SEW EURODRIVE

MAXOLUTION® factory automation

Mobile systems

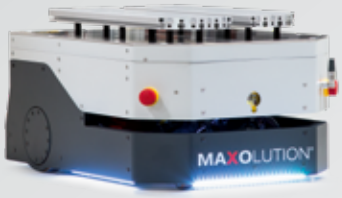
Catalog 2019

INDUSTRY 4.0

We're with you all the way
to the Smart Factory.

MAXOLUTION® factory automation

Transport vehicles



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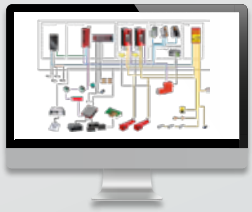

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MAXOLUTION®

Maximum flexibility and efficiency in your versatile and modular factory

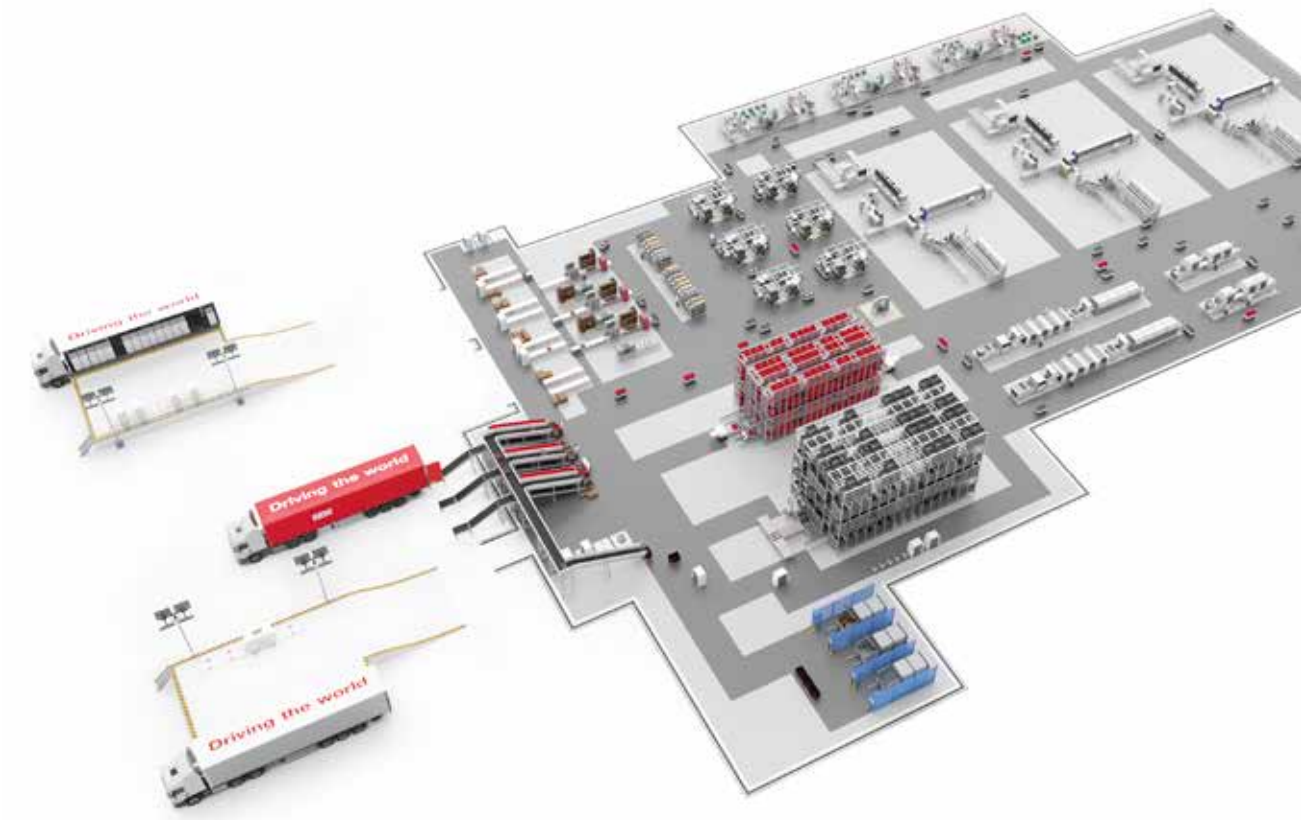
What are the challenges for the factory of the future? Realizing highly flexible production sites that are able to react quickly to requirements by customers or markets due to their intelligent and modular structure.

Product life cycles are getting shorter, while customer requirements get more specific and dynamics increase. In order to facilitate an efficient and cost-optimized production, the factory of the future must be modular and versatile. The basic prerequisites are: A fully networked value creation chain with intelligent collaboration between humans and technology, automated assistance and cutting-edge, future-proof concepts for material flow and logistics. In the future, this will be enabled by decentralized process modules which can fulfill various roles in a production process and can be combined as needed.

Depending on the market requirements, process modules can be multiplied, added or removed. This allows for adding new derivatives or variants to the production process without the need to redesign the entire production. This paves the way to flexibly linked process modules with cellular transport systems.

The mobile systems designed by SEW-EURODRIVE combine the benefits of stationary conveyor technology that ensure process, system and staff safety with maximum flexibility and scalability. Extended functions and interfaces enable these systems to assist people with logistics and production processes in the form of intelligent workbenches or collaborative robots, for example.

Find out more at:
www.sew-eurodrive.de/en/smart-factory



Our products and services for your networked, digital factory

As an automation partner and system supplier, SEW-EURODRIVE also provides a broad basis of infrastructure systems and software solutions – all adapted to suit your processes and interfaces.

You can profit from the experience we gained during numerous customer projects in various industry branches. As well as product and system solutions, we can offer advice on factory design and production automation. Our experts work with you to plan and configure your process solutions. In our highly efficient project handling structure, we implement planned and configured projects according to your specifications.

From delivering individual mobile systems, to designing and realizing entire systems and factories with the help of SEW-EURODRIVE.

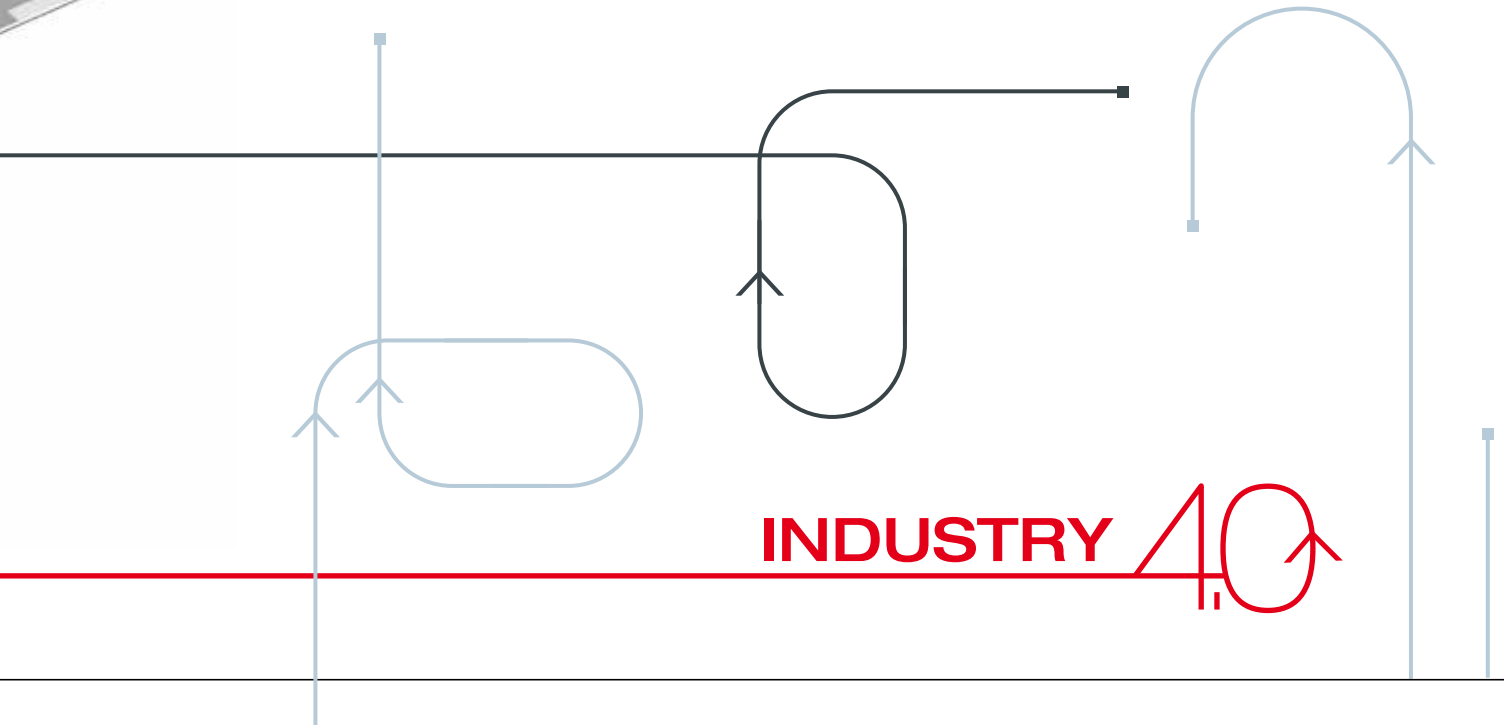
Based on dimensioning and project planning, we will determine the optimal solution for your requirements with you. Our goal is to optimally advise you. To do so, we rely on a broad portfolio of different systems.

Transport vehicles have clearly defined interfaces and can interact with various higher-level customer systems in order to enable the transport vehicles to travel predefined routes statically and dynamically.

Assistance systems actively support people in their work. They know which goods they are transporting, and based on the order, they can individually calculate the route through the factory.

The assistance systems from our comprehensive modular concept for mobile systems can be individually configured to match your application and your requirements. All this ensures that your customer requirements are optimally met.

Find out more at:
www.sew-eurodrive.de/smart-factory



Transport vehicle (MAXO-MS-TV005)

Specifications	– Dimensions: L = 860 mm, W = 600 mm, H = 355 – 635 mm – Weight: Min. 200 kg – Load capacity: Max. 500 kg – Speed: Max. 1.5 m/s – Positioning accuracy: +/-10 mm – Stroke: Optional – Power supply: Inductive charging, contact charging, batteries – Navigation: SLAM, inductive/RFID, optical/RFID – Communication: WLAN
Description	– Standardized, modular and compact vehicle – Scalable using various battery, navigation and load-bearing modules – Ideal for transportation tasks in production and distribution logistics – 3-wheel chassis geometry for compact layouts – Load handling device: - Roller conveyor - Project-specific definition - Customer-specific solutions using standard interfaces – Load carriers: - Boxes - Trays - Racks

Transport vehicle (MAXO-MS-TV015)

Specifications	– Dimensions: L = 1399 mm, W = 999 mm, H = 338 mm – Weight: Min. 650 kg – Load capacity: Max. 1200 kg with stroke – Speed: Max. 1.4 m/s – Positioning accuracy: +/-10 mm – Stroke: 100 mm – Power supply: Inductive charging, contact charging, batteries, energy storage unit – Navigation: SLAM, inductive/RFID, optical/RFID – Communication: WLAN
Description	– Standardized, compact vehicle with stroke for payloads up to 1200 kg – Ideal for transportation tasks in production and distribution logistics – Central drive chassis geometry for compact layouts – Load handling device: - Chain conveyor for pallets - Underride solutions for pallets or racks - Project-specific solutions - Customers' own solutions using standard interfaces – Load carriers - Pallets - Containers - Racks

Transport vehicle (MAXO-MS-TV030)

Specifications	– Dimensions: L = 2110 mm, W = 830 mm, H = 400 mm – Weight: Min. 790 kg – Load capacity: Max. 3000 kg – Speed: Max. 1 m/s – Positioning accuracy: +/-10 mm – Stroke: 80 mm – Power supply: Inductive charging, contact charging, batteries – Navigation: SLAM, inductive/RFID, optical/RFID – Communication: WLAN
Description	– Standardized, modular vehicle for payloads up to 3000 kg – Ideal for transportation tasks in production and distribution logistics – Front wheel drive mechanics – Ideal for complex layouts thanks to innovative kinematic control system – Load handling device: - Chain conveyor for pallets - Underride solutions for pallets or racks - Project-specific solutions - Customers' own solutions using standard interfaces – Load carrier: - Pallets - Containers - Racks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Logistics assistant (MAXO-MS-LA003)

Specifications	– Dimensions: L = 860 mm, W = 690 mm, H = 565 – 1070 mm – Weight: Min. 250 kg – Load capacity: Max. 200 kg – Speed: Max. 1.5 m/s – Positioning accuracy: +/-2 mm – Stroke: Max. 500 mm – Power supply: Inductive charging, energy storage unit – Navigation: SLAM, inductive/RFID, optical/RFID, gyro sensor – Communication: VLC, WLAN
Description	– Assistive, mobile system enables human-machine interaction – Transportation of small load carriers – Can be used as a mobile logistics and assembly assistant – Ergonomic: Adapts the working height

Logistics assistant (MAXO-MS-LA015)

Specifications	– Dimensions: L = 1000 mm, W = 1000 mm, H = 300 mm – Weight: Min. 400 kg – Load capacity: Max. 1500 kg – Speed: Max. 1.5 m/s – Positioning accuracy: +/-2 mm – Stroke: Max. 245 mm – Power supply: Inductive charging, energy storage unit – Navigation: SLAM, inductive/RFID, optical/RFID, gyro sensor – Communication: VLC, WLAN
Description	– Carries out logistics tasks autonomously and cooperatively – Use of swarm intelligence in logistics – Dynamic route planning in cooperation with neighboring vehicles – Implements loose interlinking of process modules

Logistics assistant (MAXO-MS-LA005)

Specifications	– Dimensions: L = 1000 mm, W = 1000 mm, H = 650 mm – Weight: Min. 400 kg – Load capacity: Max. 500 kg – Speed: Max. 0.8 m/s – Positioning accuracy: +/-2 mm to +/-25 mm – Power supply: Inductive charging – Navigation: SLAM, inductive/RFID – Communication: VLC, WLAN
Description	– Ideal for transportation tasks in production and distribution logistics – Perfect for interlinking stationary conveyor lines – Safe station recognition – Safe recognition of transport directions – Customer-specific load handling level for a range of different applications

Assembly assistant (MAXO-MS-AA005)

Specifications	– Dimensions: L = 1200 mm, W = 600 mm, H = 715 – 1015 mm – Weight: Min. 450 kg – Load capacity: Max. 350 kg – Speed: Max. 1 m/s – Positioning accuracy: +/-2 mm to +/-25 mm – Stroke: Max. 300 mm – Power supply: Inductive charging, energy storage unit – Navigation: SLAM, inductive/RFID – Communication: VLC, WLAN
Description	– Assistive, mobile system enables human-machine interaction – Thanks to two full-featured operating modes, it can be used as a mobile logistics and assembly assistant: - Assembly mode: Provides a reliable means of working directly with a mobile assistant - Logistics mode: Transportation between individual factory modules, with variable safety zones related to speed – Ergonomic: Adapts the working height – Customer-specific load handling level for a range of different applications

Assembly assistant (MAXO-MS-AA015)

Specifications	– Dimensions: L = 3200 mm, W = 1500 mm, H = 370 – 1470 mm – Weight: Min. 1700 kg – Load capacity: Max. 1400 kg – Speed: Max. 1 m/s – Positioning accuracy: +/- 5 mm to +/- 25 mm – Stroke: Max. 1100 mm – Power supply: Inductive charging, energy storage unit – Navigation: SLAM, inductive/RFID – Communication: VLC, WLAN
Description	– Mobile assistant for assembly processes involving a vehicle body in final vehicle assembly – Assembly mode with changeover to drive mode – Reliable occupancy detection for loads carried by the assistance system – Automatized picking and placing of transported goods at predefined transfer stations – Height adjustment of the LHD using a lifting device

Concept study – logistics capsule (MAXO-MS-CA015)

Specifications	– Dimensions: L = 1000 mm, W = 1000 mm, H = 300 mm – Weight: Min. 450 kg – Load capacity: Max. 1350 kg – Speed: Max. 1.5 m/s – Positioning accuracy: +/-2 mm – Power supply: Inductive charging, energy storage unit – Navigation: SLAM, optical/ RFID, gyro sensor – Communication: WLAN
Description	– Self-propelled standardized goods vehicles – Autonomous transportation of goods in packaging units – Transportation inside and outside the plant – Autonomous interaction with other systems for a smooth exchange of goods – Integrated logistics chain (data and material flow levels)

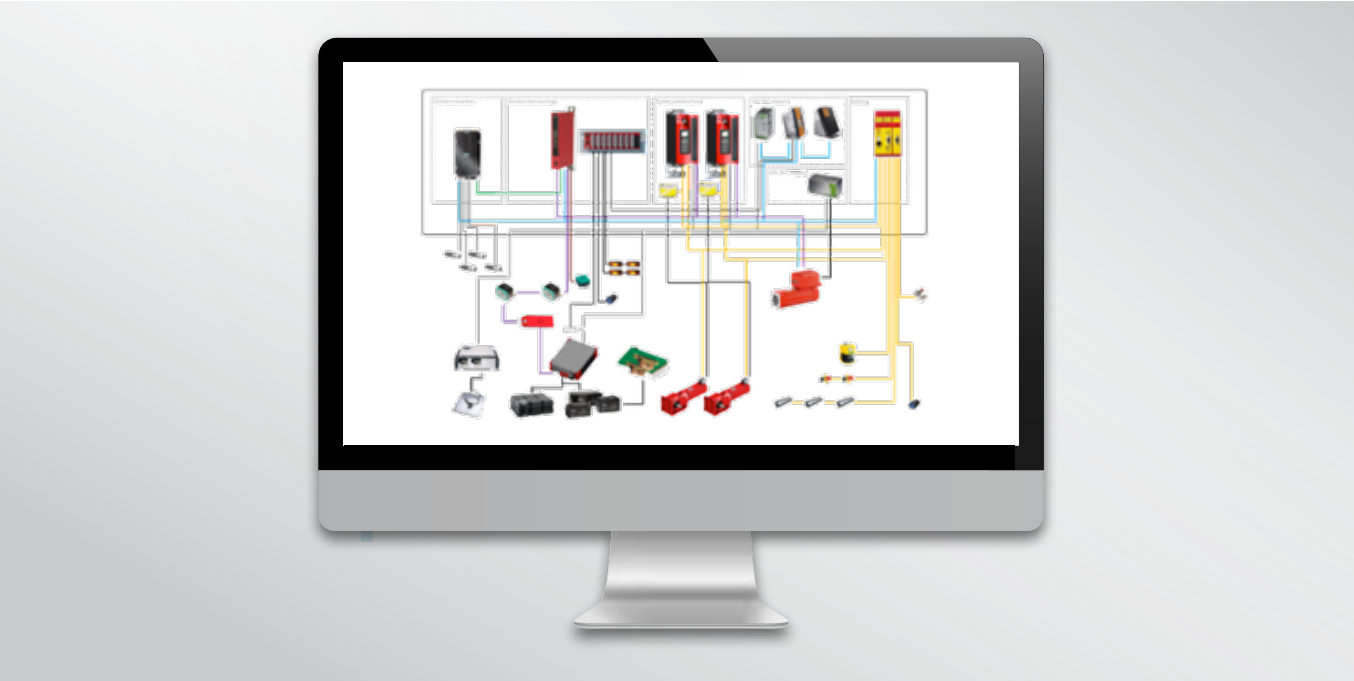
Concept study – handling assistant (MAXO-MS-HA001)

Specifications	– Dimensions: L = 1000 mm, W = 850 mm, H = 900 mm – Weight: Min. 500 kg – Load capacity: Max. 10 kg – Speed: Max. 1 m/s – Robot speed: 2 m/s (linear) – Positioning accuracy: +/-2 mm – Power supply: Inductive charging, energy storage unit – Navigation: Inductive/RFID, optical/ RFID transponder, gyro sensor, camera-based QR code – Communication: WLAN
Description	– Optimized support of human capabilities thanks to a mobile, autonomous, cooperative robot – Diverse range of potential uses thanks to variety of grippers: - Assembly and joining processes - Automated machine loading - Automated machine unloading – Mobile platform for maximum flexibility

Infrastructure for mobile systems
MOVITRANS® contactless energy transfer system

Specifications	– Connection loads of 3.6 – 22 kVA – Possible parallel connection of multiple devices per track section to increase performance
Spots with power supply	– Inductively transmittable power up to 10 kW – Installation on the floor for reduced installation effort – Available in heavy duty design (can be crossed by forklifts) – Charging via contacts for very high power
Track sections with power supply	– Power of up to 1.5 kW transmitted per pick-up – Inductive track guidance with a measuring accuracy of +/- 2 mm – Several mobile consumers per track segment – Installed in the floor (can be crossed by forklifts) – Installation on the floor for movable track segments
Description	– TES decentralized supply unit without additional control cabinet – Compact and robust aluminum housing – All connection cables equipped with a plug connector – Very high efficiency – Contactless, wear-free energy transfer – Spots and track segments with power supply – Hybrid concepts allow for a continuous power supply – Flat line cables for a minimum installation effort

Automation package



Specifications	Automation package for customer-specific vehicle construction – Payload: Use of the tried and tested modular product concept by SEW-EURODRIVE to meet your requirements (CMP.. motors e.g. with helical-bevel gear unit, parallel-shaft helical gear unit, ...) – Speed: Max. 1.5 m/s – Positioning accuracy: +/- 10 mm – Load handling device: Defined interface – Power supply: Inductive charging, contact charging, batteries, energy storage unit – Navigation: SLAM, inductive/RFID, optical/RFID – Communication: WLAN
Description	– Tested module set for optimal application – Automation package consisting of components and vehicle software – Scalable for various customer applications – Standard components by SEW-EURODRIVE, optimized for your transport vehicle – Specific modules combined especially for your transport vehicle – Defined interfaces from automation package to the system control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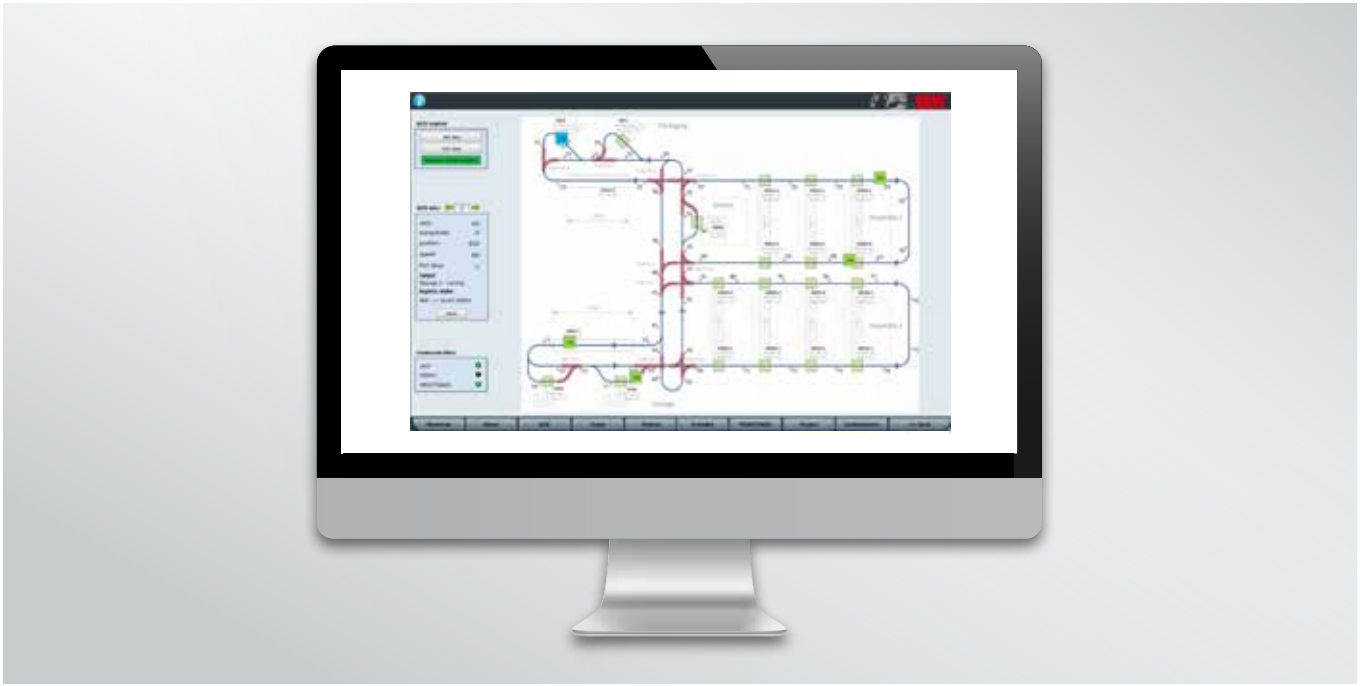
Project planning and control software
Assembly tasks



Our software for optimized assembly processes

Assembly controller
- Operation / diagnostics / visualization
- Track management
- Static routing
- The customer system steers the assembly assistant through the production site
- The customer system stores all information for visualization for machine operators

SEW smart order
- Operation / diagnostics / visualization
- Track management
- Decentralized material flow and vehicle control installed on the assistant
- Decentralized communication and intelligent interlinking of process modules and assistance vehicles
- Smart order includes all information on visualization for machine operators and order data

Using the assembly controller, you can integrate the assembly assistants quickly into a customer system and teach them to follow predefined processes. Known process sequences of the customer remain unchanged. Using SEW smart order, you can already introduce Industry 4.0 to your assembly processes today, without the need of significant changes to your existing IT system. A decentralized interlinking of various process modules and assistance systems allows for less communication with the higher-level systems. Individual process steps can be adjusted quickly and easily, without the necessity for complicated programming.

Project planning and control software
Transport tasks

Our control software for your systems, depending on the system complexity

Logistics controller
- Operation / diagnostics / visualization
- Track management
- Interface to the PLC or IT system for transport tasks
- Distance-related vehicle disposition
- Interlinked transportation tasks via a customer system
- Static routing
- Single-track concept for controlling junctions/switches/spur tracks

SEW logistics coordinator
- Operation / diagnostics / visualization
- Material flow and track management
- Autonomous or with interface to the IT system
- Management and disposition of load carriers and transporters
- Distribution management and consideration of running transport tasks
- Dynamic routing
- Logical locking for free routing on the tracks

Depending on the system complexity, we use the optimal modules from our modular software concept. The logistics controller is the optimal solution for simple transportation tasks, for example with single-track functionality and static routing. Using the logistics coordinator by SEW-EURODRIVE, you can experience Industry 4.0 in your logistics process today. The software connects the material flow to the controller and allows you to directly display and adjust your processes.

Project planning and control software
Virtual reality

Specifications	– Quick creation of the virtual world – Customer processes can be depicted in a computer-generated, interactive, virtual environment in real time – Support for product and factory planning – Allows for pre-acceptance of products and processes - Depiction of the material flow - Virtual startup – Reliable planning of investments – Ergonomic check
Description	– Makes it possible to virtually experience the processes – In the form of an intelligent 3D model, the digital twin enables realistic simulations in a computer assisted simulation environment, already during the planning phase – All aspects of operations and processes can be carried out in real time – Facilitates inspections of safety-relevant areas – Opportunity to assist training and education

INDUSTRY 4.0

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Further information

on our extensive product and service portfolio and MAXOLUTION® system solutions is available here:

www.sew-eurodrive.de/en/smart-factory

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