

START

Student & Teacher Academic Resources Tools



The Future of Manufacturing
Available in Today's Classrooms

Let's START and innovate together!



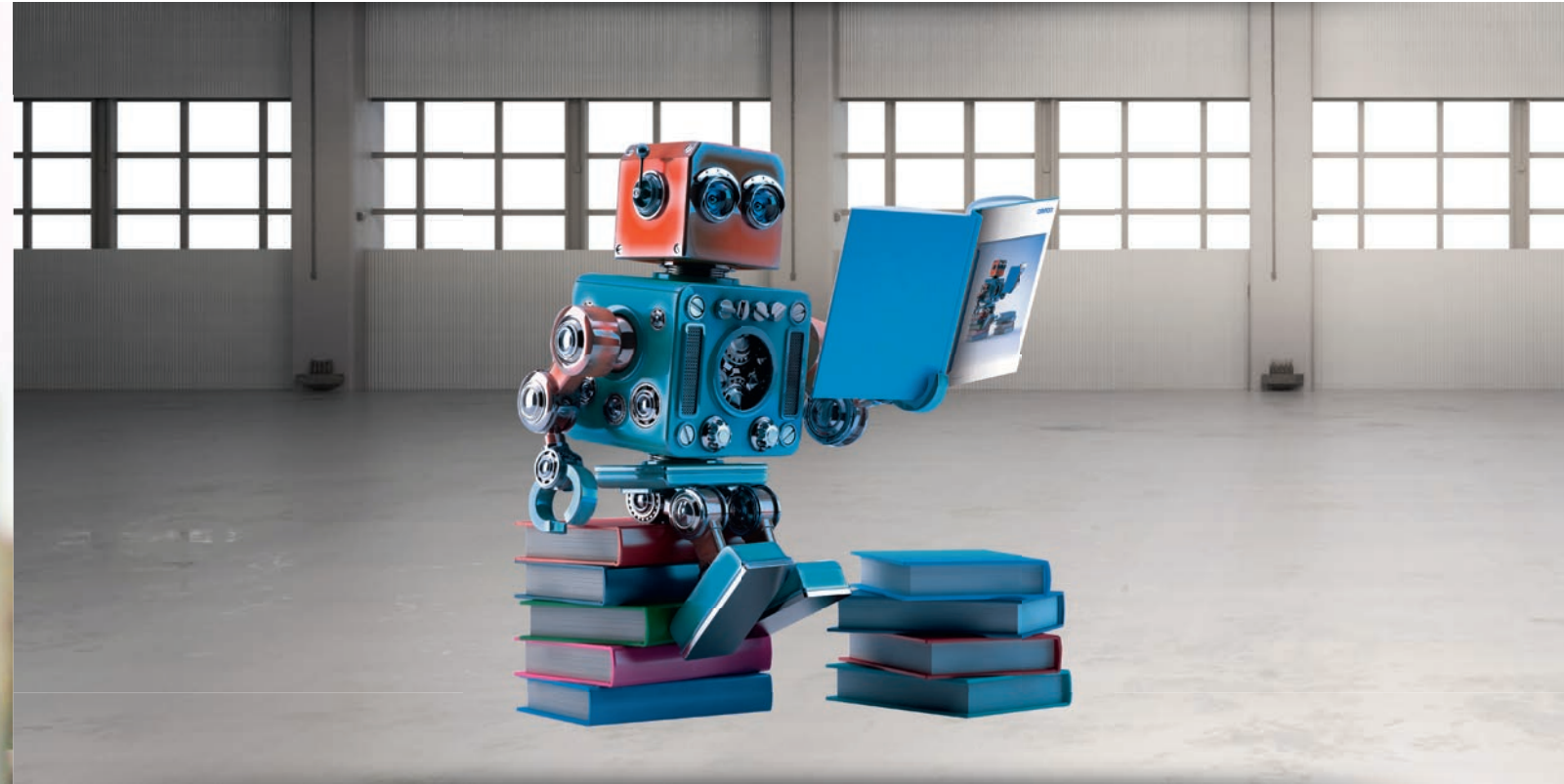
Teaching Industrial Automation to the Next Generation of Engineers

Many educational institutions have a hard time keeping track of state-of-the-art innovative industrial manufacturing solutions; although it is essential for students to successfully find their professional way after earning their degree. To help technical schools and universities bridge that gap OMRON initiated its cutting edge START-program.

START is a complete academic platform that offers a quick and easy eLearning environment for students and teachers. Combined with OMRON's latest *i*-Automation! technology the future of manufacturing can be brought right into the classroom to benefit the automation experts of tomorrow. Learn online and gather experience in the class room with advanced motion, vision, sensors, safety and robotics.

The best thing about START is that it is surprisingly easy to start with and it can be tailored to fit the specific needs of any technical education.

How to teach Industry 4.0 solutions?



START for teachers

OMRON's eLearning platform offers teachers a simple and effective tool to make resources available to their students, give assignments and to monitor their progress through our secure online START-application. We customize our eLearning and classroom program to your specific needs.

Our easy learning environment covers new developments in digitization, industry 4.0 and industrial automation novelties. OMRON offers special educational licenses for its advanced SYSMAC software suite and affordable academic discounts for hardware to experiment with in the classroom lab.

START for students

Students will easily find their way in OMRON's eLearning platform to gain expertise, gather insights and to test their knowledge. The platform features extensive documentation, explanations and practical tips and tricks to capture the attention of students and challenge them to learn more.

START offers students of any level the professional background needed to experiment with advanced motion, vision, sensors, safety and robotics in the classroom setting. Making their understanding more thorough, quicker and more rewarding. Lining up their skills to today's challenging industries.

Our view on the future of manufacturing



i-Automation! is the value-generating concept of OMRON's Industrial Automation Business to increase flexibility and productivity. This concept powers our solutions with innovative robots, cobots, and AI-technologies that support humans to cooperate with machines in a cost efficient, harmonious and seamless manner.

OMRON's *i-Automation!* fuses intelligent, integrated and interactive solutions. It results in pragmatic intelligent automation for factory floors, for instance through AI-solutions. Solutions that offer an integrated evolution in high-speed, high precision seamless control. The way we go about that is by creating a new interactive harmony between people and machines.

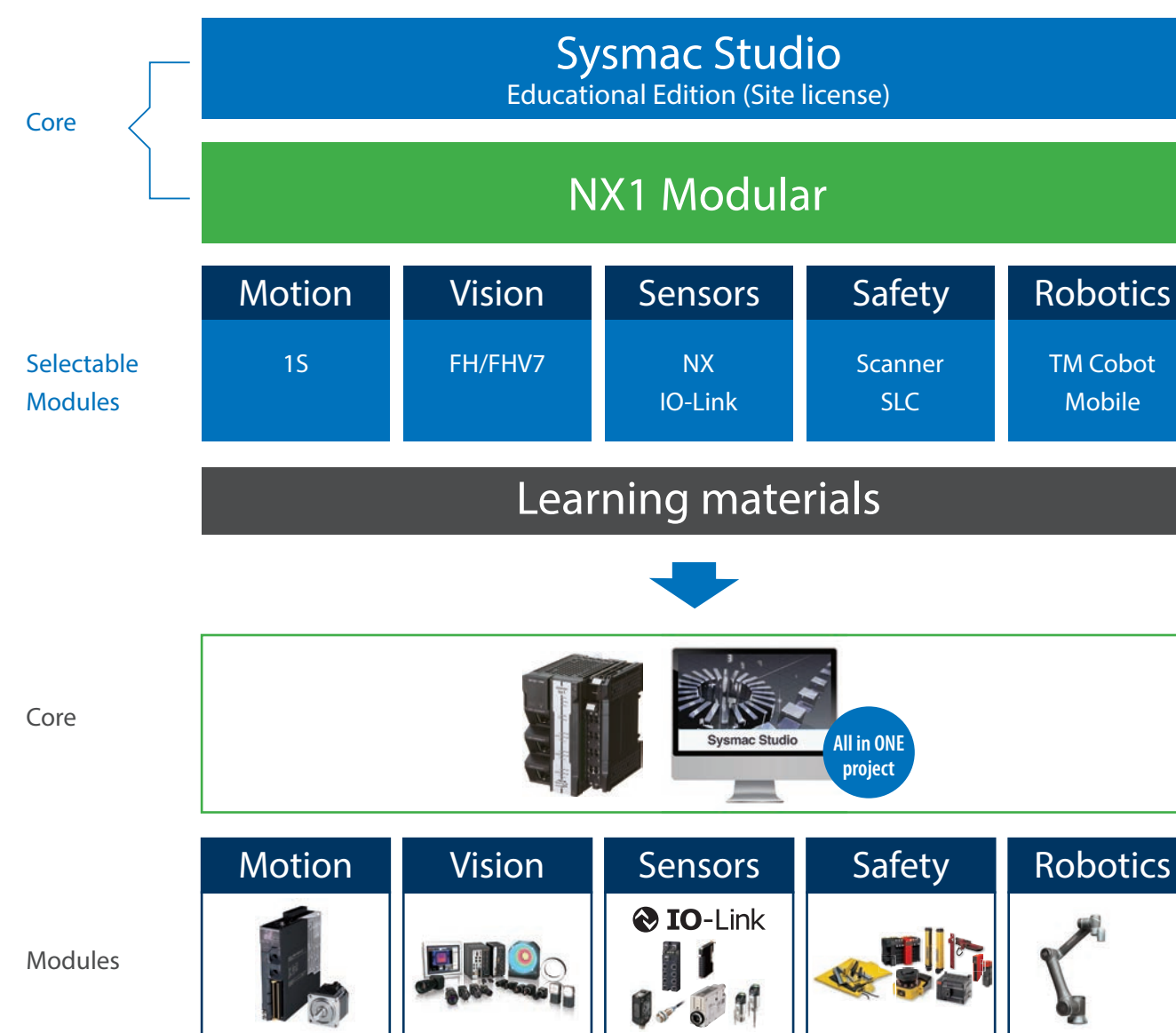
Our *i-Automation!* view on the future of manufacturing is ever-evolving through close collaboration with customers worldwide. We continue to innovate manufacturing now and in the future.

Best in Class Tools for Future Engineers

Full Package & Quick Start eLearning Environment

We have developed a modular architecture for schools to select lab software and hardware to teach students the latest state-of-the-art automation technologies both through eLearning and in the lab.

The core of our START-program includes our integrated automation software platform Sysmac Studio Educational Edition (site license) and our latest Machine Automation Controller NX1. Optional modules for motion, vision, sensors, safety and robotics allow educational institutions to easily design lab set-ups for different tasks to emulate real modern day industry environments, while theory and exercises are offered through our practical eLearning environment.



Sysmac Studio

Educational Edition (Site License)

One software for all!

We make it simple for you. You only need to install one software to build automation applications with HMI, Logic, Safety, Robotics, Sensors, Vision, Motion and Simulation and more.

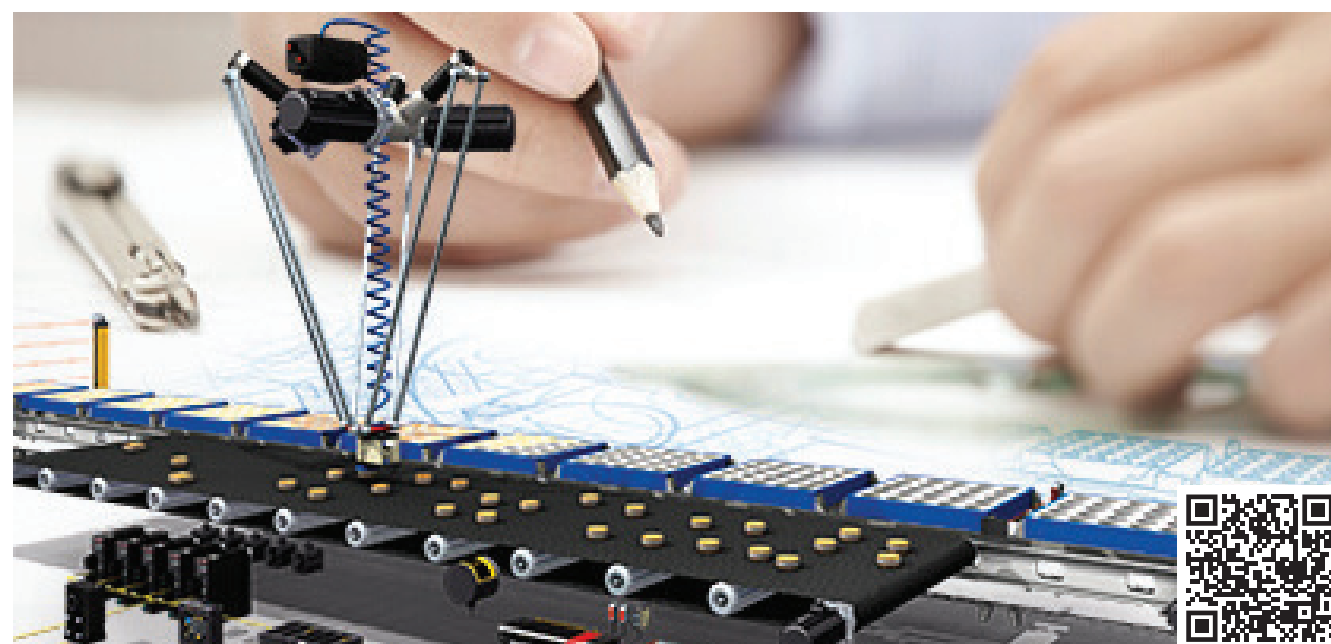
This will save teachers and students time and make it simple to innovate faster.

What is the Site License?

- Full license
- Unlimited installations (including students own laptops)
- No Yearly Fee
- Free Updates



As Standard		
Information (SQL Connection, Networks Configuration)	Visualization (HMI)	Logic (Logic programming)
Motion (Motion programming, CAM editor, Drive Tools)	Safety	Vision
Simulation	Robotics	CNC



NX1

Machine Automation Controller

One controller for all!

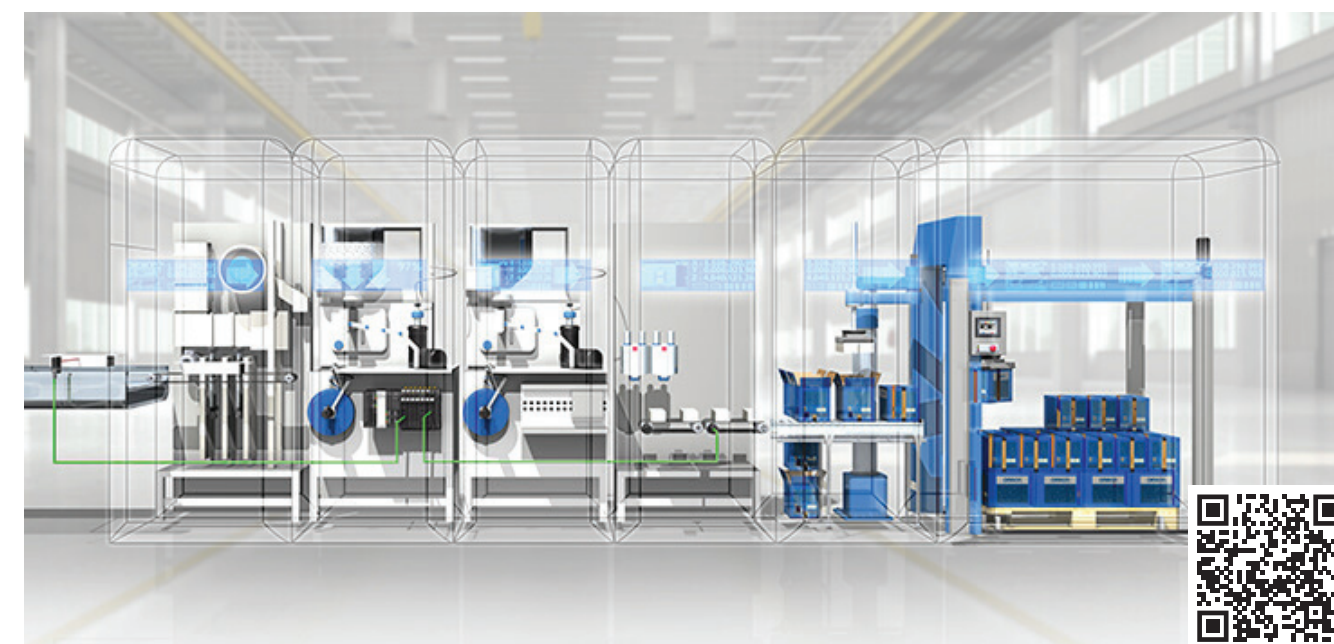
One controller for many different applications. This powerful and i.4.0 ready machine controller is the ultimate platform for any Industrial Automation Solution.

Industry 4.0 and IoT ready

OPC-UA, SQL, MQTT, Ethernet/IP, EtherCAT as a standard feature! No licenses needed. Simple and secure connection to IT systems like Clouds and Databases.

Connect with hardware

- Motion control (2 servo axes, 4 PTP axes)
- Robotics (Delta/6-Axis/SCARA/Cobot/Mobile)
- Vision
- Sensors
- Safety



1S Series

AC Servo System

State of the art technology

1S servo system offers a high resolution multi-turn encoder without battery backup, safety network built-in and improved loop control allowing accurate and higher machine productivity.

Simplified machine design/maintenance

- No battery, no maintenance
- No need for homing sequence
- 23 bit high resolution encoder
- Absolute multi-turn encoder
- Compact and smaller motor size
- Safety function built-in
- Power range from 50 W to 15 kW



Smart Camera

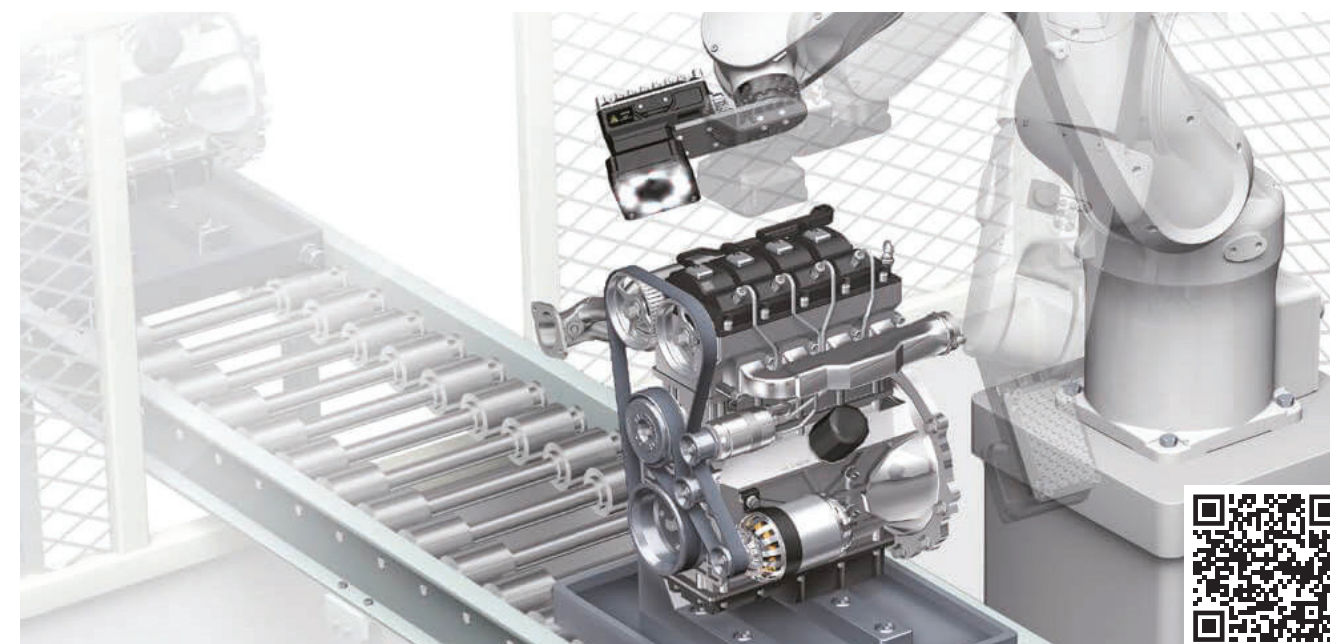
FHV7 Series

Functionality & Speed in One

The FHV7 Smart Camera provides a huge selection of inspection and measurement functions in a compact size. Perfect tool for teaching vision fundamentals for students. Powerful and robust camera for different research and lab projects.

Full of possibilities

- IP67 waterproof structure
- Modular structure (easy to replace)
- External lights supported
- Multi-color Light Option
- Autofocus Option
- 0.4-12 Mpix resolution models
- Industry's highest sensing capability
- Industry's highest processing capability



Vision System

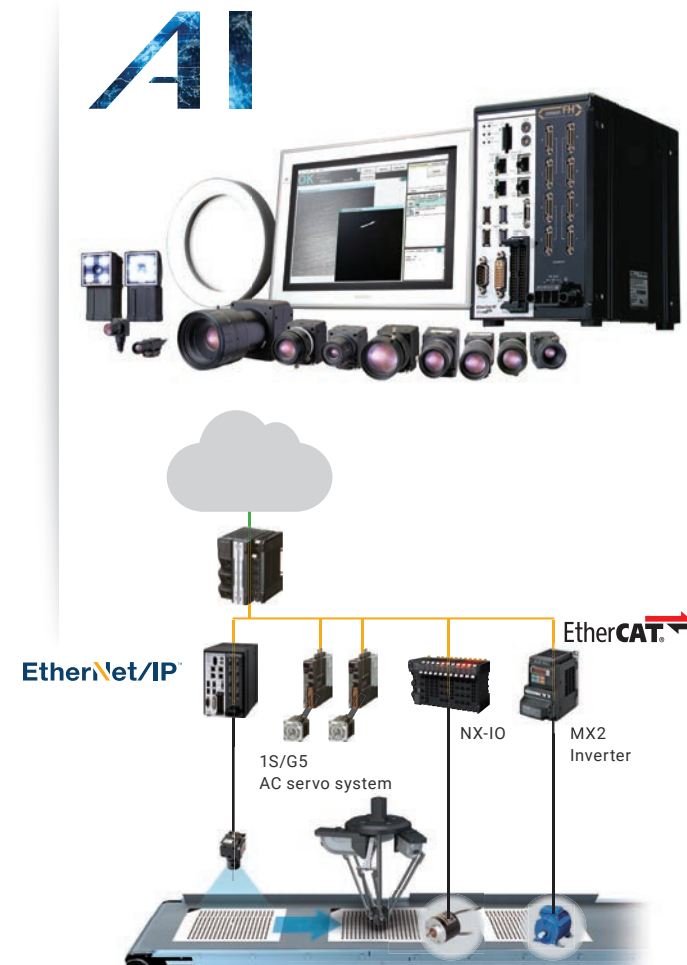
FH Series

Like or even more than the human eye

FH Series meets rapidly growing automation needs and higher performance requirements. This is high performance vision system up to 8 cameras and 80 Mega pixel applications. This system is perfect system for teaching from basic to advanced machine vision topics. Extensive software libraries give endless possibilities for measurements and inspections.

Performance and flexibility

- Industry fastest vision system
- Up to 80 Mpix resolution
- Up to 8 cameras
- Multi-Direction Multi-Color lightning option
- AI software library



Sensors

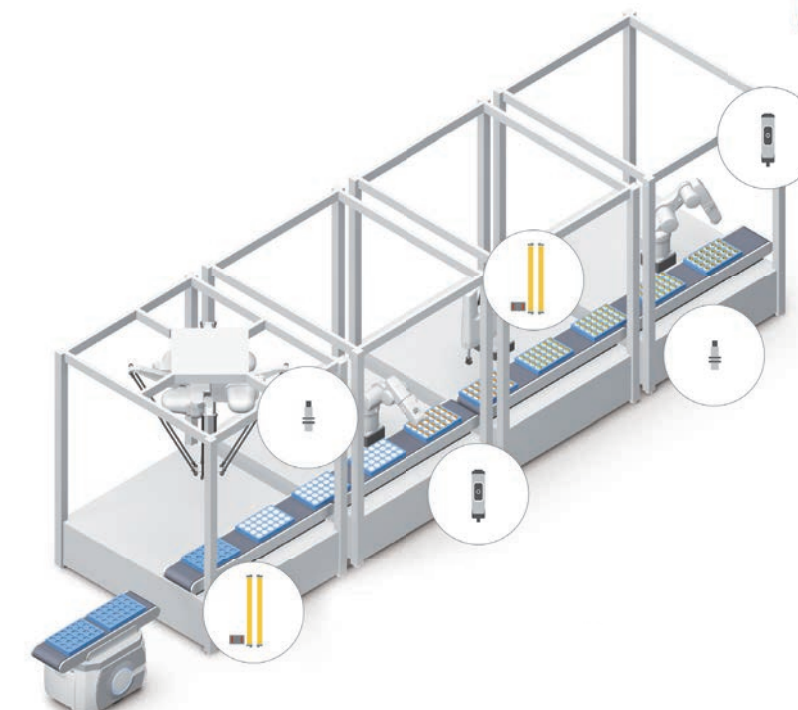
IO-Link

Smart IoT Sensors

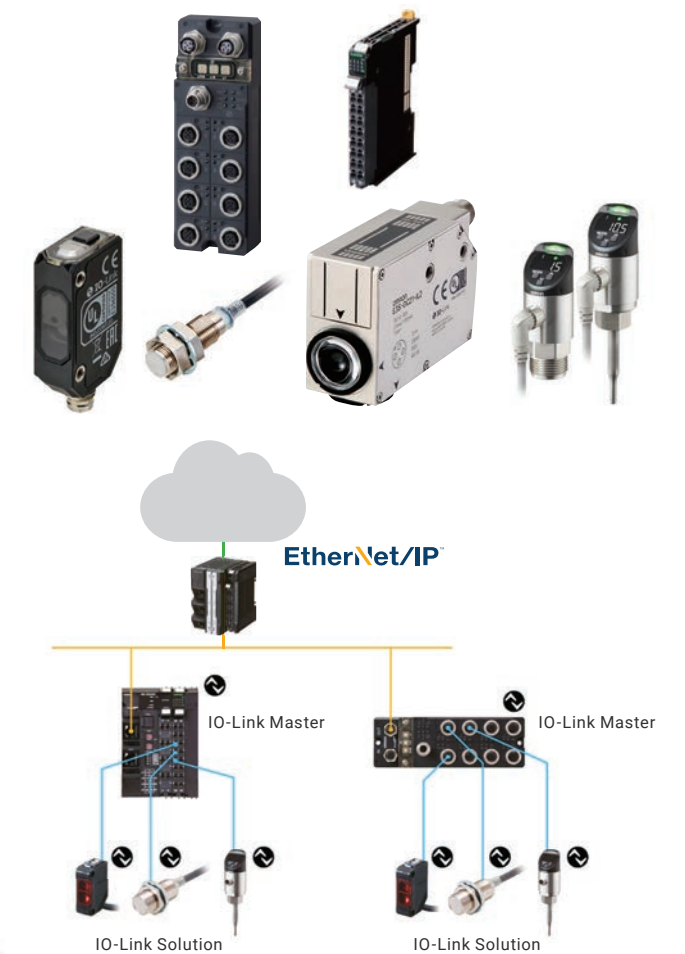
IO-Link is an open international standard supported by more than 100 companies, including major sensor manufacturers. It provides bidirectional communication and, as well as supporting typical sensor and actuator signals, it also allows the sensors and actuators to exchange status information and operating parameters with the automation system. Great technology to teach students sensor fundamentals and same time predictive maintenance.

Flexible sensors

- Up to 8 sensors per Master
- Two way communication
- Master supports also normal sensors
- More than ON/OFF information:
- Measurement distance
- Identification information
- Incident light levels
- RGB value (color sensor)
- Error detection (for example cable broken)
- Automatic parameter setting



IO-Link



Machine Safety

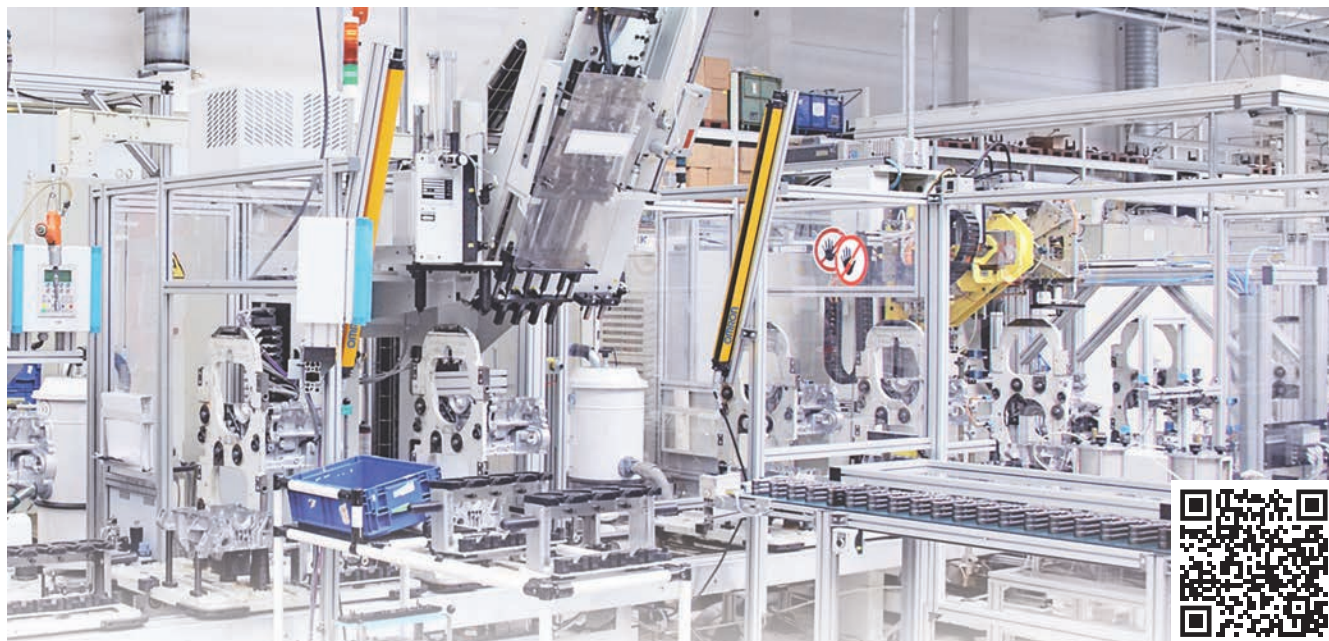
Complete Solutions

Safety first

Our goal is to protect personnel and increase overall machine performance. We offer full lines of safety and automation devices that helps you to teach machine safety from basic to advanced.

Safety control via EtherCAT

- Simplified safety installation
- Reduction of safety devices
- Safety function built-in: Fail Safe over EtherCAT (FSoE)
- Safe Torque Off
- Safety approval: PLd (EN ISO 13849-1), SIL2 (IEC 61508)
- Troubleshooter integrated with Sysmac Studio



Mobile Robotics

Autonomous material transport

Pioneer of industrial mobile robots

With the largest install base in the world, OMRON mobile robots are deployed in thousands of applications across multiple industries. We have more than 20 years experience with mobile robots.

Endless possibilities

OMRON's mobile solutions are extremely versatile and can be adapted to perform a wide variety of tasks and applications. This platform is great also for educational purposes. Indoor logistics is one of the biggest challenges in manufacturing when trying to digitalize operations and have a full traceability for material flow. Our mobile platform is easy to modify for different tasks. You can also take advantage of the NX1 controller and it's free function blocks to control the mobile robot. You can build a simple one mobile robot up to complex multi mobile robot applications. Our mobile and collaborative robots integrate also easily together as Mobile Manipulator (MoMa).



Collaborative Robots

Future of Automation

Robotics Easier & Faster than ever before

This new line of collaborative robots is safer, simpler to program, and easier to integrate with other equipment. Easy and fast to teach robotics basics to students and build innovative applications in the lab.

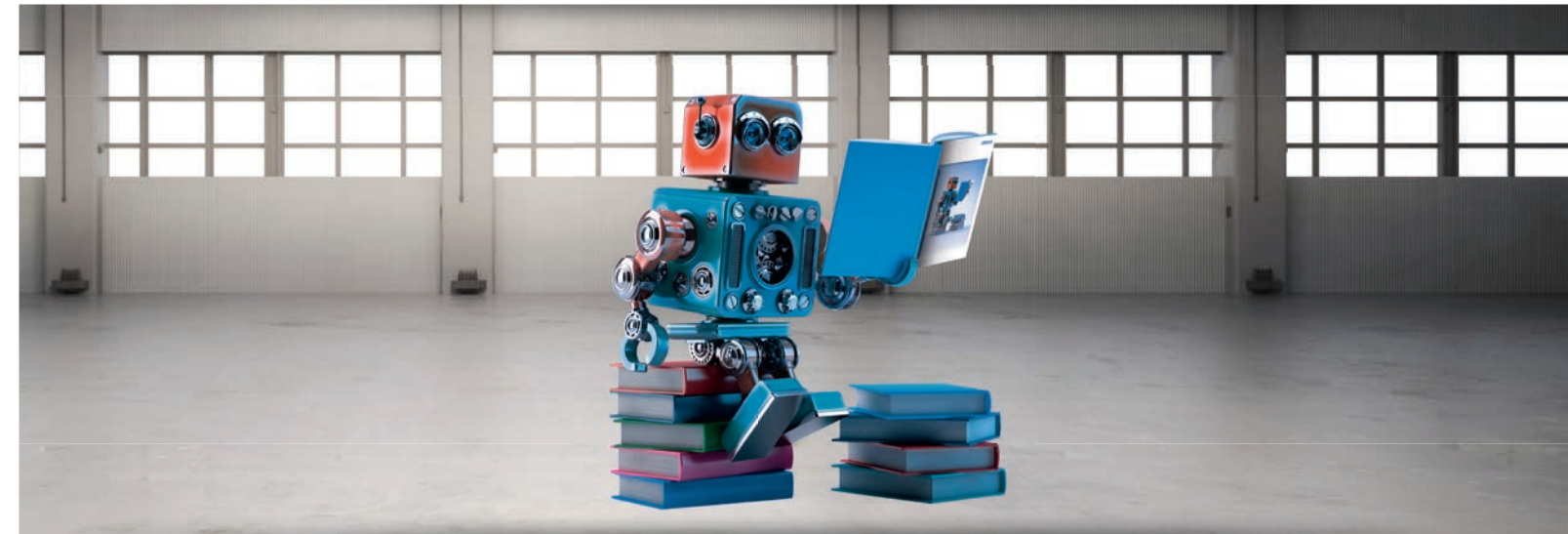
Innovative Technology

- Integrated camera reduces development time
- Safety set-up is easy with graphical user interface
- DC-version available for mobile robot integration
- Intuitive Graphical Programming
- Hand guiding allow users to guide the robot into different positions (including gripper open/close) and automatically record it in the software
- Robot can be relocated to new working place easily by using the landmark sticker to recalibrate automatically the XYZ-coordinates with it's integrated camera.



Quick, Simple &

Safe eLearning environment



We know how busy teachers are, so we want to assist by creating ready-to-go training materials and exercises for all our START-modules: Motion, Vision, Sensors, Safety and Robotics. You have access to all the available exercises and training materials, for a small fee, from our website under the "eLearning"-section. We update exercises regularly to keep them aligned with the latest industry developments for the benefit of the students.

Teachers are able to view the progress of students in our eLearning environment. Please contact your local sales office for more information.



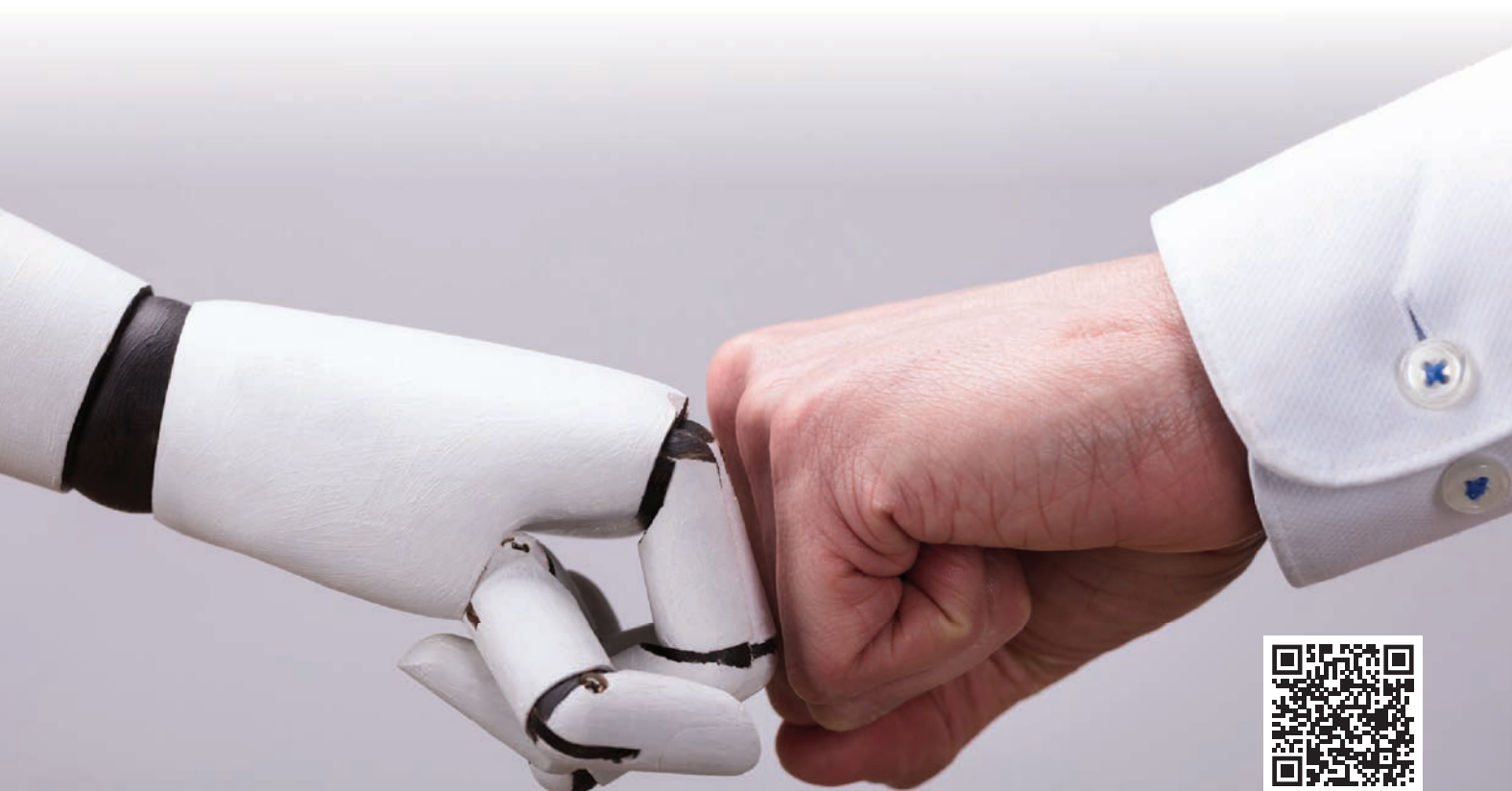
Training

We offer a comprehensive portfolio of training

You can explore our extensive training portfolio on our webpage, login to eLearning or gain access to the course materials you used during one of our many classroom based training courses, from a single login. All our training products are categorised by product groups and by our core machine automation platform Sysmac.

Through the individual course pages, you can sign into our scheduled programs, or request a customised course to be delivered on-site, or in one of our regional Training Centres.

- Office training classes for teachers
- Live online training sessions to make sure all the teachers will have up-to-date information about Sysmac's new features (students can also join)
- eLearning training materials
- Onsite training possibilities



Omron at a glance

200,000 products ranging Input, Logic, Output & Safety

Sensing, Control Systems, Visualisation, Drives, Robots, Safety, Quality Control & Inspection, Control and Switching Components

6%

Annual investment in Research & Development

Innovation track record of 80 years

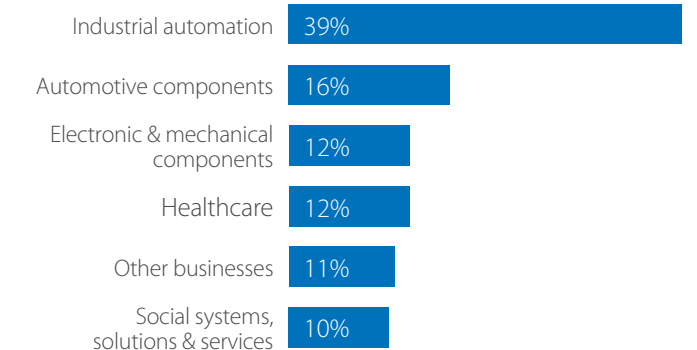
1,200 employees dedicated to R&D
12,500 + issued and pending patents

37,500
Employees worldwide

200
Locations worldwide

22
Countries in EMEA

Working for the benefit of society



Close to your needs

Technical training & seminars, technical support, Automation Technology Centers, online community (MyOmron), online catalogues and technical documentation, customer service & sales support, inter-operability labs (Tsunagi), safety services, repairs.

Would you like to know more?

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