

CUSTOMER SUCCESS

An innovative approach to cable harness production – ERKO collaborates with OMRON

ERKO,
Poland



High productivity -
Up to 200 pieces/hour



Flexibility -
Fast changeovers



Consistent quality
with vision-guided
robotics



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Key Benefits

1

High quality and repeatability thanks to the precision and speed of the SCARA robot

2

Cost savings and easier production planning

3

Flexibility and rapid adaptation to new requirements – thanks to the universal feeder

4

Accurate separation and positioning of terminals with the vision system integration

5

Increased competitiveness through investment in a modern solution

At a glance

OMRON and ERKO have developed an innovative, fully automated workstation for cable harness production, addressing the growing demand for precision, flexibility, and efficiency. Featuring OMRON's feeder, an advanced vision system, and an i4L SCARA robot, the solution automates every stage of production – from cutting and stripping wires to marking, positioning, and crimping terminals. Its intuitive software allows quick changeovers without retooling, enabling rapid adaptation to different wire types and terminal designs. This cutting-edge system reduces labor costs, minimizes downtime, and delivers consistent, high-quality results while meeting the highest standards of safety and industrial performance.



A cable harness is a bundled assembly of wires and connectors designed to efficiently organize, protect, and route electrical signals or power within a device or machine.

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The production of cable harnesses is a complex process that requires precision, high quality, and high efficiency - especially in demanding industries such as automotive, household appliances, aviation, railways, and the energy sector. Proper planning of technology and process organization is key to success.

ERKO, a Polish manufacturer specializing in the design and implementation of machines and automated cable processing stations, responds to these needs of its customers. Together with OMRON, a supplier of advanced industrial automation solutions, an innovative, fully automated station for the production of cable harnesses has been developed. It has been designed for ERKO's customers who are looking for modern, flexible, and efficient solutions for the production of wires and cable harnesses. This station responds to the challenges of modern production by combining precision, automation, and ease of adaptation to changing market requirements.

Automation that transforms production

The automated workstation for cable harness production marks a breakthrough in process optimization. Replacing the work of several operators, the machine significantly reduces costs, minimizes downtime, and speeds up order fulfilment – achieving a performance of up to 200 finished harnesses per hour.

Thanks to its intuitive design, the device requires minimal supervision and can be implemented quickly and easily, even by less experienced operators. High-quality components from leading industrial brands ensure exceptional reliability and long-lasting performance.

"The heart of this machine is not only the production line itself, but the entire concept of intelligent, adaptive automation – where universality and full automation go hand in hand," emphasizes Marcin Pawlak, New Product Development Manager at ERKO.



Intelligent terminal feeding system – a crucial part of the process

One of the greatest challenges in cable harness production is the precise feeding of the correct cable terminal to the crimping machine. The terminals arrive in bulk and must be accurately separated and oriented for further assembly. This process begins with the feeder, which forms the core of the intelligent separation and positioning system.

The OMRON feeder consists of two independently vibrating levels – upper and lower – that enable efficient part separation. Terminals are first dispensed from a hopper onto the upper level, where preliminary separation takes place. They then slide down to the lower level for further separation and, if needed, flipping into the correct orientation.

A vision system analyzes the terminals and identifies those correctly positioned. Only these are picked up by a SCARA robot equipped with a precise two-finger gripper. The SCARA robot accurately and rapidly places

the terminals into the workstation, where they are crimped onto wires. This makes the entire process fully automated and highly flexible, supporting many different types of wires and terminals without costly changeovers.

The universality of this solution is key: the feeder and vision system can handle various terminal types without retooling. Switching to a new product only requires updating the parameters, without any physical modifications to the machine. The system can manage terminals of different shapes, sizes, and even colors.

“Its advanced separation and positioning capabilities enable precise feeding of components, while the vision system, enhanced by specially designed lighting, greatly simplifies terminal localization and orientation on the working surface,” explains Fumio Okazaki, Product Specialist ISC, OMRON Industrial Automation Poland.





The robust construction, with protective housing, control cabinet, and comprehensive safety features, meets the highest standards of quality, ergonomics, and efficiency.

Versatility and precision in a single machine

The production machine handles wires with cross-sections from 1 mm² to 4 mm² and lengths from 240 mm to 4000 mm. It supports crimping different terminal types – ferrules, tabs, pins – and allows for wire marking with shrink sleeves. The production of a harness is fully automated: wire retrieval from the storage unit, cutting and stripping, marking and applying shrink sleeve markers, and finally crimping the terminals.

The terminals are delivered loose from a 16-bin storage magazine to the feeder units. Once positioned and identified by the vision system, they are picked by the SCARA robot and placed precisely for crimping. The integration of transport modules, robots, and feeding systems ensures complete automation.

Finished wires are moved to a discharge ramp, and the entire cycle requires minimal operator involvement. The robust construction, with protective housing, control cabinet, and comprehensive safety features, meets the highest standards of quality, ergonomics, and efficiency.



Intuitive software and remote operation

Proprietary software enables fast recipe creation, both locally and remotely. The operator simply enters the wire length and marking requirements, while the graphical interface, access levels, and remote diagnostics ensure easy and safe operation. Communication via HMI, USB, and LAN simplifies integration with production management systems and guarantees stable, continuous operation.

A new standard of flexible automation

Using the OMRON feeder and SCARA robot demonstrates a truly flexible approach to automation – a single workstation can handle many product types without expensive hardware changes. This allows production to be quickly adapted to changing market demands.

"Our goal was to create a solution that not only speeds up production but also makes it smarter. For us and our customers, universality is key – the ability to adapt quickly without interfering with the machine's mechanics," summarizes Marcin Pawlak from ERKO.



About ERKO

ERKO is a Polish leader in modern industrial technologies, offering comprehensive solutions in three key areas: electrotechnics, process automation, and aerospace production. ERKO ELECTRO delivers a wide range of innovative devices, tools, and electrical equipment for installers, power plants, and industrial facilities. As a recognized brand in Poland, it guarantees high quality, functionality, and reliability. ERKO ROBOTICS specializes in designing, building, and implementing automated production lines, carrying out demanding engineering projects tailored to individual customer needs, focusing on process efficiency, ergonomics, and workplace safety. ERKO AERO manufactures aircraft components using plastic processing and machining methods. The company also designs and produces technological devices to support production, assembly, and measurements in advanced industrial environments.

With broad competencies, advanced technological facilities, and a team of experts, ERKO provides solutions that support the growth of modern industry in Poland and international markets. For more information, please visit: <https://robotics.erko.pl>



About OMRON Corporation

OMRON Corporation is a leading automation company with its core competencies in Sensing & Control + Think technology. OMRON is engaged in a wide range of businesses including industrial automation, healthcare, social systems, device & module solutions.

Established in 1933, OMRON has about 28,000 employees worldwide, working to provide products and services in more than 130 countries, contributing to the creation of a better society. For more information, please visit <http://industrial.omron.eu>