonly used in imaging.

Midwest Optical Systems
322 Woodwork Ln
Palatine, IL 60067
USA
Tel.: +1 847 359 3550
Fax: +1 847 359 3567
midwest@midopt.com
www.midopt.com

IL-4

Solution Provider

Automated Inspection and Measurement Systems utilizing machine vision, laser sensors, non-contact sensors.
Defect Detection, Dimensional Measurement, Color Analysis, Surface Inspection, Line Scan systems.

msiVision
5 Herbert Drive, Suite 1N
Latham, NY 12309
USA
Tel.: +1 518 346 7136
Fax: +1 518 346 4134
info@msivision.com
www.msivision.com

NY-1

Producer

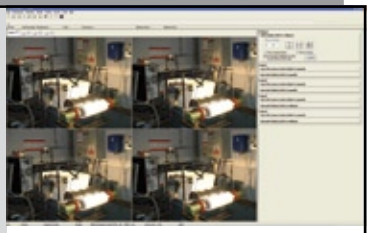
Newnex creates long distance connection solutions for machine vision and inspection applications through fiber, CHTS and Coax Cables for 1344 GigE and USB 2.0 etc. Newnex also manufactures high flex, angled, locking and custom design cables.

Newnex Technology Corp.
1231 Alderwood Ave.
Sennysale, CA 94089
USA
Tel.: +1 408 749 1480
Fax: +1 408 749 1963
information@newnex.com
www.newnex.com

CA-4

Producer/Solution Provider

StreamPix digital video is recording software for single or multiple cameras simultaneously. Includes support for a wide variety of Firewire A or B, USB2, 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, Inc.
1751 Richardson St., Suite 6117
Montreal, Quebec H3KIG6
Canada
Tel.: +1 514 846 0009
Fax: +1 514 846 0117
sales@norpix.com
www.norpix.com

QC-2

Solution Provider

Optical Research Associates (ORA) is the world's leading developer of optical design software, providing users with CODE V for imaging design and LightTools for illumination design. ORA is also the largest independent supplier of optical design and engineering services, with more than 4,000 completed projects since the company was founded in 1963.

Optical Research Associates
3280 E Foothill Blvd Ste 300
Pasadena, CA 91107
USA
Tel.: +1 626 795 9101
Fax: +1 626 795 9102
info@opticalres.com
www.opticalres.com

CA-5

Producer

Pleora Technologies Inc. is a global supplier of Ethernet video connectivity products for the broadcast, medical, machine vision and security/surveillance industries. Pleora´s award-winning iPort and EtherCast product families transport imaging and video data in real time over low-cost Ethernet Connections with extremely high performance. Pleora, a Frost and Sullivan Product Innovation Award-winner, is headquartered in Ottawa, Canada.

Pleora Technologies
359 Terry Fox Drive Suite 230
Kanata, Ontario, K2K 2E7
Canada
Tel.: +1 613 270 0625
Fax: +1 613 270 1425
info@pleora.com
www.pleora.com

ON-2

Producer

Spectrum Illumination is the leading supplier of high output LED lighting (Monster Lights) for the Machine Vision Market. Spectrum Illumination was the first company to bring high output LED's to the market and we are still the only company with a full product line utilizing that technology. Spectrum Illumination has over 100,000 standard products with all different variations. Most standard products are available to ship within days of receiving a purchase order. For those customers wanting to try our products they are available for 30 day trial with no restocking fee.

Spectrum Illumination
5114 Industrial Park Rd.
Montague, MI 49437
USA
Tel.: +1 231 894 4590
Fax: +1 231 894 4582
sales@spectrumillumination.com
www.spectrumillumination.com

MI-2

Solution Provider

Fully automated turnkey solutions for non-contact 3D measurement and inspection.
SPG DATA 3D software offers a timely solution to an industry that seeks to improve production processes, reduce the number of rejects and upgrade quality control.

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-3

Producer

Sunex is a world leader in wide-angle miniature lenses for digital cameras. Capabilities include design, development, and production of lenses, optical low-pass filters, IR cutoff filters, and systems for CMOS/CCD image sensors. Provides optical design services and custom product development.
Additional capabilities include molding plastics, prototype development, and high-volume production.

Sunex, Inc.
5963 La Place Court, Suite 309
Carlsbad, CA 92008
USA
Tel.: +1 760 602 0988
Fax: +1 760 602 0681
sales@sunex.com
www.sunex.com

CA-6

Producer

Supplier of CCTV Optics with the emphasis on long range surveillance. Optics from 2.5 mm to 2,000 mm employing the latest technological advances including aspherical elements, LD Glass and IR coatings.

Tekstar Optical Inc.
270 Kohr Rd.
Kings Park, NY 11754-1237
USA
Tel.: +1 631 663 3558
Fax: +1 631 269 5368
info@tekstaroptical.com
www.tekstaroptical.com

NY-2

Solution Provider

Sales agency and systems integrator specializing in photonics and related products and services.

Vega Technology Group
PO Box 80526
Canton, OH 44708
USA
Tel.: +1 330 754 2506
Fax: +1 330 754 2507
admin@vegatcgroup.com
www.vegatcgroup.com

OH-1

Solution Provider

Manufactures stock and custom vision systems including color and texture-based inspection, particle analysis and sieve certification, print verification and signature recognition, and license plate readers for vehicular access control. Specializes in custom software development, lighting and optics solutions, and color and grayscale machine vision system integration.

Vision Machines Inc.
PO Box 447
Bedford, MA 01730
USA
Tel.: +1 781 275 2020
Fax: +1 781 275 2028
info@vision-machines.com
www.vision-machines.com

MA-1

Producer

Vision Research designs and manufactures high-speed digital imaging systems used in applications including defense, automotive, engineering, science, medical research, industrial manufacturing and packaging, sports and entertainment, and digital cinematography for television and movie production.
Vision Research digital high-speed cameras add a new dimension to the sense of sight, allowing the user to see details of an event when it's too fast to see, and too important not to.

Vision Research
100 Dey Rd.
Wayne, NJ 07470
USA
Tel.: +1 973 696 4500
Fax: +1 973 696 0560
phantomn@visionresearch.com
www.visionresearch.com

NJ-1

Distributor/Solutions Provider

G4 Technology offers superior vision components as a distributor and acts as a solution-provider with years of practical experiences and expertise.
With comprehensive product lines and remarkable integration capability, we've won deep trust from customers to fit their needs. The market share of G4 is expanding rapidly and we're dedicated to assisting customers to raise competitiveness and maintaining win-win partnership with our principals.

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

RC-1

Producer

Toshiba Teli has three divisions-Machine Vision & Medical Imaging, Security & Surveillance camera systems and Medical & Plasma RF components are working in concert to accelerate pioneering efforts and strengthen. Providing wide range of sensors camera formats to meet a variety of customer needs. Toshiba Teli will release a state-of the-art "CSC-12M25BMP19" which can deliver 4,096 x 3,072 pixels at 25 fps and low signal-to-noise ratio in December2008.

Toshiba Teli Corporation
4-7-1 Asahigaoka
Hino 1910065
Japan
Tel.: +81 425 89 8771
Fax: +81 425 89 8774
h-konaka@toshiba-teli.co.jp
www.toshiba-teli.co.jp

J-1

Producer

Apart from offering off-the-shelf cameras, Kamiera also offers OpenCam reference designs for GigE cameras. This revolutionary do-it-yourself model allows customization of the full camera design, starting from the FPGA code, through the electronic design and up to the opto-mechanical design. The OpenCam model also cuts cost by up to 50 %.

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

IL-1

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-1

Cameras

Adimec
www.adimec.com

AIM Infrarot Module
www.aim-ir.de

Allied Vision Technologies
www.alliedvisiontec.com

AMS Technologies
www.ams.de

AOS Technologies
www.aostechnologies.com

Applied Scintillation Technologies
www.appscintech.com

Artray
www.artray.co.jp

Asentics
www.asentics.de

AT-Automation Technology
www.automationtechnology.de

BAP Image Systems
www.bapis.de

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumergroup.com

Bfi Optilas
www.bfioptilas.com

C-Cam Technologies
www.c-cam.be

Chromasens
www.chromasens.de

Cognex
www.cognex.com

Compar
www.compar.ch

Computer Bildverarbeitung
www.computerbv.de

Cosyco
www.cosyco.de

Dalsa
www.dalsa.com/mv

Data Vision
www.datvision.com

Dedo Weigert
www.dedoweigertfilm.de

Devitech
www.devitech.dk

dhs Dietermann & Heuser Solutions
www.dhssolution.com

Digital West Imaging
www.DigitalWestimaging.com

e2v
www.e2v.com

ebs Automatisierte Thermographie und Systemtechnik
www.irpod.net

Edmund Optics
www.edmundoptics.de

EHD Imaging
www.ehd.de

Eltec
www.eltec.com

Eltrotec
www.eltrotec.com

Entner electronics
www.entner-electronics.com

Epix
www.epixinc.com

Erhard + Leimer
www.erhardt-leimer.com

Eureca Messtechnik
www.eureca.de

Fabrimex Systems
www.fabrimex-systems.ch

Fast Vision
www.fast-vision.com

Fastec Imaging
www.fastecimaging.com

FiberVision
www.fibervision.de

FJW Optical Systems
www.findrscope.com

Flir
www.flirthermography.de

Fluke
www.fluke.de

Framos
www.framos.eu

FSI Technologies
www.fsinet.com

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.de

Helion
www.helionvision.com

Hema
www.hema.de

HGV Vosseler
www.hgv.de

High Speed Vision
www.hsvision.de

Hitachi Kokusai Electric
www.hitachi-keu.com

Ico Data
www.icodata.de

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

Impac Infrared
www.impacinfrared.com

Imperx
www.imperx.com

IMS Chips
www.ims-chips.de

Infaimon
www.infaimon.com

Infratec
www.infratec.de

InRay Solutions
www.inrays.com

insensiv
www.insensiv.de

IOS
www.ios-web.de

Ircam
www.ircam.de

IS Imaging Solutions
www.imaging-solutions.de

JAI
www.jai.com

JenCam
www.jencam.de

Jenoptik
www.jenoptik-los.de

JFAS
www.jfas.co.jp

Kamera Werke Dresden
www.kwdo.de

Kamiera
www.kamiera.com

Kappa
www.kappa.de

KeeKoon Electronics
www.keekoon.com

Klughammer
www.klughammer.de

Kvant
www.kvant.sk

Lambda Photometrics
www.lambdaphoto.co.uk

Laser 2000
www.laser2000.de

Leitner Industrial Endoscopy
www.leitner-efer.de

Leutron Vision
www.leutron.com

Leuze Electronic
www.leuze.com

Linos Photonics
www.linos.de

LMI Technologies
www.lmitechnologies.com

Lord Ingenierie
www.lord-ing.com

LOT Oriel
www.lot-oriel.com

Lumenera
www.lumenera.com

MAK Bildtechnik
www.mak-bildtechnik.de

Matrix Vision
www.matrix-vision.de

MaxxVision
www.maxxvision.com

Menzel Vision and Robotics
www.menzelab.com

Mikromak
www.mikromak.com

Mikrotron
www.mikrotron.de

msiVision
www.msivision.com

NAC
www.nacinc.de

eras

Narragansett Imaging
www.nimaging.com

National Instruments
www.ni.com/vision

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

Optris
www.optris.de

Optronis
www.optronis.com

Orbis
www.orbis.eu

Panasonic Marketing Europe
www.pss.panasonic.eu/microcam-eras

Parameter
www.parameter.se

PCO
www.pco.de

Pentacon
www.pentacon.de

PerkinElmer Optoelectronics
www.perkinelmer.com

Philips
www.apptech.philips.com/vision

Photonfocus
www.photonfocus.com

Photron
www.photron.com

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Pieper
www.pieper-video.de

Pixelink
www.pixelink.com

PMDTec
www.pmdtec.com

Point Grey Research
www.ptgrey.com

Polytec
www.polytec.de

Profactor
www.profactor.at

Prosilica
www.prosilica.com

Proxitronic Industries
www.proxitronic.com

Qualimatest
www.qmt.ch

Quest Innovations
www.quest-innovations.com

Rauscher
www.rauscher.de

Redlake
www.redlake.com

RH Engineering
www.rhengineering.de

Rubroeder
www.rubroeder.de

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

Schäfter + Kirchhoff
www.sukhamburg.de

Schmachtl
www.schmachtl.at

SDT – Dr. Seitner
www.sdt-seitner.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 Europe
www.sharpsme.com

Sick IVP
www.sickivp.com

SKS Vision Systems
www.visionsystems.fi

Slomotec
www.slomotec.de

SmartRay
www.smartray.de

Soliton
www.solitontech.com

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

Symco
www.symco.co.jp

Tattile
www.tattile.com

Tekno Optik
www.teknooptik.se

Tekstar Optical
www.tekstaroptical.com

The Imaging Source
www.theimagingsource.com

Thermosensorik
www.thermosensorik.de

Tichawa Vision
www.tichawa.de

Toshiba Teli
www.toshiba-teli.co.jp

TVI Vision
www.tvivision.com

unibrain
www.unibrain.com

VDS Vosskühler
www.vdsvossk.de

Vega Technology Group
www.vegatcgroup.com

Vialux
www.vialux.de

Videology Imaging Solutions
www.videologyinc.com

Videor Technical
www.videor.com

Vidisys
www.vidisys.de

visicontrol
www.visicontrol.com

Visiolaser
www.vannier-photelec.fr/visiolaser

Vision & Control
www.vision-control.com

Vision Components
www.vision-components.com

Vision Research
www.visionresearch.com

Vision Tools
www.vision-tools.com

Visionlink
www.visionlink.it

Vistas
www.vistas-gmbh.de

Vistek
www.vistekas.com

Vitronic
www.vitronic.com

VKT
www.vkt.de

VRmagic
www.vrmagic.com

Weinberger
www.weinberger.ch

Weiss Imaging and Solutions
www.weiss-imaging.de

Xenics
www.xenics.com

Zertrox
www.zertrox.de

Consulting

AIA
www.machinevisiononline.org

AIDO
www.aido.es

Alfavision
www.alfavision.de

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

Basler Vision Technologies
www.baslerweb.com

CMES
www.cmes.org

Cmos Vision
www.cmosvision.com

Cmosis
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
www.delta.dk

dhs Dietermann & Heuser Solutions
www.dhssolution.com

Digital West Imaging
www.DigitalWestimaging.com

Duwe 3D
www.duwe-3d.de

EMVA
www.emva.org

Entner electronics
www.entner-electronics.com

Erhard + Leimer
www.erhardt-leimer.com

Euresys
www.euresys.com

Farbmesstechnik 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

FSI Technologies
www.fsinet.com

G4 Technology
www.g4.com.tw

GBS
www.gbs-ilmenau.de

GFaI
www.gfai.de

Graphikon
www.graphikon.de

Hema
www.hema.de

HGV Vosseler
www.hgv.de

IDS
www.ids-imaging.com

Imaging Lab
www.imaginglab.it

Impuls
www.impuls-imaging.com

IMVG
www.associazionevisione-imvg.it

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
www.jiia.org

Joanneum Research
www.joanneum.at

Jos. Schneider Optische Werke
www.schneiderindustrialoptics.com

Kappa
www.kappa.de

Lincoln Laser Company
www.lincolnlaser.com

Mikrotron
www.mikrotron.de

msiVision
www.msivision.com

Neurocheck
www.neurocheck.com

NTI
www.nti-measure.com

OBE Ohnmacht & Baumgärtner
www.trevista.net

Optical Research Associates
www.opticalres.com

Opto Fidelity
www.optofidelity.com

Opto Sonderbedarf
www.opto.de

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Polytec
www.polytec.de

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

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

Frame Grabber

Active Silicon
www.activesilicon.com

Adlink
www.adlinktech.eu

Alacron
www.alacron.com

Arvoo Imaging Products
www.arvoo.com

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumergroup.com

Cognex
www.cognex.com

Computer Bildverarbeitung
www.computerbv.de

Cosyco
www.cosyco.de

Cyberoptics Semiconductor
www.imagenation.com

Dalsa
www.dalsa.com/mv

Data Vision
www.datvision.com

dhs Dietermann & Heuser Solutions
www.dhssolution.com

Eltec
www.eltec.com

Epix
www.epixinc.com

Fabrimex Systems
www.fabrimex-systems.ch

Fast
www.fast-corp.co.jp

Fast Vision
www.fast-vision.com

Framos
www.framos.eu

G4 Technology
www.g4.com.tw

Gidel
www.gidel.com

Hamamatsu Photonics
www.hamamatsu.de

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

JFAS
www.jfas.co.jp

Kvant
www.kvant.sk

Lambda Photometrics
www.lambdaphoto.co.uk

Leutron Vision
www.leutron.com

Matrix Vision
www.matrix-vision.de

Matrox Imaging
www.matrox.com/imaging

Menzel Vision and Robotics
www.menzelab.com

Mikrotron
www.mikrotron.de

msiVision
www.msivision.com

National Instruments
www.ni.com/vision

Odem Technologies
www.odem.co.il

Orbis
www.orbis.eu

Parameter
www.parameter.se

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Pleora Technologies
www.pleora.com

Polytec
www.polytec.de

Qualimatest
www.qmt.ch

Rauscher
www.rauscher.de

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

Schmachtl
www.schmachtl.at

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.theimagingsource.com

Videology Imaging Solutions
www.videologyinc.com

Vidisys
www.vidisys.de

Vision Tools
www.vision-tools.com

Visionlink
www.visionlink.it

Vistek
www.vistekas.com

Weiss Imaging and Solutions
www.weiss-imaging.de

Generic Visi & Turn Ke

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

Adlink
www.adlinktech.eu

Aicon 3D Systems
www.aicon.de

AIT Göhner
www.aitgoehner.de

aku automation
www.aku-automation.de

Alfavision
www.alfavision.de

Alliance Vision
www.alliancevision.com

ASB automation technologie
www.asb-technologie.de

Asentics
www.asentics.de

AT-Automation Technology
www.automationtechnology.de

ATM Vision
www.atmvision.com

ATN Automatisierungstechnik
www.atn-gmbh.com

Austrian Research Centers
www.smart-systems.at

Automation W+R
www.automationwr.de

AVT Advanced Vision Technology
www.avt-inc.com

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumergroup.com

Beratronic
www.beratronic.de

Bertram Elektrotechnik
www.bertram-bevern.de

Bi-Ber
www.bilderkennung.de

Brainware Solutions
www.brainware-solutions.de

BST International
www.bst-international.com

Camsensor Technologies
www.camsensor.com

Cognex
www.cognex.com

Compar
www.compar.ch

Computer Bildverarbeitung
www.computerbv.de

Cosyco
www.cosyco.de

Cruse Leppelmann Kognitionstechnik
www.clkgmbh.de

CTMV
www.ctmv.de

CTR Carinthian Tech Research
www.ctr.at

Datapixel
www.datapixel.com

de Man Industrie-Automation
www.deman.de

DE software & control
www.de-gmbh.com

desconpro engineering
www.desconpro.de

dhs Dietermann & Heuser Solutions
www.dhssolution.com

Digital West Imaging
www.DigitalWestimaging.com

Divisoft
www.divisoft.com

DMC Vision & Motion
www.dmc-vision-motion.de

Dr. Schenk Industriemesstechnik
www.drschenk.com

Dr. Schwab Inspection Technology
www.schwabinspection.com

Dunkley International
www.dunkleymachinevision.com

Dutch Vision
www.dvs-vision.de

E3tam
www.e3tam.com

Eckelmann
www.eckelmann.de

Edixia
www.edixia.com

EHR
www.ehr.de

Eines
www.eines.es

Electronic Systems
www.electronicsystems.it

Eltromat
www.eltromat.de

Eltrotec
www.eltrotec.com

Epix
www.epixinc.com

Erhard + Leimer
www.erhardt-leimer.com

EVK DI Kerschaggl
www.evk.biz

EVT Eye Vision Techology
www.evt-web.com

Fast
www.fast-corp.co.jp

Fast Vision
www.fast-vision.com

Faude
www.faude.de

FDS Research
www.fdsresearch.si

FiberVision
www.fibervision.de

Finger
www.finger-kg.de

Fritz Pauker Ingenieure
www.pauker-ingenieure.de

FSI Technologies
www.fsinet.com

Fuchs engineering
www.fuchs-engineering.de

Fuetec
www.fuetec.de

Futec
www.futec.co.jp

G4 Technology
www.g4.com.tw

GBS
www.gbs-ilmenau.de

Gefasoft
www.gefasoft.com

Gefat
www.gefat.de

GF Messtechnik
www.gfmesstechnik.de

GFaI
www.gfai.de

GOM
www.gom.com

Göpel electronic
www.goepel.com

GPP Chemnitz
www.gppc.de

Graphikon
www.graphikon.de

HaSoTec
www.hasotec.com

Heitec
www.heitec.de

HGV Vosseler
www.hgv.de

i2s
www.i2s-linescan.com

ibat
www.ibat-berlin.de

ibea
www.ibea.de

Icos Vision Systems
www.icos.be

on Systems
y Systems

Ikegami
www.ikegami.de

Image House
www.imagehouse.dk

Image S
www.imagessrl.com

i-mation
www.i-mation.de

imess
www.imess.de

Impuls
www.impuls-imaging.com

IMR
www.imr-le.de

INB Vision
www.inb-vision.com

Infaimon
www.infaimon.com

Infratec
www.infratec.de

inos Automationssoftware
www.inos-automation.com

InRay Solutions
www.inrays.com

insensiv
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Inspectron
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InSystems Automation
www.insystems.de

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Intopii
www.intopii.fi

IOS
www.ios-web.de

IOSS
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IS Imaging Solutions
www.imaging-solutions.de

Isomorph
www.isomorph.it

Isra Vision
www.isravision.com

ISW
www.isw-gmbh.biz

Itech engineering
www.itech-ag.ch

IVS
www.industrialvision.co.uk

J&P Vision
www.jupvision.de

JFAS
www.jfas.co.jp

JLI Vision
www.jli.dk

Joanneum Research
www.joanneum.at

K + P Krempien + Petersen
www.kup-image.de

Kappa
www.kappa.de

Kdorf Automation
www.kdorf.de

Keyence
www.keyence.de

KMS Vision Systems
www.kms-vision.de

Kvant
www.kvant.sk

L&_P
www.lp-gmbh.de

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Leuze Electronic
www.leuze.com

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Menzel Vision and Robotics
www.menzelab.com

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

Metronom Automation
www.metronom-automation.de

mevisco
www.mevisco.com

Microscan Europa
www.microscan.com

Modi Modular Digits
www.modi-gmbh.de

Moser Industrielektronik
www.moser-gmbh.de

MSC
www.msc.fr

msiVision
www.msivision.com

NeuPro Solutions
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www.norpix.com

OCS
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Octum electronic
www.octum.de

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www.industrial.omron.de

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www.orbis.eu

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www.orbotech.com

Otto Vision Technology
www.otto-jena.de

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www.panasonic-electric-works.com

Parameter
www.parameter.se

Parsytec
www.parsytec.com

Pepperl & Fuchs
www.pepperl-fuchs.com

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Peter Scholz Software + Engineering
www.scholzsue.de

Pharmacontrol
www.pharmacontrol.de

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www.phytec.de

pi4_robotics
www.pi4.de

Pilz
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Pulsotronic
www.bildverarbeitung.pulsotronic.de

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www.qmt.ch

Quiss
www.quiss.com

R&W Industrieautomation
www.r-u-w.de

rbc robotics
www.rbc-robotics.de

Recognitec
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Generic Vision Systems & Turn Key Systems

RH Engineering
www.rhengineering.de

Rohwedder
www.rohwedder.com

RSB Optotechnik
www.rsb-optotechnik.de

Rubroeder
www.rubroeder.de

SAC
www.sac-vision.net

Scanware electronic
www.scanware.de

Schmachtl
www.schmachtl.at

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www.schoenherr-elektronik.com

Seidenader Vision
www.seidenader.de

SI
www.surface-inspection.com

Sidonia Systems
www.sidoniasystems.de

Signum
www.signum-vision.de

SL Tec
www.sltec.de

Softhard Technology
www.softhard.com

Solex
www.solexvision.com

Solving3D
www.solving3d.de

Soma
www.soma.de

SPC Company
www.spccompany.nl

SPG Data 3D
www.spgdata3d.com

Steinbichler Optotechnik
www.steinbichler.com

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

Symacon Engineering
www.symacon.de

SysCon
www.syscon-vision.de

Tattile
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Tema
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Tordivel
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www.weiss-imaging.de

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www.wenglor.com

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www.wente-thiedig.de

Wolf Systeme
www.wolfsysteme.de

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www.ziemann-urban.de

Microscopes Endoscopes

Endoscopes Microscopes

AMS Technologies
www.ams.de

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www.atomicforce.de

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Breitmeier Messtechnik
www.breitmeier.de

Carl Zeiss Microimaging
www.zeiss.de/mikro

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

Edmund Optics
www.edmundoptics.de

EHD Imaging
www.ehd.de

Eltrotec
www.eltrotec.com

FRT
www.frt-gmbh.com

G4 Technology
www.g4.com.tw

GE Inspection Technology
www.geinspectiontechnologies.com

Hipp Endoskop Service
www.hipp-endoskopservice.com

Infaimon
www.infaimon.com

Infinity Photo-Optical
www.infinity-de.com

Karl Storz
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Kvant
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Leica Microsystems
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Leitner Industrial Endoscopy
www.leitner-efer.de

LOT Oriel
www.lot-oriel.com

Mikroskoptechnik Rathenow
www.askania.de

Mikrovision
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Mitutoyo
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Moritex
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Opto Sonderbedarf
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www.oxford-instruments.com

Panasonic Marketing Europe
www.pss.panasonic.eu/microcameras

Power Control Electronics PCE
www.pce-powercontrol.de

Richard Wolf
www.richard-wolf.com

Rubroeder
www.rubroeder.de

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

Schäfer Technologie
www.schaefer-tec.com

Seiwa Optical
www.seiwaopt.co.jp

Seldes
www.seldes.com

Special Application Products
www.sapltd.co.uk

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

tecin
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Tekno Optik
www.teknooptik.se

Vega Technology Group
www.vegatcgroup.com

Vision Engineering
www.visioneng.de

Visitool
www.visitool.de

Walter Uhl Techn. Mikroskopie
www.walteruhl.de

Weiss Imaging and Solutions
www.weiss-imaging.de

Werth Messtechnik
www.werthmesstechnik.de

Wild
www.wild.at

Lighting Equip

ABW
www.abw-3d.de

Advanced Illumiation
www.advancedillumination.com

Balluf
www.balluf.de

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumergroup.com

Bfi Optilas
www.bfioptilas.com

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

Cognex
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Collischon Optik-Design
www.mikro-optik.de

Computer Bildverarbeitung
www.computerbv.de

Data Vision
www.datvision.com

DCM Sistemes
www.dcmsistemes.com

Dedo Weigert
www.dedoweigertfilm.de

Digital West Imaging
www.DigitalWestimaging.com

Edmund Optics
www.edmundoptics.de

Eltrotec
www.eltrotec.com

Erhard + Leimer
www.erhardt-leimer.com

Fabrimex Systems
www.fabrimex-systems.ch

Falcon LED Lighting
www.falcon-lighting.de

Faseroptik Henning
www.faseroptik-henning.de

Fiberoptics Technology
www.fiberoptix.com

FiberVision
www.fibervision.de

Finger
www.finger-kg.de

Framos
www.framos.eu

FSI Technologies
www.fsinet.com

G4 Technology
www.g4.com.tw

Gardasoft Vision
www.gardasoft.com

Global Laser
www.global-lasertech.co.jp

GPP Chemnitz
www.gppc.de

Hamamatsu Photonics
www.hamamatsu.de

Hema
www.hema.de

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

Jenoptik
www.jenoptik-los.de

JFAS
www.jfas.co.jp

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

Leitner Industrial Endoscopy
www.leitner-efer.de

LEJ Leistungselektronik Jena
www.lej.de

Leutron Vision
www.leutron.com

Linos Photonics
www.linos.de

LMI Technologies
www.lmitechnologies.com

LOT Oriel
www.lot-oriel.com

Matrix Vision
www.matrix-vision.de

MaxxVision
www.maxxvision.com

Menzel Vision and Robotics
www.menzelab.com

Metaphase Technologies
www.metaphase-tech.com

Microscan Europa
www.microscan.com

Mikrotron
www.mikrotron.de

Mikrovision
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 Laser-produkte
www.omicron-laser.de

Omron
www.industrial.omron.de

Opto Engineering
www.opto-engineering.com

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www.opto.de

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Orbis
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PerkinElmer Optoelectronics
www.perkinelmer.com

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Photonic Products
www.photonic-products.com

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Planistar Lichttechnik
www.planistar.de

POG Präzisionsoptik Gera
www.pog.eu

ment

Polytec
www.polytec.de

Profactor
www.profactor.at

Qualimatest
www.qmt.ch

Rauscher
www.rauscher.de

RH Engineering
www.rhengineering.de

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

Schäfter + Kirchhoff
www.sukhamburg.de

Schmachtl
www.schmachtl.at

Schott
www.schott.com/fiberoptics

Sedeco Vision Components
www.sedeco.nl

Seiwa Optical
www.seiwaopt.co.jp

Sharp Microelectronics Europe
www.sharpsme.com

Sill Optics
www.silloptics.de

Smart Vision Lights
www.smartvisionlights.com

Soliton
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
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Tema
www.temavisio.com

The Imaging Source
www.theimagingsource.com

Univision
www.univision.it

V Cubed
www.vcubed.co.uk

Vialux
www.vialux.de

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www.visicontrol.com

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www.vannier-photelec.fr/visiolaser

Vision & Control
www.vision-control.com

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Vision Tools
www.vision-tools.com

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

wenglor sensoric
www.wenglor.com

Zertrox
www.zertrox.de

Optical Instru

3D Alliance
www.3dalliance.de

3D Shape
www.3d-shape.com

Aicon 3D Systems
www.aicon.de

Alicona
www.alicona.com

AMS Technologies
www.ams.de

Applied Scintillation Technologies
www.appscintech.com

Benteler Maschinenbau
www.benteler.de/maschinenbau

Bentham Instruments
www.bentham.co.uk

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BST International
www.bst-international.com

Carl Zeiss
www.zeiss.de

Carl Zeiss Microimaging
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www.leadinglight.com.tw

CMC Kuhnke
www.cmc-kuhnke.de

Cmos Vision
www.cmosvision.com

ColorLite
www.colorlite.de

CSI
none

Datapixel
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Datasensor
www.datasensor.com

Delta
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Digital Surf
www.digitalsurf.com

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

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www.drwehrhahn.com

EHD Imaging
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EVK DI Kerschaggl
www.evk.biz

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Flir
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FRT
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G4 Technology
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GE Inspection Technology
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GF Messtechnik
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www.sensorsinc.com

Goratec
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HGV Vosseler
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Hipp Endoskop Service
www.hipp-endoskopservice.com

Hommel Etamic
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Jos. Schneider Optische Werke
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LAP
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Nikon
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NTI
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Taylor Hobson
www.taylor-hobson.com

tec5
www.tec5.com

TechnoTeam
www.technoteam.de

Tekno Optik
www.teknooptik.se

Topometric
www.topometric.net

Tordivel
www.scorpionvision.com

Ulis
www.ulis-ir.com

Vialux
www.vialux.de

Videometer
www.videometer.com

Visiolaser
www.vannier-photelec.fr/visiolaser

Vision Light Tech
www.visionlighttech.com

Vision Machines
www.vision-machines.com

Volform
www.volform.se

Wente/Thiedig
www.wente-thiedig.de

Wenzel
www.wenzel-cmm.com

Werth Messtechnik
www.werthmesstechnik.de

Wild
www.wild.at

Xenics
www.xenics.com

X-Rite
www.xrite.com

Yxlon International
www.yxlon.com

Z-Laser
www.z-laser.com

ZygoLOT
www.zygolot.de

Optics

Allied Vision Technologies
www.alliedvisiontec.com

AMS Technologies
www.ams.de

Awaiba
www.awaiba.com

Azure Photonics
www.azurephotonics.com

B & M Optik
www.bm-optik.de

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumergroup.com

Bfi Optilas
www.bfioptilas.com

bk Interferenzoptik
www.interferenzoptik.de

Carl Zeiss
www.zeiss.de

Carl Zeiss Microimaging
www.zeiss.de/mikro

CBC Deutschland
www.cbc-de.com

Chronix
www.chronix.co.jp

Collischon Optik-Design
www.mikro-optik.de

Computer Bildverarbeitung
www.computerbv.de

Cosyco
www.cosyco.de

Data Vision
www.datvision.com

Devitech
www.devitech.dk

dhs Dietermann & Heuser Solutions
www.dhssolution.com

Docter Optics
www.docter-optics.com

Edmund Optics
www.edmundoptics.de

EHD Imaging
www.ehd.de

Eltrotec
www.eltrotec.com

Eureca Messtechnik
www.eureca.de

Fabrimex Systems
www.fabrimex-systems.ch

FiberVision
www.fibervision.de

Finger
www.finger-kg.de

Fisba Optik
www.fisba.ch

Framos
www.framos.eu

FRT
www.frt-gmbh.com

Fujinon
www.fujinon.de

G4 Technology
www.g4.com.tw

Goyo Optical Japan
www.goyooptical.com

Holoeye Photonics
www.holoeye.com

IB/E Optics
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IDS
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Image House
www.imagehouse.dk

Image S
www.imagessrl.com

IMT
www.imtag.ch

Infaimon
www.infaimon.com

Ircam
www.ircam.de

IS Imaging Solutions
www.imaging-solutions.de

Jenoptik
www.jenoptik-los.de

JFAS
www.jfas.co.jp

Jos. Schneider Optische Werke
www.schneiderindustrialoptics.com

Keyence
www.keyence.de

Kowa
www.kowa-europe.com

Kvant
www.kvant.sk

Lambda Photometrics
www.lambdaphoto.co.uk

Laser 2000
www.laser2000.de

Laser Components
www.lasercomponents.com

Leica Geosystems
www.leica-geosystems.com/metrology

Lensation
www.lensation.de

Leoni Fiber Optics
www.leoni-fiber-optics.com

Lincoln Laser Company
www.lincolnlaser.com

Linos Photonics
www.linos.de

LMI Technologies
www.lmitechnologies.com

LOT Oriel
www.lot-oriel.com

Matrix Vision
www.matrix-vision.de

MaxxVision
www.maxxvision.com

Menzel Vision and Robotics
www.menzelab.com

Midwest Optical Systems
www.midopt.com

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

Moritex
www.moritex.com

msiVision
www.msivision.com

Myutron
www.myutron.com

Navitar
www.navitar.com

NET
www.net-gmbh.com

NeuPro Solutions
www.neupro-solutions.com

Odem Technologies
www.odem.co.il

Olympus
www.olympus-europa.com

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

Orbis
www.orbis.eu

Parameter
www.parameter.se

Phaer
www.phaer.be

Photonic Products
www.photonic-products.com

pi4_robotics
www.pi4.de

POG Präzisionsoptik Gera
www.pog.eu

Polytec
www.polytec.de

Profactor
www.profactor.at

Qioptiq
www.qioptiq.com

Qualimatest
www.qmt.ch

Optics

Rauscher
www.rauscher.de

Resolve Optics
www.resolveoptics.com

RH Engineering
www.rhengineering.de

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

Schäfter + Kirchhoff
www.sukhamburg.de

Schmachtl
www.schmachtl.at

Sedeco Vision Components
www.sedeco.nl

Seiwa Optical
www.seiwaopt.co.jp

Sill Optics
www.silloptics.de

Special Application Products
www.sapltd.co.uk

Spectros
www.spectros.ch

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 Europe
www.tamron.de

Tekno Optik
www.teknooptik.se

Tekstar Optical
www.tekstaroptical.com

The Imaging Source
www.theimagingsource.com

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
www.volpi.ch

VS Technology
www.vst.co.jp

Weiss Imaging and Solutions
www.weiss-imaging.de

ZygoLOT
www.zygolot.de

R&D

AIDO
www.aido.es

Alfavision
www.alfavision.de

Alicona
www.alicona.com

Anafocus
www.anafocus.com

Austrian Research Centers
www.smart-systems.at

Awaiba
www.awaiba.com

Basler Vision Technologies
www.baslerweb.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

Dalsa
www.dalsa.com/mv

de Man Industrie-Automation
www.deman.de

Delta
www.delta.dk

Docter Optics
www.docter-optics.com

Eltec
www.eltec.com

Eltrotec
www.eltrotec.com

Entner electronics
www.entner-electronics.com

Erhard + Leimer
www.erhardt-leimer.com

FiberVision
www.fibervision.de

Fisba Optik
www.fisba.ch

Fraunhofer Allianz Vision
www.vision.fraunhofer.de

FRT
www.frt-gmbh.com

FSI Technologies
www.fsinet.com

Gevicam
www.gevicam.com

GFaI
www.gfai.de

Graphikon
www.graphikon.de

HaSoTec
www.hasotec.com

Helion
www.helionvision.com

Hema
www.hema.de

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
www.infaimon.com

InRay Solutions
www.inrays.com

Isomorph
www.isomorph.it

Joanneum Research
www.joanneum.at

Jos. Schneider Optische Werke
www.schneiderindustrialoptics.com

Kamera Werke Dresden
www.kwdo.de

Kamiera
www.kamiera.com

Kappa
www.kappa.de

Leica Geosystems
www.leica-geosystems.com/metrology

Lincoln Laser Company
www.lincolnlaser.com

LMI Technologies
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Matrix Vision
www.matrix-vision.de

Mazet
www.mazet.de

Micron
www.micron.com

Mikromak
www.mikromak.com

Mikrotron
www.mikrotron.de

msiVision
www.msivision.com

Norpix
www.norpix.com

Opto Sonderbedarf
www.opto.de

Panavision Imaging
www.panavisionimaging.com

PCO
www.pco.de

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Profactor
www.profactor.at

Proxitronic Industries
www.proxitronic.com

Schäfter + Kirchhoff
www.sukhamburg.de

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

SmartSurv
www.smartsurv.de

SPG Data 3D
www.spgdata3d.com

SPIE
www.spieeurope.org

STZ Qualitätssicherung und Bildverarbeitung
www.stz-ilmenau.de

SVS Vistek
www.svs-vistek.com

Tekno Optik
www.teknooptik.se

Tema
www.temavisio.com

Tichawa Vision
www.tichawa.de

Tordivel
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Univision
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Vega Technology Group
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Vision Tools
www.vision-tools.com

Vistek
www.vistekas.com

V-Research
www.v-research.at

ZBS
www.zbs-ilmenau.de

Zertrox
www.zertrox.de

Processors, Interfaces, Cables, Peripherals

Allied Vision Technologies
www.alliedvisiontec.com

Alysium-Tech
www.alysium-tech.com

AMS Technologies
www.ams.de

Andon Electronics
www.andonelect.com

Arvoo Imaging Products
www.arvoo.com

BAP Image Systems
www.bapis.de

Components Express
www.componentsexpress.com

Computer Bildverarbeitung
www.computerbv.de

Computer Dynamics
www.cdynamics.com

D.SignT
www.dsignt.de

Dalsa
www.dalsa.com/mv

de Man Industrie-Automation
www.deman.de

DSM Computer
www.dsm.ag

Eltec
www.eltec.com

Eltrotec
www.eltrotec.com

Epix
www.epixinc.com

Fabrimex Systems
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Framos
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G4 Technology
www.g4.com.tw

Gidel
www.gidel.com

Hema
www.hema.de

HGV Vosseler
www.hgv.de

IDS
www.ids-imaging.com

igus
www.igus.de

Image House
www.imagehouse.dk

Image S
www.imagessrl.com

Imaging Solutions Group
www.isgchips.com

Infaimon
www.infaimon.com

intercon1
www.intercon-1.com

JFAS
www.jfas.co.jp

Kamiera
www.kamiera.com

Lemo
www.lemo.com

Leoni Fiber Optics
www.leoni-fiber-optics.com

LMI Technologies
www.lmitechnologies.com

Matrix Vision
www.matrix-vision.de

Matrox Imaging
www.matrox.com/imaging

MaxxVision
www.maxxvision.com

Mazet
www.mazet.de

Menzel Vision and Robotics
www.menzelab.com

Newnex Technology
www.newnex.com

Northwire
www.northwire.com

Orbis
www.orbis.eu

Parameter
www.parameter.se

Phytec Messtechnik
www.phytec.de

pi4_robotics
www.pi4.de

Rauscher
www.rauscher.de

Schmachtl
www.schmachtl.at

Seidenader Vision
www.seidenader.de

Seldes
www.seldes.com

Stemmer Imaging
www.stemmer-imaging.com

Strampe Systemelektronik
www.strampe.de

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
www.theimagingsource.com

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

Softwa

a&b software
www.ab-soft.com

ABW
www.abw-3d.de

Adaptive Vision
www.adaptive-vision.com

Alfavision
www.alfavision.de

Alicona
www.alicona.com

Alliance Vision
www.alliancevision.com

AMS Technologies
www.ams.de

AOS Technologies
www.aostechnologies.com

Aqsense
www.aqsense.com

Artray
www.artray.co.jp

Asentics
www.asentics.de

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumergroup.com

Cimetrix
www.cimetrix.com

Cognex
www.cognex.com

Computer Bildverarbeitung
www.computerbv.de

Cosyco
www.cosyco.de

Dalsa
www.dalsa.com/mv

Data Vision
www.datvision.com

de Man Industrie-Automation
www.deman.de

dhs Dietermann & Heuser Solutions
www.dhssolution.com

Digital Surf
www.digitalsurf.com

Duwe 3D
www.duwe-3d.de

Dynalog
www.dynalog-us.com

ebs Automatisierte Thermo graphie und Systemtechnik
www.irpod.net

EHD Imaging
www.ehd.de

Eltec
www.eltec.com

Eltrotec
www.eltrotec.com

Epix
www.epixinc.com

Erhard + Leimer
www.erhardt-leimer.com

Euresys
www.euresys.com

EVT Eye Vision Techology
www.evt-web.com

Fabrimex Systems
www.fabrimex-systems.ch

Fast
www.fast-corp.co.jp

FDS Research
www.fdsresearch.si

FiberVision
www.fibervision.de

Flir
www.flirthermography.de

Framos
www.framos.eu

FSI Technologies
www.fsinet.com

G4 Technology
www.g4.com.tw

GBS
www.gbs-ilmenau.de

Gefasoft
www.gefasoft.com

Geomagic
www.geomagic.com

Gidel
www.gidel.com

Graphikon
www.graphikon.de

Hamamatsu Photonics
www.hamamatsu.de

HaSoTec
www.hasotec.com

HGV Vosseler
www.hgv.de

IB/E Optics
www.ibe-optics.com

IDS
www.ids-imaging.com

Image House
www.imagehouse.dk

Image S
www.imagessrl.com

Imagic
www.imagic-imaging.com

Imaging Lab
www.imaginglab.it

Imatec
www.imatec-bildanalyse.com

Impuls
www.impuls-imaging.com

INB Vision
www.inb-vision.com

Infaimon
www.infaimon.com

InRay Solutions
www.inrays.com

in-situ
www.in-situ.de

Ircam
www.ircam.de

IS Imaging Solutions
www.imaging-solutions.de

Isomorph
www.isomorph.it

Isra Vision
www.isravision.com

IVS
www.industrialvision.co.uk

JFAS
www.jfas.co.jp

Joanneum Research
www.joanneum.at

Klughammer
www.klughammer.de

Kvant
www.kvant.sk

Lambda Photometrics
www.lambdaphoto.co.uk

Laser 2000
www.laser2000.de

Leica Geosystems
www.leica-geosystems.com/metrology

Leica Microsystems
www.leica-microsystems.com

Leutron Vision
www.leutron.com

Linos Photonics
www.linos.de

LMI Technologies
www.lmitechnologies.com

Math & Tech
www.mathtech.de

Matrix Vision
www.matrix-vision.de

Matrox Imaging
www.matrox.com/imaging

MaxxVision
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Menzel Vision and Robotics
www.menzelab.com

Metronom Automation
www.metronom-automation.de

Micro Epsilon
www.micro-epsilon.com

Microscan Europa
www.microscan.com

Mikromak
www.mikromak.com

Mikrotron
www.mikrotron.de

Mitutoyo
www.mitutoyo.de

msiVision
www.msivision.com

MVTec Software
www.mvtec.com

National Instruments
www.ni.com/vision

Neurocheck
www.neurocheck.com

Neurotechnology
www.neurotechnology.com

Norpix
www.norpix.com

OBE Ohnmacht & Baumgärtner
www.trevista.net

Odem Technologies
www.odem.co.il

Olympus
www.olympus-europa.com

Omron
www.industrial.omron.de

Optical Research Associates
www.opticalres.com

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Orbis
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Photonfocus
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are

pi4_robotics
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Pleora Technologies
www.pleora.com

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Profactor
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Qualimatest
www.qmt.ch

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Rauscher
www.rauscher.de

RH Engineering
www.rhengineering.de

Rubroeder
www.rubroeder.de

SAC
www.sac-vision.net

Schmachtl
www.schmachtl.at

Sedeco Vision Components
www.sedeco.nl

Sick
www.sick.de

Silicon Software
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Simon IBV
www.simon-ibv.de

SmartSurv
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SPG Data 3D
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STZ Qualitätssicherung und Bildverarbeitung
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SVS Vistek
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Symco
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Tema
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www.theimagingsource.com

Tordivel
www.scorpionvision.com

TriVision
www.trivision.dk

Univision
www.univision.it

Van de Loosdrecht Machine Vision
www.vdlmv.nl

Vega Technology Group
www.vegatcgroup.com

Videometer
www.videometer.com

visicontrol
www.visicontrol.com

Visiolaser
www.vannier-photelec.fr/visiolaser

Vision & Control
www.vision-control.com

Vision Components
www.vision-components.com

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

Weiss Imaging and Solutions
www.weiss-imaging.de

Wenzel
www.wenzel-cmm.com

X-Rite
www.xrite.com

ZBS
www.zbs-ilmenau.de

Zertrox
www.zertrox.de

Sensors Vision S
Smart Camera
Embedded

Active Silicon
www.activesilicon.com

AIT Göhner
www.aitgoehner.de

AKE-Components
www.ake-components.de

Alfavision
www.alfavision.de

AMS Technologies
www.ams.de

Applied Scintillation Technologies
www.appscintech.com

Asentics
www.asentics.de

Awaiba
www.awaiba.com

Balluf
www.balluf.de

Banner Engineering
www.bannerengineering.com

Basler Vision Technologies
www.baslerweb.com

Baumer
www.baumergroup.com

Camsensor Technologies
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Cmosis
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Cognex
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Compar
www.compar.ch

Computer Bildverarbeitung
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Cosyco
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Dalsa
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de Man Industrie-Automation
www.deman.de

Eltec
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EVT Eye Vision Techology
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Festo
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Finger
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Fisba Optik
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FSI Technologies
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G4 Technology
www.g4.com.tw

Gevicam
www.gevicam.com

Graphikon
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Hema
www.hema.de

HGV Vosseler
www.hgv.de

IBN
www.ibn-gmbh.de

IDS
www.ids-imaging.com

ifm Electronic
www.ifm.de

Image House
www.imagehouse.dk

Image S
www.imagessrl.com

Imaging Solutions Group
www.isgchips.com

Infaimon
www.infaimon.com

InRay Solutions
www.inrays.com

IOS
www.ios-web.de

IOSS
www.ioss.de

ipf Electronic
www.ipf-electronic.de

IS Imaging Solutions
www.imaging-solutions.de

Isra Vision
www.isravision.com

ISW
www.isw-gmbh.biz

JFAS
www.jfas.co.jp

K + P Krempien + Petersen
www.kup-image.de

Kamiera
www.kamiera.com

Keyence
www.keyence.de

Kontron
www.kontron.com

Lambda Photometrics
www.lambdaphoto.co.uk

Leutron Vision
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Leuze Electronic
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LMI Technologies
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Lord Ingenierie
www.lord-ing.com

Matrix Vision
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Mazet
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Micro Epsilon
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msiVision
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National Instruments
www.ni.com/vision

NeuPro Solutions
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Neuricam
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Norpix
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OBE Ohnmacht & Baumgärtner
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Sensors, as Vision Systems

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

Parameter
www.parameter.se

Pepperl & Fuchs
www.pepperl-fuchs.com

Peter Scholz Software + Engineering
www.scholzsue.de

Phytec Messtechnik
www.phytec.de

pi4_robotics
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PMDTec
www.pmdtec.com

Polytec
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PPT Vision
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Profactor
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www.bildverarbeitung.pulsotronic.de

Qualimatest
www.qmt.ch

Rauscher
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RSB Optotechnik
www.rsb-optotechnik.de

Schmachtl
www.schmachtl.at

Schunk
www.schunk.com

Sedeco Vision Components
www.sedeco.nl

Sensopart Industriesensorik
www.sensopart.de

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

Sharp Microelectronics Europe
www.sharpsme.com

Sick
www.sick.de

Sick IVP
www.sickivp.com

Siemens
www.siemens.de/simatic-sensors/mv

SKS Vision Systems
www.visionsystems.fi

SmartRay
www.smartray.de

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www.smartsurv.de

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www.solitontech.com

Sony
www.sonybiz.net/vision

Stemmer Imaging
www.stemmer-imaging.com

Strampe Systemelektronik
www.strampe.de

Supercomputing Systems
www.scs-vision.ch

SVS Vistek
www.svs-vistek.com

Symco
www.symco.co.jp

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www.tattile.com

Tekno Optik
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www.scorpionvision.com

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www.werthmesstechnik.de

Zertrox
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other

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www.machinevisiononline.org

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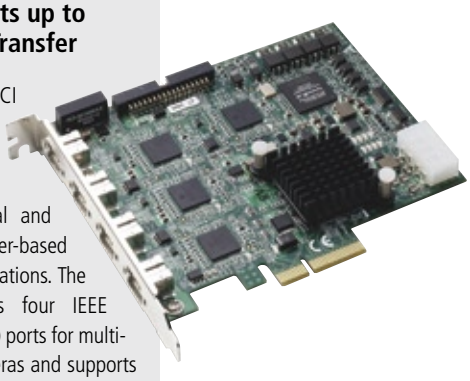

Adlink's first 4-CH PCI Express IEEE1394.b frame grabber, PCIe-FIW64, is designed specifically for digital and high-speed computer-based machine vision applications. The PCIe-FIW64 provides four IEEE 1394.b (FireWire 800) ports for multiple IEEE 1394.b cameras and supports total data transfer rates up to 3.2 Gbps. It is also designed for multi-channel applications that require external I/O signals and triggering options.
Four isolated digital I/Os and four isolated programmable triggers are also provided – the digital I/Os can be used to connect to external devices, (e.g. position sensors), and the programmable trigger output pulses can be used to manage trigger events such as activating strobe lighting.
Adlink's digital imaging product portfolio in machine vision includes a variety of the PCIe frame grabbers for IEEE 1394.b, CameraLink, and GigE for Vision interfaces.

ADLINK TECHNOLOGY INC.

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40477 Düsseldorf
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Fax: +49 211 495 55 57
emea@adlinktech.com
www.adlinktech.eu

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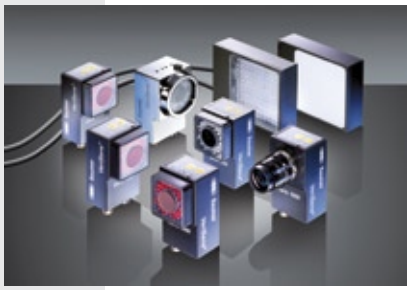
Powerful VeriSens Vision Sensors for Industrial Applications



Baumer VeriSens vision sensors close the gap between traditional photoelectric sensors and complex image processing systems. The user is provided with comprehensive functions which support numerous inspection tasks in automated production, like part completeness, part presence, part location or identification. The underlying innovative Baumer FEX processor technology distinguishes itself via outstanding process stability and ease of use previously unachieved in its class.
VeriSens vision sensors allow for more than 3,000 inspections per minute and are characterized by compact design including integrated optics and illumination. The one-box-design with industrial plugs and connectors furthermore provides easy mounting and high degree of protection. VeriSens vision sensors support all important interfaces from digital I/O and serial RS485 to powerful Ethernet and easy to use USB 2.0.

Baumer

Baumer GmbH
Pfingstweide 28
61169 Friedberg
Germany
Tel.: +49 6031 60 07 0
Fax: +49 6031 60 07 70
sales.de@baumergroup.com
www.baumerverisens.com

See our ad on page 11

Real-Time Inspection of Adhesive Application

Since 1988, Quiss has been developing vision systems for automatic 100 %-inspections of adhesive and sealant application, based on intelligent image processing with focus on automotive manufacturing and supply industries. This expertise is reflected in the number of installed Quiss systems in the most efficient automotive plants worldwide.
The Quiss online inspection sytems RTVision.t and RTVision.tr inspect width, gaps and position of the adhesive or sealant bead simultaneously during application. They are the ideal solution for optimizing cycle times or fitting an inspection system into a complex, spatially restricted environment. The online sensor with integrated maintenance-free LED illumination and three cameras, is mounted directly onto the application nozzle and is carried along with the application system.
The system variant RTVision.tr additionally offers an automated bead repair. In the first run the system inspects and reports application gaps that are closed in a second run: precisely, with no overlapping. With this unique functionality the system improves efficiency and profitability as it reduces the number of discarded components and optimizes consequently production time and costs.

QUISS
machine vision for industry

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82178 Puchheim
Germany
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automotive@quiss.com
www.quiss.com

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SAC System Solutions for Machine Vision

SAC system solutions guarantee the faultless delivery of your products. The systems meet highest requirements concerning optical quality assurance. We control production processes that depend on absolute accuracy and minimal fault tolerance.
With over 12 years of experience, we realize individual solutions in every industry sector worldwide.
In several fields we acquired special competences:

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- In the field of 3D Inspection we can offer customized module solutions e.g. for Pin Control in plugs.
- For Surface Inspection we have designed VisionLine, a modular system that can be adapted in every production process.

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76149 Karlsruhe
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Tel.: +49 721 60 543 000
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www.sac-vision.net

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Tripod Modular Light System

The Tripod's unique triangular design enables the end user to configure the light to meet their specific needs. The Tripod modules can be used separately as a spot light or they can be used together to create single or double row linear lights. They can also be used to create large area lights, ring lights or even light in the shape of an "L". Every Tripod module can be the Master or Slave. Up to 50 modules can run on a Master. The end user can decide if all the modules need to be strobed together or separately. The Tripod is also set to burst the LED at the maximum current rating when first turned on and then drop down to normal run current. The burst build into the light guarantees the maximum output for high speed applications. The end user can also decide if they would like to control the intensity of all the modules together or separately by either analog 0-10VDC or manually with a potentiometer. If the end user needs less light from any single module they can manually adjust that module and still be able to adjust all of the modules together via analog control. Each module also has a LED error detection output and three Indicator lights. The housing is molded with a special thermally conductive plastic so that LED life is maximized. All of these features are what make the Tripod the best LED Machine Vision Light System on the market today.

Spectrum Illumination
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Montague, MI 49437
USA
Tel.: +1 231 894 4590
Fax: +1 231 894 4582
sales@spectrumillumination.com
www.spectrumillumination.com

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European Vision Network

The European Machine Vision Association (EMVA) has currently over 100 members representing 18 countries. EMVA aims to be an industry lobby to support the interests and concerns of its members, the companies, research institutes and national associations of the machine vision industry. The main activities to ensure that this world-leading technology is widely applied are: standardization, market studies and surveys, annual business conferences, European and regional networking events, PR and marketing.

emva
european machine vision association

European Machine Vision Association (EMVA)
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60528 Frankfurt
Germany
Tel.: +49 69 6603 1466
Fax: +49 69 6603 2466
info@emva.org
www.emva.org

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See and Being Seen

This Is Where the Industry Meets: INSPECT Network

Xing is, according to their own statement, the European market leader in business networking. Over 6 million business professionals use Xing in 16 languages to do business and promote their career. The platform makes networking and professional contact management simple, with made-to-measure networking functions and services.

Xing allows to see how people are connected, which is an excellent tool in generating new contacts. With features such as Xing Marketplace, over 17,000 groups and networking events from London to Beijing, it has developed from a contact platform to a web interface for business professionals around the world.

INSPECT Network

However, there is still room for dedication to a certain industry and their demands. With this in mind, INSPECT hosts a specialized branch community at http://network.inspect-online.com, focusing on Machine Vision and Optical Metrology. The INSPECT network was created as platform to exchange opinions between experts and aims to become the industry marketplace. In the first couple of months some 100 professionals joined the network: CEOs, managing directors, professors, engineers, sales & marketing managers and other experts. Every new member needs to be approved by the INSPECT team, so that only professionals from our industry will become part of the network.

Features

Members of the INSPECT network can invite industry friends and can participate in discussions. They can upload own videos and pictures, for example photos from trade shows or from company products and it is possible to post explanatory picture captions. This is an elegant way to launch information about own products or own events.

Within the network members can join existing groups or create their own groups for themes which are of common interest and which are not already covered by other groups.

In the run-up of an event, people can exchange opinions, start discussions or make appointments with other network members

At http://network.inspect-online.com you will be able to meet other experts of machine vision and optical metrology, get new contacts and intensify existing relationships. Take part and profit from the insider networking about industry trends, technologies and events. Register today at http://network.inspect-online.com.

Sales managers can address new customers and stay in touch with existing customers, if only by hoisting the company flag. Engineers can discuss state-of-the-art technical topics and form virtual groups for problem solving. Users can contact potential providers directly and personally.

As also learned with Xing, business networks are an excellent platform for career moves. The INSPECT network is of course much more focused on openings in our industry than any general network can ever be.

In the run-up of an event, people can exchange opinions, start discussions or make appointments with other network members. In addition, it is transparent who announced their attendance to a featured event.

The World of 3D group is an exchange platform for information, ideas, insights about 3D measurement, digitalization, robot vision, inspection and the multitude of technologies involved

Yet another possibility to contribute to the network are own blogs within the network. New blog entries are visible at the start page for all community members.

Theme Groups

The network was launched including four groups, each dedicated to a topic of interest:

World of 3D: Exchange platform for information, ideas, insights about 3D measurement, digitalization, robot vision, inspection and the multitude of technologies involved.

Vision: Everything here circles around cameras, software, lenses, illumination, frame grabbers, vision sensors, smart cameras, embedded systems, interfaces, processors, cables, peripherals, and, and, and … This theme group aligns with the topics from the Vision section of the INSPECT magazine.

Automation: This section, as the Automation section in the INSPECT magazine, features information, discussions, Q&A and more regarding machine vision turnkey systems and applications for all industries.

Control: Optical measuring technology in industrial applications can be found in this group, analogue to the Control section in the INSPECT magazine.

Only weeks after the initial launch two new groups have been initiated, which are not moderated from the INSPECT editorial team.

The Group „Applied Research" was created by Prof. Dr.-Ing. Volker Lohweg with the group description: Exchange platform for information, ideas, insights about Image Processing and Pattern Recognition in the world of University related applied research.

The group "Smart Cameras" serves as exchange platform for all topics around Smart Cameras, Vision Sensors and Embedded Systems.

The Vision community network at http://network.inspect-online.com is yet another information channel provided by INSPECT for the vision community. It aims to complement the INSPECT magazine as well as the INSPECT portal at www.inspect-online.com and provides, in addition to both, the opportunity to directly network among professionals.

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