

# HIGHLIGHTS 2021

Creative solutions for a smart world



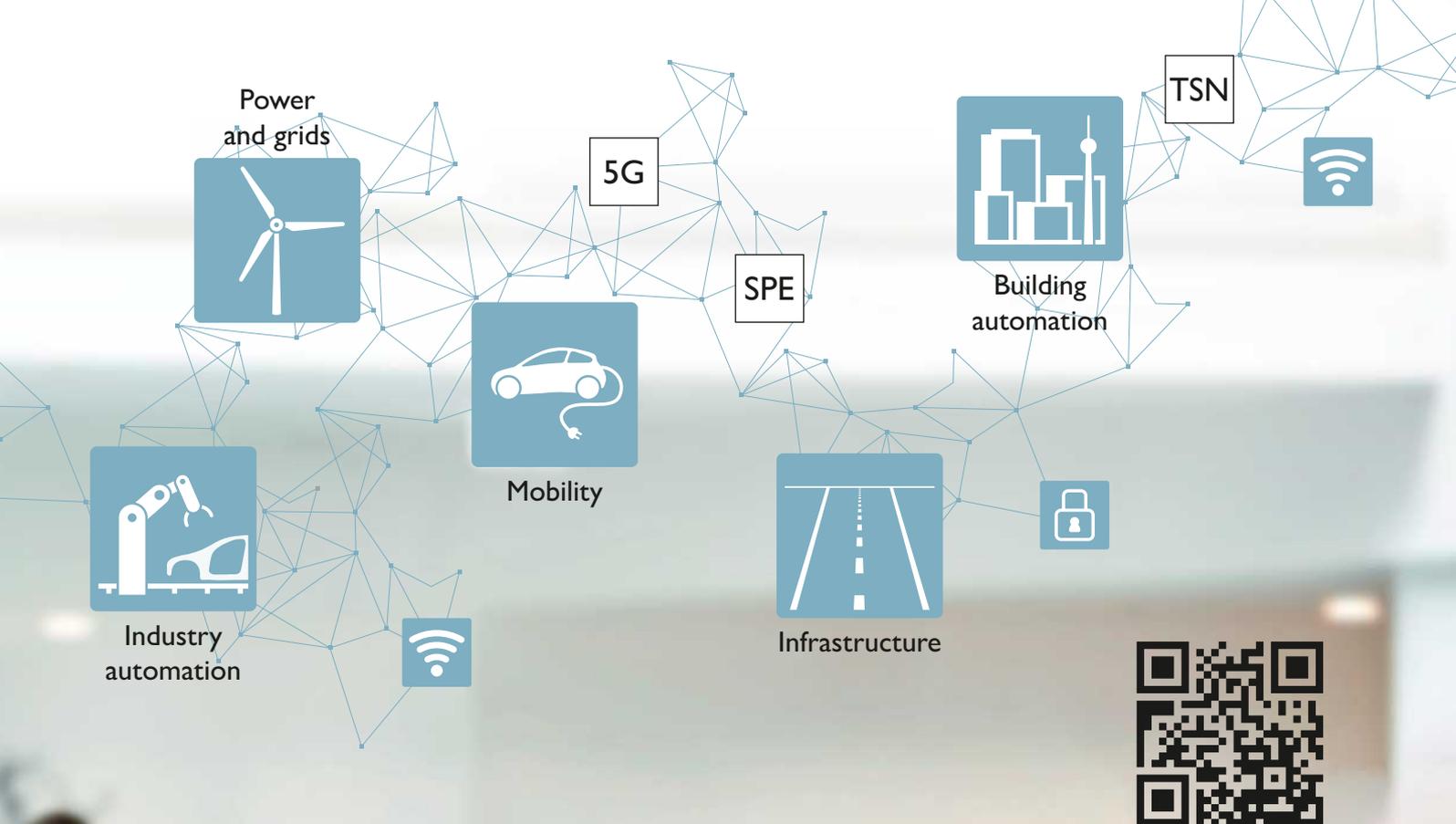
# HIGHLIGHTS 2021

## Creative solutions for a smart world

Phoenix Contact will support you on your journey to a smart world with creative solutions, innovative products, and innovative systems. You will find our highlights of the year in this brochure and, of course, online:

**[phoenixcontact.com/highlights](https://phoenixcontact.com/highlights)**





Sector coupling –  
the key to the  
All Electric Society

With our expertise, we have developed solutions for the technical and economic challenges of the respective times for nearly 100 years. We are therefore determined to take up the fight against climate change and actively help shape sustainable development.

As a part of this, we are focusing on the future vision of the All Electric Society because, based on the technical prospects, this provides an answer to the greatest challenges of our time. It describes a world in which electrical energy generated from renewable sources is available as the primary type of energy in sufficient quantities and affordable for everybody throughout the world.

This concept is based on the comprehensive electrification, automation, and networking of all sectors of industry and infrastructure. Using our many years of experience in combination with future-oriented digitalization expertise, we are empowering industry and society to accelerate the implementation of this transformation. Take inspiration from our software solutions, new products, and new technologies for the path towards greater sustainability.

Frank Stührenberg, CEO Phoenix Contact

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# Networked power generation

## Everything for solar park management

The All Electric Society relies entirely on renewable energy sources, such as photovoltaics. We provide you with solutions based on industry standards for decentral generation systems to ensure their safe operation and a controlled power feed-in.

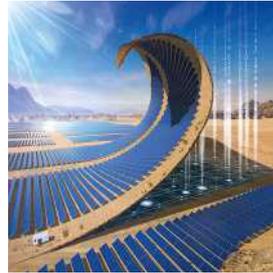
You can use our intelligent automation and connection technology combined with comprehensive visualization tools to acquire and evaluate data. You will receive complete, consistent solutions for solar park management, from the field level right through to feed-in control.





## Your specialist for photovoltaics

From the field level all the way to data visualization, we have developed a scalable concept for the comprehensive operational management of your solar park. Each of these solutions can be implemented individually and adapted to your specific needs. Together, the result is an integrated concept that intermeshes seamlessly without the adaptation of interfaces.



### Integrated PV park management

Reliable and efficient operation of PV systems, comprised of string combiner boxes, data loggers, weather stations including sensor technology, feed-in controllers, and portal connection.



### Connectors for energy storage

Connectors for busbar connection or battery connectors for energy storage systems up to 1,500 V.

**i** Web code: #2640



### Ecosystem for industrial automation

PLCnext Technology is the ecosystem for industrial automation.

**plcnextstore.com**

Comprehensive information on the Solar Park Management System is available at **[phoenixcontact.com/solarparkmanagement](https://phoenixcontact.com/solarparkmanagement)**

# Networked energy utilization

## Everything for e-mobility charging technology

Along with the clean generation of energy, purely electrical mobility is a key foundation for the All Electric Society. To ensure that sufficient energy is available in the right place at the right time, generators, grids, and loads have to communicate with each other.

Our cloud- and communication-capable products with intelligent software are the foundation for this. Powerful charging technology transports the energy into the vehicle quickly and safely. We are therefore your expert partner and will get you ready for the e-mobility of the future – sustainable, networked, and practical.





## Your specialist for e-mobility

Everything from a single source, from CCS charging cables right through to our charging management solution: With our CHARX portfolio, we provide you with a comprehensive range of coordinated charging technology components.

# CHARX

E-Mobility empowered by Phoenix Contact



### CHARX connect vehicle charging inlets

With the universal vehicle charging inlets, you can electrify all vehicles – from electric cars right through to utility vehicles – and get them ready for High Power Charging.



### CHARX control modular charging controllers

Our modular charging controllers allow you to automate and network your charging infrastructure – and integrate it intelligently into building technology and power distribution control systems.



### CHARX power power electronics

The high-efficiency charging modules supply your fast charging stations with the necessary power and, where needed, can be connected together flexibly.



### CHARX protect surge protection

These protective devices protect your charging points and the e-vehicles connected to them from overvoltages caused by lightning strikes and switching operations, thus increasing their availability.

You will find all CHARX products at  
[phoenixcontact.com/charx](https://www.phoenixcontact.com/charx)

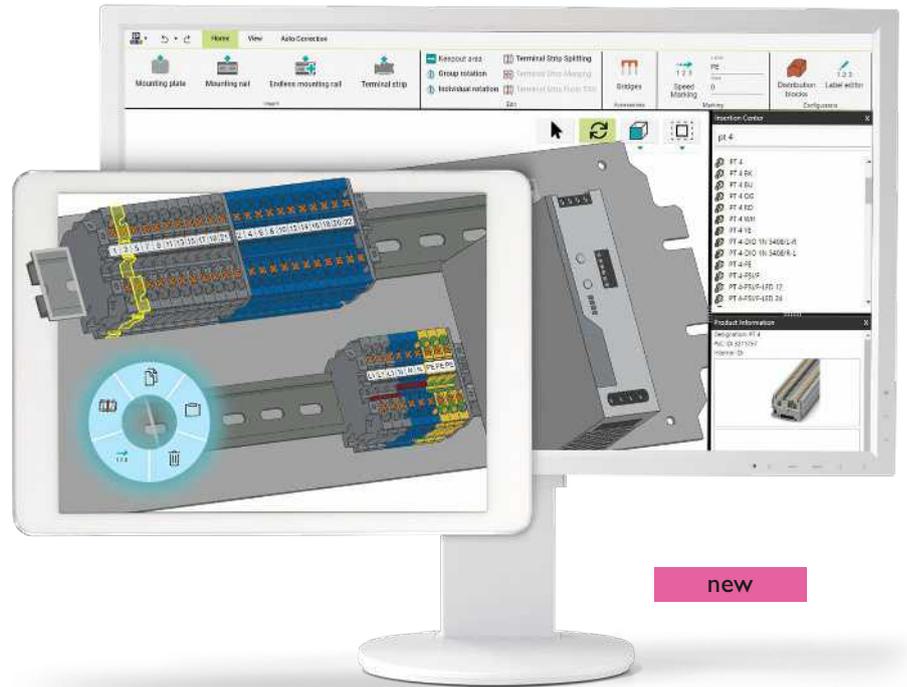
# Efficient processes in control cabinet manufacturing

## Engineering software for your planning process

System discontinuities cost time in the planning, procurement, and production processes in control cabinet manufacturing. Software programs that ensure the consistent flow of data make a significant contribution to efficiency throughout the entire process.

The clipx ENGINEER engineering software makes it possible to plan and procure individual components, complete terminal strips, assembled mounting plates, and junction boxes more efficiently than ever, and to seamlessly transfer the data to production – at every workplace.





## clipX ENGINEER engineering software Process support for control cabinet manufacturing

clipX ENGINEER allows you to ensure seamless processes from planning, through production, all the way to the provision of complete digital data. Control your workflow with the direct connection to manufacturing systems.

**i** Web code: #2729



### Maximum availability

Plan your terminal strips, mounting plates, and junction boxes with mobility at any location – thanks to the online and offline application.



### Smart interfaces

Use smart interfaces to our applications for control cabinet manufacturing and in your CAE programs.



### Simplified planning

Simplify your planning processes with the help of intelligent engineering assistants.

# Consistent digital processes

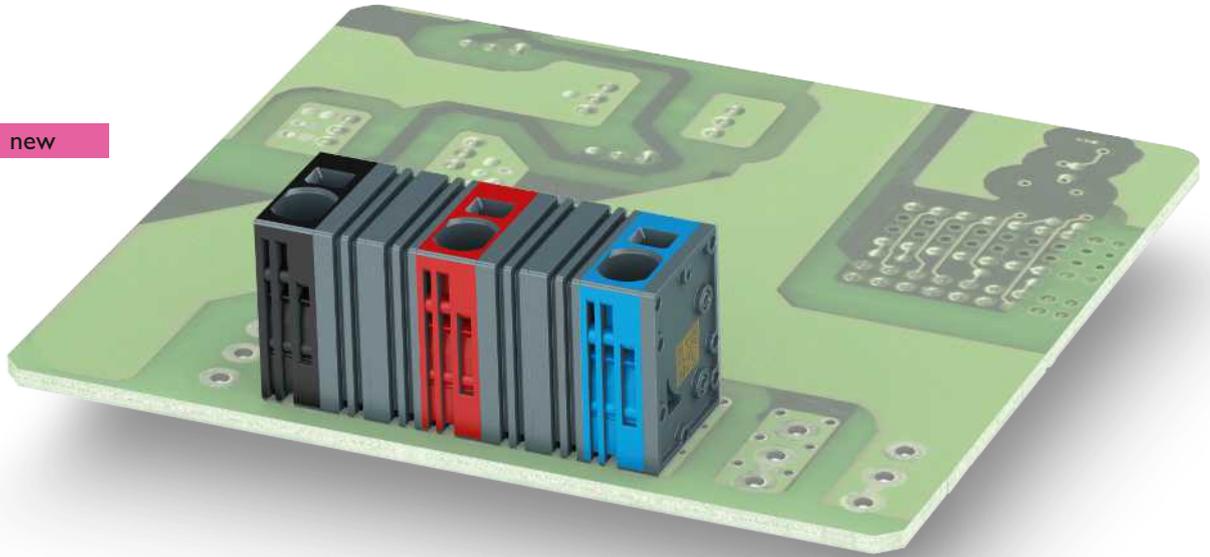
## Configurable PCB terminal blocks

Greater individualization, easy procurement, and high availability: With the configurable SPT modular series PCB terminal blocks, you can design your individual terminal block for voltage ranges up to 1,500 V in just a few process steps.

With our consistent digital process chain from configuration all the way to product delivery, we provide you with items with a previously unattainable flexibility and speed.



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### Up to 1,500 V in a single connection block

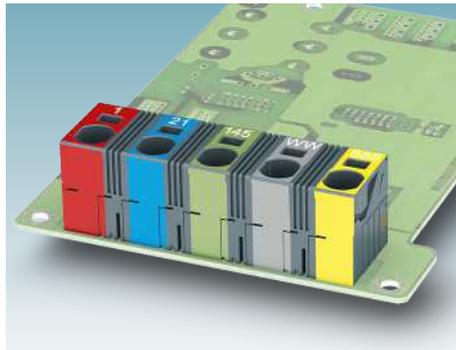
SPT modular series PCB terminal blocks supply your devices with a high electric strength up to 1,500 V. Configure your connection block effortlessly: With an extended color range and, if desired, with cross-sections from 1.5 mm<sup>2</sup> to 35 mm<sup>2</sup> that can be combined in different ways, and always with 24/7 access to your configuration data.

**i** Web code: [#2692](#)



### Design connection blocks online

Use the online configurator with high-performance 3D visualization to configure your tailored PCB terminal blocks.



### More color options

Choose between 25 color tones for partial or full-area printing on your connection block. Upon request, each position can be colored and marked individually.



### Digital consistency

For the first time, you will find a QR code on all products that takes you straight to the item detail page containing all product data.

# Connecting is a snap

## Lever-actuated PCB connections

Fast, reliable, and convenient on-site connections are of considerable importance, in particular in renewable energy applications.

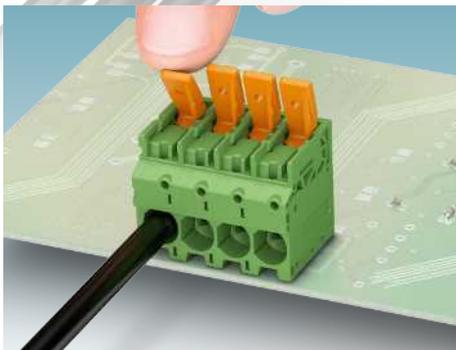
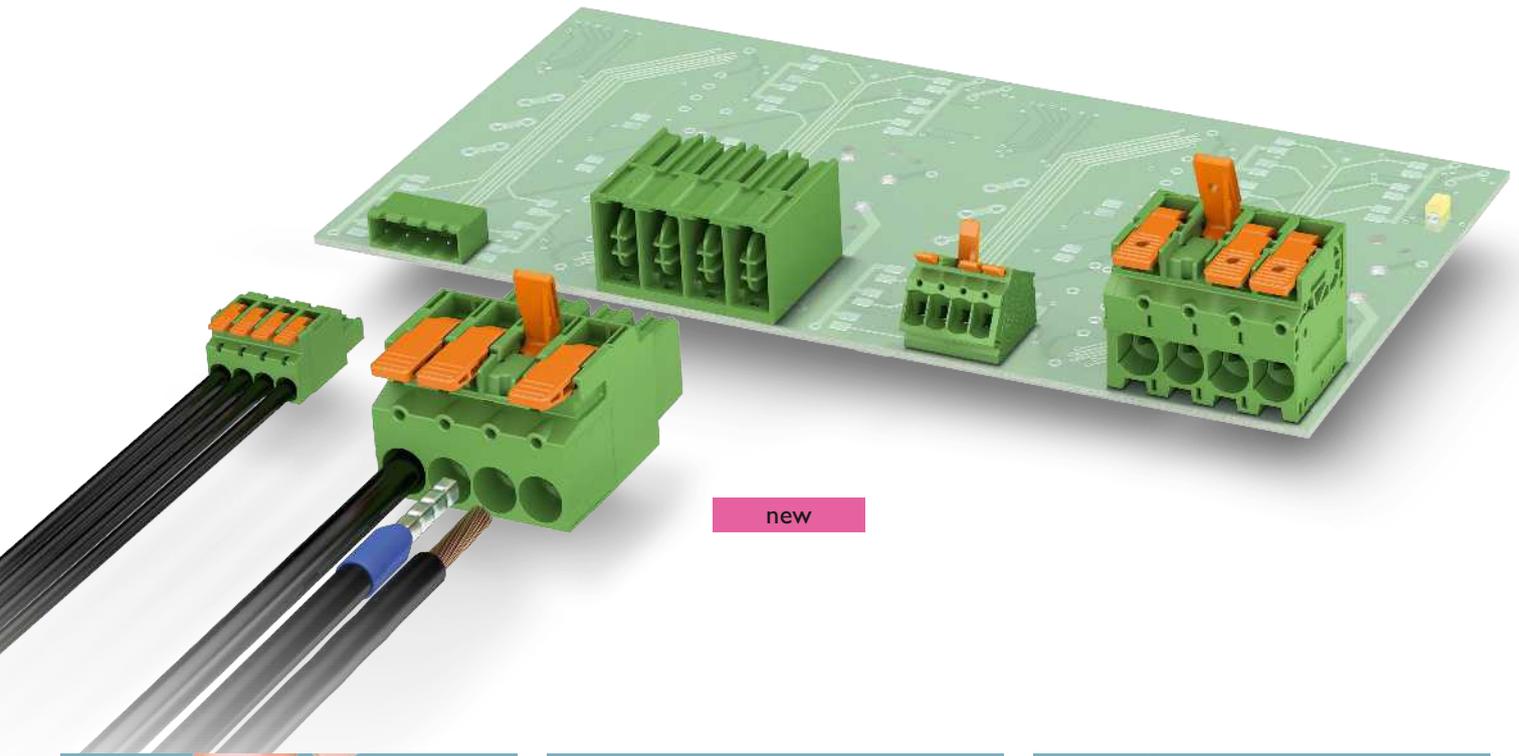
Use LPT and LPC series lever-actuated PCB terminal blocks and PCB connectors for tool-free conductor connection. The distinct lever position and an ever-constant contact force ensure that the potential for errors during wiring is reduced to a minimum.



## Lever-actuated PCB terminal blocks and PCB connectors

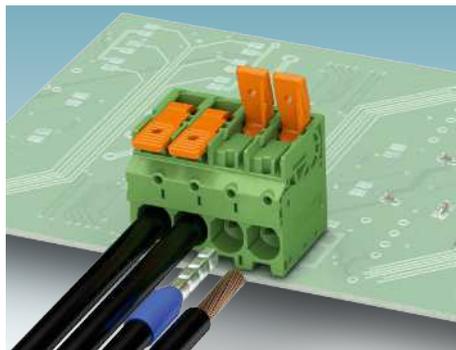
We are bringing a new dimension of convenience to conductor connections. PCB terminal blocks and PCB connectors from the consistent LPT and LPC series combine the optimized usability of lever actuation with the reliability of the Push-in spring-cage connection. In this way you can connect conductors with cross sections of up to 25 mm<sup>2</sup> faster and more intuitively than ever before.

**i** Web code: #1833



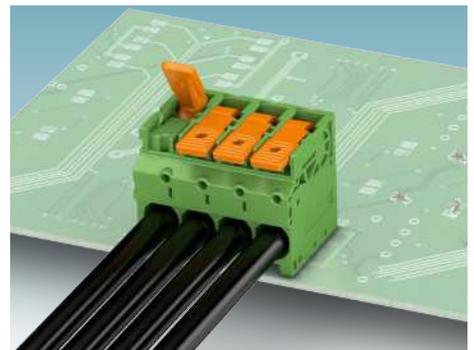
### Easy handling

The color-coded actuating lever allows intuitive and convenient operation.



### Fast connection

The tool-free lever principle allows the time-saving connection and release of rigid and flexible conductors with or without ferrules.



### Safe in application

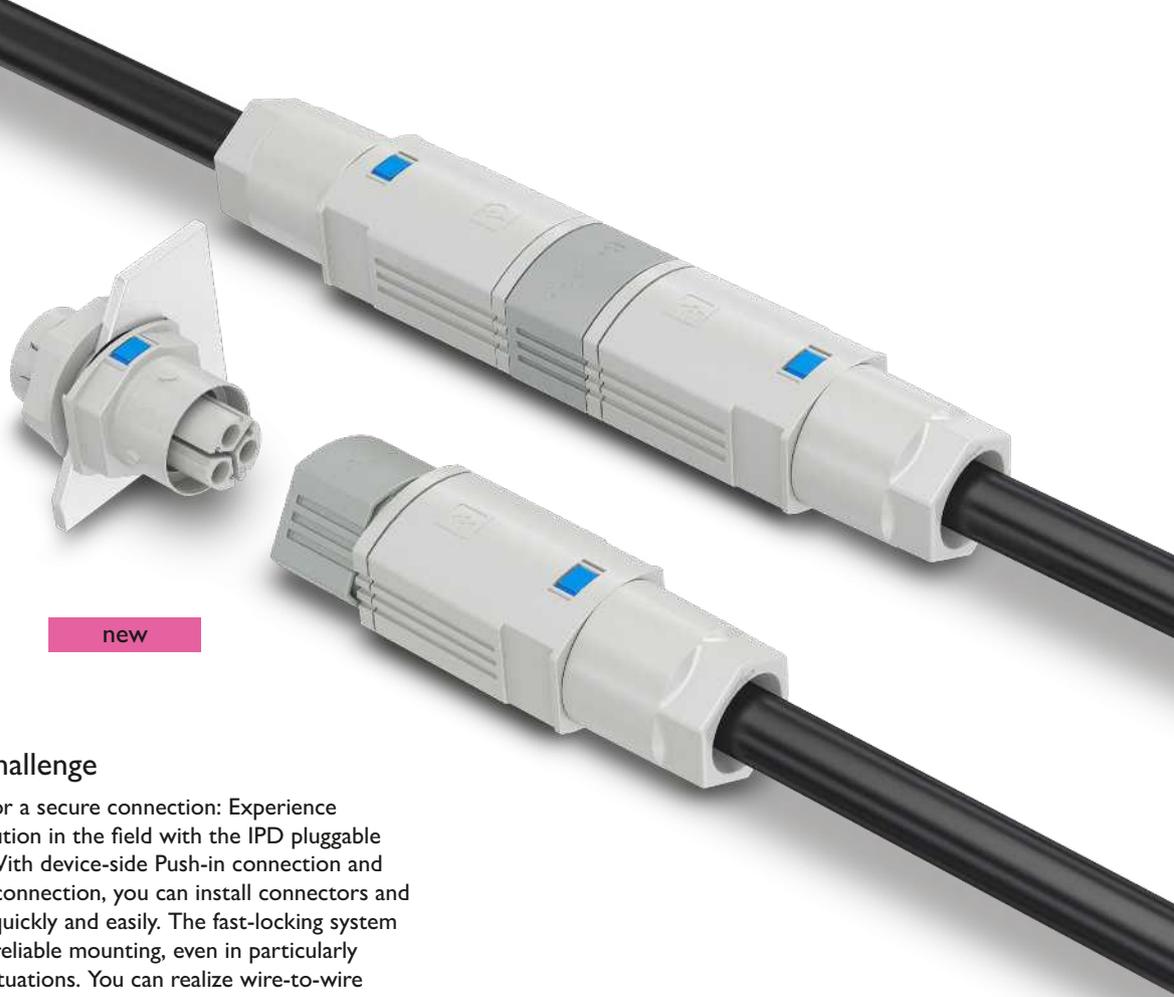
Distinct lever positions provide reliable feedback on whether the clamping space is open or closed.

# Easy power distribution Pluggable installation system

Widely branched buildings or infrastructures place stringent demands on power distribution.

The IPD installation system is fully pluggable and, thanks to Push-in technology, allows the convenient, tool-free connection of complex power distribution systems. For particularly durable and long-lasting power cabling in challenging outdoor and industrial environments, the installation system has IP67 protection against splash water and dust.



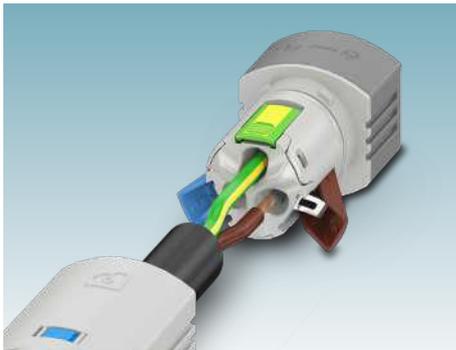


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## Mastering any challenge

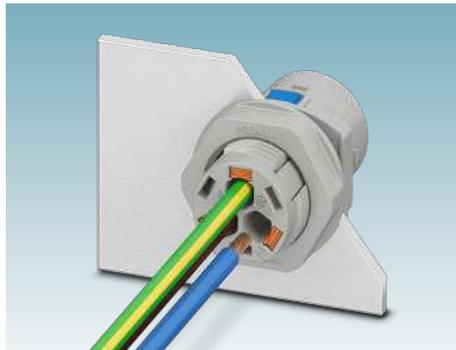
Simply plug in once for a secure connection: Experience simple power distribution in the field with the IPD pluggable installation system. With device-side Push-in connection and field-side Push-Lock connection, you can install connectors and panel feed-throughs quickly and easily. The fast-locking system guarantees easy and reliable mounting, even in particularly difficult installation situations. You can realize wire-to-wire connections easily with male and female connector versions.

**i** Web code: #0541



### Time-saving installation

The Push-Lock connection of the connectors allows the easy, time-saving installation of flexible and rigid conductors. The terminal points are opened and closed easily using the lever.



### Easy device connection

IPD panel feed-throughs with Push-in connection allow tool-free assembly with the direct connection of pretreated and rigid conductors. The pusher can be used to release already-installed conductors or to connect conductors without ferrules.



### Secure locking

To allow you to work conveniently, even under adverse conditions, the IPD connectors are equipped with a fast locking system. The plugs latch clearly and securely into place and provide reliable protection against mismatching.

A large industrial robot arm, painted orange, is shown in a factory setting. It is equipped with numerous black M12 push-pull connectors that bundle multiple cables together. The robot is positioned next to a silver metal car chassis. The background shows other industrial equipment and a clean, well-lit factory floor.

## Easy plugging, fast latching M12 push-pull connectors

The M12 connectors with push-pull fast-locking system guarantee easy cabling and a space-saving device connection.

The M12 push-pull system provides significant mounting advantages, in particular in tight spaces and high cabling densities, such as in factory automation, due to fast component plugging and unplugging. The product range is cross-manufacturer compatible and can be used worldwide thanks to IEC 61076-2-010 standardization.

## The new standard in automation technology

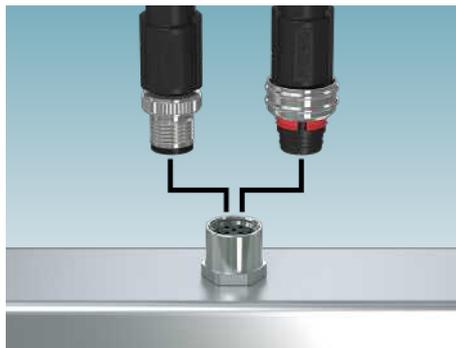
M12 push-pull connectors lock into place conveniently and reliably simply by plugging them in. The male and female versions allow you to connect sensors easily. Flying leads are easy to implement in the field. Raised M12 push-pull device ports allow you to extend existing cabling concepts easily.

**i** Web code: #1831



### Plug and Produce

With the M12 push-pull locking system, plugging is now reliable and convenient – even in confined spaces. You will reduce installation times by up to 80% compared to screw connections.



### Flexibility through compatibility

M12 push-pull flush-type connectors are plug-compatible with the established M12 screw connectors and the push-pull locking systems of other manufacturers.



### More compact designs

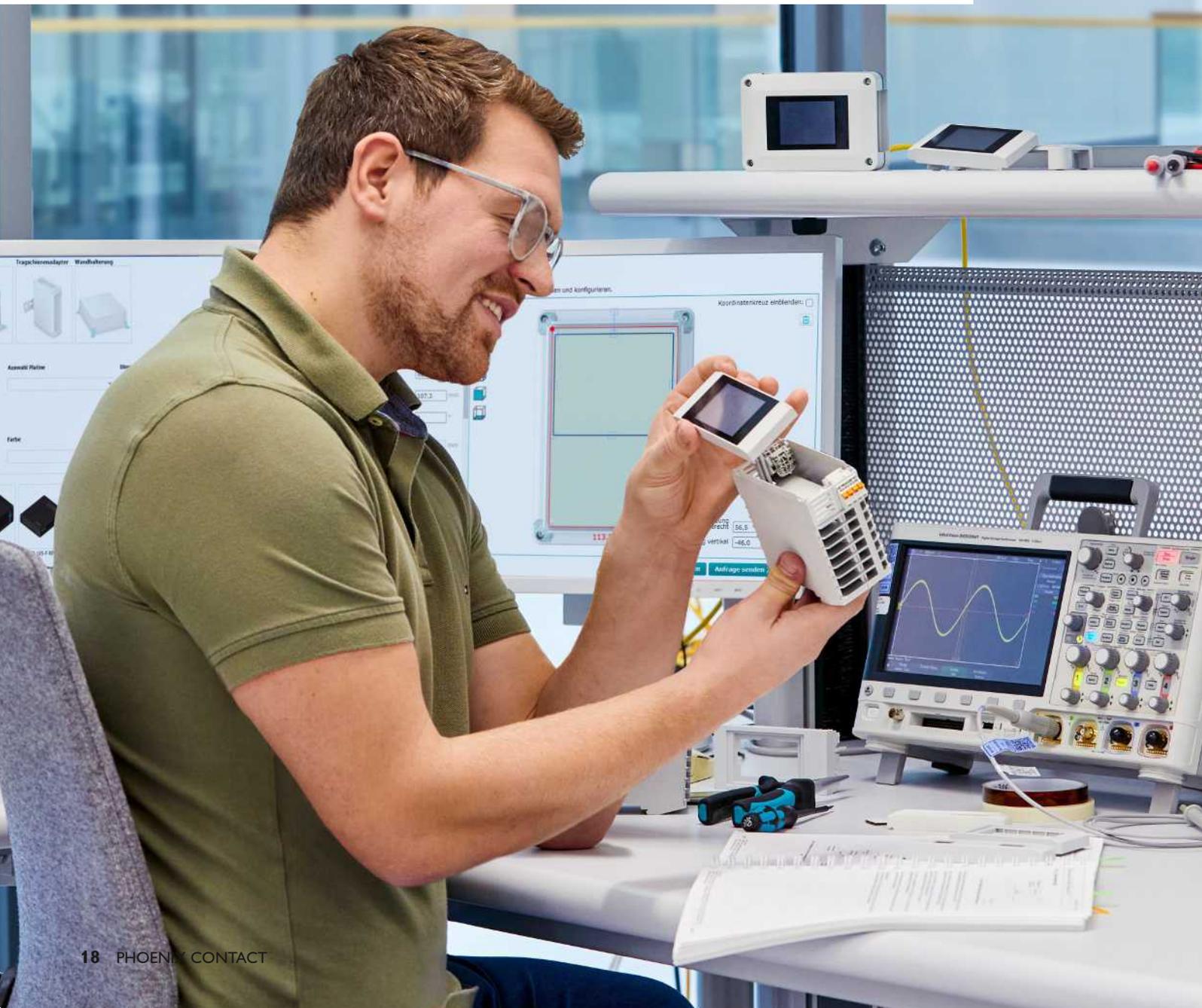
The new M12 push-pull concept with countersunk M12 ports allows flush integration into the housing. This lets you design more compact devices due to the higher packing density.

# Design display/operating solutions as you like

## Housings with displays and keypads

Electronics housings with integrated displays and keypads are the key to the state-of-the-art visualization and operation of decentral process and machine controllers.

A web-based configurator allows you to freely position the displays flush in the housing and customize the operating elements. We will then provide you with prefabricated and tested modules for efficient final assembly in accordance with the Plug and Play concept.





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## Tailored display and operating solutions

ICS, ME-IO, and UCS series electronics housings are now available with integrated touch displays or displays with membrane keypads. Configure your customized housing solution and we'll take care of everything else; from printing to mechanical processing all the way to pre-assembly.

**i** Web code: #2693



### Central or decentral

Use our versatile display and operation solutions for your housing systems for visualization and operation, whether in the control cabinet or the field.



### Everything from a single source

The housings, keypads, and displays are perfectly coordinated and can be assembled together in your housing solution, saving time.



### Freedom of design

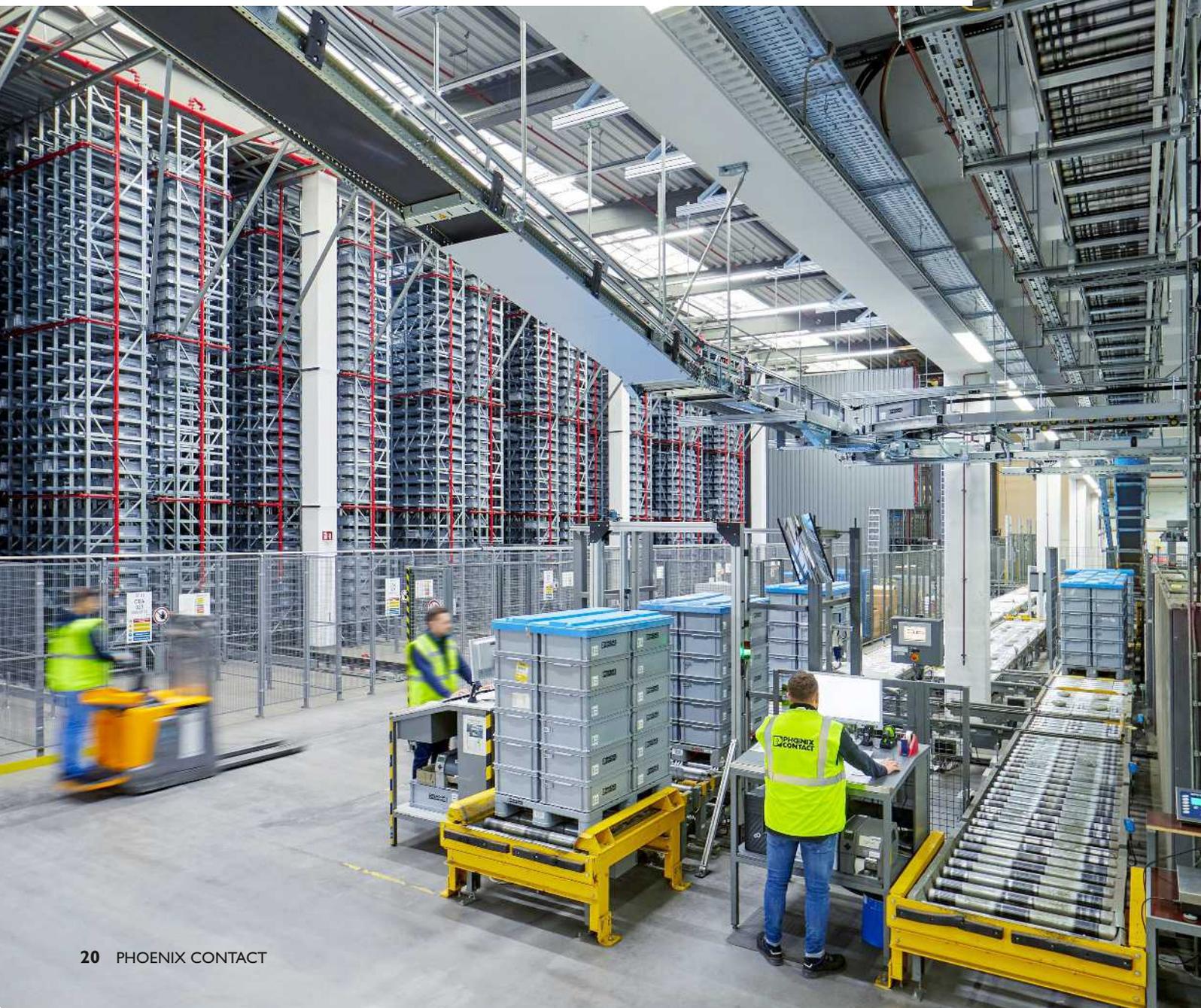
Configure your individual membrane keypads quickly and easily. You can adjust the shape, color, and printing freely to suit your requirements.

# Ensure optimized process sequences

## Customizable device circuit breaker system

In today's industrial world, optimized process sequences ensure the reliable operation of systems without failures or downtimes.

With the innovative rear-side current rail system, the CAPAROC circuit breaker system supports the requirement for a direct, permanent supply. The uninterrupted supply of parallel loads is assured, even during a module replacement, and the entire system remains in operation without being affected.

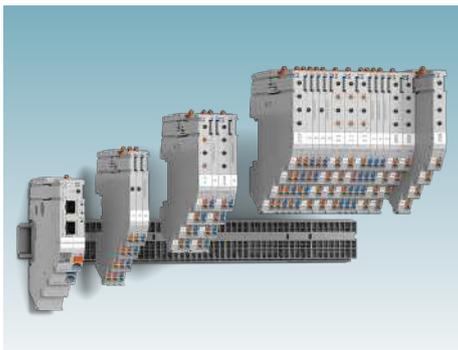


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## Overcurrents under control with CAPAROC

CAPAROC is your individual modular system for overcurrent protection. With many combination options, intuitive operation, and strikingly simple design-in, you receive your very personal standard in device protection. Using this system, you are perfectly positioned for the future.

**i** Web code: #2803



### Customizable standard

The system for the future: With a wide range of individual modules and many combination options, you can create your customized solution.



### Easy operation

Experience particularly easy operation with tool-free assembly, uninterrupted installation, and transparent operating states.



### Intuitive design-in

Strikingly simple: The online configurator helps you to design exactly the system that you need. Appropriate digital services support you, for example, with all your individual digital data.

# Start motors softly

## Speed starters for asynchronous motors

The safe, simple, and efficient operation of motors is an important requirement in many applications.

The CONTACTRON Speed Starter features reliable operation with various speeds, from normal speed, creeping speed, and soft start, all the way to ramp function.



## Speed starters with intuitive operation

The CONTACTRON Speed Starter, with intuitive operation, is the new device class between motor starters and frequency converters. This compact solution provides all of the functions necessary for different speeds, soft start, and safe stopping with the Safe Torque Off function.

**i** Web code: #2757



new



### Fast commissioning

Thanks to the simple operator interface consisting of a rotary switch, three buttons, and a display, all necessary settings can be made intuitively.



### Safe shutdown

Safe two-channel shutdown up to SILCL 3 in accordance with IEC 62061, with integrated Safe Torque Off function.



### Cost-effective solution

Cost-effective solution that focuses on all the functions necessary for different speeds and soft start.

# Future-oriented energy management Smart Service in the Proficloud

Manual energy data management is a thing of the past: With our EMMA Smart Service in the Proficloud and the IoT-capable EMpro energy measuring devices, we can provide you with a complete package for your digitalized energy management system.

Design the monitoring, analysis, and evaluation processes for your energy and power data to be significantly more efficient, and thus increase the quality of information for decision making.



## Smart EMpro energy measuring devices and EMMA Smart Service

Energy monitoring, management, analytics: You can start out on your energy management system of the future with the EMMA Smart Service and the IoT-capable EMpro energy measuring devices. Go straight into the IoT with EMpro and benefit from cloud-based data acquisition and intuitive, flexible functions for target-oriented, informative visualization.

**i** Web code: #2759



### High-level user-friendliness

High-level user-friendliness with a systemic overall concept with intuitive menu navigation and automated data transfer to the Proficloud.



### Targeted overview

Access your energy and performance data anywhere in the world at any time. Purpose-oriented visualizations provide you with a targeted overview.



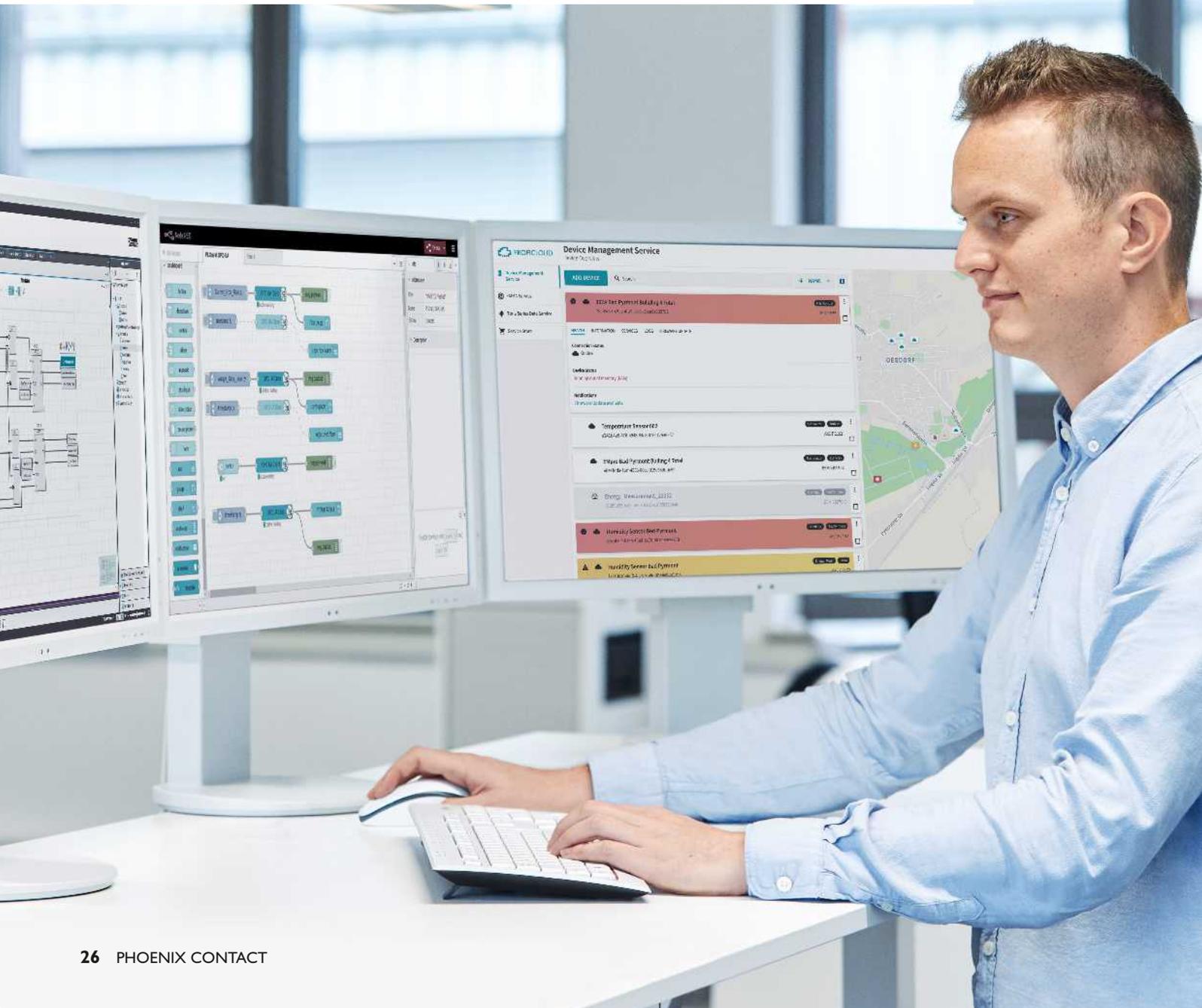
### Continued further development

Constantly increasing value benefits for your energy management system with continuous, user-oriented further development.

# Optimized data usage PLCnext Control for edge computing

Save resources and process your data decentrally between your local network and the cloud. This lets you take full advantage of your cloud solution. By processing large volumes of data close to the source, the application can respond more quickly and flexibly.

The controllers combine the robustness of a proven industrial PC platform with the openness of PLCnext Technology. They thus allow you to create intelligent IoT edge solutions. This closes the gap between the IT and OT worlds.



## PLCnext Control: IT meets OT

Development and provision times can be reduced using pre-installed software tools such as Node-RED, a local time series database, and a simple cloud connection. Simple and secure management is guaranteed via an integrated web-based management tool.

 Web code: #2761



new



### Compact design

Compact IPC design in an all-metal housing and with passive cooling saves space in the control cabinet.



### Easy integration

Easy integration into existing IT infrastructures and connectivity on the field level with PLCnext Technology.



### Installed development tools

Reduction of the development and provision time with preinstalled development tools such as Node-RED.

# Modular safety

## Extend PLCnext Control with Safety

The Safety extension module ensures that the advantages of PLCnext Technology are also available for safety applications. The Safety module is connected to the left of a PLCnext Control device. This turns the PLC into a safety controller with full functionality up to SIL3/PLe that can communicate via PROFIsafe as the F host.

At the same time, it can be operated as an F device subordinate to a higher-level PROFIsafe controller. PLCnext Engineer allows standard and safety applications to be programmed in just one engineering tool, and C functions can also be reloaded.



## Modular PROFIsafe extension

Take advantage of the individual extension option for compatible, modular PLCnext Control devices. With the left-alignable functionality, the PLCnext Control AXC F 2152 and AXC F 3152 devices can be extended with a safety-oriented SPLC for PROFIsafe networks with up to 32 PROFIsafe devices.

 Web code: #2767



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## Decentral safety functionality

Safety-relevant high performance small scale safety controller with full functionality for cost-intensive applications.



## Safety up to SIL 3/PLe

Safety extension for PLCnext Technology applications with particularly high safety requirements in accordance with SIL3/PLe.



## Reloadable C functions

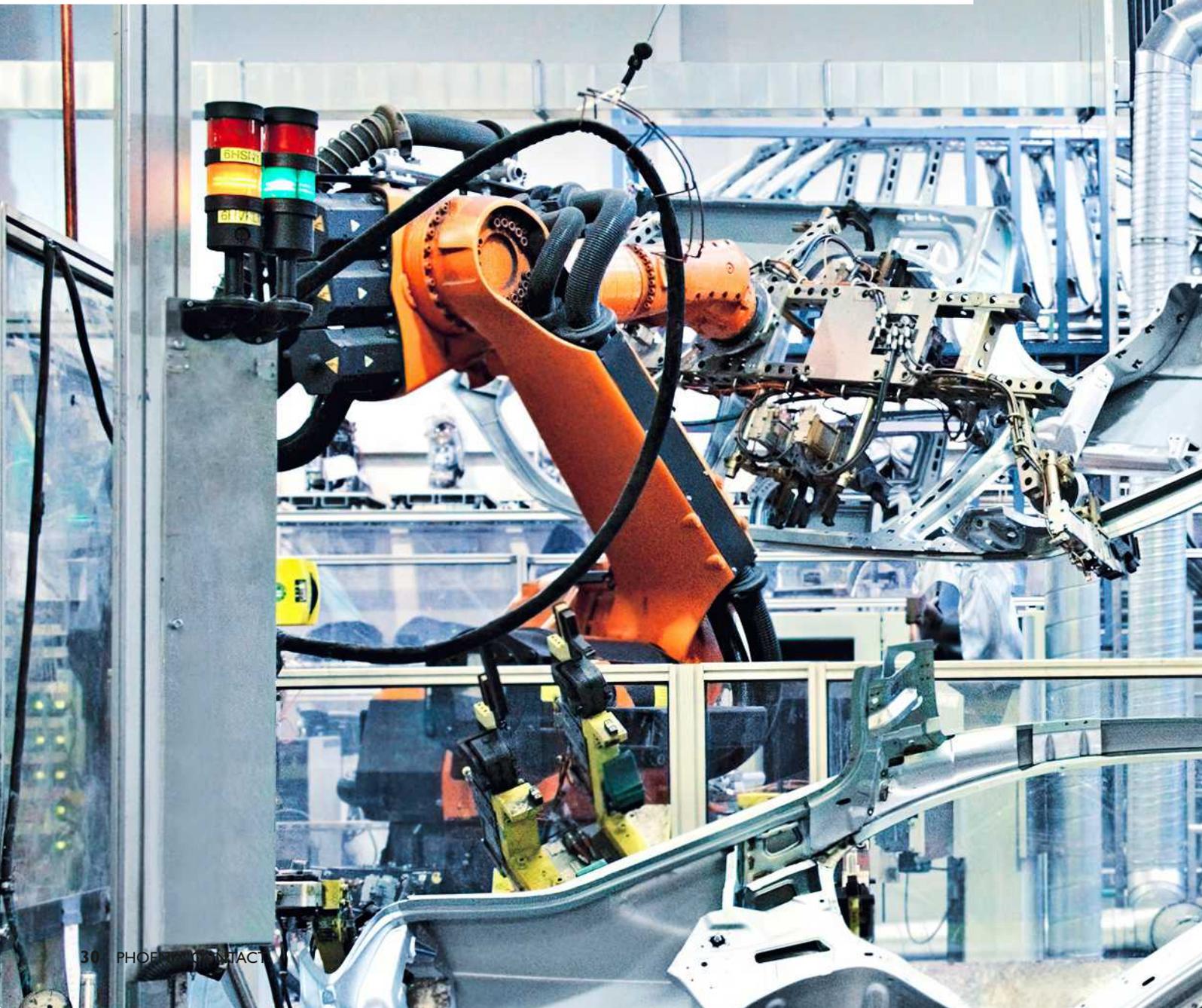
Rapid implementation of complex functional safety requirements with reloadable C functions.

# Maintenance-free communication in real time

## Contactless power and data couplers

When connections have to be plugged and unplugged often, the contacts may become dirty and misshapen. This leads to unplanned or unforeseeable production stoppages and frequent maintenance intervals.

Thanks to NearFi Technology, the new power and data couplers make reliable wear- and maintenance-free communication without contact possible across distances of up to 10 mm. You can therefore replace wear-sensitive and maintenance-intensive connections and reduce downtimes in your systems.



new



## Contactless power and data transmission

You can now transmit power and real-time Ethernet data without contact across distances of up to 10 mm with the robust NearFi couplers. Furthermore, our NearFi Technology, developed in house, allows latency-free and protocol-independent Ethernet communication. At the same time, the limited wireless range of just a few millimeters also ensures security and permits several parallel applications in the tightest of spaces.

**i** Web code: #2794

## NearFi Technology<sup>®</sup>

Designed by Phoenix Contact



### Ethernet in real time

NearFi transmits Ethernet data at speeds of up to 100 Mbps without latency and regardless of protocol. You can therefore use all conventional Ethernet protocols with NearFi.



### Inductive power transmission

The couplers also allow inductive power transmission. With active closed-loop control, the power is maintained at a constant 50 W across an operating range of 10 mm.



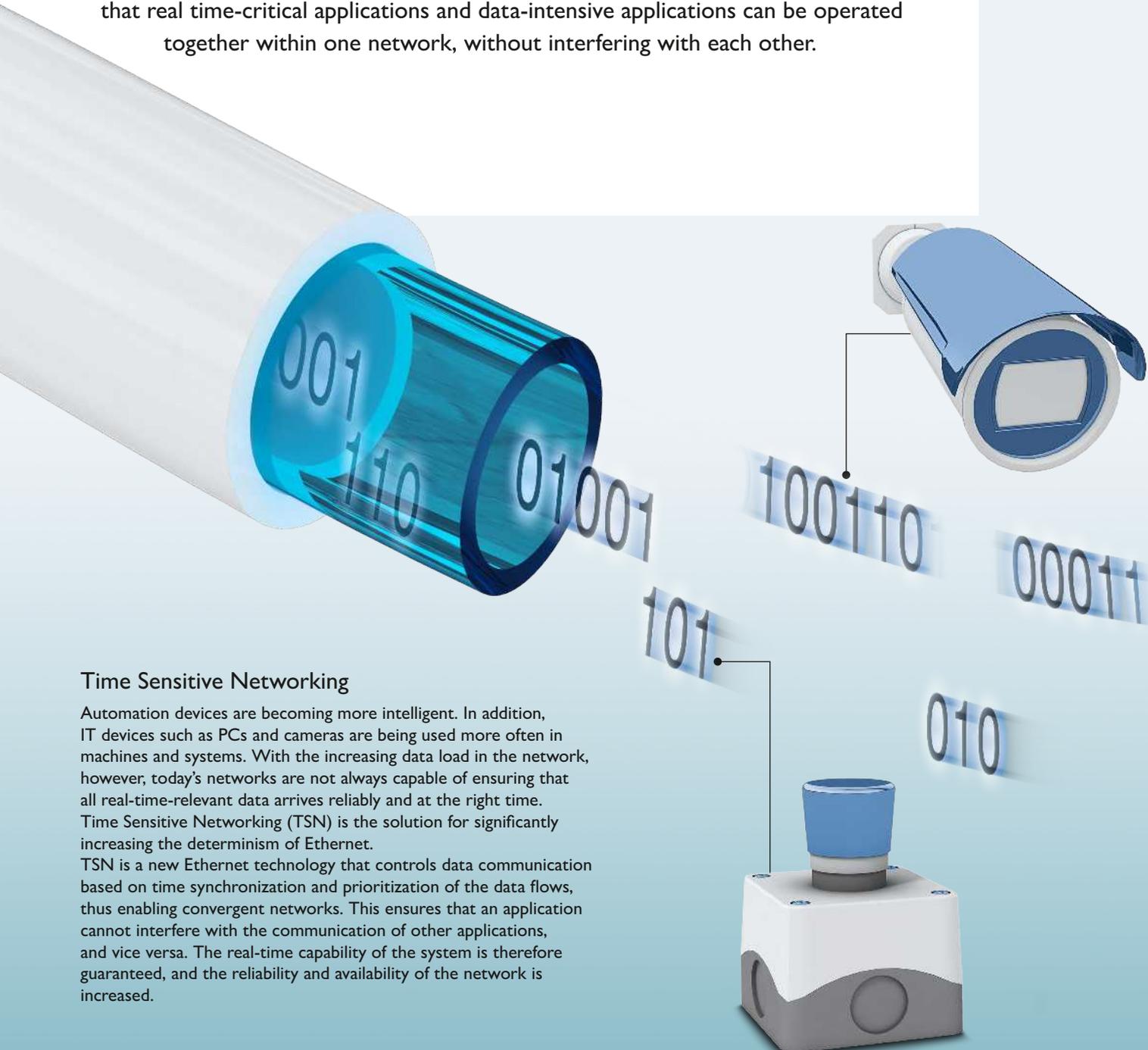
### Diagnostics via LED

The all-around LED ring clearly displays the operational readiness of the coupling path, even in difficult-to-access installation points.

# Time Sensitive Networking (TSN)

## Real-time capability for Industry 4.0

Time-Sensitive Networking (TSN) is an Ethernet technology that controls data communication based on time synchronization and prioritization of the data flows. It allows the creation of an open, convergent Industry 4.0 network that is real time capable, and therefore of significant benefit in real-world applications. This means that real time-critical applications and data-intensive applications can be operated together within one network, without interfering with each other.



### Time Sensitive Networking

Automation devices are becoming more intelligent. In addition, IT devices such as PCs and cameras are being used more often in machines and systems. With the increasing data load in the network, however, today's networks are not always capable of ensuring that all real-time-relevant data arrives reliably and at the right time.

Time Sensitive Networking (TSN) is the solution for significantly increasing the determinism of Ethernet.

TSN is a new Ethernet technology that controls data communication based on time synchronization and prioritization of the data flows, thus enabling convergent networks. This ensures that an application cannot interfere with the communication of other applications, and vice versa. The real-time capability of the system is therefore guaranteed, and the reliability and availability of the network is increased.

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## Managed Switches for TSN

The new FL Switch TSN 2300 devices are the first Managed Switches for Time-Sensitive Networking (TSN) from Phoenix Contact. By supporting the Profinet TSN profile, data can be transmitted deterministically and in real time in Ethernet networks, regardless of the protocol. The new devices support all functions of the well-known FL SWITCH 2000 product family, and thus allow the simple migration of current network solutions into state-of-the-art TSN architectures. They therefore increase the performance, robustness, and availability of your networks.

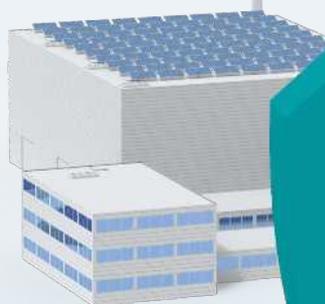


Previously, real time-critical applications and data-intensive applications were realized via different systems to prevent reciprocal interference. With TSN, future applications with the widest range of requirements on bandwidth and timeliness can be realized “via one cable”, i.e., in one Ethernet network. With time synchronization and data flow prioritization, hard real-time requirements, for example for safety and motion applications, can be met despite the parallel communication of other systems.

[phoenixcontact.com/TSN](https://www.phoenixcontact.com/TSN)

# Cybersecurity 360° protection

Cybersecurity is more than a product. Good protection against cyber attacks can only be achieved if coordinated technical and organizational measures are intermeshed. We therefore provide 360° Security, which simplifies the protection of systems and secures them from all sides. Our processes have already been certified several times in accordance with IEC 62443.



## Industrial cybersecurity

We provide standardized security in products, industrial solutions, and services for the future-proof operation of machines, systems, and infrastructure. Security is firmly rooted in the entire life cycle of our products and solutions. Our approach is to make state-of-the-art security manageable, for example through easy configuration, integrated security functions, sophisticated comprehensive solutions, and supportive consulting services. The long-term availability of necessary updates also means that our components have a long useful life.

## Secure systems

[phoenixcontact.com/security](https://phoenixcontact.com/security)

### Consultation

Certified in accordance with IEC 62443-2-4: We will support you in evaluating your individual security level and improving your security setup.

### Secure solutions

Certified in accordance with IEC 62443-3-3: We combine our expertise and products to create secure automation solutions.

### Training programs

In a range of seminars and training programs, we will promote your employees' security awareness and explain how to work with the important standards and components.

### Secure development

Certified in accordance with IEC 62443-4-1: The products are developed in accordance with certified processes. Security measures are implemented, verified, and documented based on a threat analysis.

### Secure functions

Our products feature various security functions, such as a user management system, encrypted communication, and firewall functions.

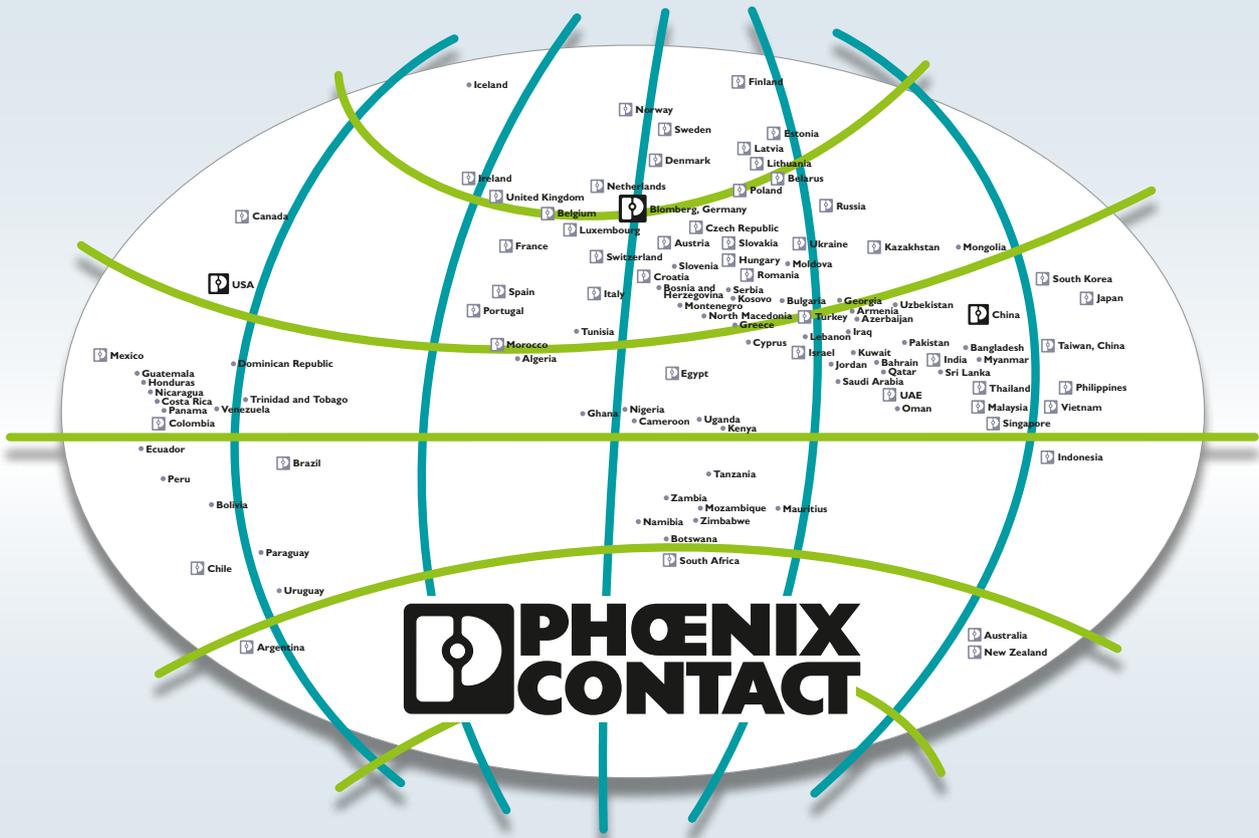
### Ongoing improvements

The Product Security Incident Response Team (PSIRT) tests devices comprehensively for security vulnerabilities and provides security updates wherever necessary.

## Secure components

[phoenixcontact.com/security](https://phoenixcontact.com/security)





## Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing future-oriented components, systems, and solutions for electrification, networking, and automation. With a global network reaching across more than 100 countries with over 17,100 employees, we maintain close relationships with our customers, something we believe is essential for our common success.

Our wide variety of innovative products makes it easy for our customers to implement the latest technology in a variety of applications and industries. We focus on developing the fields of energy, infrastructure, process, and factory automation.

You can find your local partner at  
[phoenixcontact.com](https://www.phoenixcontact.com)