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For years, **SEW-EURODRIVE** has been implementing **AS-Interface** and will now integrate **ASi-5**.

ASi-5 combines an established connection technology with new functions. – To be precise: existing power - performed in new. Excellent foundation with high investment security.

SEW-EURODRIVE implemented AS-Interface into the modular automation system MOVI-C® and integrates ASi-5 into automation products. The international market leader in drive technology and automation sees these strong advantages: A failsafe profile cable with piercing technology makes it easy to connect, replace, relocate, or add devices – safely, quickly, and cost-effectively. At the same time, AS-Interface network topology is freely selectable. Branching is no problem. On the automation side, for example, ASi-5 provides a significantly faster transmission of large data volumes with short cycle times. ASi-5 offers several functionalities, such as automatic device recognition, an overview of all devices on the system, as well as differentiated diagnostics options. The additionally diagnostics channel leads to maximum system availability. ASi-5 also offers highly efficient safety technology integration since safety-related and normal applications are operated on the same

infrastructure. Due to its strong performance features, AS-Interface is a perfectly fitting technology for decentralized drive and automation solutions, for example in modern conveyor and logistics systems.

„With ASi-5, we have succeeded in implementing a significant increase in performance while keeping the brilliant connection technology.“



Udo Marmann
SEW-EURODRIVE

Operating 17 production plants and 85 drive technology centers in 52 countries, SEW-EURODRIVE is one of the international leaders in drive technology and drive automation. The owner-managed family business was founded in Bruchsal, Germany in 1931. With over 19,000 employees, the company currently generates 3.1 billion euros in sales (FY 2021).

SEW-EURODRIVE supplies products and solutions for the entire value chain and drives numerous machines and plants in various sectors in the production and process industries.

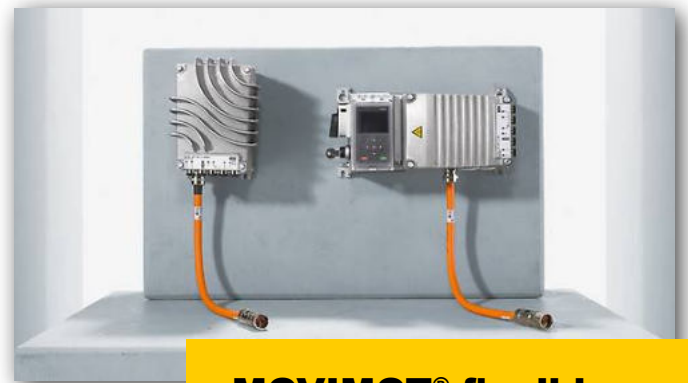
The drives range from fast, dynamic and high-precision, such as for unit load manufacturing, to large and powerful, such as for the raw material industry or for container terminals. SEW drive solutions for intralogistics and transport logistics are globally applied.

SEW-EURODRIVE is one of the pioneers in the decentralized drives and mechatronics sectors. “We realized early on that modern system architectures and their unique design features require highly customized drive solutions. By developing autonomous, efficient, and control-cabinet-independent systems, we consistently met the requirements of the industry,” Udo Marmann, market manager for SEW-EURODRIVE, explains. Today, the company’s drive solutions, such as the modular automation system MOVI-C®, are the benchmark in decentralized drive technology: modular, flexible, economic, and energy-efficient. These are the device attributes that meet the crucial requirements of modern automation and drive technology.

Modular automation system MOVI-C®

SEW-EURODRIVE drive technology is an integral part of modern, high-performance machine and plant engineering, in countless processes and in a wide variety of different industries. Modular automation system MOVI-C®, the all-encompassing solution, is designed for individual and complex motion control applications. MOVI-C® is the third generation of a drive system that has been successfully operated since the 1980s. The modular automation system includes the following drive units and inverters: MOVIMOT® advanced, MOVIMOT® flexible, and MOVIGEAR® performance. All devices are designed to be used in decentralized automation and drive technology, and are equipped with AS-Interface technology.

MOVIGEAR® performance: Decentralized drive technology cannot be more intelligent, lean, efficient, and cost-saving: MOVIGEAR® performance combines motor, gearbox, and inverter in a single housing, while standing out for its high compactness and high overload capacity.



MOVIMOT® flexible:

The compact power pack with flexible field distributor.



MOVIGEAR® performance:

The specialist for dynamics with flexibility and overload capacity.

MOVIMOT® flexible: The decentralized inverter offers numerous options for lean automation solutions for machines or plants. This inverter moves automation out of the central control cabinet and directly into the field, exactly where automation needs drive technology. The decentralized inverter can be installed close to the motor, where it makes no difference if a synchronous or asynchronous motor is used.



MOVIMOT® advanced:

The allrounder for intelligent logistics.

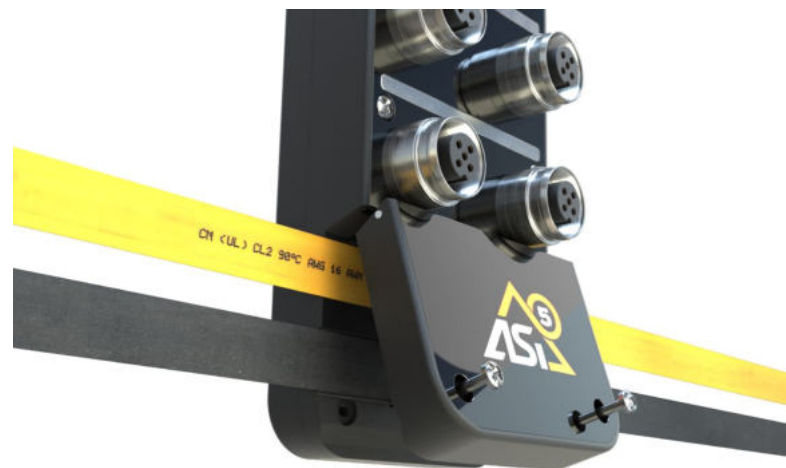
MOVIMOT® advanced: The allrounder among the drives can be used for various applications, from intelligent conveyors axes to simple lifting axes and positioning axes. Decentralized drive technology cannot be any more intelligent, flexible, and cost-efficient: MOVIMOT® advanced combines asynchronous motor and frequency inverter in a decentralized drive unit, and can be flexibly combined with any standard gearbox.

Decentralized automation – predestined for conveyor technology and logistics

Spatially extended systems, such as conveyor technology and logistics, are predestined for decentralized automation solutions and AS-Interface, with its advantages such as easy installation, high flexibility, and low costs. “AS-Interface offers the possibility to control all components of the modular automation system MOVI-C®, and to connect them using the failsafe profile cable. Thus, simple and manageable plant structures can be imple-

mented,” **U. Marmann** continuous. In addition, the AS-Interface technology AS-Interface Safety offers the integration of safety technology. AS-Interface Safety stands for functional safety and enables cost-efficient integration of safety applications on the same infrastructure. “From the very beginning on, SEW-EURODRIVE was committed to AS-Interface,” **U. Marmann** adds. As mentioned, “The foundation of AS-Interface technology is the established yellow, two-conductor flat cable with reverse polarity protection as well as efficient and safe contacting using piercing technology.” The yellow cable inherently supports installation with a high degree of protection without the need to implement special measures.

The straightforward installation and handling of the AS-Interface cable and the piercing technology are completely convincing – technologically and economically. Noticeably, the AS-Interface network topology is freely selectable. Another reason to employ AS-Interface technology? The systems can be expanded easily and without major time expenditure.



AS-Interface Piercing-Technology

Future-proof combination: electromechanical properties and ASi-5 technology

With an eye on future technologies and applications, AS-Interface combines the AS-Interface network's substantial electromechanical properties and its connectivity with ASi-5 technology. On the installation side, AS-Interface shows its advantages through its reduced wiring efforts. On the automation side, ASi-5 enables, for example, significantly faster transmission of large data volumes with short cycle times.

"Due to its extensive performance spectrum, ASi-5 is predestined for complex, intelligent material handling machines, warehouse and material flow technology, and conveyor and sorting systems with extensive sensor and actuator technology," **U. Marmann** explains. "This is why we implemented ASi-5 into the modular automation system MOVI-C®." ASi-5 provides a 16-bit protocol for cyclic transmission – offering up to 32 bytes per device. This leads to the following advantage: "If we use the 4-bit protocol, more devices can be controlled – if we use the higher data width, identical or shorter cycle times can be achieved," **U. Marmann** continues.

Simply put, "For less complex functions such as start/stop, left-right operation, or fast/slow or number of revolutions switching, respectively, 4-bits are completely sufficient. However, three-phase motors with frequency converters, where the control system accesses performance parameters during operation such as velocity or acceleration and braking performance, are supplied with a larger data width." ASi-5 provides cyclical and continuous

activation and change of velocities, or defined acceleration and deceleration profiles. These cyclic control data run parallel to acyclic engineering data.

It is also possible to cost-efficiently achieve network-compatibility for drives at low costs. While in other technologies each network component requires its own fieldbus connection, for ASi-5 a single connection, a single IP address, a single IP configuration is sufficient. Furthermore, on the software side, ASi-5 offers functionalities such as automatic device detection (electronic nameplate), an overview of all devices on the system, and differentiated diagnostics options with dedicated auxiliary functions. The additional diagnostics channel allows, for example, transmission of the existing current consumption and temperature as well as detailed frequency converter status information. Maximum system availability is ensured. "ASi-5 also offers highly efficient integration of AS-Interface Safety," **U. Marmann** continues. This is because safety-critical and conventional applications can run on the same infrastructure and can be mixed as needed. Thus, ASi-5 enables operating 1,536 safe inputs and outputs per network. "ASi-3 and ASi-5 devices also operate on the same AS-Interface network," **U. Marmann** explains. Mixed operation supports a sustainable approach, using available resources. On one hand, users can continue to rely on the ASi-3 product range, on the other hand, they can systematically switch to ASi-5 products. Downward compatibility creates investment security.

The AS-Interface network topology – tree, ring, star, line – is freely selectable. Cable length has been specified to 200 m for ASi-5 technology. Branching is possible at any location without restrictions. These technical options make AS-Interface the ideal technology for decentralized automation in conveyor technology and logistics.

“ASi-5 technology convinces through the simple integration of IO-Link sensor technology. AS-Interface simplifies connecting to a cloud service with data analytics and thus offers the option of predictive maintenance. The complete data volume of a plant can be transmitted to the cloud via OPC UA. The path to a digital future is paved,” **U. Marmann** concludes. Concisely put, “ASi-5 successfully achieves a significant performance increase while retaining its ingenious connection technology.”

Conclusion: ASi-5 technology extends the application options of the decentralized, modular automation system MOVI-C® based on the flexible installation topology and the failsafe profile cable with its cost-effective connectivity using piercing technology. AS-Interface convinces with its technological and economic properties. The technology guarantees high investment security and performance.

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