Weidmüller Information & News | **No. 23**

WIN!

Weidmüller

“We support companies on their way to a digitalised future”

Dear readers,

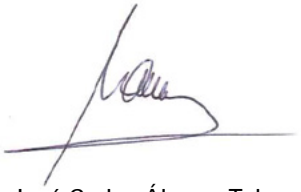
We have been experiencing a fundamental change in the industry for quite some time. Countless companies who had been sceptical about digitalisation and Industry 4.0 just a few years ago have literally flipped the switch. Today, we can see that the digital transformation has accelerated significantly and most companies already have concrete projects ongoing.

Much of this, however, is patchy and incomplete. We at Weidmüller are convinced that savings and gains in efficiency only become possible by comprehensive and coordinated concepts across the entire company. We are paving the way to this effect with our automation and digitalisation solutions which we will highlight in this issue of WIN! from different angles.

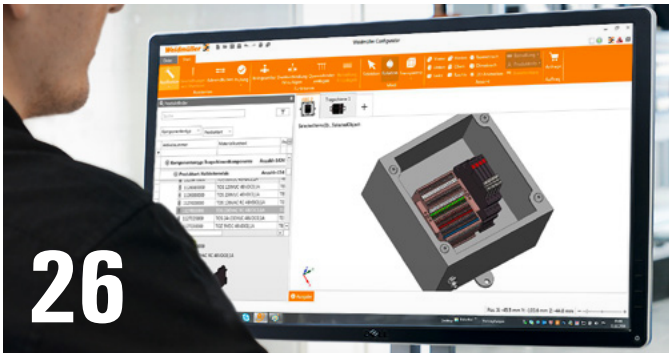
We assist companies with the development and implementation of an integrated digitalisation strategy in production, from the sensor to the cloud and beyond. On the path to a digitalised future, we work closely together with national and international research institutions and recently strengthened ourselves in the field of Human-Machine Interfaces with the acquisition of the software provider GTI – you will also learn more about that in this magazine. The SPS IPC Drives 2018 in Nuremberg, Germany, offers a welcome opportunity to exchange views with others about these and future developments. We would like to welcome you at the Weidmüller stand in hall 9 as well as at the stand of Weidmüller GTI Software in hall 7 from 27 to 29 November.

Let’s connect.

Kind regards,



José Carlos Álvarez Tobar
Chief Marketing & Sales Officer

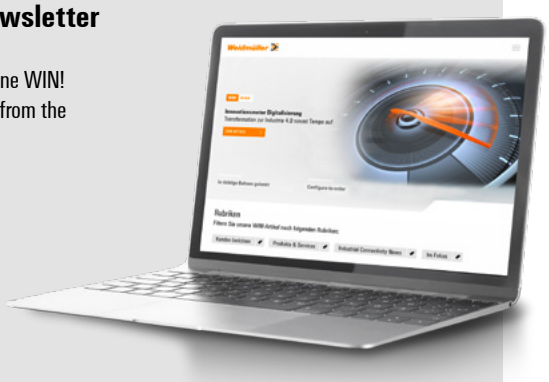


WIN! on the web and as a newsletter

The online version of our customer magazine WIN! keeps you updated with news and stories from the world of Industrial Connectivity:

www win.weidmueller.com

You can also register there for the WIN! newsletter, which regularly provides you with the latest articles.



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Changes to the Weidmüller Group Executive Board

Volker Bibelhausen takes on the role of Chief Technology Officer (CTO). Weidmüller has recruited a technology expert with excellent sector knowledge and international experience.

Volker Bibelhausen, Jörg Timmermann and José Carlos Álvarez Tobar (from the left) form the three-member Executive Board team

Volker Bibelhausen has held the position of the first CTO of the Weidmüller Group since 1 September 2018, and together with Jörg Timmermann (Speaker of the Executive Board and Chief Financial Officer) and José Carlos Álvarez Tobar (Chief Marketing and Sales Officer), forms the three-member Executive Board team. The Supervisory Board decided to create the new CTO position with the view of further embedding customer and technology expertise in the implementation of the corporate strategy at Executive Board level as well.

Elke Eckstein, former Chief Operating Officer, left the company at her own request on 31 August 2018. The Supervisory Board and Executive Board both regret the departure of Ms Eckstein and would like to thank her for her significant contribution towards Weidmüller's success, in particular in the area of digital transformation. In his new position as CTO, the internationally-experienced technology and industry expert Volker Bibelhausen can now seamlessly continue on from her work in this same area – with a particular emphasis upon forward-looking product development. The 52-year old has more than 25 years of leadership experience in automation technology and electronics as well as the automotive supply industry. His previous role was that of Vice President of Sales Original Equipment at Robert Bosch Car Multimedia GmbH.

Training, research and industry closely interwoven

Working in collaboration with the research institutes at Centrum Industrial IT (CIIT), Weidmüller has launched the Smart Connectivity Competence Center (S3C). In addition to the development of smart industrial connectivity, the focus here is upon industrial infrastructure and the digital description of products.

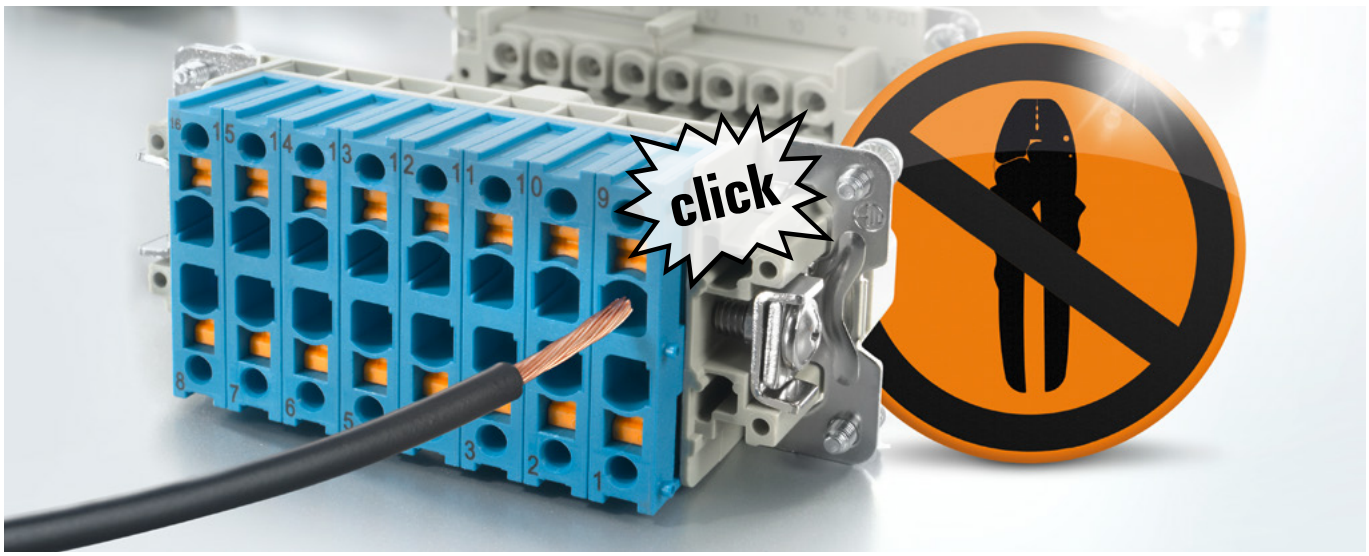
The new S3C is based in the independent CIIT research and development centre on Innovation Campus Lemgo, Germany. Connection and infrastructure solutions are developed in close cooperation with research and training, in order to support new business models and to promote the digitalisation of customer applications during the entire lifecycle of the systems. Planning, installation and operation will be designed more simply and efficiently as a result of intelligent components.

Plug-in connectors of the future

Due to the digitalisation trend, previously purely electromechanical components are also becoming intelligent and assigned additional functions that save costs and time. As an interface between the machine, control and IT, the plug-in connectors form the basis for the functionality, easy handling and reliability of automation technology. The integration of smart diagnostic functions is opening up new fields of application such as monitoring and data evaluation, making the use of additional sensors redundant.

When it all clicks into place

Weidmüller is revolutionising connection systems with Quick Termination (QT). Heavy-duty connectors can now be wired more reliably, efficiently and simply.



With an audible "click", the contact closes and establishes a safe connection. Tools are no longer needed for flexible, stranded wires.

Heavy-duty connectors from the Rockstar series are nowadays indispensable in machinery and plant engineering as well as the rail and wind industries. Depending on the type and application, inserts are available with different connection types. The new QT technology immediately speeds up installation and maintenance processes. With this, Weidmüller has systematically developed the spring-based push-in connection. For the first time, flexible, stranded wire connectors measuring from 0.5 to 2.5 mm² (AWG 20 to 16) can be inserted in open connection points without the need for tools. You no longer need to crimp wire-end ferrules, which thus saves both time and materials. Once the insulated wire has reached the correct position and triggered the spring, it is self-actuating. The QT inserts fulfil the same safety standards as conventional connections and offer a high level of reliability, even in the harshest environmental conditions.

More information

www.weidmueller.com/quick-termination

Growing family

Weidmüller acquires the majority of shares in GTI-control and GTI-process.

Since June 2018 Weidmüller holds 70 percent of the shares in GTI-control and GTI-process, based in the Lower Franconian town of Marktheidenfeld, Germany. Going forward, both companies are united and managed under the name Weidmüller GTI Software. GTI was created in 1987 as a technical data processing company. Nowadays, employing around 30 staff, it develops and sells software-based visualisation solutions for machinery and plant construction.

The HMI (Human-Machine Interface) products serve to perfectly complement Weidmüller's automation portfolio, u-mation. As a result, customers receive complete automation and digitalisation solutions from a single source. For GTI, the partnership opens up new sales engineering potential. The sectors of software development, support and engineering for control system projects are to be developed likewise.

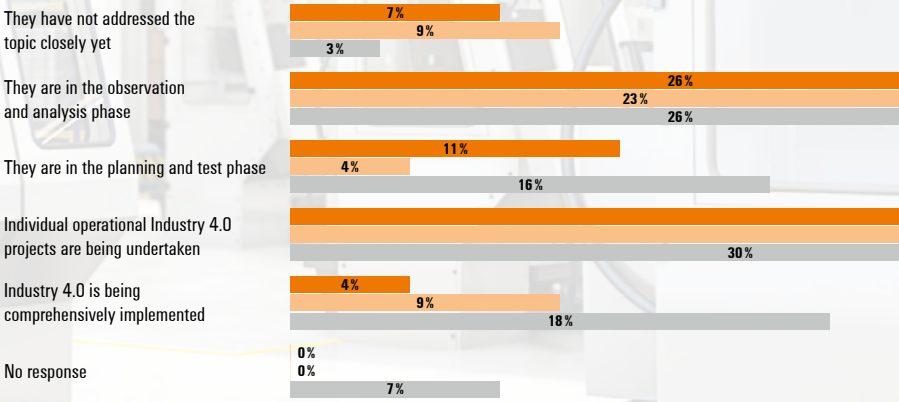
More about u-mation on the next page ►

Digitalisation: the driver of innovation

Transformation to Industry 4.0 is picking up speed


KEY MACHINE INDICATORS
MACHINE LEARNING
OPERATIONAL STATE
ANOMALY DETECTION
ANOMALY CLASSIFICATION
PREDICTIVE MAINTENANCE
PREDICTIVE QUALITY
USER PROFILE DATA PROTECTION
ON

How far have companies progressed towards the smart factory?



Current studies show that digital transformation within German industry has picked up speed noticeably recently. Weidmüller too is taking big strides in the direction of Industry 4.0. With u-mation, the Detmold-based company is continuing along its strategic path towards becoming a supplier of holistic automation and digitalisation solutions.

According to the outcome of a recent survey carried out by the Weltwirtschaftsforum[1], Germany is one of the world's most innovative countries. The German economy achieved fourth place in the global digitalisation rankings. The Industry 4.0 Index 2018[2], which surveyed a total of 450 German companies, confirms that these days, Industry 4.0 concepts and solutions are widely deployed domestically. Over half of the companies surveyed (52 percent) have already implemented local or even company-wide projects. In comparison, four years ago, this was the case with just 15 percent of the companies. In this year's survey, some 10 percent of the companies admitted that they had not yet addressed the topic of digitalisation. However, trend researchers say that is only a question of time until the technological development starts to kick in for the remaining 10 percent. This is because of increasing pressure from the competition, if for no other reason.

Potential is a long way from being fully exploited

The courage to embrace change is clearly present in German industry but the potential is still a long way from being fully exploited. Currently, the emphasis across industry is to a large extent on individual projects, while comprehensive digital transformation is taking place principally in the automotive industry. Here, about 20 percent of the companies can already be designated as being a smart factory.

But holistic digitalisation and automation concepts are increasingly being called for, even in mechanical and plant engineering and in the electrical engineering industry. As part of the move towards Industry 4.0, interaction with machines will change in many respects, not just in terms of the processes but also as a result

[1] The Global Competitiveness Report 2018, Klaus Schwab, World Economic Forum
[2] Deutscher Industrie 4.0 Index 2018, A survey by Staufen AG and Staufen Digital Neonex GmbH

The development towards the smart factory is at very different levels in different industries. The automotive industry is clearly leading the way with end-to-end operational concepts. Here, Industry 4.0 is already fully operational in almost a fifth (18 percent) of the companies. At 4 percent, mechanical and plant engineering has a lot of ground to make up in this respect. Here, as with the electrical industry, the emphasis currently tends to be on individual projects.

of the requirements for analysis, maintenance and operation option that are being placed in machines.

These current trends are being reflected at Weidmüller in the growth figures being returned by the Division Automation Products & Solutions, which, in comparison to last year, have increased by 25 percent. This good result can be credited to the strategic combination of the disciplines of automation and digitalisation. Today, Weidmüller is bundling a holistic offering of modular automation hardware and versatile engineering software that is combined with some sophisticated digitalisation solutions, under the name of u-mation. This also includes the area of Machine Learning that falls under the remit of the Industrial Analytics business unit. ▶ Page 12

With u-mation, Weidmüller is creating the basis for the intelligent connection of all process levels, from the sensor to the cloud and beyond.

Modular and flexible

The central element of the portfolio is the u-control 2000 controller, which is compatible with the remote I/O system u-remote and the u-create software family. Many different application options can be created as the individual elements can be freely combined with each other. So for example, the main controller of a stand-alone machine or even a complete production line can be implemented, using the controller module and the u-create studio engineering software. In combination with the browser-based application u-create web, it is possible to commission decentrally produced machine parts from a remote location. The increasing demand for IoT solutions has also been catered for. Using the u-create IoT software, which is also browser-based, sensor information can be pre-processed and sent to a cloud. One of the uses for this function is the implementation of data processing measures, such as remote maintenance or Analytics solutions. As applications become ever more complex and more diversified, intuitive operation has an important role to play. The interface between human and machine is created by the high-resolution u-view multitouch panels and the Human-Machine Interface (HMI) software u-create visu, a web-based visualisation solution developed by Weidmüller GTI Software, which has been a part of the Weidmüller Group since June 2018.

A glimpse into the digital future

The future in the area of digitalisation and automation is clearly defined. In the smart factory, central control mechanisms will successively be replaced by intelligent networks. Machines will interact directly with each other, in order to organise their processes and to carry out continuous optimisation. The software will thus gain even more importance in the years ahead. At the same time, data-based analysis processes will offer more options to extract added value from the available data, resulting in the further expansion of high-margin service business, for example.

Manufacturing companies, which today are already laying the foundations for Industry 4.0 through individual projects, will be focusing increasingly on cross-functional and holistic concepts, going forward. Weidmüller is supporting them with solutions that offer end-to-end communication. In the future, Industrial Connectivity will also represent a significant part of the automation and digitalisation offering. In addition to this, hardware, software, engineering and consultancy will be combined intelligently, to support customers as they embark on their digital transformation journey.

This is how the solutions work together

Machine Learning

Data recording and selection
Visualisation
Machine learning
Anomaly detection
Predictive maintenance

Industrial Analytics
Customised Industrial Analytics modules learn from machine and production data and as a result, can indicate deviations from normal behaviour early on. Armed with this knowledge, maintenance interventions can be planned in a targeted way and downtimes can be minimised.

Digitalisation (IoT)

Extract from the IoT portfolio

u-control 2000 with u-create IoT
Communication-capable components like the Protop power supply ► continuously deliver information about the device status, signals and data. In combination with the web-based software u-create IoT, the u-control 2000 controller provides the option of preparing sensor information from u-remote I/O modules and forwarding it directly to the cloud.

Automation

Extract from the hardware portfolio

u-control 2000
The 54 millimetres wide controller is based on the compact fieldbus coupler from the u-remote I/O system. It can be used in combination with the u-create studio, web, IoT and visu software solutions.

u-remote
The electro-mechanical I/O system is available as an IP20 version for the panel or with IP67 rating for field deployment.

u-view
The high-resolution panels have intuitive multi-touch functions and are designed for the use with web-based visualisation solutions such as u-create visu.

Engineering Landscape

u-create studio
The Codesys-based engineering software is suitable for object-oriented programming in a standardised development environment. It can be expanded through individual software modules.

u-create web
With this web-based application, the browser turns into an engineering platform. The platform- and device-independent access allows you to carry out programming, configuration and system parameterisation in accordance with the IEC 61131-3 standard.

u-create IoT
This software, which is also web-based, allows data to be transferred to a cloud via Node-Red. It is used for the implementation of different IoT applications.

u-create visu
The human-to-machine interface is provided by the HMI software. The client/server architecture enables the rapid integration or exchange of terminal devices without having to configure the software locally.

More information

www.u-mation.com

Strong in communication

Protop power supply fit for digitalisation

Cutting-edge Industry 4.0 solutions require the continuous exchange of data, from the sensor to the cloud. The high-end power supply Protop is prepared for these demands.

Communication-capable components enable relevant operational data to be recorded and forwarded to suitable software or the cloud for further evaluation. Protop forms the basis for this with an add-on communication module that can be retrofitted at any time.

The features

Protop can continuously determine relevant values such as output voltage and current, operating hours and internal temperatures, and transfer them to cloud-based solutions. There is also the option for permanent data analysis, in order to plan service interventions more effectively and detect imminent errors before they occur. The power supply thus plays an important role in digitalised and predictive maintenance and in intelligent remote monitoring. In addition to the pure status message, a precise error pattern is created based on the data, which can then be used to better prepare for a service intervention.

DCL (Dynamic Current Limiting) technology generates a very high dynamic range. The surge current capability enables the bearing of peak loads of up to 600 percent of the usual current value, in order to safely trigger circuit breakers or give motors a powerful start.

ORing MOSFETs for the construction of highly-reliable and redundant power supply systems for critical areas are integrated directly into the devices with Protop.

This means that external components such as diode or redundancy modules are no longer needed, thereby reducing the system costs while increasing operational reliability.

With an efficiency of up to 95.3 percent, Protop also provides for lower energy costs in production. In an average system with around one hundred 960-Watt power supplies, around 50 Kilowatt hours are saved every day on three-shift operation. Every year this amounts to more than 15,000 Kilowatt hours. The service life, which is around one and a half times that of standard power supplies, also reduces the costs of replacement and exchange.

More information

Power supply Protop:
www.weidmueller.com/protop

Data: a science unto itself

Ensuring success with domain expertise and artificial intelligence

Vast numbers of sensors record data in machines and plants. When analysed correctly, these data can improve manufacturing processes and guarantee high-quality products. The Industrial Analytics business unit develops the models required to do so in close cooperation with customers, and customers can participate in the data and the model development themselves.

Various data sets, called features, can be drawn from machine and plant data. These data can be evaluated automatically using artificial intelligence (AI). This, for example, includes the temperature, pressure, power consumption and vibrations. Experience from prior projects shows that the machines and plants typically are already recording all important data. In most cases, no additional sensors are required. The actual challenge is recovering hidden information from the data and to recognise relevant correlations. This is where Industrial Analytics from Weidmüller comes into play.

Detecting and classifying anomalies

There are many causes that may disrupt the smooth operation of a plant. These include, for example, air bubbles in the cooling circuit resulting in lower cooling capacity or gear backlash causing imprecise movements. The Weidmüller data scientists develop models using artificial intelligence that recognise such deviations from normal behaviour, that is anomalies, in real-time data. The scientists use historical data as a reference which provide a typical pattern for the operation of a machine over a set period of time.

During the anomaly classification, recognised deviations are then placed into categories from Important to Unimportant and important anomalies are assigned to a cause for the error. Machine operators can use this information to react to problems faster and even recognise malfunctions which may have otherwise gone undetected. A faster diagnosis ultimately reduces downtimes, which results in lowering costs and an optimised production output.

Double success at the German Innovation Award

Weidmüller receives the German Innovation Award 2018 twice in the "Excellence in Business to Business" category.

Dr Markus Köster, head of Research and Development in the Industrial Analytics business unit (l.), and Tobias Gaukstern, head of the Industrial Analytics business unit (r.), accepted the award for the software solution in Berlin

Weidmüller received the German Innovation Award 2018 twice in the "Excellence in Business to Business" category. The independent jury awarded the prize for the Industrial Analytics solution for predictive maintenance and data analysis, and the campaign for the launch of the new Klippon Connect terminal block range. Weidmüller won the prizes in the categories "Connectivity" (Industrial Analytics) and "Machines & Engineering".

In their assessment, the jury of the German Innovation Award emphasised the integrated approach of the Industrial Analytics solution customers can use to promote their digital transformation and place a particular focus on the high-margin service industry with. The prestigious prize is awarded across industries for products and solutions that are primarily characterised by their user focus and added value compared to previous solutions.

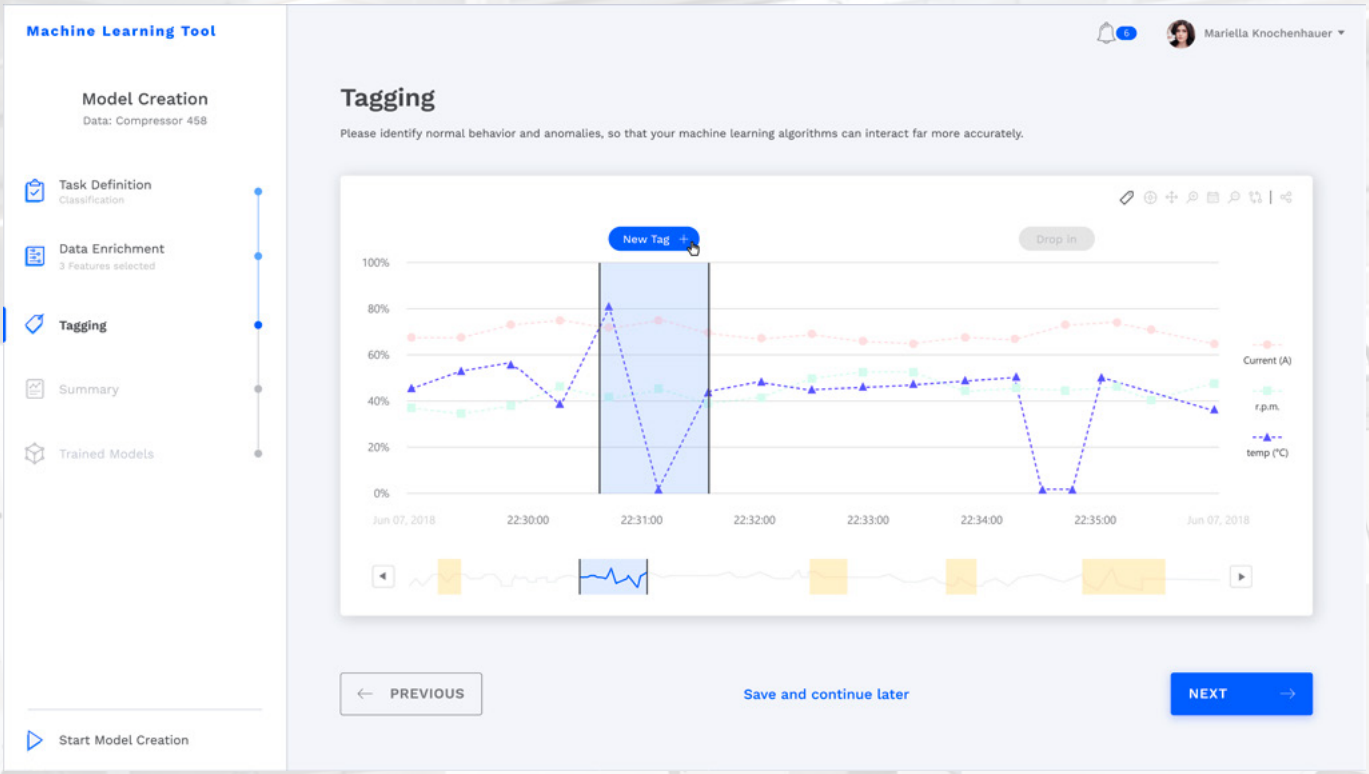
Feature engineering recognises complex patterns

Feature engineering is an important technology for developing reliable AI models. In this approach, measured values are considered in complex statistical correlations. For this purpose, for example, correlation coefficients are formed which represent interrelated changes of two or more features over the course of time. The data scientists use historic machine data to develop new features. The goal is to recognise deviating patterns even better and more reliably than would be the case simply using the raw data. One example: high-frequency signals, such as from vibration measurements or frequency converters can be split up into different frequency ranges with their corresponding components of the output signal based on mathematical methods. The model learns the signal components characteristic for the normal behaviour of a machine. These components are a better indicator for possible malfunctions than the original signal.

It's up to all of us

Since the data sets must be interpreted and evaluated based on the concrete machine or process behaviour, feature engineering requires comprehensive application knowledge. The data scientists' expertise, the mechanical engineer's or machine operator's application know-how as well as the knowledge already acquired are all equally important for finding answers that will result in a practical solution. Only an application expert can assess whether or not an anomaly actually represents a machine error. The expert helps the data specialists to construct the algorithms that correctly describe the normal operational status as well as possible deviations and anomalies.

Models based on AI are currently already in use for numerous applications such as packing machines, in filling technology and materials handling as well as for robotics. At Weidmüller, these models result in software tailored towards the individual user. The software constantly monitors and predicts the behaviour of the machine and applies the data as well as the results of the analysis to a visualisation. UI experts design the user interface individually so that every customer gets a solution matching their field of application.

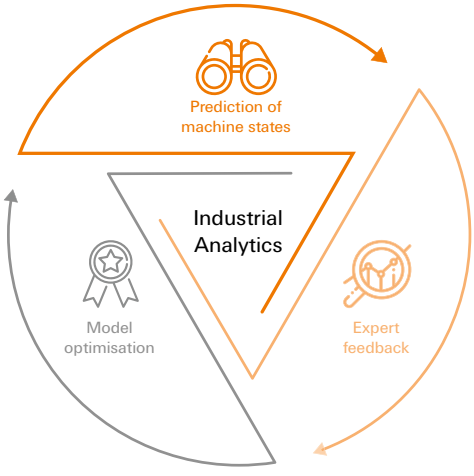


The visualisation makes it easier to keep on top of the current status of the machine. For this purpose, individual time ranges can be viewed and tagged with information which should be included in future data assessment. In this example, the yellow highlighted areas show potential anomalies that the algorithm identified to the user. Users can also look at these areas to indicate whether or not this in fact is an anomaly. In this manner, the model continues to learn and can classify future statuses more precisely.

However, a new AI-based model is not initially able to depict all potential future mistakes and statuses of a plant, especially when they are not or only very rarely contained in the historic data. The Industrial Analytics modules are therefore designed in such a way that users can update, expand and refine their model themselves over time. The Weidmüller data scientists will of course provide support to customers, if required.

Using features for success

Feature engineering is the key to the success of an Analytics solution. Weidmüller combines the requisite application knowledge and technical expertise on the physical correlations with data science know-how. Thanks to the option to develop AI-based models independently, mechanical engineers and machine operators can significantly increase their model performance without revealing their domain knowledge.



More information

www

industrial-analytics.weidmueller.com

Guided along the right track

Simple power distribution along the conveyor lines at DHL Express

The Fieldpower energy bus system and pre-assembled cables from Weidmüller allow minimum cabling effort during the implementation of a state-of-the-art parcel centre.

Deliveries from all around the world are collected at the parcel centre of DHL Express Switzerland where they are then sorted into collective deliveries for each destination region and transported by lorries to Germany, France and Switzerland. Urgent documents and goods are delivered by a DHL plane from nearby Basel-Mulhouse Airport. The only airport in the world to be operated by two countries, it has a French and a Swiss customs area and is also key for the southwest of Germany.

9,000 parcels per hour

In order to meet the sustained growth in the parcel sector, DHL Express commissioned the implementation of an innovative sorting centre in one of the surrounding halls. The high level of automation at the new system means that parcels are handled quickly and reliably. They are transported along five high-speed infeed conveyors to a cross-belt sorter – which forms the centrepiece of the plant and boasts a

peak throughput of 9,000 parcels per hour. Its scalability and the intelligent software ensure that the performance of the facility increases as the volume of parcels grows.

The scope of delivery also includes around 1,200 metres of conveying technology. Three X-ray machines were integrated in the facility for screening parcels as part of security operations at the airport. Spiral chutes, storage chutes and ULD (Unit Load Device) chutes are used to make sure the deliveries are forwarded and transported away with care.

Automation task solved cost-effectively

The transport conveyors in the sorting system are equipped with a total of 270 drives including 24V motor boxes. In order to minimise the cabling effort, several drives are supplied via one single cable with bifurcations. Fieldpower is used to distribute power along the conveying section.

The new sorting and conveying system at DHL Express needed a clever connection technology

Arno Priller from Weidmüller (r.) explains to the responsible commissioning engineer (l.) how easy it is to arrange the decentralised functional units

How it works

“One single cable is required to connect several drives. The uncut cable is partly stripped and the insulated part is inserted in the contact system of the Fieldpower box,” explains Arno Priller, Global Key Account Manager at Weidmüller. “Assignment errors are pretty much eliminated thanks to colour coding.” The individual wires of the power cable are contacted via IDC (Insulation Displacement Connection) technology, a patented cut-and-clamp contact with external spring. The contact element is moved by 90 degrees using a screwdriver. A contact unit with push-in can be used to connect incoming or outgoing cables measuring 0.5 to 10 millimetres.

Above all, the simplicity of the technology is impressive. The branch lines and the functions integrated into the cover, which can be expanded depending on the application, are simple to attach. The uncut cables cannot be inverted and they ensure the constant impedance behaviour that is required in the event of a short circuit for triggering the protective device. Compared with “in and out wiring”, whereby motor control devices are disconnected for measuring the impedance behaviour and must then be reconnected again, the impedance behaviour is simple to verify with Fieldpower thanks to the plug-in feature.

Installation express at DHL Express

In order to speed up implementation of the project at the parcel and logistics service provider even further, pre-assembled sensor-actuator cables with plug-in connectors from Weidmüller were also used. These enable precise controlling of the motor control units and simply need to be plugged in on site. Pre-assembly enables significantly shorter commissioning times and the avoidance of installation errors.

More information

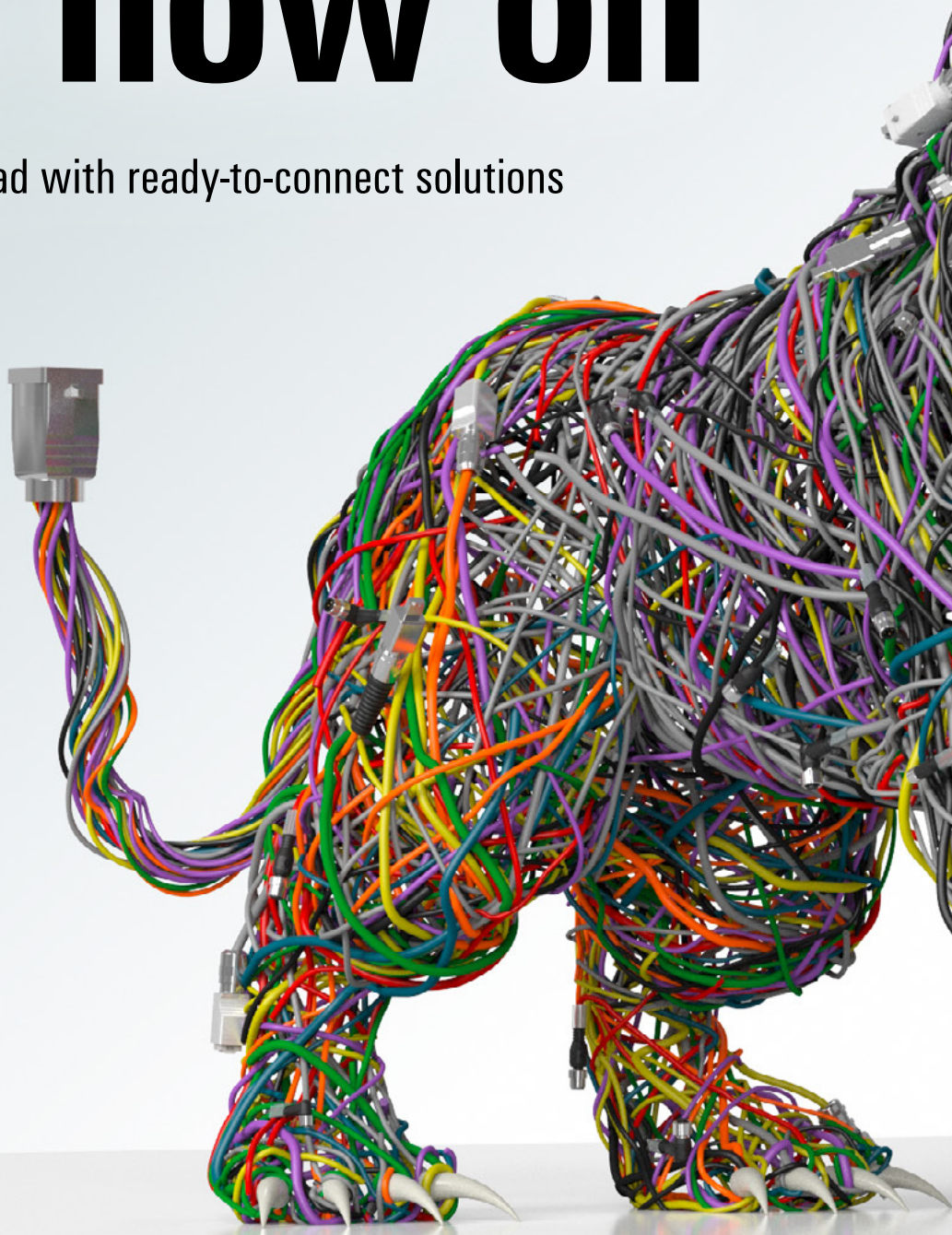
Assembly of a Fieldpower box:
www.weidmueller.com/fieldpower

WIN!

Article about ready-to-connect cable solutions on the next page ▶

Harmless from now on

Reduced cabling workload with ready-to-connect solutions



Requirements for cabling are growing. A more and more intelligent networking of the systems as well as the shift from functions into the device and field level increase the complexity and quantity of the cabling. Plug-and-produce solutions from Weidmüller provide assistance in this undertaking.

Standardised and custom solutions are currently in demand for a growing number of cabling tasks. Due to the trend towards decentralisation of the system supply, the need for cable harnesses and tailor-made cable sets is increasing. More and more projects require individually tailored connection and cable solutions. The deep understanding of these requirements results in an offering at Weidmüller that lets customers construct their planning, procurement and installation processes more efficiently. This includes consistent connection solutions from IP20 to IP6x as well as services that help users focus more strongly on their core business.

Cable assembly as required

In addition to pre-assembled standardised solutions in the online catalogue, configurators for different types of connections are available. Users can select the material, cable length, and number of poles as needed in the configurators. Sensor-actuator interfaces and Industrial Ethernet solutions (copper plus FO) can be created according to the user's own requirements and specifications. Users can individually specify whether the cables are configured on both sides with identical or different connector faces or one-sided with an open cable end. In addition, technical documentation is generated for every configuration and offered as a download. This results in faster processes from procurement to installation with consistently high quality. The products are failsafe and tested for continuity and short circuits.

Tailor-made connections

Weidmüller also offers custom concepts and all-in solutions in addition to pre-assembled, standardised interfaces. Consistent connection solutions from

IP20 to IP6x can be offered from one source based on decades of experience and a comprehensive portfolio of plug-in connectors. The service ranges from consulting, selection of suitable interfaces and assembly to the modification and new development of complete cabling solutions. The possibilities are almost endless. The article below presents an optimised cabling concept featuring modular heavy-duty connectors with special tubing for challenging environmental conditions.

More information

www.industrial-cable-assemblies.com

Four-into-one

Optimised supply interface for tunnel boring machines implemented

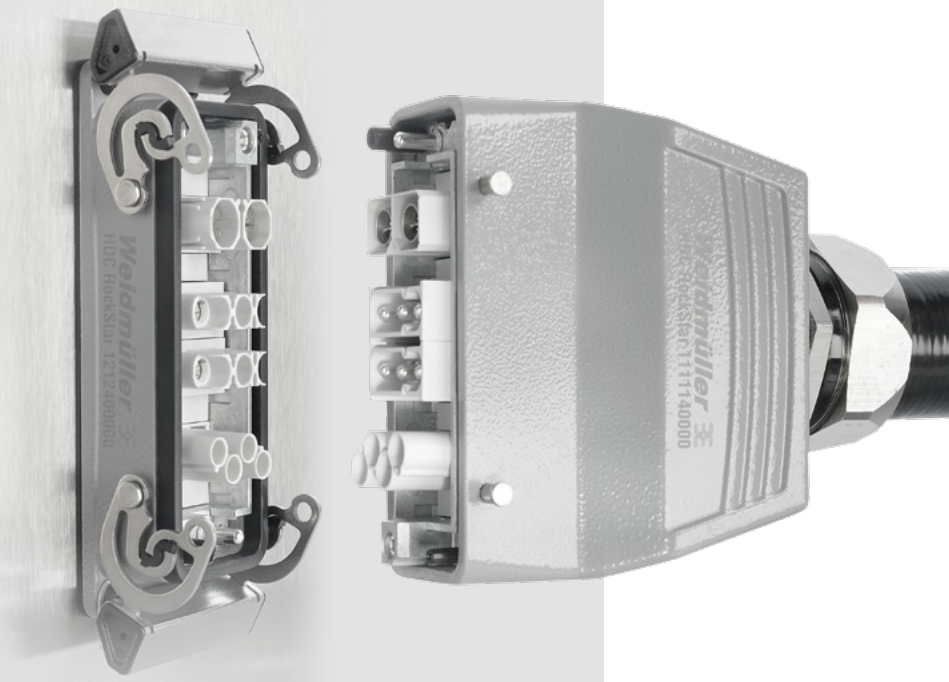
The customer had originally only asked for a product for the Ethernet interface. During a visit on site, the Weidmüller team, however, spotted that the processes of the manufacturer of tunnel boring machines can be designed much more efficiently with suitable connection solutions.

Powerful and at the same time flexible connections for data, signal and power transmissions were required between the machines and the control container. Up until that point, the company had been assembling the cables with four connectors itself. During the building processes these connections had to be reconnected about every 60 meters. For tunnel projects of many kilometres, these retooling times quickly add up to substantial sums.

The solution

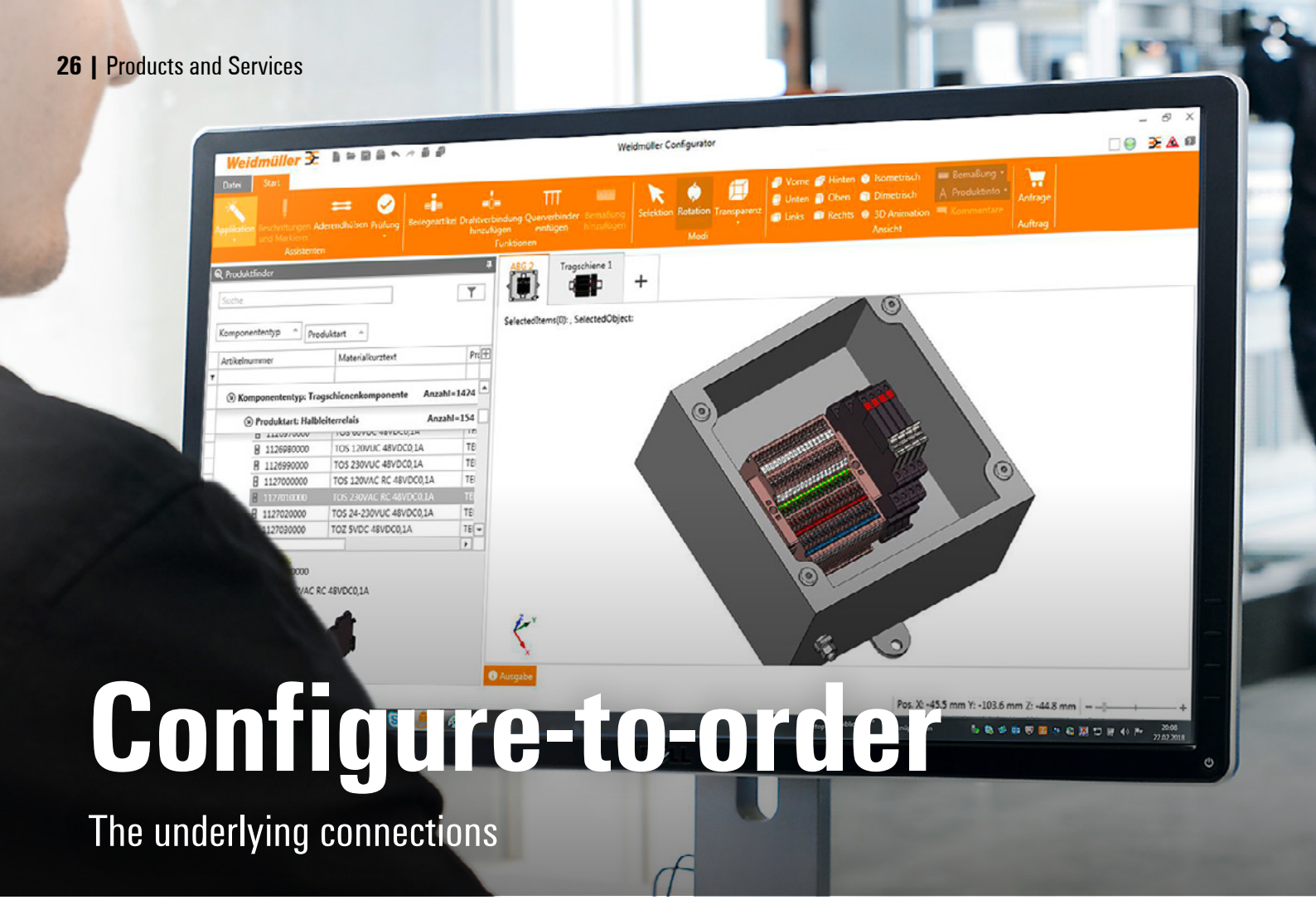
After a careful analysis of the requirements, the suggestion from Weidmüller was to integrate the previous four connectors into a single solution. The final product was developed, planned, and implemented together with the customer. The result is a supply interface based on the system of the modular heavy-duty Rockstar Moduplug connector. The supply interface makes the installation on the machine easier by transferring data, signals and power at the same time. Adapted to the working conditions in tunnel construction, the cable solution was designed according to the IP65 degree of protection.

The connection convinced the customer and proved its robustness, reliability and more efficiency in equal measure compared to the previous connections. Further solutions are already being developed for different plant sizes.



More information

www.weidmueller.com/hdc-rockstar



Configure-to-order

The underlying connections

Customers achieve greater efficiency in panel building with the Klippon Service Configure-to-order. Products are provided pre-assembled and ready-to-install with a minimum order quantity of one – immediate quotation and fast delivery included.

Tight schedules are part of everyday life in panel building. It is difficult to plan today what the customer will need tomorrow. The Klippon Service Configure-to-order makes it possible for panel and machine builders to order pre-assembled products, such as terminal blocks or complete housings, rather than individual components, as and when required. This results in simpler and faster processing and installation.

Users can direct greater focus towards their core business. No more need for costly storage. The laborious manual assembly process is replaced by digitalised and automated processes, which also reduces the number of errors, as individual components and order numbers no longer need to be manually identified and recorded. This minimises the fixed costs and administrative effort while ensuring that costs are continually controlled.

Digitalised added value

Configure-to-order integrates into the existing workflow of the ECAD system through to installation and – with a minimum order quantity of one – is also ideal for individual production and smaller projects. With the

The customer is given access to the Configure-to-order service via Weidmüller Configurator (WMC). The software is available as a free download on the Weidmüller homepage.

WMC (Weidmüller Configurator) software and a high-performance delivery service, users receive an individual quotation within minutes of submitting a request, including part numbers that can be ordered directly, and the ready-to-install product in the required quantity after five days. If data sets from an ECAD system such as ePlan P8 or Zuken E3 are already available, the process is even easier. The existing data can be imported via an integrated interface. The 3D configuration environment and the integrated object dependencies of the components facilitate configuration and marking in panel building. The basis of all this is formed by the components and processes that are designed for the automation of panel building in accordance with the motto "ready-to-robot". ►

Self-defined lead time

Configure-to-order is tiered into several service levels. For a selected product range, the four-day Fast Delivery Service offers the shortest production time. Deliveries within Germany are usually fulfilled within one day, which means that the customer can receive the assembled product after five working days. The nine-day Delivery Service also covers a wide product range with reliable availability. For individual configurations, there is the Direct Offer Service. Here, the availability of the components used defines the speed of the delivery.

The Configure-to-order assembly service is currently available for the Klippon Connect terminal blocks, the Klippon Protect machined empty enclosures as well as assembled enclosures with terminal rails and add-on components such as cable glands or sealing plugs. Once activated, the free-of-charge, intuitively operated engineering software can be used to its full extent. Weidmüller offers regular webinars and training for users who wish to have a more extensive understanding of the software.

More information

www.weidmueller.com/cto

"Ready-to-robot"

What digital automation means for panel building

Automated processes in panel building allow error sources to be reduced, procedures to be speeded up and costs to be cut. However, these things can only be achieved if the components, digitalisation technology and automation technology fit perfectly together. Therefore, Klippon Connect terminal blocks from the A-Series were designed from the very outset to be "ready-to-robot".

Once an order for assembled terminal rails is placed via the Weidmüller Configurator software, automated processes are launched immediately. Thanks to the consistent availability of data, all the relevant information for semi-automatic assembly can be read from the order. Lengthy feedback loops are a thing of the past.

Automation of the assembly process, among others, is made possible through the optimised shape of the terminal blocks. Over the last few decades, the focus has consistently been upon ease of handling for the users. The side recess grips are one such example. Automated assembly, on the other hand, has different requirements. The Klippon Connect A-Series was therefore designed with grip-optimised outer contours right from the start. The parallel outer surfaces make it easy for robots to handle the terminal blocks too.

Data, data, data

The automation of further process steps was also taken into account for the A-Series. The push-in connection system simplifies automated wiring, and the reduced number of labeling angles simplifies fully-automatic labeling. Besides the design, information is also key here. For instance, when performing wiring tasks, robots require the optimal insertion angle for the wire and when labeling they need to know the inclination of the labeling area. For this reason, Weidmüller is already providing its customers with relevant data that exceed the eCl@ss standard.

Perfectly integrated, cost-effectively marked

Garo counts on Multimark for panel marking

The Scandinavian system provider for electrical installations, Garo, counts on solutions that fit perfectly in its process chain. That is why only Multimark, the cost-effective marking system from Weidmüller, comes into question for marking its panel components.

Regardless of whether charging stations for electric cars or panels for large sports arenas, Garo manufactures intuitively operated products with high quality standards for its customers. “We develop installation solutions that always have to fulfil increasingly varied tasks. We believe, however, that growing complexity need not affect the ease of use. On the contrary: our aim is to develop easy products that allow installation and service calls to be handled as efficiently as possible,” Hans Martinsson, Production Manager at Garo Montage, summarises the company’s guiding principles.

Great partnership: Hans Martinsson from Garo (l.) and Claes Lindgren from Weidmüller (r.)

Details in focus

To meet its own expectations, Garo is always looking for ways to optimise its processes. This also includes marking all panel components. For functional identification, a system is needed whose handling fits reliably and easily into daily routine work.

Garo has long since put its trust in the Weidmüller marking system. The interaction of software, markers and printers simplifies the entire identification process – an advantage that makes a positive impression in daily use: "The printers and software are easy to operate and every employee is familiar with the system," explains Hans Martinsson. "That accelerates our entire procedure."

Compact and needs-based

Besides the Printjet Advanced ink-jet printer and two THM Plus S thermal transfer printers, there have been four compact THM MMP thermal transfer printers from the Multimark system in daily use at the headquarters in Gnosjö, Sweden, since the beginning of 2017. Thanks to the integrated cutting and perforation option, they process all labels from the Multimark family, but also textile and polyester labels, shrink sleeves and PLC labels. The demand for cable markers is especially high at Garo: practical continuous materials are used to produce more than a kilometre of cable markers per week. The latest device, also a THM MMP printer, has already printed over 2,000 metres in the first half-year.

All printers are controlled with software which is adapted to the Weidmüller marker material: M-Print Pro not only enables the individual design of all markers, it also includes CAE interfaces for smooth data import from the planning software. Moreover, every marker can be assigned to a suitable printer, so that all identification labels are always output on the right material – even when speed is of the essence. M-Print Pro thus contributes to more efficient material consumption and helps reduce operating costs.

Sustainability assured

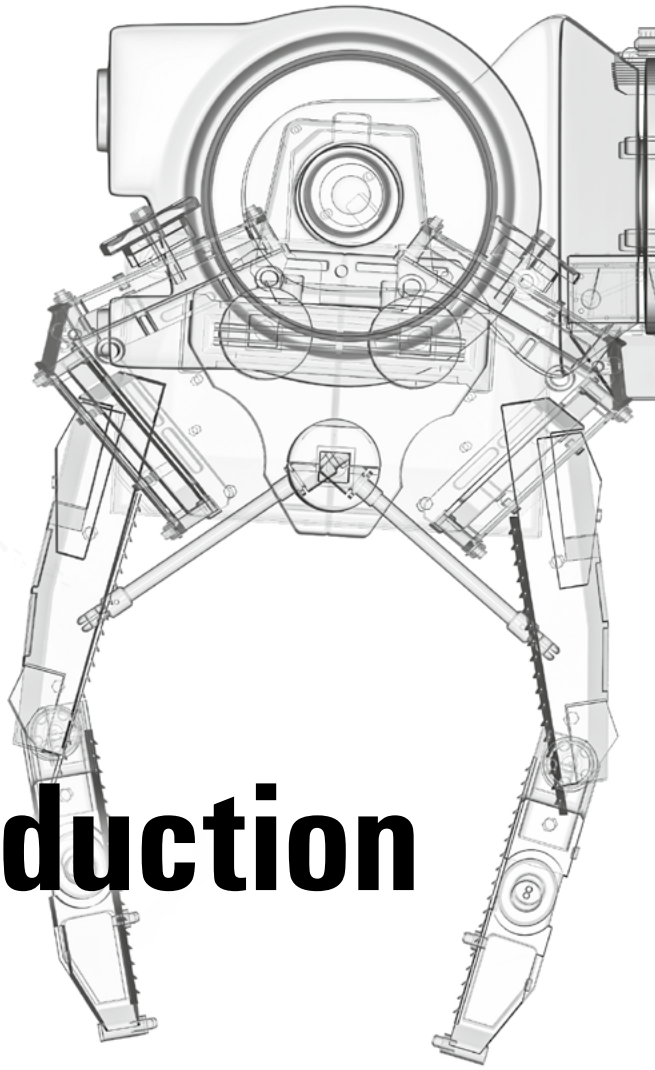
The high quality of the markers is another decisive argument for the use of Multimark: "At Garo, we place great importance on safety and environmental protection. We therefore only use plastic markers manufactured without halogenated flame retardants for our installations," confirms Hans Martinsson.

Starting with its sites in Sweden, Finland, Norway, Ireland and Poland, Garo delivers its products throughout Northern Europe. The marker solutions from Weidmüller are always included and ensure a rapid overview, for example in the Tele2 Arena and the Friends Arena – two of Sweden's biggest football stadiums.

All markings are readily identified and resilient, even towards adverse conditions. The simple assembly of the markers also speeds up the installation process.

More information

www.weidmueller.com/marking



Full speed ahead with automated production

Weidmüller joins CRIA

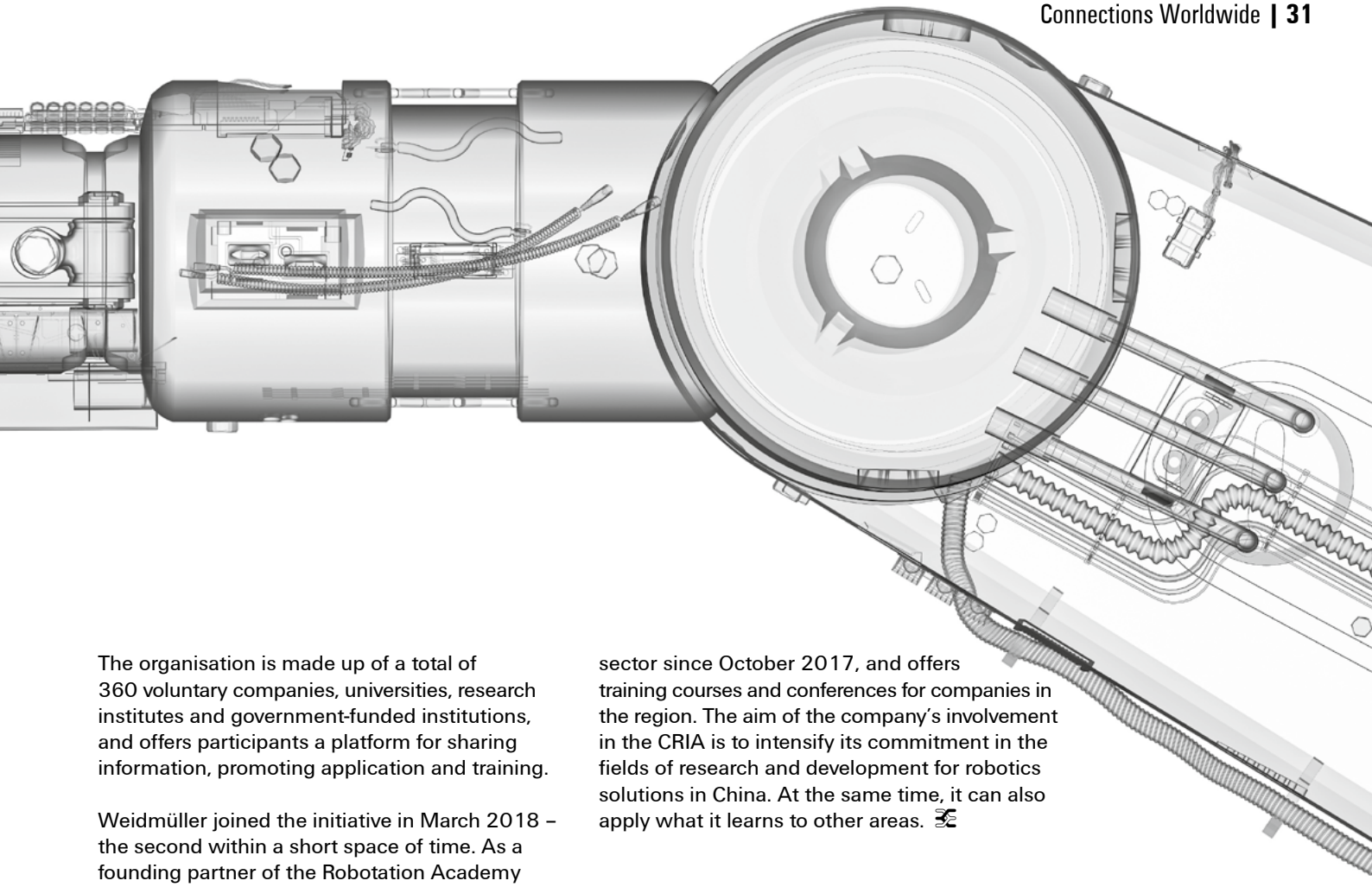
Weidmüller is contributing to the development of the Chinese robotics industry in partnership with the China Robot Industry Alliance (CRIA).

China is the world's largest robotics market by far in terms of annual revenue and the operational stock according to statistics published by the IFR (International Federation of Robotics). In no other market has there ever been such dynamic growth in such a short space of time. The most recent growth has mainly been driven by the electrical goods and electronics industry. The IFR expects revenue to grow by between 15 and 20 percent on average between 2018 and 2020.

China is aiming to become one of the ten most automated countries in the world by the year 2020. The government's ten-year "Made in China 2025" plan aims to support Chinese robotics suppliers and further increase their market share in other countries.

Cooperation platform for booming industry

The CRIA initiative, which was founded in 2013 by the China Machinery Industry Federation (CMIF), is aimed at promoting research, development, production and the use of robotics in the country.

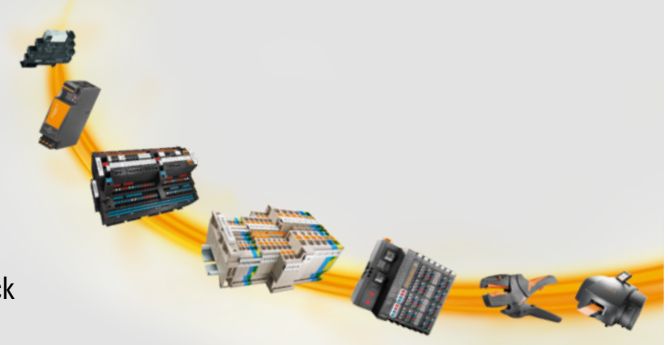


The organisation is made up of a total of 360 voluntary companies, universities, research institutes and government-funded institutions, and offers participants a platform for sharing information, promoting application and training.

Weidmüller joined the initiative in March 2018 – the second within a short space of time. As a founding partner of the Robotation Academy Foshan, Weidmüller has been involved in building up the local manufacturing sector since October 2017, and offers training courses and conferences for companies in the region. The aim of the company's involvement in the CRIA is to intensify its commitment in the fields of research and development for robotics solutions in China. At the same time, it can also apply what it learns to other areas.

Orange Selection

1,200 products available around the clock



To ensure customers can react quickly to the requirements of their industrial environment and implement their projects efficiently, Weidmüller has compiled an intelligent preselection of products.

The Orange Selection consists of around 1,200 articles which are tailored to one another and are always available. Suitable for all industries, the selected products provide comprehensive coverage for the standard requirements of panel builders to automation specialists.

Products ordered by 3 pm will be on their way the very next day.

More information

The Orange Selection 2018 as PDF:
www.weidmueller.com/orange

Orange Selection articles are also available in Weidmüller Configurator:
www.weidmueller.com/wmc

Weidmüller – Your partner in Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

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