

IT'S SO EASY!

WITH IDS IMAGING SOLUTIONS



IDS

Simplicity is the basis of our thinking and actions. This applies to our perfectly compatible cameras as well as to our ingeniously thought-out software. Future-oriented technologies from the consumer world, consistently further developed for the industry, contribute to this. The IDS "People inside" want to offer you - our customers and partners - the best user experience in the vision market. To achieve this, we are constantly rethinking ourselves and our products. What began with frame grabbers led to the first USB industrial camera on the market and is far from stopping at cameras with artificial intelligence. Because versatility is our great strength...

It's so

So easy!

CONTENT

06

_Management



12

_IDS NXT



08

_Company



20

_uEye



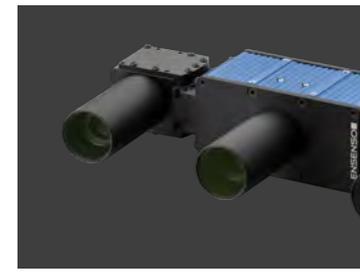
10

_Portfolio



34

_Ensenso





JÜRGEN HARTMANN

Jürgen Hartmann first came into contact with image processing in 1988 while working in a laboratory. In 1997 he founded IDS Imaging Development Systems GmbH together with a partner. A pioneering spirit and the will to overcome borders and create something truly new still drive him today. This is how Jürgen Hartmann managed to become one of the largest manufacturers of industrial cameras with IDS.

— Founder and owner

“IF EVERYBODY RUNS IN ONE DIRECTION, I LIKE TO RUN IN THE OTHER AS A MATTER OF PRINCIPLE.”



JAN HARTMANN

Jan Hartmann studied economics at the Goethe University in Frankfurt after completing his training as an IT specialist. He then joined the IDS Group in 2017. Initially, he was responsible for the corporate real estate division and afterwards for the sister company IDS Innovation. Before his entry into the IDS management board in March 2020, he was already in charge of the banking, insurance and legal departments.

— Managing Directors

“CAMERAS AND ARTIFICIAL INTELLIGENCE, A COMBINATION THAT ALLOWS IDS TO REINVENT ITSELF AND CONTRIBUTE TO SHAPING THE FUTURE.”

We develop high-performance USB, GigE and 3D cameras with a wide range of sensors and variants as well as cameras with artificial intelligence. The almost unlimited range of applications covers multiple non-industrial and industrial sectors in the field of equipment, plant and mechanical engineering.

Resting on our achievements does not suit us. We always have new ideas so that our cameras help to shape the future, advance research, conserve raw materials and serve people. We never lose sight of our responsibility for people and the environment. This includes sustainability in products and shipping, fairness towards our business partners as well as family awareness and a good work-life balance.

"WE OFFER OUR CUSTOMERS THE BEST USER EXPERIENCE IN THE VISION MARKET."

IDS Corporate Vision

We produce exclusively in Germany: Our development and production site is in Obersulm, Germany. With branches in the USA, Japan, South Korea and the UK as well as offices in Europe, IDS is represented internationally. At our development site in Serbia, we conduct research into artificial intelligence.

Every IDS product undergoes extensive internal testing processes. External certifications according to international standards prove the high quality standard.

The combination of high quality "Made in Germany", long-term availability and particularly easy handling makes IDS cameras unique.

 **IDS –
PEOPLE INSIDE!**



PRODUCTS WITH VISION

Since 1997 we have been developing and producing products for industrial image processing. With technological foresight and a keen sense of future developments, we recognise the signs of the times. IDS made the USB interface for the camera sector suitable for industrial use and relied on CMOS sensors at an early stage. However, our latest innovation is the visionary, app-based product platform IDS NXT with artificial intelligence. It represents a new evolutionary stage of digital industrial cameras.

A total of three different product lines allow a limitless range of applications in the field of equipment, plant and mechanical engineering as well as in non-industrial areas.



APP YOUR CAMERA®!

IDS NXT
VISION PLATFORM
WITH ARTIFICIAL
INTELLIGENCE

PRODUCT-PORTFOLIO

IDS NXT
Vision App-based systems
with artificial intelligence



uEye
Industrial cameras with USB
or GigE interface



Ensenso
Flexible
3D camera systems

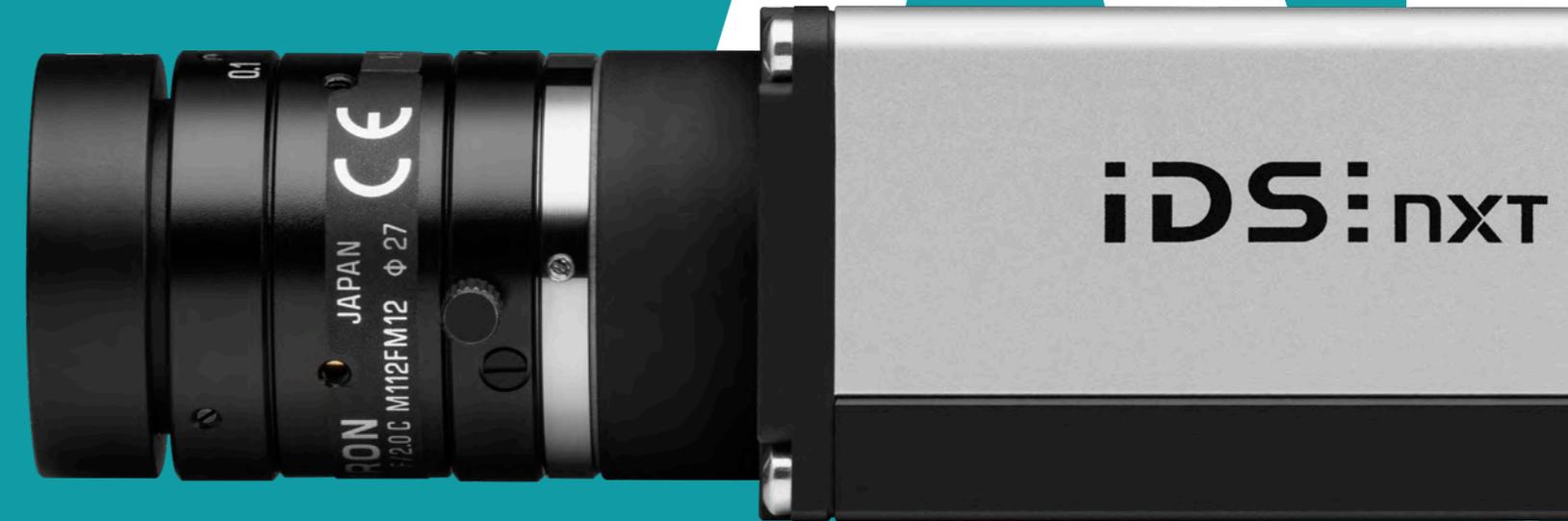


APP

APP

IDS NXT VISION PLATFORM

A new generation of Vision App-based systems with artificial intelligence



APP YOUR CAMERA®

INDUSTRIAL CAMERAS NEWLY DEFINED

IDS NXT is a platform for a new generation of app-based vision systems for industrial applications. The philosophy behind this marks a paradigm shift: IDS can therefore offer flexible complete systems with which all steps from image acquisition to system control can be implemented in a vision solution.

IDS NXT ocean is an all-in-one solution for using artificial intelligence in image processing where rule-based approaches reach their limits - without any programming effort.

I THINK, SO I AM.



Inference cameras for industrial use

With the IDS NXT product line, we offer an industrial camera platform that enables on-camera image processing. Our goal is no longer to simply develop individual components, but to offer easy-to-use yet flexible complete systems that can be used to implement all steps of a vision solution, from image acquisition, image analysis and processing to the control of industrial production machines. IDS NXT thus enables image processing tasks to be performed directly at the image source. With OPC UA, the compact embedded vision systems can now be integrated directly into factory automation as powerful vision sensors. IDS NXT cameras should not only generate results themselves, but should also be able to trigger subsequent processes - this simplifies and accelerates workflows,

reduces network load and lowers energy consumption. In addition, IDS NXT cameras are specifically designed for use in industrial environments. The IDS NXT platform is constantly evolving - we are already working on additional industrial interfaces for communication with machine controllers, as well as new Vision App features and other deep learning functions. Customers can also develop their own Vision Apps and install them on their cameras, which makes their range of applications even broader and more individual. With IDS NXT ocean a complete solution especially for AI-based image processing is already available. The cameras use your knowledge to solve tasks independently - simply and conveniently.

IDS NXT rio & rome

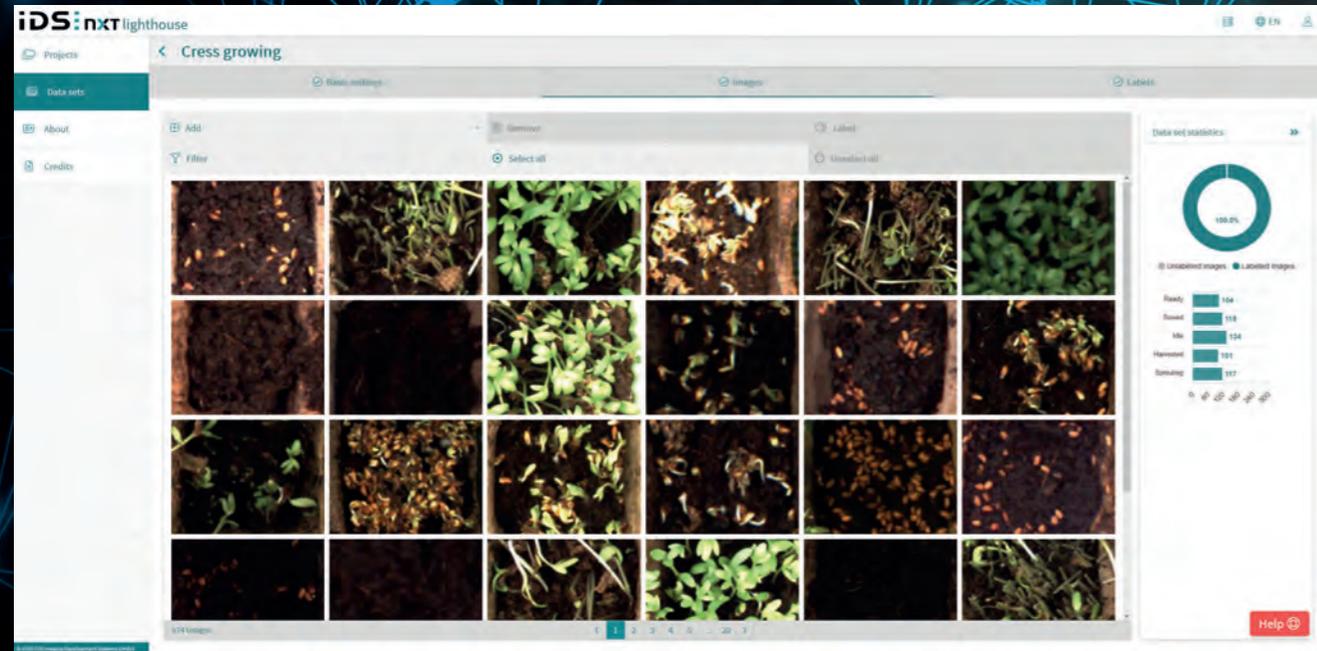
INTELLIGENT CAMERAS IN THE HOUSING OF STANDARD INDUSTRIAL CAMERAS

✓ Embedded solution for image processing "on the edge"

✓ Develop your own Vision Apps and install them "smart-phone-like" on the cameras

✓ IDS-developed AI core for inference times of a few milliseconds

✓ Available with different protection classes and sensors



“WITH IDS NXT lighthouse, DEEP LEARNING IS EASIER THAN EVER! TRAIN NEURAL NETWORKS - WITHOUT PROGRAMMING KNOWLEDGE AND WITHIN MINUTES”

— Kai Hartmann, Market Analysis & Business Development Manager

WE MAKE THE INFERENCE EASY!



You already have the knowledge you need!

IDS NXT ocean is a complete solution that makes it easy for users to get started with AI-based image processing. Hardware, software, infrastructure, knowledge and support come from one source: both the training software for neural networks and the IDS NXT industrial cameras with their powerful AI core were developed in-house at IDS. Users only need their application expertise and sample images to create a neural network.

With the help of the cloud software IDS NXT lighthouse, even users without any prior knowledge of artificial intelligence can train an AI classifier or an object detector with their own image data. Since it is a web application, all functions and the required infrastructure are

immediately available. This means that users do not have to set up their own development environment, but can directly start training their own neural network. This involves three main steps: Upload sample images, label the images and then create the desired network at the push of a button. The generated network can then be run directly on the IDS NXT rio and rome industrial cameras, turning them into inference cameras - meaning that they can apply the knowledge they have acquired through deep learning to new data. Since IDS NXT cameras have a special AI core, neural networks are hardware-accelerated and run directly on the devices.

grab > label > train > run AI

IDS NXT ocean

THE ALL-IN-ONE INFERENCE CAMERA SOLUTION

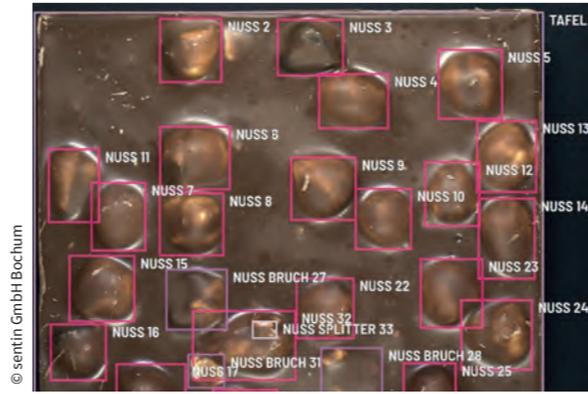
- ✔ Complete solution especially for AI-based image processing
- ✔ It makes it possible to solve tasks in which classic, rule-based image processing reaches its limits.
- ✔ Train neural networks without programming with the IDS NXT lighthouse training software
- ✔ Requires no prior knowledge of camera programming or deep learning

Think inferent.

IDS NXT IN USE

Artificial intelligence (AI) opens up new fields of application for camera technology and image processing. This includes, for example, image processing tasks with strongly varying objects - such as classifying different types of fruit or identifying damaged parts (e.g. apples with bruises or colour deviations). To describe all occurring variances with classical image processing would be extremely time-consuming and therefore expensive. Artificial intelligence, on the other hand, can easily solve such challenges.

IDS NXT cameras with artificial intelligence can solve tasks wherever organic and variant-rich objects are to be detected and classified. In horticulture or agriculture, for example, they are the eyes of harvesting robots or rose cutters, can control seedlings or identify pests. In the automotive industry, they are used for quality control, and in the medical industry for diagnosis. IDS NXT cameras with AI facilitate tasks such as control, sorting, allocation and completeness control. It's so easy!



© sentin GmbH Bochum



It is only a few steps from image acquisition and management to training of the artificial intelligence and to the finished inference camera. You can learn more about this in the video:



It's so easy

It's so easy

uEye INDUSTRIAL CAMERAS

Modular, high-performance USB and GigE cameras with a wide range of sensors and variants



“TRUE TO OUR CORPORATE PHILOSOPHY ‘IT'S SO EASY’, OUR CAMERAS ARE VERSATILE, POWERFUL AND PARTICULARLY EASY TO HANDLE.”

— Jürgen Hejna, Product Manager uEye cameras



Whether with USB or GigE interface, as a housing or board-level variant, there are virtually no limits to the application possibilities of IDS uEye industrial cameras. All models are 100% quality tested and pre-calibrated. Thanks to the extensive IDS software as well as IDS-typical plug & play, they can be integrated quickly and easily and are therefore particularly economical.

Discover the variety of our camera families or configure the perfect camera for your individual application...

ROBUST



Strong and robust

The uEye FA is particularly robust and thus ideally suited for demanding environments, such as factory automation. Camera housings, lens tubes and the screwable connectors (8-pin M12 connector with X-coding and 8-pin Binder connector) meet the requirements of protection class IP65/67. This means that the models can withstand even the harshest industrial environments. The extensive accessories, such as lens tubes and drag chain cables, are just as tough. The cameras are also suitable for large format sensors and are typically used for machine vision tasks in industrial plants and quality assurance.

uEye FA

STRONG IN FACTORY AUTOMATION

- ✓ The most robust and resistant industrial camera
- ✓ Protected against dirt, dust and splash water (IP65/67)
- ✓ Power supply via PoE or external voltage source (12-24 V)
- ✓ Internal 120 MB image memory



uEye CP

SUPER FAST,
POWERFUL,
FUTURE-PROOF

- ✓ Innovative, patented housing design
- ✓ With 29 x 29 x 29 mm extremely compact and therefore ideal for space-critical applications
- ✓ Lightweight for versatile applications
- ✓ Screwable cables for a reliable electrical connection



HIGH PERFORMANCE



Incredibly fast, incredibly reliable, incredible sensors

The uEye CP is the tiny powerhouse for industrial applications of all kinds. It offers maximum functionality with extensive pixel pre-processing, an internal 120 MB image memory and, thanks to modern CMOS-sensors from Sony, CMOSIS, e2v and ON Semiconductor also leave nothing to be desired in terms of image quality and resolution. With its super-light, robust housing, the GigE version in particular is ideally suited for applications on robot gripper arms. But the uEye CP is also at home in automation in general, in printing, logistics and packaging industry, medical technology or microscopy.

Compact and robust

The uEye SE is the all-round industrial camera with a wide sensor portfolio and countless variants. For more than a decade it has proven itself in industrial use. It is consistently designed to support large-format and fast CMOS sensors. All uEye SE models are available either as a housing variant with a special, extremely dust-proof sensor seal or as a board level camera with various lens mount options. The field of application is correspondingly diverse and ranges from automation and mechanical engineering to the packaging industry and traffic monitoring.

uEye SE

PROVEN IN
ALL AREAS OF
APPLICATION

- ✓ Large selection of housing and board-level models with or without front flange
- ✓ Wide range of sensors for a wide variety of applications
- ✓ Screwable connections (I/O connector, USB 2.0, USB Type-C, RJ45)
- ✓ The standard for machine vision



It's so easy

It's so easy

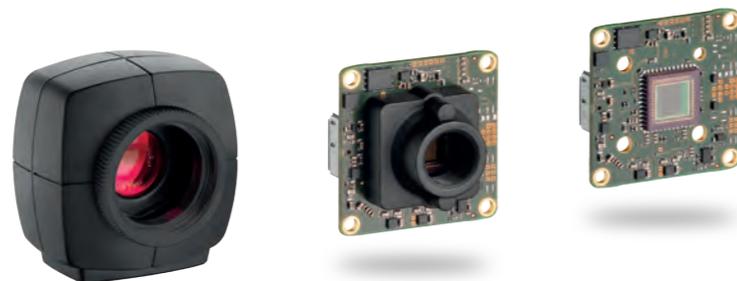
uEye LE

THE COST-EFFECTIVE,
SPACE-SAVING
PROJECT CAMERA

- ✓ Perfect for integration into embedded systems
- ✓ Extremely versatile and flexible due to board level and housing versions as well as S- or C/CS-mount
- ✓ Also with liquid lens control and autofocus function
- ✓ Large selection of sensors and lenses

GigE USB 2 USB 3

COST-EFFECTIVE



Small and versatile

uEye LE cameras are bolt-on, cost-saving project cameras with a wide variety of lenses and sensors. They are available, for example, as a version with coated plastic housing and C-/CS-Mount or as a single-board version with or without S-mount lens connection. The space-saving design makes them particularly suitable for projects in small device construction and for integration into embedded systems. The cameras also show their strengths in medical technology, robotics and classic machine vision applications.



Consistently cost-optimised

Particularly affordable, particularly compact and particularly suitable when the essentials matter: The uEye XLE camera family is specially designed for high-volume and price-sensitive projects where basic functions are required. Thanks to different housing variants, a practical USB Type-C connector and a modern USB3 vision interface, uEye XLE cameras can be easily integrated into any machine vision system. Whether in small device construction, measurement technology, traffic or agricultural applications - the modern camera family is suitable for for a wide range of application scenarios.

uEye XLE

PERFECT FOR
PRICE SENSITIVE
PROJECTS

- ✓ Versatile CMOS cameras as focused on essential functions
- ✓ Optimal integration through extremely space-saving design - ideal for embedded applications
- ✓ Versatile thanks to USB Type-C connection
- ✓ Vision standard compliant via U3V protocol

USB 3 USB VISION

It's so easy

It's so easy

uEye XS

VERY SMALL,
REALLY EASY,
JUST INGENIOUS

- ✓ Constantly sharp images thanks to autofocus (10 cm to ~)
- ✓ Fits anywhere with dimensions of only 26,5 x 23 x 21,5 mm
- ✓ Really lightweight at only 12 g
- ✓ Perfect for embedded systems

USB 2
↔

uEye

DOWN SIZED



Tiny body, immense potential

The uEye XS combines the simplicity of a consumer camera with the application capabilities of an industrial camera. Thanks to its 5 megapixel OmniVision CMOS sensor and helpful functions such as automatic white balance, automatic exposure and autofocus, the camera delivers excellent images. The tiny device with the robust magnesium housing is also perfectly suited for industrial image processing and use in embedded systems, medical or security technology, in the transport and logistics sector or as a component for kiosk systems. Eight freely selectable and easily switchable image formats from VGA to HD and up to 5 MP are available.

uEye

uEye IN USE

— Almost unlimited application possibilities in the industrial and non-industrial sector



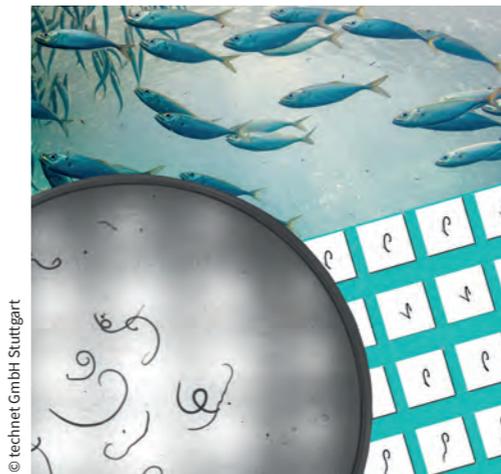
© AKEOPUS Château-Gaillard (France)

© Team AKAMAV TU Braunschweig

It's so easy



© Bruker nano GmbH Berlin



© technet GmbH Stuttgart



© I-mation GmbH Rottweil

You can find more details about these and many other applications in our Knowledge Base at ids-imaging.com:



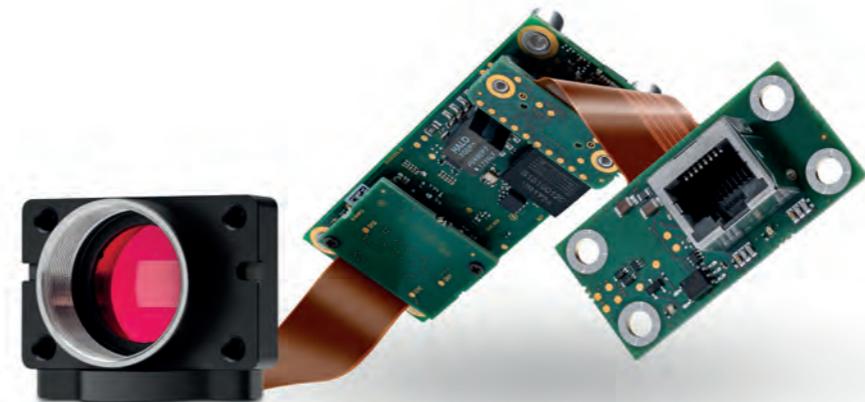
CUSTOMIZED



Unique requirements, unique solutions

If a standard solution is out of the question for your application, our experienced developers come into play. For volume projects, we can make almost anything technically possible - from customer-specific branding / white label and individual designs to special software adaptations. Simply make use of our comprehensive know-how.

CONFIGURED



Individual solutions based on a modular concept

With the uEye ACP camera configurator from IDS, you can create your individually designed camera yourself. The flexible modular principle allows for a wide variety of board level camera variants, which can be easily adapted to your requirements thanks to various interfaces, extensions and image sensors. On request, the components can be modified even further. It's so easy...

TAILOR-MADE

MODIFIED WITH THE DEVELOPMENT KNOW-HOW OF IDS

- ✓ Changes in appearance/ design of hardware and software
- ✓ Changes in the design, e.g. the housing or the board shape
- ✓ Individual selection of connector types and integration of lighting
- ✓ Changes in electronics and implementation of specific special functions

uEye ACP

QUICK AND EASY VARIATION OF CAMERA COMPONENTS

- ✓ Create your desired camera with the uEye ACP camera configurator using the following components:
 - Interface
 - Connectors
 - Sensor
 - Lens mount

- ✓ Cameras from the uEye ACP family are already available in quantities starting at 1

- ✓ Individual and yet available at short notice



IDS peak

INTUITIVE
PROGRAMMING

✔ **EASY**
Easy to understand "It's so easy!" programming interface

✔ **INDEPENDENT**
Hardware independent SDK for all vision-compliant uEye+ cameras

✔ **GenICam COMPLIANT**
Based entirely on the vision standards of EMVA (GenICam) and AIA (GigE Vision, USB3 Vision)

✔ **VERSATILITY**
Stand-alone camera host software without dependence on individual uEye+ camera models or firmware versions

THE RIGHT SOFTWARE FOR YOUR uEye+ CAMERAS

IDS peak is our modern software development kit for all USB3 Vision and GigE Vision compliant uEye+ industrial cameras. The combination of the IDS software with the GigE Vision® and USB3 Vision® standard vision transport protocols brings you the best of both worlds. Flexibility and independence of uEye+ cameras and complete software environment with seamless manufacturer support thanks to hardware and software from a single source.

As an SDK (Software Development Kit), IDS peak contains all libraries and software tools required for operating and programming uEye+ cameras. With an easy to understand "It's so easy!" programming interface, it simplifies the use of GenICam without limiting or bypassing its functionality. IDS peak thus ensures an intuitive programming experience as well as quick and easy startup of your uEye+ industrial cameras.



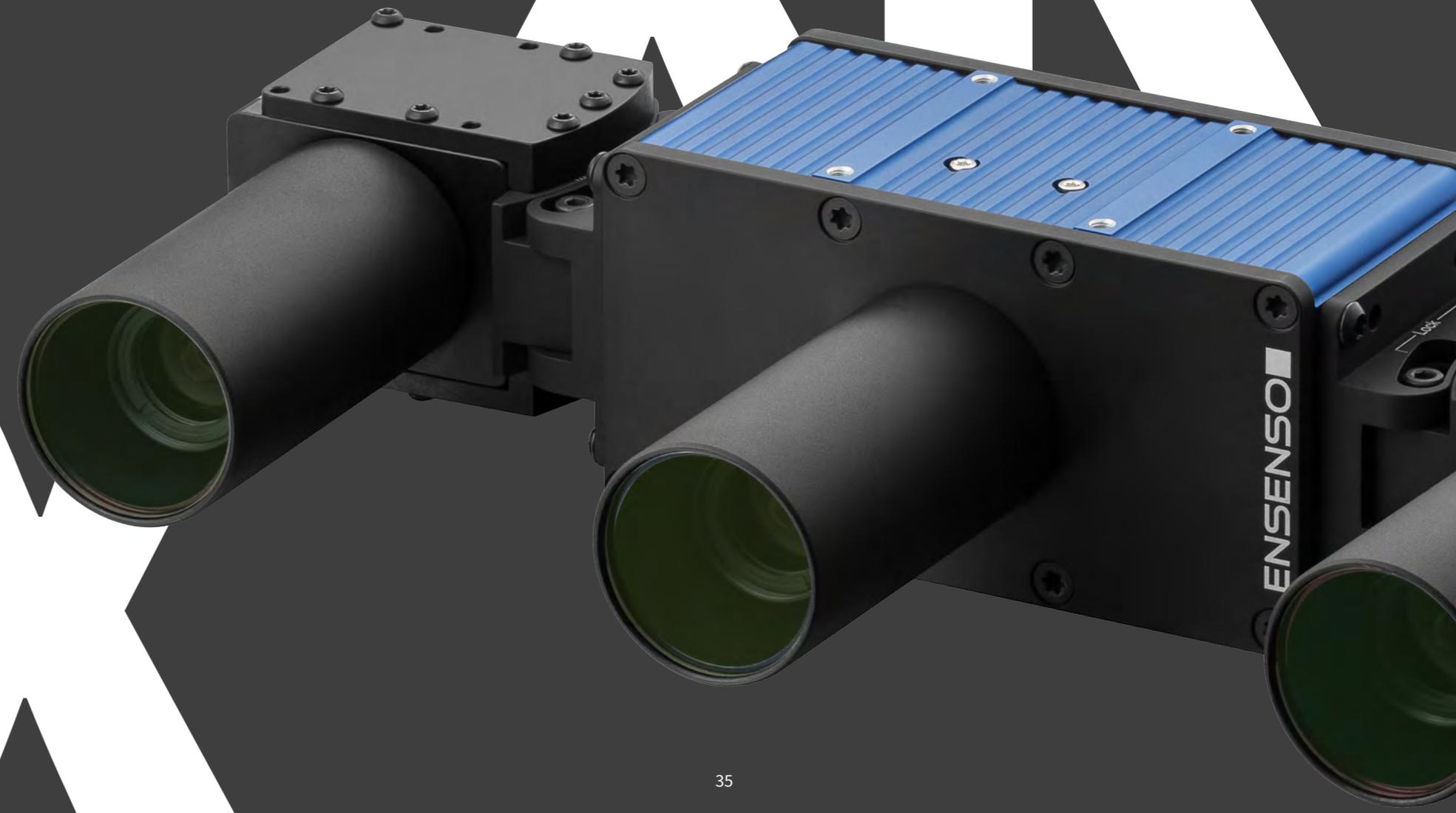
“WITH AN EASY-TO-UNDERSTAND ‘IT’S SO EASY’ PROGRAMMING INTERFACE, IDS peak ENSURES AN INGENUOUSLY SIMPLE, INTUITIVE PROGRAMMING EXPERIENCE.”

— Kathrin Happel, Product Manager at IDS



ENSENSO 3D CAMERAS

Stereovision cameras for precise 3D and robotic vision applications



3D VISION TECHNOLOGY AS EYE OF THE MACHINE

Precise 3D data is already indispensable for many applications in robotics and automated serial production - accelerated by the digitisation of Industry 4.0.

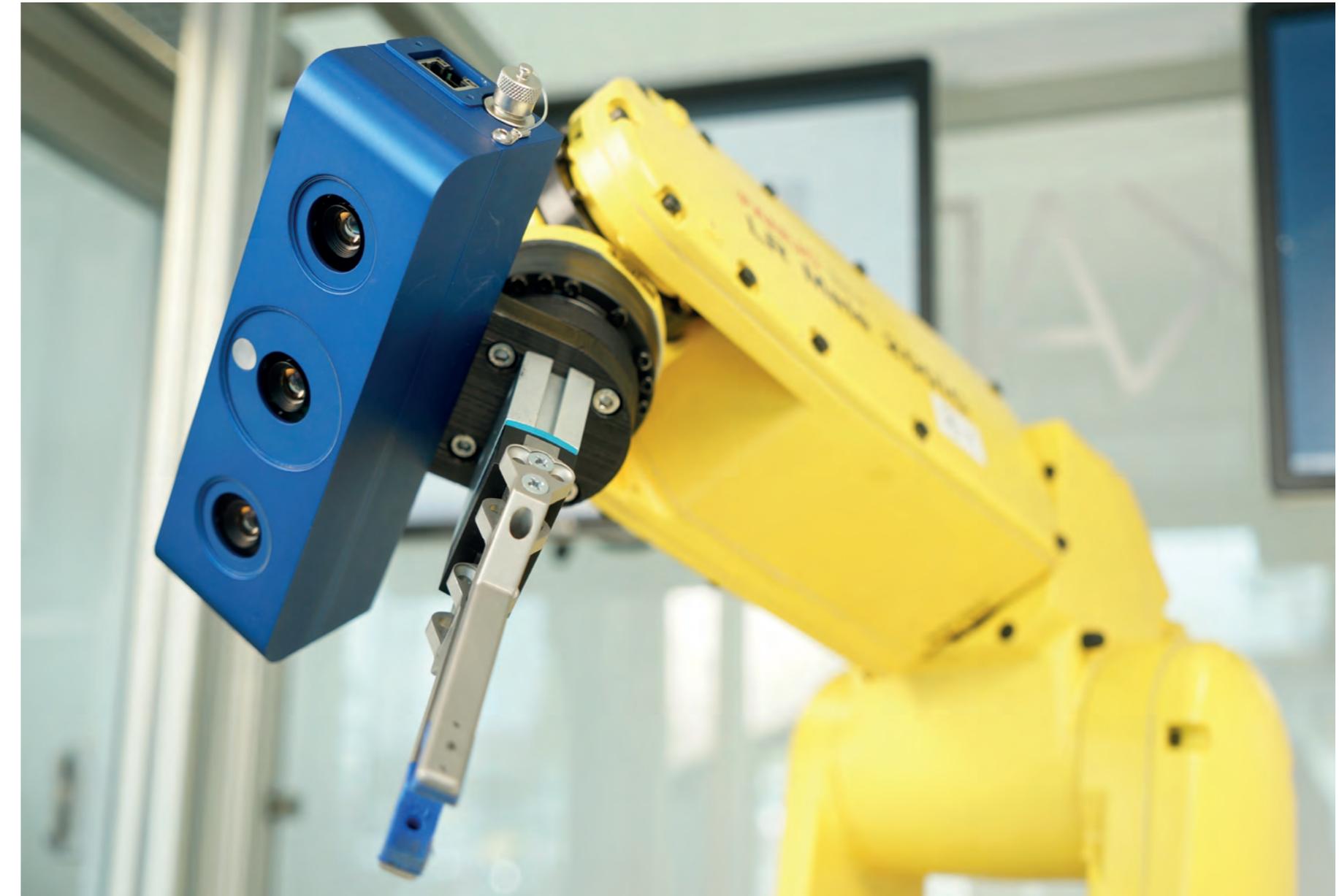
With the Ensenso 3D cameras, IDS offers a solution for 3D image capture that is impressively precise, cost-efficient and fast. Ideal for applications in the fields of robot vision, medical technology, logistics, completeness control, measuring and testing technology as well as quality assurance.

Ensenso N, X and XR cameras operate using Stereo Vision, which imitates the human vision. Two cameras acquire images from the same scene from two different positions. The Ensenso software calculates a live 3D point cloud based on the data.

In addition, a light-intensive projector produces a high-contrast texture on the object surface. In this way, weak or non-existent object structures are supplemented. The result is complete, homogeneous depth information.

“FROM PICK & PLACE TO QUALITY ASSURANCE: ENSENSO 3D CAMERAS PROVE THEMSELVES IN A WIDE VARIETY OF APPLICATION SCENARIOS. THEY ARE FAST, EASY TO HANDLE AND PRECISE.”

— Dr. Martin Hennemann, Product Manager Ensenso



ENSENSO N SERIES

STEREO 3D CAMERA -
INGENIOUS IN
3 DIMENSIONS

- ✓ Easy capture of textureless surfaces through integrated pattern projector
- ✓ Multi-camera operation for object detection from different sides
- ✓ Working distances up to 3 m - depending on model
- ✓ Realtime 3D data with 30 fps at full resolution

GigE 

PRECISE



Robust and compact

Thanks to IP65/67 (except N10), the fully integrated stereo cameras of the Ensenso N-Series provide precise 3D data even under harsh conditions. They are suitable for the detection of moving and stationary objects and also cut a fine figure on robot arms.

The Ensenso N-Series includes the N10, N30, N35 (each with aluminium housing) as well as the N40 and N45 (housing made of fibre-reinforced plastic - ideal for collaborative robotics).

ULTRAFLEXIBLE



Modular 3D camera system

3D vision even more precise and flexible: through variable baselines, adjustable angles of view and various lens options, the Ensenso X series can be perfectly adapted to individual requirements. The FlexView2 technology of the X36 ensures even more detail accuracy and robustness for difficult surfaces. The Ensenso X models are easy to set up and operate in the usual way via the Ensenso SDK. The Ensenso X-Series includes the X30 and X36 models.

ENSENSO X SERIES

HIGHLY FLEXIBLE 3D
CAMERA SYSTEM

- ✓ Projector module with 100 W LED projector power and integrated GigE switch
- ✓ Camera mounting brackets for working distances up to 5 m or volumes up to 8 m³
- ✓ Setup wizard for focusing and calibrating of the 3D cameras
- ✓ 3D cameras for stationary or moving objects

GigE

ENSENSO XR SERIES

WITH ONBOARD PROCESSING

- ✔ 3D data directly from the camera
- ✔ Working distances up to 5 m - depending on model
- ✔ Ideal for multi-camera systems and other compute-intensive applications
- ✔ Wireless data transmission via WLAN planned

GigE

EMBEDDED



High-resolution 3D data directly from the camera

Data processing in FPGA: The Ensenso XR combines the modular design of the Ensenso X-Series with the advantages of an embedded system. The XR projector unit creates 3D data independently. Since the data comes directly from the camera, the calculations no longer have to be performed by industrial PCs. The transfer of results instead of raw data also reduces the network load. The Ensenso XR series includes the XR30 and XR36 models.

ENSENSO IN USE

Quick, easy, precise: For 3D vision and robot vision applications!



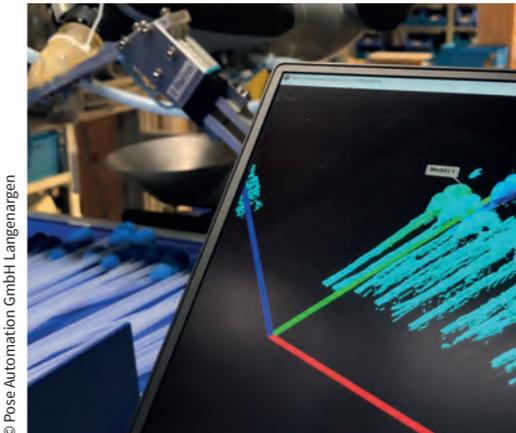
© KIT - Karlsruhe Institute of Technology (IPR)



© Centre for Telematics e.V. Würzburg



© Pose Automation GmbH Langenargen



You can find more details about these and many other applications in our Knowledge Base at ids-imaging.com:



It's so easy

It's so easy

It's so easy!

Industrial image processing is a complex field - both exciting and challenging. It still holds unimagined potential for almost all industries and areas of application. It is the future!

We are right in the middle of it. With our products and all our experience of more than 20 years, we - the IDS People inside - stand by your side and support you in the realisation of your projects. Suddenly, machine vision becomes very simple...

www.ids-imaging.com



IDS Imaging Development Systems GmbH

Dimbacher Str. 6-8, 74182 Obersulm, Germany | Tel.: +49 7134 96196-0 | www.ids-imaging.com

