



# View to HANNOVER MESSE 2020

## Infrastructure solutions for powerful IIoT networks

The HARTING Technology Group will be showing off lots of new products and smart solutions at HANNOVER MESSE (20 April to 24 April 2020) again this year. And the HARTING motto for this year's HANNOVER MESSE is also 'Industrial Transformation'.

The HARTING Technology Group has been a pioneering force for innovation, major standards and industrial milestones for 75 years. The 75th anniversary will be celebrated at numerous events this year. HANNOVER MESSE in April will be the high point of all of these celebrations. The HARTING Technology Group is leading the way to industrial transformation with the claim 'All for Ethernet', setting new standards for industrial networks. Gaining in importance through the merging of the world of IT and automation, Industrial Ethernet cannot do without a reliable infrastructure fit for industry. HARTING recognised this need early on, creating in RJ Industrial\* the first RJ45 interface fit for industrial applications – a milestone and still the most widely used data interface. HARTING continued pursuing the path of constant innovation and serving market needs in 2016 with the ix Industrial\* interface for the familiar multi-pair ethernet. The next big step came after that: from ethernet via SPE into the field, for a smart connection of the last network participants to the IIoT.

### All T1 Industrial components for your IIoT infrastructure

Published on 23 January 2020, IEC 63171-6 created the basis for all future IIoT networks – and it hasn't changed. This doesn't mean that things have stood still, but that there has been ultimate agreement over a market-wide standard for SPE infrastructure, meaning investment security for users. On this basis, a comprehensive portfolio can be developed for the single-pair ethernet market.

Serial parts for the IP20 version of the T1 Industrial interface in the field assembly format in AWG 28-22 and overmoulded AWG 28-22 will be on show for the first time ever at HANNOVER MESSE. HARTING is also presenting the corresponding device socket for a robust and standardised SPE connection with the device. Device developers will get to see the first design-in projects at the fair.

### SPE Industrial Partner Network sees strong growth

The SPE Industrial Partner Network has more than doubled its

membership in just a few months. Starting with seven founding members, the number rose to 16 after the SPS fair in November 2019. Each company is a technology leader in its own right, specialising in different areas, which it needs to strengthen and complete the SPE ecosystem. This shared common basis creates the international standardisation for SPE infrastructure to IEC 11801-x, IEEE 802.3 and IEC 63171-6, to which all members refer. 2020 is the year of the SPE network. The network will be holding a series of interesting events at this year's HANNOVER MESSE.

### Han S®: secure connections for modular energy storage

The Technology Group has new products for the field of heavy-duty connectors. Han S® is the new secure connection technology for modular battery storage. The compact, flexible housing has room for contacts up to 200 A. The mounting housing is freely rotating and access to the locking mechanism is intuitive. Red for plus and black for minus with additional mechanical coding makes the interfaces interchangeable.

Han S® gives users optimum security, as the design meets all technical requirements and the latest UL 4128 standards for stationary energy storage systems. This means that the new connectors meet the highest standards demanded by the market.

The use of connectors speeds up the assembly of energy storage units made of lithium-ion cells. Global demand for this type of storage battery is booming. Manufacturers are having to connect more and more cells to systems. Han S® allows for rapid and standardised contact here. This makes the new connector an optimum solution for high processing volumes. Users can also depend on the connection working securely at a high production rate.

### Focus on DC connectors

For 75 years, HARTING has continually set high standards for new industrial interfaces. At present, there is a technologically demanding trend towards DC power transmission in the industrial environment, with significant growth expect-



ed for this type of power supply. In order to provide suitable installation technology for these applications, HARTING will be presenting new concepts of DC power transmission at the Hannover Fair 2020. The study of a new DC interface for industrial application will be presented, which is characterised by power and data technology. It transmits voltages up to 800 V as well as currents up to 40 A and cannot be pulled under load. In addition to the working groups of DC Industries, HARTING is also involved in drafting the DKE standards.

The project is the result of a cooperation between HARTING and the Smart Factory KL. At the Hannover Fair, future-oriented studies of the new DC interface at different levels of integration will be shown on the stands of both companies.

### Extended customising functions for Han configurator

The Han® configurator for industrial interfaces has a new customising function. It allows users to use the configurator to design individual solutions for cable entry points and apply labels. When configuration is complete, although it is an 'individual' product, all design-relevant data is available for download and users can order the customised solution. The new function makes for a continuous process: this goes from design to product development, production phase and assembly, enabling customers to design products easily on their own and have them delivered within a very short time. This makes individual interfaces affordable, even in smaller volumes. The amount of time for designing a new product is reduced, just as it is by the automatic quality inspection of the design. The configurator's new customising functions ultimately increase the range of available standards for clients. HARTING is using this technology to increase its product range and will be adding more and more customising functions to the Han® configurator.

### Increased cooperation with software developer PerFact

HARTING is pushing forward with the development of new technology. Announced at the SPS fair in Nuremberg in November 2019, the software partnership with PerFact is being expanded. HARTING and PerFact will be issuing more details at HANNOVER MESSE. PerFact develops professional IT solutions for industry. Linking machines via the Internet is a major aspect of remote machine maintenance.

HARTING interface delivers Power, Data, Signal for 'metroSNAP'

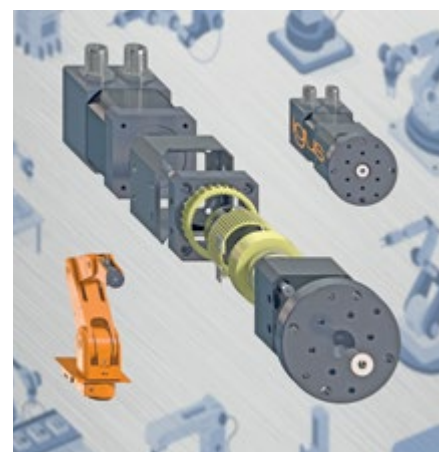
And the Swiss car maker Rinspeed will be at HANNOVER MESSE again this year. Rinspeed and HARTING are linked by a trust-based partnership going back many years. This year, the Technology Group is providing a specially designed interface to supply the vehicle with Power, Data and Signal. With 'metroSNAP', HARTING and Rinspeed are taking the next step towards mobility concepts of the future. Whether it's transporting people or goods – the vehicle is highly versatile. The HARTING module helps drivers to configure the vehicle quickly and flexibly for a wide range of tasks.

The HARTING Technology Group is one of the world's leading providers of industrial connection technology for the three lifelines of Data, Signal and Power and has 15 production plants and 44 sales companies. Moreover, the company also produces retail check-out systems, electromagnetic actuators for automotive and industrial series use, charging equipment for electric vehicles, as well as hardware and software for customers and applications in automation technology, mechanical and plant engineering, robotics and transportation engineering. In the 2018/19 business year, some 5,300 employees generated sales of EUR 750 million. Founded on September 1, 1945, the company celebrates its 75th anniversary at many trade fairs and events this year.

# Igus tribo-polymers

## At HANNOVER MESSE 2020 igus will show the next generation of robolink drive elements

In order to generate accurate movement along the 5th robot axis, the motion plastics specialist igus has developed new types of strain wave gears based on its tribo-polymer technology. Due to the use of lubrication-free high-performance polymers, they are not only extremely compact and light but also require very little maintenance and have an especially long service life. The latest generation supplements the gearbox series from igus and is part of the continually growing range of products for Low Cost Automation.



Tribo-polymers are used wherever the goal is an improvement of technical performance and a simultaneous reduction of costs. The advantages of tribo-polymers are especially apparent in the case of gearboxes: due to the use of iglidur high-performance polymers, strain wave gears from igus require no additional lubrication, in contrast to metal types of gear. Friction and wear are improved if lubrication-free tribo-polymers are used. At the same time, the use of plastics enables an extremely compact design and cost-effective manufacture. As a result of active research and further development of the strain wave gear, operating smoothness, backlash and service life have been optimised further by means of improvements in the technical design and

in the selection of materials. This especially applies to the latest generation.

### Strain wave gear made of lubrication-free tribo-polymers

The main components of the gearbox include a wave generator and a flexible ring with outer teeth, as well as an outer ring, fixed in place in the housing and a rotary power take-off element with inner drive teeth. The necessary flexibility and high degree of wear resistance are achieved through the use of lubrication-free high-performance igus polymers. The wave generator has an elliptical shape, therefore the surrounding flexible ring also assumes this shape. The drive teeth of the flexible ring engage at two places in the inner drive teeth of the outer ring and power take-off element. As the outer ring has two teeth more than the other components, the flexible ring is only moved two teeth further per rotation when the wave generator is rotated. Along the last axis of an articulated arm, linear robot or delta robot, the strain wave gear can be used before different gripper systems. Here, it performs the task of gripping objects that are not rotationally symmetrical and positioning them exactly. The current version is based on the installation size Nema 17 for direct connection to a stepper motor and can easily be adapted to other types of motor. The load bearing capacity of the strain wave gear has been determined in the test laboratory. With a transmission ratio of 28:1, the gearbox has a service life of 1 million cycles under a load of 1.5Nm and at a speed of 6rpm. As

a next step, there are plans to develop a size Nema 23 gearbox.

### Cost-effective automation solutions now possible

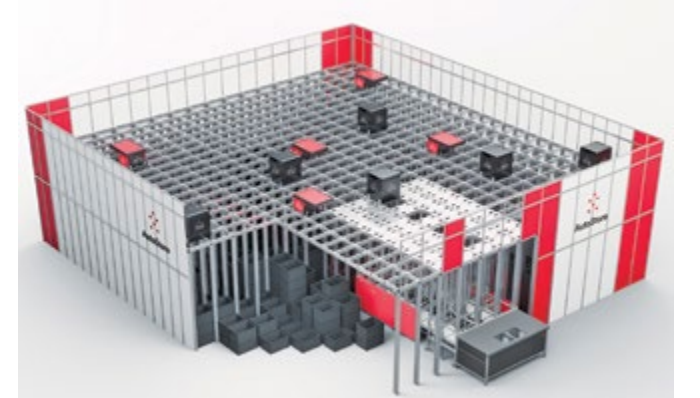
Like igus worm gears and planetary gears, strain wave gears are also part of the igus Low Cost Automation product range. These products can be used to develop cost-effective and long-lasting automation solutions for small and medium-sized enterprises – such as robots that can dispense coffee in the retail trade, perform pick-and-place tasks in the electronics industry or, in future, empty a dishwasher in the home. And all this is possible at a very favourable price: for example, a five-axis robot kinematics system from the igus robolink DP series costs around 3,500 euros, due mainly to the use of plastics, whereby the investment often pays for itself within just a few months. Last year, igus worked with partners to start the platform RBTX.com, which makes it easy to put together additional components such as gripper, control system or pneumatic components in order to create a full robotics solution. The platform brings users and suppliers of low-cost robotics components together quickly and easily. Interested parties can put together a low-cost robotics solution that matches their requirements and their budget exactly.

igus GmbH is a global leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 4,150 people around the world. In 2018, igus generated a turnover of 748 million euros from motion plastics, plastic components for moving applications. igus operates the largest test laboratories and factories in its sector to offer customers quick turnaround times on innovative products and solutions tailored to their needs.

# Revolutionary Micro-Fulfillment Solution

## Redefining the eCommerce In-Store Customer Experience

From April 20 to 24, 2020, AutoStore will present the future of retail at the Hannover Messe. To remain competitive, retailers require a presence across multiple channels – stores, online, social networking and mobile. Consumers also are demanding more choices, and are more willing to change the provider allegiance to get better value and service. Same-day delivery and immediate local-store pick-up are no longer perks for eCommerce consumers, they are expectations. With AutoStore's micro-fulfillment solution, retailers can operate an extremely efficient eCommerce sales channel including 24/7 Click & Collect service in parallel to a customer-oriented shop. In Hall 4 / booth A24 at the Hannover Fair, AutoStore will present the flexibility and scalability of its robot-operated container warehouse in order to cope with an increasing number of articles and SKU's as well as seasonal peaks in online order processing.

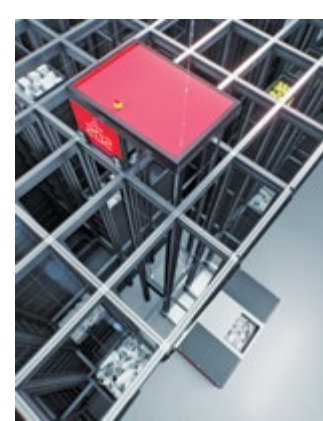


### Modular and Scalable Solutions with the highest density in the market

Perfectly suited for consumer in-store micro-fulfillment is AutoStore®, a modular, highly-automated eCommerce fulfillment system that is compact enough to be placed almost anywhere in-store, equipped to fulfill online orders fast and efficiently.

Peter Bimmermann, Business Development Manager AutoStore System GmbH, is convinced this year AutoStore's appearance in Hannover can be remembered as a gamechanger for the industry. "With the expectation of same-day deliveries in eCommerce, fast order fulfillment is essential to deliver on customer expectations. Managing retail eCommerce fulfillment from regional distribution centers cannot accommodate the demands of today's consumers, nor can it sustain cost efficiency. The automatic micro-fulfillment solution from AutoStore retailers can replace aisles with richer in-store experiences. This will eventually change retail as we know it. We are looking forward to present the AutoStore solutions at Hannover Messe."

AutoStore provides the highest density of any automated storage and pick system. Modular in



design, its micro-fulfillment solution can easily be configured to fit different store ceiling heights and obstacles.

### Click-and-Collect 24/7 or Last-Mile Delivery options

The efficient design and functionality of AutoStore's eCommerce micro-fulfillment pick-up points play a critical role in maintaining high-volume throughput for output workstations. Associates can consolidate eCommerce orders in less than 10 minutes, and put them back in the system for customers to collect at any time. And orders can be retrieved from the system in just a few minutes. Customers can decide their preferred option to collect pre-picked orders, whether

in-store, parking spot or home delivery.

### Fail-saved robotics for maximum system availability

AutoStore consists of a three-dimensional aluminum grid system of self-supporting bins that are moved to pick stations by independently-operating robots, providing swift and accurate movement of orders.

Each robot has two sets of wheels that enable it to move along perpendicular axes. This makes it possible for all robots to reach any position, and any bin on the grid independently – virtually eliminating the possibility of single-point system failure, providing near 100 percent system availability.

### From Online to In-Store

eCommerce fulfillment presents a significant challenge for retail stores. AutoStore's technology and extensive use-case experience is now being leveraged for extremely efficient micro-fulfillment of online orders in-store. Essentially, we have redefined the eCommerce in-store customer experience.

The AutoStore crew is looking forward to meet the media and prospective customers to present them the future of retail.

### Confirm Media Attendance

Meet AutoStore at the Hannover Messe in Hall 4/Booth A24.

The AutoStore Press event will be held Tuesday April 21st, 09:00 AM at the AutoStore booth. We will serve coffee, tea and breakfast snacks.

If you want individual meetings and interviews with the AutoStore Management, this can be organized by Anja Seemann.

Please confirm your attendance or book an interview on email: [autostore@anjaseemann.de](mailto:autostore@anjaseemann.de)

AutoStore, founded in 1996, is a robot technology company that invented, and continues to pioneer, Cube Storage Automation – the densest product/inventory storage solution in existence. The company's focus is to marry software and hardware with human abilities to create the future of warehousing. AutoStore is global, with more than 400 systems installed in 30 countries over a wide range of industries. All sales are designed, installed and serviced by a network of qualified system integrators – which AutoStore calls 'partners'. The company's headquarters is in Nedre Vats, Norway, with offices in the U.S., UK, Germany, Japan and France.

**HANNOVER MESSE 2020**  
**TRANSFORMATION IS EVERYWHERE. ITS HEART BEATS IN HANNOVER.**

**20 – 24 April 2020**  
**Hannover • Germany**

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